

Operating Instructions

External display and adjustment unit
without additional external energy

VEGADIS 62



Document ID: 36469



VEGA

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Safety instructions for Ex areas

Take note of the Ex specific safety instructions for Ex applications. These instructions are attached as documents to each instrument with Ex approval and are part of the operating instructions manual.

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1 About this document

1.1 Function

This operating instructions manual provides all the information you need for mounting, connection and setup as well as important instructions for maintenance and fault rectification. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

1.2 Target group

This operating instructions manual is directed to trained specialist personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbols used



Information, tip, note

This symbol indicates helpful additional information.



Caution: If this warning is ignored, faults or malfunctions can result.



Warning: If this warning is ignored, injury to persons and/or serious damage to the instrument can result.



Danger: If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.



Ex applications

This symbol indicates special instructions for Ex applications.



List

The dot set in front indicates a list with no implied sequence.



Action

This arrow indicates a single action.



Sequence of actions

Numbers set in front indicate successive steps in a procedure.



Battery disposal

This symbol indicates special information about the disposal of batteries and accumulators.

2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

During work on and with the device the required personal protective equipment must always be worn.

2.2 Appropriate use

The VEGADIS 62 is a display and adjustment unit without external energy for looping into 4 ... 20 mA/HART circuits.

You can find detailed information about the area of application in chapter "*Product description*".

Operational reliability is ensured only if the instrument is properly used according to the specifications in the operating instructions manual as well as possible supplementary instructions.

2.3 Warning about incorrect use

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

This is a state-of-the-art instrument complying with all prevailing regulations and guidelines. The instrument must only be operated in a technically flawless and reliable condition. The operator is responsible for the trouble-free operation of the instrument.

During the entire duration of use, the user is obliged to determine the compliance of the necessary occupational safety measures with the current valid rules and regulations and also take note of new regulations.

The safety instructions in this operating instructions manual, the national installation standards as well as the valid safety regulations and accident prevention rules must be observed by the user.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by the manufacturer. Arbitrary conversions or modifications are explicitly forbidden.

The safety approval markings and safety tips on the device must also be observed.

2.5 CE conformity

The device fulfills the legal requirements of the applicable EC guidelines. By affixing the CE marking, we confirm successful testing of the product.

You can find the conformity certificate in the download section under www.vega.com.

2.6 NAMUR recommendations

NAMUR is the automation technology user association in the process industry in Germany. The published NAMUR recommendations are accepted as the standard in field instrumentation.

The device fulfills the requirements of the following NAMUR recommendations:

- NE 21 – Electromagnetic compatibility of equipment
- NE 53 – Compatibility of field devices and display/adjustment components

For further information see www.namur.de.

2.7 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfill this obligation by observing the environmental instructions in this manual:

- Chapter "*Packaging, transport and storage*"
- Chapter "*Disposal*"

3 Product description

3.1 Configuration

Constituent parts

The display and adjustment unit VEGADIS 62 consists of a housing with a terminal insert as well as an integrated display and adjustment module. Dependent on the order specification, a mounting adapter for wall, carrier rail or tube mounting belongs to the housing.

Type label

The type label on the housing contains the most important data for identification and use of the instrument:

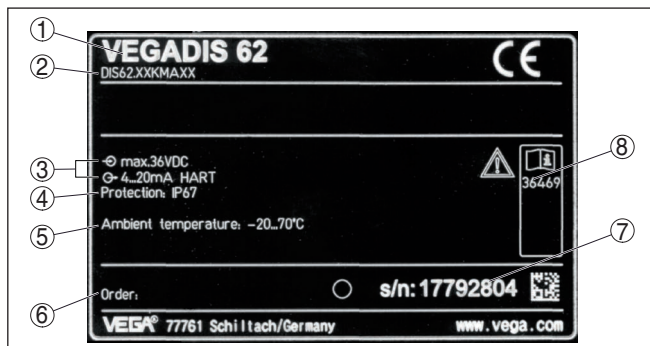


Fig. 1: Layout of the type label (example)

- 1 Instrument type
- 2 Product code
- 3 Voltage supply/Signal output
- 4 Protection rating
- 5 Ambient temperature
- 6 Order number
- 7 Serial number of the instrument
- 8 Document ID

Serial number - Instrument search

The type label contains the serial number of the instrument. With it you can find the following instrument data on our homepage:

- Product code (HTML)
- Delivery date (HTML)
- Order-specific instrument features (HTML)
- Operating instructions and quick setup guide at the time of shipment (PDF)
- Order-specific sensor data for an electronics exchange (XML)
- Test certificate (PDF) - optional

Go to www.vega.com, "VEGA Tools" and "Instrument search". Enter the serial number.

Alternatively, you can access the data via your smartphone:

- Download the smartphone app "VEGA Tools" from the "Apple App Store" or the "Google Play Store"
- Scan the Data Matrix code on the type label of the instrument or
- Enter the serial number manually in the app

Scope of this operating instructions manual

This operating instructions manual applies to the following instrument versions:

- Software from 2.00
- Software from 2.10 (with the functions Password and Logout)

Scope of delivery

The scope of delivery encompasses:

- Display and adjustment unit
- Mounting accessories (optional)
- Documentation
 - This operating instructions manual
 - Ex-specific "*Safety instructions*" (with Ex versions)
 - if necessary, further certificates

**Information:**

In this operating instructions manual, the optional instrument features are also described. The actual range of functions is determined by the order specification.

3.2 Principle of operation

Area of application

The VEGADIS 62 is an external display and adjustment unit without external energy for 4 ... 20 mA/HART sensors. The instrument is used for remote measured value indication and adjustment. It is looped in any position directly into the signal cable.

The housing of VEGADIS 62 contains a filter element for ventilation. Hence the instrument is also used for atmospheric pressure compensation of a connected submersible pressure transmitter VEGAWELL 52.

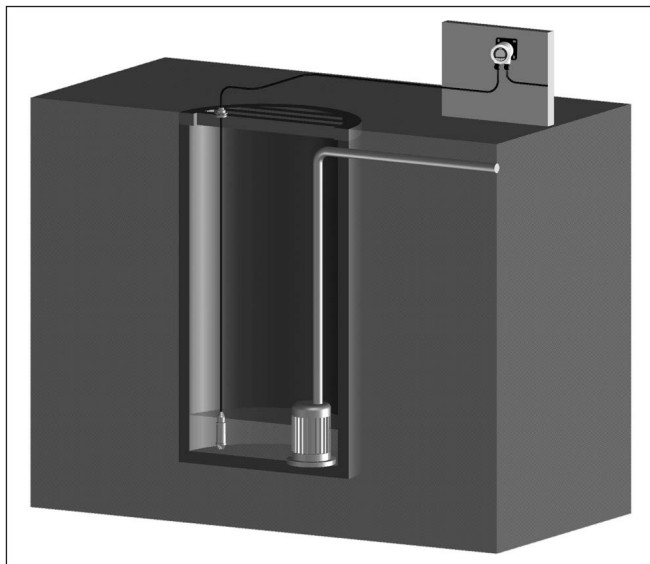


Fig. 2: Connection of the VEGADIS 62 to a submersible pressure transmitter

The VEGADIS 62 can also be used as an external indicating device for a four-wire sensor or a VEGAMET signal conditioning instrument with active 4 ... 20 mA output.

Operation

The VEGADIS 62 is suitable for operation of all continuously measuring VEGA sensors with HART output > 5.0:

- Radar and ultrasonic sensors
- Sensors with guided microwave
- Capacitive probes
- Pressure transmitter
- Previous instrument versions (replacement for VEGADIS 12)

The operation of respective sensors from other manufacturers is also possible.

The VEGADIS 62 acts like a HART handheld with limited functions. The following adjustment functions are available:

- Min./Max. adjustment
- zero/span adjustment (live adjustment)
- Damping

Modes

Basic mode: when used in a 4 ... 20 mA signal cable, the VEGADIS 62 works as a pure indicating instrument. It measures the current in the current loop and shows it as digital value as well as via a bargraph. All settings of VEGADIS 62 are carried out manually via the buttons in the front.

Adjustment volume: Indication scaling

HART standard: when used with a 4 ... 20 mA/HART sensor, the VEGADIS 62 operates as automatic display and HART adjustment instrument. The loop-powered VEGADIS 62 listens continuously to the HART communication of the control system with the sensor. Changes of unit and/or measuring range are adapted automatically.

The parameter adjustment of the sensor is carried out via HART communication. During the parameter adjustment, the VEGADIS 62 operates as a Secondary Master to the sensor.

Adjustment volume: Sensor functions, indication scaling

HART multidrop: The VEGADIS 62 can also be used as indicator for a bus participant in a HART multidrop system. For this purpose, it is looped into the bus and the address of the participant is set in the VEGADIS 62. The instrument reads out the measured values with unit via the HART signal and displays them.

Adjustment volume: Sensor function damping, indication scaling

3.3 Packaging, transport and storage

Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test based on ISO 4180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE

foil is also used. Dispose of the packaging material via specialised recycling companies.

Transport

Transport must be carried out in due consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

Transport inspection

The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

Storage

Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

Storage and transport temperature

- Storage and transport temperature see chapter "*Supplement - Technical data - Ambient conditions*"
- Relative humidity 20 ... 85 %

4 Mounting

4.1 General instructions

Protection against moisture

Protect your instrument against moisture ingress through the following measures:

- Use the recommended cable (see chapter "Connecting to power supply")
- Tighten the cable gland
- When mounting horizontally, turn the housing so that the cable gland points downward
- Loop the connection cable downward in front of the cable gland

This applies particularly to:

- Outdoor mounting
- Installations in areas where high humidity is expected (e.g. through cleaning processes)
- Installations on cooled or heated vessels

4.2 Mounting instructions

Wall mounting

The VEGADIS 62 for wall mounting is supplied with a mounting socket.

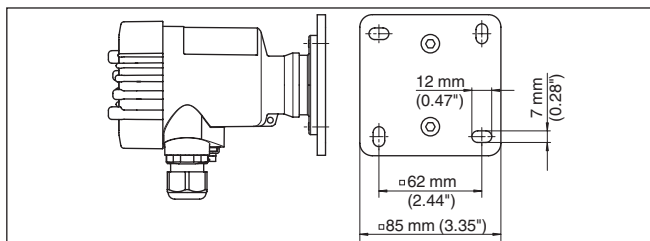


Fig. 3: VEGADIS 62 for wall mounting, bottom view of mounting plate.

1 Drilling dimensions

Carrier rail mounting

VEGADIS 62 for mounting on carrier rail is supplied with a mounting adapter.

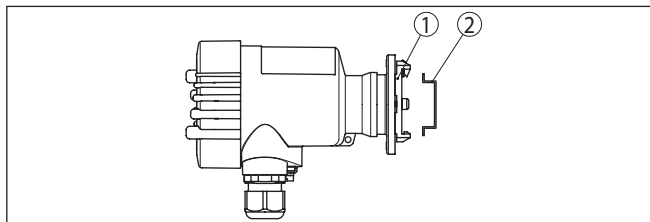


Fig. 4: VEGADIS 62 for carrier rail mounting

- 1 Carrier rail adapter
- 2 Carrier rail

Tube mounting

VEGADIS 62 for tube mounting is supplied with a meas. instrument holder and four screws M5 x 12 as mounting accessory. The meas. instrument holder is mounted to the socket of VEGADIS 62.

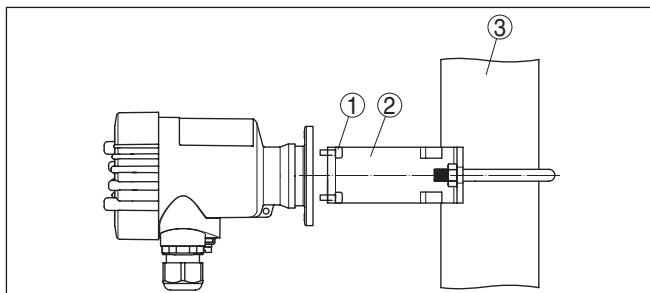


Fig. 5: VEGADIS 62 for tube mounting

- 1 4 screws M5 x 12
- 2 Measuring instrument holder
- 3 Tube

5 Connecting to power supply

5.1 Preparing the connection

Safety instructions

Always keep in mind the following safety instructions:



Warning:

Connect only in the complete absence of line voltage.

- The electrical connection must only be carried out by trained personnel authorised by the plant operator.
- If overvoltage surges are expected, overvoltage arresters should be installed.

Voltage supply

Power supply and current signal are carried on the same two-wire cable. The voltage supply range can differ depending on the sensor.

The data for power supply are specified in chapter "*Technical data*".

Provide a reliable separation between the supply circuit and the mains circuits according to DIN EN 61140 VDE 0140-1.

Keep in mind the following additional factors that influence the operating voltage:

- The output voltage of the power supply unit can be lower under nominal load (with a sensor current of 20.5 mA resp. 22 mA in case of fault message)
- Influence of additional instruments in the circuit (see load values in chapter "*Technical data*")

Operation of VEGADIS 62 in a HART multidrop system with the signal conditioning instruments VEGAMET 625 or VEGASCAN 693 is not supported.

Connection cable

The instrument is connected with standard two-wire cable without screen. If electromagnetic interference is expected which is above the test values of EN 61326-1 for industrial areas, screened cable should be used.

Use cable with round cross section for instruments with housing and cable gland. To ensure the seal effect of the cable gland (IP protection rating), find out which cable outer diameter the cable gland is suitable for.

Use a cable gland fitting the cable diameter.

We generally recommend the use of screened cable for HART multidrop mode.

Cable gland ½ NPT

With plastic housing, the NPT cable gland or the Conduit steel tube must be screwed without grease into the threaded insert.

Max. torque for all housings see chapter "*Technical data*".

Cable screening and grounding

If screened cable is required, we recommend connecting the cable screen on both ends to ground potential. In the sensor, the screen must be connected directly to the internal ground terminal. The

ground terminal on the outside of the housing must be connected to the ground potential (low impedance).



In Ex systems, the grounding is carried out according to the installation regulations.

In electroplating and CCP systems (cathodic corrosion protection) it must be taken into account that significant potential differences exist. This can lead to unacceptably high currents in the cable screen if it is grounded at both ends.



Information:

The metallic parts of the instrument (process fitting, transmitter, concentric tube, etc.) are connected with the inner and outer ground terminal on the housing. This connection exists either directly via connecting metallic parts or, in case of instruments with external electronics, via the screen of the special connection cable.

You can find specifications on the potential connections inside the instrument in chapter "*Technical data*".

5.2 Connection technology and steps

Connection technology

The connection of the signal cable is carried out via spring-loaded terminals in the housing.

The display and adjustment module is connected via a cable with coupling to the housing.

Connection procedure

Proceed as follows:

1. Unscrew the housing lid
2. Remove the display and adjustment module by turning it slightly to the left

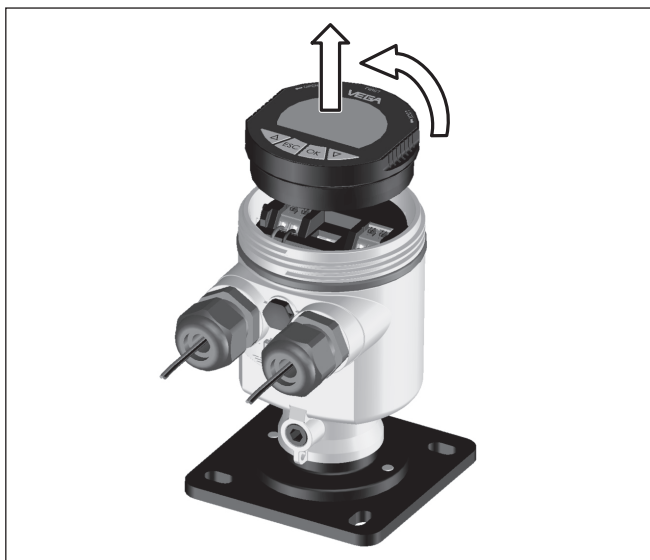


Fig. 6: Dismounting of the display and adjustment module

3. Loosen compression nut of the cable glands
4. Remove approx. 10 cm (4 in) of the signal cable mantle, strip approx. 1 cm (0.4 in) insulation from the ends of the individual wires
5. Insert the cable into the sensor through the cable entry

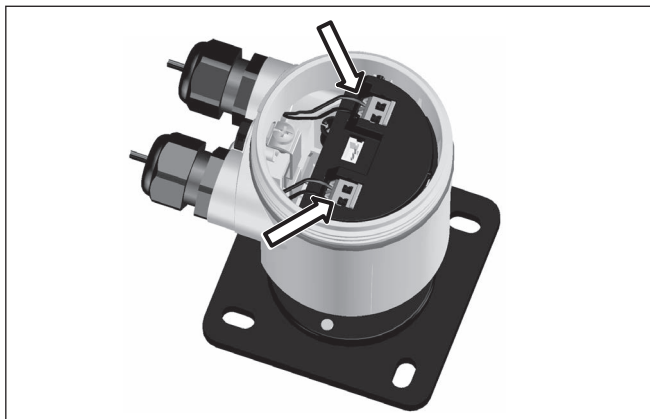


Fig. 7: Connection steps 5 and 6

6. Insert the wire ends into the terminals according to the wiring plan



Note:

Solid cores as well as flexible cores with wire end sleeves are inserted directly into the terminal openings. In case of flexible cores without end sleeves, press the terminal with a small screwdriver; the

terminal opening is freed. When the screwdriver is released, the terminal closes again.

7. Check the hold of the wires in the terminals by lightly pulling on them
8. Connect the screen to the internal ground terminal, connect the outer ground terminal to potential equalisation
9. Attach the display and adjustment module again and turn it slightly to the right
10. Tighten the compression nut of the cable glands. The seal ring must completely encircle the cable
11. Screw the housing lid back on

The electrical connection is finished.



Note:

The terminal block is pluggable and can be removed from the electronics. To do this, lift the terminal block with a small screwdriver and pull it out. When reinserting the terminal block, you should hear it snap in.

5.3 Wiring plan

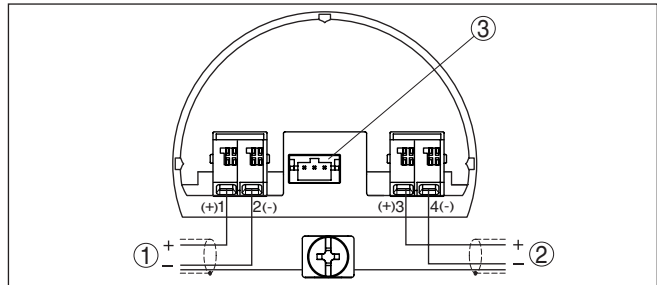


Fig. 8: Wiring plan VEGADIS 62

- 1 To the sensor
- 2 To the power supply
- 3 Coupling for the connection cable to the display and adjustment module

5.4 Connection HART standard

The following illustrations show in a simplified way the use of VEGADIS 62 in conjunction with a HART sensor. The HART communication resistance in the signal cable is always required for a low impedance power supply. It is absolutely necessary to install it between voltage supply and the VEGADIS 62.



Note:

If the instrument is powered via a VEGAMET signal conditioning instrument, then the communication resistor is already included in the signal conditioning instrument. A communication resistor in the signal cable must not be installed.

Overview

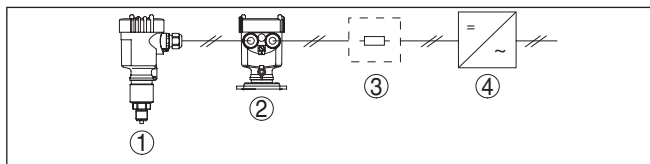


Fig. 9: VEGADIS 62 in conjunction with an individual sensor

- 1 Sensor
- 2 VEGADIS 62
- 3 HART resistance $> 150 \Omega$ (necessary with low impedance power supply)
- 4 Voltage supply/Processing

Connection with low impedance power supply

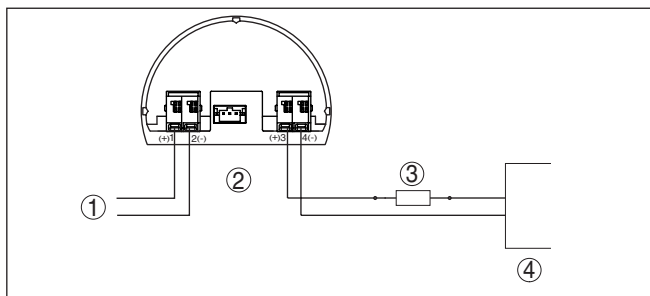


Fig. 10: Connection of VEGADIS 62 with low impedance power supply

- 1 Sensor
- 2 VEGADIS 62
- 3 HART resistor $> 150 \Omega$
- 4 Voltage supply/Processing

5.5 Connection HART multidrop

The following illustrations show in a simplified way the use of VEGADIS 62 in conjunction with a HART sensor. The HART communication resistance in the signal cable is always required for a low impedance power supply. It is absolutely necessary to install it between voltage supply and the VEGADIS 62.



Note:

If the instrument is powered via a VEGAMET signal conditioning instrument, then the communication resistor is already included in the signal conditioning instrument. A communication resistor in the signal cable must not be installed.

Overview

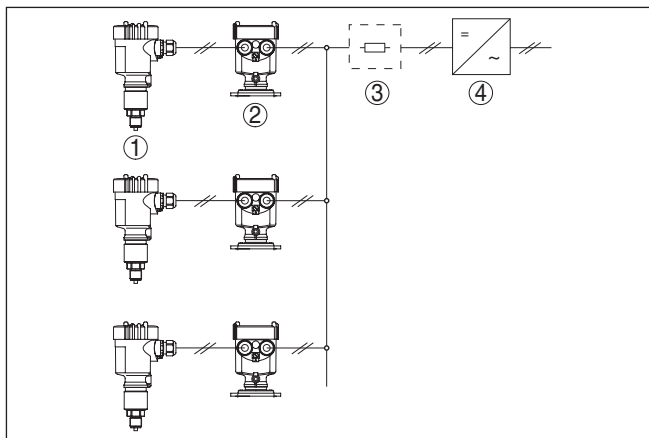


Fig. 11: Installation example with one VEGADIS 62 per sensor in a Multidrop system

- 1 Sensor
- 2 VEGADIS 62
- 3 HART resistance $> 150 \Omega$ (necessary with low impedance power supply)
- 4 Voltage supply/Processing

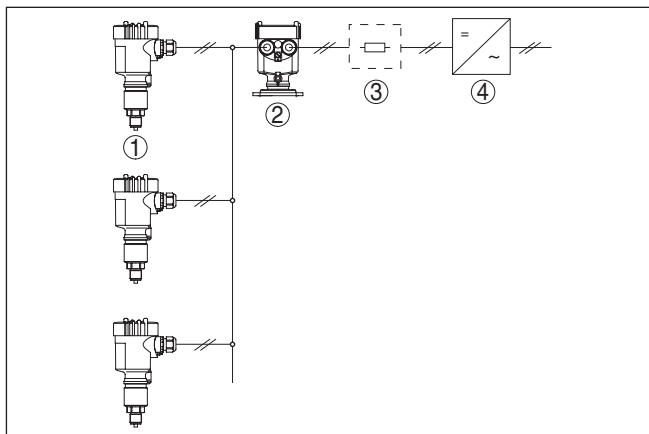


Fig. 12: Installation example with one VEGADIS 62 for several sensors in a Multidrop system

- 1 Sensor
- 2 VEGADIS 62
- 3 HART resistance $> 150 \Omega$ (necessary with low impedance power supply)
- 4 Voltage supply/Processing

Connection with low impedance power supply

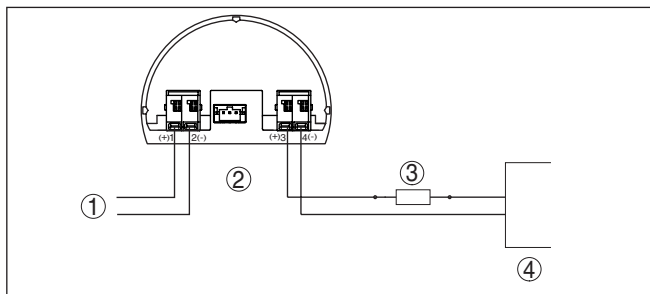


Fig. 13: Connection of VEGADIS 62 with low impedance power supply

- 1 Sensor
- 2 VEGADIS 62
- 3 HART resistor > 150 Ω
- 4 Voltage supply/Processing

5.6 Connection signal conditioning instrument

The following illustrations show the simplified connection of VEGADIS 62 to a signal conditioning instrument VEGAMET or a four-wire sensor with active 4 ... 20 mA output.

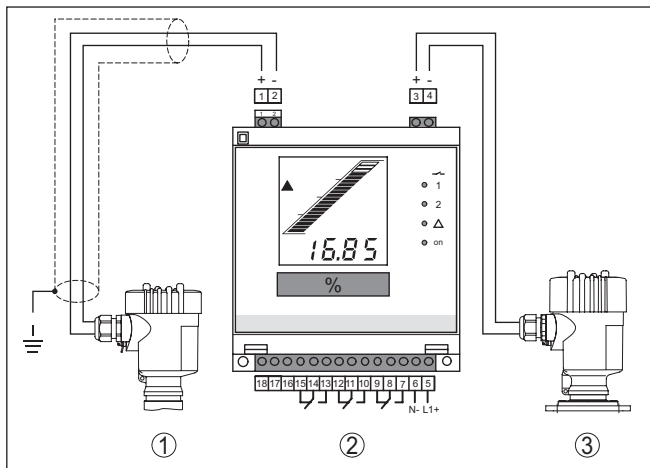


Fig. 14: Connection of the VEGADIS 62 as external indication to a signal conditioning instrument or a four-wire sensor

- 1 Sensor
- 2 Signal conditioning instrument
- 3 VEGADIS 62

Hence terminals 1 and 2 on the VEGADIS 62 must be closed with a bridge.

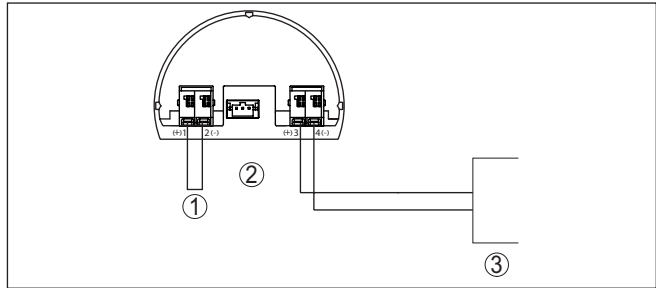


Fig. 15: Bridge on terminals 1 and 2 on the VEGADIS 62

- 1 Bridge
- 2 VEGADIS 62
- 3 Signal conditioning instrument

5.7 Switch-on phase

During the start-up process, the VEGADIS 62 tries automatically to get in contact with the connected sensor via HART and to accept the settings (unit, adjustment and damping) of this sensor. During connection, the status line displays "CONNECT HART".

If a HART sensor is identified, then the HART symbol is displayed. The VEGADIS 62 switches to HART mode and starts operation with the settings accepted from the sensor.



Note:

This procedure is repeated whenever the voltage supply is connected.

If during the start process an individual key is pressure or if the instrument has not identified within approx. 70 seconds a HART sensor, then the digital indication switches to basic mode and starts operation with the default settings.

If the HART address is modified by the control system during operation, a new connection is established, however, the sensor must answer immediately in order for the connection to be set up.

6 Operation

6.1 Modes

After the switch-on phase, the VEGADIS 62 switches to one of the modes described below.

Basic mode

In the following cases, the VEGADIS 62 switches to basic mode:

- If it does not find a HART sensor within approx. 70 s after switch-on
- If a key was pressed in the switch-on phase
- If the unit was set in the menu "*Measurement*" to "*USER*"

In basic mode, it operates exclusively as an indicating instrument on the 4 ... 20 mA cable, the HART symbol is not displayed.

To reach the HART mode, a restart or a reset of the instrument is necessary.

HART standard

The VEGADIS 62 switches to the HART standard mode when a functional HART communication to the sensor has been established.

The displayed measured value is calculated from the loop current and the adjustment data of the sensor.

During operation, the VEGADIS 62 monitors the current loop constantly for a HART communication between control system and sensor. If there are changes to the unit or adjustments on the connected sensor are carried out by the control system, the unit and the corresponding indicating range are automatically adapted in VEGADIS 62. The prerequisite, however, is that the unit set in the sensor must be stored in VEGADIS 62.

The VEGADIS 62 also allows the measuring range and calibration of the connected HART sensor to be modified. For this, no additional instruments or tools are necessary. Further changes to the configuration of the sensor cannot be carried out.

A flashing heart symbol is displayed as long as a HART communication takes place for the first time and the instrument is hence set to the HART mode. The heart symbol is displayed permanently if the HART communication is finished and the digital indication is configured according to the measuring range and the unit of the connected sensor.

When there is a HART communication through the control room during operation, then the heart symbol flashes during the communication.

HART multidrop

The VEGADIS 62 goes to HART multidrop mode if in the menu "*Measurement*", menu item "*Address*" an address unequal 0 is adjusted. In this mode for HART sensors, the current signal is fixed to 4 mA and the measurement information is transmitted only via the HART communication to the control room.

The VEGADIS 62 enquires the Primary Value (PV) of the transmitter with the suitable address once. Afterwards the display behaves passively, i.e. the transmission of additional measured values must be

requested from the control system. The bargraph is not displayed in HART multidrop.

7 Set parameters

7.1 Adjustment system

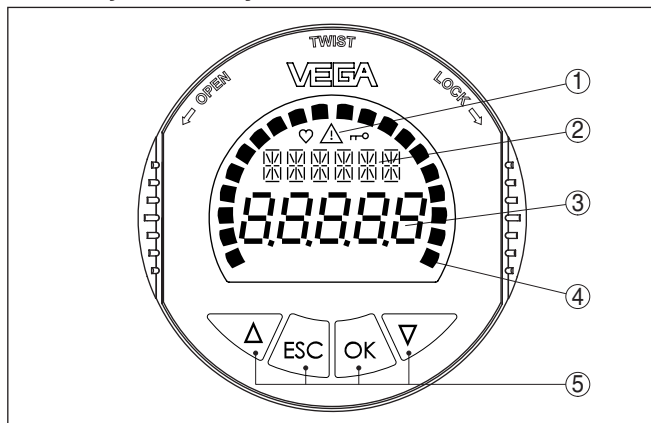


Fig. 16: Display and adjustment elements

- 1 Status information (HART mode, unit lock, warning or error information)
- 2 Unit and information line
- 3 Digital measured value indication
- 4 Bar graph for quasianalogue measured value indication
- 5 Adjustment keys

Key functions

You adjust VEGADIS 62 via the four front keys. The individual menu items are displayed on the LC display. The individual keys have the following functions:

- **[↑]** key:
 - One menu higher in the menu system
 - Increase actual value (increment)
- **[ESC]** key:
 - Interrupt input
 - Jump to next higher menu
- **[OK]** key:
 - Move to the menu overview
 - Confirm selected menu
 - Edit parameter
 - Save value
- **[↓]** key:
 - One menu item downward in the menu system
 - Reduce actual value (decrement)

Approx. 10 minutes after the last pressing of a key, an automatic reset to measured value indication is triggered. Any values not confirmed with **[OK]** will not be saved.

Start parameter adjustment

Pushing the **[OK]** key in the measured value display starts the parameter adjustment mode and opens the same menu that was quit during the last parameter adjustment. All changes are carried out via an adjustment menu. Single items in the menu can be selected with the **[↑]** and **[↓]** keys. You move to the next submenu by pushing the **[OK]** key again.

Edit values

In a submenu you start the editing function by pushing **[OK]** again, the displayed settings can then be changed. When the display is in editing mode, the edited value flashes. Editing is carried out with the **[↑]** and **[↓]** keys.

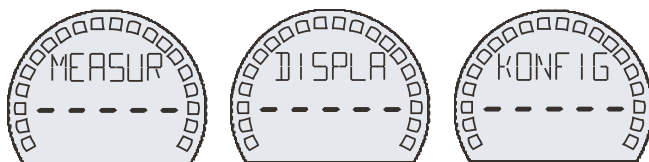
In the editing mode, you jump to the end of the range by holding the **[↑]** or **[↓]** key and pushing **[ESC]** at the same time. You jump to the beginning of the range by pushing **[OK]**. Holding the **[↑]** key and pushing the **[↓]** key at the same time (and vice versa) sets the value to zero. If you increase the value at the end of the adjustment range, you jump to the beginning of the range and vice versa.

You can quit the editing function by pushing **[ESC]** (changes not saved) or **[OK]** (changes saved).

7.2 Parameter description

The instrument is adapted to the application conditions via the parameter adjustment. The parameter adjustment is carried out with an adjustment menu.

The adjustment menu is divided into three sections with the following functions:



Measurement: Contains e.g. unit, measuring range, live adjustment, damping, HART address

Indication: Contains e.g. unit, unit locking, display format, filter, alarms min./max. storage

Configuration: Contains e.g. language, contrast, reset, user unit, min./max. failure message, firmware version

Measurement/Unit

Selection of the unit for the measuring range adjustment of the connected transmitter¹⁾ When opening this menu item, first of all the basic unit of the connected sensor is displayed.

- Distance: m, cm, mm, ft, in
- Pressure: bar, mbar, PSI, hPa, kPa, MPa, mmH₂O, mH₂O, inHg
- Temperature: °C, °F, K
- Electrical variables: V, mA, Ohm
- User-specific unit: USER

¹⁾ Is not available with HART multidrop.

At first, all previously listed units can be edited. However, saving in VEGADIS 62 is only possible if the unit is supported by the sensor.

If a unit is selected which is not supported by the sensor, the message "HART Error 7" is displayed. With "ESC" the entry can be aborted and the message reset.



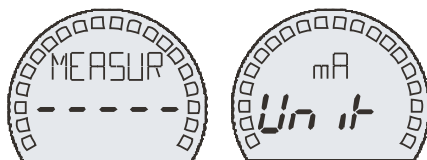
Note:

A unit set in the sensor, e.g. via PACTware/DTM, is not changed by the unit set here.

Selection of the unit "USER" has the following effect:

- HART communication to the sensor is switched off, making further adjustments to the measuring range impossible.
- In the menu "Display", the unit is switched over to "USER".
- The unit programmed in the menu "Configuration", "USER unit" appears in the measured value display

After switching back to a unit supported by the sensor, the HART communication is started again.



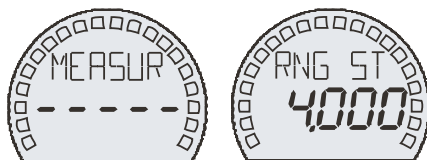
Measurement/Measuring range begin

Adjustment of the measuring range initial value of the connected sensor (e.g. 0 bar in a measuring range of -1 ... 5 bar)²⁾The measuring range beginning point is initially adopted by the sensor when starting with a connected sensor. Thereafter, the measuring range beginning point of the sensor can be changed.

This is a min. adjustment to which 0 % current output is assigned. The value entered here does not change the measuring range endpoint.

If the unit is set to "USER", this menu item is used for free scaling of the display.

Adjustment range: -9999 ... 99999



Measurement/Measuring range end

Adjustment of the measuring range final value of the connected transmitter (e.g. 4 bar at a measuring range of -1 ... 5 bar)³⁾The measuring range endpoint is initially adopted by the sensor when starting with

²⁾ Is not available with HART multidrop.

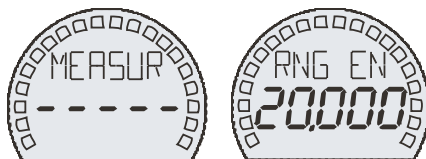
³⁾ Is not available with HART multidrop.

connected sensor. Thereafter, the measuring range endpoint of the sensor can be changed.

This is a max. adjustment to which 100 % current output is assigned. The value entered here does not change the measuring range beginning point.

If the unit is set to "USER", this menu item is used for free scaling of the display.

Adjustment range: -9999 ... 99999

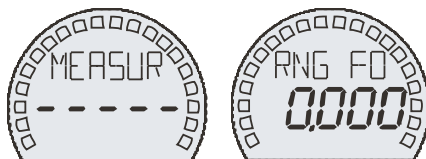


Measurement/Measuring range decimal point

Adjustment of the decimal point for the measuring range of the connected transmitter⁴⁾

If the unit is set to "USER", this menu item is used for free scaling of the display.

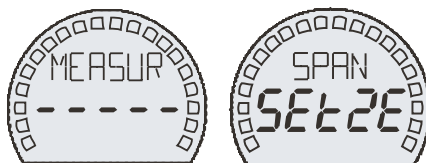
Adjustment range: 0, 0.0, 0.00, 0.000



Measurement/Live adjustment span

In this menu item, the actual measured value is accepted as span setting for the sensor⁵⁾

This is a span adjustment to which 100 % of the current output is assigned. The value accepted here does not change the zero point.



Measurement/Live adjustment zero point

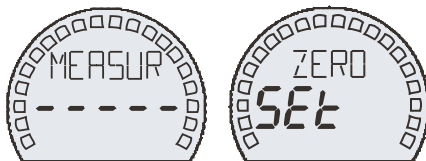
In this menu item, the actual measured value is accepted as min. adjustment for the sensor⁶⁾

This is a zero adjustment to which 0 % of the current output is assigned. The value accepted here shifts the measuring range endpoint! The difference between measuring range begin and end remains however.

⁴⁾ Is not available with HART multidrop.

⁵⁾ Is not available with HART multidrop.

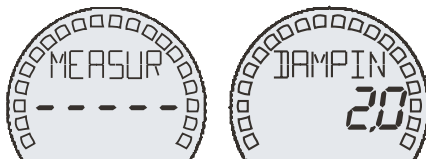
⁶⁾ Is not available with HART multidrop.



Measurement/Damping

In this menu item, the integration time for damping the measured value is entered.

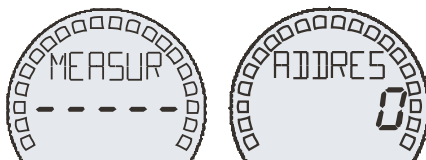
Adjustment range: 0.0 ... 999 s



Measurement/Address

Adjustment of the HART address of the assigned transmitter in Multidrop mode. With standard current loop operation, this address must always be set to 0.

Adjustment range: 0 ... 15



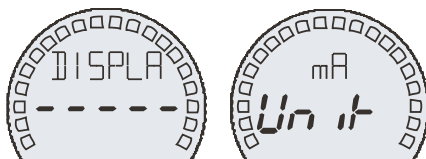
Indication/Unit

Adjustment of the unit for digital indication. First of all, the unit selected in the menu "Measurement", e.g. m, appears. Other units from the same unit group, e.g. mm, cm, m etc., are also available. The measured values are automatically converted to the selected unit.

If % is selected as unit, VEGADIS 62 converts the actual loop current into a % value relating to the max. loop current. If mA is selected as unit, the actual loop current is displayed in mA.

The units % and mA are not available in multidrop operation because the loop current is then a fixed value.

Adjustment range: mbar, bar, PSI, hPa, kPa, MPa, mmH₂O, mH₂O, mmHg, mm, cm, m, in, ft, %, °C, °F, K, V, mA, Ohm, USER



Indication/Unit locking

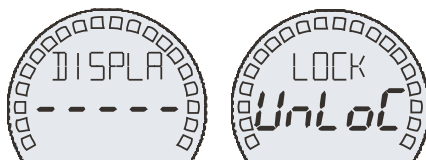
When activated, unit locking protects the set indication unit against changes by the sensor; in the display you will see "GESP/LoC". This allows you to set in VEGADIS 62 an indication unit different from the

sensor unit, e.g. %. It is not overwritten even if the sensor is restarted. Changes to the adjustment of the sensor, however, are automatically converted. Unit locking only works if the units of the measuring range and the indication come from the same unit group.

When a measuring transducer is connected and configured with a unit from another unit group via HART, unit locking is deactivated. The indication unit is set according to the configured measuring range unit.

Adjustment range:

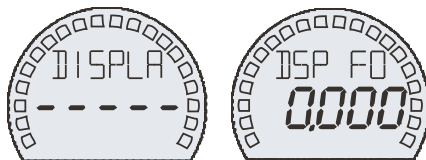
- nGESP/UnLoC
- GESP/LoC



Indication/Indication decimal point

Adjustment of the decimal point for the indication area of the digital indication

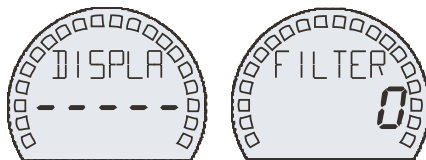
Adjustment range: 0, 0.0, 0.00, 0.000



Indication/Digital filter

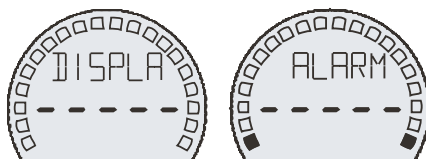
Activation of the digital filter to smooth the display value.

Adjustment range: 0 ... 10



Indication/Alarm

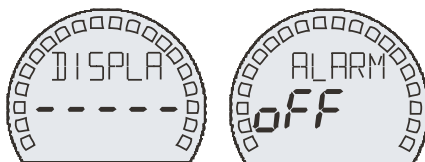
From this menu item you jump to the alarm configuration by pushing **OK**.



Indication/Alarm On/Off

Switching on or switching off the alarm function. If an adjusted alarm limit is exceeded or decreased, the warning symbol is displayed in the indication and the measured value begins to flash.

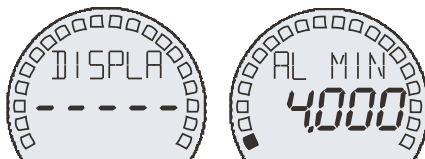
Adjustment range: Off/On



Indication/Min. alarm

Setting the value that triggers the alarm function if it is underrun.

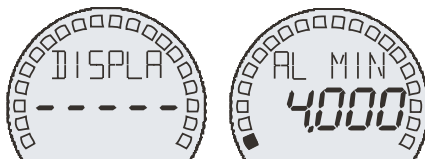
Adjustment range: Initial value of the indicating range up to the adjusted value of the max. alarm



Indication/Max. alarm

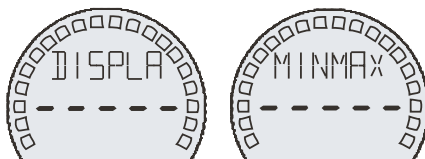
Setting the value that triggers the alarm function if it is exceeded.

Adjustment range: set value of the min. alarm up to the final value of the indicating range.



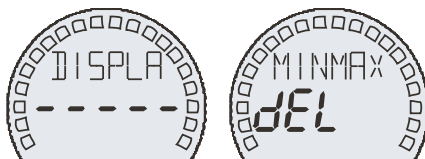
Indication/Min./Max. memory

By pushing "[OK]" in this menu item you jump to the min./max. value memory.



Indication/Delete min./max.

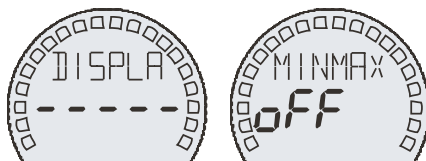
Function for deleting the memory. By pushing the **OK** key twice, the memories are deleted.



**Indication/Min. value,
max. value**

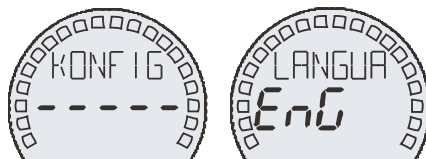
Activation of the min./max. value indication. If the min./max. value indication is switched on, the display switches back and forth between the actual measured value (indication period 5 s) and the min. and max. values (indication period each 2 s). During the presentation of the max. values, the displayed unit is replaced by the min. or max. value.

Adjustment range: On, Off

**Configuration/Language**

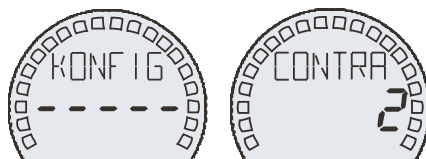
Language setting

Adjustment range: dEU (German), EnG (English)

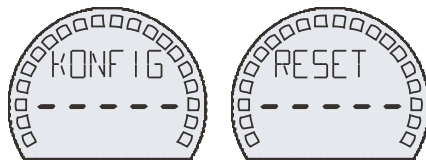
**Configuration/Contrast**

Adjustment of the display contrast

Adjustment range: 0 ... 4

**Configuration/Reset**

When a reset is carried out, all settings of the digital indication are reset to the default values. To initiate the reset, the "OK" key must be pushed once. After the "OK" key is pushed a second time, the display fades out completely and the reset is carried out. The VEGADIS 62 carries out a restart, starts HART communication again and begins displaying the measured value.



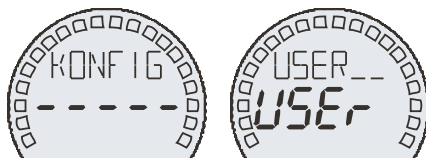
The following table shows the default values:

Menu section	Menu item	Default value
Measurement	Unit	Sensor unit
	Measuring range begin	Min. adjustment sensor
	Measuring range end	Max. adjustment sensor
	Measuring range decimal point	0.000
	Damping	2
	Address	0
Indication	Unit	mA
	Unit locking	nGESP
	Indication range decimal point	0.000
	Filter	0
	Alarm	-
	Alarm On/Off	Off
	Min. alarm	Min. adjustment sensor
	Max. alarm	Max. adjustment sensor
	Min./Max. value memory	-
	Delete min./max.	dEL
	Min./Max. On/Off	Off
Configuration	Language	EnG
	Contrast	2
	Reset	-
	USER unit	USER
	Min. failure message	3.6
	Max. failure message	21.0

Configuration/USER unit

A 6-digit user unit can be individually programmed by the user. An alphanumeric character set is available.

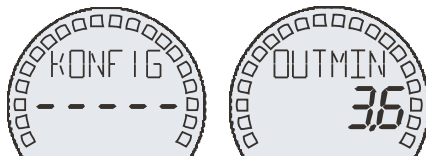
By pushing the **[OK]** key, the first position is selected, this position begins to flash. With the arrow keys the requested character can be selected. By pushing the **[OK]** key again, the character is confirmed and the next position is selected.



Configuration/Min. failure message

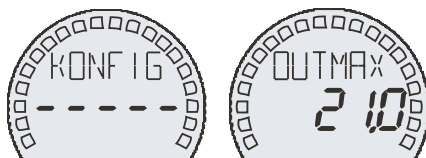
Setting the current value that triggers the min. failure message when it is reached or underrun. The min. failure message is shown in the display with 5 underlines (_ _ _ _ _) and the message "AUSMIN" (or "OUTMIN").

Adjustment range: 3.5 ... 3.9

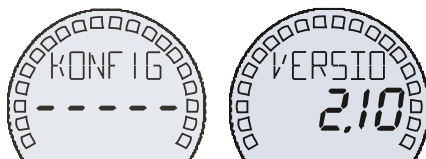
**Configuration/Max. failure message**

Setting the current value that triggers the max. failure message when it is reached or exceeded. The max. failure message is shown in the display with 5 overlines (_ _ _ _ _) and the message "AUSMAX" (or "OUTMAX").

Adjustment range: 20.1 ... 21.5

**Configuration/Firmware**

The number of the firmware used is displayed.

**Configuration/Password**

This menu item is available from software 2.10.

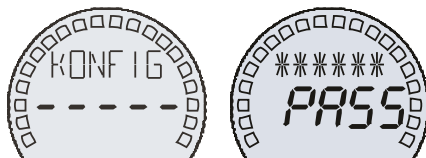
The menu area "Measurement" as well as the function "Reset" are protected by a password. For the access, a login by entering the password is required. The login is displayed if you try to use one of the protected functions. All functions are accessible after a successful login.

The logoff is carried out in the menu item "Logoff" or automatically after 3 minutes without user activity.

The default setting is: 123456

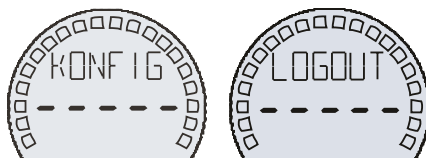
The password has max. 6 characters and can be modified in the menu item "Password". For this purpose, the actual password is entered and confirmed with "OK" until the string "*****" appears. With "OK" the entered password is edited again and can now be modified.

The master password AWI001 allows access if the password setting is no longer known.



Configuration/Logout

This menu item is available from software 2.10. It enables the early logout after entering the password.



8 Set up sensors

8.1 Adjust the sensor

The min./max. adjustment of the connected sensor is carried out via the menu "Measurement", menu items "Unit", "Measuring range begin", "Measuring range end" and "Measuring range decimal point".

The menu items are already preset with the measuring range limits of the sensors or the values of a previously carried out adjustment.

The entered values are transmitted to the sensor while being saved.



Note:

We recommend jotting down the transmitted data for plant documentation or a possible later correction of the adjustment.

8.2 Scale the indication

After the min./max. adjustment of the sensor, the actual measured value is displayed on VEGADIS 62. The original sensor value in "bar", in the case of pressure transmitters, or in "m", in the case of radar sensors, is converted into the unit set in the menu "Measurement", menu item "Unit". In addition, the 4 ... 20 mA current is measured and displayed in the bargraph.

Furthermore, VEGADIS 62 enables in menu "Measurement", menu item "Unit", selection "USER", a freely defined, application-specific indication scaling. VEGADIS 62 then operates exclusively as an indicating instrument without HART communication with the connected sensor.

To scale the indication, proceed as follows:

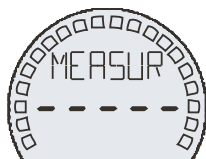
1. Select in the menu "Measurement", menu item "Unit" the unit "USER". This switches off HART communication.



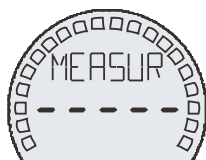
2. Enter in the menu "Measurement", menu item "Meas. range begin" the initial value of the requested scaling.



3. Enter in menu "Measurement", menu item "Meas. range end" the final value of the requested scaling.



4. Enter in menu "Measurement", menu item "Meas. range format" the requested position of the decimal point.



5. Set in menu "Configuration", menu item "USER unit" the requested unit from the list of available units.



In the measured value indication, the display shows the 4 ... 20 mA current as digital value in the set unit and scaling.



Information:

The unit "USER" in the menu "Measurement" must remain!

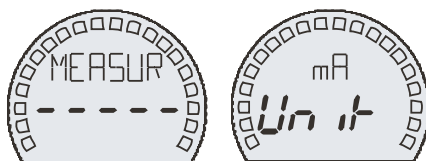


Note:

The menu items used for the adjustment are also used for entering the scaling data. We thus recommend writing down the scaling data for plant documentation or for a possible later correction of the adjustment.

8.3 Correct sensor adjustment

To correct the sensor adjustment after a display scaling via "USER unit", HART communication must be activated again. This is done in menu "Measurement", menu item "Unit". Enter here the unit in which the adjustment was carried out.



The HART communication is now started again. The VEGADIS 62 is again Secondary Master for the sensor and loads the adjustment data from the sensor.

Then enter the modified values for the "Measuring range begin" and "Measuring range end".

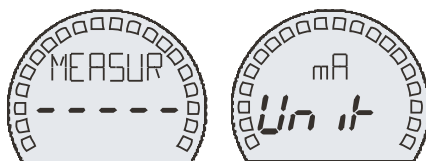
The values entered for measuring range begin and end are transferred to the sensor while being saved.

For a fresh indication scaling via "USER unit", proceed as previously described.

8.4 PACTware/DTM and PLICSCOM

With an existing HART connection from VEGADIS 62 to the sensor, adjustment changes in the sensor can still be carried out via other adjustment systems such as PACTware/DTM or PLICSCOM. This does not cause conflicts, but the changes are not updated automatically in VEGADIS 62. To update, a re-connection of HART is required. For this the signal circuit must be interrupted and then re-connected.

Alternatively, the unit in menu "Measurement" can be set briefly to "USER". If it is then reset to a unit supported by the sensor, such as e.g. "bar" or "m", the changes carried out in the meantime via other adjustment systems are updated in VEGADIS 62.



9 Diagnostics and servicing

9.1 Maintenance

If the device is used correctly, no maintenance is required in normal operation.

9.2 Error messages

HART communication errors are signalled with numerical codes 1 - 7. An error message is sent if a transaction was not successful after multiple attempts.

An error message is displayed only when an error occurs due to a command sent from the display, i.e. only if the error is caused by an adjustment executed by the user. Errors in the communication between control system and sensor are detected but not displayed.

The measured value line shows "Error", the status line "HART *n*" whereby "*n*" represents the numerical error code. The error message is displayed until a key is pressed.

The following table shows the error codes and provides information on failure causes and rectification.

Error code	Description	Cause
1	Transmitter does not answer	
2	Communication error	- Parity, checksum, package length faulty during reception - Transmitter signals receipt error
3	Command not implemented	Command is not supported by the transmitter.
4	Range error	- Value not within the range supported by the sensor - Requested measuring unit is not supported
5	Error of the transmitter is not specified in detail	Sensor signals an error in the status byte which was not itemized.
6	Time-out with bus access	Bus permanently occupied
7	Measuring unit not supported	

9.3 Rectify faults

Reaction when malfunction occurs

The operator of the system is responsible for taking suitable measures to rectify faults.

Check the 4 ... 20 mA signal

Connect a multimeter in the suitable measuring range according to the wiring plan. The following table describes possible errors in the current signal and helps to eliminate them:

Error	Cause	Rectification
4 ... 20 mA signal not stable	– Fluctuations of the measured variable	– Set damping appropriate to the instrument via the display and adjustment module or PACTware/DTM
4 ... 20 mA signal missing	– Electrical connection faulty	– Check connection according to chapter " <i>Connection steps</i> " and if necessary, correct according to chapter " <i>Wiring plan</i> "
	– Voltage supply missing	– Check cables for breaks; repair if necessary
	– Operating voltage too low or load resistance too high	– Check, adapt if necessary
Current signal greater than 22 mA or less than 3.6 mA	– Electronics module in the sensor defective	– Exchange the instrument or send it in for repair

Reaction after fault rectification

Depending on the reason for the fault and the measures taken, the steps described in chapter "*Setup*" must be carried out again or must be checked for plausibility and completeness.

24 hour service hotline

Should these measures not be successful, please call in urgent cases the VEGA service hotline under the phone no. **+49 1805 858550**.

The hotline is also available outside normal working hours, seven days a week around the clock.

Since we offer this service worldwide, the support is provided in English. The service itself is free of charge, the only costs involved are the normal call charges.

9.4 How to proceed if a repair is necessary

You can find a repair form as well as detailed information on how to proceed at www.vega.com/downloads and "*Forms and certificates*".

By doing this you help us carry out the repair quickly and without having to call back for needed information.

If a repair is necessary, please proceed as follows:

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and, if need be, also a safety data sheet outside on the packaging
- Please contact the agency serving you to get the address for the return shipment. You can find the agency on our home page www.vega.com.

10 Dismount

10.1 Dismounting steps



Warning:

Before dismounting, be aware of dangerous process conditions such as e.g. pressure in the vessel or pipeline, high temperatures, corrosive or toxic products etc.

Take note of chapters "*Mounting*" and "*Connecting to power supply*" and carry out the listed steps in reverse order.

10.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We use recyclable materials and have designed the parts to be easily separable.

WEEE directive 2002/96/EG

This instrument is not subject to the WEEE directive 2002/96/EG and the respective national laws. Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points. These may be used only for privately used products according to the WEEE directive.

Correct disposal avoids negative effects on humans and the environment and ensures recycling of useful raw materials.

Materials: see chapter "*Technical data*"

If you have no way to dispose of the old instrument properly, please contact us concerning return and disposal.

11 Supplement

11.1 Technical data

General data

316L corresponds to 1.4404 or 1.4435, 316Ti corresponds to 1.4571

Materials

- Housing plastic PBT, Alu die-casting, 316L
- Inspection window in housing cover for display and adjustment module Polycarbonate (UL-746-C listed)
- Ground terminal 316Ti/316L

Weight 0.35 kg (0.772 lbs)

Supply circuit

Voltage supply and data transmission via the signal circuit

Voltage loss

- at 4 mA approx. 3 V
- at 20 mA approx. 2 V

Current range 3.5 ... 22.5 mA⁷⁾

Current increase with command/enquiry of the VEGADIS 62 to the sensor $\leq 500 \mu\text{A}$ for approximately 20 ms, decay after e-function

Overcurrent resistance 100 mA

Reverse voltage protection available, max. current 100 mA

Current measurement

Measuring range loop current 3.5 ... 22.5 mA⁸⁾

Deviation⁹⁾ $\pm 0.05 \%$ of the span

Temperature coefficient¹⁰⁾ $\pm 0.1 \%$ of the span/10 K

Interval 250 ms

Display and adjustment module

Display

- Principle LCD
- Measured value presentation 7 segments, 5-digit, height of digits 9 mm (0.354 in), indication range -99999 ... 99999
- Bargraph 20 segments
- Info line 14 segments, 6-digit, height of digits 5.5 mm (0.217 in)

Adjustment elements 4 keys

Protection rating

- unassembled IP 20

⁷⁾ The indication remains dark if the loop current is not sufficient for operation.

⁸⁾ For measured values outside the measuring range, an instructions is displayed instead of the measured value.

⁹⁾ with reference temperature 20 °C

¹⁰⁾ with reference temperature 20 °C

- mounted into VEGADIS 62 without cover IP 40

Materials

- Housing ABS
- Inspection window Polyester foil

Ambient conditions

Ambient temperature	-20 ... +70 °C (-4 ... +158 °F)
Storage and transport temperature	-40 ... +80 °C (-40 ... +176 °F)

Electromechanical data

Cable gland	2 x cable entry M20 x 1.5 (cable: ø 5 ... 9 mm)
Spring-loaded terminals for wire cross-section	
– Massive wire, stranded wire	0.2 ... 2.5 mm ² (AWG 24 ... 14)
– Stranded wire with end sleeve	0.2 ... 1.5 mm ² (AWG 24 ... 16)

Electrical protective measures

Protection rating	
– Housing, plastic	IP 66/IP 67
– Housing Aluminium, stainless steel	IP 66/IP 68 (0.2 bar)
Overvoltage category	III
Protection class	II

11.2 HART communication

The HART protocol operates with frequency shift keying technology (FSK = frequency shift keying) based on the data communication standard Bell 202. The digital signal is generated from the frequencies 1200 and 2200 Hz, which represent the bit information 1 and 0 respectively. Sine curves with these frequencies are superimposed on the direct current in the wire pair of the field instrument. The average value of the superimposed signal is zero. Hence the 4 ... 20 mA signal is not influenced by the digital data transmission.

Commands when transmitting

During transmission, only the long address format is used which is supported by all sensors as of HART revision 5.

Command no.	Command name	Description
0	Read UID	For determination of the UID from the HART address
1	Read primary variable	For reading out the measured value
15	Read output information	To update the scaling of the display after ZERO or SPAN
34	Write damping value	-
35	Write range values	Adjustment of the transmitter scaling
36	Set upper range value	Max. adjustment/SPAN
37	Set lower range value	Min. adjustment/ZERO

Command no.	Command name	Description
44	Write PV units	Adjustment of the transmitter unit

Command during reception

Only messages are received the return address of which correspond with adjusted polling address or the determined UID.

Command no.	Command name	Description
1	Write polling adress	HART address modified by the control room is accepted by the display
6	Read current & 4 vars	For checking the set measuring unit
15	Read output information	Accept transmitter scaling
34	Write damping value	Setting transmitter damping by control room
35	Write range values	Transmitter scaling by control room
36	Set upper range value	Max. adjustment/SPAN through control system After reception, the new scaling is read out with command 15
37	Set lower range value	Min. adjustment/ZERO through control system After reception, the new scaling is read out with command 15
44	Write PV units	Unit through control system After reception, the new scaling is read out with command 15
156	Service command	Control calibration, parameter adjustment and function test

Hart codes of the supported units

Unit	HART code
mbar	8
bar	7
hPa	174
kPa	12
MPa	237
PSI	6
inHg	2
mH2O	171
mmH2O	4
mm	49
cm	48
m	45
in	47
ft	44

Unit	HART code
° C	32
° K	33
K	35
mV	36
V	58
Ohm	37
mA	39
%	57

11.3 Dimensions

VEGADIS 62 housing

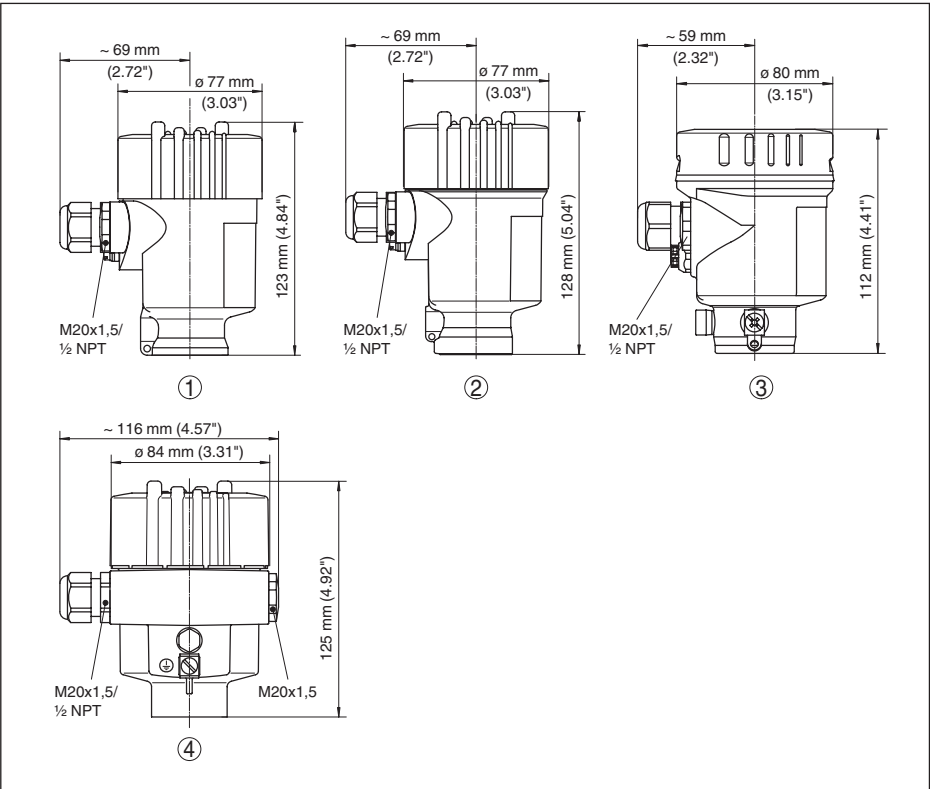


Fig. 17: VEGADIS 62 housing versions

- 1 Plastic housing
- 2 Stainless steel housing - precision casting
- 3 Stainless steel housing, electropolished
- 4 Aluminium housing

Mounting adapter VEGADIS 62

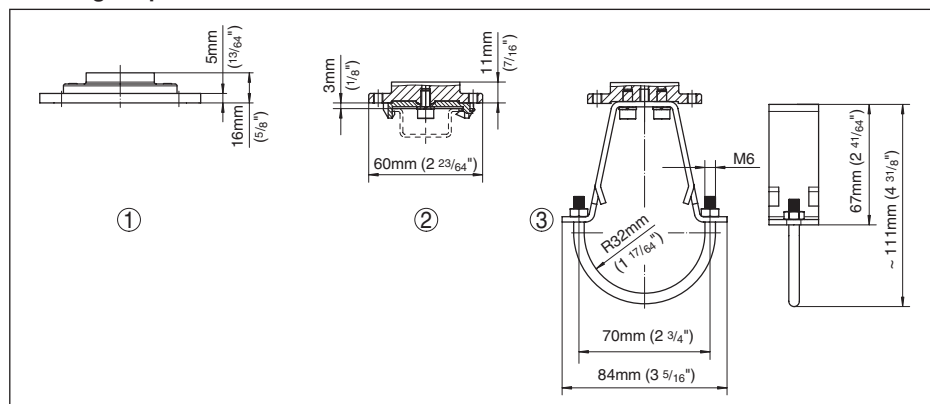


Fig. 18: Mounting adapter VEGADIS 62

- 1 Mounting plate for wall mounting
- 2 Clip for carrier rail mounting
- 3 Strap for tube mounting

11.4 Industrial property rights

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