



Level



Pressure



Flow



Temperature



Liquid  
Analysis



Registration



Systems  
Components



Services



Solutions

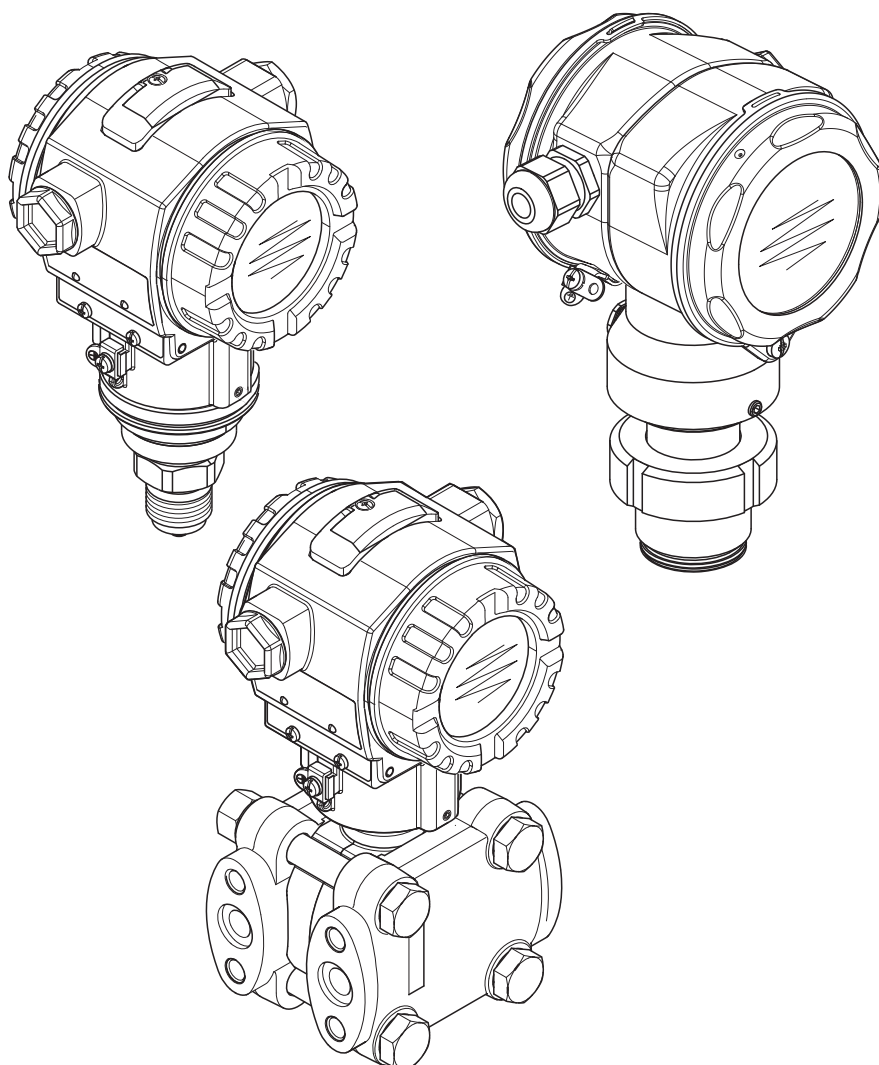
Operating Instructions – Description of Instrument Functions

**Cerabar S PMC71, PMP71/72/75**

**Deltabar S FMD76/77/78, PMD70/75**

**Deltapilot S FMB70**

Process pressure / Differential pressure, Flow / Hydrostatic



## Overview documentation

| Device                   | Documentation                                                                              | Content                                                                                                                                                                                                                                                                                                   | Remarks                                                                                                                                                                                                                                                                                                     |
|--------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cerabar S<br>PROFIBUS PA | Technical Information TI383P (PMC71, PMP71, PMP75)<br>Technical Information TI438P (PMP72) | Technical data                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>– The documentation can be found on the supplied documentation CD.</li> <li>– The documentation is also available via the Internet. → See: <a href="http://www.endress.com">www.endress.com</a></li> </ul>                                                           |
|                          | Operating Instructions BA295P                                                              | <ul style="list-style-type: none"> <li>– Identification</li> <li>– Installation</li> <li>– Wiring</li> <li>– Operation</li> <li>– Commissioning, Description of Quick Setup menus</li> <li>– Maintenance</li> <li>– Trouble-shooting and spare parts</li> <li>– Appendix: Illustration of menu</li> </ul> |                                                                                                                                                                                                                                                                                                             |
|                          | Operating Instructions BA296P                                                              | <ul style="list-style-type: none"> <li>– Examples of configuration for pressure and level measurement</li> <li>– Description of parameters</li> <li>– Trouble-shooting</li> <li>– Appendix: Illustration of menu</li> </ul>                                                                               |                                                                                                                                                                                                                                                                                                             |
|                          | Brief Operating Instructions KA1022P                                                       | <ul style="list-style-type: none"> <li>– Installation</li> <li>– Wiring</li> <li>– Operation on-site</li> <li>– Commissioning</li> <li>– Description of Quick Setup menus</li> </ul>                                                                                                                      | <ul style="list-style-type: none"> <li>– The documentation is supplied with the device.</li> <li>– The documentation can be found on the supplied documentation CD.</li> <li>– The documentation is also available via the Internet. → See: <a href="http://www.endress.com">www.endress.com</a></li> </ul> |
|                          | Leporello KA244P                                                                           | <ul style="list-style-type: none"> <li>– Wiring</li> <li>– Description of operating elements</li> <li>– Operation HistoROM®/M-DAT</li> </ul>                                                                                                                                                              |                                                                                                                                                                                                                                                                                                             |

| Device                    | Documentation                        | Content                                                                                                                                                                                                                                                                                                   | Remarks                                                                                                                                                                                                                                                                                                     |
|---------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Deltabar S<br>PROFIBUS PA | Technical Information TI382P         | Technical data                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>– The documentation can be found on the supplied documentation CD.</li> <li>– The documentation is also available via the Internet. → See: <a href="http://www.endress.com">www.endress.com</a></li> </ul>                                                           |
|                           | Operating Instructions BA294P        | <ul style="list-style-type: none"> <li>– Identification</li> <li>– Installation</li> <li>– Wiring</li> <li>– Operation</li> <li>– Commissioning, Description of Quick Setup menus</li> <li>– Maintenance</li> <li>– Trouble-shooting and spare parts</li> <li>– Appendix: Illustration of menu</li> </ul> |                                                                                                                                                                                                                                                                                                             |
|                           | Operating Instructions BA296P        | <ul style="list-style-type: none"> <li>– Examples of configuration for pressure, level and flow measurement</li> <li>– Description of parameters</li> <li>– Trouble-shooting</li> <li>– Appendix: Illustration of menu</li> </ul>                                                                         |                                                                                                                                                                                                                                                                                                             |
|                           | Brief Operating Instructions KA1021P | <ul style="list-style-type: none"> <li>– Installation</li> <li>– Wiring</li> <li>– Operation on-site</li> <li>– Commissioning</li> <li>– Description of Quick Setup menus</li> </ul>                                                                                                                      | <ul style="list-style-type: none"> <li>– The documentation is supplied with the device.</li> <li>– The documentation can be found on the supplied documentation CD.</li> <li>– The documentation is also available via the Internet. → See: <a href="http://www.endress.com">www.endress.com</a></li> </ul> |
|                           | Leporello KA244P                     | <ul style="list-style-type: none"> <li>– Wiring</li> <li>– Description of operating elements</li> <li>– Operation HistoROM®/M-DAT</li> </ul>                                                                                                                                                              |                                                                                                                                                                                                                                                                                                             |

| Device                      | Documentation                        | Content                                                                                                                                                                                                                                                                                                   | Remarks                                                                                                                                                                                                                                                                                                     |
|-----------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Deltapilot S<br>PROFIBUS PA | Technical Information TI416P         | Technical data                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>– The documentation can be found on the supplied documentation CD.</li> <li>– The documentation is also available via the Internet. → See: <a href="http://www.endress.com">www.endress.com</a></li> </ul>                                                           |
|                             | Operating Instructions BA356P        | <ul style="list-style-type: none"> <li>– Identification</li> <li>– Installation</li> <li>– Wiring</li> <li>– Operation</li> <li>– Commissioning, Description of Quick Setup menus</li> <li>– Maintenance</li> <li>– Trouble-shooting and spare parts</li> <li>– Appendix: Illustration of menu</li> </ul> |                                                                                                                                                                                                                                                                                                             |
|                             | Operating Instructions BA296P        | <ul style="list-style-type: none"> <li>– Examples of configuration for pressure and level measurement</li> <li>– Description of parameters</li> <li>– Trouble-shooting</li> <li>– Appendix: Illustration of menu</li> </ul>                                                                               |                                                                                                                                                                                                                                                                                                             |
|                             | Brief Operating Instructions KA1023P | <ul style="list-style-type: none"> <li>– Installation</li> <li>– Wiring</li> <li>– Operation on-site</li> <li>– Commissioning</li> <li>– Description of Quick Setup menus</li> </ul>                                                                                                                      | <ul style="list-style-type: none"> <li>– The documentation is supplied with the device.</li> <li>– The documentation can be found on the supplied documentation CD.</li> <li>– The documentation is also available via the Internet. → See: <a href="http://www.endress.com">www.endress.com</a></li> </ul> |
|                             | Leporello KA244P                     | <ul style="list-style-type: none"> <li>– Wiring</li> <li>– Description of operating elements</li> <li>– Operation HistoROM®/M-DAT</li> </ul>                                                                                                                                                              |                                                                                                                                                                                                                                                                                                             |



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# **1 Notes on use**

Section 6 describes all the parameters in order of how they appear in the menu. Sections 4 to 6 provide typical examples of configuration.

Sections 1.1 to 1.2 describe ways of finding a certain parameter description more easily.

## **1.1 Finding function group using graphic representation**

All the function groups are shown in table form in Section 2. The page reference/link takes you to the function group in question. In Section 6, all the parameters of a function group are compiled in a table.

In the FieldCare, additional parameters and, to an extent, other parameters are displayed. These parameters are not listed in Section 2. You can find these parameters by means of the index. → See also Section 1.3.

## **1.2 Finding function group using graphic representation**

All the function groups are shown in table form in Section 3. The page reference/link takes you to the function group in question. In Section 7, all the parameters of a function group are compiled in a table.

## **1.3 Finding parameter description using parameter names (index)**

The index lists all the parameters in alphabetical order. The page reference/link takes you to the parameter in question.

## 2 Finding parameter description using ID numbers

| ID number | Parameter name                                           | Description, see page                    |
|-----------|----------------------------------------------------------|------------------------------------------|
| 001       | DENSITY UNIT                                             | 62 or 95                                 |
| 003       | HEIGHT UNIT                                              | 62                                       |
| 004       | FULL CALIB. – QUICK SETUP                                | 50                                       |
| 004       | FULL CALIB. – Level Selection "Level Easy Pressure"      | 59                                       |
| 004       | FULL CALIB. – Level Selection "Level Easy Height"        | 63                                       |
| 005       | FULL PRESSURE                                            | 59                                       |
| 006       | FULL HEIGHT                                              | 64                                       |
| 007       | ADJUST DENSITY                                           | 62 or 95                                 |
| 008       | CALIBRATION MODE – Level Selection "Level Easy Pressure" | 58                                       |
| 008       | CALIBRATION MODE – Level Selection "Level Easy Height"   | 62                                       |
| 009       | EMPTY HEIGHT                                             | 63                                       |
| 010       | EMPTY CALIB. – QUICK SETUP                               | 49                                       |
| 010       | EMPTY CALIB. – Level Selection "Level Easy Pressure"     | 58 or 59                                 |
| 010       | EMPTY CALIB. – Level Selection "Level Easy Height"       | 63                                       |
| 011       | EMPTY PRESSURE                                           | 59                                       |
| 014       | DOWNLOAD SELECT                                          | 120                                      |
| 020       | LEVEL SELECTION                                          | 45                                       |
| 023       | OUTPUT UNIT – Level Selection "Level Easy Pressure"      | 58                                       |
| 023       | OUTPUT UNIT – Level Selection "Level Easy Height"        | 62                                       |
| 025       | PROCESS DENSITY                                          | 95                                       |
| 046       | ALARM STATUS                                             | 122                                      |
| 047       | ENTER RESET CODE                                         | 120                                      |
| 048       | INSERT PIN No                                            | 120                                      |
| 050       | LEVEL BEFORE LIN                                         | 116                                      |
| 060       | PRESS. ENG. UNIT                                         | 54, 57, 61, 65 or 90                     |
| 075       | CUSTOMER UNIT P                                          | 55, 57, 61, 66 or 90                     |
| 079       | LANGUAGE                                                 | 44                                       |
| 247       | DAMPING VALUE                                            | 47, 50, 51, 55, 59, 64, 75, 79, 88 or 93 |
| 250       | SENSOR SER. No.                                          | 112                                      |
| 264       | SOFTWARE VERSION                                         | 110                                      |
| 266       | HARDWARE REV.                                            | 110                                      |
| 272       | ADDITIONAL INFO.                                         | 110                                      |
| 301       | PRESSURE – "Pressure" measuring mode                     | 115                                      |
|           | PRESSURE – "Level" measuring mode                        | 116                                      |
|           | PRESSURE – "Flow" measuring mode                         | 117                                      |
| 311       | MAX. FLOW                                                | 51 or 93                                 |
| 313       | UNIT VOLUME – "Linear" level type                        | 69 or 77                                 |
|           | UNIT VOLUME – "Pressure Linearized" level type           | 77                                       |
|           | UNIT VOLUME – "Height Linearized" level type             | 82                                       |
| 314       | EMPTY CALIB. – QUICK SETUP                               | 49                                       |
|           | EMPTY CALIB. – "Linear" level type                       | 71                                       |
|           | EMPTY CALIB. – "Height Linearized" level type            | 85                                       |
| 315       | FULL CALIB. – QUICK SETUP                                | 50                                       |
|           | FULL CALIB. – "Pressure Linearized" level type           | 72                                       |
|           | FULL CALIB. – "Height Linearized" level type             | 85                                       |
| 316       | ADJUST DENSITY – "Linear" level type                     | 72                                       |
|           | ADJUST DENSITY – "Height Linearized" level type          | 86                                       |
|           | ADJUST DENSITY – "Level" extended setup                  | 95                                       |
| 317       | CUST. UNIT FACT. P                                       | 55, 66 or 91                             |
| 318       | TEMP. ENG. UNIT – "Pressure" measuring mode              | 94                                       |
|           | TEMP. ENG. UNIT – "Level" measuring mode                 | 94                                       |
|           | TEMP. ENG. UNIT – "Flow" measuring mode                  | 95                                       |
| 319       | CALIB. OFFSET                                            | 53                                       |
| 323       | SET. L. FL. CUT-OFF                                      | 96                                       |
| 329       | FACT. U. U. TOTAL. 1                                     | 104                                      |
| 330       | FACT. U. U. TOTAL. 2                                     | 105                                      |
| 331       | RESET TOTALIZER1                                         | 104                                      |

| ID number | Parameter name                                    | Description, see page |
|-----------|---------------------------------------------------|-----------------------|
| 332       | Pmin ALARM WINDOW                                 | 123                   |
| 333       | Pmax ALARM WINDOW                                 | 124                   |
| 334       | Tmin ALARM WINDOW                                 | 124                   |
| 335       | Tmax ALARM WINDOW                                 | 124                   |
| 336       | ALARM DELAY                                       | 123                   |
| 339       | DISPLAY CONTRAST                                  | 107                   |
| 350       | DEVICE DESIGN.                                    | 110                   |
| 352       | CONFIG RECORDER                                   | 110                   |
| 354       | DEVICE SERIAL No                                  | 110                   |
| 357       | PCB TEMPERATURE                                   | 110                   |
| 358       | ALLOWED MIN. TEMP                                 | 111                   |
| 359       | ALLOWED MAX. TEMP                                 | 111                   |
| 360       | MAT. PROC. CONN. +                                | 112                   |
| 361       | MAT. PROC. CONN. -                                | 112                   |
| 362       | SEAL TYPE                                         | 112                   |
| 363       | DIP STATUS                                        | 111                   |
| 365       | MAT. MEMBRANE                                     | 113                   |
| 366       | FILLING FLUID                                     | 113                   |
| 367       | SENSOR TEMP.                                      | 115 or 117            |
| 368       | Tmin SENSOR                                       | 113                   |
| 369       | Tmax SENSOR                                       | 113                   |
| 370       | TANK CONTENT                                      | 116                   |
| 375       | SUPPRESSED FLOW                                   | 117                   |
| 378       | MEAS. VAL. TREND                                  | 115 or 117            |
| 380       | COUNTER:P > Pmax                                  | 118                   |
| 382       | RESET PEAKHOLD                                    | 119                   |
| 383       | MAX. MEAS. PRESS.                                 | 118                   |
| 386       | ELECTR. SERIAL No                                 | 110                   |
| 389       | MEASURING MODE                                    | 44                    |
| 392       | CALIBRATION MODE – "Linear" level type            | 71                    |
|           | CALIBRATION MODE – "Height Linearized" level type | 85                    |
| 397       | LIN. EDIT MODE                                    | 101                   |
| 398       | TOTALIZER 1 UNIT – "Volume p. cond." flow type    | 103                   |
| 399       | TOTALIZER 2 UNIT – "Volume p. cond." flow type    | 104                   |
| 400       | NEG. FLOW TOT. 1                                  | 104                   |
| 401       | ACK. ALARM MODE                                   | 122                   |
| 404       | COUNTER:T > Tmax                                  | 118                   |
| 409       | OPERATING HOURS                                   | 120                   |
| 413       | SIMULATION MODE                                   | 121                   |
| 414       | SIM. PRESSURE                                     | 121                   |
| 416       | NEG. FLOW TOT. 2                                  | 105                   |
| 419       | MENU DESCRIPTOR                                   | 106                   |
| 423       | ALTERNATE DATA                                    | 106                   |
| 434       | CORRECTED PRESS. – "Pressure" measuring mode      | 115                   |
|           | CORRECTED PRESS. – "Level" measuring mode         | 116                   |
|           | CORRECTED PRESS. – "Flow" measuring mode          | 117                   |
| 442       | LOW FLOW CUT-OFF                                  | 96                    |
| 467       | COUNTER:P < Pmin                                  | 118                   |
| 469       | MIN. MEAS. PRESS.                                 | 118                   |
| 471       | MAX. MEAS. TEMP.                                  | 118                   |
| 472       | COUNTER:T < Tmin                                  | 118                   |
| 474       | MIN. MEAS. TEMP.                                  | 118                   |
| 476       | SIM. ERROR NO.                                    | 122                   |
| 480       | ALARM DISPL. TIME                                 | 123                   |
| 482       | PROC. CONN. TYPE                                  | 111                   |
| 484       | PRESS. SENS LOLIM                                 | 112                   |
| 485       | PRESS. SENS HILIM                                 | 113                   |
| 487       | SENS H/WARE REV                                   | 113                   |
| 488       | PCB COUNT:T > Tmax                                | 118                   |
| 490       | PCB MAX. TEMP.                                    | 118                   |
| 492       | PCB COUNT:T < Tmin                                | 118                   |
| 494       | PCB MIN. TEMP.                                    | 119                   |
| 500       | ACK. ALARM                                        | 122                   |
| 549       | MEASURING TABLE (display)                         | 99                    |
| 549       | EDITOR TABLE, LINE-NUMB (enter values)            | 98                    |

| ID number | Parameter name                                        | Description, see page |
|-----------|-------------------------------------------------------|-----------------------|
| 550       | EDITOR TABLE, X-VAL. (enter values)                   | 99                    |
| 551       | EDITOR TABLE, Y-VAL. (enter values)                   | 98, 99                |
| 563       | POS. INPUT VALUE                                      | 47, 49 or 53          |
| 564       | LAST DIAG. CODE                                       | 122                   |
| 570       | Pmax PROC. CONN.                                      | 111                   |
| 571       | MASS FLOW UNIT                                        | 92                    |
| 581       | SENSOR MEAS.TYPE                                      | 113                   |
| 584       | SENSOR PRESSURE – "Pressure" measuring mode           | 115                   |
|           | SENSOR PRESSURE – "Level" measuring mode              | 116                   |
|           | SENSOR PRESSURE – "Flow" measuring mode               | 117                   |
| 591       | MINIMUM SPAN                                          | 113                   |
| 595       | SELECT ALARMTYPE                                      | 123                   |
| 600       | SELECT ALARMTYPE                                      | 123                   |
| 603       | RESET ALL ALARMS                                      | 123                   |
| 607       | CUST. UNIT FACT. V – "Linear" level type              | 70                    |
|           | CUST. UNIT FACT. V – "Pressure Linearized" level type | 78                    |
|           | CUST. UNIT FACT. V – "Height Linearized" level type   | 83                    |
| 608       | CUSTOMER UNIT V – "Linear" level type                 | 69                    |
|           | CUSTOMER UNIT V – "Pressure Linearized" level type    | 77                    |
|           | CUSTOMER UNIT V – "Height Linearized" level type      | 83                    |
| 609       | CUST. UNIT FACT. F                                    | 93                    |
| 610       | CUSTOMER UNIT F                                       | 93                    |
| 627       | TOT. 1 USER UNIT                                      | 104                   |
| 628       | TOT. 2 USER UNIT                                      | 105                   |
| 634       | MAX PRESS. FLOW                                       | 51 or 93              |
| 639       | SIM.FLOW VALUE                                        | 121                   |
| 640       | FLOW-MEAS. TYPE                                       | 91                    |
| 652       | TOTALIZER 1                                           | 117                   |
| 655       | TOTAL. 1 OVERFLOW                                     | 117                   |
| 657       | TOTALIZER 2                                           | 117                   |
| 658       | TOTAL. 2 OVERFLOW                                     | 117                   |
| 660       | STD. FLOW UNIT                                        | 92                    |
| 661       | NORM FLOW UNIT                                        | 92                    |
| 662       | TOTALIZER 1 UNIT – "Mass" flow type                   | 103                   |
| 663       | TOTALIZER 2 UNIT – "Mass" flow type                   | 104                   |
| 664       | TOTALIZER 1 UNIT – "Gas. std. conditions" flow type   | 103                   |
| 665       | TOTALIZER 2 UNIT – "Gas. std. conditions" flow type   | 104                   |
| 666       | TOTALIZER 1 UNIT – "Gas. norm conditions" flow type   | 103                   |
| 667       | TOTALIZER 2 UNIT – "Gas. norm conditions" flow type   | 104                   |
| 679       | MEASURED VALUE – "Pressure"                           | 114                   |
|           | MEASURED VALUE – "Level"                              | 115                   |
|           | MEASURED VALUE – "Flow"                               | 116                   |
| 685       | POS. ZERO ADJUST                                      | 47, 49, 51 or 52      |
| 688       | MAIN DATA FORMAT                                      | 106                   |
| 703       | CUST. UNIT FACT. M – "Linear" level type              | 71                    |
|           | CUST. UNIT FACT. M – "Pressure Linearized" level type | 79                    |
|           | CUST. UNIT FACT. M – "Height Linearized" level type   | 84                    |
| 704       | CUSTOMER UNIT M – "Linear" level type                 | 70                    |
|           | CUSTOMER UNIT M – "Pressure Linearized" level type    | 78                    |
|           | CUSTOMER UNIT M – "Height Linearized" level type      | 84                    |
| 705       | CUST. UNIT FACT. H – "Linear" level type              | 69 or 74              |
|           | CUST. UNIT FACT. H – "Height Linearized" level type   | 82 or 87              |
| 706       | CUSTOMER UNIT H – "Linear" level type                 | 68 or 74              |
|           | CUSTOMER UNIT H – "Height Linearized" level type      | 82 or 87              |
| 708       | HEIGHT UNIT – "Linear" level type                     | 68 or 74              |
|           | HEIGHT UNIT – "Height Linearized" level type          | 81 or 86              |
| 709       | MASS UNIT – "Linear" level type                       | 70                    |
|           | MASS UNIT – "Pressure Linearized" level type          | 78                    |
|           | MASS UNIT – "Height Linearized" level type            | 83                    |
| 710       | EMPTY PRESSURE – "Linear" level type                  | 71                    |
|           | EMPTY PRESSURE – "Height Linearized" level type       | 85                    |
| 711       | FULL PRESSURE – "Linear" level type                   | 72                    |
|           | FULL PRESSURE – "Height Linearized" level type        | 85                    |
| 712       | LEVEL MAX                                             | 84                    |
| 713       | TANK CONTENT MAX                                      | 100                   |
| 714       | SIM. LEVEL                                            | 121                   |
| 715       | SIM. TANK CONT.                                       | 122                   |

| ID number | Parameter name                                    | Description, see page |
|-----------|---------------------------------------------------|-----------------------|
| 717       | MEASURING TABLE (selection)                       | 99                    |
| 718       | LEVEL MODE                                        | 66                    |
| 755       | LEVEL MIN                                         | 84                    |
| 759       | TANK CONTENT MIN                                  | 100                   |
| 761       | HYDR. PRESS MAX.                                  | 79                    |
| 775       | HYDR. PRESS MIN.                                  | 79                    |
| 804       | LIN. MEASURAND                                    | 68                    |
| 805       | LINd. MEASURAND                                   | 77                    |
| 806       | COMB. MEASURAND                                   | 81                    |
| 808       | TABLE SELECTION                                   | 100                   |
| 809       | EDITOR TABLE (select table)                       | 101                   |
| 810       | ADJUSTED DENSITY – "Linear" level type            | 72                    |
|           | ADJUSTED DENSITY – "Height Linearized" level type | 85                    |
| 811       | PROCESS DENSITY                                   | 95                    |
| 812       | DENSITY UNIT – "Linear" level type                | 72                    |
|           | DENSITY UNIT – "Height Linearized" level type     | 86                    |
| 813       | 100 % POINT – "Linear" level type                 | 75                    |
|           | 100 % POINT – "Height Linearized" level type      | 87                    |
| 814       | ZERO POSITION – "Linear" level type               | 75                    |
|           | ZERO POSITION – "Height Linearized" level type    | 88                    |
| 815       | TANK DESCRIPTION                                  | 99                    |
| 831       | HistoROM AVAIL.                                   | 120                   |
| 832       | HistoROM CONTROL                                  | 121                   |
| 858       | TANK VOLUME                                       | 73                    |
| 859       | TANK HEIGHT                                       | 74                    |
| 988       | TAG DESCRIPTION                                   | 110                   |
| 990       | IDENT NUMBER SEL.                                 | 108                   |
| 991       | SET UNIT TO BUS                                   | 109                   |
| 992       | AI OUT VALUE                                      | 109                   |
| 993       | AI OUT STATUS                                     | 109                   |
| 994       | 2ND CYCLIC VALUE                                  | 109                   |
| 995       | SEL. DISPLAY VALUE                                | 109                   |
| 996       | PA INPUT VALUE                                    | 109                   |
| 998       | BUS ADDRESS                                       | 110                   |

### 3 Graphic representation of function groups



Note!

The "Flow" measuring mode is only available for the Deltabar S differential pressure transmitter. The groups marked with "\*" are only displayed for Deltabar S.

| 1st selection level  | 2nd selection level  | 3rd selection level (groups) | Function groups                            | Description, see page |
|----------------------|----------------------|------------------------------|--------------------------------------------|-----------------------|
| LANGUAGE             | LANGUAGE (079)       |                              |                                            | → 44                  |
| MEASURING MODE       | MEASURING MODE (389) |                              |                                            | → 44                  |
| QUICK SETUP pressure |                      |                              |                                            | → 46                  |
| QUICK SETUP level    |                      |                              |                                            | → 48                  |
| QUICK SETUP flow *   |                      |                              |                                            | → 50                  |
| MANUFACTURER VIEW    | → OPERATING MENU     | → SETTINGS (557)             | → POSITION ADJUSTMENT                      | → 52                  |
|                      |                      |                              | → BASIC SETUP Pressure                     | → 54                  |
|                      |                      |                              | → BASIC SETUP Level, "Level Easy Pressure" | → 56                  |
|                      |                      |                              | → BASIC SETUP Level, "Level Easy Height"   | → 60                  |
|                      |                      |                              | → BASIC SETUP Level, "Level Standard"      | → 65                  |
|                      |                      |                              | → BASIC SETUP Flow *                       | → 89                  |
|                      |                      |                              | → EXTENDED SETUP Pressure                  | → 94                  |
|                      |                      |                              | → EXTENDED SETUP Level                     | → 94                  |
|                      |                      |                              | → EXTENDED SETUP Flow *                    | → 95                  |
|                      |                      |                              | → LINEARISATION – On-site display          | → 100                 |
|                      |                      |                              | → LINEARISATION – FieldCare                | → 100                 |
|                      |                      |                              | → TOTALIZER SETUP *                        | → 103                 |
|                      |                      | → DISPLAY (559)              |                                            | → 106                 |
|                      |                      | → TRANSMITTER INFO           | → PA DATA                                  | → 108                 |
|                      |                      |                              | → TRANSMITTER DATA                         | → 110                 |
|                      |                      |                              | → PROCESS CONNECTION                       | → 111                 |
|                      |                      |                              | → SENSOR DATA                              | → 112                 |
|                      |                      | → PROCESSINFO                | → PROCESS VALUES pressure                  | → 114                 |
|                      |                      |                              | → PROCESS VALUES level                     | → 115                 |
|                      |                      |                              | → PROCESS VALUES flow *                    | → 116                 |
|                      |                      |                              | → PEAK HOLD INDICATOR                      | → 118                 |
|                      |                      | → OPERATING                  |                                            | → 120                 |
|                      |                      | → DIAGNOSTICS                | → SIMULATION                               | → 121                 |
|                      |                      |                              | → MESSAGES                                 | → 122                 |
|                      |                      |                              | → USER LIMITS                              | → 123                 |

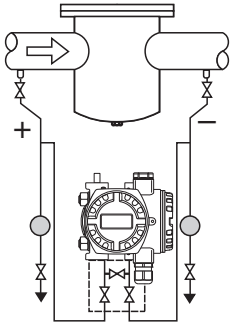
| 1st selection level | 2nd selection level  | 3rd selection level (groups) | Function groups | Description,<br>see page |
|---------------------|----------------------|------------------------------|-----------------|--------------------------|
| PROFILE VIEW        | → PHYSICAL BLOCK     | → PB STANDARD PARAMETER      |                 | → 126                    |
|                     |                      | → PB PARAMETER               |                 | → 127                    |
|                     |                      | → PB E+H PARAMETER           |                 | → 130                    |
|                     | → TRANSDUCER BLOCK   | → TB STANDARD PARAMETER      |                 | → 134                    |
|                     |                      | → TB PARAMETER               |                 | → 135                    |
|                     | → ANALOG INPUT BLOCK | → AI STANDARD PARAMETER      |                 | → 137                    |
|                     |                      | → AI PARAMETER               |                 | → 138                    |

## 4 Pressure measurement



Note!

- The Cerabar S and the Deltabar S is configured for the pressure measuring mode as standard. The Deltapilot S is configured for the level measuring mode as standard. The measuring range and the unit in which the measured value is transmitted, as well as the digital output value of the Analog Input Block OUT, correspond to the data on the nameplate.
- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions Deltabar S (BA294P), Section 6.7 "Differential pressure measurement", Cerabar S (BA295P), Section 6.6 "Pressure measurement" or Deltapilot S (BA356P), Section 6.5 "Pressure measurement".
- For a description of the parameters mentioned, see
  - Page 44, Table 2: MEASURING MODE
  - Page 54, Table 6: POSITION ADJUSTMENT
  - Page 54, Table 7: BASIC SETUP.
- For a description of further relevant parameters, see
  - Page 94, Table 15: EXTENDED SETUP
  - Page 114, Table 21: PROCESS VALUES.

|   | Description                                                                                                                                                                                                                                                                         |                                                                                                                           |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 1 | Deltabar S: before configuring the device for your application, the pressure piping must be cleaned and the device filled with fluid. See Operating Instructions BA294P, Section 6.7.                                                                                               |  <p>P01-PMD75xxx-19-xx-xx-xx-000</p> |
| 2 | Carry out position adjustment if necessary. See Page 52, table 6: POSITION ADJUSTMENT.                                                                                                                                                                                              |                                                                                                                           |
| 3 | If necessary, select the "Pressure" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE            |                                                                                                                           |
| 4 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site operation) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS. |                                                                                                                           |
| 5 | Result:<br>The device is ready for pressure measurement.                                                                                                                                                                                                                            |                                                                                                                           |



Note!

- You can also specify a customer-specific unit. See parameter description for PRESS. ENG. UNIT (→ Page 54).

## 5 Level measurement

### 5.1 Overview of level measurement

| Measuring task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | LEVEL SELECTION/<br>LEVEL MODE                                            | Measured variable options                                                                                                                                                                                                            | Description                                                                                                                                                                                                                                                                                                                | Comment                                                                                                                                                          | Measured value display                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The measured variable is in direct proportion to the measured pressure. Calibration is performed by entering two pressure-level value pairs.                                                                                                                                                                                                                                                                                                                                                                                                                    | LEVEL SELECTION:<br>Level Easy Pressure                                   | Via OUTPUT UNIT parameter: %, level, volume or mass units.                                                                                                                                                                           | <ul style="list-style-type: none"> <li>– Calibration with reference pressure – wet calibration, see Page 15, Section 5.2.1</li> <li>– Calibration without reference pressure – dry calibration, see Page 17, Section 5.2.2</li> </ul>                                                                                      | <ul style="list-style-type: none"> <li>– Incorrect entries are possible</li> <li>– Customised units are not possible</li> </ul>                                  | The measured value display and the LEVEL BEFORE LIN parameter show the measured value.                                                                                                                        |
| The measured variable is in direct proportion to the measured pressure. Calibration is performed by entering the density and two height-level value pairs.                                                                                                                                                                                                                                                                                                                                                                                                      | LEVEL SELECTION:<br>Level Easy Height                                     | Via OUTPUT UNIT parameter: %, level, volume or mass units.                                                                                                                                                                           | <ul style="list-style-type: none"> <li>– Calibration with reference pressure – wet calibration, see Page 19, Section 5.3.1</li> <li>– Calibration without reference pressure – dry calibration, see Page 21, Section 5.3.2</li> </ul>                                                                                      | <ul style="list-style-type: none"> <li>– Incorrect entries are possible</li> <li>– Customised units are not possible</li> </ul>                                  | The measured value display and the LEVEL BEFORE LIN parameter show the measured value.                                                                                                                        |
| The measured variable is in direct proportion to the measured pressure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | LEVEL SELECTION:<br>Level standard/<br>LEVEL MODE:<br>Linear              | Via LIN. MEASURAND parameter:<br><ul style="list-style-type: none"> <li>– % (Level)</li> <li>– Level</li> <li>– Volume</li> <li>– Mass</li> </ul>                                                                                    | <ul style="list-style-type: none"> <li>– Calibration with reference pressure – wet calibration, see Page 23, Section 5.4.1</li> <li>– Calibration without reference pressure – dry calibration, see Page 25, Section 5.4.2</li> </ul>                                                                                      | <ul style="list-style-type: none"> <li>– Incorrect entries are rejected by the device</li> <li>– Customised level, volume and mass units are possible</li> </ul> | The measured value display and the LEVEL BEFORE LIN parameter show the measured value.                                                                                                                        |
| The measured variable is not in direct proportion to the measured pressure as, for example, with containers with a conical outlet. A linearisation table must be entered for the calibration.                                                                                                                                                                                                                                                                                                                                                                   | LEVEL SELECTION:<br>Level standard/<br>LEVEL MODE:<br>Pressure Linearized | Via LINd MEASURAND parameter:<br><ul style="list-style-type: none"> <li>– Pressure + %</li> <li>– Pressure + Volume</li> <li>– Pressure + Mass</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>– Calibration with reference pressure: semiautomatic entry of linearisation table, see Page 27, Section 5.5.1</li> <li>– Calibration without reference pressure: manual entry of linearisation table, see Page 30, Section 5.5.2</li> </ul>                                         | <ul style="list-style-type: none"> <li>– Incorrect entries are rejected by the device</li> <li>– Customised level, volume and mass units are possible</li> </ul> | The measured value display and the TANK CONTENT parameter show the measured value.                                                                                                                            |
| <ul style="list-style-type: none"> <li>– Two measured variables are required or</li> <li>– The container shape is given by value pairs, such as height and volume.</li> </ul> <p>The 1st measured variable %-Height or height must be in direct proportion to the measured pressure. The 2nd measured variable volume, mass or % must not be in direct proportion to the measured pressure. A linearisation table must be entered for the 2nd measured variable. The 2nd measured variable is assigned to the 1st measured variable by means of this table.</p> | LEVEL SELECTION:<br>Level standard/<br>LEVEL MODE:<br>Height Linearized   | Via COMB. MEASURAND parameter:<br><ul style="list-style-type: none"> <li>– Height + Volume</li> <li>– Height + Mass</li> <li>– Height + %</li> <li>– %-Height + Volume</li> <li>– %-Height + Mass</li> <li>– %-Height + %</li> </ul> | <ul style="list-style-type: none"> <li>– Calibration with reference pressure: wet calibration and semiautomatic entry of linearisation table, see Page 33, Section 5.6.1</li> <li>– Calibration without reference pressure: dry calibration and manual entry of linearisation table, see Page 37, Section 5.6.2</li> </ul> | <ul style="list-style-type: none"> <li>– Incorrect entries are rejected by the device</li> <li>– Customised level, volume and mass units are possible</li> </ul> | <p>The measured value display and the TANK CONTENT parameter show the 2nd measured value (volume, mass or %).</p> <p>The LEVEL BEFORE LIN parameter displays the 1st measured value (%-Height or height).</p> |

## 5.2 "Level Easy Pressure" level selection

### 5.2.1 Calibration with reference pressure – wet calibration

#### Example:

In this example, the level in a tank should be measured in m. The maximum level is 3 m. The pressure range is set to 0 to 300 mbar.

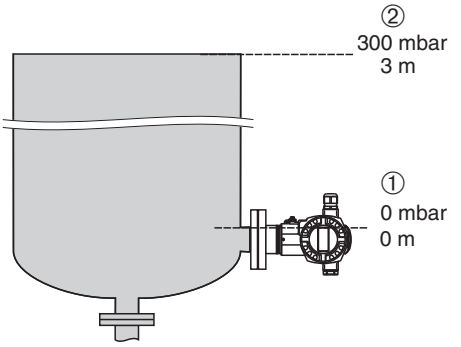
#### Prerequisite:

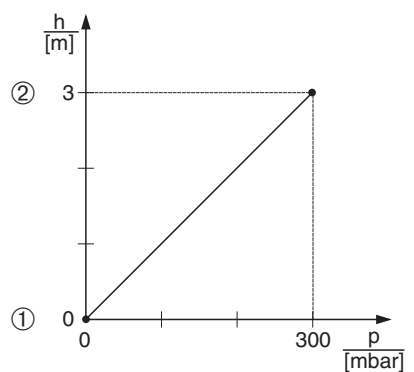
- The measured variable is in direct proportion to the pressure.
- The tank can be filled or emptied.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA359P), Section 6.5 "Level measurement".
- The values entered for EMPTY CALIB. and FULL CALIB. must have a minimum interval of 1% for the "Level Easy Pressure" level mode. The value will be rejected with a warning message if the values are too close together. Further limit values are not checked; i.e. the values entered must be appropriate for the sensor and the measuring task so that the measuring device can measure correctly.
- For a description of the parameters mentioned, see
  - Page 44, Table 2: MEASURING MODE
  - Page 52, Table 6: POSITION ADJUSTMENT
  - Page 56, Table 8: LEVEL SELECTION "Level Easy Pressure"
- For a description of further relevant parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

|   | Description                                                                                                                                                                                                                                                           |                                                                                                                                                      |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Deltabar S: Before you configure the device for your application, the pressure piping must be cleaned and filled with medium. See Operating Instructions BA294P, Section 6.6.1                                                                                        |  <p style="text-align: right;">P01-PMP75xxx-19-xx-xx-xx-008</p> |
| 2 | Carry out position adjustment if necessary. See Page 52, Table 6: POSITION ADJUSTMENT.                                                                                                                                                                                |                                                                                                                                                      |
| 3 | If necessary, select the "Level" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE |                                                                                                                                                      |
|   |                                                                                                                                                                                                                                                                       | <p><i>Fig. 1: Calibration with reference pressure – wet calibration</i></p> <p>1 See Table, Step 9.<br/>2 See Table, Step 10.</p>                    |

|    | Description                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                   |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4  | <p>If necessary, select "Level Easy Pressure" level mode using the LEVEL SELECTION parameter.</p> <p>On-site display:<br/>Menu path: GROUP SELECTION → MEASURING MODE "Level" → LEVEL SELECTION</p> <p>FieldCare:<br/>Menu path: OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE "Level" → LEVEL SELECTION</p> |  <p>Fig. 2: Calibration with reference pressure – wet calibration</p> <p>1 See Table, Step 9.<br/>2 See Table, Step 10.</p> <p>P01-XXXXXXXX-05-xx-xx-xx-011</p> |
| 5  | <p>On-site display:<br/>Select BASIC SETUP function group. Menu path: GROUP SELECTION → OPERATING MENU → SETTINGS → BASIC SETUP</p>                                                                                                                                                                                     |                                                                                                                                                                                                                                                   |
| 6  | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                   |
| 7  | Select a level unit via the OUTPUT UNIT parameter, here m for example.                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                   |
| 8  | Select the "Wet" option by means of the CALIBRATION MODE parameter.                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                   |
| 9  | <p>Hydrostatic pressure for the lower calibration point is present at the device, here 0 mbar for example.</p> <p>Select EMPTY CALIB. parameter.</p> <p>Enter the level value, here 0 m for example. Confirm the value to assign the pressure value present to the lower level value.</p>                               |                                                                                                                                                                                                                                                   |
| 10 | <p>Hydrostatic pressure for the upper calibration point is present at the device, here 300 mbar for example.</p> <p>Select FULL CALIB. parameter.</p> <p>Enter the level value, here 3 m for example. Confirm the value to assign the pressure value present to the upper level value.</p>                              |                                                                                                                                                                                                                                                   |
| 11 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS.                                       |                                                                                                                                                                                                                                                   |
| 12 | <p>Result:</p> <p>The measuring range is set for 0 to 3 m.</p>                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                   |



## Note!

1. You can also perform calibration with reference pressure by means of the QUICK SETUP menu. → See Page 48 ff, Table 4: QUICK SETUP menu.
2. For this level mode, the measured variables %, level, volume and mass are available. → See also parameter description for OUTPUT UNIT, Page 58.
3. For operation using the on-site display, the parameters EMPTY CALIB. (→ Page 59) and FULL CALIB. (→ Page 59) also show the respective pressure present at the device. For operation using the FieldCare, the pressure present at the device is displayed in the PROCESS VALUES group.

### 5.2.2 Calibration without reference pressure – dry calibration

#### Example:

In this example, the volume in a tank should be measured in litres. The maximum volume of 1000 litres corresponds to a pressure of 450 mbar. The minimum volume of 0 litres corresponds to a pressure of 50 mbar. The device is mounted below the level lower range value.

#### Prerequisite:

- The measured variable is in direct proportion to the pressure.
- This is a theoretical calibration i.e. the pressure and volume values for the lower and upper calibration point must be known.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- The values entered for EMPTY CALIB. and FULL CALIB. must have a minimum interval of 1% for the "Level Easy Pressure" level mode. The value will be rejected with a warning message if the values are too close together. Further limit values are not checked; i.e. the values entered must be appropriate for the sensor and the measuring task so that the measuring device can measure correctly.
- Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero. → To perform a position adjustment see also Page 52, Table 6: Position adjustment.
- For a description of the parameters mentioned, see
  - Page 44, Table 2: MEASURING MODE
  - Page 56, Table 8: LEVEL SELECTION "Level Easy Pressure"
- For a description of further relevant parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

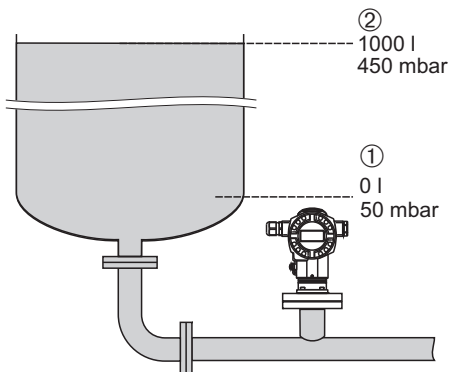
|   | Description                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                        |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select the "Level" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE                                                                            |  <p style="text-align: right; font-size: small;">P01-PMC71xxx-19-xx-xx-xx-008</p> |
| 2 | If necessary, select "Level Easy Pressure" level mode using the LEVEL SELECTION parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE "Level" → LEVEL SELECTION<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE "Level" → LEVEL SELECTION |                                                                                                                                                                        |
| 3 | On-site display:<br>Select BASIC SETUP function group. Menu path:<br>GROUP SELECTION → OPERATING MENU → SETTINGS → BASIC SETUP                                                                                                                                                                                                     |                                                                                                                                                                        |

Fig. 3: Calibration without reference pressure – dry calibration

- 1 See Table, Step 10.
- 2 See Table, Step 11.
- 3 See Table, Step 12.
- 4 See Table, Step 13.

|    | Description                                                                                                                                                                                                                                                                       |                                                                                                                                                                                 |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4  | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                                                 | <p>Fig. 4: Calibration with reference pressure – wet calibration</p> <p>1 See Table, Step 7.<br/> 2 See Table, Step 8.<br/> 3 See Table, Step 9.<br/> 4 See Table, Step 10.</p> |
| 5  | Select a volume unit via the OUTPUT UNIT parameter, here l (litres) for example..                                                                                                                                                                                                 |                                                                                                                                                                                 |
| 6  | Select the "Dry" option by means of the CALIBRATION MODE parameter.                                                                                                                                                                                                               |                                                                                                                                                                                 |
| 7  | Enter the volume value for the lower calibration point via the EMPTY CALIB. parameter, here 0 l for example.                                                                                                                                                                      |                                                                                                                                                                                 |
| 8  | Enter the pressure value for the lower calibration point via the EMPTY PRESSURE parameter, here 50 mbar for example.                                                                                                                                                              |                                                                                                                                                                                 |
| 9  | Enter the volume value for the upper calibration point via the FULL CALIB. parameter, here 1000 l for example.                                                                                                                                                                    |                                                                                                                                                                                 |
| 10 | Enter the pressure value for the upper calibration point via the FULL PRESSURE parameter, here 450 mbar for example.                                                                                                                                                              |                                                                                                                                                                                 |
| 11 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS. |                                                                                                                                                                                 |
| 12 | Result:<br>The measuring range is set for 0 to 1000 l.                                                                                                                                                                                                                            |                                                                                                                                                                                 |

**Note!**

1. You also have the possibility of specifying customised pressure units via the PRESS. ENG. UNIT parameter (→ Page 57).

## 5.3 "Level Easy Height" level selection

### 5.3.1 Calibration with reference pressure – wet calibration

#### Example:

The maximum volume of 1000 litres corresponds to a level of 4.5 m. The minimum volume of 0 litres corresponds to a level of 0.5 m. The device is mounted below the level lower range value. The density of the fluid is 1 kg/dm<sup>3</sup>.

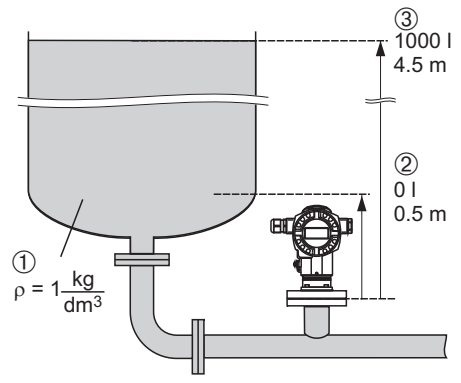
#### Prerequisite:

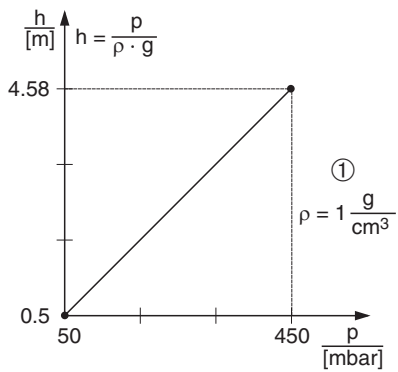
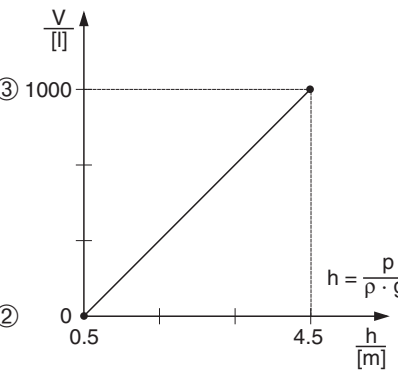
- The measured variable is in direct proportion to the pressure.
- The tank can be filled or emptied.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- The values entered for EMPTY CALIB./FULL CALIB., EMPTY PRESSURE/FULL PRESSURE and EMPTY HEIGHT/FULL HEIGHT must have a minimum interval of 1% for the "Level Easy Height" level mode. The value will be rejected with a warning message if the values are too close together. Further limit values are not checked; i.e. the values entered must be appropriate for the sensor and the measuring task so that the measuring device can measure correctly.
- For a description of the parameters mentioned, see
  - Page 44, Table 2: MEASURING MODE
  - Page 52, Table 6: POSITION ADJUSTMENT
  - Page 60, Table 9: LEVEL SELECTION "Level Easy Height"
- For a description of further relevant parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

|   | Description                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                             |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Deltabar S: Before you configure the device for your application, the pressure piping must be cleaned and filled with medium. See Operating Instructions BA294P, Section 6.6.1                                                                          |  <p style="text-align: right;">P01-PMC71xxx-19-xx-xx-xx-001</p> <p><b>Fig. 5: Calibration with reference pressure – wet calibration</b></p> <p>1 See Table, Steps 10 and 11.<br/>         2 See Table, Step 12.<br/>         3 See Table, Step 13.</p> |
| 2 | Carry out position adjustment if necessary. See Page 52, Table 6: POSITION ADJUSTMENT.                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                             |
| 3 | Select the "Level" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE |                                                                                                                                                                                                                                                                                                                                             |

|    | Description                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                  |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4  | <p>If necessary, select the "Level Easy Height" level mode using the LEVEL SELECTION parameter.</p> <p>On-site display:<br/>Menu path: GROUP SELECTION → MEASURING MODE "Level" → LEVEL SELECTION</p> <p>FieldCare:<br/>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE "Level" → LEVEL SELECTION</p> |  <p><math>h = \frac{p}{\rho \cdot g}</math></p> <p>① <math>\rho = 1 \frac{\text{g}}{\text{cm}^3}</math></p> <p>P01-xxxxxxx-05-xx-xx-xx-029</p> |
| 5  | <p>On-site display:<br/>Select BASIC SETUP function group. Menu path: GROUP SELECTION → OPERATING MENU → SETTINGS → BASIC SETUP</p>                                                                                                                                                                                                           |                                                                                                                                                                                                                                  |
| 6  | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                                                                                                             |  <p>②</p> <p><math>h = \frac{p}{\rho \cdot g}</math></p> <p>P01-xxxxxxx-05-xx-xx-xx-030</p>                                                   |
| 7  | Select a volume unit via the OUTPUT UNIT parameter, here l (litres) for example.                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                  |
| 8  | Select a height unit via the HEIGHT UNIT parameter, here m for example.                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                  |
| 9  | Select the "Wet" option via the CALIBRATION MODE parameter.                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                  |
| 10 | Select a density unit via the DENSITY UNIT parameter, here kg/dm <sup>3</sup> for example.                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                  |
| 11 | Enter the density of the fluid using the ADJUST DENSITY parameter, here 1 (litre) for example.                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                  |
| 12 | Enter the volume value for the lower calibration point via the EMPTY CALIB. parameter, here 0 l for example. (The currently measured hydrostatic pressure is displayed as height, here 0.5 m for example.)                                                                                                                                    | <p><b>Fig. 6: Calibration with reference pressure – wet calibration</b></p> <p>1 See Table, Steps 10 and 11.<br/>2 See Table, Step 12.<br/>3 See Table, Step 13.</p>                                                             |
| 13 | Enter the volume value for the upper calibration point via the FULL CALIB. parameter, here 1000 l for example. (The currently measured hydrostatic pressure is displayed as height, here 4.5 m for example.)                                                                                                                                  |                                                                                                                                                                                                                                  |
| 14 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS.                                                             |                                                                                                                                                                                                                                  |
| 15 | <p>Result:</p> <p>The measuring range is set for 0 to 1000 l.</p>                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                  |



#### Note!

- For this level mode, the measured variables %, level, volume and mass are available. → See also parameter description for OUTPUT UNIT, Page 62.

### 5.3.2 Calibration without reference pressure – dry calibration

#### Example:

In this example, the volume in a tank should be measured in litres. The maximum volume of 1000 litres corresponds to a level of 4.5 m. The minimum volume of 0 litres corresponds to a level of 0.5 m. The device is mounted below the level lower range value. The density of the fluid is 1 kg/dm<sup>3</sup>.

#### Prerequisite:

- The measured variable is in direct proportion to the pressure.
- This is a theoretical calibration i.e. the height and volume values for the lower and upper calibration point must be known.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- The values entered for EMPTY CALIB./FULL CALIB., EMPTY PRESSURE/FULL PRESSURE and EMPTY HEIGHT/FULL HEIGHT must have a minimum interval of 1% for the "Level Easy Height" level mode. The value will be rejected with a warning message if the values are too close together. Further limit values are not checked; i.e. the values entered must be appropriate for the sensor and the measuring task so that the measuring device can measure correctly.
- Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero. → To perform a position adjustment see also Page 52, Table 6: Position adjustment.
- For a description of the parameters mentioned, see
  - Page 44, Table 2: MEASURING MODE
  - Page 60, Table 9: LEVEL SELECTION "Level Easy Height"
- For a description of further relevant parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

|   | Description                                                                                                                                                                                                                                                                                                                      |                                                                                  |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1 | Select the "Level" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE                                                                          | <p style="text-align: right; font-size: small;">P01-PMC71xxx-19-xx-xx-xx-009</p> |
| 2 | If necessary, select "Level Easy Height" level mode using the LEVEL SELECTION parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE "Level" → LEVEL SELECTION<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE "Level" → LEVEL SELECTION |                                                                                  |

Fig. 7: Calibration without reference pressure – dry calibration

- 1 See Table, Step 11.
- 2 See Table, Steps 13 and 14.
- 3 See Table, Steps 15 and 16.

|    | Description                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                       |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3  | On-site display:<br>Select BASIC SETUP function group. Menu path:<br>GROUP SELECTION → OPERATING MENU →<br>SETTINGS → BASIC SETUP                                                                                                                                                 | <p>P01-xxxxxxx-05-xx-xx-xx-029</p>                                                                                                                                                                                                                                                    |
| 4  | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                       |
| 5  | Select a volume unit via the OUTPUT UNIT parameter, here l (litres) for example..                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                       |
| 6  | Select a height unit via the HEIGHT UNIT parameter, here m for example.                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                       |
| 7  | Select the "Dry" option via the CALIBRATION MODE parameter.                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                       |
| 8  | Select a density unit via the DENSITY UNIT parameter, here kg/dm <sup>3</sup> for example.                                                                                                                                                                                        | <p>P01-xxxxxxx-05-xx-xx-xx-032</p>                                                                                                                                                                                                                                                    |
| 9  | Enter the density of the fluid using the ADJUST DENSITY parameter, here 1 kg/dm <sup>3</sup> for example.                                                                                                                                                                         |                                                                                                                                                                                                                                                                                       |
| 10 | Enter the volume value for the lower calibration point via the EMPTY CALIB. parameter, here 0 l (litres) for example.                                                                                                                                                             |                                                                                                                                                                                                                                                                                       |
| 11 | Enter the height value for the lower calibration point via the EMPTY HEIGHT parameter, here 0.5 mbar for example.                                                                                                                                                                 |                                                                                                                                                                                                                                                                                       |
| 12 | Enter the volume value for the upper calibration point via the FULL CALIB. parameter, here 1000 l (litres) for example.                                                                                                                                                           |                                                                                                                                                                                                                                                                                       |
| 13 | Enter the height value for the upper calibration point via the FULL HEIGHT parameter, here 4.5 mbar for example.                                                                                                                                                                  | <p><b>Fig. 8:</b> Calibration with reference pressure – wet calibration</p> <ol style="list-style-type: none"> <li>1 See Table, Steps 8 and 9.</li> <li>2 See Table, Step 10.</li> <li>3 See Table, Step 11.</li> <li>4 See Table, Step 12.</li> <li>5 See Table, Step 13.</li> </ol> |
| 15 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS. |                                                                                                                                                                                                                                                                                       |
| 16 | Result:<br>The measuring range is set for 0 to 1000 l (litres).                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                       |

**Note!**

1. For this level mode, the measured variables %, level, volume and mass are available. → See also parameter description for OUTPUT UNIT, Page 62.

## 5.4 "Level Standard" level selection, "Linear" level type

### 5.4.1 Calibration with reference pressure – wet calibration

#### Example:

In this example, the level in a tank should be measured in m. The maximum level is 3 m. The pressure range is set to 0 to 300 mbar.

#### Prerequisite:

- The measured variable is in direct proportion to the pressure.
- The tank can be filled or emptied.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- For a description of the parameters mentioned, see
  - Page, Table 2: MEASURING MODE
  - Page 52, Table 6: POSITION ADJUSTMENT
  - Page 65, Table 10: BASIC SETUP
  - Page 68, Table 11: BASIC SETUP – "Linear" level type.
- For a description of further relevant parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 22: PROCESS VALUES.

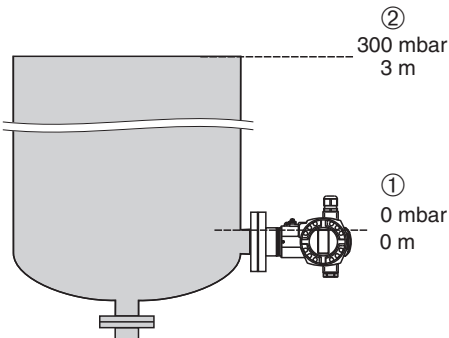
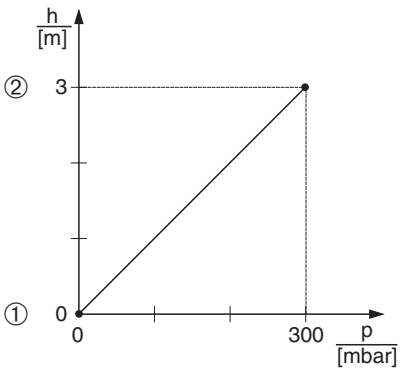
|   | Description                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                      |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Deltabar S: before configuring the device for your application, the pressure piping must be cleaned and the device filled with fluid. See Operating Instructions BA294P, Section 6.6.1                                                                                                                                        |  <p style="text-align: right;">②<br/>300 mbar<br/>3 m</p> <p style="text-align: right;">①<br/>0 mbar<br/>0 m</p> <p style="text-align: right;">P01-PMC71xxx-19-xx-xx-xx-006</p> |
| 2 | Carry out position adjustment if necessary. See Page 52, Table 6: POSITION ADJUSTMENT.                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                      |
| 3 | If necessary, select the "Level" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE                                                         |                                                                                                                                                                                                                                                                      |
| 4 | If necessary, select "Level Standard" level mode using the LEVEL SELECTION parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE "Level" → LEVEL SELECTION<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE "Level" → LEVEL SELECTION |                                                                                                                                                                                                                                                                      |

Fig. 9: Calibration with reference pressure – wet calibration

1 See Table, step 11.

2 See Table, step 12.

|    | Description                                                                                                                                                                                                                                                                   |                                                                                                                       |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 5  | On-site display:<br>Select BASIC SETUP function group. Menu path:<br>GROUP SELECTION → OPERATING MENU →<br>SETTINGS → BASIC SETUP                                                                                                                                             |  <p>P01-xxxxxxx-05-xx-xx-xx-011</p> |
| 6  | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                                             |                                                                                                                       |
| 7  | Select the "Linear" option by means of the LEVEL MODE parameter.                                                                                                                                                                                                              |                                                                                                                       |
| 8  | Select the "Level" option by means of the LIN. MEASURAND parameter.                                                                                                                                                                                                           |                                                                                                                       |
| 9  | Select a level unit via the HEIGHT UNIT parameter, here m for example.                                                                                                                                                                                                        |                                                                                                                       |
| 10 | Select the "Wet" option by means of the CALIBRATION MODE parameter.                                                                                                                                                                                                           |                                                                                                                       |
| 11 | The pressure for the lower calibration point is present at the device, here 0 mbar for example.                                                                                                                                                                               |                                                                                                                       |
|    | Select EMPTY CALIB. parameter.                                                                                                                                                                                                                                                |                                                                                                                       |
|    | Enter the level value, here 0 m for example. Confirm the value to assign the pressure value present to the lower level value.                                                                                                                                                 |                                                                                                                       |
| 12 | The pressure for the upper calibration point is present at the device, here 300 mbar for example.                                                                                                                                                                             |                                                                                                                       |
|    | Select FULL CALIB. parameter.                                                                                                                                                                                                                                                 | <ol style="list-style-type: none"> <li>1 See Table, step 9.</li> <li>2 See Table, step 10.</li> </ol>                 |
|    | Enter the level value, here 3 m for example. Confirm the value to assign the pressure value present to the upper level value.                                                                                                                                                 |                                                                                                                       |
| 13 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS. |                                                                                                                       |
| 14 | Result:<br>The corresponding pressure value has been assigned to the lower and upper level value. The device is ready for level measurement.                                                                                                                                  |                                                                                                                       |

**Note!**

1. You can also perform calibration with reference pressure by means of the QUICK SETUP menu. → See Page 48 ff, Table 2: QUICK SETUP menu.
2. You can also specify customer-specific units. See parameter description for PRESS. ENG. UNIT (→ Page 54), HEIGHT UNIT (→ Page 68), UNIT VOLUME (→ Page 69) and MASS UNIT (→ Page 70).
3. For this level type, the measured variables %, level, volume and mass are available.  
→ See Page 38 ff.
4. The EMPTY PRESSURE (→ Page 41) and FULL PRESSURE (→ Page 41) parameters display the pressure values belonging to the EMPTY CALIB. and FULL CALIB. parameters.

5.4.2 Calibration without reference pressure – dry calibration

Example:

In this example, the volume in a tank should be measured in m<sup>3</sup>. The maximum volume is 5 m<sup>3</sup> and the maximum height 4 m. The density of the fluid is 1 kg/dm<sup>3</sup>. The device is mounted below the level lower range value.

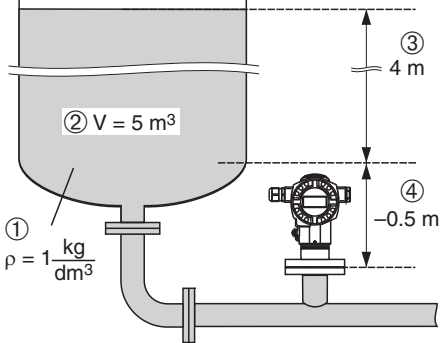
Prerequisite:

- The measured variable is in direct proportion to the pressure.
- This is a theoretical calibration, i.e. the tank volume, tank height and density of the fluid are known.



Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero. → To perform a position adjustment see also Page 52, Table 6: Position adjustment.
- For a description of the parameters mentioned, see
  - Page 52, Table 2: MEASURING MODE
  - Page 65, Table 10: BASIC SETUP
  - Page 68, Table 11: BASIC SETUP – "Linear" level type.
- For a description of further relevant parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

|   | Description                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                              |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <p>Select the "Level" measuring mode via the MEASURING MODE parameter.</p> <p>On-site display:<br/>Menu path: GROUP SELECTION → MEASURING MODE</p> <p>FieldCare:<br/>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP→ MEASURING MODE</p> |  <p>P01-PMP75xxx-19-xx-xx-xx-003</p> <p>Fig. 10: Calibration without reference pressure – dry calibration</p> <p>1 See Table, step 9.<br/>2 See Table, step 10.<br/>3 See Table, step 11.<br/>4 See Table, step 12.</p> |

|    | Description                                                                                                                                                                                                                                                                                                                            |  |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 2  | <p>If necessary, select "Level Standard" level mode using the LEVEL SELECTION parameter.</p> <p>On-site display:<br/>Menu path: GROUP SELECTION → MEASURING MODE "Level" → LEVEL SELECTION</p> <p>FieldCare:<br/>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE "Level" → LEVEL SELECTION</p> |  |
| 3  | <p>On-site display:<br/>Select BASIC SETUP function group. Menu path:<br/>GROUP SELECTION → OPERATING MENU → SETTINGS → BASIC SETUP</p>                                                                                                                                                                                                |  |
| 4  | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                                                                                                      |  |
| 5  | Select the "Linear" option by means of the LEVEL MODE parameter.                                                                                                                                                                                                                                                                       |  |
| 6  | Select the "Volume" option by means of the LIN. MEASURAND parameter.                                                                                                                                                                                                                                                                   |  |
| 7  | Select a volume unit via the UNIT VOLUME parameter, here m <sup>3</sup> for example.                                                                                                                                                                                                                                                   |  |
| 8  | Select the "Dry" option by means of the CALIBRATION MODE parameter.                                                                                                                                                                                                                                                                    |  |
| 9  | Enter the value for density via the ADJUST DENSITY parameter, here 1 kg/dm <sup>3</sup> for example.                                                                                                                                                                                                                                   |  |
| 10 | Enter the tank volume via the TANK VOLUME parameter, here 5 m <sup>3</sup> for example.                                                                                                                                                                                                                                                |  |
| 11 | Enter the tank height via the TANK HEIGHT parameter, here 4 m for example.                                                                                                                                                                                                                                                             |  |
| 12 | Enter the level offset via the ZERO POSITION parameter, here -0.5 m for example.                                                                                                                                                                                                                                                       |  |
| 13 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS.                                                      |  |
| 14 | <p>Result:</p> <p>The device is ready for level measurement</p>                                                                                                                                                                                                                                                                        |  |



#### Note!

- For this level type, the measured variables %, level, volume and mass are available.  
→ See Page 38 ff.
- You can also specify customer-specific units. See parameter description for PRESS. ENG. UNIT (→ Page 35), HEIGHT UNIT (→ Page 38), UNIT VOLUME (→ Page 39) and MASS UNIT (→ Page 40).

## 5.5 "Pressure linearized" level type

### 5.5.1 Semiautomatic entry of the linearisation table

#### Example:

In this example, the volume in a tank with a conical outlet should be measured in  $\text{m}^3$ .

#### Prerequisite:

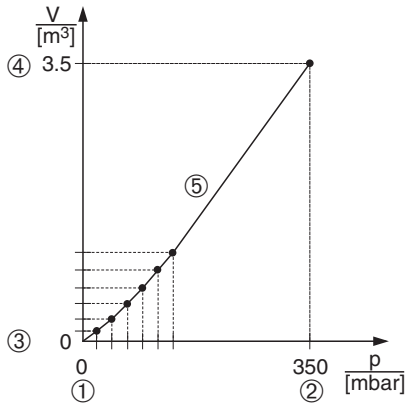
- The tank can be filled. The linearisation characteristic must rise continuously.
- A minimum gap of 0.5 % of the distance between two points must be maintained. Spans for the "Pressure linearized" option: HYDR. PRESS MAX. – HYDR. PRESS MIN.; TANK CONTENT MAX. – TANK CONTENT MIN. Spans for the "Height linearized" option: LEVEL MAX – LEVEL MIN; TANK CONTENT MAX. – TANK CONTENT MIN.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- For a description of the parameters mentioned, see
  - Page 44 Table 2: MEASURING MODE
  - Page 52, Table 4: POSITION ADJUSTMENT
  - Page 65, Table 10: BASIC SETUP
  - Page 76, Table 11: BASIC SETUP – "Pressure linearized" level type
  - Page 97, Table 18: LINEARISATION – On-site display
  - Page 100, Table 19: LINEARISATION – FieldCare
- For a description of further relevant parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

|   | Description                                                                                                                                                                             |                                                                                  |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1 | Deltabar S: before configuring the device for your application, the pressure piping must be cleaned and the device filled with fluid. See Operating Instructions BA294P, Section 6.6.1. | <p style="text-align: right; font-size: small;">P01-PMP75xxx-19-xx-xx-xx-002</p> |
| 2 | Carry out position adjustment if necessary. See Page 52, Table 6: POSITION ADJUSTMENT.                                                                                                  |                                                                                  |

|                          | Description                                                                                                                                                                                                                                            |                                                                                                                                                                                                                  |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Carry out basic setup:   |                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                  |
| 3                        | Select the "Level" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP→ MEASURING MODE |  <p style="text-align: right; font-size: small;">P01-xxxxxxxx-05-xx-xx-xx-015</p>                                              |
| 4                        | On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE "Level" → LEVEL SELECTION<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE "Level" → LEVEL SELECTION                       |                                                                                                                                                                                                                  |
| 5                        | On-site display:<br>Select BASIC SETUP function group. Menu path:<br>GROUP SELECTION → OPERATING MENU → SETTINGS → BASIC SETUP                                                                                                                         |                                                                                                                                                                                                                  |
| 6                        | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                      |                                                                                                                                                                                                                  |
| 7                        | Select the "Pressure linearized" option by means of the LEVEL MODE parameter. See also the following note, point 3.                                                                                                                                    |                                                                                                                                                                                                                  |
| 8                        | Select the "Volume" option by means of the LINd. MEASURAND parameter.                                                                                                                                                                                  | <p><b>Fig. 11: Semiautomatic entry of the linearisation table</b></p> <p>1 See Table, step 10.<br/>2 See Table, step 11.<br/>3 See Table, step 13.<br/>4 See Table, step 14<br/>5 See Table, steps 15 to 19.</p> |
| 9                        | Select a volume unit via the UNIT VOLUME parameter, here m³ for example.                                                                                                                                                                               |                                                                                                                                                                                                                  |
| 10                       | Select HYDR. PRESS MIN. parameter.<br><br>Enter the minimum hydrostatic pressure to be expected, here 0 mbar for example.                                                                                                                              |                                                                                                                                                                                                                  |
| 11                       | Select HYDR. PRESS MAX .<br><br>Enter the maximum hydrostatic pressure to be expected, here 350 mbar for example.                                                                                                                                      |                                                                                                                                                                                                                  |
| Carry out linearisation: |                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                  |
| 12                       | Change the function group.<br><br>On-site display:<br>Menu path: GROUP SELECTION → OPERATING MENU → SETTINGS → LINEARISATION<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → LINEARISATION                             |                                                                                                                                                                                                                  |
| 13                       | Select TANK CONTENT MIN parameter.<br><br>Specify the minimum tank contents to be expected, here 0 m³ for example.                                                                                                                                     |                                                                                                                                                                                                                  |
| 14                       | Select TANK CONTENT MAX parameter.<br><br>Specify the maximum tank contents to be expected, here 3.5 m³ for example. See also the following note, point 4.                                                                                             |                                                                                                                                                                                                                  |
| 15                       | On-site display:<br>Select the "Editor table" option by means of the TABLE SELECTION parameter.                                                                                                                                                        |                                                                                                                                                                                                                  |
| 16                       | Select the "Semiautomatic" option by means of the LIN. EDIT MODE parameter.                                                                                                                                                                            |                                                                                                                                                                                                                  |

|    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 17 | Select the "New table" option by means of the EDITOR TABLE parameter. After confirming with "Enter," the "Continue edit" option is displayed again.                                                                                                                                                                                                                                                                                                                                                           |  |
| 18 | Enter linearisation table (min. 2 points, max. 32 points).                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|    | Fill the tank to the height of the 1st point.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|    | LINE-NUMB: confirm value displayed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|    | X-VAL.: the hydrostatic pressure present is displayed. The X-VAL. displayed is saved by confirming the Y-value. See following line, Y-VAL.                                                                                                                                                                                                                                                                                                                                                                    |  |
|    | Y-VAL.: enter the volume value, here 0 m <sup>3</sup> for example, and confirm the value.                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| 19 | On-site display:<br>If you want to enter another point for the linearisation table, select the "Next point" option and enter the point as described in step 18.<br>If you want to finish entering the values and activate the linearisation table, select the "Accept input table" option.<br><br>FieldCare:<br>You can enter further points for the linearisation table as explained in step 18. Once all the points have been entered, the table must be activated by means of the TAB. ACTIVATE parameter. |  |
| 18 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS.                                                                                                                                                                                                                             |  |
| 19 | Result:<br>The linearisation table has been entered and the device is ready for level measurement.                                                                                                                                                                                                                                                                                                                                                                                                            |  |



#### Note!

- For this level type, the measured variables %, volume and mass are available.  
→ See Page 45 ff.
- You can also specify customer-specific units. See parameter description for PRESS. ENG. UNIT (→ Page 35), HEIGHT UNIT (→ Page 46), UNIT VOLUME (→ Page 46) and MASS UNIT (→ Page 47).
- Once you have selected the "Pressure linearized" level type, the warning message "W710 Set span too small. Not allowed." can appear. At this stage the linearisation table already consists of two points as standard. It could be the case that the 2nd value, and thus the highest X-VAL. of the linearisation table, is smaller than the minimum span permitted (→ MINIMUM SPAN, Page 113). The message disappears as soon as the highest X-VALUE is greater than the minimum span and the table entered is active.
- Once you have entered the maximum tank contents to be expected for TANK CONTENT MAX., the alarm "A719 Y-Val of lin. table out of edit limits" can appear. At this stage, the linearisation table already consists of two points as standard. It could be the case that the 2nd value and thus the highest Y-VALUE of the linearisation table is greater than the value entered for TANK CONTENT MAX. The message disappears as soon as no Y-VALUE is greater than the value for TANK CONTENT MAX. and the table entered is active.

### 5.5.2 Manual entry of the linearisation table

#### Example:

In this example, the volume in a tank with a conical outlet should be measured in m<sup>3</sup>.

#### Prerequisite:

- This is a theoretical calibration, i.e. the points for the linearisation table are known.
- A minimum gap of 0.5 % of the distance between two points must be maintained. Spans for the "Pressure linearized" option: HYDR. PRESS MAX. – HYDR. PRESS MIN.; TANK CONTENT MAX. – TANK CONTENT MIN. Spans for the "Height linearized" option: LEVEL MAX – LEVEL MIN; TANK CONTENT MAX. – TANK CONTENT MIN.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero. → To perform a position adjustment see also Page 52, Table 6: Position adjustment.
- For a description of the parameters mentioned, see
  - Page 52, Table 6: POSITION ADJUSTMENT
  - Page 65, Table 8: BASIC SETUP
  - Page 76, Table 12: BASIC SETUP – "Pressure linearized" level type
  - Page 97, Table 18: LINEARISATION – On-site operation
  - Page 100, Table 19: LINEARISATION – FieldCare
- For a description of further relevant parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

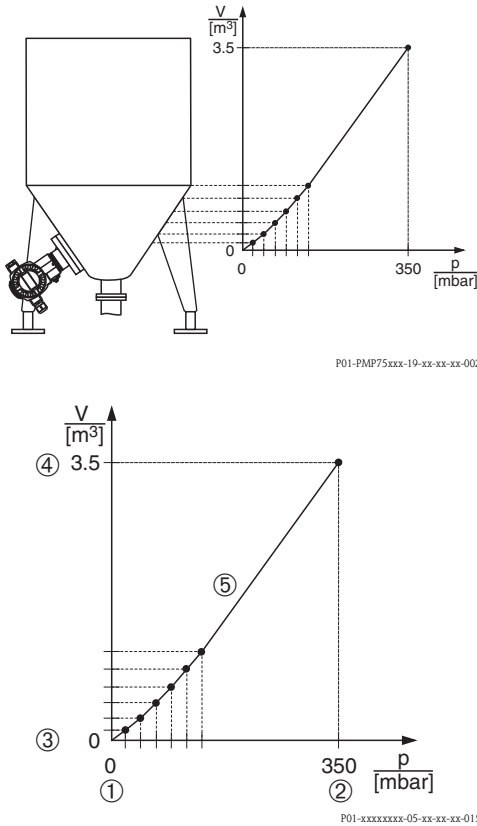
|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                             |
| 1                               | Perform setup as per Section 5.5.1, steps 3 to 11.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  <p>P01-PMP75xxx-19-xx-xx-xx-002</p> <p>P01-xxxxxxx-05-xx-xx-xx-015</p> |
| <b>Carry out linearisation:</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                             |
| 2                               | Change the function group.<br>On-site display:<br>Menu path: GROUP SELECTION → OPERATING MENU → SETTINGS → LINEARISATION<br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → LINEARISATION                                                                                                                                                                                                                                                                                        |                                                                                                                                                             |
| 3                               | Select TANK CONTENT MIN parameter .<br>Specify the minimum tank contents to be expected, here 0 m <sup>3</sup> for example.                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                             |
| 4                               | Select TANK CONTENT MAX parameter .<br>Specify the maximum tank contents to be expected, here 3.5 m <sup>3</sup> for example. See also the following note, point 3.                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                             |
| 5                               | Select the "Editor table" option by means of the TABLE SELECTION parameter.                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                             |
| 6                               | Select the "Manual" option by means of the LIN. EDIT MODE parameter.                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                             |
| 7                               | Select the "New table" option by means of the EDITOR TABLE parameter.                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                             |
| 8                               | Enter linearisation table (min. 2 points, max. 32 points).<br>LINE-NUMB: confirm value displayed.<br>X-VAL.: enter the pressure value and confirm.<br>Y-VAL.: enter the volume value, here 0 m <sup>3</sup> for example, and confirm.                                                                                                                                                                                                                                                                     |                                                                                                                                                             |
| 9                               | On-site display:<br>If you want to enter another point for the linearisation table, select the "Next point" option and enter the point as described in step 18.<br>If you want to finish entering the values and activate the linearisation table, select the "Accept input table" option.<br>FieldCare:<br>You can enter further points for the linearisation table as explained in step 18. Once all the points have been entered, the table must be activated by means of the TAB. ACTIVATE parameter. |                                                                                                                                                             |
| 10                              | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS.                                                                                                                                                                                                                         |                                                                                                                                                             |
| 11                              | Result:<br>The linearisation table has been entered and the device is ready for level measurement.                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                             |

Fig. 12: Manual entry of the linearisation table

- 1 See Section 5.5.1, Table, step 10.
- 2 See Section 5.5.1, Table, step 11.
- 3 See Table, step 3.
- 4 See Table, step 4.
- 5 See Table, steps 5 to 9.

**Note!**

1. For this level type, the measured variables %, volume and mass are available.  
→ See Page 76 ff.
2. You can also specify customer-specific units. See parameter description for PRESS. ENG. UNIT (→ Page 65), HEIGHT UNIT (→ Page 77), UNIT VOLUME (→ Page 77) and MASS UNIT (→ Page 78).
3. Once you have selected the "Pressure linearized" level type, the warning message "W710 Set span too small. Not allowed." can appear. At this stage the linearisation table already consists of two points as standard. It could be the case that the 2nd value, and thus the highest X-VAL. of the linearisation table, is smaller than the minimum span permitted (→ MINIMUM SPAN, Page 113). The message disappears as soon as the highest X-VALUE is greater than the minimum span and the table entered is active.

## 5.6 "Height linearized" level type

### 5.6.1 Wet calibration and semiautomatic entry of the linearisation table

#### Example:

In this example, the height and the volume should be measured at the same time.

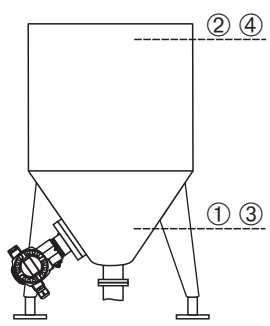
#### Prerequisite:

- The tank can be filled. The linearisation characteristic must rise continuously.
- A minimum gap of 0.5 % of the distance between two points must be maintained. Spans for the "Pressure linearized" option: HYDR. PRESS MAX. – HYDR. PRESS MIN.; TANK CONTENT MAX. – TANK CONTENT MIN. Spans for the "Height linearized" option: LEVEL MAX – LEVEL MIN; TANK CONTENT MAX. – TANK CONTENT MIN.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- For a description of the parameters mentioned, see
  - Page 52, Table 6: POSITION ADJUSTMENT
  - Page 65, Table 10: BASIC SETUP
  - Page 81, Table 13: BASIC SETUP – "Height linearized" level type
  - Page 97, Table 18: LINEARISATION – On-site display
  - Page 100, Table 19: LINEARISATION – FieldCare
- For a description of further parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

|   | Description                                                                                                                                                                                                                                             |                                                                                                                                                                        |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Deltabar S: before configuring the device for your application, the pressure piping must be cleaned and the device filled with fluid. See Operating Instructions BA294P, Section 6.6.1                                                                  |  <p style="text-align: right; font-size: small;">P01-PMP75xxx-19-xx-xx-xx-004</p> |
| 2 | Carry out position adjustment if necessary. See Page 52, Table 6: POSITION ADJUSTMENT.                                                                                                                                                                  |                                                                                                                                                                        |
|   | <b>Perform calibration for the 1st measured variable:</b>                                                                                                                                                                                               |                                                                                                                                                                        |
| 3 | Select the "Level" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE |                                                                                                                                                                        |

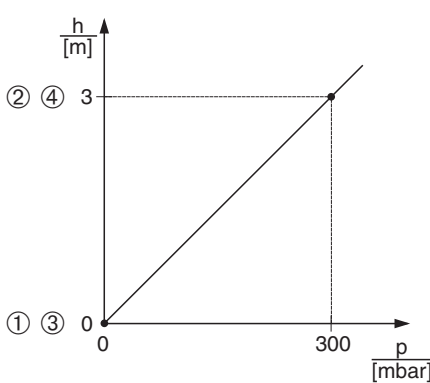
|    | Description                                                                                                                                                                                                                                                         |                                                                                                                                                                    |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4  | On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE "Level" → LEVEL SELECTION<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE "Level" → LEVEL SELECTION                                    |  <p style="text-align: right; font-size: small;">P01-xxxxxxx-05-xx-xx-xx-017</p> |
| 5  | On-site display:<br>Select BASIC SETUP function group. Menu path:<br>GROUP SELECTION → OPERATING MENU → SETTINGS → BASIC SETUP                                                                                                                                      |                                                                                                                                                                    |
| 6  | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                                   |                                                                                                                                                                    |
| 7  | Select the "Height linearized" option by means of the LEVEL MODE parameter.                                                                                                                                                                                         |                                                                                                                                                                    |
| 8  | Select the "Height + Volume" option by means of the COMB. MEASURAND parameter.                                                                                                                                                                                      |                                                                                                                                                                    |
| 9  | Select the unit for the 1st measured value via the HEIGHT UNIT parameter, here m for example.                                                                                                                                                                       |                                                                                                                                                                    |
| 10 | Select the unit for the 2nd measured variable via the UNIT VOLUME parameter, here m³ for example.                                                                                                                                                                   |                                                                                                                                                                    |
| 11 | Select LEVEL MIN parameter.<br>Enter the minimum level to be expected, here 0 m for example.                                                                                                                                                                        |                                                                                                                                                                    |
| 12 | Select LEVEL MAX parameter.<br>Enter the maximum level to be expected, here 3 m for example. See also the following note, point 3.                                                                                                                                  |                                                                                                                                                                    |
| 13 | Select the "Wet" option via the CALIBRATION MODE parameter (calibration mode for the 1st measured variable).                                                                                                                                                        |                                                                                                                                                                    |
| 14 | The pressure for the lower calibration point is present at the device, here 0 mbar for example.<br>Select EMPTY CALIB. parameter.<br>Enter the level value, here 0 m for example. Confirm the value to assign the pressure value present to the lower level value.  |                                                                                                                                                                    |
| 15 | The pressure for the upper calibration point is present at the device, here 300 mbar for example.<br>Select FULL CALIB. parameter.<br>Enter the level value, here 3 m for example. Confirm the value to assign the pressure value present to the upper level value. |                                                                                                                                                                    |
| 16 | Result:<br>The calibration for the 1st measured variable is carried out.                                                                                                                                                                                            |                                                                                                                                                                    |
|    | <b>Perform linearisation (calibration for the 2nd measured variable)</b>                                                                                                                                                                                            |                                                                                                                                                                    |
| 17 | Change the function group.<br><br>On-site display:<br>Menu path: GROUP SELECTION → OPERATING MENU → SETTINGS → LINEARISATION<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → LINEARISATION                                          |                                                                                                                                                                    |

Fig. 13: Calibrating the 1st measured variable

- 1 See Table, step 11.
- 2 See Table, step 12.
- 3 See Table, step 14.
- 4 See Table, step 15.

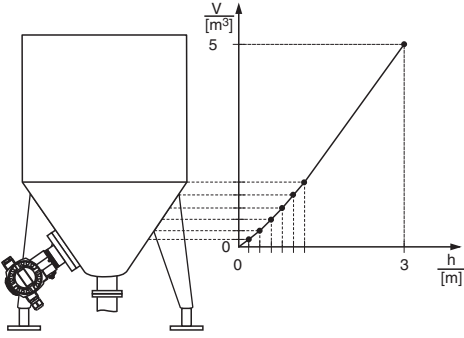
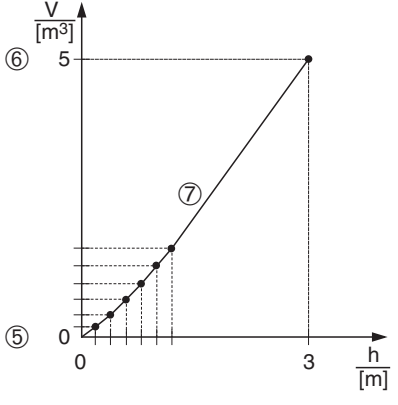
|    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                         |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 18 | Select TANK CONTENT MIN parameter.<br>Specify the minimum tank contents to be expected, here 0 m <sup>3</sup> for example.                                                                                                                                                                                                                                                                                                                                                                                |  <p>P01-PMP75xxx-19-xx-xx-xx-005</p> |
| 19 | Select TANK CONTENT MAX parameter.<br>Specify the maximum tank contents to be expected, here 5 m <sup>3</sup> for example.                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                         |
| 20 | Select the "Editor table" option by means of the TABLE SELECTION parameter.                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                         |
| 21 | Select the "Semiautomatic" option by means of the LIN. EDIT MODE parameter.                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                         |
| 22 | Select the "New table" option by means of the EDITOR TABLE parameter.                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                         |
| 23 | Enter linearisation table (min. 2 points, max. 32 points).<br>Fill the tank to the height of the 1st point.<br>LINE-NUMB: confirm value displayed.<br>X-VAL.: the hydrostatic pressure present is measured and converted to the corresponding level and displayed. The X-VAL. displayed is saved by confirming the Y-value. See following line, Y-VAL.<br>Y-VAL.: enter the volume value, here 0 m <sup>3</sup> for example, and confirm the value.                                                       |  <p>P01-xxxxxxx-05-xx-xx-xx-018</p> |
| 24 | On-site display:<br>If you want to enter another point for the linearisation table, select the "Next point" option and enter the point as described in step 23.<br>If you want to finish entering the values and activate the linearisation table, select the "Accept input table" option.<br>FieldCare:<br>You can enter further points for the linearisation table as explained in step 23. Once all the points have been entered, the table must be activated by means of the TAB. ACTIVATE parameter. |                                                                                                                         |
| 23 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS.                                                                                                                                                                                                                         |                                                                                                                         |
| 24 | Result:<br>– The linearisation table has been entered.<br>– The measured value display and the TANK CONTENT parameter display the 2nd measured value (here the volume).<br>– The LEVEL BEFORE LIN parameter displays the 1st measured value (here the height). See also the following note, point 4.                                                                                                                                                                                                      |                                                                                                                         |

Fig. 14: Calibrating the 2nd measured variable

- 5 See Table, step 18.  
6 See Table, step 19.  
7 See Table, steps 20 to 24.



## Note!

- For this level type, the measured variables "height + %", "height + volume", "height + mass", "%-height + %", "%-height + volume" and "%-height + mass" are available. → See Page 77 ff.
- You can also specify customer-specific units. See parameter description for PRESS. ENG. UNIT (→ Page 65), HEIGHT UNIT (→ Page 81), UNIT VOLUME (→ Page 82) and MASS UNIT (→ Page 83).

3. Once you have entered the maximum level to be expected for LEVEL MAX., the alarm "A707 X-Val of lin. table out of edit limits" can appear. At this stage, the linearisation table already consists of two points as standard. It could be the case that the 2nd value and thus the highest X-VALUE of the linearisation table is greater than the maximum level entered. The message disappears as soon as the highest X-VALUE is greater than the maximum level and the table entered is active.
4. You can use the MENU DESCRIPTOR parameter (→ Page 106) to specify which measured value should be displayed on the on-site display.

### 5.6.2 Dry calibration and manual entry of the linearisation table

#### Example:

In this example, the height and the volume should be measured at the same time.

#### Prerequisite:

- This is a theoretical calibration, i.e. the points for the linearisation table are known.
- A minimum gap of 0.5 % of the distance between two points must be maintained. Spans for the "Pressure linearized" option: HYDR. PRESS MAX. – HYDR. PRESS MIN.; TANK CONTENT MAX. – TANK CONTENT MIN. Spans for the "Height linearized" option: LEVEL MAX – LEVEL MIN; TANK CONTENT MAX. – TANK CONTENT MIN.



#### Note!

- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions for Deltabar S (BA294P) or Cerabar S (BA295P), Section 6.6 "Level measurement" or Deltapilot S (BA356P), Section 6.5 "Level measurement".
- Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero. → To perform a position adjustment see also Page 52, Table 6: Position adjustment.
- For a description of the parameters mentioned, see
  - Page 52, Table 6: POSITION ADJUSTMENT
  - Page 65, Table 10: BASIC SETUP
  - Page 81, Table 13: BASIC SETUP – "Height linearized" level type
  - Page 97, Table 18: LINEARISATION – On-site display
  - Page 100, Table 19: LINEARISATION – FieldCare
- For a description of further parameters, see
  - Page 94, Table 16: EXTENDED SETUP
  - Page 115, Table 28: PROCESS VALUES.

|   | Description                                                                                                  |                                                                                  |
|---|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|   | <b>Perform calibration for the 1st measured variable:</b>                                                    |                                                                                  |
| 1 | Perform calibration as per Section 5.6.1, steps 1 to 12.                                                     | <p style="text-align: right; font-size: small;">P01-PMP75xxx-19-xx-xx-xx-005</p> |
| 2 | Select the "Dry" option via the CALIBRATION MODE parameter (calibration mode for the 1st measured variable). |                                                                                  |
| 3 | Select a density unit via the DENSITY UNIT parameter a, here kg/dm³ for example.                             |                                                                                  |
| 4 | Enter the density of the fluid via the ADJUST DENSITY parameter, here 1.0 for example.                       |                                                                                  |
| 5 | If necessary, enter a level offset via the ZERO POSITION parameter, here 0 m for example.                    |                                                                                  |
| 6 | Result:<br>The calibration for the 1st measured variable is carried out.                                     |                                                                                  |

|    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
|    | <b>Perform linearisation (calibration for the 2nd measured variable)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                    |
| 7  | Change the function group.<br>On-site display:<br>Menu path: GROUP SELECTION → OPERATING MENU → SETTINGS → LINEARISATION<br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → LINEARISATION                                                                                                                                                                                                                                                                                        | <p>P01-xxxxxxx-05-xx-xx-xx-018</p> |
| 8  | Select TANK CONTENT MIN parameter.<br>Specify the minimum tank contents to be expected, here 0 m³ for example.                                                                                                                                                                                                                                                                                                                                                                                            |                                    |
| 9  | Select TANK CONTENT MAX parameter.<br>Specify the maximum tank contents to be expected, here 5 m³ for example.                                                                                                                                                                                                                                                                                                                                                                                            |                                    |
| 10 | Select the "Editor table" option by means of the TABLE SELECTION parameter.                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |
| 11 | Select the "Manual" option by means of the LIN. EDIT MODE parameter.                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                    |
| 12 | Select the "New table" option by means of the EDITOR TABLE parameter.                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                    |
| 13 | Enter linearisation table (min. 2 points, max. 32 points).<br>LINE-NUMB: confirm value displayed.<br>X-VAL.: enter the height value and confirm.<br>Y-VAL.: enter the volume value, here 0 m³ for example, and confirm.                                                                                                                                                                                                                                                                                   |                                    |
| 14 | On-site display:<br>If you want to enter another point for the linearisation table, select the "Next point" option and enter the point as described in step 13.<br>If you want to finish entering the values and activate the linearisation table, select the "Accept input table" option.<br>FieldCare:<br>You can enter further points for the linearisation table as explained in step 13. Once all the points have been entered, the table must be activated by means of the TAB. ACTIVATE parameter. |                                    |
| 15 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS.                                                                                                                                                                                                                         |                                    |
| 16 | Result:<br>– The linearisation table has been entered.<br>– The measured value display and the TANK CONTENT parameter display the 2nd measured value (here the volume).<br>– The LEVEL BEFORE LIN parameter displays the 1st measured value (here the height). See also the following note, point 3.                                                                                                                                                                                                      |                                    |

Fig. 15: Calibrating the 2nd measured variable

5 See Table, step 8.

6 See Table, step 9.

7 See Table, steps 10 to 14.

**Note!**

- For this level type, the measured variables "height + %", "height + volume", "height + mass", "%-height + %", "%-height + volume" and "%-height + mass" are available. → See Page 77 ff.

2. You can also specify customer-specific units. See parameter description for PRESS. ENG. UNIT (→ Page 65), HEIGHT UNIT (→ Page 81), UNIT VOLUME (→ Page 82) and MASS UNIT (→ Page 83).
3. You can use the MENU DESCRIPTOR parameter (→ Page 106) to specify which measured value should be displayed on the on-site display.

## 6 Flow measurement

### 6.1 Calibration

#### Example:

In this example, a volume flow should be measured in m<sup>3</sup>/h.



Note!

- The "Flow measurement" measuring mode is only available for the Deltabar S differential pressure transmitter.
- Please note that in the following instances, the on-site display or the MEASURED VALUE and the digital output value of the Analog Input Block OUT no longer display the same value:
  - If you change the operating mode
  - If you change the values for PV SCALE
  - If you change the values for OUT SCALE
  - If you change the unit
 → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).
- See also Operating Instructions Deltabar S (BA294P), Section 6.5 "Flow measurement".
- For a description of the parameters mentioned, see
  - Page 52, Table 6: POSITION ADJUSTMENT
  - Page 89 ff, Table 10: BASIC SETUP
- For a description of further parameters, see
  - Page 95, Table 17: EXTENDED SETUP
  - Page 116, Table 29: PROCESS VALUES.

|   | Description                                                                                                                                                                                                                                            |                                                                                 |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1 | Before configuring the device for your application, the pressure piping must be cleaned and the device filled with fluid. See Operating Instructions BA294P, Section 6.5.1.                                                                            | <p style="text-align: right; font-size: small;">P01-xMD7xxx-05-xx-xx-xx-010</p> |
| 2 | Carry out position adjustment if necessary. See Page 52, Table 6: POSITION ADJUSTMENT.                                                                                                                                                                 |                                                                                 |
| 3 | Select the "Flow" measuring mode via the MEASURING MODE parameter.<br><br>On-site display:<br>Menu path: GROUP SELECTION → MEASURING MODE<br><br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP → MEASURING MODE |                                                                                 |
| 4 | On-site display:<br>Select BASIC SETUP function group. Menu path:<br>GROUP SELECTION → OPERATING MENU → SETTINGS → BASIC SETUP                                                                                                                         |                                                                                 |

Fig. 16: Flow measurement calibration

- 1 See Table, step 7.
- 2 See Table, step 8.

|    | Description                                                                                                                                                                                                                                                                       |  |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 5  | Select a pressure unit via the PRESS. ENG. UNIT parameter, here mbar for example.                                                                                                                                                                                                 |  |
| 6  | Select the "Volume p. cond." option by means of the FLOW-MEAS. TYPE parameter.                                                                                                                                                                                                    |  |
| 7  | Select a flow unit via the UNIT FLOW parameter, here m <sup>3</sup> /h for example.                                                                                                                                                                                               |  |
| 8  | Select MAX. FLOW parameter.                                                                                                                                                                                                                                                       |  |
|    | Enter the maximum flow value of the primary device, here 6000 m <sup>3</sup> /h for example. See also layout sheet of primary device.                                                                                                                                             |  |
| 9  | Select MAX PRESS. FLOW parameter.                                                                                                                                                                                                                                                 |  |
|    | Enter the maximum pressure, here 400 mbar for example. See also layout sheet of primary device.                                                                                                                                                                                   |  |
| 10 | If necessary, scale the OUT value of the Analog Input Block, see Page 140, parameter descriptions for PV SCALE and OUT SCALE or set the OUT value to equal the measured value, see Page 109 (on-site display) or Page 130 (FieldCare), parameter description for SET UNIT TO BUS. |  |
| 11 | Result:<br>The device is configured for flow measurement.                                                                                                                                                                                                                         |  |

**Note!**

1. You can also perform calibration by means of the QUICK SETUP menu. → See Page 50 ff, Table 3: QUICK SETUP menu.
2. Using the FLOW-MEAS. TYPE parameter, you can choose between the following flow types:
  - Volume p. cond. (volume under operating conditions)
  - Gas norm. cond. (norm volume under norm conditions in Europe: 1013.25 mbar and 273.15 K (0 °C))
  - Gas std. cond. (standard volume under standard conditions in USA: 1013.25 mbar (14.7 psi) and 288.15 K (15 °C/59 °F))
  - Mass
3. Depending on the flow type selected, you can choose between various units. You can also specify a customer-specific unit.  
See parameter description for PRESS. ENG. UNIT (→ Page 90), UNIT FLOW (→ Page 91), NORM FLOW UNIT (→ Page 92), STD. FLOW UNIT (→ Page 92) and MASS FLOW UNIT (→ Page 92).
4. In the lower measuring range, small flow quantities (creepages) can lead to large measured value fluctuations. You can activate low flow cut-off via the LOW FLOW CUT-OFF parameter (→ Page 96).

## 6.2 Totalizers

### Example:

In this example, the volume flow should be totalised and displayed in the unit  $\text{m}^3\text{E}^3$ . Negative flows should be added to the flow rate.



Note!

- For a description of the parameters mentioned, see
  - Page 103 ff, Table 20: TOTALIZER SETUP
  - Page 116 ff, Table 29: PROCESS VALUES
- Totalizer 1 can be reset. Totalizer 2 cannot be reset.

|   | Description                                                                                                                                                                                                            |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Calibrate the device as per Section 6.1.                                                                                                                                                                               |
| 2 | Change the function group.<br>On-site display:<br>Menu path: GROUP SELECTION → OPERATING MENU → SETTINGS → TOTALIZER SETUP<br>FieldCare:<br>Menu path: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → TOTALIZER SETUP |
| 3 | Select a flow unit via the TOTALIZER 1 UNIT parameter, here $\text{m}^3\text{E}^3$ for example.                                                                                                                        |
| 4 | Use the NEG. FLOW TOT. 1 parameter to specify the totalising mode for negative flows, here the "Positive" option for example.                                                                                          |
| 5 | Reset totalizer 1 to zero via the RESET TOTALIZER parameter.                                                                                                                                                           |
| 6 | Result:<br>The TOTALIZER 1 and TOTAL. 1 OVERFLOW parameters display the totalised volume flow.                                                                                                                         |



Note!

- You can also specify a customer-specific unit. → See parameter description for TOTALIZER 1 UNIT (→ Page 103) and TOTALIZER 2 UNIT (→ Page 104).
- The TOTALIZER 1 and TOTAL. 1 OVERFLOW parameters display the totalised flow value of the first totalizer. The TOTALIZER 2 and TOTAL. 2 OVERFLOW parameters display the totalised flow value of the second totalizer. → See Page 116 ff, PROCESS VALUES function group.
- You can use the MENU DESCRIPTOR parameter (→ Page 106) to specify which measured value should be displayed on the on-site display.
- Use the SEL\_3RD\_CYCL\_VAL parameter (→ Page 132) to specify which value is transmitted via the bus as the third cyclic value.

## 7 Description of parameters



Note!

- The following tables list all the parameters as per the menu structure. Each table corresponds to a function group in the menu tree. The overall menu structure is illustrated in Section 9.1.
- The menu structure for on-site operation and the FieldCare are slightly different. The differences mainly affect the MEASURING MODE and LANGUAGE parameters and the LINEARISATION function group.
- In the FieldCare, additional parameters are displayed. These parameters are marked accordingly.
- The menu path is indicated in the header of each table. You can use this path to get to the parameters in question.
- The menu has a different structure depending on the measuring mode selected. This means that some function groups are only displayed for one measuring mode, e.g. the "LINEARISATION" function group for the "Level" measuring mode. If certain requirements have to be met for a function group, these are listed in the first row of the table.
- Some parameters are only displayed if other parameters are appropriately configured. For example, the EMPTY CALIB. parameter is not displayed in the Quick Setup menu ("Level" measuring mode) unless the "Linear" option was selected for the LEVEL MODE parameter and the "Wet" option was selected for the CALIBRATION MODE parameter. There is a comment in the parameter description here stating: Note: prerequisite: LEVEL MODE = Linear and CALIBRATION MODE = Wet.
- Parameter names are written in upper case in the text.
- In the "Parameter name" column, the unique identification number (ID) of the parameter is indicated in brackets. This ID only appears on the on-site display.

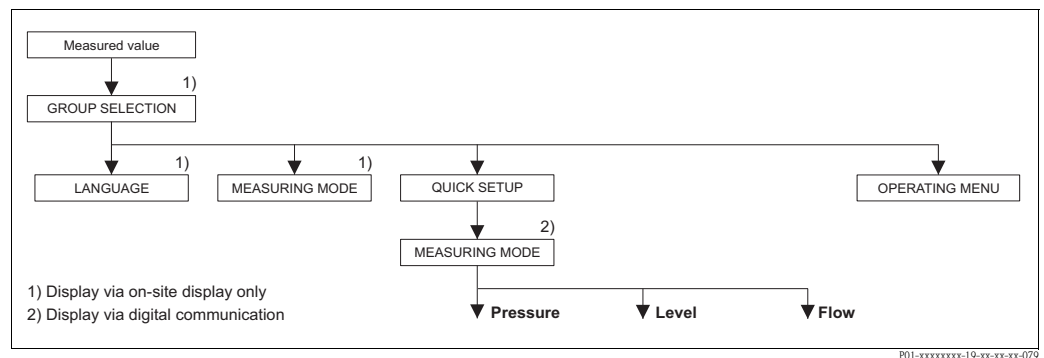
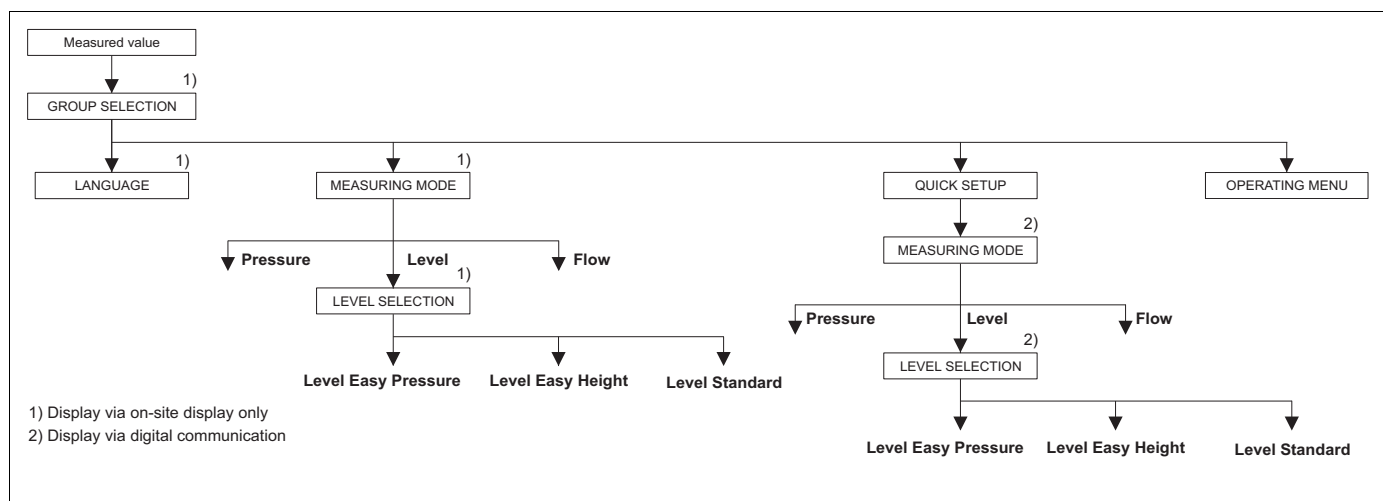


Fig. 17: 1st selection level in menu, LANGUAGE (→ see Page 44, Table 1) and MEASURING MODE (→ see Page 44, Table 2)

**Table 1: GROUP SELECTION → LANGUAGE – On-site display**

| Parameter name              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LANGUAGE (079)<br>Selection | <p>Select the menu language for the on-site display.</p> <p> <b>Note!</b></p> <ul style="list-style-type: none"> <li>■ In the FieldCare, the LANGUAGE parameter is arranged in the DISPLAY function group.</li> <li>■ Select the menu language for FieldCare by means of the "Language Button" in the configuration window. Select the menu language for the FieldCare frame via the "Extra" menu → "Options" → "Display" → "Language".</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Deutsch</li> <li>■ English</li> <li>■ Français</li> <li>■ Italiano</li> <li>■ Español</li> <li>■ Nederlands</li> <li>■ Chinese (CHS)</li> <li>■ Japanese (JPN)</li> </ul> <p><b>Factory setting:</b><br/>English</p> |

*Fig. 18: "Level" measuring mode, LEVEL SELECTION parameter***Table 2: GROUP SELECTION → MEASURING MODE – On-site display**

| Parameter name                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MEASURING MODE (389)<br>Selection | <p>Select the measuring mode.<br/>The operating menu is structured according to the selected measuring mode.</p> <p> <b>Note!</b></p> <ul style="list-style-type: none"> <li>■ When the measuring mode is changed, no conversion takes place. The device has to be recalibrated if the measuring mode is changed.</li> <li>■ The MEASURING MODE parameter is displayed in the FieldCare in the QUICK SETUP menus and in the BASIC SETUP function group (OPERATING MENU → SETTINGS → BASIC SETUP).</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Pressure</li> <li>■ Level</li> <li>■ Deltabar S: Flow</li> </ul> <p><b>Factory setting:</b></p> <ul style="list-style-type: none"> <li>■ Cerabar S and Deltabar S: Pressure</li> <li>■ Deltapilot S: Level</li> </ul> |

**Table 2: GROUP SELECTION → MEASURING MODE – On-site display**

| Parameter name                                                                                                                                                                                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LEVEL SELECTION (020)<br>Options                                                                                                                                                                                       | <p>Select level mode.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Level</li> </ul> <p> <b>Note!</b></p> <ul style="list-style-type: none"> <li>■ In the "Level Easy Pressure" and "Level Easy Height" level modes, the values entered are not tested as extensively as in the "Level Standard" level mode. The values entered for EMPTY CALIB./FULL CALIB., EMPTY PRESSURE/FULL PRESSURE and EMPTY HEIGHT/FULL HEIGHT must have a minimum interval of 1% for the "Level Easy Pressure" and "Level Easy Height" level modes. The value will be rejected with a warning message if the values are too close together. Further limit values are not checked; i.e. the values entered must be appropriate for the sensor and the measuring task so that the measuring device can measure correctly.<br/>→ For an overview of the different level modes and types, see Page 14, Section 5.1 "Overview of level measurement".</li> <li>■ The "Level Easy Pressure" and "Level Easy Height" level modes encompass fewer parameters than the "Level Standard" mode and are used for quick and easy configuration of a level application.</li> <li>■ Customer-specific units of fill level, volume and mass or a linearization table may only be entered in the "Level Standard" level mode.</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Level Easy Pressure<br/>Specify two pressure-level value pairs for this level mode. The pressure measured value is converted directly to the unit which is selected via the OUTPUT UNIT parameter (→ Page 58). Two calibration modes, "Wet" and "Dry", are available. <ul style="list-style-type: none"> <li>– Wet calibration takes place by filling and emptying the container. In the case of two different levels, the level, volume, mass or percentage value entered is assigned to the pressure measured at this point in time.</li> <li>– Dry calibration is a theoretical calibration. For this calibration, specify two pressure-level value pairs via the EMPTY CALIB., EMPTY PRESSURE, FULL CALIB. and FULL PRESSURE parameters. → Parameter descriptions see Page 59 ff.</li> </ul> </li> <li>■ Level Easy Height<br/>For this level mode, specify a height unit, density and two height-level value pairs. The pressure measured value is converted to a height value using the density entered and the height unit. Two calibration modes, "Wet" and "Dry", are available. <ul style="list-style-type: none"> <li>– Wet calibration takes place by filling and emptying the container. In the case of two different levels, the level, volume, mass or percentage value entered is assigned to the converted height value.</li> <li>– Dry calibration is a theoretical calibration. For this calibration, specify two height-level value pairs via the EMPTY CALIB., EMPTY HEIGHT, FULL CALIB. and FULL HEIGHT parameters. → Parameter descriptions see Page 63 ff.</li> </ul> </li> <li>■ Level standard<br/>Once you have selected this level mode, you can use the LEVEL MODE parameter (→ Page 66) to choose between "Linear", "Pressure Linearized" and "Height Linearized".</li> </ul> <p><b>Factory setting:</b><br/>Level Easy Pressure</p> |
| <p>→ For LEVEL SELECTION = "Level Easy Pressure" see Page 56, Table 8.<br/> → For LEVEL SELECTION = "Level Easy Height" see Page 60, Table 9.<br/> → For LEVEL SELECTION = "Level standard" see Page 65, Table 10.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

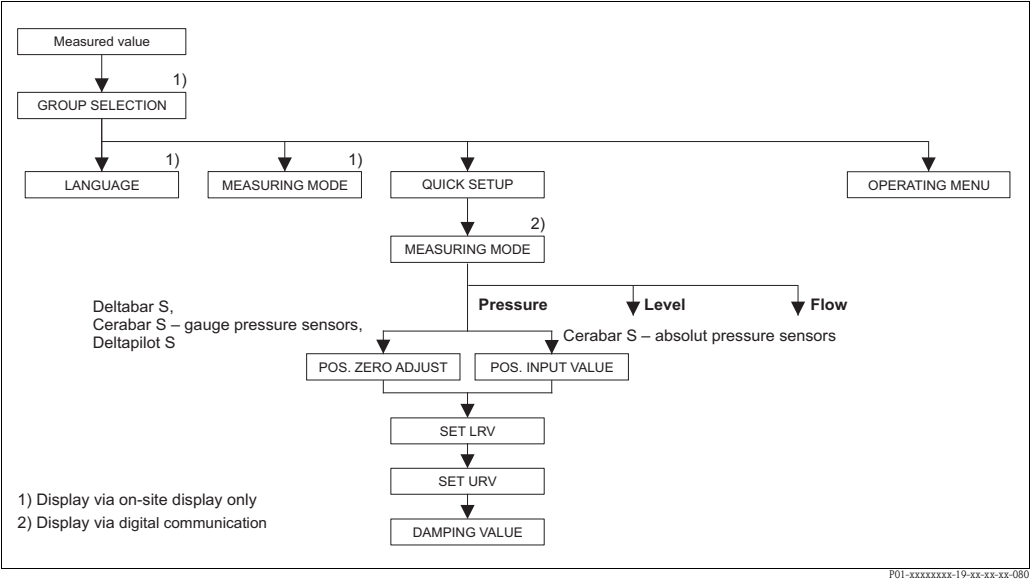


Fig. 19: Quick Setup menu for the "Pressure" measuring mode

| Table 3: QUICK SETUP "Pressure"                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <p>This menu displays the most important parameters for the "Pressure" measuring mode.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>■ MEASURING MODE = Pressure</li></ul> <p><b>Note:</b></p> <p>See also</p> <ul style="list-style-type: none"><li>– Page 54 ff, Table 7: BASIC SETUP</li><li>– Page 94, Table 15: EXTENDED SETUP</li><li>– Page 114 ff, Table 27: PROCESS VALUES</li><li>– Page 13 ff, Section 4 "Pressure measurement".</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| MEASURING MODE<br>Selection<br><br>Slot: 2<br>Index: 154                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Select the measuring mode.<br/>The operating menu is structured according to the selected measuring mode.</p> <p> <b>Note!</b><br/>When the measuring mode is changed, no conversion takes place. The digital output value of the Analog Input Block OUT no longer displays the same value as the on-site display or the MEASURED VALUE. The device has to be recalibrated if the measuring mode is changed. → See also Page 13, Section 4 "Pressure measurement".</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>■ FieldCare</li></ul> <p><b>Options:</b></p> <ul style="list-style-type: none"><li>■ Pressure</li><li>■ Level</li><li>■ Deltabar S: Flow</li></ul> <p><b>Factory setting:</b></p> <ul style="list-style-type: none"><li>■ Cerabar S and Deltabar S: Pressure</li><li>■ Deltapilot S: Level</li></ul> |

| <b>Table 3: QUICK SETUP "Pressure"</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                        | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| POS. ZERO ADJUST (685)<br>Entry<br><br>Slot: 2<br>Index 116  | <p>Position adjustment – the pressure difference between zero (set point) and the measured pressure need not be known.<br/>           Due to the orientation of the device, there may be a shift in the measured value, i.e. for example, when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero.</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– MEASURED VALUE = 2.2 mbar</li> <li>– Correct the MEASURED VALUE via the POS. ZERO ADJUST parameter with the "Confirm" option. This means that you are assigning the value 0.0 to the pressure present.</li> <li>– MEASURED VALUE (after pos. zero adjust) = 0.0 mbar</li> </ul> <p>The CALIB. OFFSET parameter displays the resulting pressure difference (offset) by which the MEASURED VALUE was corrected.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ This parameter is displayed for Deltabar S, Cerabar S with gauge pressure sensor or Deltapilot S.</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Abort</li> <li>■ Confirm</li> </ul> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                      |
| POS. INPUT VALUE (563)<br>Entry<br><br>Slot: 2<br>Index: 117 | <p>Position adjustment – the pressure difference between zero (set point) and the measured pressure need not be known. To correct the pressure difference, you need a reference measurement value (e. g. from a reference device).<br/>           Due to the orientation of the device, there may be a shift in the measured value, i.e. for example, when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero or the desired value.</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– MEASURED VALUE = 0.5 mbar</li> <li>– For the POS. INPUT VALUE parameter, specify the desired set point for the MEASURED VALUE, e.g. 2 mbar.<br/>             (MEASURED VALUE<sub>new</sub> = POS. INPUT VALUE)</li> <li>– MEASURED VALUE (after entry for POS. INPUT VALUE) = 2.0 mbar</li> <li>– The CALIB. OFFSET parameter displays the resulting pressure difference (offset) by which the MEASURED VALUE was corrected.<br/>             CALIB. OFFSET = MEASURED VALUE<sub>old</sub> – POS. INPUT VALUE,<br/>             here: CALIB. OFFSET = 0.5 mbar – 2.0 mbar = – 1.5 mbar)</li> </ul> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ This parameter is displayed for Cerabar S with absolute pressure sensor.</li> </ul> <p><b>Factory setting:</b><br/>0.0</p> |
| DAMPING VALUE (274)<br>Entry<br><br>Slot: 2<br>Index: 79     | <p>Enter damping time (time constant <math>\tau</math>).<br/>           The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>0.0...999.0 s</p> <p><b>Factory setting:</b><br/>2.0 s or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

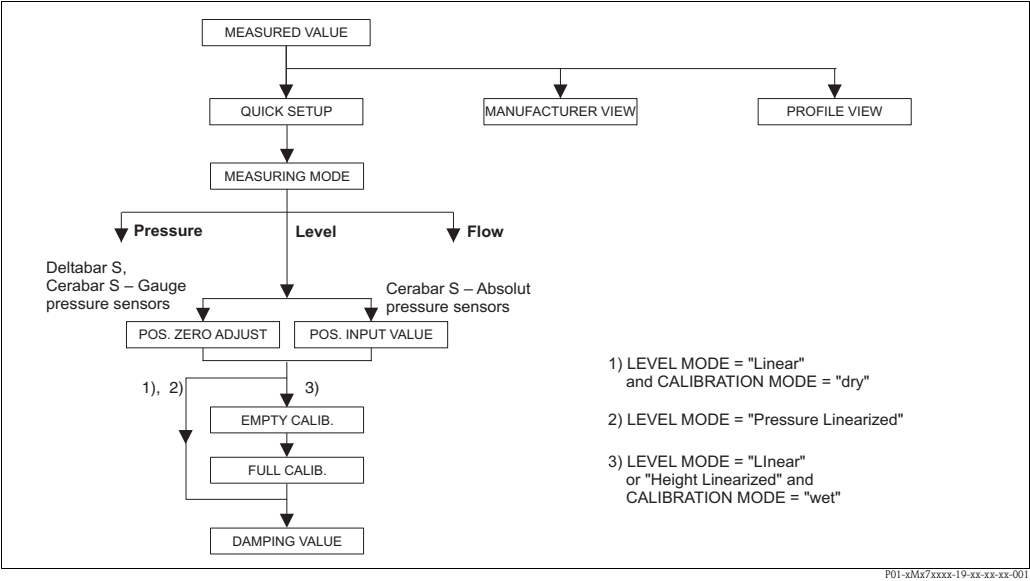
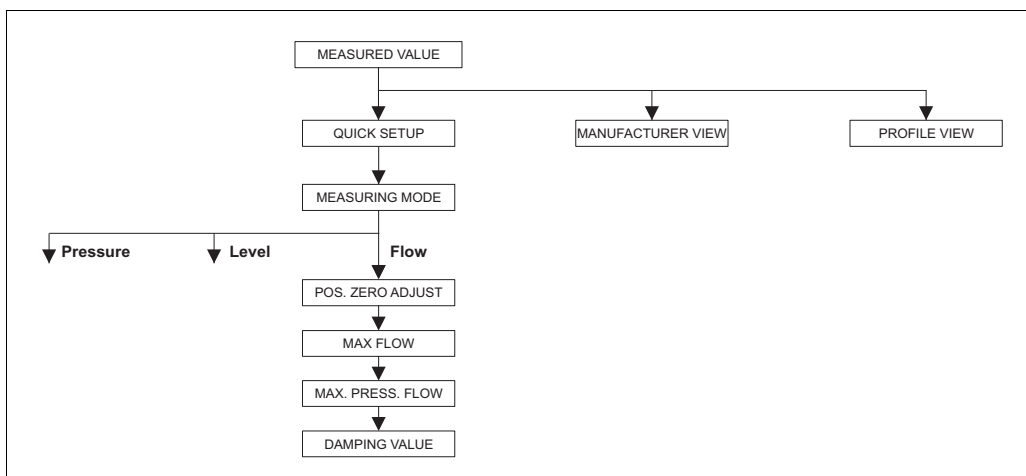


Fig. 20: Quick Setup menu for the "Level" measuring mode

| Table 4: QUICK SETUP "Level"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p>This menu displays the most important parameters for the "Level" measuring mode.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>MEASURING MODE = Level</li></ul> <p><b>Note:</b></p> <p>See also</p> <ul style="list-style-type: none"><li>Page 65 ff, Tables 10 to 13: BASIC SETUP</li><li>Page 94 ff, Table 16: EXTENDED SETUP</li><li>Page 100 ff, Table 18 and 19: LINEARISATION</li><li>Page 115 ff, Table 28: PROCESS VALUES</li><li>Page 14 ff, Section 5 "Level measurement".</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| MEASURING MODE<br>Selection<br><br>Slot: 2<br>Index: 154                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Select the measuring mode.<br/>The operating menu is structured according to the selected measuring mode.</p> <p> <b>Note!</b><br/>When the measuring mode is changed, no conversion takes place. The digital output value of the Analog Input Block OUT no longer displays the same value as the on-site display or the MEASURED VALUE. The device has to be recalibrated if the measuring mode is changed. → See also Page 14, Section 5 "Level measurement".</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>FieldCare</li></ul> <p><b>Options:</b></p> <ul style="list-style-type: none"><li>Pressure</li><li>Level</li><li>Deltabar S: Flow</li></ul> <p><b>Factory setting:</b></p> <ul style="list-style-type: none"><li>Cerabar S and Deltabar S: Pressure</li><li>Deltapilot S: Level</li></ul> |
| LEVEL SELECTION (020)<br>Options<br><br>Slot: 2<br>Index: 248                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Select level mode.<br/>→ Parameter description, see Page 45.</p> <p><b>Factory setting:</b><br/>Level Easy Pressure</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| <b>Table 4: QUICK SETUP "Level"</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                         | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| POS. ZERO ADJUST (685)<br>Entry<br><br>Slot: 2<br>Index: 116  | <p>Position adjustment – the pressure difference between zero (set point) and the measured pressure need not be known.<br/>           Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero.</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– MEASURED VALUE = 2.2 mbar</li> <li>– Correct the MEASURED VALUE via the POS. ZERO ADJUST parameter with the "Confirm" option. This means that you are assigning the value 0.0 to the pressure present.</li> <li>– MEASURED VALUE (after pos. zero adjust) = 0.0 mbar</li> </ul> <p>The CALIB. OFFSET parameter displays the resulting pressure difference (offset) by which the MEASURED VALUE was corrected.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ This parameter is displayed for Deltabar S, Cerabar S with gauge pressure sensor and Deltapilot S.</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Abort</li> <li>■ Confirm</li> </ul> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                     |
| POS. INPUT VALUE (563)<br>Entry<br><br>Slot: 2<br>Index: 117  | <p>Position adjustment – the pressure difference between zero (set point) and the measured pressure need not be known. To correct the pressure difference, you need a reference measurement value (e. g. from a reference device).<br/>           Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero or the desired value.</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– MEASURED VALUE = 0.5 mbar</li> <li>– For the POS. INPUT VALUE parameter, specify the desired set point for the MEASURED VALUE, e.g. 2 mbar.<br/>             (MEASURED VALUE<sub>new</sub> = POS. INPUT VALUE)</li> <li>– MEASURED VALUE (after entry for POS. INPUT VALUE) = 2.0 mbar</li> <li>– The CALIB. OFFSET parameter displays the resulting pressure difference (offset) by which the MEASURED VALUE was corrected.<br/>             CALIB. OFFSET = MEASURED VALUE<sub>old</sub> – POS. INPUT VALUE,<br/>             here: CALIB. OFFSET = 0.5 mbar – 2.0 mbar = – 1.5 mbar)</li> </ul> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ This parameter is displayed for Cerabar S with absolute pressure sensor.</li> </ul> <p><b>Factory setting:</b><br/>0.0</p> |
| EMPTY CALIB. (314)/(010)<br>Entry<br><br>Slot: 2<br>Index: 75 | <p>Enter level value for the lower calibration point (container empty).<br/>           The container is either empty or part full. By entering a value for this parameter, you are assigning a level value to the pressure present at the device.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LEVEL SELECTION = Level Easy Pressure (→ see also Page 45),<br/>             CALIBRATION MODE = Wet (→ see also Page 58)</li> <li>■ LEVEL SELECTION = Level Standard (→ see also Page 66),<br/>             LEVEL MODE = Linear (→ see also Page 66),<br/>             CALIBRATION MODE = Wet (→ see also Page 71)</li> </ul> <p> <b>Note!</b><br/>           For this parameter, the on-site display shows the level value to be entered and the pressure present at the device. In order for the level value to be saved together with the pressure present at the device, the entry field for the level value must first be activated using the "+"- or "- " key before confirming with the "E" key. This applies also if the level value is to remain unchanged.</p> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                          |

| Table 4: QUICK SETUP "Level"                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| FULL CALIB. (315)/(004)<br>Entry<br><br>Slot: 2<br>Index: 76 | <p>Enter level value for the upper calibration point (container full).<br/>The container is either completely or almost full. By entering a value for this parameter, you are assigning a level value to the pressure present at the device.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LEVEL SELECTION = Level Easy Pressure (→ see also Page 45),<br/>CALIBRATION MODE = Wet (→ see also Page 58)</li> <li>■ LEVEL SELECTION = Level Standard (→ see also Page),<br/>LEVEL MODE = Linear (→ see also Page 66),<br/>CALIBRATION MODE = Wet (→ see also Page 71)</li> </ul> <p> <b>Note!</b><br/>For this parameter, the on-site display shows the level value to be entered and the pressure present at the device. In order for the level value to be saved together with the pressure present at the device, the entry field for the level value must first be activated using the "+"- or "-" key before confirming with the "E" key. This applies also if the level value is to remain unchanged.</p> <p><b>Factory setting:</b><br/>100.0</p> |
| DAMPING VALUE (247)<br>Entry<br><br>Slot: 2<br>Index: 79     | <p>Enter damping time (time constant <math>\tau</math>).<br/>The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>0.0...999.0 s</p> <p><b>Factory setting:</b><br/>2.0 s or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



P01-xMx7xxxx-19-xx-xx-xx-002

Fig. 21: Quick Setup menu, "Flow" measuring mode (Differential pressure transmitter Deltabar S only)

| Table 5: QUICK SETUP "Flow"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Parameter name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Description |
| <p>This menu displays the most important parameters for the "Flow" measuring mode.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ Deltabar S differential pressure transmitter</li> <li>■ MEASURING MODE = Flow</li> </ul> <p><b>Note:</b><br/>See also</p> <ul style="list-style-type: none"> <li>– Page 89, Table 14: BASIC SETUP</li> <li>– Page 95, Table 17: EXTENDED SETUP</li> <li>– Page 103, Table 20: TOTALIZER SETUP</li> <li>– Page 40 ff, Section 6 "Flow measurement".</li> </ul> |             |

| <b>Table 5: QUICK SETUP "Flow"</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                        | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| MEASURING MODE<br>Selection<br><br>Slot: 2<br>Index: 154     | <p>Select the measuring mode.<br/>The operating menu is structured according to the selected measuring mode.</p> <p> <b>Note!</b><br/>When the measuring mode is changed, no conversion takes place. The digital output value of the Analog Input Block OUT no longer displays the same value as the on-site display or the MEASURED VALUE. The device has to be recalibrated if the measuring mode is changed. → See also Page 40, Section 6 "Flow measurement".</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ FieldCare</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Pressure</li> <li>■ Level</li> <li>■ Deltabar S: Flow</li> </ul> <p><b>Factory setting:</b></p> <ul style="list-style-type: none"> <li>■ Cerabar S and Deltabar S: Pressure</li> <li>■ Deltapilot S: Level</li> </ul>                                                                 |
| POS. ZERO ADJUST (685)<br>Entry<br><br>Slot: 2<br>Index: 116 | <p>Position adjustment – the pressure difference between zero (set point) and the measured pressure need not be known. (A reference pressure is present at the device.)<br/>Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the MEASURED VALUE parameter does not display zero.</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– MEASURED VALUE = 2.2 mbar</li> <li>– Correct the MEASURED VALUE via the POS. ZERO ADJUST parameter with the "Confirm" option. This means that you are assigning the value 0.0 to the pressure present.</li> <li>– MEASURED VALUE (after pos. zero adjust) = 0.0 mbar</li> </ul> <p>The CALIB. OFFSET parameter displays the resulting pressure difference (offset) by which the MEASURED VALUE was corrected.</p> <p><b>Selection</b></p> <ul style="list-style-type: none"> <li>■ Abort</li> <li>■ Confirm</li> </ul> <p><b>Factory setting:</b><br/>0.0</p> |
| MAX. FLOW (311)<br>Entry<br><br>Slot: 2<br>Index: 80         | <p>Enter maximum flow of primary device.<br/>See also layout sheet of primary device. The maximum flow is assigned to the maximum pressure which you enter via MAX PRESS. FLOW.</p> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MAX PRESS. FLOW (634)<br>Entry<br><br>Slot: 2<br>Index: 81   | <p>Enter maximum pressure of primary device.<br/>→ See layout sheet of primary device. This value is assigned to the maximum flow value (→ see MAX. FLOW).</p> <p><b>Factory setting:</b><br/>High sensor limit (→ See PRESS. SENS HILIM, Page 113)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| DAMPING VALUE<br>Entry<br><br>Slot: 2<br>Index: 79           | <p>Enter damping time (time constant <math>\tau</math>).<br/>The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>0.0...999.0 s</p> <p><b>Factory setting:</b><br/>2.0 s or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

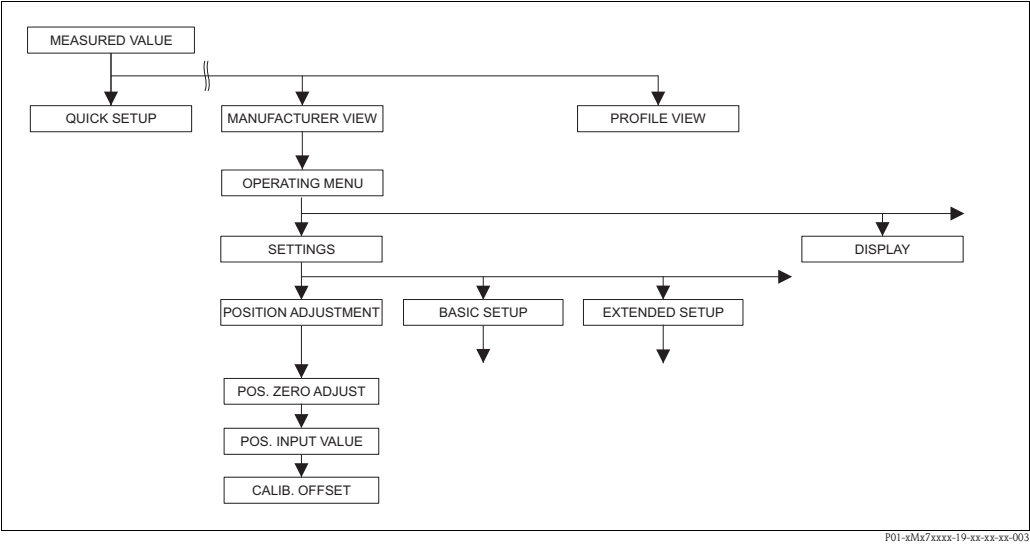
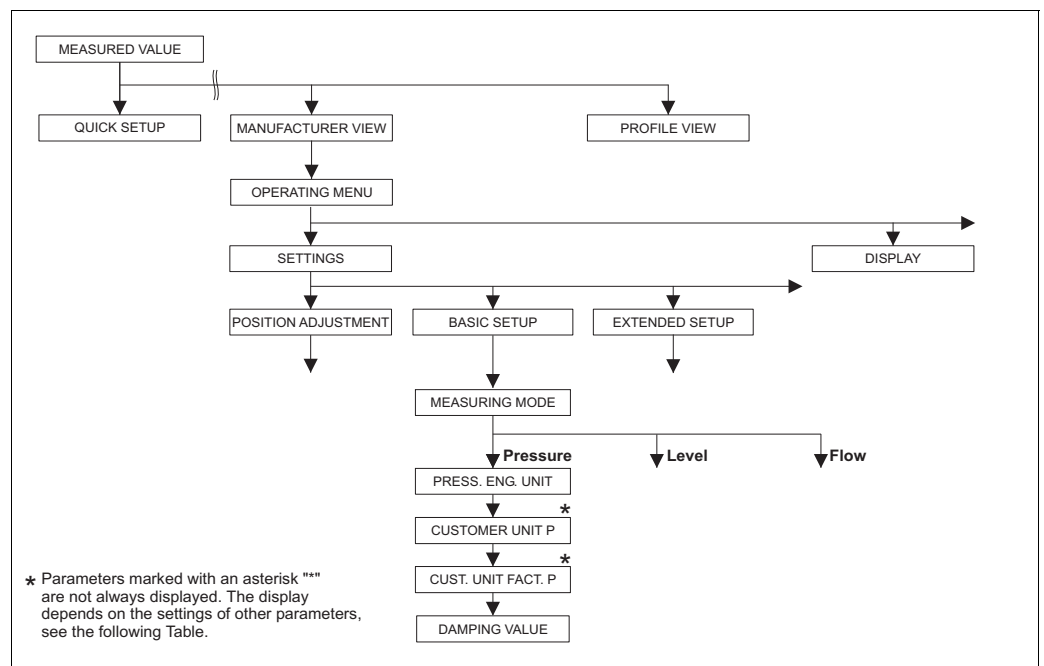


Fig. 22: POSITION ADJUSTMENT function group

| Table 6: OPERATING MENU → SETTINGS → POSITION ADJUSTMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p>Due to the orientation of the device, there may be a shift in the measured value, i.e. when the container is empty or partly filled, the measured value does not display zero. Deltabar S, Cerabar S and Deltapilot S offer three different ways of performing a position adjustment.</p> <p>Recommendation:</p> <ul style="list-style-type: none"><li>■ The pressure difference between zero (set point) and the measured pressure need not be known.<ul style="list-style-type: none"><li>– POS. ZERO ADJUST: Deltabar S or Cerabar S with gauge pressure sensor or Deltapilot S.</li><li>– POS. INPUT VALUE: Cerabar S with absolute pressure sensors.</li></ul></li><li>■ The pressure difference between zero (set point) and the measured pressure is known.<ul style="list-style-type: none"><li>– CALIB. OFFSET: Deltabar S, Cerabar S with gauge pressure sensor, Cerabar S with absolute pressure sensor or Deltapilot S.</li></ul></li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| POS. ZERO ADJUST (685)<br>Entry<br><br>Slot: 2<br>Index: 116                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Position adjustment – the pressure difference between zero (set point) and the measured pressure need not be known.</p> <p><b>Example:</b></p> <ul style="list-style-type: none"><li>– MEASURED VALUE = 2.2 mbar</li><li>– Correct the MEASURED VALUE via the POS. ZERO ADJUST parameter with the "Confirm" option. This means that you are assigning the value 0.0 to the pressure present.</li><li>– MEASURED VALUE (after pos. zero adjust) = 0.0 mbar</li></ul> <p>The CALIB. OFFSET parameter displays the resulting pressure difference (offset) by which the MEASURED VALUE was corrected.</p> <p><b>Selection</b></p> <ul style="list-style-type: none"><li>■ Abort</li><li>■ Confirm</li></ul> <p><b>Factory setting:</b><br/>0.0</p> |

| Table 6: OPERATING MENU → SETTINGS → POSITION ADJUSTMENT     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| POS. INPUT VALUE (563)<br>Entry<br><br>Slot: 2<br>Index: 117 | <p>Position adjustment – the pressure difference between zero (set point) and the measured pressure need not be known. To correct the pressure difference, you need a reference measurement value (e. g. from a reference device).</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– MEASURED VALUE = 0.5 mbar</li> <li>– For the POS. INPUT VALUE parameter, specify the desired set point for the MEASURED VALUE, e.g. 2 mbar.<br/>(<math>\text{MEASURED VALUE}_{\text{new}} = \text{POS. INPUT VALUE}</math>)</li> <li>– MEASURED VALUE (after entry for POS. INPUT VALUE) = 2.0 mbar</li> <li>– The CALIB. OFFSET parameter displays the resulting pressure difference (offset) by which the MEASURED VALUE was corrected.<br/><math>\text{CALIB. OFFSET} = \text{MEASURED VALUE}_{\text{old}} - \text{POS. INPUT VALUE}</math>,<br/>here: <math>\text{CALIB. OFFSET} = 0.5 \text{ mbar} - 2.0 \text{ mbar} = -1.5 \text{ mbar}</math>)</li> </ul> <p><b>Factory setting:</b><br/>0.0</p> |
| CALIB. OFFSET (319)<br>Entry<br><br>Slot: 2<br>Index: 118    | <p>Position adjustment – the pressure difference between zero (set point) and the measured pressure is known. (A reference pressure is not present at the device.)</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– MEASURED VALUE = 2.2 mbar</li> <li>– Via the CALIB. OFFSET parameter, enter the value by which the MEASURED VALUE should be corrected. To correct the MEASURED VALUE to 0.0 mbar, you must enter the value 2.2 here.<br/>(<math>\text{MEASURED VALUE}_{\text{new}} = \text{MEASURED VALUE}_{\text{old}} - \text{CALIB. OFFSET}</math>)</li> <li>– MEASURED VALUE (after entry for calib. offset) = 0.0 mbar</li> </ul> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                                                                                                                                            |



P01-aMz7xxxx-19-xx-xx-xx-004

Fig. 23: BASIC SETUP function group for the "pressure" measuring mode

| Table 7: OPERATING MENU → SETTINGS → BASIC SETUP "Pressure"                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                                                                                                                                                                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Pressure</li> </ul> <b>Note:</b><br>See also <ul style="list-style-type: none"> <li>– Page 46, Table 3: QUICK SETUP</li> <li>– Page 94, Table 15: EXTENDED SETUP</li> <li>– Page 114 ff, Table 27: PROCESS VALUES</li> <li>– Page 13 ff, Section 4 "Pressure measurement".</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| MEASURING MODE<br>Selection<br><br>Slot: 2<br>Index: 154                                                                                                                                                                                                                                                                                                             | Select the measuring mode.<br>The operating menu is structured according to the selected measuring mode.<br><br> <b>Note!</b><br>When the measuring mode is changed, no conversion takes place. The digital output value of the Analog Input Block OUT no longer displays the same value as the on-site display or the MEASURED VALUE. The device has to be recalibrated if the measuring mode is changed. → See also Page 13, Section 4 "Pressure measurement".<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ FieldCare</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>■ Pressure</li> <li>■ Level</li> <li>■ Deltabar S: Flow</li> </ul> <b>Factory setting:</b><br>Pressure                                                                                                                                                                                                                                                                                                                                                                |
| PRESS. ENG. UNIT (060)<br>Selection<br><br>Slot: 2<br>Index: 30                                                                                                                                                                                                                                                                                                      | Select pressure unit.<br>If a new pressure unit is selected, all pressure-specific parameters are converted and displayed with the new unit.<br><br><b>Options</b> <ul style="list-style-type: none"> <li>■ mbar, bar</li> <li>■ mmH2O, mH2O, inH2O, ftH2O</li> <li>■ Pa, hPa, kPa, MPa</li> <li>■ psi</li> <li>■ mmHg, inHg</li> <li>■ Torr</li> <li>■ g/cm<sup>2</sup>, kg/cm<sup>2</sup></li> <li>■ lb/ft<sup>2</sup></li> <li>■ atm</li> <li>■ gf/cm<sup>2</sup>, kgf/cm<sup>2</sup></li> <li>■ User unit, → See also the following parameter description for CUSTOMER UNIT P and CUST. UNIT FACT. P.</li> </ul>  <b>Note!</b><br>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).<br><br><b>Factory setting:</b><br>Depends on the sensor nominal measuring range mbar or bar or as per order specifications |

| <b>Table 7: OPERATING MENU → SETTINGS → BASIC SETUP "Pressure"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                              | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CUSTOMER UNIT P (075)<br>Entry<br><br>Slot: 2<br>Index: 114        | <p>Enter text (unit) for customer-specific pressure unit.<br/>           You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display.<br/>           The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>           - - - - -</p> |
| CUST. UNIT FACT. P (317)<br>Entry<br><br>Slot: 2<br>Index: 115     | <p>Enter conversion factor for a customer-specific pressure unit.<br/>           The conversion factor must be entered in relation to the SI unit "Pa". → See also CUSTOMER UNIT P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 10000 Pa <math>\cong</math> 1 PU</li> <li>– Entry CUSTOMER UNIT P: PU</li> <li>– Entry CUST. UNIT FACT. P: 0.0001</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                                                                                            |
| DAMPING VALUE (247)<br>Entry<br><br>Slot: 2<br>Index: 79           | <p>Enter damping time (time constant <math>\tau</math>).<br/>           The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>           0.0...999.0 s</p> <p><b>Factory setting:</b><br/>           2.0 s or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

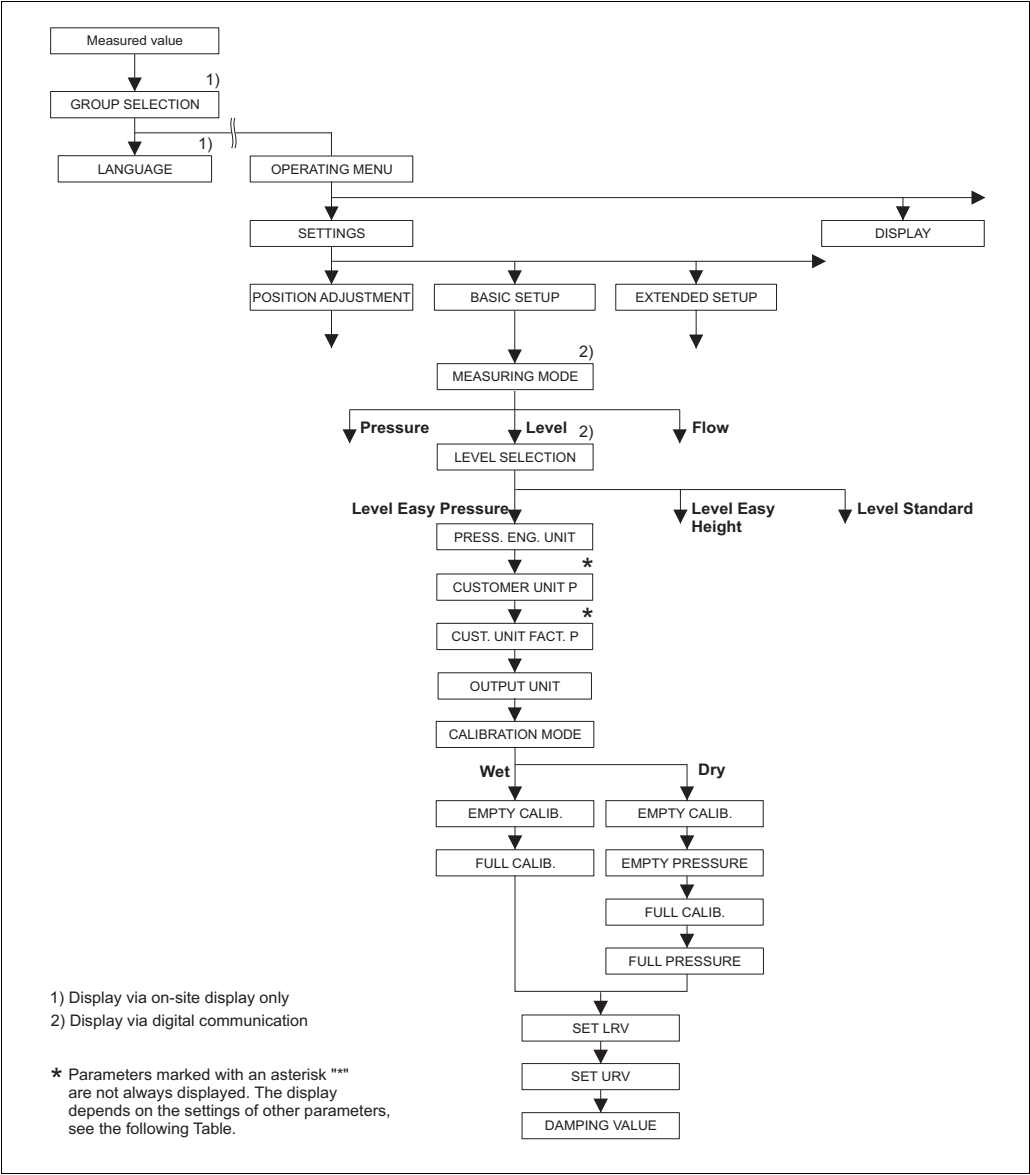


Fig. 24: BASIC SETUP function group for the "Level" measuring mode and "Level Easy Pressure" level selection

| Table 8: OPERATING MENU → SETTINGS → BASIC SETUP "Level",<br>LEVEL SELECTION "Level Easy Pressure"                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The following parameters are displayed if you have selected the "Level Easy Pressure" option for the LEVEL SELECTION parameter. Specify two pressure-level value pairs for this level mode. Two calibration modes, "Wet" and "Dry", are available. |
| <b>Prerequisite:</b> <ul style="list-style-type: none"><li>■ MEASURING MODE = Level (→ see also Page 44.)</li><li>■ LEVEL SELECTION = Level Easy Pressure (→ See also Page 45.)</li></ul>                                                          |

| <b>Table 8: OPERATING MENU → SETTINGS → BASIC SETUP "Level",<br/>LEVEL SELECTION "Level Easy Pressure"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>PRESS. ENG. UNIT (060)<br/>Selection</p> <p>Slot:2<br/>Index: 30</p>                                    | <p>Select pressure unit.<br/>If a new pressure unit is selected, all pressure-specific parameters are converted and displayed with the new unit.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ mbar, bar</li> <li>■ mmH2O, mH2O, inH2O, ftH2O</li> <li>■ Pa, hPa, kPa, MPa</li> <li>■ psi</li> <li>■ mmHg, inHg</li> <li>■ Torr</li> <li>■ g/cm<sup>2</sup>, kg/cm<sup>2</sup></li> <li>■ lb/ft<sup>2</sup></li> <li>■ atm</li> <li>■ gf/cm<sup>2</sup>, kgf/cm<sup>2</sup></li> <li>■ User unit, → see also the following parameter descriptions for CUSTOMER UNIT P and CUST. UNIT FACT. P.</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>Depends on the sensor nominal measuring range mbar or bar or as per order specifications</p> |
| <p>CUSTOMER UNIT P (075)<br/>Entry</p> <p>Slot:2<br/>Index: 114</p>                                        | <p>Enter text (unit) for customer-specific pressure unit.<br/>You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>-----</p>                                                                                                                                                                                                        |
| <p>CUST. UNIT FACT. P (317)<br/>Entry</p> <p>Slot:2<br/>Index: 115</p>                                     | <p>Enter conversion factor for a customer-specific pressure unit.<br/>The conversion factor must be entered in relation to the SI unit "Pa". → See also CUSTOMER UNIT P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 10000 Pa ≈ 1 PU</li> <li>– Entry CUSTOMER UNIT P: PU</li> <li>– Entry CUST. UNIT FACT. P: 0.0001</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| <b>Table 8: OPERATING MENU → SETTINGS → BASIC SETUP "Level",<br/>LEVEL SELECTION "Level Easy Pressure"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| OUTPUT UNIT (023)<br>Selection<br><br>Slot:2<br>Index: 249                                                 | <p>Select unit for measured value display and MEASURED VALUE parameter (→ Page 115).</p> <p> <b>Note!</b><br/>           The selected unit is used only to describe the measured value. This means that when selecting a new output unit, the measured value is not converted.<br/>           Example:<br/>           ■ current measured value: 0.3 ft<br/>           ■ new output unit: m<br/>           ■ new measured value: 0.3 m</p> <p><b>Options</b></p> <ul style="list-style-type: none"> <li>■ %</li> <li>■ mm, cm, dm, m</li> <li>■ ft, inch</li> <li>■ cm<sup>3</sup>, dm<sup>3</sup>, m<sup>3</sup>, m<sup>3</sup> E<sup>3</sup></li> <li>■ l, hl</li> <li>■ ft<sup>3</sup>, ft<sup>3</sup> E<sup>3</sup></li> <li>■ gal, bbl, lgal</li> <li>■ g, kg, t</li> <li>■ lb, ton, oz</li> </ul> <p><b>Factory setting:</b><br/>%</p>                                                                                                              |
| CALIBRATION MODE (008)<br>Selection<br><br>Slot:2<br>Index: 141                                            | <p>Select calibration mode.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Wet<br/>           Wet calibration takes place by filling and emptying the container. In the case of two different levels, the level, volume, mass or percentage value entered is assigned to the pressure measured at this point in time. (→ See also this table, parameter descriptions for EMPTY CALIB. and FULL CALIB.)</li> <li>■ Dry<br/>           Dry calibration is a theoretical calibration. For this calibration, specify two pressure-level value pairs via the following parameters: EMPTY CALIB., EMPTY PRESSURE, FULL CALIB. and FULL PRESSURE.</li> </ul> <p><b>Factory setting:</b><br/>Wet</p>                                                                                                                                                                                                                                                                                                                         |
| EMPTY CALIB. (010)<br>Entry<br><br>Slot:2<br>Index: 51                                                     | <p>Enter level, volume, mass or percentage value for the lower calibration point (container empty).</p> <p>The container is either empty or part full. By entering a value for this parameter, you assign a level, volume, mass or percentage value to the pressure present at the device. The unit is selected via the OUTPUT UNIT parameter (→ Page 58).</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p> <b>Note!</b><br/>           For this parameter, the on-site display shows the level value to be entered and the pressure present at the device. In order for the level value to be saved together with the pressure present at the device, the entry field for the level value must first be activated using the "+-" or "-" key before confirming with the "E" key. This applies also if the level value is to remain unchanged.</p> <p><b>Factory setting:</b><br/>0.0</p> |
| FULL CALIB. (004)<br>Entry<br><br>Slot:2<br>Index: 51                                                      | <p>Enter height, volume or mass value for the upper calibration point (container full).</p> <p>The container is either completely or almost full. By entering a value for this parameter, you assign a height, volume or mass value to the pressure present at the device. The unit is selected via the OUTPUT UNIT parameter (→ Page 58).</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p> <b>Note!</b><br/>           For this parameter, the on-site display shows the level value to be entered and the pressure present at the device. In order for the level value to be saved together with the pressure present at the device, the entry field for the level value must first be activated using the "+-" or "-" key before confirming with the "E" key. This applies also if the level value is to remain unchanged.</p> <p><b>Factory setting:</b><br/>100.0</p>               |

| <b>Table 8: OPERATING MENU → SETTINGS → BASIC SETUP "Level",<br/>LEVEL SELECTION "Level Easy Pressure"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| EMPTY CALIB. (010)<br>Entry<br><br>Slot:2<br>Index: 51                                                     | <p>Enter level, volume, mass or percentage value for the lower calibration point (container empty).<br/>The values entered for the EMPTY CALIB. and EMPTY PRESSURE parameters form the pressure-level value pair for the lower calibration point. The unit is selected via the OUTPUT UNIT parameter (→ Page 58).</p> <p><b>Prerequisite:</b><br/>■ CALIBRATION MODE = Dry</p> <p><b>Factory setting:</b><br/>0.0</p> |
| EMPTY PRESSURE (011)<br>Entry<br><br>Slot:2<br>Index: 50                                                   | <p>Enter pressure value for the lower calibration point (container empty).<br/>→ See also EMPTY CALIB.</p> <p><b>Prerequisite:</b><br/>■ CALIBRATION MODE = Dry</p> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                                            |
| FULL CALIB. (004)<br>Entry<br><br>Slot:2<br>Index: 51                                                      | <p>Enter height, volume, mass or percentage value for the upper calibration point (container full).<br/>The values entered for the FULL CALIB. and FULL PRESSURE parameters form the pressure-level value pair for the upper calibration point. The unit is selected via the OUTPUT UNIT parameter (→ Page 58).</p> <p><b>Prerequisite:</b><br/>■ CALIBRATION MODE = Dry</p> <p><b>Factory setting:</b><br/>100.0</p> |
| FULL PRESSURE (005)<br>Entry<br><br>Slot:2<br>Index: 50                                                    | <p>Enter pressure value for the upper calibration point (container full).<br/>→ See also FULL CALIB.</p> <p><b>Prerequisite:</b><br/>■ CALIBRATION MODE = Dry</p> <p><b>Factory setting:</b><br/>100.0</p>                                                                                                                                                                                                            |
| DAMPING VALUE (247)<br>Entry<br><br>Slot: 2<br>Index: 79                                                   | <p>Enter damping time (time constant <math>\tau</math>).<br/>The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>0.0 to 999.0 s</p> <p><b>Factory setting:</b><br/>2.0 s or as per order specifications</p>                                         |

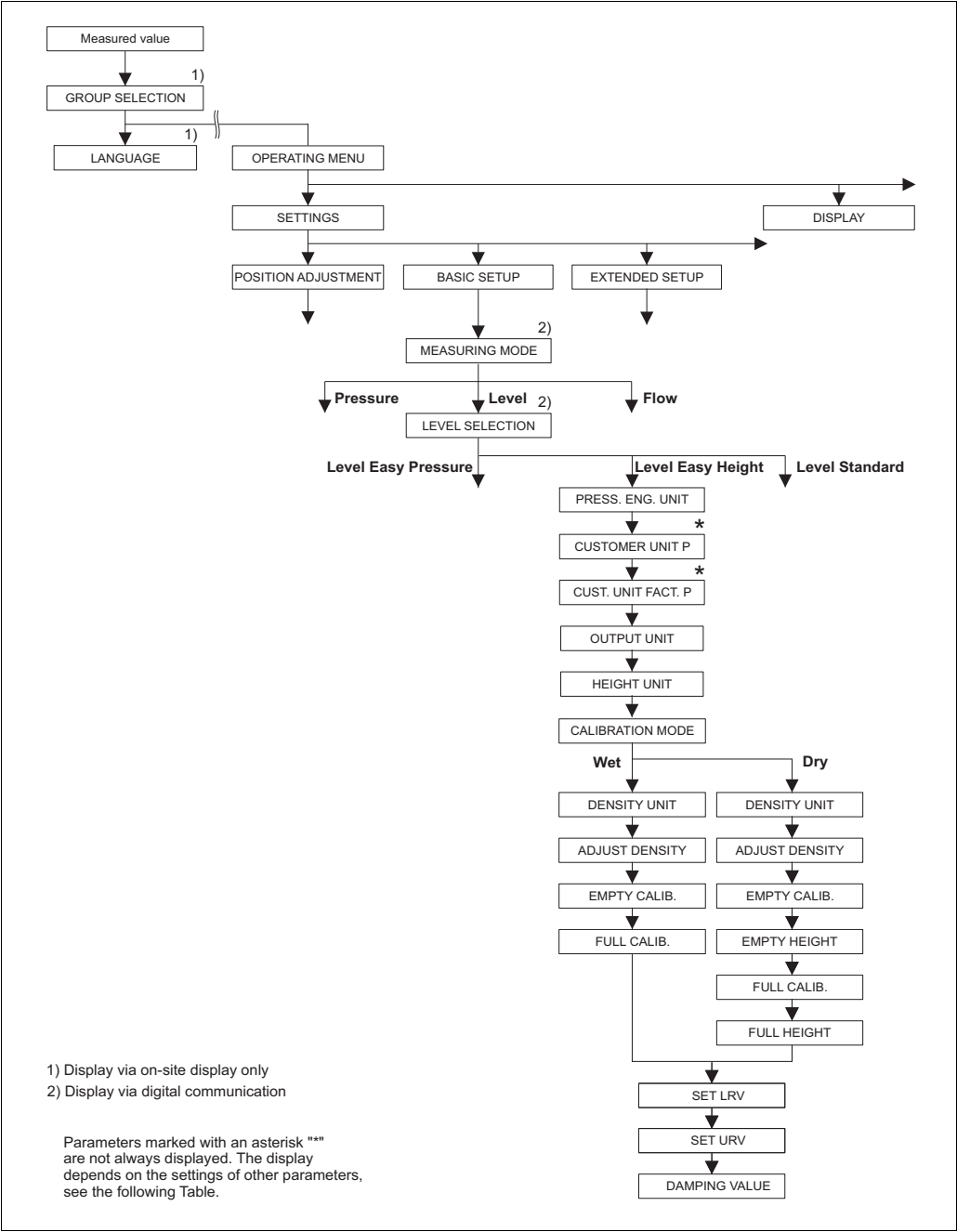


Fig. 25: BASIC SETUP function group for "Level" measuring mode and "Level Easy Height" level selection

Table 9: OPERATING MENU → SETTINGS → BASIC SETUP "Level",  
LEVEL SELECTION "Level Easy Height"

The following parameters are displayed if you have selected the "Level Easy Height" option for the LEVEL SELECTION parameter. For this level mode, specify a height unit, density and two height-level value pairs. The pressure measured value is converted to a height value using the density entered and the height. Two calibration modes, "Wet" and "Dry", are available.

**Prerequisite:**

- MEASURING MODE = Level (→ see also Page 44.)
- LEVEL SELECTION = Level Easy Height (→ See also Page 45.)

| <b>Table 9: OPERATING MENU → SETTINGS → BASIC SETUP "Level",<br/>LEVEL SELECTION "Level Easy Height"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p>PRESS. ENG. UNIT (060)<br/>Options</p> <p>Slot: 2<br/>Index: 30</p>                                   | <p>Select pressure unit.<br/>If a new pressure unit is selected, all pressure-specific parameters are converted and displayed with the new unit.</p> <p><b>Options</b></p> <ul style="list-style-type: none"> <li>■ mbar, bar</li> <li>■ mmH<sub>2</sub>O, mH<sub>2</sub>O, inH<sub>2</sub>O, ftH<sub>2</sub>O</li> <li>■ Pa, hPa, kPa, MPa</li> <li>■ psi</li> <li>■ mmHg, inHg</li> <li>■ Torr</li> <li>■ g/cm<sup>2</sup>, kg/cm<sup>2</sup></li> <li>■ lb/ft<sup>2</sup></li> <li>■ atm</li> <li>■ gf/cm<sup>2</sup>, kgf/cm<sup>2</sup></li> <li>■ User unit, → see also the following parameter descriptions for CUSTOMER UNIT P and CUST. UNIT FACT. P.</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>Depends on the sensor nominal measuring range mbar or bar or as per order specifications</p> |
| <p>CUSTOMER UNIT P (075)<br/>Entry</p> <p>Slot: 2<br/>Index: 114</p>                                     | <p>Enter text (unit) for customised pressure unit.<br/>You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>_ _ _ _ _</p>                                                                                                                                                                                                                                                      |
| <p>CUST. UNIT FACT. P (317)<br/>Entry</p> <p>Slot: 2<br/>Index: 115</p>                                  | <p>Enter conversion factor for a customer-specific pressure unit.<br/>The conversion factor must be entered in relation to the SI unit "Pa". → See also CUSTOMER UNIT P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 10000 Pa ≈ 1 PU</li> <li>– Entry CUSTOMER UNIT P: PU</li> <li>– Entry CUST. UNIT FACT. P: 0.0001</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| <b>Table 9: OPERATING MENU → SETTINGS → BASIC SETUP "Level",<br/>LEVEL SELECTION "Level Easy Height"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| OUTPUT UNIT (023)<br>Options<br><br>Slot: 2<br>Index: 249                                                | <p>Select unit for measured value display and MEASURED VALUE parameter (→ Page 115).</p> <p> <b>Note!</b><br/>The selected unit is used only to describe the measured value. This means that when selecting a new output unit, the measured value is not converted.<br/>Example:<br/> <ul style="list-style-type: none"> <li>■ current measured value: 0.3 ft</li> <li>■ new output unit: m</li> <li>■ new measured value: 0.3 m</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>■ %</li> <li>■ mm, cm, dm, m</li> <li>■ ft, inch</li> <li>■ cm<sup>3</sup>, dm<sup>3</sup>, m<sup>3</sup>, m<sup>3</sup> E<sup>3</sup></li> <li>■ l, hl</li> <li>■ ft<sup>3</sup>, ft<sup>3</sup> E<sup>3</sup></li> <li>■ gal, bbl, lgal</li> <li>■ g, kg, t</li> <li>■ lb, ton, oz</li> </ul> <b>Factory setting:</b><br/>%</p> |
| HEIGHT UNIT (003)<br>Options<br><br>Slot: 2<br>Index: 240                                                | <p>Select height unit. The measured pressure is converted to the chosen height unit using the DENSITY UNIT and ADJUST DENSITY parameters.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ mm</li> <li>■ cm</li> <li>■ dm</li> <li>■ m</li> <li>■ inch</li> <li>■ ft</li> </ul> <p><b>Factory setting:</b><br/>m</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| CALIBRATION MODE (008)<br>Options<br><br>Slot: 2<br>Index: 241                                           | <p>Select calibration mode.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Wet<br/>Wet calibration takes place by filling and emptying the container. The measured pressure is converted to the chosen height unit using the HEIGHT UNIT, DENSITY UNIT and ADJUST DENSITY parameters. In the case of two different levels, the level, volume, mass or percentage value entered is assigned to the converted height value.</li> <li>■ Dry<br/>Dry calibration is a theoretical calibration. For this calibration, specify two height-level value pairs via the EMPTY CALIB., EMPTY HEIGHT, FULL CALIB. and FULL HEIGHT parameters.</li> </ul> <p><b>Factory setting:</b><br/>Dry</p>                                                                                                                                                                                                              |
| DENSITY UNIT (001)<br>Options<br><br>Slot: 2<br>Index: 244                                               | <p>Select density unit. The measured pressure is converted to a height using the HEIGHT UNIT, DENSITY UNIT and ADJUST DENSITY parameters.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ g/cm<sup>3</sup></li> <li>■ kg/dm<sup>3</sup></li> <li>■ kg/m<sup>3</sup></li> <li>■ US lb/in<sup>3</sup></li> <li>■ US lb/ft<sup>3</sup></li> </ul> <p><b>Factory setting:</b><br/>kg/dm<sup>3</sup></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ADJUST DENSITY (007)<br>Entry<br><br>Slot: 2<br>Index: 245                                               | <p>Enter density of fluid. The measured pressure is converted to a height using the HEIGHT UNIT, DENSITY UNIT and ADJUST DENSITY parameters.</p> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| <b>Table 9: OPERATING MENU → SETTINGS → BASIC SETUP "Level",<br/>LEVEL SELECTION "Level Easy Height"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| EMPTY CALIB. (010)<br>Entry<br><br>Slot: 2<br>Index: 50                                                  | <p>Enter level, volume, mass or percentage value for the lower calibration point (container empty).</p> <p>The container is either empty or part full. The measured pressure is converted to a height value using the HEIGHT UNIT, DENSITY UNIT and ADJUST DENSITY parameters and displayed. Using the parameter EMPTY CALIB., you assign a level, volume, mass or percentage value to the height value. The unit is selected via the OUTPUT UNIT parameter (→ Page 62).</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p> <b>Note!</b></p> <p>For this parameter, the on-site display shows the level value to be entered and the pressure present at the device. In order for the level value to be saved together with the pressure present at the device, the entry field for the level value must first be activated using the "+"- or "-"- key before confirming with the "E" key. This applies also if the level value is to remain unchanged.</p> <p><b>Factory setting:</b><br/>0.0</p>           |
| FULL CALIB. (004)<br>Entry<br><br>Slot: 2<br>Index: 50                                                   | <p>Enter level, volume, mass or percentage value for the upper calibration point (container full).</p> <p>The container is either completely or almost full. Using the parameters HEIGHT UNIT, DENSITY UNIT and ADJUST DENSITY, the measured pressure is converted to a height value and displayed. Using the parameter FULL CALIB., you assign a level, volume, mass or percentage value to the height value. The unit is selected via the OUTPUT UNIT parameter (→ Page 62).</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p> <b>Note!</b></p> <p>For this parameter, the on-site display shows the level value to be entered and the pressure present at the device. In order for the level value to be saved together with the pressure present at the device, the entry field for the level value must first be activated using the "+"- or "-"- key before confirming with the "E" key. This applies also if the level value is to remain unchanged.</p> <p><b>Factory setting:</b><br/>100.0</p> |
| EMPTY CALIB. (010)<br>Entry<br><br>Slot: 2<br>Index: 50                                                  | <p>Enter level, volume, mass or percentage value for the lower calibration point (container empty).</p> <p>The values entered for the EMPTY CALIB. and EMPTY HEIGHT parameters form the height-level value pair for the lower calibration point. The unit is selected via the OUTPUT UNIT parameter (→ Page 62).</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Dry</li> </ul> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| EMPTY HEIGHT (009)<br>Entry<br><br>Slot: 2<br>Index: 242                                                 | <p>Height value for the lower calibration point (container empty). The unit is selected via the HEIGHT UNIT parameter (→ Page 62).<br/>→ See also EMPTY CALIB.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Dry</li> </ul> <p><b>Factory setting:</b><br/>Upper range limit (URL) converted to an height unit</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| FULL CALIB. (004)<br>Entry<br><br>Slot: 2<br>Index: 50                                                   | <p>Enter level, volume, mass or percentage value for the upper calibration point (container full).</p> <p>The values entered for the FULL CALIB. and FULL HEIGHT parameters form the height-level value pair for the upper calibration point. The unit is selected via the OUTPUT UNIT parameter (→ Page 62).</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Dry</li> </ul> <p><b>Factory setting:</b><br/>100.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Table 9: OPERATING MENU → SETTINGS → BASIC SETUP "Level",<br>LEVEL SELECTION "Level Easy Height" |                                                                                                                                                                                                                                                                                                                                                           |
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| FULL HEIGHT (006)<br>Entry<br><br>Slot: 2<br>Index: 243                                          | Enter height value for the upper calibration point (container full). The unit is selected via the HEIGHT UNIT parameter (→ Page 62).<br>→ See also FULL CALIB.<br><br><b>Prerequisite:</b><br>■ CALIBRATION MODE = Dry<br><br><b>Factory setting:</b><br>0.0                                                                                              |
| DAMPING VALUE (247)<br>Entry<br><br>Slot: 2<br>Index: 79                                         | Enter damping time (time constant $\tau$ ).<br>The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.<br><br><b>Input range:</b><br>0.0 to 999.0 s<br><br><b>Factory setting:</b><br>2.0 s or as per order specifications |

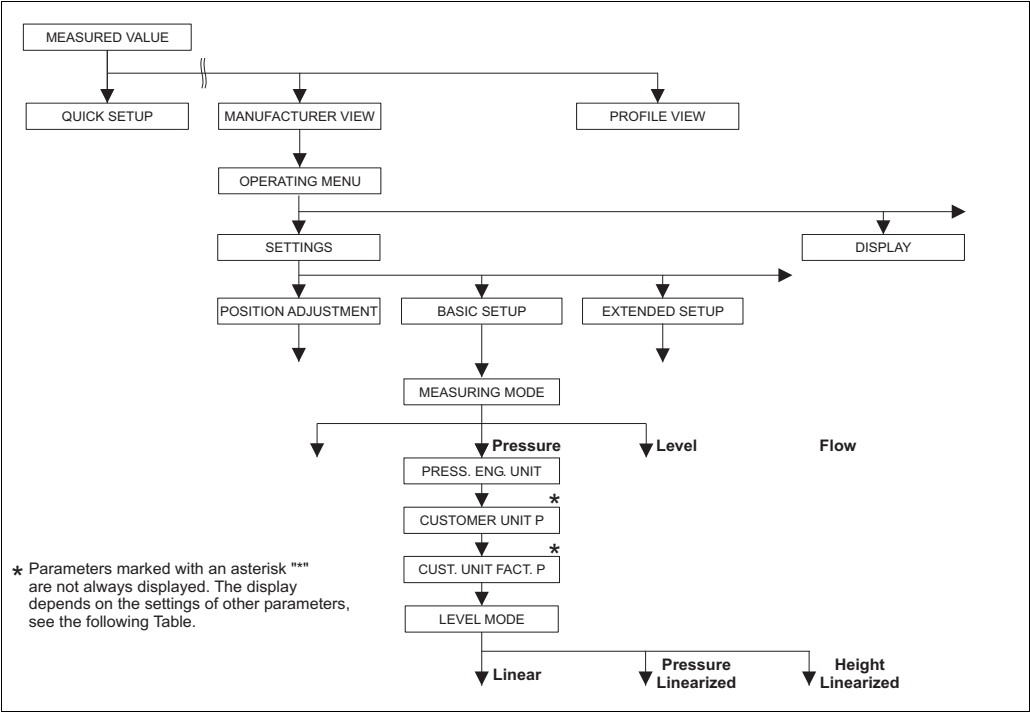


Fig. 26: BASIC SETUP function group for the "Level" measuring mode, depending on the setting for the LEVEL MODE parameter  
→ See Page 67, Fig. 27 for LEVEL MODE = Linear,  
→ See Page 76, Fig. 29 for LEVEL MODE = Pressure linearized,  
→ See Page 80, Fig. 30 for LEVEL MODE = Height linearized

| <b>Table 10: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL SELECTION "Level Easy Height"</b>                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                                                                                                                                                                                                                                                         | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Prerequisite:</b><br>■ MEASURING MODE = Level<br><br><b>Note:</b><br>See also<br>– Page 68 ff, Tables 11 to 13: BASIC SETUP – contd.<br>– Page 94 ff, Table 16: EXTENDED SETUP<br>– Page 100 ff, Table 18 and 19: LINEARISATION<br>– Page 115 ff, Table 28: PROCESS VALUES<br>– Page 14 ff, Section 5 "Level measurement". |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| MEASURING MODE<br>Selection<br><br>Slot: 2<br>Index: 154                                                                                                                                                                                                                                                                      | Select the measuring mode.<br>The operating menu is structured according to the selected measuring mode.<br><br> <b>Note!</b><br>When the measuring mode is changed, no conversion takes place. The digital output value of the Analog Input Block OUT no longer displays the same value as the on-site display or the MEASURED VALUE. The device has to be recalibrated if the measuring mode is changed. → See also Page 14, Section 5 "Level measurement".<br><br><b>Prerequisite:</b><br>■ FieldCare<br><br><b>Options:</b><br>■ Pressure<br>■ Level<br>■ Deltabar S: Flow<br><br><b>Factory setting:</b><br>Pressure                                                                                                                                                                                                                                                                                                                                                                   |
| PRESS. ENG. UNIT (060)<br>Selection<br><br>Slot: 2<br>Index: 30                                                                                                                                                                                                                                                               | Select pressure unit.<br>If a new pressure unit is selected, all pressure-specific parameters are converted and displayed with the new unit.<br><br><b>Options:</b><br>■ mbar, bar<br>■ mmH2O, mH2O, inH2O, ftH2O<br>■ Pa, hPa, kPa, MPa<br>■ psi<br>■ mmHg, inHg<br>■ Torr<br>■ g/cm <sup>2</sup> , kg/cm <sup>2</sup><br>■ lb/ft <sup>2</sup><br>■ atm<br>■ gf/cm <sup>2</sup> , kgf/cm <sup>2</sup><br>■ User unit, → See also the following parameter description for CUSTOMER UNIT P and CUST. UNIT FACT. P.<br><br> <b>Note!</b><br>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).<br><br><b>Factory setting:</b><br>Depends on the sensor nominal measuring range mbar or bar or as per order specifications |

| <b>Table 10: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL SELECTION "Level Easy Height"</b>                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                                                                                                               | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CUSTOMER UNIT P (075)<br>Entry<br><br>Slot: 2<br>Index: 114                                                                                                                         | <p>Enter text (unit) for customer-specific pressure unit.<br/>           You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>           -----</p>                                                                                                                                                                                                                                                                                                             |
| CUST. UNIT FACT. P (317)<br>Entry<br><br>Slot: 2<br>Index: 115                                                                                                                      | <p>Enter conversion factor for a customer-specific pressure unit.<br/>           The conversion factor must be entered in relation to the SI unit "Pa". → See also CUSTOMER UNIT P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 10000 Pa <math>\hat{=}</math> 1 PU</li> <li>– Entry CUSTOMER UNIT P: PU</li> <li>– Entry CUST. UNIT FACT. P: 0.0001</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| LEVEL MODE (718)<br>Selection<br><br>Slot: 2<br>Index: 154                                                                                                                          | <p>Select level type.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Linear: the measured variable (level, volume, mass or %) is in direct proportion to the measured pressure. → See also Page 68 ff, Table 11.</li> <li>■ Pressure linearized: the measured variable (volume, mass or %) is not in direct proportion to the measured pressure such as in the case of containers with a conical outlet. For the calibration, enter a linearisation table with at least 2 and not more than 32 points. → See also Page 76 ff, Table 12.</li> <li>■ Height linearized: select this level type if you require two measured variables or if the container shape is given with value pairs, e.g. height and volume.<br/>           The following combinations are possible:               <ul style="list-style-type: none"> <li>– Height + Volume</li> <li>– Height + Mass</li> <li>– Height + %</li> <li>– %-Height + volume</li> <li>– %-Height + Mass</li> <li>– %-Height + %</li> </ul> </li> </ul> <p>Perform two calibrations for this level type. First for the measured variable height or %-height like for the "Linear" option and then for the measured variable volume, mass or % like for the "Pressure linearized" option. → See also Page 81 ff, Table 13.</p> <p><b>Factory setting:</b><br/>           Linear</p> |
| → For LEVEL MODE = Linear, see Page 68, Table 11.<br>→ For LEVEL MODE = Pressure linearized, see Page 76, Table 12.<br>→ For LEVEL MODE = Height linearized, see Page 81, Table 13. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

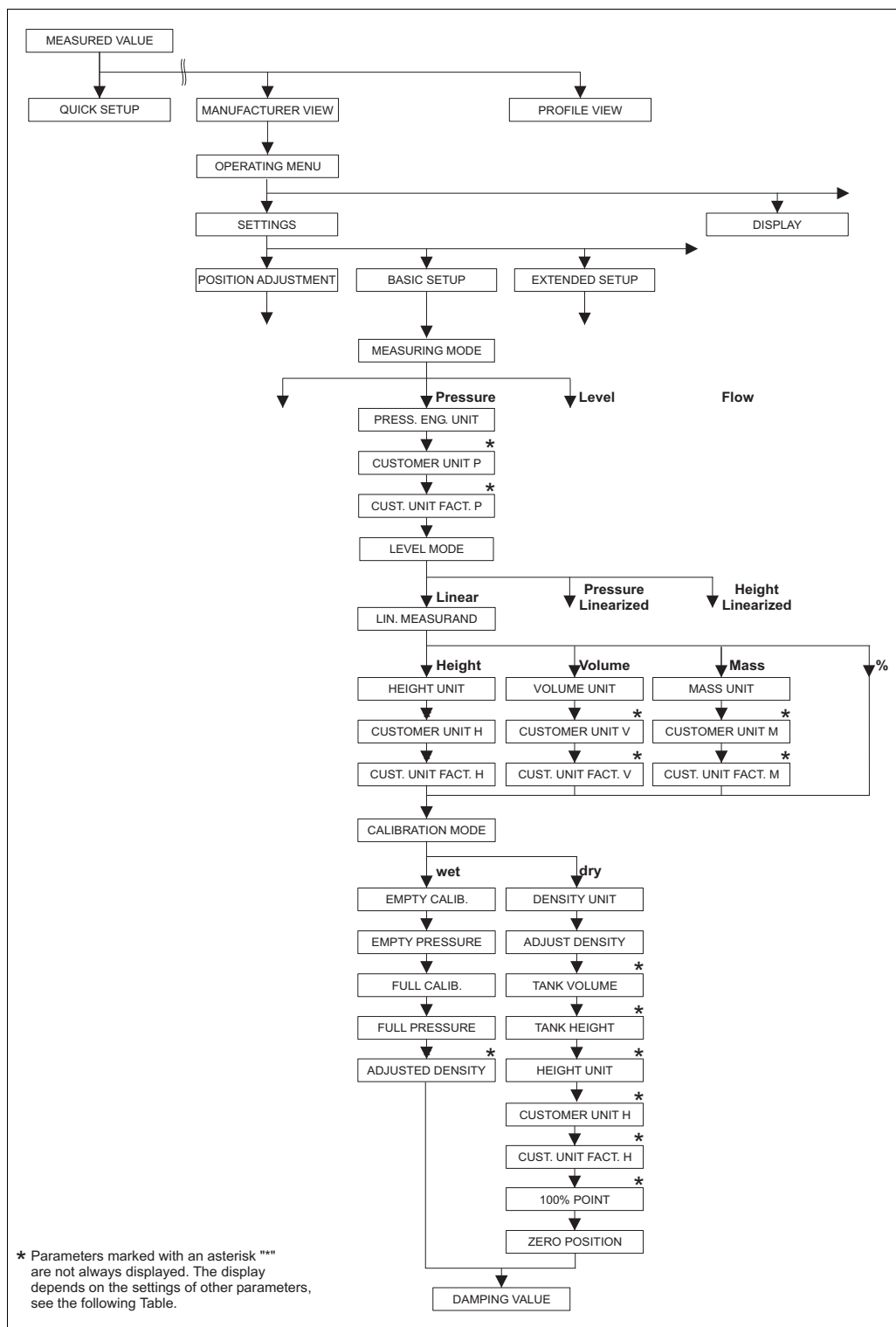


Fig. 27: BASIC SETUP function group for the "Level" measuring mode and "Linear" level type

| Table 11: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Linear"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p>The following parameters are displayed if you selected the "Linear" option for the LEVEL MODE parameter. For this level type, the measured variable (level, volume, mass or %) is in direct proportion to the measured pressure.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Level.</li> <li>■ LEVEL MODE = Linear (→ see also Page 66).</li> </ul> <p><b>Note:</b><br/>See also</p> <ul style="list-style-type: none"> <li>– Page 65 ff, Table 10: BASIC SETUP – general</li> <li>– Page 94 ff, Table 16: EXTENDED SETUP</li> <li>– Page 115 ff, Table 28: PROCESS VALUES</li> <li>– Page 14 ff, Section 5 "Level measurement".</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| LIN. MEASURAND (804)<br>Selection<br><br>Slot: 2<br>Index: 199                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Select measured variable.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Level</li> <li>■ Volume</li> <li>■ Mass</li> <li>■ % (level)</li> </ul> <p><b>Factory setting:</b><br/>% (level)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| HEIGHT UNIT (708)<br>Selection<br><br>Slot: 2<br>Index: 177                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Select level unit.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Level</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ mm</li> <li>■ cm</li> <li>■ dm</li> <li>■ m</li> <li>■ inch</li> <li>■ ft</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT H and CUST. UNIT FACT. H.</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>m</p>                                                                                                                               |
| CUSTOMER UNIT H (706)<br>Entry<br><br>Slot: 2<br>Index: 179                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Enter text (unit) for customer-specific level unit.<br/>You can enter a maximum of eight alphanumeric characters here.<br/>→ See also CUST. UNIT FACT. H.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Level, HEIGHT UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>- - - - -</p> |

| <b>Table 11: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Linear"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| CUST. UNIT FACT. H (706)<br>Entry<br><br>Slot: 2<br>Index: 178                        | <p>Enter conversion factor for a customer-specific level unit.<br/>           The conversion factor must be entered in relation to the SI unit "m".<br/>           → See also CUSTOMER UNIT H.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Level, HEIGHT UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 0.5 m <math>\hat{=}</math> 1 PU</li> <li>– Entry CUSTOMER UNIT H: PU</li> <li>– Entry CUST. UNIT FACT. H: 2</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                                                              |
| UNIT VOLUME (313)<br>Selection<br><br>Slot: 2<br>Index: 146                           | <p>Select volume unit.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Volume</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ 1</li> <li>■ hl</li> <li>■ cm<sup>3</sup></li> <li>■ dm<sup>3</sup></li> <li>■ m<sup>3</sup></li> <li>■ m<sup>3</sup> E<sup>3</sup></li> <li>■ ft</li> <li>■ ft<sup>3</sup> E<sup>3</sup></li> <li>■ gal</li> <li>■ lgal</li> <li>■ bbl</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT V and CUST. UNIT FACT. V.</li> </ul> <p> <b>Note!</b><br/>           Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>           → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: 109).</p> <p><b>Factory setting:</b><br/>m<sup>3</sup></p> |
| CUSTOMER UNIT V (608)<br>Entry<br><br>Slot: 2<br>Index: 147                           | <p>Enter text (unit) for customer-specific volume unit.<br/>           You can enter a maximum of eight alphanumeric characters here.<br/>           → See also CUST. UNIT FACT. V</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Volume, UNIT VOLUME = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>_ _ _ _ _</p>        |

| Table 11: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Linear" |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| CUST. UNIT FACT. V (607)<br>Entry<br><br>Slot: 2<br>Index: 147                 | <p>Enter conversion factor for a customer-specific volume unit.<br/>           The conversion factor must be entered in relation to the SI unit "m<sup>3</sup>".<br/>           → See also CUSTOMER UNIT V.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Volume, UNIT VOLUME = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "buckets".</li> <li>– MEASURED VALUE = 0.01 m<sup>3</sup> ≈ 1 bucket</li> <li>– Entry CUSTOMER UNIT V: bucket</li> <li>– Entry CUST. UNIT FACT. V: 100</li> <li>– Result: MEASURED VALUE = 1 bucket</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                                      |
| MASS UNIT (709)<br>Selection<br><br>Slot: 2<br>Index: 174                      | <p>Select mass unit.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Mass</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ g</li> <li>■ kg</li> <li>■ t</li> <li>■ oz</li> <li>■ lb</li> <li>■ ton</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT M and CUST. UNIT FACT. M.</li> </ul> <p> <b>Note!</b><br/>           Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>           → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>kg</p>                                                                                                                                                           |
| CUSTOMER UNIT M (704)<br>Entry<br><br>Slot: 2<br>Index: 176                    | <p>Enter text (unit) for customer-specific mass unit.<br/>           You can enter a maximum of eight alphanumeric characters here.<br/>           → See also CUST. UNIT FACT. M.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Mass, MASS UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>-----</p> |

| <b>Table 11: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Linear"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| CUST. UNIT FACT. M (703)<br>Entry<br><br>Slot: 2<br>Index: 175                        | <p>Enter conversion factor for a customer-specific mass unit.<br/>The conversion factor must be entered in relation to the SI unit "kg".<br/>→ See also CUSTOMER UNIT M.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Mass, MASS UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "buckets".</li> <li>– MEASURED VALUE = 10 kg <math>\hat{=}</math> 1 bucket</li> <li>– Entry CUSTOMER UNIT M: bucket</li> <li>– Entry CUST. UNIT FACT. M: 0.1</li> <li>– Result: MEASURED VALUE = 1 bucket</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| CALIBRATION MODE (392)<br>Selection<br><br>Slot: 2<br>Index: 121                      | <p>Select calibration mode.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Wet<br/>Wet calibration takes place by filling and emptying the container. This calibration mode requires two pressure-level value pairs to be entered. In the case of two different levels, the level value is entered and the pressure measured at this moment is assigned to the level value. → See also the following parameter description for EMPTY CALIB., EMPTY PRESSURE, FULL CALIB. and FULL PRESSURE.</li> <li>■ Dry<br/>Dry calibration is a theoretical calibration which you can carry out even if the device is not mounted or the container is empty.               <ul style="list-style-type: none"> <li>– For the "Level" measured variable, the density of the fluid (→ see Page 72, ADJUST DENSITY) must be entered.</li> <li>– For the "Volume" measured variable, the density of the fluid and the tank volume and tank height must be entered (→ see Page 72, ADJUST DENSITY, TANK VOLUME and TANK HEIGHT).</li> <li>– For the "Mass" measured variable, the tank volume and the tank height must be entered (→ see Page 73, TANK VOLUME and TANK HEIGHT). The density must also be entered in the case of a zero point shift (level offset) (→ see Page 72, ADJUST DENSITY).</li> <li>– For the "%" measured variable, the density of the fluid must be entered and a level assigned to the 100 % point (→ see Page 72 and 75, ADJUST DENSITY and 100% POINT).</li> </ul> </li> </ul> <p>If the measurement should not start at the mounting location of the device, a level offset must be entered (→ see Page 75, ZERO POSITION).</p> <p><b>Factory setting:</b><br/>Wet</p> |
| EMPTY CALIB. (314)<br>Entry<br><br>Slot: 2<br>Index: 75                               | <p>Enter level value for the lower calibration point (container empty).<br/>The container is either empty or part full. By entering a value for this parameter, you are assigning a level value to the pressure present at the device. → See also EMPTY PRESSURE.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| EMPTY PRESSURE (710)<br>Display<br><br>Slot: 2<br>Index: 180                          | <p>Displays the pressure value for the lower calibration point (container empty).<br/>→ See also EMPTY CALIB.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| <b>Table 11: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Linear"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| FULL CALIB. (315)<br>Entry<br><br>Slot: 2<br>Index: 76                                | Enter level value for the upper calibration point (container full).<br>The container is either completely or almost full. By entering a value for this parameter, you are assigning a level value to the pressure present at the device. → See also FULL PRESSURE.<br><br><b>Prerequisite:</b><br>■ CALIBRATION MODE = Wet<br><br><b>Factory setting:</b><br>100.0                                                                                                           |
| FULL PRESSURE (711)<br>Display<br><br>Slot: 2<br>Index: 181                           | Displays the pressure value for the upper calibration point (container full).<br>→ See also FULL CALIB.<br><br><b>Prerequisite:</b><br>■ CALIBRATION MODE = Wet<br><br><b>Factory setting:</b><br>High sensor limit (→ see PRESS. SENS HILIM, Page 113)                                                                                                                                                                                                                      |
| ADJUSTED DENSITY (810)<br>Display<br><br>Slot: 2<br>Index: 122                        | Displays the density calculated from the upper and lower level point.<br><br><b>Prerequisite:</b><br>■ CALIBRATION MODE = Wet, LIN. MEASURAND = Level                                                                                                                                                                                                                                                                                                                        |
| DENSITY UNIT (812)<br>Selection<br><br>Slot: 2<br>Index: 127                          | Select density unit.<br><br><b>Prerequisite:</b><br>■ LIN. MEASURAND = Level, CALIBRATION MODE = Dry<br>■ LIN. MEASURAND = % (level), CALIBRATION MODE = Dry<br>■ LIN. MEASURAND = Volume, CALIBRATION MODE = Dry<br>■ LIN. MEASURAND = Mass, CALIBRATION MODE = Dry<br><br><b>Options:</b><br>■ g/cm <sup>3</sup><br>■ kg/dm <sup>3</sup><br>■ kg/m <sup>3</sup><br>■ US lb/in <sup>3</sup><br>■ US lb/ft <sup>3</sup><br><br><b>Factory setting:</b><br>kg/dm <sup>3</sup> |
| ADJUST DENSITY (316)<br>Entry<br><br>Slot: 2<br>Index: 128                            | Enter density of fluid.<br><br><b>Prerequisite:</b><br>■ LIN. MEASURAND = Level, CALIBRATION MODE = Dry<br>■ LIN. MEASURAND = % (level), CALIBRATION MODE = Dry<br>■ LIN. MEASURAND = Volume, CALIBRATION MODE = Dry<br>■ LIN. MEASURAND = Mass, CALIBRATION MODE = Dry<br><br><b>Factory setting:</b><br>1000.0                                                                                                                                                             |

| <b>Table 11: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Linear"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UNIT VOLUME (313)<br>Selection<br><br>Slot: 2<br>Index: 146                           | <p>Select volume unit.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Volume</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ l</li> <li>■ hl</li> <li>■ cm<sup>3</sup></li> <li>■ dm<sup>3</sup></li> <li>■ m<sup>3</sup></li> <li>■ m<sup>3</sup> E<sup>3</sup></li> <li>■ ft</li> <li>■ ft<sup>3</sup> E<sup>3</sup></li> <li>■ gal</li> <li>■ lgal</li> <li>■ bbl</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT V and CUST. UNIT FACT. V.</li> </ul> <p> <b>Note!</b><br/>           Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>           → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: 109).</p> <p><b>Factory setting:</b><br/>           m<sup>3</sup></p> |
| CUSTOMER UNIT V (608)<br>Entry<br><br>Slot: 2<br>Index: 147                           | <p>Enter text (unit) for customer-specific volume unit.<br/>           You can enter a maximum of eight alphanumeric characters here.<br/>           → See also CUST. UNIT FACT. V</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Volume, UNIT VOLUME = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>           - - - - -</p>      |
| CUST. UNIT FACT. V (607)<br>Entry<br><br>Slot: 2<br>Index: 147                        | <p>Enter conversion factor for a customer-specific volume unit.<br/>           The conversion factor must be entered in relation to the SI unit "m<sup>3</sup>".<br/>           → See also CUSTOMER UNIT V.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Volume, UNIT VOLUME = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "buckets".</li> <li>– MEASURED VALUE = 0.01 m<sup>3</sup> ≈ 1 bucket</li> <li>– Entry CUSTOMER UNIT V: bucket</li> <li>– Entry CUST. UNIT FACT. V: 100</li> <li>– Result: MEASURED VALUE = 1 bucket</li> </ul> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                                                                                    |
| TANK VOLUME (858)<br>Entry<br><br>Slot: 2<br>Index: 129                               | <p>Enter tank volume.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Volume, CALIBRATION MODE = Dry</li> <li>■ LIN. MEASURAND = Mass, CALIBRATION MODE = Dry</li> </ul> <p><b>Factory setting:</b><br/>           1.0 m<sup>3</sup></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Table 11: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Linear" |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| HEIGHT UNIT (708)<br>Selection<br><br>Slot: 2<br>Index: 177                    | <p>Select level unit.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Level</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ mm</li> <li>■ cm</li> <li>■ dm</li> <li>■ m</li> <li>■ inch</li> <li>■ ft</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT H and CUST. UNIT FACT. H.</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>m</p>                                                                                                                             |
| CUSTOMER UNIT H (706)<br>Entry<br><br>Slot: 2<br>Index: 179                    | <p>Enter text (unit) for customer-specific level unit.<br/>You can enter a maximum of eight alphanumeric characters here.<br/>→ See also CUST. UNIT FACT. H.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Level, HEIGHT UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>-----</p> |
| CUST. UNIT FACT. H (706)<br>Entry<br><br>Slot: 2<br>Index: 178                 | <p>Enter conversion factor for a customer-specific level unit.<br/>The conversion factor must be entered in relation to the SI unit "m".<br/>→ See also CUSTOMER UNIT H.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Level, HEIGHT UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 0.5 m <math>\hat{=}</math> 1 PU</li> <li>– Entry CUSTOMER UNIT H: PU</li> <li>– Entry CUST. UNIT FACT. H: 2</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                 |
| TANK HEIGHT (859)<br>Entry<br><br>Slot: 2<br>Index: 130                        | <p>Enter tank height.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = Volume, CALIBRATION MODE = Dry</li> <li>■ LIN. MEASURAND = Mass, CALIBRATION MODE = Dry</li> </ul> <p><b>Factory setting:</b><br/>1.0 m</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| <b>Table 11: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Linear"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>100% POINT (813)</b><br>Entry<br><br>Slot: 2<br>Index: 131                         | <p>Enter level value for 100% point.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LIN. MEASURAND = % (level), CALIBRATION MODE = Dry</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– The 100 %-point should correspond to 4 m.</li> <li>– Select the "m" unit via the HEIGHT UNIT parameter.</li> <li>– Enter the value "4" for this parameter (100% POINT).</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                        |
| <b>ZERO POSITION (814)</b><br>Entry<br><br>Slot: 2<br>Index: 132                      | <p>Enter value for level offset.</p> <p>If the measurement should not start at the mounting location of the device, e.g. for containers with a sump, carry out zero point shift (level offset).</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Dry</li> </ul> <p><b>Factory setting:</b><br/>0.0</p> <div> </div> <p><small>P01-PMP75xxx-19-xx-xx-xx-001</small></p> <p><i>Fig. 28: Zero point shift</i></p> <ol style="list-style-type: none"> <li>1 Device is mounted above the level lower range value: a positive value has to be entered for ZERO POSITION.</li> <li>2 Device is mounted below the level lower range value: a negative value has to be entered for ZERO POSITION.</li> </ol> |
| <b>DAMPING VALUE</b><br>Entry<br><br>Slot: 2<br>Index: 79                             | <p>Enter damping time (time constant <math>\tau</math>).</p> <p>The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>0.0...999.0 s</p> <p><b>Factory setting:</b><br/>2.0 s or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                              |

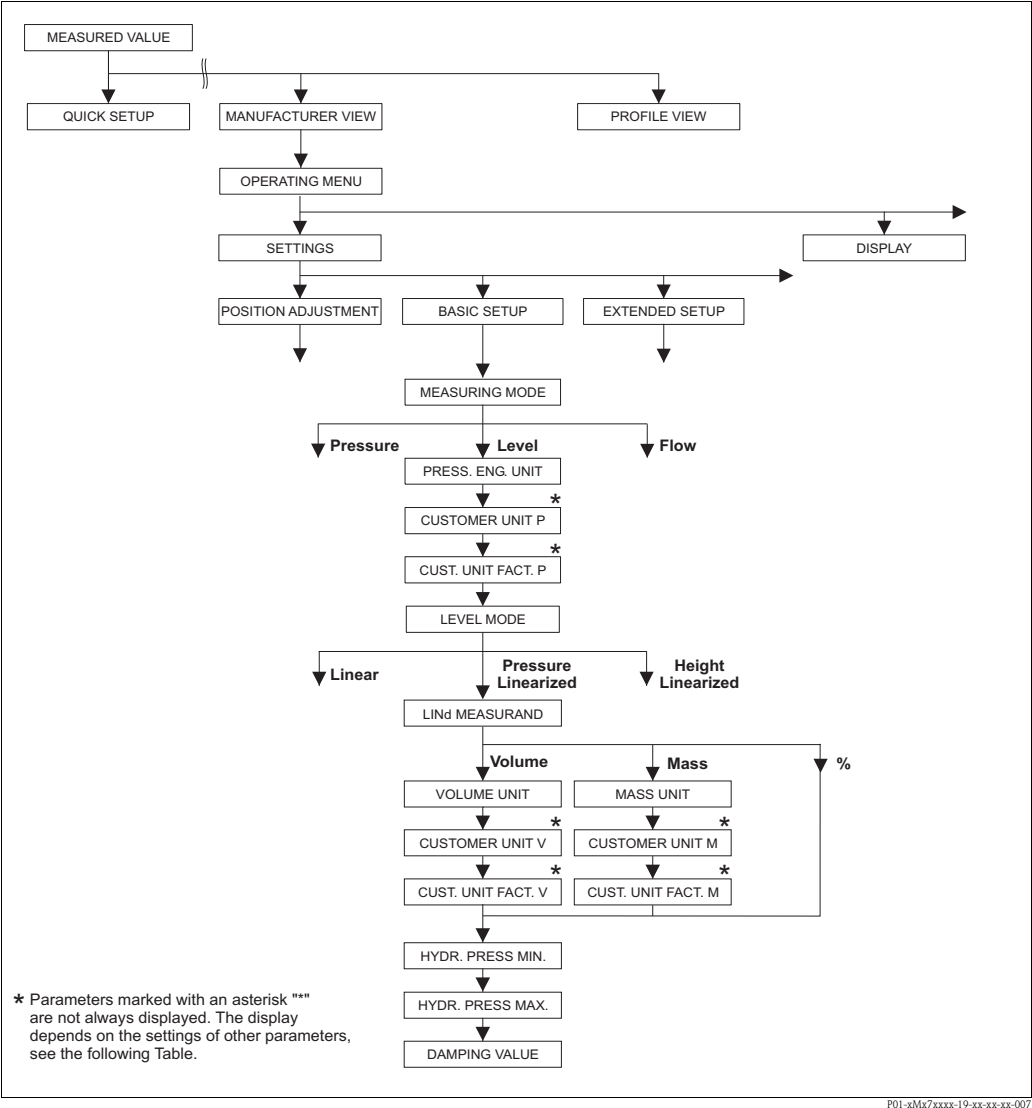


Fig. 29: BASIC SETUP function group for the "Level" measuring mode and the "Pressure linearized" level type, continue calibration with LINEARISATION function group → See Page 100 ff.

| Table 12: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Pressure linearized"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Parameter name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Description |
| <p>The following parameters are displayed if you selected the "Pressure linearized" option for the LEVEL MODE parameter. For this level type, the measured variable (volume, mass or %) is not in direct proportion to the measured pressure. For the calibration, enter a linearisation table with at least 2 and not more than 32 points.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>■ MEASURING MODE = Level</li><li>■ LEVEL MODE = Pressure linearized (→ see also Page 66).</li></ul> <p><b>Note:</b></p> <p>See also</p> <ul style="list-style-type: none"><li>– Page 65 ff, Table 10: BASIC SETUP – general</li><li>– Page 94 ff, Table 16: EXTENDED SETUP</li><li>– Page 100 ff, Table 18 and 19: LINEARISATION</li><li>– Page 115 ff, Table 28: PROCESS VALUES</li><li>– Page 14 ff, Section 5 "Level measurement".</li></ul> |             |

| <b>Table 12: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Pressure linearized"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                              | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| LIND. MEASURAND (805)<br>Selection<br><br>Slot: 2<br>Index: 200                                    | Select measured variable.<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ Pressure and Volume</li> <li>■ Pressure and Mass</li> <li>■ Pressure and %</li> </ul> <b>Factory setting:</b><br>Pressure and %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UNIT VOLUME (313)<br>Selection<br><br>Slot: 2<br>Index: 146                                        | Select volume unit.<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ LIND. MEASURAND = Pressure and Volume</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>■ l</li> <li>■ hl</li> <li>■ cm<sup>3</sup></li> <li>■ dm<sup>3</sup></li> <li>■ m<sup>3</sup></li> <li>■ m<sup>3</sup> E<sup>3</sup></li> <li>■ ft</li> <li>■ ft<sup>3</sup> E<sup>3</sup></li> <li>■ gal</li> <li>■ lgal</li> <li>■ bbl</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT V and CUST. UNIT FACT. V.</li> </ul> <p> <b>Note!</b><br/>           Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>           → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site operation: Page 109).</p> <b>Factory setting:</b><br>m <sup>3</sup> |
| CUSTOMER UNIT V (608)<br>Entry<br><br>Slot: 2<br>Index: 147                                        | Enter text (unit) for customer-specific volume unit.<br>You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. V.<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ LIND. MEASURAND = Pressure and Volume,<br/>UNIT VOLUME = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display.<br/>           The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <b>Factory setting:</b><br>-----                    |

| Table 12: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Pressure linearized" |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| CUST. UNIT FACT. V (608)<br>Entry<br><br>Slot: 2<br>Index: 148                              | <p>Enter conversion factor for a customer-specific volume unit.<br/>The conversion factor must be entered in relation to the SI unit "m<sup>3</sup>". → See also CUSTOMER UNIT V.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LInD. MEASURAND = Pressure and Volume,<br/>UNIT VOLUME = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "buckets".</li> <li>– MEASURED VALUE = 0.01 m<sup>3</sup> ≈ 1 bucket</li> <li>– Entry CUSTOMER UNIT V: bucket</li> <li>– Entry CUST. UNIT FACT. V: 100</li> <li>– Result: MEASURED VALUE = 1 bucket</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                               |
| MASS UNIT (709)<br>Selection<br><br>Slot: 2<br>Index: 174                                   | <p>Select mass unit.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LInD. MEASURAND = Pressure and Mass</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ g</li> <li>■ kg</li> <li>■ t</li> <li>■ oz</li> <li>■ lb</li> <li>■ ton</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT M and CUST. UNIT FACT. M.</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>kg</p>                                                                                                                                                    |
| CUSTOMER UNIT M (704)<br>Entry<br><br>Slot: 2<br>Index: 176                                 | <p>Enter text (unit) for customer-specific mass unit.<br/>You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. M.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LInD. MEASURAND = Pressure and Mass,<br/>MASS UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>If the unit contains a slash, up to eight characters can be shown on the on-site display.<br/>The maximum number of characters in the counter is again limited to five. For example, if "crates/m<sup>2</sup>" is specified as the customer-specific unit, "crate/m<sup>2</sup>" is displayed.<br/>FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>-----</p> |

| <b>Table 12: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Pressure linearized"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                              | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| CUST. UNIT FACT. M (704)<br>Entry<br><br>Slot: 2<br>Index: 175                                     | <p>Enter conversion factor for a customer-specific mass unit.<br/>The conversion factor must be entered in relation to the SI unit "kg". → See also CUSTOMER UNIT M.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ LInD. MEASURAND = Pressure and Mass,<br/>MASS UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "buckets".</li> <li>– MEASURED VALUE = 10 kg <math>\hat{=}</math> 1 bucket</li> <li>– Entry CUSTOMER UNIT M: bucket</li> <li>– Entry CUST. UNIT FACT. M: 0.1</li> <li>– Result: MEASURED VALUE = 1 bucket</li> </ul> <p><b>Factory setting:</b><br/>1.0</p> |
| HYDR. PRESS MIN. (773)<br>Entry<br><br>Slot: 2<br>Index: 194                                       | <p>Enter the minimum hydrostatic pressure to be expected.<br/>The input limits for the calibration (editing limits) are derived from the value entered. The closer the value entered corresponds to the minimum hydrostatic pressure to be expected, the more accurate the measurement result.</p> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                                                                                                                                                                                          |
| HYDR. PRESS MAX. (774)<br>Entry<br><br>Slot: 2<br>Index: 190                                       | <p>Enter the maximum hydrostatic pressure to be expected.<br/>The input limits for the calibration (editing limits) are derived from the value entered. The closer the value entered corresponds to the maximum hydrostatic pressure to be expected, the more accurate the measurement result.</p> <p><b>Factory setting:</b><br/>High sensor limit (→ See PRESS. SENS HILIM, Page 113)</p>                                                                                                                                                                                                                                                                                                        |
| DAMPING VALUE (247)<br>Entry<br><br>Slot: 2<br>Index: 79                                           | <p>Enter damping time (time constant <math>\tau</math>).<br/>The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>0.0...999.0 s</p> <p><b>Factory setting:</b><br/>2.0 s or as per order specifications</p>                                                                                                                                                                                                                                                                                                                       |

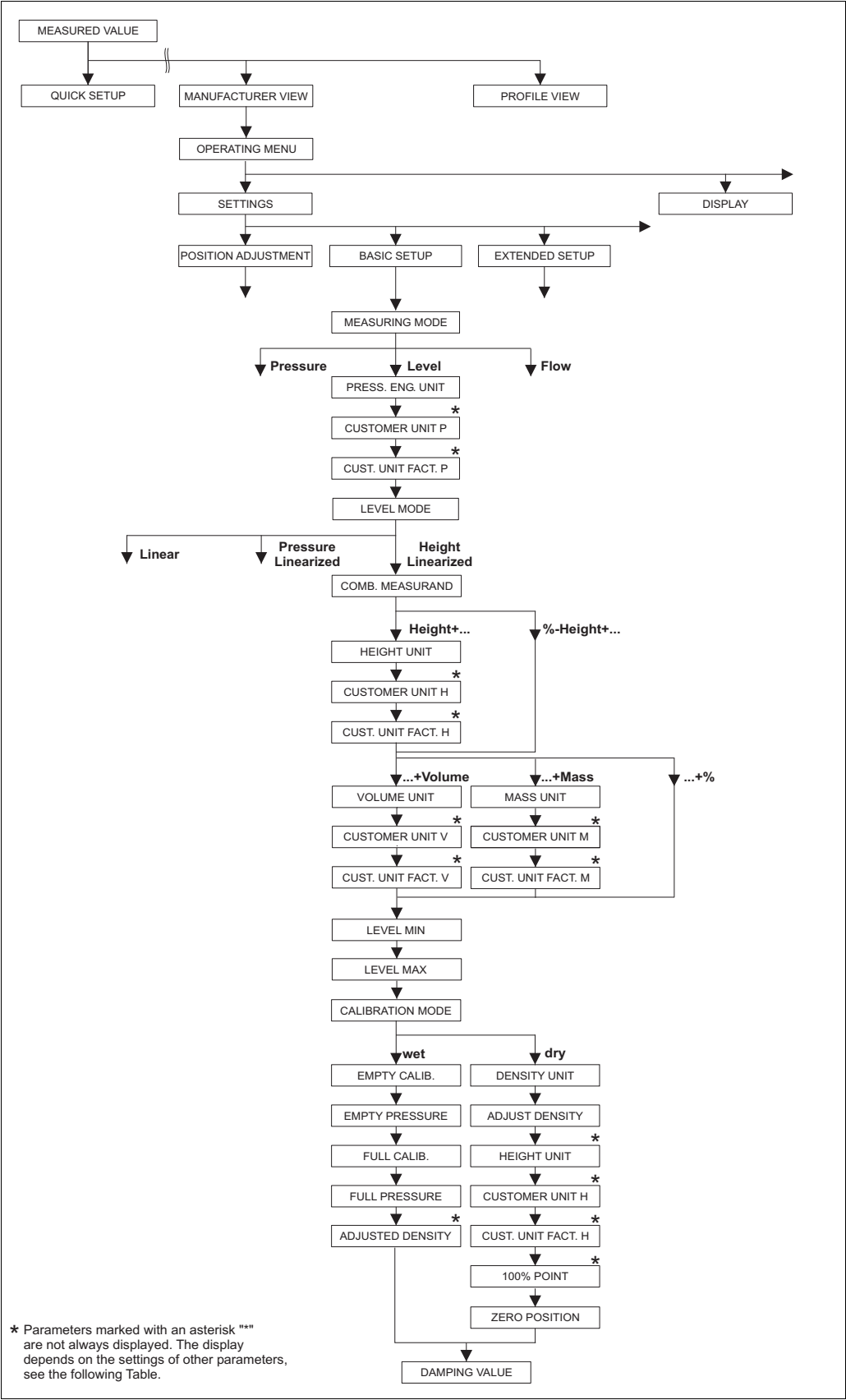


Fig. 30: BASIC SETUP function group for the "Level" measuring mode and the "Height linearized" level type, continue calibration with LINEARISATION function group → See Page 100 ff.

| Table 13: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Height linearized"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>The following parameters are displayed if you selected the "Height linearized" option for the LEVEL MODE parameter.</p> <p>Select this level type if you require two measured variables or if the container shape is given with value pairs, e.g. height and volume.</p> <p>The following combinations are possible:</p> <ul style="list-style-type: none"> <li>■ Height + Volume</li> <li>■ Height + Mass</li> <li>■ Height + %</li> <li>■ %-Height + Volume</li> <li>■ %-Height + Mass</li> <li>■ %-Height + %</li> </ul> <p>The 1st measured variable (%-Height or height) must be in direct proportion to the measured pressure. The 2nd measured variable (volume, mass or %) must not be in direct proportion. A linearisation table must be entered for the 2nd measured variable. The 2nd measured variable is assigned to the 1st measured variable by means of this table.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Level</li> <li>■ LEVEL MODE = Height linearized (→ see also Page 66).</li> </ul> <p><b>Note:</b></p> <p>See also</p> <ul style="list-style-type: none"> <li>– Page 65 ff, Table 10: BASIC SETUP – general</li> <li>– Page 94 ff, Table 16: EXTENDED SETUP</li> <li>– Page 100 ff, Table 18 or 19: LINEARISATION – on-site display</li> <li>– Page 115 ff, Table 28: PROCESS VALUES</li> <li>– Page 14 ff, Section 5 "Level measurement".</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| COMB. MEASURAND (806)<br>Selection<br><br>Slot: 2<br>Index: 201                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>Select measured variable.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Height and Volume</li> <li>■ Height and Mass</li> <li>■ Height and %</li> <li>■ %-Height and Volume</li> <li>■ %-Height and Mass</li> <li>■ %-Height and %</li> </ul> <p><b>Factory setting:</b><br/>%-Height and %</p>                                                                                                                                                                                                |
| HEIGHT UNIT (708)<br>Selection<br><br>Slot: 2<br>Index: 177                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Select level unit for the 1st measured variable.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Volume, height and Mass or height and %</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ mm</li> <li>■ dm</li> <li>■ cm</li> <li>■ m</li> <li>■ inch</li> <li>■ ft</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT H and CUST. UNIT FACT. H.</li> </ul> <p><b>Factory setting:</b><br/>m</p> |

| Table 13: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Height linearized" |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CUSTOMER UNIT H (706)<br>Entry<br><br>Slot: 2<br>Index: 179                               | <p>Enter text (unit) for customer-specific level unit.<br/>           You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. H.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Volume, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = Height and Mass, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = Height and %, HEIGHT UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display.<br/>           The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>           -----</p> |
| CUST. UNIT FACT. H (705)<br>Entry<br><br>Slot: 2<br>Index: 178                            | <p>Enter conversion factor for a customer-specific level unit.<br/>           The conversion factor must be entered in relation to the SI unit "m". → See also CUSTOMER UNIT H.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Volume, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = Height and Mass, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = Height and %, HEIGHT UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 0.5 m <math>\hat{=}</math> 1 PU</li> <li>– Entry CUSTOMER UNIT H: PU</li> <li>– Entry CUST. UNIT FACT. H: 2</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                                                                                               |
| UNIT VOLUME (313)<br>Selection<br><br>Slot: 2<br>Index: 146                               | <p>Select the volume unit for the 2nd measured value.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Volume or %-Height and Volume</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ 1</li> <li>■ hl</li> <li>■ cm<sup>3</sup></li> <li>■ dm<sup>3</sup></li> <li>■ m<sup>3</sup></li> <li>■ m<sup>3</sup> E<sup>3</sup></li> <li>■ ft</li> <li>■ ft<sup>3</sup> E<sup>3</sup></li> <li>■ gal</li> <li>■ lgal</li> <li>■ bbl</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT V and CUST. UNIT FACT. V.</li> </ul> <p> <b>Note!</b><br/>           Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>           → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>           m<sup>3</sup></p>                                                                  |

| <b>Table 13: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Height linearized"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                            | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| CUSTOMER UNIT V (608)<br>Entry<br><br>Slot: 2<br>Index: 147                                      | <p>Enter text (unit) for customer-specific volume unit.<br/>           You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. V</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Volume, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = %-Height and Volume, HEIGHT UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display.<br/>           The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>           - - - - -</p> |
| CUST. UNIT FACT. V (608)<br>Entry<br><br>Slot: 2<br>Index: 148                                   | <p>Enter conversion factor for a customer-specific volume unit.<br/>           The conversion factor must be entered in relation to the SI unit "m³". → See also CUSTOMER UNIT V.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Volume, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = %-Height and Volume, HEIGHT UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "buckets".</li> <li>– MEASURED VALUE = 0.01 m³ ≙ 1 bucket</li> <li>– Entry CUSTOMER UNIT V: bucket</li> <li>– Entry CUST. UNIT FACT. V: 100</li> <li>– Result: MEASURED VALUE = 1 bucket</li> </ul> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                                                                                                                  |
| MASS UNIT (709)<br>Selection<br><br>Slot: 2<br>Index: 174                                        | <p>Select the mass unit for the 2nd measured value.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Mass or %-Height and Mass</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ g</li> <li>■ kg</li> <li>■ t</li> <li>■ oz</li> <li>■ lb</li> <li>■ ton</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT M and CUST. UNIT FACT. M.</li> </ul> <p> <b>Note!</b><br/>           Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>           → See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>           kg</p>                                                                                                                                                                                        |

| Table 13: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Height linearized" |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Parameter name                                                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CUSTOMER UNIT M (704)<br>Entry<br><br>Slot: 2<br>Index: 176                               | <p>Enter text (unit) for customer-specific mass unit.<br/> You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. M.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Mass, MASS UNIT = User unit</li> <li>■ COMB. MEASURAND = %-Height and Mass, MASS UNIT = User unit</li> </ul> <p> <b>Note!</b><br/> Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/> If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/> FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/> -----</p> |
| CUST. UNIT FACT. M (703)<br>Entry<br><br>Slot: 2<br>Index: 175                            | <p>Enter conversion factor for a customer-specific mass unit.<br/> The conversion factor must be entered in relation to the SI unit "kg". → See also CUSTOMER UNIT M.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Mass, MASS UNIT = User unit</li> <li>■ COMB. MEASURAND = %-Height and Mass, MASS UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "buckets".</li> <li>– MEASURED VALUE = 10 kg <math>\hat{=}</math> 1 bucket</li> <li>– Entry CUSTOMER UNIT M: bucket</li> <li>– Entry CUST. UNIT FACT. M: 0.1</li> <li>– Result: MEASURED VALUE = 1 bucket</li> </ul> <p><b>Factory setting:</b><br/> 1.0</p>                                                                                                                                                                                                                                                                                                                 |
| LEVEL MIN (755)<br>Entry<br><br>Slot: 2<br>Index: 133                                     | <p>Enter the minimum level to be expected.<br/> The input limits for the calibration (editing limits) are derived from the value entered. The closer the value entered corresponds to the minimum level to be expected, the more accurate the measurement result.</p> <p><b>Factory setting:</b><br/> 0.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| LEVEL MAX (712)<br>Entry<br><br>Slot: 2<br>Index: 134                                     | <p>Enter the maximum level to be expected.<br/> The input limits for the calibration (editing limits) are derived from the value entered. The closer the value entered corresponds to the maximum level to be expected, the more accurate the measurement result.</p> <p><b>Factory setting:</b><br/> 100.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| <b>Table 13: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Height linearized"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                            | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CALIBRATION MODE (392)<br>Selection<br><br>Slot: 2<br>Index: 121                                 | <p>Select the calibration mode for the calibration of the 1st measured variable.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Wet<br/>Wet calibration takes place by filling the container. This calibration mode requires two pressure-level value pairs to be entered. In the case of two different levels, the level value is entered and the pressure measured at this moment is assigned to the level value.<br/>→ See also the following parameter description for EMPTY CALIB., EMPTY PRESSURE, FULL CALIB. and FULL PRESSURE.</li> <li>■ Dry<br/>Dry calibration is a theoretical calibration which you can carry out even if the device is not mounted or the container is empty.               <ul style="list-style-type: none"> <li>– For the "Level" measured variable, the density of the fluid (→ see Page 86, ADJUST DENSITY) must be entered.</li> <li>– For the "%" measured variable, the density of the fluid must be entered and a level assigned to the 100 % point (→ see Page 86, ADJUST DENSITY and 100% POINT).</li> </ul>               If the measurement should not start at the mounting location of the device, a level offset must be entered (→ see Page 88, ZERO POSITION).             </li> </ul> <p><b>Factory setting:</b><br/>Wet</p> |
| EMPTY CALIB. (314)<br>Entry<br><br>Slot: 2<br>Index: 75                                          | <p>Enter level value for the lower calibration point (container empty).<br/>The container is either empty or part full. By entering a value for this parameter, you are assigning a level value to the pressure present at the device. → See also EMPTY PRESSURE.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p><b>Factory setting:</b><br/>0.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| EMPTY PRESSURE (710)<br>Display<br><br>Slot: 2<br>Index: 180                                     | <p>Displays the pressure value for the lower calibration point (container empty).<br/>→ See also EMPTY CALIB.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| FULL CALIB. (315)<br>Entry<br><br>Slot: 2<br>Index: 76                                           | <p>Enter level value for the upper calibration point (container full).<br/>The container is either completely or almost full. By entering a value for this parameter, you are assigning a level value to the pressure present at the device. → See also FULL PRESSURE.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p><b>Factory setting:</b><br/>100.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| FULL PRESSURE (711)<br>Display<br><br>Slot: 2<br>Index: 181                                      | <p>Displays the pressure value for the upper calibration point (container full).<br/>→ See also FULL CALIB.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ CALIBRATION MODE = Wet</li> </ul> <p><b>Factory setting:</b><br/>High sensor limit (→ see PRESS. SENS HILIM, Page 113)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| ADJUSTED DENSITY (810)<br>Display<br><br>Slot: 2<br>Index: 122                                   | <p>Displays the density calculated from the upper and lower level point.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = Height and Volume, CALIBRATION MODE = Wet</li> <li>■ COMB. MEASURAND = Height and Mass, CALIBRATION MODE = Wet</li> <li>■ COMB. MEASURAND = Height and %, CALIBRATION MODE = Wet</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Table 13: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Height linearized" |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| Parameter name                                                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| DENSITY UNIT (812)<br>Selection<br><br>Slot: 2<br>Index: 127                              | Select density unit.<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = %-Height and %, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = %-Height and Volume, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = %-Height and Mass, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = Height and %, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = Height and Volume, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = Height and Mass, CALIBRATION MODE = Dry</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>■ g/cm<sup>3</sup></li> <li>■ kg/dm<sup>3</sup></li> <li>■ kg/m<sup>3</sup></li> <li>■ US lb/in<sup>3</sup></li> <li>■ US lb/ft<sup>3</sup></li> </ul> <b>Factory setting:</b><br>kg/dm <sup>3</sup> |
| ADJUST DENSITY (316)<br>Entry<br><br>Slot: 2<br>Index: 128                                | Enter density of fluid.<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = %-Height and %, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = %-Height and Volume, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = %-Height and Mass, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = Height and %, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = Height and Volume, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = Height and Mass, CALIBRATION MODE = Dry</li> </ul> <b>Factory setting:</b><br>1.0                                                                                                                                                                                                                           |
| HEIGHT UNIT (708)<br>Selection<br><br>Slot: 2<br>Index: 177                               | Select level unit.<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = %-Height and Volume, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = %-Height and Mass, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = %-Height + %, CALIBRATION MODE = Dry</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>■ mm</li> <li>■ dm</li> <li>■ cm</li> <li>■ m</li> <li>■ inch</li> <li>■ ft</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT H and CUST. UNIT FACT. H.</li> </ul> <b>Factory setting:</b><br>m                                                                                                                                                                                   |

| <b>Table 13: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Height linearized"</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <b>Parameter name</b>                                                                            | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| CUSTOMER UNIT H (706)<br>Entry<br><br>Slot: 2<br>Index: 179                                      | <p>Enter text (unit) for customer-specific level unit.<br/>           You can enter a maximum of eight alphanumeric characters here.<br/>           → See also CUST. UNIT FACT. H.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = %-Height and Volume, CALIBRATION MODE = Dry, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = %-Height and Mass, CALIBRATION MODE = Dry, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = %-Height and %, CALIBRATION MODE = Dry, HEIGHT UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>           - - - - -</p> |
| CUST. UNIT FACT. H (705)<br>Entry<br><br>Slot: 2<br>Index: 178                                   | <p>Enter conversion factor for a customer-specific level unit.<br/>           The conversion factor must be entered in relation to the SI unit "m". → See also CUSTOMER UNIT H.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = %-Height and Volume, CALIBRATION MODE = Dry, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = %-Height and Mass, CALIBRATION MODE = Dry, HEIGHT UNIT = User unit</li> <li>■ COMB. MEASURAND = %-Height and %, CALIBRATION MODE = Dry, HEIGHT UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 0.5 m <math>\hat{=}</math> 1 PU</li> <li>– Entry CUSTOMER UNIT H: PU</li> <li>– Entry CUST. UNIT FACT. H: 2</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                                                                                                   |
| 100% POINT (813)<br>Entry<br><br>Slot: 2<br>Index: 131                                           | <p>Enter level value for 100% point.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ COMB. MEASURAND = %-Height and Volume, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = %-Height and Mass, CALIBRATION MODE = Dry</li> <li>■ COMB. MEASURAND = %-Height and %, CALIBRATION MODE = Dry</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– The 100 %-point should correspond to 4 m.</li> <li>– Select the "m" unit via the HEIGHT UNIT parameter.</li> <li>– Enter the value "4" for this parameter (100% POINT).</li> </ul> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Table 13: OPERATING MENU → SETTINGS → BASIC SETUP "Level", LEVEL MODE "Height linearized" |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Parameter name                                                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ZERO POSITION (814)<br>Entry<br><br>Slot: 2<br>Index: 132                                 | <p>Enter value for level offset.<br/>If the measurement should not start at the mounting location of the device, e.g. for containers with a sump, carry out zero point shift (level offset).</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>■ CALIBRATION MODE = Dry</li></ul> <div></div> <p><small>P01-PMP75xxx-19-xx-xx-xx-001</small></p> <p><i>Fig. 31: Zero point shift</i></p> <ol style="list-style-type: none"><li>1 Device is mounted above the level lower range value: a positive value has to be entered for ZERO POSITION.</li><li>2 Device is mounted below the level lower range value: a negative value has to be entered for ZERO POSITION.</li></ol> <p><b>Factory setting:</b><br/>0.0</p> |
| DAMPING VALUE (247)<br>Entry<br><br>Slot: 2<br>Index: 79                                  | <p>Enter damping time (time constant <math>\tau</math>).<br/>The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>0.0...999.0 s</p> <p><b>Factory setting:</b><br/>2.0 s or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                       |

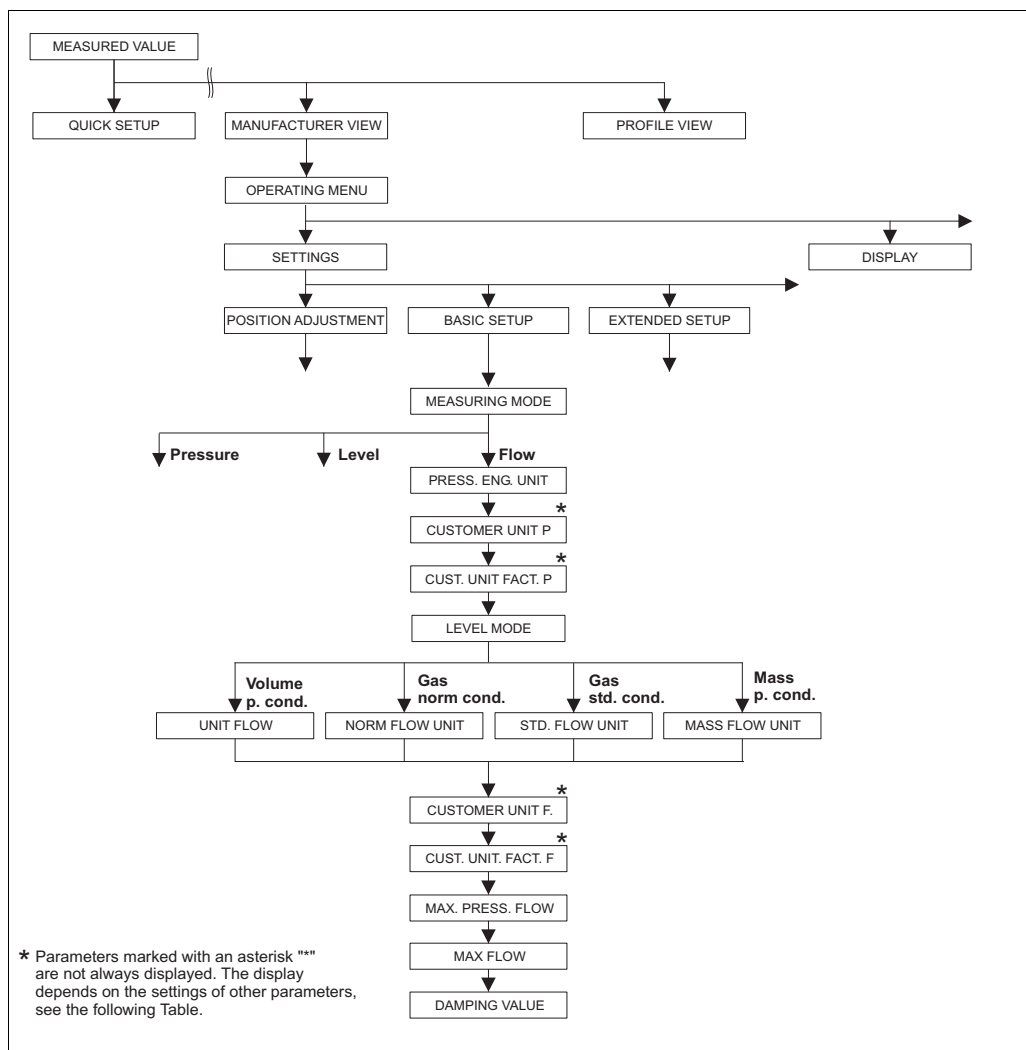


Fig. 32: BASIC SETUP function group for the "Flow" measuring mode

Table 14: OPERATING MENU → SETTINGS → BASIC SETUP "Flow"

| Parameter name                                                                                                                                                                                                                                                                                   | Description |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Prerequisite:</b> <ul style="list-style-type: none"> <li>MEASURING MODE = flow</li> </ul>                                                                                                                                                                                                     |             |
| <b>Note:</b><br>See also <ul style="list-style-type: none"> <li>Page 50, Table 5: QUICK SETUP</li> <li>Page 95, Table 17: EXTENDED SETUP</li> <li>Page 103, Table 20: TOTALIZER SETUP</li> <li>Page 116, Table 29: PROCESS VALUES.</li> <li>Page 40 ff, Section 6 "Flow measurement".</li> </ul> |             |

| Table 14: OPERATING MENU → SETTINGS → BASIC SETUP "Flow"        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MEASURING MODE<br>Selection<br><br>Slot: 2<br>Index: 154        | <p>Select the measuring mode.<br/>The operating menu is structured according to the selected measuring mode.</p> <p> <b>Note!</b><br/>When the measuring mode is changed, no conversion takes place. The digital output value of the Analog Input Block OUT no longer displays the same value as the on-site display or the MEASURED VALUE. The device has to be recalibrated if the measuring mode is changed. → See also Page 40, Section 6 "Flow measurement".</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ FieldCare</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Pressure</li> <li>■ Level</li> <li>■ Deltabar S: Flow</li> </ul> <p><b>Factory setting:</b><br/>Pressure</p>                                                                                                                                                                                                                                                                                                                                                                                                           |
| PRESS. ENG. UNIT (060)<br>Selection<br><br>Slot: 2<br>Index: 30 | <p>Select pressure unit.<br/>If a new pressure unit is selected, all pressure-specific parameters are converted and displayed with the new unit.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ mbar, bar</li> <li>■ mmH<sub>2</sub>O, mH<sub>2</sub>O, inH<sub>2</sub>O, ftH<sub>2</sub>O</li> <li>■ Pa, hPa, kPa, MPa</li> <li>■ psi</li> <li>■ mmHg, inHg</li> <li>■ Torr</li> <li>■ g/cm<sup>2</sup>, kg/cm<sup>2</sup></li> <li>■ lb/ft<sup>2</sup></li> <li>■ atm</li> <li>■ gf/cm<sup>2</sup>, kgf/cm<sup>2</sup></li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT P and CUST. UNIT FACT. P.</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>Depends on the sensor nominal measuring range mbar or bar or as per order specifications</p> |
| CUSTOMER UNIT P (075)<br>Entry<br><br>Slot: 2<br>Index: 114     | <p>Enter text (unit) for customer-specific pressure unit.<br/>You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>-----</p>                                                                                                                                                                                                                                                     |

**Table 14: OPERATING MENU → SETTINGS → BASIC SETUP "Flow"**

| Parameter name                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CUST. UNIT FACT. P (317)<br>Entry<br><br>Slot: 2<br>Index: 115  | <p>Enter conversion factor for a customer-specific pressure unit.<br/>The conversion factor must be entered in relation to the SI unit "Pa". → See also CUSTOMER UNIT P.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ PRESS. ENG. UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>– You want the measured value to be displayed in "PU" (PU: packing unit).</li> <li>– MEASURED VALUE = 10000 Pa <math>\approx</math> 1 PU</li> <li>– Entry CUSTOMER UNIT P: PU</li> <li>– Entry CUST. UNIT FACT. P: 0.0001</li> <li>– Result: MEASURED VALUE = 1 PU</li> </ul> <p><b>Factory setting:</b><br/>1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| FLOW-MEAS. TYPE (640)<br>Selection<br><br>Slot: 2<br>Index: 111 | <p>Select the flow type.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Volume p. cond. (volume under operating conditions)</li> <li>■ Gas norm. cond. (norm volume under norm conditions in Europe: 1013.25 mbar and 273.15 K (0 °C))</li> <li>■ Gas std. cond. (standard volume under standard conditions in USA: 1013.25 mbar (14.7 psi) and 288.15 K (15 °C/59 °F))</li> <li>■ Mass</li> </ul> <p><b>Factory setting:</b><br/>Volume p. cond.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| UNIT FLOW (391)<br>Selection<br><br>Slot: 2<br>Index: 155       | <p>Select volume flow unit.<br/>When a new flow unit is selected, all flow-specific parameters are converted and displayed with the new unit within a flow mode (FLOW-MEAS. TYPE). When the flow mode is changed, conversion is not possible.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ FLOW-MEAS. TYPE = Volume p. cond.</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ m<sup>3</sup>/s, m<sup>3</sup>/min, m<sup>3</sup>/h, m<sup>3</sup>/day</li> <li>■ l/s, l/min, l/h</li> <li>■ hl/s, hl/min, hl/day</li> <li>■ ft<sup>3</sup>/s, ft<sup>3</sup>/min, ft<sup>3</sup>/h, ft<sup>3</sup>/day</li> <li>■ ACFS, ACFM, ACFH, ACFD</li> <li>■ ozf/s, ozf/min</li> <li>■ US Gal/s, US Gal/min, US Gal/h, US Gal/day</li> <li>■ Imp. Gal/s, Imp. Gal/min, Imp. Gal/h</li> <li>■ bbl/s, bbl/min, bbl/h, bbl/day</li> <li>■ User unit, → see also this table, parameter description for CUSTOMER UNIT F and CUST. UNIT FACT. F</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: 109).</p> <p><b>Factory setting:</b><br/>m<sup>3</sup>/s</p> |

| Table 14: OPERATING MENU → SETTINGS → BASIC SETUP "Flow"       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| NORM FLOW UNIT (661)<br>Selection<br><br>Slot: 2<br>Index: 167 | <p>Select norm volume flow unit.</p> <p>When a new flow unit is selected, all flow-specific parameters are converted and displayed with the new unit within a flow mode (FLOW-MEAS. TYPE). When the flow mode is changed, conversion is not possible.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ FLOW-MEAS. TYPE = gas norm conditions</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Nm<sup>3</sup>/s, Nm<sup>3</sup>/min, Nm<sup>3</sup>/h, Nm<sup>3</sup>/day</li> <li>■ User unit, → see also this table, parameter description for CUSTOMER UNIT F and CUST. UNIT FACT. F</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display:109).</p> <p><b>Factory setting:</b><br/>Nm<sup>3</sup>/s</p>                                                                         |
| STD. FLOW UNIT (660)<br>Selection<br><br>Slot: 2<br>Index: 166 | <p>Select standard volume flow unit.</p> <p>When a new flow unit is selected, all flow-specific parameters are converted and displayed with the new unit within a flow mode (FLOW-MEAS. TYPE). When the flow mode is changed, conversion is not possible.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ FLOW-MEAS. TYPE = gas std. conditions</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Sm<sup>3</sup>/s, Sm<sup>3</sup>/min, Sm<sup>3</sup>/h, Sm<sup>3</sup>/day</li> <li>■ SCFS, SCFM, SCFH, SCFD</li> <li>■ User unit, → see also this table, parameter description for CUSTOMER UNIT F and CUST. UNIT FACT. F</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>Sm<sup>3</sup>/s</p>                           |
| MASS FLOW UNIT (571)<br>Selection<br><br>Slot: 2<br>Index: 164 | <p>Select mass flow unit.</p> <p>When a new flow unit is selected, all flow-specific parameters are converted and displayed with the new unit within a flow mode (FLOW-MEAS. TYPE). When the flow mode is changed, conversion is not possible.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ FLOW-MEAS. TYPE = Mass p. cond.</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ g/s, kg/s, kg/min, kg/min, kg/h</li> <li>■ t/s, t/min, t/h, t/day</li> <li>■ oz/s, oz/min</li> <li>■ lb/s, lb/min, lb/h</li> <li>■ ton/s, ton/min, ton/h, ton/day</li> <li>■ User unit, → see also the following parameter description for CUSTOMER UNIT F and CUST. UNIT FACT. F</li> </ul> <p> <b>Note!</b><br/>Following a change in the unit, the digital output value of the Analog Input value OUT and the on-site display or the MEASURED VALUE no longer display the same value.<br/>→ See also parameter descriptions for PV SCALE, OUT SCALE (Page 140) and SET UNIT TO BUS (FieldCare: Page 130, on-site display: Page 109).</p> <p><b>Factory setting:</b><br/>kg/s</p> |

**Table 14: OPERATING MENU → SETTINGS → BASIC SETUP "Flow"**

| Parameter name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CUSTOMER UNIT F (610)<br>Entry<br><br>Slot: 2<br>Index: 112    | <p>Enter text (unit) for customer-specific flow unit.<br/>           You can enter a maximum of eight alphanumeric characters here. → See also CUST. UNIT FACT. F.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ UNIT FLOW = User unit</li> <li>■ NORM FLOW UNIT = User unit</li> <li>■ STD. FLOW UNIT = User unit</li> <li>■ MASS FLOW UNIT = User unit</li> </ul> <p> <b>Note!</b><br/>           Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>           If the unit contains a slash, up to eight characters can be shown on the on-site display. The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>           FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b><br/>           - - - - -</p> |
| CUST. UNIT FACT. F (609)<br>Entry<br><br>Slot: 2<br>Index: 113 | <p>Enter conversion factor for a customer-specific flow unit. The conversion factor must be entered in relation to an appropriate SI unit, e.g. m<sup>3</sup>/s for the "Volume p. cond." flow mode. → See also CUSTOMER UNIT F.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ UNIT FLOW = User unit</li> <li>■ NORM FLOW UNIT = User unit</li> <li>■ STD. FLOW UNIT = User unit</li> <li>■ MASS FLOW UNIT = User unit</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>- You want the measured value to be displayed in "bucket/h".</li> <li>- MEASURED VALUE = 0.01 m<sup>3</sup>/s ≈ 3600 bucket/h</li> <li>- Entry CUSTOMER UNIT F: bucket/h</li> <li>- Entry CUST. UNIT FACT. F: 360000</li> <li>- Result: MEASURED VALUE = 3600 bucket/h</li> </ul> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                      |
| MAX. FLOW (311)<br>Entry<br><br>Slot: 2<br>Index: 80           | <p>Enter maximum flow of primary device.<br/>           → See also layout sheet of primary device. The maximum flow is assigned to the maximum pressure which you enter via MAX PRESS. FLOW.</p> <p><b>Factory setting:</b><br/>           1.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| MAX PRESS. FLOW (638)<br>Entry<br><br>Slot: 2<br>Index: 81     | <p>Enter maximum pressure of primary device.<br/>           → See layout sheet of primary device. This value is assigned to the maximum flow value (→ see MAX. FLOW).</p> <p><b>Factory setting:</b><br/>           High sensor limit (→ see PRESS. SENS HILIM, Page 113)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| DAMPING VALUE (247)<br>Entry<br><br>Slot: 2<br>Index: 79       | <p>Enter damping time (time constant <math>\tau</math>).<br/>           The damping affects the speed at which all subsequent elements, such as the on-site display, measured value and OUT value of the Analog Input Block react to a change in the pressure.</p> <p><b>Input range:</b><br/>           0.0...999.0 s</p> <p><b>Factory setting:</b><br/>           2.0 s or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

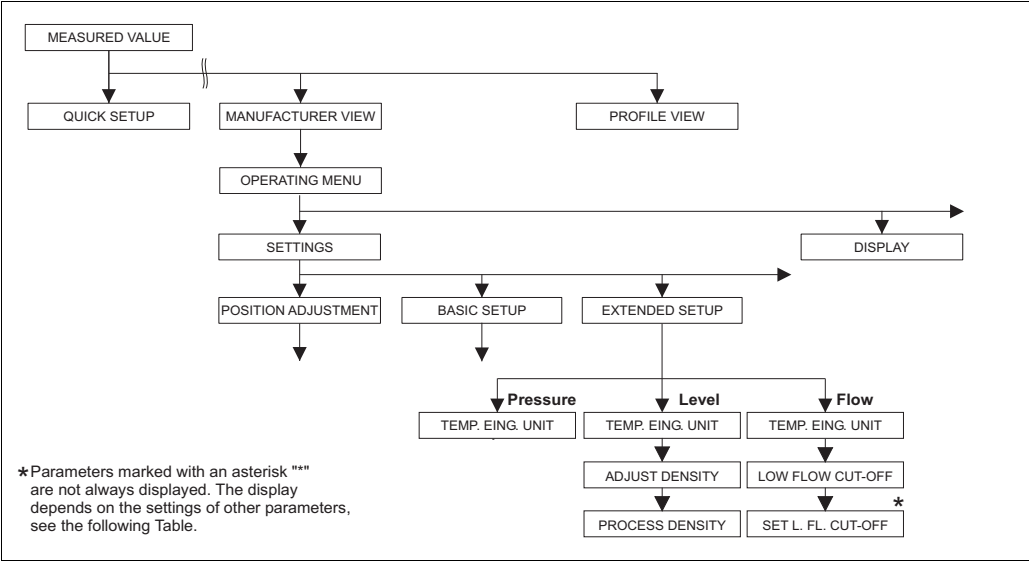


Fig. 33: EXTENDED SETUP function group

→ For the "Pressure" measuring mode, see Page 94, Table 15

→ For the "Level" measuring mode, see Page 94, Table 16

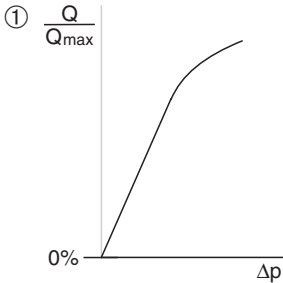
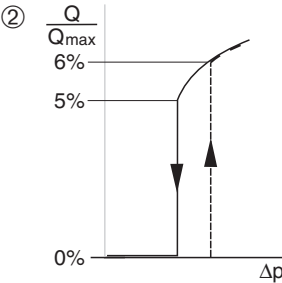
→ For the "Flow" measuring mode, see Page 95, Table 17

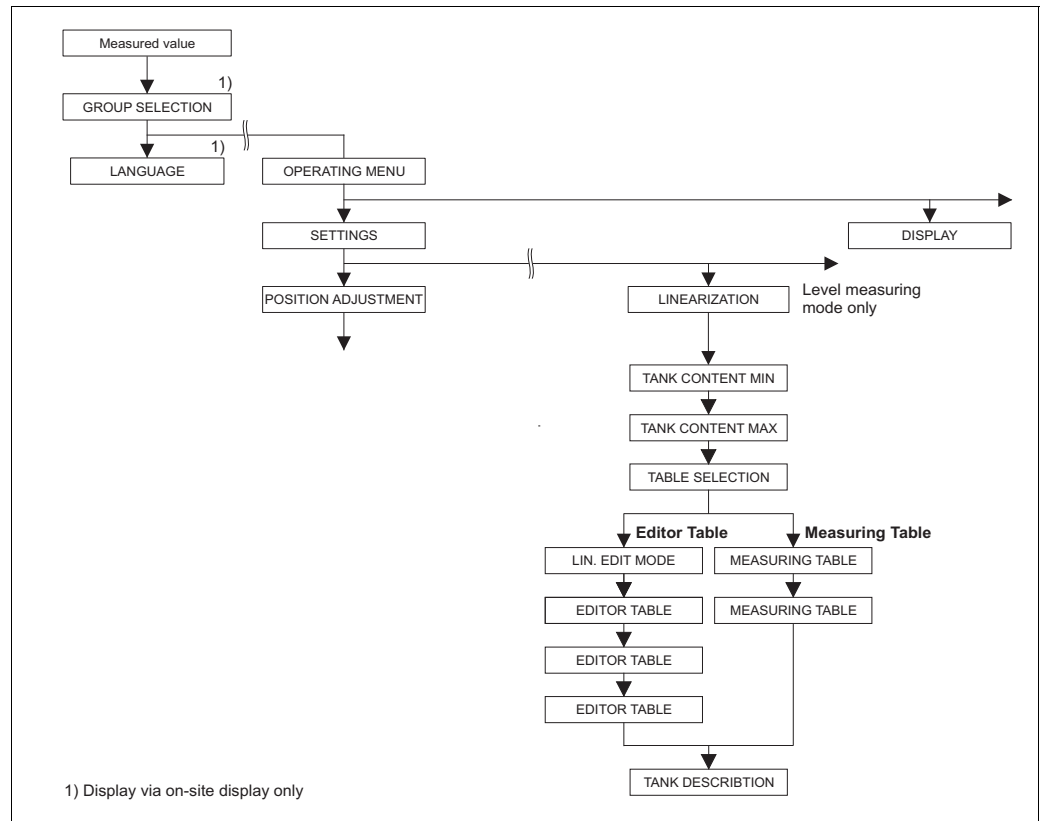
| Table 15: OPERATING MENU → SETTINGS → EXTENDED SETUP "Pressure"                                                                                                                                                    |                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                     | Description                                                                                                                                                                                                                                                   |
| <b>Prerequisite:</b> <ul style="list-style-type: none"><li>MEASURING MODE = Pressure</li></ul> <b>Note:</b> <ul style="list-style-type: none"><li>See also Page 13 ff, Section 4 "Pressure measurement".</li></ul> |                                                                                                                                                                                                                                                               |
| TEMP. ENG. UNIT (318)<br>Selection<br><br>Slot: 2<br>Index: 44                                                                                                                                                     | Select the unit for the temperature measured values.<br>→ See also PCB TEMPERATURE (Page 110) and SENSOR TEMP. (Page 115).<br><b>Options:</b> <ul style="list-style-type: none"><li>°C</li><li>°F</li><li>K</li><li>R</li></ul> <b>Factory setting:</b><br>°C |

| Table 16: OPERATING MENU → SETTINGS → EXTENDED SETUP "Level"                                                                                                                                                 |                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                               | Description                                                                                                                                                                                                                                                   |
| <b>Prerequisite:</b> <ul style="list-style-type: none"><li>MEASURING MODE = Level</li></ul> <b>Note:</b> <ul style="list-style-type: none"><li>See also Page 14 ff, Section 5 "Level measurement".</li></ul> |                                                                                                                                                                                                                                                               |
| TEMP. ENG. UNIT (318)<br>Selection<br><br>Slot: 2<br>Index: 44                                                                                                                                               | Select the unit for the temperature measured values.<br>→ See also PCB TEMPERATURE (Page 110) and SENSOR TEMP. (Page 116).<br><b>Options:</b> <ul style="list-style-type: none"><li>°C</li><li>°F</li><li>K</li><li>R</li></ul> <b>Factory setting:</b><br>°C |

| Table 16: OPERATING MENU → SETTINGS → EXTENDED SETUP "Level"      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| DENSITY UNIT (001)/(812)<br>Options<br><br>Slot: 2<br>Index: 244  | Select density unit.<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ g/cm<sup>3</sup></li> <li>■ kg/dm<sup>3</sup></li> <li>■ kg/m<sup>3</sup></li> <li>■ US lb/in<sup>3</sup></li> <li>■ US lb/ft<sup>3</sup></li> </ul> <b>Factory setting:</b><br>kg/dm <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ADJUST DENSITY (007)/(316)<br>Entry<br><br>Slot: 2<br>Index: 245  | Enter density of fluid.<br><br> <b>Note!</b><br>LIN. MEASURAND: "% (Level)", "Mass" and "Volume" and MEASUAND KOMB.:<br>If a change to dry calibration is made after a wet calibration using the CALIBRATION MODE parameter (→ Page 71 or 85), the density for this parameter must be entered correctly before changing the calibration mode. In the event that the pressure falls with increasing levels (LIN. MEASURED: Volume), such as in the case of a residual volume measurement, a negative value shall be entered for this parameter.<br><br><b>Factory setting:</b><br>1.0                                                                                                                                                                                                                                                                                          |
| PROCESS DENSITY (025)/(811)<br>Entry<br><br>Slot: 2<br>Index: 246 | Enter a new density value for density correction.<br>The calibration was carried out with the medium water, for example. Now the container is to be used for another fluid with another density. The calibration is corrected appropriately by entering the new density value in the PROCESS DENSITY parameter.<br><br> <b>Note!</b><br>LIN. MEASURAND: "% (Level)", "Mass" and "Volume" and MEASUAND KOMB.:<br>If a change to dry calibration is made after a wet calibration using the CALIBRATION MODE parameter (→ Page 71 or 85), the density for this parameter must be entered correctly before changing the calibration mode. In the event that the pressure falls with increasing levels (LIN. MEASURED: Volume), such as in the case of a residual volume measurement, a negative value shall be entered for this parameter.<br><br><b>Factory setting:</b><br>1.0 |

| Table 17: OPERATING MENU → SETTINGS → EXTENDED SETUP "Flow"                                                                                                                                                        |                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                     | Description                                                                                                                                                                                                                                                                   |
| <b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Flow</li> </ul> <b>Note:</b> <ul style="list-style-type: none"> <li>■ See also Page 40 ff, Section 6 "Flow measurement".</li> </ul> |                                                                                                                                                                                                                                                                               |
| TEMP. ENG. UNIT (318)<br>Selection<br><br>Slot: 2<br>Index: 44                                                                                                                                                     | Select the unit for the temperature measured value.<br>→ See also PCB TEMPERATURE (Page 110) and SENSOR TEMP. (Page 117).<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ °C</li> <li>■ °F</li> <li>■ K</li> <li>■ R</li> </ul> <b>Factory setting:</b><br>°C |

| Table 17: OPERATING MENU → SETTINGS → EXTENDED SETUP "Flow"      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| LOW FLOW CUT-OFF (442)<br>Selection<br><br>Slot: 2<br>Index: 128 | <p>Switches "low flow cut-off" function on and off.</p> <p>In the lower measuring range, small flow quantities (creepages) can lead to large measured value fluctuations. Switching on this function stops these flow quantities from being recorded. → See also SET. L. FL. CUT-OFF.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"><li>■ Off</li><li>■ On</li></ul> <p><b>Factory setting:</b><br/>Off</p>                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| SET. L. FL. CUT-OFF (332)<br>Entry<br><br>Slot: 2<br>Index: 149  | <p>Enter switch-off point of low flow cut-off.</p> <p>The hysteresis between the switch-on point and the switch-off point is always 1 % of the end flow value. → See also LOW FLOW CUT-OFF.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>■ LOW FLOW CUT-OFF = on</li></ul> <p><b>Input range:</b><br/>Switch-off point: 0...50 % of end flow value (→ MAX. FLOW).</p> <div><div><p>① <math>\frac{Q}{Q_{max}}</math></p><p>0% <math>\Delta p</math></p></div><div><p>② <math>\frac{Q}{Q_{max}}</math></p><p>0% <math>\Delta p</math></p></div></div> <p><small>P01-PMD7xxxx-05-xx-xx-xx-000</small></p> <p><b>Factory setting:</b><br/>5 % (of end flow value)</p> |



P01-xxxxxxx-19-xx-xx-xx-091

Fig. 34: LINEARISATION function group for on-site display

**Table 18: GROUP SELECTION → OPERATING MENU → SETTINGS → LINEARISATION – On-site display**

| Parameter name                                                                                                                                                                                                                                                                                                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Level (→ see also Page 44).</li> <li>■ LEVEL MODE = Pressure Linearized or Height Linearized (→ see also Page 66).</li> </ul> <b>Note:</b> <ul style="list-style-type: none"> <li>– See also Page 14 ff, Section 5 "Level measurement".</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| TANK CONTENT MIN (759)<br>Entry                                                                                                                                                                                                                                                                                                   | Enter the minimum tank contents to be expected.<br>The input limits for the calibration (editing limits) are derived from the value entered. The closer the value entered corresponds to the minimum tank content to be expected, the more accurate the measurement result.<br><br><b>Factory setting:</b><br>0.0                                                                                                                            |
| TANK CONTENT MAX (713)<br>Entry                                                                                                                                                                                                                                                                                                   | Enter the maximum tank contents to be expected.<br>The input limits for the subsequent calibration (editing limits) are derived from the value entered. The closer the value entered corresponds to the maximum tank content to be expected, the more accurate the measurement result.<br><br><b>Factory setting:</b><br>100.0                                                                                                               |
| TABLE SELECTION (808)<br>Selection                                                                                                                                                                                                                                                                                                | Select table.<br>The device works with a measuring and an editor table. The measuring table is used to calculate the measured value. To make sure measuring also runs properly when entering a new table, there is another table, the editor table, for entering new values.<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ View meas. table</li> <li>■ Editor table</li> </ul> <b>Factory setting:</b><br>View meas. table |

| Table 18: GROUP SELECTION → OPERATING MENU → SETTINGS → LINEARISATION<br>– On-site display |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| LIN. EDIT MODE (397)<br>Selection                                                          | <p>Select the entry mode for the linearisation table.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>TABLE SELECTION = Editor table</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>Manual:<br/>the container neither has to be filled nor emptied for this entry mode. Enter the value pairs for the linearisation table.</li> <li>Semiautomatic: the container is filled or emptied in stages in this entry mode. The device automatically records the hydrostatic pressure. The associated volume, mass or %-value is entered.</li> </ul> <p><b>Factory setting:</b><br/>Manual</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| EDITOR TABLE (809)<br>Selection                                                            | <p>Select table.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>TABLE SELECTION = editor table</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>New table:<br/>enter new linearisation table.</li> <li>Edit measure table:<br/>The measuring table is loaded as an editor table so that changes can be made. → See also TAB. SELECTION</li> <li>Continue edit:<br/>Edit an editor table that already exists. → See also TABLE EDITOR (770)</li> </ul> <p><b>Factory setting:</b><br/>New table</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| EDITOR TABLE<br>Entry ("Semiautomatic" edit mode)<br>– LINE-NUMB (549)<br>– Y-VAL. (551)   | <p>Enter table in the "Semiautomatic" editing mode.<br/>A linearisation table must have at least 2 points and may not have more than 32 points. A point consists of LINE-NUMB, X-VAL. and Y-VAL. For this editing mode, the container is filled or emptied in stages.</p> <p><b>Example:</b> Enter point for LEVEL MODE = Pressure Linearized</p> <ul style="list-style-type: none"> <li>– LINE-NUMB: confirm value displayed.</li> <li>– Y-VAL.: depending on the setting in the LIND. MEASURAND parameter, enter the volume, mass or % value.</li> <li>– X-VAL.: the hydrostatic pressure present is displayed and saved by confirming the Y-value.</li> </ul> <p><b>Example:</b> Enter point for LEVEL MODE = Height Linearized</p> <ul style="list-style-type: none"> <li>– LINE-NUMB: confirm value displayed.</li> <li>– Y-VAL.: depending on the setting in the COMB. MEASURAND parameter, enter the volume, mass or % value.</li> <li>– X-VAL.: the hydrostatic pressure present is measured. Depending on the setting in the COMB. MEASURAND parameter, the measured pressure is converted to a level unit or a % and displayed. The value is saved by confirming the Y-value.</li> </ul> <p><b>Factory setting:</b><br/>LINE-NUMB = 1, X-VAL. = 0.0, Y-VAL. = 0.0</p> |

| <b>Table 18: GROUP SELECTION → OPERATING MENU → SETTINGS → LINEARISATION</b><br><b>– On-site display</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                                    | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| EDITOR TABLE<br>Entry ("manual" edit mode)<br>– LINE-NUMB (549)<br>– Y-VAL. (551)<br>– X-VAL. (550)      | <p>Enter table in the "manual" editing mode.</p> <p>A linearisation table must have at least 2 points and may not have more than 32 points. A point consists of a line number, X-value and Y-value. The container neither has to be filled nor emptied for this editing mode.</p> <p><b>Example:</b> Enter point for LEVEL MODE = Pressure Linearized</p> <ul style="list-style-type: none"> <li>– LINE-NUMB: confirm value displayed.</li> <li>– X-VAL.: enter pressure value.</li> <li>– Y-VAL.: depending on the setting in the LINd. MEASURAND parameter, enter the related volume, mass or % value.</li> </ul> <p><b>Example:</b> Enter point for LEVEL MODE = Height Linearized</p> <ul style="list-style-type: none"> <li>– LINE-NUMB: confirm value displayed.</li> <li>– X-VAL.: the hydrostatic pressure present is measured. Depending on the setting in the COMB. MEASURAND parameter, enter a level value or % value.</li> <li>– Y-VAL.: depending on the setting in the COMB. MEASURAND parameter, enter the related volume, mass or % value.</li> </ul> <p><b>Factory setting:</b><br/>LINE-NUMB = 1, X-VAL. = 0.0, Y-VAL. = 0.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| EDITOR TABLE (770)<br>Options                                                                            | <p>Select the function for the editor table.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Next point: enter next point.</li> <li>■ Last input point: jump back to previous point to correct a mistake for example.</li> <li>■ Accept input table: save editor table as measuring table. This overwrites the old measuring table.</li> <li>■ Abort: save values entered up to this point for the editor table and display next parameter. The editor table is not activated as a measuring table.</li> <li>■ Insert point: see example below.</li> <li>■ Delete point: the current point is deleted. See example below.</li> </ul> <p><b>Example:</b> Add point, in this case between the 4th and 5th point for example</p> <ul style="list-style-type: none"> <li>– Select point 5 via the EDITOR TABLE/LINE NUMB parameter.</li> <li>– Confirm current X and Y values with Enter.</li> <li>– Using the TABLE EDITOR (770) parameter, select the option "Insert point".</li> <li>– Point 5 is displayed for the TABLE EDITOR/LINE NUMB parameter. New values for the X-VAL and Y-VAL parameters.</li> </ul> <p><b>Example:</b> delete point, in this case the 5th point for example</p> <ul style="list-style-type: none"> <li>– Select point 5 via the EDITOR TABLE/LINE NUMB parameter.</li> <li>– Using the TABLE EDITOR (770) parameter, select the option "Delete point".</li> <li>– The 5th point is deleted. All of the following points are pushed up one number i.e. following deletion, the 6th point becomes Point 5.</li> </ul> <p><b>Factory setting:</b><br/>Next point</p> |
| MEASURING TABLE (549)<br>Display                                                                         | <p>A point of the linearisation table saved (measuring table) appears on the display</p> <p>The parameter first displays the first point of the linearisation table. By entering a line number, you can directly display the corresponding point in the linearisation table.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MEASURING TABLE (717)<br>Selection                                                                       | <p>Select the function for the measuring table.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Next point: view next point of the measuring table.</li> <li>■ Last input point: view previous point of the measuring table.</li> <li>■ Abort: cancel measuring table display. Display next parameter.</li> </ul> <p><b>Factory setting:</b><br/>Next point</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| TANK DESCRIPTION (815)<br>Entry                                                                          | <p>Enter tank description. (max. 32 alphanumeric characters)</p> <p><b>Factory setting:</b><br/>-----</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

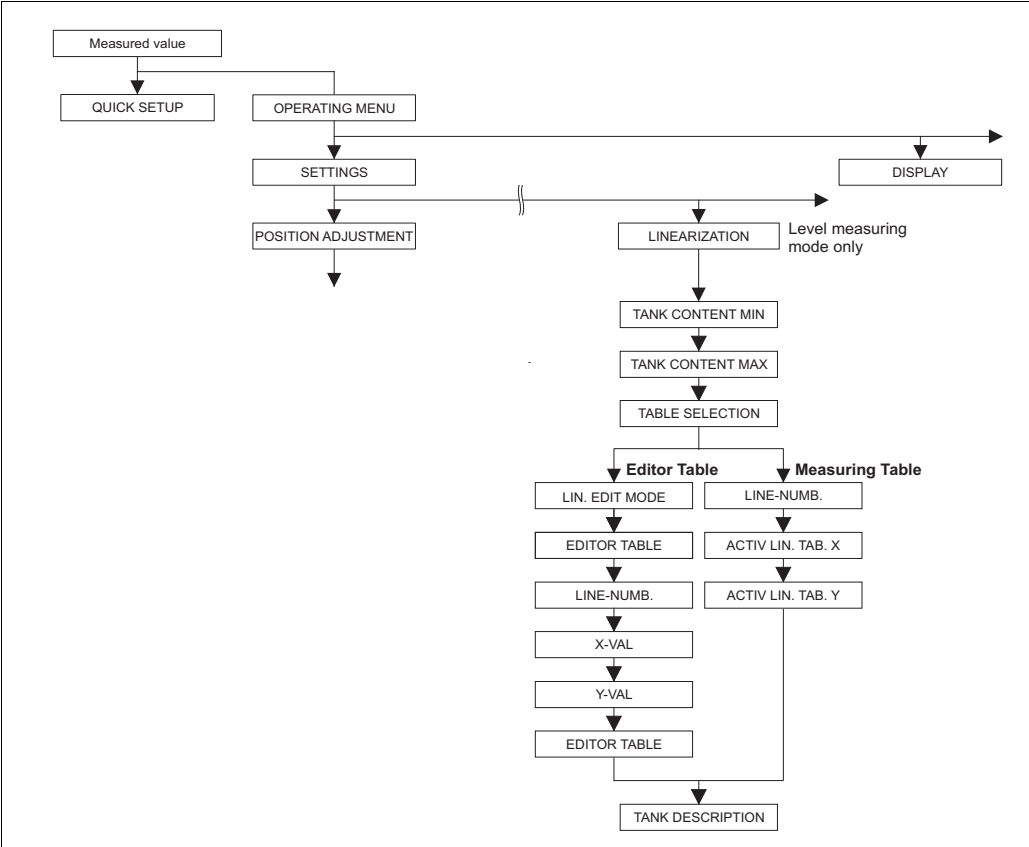
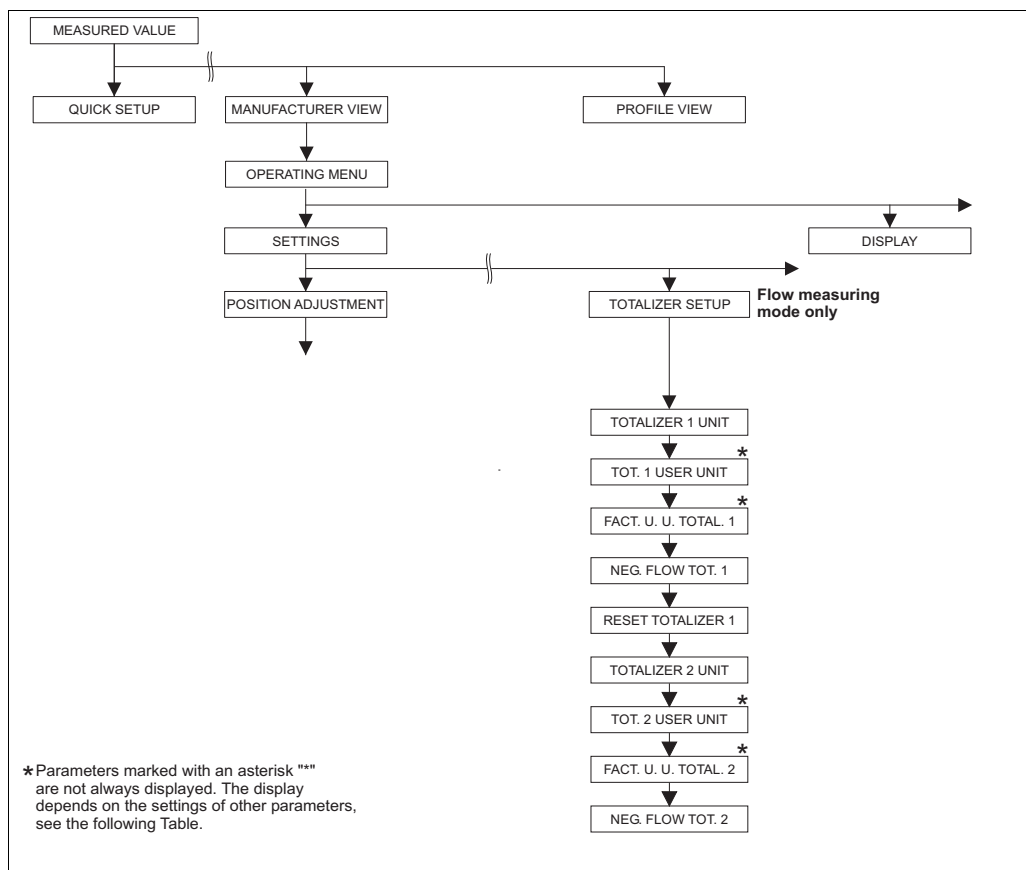


Fig. 35: LINEARISATION function group for FieldCare

| Table 19: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → LINEARISATION – FieldCare                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                                                                                                                                                                                                                                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Prerequisite:</b> <ul style="list-style-type: none"><li>■ MEASURING MODE = Level</li><li>■ LEVEL MODE = Pressure linearized or height linearized (→ see also Page 66).</li></ul> <b>Note:</b> <ul style="list-style-type: none"><li>– See also Page 14 ff, Section 5 "Level measurement".</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| TANK CONTENT MIN<br>Entry<br><br>Slot: 2<br>Index: 189                                                                                                                                                                                                                                                 | Enter the minimum tank contents to be expected.<br>The input limits for the calibration (editing limits) are derived from the value entered. The closer the value entered corresponds to the minimum tank content to be expected, the more accurate the measurement result.<br><b>Factory setting:</b><br>0.0                                                                                                                         |
| TANK CONTENT MAX<br>Entry<br><br>Slot: 2<br>Index: 188                                                                                                                                                                                                                                                 | Enter the maximum tank contents to be expected.<br>The input limits for the subsequent calibration (editing limits) are derived from the value entered. The closer the value entered corresponds to the maximum tank content to be expected, the more accurate the measurement result.<br><b>Factory setting:</b><br>100.0                                                                                                            |
| TABLE SELECTION<br>Selection<br><br>Slot: 2<br>Index: 202                                                                                                                                                                                                                                              | Select table.<br>The device works with a measuring and an editor table. The measuring table is used to calculate the measured value. To make sure measuring also runs properly when entering a new table, there is another table, the editor table, for entering new values.<br><b>Options:</b> <ul style="list-style-type: none"><li>■ View meas. table</li><li>■ Editor table</li></ul> <b>Factory setting:</b><br>View meas. table |

| <b>Table 19: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → LINEARISATION – FieldCare</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                      | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| LIN. EDIT MODE<br>Selection<br><br>Slot: 2<br>Index: 120                                   | <p>Select the entry mode for the linearisation table.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ TABLE SELECTION = Editor table</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Manual:<br/>the container neither has to be filled nor emptied for this entry mode. Enter the value pairs for the linearisation table.</li> <li>■ Semiautomatic: the container is filled or emptied in stages in this entry mode. The device automatically records the hydrostatic pressure. The associated volume, mass or %-value is entered.</li> </ul> <p><b>Factory setting:</b><br/>Manual</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| EDITOR TABLE<br>Selection<br><br>Slot: 2<br>Index: 203                                     | <p>Select table.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ TABLE SELECTION = editor table</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ New table:<br/>enter new linearisation table.</li> <li>■ Edit measure table:<br/>The measuring table is loaded as an editor table so that changes can be made. → See also TAB. SELECTION</li> <li>■ Continue edit:<br/>Edit an editor table that already exists.</li> </ul> <p> <b>Note!</b><br/>FieldCare:</p> <ul style="list-style-type: none"> <li>■ If you select the "View meas. table" option, the saved measuring table is loaded in the FieldCare. Use the "Lin.-Tab." window to view the entire table, change values if necessary and write the modified table to the device.</li> <li>■ If you change a value via the X-VAL. or Y-VAL. parameters, the table in the "Lin-Tab." window is not updated. To view the table saved in the device, this table must first be read out of the device.</li> </ul> <p><b>Factory setting:</b><br/>New table</p> |
| LINE-NUMB<br>Entry<br><br>Slot: 2<br>Index: 55                                             | <p>Enter the line number for the linearisation table. A linearisation table must have at least 2 points and may not have more than 32 points.</p> <ul style="list-style-type: none"> <li>■ TABLE SELECTION = View meas. table<br/>Via this parameter you can select the point of the linearisation table which should be displayed.</li> <li>■ TABLE SELECTION = Editor table<br/>Enter a point via the LINE-NUMB, X-VAL. and Y-VAL. parameters.<br/>→ See also this table, parameter description for LIN. EDIT MODE, X-VAL. ("Manual" entry mode), X-VAL. ("Semiautomatic" entry mode) and Y-VAL.</li> </ul> <p> <b>Note!</b><br/>In the FieldCare, you can enter a complete linearisation table in one go via the "Lin.-Tab." window.</p>                                                                                                                                                                                                                                                                                                                         |
| X-VAL. ("Manual" entry mode)<br>Entry<br><br>Slot: 2<br>Index: 162                         | <p>Enter the pressure value for the linearisation table.<br/>→ See also LIN. EDIT MODE, LINE-NUMB and Y-VAL.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ TABLE SELECTION = Editor table</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| X-VAL. ("Semiautomatic" entry mode)<br>Display<br><br>Slot: 2<br>Index: 186                | <p>In the "Semiautomatic" entry mode, the container is filled or emptied in stages. The X-VAL. displays the measured hydrostatic pressure.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ TABLE SELECTION = Editor table</li> </ul> <p><b>FieldCare</b><br/>The X-VAL. is saved by confirming the Y-value.<br/><br/>→ See also LIN. EDIT MODE, LINE-NUMB and Y-VAL.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| <b>Table 19: MANUFACTURER VIEW → OPERATING MENU → SETTINGS → LINEARISATION – FieldCare</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                      | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Y-VAL.<br>Entry<br><br>Slot: 2<br>Index: 163                                               | Enter the volume, mass or %-value belonging to the X-VAL. for the linearisation table.<br><br><b>Prerequisite:</b><br><ul style="list-style-type: none"> <li>TABLE SELECTION = Editor table</li> </ul> Depending on the setting in the LINd. MEASURAND or COMB. MEASURAND parameters, enter a volume, mass or %-value here.<br>→ See also this table, parameter description for LIN. EDIT MODE, LINE-NUMB, X-VAL. ("Manual" entry mode), X-VAL. ("Semiautomatic" entry mode).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| EDITOR TABLE<br>Options<br><br>Slot: 2<br>Index: 58                                        | Select the function for the editor table.<br><br><b>Prerequisite:</b><br><ul style="list-style-type: none"> <li>TABLE SELECTION = Editor table</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>Next point: without function</li> <li>Last input point: without function</li> <li>Accept input table: save editor table as measuring table. This overwrites the old measuring table.</li> <li>Abort: save values entered up to this point for the editor table and display next parameter. The editor table is not activated as a measuring table.</li> <li>Insert point: see example below.</li> <li>Delete point: the current point is deleted. See example below.</li> </ul> <b>Example:</b> Add point, in this case between the 4th and 5th point for example <ul style="list-style-type: none"> <li>Select point 5 via the LINE NUMB parameter.</li> <li>Using the TABLE EDITOR parameter, select the option "Insert point".</li> <li>Point 5 is displayed for the LINE NUMB parameter. New values for the X-VAL and Y-VAL parameters.</li> </ul> <b>Example:</b> delete point, in this case the 5th point for example <ul style="list-style-type: none"> <li>Select point 5 via the LINE NUMB parameter.</li> <li>Using the TABLE EDITOR parameter, select the option "Delete point".</li> <li>The 5th point is deleted. All of the following points are pushed up one number i.e. following deletion, the 6th point becomes Point 5.</li> </ul> <b>Factory setting:</b><br>Next point |
| ACTIV LIN. TAB. X<br>Display<br><br>Slot: 2<br>Index: 158                                  | An X-value of the linearisation table already saved appears on the display<br>You can select a point of the linearisation table via the LINE-NUMB parameter.<br><br><b>Prerequisite:</b><br><ul style="list-style-type: none"> <li>TABLE SELECTION = View meas. table</li> </ul>  <b>Note!</b><br>In the FieldCare, you can view the entire saved table in the "Tables" window.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| ACTIV LIN. TAB. Y<br>Display<br><br>Slot: 2<br>Index: 193                                  | A Y-value of the linearisation table already saved appears on the display<br>You can select a point of the linearisation table via the LINE-NUMB parameter.<br><br><b>Prerequisite:</b><br><ul style="list-style-type: none"> <li>TABLE SELECTION = View meas. table</li> </ul>  <b>Note!</b><br>In the FieldCare, you can view the entire saved table in the "Tables" window.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| TANK DESCRIPTION<br>Entry<br><br>Slot: 2<br>Index: 119                                     | Enter tank description. (max. 32 alphanumeric characters)<br><br><b>Factory setting:</b><br>-----                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



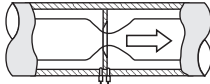
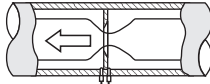
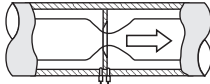
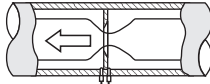
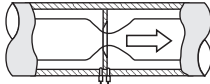
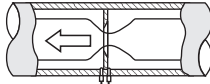
P01-xMx/xxxx-19-xx-xx-xx-013

Fig. 36: TOTALIZER SETUP function group

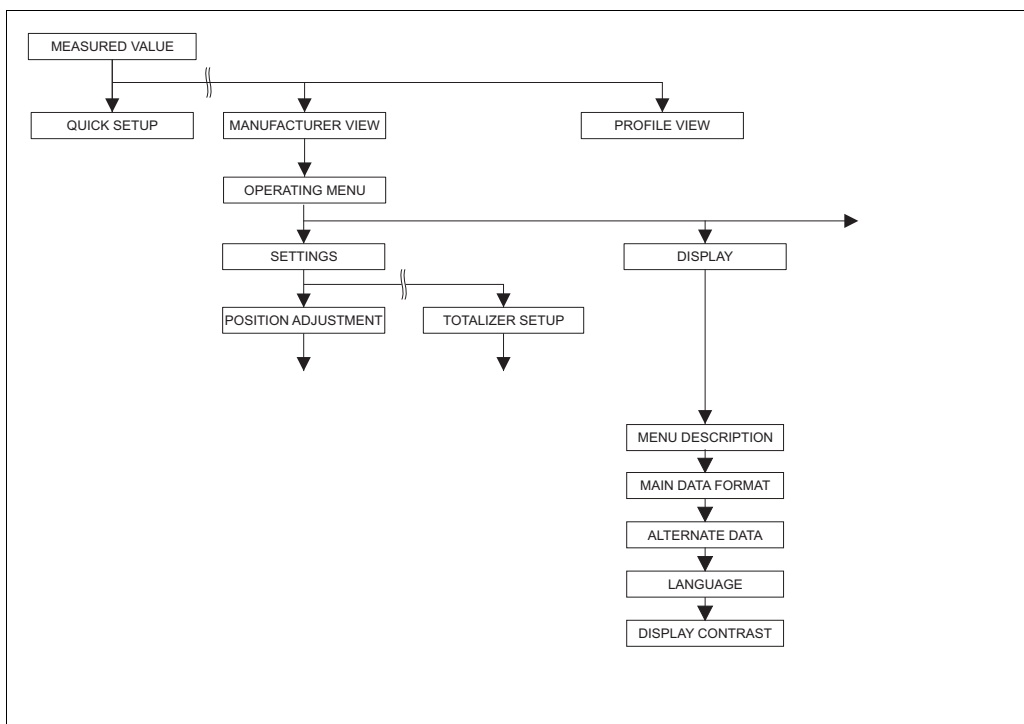
Table 20: OPERATING MENU → SETTINGS → TOTALIZER SETUP

| Parameter name                                                                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prerequisite:</b> <ul style="list-style-type: none"> <li>MEASURING MODE = flow</li> </ul>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Note:</b> <ul style="list-style-type: none"> <li>See also Page 40 ff, Section 6 "Flow measurement".</li> </ul>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>TOTALIZER 1 UNIT</b><br>(398), (662), (664), (666)<br>Selection<br><br>Slot: 2<br>Index: 102, 156, 168, 170, 172 | Select unit for totalizer 1.<br>Depending on the setting in the FLOW-MEAS. TYPE parameter (→ Page 91) this parameter offers a list of volume, norm volume, standard volume and mass units. When a new volume or mass unit is selected, totalizer-specific parameters are converted and displayed with the new unit within a unit group. When the flow mode is changed, the totalizer value is not converted.<br><br>The index depends on the FLOW-MEAS. TYPE selected: <ul style="list-style-type: none"> <li>Index 102: TOTALIZER 1 UNIT (general)</li> <li>Index 156 (398): FLOW-MEAS. TYPE "Volume p. cond."</li> <li>Index 168 (662): FLOW-MEAS. TYPE "Mass"</li> <li>Index 170 (664): FLOW-MEAS. TYPE "Gas. std. cond."</li> <li>Index 172 (666): FLOW-MEAS. TYPE "Gas. norm cond."</li> </ul> The index depends on the Flow-MEAS. TYPE selected:<br><br><b>Factory setting:</b><br>$\text{m}^3$ |

**Table 20: OPERATING MENU → SETTINGS → TOTALIZER SETUP**

| Parameter name                                                                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------|--|--|-------------------|-----------------|-----------------|-------------------|-----------------|-----------------|-------------------|-----------------|------------------------|
| TOT. 1 USER UNIT (627)<br>Entry<br><br>Slot: 2<br>Index: 106                                                 | <p>Enter text (unit) for customer-specific unit for totalizer 1.<br/>You can enter a maximum of eight alphanumeric characters here. → See also FACT. U. TOTAL. 1.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>■ TOTALIZER 1 UNIT = User unit</li></ul> <p> <b>Note!</b><br/>Only the first five characters are shown on the on-site display. For example, if "crates" is specified as the customer-specific unit, "crate" is displayed.<br/>If the unit contains a slash, up to eight characters can be shown on the on-site display.<br/>The maximum number of characters in the counter is again limited to five. For example, if "crates/m2" is specified as the customer-specific unit, "crate/m2" is displayed.<br/>FieldCare accepts units with eight characters at most. The fraction bar (slash) counts as one character.</p> <p><b>Factory setting:</b></p> <p>-----</p> |                                                                                       |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
| FACT. U. U. TOTAL. 1 (329)<br>Entry<br><br>Slot: 2<br>Index: 104                                             | <p>Enter conversion factor for a customer-specific unit for totalizer 1.<br/>The conversion factor must be entered in relation to an appropriate SI unit, e.g. m<sup>3</sup> for the "Volume p. cond." FLOW-MEAS. TYPE. → See also TOT. 1 USER UNIT.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"><li>■ TOTALIZER 1 UNIT = User unit</li></ul> <p><b>Example:</b> You want the measured value to be displayed in "buckets".</p> <ul style="list-style-type: none"><li>– MEASURED VALUE =1 m<sup>3</sup> ≈ 100 buckets</li><li>– Entry TOT. 1 USER UNIT: bucket</li><li>– Entry FACT. U. U. TOTAL. 1: 100</li><li>– Result: MEASURED VALUE = 100 buckets</li></ul> <p><b>Factory setting:</b></p> <p>1.0</p>                                                                                                                                                                                                                                                             |                                                                                       |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
| NEG. FLOW TOT. 1 (400)<br>Selection<br><br>Slot: 2<br>Index: 108                                             | <p>Specify way of counting negative flows for totalizer 1.</p> <table><tr><td></td><td></td><td></td></tr><tr><td>Options</td><td></td><td></td></tr><tr><td>Inc. on neg. flow</td><td>Total increases</td><td>Total increases</td></tr><tr><td>Dec. on neg. flow</td><td>Total increases</td><td>Total decreases</td></tr><tr><td>Stop on neg. flow</td><td>Total increases</td><td>Total remains constant</td></tr></table> <p style="text-align: right; font-size: small;">P01-xMD7xxxx-16-xx-xx-xx-003</p> <p><b>Factory setting:</b></p> <p>Positive</p>                                                                                                                                                                                                                                                       |                                                                                       |  |  | Options |  |  | Inc. on neg. flow | Total increases | Total increases | Dec. on neg. flow | Total increases | Total decreases | Stop on neg. flow | Total increases | Total remains constant |
|                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
| Options                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                       |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
| Inc. on neg. flow                                                                                            | Total increases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Total increases                                                                       |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
| Dec. on neg. flow                                                                                            | Total increases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Total decreases                                                                       |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
| Stop on neg. flow                                                                                            | Total increases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Total remains constant                                                                |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
| RESET TOTALIZER1 (331)<br>Selection<br><br>Slot: 2<br>Index: 110                                             | <p>You reset totalizer 1 to zero with this parameter.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"><li>■ Abort (do not reset)</li><li>■ Reset</li></ul> <p><b>Factory setting:</b></p> <p>Abort</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                       |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |
| TOTALIZER 2 UNIT<br>(399), (663), (665), (667)<br>Selection<br><br>Slot: 2<br>Index: 103, 157, 169, 171, 173 | <p>Select unit for totalizer 2.<br/>→ See also TOTAL 1. ENG. UNIT.</p> <p>The index depends on the FLOW-MEAS. TYPE selected:</p> <ul style="list-style-type: none"><li>– Index 103: TOTALIZER 1 UNIT (general)</li><li>– Index 157 (399): FLOW-MEAS. TYPE "Volume p. cond."</li><li>– Index 169 (663): FLOW-MEAS. TYPE "Mass"</li><li>– Index 171 (665): FLOW-MEAS. TYPE "Gas. std. cond."</li><li>– Index 173 (667): FLOW-MEAS. TYPE "Gas. norm cond."</li></ul> <p><b>Factory setting:</b></p> <p>m<sup>3</sup></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                       |                                                                                      |                                                                                       |         |  |  |                   |                 |                 |                   |                 |                 |                   |                 |                        |

| Table 20: OPERATING MENU → SETTINGS → TOTALIZER SETUP                |                                                                                                                                                                                                               |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                       | Description                                                                                                                                                                                                   |
| TOT. 2 USER UNIT (628)<br>Entry<br><br>Slot: 2<br>Index: 107         | Enter text (unit) for customer-specific unit for totalizer 2.<br>→ See also TOT. 1 USER UNIT.<br><br><b>Prerequisite:</b><br>■ TOTALIZER 2 UNIT = User unit<br><br><b>Factory setting:</b><br>-----           |
| FACT. U. U. TOTAL. 2 (330)<br>Selection<br><br>Slot: 2<br>Index: 105 | Enter conversion factor for a customer-specific unit for totalizer 2.<br>→ See also FACT. U. U. TOTAL. 1.<br><br><b>Prerequisite:</b><br>■ TOTALIZER 2 UNIT = User unit<br><br><b>Factory setting:</b><br>1.0 |
| NEG. FLOW TOT. 2 (416)<br>Selection<br><br>Slot: 2<br>Index: 109     | Specify way of counting negative flows for totalizer 2.<br>→ See NEG. FLOW TOT. 1.<br><br><b>Factory setting:</b><br>Positive                                                                                 |



P01-xMx7xxxx-19-xx-xx-xx-014

Fig. 37: DISPLAY group

| <b>Table 21: OPERATING MENU → DISPLAY</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                           | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MENU DESCRIPTOR (416)<br>Selection<br><br>Slot: 0<br>Index: 80  | <p>Specify contents for the main line of the on-site display in the measuring mode.<br/>           → See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.1 "On-site display".</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Main measured value (PV)</li> <li>■ Main measured value (%)</li> <li>■ Pressure</li> <li>■ Flow</li> <li>■ Level</li> <li>■ Tank content</li> <li>■ Temperature</li> <li>■ Error number</li> <li>■ Totalizer 1</li> <li>■ Totalizer 2</li> </ul> <p>The selection depends on the measuring mode chosen.</p> <p><b>Factory setting:</b><br/>Main measured value (PV)</p>                                                                                                                                                                              |
| MAIN DATA FORMAT (688)<br>Selection<br><br>Slot: 0<br>Index: 81 | <p>Specifies the number of places after the decimal point for the value displayed in the main line.<br/>           → See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.1 "On-site display".</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Auto</li> <li>■ x.x</li> <li>■ x.xx</li> <li>■ x.xxx</li> <li>■ x.xxxx</li> <li>■ x.xxxxx</li> </ul> <p><b>Factory setting:</b><br/>Auto</p>                                                                                                                                                                                                                                                                                                                                                                                         |
| ALTERNATE DATA (423)<br>Selection<br><br>Slot: 0<br>Index: 82   | <p>Switch on "Alternating display" mode.</p> <p>In this display mode, the on-site display alternates between the following measured values depending on the measuring mode selected.</p> <ul style="list-style-type: none"> <li>– Pressure: main measured value (PV) or main measured value (%) (MEASURED VALUE), pressure (PRESSURE) and temperature (TEMP. SENSOR)</li> <li>– Level: main measured value (PV) or main measured value (%) (MEASURED VALUE), pressure (PRESSURE) and temperature (TEMP. SENSOR)</li> <li>– Flow: main measured value (PV) or main measured value (%) (MEASURED VALUE), pressure (PRESSURE), temperature (TEMP. SENSOR), totalizer 1 (TOTALIZER 1) and totalizer 2 (TOTALIZER 2)</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Off</li> <li>■ On</li> </ul> <p><b>Factory setting:</b><br/>Off</p> |

| <b>Table 21: OPERATING MENU → DISPLAY</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                       | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| LANGUAGE<br>Selection<br><br>Slot: 0<br>Index: 78           | <p>Select the menu language for the on-site display.</p> <p> <b>Note!</b></p> <ul style="list-style-type: none"> <li>■ In the FieldCare, the LANGUAGE parameter is arranged in the DISPLAY function group.</li> <li>■ Select the menu language for FieldCare by means of the "Language Button" in the configuration window. Select the menu language for the FieldCare frame via the "Extra" menu → "Options" → "Display" → "Language".</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Deutsch</li> <li>■ English</li> <li>■ Français</li> <li>■ Italiano</li> <li>■ Español</li> <li>■ Nederlands</li> </ul> <p><b>Factory setting:</b><br/>English</p> |
| DISPLAY CONTRAST (339)<br>Entry<br><br>Slot: 0<br>Index: 79 | <p>Adjust contrast of on-site display.</p> <p>You specify the contrast of the display with a number. Changes are only accepted as single steps, i.e. to change the value from "8" to "4", you need to save four times. You can also adjust the contrast of the display by means of the keys on the electronic insert or at the device.</p> <p>→ See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA332P (Deltapilot S), Section 5.2.3 "Function of operating keys".</p> <p><b>Input range:</b><br/>4...13, 4: contrast weaker (brighter), 13: contrast stronger (darker).</p> <p><b>Factory setting:</b><br/>8</p>                                                                                                                          |

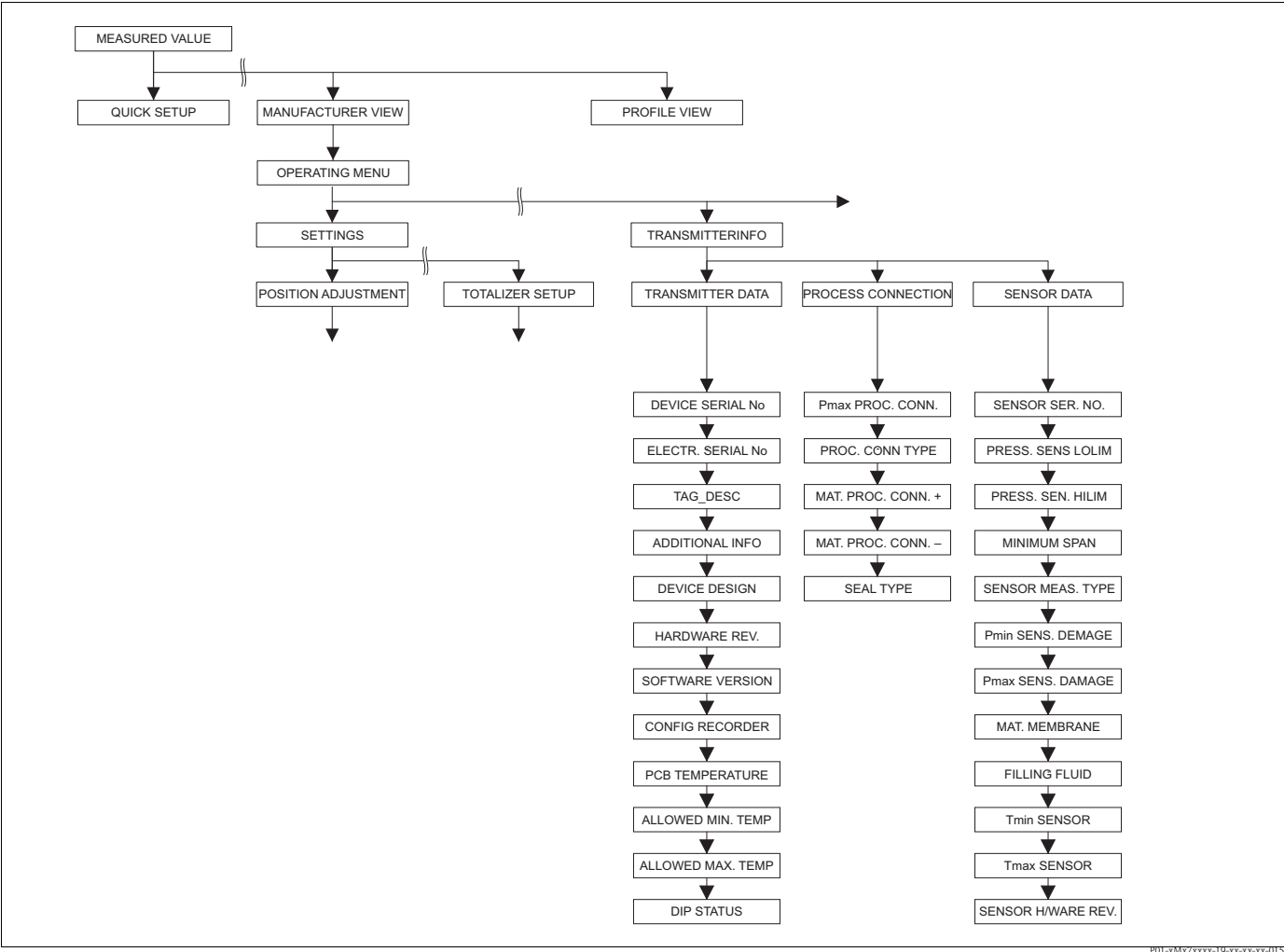


Fig. 38: TRANSMITTER INFO group  
→ For the PA DATA function group, see Page 108, Table 23  
→ For the TRANSMITTER DATA function group, see Page 110, Table 24  
→ For the PROCESS CONNECTION function group, see Page 111, Table 25  
→ For the SENSOR DATA function group, see Page 112, Table 26

| Table 23: OPERATING MENU → TRANSMITTER INFO → PA DATA           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parametername                                                   | Beschreibung                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| IDENT NUMBER SEL (990)<br>Selection<br><br>Slot: 2<br>Index: 40 | Select device master file (GSD).<br><br><b>Deltabar S:</b> <ul style="list-style-type: none"><li>■ 0x9700: Profile GSD</li><li>■ 0x1542: Device-specific GSD (factory setting)</li><li>■ 0x1504: Device-specific GSD, device acts like a Deltabar S FMD230, FMD630, FMD633, PMD230 or PMD235. → See Operating Instructions BA167P.</li></ul> <b>Cerabar S:</b> <ul style="list-style-type: none"><li>■ 0x9700: Profile GSD</li><li>■ 0x1541: Device-specific GSD (factory setting)</li><li>■ 0x1501: Device-specific GSD, device acts like a Cerabar S PMC731, PMP731, PMC631 or PMP635. → See Operating Instructions BA168P.</li></ul> <b>Deltapilot S:</b> <ul style="list-style-type: none"><li>■ New Device (0x154F): Device-specific GSD ((factory setting)</li><li>■ Old Device (0x1503): Device-specific GSD, device acts like a Deltapilot S DB50, DB50L, DB51, DB52 oder DB53. → Siehe Operating Instructions BA164F.</li><li>■ Profile (0x9700): Profile GSD</li></ul> |

**Table 23: OPERATING MENU → TRANSMITTER INFO → PA DATA**

| Parametername                                                     | Beschreibung                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SET UNIT TO BUS (991)<br>Auswahl<br><br>Slot: 0<br>Index: 61      | <p>The on-site display and the MEASURED VALUE parameter display the same value as standard. The digital output value of the Analog Input Block OUT works independently of the on-site display or the MEASURED VALUE.</p> <p>The following operating options are available so that the on-site display, the MEASURED VALUE and the digital output value display the same value:</p> <ul style="list-style-type: none"> <li>■ Set the values for the upper and lower PV SCALE limit (→ see Page 140) and OUT SCALE (→ see Page 140) as equal in the Analog Input Block</li> <li>■ Confirm the option "On" by means of the "SET UNIT TO BUS" parameter. By confirming this, the limits for PV SCALE and OUT SCALE are automatically set as equal.</li> </ul> <p> <b>Note!</b><br/>If you confirm the SET UNIT TO BUS parameter, please note that a change in the digital output value can affect the control system.</p>                                                                                                                                                                                                                                                                                 |
| AI OUT VALUE (992)<br>Display<br><br>Slot: 1<br>Index: 26         | Displays the output value of the Analog Input Block.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| AI OUT STATUS (993)<br>Display<br><br>Slot: 1<br>Index: 26        | Displays the status of the OUT value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 2ND CYCLIC VALUE (994)<br>Auswahl<br><br>Slot: 0<br>Index: 68     | <p>Use this parameter to specify which value is transmitted via the bus as the second cyclic value.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Temperature (→ see Page 115)</li> <li>■ Sensor Value: corresponds to the SENSOR PRESSURE parameter (→ see Page 115)</li> <li>■ Trimmed Value: corresponds to the CORRECTED PRESS. parameter (→ see Page 115)</li> <li>■ Secondary Value 1: corresponds to the PRESSURE parameter (→ see Page 115)</li> </ul> <p><b>Factory setting:</b><br/>Temperature</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| SEL. DISPLAY VALUE (995)<br>Selection<br><br>Slot: 0<br>Index: 63 | <p>Use this parameter to specify whether the primary value or a value of the PLC is shown on the on-site display.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Primary value (PV): the primary value is shown on the on-site display.</li> <li>■ PA Input Value: a value from the PLC is shown on the on-site display (→ see this Table, PA INPUT VALUE).</li> </ul> <p><b>Example for the "Input Value" option, Deltabar S:</b></p> <ul style="list-style-type: none"> <li>■ A Deltabar S measures a volume flow. The temperature and the pressure are also measured at the measuring point at the same time. All these measured values are sent to a PLC. The PLC calculates the steam mass from the volume flow, temperature and pressure measured values. Use the "PA Input Value" option to assign this calculated value to the on-site display.</li> </ul> <p><b>Example for the "Input Value" option, Cerabar S or Deltapilot S:</b></p> <ul style="list-style-type: none"> <li>■ Two devices measure the pressure drop by means of a filter. The differential pressure is formed in the PLC. Use the "PA Input Value" option to assign this calculated value to the on-site display.</li> </ul> <p><b>Factory setting:</b><br/>■ Primary value (PV)</p> |
| PA INPUT VALUE (996)<br>Display<br><br>Slot: 0<br>Index: 62       | <p>The values displayed here are transmitted by the PLC to the device. The PA INPUT VALUE can be shown on the on-site display (→ see this Table, SEL. DISPLAY VALUE).</p> <p><b>Factory setting:</b><br/>■ 0.0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**Table 23: OPERATING MENU → TRANSMITTER INFO → PA DATA**

| Parametername                                            | Beschreibung                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BUS ADDRESS (998)<br>Display<br><br>Slot: 0<br>Index: 59 | Displays the device address in the PROFIBUS PA network<br>You can configure the address either locally on the electronic insert (hardware addressing) or via the software (software addressing). Using a DIP switch on the electronic insert, you specify whether the hardware address or the software address takes effect.<br>→ For further information on device addressing, see Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.7 "Configuring the device address".<br><br><b>Factory setting:</b><br>126 |

**Table 24: OPERATING MENU → TRANSMITTER INFO → TRANSMITTER DATA**

| Parameter name                                                 | Description                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEVICE SERIAL No (354)<br>Display<br><br>Slot: 0<br>Index: 28  | Displays the serial number of the device (11 alphanumeric characters).                                                                                                                                                                                            |
| ELECTR. SERIAL No (386)<br>Display<br><br>Slot: 0<br>Index: 97 | Displays the serial number of the main electronics (11 alphanumeric characters).                                                                                                                                                                                  |
| TAG DESCRIPTION (988)<br>Entry<br><br>Slot: 0<br>Index: 18     | Enter tag name e.g. TAG number (max. 32 alphanumeric characters).<br><b>Factory setting:</b><br>_____ or as per order specifications                                                                                                                              |
| ADDITIONAL INFO (272)<br>Entry<br><br>Slot: 0<br>Index: 36     | Enter tag description (max. 32 alphanumeric characters).<br><b>Factory setting:</b><br>Empty field or as per order specifications                                                                                                                                 |
| DEVICE DESIGN. (350)<br>Display<br><br>Slot: 0<br>Index: 69    | Displays the device designation and order code.                                                                                                                                                                                                                   |
| HARDWARE REV. (266)<br>Display<br><br>Slot: 0<br>Index: 25     | Displays the revision number of the main electronics<br>e.g.: V02.00.00                                                                                                                                                                                           |
| SOFTWARE VERSION (264)<br>Display<br><br>Slot: 0<br>Index: 24  | Displays the software version<br>e.g.: V 04.00.10                                                                                                                                                                                                                 |
| CONFIG RECORDER (352)<br>Display<br><br>Slot: 0<br>Index: 74   | Displays the configuration counter.<br>This counter is increased by one with each change to a parameter or group. The counter counts to 65535 and then starts again at zero. Changes in the parameters of the DISPLAY function group do not increase the counter. |
| PCB TEMPERATURE (357)<br>Display<br><br>Slot: 0<br>Index: 98   | Displays the measured temperature of the main electronics.                                                                                                                                                                                                        |

| <b>Table 24: OPERATING MENU → TRANSMITTER INFO → TRANSMITTER DATA</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ALLOWED MIN. TEMP (358)<br>Display<br><br>Slot: 0<br>Index: 99        | Displays the lower temperature limit of the main electronics.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ALLOWED MAX. TEMP (359)<br>Display<br><br>Slot: 0<br>Index: 100       | Displays the upper temperature limit of the main electronics.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DIP STATUS (365)<br>Display<br><br>Slot: 0<br>Index: 41               | <p>Displays the status of DIP switch 1 on the electronic insert. You can lock or unlock parameters relevant to the measured value with DIP switch 1. If operation is locked by means of the INSERT PIN No. parameter, you can only unlock operation again by means of this parameter. (→ INSERT PIN NO, see Page 120.)<br/>→ See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.7 "Locking/unlocking operation".</p> <p><b>Display:</b></p> <ul style="list-style-type: none"> <li>■ On (locking switched on)</li> <li>■ Off (locking switched off)</li> </ul> <p><b>Factory setting:</b><br/>Off (locking switched off)</p> |

| <b>Table 25: OPERATING MENU → TRANSMITTER INFO → PROCESS CONNECTION</b> |                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                   | <b>Description</b>                                                                                                                                                                                                                                                                                         |
| Pmax PROC. CONN. (570)<br>Entry<br><br>Slot: 2<br>Index: 101            | <p>For entering and displaying the maximum permitted pressure of the process connection.</p> <p><b>Factory setting:</b><br/>In accordance with nameplate data (→ see also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 2.1.1 nameplate)</p>            |
| PROC. CONN. TYPE (482)<br>Selection<br><br>Slot: 2<br>Index: 41         | <p>For selecting and displaying the process connection type.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Not used</li> <li>■ Unknown</li> <li>■ Special</li> <li>■ Oval flange</li> <li>■ Thread female</li> <li>■ Thread male</li> <li>■ Flange</li> <li>■ Remote seal</li> </ul> |

| <b>Table 25: OPERATING MENU → TRANSMITTER INFO → PROCESS CONNECTION</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                   | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MAT. PROC. CONN. + (360)<br>Selection<br><br>Slot: 2<br>Index: 42       | For selecting and displaying the material of the process connection (P+).<br>→ See also parameter description for MAT. PROC. CONN. -<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ Not used</li> <li>■ Unknown</li> <li>■ Special</li> <li>■ Steel</li> <li>■ 304 st. steel</li> <li>■ 316 st. steel</li> <li>■ Alloy C</li> <li>■ Monel</li> <li>■ Tantalum</li> <li>■ Titanium</li> <li>■ PTFE (Teflon)</li> <li>■ 316L st. steel</li> <li>■ PVC</li> <li>■ Inconel</li> <li>■ PVDF</li> <li>■ ECTFE</li> </ul> <b>Factory setting:</b><br>As per order specifications |
| MAT. PROC. CONN. - (361)<br>Selection<br><br>Slot: 2<br>Index: 150      | For selecting and displaying the material of the process connection (P-).<br>→ See also parameter description for MAT. PROC. CONN. +<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ Deltabar S differential pressure transmitter</li> </ul>                                                                                                                                                                                                                                                                                                                          |
| SEAL TYPE (362)<br>Selection<br><br>Slot: 2<br>Index: 40                | For selecting and displaying the material of the process seal.<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ Not used</li> <li>■ Unknown</li> <li>■ Special</li> <li>■ FKM Viton</li> <li>■ NBR</li> <li>■ EPDM</li> <li>■ Urethane</li> <li>■ IIR</li> <li>■ Kalrez</li> <li>■ FKM Viton oxyg</li> <li>■ CR</li> <li>■ MVQ</li> <li>■ PTFE glass</li> <li>■ PTFE graphite</li> <li>■ PTFE oxygen</li> <li>■ Copper</li> <li>■ Copper f. oxygen</li> </ul> <b>Factory setting:</b><br>As per order specifications                                                        |

| <b>Table 26: MANUFACTURER VIEW → OPERATING MENU → TRANSMITTER INFO → SENSOR DATA</b> |                                                                        |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                | <b>Description</b>                                                     |
| SENSOR SER. No. (250)<br>Display<br><br>Slot: 2<br>Index: 33                         | Displays the serial number of the sensor (11 alphanumeric characters). |
| PRESS. SENS LOLIM (484)<br>Display<br><br>Slot: 2<br>Index: 26                       | Displays the lower measuring limit of the sensor.                      |

| <b>Table 26: MANUFACTURER VIEW → OPERATING MENU → TRANSMITTER INFO → SENSOR DATA</b> |                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                                | <b>Description</b>                                                                                                                                                                                                                                                       |
| PRESS. SENS HILIM (485)<br>Display<br><br>Slot: 2<br>Index: 25                       | Displays the upper measuring limit of the sensor.                                                                                                                                                                                                                        |
| MINIMUM SPAN (591)<br>Display<br><br>Slot: 2<br>Index: 29                            | Displays the smallest possible span.                                                                                                                                                                                                                                     |
| SENSOR MEAS.TYPE (581)<br>Display<br><br>Slot: 2<br>Index: 32                        | Displays the sensor type.<br><ul style="list-style-type: none"> <li>■ Deltabar S = differential</li> <li>■ Cerabar S with gauge pressure sensors = relative</li> <li>■ Cerabar S with absolute pressure sensors = absolute</li> <li>■ Deltapilot S = relative</li> </ul> |
| MAT. MEMBRANE (365)<br>Display<br><br>Slot: 2<br>Index: 37                           | Displays the material of the process isolating diaphragm.<br><b>Factory setting:</b><br>As per version in the order code<br>→ See also Technical Information TI382P (Deltapilot S), TI383P (Cerabar S) or TI416P (Deltapilot S), "Ordering information" section.         |
| FILLING FLUID (366)<br>Display<br><br>Slot: 2<br>Index: 38                           | Displays the filling fluid.                                                                                                                                                                                                                                              |
| Tmin SENSOR (368)<br>Display<br><br>Slot: 2<br>Index: 98                             | Displays the lower nominal temperature limit of the sensor.                                                                                                                                                                                                              |
| Tmax SENSOR (369)<br>Display<br><br>Slot: 2<br>Index: 99                             | Displays the upper nominal temperature limit of the sensor.                                                                                                                                                                                                              |
| SENS H/WARE REV (487)<br>Display<br><br>Slot: 2<br>Index: 100                        | Displays the revision number of the sensor hardware.<br>e.g.: 1                                                                                                                                                                                                          |

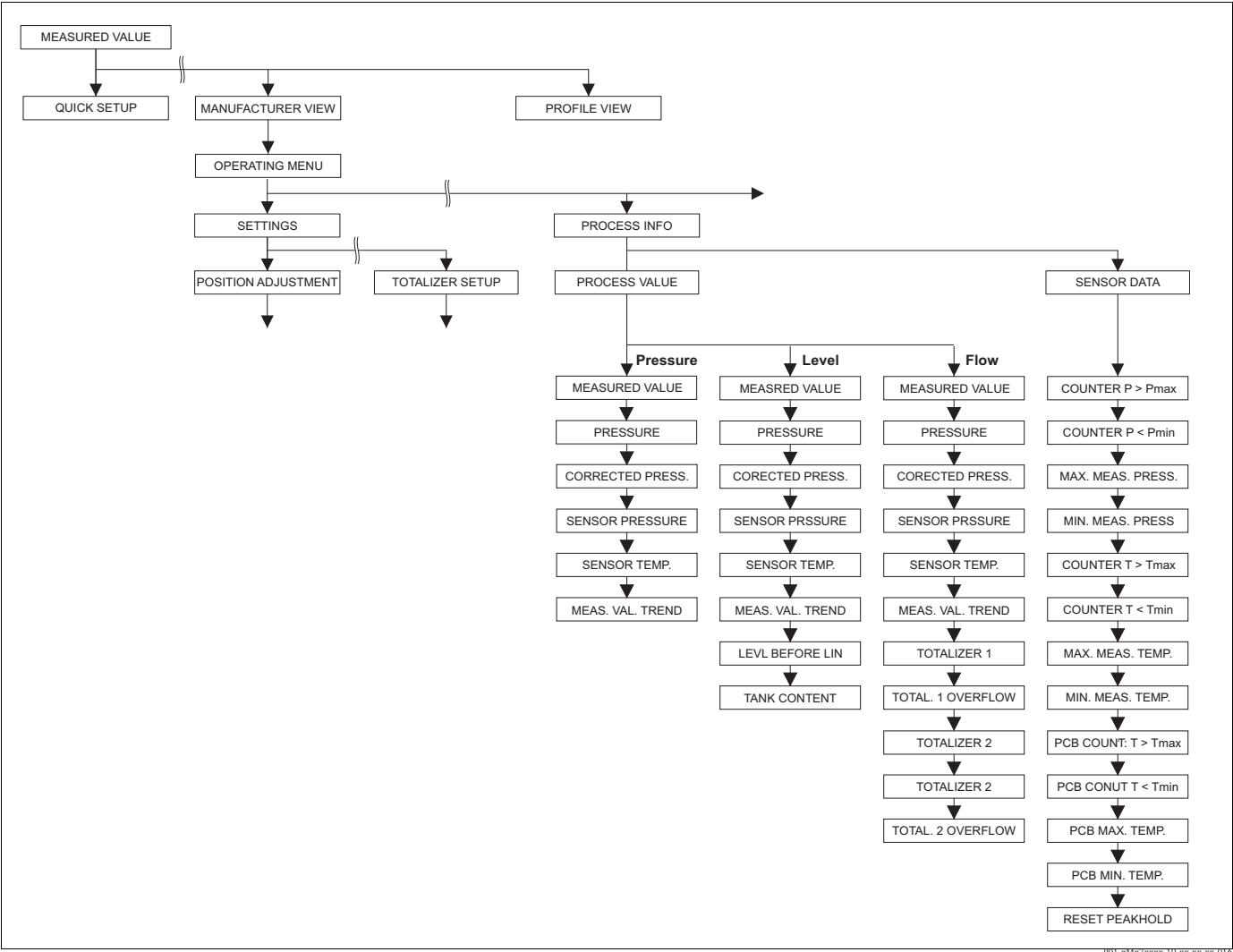
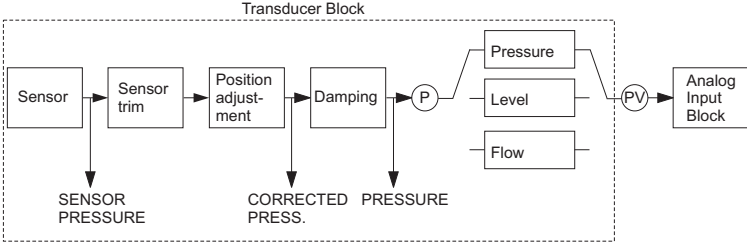


Fig. 39: PROCESSINFO group

- For the PROCESS VALUES function group, "Pressure" measuring mode, see Page 114, Table 27
- For the PROCESS VALUES function group, "Level" measuring mode, see Page 115, Table 28
- For the PROCESS VALUES function group, "Flow" measuring mode, see Page 116, Table 29
- For the PEAK HOLD INDICATOR function group, see Page 118, Table 30

| Table 27: OPERATING MENU → PROCESSINFO → PROCESS VALUES "Pressure" |                                                                                                                    |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                     | Description                                                                                                        |
| <b>Prerequisite:</b><br>■ MEASURING MODE = Pressure                |                                                                                                                    |
| MEASURED VALUE (679)<br>Display<br><br>Slot: 2<br>Index: 34        | Displays the measured value<br>In the "Pressure" measuring mode, this value corresponds to the PRESSURE parameter. |

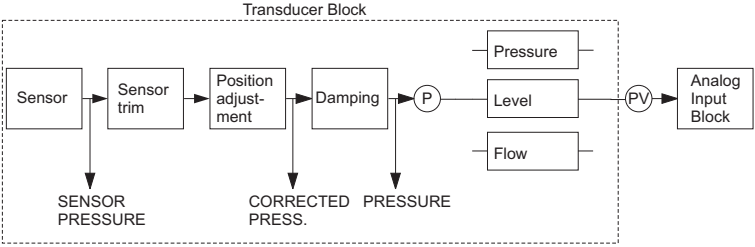
**Table 27: OPERATING MENU → PROCESSINFO → PROCESS VALUES "Pressure"**

| Parameter name                                                | Description                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PRESSURE (301)<br>Display<br><br>Slot: 2<br>Index: 45         | <p>Displays the measured pressure after sensor recalibration, position adjustment and damping. This value corresponds to the MEASURED VALUE parameter in the "Pressure" measuring mode.</p>  <p style="text-align: right; font-size: small;">P01-xMD7xxxx-05-xx-xx-xx-000</p>                               |
| CORRECTED PRESS. (434)<br>Display<br><br>Slot: 2<br>Index: 31 | <p>Displays the measured pressure after sensor trim and position adjustment and before damping. → See also PRESSURE diagram.</p>                                                                                                                                                                                                                                                              |
| SENSOR PRESSURE (584)<br>Display<br><br>Slot: 2<br>Index: 24  | <p>Displays the measured pressure before sensor trim, position adjustment and damping. → See also PRESSURE diagram.</p>                                                                                                                                                                                                                                                                       |
| SENSOR TEMP. (367)<br>Display<br><br>Slot: 2<br>Index: 43     | <p>Displays the temperature currently measured in the sensor. This temperature can deviate from the process temperature.<br/>           PMP72:<br/>           The process temperature displayed can deviate from the actual temperature. This deviation in temperature depends on the process temperature and ambient temperature and the resulting temperature gradient over the device.</p> |
| MEAS. VAL. TREND (378)<br>Display<br><br>Slot: 2<br>Index: 92 | <p>Displays the trend of the pressure measured value.<br/>           Possibilities: increasing, decreasing, constant</p>                                                                                                                                                                                                                                                                      |

**Table 28: OPERATING MENU → PROCESSINFO → PROCESS VALUES "Level"**

| Parameter name                                              | Description                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prerequisite:</b><br>■ MEASURING MODE = Level            |                                                                                                                                                                                                                                                                                                                                     |
| MEASURED VALUE (679)<br>Display<br><br>Slot: 2<br>Index: 34 | <p>Displays the measured value<br/>           In the "Level" measuring mode with "Linear" or "Pressure linearized" level type, this value corresponds to the LEVEL BEFORE LIN parameter<br/>           In the "Level" measuring mode with "Height linearized" level type, this value corresponds to the TANK CONTENT parameter.</p> |

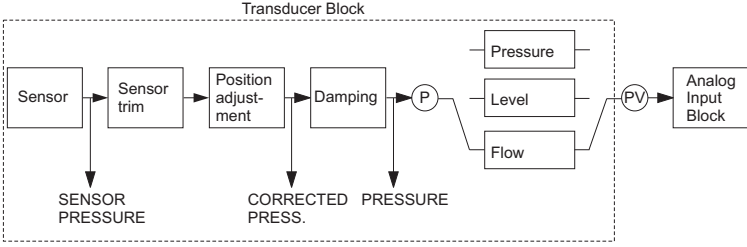
**Table 28: OPERATING MENU → PROCESSINFO → PROCESS VALUES "Level"**

| Parameter name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PRESSURE (301)<br>Display<br><br>Slot: 2<br>Index: 45          | <p>Displays the measured pressure after sensor recalibration, position adjustment and damping. This value corresponds to the MEASURED VALUE parameter in the "Pressure" measuring mode.</p>  <p style="text-align: right;">P01-xMD7xxxx-05-xx-xx-xx-002</p>                                                 |
| CORRECTED PRESS. (434)<br>Display<br><br>Slot: 2<br>Index: 31  | <p>Displays the measured pressure after sensor trim and position adjustment and before damping. → See also PRESSURE diagram.</p>                                                                                                                                                                                                                                                              |
| SENSOR PRESSURE (584)<br>Display<br><br>Slot: 2<br>Index: 24   | <p>Displays the measured pressure before sensor trim, position adjustment and damping. → See also PRESSURE diagram.</p>                                                                                                                                                                                                                                                                       |
| SENSOR TEMP. (367)<br>Display<br><br>Slot: 2<br>Index: 43      | <p>Displays the temperature currently measured in the sensor. This temperature can deviate from the process temperature.<br/>           PMP72:<br/>           The process temperature displayed can deviate from the actual temperature. This deviation in temperature depends on the process temperature and ambient temperature and the resulting temperature gradient over the device.</p> |
| MEAS. VAL. TREND (378)<br>Display<br><br>Slot: 2<br>Index: 92  | <p>Displays the trend of the pressure measured value.<br/>           Possibilities: increasing, decreasing, constant</p>                                                                                                                                                                                                                                                                      |
| LEVEL BEFORE LIN (050)<br>Display<br><br>Slot: 2<br>Index: 142 | <p>Displays the level value prior to linearisation.<br/> <b>Prerequisite:</b><br/>           ■ LEVEL MODE = Linear or Height linearized<br/>           Depending on the setting for the LIN. MEASURAND or COMB. MEASURAND parameter, this parameter displays the current level in % or in a unit of level.</p>                                                                                |
| TANK CONTENT (370)<br>Display<br><br>Slot: 2<br>Index: 151     | <p>Displays the level value after linearisation.<br/> <b>Prerequisite:</b><br/>           ■ LEVEL MODE = Pressure linearized or Height linearized<br/>           Depending on the settings for the LINd. MEASURAND or COMB. MEASURAND parameter, the current tank content is displayed in % or in a unit of volume or mass. This value corresponds to the MEASURED VALUE.</p>                 |

**Table 29: OPERATING MENU → PROCESSINFO → PROCESS VALUES "Flow"**

| Parameter name                                              | Description                                                                                                                              |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prerequisite:</b><br>■ MEASURING MODE = Flow             |                                                                                                                                          |
| MEASURED VALUE (679)<br>Display<br><br>Slot: 2<br>Index: 34 | <p>Displays the measured value<br/>           In the "Flow" measuring mode, this value corresponds to the SUPPRESSED FLOW parameter.</p> |

**Table 29: OPERATING MENU → PROCESSINFO → PROCESS VALUES "Flow"**

| Parameter name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PRESSURE (301)<br>Display<br><br>Slot: 2<br>Index: 45          | <p>Displays the measured pressure after sensor recalibration, position adjustment and damping. This value corresponds to the MEASURED VALUE parameter in the "Pressure" measuring mode.</p>  <p style="text-align: right; font-size: small;">P01-xMD7xxxx-05-xx-xx-xx-003</p>                          |
| CORRECTED PRESS. (434)<br>Display<br><br>Slot: 2<br>Index: 31  | <p>Displays the measured pressure after sensor trim and position adjustment and before damping. → See also PRESSURE diagram.</p>                                                                                                                                                                                                                                                         |
| SENSOR PRESSURE (584)<br>Display<br><br>Slot: 2<br>Index: 24   | <p>Displays the measured pressure before sensor trim, position adjustment and damping. → See also PRESSURE diagram.</p>                                                                                                                                                                                                                                                                  |
| SENSOR TEMP. (367)<br>Display<br><br>Slot: 2<br>Index: 43      | <p>Displays the temperature currently measured in the sensor. This temperature can deviate from the process temperature.<br/> <b>PMP72:</b><br/>         The process temperature displayed can deviate from the actual temperature. This deviation in temperature depends on the process temperature and ambient temperature and the resulting temperature gradient over the device.</p> |
| MEAS. VAL. TREND (378)<br>Display<br><br>Slot: 2<br>Index: 92  | <p>Displays the trend of the pressure measured value.<br/>         Possibilities: increasing, decreasing, constant</p>                                                                                                                                                                                                                                                                   |
| SUPPRESSED FLOW (375)<br>Display<br><br>Slot: 2<br>Index: 152  | <p>Displays the current flow. Depending on the flow mode selected (→ FLOW-MEAS. TYPE), a volume flow, mass flow, standard volume flow or corrected volume flow is displayed.</p>                                                                                                                                                                                                         |
| TOTALIZER 1 (652)<br>Display<br><br>Slot: 2<br>Index: 93       | <p>Displays the total flow value of totalizer 1. You can reset the value with the RESET TOTALIZER 1 parameter. The TOTAL. 1 OVERFLOW parameter displays the overflow.<br/> <b>Example:</b> The value 123456789 m<sup>3</sup> is displayed as follows:<br/>         – TOTALIZER 1: 3456789 m<sup>3</sup><br/>         – TOTAL. 1 OVERFLOW: 12 E7</p>                                      |
| TOTAL. 1 OVERFLOW (655)<br>Display<br><br>Slot: 2<br>Index: 94 | <p>Displays the overflow value of totalizer 1.<br/>         → See also TOTALIZER 1.</p>                                                                                                                                                                                                                                                                                                  |
| TOTALIZER 2 (657)<br>Display<br><br>Slot: 2<br>Index: 95       | <p>Displays the total flow value of totalizer 2. You cannot reset totalizer 2. The TOTAL. 2 OVERFLOW parameter displays the overflow.<br/>         → See also example for TOTALIZER 1.</p>                                                                                                                                                                                               |
| TOTAL. 2 OVERFLOW (658)<br>Display<br><br>Slot: 2<br>Index: 96 | <p>Displays the overflow value of totalizer 2.<br/>         → See also TOTALIZER 2 and example for TOTALIZER 1.</p>                                                                                                                                                                                                                                                                      |

**Table 30: OPERATING MENU → PROCESSINFO → PEAK HOLD INDICATOR**

| Parameter name                                                   | Description                                                                                                                                                                                                                             |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COUNTER:P > Pmax (380)<br>Display<br><br>Slot: 2<br>Index: 89    | Displays the overpressure counter of the sensor<br>The limit value is: upper nominal pressure limit of sensor + 10 % of upper nominal pressure limit of sensor. You can reset this counter by means of the RESET PEAKHOLD parameter.    |
| MAX. MEAS. PRESS. (383)<br>Display<br><br>Slot: 2<br>Index: 61   | Displays the largest measured pressure value (peak hold indicator). You can reset this indicator by means of the RESET PEAKHOLD parameter.                                                                                              |
| COUNTER:P < Pmin (467)<br>Display<br><br>Slot: 2<br>Index: 88    | Displays the vacuum pressure counter of the sensor<br>The limit value is: lower nominal pressure limit of sensor – 10 % of upper nominal pressure limit of sensor. You can reset this counter by means of the RESET PEAKHOLD parameter. |
| MIN. MEAS. PRESS. (469)<br>Display<br><br>Slot: 2<br>Index: 62   | Displays the smallest measured pressure value (peak hold indicator). You can reset this indicator by means of the RESET PEAKHOLD parameter.                                                                                             |
| COUNTER:T > Tmax (404)<br>Display<br><br>Slot: 2<br>Index: 90    | Displays the number of times the specified temperature range of the sensor has been overshoot. You can reset this counter by means of the RESET PEAKHOLD parameter.                                                                     |
| MAX. MEAS. TEMP. (471)<br>Display<br><br>Slot: 2<br>Index: 63    | Displays the largest measured temperature in the sensor (peak hold indicator). You can reset this indicator by means of the RESET PEAKHOLD parameter.                                                                                   |
| COUNTER:T < Tmin (472)<br>Display<br><br>Slot: 2<br>Index: 91    | Displays the number of times the specified temperature range of the sensor has been undershot. You can reset this counter by means of the RESET PEAKHOLD parameter.                                                                     |
| MIN. MEAS. TEMP. (474)<br>Display<br><br>Slot: 2<br>Index: 64    | Displays the smallest measured temperature in the sensor (peak hold indicator). You can reset this indicator by means of the RESET PEAKHOLD parameter.                                                                                  |
| PCB COUNT:T > Tmax (488)<br>Display<br><br>Slot: 2<br>Index: 101 | Displays the number of times the specified temperature range of the electronics has been overshoot.                                                                                                                                     |
| PCB MAX. TEMP. (490)<br>Display<br><br>Slot: 2<br>Index: 102     | Displays the largest electronics temperature measured.                                                                                                                                                                                  |
| PCB COUNT:T < Tmin (492)<br>Display<br><br>Slot: 2<br>Index: 103 | Displays the number of times the specified temperature range of the electronics has been undershot.                                                                                                                                     |

**Table 30: OPERATING MENU → PROCESSINFO → PEAK HOLD INDICATOR**

| Parameter name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PCB MIN. TEMP. (494)<br>Display<br><br>Slot: 2<br>Index: 104   | Displays the smallest electronics temperature measured.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| RESET PEAKHOLD (382)<br>Selection<br><br>Slot: 2<br>Index: 153 | <p>This parameter lists all the peak hold indicator parameters that can be reset. You can select the peak hold indicators you want to reset.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ None</li> <li>■ Max. pressure</li> <li>■ Min. pressure</li> <li>■ Pmax history</li> <li>■ Pmin history</li> <li>■ Max. temp.</li> <li>■ Min. temp.</li> <li>■ Tmax history</li> <li>■ Tmin history</li> <li>■ Reset all</li> </ul> <p><b>Factory setting:</b><br/>None</p> |

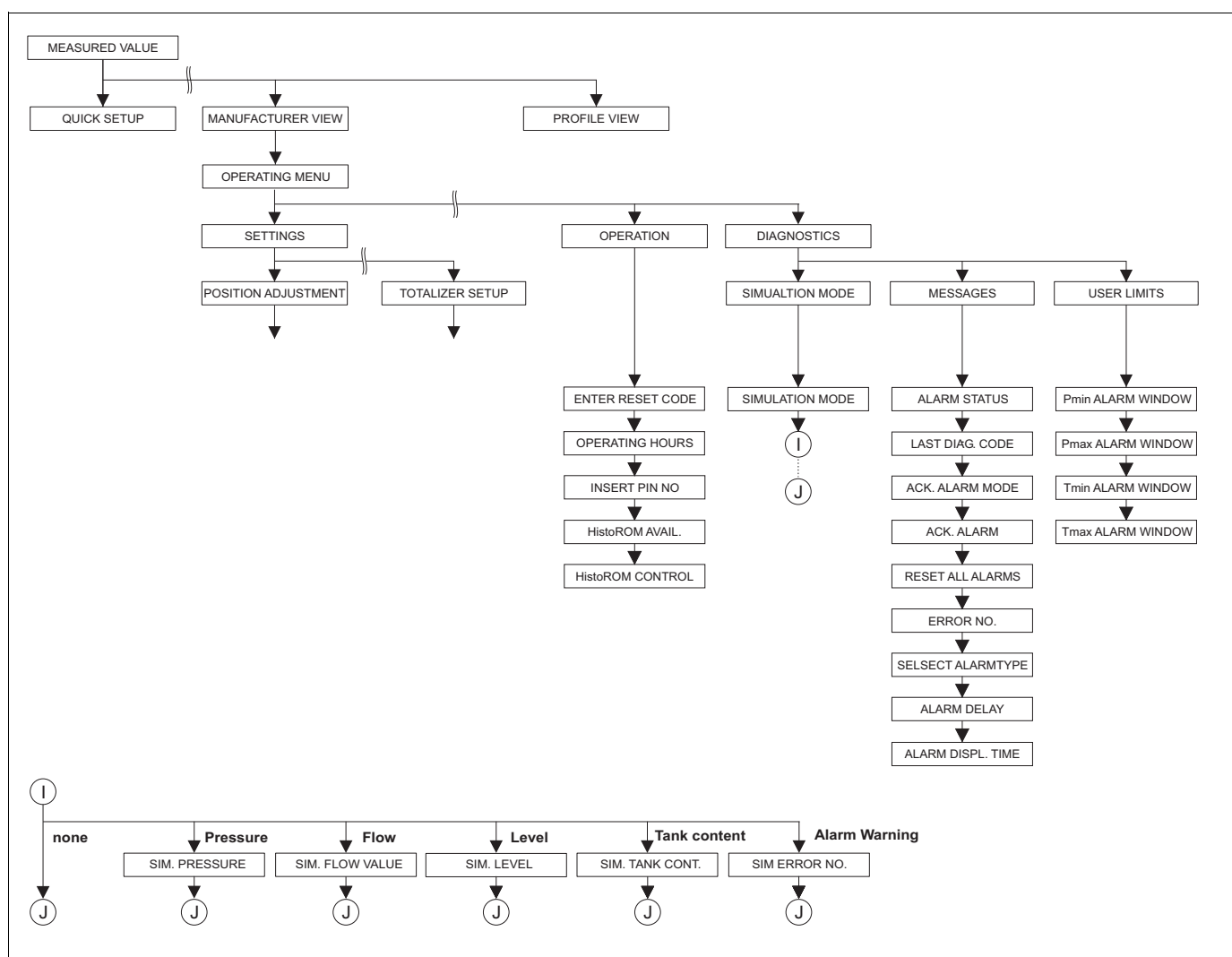


Fig. 40: OPERATING and DIAGNOSTICS group  
 → For the OPERATING group, see Page 120, Table 31  
 → For the SIMULATION function group, see Page 121, Table 32

P01-2Mx/xxxx-19-xx-xx-xx-01.7

→ For the MESSAGES function group, see Page 122, Table 33

→ For the USER LIMITS function group, see Page 123, Table 34

| Table 31: OPERATING MENU → OPERATING                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| ENTER RESET CODE (047)<br>Entry<br><br>Slot: 0<br>Index: 35   | Reset parameters completely or partially to factory values or delivery status.<br>→ See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.8 "Factory setting" (reset).<br><br><b>Factory setting:</b><br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| OPERATING HOURS (409)<br>Display<br><br>Slot: 0<br>Index: 75  | Displays the hours of operation. This parameter cannot be reset.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| INSERT PIN NO (048)<br>Entry<br><br>Slot: 0<br>Index: 34      | For entering a code to lock or unlock operation.<br><br> <b>Note!</b><br><ul style="list-style-type: none"> <li>■ The -symbol on the on-site display indicates that operation is locked. Parameters which refer to how the display appears, e.g. LANGUAGE and DISPLAY CONTRAST can still be altered.</li> <li>■ If operation is locked by means of the DIP-switch, you can only unlock operation again by means of the DIP-switch. If operation is locked by means of the on-site display or remote operation e.g. FieldCare, you can unlock operation again by means of the on-site display or using remote operation.</li> </ul> → See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356 (Deltapilot S), Section 5.7 "Locking/unlocking operation".<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ Lock: enter the number 0.</li> <li>■ Unlock: enter the number 2457.</li> </ul> <b>Factory setting:</b><br>2457 |
| HistoROM AVAIL. (831)<br>Display<br><br>Slot: 0<br>Index: 94  | Indicates whether the optional HistoROM®/M-DAT memory module is connected to the electronic insert.<br>→ See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.5 "HistoROM®/M-DAT (optional)".<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ Yes (HistoROM®/M-DAT is attached to the electronic insert)</li> <li>■ No (HistoROM®/M-DAT is not attached to the electronic insert)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| DOWNLOAD SELECT (014)<br>Options<br><br>Slot: 2<br>Index: 107 | Select download function from HistoROM to device. The selection has no effect on an upload from the device to the HistoROM.<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ A HistoROM®/M-DAT is attached to the electronic insert (HistoROM AVAIL. = yes)</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>■ Configuration copy: For this option, all parameters apart from the DEVICE SERIAL No, DEVICE DESIGN., and the parameters of the POSITION ADJUSTMENT and PROCESS CONNECTION group are overwritten.</li> <li>■ Device replacement: With this option, all parameters except for DEVICE SERIAL No, DEVICE DESIGN. and the parameters of the POSITION ADJUSTMENT and PROCESS CONNECTION group are overwritten.</li> <li>■ Electronics replace: With this option, all parameters except for the parameters of the POSITION ADJUSTMENT group are overwritten.</li> </ul> <b>Factory setting:</b><br>Copy config. (if HistoROM®/M-DAT is attached to the electronic insert)                                                                                                            |

**Table 31: OPERATING MENU → OPERATING**

| Parameter name                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HistoROM CONTROL (832)<br>Selection<br><br>Slot: 0<br>Index: 96 | <p>For selecting the direction for copying the data.<br/>→ See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or Deltapilot S (BA356P), Section 5.5. "HistoROM®/M-DAT (optional)".</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ A HistoROM®/M-DAT is attached to the electronic insert (HistoROM AVAIL. = yes)</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Abort</li> <li>■ HistoROM → Device</li> <li>■ Device → HistoROM</li> </ul> <p><b>Factory setting:</b><br/>Abort (if HistoROM®/M-DAT is connected to the electronic insert)</p> |

**Table 32: OPERATING MENU → DIAGNOSTICS → SIMULATION**

| Parameter name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SIMULATION MODE (413)<br>Selection<br><br>Slot: 2<br>Index: 87 | <p>Switch on simulation and select simulation type.<br/>Any simulation running is switched off if the measuring mode or level type is changed.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ None</li> <li>■ Pressure, → see also this table parameter description for SIM. PRESSURE</li> <li>■ Flow (only differential pressure transmitter), → see also this table parameter description for SIM. FLOW VALUE</li> <li>■ Level, → see also this table parameter description for SIM. LEVEL</li> <li>■ Tank content, → see also this table parameter description for SIM. TANK CONT.</li> <li>■ Alarm/warning, → see also this table parameter description for SIM. ERROR NO.</li> </ul> <div> </div> <p><b>Factory setting:</b><br/>None</p> |
| SIM. PRESSURE (414)<br>Entry<br><br>Slot: 2<br>Index: 205      | <p>Enter simulation value.<br/>→ See also SIMULATION MODE.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ SIMULATION MODE = Pressure</li> </ul> <p><b>Factory setting:</b><br/>Current pressure measured value</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| SIM. FLOW VALUE (639)<br>Entry<br><br>Slot: 2<br>Index: 165    | <p>Enter simulation value.<br/>→ See also SIMULATION MODE.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Pressure and SIMULATION MODE = Flow</li> <li>■ MEASURING MODE = Flow and SIMULATION MODE = Flow</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| SIM. LEVEL (714)<br>Entry<br><br>Slot: 2<br>Index: 182         | <p>Enter simulation value.<br/>→ See also SIMULATION MODE.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Level and SIMULATION MODE = Level</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

**Table 32: OPERATING MENU → DIAGNOSTICS → SIMULATION**

| Parameter name                                              | Description                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SIM. TANK CONT. (715)<br>Entry<br><br>Slot: 2<br>Index: 183 | Enter simulation value.<br>→ See also SIMULATION MODE.<br><br><b>Prerequisites:</b> <ul style="list-style-type: none"> <li>■ MEASURING MODE = Level, LEVEL MODE = Pressure linearized and SIMULATION MODE = Tank content</li> <li>■ MEASURING MODE = Level, LEVEL MODE = Height linearized and SIMULATION MODE = Tank content</li> </ul> |
| SIM. ERROR NO. (476)<br>Entry<br><br>Slot: 0<br>Index: 76   | Enter message number.<br>→ See also SIMULATION MODE.<br>→ See also these Operating Instructions, Section 8.1 "Messages", "Code" table column.<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ SIMULATION MODE = Alarm/Warning</li> </ul> <b>Factory setting:</b><br>613 (simulation active)                         |

**Table 33: OPERATING MENU → DIAGNOSTICS → MESSAGES**

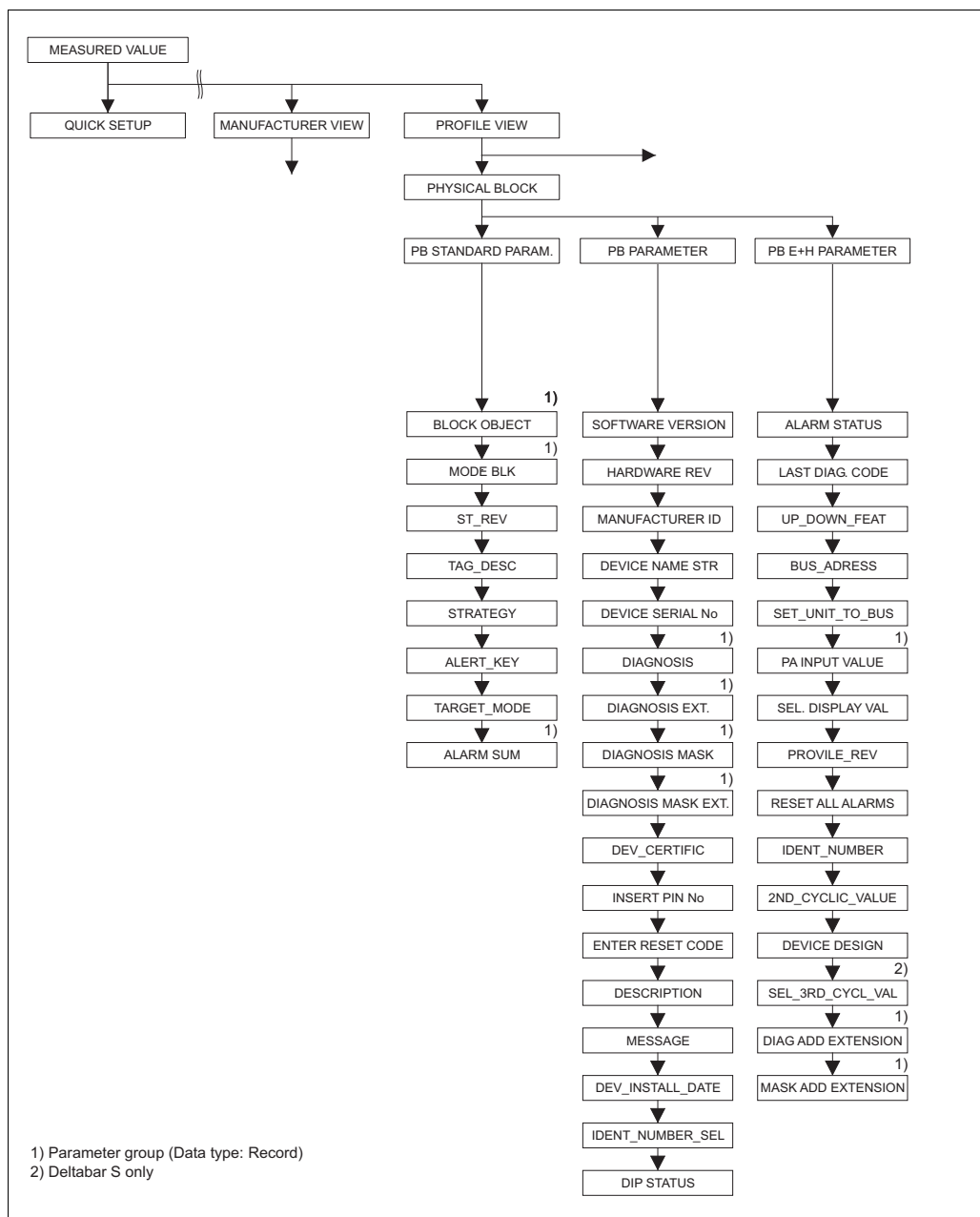
| Parameter name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ALARM STATUS (046)<br>Display<br><br>Slot: 0<br>Index: 54      | Displays the current messages present. → See also these Operating Instructions, Section 8.1. "Messages" and Section 8.3 "Confirming messages".<br><br><b>On-site display</b> <ul style="list-style-type: none"> <li>■ The measured value display shows the message with the highest priority.</li> <li>■ The ALARM STATUS parameter shows all the messages in descending order of priority. You can scroll through all the messages present with the  or  key.</li> </ul> <b>FieldCare</b> <ul style="list-style-type: none"> <li>■ The ALARM STATUS parameter show the message with the highest priority.</li> </ul> |
| LAST DIAG. CODE (564)<br>Display<br><br>Slot: 0<br>Index: 55   | Displays the last messages that occurred and were eliminated.<br> <b>Note!</b> <ul style="list-style-type: none"> <li>■ On-site display: you can scroll through the last 15 messages with the  or  key.</li> <li>■ FieldCare: the last message appears on the display.</li> <li>■ Use the RESET ALL ALARMS parameter to delete the messages listed in the LAST DIAG. CODE parameter.</li> </ul>                                                                                                                                    |
| ACK. ALARM MODE (401)<br>Selection<br><br>Slot: 0<br>Index: 85 | Switch on acknowledge alarm mode.<br>→ See also ACK. ALARM.<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ On</li> <li>■ Off</li> </ul> <b>Factory setting:</b><br>Off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| ACK. ALARM (500)<br>Selection<br><br>Slot: 0<br>Index: 86      | Acknowledge alarm.<br><br><b>Prerequisite:</b> <ul style="list-style-type: none"> <li>■ ACK. ALARM MODE = On</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>■ Abort</li> <li>■ Confirm</li> </ul> <p>The cause of the alarm must be eliminated, the message must be acknowledged via the ACK. ALARM parameter and, where applicable, the ALARM DISPL. TIME (→ Page 123) has to have elapsed before the device starts measuring again following an alarm.<br/>→ See also these Operating Instructions, Section 8.3 "Confirming messages".</p> <b>Factory setting:</b><br>Abort                                                                                                                                                                                            |

| <b>Table 33: OPERATING MENU → DIAGNOSTICS → MESSAGES</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                              | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| RESET ALL ALARMS (603)<br>Selection<br><br>Slot: 0<br>Index: 65                    | Use this parameter to reset all the messages of the LAST DIAG. CODE parameter.<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ Abort</li> <li>■ Confirm</li> </ul> <b>Factory setting:</b><br>Abort                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ERROR No.<br>Entry<br><br>Slot: 0<br>Index: 88                                     | For "Error"-type messages, you can decide whether the device should behave as in the event of an alarm (A) or as in the event of a warning (W). Enter the corresponding message number for this parameter. → See also SELECT ALARMTYPE.<br>→ See also these Operating Instructions, Section 8.1 "Messages" and Section 8.2 "Response of outputs to errors".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| SELECT ALARMTYPE<br>(595) – Entry<br>(600) – Selection<br><br>Slot: 0<br>Index: 87 | For "Error"-type messages, you can decide whether the device should behave as in the event of an alarm (A) or as in the event of a warning (W). → See also ERROR No.<br>→ See also these Operating Instructions, Section 8.2 "Response of outputs to errors".<br><br><b>Options:</b> <ul style="list-style-type: none"> <li>■ Alarm (A): output current assumes a defined value.</li> <li>■ Warning (W): device continues measuring</li> </ul> <b>On-site display:</b> <ol style="list-style-type: none"> <li>1. Enter the corresponding message number for ERROR No. field.</li> <li>2. Select "Alarm" or "Warning" option.</li> </ol> <b>FieldCare:</b> <ol style="list-style-type: none"> <li>1. Enter the corresponding message number via the ERROR No. parameter.</li> <li>2. Use the SELECT ALARMTYPE parameter to select the "Alarm" or "Warning" option.</li> </ol> |
| ALARM DELAY (336)<br>Entry<br><br>Slot: 0<br>Index: 89                             | Enter alarm response time.<br><br> <b>Note!</b><br>There is no alarm if the cause of the error is eliminated within the alarm delay time.<br><br><b>Input range:</b><br>0...100 s<br><br><b>Factory setting:</b><br>0.0 s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ALARM DISPL. TIME (480)<br>Entry<br><br>Slot: 0<br>Index: 90                       | Enter alarm display time. Once the cause of the error is rectified, the alarm display time starts running.<br><br> <b>Note!</b><br>The following applies if the setting for ACK. ALARM MODE = on:<br>If an alarm appears and the alarm display time elapses before the alarm has been acknowledged, the message will be cleared once it has been acknowledged.<br>→ See also these Operating Instructions, Section 8.3 "Confirming messages".<br><br><b>Input range:</b><br>0...999.9 s<br><br><b>Factory setting:</b><br>0.0 s                                                                                                                                                                                                                                                           |

| <b>Table 34: OPERATING MENU → DIAGNOSTICS → USER LIMITS</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                           | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Pmin ALARM WINDOW<br>(332)<br>Entry<br><br>Slot: 2<br>Index: 82 | Customer-specific process monitoring – enter lower pressure limit.<br>You can use the SELECT ALARMTYPE parameter to enter how the device responds if the operating pressure undershoots the specified value.<br>→ See also these Operating Instructions, Section 9.1 "Messages", table, Code E730 and Section 9.2. "Response of outputs to errors".<br><br><b>Factory setting:</b><br>Low sensor limit ■ 1.1<br>(→ For the low sensor limit, see PRESS. SENS LOLIM.) |

**Table 34: OPERATING MENU → DIAGNOSTICS → USER LIMITS**

| Parameter name                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pmax ALARM WINDOW<br>(333)<br>Entry<br><br>Slot: 2<br>Index: 83 | <p>Customer-specific process monitoring – enter upper pressure limit.<br/>You can use the SELECT ALARMTYPE parameter to enter how the device responds if the operating pressure undershoots the specified value.<br/>→ See also these Operating Instructions, Section 9.1 "Messages", table, Code E731 and Section 9.2. "Response of outputs to errors".</p> <p><b>Factory setting:</b><br/>High sensor limit ■ 1.1<br/>(→ For the high sensor limit, see PRESS. SENS HILIM.)</p>                                         |
| Tmin ALARM WINDOW<br>(334)<br>Entry<br><br>Slot: 2<br>Index: 84 | <p>Customer-specific process monitoring – enter lower temperature limit.<br/>You can use the SELECT ALARMTYPE parameter to enter how the device responds if the operating pressure undershoots the specified value.<br/>→ See also these Operating Instructions, Section 9.1 "Messages", table, Code E732 and Section 9.2. "Response of outputs to errors".</p> <p><b>Factory setting:</b><br/>Lower sensor temperature application limit – 10 K<br/>(→ For the lower temperature application limit, see Tmin SENSOR)</p> |
| Tmax ALARM WINDOW<br>(335)<br>Entry<br><br>Slot: 2<br>Index: 85 | <p>Customer-specific process monitoring – enter upper temperature limit.<br/>You can use the SELECT ALARMTYPE parameter to enter how the device responds if the operating pressure undershoots the specified value.<br/>→ See also these Operating Instructions, Section 9.1 "Messages", table, Code E733 and Section 9.2. "Response of outputs to errors".</p> <p><b>Factory setting:</b><br/>Upper sensor temperature application limit +10 K<br/>(→ For the upper temperature application limit, see Tmax SENSOR)</p>  |

Fig. 41: *PHYSICAL BLOCK group*→ For the *PB STANDARD PARAM.* function group, see Page 126, Table 35→ For the *PB PARAMETER* function group, see Page 127, Table 36→ For the *PB E+H PARAMETER* function group, see Page 130, Table 37

| <b>Table 35: PROFILE VIEW → PHYSICAL BLOCK → PB STANDARD PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                  | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| BLOCK OBJECT<br>Display<br><br>Slot: 0<br>Index: 16                    | <p>The BLOCK OBJECT parameter is a structured parameter consisting of 12 elements. This parameter describes the characteristics of the Physical Block.</p> <p><b>RESERVED</b></p> <ul style="list-style-type: none"> <li>■ 250 = Is not used</li> </ul> <p><b>BLOCK_OBJECT</b></p> <ul style="list-style-type: none"> <li>■ 1 = Physical Block</li> </ul> <p><b>PARENT_CLASS</b></p> <ul style="list-style-type: none"> <li>■ 1 = Transmitter</li> </ul> <p><b>CLASS</b></p> <ul style="list-style-type: none"> <li>■ 250 = Is not used</li> </ul> <p><b>DD_REFERENCE</b></p> <ul style="list-style-type: none"> <li>■ Is not supported by Profiles 3.0</li> </ul> <p><b>DD_REVISION</b></p> <ul style="list-style-type: none"> <li>■ Is not supported by Profiles 3.0</li> </ul> <p><b>PROFILE</b></p> <ul style="list-style-type: none"> <li>■ Number of the PROFIBUS PA profile within the PNO</li> <li>■ 0x40, 0x02 (compact class B)</li> </ul> <p><b>PROFILE_REVISION</b></p> <ul style="list-style-type: none"> <li>■ Displays the profile version, here: 0x300 (Profiles 3.0)</li> </ul> <p><b>EXECUTION_TIME</b></p> <ul style="list-style-type: none"> <li>■ Is not supported by Profiles 3.0</li> </ul> <p><b>NUM_OF_PARAMETER</b></p> <ul style="list-style-type: none"> <li>■ Parameter number of the Physical Block, here: 95</li> </ul> <p><b>ADDR_OF_VIEW_1</b></p> <ul style="list-style-type: none"> <li>■ Address of the VIEW_1 parameter, here: 0x0, 0x6F</li> </ul> <p><b>NUM_OF_VIEWS</b></p> <ul style="list-style-type: none"> <li>■ 1 = The Block contains one "View object".</li> </ul> |
| MODE BLK<br>Display<br><br>Slot: 0<br>Index: 22                        | <p>The MODE BLK parameter is a structured parameter consisting of three elements. PROFIBUS makes a distinction between the following block modes: automatic mode (Auto), manual user intervention (MAN) and out of service (O/S). The Physical Block only works in the "Automatic (Auto)" mode.</p> <p><b>ACTUAL</b></p> <ul style="list-style-type: none"> <li>■ Displays the current block mode.</li> <li>■ Factory setting: Automatic (Auto)</li> </ul> <p><b>PERMITTED</b></p> <ul style="list-style-type: none"> <li>■ Displays the modes supported by the block.</li> <li>■ Factory setting: 8 = Automatic (Auto)</li> </ul> <p><b>NORMAL</b></p> <ul style="list-style-type: none"> <li>■ Displays the normal operating mode of the block.</li> <li>■ Factory setting: Automatic (Auto)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ST_REV<br>Display<br><br>Index: 0<br>Slot: 17                          | <p>Displays the counter for static parameters of the Physical Block<br/>           The counter is incremented by one with each change of a static parameter of the Physical Block. The counter counts up to 65535 and then starts again at zero.</p> <p><b>Factory setting:</b><br/>           0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| TAG DESCRIPTION<br>Entry<br><br>Slot: 0<br>Index: 18                   | <p>Enter tag name e.g. TAG number (max. 32 alphanumeric characters).<br/>           The parameter is also displayed in the TRANSMITTER DATA group (→ see Page 110).</p> <p><b>Factory setting:</b><br/>           _____ or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| <b>Table 35: PROFILE VIEW → PHYSICAL BLOCK → PB STANDARD PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                  | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| STRATEGY<br>Entry<br><br>Slot: 0<br>Index: 19                          | Enter user-specific value for grouping and thus faster evaluation of the blocks. Grouping takes place by entering the same numerical value for the STRATEGY parameter of the block in question. → See also STRATEGY parameter, Transducer Block (Page 135) and Analog Input Block (Page 138).<br><br><b>Input range:</b><br>0...65535<br><br><b>Factory setting:</b><br>0                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ALERT_KEY<br>Entry<br><br>Slot: 0<br>Index: 20                         | Enter user-specific value (e.g. identification number of the plant unit). This information can be used by the control system to sort alarms and events that are generated by this block.<br><br><b>Input range:</b><br>0...255<br><br><b>Factory setting:</b><br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| TARGET_MODE<br>Selection<br><br>Slot: 0<br>Index: 21                   | Select desired block mode. Only the "Automatic (Auto)" mode can be selected for the Physical Block.<br><br><b>Options:</b><br><ul style="list-style-type: none"> <li>■ Automatic (Auto)</li> </ul> <b>Factory setting:</b><br>Automatic (Auto)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ALARM SUM<br>Display<br><br>Slot: 0<br>Index: 23                       | The ALARM SUM parameter is a structured parameter consisting of four elements.<br><br><b>CURRENT</b> <ul style="list-style-type: none"> <li>■ Displays the current alarms.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <b>UNACKNOWLEDGE</b> <ul style="list-style-type: none"> <li>■ Displays the alarms not acknowledged. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <b>UNREPORTED</b> <ul style="list-style-type: none"> <li>■ Displays the alarms not reported. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <b>DISABLED</b> <ul style="list-style-type: none"> <li>■ Displays the alarms acknowledged. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> |

| <b>Table 36: PROFILE VIEW → PHYSICAL BLOCK → PB PARAMETER</b> |                                                                                      |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                         | <b>Description</b>                                                                   |
| SOFTWARE VERSION<br>Display<br><br>Slot: 0<br>Index: 24       | Displays the software version<br>e.g. V 04.00.10                                     |
| HARDWARE REV.<br>Display<br><br>Slot: 0<br>Index: 25          | Displays the revision number of the main electronics<br>e.g. V02.00.00               |
| MANUFACTURER ID<br>Display<br><br>Slot: 0<br>Index: 26        | Displays the manufacturer ID in decimal numerical format.<br>Here: 17 Endress+Hauser |

| <b>Table 36: PROFILE VIEW → PHYSICAL BLOCK → PB PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                         | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DEVICE NAME STR<br>Display<br><br>Slot: 0<br>Index: 27        | Displays the device designation.<br>Options: Cerabar S, Deltabar S or Deltapilot S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DEVICE SERIAL No.<br>Display<br><br>Slot: 0<br>Index: 28      | Displays the serial number of the device (11 alphanumeric characters).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DIAGNOSIS<br>Display<br><br>Slot: 0<br>Index: 29              | <p>The DIAGNOSIS parameter is a structured parameter consisting of two elements. This parameter displays pending profile alarms, bit-encoded. More than one alarm is possible at one time. If the highest-value bit of the fourth byte is set to 1, the DIAGNOSIS EXT. (→ see this Table) and DIAG ADD EXTENSION (→ see Page 132) parameters display further messages.</p> <p><b>DIAGNOSIS A</b></p> <ul style="list-style-type: none"> <li>■ Factory setting: 0x0, 0x0</li> </ul> <p><b>DIAGNOSIS B</b></p> <ul style="list-style-type: none"> <li>■ Factory setting: 0x0, 0x0</li> </ul>                                                                                      |
| DIAGNOSIS EXT.<br>Display<br><br>Slot: 0<br>Index: 30         | <p>The DIAGNOSIS EXT. parameter is a structured parameter consisting of three elements. This parameter displays pending manufacturer-specific alarms and warnings, bit-encoded. More than one alarm is possible at one time. In addition, the DIAG ADD EXTENSION parameter (→ see Page 132) can display further alarms and warnings.</p> <p><b>DIAG_EXTENSION A</b></p> <ul style="list-style-type: none"> <li>■ Factory setting: 0x0, 0x0</li> </ul> <p><b>DIAG_EXTENSION B</b></p> <ul style="list-style-type: none"> <li>■ Factory setting: 0x0, 0x0</li> </ul> <p><b>DIAG_EXTENSION C</b></p> <ul style="list-style-type: none"> <li>■ Factory setting: 0x0, 0x0</li> </ul> |
| DIAGNOSIS MASK<br>Display<br><br>Slot: 0<br>Index: 31         | <p>The DIAGNOSIS MASK parameter is a structured parameter consisting of two elements. This parameter describes which profile alarms are supported by the device. Bit = 0: alarm is not supported; Bit = 1: alarm is supported.</p> <p><b>DIAG_MASK A</b></p> <ul style="list-style-type: none"> <li>■ 0xB1, 0x24</li> </ul> <p><b>DIAG_MASK B</b></p> <ul style="list-style-type: none"> <li>■ 0x0, 0x80</li> </ul>                                                                                                                                                                                                                                                             |
| DIAGNOSIS MASK EXT.<br>Display<br><br>Slot: 0<br>Index: 32    | <p>The DIAGNOSIS MASK EXT. parameter is a structured parameter consisting of three elements. This parameter describes which manufacturer-specific alarms and warnings are supported by the device. Bit = 0: alarm is not supported; Bit = 1: alarm is supported.</p> <p><b>DIAG_MASK_EXT. A</b></p> <ul style="list-style-type: none"> <li>■ 0xFF, 0xFF</li> </ul> <p><b>DIAG_MASK_EXT. B</b></p> <ul style="list-style-type: none"> <li>■ 0xFF, 0xFF</li> </ul> <p><b>DIAG_MASK_EXT. C</b></p> <ul style="list-style-type: none"> <li>■ 0xFF, 0xFF</li> </ul>                                                                                                                  |
| DEV_CERTIFIC<br>Display<br><br>Slot: 0<br>Index: 33           | Displays the certificate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| <b>Table 36: PROFILE VIEW → PHYSICAL BLOCK → PB PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                         | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| INSERT PIN NO<br>Entry<br><br>Slot: 0<br>Index: 34            | <p>For entering a code to lock or unlock operation.</p> <p> <b>Note!</b></p> <ul style="list-style-type: none"> <li>■ The -symbol on the on-site display indicates that operation is locked. Parameters which refer to how the display appears, e.g. LANGUAGE and DISPLAY CONTRAST can still be altered.</li> <li>■ If operation is locked by means of the DIP-switch, you can only unlock operation again by means of the DIP-switch. If operation is locked by means of the on-site display or remote operation e.g. FieldCare, you can unlock operation again by means of the on-site display or using remote operation.</li> </ul> <p>→ See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.7 "Locking/unlocking operation".</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Lock: enter the number 0.</li> <li>■ Unlock: enter the number 2457.</li> </ul> <p><b>Factory setting:</b><br/>2457</p> |
| ENTER RESET CODE<br>Entry<br><br>Slot: 0<br>Index: 35         | <p>Reset parameters completely or partially to factory values or delivery status.</p> <p>→ See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.8 "Factory setting" (reset).</p> <p><b>Factory setting:</b><br/>0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ADDITIONAL INFO<br>Entry<br><br>Slot: 0<br>Index: 36          | <p>Enter tag description (max. 32 alphanumeric characters).</p> <p><b>Factory setting:</b><br/>Empty field or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MESSAGE<br>Entry<br><br>Slot: 0<br>Index: 37                  | <p>Enter user-specific message, e.g. a description of the device within the application or system (max. 32 alphanumeric characters).</p> <p><b>Factory setting:</b><br/>-----<br/>or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| DEV_INSTALL_DATE<br>Entry<br><br>Slot: 0<br>Index: 38         | <p>Enter device installation date (max. 16 alphanumeric characters).</p> <p><b>Factory setting:</b><br/>Empty field</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| IDENT NUMBER SEL<br>Selection<br><br>Slot: 2<br>Index: 40     | <p>Select device master file (GSD).</p> <p><b>Deltabar S:</b></p> <ul style="list-style-type: none"> <li>■ 0x9700: Profile GSD</li> <li>■ 0x1542: Device-specific GSD (factory setting)</li> <li>■ 0x1504: Device-specific GSD, device acts like a Deltabar S FMD230, FMD630, FMD633, PMD230 or PMD235. → See Operating Instructions BA167P.</li> </ul> <p><b>Cerabar S:</b></p> <ul style="list-style-type: none"> <li>■ 0x9700: Profile GSD</li> <li>■ 0x1541: Device-specific GSD (factory setting)</li> <li>■ 0x1501: Device-specific GSD, device acts like a Cerabar S PMC731, PMP731, PMC631 or PMP635. → See Operating Instructions BA168P.</li> </ul> <p><b>Deltapilot S:</b></p> <ul style="list-style-type: none"> <li>■ 0x9700: Profile GSD</li> <li>■ 0x154F: Device-specific GSD (factory setting)</li> <li>■ 0x1503: Device-specific GSD, device acts like a Deltapilot S DB50, DB50L, DB51, DB52 or DB53. → See Operating Instructions BA164F.</li> </ul>                                                                                                                                                                              |

**Table 36: PROFILE VIEW → PHYSICAL BLOCK → PB PARAMETER**

| Parameter name                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DIP STATUS<br>Display<br><br>Slot: 0<br>Index: 41 | <p>Displays the status of DIP switch 1 on the electronic insert.<br/>You can lock or unlock parameters relevant to the measured value with DIP switch 1. If operation is locked by means of the INSERT PIN No. parameter, you can only unlock operation again by means of this parameter. (→ INSERT PIN NO, see Page 120.)<br/>→ See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.7 "Locking/unlocking operation".</p> <p><b>Display:</b></p> <ul style="list-style-type: none"> <li>■ On (locking switched on)</li> <li>■ Off (locking switched off)</li> </ul> <p><b>Factory setting:</b><br/>Off (locking switched off)</p> |

**Table 37: PROFILE VIEW → PHYSICAL BLOCK → PB E+H PARAMETER**

| Parameter name                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ALARM STATUS<br>Display<br><br>Slot: 0<br>Index: 54      | <p>Displays the current messages present. → See also these Operating Instructions, Section 9.1. "Messages" and Section 9.3 "Confirming messages".<br/>The ALARM STATUS parameter show the message with the highest priority.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| LAST DIAG. CODE<br>Display<br><br>Slot: 0<br>Index: 55   | <p>Displays the last messages that occurred and were eliminated.</p> <p> <b>Note!</b></p> <ul style="list-style-type: none"> <li>■ Use the RESET ALL ALARMS parameter to delete the messages listed in the LAST DIAG. CODE parameter.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| UP_DOWN_FEAT<br>Display<br><br>Slot: 0<br>Index: 56      | <p>Information for operating programs, such as FieldCare, that binary upload/download is supported.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| BUS ADDRESS<br>Display<br><br>Slot: 0<br>Index: 59       | <p>Displays the device address in the PROFIBUS PA network<br/>You can configure the address either locally on the electronic insert (hardware addressing) or via the software (software addressing). Using a DIP switch on the electronic insert, you specify whether the hardware address or the software address takes effect.<br/>→ For further information on device addressing, see Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 5.7 "Configuring the device address".</p> <p><b>Factory setting:</b><br/>126</p>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| SET UNIT TO BUS<br>Selection<br><br>Slot: 0<br>Index: 61 | <p>The on-site display and the MEASURED VALUE parameter display the same value as standard. The digital output value of the Analog Input Block OUT works independently of the on-site display or the MEASURED VALUE.</p> <p>The following operating options are available so that the on-site display, the MEASURED VALUE and the digital output value display the same value:</p> <ul style="list-style-type: none"> <li>■ Set the values for the upper and lower PV SCALE limit (→ see Page 140) and OUT SCALE (→ see Page 140) as equal in the Analog Input Block</li> <li>■ Confirm the option "On" by means of the "SET UNIT TO BUS" parameter. By confirming this, the limits for PV SCALE and OUT SCALE are automatically set as equal.</li> </ul> <p> <b>Note!</b></p> <p>If you confirm the SET UNIT TO BUS parameter, please note that a change in the digital output value can affect the control system.</p> |

| <b>Table 37: PROFILE VIEW → PHYSICAL BLOCK → PB E+H PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                             | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PA INPUT VALUE<br>Display<br><br>Slot: 0<br>Index: 62             | <p>The PA INPUT VALUE parameter is a structured parameter consisting of three elements. The value and status displayed here are transmitted by the PLC to the device. The PA INPUT VALUE can be shown on the on-site display (→ see this Table, SEL. DISPLAY VAL.).</p> <p><b>VALUE</b></p> <ul style="list-style-type: none"> <li>■ Factory setting: 0.0000000</li> </ul> <p><b>STATUS</b></p> <ul style="list-style-type: none"> <li>■ Factory setting: 0</li> </ul> <p><b>COM_STAT</b></p> <ul style="list-style-type: none"> <li>■ This element indicates whether a value is sent by the PLC to the device.<br/>             0: The PLC does not send any value with a status to the device.<br/>             1: The PLC sends a value with a status to the device.</li> <li>■ Factory setting: 0</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| SEL. DISPLAY VAL.<br>Selection<br><br>Slot: 0<br>Index: 63        | <p>Use this parameter to specify whether the primary value or a value of the PLC is shown on the on-site display.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Primary value (PV): the primary value is shown on the on-site display.</li> <li>■ PA Input Value: a value from the PLC is shown on the on-site display (→ see this Table, PA INPUT VALUE).</li> </ul> <p><b>Example for the "Input Value" option, Deltabar S:</b></p> <ul style="list-style-type: none"> <li>■ A Deltabar S measures a volume flow. The temperature and the pressure are also measured at the measuring point at the same time. All these measured values are sent to a PLC. The PLC calculates the steam mass from the volume flow, temperature and pressure measured values. Use the "PA Input Value" option to assign this calculated value to the on-site display.</li> </ul> <p><b>Example for the "Input Value" option:</b></p> <ul style="list-style-type: none"> <li>■ Two Cerabar S devices measure the pressure drop by means of a filter. The differential pressure is formed in the PLC. Use the "PA Input Value" option to assign this calculated value to the on-site display.</li> </ul> <p><b>Factory setting:</b></p> <ul style="list-style-type: none"> <li>■ Primary value (PV)</li> </ul> |
| PROFILE_REV<br>Display<br><br>Slot: 0<br>Index: 64                | <p>Displays the profile version, here: 3.0.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| RESET ALL ALARMS<br>Selection<br><br>Slot: 0<br>Index: 65         | <p>Use this parameter to reset all the alarms of the LAST DIAG. CODE parameter.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Abort</li> <li>■ Confirm</li> </ul> <p><b>Factory setting:</b><br/>Abort</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| <b>Table 37: PROFILE VIEW → PHYSICAL BLOCK → PB E+H PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                             | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| IDENT_NUMBER<br>Display<br><br>Slot: 0<br>Index: 66               | <p>Displays the device ID number and the selected device master file (GSD).<br/>Select the device master file (GSD) by means of the IDENT NUMBER SEL parameter (→ see Page 129).</p> <p><b>Options for Deltabar S:</b></p> <ul style="list-style-type: none"> <li>■ 0x9700: Profile GSD</li> <li>■ 0x1542: Device-specific GSD (factory setting)</li> <li>■ 0x1504: Device-specific GSD, device acts like a Deltabar S FMD230, FMD630, FMD633, PMD230 or PMD235. → See Operating Instructions BA167P.</li> </ul> <p><b>Options for Cerabar S:</b></p> <ul style="list-style-type: none"> <li>■ 0x9700: Profile GSD</li> <li>■ 0x1541: Device-specific GSD (factory setting)</li> <li>■ 0x1501: Device-specific GSD, device acts like a Cerabar S PMC731, PMP731, PMC631 or PMP635. → See Operating Instructions BA168P.</li> </ul> <p><b>Options for Deltapilot S:</b></p> <ul style="list-style-type: none"> <li>■ 0x9700: Profile GSD</li> <li>■ 0x154F: Device-specific GSD (factory setting)</li> <li>■ 0x1503: Device-specific GSD, device acts like a Deltapilot S DB50, DB50L, DB51, DB52 or DB53. → See Operating Instructions BA164F.</li> </ul> |
| 2ND CYCLIC VALUE<br>Selection<br><br>Slot: 0<br>Index: 68         | <p>Use this parameter to specify which value is transmitted via the bus as the second cyclic value.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Temperature (→ see Page 115)</li> <li>■ Sensor Value: corresponds to the SENSOR PRESSURE parameter (→ see Page 115)</li> <li>■ Trimmed Value: corresponds to the CORRECTED PRESS. parameter (→ see Page 115)</li> <li>■ Secondary Value 1: corresponds to the PRESSURE parameter (→ see Page 115)</li> </ul> <p><b>Factory setting:</b><br/>Temperature</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| DEVICE DESIGN<br>Display<br><br>Slot: 0<br>Index: 69              | <p>Displays the device designation and the order code.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| SEL_3RD_CYCL_VAL<br>Slot: 0<br>Index: 93                          | <p>Use this parameter to specify which value is transmitted via the bus as the third cyclic value.</p> <p><b>Prerequisite:</b></p> <ul style="list-style-type: none"> <li>■ Deltabar S</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Totalizer 1 (→ see Page 117)</li> <li>■ Totalizer 2 (→ see Page 117)</li> </ul> <p><b>Factory setting:</b><br/>Totalizer</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DIAG ADD EXTENSION<br>Display<br><br>Slot: 0<br>Index: 91         | <p>The DIAG ADD EXTENSION parameter is a structured parameter consisting of three elements.<br/>This parameter displays pending manufacturer-specific alarms and warnings, bit-encoded. More than one alarm is possible at one time. In addition, the DIAGNOSIS EXT. parameter (→ see Page 128) can display further alarms and warnings.</p> <p><b>DIAG_ADD_EXT. A</b></p> <ul style="list-style-type: none"> <li>■ 0x0, 0x0</li> </ul> <p><b>DIAG_ADD_EXT. B</b></p> <ul style="list-style-type: none"> <li>■ 0x0, 0x0</li> </ul> <p><b>DIAG_ADD_EXT. C</b></p> <ul style="list-style-type: none"> <li>■ 0x0, 0x0</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**Table 37: PROFILE VIEW → PHYSICAL BLOCK → PB E+H PARAMETER**

| Parameter name                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MASK ADD EXTENSION<br>Display<br><br>Slot: 0<br>Index: 92 | <p>The MASK ADD EXTENSION parameter is a structured parameter consisting of three elements.</p> <p>This parameter describes which manufacturer-specific alarms and warnings are supported by the device. Bit = 0: alarm is not supported; Bit = 1: alarm is supported.</p> <p><b>DIAG. MASK_ADD_EX</b><br/>■ 0xFF, 0xFF</p> <p><b>DIAG. MASK_ADD_EX</b><br/>■ 0x1F, 0x0</p> <p><b>DIAG. MASK_ADD_EX</b><br/>■ 0x0, 0x0</p> |

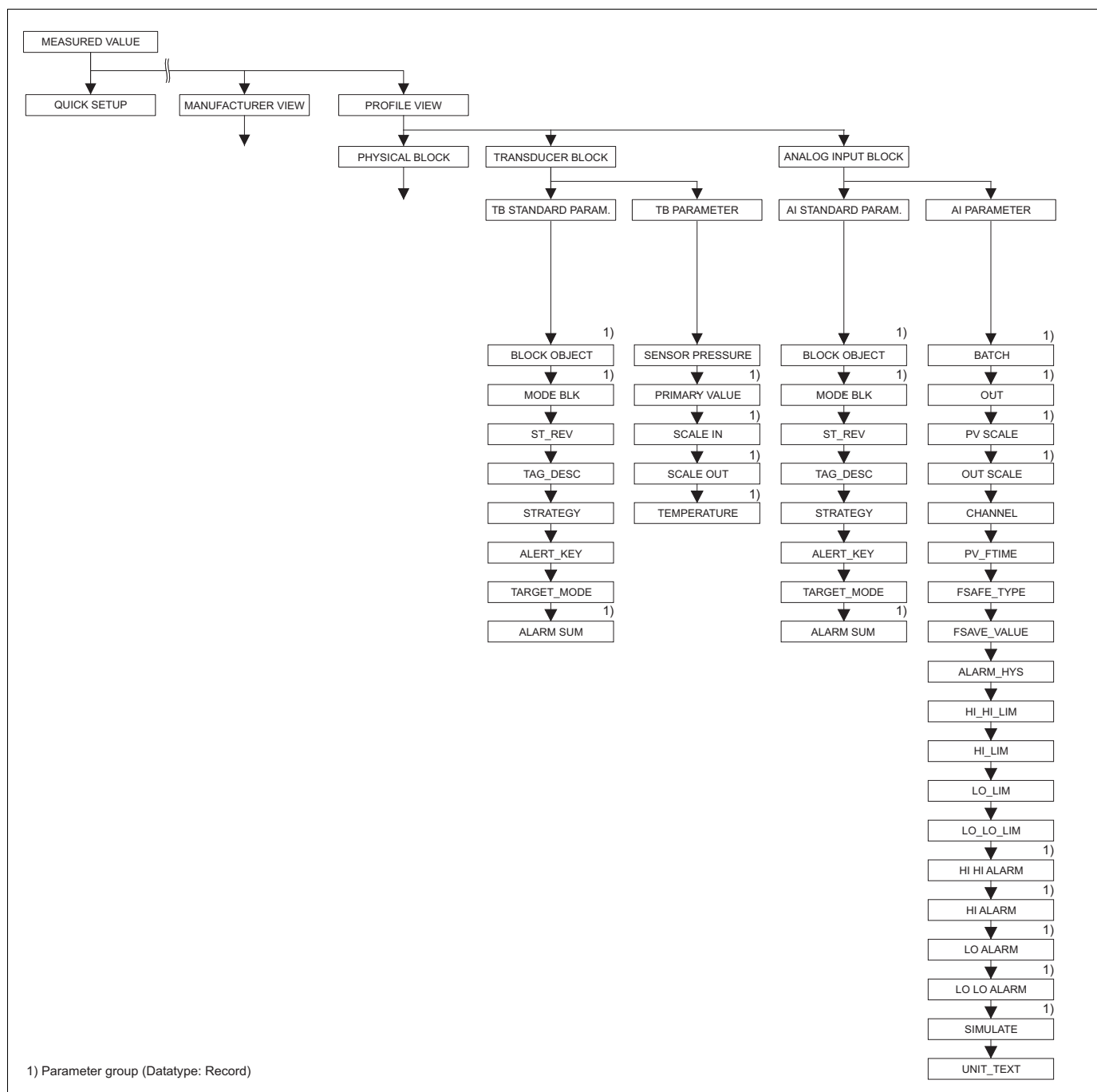


Fig. 42: TRANSDUCER BLOCK and ANALOG INPUT BLOCK group  
→ For the TB STANDARD PARAM. function group, see Page 134, Table 38

→ For the TB PARAMETER function group, see Page 135, Table 39

→ For the AI STANDARD PARAMETER group, see Page 137, Table 40

→ For the AI PARAMETER function group, see Page 138, Table 41

| <b>Table 38: PROFILE VIEW → TRANSDUCER BLOCK → TB STANDARD PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                    | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| BLOCK OBJECT<br>Display<br><br>Slot: 2<br>Index: 16                      | <p>The BLOCK OBJECT parameter is a structured parameter consisting of 12 elements. This parameter describes the characteristics of the Transducer Block.</p> <p><b>RESERVED</b></p> <ul style="list-style-type: none"> <li>250 = Is not used</li> </ul> <p><b>BLOCK_OBJECT</b></p> <ul style="list-style-type: none"> <li>3 = Transducer Block</li> </ul> <p><b>PARENT_CLASS</b></p> <ul style="list-style-type: none"> <li>1 = Pressure</li> </ul> <p><b>CLASS</b></p> <ul style="list-style-type: none"> <li>7 = Differential pressure, gauge pressure, absolute pressure</li> </ul> <p><b>DD_REFERENCE</b></p> <ul style="list-style-type: none"> <li>Is not supported by Profiles 3.0</li> </ul> <p><b>DD_REVISION</b></p> <ul style="list-style-type: none"> <li>Is not supported by Profiles 3.0</li> </ul> <p><b>PROFILE</b></p> <ul style="list-style-type: none"> <li>Number of the PROFIBUS PA profile within the PNO</li> <li>0x40, 0x02 (compact class B)</li> </ul> <p><b>PROFILE_REVISION</b></p> <ul style="list-style-type: none"> <li>Displays the profile version, here: 0x300 (Profiles 3.0)</li> </ul> <p><b>EXECUTION_TIME</b></p> <ul style="list-style-type: none"> <li>Is not supported by Profiles 3.0</li> </ul> <p><b>NUM_OF_PARAMETER</b></p> <ul style="list-style-type: none"> <li>Parameter number of the Transducer Block, here: 234</li> </ul> <p><b>ADDR_OF_VIEW_1</b></p> <ul style="list-style-type: none"> <li>Address of the VIEW_1 parameter, here: 0x0, 0xFA</li> </ul> <p><b>NUM_OF_VIEWS</b></p> <ul style="list-style-type: none"> <li>1 = The Block contains one "View object".</li> </ul> |
| MODE BLK<br>Display<br><br>Slot: 2<br>Index: 22                          | <p>The MODE BLK parameter is a structured parameter consisting of three elements. PROFIBUS makes a distinction between the following block modes: automatic mode (Auto), manual user intervention (MAN) and out of service (O/S). The Transducer Block only works in the "Automatic (Auto)" mode.</p> <p><b>ACTUAL</b></p> <ul style="list-style-type: none"> <li>Displays the current block mode.</li> <li>Factory setting: Automatic (Auto)</li> </ul> <p><b>PERMITTED</b></p> <ul style="list-style-type: none"> <li>Displays the modes supported by the block.</li> <li>Factory setting: 8 = Automatic (Auto)</li> </ul> <p><b>NORMAL</b></p> <ul style="list-style-type: none"> <li>Displays the normal operating mode of the block.</li> <li>Factory setting: Automatic (Auto)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ST_REV<br>Display<br><br>Index: 2<br>Slot: 17                            | <p>Displays the counter for static parameters of the Physical Block<br/>           The counter is incremented by one with each change of a static parameter of the Physical Block. The counter counts up to 65535 and then starts again at zero.</p> <p><b>Factory setting:</b><br/>           0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| TAG DESCRIPTION<br>Entry<br><br>Slot: 2<br>Index: 18                     | <p>Enter tag name e.g. TAG number (max. 32 alphanumeric characters).<br/>           The parameter is also displayed in the TRANSMITTER DATA group (→ see Page 110).</p> <p><b>Factory setting:</b><br/>           _____ or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| <b>Table 38: PROFILE VIEW → TRANSDUCER BLOCK → TB STANDARD PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                    | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| STRATEGY<br>Entry<br><br>Slot: 2<br>Index: 19                            | Enter user-specific value for grouping and thus faster evaluation of the blocks. Grouping takes place by entering the same numerical value for the STRATEGY parameter of the block in question. → See also STRATEGY parameter, Physical Block (Page 127) and Analog Input Block (Page 138).<br><br><b>Input range:</b><br>0...65535<br><br><b>Factory setting:</b><br>0                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ALERT_KEY<br>Entry<br><br>Slot: 2<br>Index: 20                           | Enter user-specific value (e.g. identification number of the plant unit). This information can be used by the control system to sort alarms and events that are generated by this block.<br><br><b>Input range:</b><br>0...255<br><br><b>Factory setting:</b><br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| TARGET_MODE<br>Selection<br><br>Slot: 2<br>Index: 21                     | Select desired block mode. Only the "Automatic (Auto)" mode can be selected for the Transducer Block.<br><br><b>Options:</b><br><ul style="list-style-type: none"> <li>■ Automatic (Auto)</li> </ul> <b>Factory setting:</b><br>Automatic (Auto)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ALARM SUM<br>Display<br><br>Slot: 2<br>Index: 23                         | The ALARM SUM parameter is a structured parameter consisting of four elements.<br><br><b>CURRENT</b> <ul style="list-style-type: none"> <li>■ Displays the current alarms.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <b>UNACKNOWLEDGE</b> <ul style="list-style-type: none"> <li>■ Displays the alarms not acknowledged. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <b>UNREPORTED</b> <ul style="list-style-type: none"> <li>■ Displays the alarms not reported. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <b>DISABLED</b> <ul style="list-style-type: none"> <li>■ Displays the alarms acknowledged. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> |

| <b>Table 39: PROFILE VIEW → TRANSDUCER BLOCK → TB PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                           | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                              |
| SENSOR PRESSURE<br>Display<br><br>Slot: 2<br>Index: 24          | Displays the measured pressure before sensor trim, position adjustment and damping. → See also Page 117, PRESSURE figure.                                                                                                                                                                                                                                                                                                                       |
| PRIMARY VALUE<br>Display<br><br>Slot: 2<br>Index: 34            | The PRIMARY VALUE parameter is a structured parameter consisting of two elements.<br><br><b>MEASURED VALUE</b> <ul style="list-style-type: none"> <li>■ Depending on the settings for the MEASURING MODE, LEVEL TYPE and unit parameters, a value for pressure, level, volume, mass or flow is displayed here.</li> </ul> <b>MEASURED STATUS</b> <ul style="list-style-type: none"> <li>■ Displays the status of the measured value.</li> </ul> |

| <b>Table 39: PROFILE VIEW → TRANSDUCER BLOCK → TB PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                           | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| SCALE IN<br>Entry<br><br>Slot: 2<br>Index: 50                   | <p>The SCALE IN parameter is a structured parameter consisting of two elements.</p> <p><b>SCALE_IN_100</b></p> <ul style="list-style-type: none"> <li>■ Enter the upper limit for the input value of the Transducer Block.</li> <li>■ Factory setting: upper measuring limit<br/>(→ For the upper measuring limit, see URL SENSOR.)</li> </ul> <p><b>SCALE_IN_0</b></p> <ul style="list-style-type: none"> <li>■ Enter the lower limit for the input value of the Transducer Block.</li> <li>■ Factory setting: 0</li> </ul>                                                                                                                                  |
| SCALE OUT<br>Entry<br><br>Slot: 2<br>Index: 51                  | <p>The SCALE OUT parameter is a structured parameter consisting of two elements.</p> <p><b>SCALE_OUT_100</b></p> <ul style="list-style-type: none"> <li>■ Enter the upper limit for the output value of the Transducer Block.</li> <li>■ Factory setting: upper measuring limit<br/>(→ For the upper measuring limit, see URL SENSOR.)</li> </ul> <p><b>SCALE_OUT_0</b></p> <ul style="list-style-type: none"> <li>■ Enter the lower limit for the output value of the Transducer Block.</li> <li>■ Factory setting: 0</li> </ul>                                                                                                                             |
| TEMPERATURE<br>Display<br><br>Slot: 2<br>Index: 43              | <p>The TEMPERATURE parameter is a structured parameter consisting of two elements.</p> <p><b>TEMP. SENSOR</b></p> <ul style="list-style-type: none"> <li>■ Displays the temperature currently measured in the sensor. This can deviate from the process temperature.</li> </ul> <p>PMP72:<br/>The process temperature displayed can deviate from the actual temperature. This deviation in temperature depends on the process temperature and ambient temperature and the resulting temperature gradient over the device.</p> <p><b>TEMP. STATUS</b></p> <ul style="list-style-type: none"> <li>■ Displays the status of the temperature measured.</li> </ul> |

| <b>Table 40: PROFILE VIEW → ANALOG INPUT BLOCK → AI STANDARD PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                                      | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| BLOCK OBJECT<br>Display<br><br>Slot: 1<br>Index: 16                        | <p>The BLOCK OBJECT parameter is a structured parameter consisting of 12 elements. This parameter describes the characteristics of the Analog Input Block.</p> <p><b>RESERVED</b></p> <ul style="list-style-type: none"> <li>250 = Is not used</li> </ul> <p><b>BLOCK OBJECT</b></p> <ul style="list-style-type: none"> <li>2 = Analog Input Block</li> </ul> <p><b>PARENT_CLASS</b></p> <ul style="list-style-type: none"> <li>1 = Transmitter</li> </ul> <p><b>CLASS</b></p> <ul style="list-style-type: none"> <li>1 = Analog Input</li> </ul> <p><b>DD_REFERENCE</b></p> <ul style="list-style-type: none"> <li>Is not supported by Profiles 3.0</li> </ul> <p><b>DD_REVISION</b></p> <ul style="list-style-type: none"> <li>Is not supported by Profiles 3.0</li> </ul> <p><b>PROFILE</b></p> <ul style="list-style-type: none"> <li>Number of the PROFIBUS PA profile within the PNO</li> <li>0x40, 0x02 (compact class B)</li> </ul> <p><b>PROFILE_REVISION</b></p> <ul style="list-style-type: none"> <li>Displays the profile version, here: 0x300 (Profiles 3.0)</li> </ul> <p><b>EXECUTION_TIME</b></p> <ul style="list-style-type: none"> <li>Is not supported by Profiles 3.0</li> </ul> <p><b>NUM_OF_PARAMETER</b></p> <ul style="list-style-type: none"> <li>Parameter number of the Physical Block, here: 45</li> </ul> <p><b>ADDR_OF_VIEW_1</b></p> <ul style="list-style-type: none"> <li>Address of the VIEW_1 parameter, here: 0x0, 0x3D</li> </ul> <p><b>NUM_OF_VIEWS</b></p> <ul style="list-style-type: none"> <li>1 = The Block contains one "View object".</li> </ul> |
| MODE BLK<br>Display<br><br>Slot: 1<br>Index: 22                            | <p>The MODE BLK parameter is a structured parameter consisting of three elements. PROFIBUS makes a distinction between the following block modes: automatic mode (Auto), manual user intervention (MAN) and out of service (O/S).</p> <p><b>ACTUAL</b></p> <ul style="list-style-type: none"> <li>Displays the current block mode.</li> <li>Factory setting: Automatic (Auto)</li> </ul> <p><b>PERMITTED</b></p> <ul style="list-style-type: none"> <li>Displays the modes supported by the block.</li> <li>Factory setting: 152 = Automatic (Auto), manual user intervention or out of service</li> </ul> <p><b>NORMAL</b></p> <ul style="list-style-type: none"> <li>Displays the normal operating mode of the block.</li> <li>Factory setting: Automatic (Auto)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| ST_REV<br>Display<br><br>Index: 1<br>Slot: 17                              | <p>Displays the counter for static parameters of the Physical Block<br/>           The counter is incremented by one with each change of a static parameter of the Physical Block. The counter counts up to 65535 and then starts again at zero.</p> <p><b>Factory setting:</b><br/>           0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| TAG DESCRIPTION<br>Entry<br><br>Slot: 1<br>Index: 18                       | <p>Enter tag name e.g. TAG number (max. 32 alphanumeric characters).<br/>           The parameter is also displayed in the TRANSMITTER DATA group (→ see Page 110).</p> <p><b>Factory setting:</b><br/>           _____ or as per order specifications</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Table 40: PROFILE VIEW → ANALOG INPUT BLOCK → AI STANDARD PARAMETER |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| STRATEGY<br>Entry<br><br>Slot: 1<br>Index: 19                       | <p>Enter user-specific value for grouping and thus faster evaluation of the blocks. Grouping takes place by entering the same numerical value for the STRATEGY parameter of the block in question. → See also STRATEGY parameter, Physical Block (Page 127) and Transducer Block (Page 135).</p> <p><b>Input range:</b><br/>0...65535</p> <p><b>Factory setting:</b><br/>0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| ALERT_KEY<br>Entry<br><br>Slot: 1<br>Index: 20                      | <p>Enter user-specific value (e.g. identification number of the plant unit). This information can be used by the control system to sort alarms and events that are generated by this block.</p> <p><b>Input range:</b><br/>0...255</p> <p><b>Factory setting:</b><br/>0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| TARGET_MODE<br>Selection<br><br>Slot: 0<br>Index: 21                | <p>Select desired block mode.</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>■ Automatic (Auto)</li> <li>■ Manual (Man)</li> <li>■ Out of Service (O/S)</li> </ul> <p><b>Factory setting:</b><br/>Automatic (Auto)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| ALARM_SUM<br>Display<br><br>Slot: 1<br>Index: 23                    | <p>The ALARM_SUM parameter is a structured parameter consisting of four elements.</p> <p><b>CURRENT</b></p> <ul style="list-style-type: none"> <li>■ Displays the current alarms.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <p><b>UNACKNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>■ Displays the alarms not acknowledged. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <p><b>UNREPORTED</b></p> <ul style="list-style-type: none"> <li>■ Displays the alarms not reported. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> <p><b>DISABLED</b></p> <ul style="list-style-type: none"> <li>■ Displays the alarms acknowledged. This element is not supported by Profiles 3.0.</li> <li>■ Factory setting: 0x0, 0x0</li> </ul> |

| Table 41: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter name                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| BATCH<br>Entry<br><br>Slot: 1<br>Index: 16                 | <p>The BATCH parameter is a structured parameter consisting of four elements. This parameter is used in batch processes in accordance with IEC 61512 Part 1 (ISA S88). The BATCH parameter is needed in a decentral automation system to identify the input channels used. In addition, the errors occurring in the current BATCH process can also be displayed.</p> <p><b>BATCH_ID</b></p> <ul style="list-style-type: none"> <li>■ Enter an ID of a batch application in order to be able to assign alarms etc.</li> </ul> <p><b>RUP (No. of Recipe Unit Procedure or of the Unit)</b></p> <ul style="list-style-type: none"> <li>■ Enter the recipe code necessary for the batch application or the related unit, such as reactor.</li> </ul> <p><b>OPERATION</b></p> <ul style="list-style-type: none"> <li>■ Enter recipe currently available.</li> </ul> <p><b>PHASE</b></p> <ul style="list-style-type: none"> <li>■ Enter the current recipe phase.</li> </ul> |

| <b>Table 41: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                             | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| OUT<br>Display<br><br>Slot: 1<br>Index: 26                        | <p>The OUT parameter is a structured parameter consisting of two elements.</p> <p><b>VALUE</b></p> <ul style="list-style-type: none"> <li>■ Displays the output value of the Analog Input Block.</li> </ul> <p><b>STATUS</b></p> <ul style="list-style-type: none"> <li>■ Displays the status of the OUT value.</li> </ul> <p> <b>Note!</b><br/>If the "MAN" (manual) block mode was selected by means of the MODE BLK parameter, the output value OUT and its status can be specified manually here.</p> |

**Table 41: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER**

| Parameter name                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PV SCALE<br>Entry<br><br>Slot: 1<br>Index: 27  | <p>Scales the input value of the Analog Input Block.<br/>           → See also Operating Instructions BA294P (Deltabar S) or BA295P (Cerabar S), Section 6.8 or 6.7 "Scaling OUT Value".</p> <p><b>SCALE_0:</b></p> <ul style="list-style-type: none"> <li>Enter the lower limit for the input value of the Analog Input Block.</li> <li>Factory setting: 0</li> </ul> <p><b>SCALE_100:</b></p> <ul style="list-style-type: none"> <li>Enter the upper limit for the input value of the Analog Input Block.</li> <li>Factory setting: 100</li> </ul> <p><b>Example:</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| OUT SCALE<br>Entry<br><br>Slot: 1<br>Index: 28 | <p>Scales the output value of the Analog Input Block.<br/>           → See also this Table, PV SCALE parameter description.<br/>           → See also Operating Instructions BA294P (Deltabar S), BA295P (Cerabar S) or BA356P (Deltapilot S), Section 6.8 or 6.7 "Scaling the OUT Value".</p> <p><b>EU_PERCENT_0:</b></p> <ul style="list-style-type: none"> <li>Enter the lower limit for the output value of the Analog Input Block.</li> <li>Factory setting: 0</li> </ul> <p><b>EU_PERCENT_100:</b></p> <ul style="list-style-type: none"> <li>Enter the upper limit for the output value of the Analog Input Block.</li> <li>Factory setting: 100</li> </ul> <p><b>UNITS_INDEX:</b></p> <ul style="list-style-type: none"> <li>Select unit. The unit selected here does not have any effect on the scaling. This unit is not displayed on the on-site display and in the operating program.</li> <li>Factory setting: %</li> </ul> <p><b>DECIMAL_POINT:</b></p> <ul style="list-style-type: none"> <li>Specify the number of places after the decimal point for the OUT Value.</li> <li>Factory setting: 0</li> </ul> |
| CHANNEL<br>Entry<br><br>Slot: 1<br>Index: 30   | <p>This parameter is used for the assignment between the logical hardware channel of the Transducer Block and the input of the Analog Input Block.</p> <p><b>Factory setting:</b><br/>274</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| PV_FTIME<br>Entry<br><br>Slot: 1<br>Index: 32  | <p>Enter the filter time constant for the 1st order digital filter. This time is needed for 63 % of a change in the Analog Input Block (input value) to take effect in OUT (output value).<br/>           → See also parameter description for DAMPING VALUE (e.g. Page 47).</p> <p> <b>Note!</b><br/>           If the "MAN" (manual) block mode was selected by means of the MODE BLK parameter, the time entered here has no effect on the OUT value here.</p> <p><b>Factory setting:</b><br/>0.0 s</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| <b>Table 41: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                             | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| FSAFE_TYPE<br>Selection<br><br>Slot: 1<br>Index: 33               | <p>If the Analog Input Block receives an input value or simulation value with the status BAD, the Analog Input Block continues working with the failsafe mode defined by means of this parameter.</p> <p>The following options are available by means of the FSAFE_TYPE parameter:</p> <ul style="list-style-type: none"> <li>■ LastValidOutValue<br/>The last valid value is used for further processing with the status UNCERTAIN.</li> <li>■ FSafeValue<br/>The value specified by means of the FSAFE_VALUE parameter is used for further processing with the status UNCERTAIN. → See this Table, FSAFE_VALUE parameter description.</li> <li>■ Status bad<br/>The current value is used for further processing with the status BAD.</li> </ul> <p> <b>Note!</b><br/>The failsafe mode is also activated if the "Out of Service O/S" option was selected by means of the TARGET_MODE parameter.</p> <p><b>Factory setting:</b><br/>FsafeValue</p> |
| FSAFE_VALUE<br>Entry<br><br>Slot: 1<br>Index: 34                  | <p>Enter the value for the "FsafeValue" option selected by means of the FSAFE_TYPE parameter.<br/>→ See also this Table, FSAFE_TYPE parameter description.</p> <p><b>Factory setting:</b><br/>0.0000 %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**Table 41: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER**

| Parameter name                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ALARM_HYS<br>Entry<br><br>Slot: 1<br>Index: 35 | <p>Enter hysteresis value for the upper and lower alarm value or critical alarm value. The alarm conditions remain active as long as the measured value is within the hysteresis. The hysteresis affects the following alarm or critical alarm limit values:</p> <p>The hysteresis affects the following alarm or critical alarm limit values:</p> <ul style="list-style-type: none"> <li>■ HI HI ALM: upper critical alarm limit value</li> <li>■ HI ALM: upper alarm limit value</li> <li>■ LO ALM: lower alarm limit value</li> <li>■ LO LO ALM: lower critical alarm limit value</li> </ul> <p><small>P01-xMiz7xxxx-05-xx-xx-xx</small></p> <p><i>Fig. 43: Illustration of the output value OUT with limit values and hysteresis as well as the alarms HI HI ALM, HI ALM, LO ALM and LO LO ALM</i></p> <p><b>Input range:</b><br/>0.0...50.0 % with regard to the range of the OUT_SCALE group (→ see Page 140)</p> <p><b>Factory setting:</b><br/>0.5000 %</p> |
| HI_HI_LIM<br>Entry<br><br>Slot: 1<br>Index: 37 | <p>Enter upper critical limit value.</p> <p>If the output value OUT overshoots this limit value, the HI HI ALM parameter displays an alarm. → See also this Table, ALARM_HYS parameter description.</p> <p><b>Factory setting:</b><br/>3.4028e+038 %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| HI_LIM<br>Entry<br><br>Slot: 1<br>Index: 39    | <p>Enter upper limit value.</p> <p>If the output value OUT overshoots this limit value, the HI ALM parameter displays an alarm. → See also this Table, ALARM_HYS parameter description.</p> <p><b>Factory setting:</b><br/>3.4028e+038 %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| LO_LIM<br>Entry<br><br>Slot: 1<br>Index: 41    | <p>Enter lower limit value.</p> <p>If the output value OUT undershoots this limit value, the LO ALM parameter displays an alarm. → See also this Table, ALARM_HYS parameter description.</p> <p><b>Factory setting:</b><br/>-3.4028e+038 %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| <b>Table 41: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                             | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| LO_LO_LIM<br>Entry<br><br>Slot: 1<br>Index: 41                    | <p>Enter lower critical limit value.<br/>If the output value OUT undershoots this limit value, the LO LO ALM parameter displays an alarm. → See also this Table, ALARM_HYS parameter description.</p> <p><b>Factory setting:</b><br/>-3.4028e+038 %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| HI HI ALARM<br>Display<br><br>Slot: 1<br>Index: 43                | <p>The HI HI ALARM parameter is a structured parameter consisting of four elements. The parameter displays the status of the upper critical limit value alarm.<br/>→ See also Page 142, ALARM_HYS, graphic.</p> <p><b>UNACKNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>■ This element is not supported by Profiles 3.0.</li> </ul> <p><b>ALARM_STATE</b></p> <ul style="list-style-type: none"> <li>■ Displays the current status of the HI HI ALARM e.g. alarm still active, alarm reported to the host system etc.</li> <li>■ Factory setting: 0</li> </ul> <p><b>SUBCODE</b></p> <ul style="list-style-type: none"> <li>■ Displays the cause of the alarm. This element is not supported by Profiles 3.0.</li> </ul> <p><b>VALUE</b></p> <ul style="list-style-type: none"> <li>■ Displays the value that violated the upper critical limit (HI HI LIM).</li> <li>■ Factory setting: 0.0000 %</li> </ul> |
| HI ALARM<br>Display<br><br>Slot: 1<br>Index: 45                   | <p>The HI ALARM parameter is a structured parameter consisting of four elements. The parameter displays the status of the upper limit value alarm.<br/>→ See also Page 142, ALARM_HYS, graphic.</p> <p><b>UNACKNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>■ This element is not supported by Profiles 3.0.</li> </ul> <p><b>ALARM_STATE</b></p> <ul style="list-style-type: none"> <li>■ Displays the current status of the HI ALARM e.g. alarm still active, alarm reported to the host system etc.</li> <li>■ Factory setting: 0</li> </ul> <p><b>SUBCODE</b></p> <ul style="list-style-type: none"> <li>■ Displays the cause of the alarm. This element is not supported by Profiles 3.0.</li> </ul> <p><b>VALUE</b></p> <ul style="list-style-type: none"> <li>■ Displays the value that violated the upper limit (HI LIM).</li> <li>■ Factory setting: 0.0000 %</li> </ul>                            |
| LO ALARM<br>Display<br><br>Slot: 1<br>Index: 47                   | <p>The LO ALARM parameter is a structured parameter consisting of four elements. The parameter displays the status of the lower limit value alarm.<br/>→ See also Page 142, ALARM_HYS, graphic.</p> <p><b>UNACKNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>■ This element is not supported by Profiles 3.0.</li> </ul> <p><b>ALARM_STATE</b></p> <ul style="list-style-type: none"> <li>■ Displays the current status of the LO ALARM e.g. alarm still active, alarm reported to the host system etc.</li> <li>■ Factory setting: 0</li> </ul> <p><b>SUBCODE</b></p> <ul style="list-style-type: none"> <li>■ Displays the cause of the alarm. This element is not supported by Profiles 3.0.</li> </ul> <p><b>VALUE</b></p> <ul style="list-style-type: none"> <li>■ Displays the value that violated the lower limit (LO LIM).</li> <li>■ Factory setting: 0.0000 %</li> </ul>                            |

| <b>Table 41: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Parameter name</b>                                             | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| LO LO ALARM<br>Display<br><br>Slot: 1<br>Index: 49                | <p>The LO LO ALARM parameter is a structured parameter consisting of four elements. The parameter displays the status of the lower critical limit value alarm.<br/>→ See also Page 142, ALARM_HYS, graphic.</p> <p><b>UNACKNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>■ This element is not supported by Profiles 3.0.</li> </ul> <p><b>ALARM_STATE</b></p> <ul style="list-style-type: none"> <li>■ Displays the current status of the LO LO ALARM e.g. alarm still active, alarm reported to the host system etc.</li> <li>■ Factory setting: 0</li> </ul> <p><b>SUBCODE</b></p> <ul style="list-style-type: none"> <li>■ Displays the cause of the alarm. This element is not supported by Profiles 3.0.</li> </ul> <p><b>VALUE</b></p> <ul style="list-style-type: none"> <li>■ Displays the value that violated the lower critical limit (LO LO LIM).</li> <li>■ Factory setting: 0.0000 %</li> </ul>                                                                                                                                                                                |
| SIMULATE<br>Entry<br><br>Slot: 1<br>Index: 50                     | <p>The SIMULATE parameter is a structured parameter consisting of three elements. The input value and status of the Analog Input Block can be simulated by means of this parameter. As this value runs through the complete algorithm, the behaviour of the Analog Input Block can be checked.</p> <p><b>SIM_ENABLE</b></p> <ul style="list-style-type: none"> <li>■ 0: Simulation mode switched off</li> <li>■ 1: Simulation mode switched on</li> </ul> <p><b>SIM_VALUE</b></p> <ul style="list-style-type: none"> <li>■ This element is displayed if the simulation mode was activated by means of the SIM_ENABLE parameter. Depending on the settings for the MEASURING MODE, LEVEL TYPE and unit parameters, you can enter a value for pressure, level, volume, mass or flow here.</li> <li>■ Factory setting: 0.0</li> </ul> <p><b>SIM_STATUS</b></p> <ul style="list-style-type: none"> <li>■ This element is displayed if the simulation mode was activated by means of the SIM_ENABLE parameter. Enter the status for the simulation value.</li> <li>■ Factory setting: 128 (GOOD)</li> </ul> |
| UNIT_TEXT<br>Entry<br><br>Slot: 1<br>Index: 51                    | <p>Enter text (max. 16 alphanumeric characters).</p> <p><b>Factory setting:</b><br/>Empty field</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## 8 Slot/index tables

### 8.1 Slot/index tables

The device parameters are listed in the following tables. You can access the parameters by means of the slot and index number. The individual blocks each contain standard parameters, block parameters and manufacturer-specific parameters.

If you use the FieldCare as an operating program, input screens are available as a user interface.

#### 8.1.1 General explanatory remarks

Object type

- Record: contains data structure (DS)
- Array: group of a certain data type
- Simple: contains individual data types such as Float

Data type

- DS: data structure, contains data types such as Unsigned8, Octet String etc.
- Float: IEEE 754 format
- Integer:
  - Integer8: value range =  $-128...127$
  - Integer16: value range =  $32768...-32768$
  - Integer32: value range =  $32 = -2^{31}...2^{31}$
- Octet String: binary coded
- Visible String: ASCII coded
- Unsigned:
  - Unsigned8: value range =  $0...255$
  - Unsigned16: value range =  $0...65535$
  - Unsigned32: value range =  $0...4294967295$

Storage Class

- Cst: constant parameter
- D: dynamic parameter
- N: non-volatile parameter
- S: static parameter

#### 8.1.2 Device management

| Parameter                        | Slot | Index  | Object type | Data type  | Size (byte) | Storage Class | Read | Write |
|----------------------------------|------|--------|-------------|------------|-------------|---------------|------|-------|
| Directory object header          | 1    | 0      | Array       | Unsigned16 | 12          | Cst           | x    |       |
| Composite list directory entries | 1    | 1      | Array       | Unsigned16 | 24          | Cst           | x    |       |
| GAP directory continuous         | 1    | 2 – 8  |             |            |             |               |      |       |
| GAP reserved                     | 1    | 9 – 15 |             |            |             |               |      |       |

### 8.1.3 Physical Block

| Parameter                                        | Slot | Index | Object type | Data type      | Size (byte) | Storage Class | Read | Write |
|--------------------------------------------------|------|-------|-------------|----------------|-------------|---------------|------|-------|
| <b>Physical Block standard parameters</b>        |      |       |             |                |             |               |      |       |
| BLOCK_OBJECT                                     | 0    | 16    | Record      | DS-32          | 20          | Cst           | x    |       |
| ST_REV                                           | 0    | 17    | Simple      | Unsigned16     | 2           | N             | x    |       |
| TAG_DESC                                         | 0    | 18    | Simple      | Visible String | 32          | S             | x    | x     |
| STRATEGY                                         | 0    | 19    | Simple      | Unsigned16     | 2           | S             | x    | x     |
| ALERT_KEY                                        | 0    | 20    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| TARGET_MODE                                      | 0    | 21    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| MODE BLK                                         | 0    | 22    | Record      | DS-37          | 3           | D             | x    |       |
| ALARM SUM                                        | 0    | 23    | Record      | DS-42          | 8           | D             | x    |       |
| <b>Physical Block parameters</b>                 |      |       |             |                |             |               |      |       |
| SOFTWARE VERSION                                 | 0    | 24    | Simple      | Visible String | 16          | Cst           | x    |       |
| HARDWARE REV.                                    | 0    | 25    | Simple      | Visible String | 16          | Cst           | x    |       |
| MANUFACTOR ID                                    | 0    | 26    | Simple      | Unsigned16     | 2           | Cst           | x    |       |
| DEVICE NAME STR.                                 | 0    | 27    | Simple      | Visible String | 16          | Cst           | x    |       |
| DEVICE SERIAL No.                                | 0    | 28    | Simple      | Visible String | 16          | Cst           | x    |       |
| DIAGNOSIS                                        | 0    | 29    | Simple      | Octet String   | 4           | D             | x    |       |
| DIAG_EXT.                                        | 0    | 30    | Simple      | Octet String   | 6           | D             | x    |       |
| DIAG_MASK                                        | 0    | 31    | Simple      | Octet String   | 4           | Cst           | x    |       |
| DIAG_MASK_EXT.                                   | 0    | 32    | Simple      | Octet String   | 6           | Cst           | x    |       |
| DEV_CERTIFIC.                                    | 0    | 33    | Simple      | Visible String | 32          | Cst           | x    |       |
| INSERT PIN NO.                                   | 0    | 34    | Simple      | Unsigned16     | 2           | N             | x    | x     |
| ENTER RESET CODE                                 | 0    | 35    | Simple      | Unsigned16     | 2           | S             | x    | x     |
| ADDITIONAL INFO                                  | 0    | 36    | Simple      | Visible String | 32          | S             | x    | x     |
| MESSAGE                                          | 0    | 37    | Simple      | Visible String | 32          | S             | x    | x     |
| DEV_INSTALL_DATE                                 | 0    | 38    | Simple      | Visible String | 16          | S             | x    | x     |
| IDENT_NUMBER_SEL                                 | 0    | 40    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| DIP STATUS                                       | 0    | 41    | Simple      | Unsigned8      | 1           | D             | x    |       |
| <b>Physical Block, Endress+Hauser parameters</b> |      |       |             |                |             |               |      |       |
| ALARM STATUS                                     | 0    | 54    | Record      | E+H specific   | 5           | D             | x    |       |
| LAST DIAG. CODE                                  | 0    | 55    | Record      | E+H specific   | 5           | D             | x    |       |
| UP_DOWN_FEAT                                     | 0    | 56    | Simple      | Unsigned8      | 1           | Cst           | x    |       |
| UP/DOWNLOAD CTRL                                 | 0    | 57    | Simple      | Unsigned8      | 1           | D             |      | x     |
| UP/DOWN PARAM                                    | 0    | 58    | Simple      | OctetString    | 20          | D             | x    | x     |
| BUS_ADDRESS                                      | 0    | 59    | Simple      | Unsigned8      | 1           | D             | x    |       |
| SET_UNIT_TO_BUS                                  | 0    | 61    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| PA INPUT VALUE                                   | 0    | 62    | Record      | E+H specific   | 6           | D             | x    | x     |
| SEL. DISPLAY VAL.                                | 0    | 63    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| PROFILE_REV                                      | 0    | 64    | Simple      | Visible String | 32          | C             | x    |       |
| RESET ALL ALARMS                                 | 0    | 65    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| IDENT_NUMBER                                     | 0    | 66    | Simple      | Unsigned16     | 2           | D             | x    |       |
| 2ND_CYCLIC_VALUE                                 | 0    | 68    | Simple      | Unsigned8      | 1           | S             | x    |       |
| DEVICE DESIGN.                                   | 0    | 69    | Simple      | Visible String | 32          | S             | x    |       |
| CONFIG RECORDER                                  | 0    | 74    | Simple      | Unsigned16     | 2           | D             | x    |       |
| OPERATING HOURS                                  | 0    | 75    | Simple      | Unsigned32     | 4           | D             | x    |       |
| SIM. ERROR NO.                                   | 0    | 76    | Simple      | Unsigned16     | 2           | D             | x    | x     |
| SIM MESSAGES                                     | 0    | 77    | Simple      | Unsigned8      | 1           | D             | x    | x     |
| LANGUAGE                                         | 0    | 78    | Simple      | Unsigned8      | 1           | N             | x    | x     |
| DISPLAY CONTRAST                                 | 0    | 79    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| MENU DESCRIPTOR                                  | 0    | 80    | Simple      | Unsigned8      | 1           | N             | x    | x     |
| MAIN DATA FORMAT                                 | 0    | 81    | Simple      | Unsigned8      | 1           | D             | x    | x     |
| ALTERNATE DATA                                   | 0    | 82    | Simple      | Unsigned8      | 1           | N             | x    | x     |
| UNIT TEXT                                        | 0    | 83    | Simple      | Visible String | 8           | S             | x    | x     |
| USER DESCRIPTION                                 | 0    | 84    | Simple      | Visible String | 32          | S             | x    | x     |
| ACK. ALARM MODE                                  | 0    | 85    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| ACK. ALARM                                       | 0    | 86    | Simple      | Unsigned8      | 1           | D             | x    | x     |
| SELECT ALARM TYPE                                | 0    | 87    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| ERROR NO.                                        | 0    | 88    | Simple      | Unsigned16     | 2           | D             | x    | x     |
| ALARM DELAY                                      | 0    | 89    | Simple      | Float          | 4           | S             | x    | x     |
| ALARM DISPL. TIME                                | 0    | 90    | Simple      | Float          | 4           | S             | x    | x     |
| DIAG ADD EXTENSION                               | 0    | 91    | Simple      | Octet String   | 6           | D             | x    |       |
| MASK ADD EXTENSION                               | 0    | 92    | simple      | Octet String   | 6           | D             | x    |       |
| SEL_3RD_CYCL_VAL                                 | 0    | 93    | Simple      | Unsigned8      | 1           | S             | x    | x     |

| Parameter           | Slot | Index | Object type | Data type      | Size (byte) | Storage Class | Read | Write |
|---------------------|------|-------|-------------|----------------|-------------|---------------|------|-------|
| HistoROM AVAIL.     | 0    | 94    | Simple      | Unsigned8      | 1           | D             | x    |       |
| HIST. SAVING CYCL   | 0    | 95    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| HistoROM CONTROL    | 0    | 96    | Simple      | Unsigned8      | 1           | S             | x    | x     |
| ELECTR. SERIAL NO.  | 0    | 97    | Simple      | Visible String | 32          | Cst           | x    |       |
| PCB TEMPERATURE     | 0    | 98    | Simple      | Float          | 4           | D             | x    |       |
| Allowed Min. TEMP   | 0    | 99    | Simple      | Float          | 4           | Cst           | x    |       |
| Allowed Max. TEMP   | 0    | 100   | Simple      | Float          | 4           | Cst           | x    |       |
| PCB COUNT: T > Tmax | 0    | 101   | Simple      | Unsigned16     | 2           | D             | x    |       |
| PCB MAX. TEMP.      | 0    | 102   | Simple      | Float          | 4           | D             | x    |       |
| PCB COUNT: T < Tmin | 0    | 103   | Simple      | Unsigned16     | 4           | D             | x    |       |
| PCB MIN. TEMP.      | 0    | 104   | Simple      | Float          | 4           | D             | x    |       |
| MAIN LINE FORMAT    | 0    | 106   | Simple      | Unsigned8      | 1           | D             | x    |       |
| DOWNLOAD FUNCT.     | 0    | 107   | Simple      | Unsigned8      | 1           | N             | x    | x     |
| STATUS LOCKING      | 0    | 108   | Simple      | Unsigned8      | 1           | D             | x    | x     |

### 8.1.4 Analog Input Block

| Parameter                                     | Slot | Index | Object type | Data type      | Size (byte) | Storage Class | Read | Write          |
|-----------------------------------------------|------|-------|-------------|----------------|-------------|---------------|------|----------------|
| <b>Analog Input Block standard parameters</b> |      |       |             |                |             |               |      |                |
| BLOCK_OBJECT                                  | 1    | 16    | Record      | DS-32          | 20          | Cst           | x    |                |
| ST_REV                                        | 1    | 17    | Simple      | Unsigned16     | 2           | N             | x    |                |
| TAG_DESC                                      | 1    | 18    | Simple      | Visible String | 32          | S             | x    | x              |
| STRATEGY                                      | 1    | 19    | Simple      | Unsigned16     | 2           | S             | x    | x              |
| ALERT_KEY                                     | 1    | 20    | Simple      | Unsigned8      | 1           | S             | x    | x              |
| TARGET_MODE                                   | 1    | 21    | Simple      | Unsigned8      | 1           | S             | x    | x              |
| MODE_BLK                                      | 1    | 22    | Record      | DS-37          | 3           | D             | x    |                |
| ALARM SUM                                     | 1    | 23    | Record      | DS-42          | 8           | D             | x    |                |
| <b>Analog Input Block parameters</b>          |      |       |             |                |             |               |      |                |
| AI_BATCH                                      | 1    | 24    | Record      | DS-67          | 10          | S             | x    | x              |
| OUT                                           | 1    | 26    | Record      | DS-33          | 5           | D             | x    | x <sup>1</sup> |
| PV_SCALE                                      | 1    | 27    | Array       | Float          | 8           | S             | x    | x              |
| OUT_SCALE                                     | 1    | 28    | Record      | DS-36          | 11          | S             | x    | x              |
| LIN_TYPE                                      | 1    | 29    | Simple      | Unsigned8      | 1           | S             | x    | x              |
| CHANNEL                                       | 1    | 30    | Simple      | Unsigned16     | 2           | S             | x    | x              |
| PV_FTIME                                      | 1    | 32    | Simple      | Float          | 4           | S             | x    | x              |
| FSAFE_TYPE                                    | 1    | 33    | Simple      | Unsigned8      | 1           | S             | x    | x              |
| FSAFE_VALUE                                   | 1    | 34    | Simple      | Float          | 4           | S             | x    | x              |
| ALARM_HYS                                     | 1    | 35    | Simple      | Float          | 4           | S             | x    | x              |
| HI_HI_LIM                                     | 1    | 37    | Simple      | Float          | 4           | S             | x    | x              |
| HI_LIM                                        | 1    | 39    | Simple      | Float          | 4           | S             | x    | x              |
| LO_LIM                                        | 1    | 41    | Simple      | Float          | 4           | S             | x    | x              |
| LO_LO_LIM                                     | 1    | 43    | Simple      | Float          | 4           | S             | x    | x              |
| HI_HI_ALM                                     | 1    | 46    | Record      | DS-39          | 16          | D             | x    |                |
| HI_ALM                                        | 1    | 47    | Record      | DS-39          | 16          | D             | x    |                |
| LO_ALM                                        | 1    | 48    | Record      | DS-39          | 16          | D             | x    |                |
| LO_LO_ALARM                                   | 1    | 49    | Record      | DS-39          | 16          | D             | x    |                |
| SIMULATE                                      | 1    | 50    | Record      | DS-50          | 6           | S             | x    | x              |
| UNIT_TEXT                                     | 1    | 51    | Simple      | Visible String | 16          | S             | x    | x              |
| VIEW_1_FB                                     | 1    | 61    | Simple      | Octet String   | 18          | D             | x    |                |

1) If MODE\_BLK Actual = Manual (MAN)

### 8.1.5 Transducer Block

| Parameter                                   | Slot | Index | Object type | Data type      | Size (byte) | Storage Class | Read | Write |
|---------------------------------------------|------|-------|-------------|----------------|-------------|---------------|------|-------|
| <b>Transducer Block standard parameters</b> |      |       |             |                |             |               |      |       |
| BLOCK_OBJECT                                | 2    | 16    | Record      | DS-32          | 20          | Cst           | x    |       |
| ST_REV                                      | 2    | 17    | Simple      | Unsigned16     | 2           | N             | x    |       |
| TAG_DESC                                    | 2    | 18    | Simple      | Visible String | 32          | S             | x    | x     |
| STRATEGY                                    | 2    | 19    | Simple      | Unsigned16     | 2           | S             | x    | x     |

| Parameter                           | Slot | Index | Object type | Data type  | Size (byte) | Storage Class | Read | Write          |
|-------------------------------------|------|-------|-------------|------------|-------------|---------------|------|----------------|
| ALERT_KEY                           | 2    | 20    | Simple      | Unsigned8  | 1           | S             | x    | x              |
| TARGET_MODE                         | 2    | 21    | Simple      | Unsigned8  | 1           | S             | x    | x              |
| MODE_BLK                            | 2    | 22    | Record      | DS-37      | 3           | D             | x    |                |
| ALARM_SUM                           | 2    | 23    | Record      | DS-42      | 8           | D             | x    |                |
|                                     |      |       |             |            |             |               |      |                |
| SENSOR PRESSURE                     | 2    | 24    | Simple      | Float      | 4           | D             | x    |                |
| PRESS.SENS HILIM                    | 2    | 25    | Simple      | Float      | 4           | N             | x    |                |
| PRESS.SENS LOLIM                    | 2    | 26    | Simple      | Float      | 4           | N             | x    |                |
| HIGH SENSOR TRIM                    | 2    | 27    | Simple      | Float      | 4           | S             | x    | x              |
| LOW SENSOR TRIM                     | 2    | 28    | Simple      | Float      | 4           | S             | x    | x              |
| MINIMUM SPAN                        | 2    | 29    | Simple      | Float      | 4           | N             | x    |                |
| PRESS. ENG. UNIT                    | 2    | 30    | Simple      | Unsigned16 | 2           | S             | x    |                |
| TRIMMED_VALUE<br>(Corrected Press.) | 2    | 31    | Record      | DS-33      | 5           | D             | x    |                |
| SENSOR MEAS.TYPE                    | 2    | 32    | Simple      | Unsigned16 | 2           | N             | x    |                |
| SENSOR SER. No.                     | 2    | 33    | Simple      | Unsigned32 | 4           | N             | x    |                |
| PRIM_VALUE<br>(Measured Value)      | 2    | 34    | Record      | DS-33      | 5           | D             | x    |                |
| PRIM_VALUE_UNIT                     | 2    | 35    | Simple      | Unsigned16 | 2           | S             | x    | x              |
| PRIM_VALUE_TYPE                     | 2    | 36    | Simple      | Unsigned16 | 2           | S             | x    | x              |
| MAT. MEMBRANE                       | 2    | 37    | Simple      | Unsigned16 | 2           | S             | x    |                |
| FILLING FLUID                       | 2    | 38    | Simple      | Unsigned16 | 2           | S             | x    |                |
| SEAL TYPE                           | 2    | 40    | Simple      | Unsigned16 | 2           | S             | x    | x              |
| PROC.CONN.TYPE                      | 2    | 41    | Simple      | Unsigned16 | 2           | S             | x    | x              |
| MAT.PROC.CONN. +                    | 2    | 42    | Simple      | Unsigned16 | 2           | S             | x    | x              |
| TB TEMPERATURE<br>(Sensor Temp.)    | 2    | 43    | Record      | DS-33      | 5           | D             | x    |                |
| TEMP. ENG UNIT                      | 2    | 44    | Simple      | Unsigned16 | 2           | S             | x    | x              |
| SEC_VALUE_1<br>(Pressure)           | 2    | 45    | Record      | DS-33      | 5           | D             | x    |                |
| SEC_VALUE1_UNIT                     | 2    | 46    | Simple      | Unsigned16 | 2           | S             | x    | x              |
| SEC_VALUE_2                         | 2    | 47    | Record      | DS-33      | 5           | D             | x    |                |
| SEC_VALUE2_UNIT                     | 2    | 48    | Simple      | Unsigned16 | 2           | S             | x    | x              |
| LIN_TYP                             | 2    | 49    | Simple      | Unsigned8  | 1           | S             | x    | x              |
| SCALE_IN                            | 2    | 50    | Array       | Float      | 8           | S             | x    | x              |
| SCALE_OUT                           | 2    | 51    | Array       | Float      | 8           | S             | x    | x              |
| LOW_FLOW_CUT_OFF                    | 2    | 52    | Simple      | Float      | 4           | S             | x    | x              |
| FLOW_LIN_SQUARE                     | 2    | 53    | Simple      | Float      | 4           | S             | x    | x              |
| TAB_ACTUAL_NUMB                     | 2    | 54    | Simple      | Unsigned8  | 1           | N             | x    |                |
| LINE-NUMB:                          | 2    | 55    | Simple      | Unsigned8  | 1           | D             | x    | x              |
| TAB_MAX_NR                          | 2    | 56    | Simple      | Unsigned8  | 1           | N             | x    |                |
| TAB_MIN_NR                          | 2    | 57    | Simple      | Unsigned8  | 1           | N             | x    |                |
| TAB_OP_CODE                         | 2    | 58    | Simple      | Unsigned8  | 1           | D             | x    | x              |
| TAB_STATE                           | 2    | 59    | Simple      | Unsigned8  | 1           | D             | x    |                |
| TAB_XY_VALUE                        | 2    | 60    | Array       | Float      | 8           | D             | x    | x              |
| MAX. MEAS. PRESS.                   | 2    | 61    | Simple      | Float      | 4           | N             | x    | x <sup>1</sup> |
| MIN. MEAS. PRESS.                   | 2    | 62    | Simple      | Float      | 4           | N             | x    | x <sup>1</sup> |
| MAX. MEAS.TEMP.                     | 2    | 63    | Simple      | Float      | 4           | N             | x    | x <sup>1</sup> |
| MIN. MEAS. TEMP.                    | 2    | 64    | Simple      | Float      | 4           | N             | x    | x <sup>1</sup> |
| EMPTY CALIB.                        | 2    | 75    | Simple      | Float      | 4           | S             | x    | x              |
| FULL CALIB.                         | 2    | 76    | Simple      | Float      | 4           | S             | x    | x              |
| TANK CONTENTUNIT                    | 2    | 77    | Simple      | Unsigned16 | 2           | N             | x    |                |
| UNIT FLOW                           | 2    | 78    | Simple      | Unsigned16 | 2           | N             | x    | x              |
| DAMPING VALUE                       | 2    | 79    | Simple      | Float      | 4           | S             | x    | x              |
| MAX FLOW                            | 2    | 80    | Simple      | Float      | 4           | S             | x    | x              |
| MAX PRESS. FLOW                     | 2    | 81    | Simple      | Float      | 4           | S             | x    | x              |
| PminALARM WINDOW                    | 2    | 82    | Simple      | Float      | 4           | S             | x    | x              |
| PmaxALARM WINDOW                    | 2    | 83    | Simple      | Float      | 4           | S             | x    | x              |
| TminALARM WINDOW                    | 2    | 84    | Simple      | Float      | 4           | S             | x    | x              |
| TmaxALARM WINDOW                    | 2    | 85    | Simple      | Float      | 4           | S             | x    | x              |
| SIMULATED VALUE                     | 2    | 86    | Simple      | Float      | 4           | D             | x    | x              |
| SIMULATION MODE                     | 2    | 87    | Simple      | Unsigned8  | 1           | D             | x    | x              |
| COUNTER P>Pmin                      | 2    | 88    | Simple      | Unsigned16 | 2           | D             | x    |                |
| COUNTER P<Pmax                      | 2    | 89    | Simple      | Unsigned16 | 2           | D             | x    |                |
| COUNTER T>Tmax                      | 2    | 90    | Simple      | Unsigned16 | 2           | D             | x    |                |
| COUNTER T<Tmin                      | 2    | 91    | Simple      | Unsigned16 | 2           | D             | x    |                |
| MEAS. VAL. TREND                    | 2    | 92    | Simple      | Unsigned8  | 1           | D             | x    |                |

| Parameter                             | Slot | Index | Object type | Data type      | Size (byte) | Storage Class | Read | Write |
|---------------------------------------|------|-------|-------------|----------------|-------------|---------------|------|-------|
| TOTALIZER 1                           | 2    | 93    | Simple      | Visible String | 8           | D             | x    |       |
| TOTAL. 1 OVERFLOW                     | 2    | 94    | Simple      | Visible String | 8           | D             | x    |       |
| TOTALIZER 2                           | 2    | 95    | Simple      | Visible String | 8           | D             | x    |       |
| TOTAL. 2 OVERFLOW                     | 2    | 96    | Simple      | Visible String | 8           | D             | x    |       |
| TEMP Abs RANGE                        | 2    | 97    | Simple      | Float          | 4           | Cst           | x    |       |
| Tmin SENSOR                           | 2    | 98    | Simple      | Float          | 4           | Cst           | x    |       |
| Tmax SENSOR                           | 2    | 99    | Simple      | Float          | 4           | Cst           | x    |       |
| SENSOR H/WARE REV.                    | 2    | 100   | Simple      | Unsigned8      | 1           | Cst           | x    |       |
| Pmax PROC. CONN.                      | 2    | 101   | Simple      | Float          | 4           | S             | x    | x     |
| TOTAL. 1 ENG. UNIT                    | 2    | 102   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| TOTAL. 2 ENG. UNIT                    | 2    | 103   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| FACT.U.U.TOTAL.1                      | 2    | 104   | Simple      | Float          | 4           | S             | x    | x     |
| FACT.U.U.TOTAL.2                      | 2    | 105   | Simple      | Float          | 4           | S             | x    | x     |
| TOT. 1 USER UNIT                      | 2    | 106   | Simple      | Visible String | 8           | S             | x    | x     |
| TOT. 2 UNIT TEXT                      | 2    | 107   | Simple      | Visible String | 8           | S             | x    | x     |
| NEG. FLOW TOT. 1                      | 2    | 108   | Simple      | Unsigned8      | 1           | S             | x    | x     |
| NEG. FLOW TOT. 2                      | 2    | 109   | Simple      | Unsigned8      | 1           | S             | x    | x     |
| RESET TOTALISER1                      | 2    | 110   | Simple      | Unsigned8      | 1           | S             | x    | x     |
| FLOW-MEAS. TYPE                       | 2    | 111   | Simple      | Unsigned8      | 1           | S             | x    | x     |
| CUSTOMER UNIT F                       | 2    | 112   | Simple      | Visible String | 8           | S             | x    | x     |
| CUST.UNIT FACT.F                      | 2    | 113   | Simple      | Float          | 4           | S             | x    | x     |
| CUSTOMER UNIT P                       | 2    | 114   | Simple      | Visible String | 8           | S             | x    | x     |
| CUST.UNIT FACT.P                      | 2    | 115   | Simple      | Float          | 4           | S             | x    | x     |
| POS.ZERO ADJUST                       | 2    | 116   | Simple      | Unsigned8      | 1           | D             | x    | x     |
| POS. INPUT VALUE                      | 2    | 117   | Simple      | Float          | 4           | S             | x    | x     |
| CALIB. OFFSET                         | 2    | 118   | Simple      | Float          | 4           | S             | x    | x     |
| TANK DESCRIPTION                      | 2    | 119   | Simple      | Visible String | 32          | S             | x    | x     |
| LIN. EDIT MODE                        | 2    | 120   | Simple      | Unsigned8      | 1           | N             | x    | x     |
| CALIBRATION MODE                      | 2    | 121   | Simple      | Unsigned8      | 1           | S             | x    | x     |
| ADJUSTED DENSITY                      | 2    | 122   | Simple      | Float          | 4           | N             | x    |       |
| LEVEL UNIT TXT                        | 2    | 123   | Simple      | Visible String | 8           | S             | x    | x     |
| CUST.UNIT FACT.L                      | 2    | 124   | Simple      | Float          | 4           | S             | x    | x     |
| CUST. UNIT CONT.                      | 2    | 125   | Simple      | Visible String | 8           | S             | x    | x     |
| FACTOR TANK CONT.                     | 2    | 126   | Simple      | Float          | 4           | S             | x    | x     |
| DENSITY UNIT                          | 2    | 127   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| ADJUST DENSITY                        | 2    | 128   | Simple      | Float          | 4           | S             | x    | x     |
| TANK VOLUME                           | 2    | 129   | Simple      | Float          | 4           | S             | x    | x     |
| TANK HEIGHT                           | 2    | 130   | Simple      | Float          | 4           | S             | x    | x     |
| 100% POINT                            | 2    | 131   | Simple      | Float          | 4           | S             | x    | x     |
| ZERO POSITION                         | 2    | 132   | Simple      | Float          | 4           | S             | x    | x     |
| LEVEL MIN.                            | 2    | 133   | Simple      | Float          | 4           | S             | x    | x     |
| LEVEL MAX.                            | 2    | 134   | Simple      | Float          | 4           | S             | x    | x     |
| PROCESS DENSITY                       | 2    | 135   | Simple      | Float          | 4           | S             | x    | x     |
| MAX TURNDOWN                          | 2    | 136   | Simple      | Float          | 4           | S             | x    |       |
| SENSOR CHANGES                        | 2    | 137   | Simple      | Unsigned16     | 2           | S             | x    |       |
| P PEAKHOLD.STEP                       | 2    | 138   | Simple      | Float          | 4           | S             | x    |       |
| T PEAKHOLD.STEP                       | 2    | 139   | Simple      | Float          | 4           | S             | x    |       |
| ACC. OF GRAVITY                       | 2    | 140   | Simple      | Float          | 4           | S             | x    |       |
| CREEP FLOW HYST.                      | 2    | 141   | Simple      | Float          | 4           | S             | x    |       |
| LEVEL BEFORE LIN                      | 2    | 142   | Simple      | Float          | 4           | D             | x    |       |
| Pmin SENS. DAMAGE                     | 2    | 143   | Simple      | Float          | 4           | Cst           | x    |       |
| Pmax SENS. DAMAGE                     | 2    | 144   | Simple      | Float          | 4           | Cst           | x    |       |
| ENG. UNIT LEVEL                       | 2    | 145   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| UNIT VOLUME                           | 2    | 146   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| CUSTOMER UNIT V                       | 2    | 147   | Simple      | Visible String | 8           | S             | x    | x     |
| CUST.UNIT FACT.V                      | 2    | 148   | Simple      | Float          | 4           | S             | x    | x     |
| SET.L.FL.CUT-OFF                      | 2    | 149   | Simple      | Float          | 4           | S             | x    | x     |
| MAT.PROC.CONN. -                      | 2    | 150   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| TANK CONTENT                          | 2    | 151   | Simple      | Float          | 4           | D             | x    |       |
| SUPPRESSED FLOW                       | 2    | 152   | Simple      | Float          | 4           | D             | x    |       |
| RESET PEAKHOLD                        | 2    | 153   | Simple      | Unsigned8      | 1           | D             | x    | x     |
| MEASURING MODE                        | 2    | 154   | Simple      | Unsigned8      | 1           | S             | x    | x     |
| UNIT FLOW                             | 2    | 155   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| TOTALIZER 1 UNIT<br>(Volume p. cond.) | 2    | 156   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| TOTALIZER 2 UNIT<br>(Volume p. cond.) | 2    | 157   | Simple      | Unsigned16     | 2           | S             | x    | x     |
| LOW FLOW CUT-OFF                      | 2    | 158   | Simple      | Unsigned8      | 1           | S             | x    | x     |

| Parameter                          | Slot | Index | Object type | Data type      | Size (byte) | Storage Class | Read | Write |
|------------------------------------|------|-------|-------------|----------------|-------------|---------------|------|-------|
| LO TRIM MEASURED                   | 2    | 159   | Simple      | Float          | 4           | N             | x    |       |
| HI TRIM MEASURED                   | 2    | 160   | Simple      | Float          | 4           | N             | x    |       |
| PERCENT UNIT                       | 2    | 161   | Simple      | Unsigned 16    | 2           | Cst           | x    | x     |
| X-VAL:                             | 2    | 162   | Simple      | Float          | 4           | N             | x    | x     |
| Y-VAL:                             | 2    | 163   | Simple      | Float          | 4           | N             | x    | x     |
| MASS FLOW UNIT                     | 2    | 164   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| SIM.FLOW VALUE                     | 2    | 165   | Simple      | Float          | 4           | D             | x    | x     |
| STD. FLOW UNIT                     | 2    | 166   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| NORM FLOW UNIT                     | 2    | 167   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| TOTALIZER 1 UNIT (Mass p. cond.)   | 2    | 168   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| TOTALIZER 2 UNIT (Mass p. cond.)   | 2    | 169   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| TOTALIZER 1 UNIT (Gas. std. cond.) | 2    | 170   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| TOTALIZER 2 UNIT (Gas. std. cond.) | 2    | 171   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| TOTALIZER 1 UNIT (Gas. norm cond.) | 2    | 172   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| TOTALIZER 2 UNIT (Gas. norm cond.) | 2    | 173   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| MASS UNIT                          | 2    | 174   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| CUST.UNIT FACT.M                   | 2    | 175   | Simple      | Float          | 4           | S             | x    | x     |
| CUSTOMER UNIT M                    | 2    | 176   | Simple      | Visible String | 8           | S             | x    | x     |
| HEIGHT UNIT                        | 2    | 177   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| CUST.UNIT FACT.H                   | 2    | 178   | Simple      | Float          | 4           | S             | x    | x     |
| CUSTOMER UNIT H                    | 2    | 179   | Simple      | Visible String | 8           | S             | x    | x     |
| EMPTY PRESSURE                     | 2    | 180   | Simple      | Float          | 4           | N             | x    |       |
| FULL PRESSURE                      | 2    | 181   | Simple      | Float          | 4           | N             | x    |       |
| SIM. LEVEL                         | 2    | 182   | Simple      | Float          | 4           | D             | x    | x     |
| SIM. TANK CONT.                    | 2    | 183   | Simple      | Float          | 4           | D             | x    | x     |
| LEVEL MODE                         | 2    | 184   | Simple      | Float          | 4           | S             | x    | x     |
| ACTIV LIN.TAB.X                    | 2    | 185   | Simple      | Float          | 4           | N             | x    |       |
| X-VAL (semi-autom.):               | 2    | 186   | Simple      | Float          | 4           | D             | x    |       |
| TANK CONTENT MAX.                  | 2    | 188   | Simple      | Float          | 4           | S             | x    | x     |
| TANK CONTENT MIN.                  | 2    | 189   | Simple      | Float          | 4           | S             | x    | x     |
| HYDR. PRESS MAX.                   | 2    | 190   | Simple      | Float          | 4           | S             | x    | x     |
| TAB. ACTIVATE                      | 2    | 191   | Simple      | Unsigned 8     | 1           | D             | x    |       |
| TABLE EDITOR                       | 2    | 192   | Simple      | Unsigned 8     | 1           | N             | x    | x     |
| ACTIVE LIN. TAB. Y                 | 2    | 193   | Simple      | Float          | 4           | N             | x    | x     |
| HYDR. PRESS MIN.                   | 2    | 194   | Simple      | Float          | 4           | S             | x    | x     |
| VALUE LIN. MIN.                    | 2    | 195   | Simple      | Float          | 4           | S             | x    | x     |
| VALUE LIN. MAX                     | 2    | 196   | Simple      | Float          | 4           | S             | x    | x     |
| TOTALIZER 1                        | 2    | 197   | Simple      | Float          | 4           | D             | x    |       |
| TOTALIZER 2                        | 2    | 198   | Simple      | Float          | 4           | D             | x    |       |
| LIN. MEASURAND                     | 2    | 199   | Simple      | Unsigned 8     | 1           | S             | x    | x     |
| LINd. MEASURAND                    | 2    | 200   | Simple      | Unsigned 8     | 1           | S             | x    | x     |
| COMB.MEASURAND                     | 2    | 201   | Simple      | Unsigned 8     | 1           | S             | x    | x     |
| TABLE SELECTION                    | 2    | 202   | Simple      | Unsigned 8     | 1           | S             | x    | x     |
| EDITOR TABLE                       | 2    | 203   | Simple      | Unsigned 8     | 1           | S             | x    | x     |
| AREA UNIT                          | 2    | 204   | Simple      | Unsigned 16    | 2           | S             | X    | x     |
| SIM. PRESSURE                      | 2    | 205   | Simple      | Float          | 4           | D             | x    | x     |
| PRESSURE ABS RNG                   | 2    | 206   | Simple      | Float          | 4           | Cst           | x    |       |
| PRESSURE INVERT                    | 2    | 207   | Simple      | Unsigned 8     | 1           | N             | x    | x     |
| HEIGHT UNIT                        | 2    | 240   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| CALIBRATION MODE                   | 2    | 241   | Simple      | Unsigned 8     | 1           | S             | x    | x     |
| EMPTY HEIGHT                       | 2    | 242   | Simple      | Float          | 4           | S             | x    | x     |
| FULL HEIGHT                        | 2    | 243   | Simple      | Float          | 4           | S             | x    | x     |
| EINHEIT DICHTe                     | 2    | 244   | Simple      | Unsigned 16    | 2           | S             | x    | x     |
| DENSITY UNIT                       | 2    | 245   | Simple      | Float          | 4           | S             | x    | x     |
| PROCESS DENSITY                    | 2    | 246   | Simple      | Float          | 4           | S             | x    | x     |
| MEAS.LEVEL EASY                    | 2    | 247   | Simple      | Float          | 4           | N             | x    | x     |
| LEVEL SELECTION                    | 2    | 248   | Simple      | Unsigned 8     | 1           | S             | x    | x     |
| OUTPUT UNIT                        | 2    | 249   | Simple      | Unsigned 16    | 2           | S             | x    | x     |

1) can only be reset

## 9 Trouble-shooting

### 9.1 Messages

The following table lists all the possible messages that can occur.

The device differentiates between the error types "Alarm", "Warning" and "Error". You may specify whether the instrument should react as if for an "Alarm" or "Warning" for "Error" messages.

→ See "Error type/NA 64" column and Section 9.2 "Response of outputs to errors".

In addition, the "Message type/NA 64" column classifies the messages in accordance with NAMUR Recommendation NA 64:

- Break down: indicated with "B"
- Maintenance need: indicated with "C" (check request)
- Function check: indicated with "I" (in service)

Error message display on the on-site display:

- The measured value display shows the message with the highest priority. → See "Priority" column.
- The ALARM STATUS parameter shows all the messages present in descending order of priority. You can scroll through all the messages present with the -key or -key.

Message display via FieldCare:

- The measured value display shows the message and a code with the highest priority. → See "Priority" column.



Note!

- If the device detects a defect in the on-site display during initialization, special error messages are generated. → For the error messages, see Page 158, Section 9.1.1 "On-site display error messages".
- For support and further information, please contact Endress+Hauser Service.
- → See also Section 9.4, 9.5 and 9.6.

| Code       | Error type/<br>NA 64 | Message/description                               | Cause                                                                                                                                                                                                                                                                                                                            | Measure                                                                                                                                                                                                                                                                           | Priority |
|------------|----------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 101 (A101) | Alarm<br>B           | B>Sensor electronic EEPROM error                  | <ul style="list-style-type: none"> <li>– Electromagnetic effects are greater than specifications in the technical data. → See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S). This message normally only appears briefly.</li> <li>– Sensor defect.</li> </ul>                           | <ul style="list-style-type: none"> <li>– Wait a few minutes.</li> <li>– Restart the device. Perform reset (Code 2506 or 33062).</li> <li>– Block off electromagnetic effects or eliminate source of disturbance.</li> <li>– Replace sensor.</li> </ul>                            | 17       |
| 102 (W102) | Warning<br>C         | C>Checksum error in EEPROM: peakhold segment      | <ul style="list-style-type: none"> <li>– Main electronics defect. Correct measurement can continue as long as you do not need the peak hold indicator function.</li> </ul>                                                                                                                                                       | <ul style="list-style-type: none"> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                                                     | 51       |
| 106 (W106) | Warning<br>C         | C>Downloading - please wait                       | <ul style="list-style-type: none"> <li>– Downloading.</li> </ul>                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>– Wait for download to complete.</li> </ul>                                                                                                                                                                                                | 50       |
| 110 (A110) | Alarm<br>B           | B>Checksum error in EEPROM: configuration segment | <ul style="list-style-type: none"> <li>– The supply voltage is disconnected when writing.</li> <li>– Electromagnetic effects are greater than specifications in the technical data. → See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S).</li> <li>– Main electronics defect.</li> </ul> | <ul style="list-style-type: none"> <li>– Reestablish supply voltage. Perform reset (Code 1 or 40864) if necessary. Carry out calibration again.</li> <li>– Block off electromagnetic effects or eliminate sources of disturbance.</li> <li>– Replace main electronics.</li> </ul> | 6        |

| Code       | Error type/<br>NA 64                      | Message/description                           | Cause                                                                                                                                                                                                                                                                                                        | Measure                                                                                                                                                                                                                                       | Priority |
|------------|-------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 113 (A113) | Alarm<br>B                                | B>ROM failure in transmitter electronic       | – Main electronics defect.                                                                                                                                                                                                                                                                                   | – Replace main electronics.                                                                                                                                                                                                                   | 1        |
| 115 (E115) | Error<br>B<br>Factory setting:<br>Warning | B>Sensor overpressure                         | – Overpressure present.<br><br>– Sensor defect.                                                                                                                                                                                                                                                              | – Reduce pressure until message disappears.<br><br>– Replace sensor.                                                                                                                                                                          | 29       |
| 116 (W116) | Warning<br>C                              | C>Download error, repeat download             | – The file is defect.<br><br>– During the download, the data are not correctly transmitted to the processor, e.g. because of open cable connections, spikes (ripple) on the supply voltage or electromagnetic effects.                                                                                       | – Use another file.<br><br>– Check cable connection PC – transmitter.<br>– Block off electromagnetic effects or eliminate sources of disturbance.<br>– Perform reset (Code 1 or 40864) and carry out calibration again.<br>– Repeat download. | 36       |
| 120 (E120) | Error<br>B<br>Factory setting:<br>Warning | B>Sensor low pressure                         | – Pressure too low.<br><br>– Sensor defect.                                                                                                                                                                                                                                                                  | – Increase pressure until message disappears.<br><br>– Replace sensor.                                                                                                                                                                        | 30       |
| 121 (A121) | Alarm<br>B                                | B>Checksum error in factory segment of EEPROM | – Main electronics defect.                                                                                                                                                                                                                                                                                   | – Replace main electronics.                                                                                                                                                                                                                   | 5        |
| 122 (A122) | Alarm<br>B                                | B>Sensor not connected                        | – Cable connection sensor –main electronics disconnected.<br><br>– Electromagnetic effects are greater than specifications in the technical data.<br>→ See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S).<br><br>– Main electronics defect.<br><br>– Sensor defect. | – Check cable connection and repair if necessary.<br><br>– Block off electromagnetic effects or eliminate source of disturbance.<br><br>– Replace main electronics.<br><br>– Replace sensor.                                                  | 13       |
| 130 (A130) | Alarm<br>B                                | B>EEPROM is defect.                           | – Main electronics defect.                                                                                                                                                                                                                                                                                   | – Replace main electronics.                                                                                                                                                                                                                   | 10       |
| 131 (A131) | Alarm<br>B                                | B>Checksum error in EEPROM: min/max segment   | – Main electronics defect.                                                                                                                                                                                                                                                                                   | – Replace main electronics.                                                                                                                                                                                                                   | 9        |
| 132 (A132) | Alarm<br>B                                | B>Checksum error in totalizer EEPROM          | – Main electronics defect.                                                                                                                                                                                                                                                                                   | – Replace main electronics.                                                                                                                                                                                                                   | 7        |
| 133 (A133) | Alarm<br>B                                | B>Checksum error in History EEPROM            | – An error occurred when writing.<br><br>– Main electronics defect.                                                                                                                                                                                                                                          | – Perform reset (Code 1 or 40864) and carry out calibration again.<br><br>– Replace electronics.                                                                                                                                              | 8        |
| 602 (W602) | Warning<br>C                              | C>Linearisation curve not monoton             | – The linearisation table is not monotonic increasing or decreasing.                                                                                                                                                                                                                                         | – Add to linearisation table or perform linearisation again.                                                                                                                                                                                  | 55       |

| Code       | Error type/<br>NA 64 | Message/description                                                        | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Measure                                                                                                                                                                                                                                                                                                                                         | Priority |
|------------|----------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 604 (W604) | Warning<br>C         | C>Linearisation table not valid.<br>Less than 2 points or points too close | <ul style="list-style-type: none"> <li>– The linearisation table consists of less than 2 points.</li> <li>– At least 2 points in the linearisation table are too close together. A minimum gap of 0.5 % of the distance between two points must be maintained.<br/>Spans for the "Pressure linearized" option: HYDR. PRESS MAX. – HYDR. PRESS MIN.; TANK CONTENT MAX. – TANK CONTENT MIN.<br/>Spans for the "Height linearized" option: LEVEL MAX – LEVEL MIN; TANK CONTENT MAX. – TANK CONTENT MIN.</li> </ul> | <ul style="list-style-type: none"> <li>– Add to linearisation table. If necessary, perform linearisation again.</li> <li>– Correct linearisation table and accept again.</li> </ul>                                                                                                                                                             | 56       |
| 613 (W613) | Warning<br>I         | I>Simulation is active                                                     | <ul style="list-style-type: none"> <li>– Simulation is switched on, i.e. the device is not measuring at present.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>– Switch off simulation.</li> </ul>                                                                                                                                                                                                                                                                      | 58       |
| 700 (W700) | Warning<br>C         | C>Last configuration not stored                                            | <ul style="list-style-type: none"> <li>– An error occurred when writing or reading configuration data or the power supply was disconnected.</li> <li>– Main electronics defect.</li> </ul>                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>– Perform reset (Code 1 or 40864) and carry out calibration again.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                                       | 52       |
| 702 (W702) | Warning<br>C         | C>HistoROM data not consistent.                                            | <ul style="list-style-type: none"> <li>– Data were not written correctly to the HistoROM, e.g. if the HistoROM was detached during the writing process.</li> <li>– HistoROM does not have any data.</li> </ul>                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>– Repeat upload.</li> <li>– Perform reset (Code 1 or 40864) and carry out calibration again.</li> <li>– Copy suitable data to the HistoROM. (→ See also Operation Instructions BA294P (Deltabar S), BA295P (Derabar S) or BA356P (Deltapilot S), Section 5.6.1 "Copying configuration data".)</li> </ul> | 53       |
| 703 (A703) | Alarm<br>B           | B>Measurement error                                                        | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                                                       | 22       |
| 704 (A704) | Alarm<br>B           | B>Measurement error                                                        | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                                                       | 12       |
| 705 (A705) | Alarm<br>B           | B>Measurement error                                                        | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                                                       | 21       |

| Code       | Error type/<br>NA 64                      | Message/description                                  | Cause                                                                                                                                                                                                                                                                                                                       | Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Priority |
|------------|-------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 706 (W706) | Warning<br>C                              | C>Configuration in HistoROM and device not identical | <ul style="list-style-type: none"> <li>– Configuration (parameters) in the HistoROM and in the device is not identical.</li> </ul>                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>– Copy data from the device to the HistoROM.</li> <li>– Copy data from the HistoROM to the device. The message remains if the HistoROM and the device have different software versions. The message goes out if you copy the data from the device to the HistoROM.</li> <li>– Device reset codes such as 1 or 40864 do not have any effect on the HistoROM. That means that if you do a reset, the configurations in the HistoROM and in the device may not be the same.</li> </ul> <p>→ See also Operation Instructions BA294P (Deltabar S), BA295P (Derabar S) or BA356P (Deltapilot S), Section 5.6.1 "Copying configuration data".</p> | 57       |
| 707 (A707) | Alarm<br>B                                | B>X-VAL. of lin. table out of edit limits.           | <ul style="list-style-type: none"> <li>– At least one X-VALUE in the linearisation table is either below the value for HYDR. PRESS. MIN. or MIN. LEVEL or above the value for HYDR. PRESS. MAX. or LEVEL MAX.</li> </ul>                                                                                                    | <ul style="list-style-type: none"> <li>– Carry out calibration again. (→ See also these Operating Instructions, chapter 5.)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 37       |
| 710 (W710) | Warning<br>C                              | B>Set span too small. Not allowed.                   | <ul style="list-style-type: none"> <li>– Values for calibration (e.g. lower range value and upper range value) are too close together.</li> <li>– The sensor was replaced and the customer-specific configuration does not suit the sensor.</li> <li>– Unsuitable download carried out.</li> </ul>                          | <ul style="list-style-type: none"> <li>– Adjust calibration to suit sensor. (→ See Page 113, parameter description MINIMUM SPAN)</li> <li>– Adjust calibration to suit sensor.</li> <li>– Replace sensor with a suitable sensor.</li> <li>– Check configuration and perform download again.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                            | 49       |
| 713 (A713) | Alarm<br>B                                | B>100% POINT level out of edit limits                | <ul style="list-style-type: none"> <li>– The sensor was replaced.</li> </ul>                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>– Carry out calibration again.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 38       |
| 715 (E715) | Error<br>C<br>Factory setting:<br>Warning | C>Sensor over temperature                            | <ul style="list-style-type: none"> <li>– The temperature measured in the sensor is greater than the upper nominal temperature of the sensor. (→ See also Operating Instructions BA2964P, parameter description Tmax SENSOR or these Operating Instructions, Page 2.)</li> <li>– Unsuitable download carried out.</li> </ul> | <ul style="list-style-type: none"> <li>– Reduce process temperature/ ambient temperature.</li> <li>– Check configuration and perform download again.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 32       |
| 716 (E716) | Error<br>B<br>Factory setting:<br>Alarm   | B>Process isolating diaphragm broken                 | <ul style="list-style-type: none"> <li>– Sensor defect.</li> <li>– PMD70, FMD76: Overpressure is present at the minus or plus side of the device (one-sided overpressure).</li> </ul>                                                                                                                                       | <ul style="list-style-type: none"> <li>– Replace sensor.</li> <li>– Reduce pressure.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 24       |
| 717 (E717) | Error<br>C<br>Factory setting:<br>Warning | C>Transmitter over temperature                       | <ul style="list-style-type: none"> <li>– The temperature measured in the electronics is greater than the upper nominal temperature of the electronics (+88 °C).</li> <li>– Unsuitable download carried out.</li> </ul>                                                                                                      | <ul style="list-style-type: none"> <li>– Reduce ambient temperature.</li> <li>– Check configuration and perform download again.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 34       |

| Code       | Error type/<br>NA 64                         | Message/description                              | Cause                                                                                                                                                                                                                                                                                                                     | Measure                                                                                                                                                                                                                                                                               | Priority |
|------------|----------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 718 (E718) | Error<br>C<br>Factory<br>setting;<br>Warning | C>Transmitter under temperature                  | <ul style="list-style-type: none"> <li>– The temperature measured in the electronics is smaller than the lower nominal temperature of the electronics (–43 °C).</li> <li>– Unsuitable download carried out.</li> </ul>                                                                                                    | <ul style="list-style-type: none"> <li>– Increase ambient temperature. Insulate device if necessary.</li> <li>– Check configuration and perform download again.</li> </ul>                                                                                                            | 35       |
| 719 (A719) | Alarm<br>B                                   | B>Y-VAL of lin. table out of edit limits         | <ul style="list-style-type: none"> <li>– At least on Y-VALUE in the linearisation table is below the MIN. TANK CONTENT or above the MAX. TANK CONTENT.</li> </ul>                                                                                                                                                         | <ul style="list-style-type: none"> <li>– Carry out calibration again. (→ See also these Operating Instructions, chapter 5.)</li> </ul>                                                                                                                                                | 39       |
| 720 (E720) | Error<br>C<br>Factory<br>setting;<br>Warning | C>Sensor under temperature                       | <ul style="list-style-type: none"> <li>– The temperature measured in the sensor is smaller than the lower nominal temperature of the sensor. (→ See also Page 113, parameter description Tmin SENSOR.)</li> <li>– Unsuitable download carried out.</li> <li>– Loose connection at sensor cable</li> </ul>                 | <ul style="list-style-type: none"> <li>– Increase process temperature/ ambient temperature.</li> <li>– Check configuration and perform download again.</li> <li>– Wait a short period of time and tighten the connection, or avoid loose connection.</li> </ul>                       | 33       |
| 721 (A721) | Alarm<br>B                                   | B>ZERO POSITION level out of edit limits         | <ul style="list-style-type: none"> <li>– LEVEL MIN or LEVEL MAX has been changed.</li> </ul>                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>– Perform reset (Code 35710) and carry out calibration again.</li> </ul>                                                                                                                                                                       | 40       |
| 722 (A722) | Alarm<br>B                                   | B>EMPTY CALIB. or FULL CALIB. out of edit limits | <ul style="list-style-type: none"> <li>– LEVEL MIN or LEVEL MAX has been changed.</li> </ul>                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>– Perform reset (Code 35710) and carry out calibration again.</li> </ul>                                                                                                                                                                       | 41       |
| 723 (A723) | Alarm<br>B                                   | B>MAX. FLOW out of edit limits                   | <ul style="list-style-type: none"> <li>– FLOW-MEAS. TYPE has been changed.</li> </ul>                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>– Carry out calibration again.</li> </ul>                                                                                                                                                                                                      | 42       |
| 725 (A725) | Alarm<br>B                                   | B>Sensor connection error, cycle disturbance     | <ul style="list-style-type: none"> <li>– Electromagnetic effects are greater than specifications in the technical data.<br/>→ See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S).</li> <li>– Sensor or main electronics defect.</li> </ul>                                        | <ul style="list-style-type: none"> <li>– Block off electromagnetic effects or eliminate source of disturbance.</li> <li>– Replace sensor or main electronics.</li> </ul>                                                                                                              | 25       |
| 726 (E726) | Error<br>C<br>Factory<br>setting;<br>Warning | C>Sensor temperature error - overrange           | <ul style="list-style-type: none"> <li>– Electromagnetic effects are greater than specifications in the technical data.<br/>→ See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S).</li> <li>– Process temperature is outside permitted range.</li> <li>– Sensor defect.</li> </ul> | <ul style="list-style-type: none"> <li>– Block off electromagnetic effects or eliminate source of disturbance.</li> <li>– Check temperature present, reduce or increase if necessary.</li> <li>– If the process temperature is within the permitted range, replace sensor.</li> </ul> | 31       |
| 727 (E727) | Error<br>C<br>Factory<br>setting;<br>Warning | C>Sensor pressure error - overrange              | <ul style="list-style-type: none"> <li>– Electromagnetic effects are greater than specifications in the technical data.<br/>→ See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S).</li> <li>– Pressure is outside permitted range.</li> <li>– Sensor defect.</li> </ul>            | <ul style="list-style-type: none"> <li>– Block off electromagnetic effects or eliminate source of disturbance.</li> <li>– Check pressure present, reduce or increase if necessary.</li> <li>– If the pressure is within the permitted range, replace sensor.</li> </ul>               | 28       |

| Code       | Error type/<br>NA 64                         | Message/description              | Cause                                                                                                                                                                                             | Measure                                                                                                                                                                                                                                                                                                             | Priority |
|------------|----------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 728 (A728) | Alarm<br>B                                   | B>RAM error                      | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                           | 2        |
| 729 (A729) | Alarm<br>B                                   | B>RAM error                      | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                           | 3        |
| 730 (E730) | Error<br>C<br>Factory<br>setting:<br>Warning | C>LRV user limits exceeded       | <ul style="list-style-type: none"> <li>– Pressure measured value has undershot the value specified for the Pmin ALARM WINDOW parameter.</li> <li>– Loose connection at sensor cable</li> </ul>    | <ul style="list-style-type: none"> <li>– Check system/pressure measured value.</li> <li>– Change value for Pmin ALARM WINDOW if necessary. (→ See also Page 123, parameter description Pmin ALARM WINDOW.)</li> <li>– Wait a short period of time and tighten the connection, or avoid loose connection.</li> </ul> | 46       |
| 731 (E731) | Error<br>C<br>Factory<br>setting:<br>Warning | C>URV user limits exceeded       | <ul style="list-style-type: none"> <li>– Pressure measured value has overshoot the value specified for the Pmax ALARM WINDOW parameter.</li> </ul>                                                | <ul style="list-style-type: none"> <li>– Check system/pressure measured value.</li> <li>– Change value for Pmax ALARM WINDOW if necessary. (→ See also Page 124, parameter description Pmax ALARM WINDOW.)</li> </ul>                                                                                               | 45       |
| 732 (E732) | Error<br>C<br>Factory<br>setting:<br>Warning | C>LRV Temp. User limits exceeded | <ul style="list-style-type: none"> <li>– Temperature measured value has undershot the value specified for the Tmin ALARM WINDOW parameter.</li> <li>– Loose connection at sensor cable</li> </ul> | <ul style="list-style-type: none"> <li>– Check system/temperature measured value.</li> <li>– Change value for Tmin ALARM WINDOW if necessary. (→ See Page 124, parameter description Tmin ALARM WINDOW.)</li> <li>– Wait a short period of time and tighten the connection, or avoid loose connection.</li> </ul>   | 48       |
| 733 (E733) | Error<br>C<br>Factory<br>setting:<br>Warning | C>URV Temp. User limits exceeded | <ul style="list-style-type: none"> <li>– Temperature measured value has overshoot the value specified for the Tmax ALARM WINDOW parameter.</li> </ul>                                             | <ul style="list-style-type: none"> <li>– Check system/temperature measured value.</li> <li>– Change value for Tmax ALARM WINDOW if necessary. (→ See also Page 124, parameter description Tmax ALARM WINDOW.)</li> </ul>                                                                                            | 47       |
| 736 (A736) | Alarm<br>B                                   | B>RAM error                      | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                           | 4        |
| 737 (A737) | Alarm<br>B                                   | B>Measurement error              | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                           | 20       |
| 738 (A738) | Alarm<br>B                                   | B>Measurement error              | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                           | 19       |
| 739 (A739) | Alarm<br>B                                   | B>Measurement error              | <ul style="list-style-type: none"> <li>– Fault in the main electronics.</li> <li>– Main electronics defect.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>– Briefly disconnect device from the power supply.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                           | 23       |

| Code       | Error type/<br>NA 64                         | Message/description                             | Cause                                                                                                                                                                                                                                                                                                                                                                                                              | Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Priority |
|------------|----------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 740 (E740) | Error<br>C<br>Factory<br>setting;<br>Warning | C>Calculation overflow, bad configuration       | <ul style="list-style-type: none"> <li>– Level measuring mode: the measured pressure has undershot the value for HYDR. PRESS. MIN. or overshot the value for HYDR. PRESS MAX.</li> <li>– Level measuring mode: The measured level did not reach the LEVEL MIN value or exceeded the LEVEL MAX value.</li> <li>– Flow measuring mode: the measured pressure has undershot the value for MAX. PRESS FLOW.</li> </ul> | <ul style="list-style-type: none"> <li>– Check configuration and carry out calibration again if necessary.</li> <li>– Select a device with a suitable measuring range.</li> <li>– Check configuration and carry out calibration again if necessary. (→ See also Page 84, parameter description LEVEL MIN.)</li> <li>– Check configuration and carry out calibration again if necessary.</li> <li>– Select a device with a suitable measuring range.</li> </ul> | 27       |
| 741 (A741) | Alarm<br>B                                   | B>TANK HEIGHT out of edit limits                | <ul style="list-style-type: none"> <li>– LEVEL MIN or LEVEL MAX has been changed.</li> </ul>                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>– Perform reset (Code 35710) and carry out calibration again.</li> </ul>                                                                                                                                                                                                                                                                                                                                                | 43       |
| 742 (A742) | Alarm<br>B                                   | B>Sensor connection error (upload)              | <ul style="list-style-type: none"> <li>– Electromagnetic effects are greater than specifications in the technical data. → See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S). This message normally only appears briefly.</li> <li>– Cable connection sensor –main electronics disconnected.</li> <li>– Sensor defect.</li> </ul>                                          | <ul style="list-style-type: none"> <li>– Wait a few minutes.</li> <li>– Perform reset (Code 1 or 40864) and carry out calibration again.</li> <li>– Check cable connection and repair if necessary.</li> <li>– Replace sensor.</li> </ul>                                                                                                                                                                                                                      | 18       |
| 743 (E743) | Alarm<br>B                                   | B>Electronic PCB error during initialisation    | <ul style="list-style-type: none"> <li>– This message normally only appears briefly.</li> <li>– Main electronics defect.</li> </ul>                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>– Wait a few minutes.</li> <li>– Restart the device. Perform reset (Code 2506 or 33062).</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                                                                                                                                | 14       |
| 744 (A744) | Alarm<br>B                                   | B>Main electronic PCB error                     | <ul style="list-style-type: none"> <li>– Electromagnetic effects are greater than specifications in the technical data. → See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S).</li> <li>– Main electronics defect.</li> </ul>                                                                                                                                               | <ul style="list-style-type: none"> <li>– Restart the device. Perform reset (Code 2506 or 33062).</li> <li>– Block off electromagnetic effects or eliminate source of disturbance.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                                                                              | 11       |
| 745 (W745) | Warning<br>C                                 | C>Sensor data unknown                           | <ul style="list-style-type: none"> <li>– Sensor does not suit the device (electronic sensor nameplate). Device continues measuring.</li> </ul>                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>– Replace sensor with a suitable sensor.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     | 54       |
| 746 (W746) | Warning<br>C                                 | C>Sensor connection error - initialising        | <ul style="list-style-type: none"> <li>– Electromagnetic effects are greater than specifications in the technical data. → See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S). This message normally only appears briefly.</li> <li>– Overpressure or low pressure present.</li> </ul>                                                                                      | <ul style="list-style-type: none"> <li>– Wait a few minutes.</li> <li>– Restart the device. Perform reset (Code 1 or 40864).</li> <li>– Block off electromagnetic effects or eliminate source of disturbance.</li> <li>– Reduce or increase pressure.</li> </ul>                                                                                                                                                                                               | 26       |
| 747 (A747) | Alarm<br>B                                   | B>Sensor software not compatible to electronics | <ul style="list-style-type: none"> <li>– Sensor does not suit the device (electronic sensor nameplate).</li> </ul>                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>– Replace sensor with a suitable sensor.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     | 16       |
| 748 (A748) | Alarm<br>B                                   | B>Memory failure in signal processor            | <ul style="list-style-type: none"> <li>– Electromagnetic effects are greater than specifications in the technical data. → See Technical Information TI382P (Deltabar S), TI383P (Cerabar S) or TI416P (Deltapilot S).</li> <li>– Main electronics defect.</li> </ul>                                                                                                                                               | <ul style="list-style-type: none"> <li>– Block off electromagnetic effects or eliminate source of disturbance.</li> <li>– Replace main electronics.</li> </ul>                                                                                                                                                                                                                                                                                                 | 15       |

| Code       | Error type/<br>NA 64 | Message/description           | Cause                                                                                                                                                                                                                                                                                                                                             | Measure                                                                                                                                     | Priority |
|------------|----------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 750 (A750) | Alarm<br>B           | B>Configuration not permitted | <ul style="list-style-type: none"> <li>By means of the operation profile, options were selected for the configuration of the device but the options do not suit one another. For example, if the option "1" (linearisation table) was selected for LIN_TYPE and the unit "1347 (m<sup>3</sup>/s)" was selected for PRIMARY_VALUE_UNIT.</li> </ul> | <ul style="list-style-type: none"> <li>Check configuration.</li> <li>Perform reset (Code 1 or 40864) and recalibrate the device.</li> </ul> | 44       |

### 9.1.1 On-site display error messages

If the device detects a defect in the on-site display during initialization, the following error messages can be displayed:

| Message                                | Measure                   |
|----------------------------------------|---------------------------|
| Initialization, VU Electr. Defect A110 | Exchange on-site display. |
| Initialization, VU Electr. Defect A114 |                           |
| Initialization, VU Electr. Defect A281 |                           |
| Initialization, VU Checksum Err. A110  |                           |
| Initialization, VU Checksum Err. A112  |                           |
| Initialization, VU Checksum Err. A171  |                           |

## 9.2 Response of outputs to errors

The device differentiates between the message types "Alarm", "Warning" and "Error".

→ See the following table and Page 151, Section 9.1 "Messages".

| Output                       | A (Alarm)                                                                                                                                                                                                                                                                                                                                                                                        | W (Warning)                                                                                                                                                                                                                                                                                                                                                                        | E (Error: Alarm/Warning)                                                                                                                                                                                                                                                                                                     |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROFIBUS                     | The process variable in question is transmitted with the status BAD.                                                                                                                                                                                                                                                                                                                             | Device continues measuring. The process variable in question is transmitted with the status UNCERTAIN.                                                                                                                                                                                                                                                                             | For this error, you can enter whether the device should react as in the event of an alarm or as in the event of a warning. See corresponding "Alarm" or "Warning" column.<br>(→ See also Page 123, SELECT ALARM TYPE parameter description.)                                                                                 |
| Bargraph (on-site display)   | The bargraph assumes the value specified via the FSAFE_TYPE <sup>1</sup> and FSAFE_VALUE <sup>1</sup> parameters.<br>→ See also Section 8.2.1.                                                                                                                                                                                                                                                   | Device continues measuring.                                                                                                                                                                                                                                                                                                                                                        | For this error, you can enter whether the device should react as in the event of an alarm or as in the event of a warning. See corresponding "Alarm" or "Warning" column.                                                                                                                                                    |
| On-site display              | <ul style="list-style-type: none"> <li>The measured value and message are displayed alternately</li> <li>Measured value display: -symbol is permanently displayed.</li> </ul> <p>Message display</p> <ul style="list-style-type: none"> <li>A + 3-digit number such as A122 and</li> <li>Description</li> </ul> | <ul style="list-style-type: none"> <li>The measured value and message are displayed alternately</li> <li>Measured value display: -symbol flashes.</li> </ul> <p>Message display:</p> <ul style="list-style-type: none"> <li>W + 3-digit number such as W613 and</li> <li>Description</li> </ul> | <ul style="list-style-type: none"> <li>The measured value and message are displayed alternately</li> <li>Measured value display: see corresponding "Alarm" or "Warning" column</li> </ul> <p>Message display:</p> <ul style="list-style-type: none"> <li>E + 3-digit number such as E713 and</li> <li>Description</li> </ul> |
| Remote operation (FieldCare) | In the case of an alarm, the ALARM STATUS <sup>2</sup> parameter displays a 3-digit number such as 122 for "Sensor connection error, incorrect data."                                                                                                                                                                                                                                            | In the case of a warning, the ALARM STATUS <sup>2</sup> parameter displays a 3-digit number such as 613 for "Simulation is active".                                                                                                                                                                                                                                                | In the case of an error, the ALARM STATUS <sup>2</sup> parameter displays a 3-digit number such as 731 for "Pmax ALARM WINDOW undershot".                                                                                                                                                                                    |

- Parameter are displayed via remote operation (e.g. FieldCare) only.  
Menu path: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER
- Menu path on-site display: GROUP SELECTION → OPERATING MENU → DIAGNOSTICS → MESSAGES  
Menu path FieldCare: Menu path: MANUFACTURER VIEW → OPERATING MENU → MESSAGES

### 9.2.1 Analog Input Block

If the Analog Input Block receives an input or simulation value with the status BAD, the Analog Input Block uses the failsafe mode defined in the FSAFE\_TYPE<sup>1</sup> parameter.

The following options are available by means of the FSAFE\_TYPE<sup>1</sup> parameter:

- LastValidOutValue  
The last valid value is used for further processing with the status UNCERTAIN.
- FSsafeValue  
The value specified by means of the FSAFE\_VALUE<sup>1</sup> parameter is used for further processing with the status UNCERTAIN.
- Status bad  
The current value is used for further processing with the status BAD.

Factory setting:

- FSAFE\_TYPE<sup>1</sup>: FsafeValue
- FSAFE\_VALUE<sup>1</sup>: 0



Note!

- The failsafe mode is also activated if the "Out of Service O/S" option was selected by means of the TARGET\_MODE<sup>2</sup> parameter.
- The FSAFE\_TYPE and FSAFE\_VALUE parameter are available via remote operation (e.g. FieldCare) only.

1 Menu path: PROFILE VIEW → ANALOG INPUT BLOCK → AI PARAMETER

2 Menu path: PROFILE VIEW → ANALOG INPUT BLOCK → AI STANDARD PARAMETER

## 9.3 Confirming messages

Depending on the settings for the ALARM DISPL. TIME and ACK. ALARM MODE parameters, the following measures should be taken to clear a message:

| Settings <sup>1</sup>                                                                                           | Measures                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>– ALARM DISPL. TIME = 0 s</li> <li>– ACK. ALARM MODE = off</li> </ul>    | <ul style="list-style-type: none"> <li>– Rectify cause of the message (see also Section 8.1).</li> </ul>                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>– ALARM DISPL. TIME &gt; 0 s</li> <li>– ACK. ALARM MODE = off</li> </ul> | <ul style="list-style-type: none"> <li>– Rectify cause of the message (see also Section 8.1).</li> <li>– Wait for the alarm display time to elapse.</li> </ul>                                                                                                                                                                                                                     |
| <ul style="list-style-type: none"> <li>– ALARM DISPL. TIME = 0 s</li> <li>– ACK. ALARM MODE = on</li> </ul>     | <ul style="list-style-type: none"> <li>– Rectify cause of the message (see also Section 8.1).</li> <li>– Confirm message using ACK. ALARM parameter.</li> </ul>                                                                                                                                                                                                                    |
| <ul style="list-style-type: none"> <li>– ALARM DISPL. TIME &gt; 0 s</li> <li>– ACK. ALARM MODE = on</li> </ul>  | <ul style="list-style-type: none"> <li>– Rectify cause of the message (see also Section 8.1).</li> <li>– Confirm message using ACK. ALARM parameter.</li> <li>– Wait for the alarm display time to elapse. If a message appears and the alarm display time elapses before the message has been acknowledged, the message will be cleared once it has been acknowledged.</li> </ul> |

1) ALARM DISPL. TIME and ACK. ALARM MODE parameter are located in the MESSAGES menu.

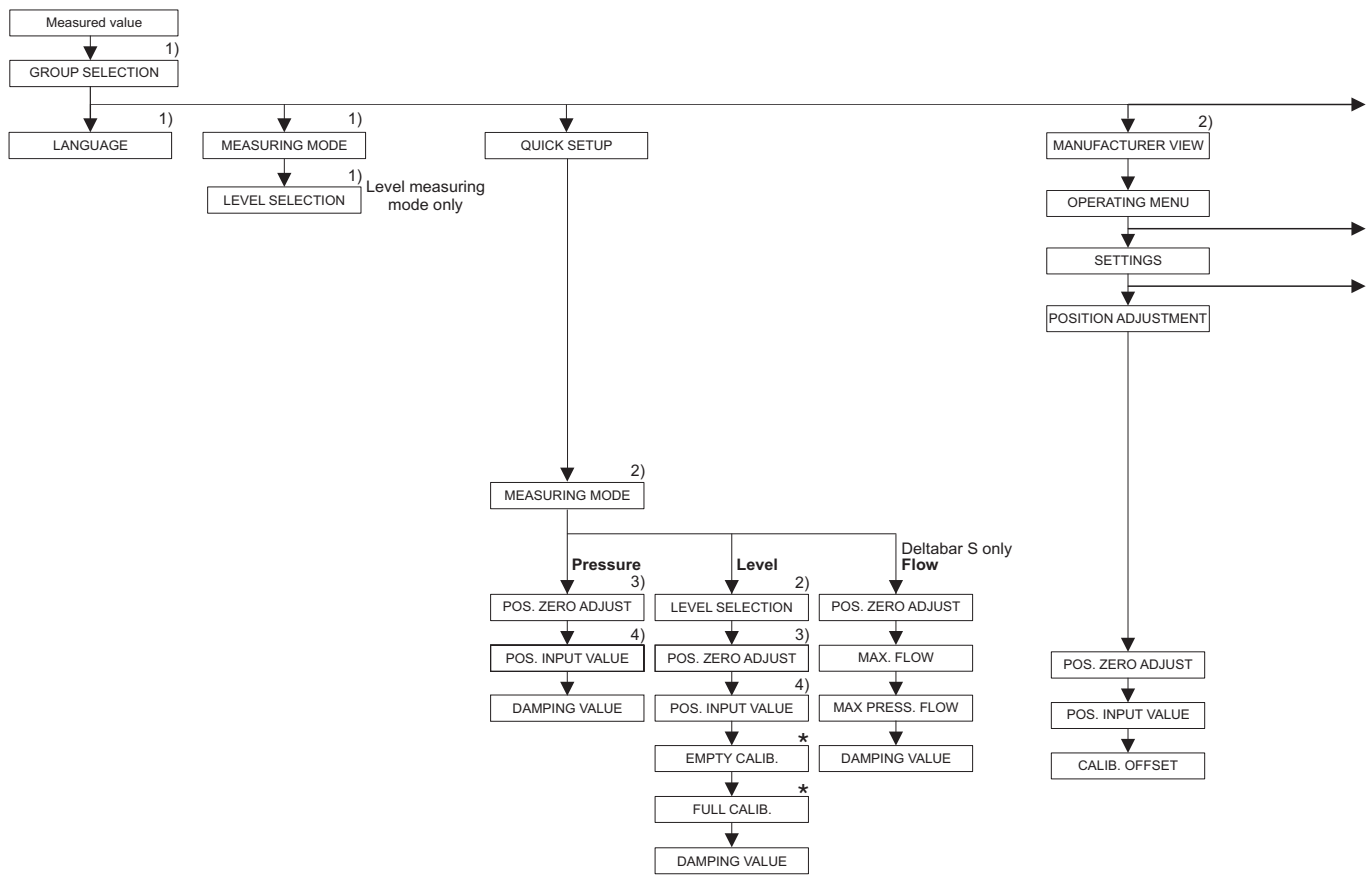
## 10 Appendix

### 10.1 Operating menu



Note!

- The entire menu is depicted on the following pages.
- The menu has a different structure depending on the measuring mode selected. This means that some function groups are only displayed for one measuring mode, e.g. "LINEARISATION" function group for the Level measuring mode.
- In addition, there are also parameters that are only displayed if other parameters are appropriately configured. For example the CUSTOMER UNIT P parameter is only displayed if the "User unit" option was selected for the PRESS. ENG. UNIT parameter. These parameters are indicated with a "\*".
- For a description of the parameters, please refer to chapter 7 "Description of parameters". The exact dependency of individual parameters on one another is explained here.



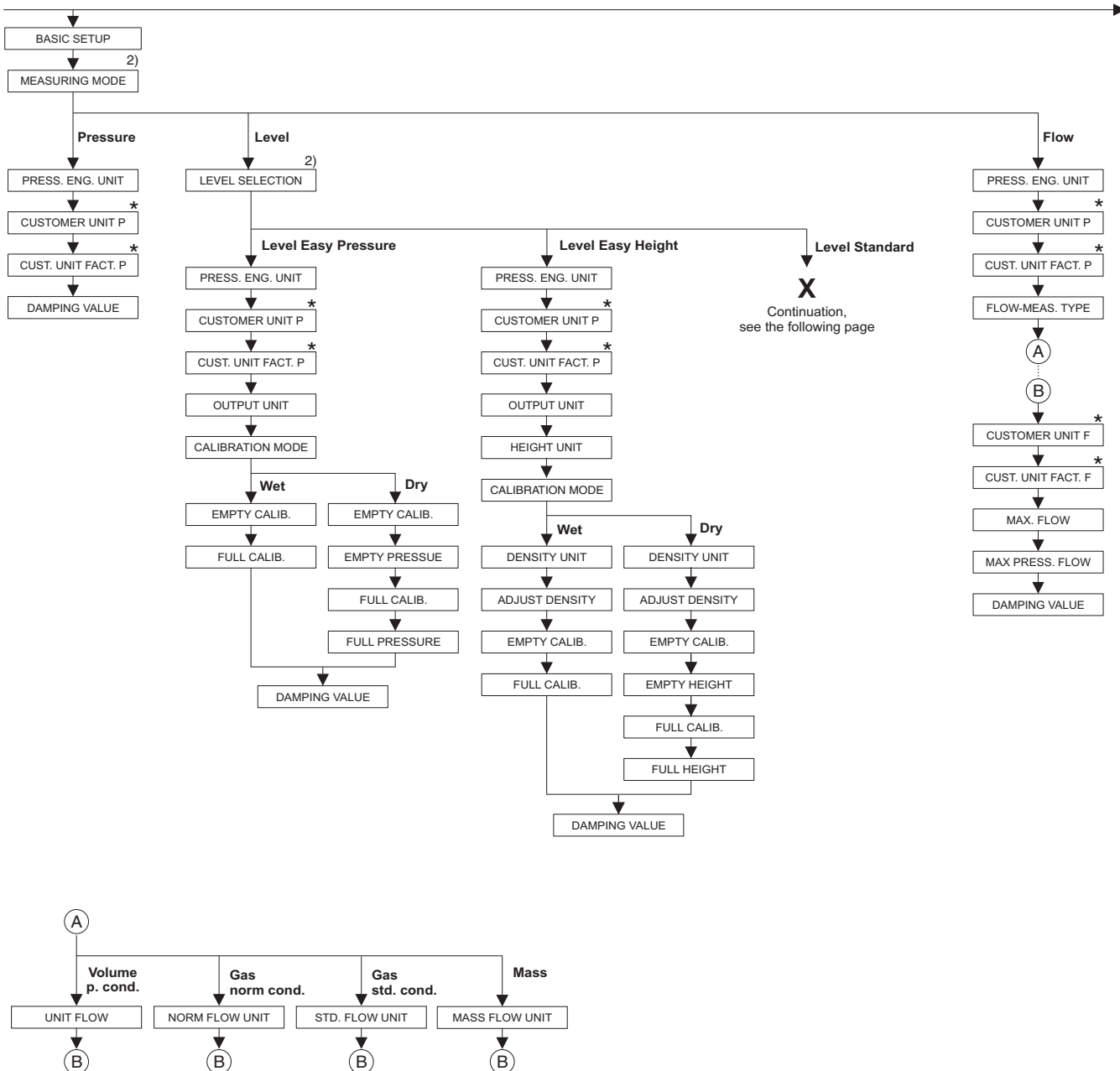
1) Display via on-site display only

2) Display via FieldCare

3) Cerabar S with gauge pressure sensor, Deltabar S or Deltapilot S

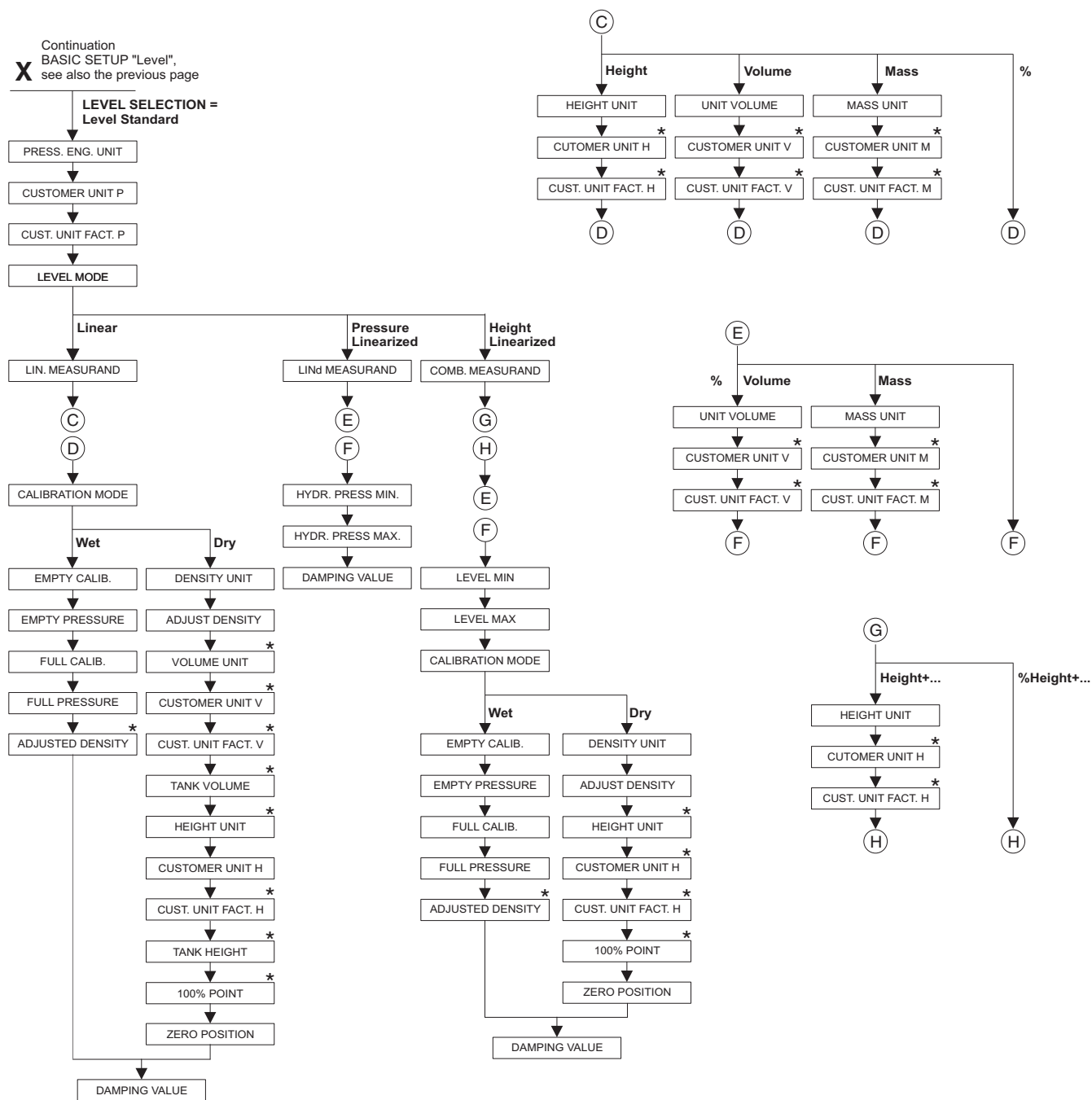
4) Cerabar S with absolute pressure sensor

\* There are parameters that are only displayed if other parameters are appropriately configured.  
For example the CUSTOMER UNIT P parameter is only displayed if the "User unit" option was selected for the PRESS. ENG. UNIT parameter.  
These parameters are indicated with a "\*\*".

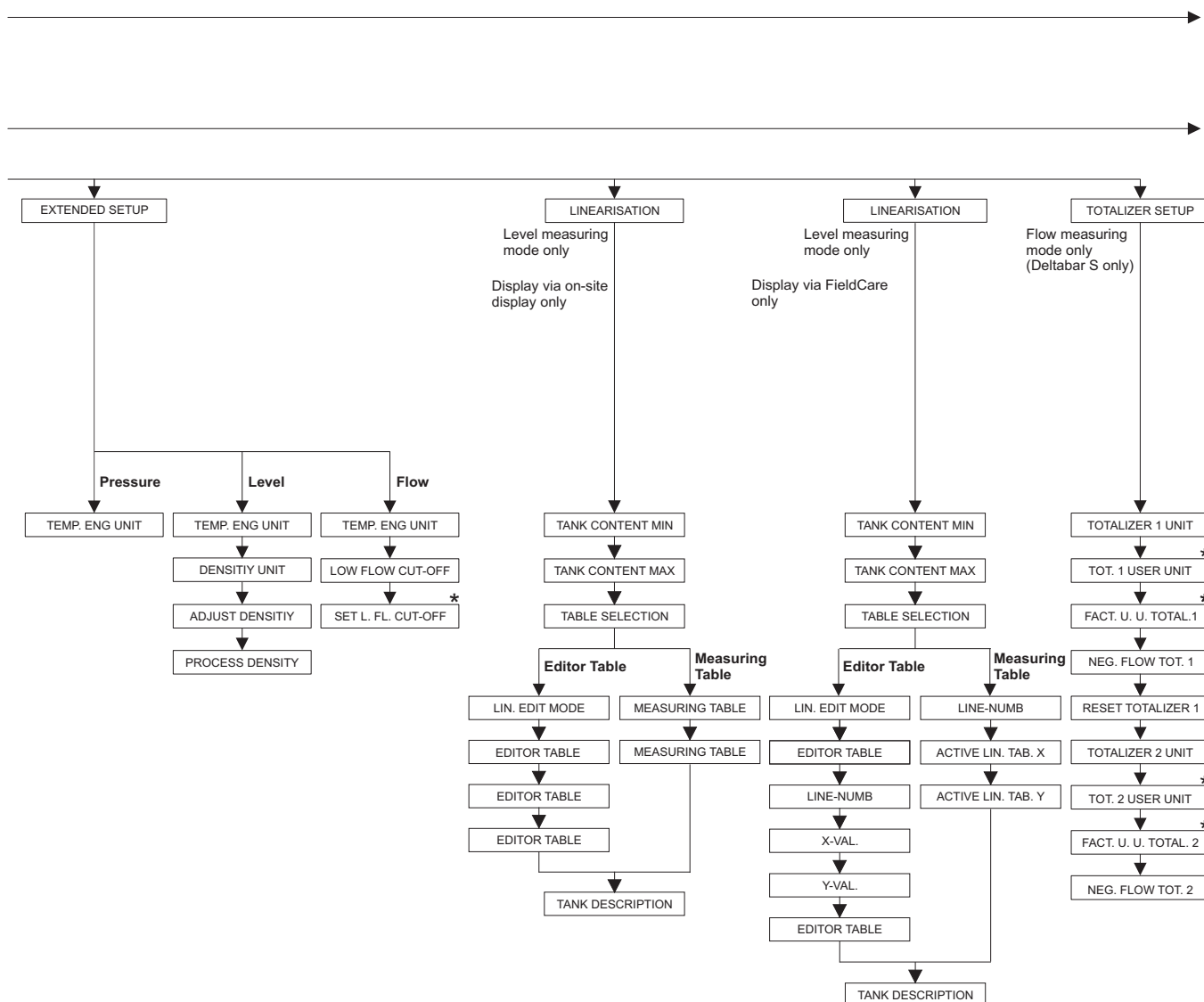


2) Display via FieldCare

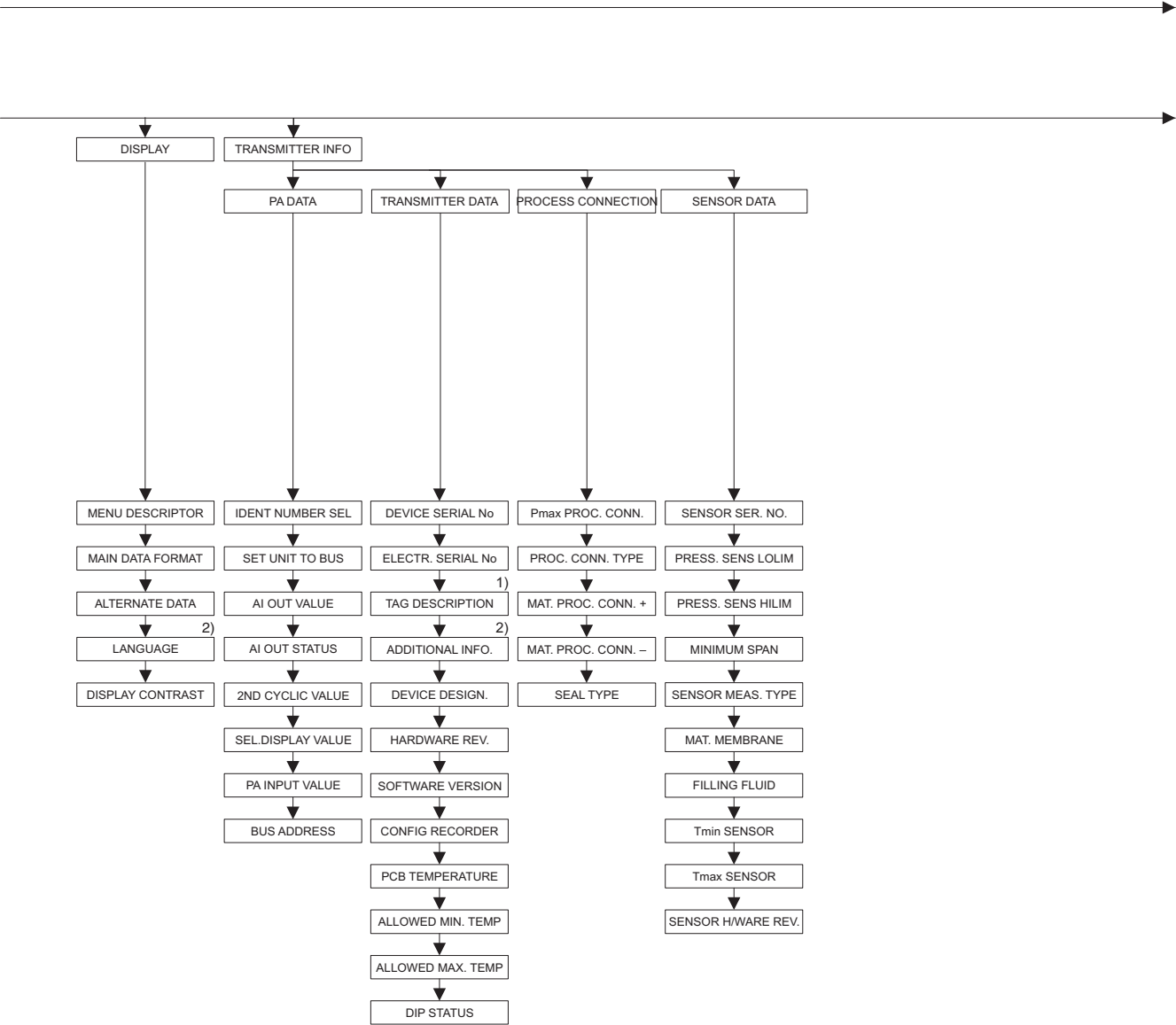
★ There are parameters that are only displayed if other parameters are appropriately configured.  
For example the CUSTOMER UNIT P parameter is only displayed if the "User unit" option was selected for the PRESS. ENG. UNIT parameter.  
These parameters are indicated with a "★".



\* There are parameters that are only displayed if other parameters are appropriately configured.  
For example the CUST. UNIT FACT. H parameter is only displayed if the "User unit" option was selected for the HEIGHT UNIT parameter.  
These parameters are indicated with a "\*\*".

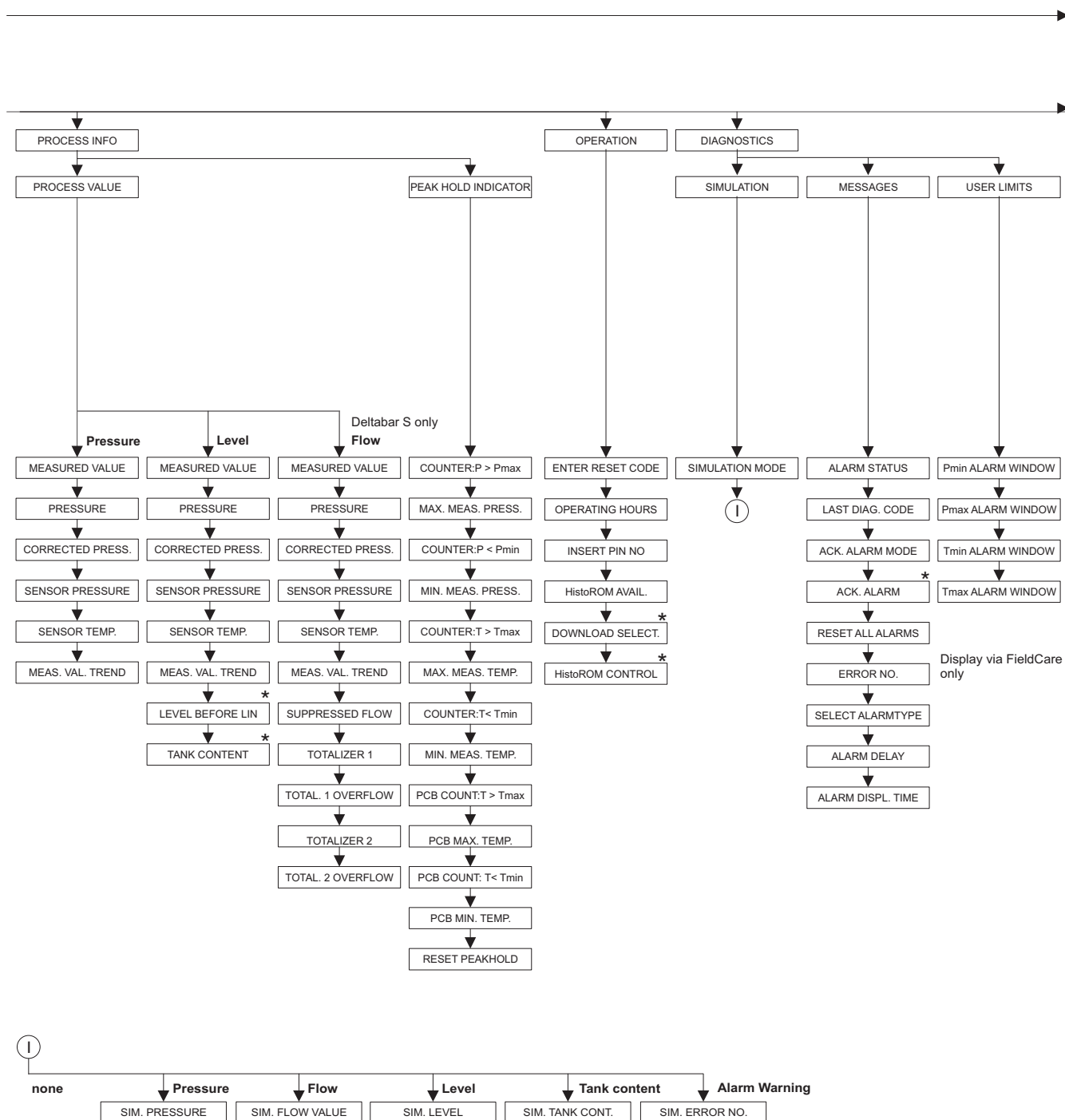


\* There are parameters that are only displayed if other parameters are appropriately configured.  
 For example the TOT. 1 USER UNIT parameter is only displayed if the "User unit" option was selected for the TOTALIZER 1 UNIT parameter.  
 These parameters are indicated with a "\*".

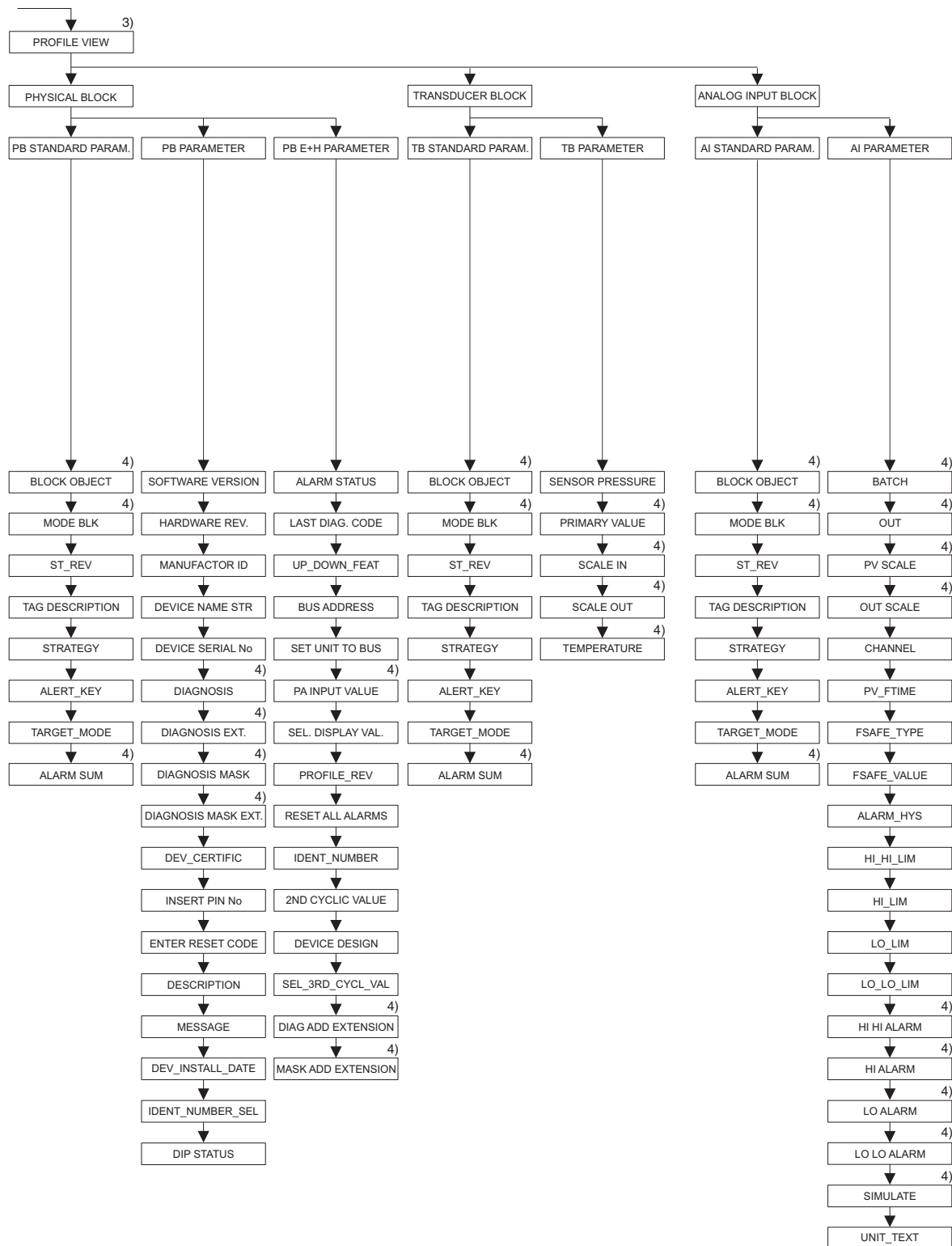


1) Display via on-site display only

2) Display via FieldCare



★ There are parameters that are only displayed if other parameters are appropriately configured. These parameters are indicated with a "★".



3) The "Profile view" menu is available via remote operation e.g. FieldCare only.

4) Parameter group (Data type: Record)



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