Operating Instructions

External display and adjustment unit for plics® sensors

VEGADIS 81

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Contents

43814-EN-240524

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1 About this document

1.1 Function

This instruction provides all the information you need for mounting, connection and setup as well as important instructions for maintenance, fault rectification, safety and the exchange of parts. 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 instruction manual is directed to trained personnel. The contents of this manual must be made available to the qualified personnel and implemented.

1.3 Symbols used

Document ID
This symbol on the front page of this instruction refers to the Document ID. By entering the Document ID on www.vega.com you will reach the document download.

Information, note, tip: This symbol indicates helpful additional information and tips for successful work.

Note: This symbol indicates notes to prevent failures, malfunctions, damage to devices or plants.

Caution: Non-observance of the information marked with this symbol may result in personal injury.

Warning: Non-observance of the information marked with this symbol may result in serious or fatal personal injury.

Danger: Non-observance of the information marked with this symbol results in serious or fatal personal injury.

Ex applications
This symbol indicates special instructions for Ex applications.

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

1 Sequence of actions
Numbers set in front indicate successive steps in a procedure.

Disposal
This symbol indicates special instructions for disposal.

2   For your safety

2.1   Authorised personnel

All operations described in this documentation must be carried out only by trained and authorized personnel.

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

2.2   Appropriate use

VEGADIS 81 is an external display and adjustment unit for plics® sensors.

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.

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.

2.3   Warning about incorrect use

Inappropriate or incorrect use of this product can give rise to application-specific hazards, e.g. vessel overfill through incorrect mounting or adjustment. Damage to property and persons or environmental contamination can result. Also, the protective characteristics of the instrument can be impaired.

2.4   General safety instructions

This is a state-of-the-art instrument complying with all prevailing regulations and directives. The instrument must only be operated in a technically flawless and reliable condition. The operating company is responsible for the trouble-free operation of the instrument. When measuring aggressive or corrosive media that can cause a dangerous situation if the instrument malfunctions, the operating company has to implement suitable measures to make sure the instrument is functioning properly.

During the entire duration of use, the operating company 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.

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 us. Arbitrary conversions

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or modifications are explicitly forbidden. For safety reasons, only the accessory specified by us must be used.

To avoid any danger, the safety approval markings and safety tips on the device must also be observed.

2.5 Installation and operation in the USA and Canada

This information is only valid for USA and Canada. Hence the following text is only available in the English language.

Installations in the US shall comply with the relevant requirements of the National Electrical Code (NEC - NFPA 70) (USA).

Installations in Canada shall comply with the relevant requirements of the Canadian Electrical Code (CEC Part I) (Canada).

3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- Display and adjustment unit VEGADIS 81
- Unassembled cable gland M20 x 1 for the sensor
- Documentation
    - This operating instructions manual
    - Operating instructions manual 27835 "*Display and adjustment module PLICSCOM*" (optional)
    - Ex-specific "*Safety instructions*" (with Ex versions)
    - If necessary, further certificates

Instrument versions

The VEGADIS 81 is available in different housing materials, see chapter "*Technical data*".

The instrument is optionally available with or without display and adjustment module.

As an option, the display and adjustment module comes equipped with a Bluetooth function. On this version, the keys can also be operated with a magnetic pen.

The display and adjustment module can be optionally equipped with heating to ensure good readability at low temperatures down to -40 °C (-40 °F).

Type label

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

- Instrument type
- Information about approvals
- Configuration information
- Technical data
- Serial number of the instrument
- QR code for device identification
- Manufacturer information

Documents and software

To find order data, documents or software related to your device, you have the following options:

- Move to "www.vega.com" and enter in the search field the serial number of your instrument.
- Scan the QR code on the type label.
- Open the VEGA Tools app and enter the serial number under "*Documentation*".

3.2 Principle of operation

Application area

VEGADIS 81 is an external, digital display and adjustment unit for all plics® sensors.

The instrument is mounted in an easily accessible position up to 50 m away from the sensor. It is directly connected to the sensor electronics and also powered by it.

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Sensor adjustment

Measured value indication and sensor adjustment are carried out via the display and adjustment module integrated in VEGADIS 81.
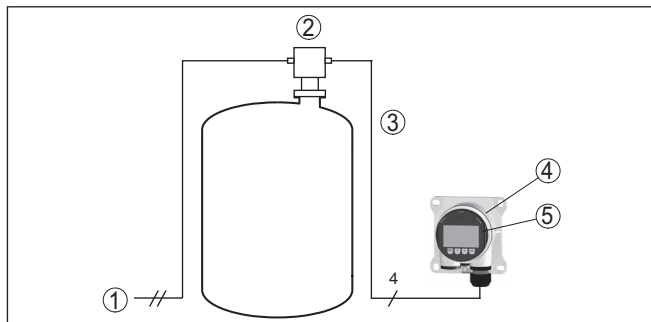

Fig. 1: Connection of VEGADIS 81 to the sensor

1 Voltage supply/Signal output sensor
2 Sensor
3 Connection cable, sensor - VEGADIS 81
4 VEGADIS 81
5 Display and adjustment module

Sensor adjustment - VEGADIS 81 with heating

Measured value indication and sensor adjustment are carried out via the display and adjustment module integrated in VEGADIS 81.

Due to the low ambient temperatures, the version with heated display and adjustment module is selected for this example.
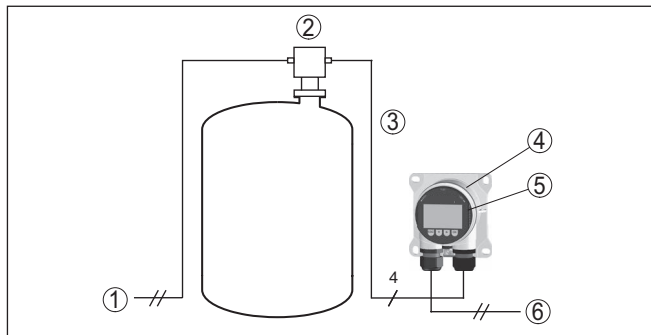

Fig. 2: Connection of VEGADIS 81 with heating to the sensor

1 Voltage supply/Signal output sensor
2 Sensor
3 Connection cable, sensor - VEGADIS 81
4 VEGADIS 81 with integrated heating
5 Display and adjustment module
6 Voltage supply, heating

Wireless sensor adjustment

Measured value indication and sensor adjustment are carried out via smartphone/tablet through the display and adjustment module with optional Bluetooth function integrated in VEGADIS 81.
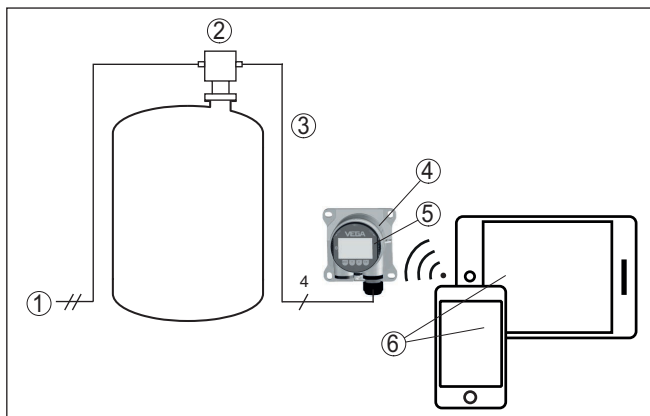
Fig. 3: Connection of VEGADIS 81 to the sensor

1   Voltage supply/Signal output sensor
2   Sensor
3   Connection cable, sensor - VEGADIS 81
4   Display and adjustment module
5   VEGADIS 81
6   Smartphone/Tablet

Sensor adjustment via PC with PACTware   The sensor adjustment is carried out via the VEGADIS 81, the VEGACONNECT as well as a PC with PACTware.
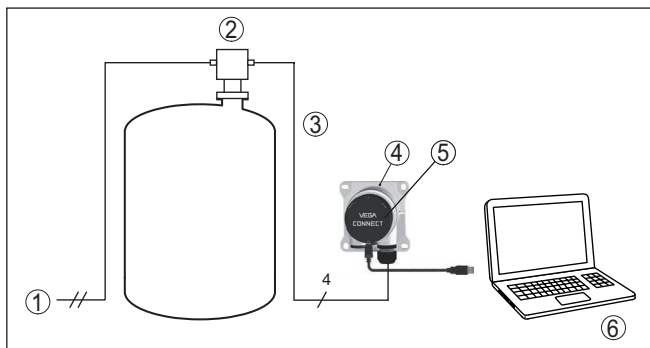

Fig. 4: Connection of VEGADIS 81 to the sensor and the PC

1   Voltage supply/Signal output sensor
2   Sensor
3   Connection cable VEGADIS 81 - Sensor
4   VEGADIS 81
5   VEGACONNECT
6   PC with PACTware/DTM

Wireless sensor adjustment via PC with PACTware   The wireless sensor adjustment is carried out via a PC with PACTware/DTM and Bluetooth USB adapter.
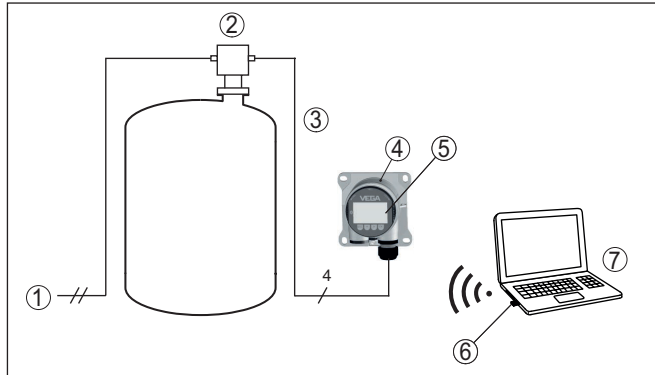
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Fig. 5: Connection of VEGADIS 81 with Bluetooth to the sensor and connection to the PC

1   Voltage supply/Signal output sensor
2   Sensor
3   Connection cable VEGADIS 81 - Sensor
4   VEGADIS 81
5   VEGACONNECT
6   Bluetooth USB adapter
7   PC with PACTware/DTM

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 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

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Storage and transport temperature

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

Lifting and carrying

With instrument weights of more than 18 kg (39.68 lbs) suitable and approved equipment must be used for lifting and carrying.

3.4 Accessories

Display and adjustment module

The display and adjustment module is used for measured value indication, adjustment and diagnosis.

The integrated Bluetooth module (optional) enables wireless adjustment via standard adjustment devices.

Sun shade

The sun protection protects the device from direct sunlight and thus prevents overheating of the electronics. It also improves the readability of the display when exposed to sunlight. The sun protection can be used for wall and pipe mounting.

4 Mounting

4.1 General instructions

Installation position

VEGADIS 81 functions in any installation position.

Protection against moisture

Protect your instrument against moisture ingress through the following measures:

● Use a suitable connection cable (see chapter "*Connecting to power supply*")
● Tighten the cable gland or plug connector
● Lead the connection cable downward in front of the cable entry or plug connector

This applies mainly to outdoor installations, in areas where high humidity is expected (e.g. through cleaning processes) and on cooled or heated vessels.

Note:
Make sure that during installation or maintenance no moisture or dirt can get inside the instrument.

To maintain the housing protection, make sure that the housing lid is closed during operation and locked, if necessary.

4.2 Mounting instructions

Wall mounting

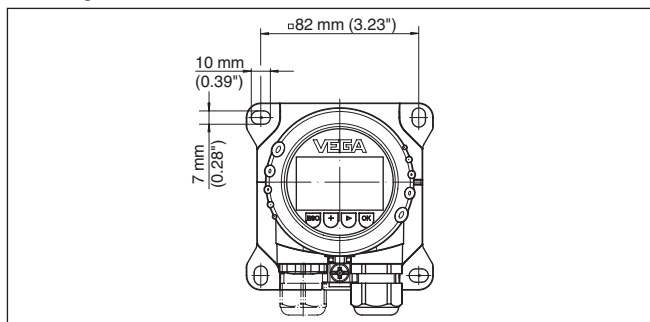The VEGADIS 81 in all available housing materials is suitable for wall mounting.

Fig. 6: Drilling dimensions for VEGADIS 81 for wall mounting

Carrier rail mounting

The VEGADIS 81 with plastic housing is suitable for direct carrier rail mounting according to EN 50022.
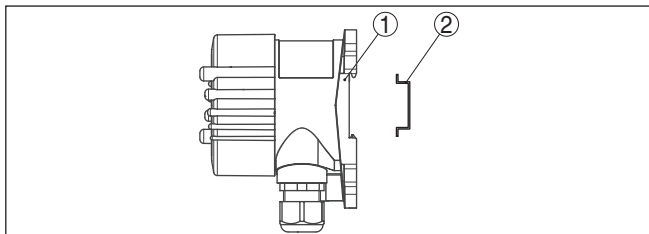
Fig. 7: VEGADIS 81 with plastic housing for carrier rail mounting

1   Base
2   Carrier rail

The versions with aluminium or stainless steel housing for carrier rail mounting according to EN 50022 are supplied with unassembled mounting accessories. The kit consists of an adapter plate and four mounting screws M6 x 12.

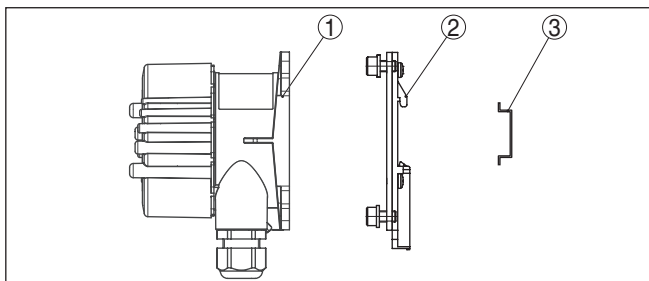The adapter plate is screwed to the base of VEGADIS 81 by the user.

Fig. 8: VEGADIS 81 with aluminium and stainless steel housing for carrier rail mounting

1   Base
2   Adapter plate with screws M6 x 12
3   Carrier rail

Tube mounting

The VEGADIS 81 for tube mounting is supplied with unassembled mounting accessories. The kit consists of two pairs of mounting brackets and four mounting screws M6 x 100.

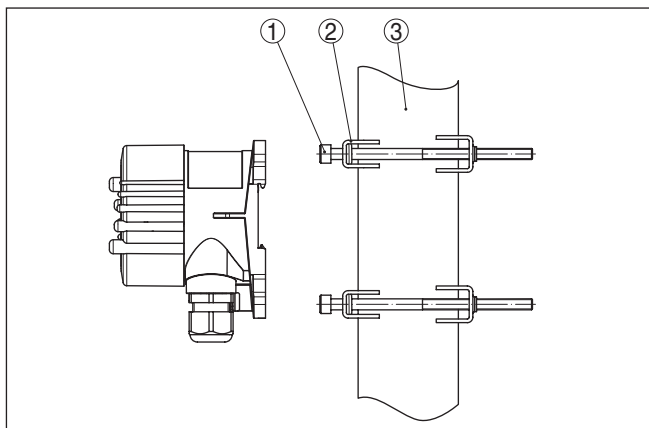The mounting brackets are screwed to the base of VEGADIS 81 by the user.

Fig. 9: VEGADIS 81 for tube mounting

1   4 screws M6 x 100
2   Mounting brackets
3   Tube (diameter 1" to 2")

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5 Connecting to the sensor

5.1 Preparing the connection

Safety instructions

Always keep in mind the following safety instructions:

● Carry out electrical connection by trained, qualified personnel authorised by the plant operator
● If overvoltage surges are expected, overvoltage arresters should be installed

Warning:
Only connect or disconnect in de-energized state.

**Connection cable -
4 … 20 mA/HART sensor**

The VEGADIS 81 is connected with standard four-wire cable to the sensor. Depending on the sensor version, shielded cable will be necessary. You can find appropriate information in the operating instructions of the respective sensor.

Note:
You can find a suitable, assembled connection cable with socket M12 x 1 in our product program.

**Connection cable -
PA/FF sensor**

VEGADIS 81 is connected to the sensor with a shielded four-wire cable up to 25 m long. This cable is absolutely necessary for the reliable function of VEGADIS 81 as well as the sensor.

Note:
You can find this cable with socket M12 x 1 and unassembled M12 x 1 plug connection for the sensor housing as PA/FF adapter kit in our product program.

Cable screening and grounding

4 … 20 mA/HART sensor
If shielded cable is required, connect with 4 … 20 mA/HART sensors the cable screening on both ends to ground potential. In VEGADIS 81 and in the sensor, the shielding must be connected directly to the internal ground terminal. The ground terminal on the outside of the respective housing must be connected to the potential equalisation (low impedance).

PA/FF sensor
Connect with PA/FF sensors the cable screening of the special cable only on one side in the sensor to ground potential. For this, the screening is directly connected in the sensor to the internal ground terminal through the plug connection. The ground terminal on the outside of the housing must be connected to potential equalization (low impedance).

5.2 Connection procedure

Connection technology

The voltage supply and signal output are connected via the spring-loaded terminals in the housing.

Connection to the display and adjustment module or to the interface adapter is carried out via contact pins in the housing.

Information:

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.

Connection procedure

Proceed as follows:

1. Unscrew the housing lid

2. If a display and adjustment module is installed, remove it by turning it slightly to the left

3. Loosen compression nut of the cable gland and remove blind plug

4. Remove approx. 10 cm (4 in) of the cable mantle, strip approx. 1 cm (0.4 in) of insulation from the ends of the individual wires

5. Insert the cable into the sensor through the cable entry

Fig. 10: Connection steps 5 and 6

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

Information:

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 from above with a small screwdriver, the terminal opening is then free. When the screwdriver is released, the terminal closes again.

You can find further information on the max. wire cross-section under "*Technical data - Electromechanical data*".

7. Check the hold of the wires in the terminals by lightly pulling on them

8. Connect the shielding to the internal ground terminal, connect the external ground terminal to potential equalisation

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9. Tighten the compression nut of the cable entry gland. The seal ring must completely encircle the cable

10. Reinsert the display and adjustment module, if one was installed

11. Screw the housing lid back on

5.3 Wiring plan
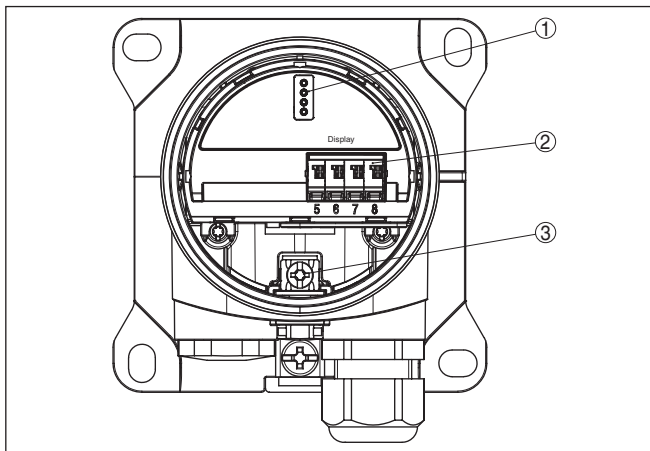
Electronics and connection compartment

Fig. 11: Electronics and connection compartment VEGADIS 81

1 Contact pins for the display and adjustment module
2 Spring-loaded terminals for connection of the sensor
3 Ground terminal for connection of the cable screening

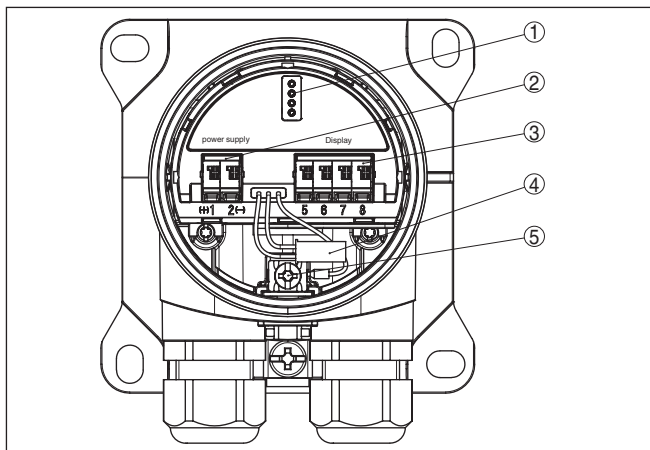**Electronics and connection compartment - with heating**

Fig. 12: Electronics and connection compartment - VEGADIS 81 with heating

1   Contact pins for the display and adjustment module
2   Spring-loaded terminals for conntection of the voltage supply for the heating
3   Spring-loaded terminals for connection of the sensor
4   Plug connector to the heated display and adjustment module
5   Ground terminal for connection of the cable screening
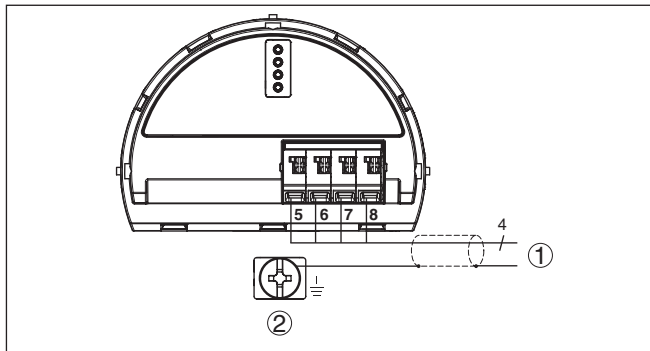
Wiring plan 4 … 20 mA/ HART

Fig. 13: Wiring plan VEGADIS 81 for 4 … 20 mA/HART sensors

1   To the sensor
2   Ground terminal for connection of the cable screening[1]

[1]   Connect shielding here. Connect ground terminal on the outside of the housing to ground as prescribed. The two terminals are galvanically connected.
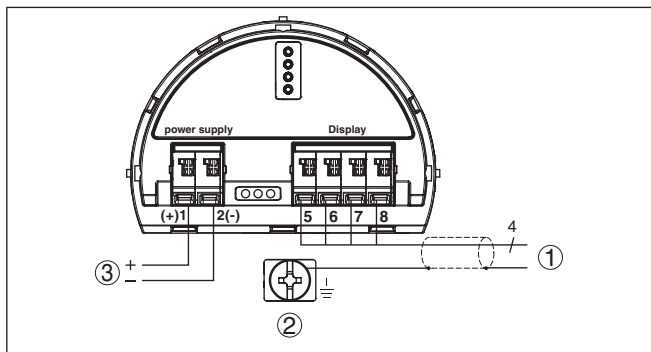
Wiring plan 4 … 20 mA/ HART with heating

Fig. 14: Wiring plan VEGADIS 81 for 4 … 20 mA/HART sensors, display and adjustment module with heating

1   To the sensor
2   Ground terminal for connection of the cable screening[2]
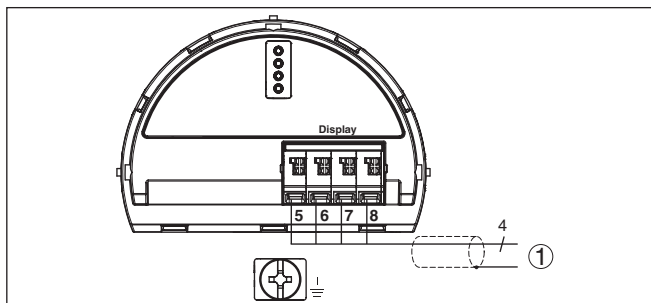*3   Voltage supply for the heating*

Wiring plan PA/FF

Fig. 15: Wiring plan VEGADIS 81 for PA/FF sensors

1   To the sensor

[2]   Connect shielding here. Connect ground terminal on the outside of the housing to ground as prescribed. The two terminals are galvanically connected.
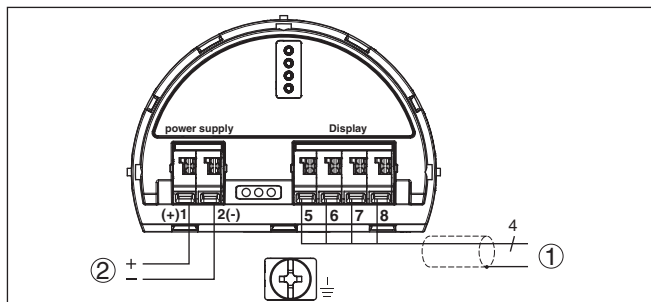
Wiring plan PA/FF with heating

Fig. 16: Wiring plan VEGADIS 81 for PA/FF sensors, display and adjustment module with heating

1   To the sensor
2   Voltage supply for the heating

5.4   Connection examples 4 … 20 mA/HART

Connection via standard cable

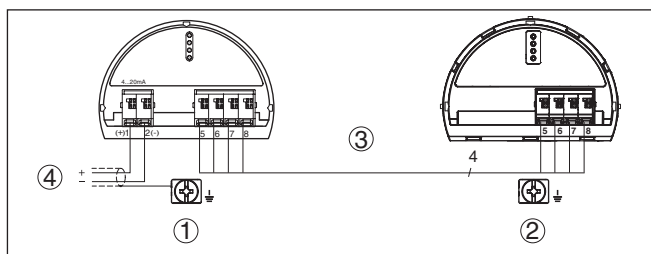*Fig. 17: Connection example 4 … 20 mA/HART - connection via standard cable*

1   Sensor
2   VEGADIS 81
3   Connection cable
4   Supply and signal circuit, sensor
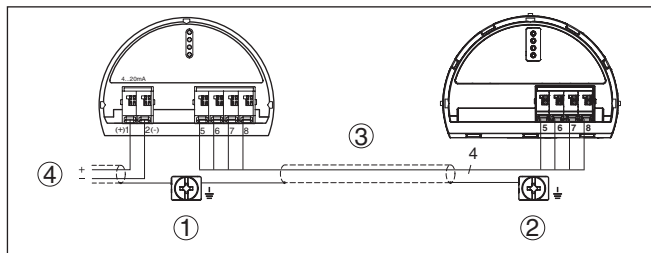
Connection via standard cable - shielded

Fig. 18: Connection example 4 … 20 mA/HART - connection via standard cable - shielded

1   Sensor
2   VEGADIS 81
3   Connection cable
4   Supply and signal circuit, sensor

The connection between VEGADIS 81 and sensor is made with a standard cable according to the table.

VEGADIS 81	Sensor
Terminal 5	Terminal 5
Terminal 6	Terminal 6
Terminal 7	Terminal 7
Terminal 8	Terminal 8

Connection via M12 x 1 plug connector and ready-made cable
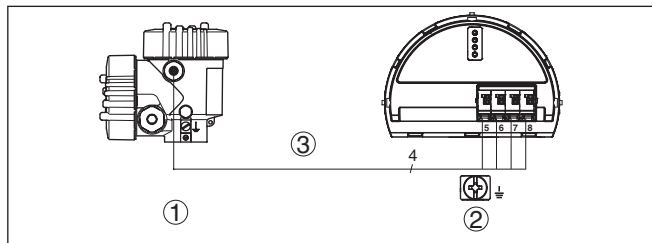
Fig. 19: Connection example 4 … 20 mA/HART - connection via M12 plug connector and ready-made cable

1   Sensor
2   VEGADIS 81
3   Connection cable

Connection between VEGADIS 81 and sensor with 4-pole plug M12 x 1 is carried out according to the following table. The specification of the wire colours refers to the pre-confectioned cable from our product line.

Wire colour	VEGADIS 81
Brown	Terminal 5
White	Terminal 6
Blue	Terminal 7
Black	Terminal 8

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5.5 Connection examples Profibus PA, Foundation Fieldbus

Connection via M12 x 1 plug connector and ready-made special cable
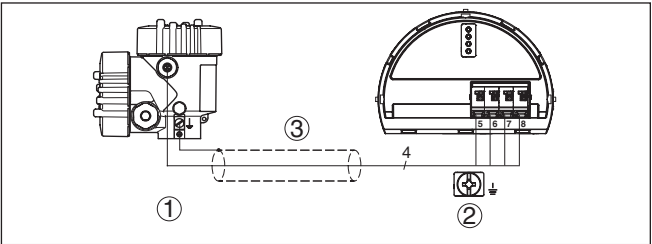
Fig. 20: Connection example Profibus PA, Foundation Fieldbus - Connection via M12 plug connector and open cable end

1 Sensor
2 VEGADIS 81
3 Connection cable

Connection between VEGADIS 81 and sensor with 4-pole plug M12 x 1 is carried out according to the following table. The specification of the wire colours refers to the pre-confectioned special cable from our product line.

Wire colour	VEGADIS 81
Black	Terminal 5
White	Terminal 6
Blue	Terminal 7
Brown	Terminal 8

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6 Set up with the display and adjustment module

6.1 Short description

Function/Configuration

The display and adjustment module is used for measured value display, adjustment and diagnosis. It can be mounted in the following housing versions and instruments:

- All continuously measuring sensors in single as well as double chamber housing version (optionally in the electronics or connection compartment)
- External display and adjustment unit

Note:
You can find detailed information on adjustment in the operating instructions manual "*Display and adjustment module*".

6.2 Insert display and adjustment module

Mount/dismount display and adjustment module

The display and adjustment module can be inserted into the VEGADIS 81 and removed again at any time. It is not necessary to interrupt the power supply.

Proceed as follows for mounting the display and adjustment module:

1. Unscrew the housing lid

2. Place the display and adjustment module in the desired position on the electronics (you can choose any one of four different positions - each displaced by 90°)

3. Press the display and adjustment module onto the electronics and turn it to the right until it snaps in

4. Screw housing lid with inspection window tightly back on

Disassembly is carried out in reverse order.

The display and adjustment module is powered by the sensor, an additional connection is not necessary.

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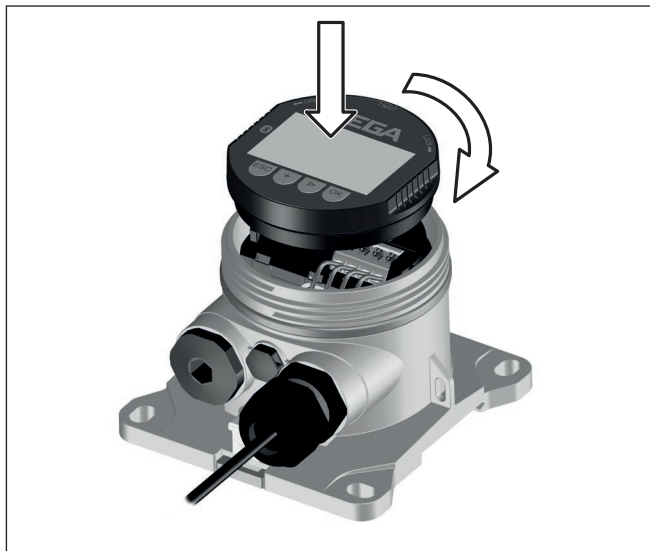
Fig. 21: Mounting of the display and adjustment module

6.3 Adjustment system

Fig. 22: Display and adjustment elements

1 LC display
2 Adjustment keys

Key functions

● **[OK]** key:
   – Move to the menu overview
   – Confirm selected menu
   – Edit parameter
   – Save value

● **[->]** key:
   – Change measured value presentation
   – Select list entry
   – Select menu items
   – Select editing position

● **[+]** key:
   – Change value of the parameter

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● *[ESC]* key:
  – Interrupt input
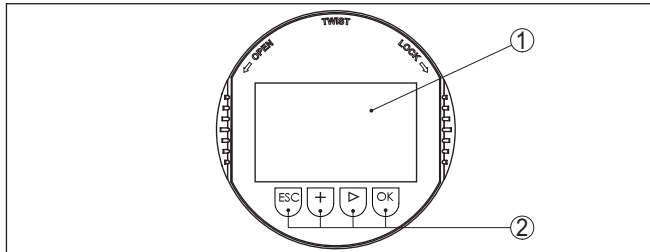 – Jump to next higher menu

Adjustment system

The instrument is operated via the four keys of the display and adjustment module. The individual menu items are shown on the LC display. You can find the function of the individual keys in the previous illustration.

Adjustment system - keys via magnetic pen

With the Bluetooth version of the display and adjustment module you can also adjust the instrument with the magnetic pen. The pen operates the four keys of the display and adjustment module right through the closed lid (with inspection window) of the sensor housing.
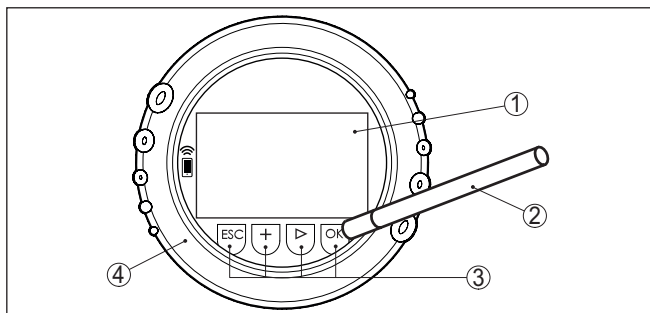

Fig. 23: Display and adjustment elements - with adjustment via magnetic pen

1 LC display
2 Magnetic pen
3 Adjustment keys
4 Lid with inspection window

Time functions

When the *[+]* and *[->]* keys are pressed quickly, the edited value, or the cursor, changes one value or position at a time. If the key is pressed longer than 1 s, the value or position changes continuously.

When the *[OK]* and *[ESC]* keys are pressed simultaneously for more than 5 s, the display returns to the main menu. The menu language is then switched over to "*English*".

Approx. 60 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.

7 Setup via PACTware

7.1 Connect the PC

Via the interface adapter on VEGADIS 81

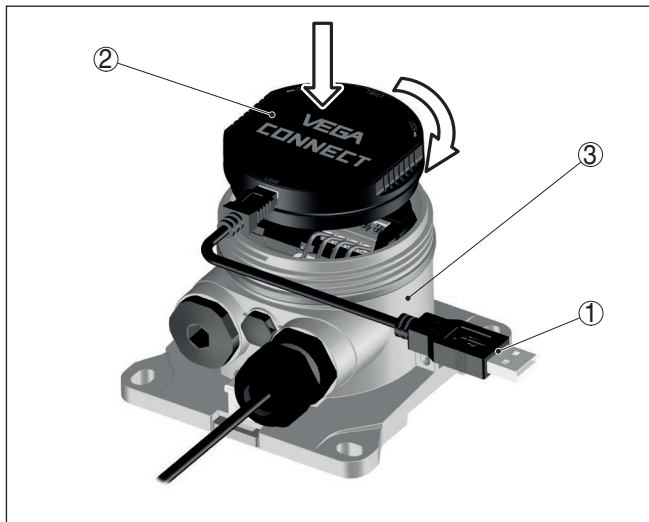The PC is connected via the interface adapter VEGACONNECT to VEGADIS 81.

Fig. 24: Connection of the PC via interface adapter

1 USB cable to the PC
2 Interface adapter VEGACONNECT
3 VEGADIS 81

Wirelessly via Bluetooth USB adapter

The wireless connection from the PC to the VEGADIS 81 and sensor is carried out via the Bluetooth USB adapter and a display and adjustment module with integrated Bluetooth function.
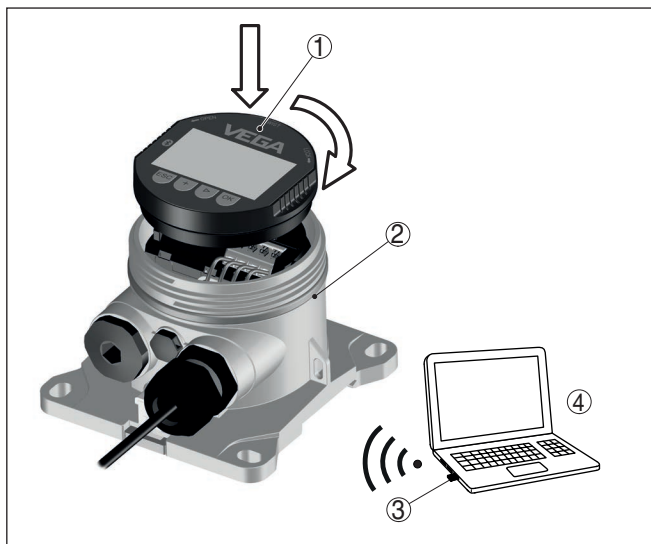
Fig. 25: Connection of the PC via Bluetooth USB adapter

1   Display and adjustment module
2   VEGADIS 81
3   Bluetooth USB adapter
4   PC

7.2   Parameter adjustment

Prerequisites

For parameter adjustment of the instrument via a Windows PC, the configuration software PACTware and a suitable instrument driver (DTM) according to FDT standard are required. The latest PACTware version as well as all available DTMs are compiled in a DTM Collection. The DTMs can also be integrated into other frame applications according to FDT standard.

Note:

To ensure that all instrument functions are supported, you should always use the latest DTM Collection. Furthermore, not all described functions are included in older firmware versions. You can download the latest instrument software from our homepage. A description of the update procedure is also available in the Internet.

Further setup steps are described in the operating instructions manual "*DTM Collection/PACTware*" attached to each DTM Collection and which can also be downloaded from the Internet. Detailed descriptions are available in the online help of PACTware and the DTMs.
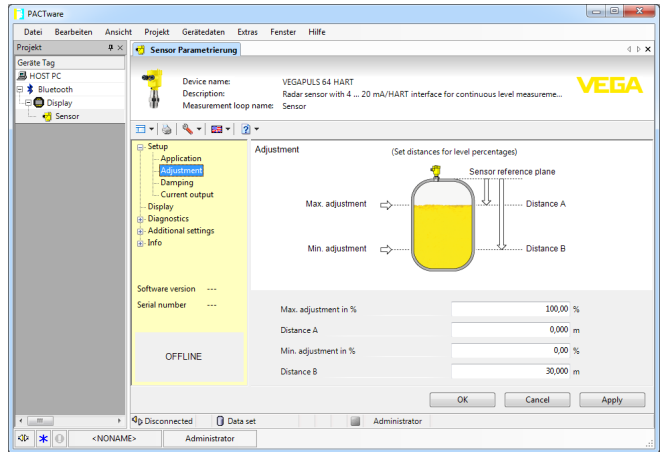
Fig. 26: Example of a DTM view

7.3   Save parameter adjustment data

We recommend documenting or saving the parameterisation data via PACTware. That way the data are available for multiple use or service purposes.

8   Setup via app

8.1   Connect with smartphone/tablet

Connecting

The display and adjustment module with integrated Bluetooth functionality allows connection of the VEGADIS 81 to smartphones/tablets with iOS or Android operating system.
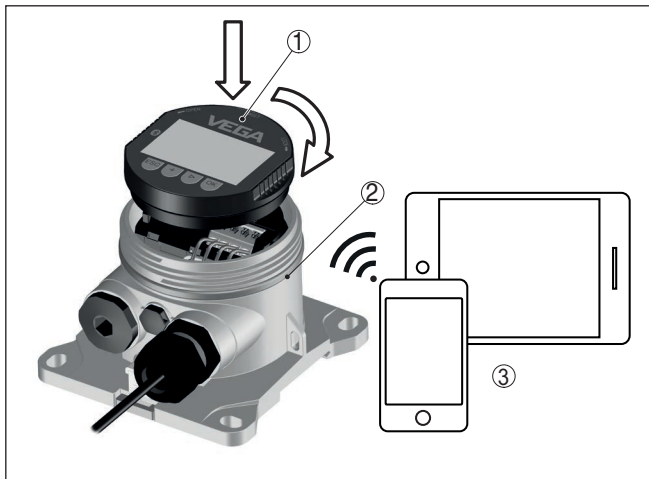
Fig. 27: Connection of VEGADIS 81 via PLICSCOM with Bluetooth to smartphone/tablet

1   PLICSCOM with Bluetooth
2   VEGADIS 81
3   Bluetooth USB adapter
4   Smartphone/Tablet

8.2   Parameter adjustment

Prerequisites

For parameter adjustment of the instrument via smartphone/tablet, the VEGA Tools app is required. The app is available in the Apple or Google Play Store, depending on the operating system iOS or Android.

Fig. 28: Example of an app view for measured values

9 Maintenance and fault rectification

9.1 Maintenance

Maintenance

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

Cleaning

The cleaning helps that the type label and markings on the instrument are visible.

Take note of the following:
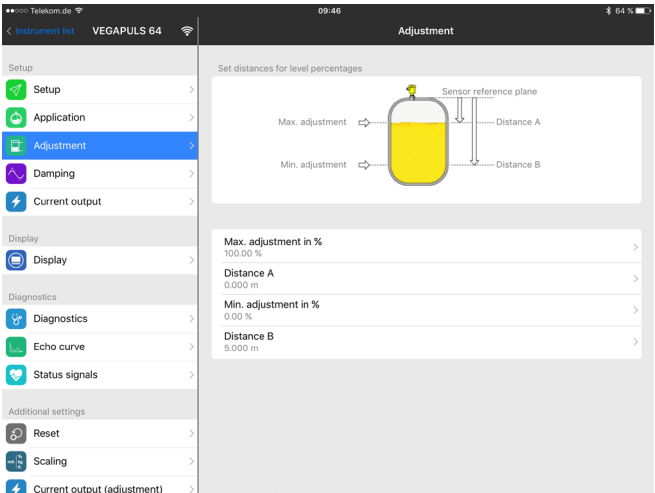
- Use only cleaning agents which do not corrode the housings, type label and seals
- Use only cleaning methods corresponding to the housing protection rating

9.2 Rectify faults

Reaction when malfunction occurs

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

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.

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.

9.3 How to proceed if a repair is necessary

You can find an instrument return form as well as detailed information about the procedure in the download area of our homepage. By doing this you help us carry out the repair quickly and without having to call back for needed information.

In case of repair, 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
- Ask the agency serving you to get the address for the return shipment. You can find the agency on our homepage.

10 Dismount

10.1 Dismounting steps

To remove the device, carry out the steps in chapters "*Mounting*" and "*Connecting to power suplly*" in reverse.

Warning:
When dismounting, pay attention to the process conditions in vessels or pipelines. There is a risk of injury, e.g. due to high pressures or temperatures as well as aggressive or toxic media. Avoid this by taking appropriate protective measures.

10.2 Disposal

Pass the instrument on to a specialised recycling company and do not use the municipal collecting points.

Remove any batteries in advance, if they can be removed from the device, and dispose of them separately.

If personal data is stored on the old device to be disposed of, delete it before disposal.

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

11 Certificates and approvals

11.1 Approvals for Ex areas

Approved versions for use in hazardous areas are available or in preparation for the device or the device series.

You can find the relevant documents on our homepage.

11.2 Conformity

The device complies with the legal requirements of the applicable country-specific directives or technical regulations. We confirm conformity with the corresponding labelling.

The corresponding conformity declarations can be found on our homepage.

Due to the design of its process fittings, the device does not subject of EU pressure device directive if it is operated at process pressures ≤ 200 bar.

11.3 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 fulfils 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.

11.4 Environment management system

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.

Help us to meet these requirements and observe the environmental instructions in the chapters "*Packaging, transport and storage*", "*Disposal*" of this instructions manual.

12 Supplement

12.1 Technical data

Materials and weights

Materials	
– Plastic housing	Plastic PBT (Polyester)
– Aluminium housing	Aluminium die-casting AlSi10Mg, powder-coated (Basis: Polyester)
– Stainless steel housing	316L precision casting
– Seal between housing and housing lid	NBR (stainless steel housing), silicone (Aluminium/plastic housing)
– Inspection window in housing cover (in version with display and adjustment module)	Polycarbonate, coated
– Cable gland/Seal insert	PA/NBR
– Ground terminal	316L
Deviating materials - Ex d version	
– Inspection window in housing cover (in version with display and adjustment module)	Single-pane safety glass
– Cable gland/Seal insert	Brass nickel-plated/NBR
Materials for carrier rail mounting	
– Adapter plate, housing side	316
– Adapter plate, carrier rail side	Zinc die casting
– Mounting screws	316
Materials for tube mounting	
– Brackets	StSt
– Mounting screws	StSt
Materials for panel mounting	
– Housing	PPE
– Transparent cover	PS
– Screw clamps	St, nickel plated
Material sun protection	316L
Weights without mounting elements approx.	
– Plastic housing	0.35 kg (0.772 lbs)
– Aluminium housing	0.7 kg (1.543 lbs)
– Stainless steel housing	2.0 kg (4.409 lbs)
Mounting elements approx.	
– Brackets for tube mounting	0.4 kg (0.882 lbs)
– Adapter plate for carrier rail mounting	0.5 kg (1.102 lbs)

Ambient conditions

Storage and transport temperature	-40 … +80 °C (-40 … +176 °F)
Ambient temperature	
− without display and adjustment module	-40 … +80 °C (-40 … +176 °F)
− With display and adjustment module	-20 … +70 °C (-4 … +158 °F)
− With heated display and adjustment module	-40 … +70 °C (-40 … +158 °F)

Process conditions

Vibration resistance	4 g at 5 … 200 Hz according to EN 60068-2-6 (vibration with resonance)
Vibration resistance with carrier rail mounting	1 g at 5 … 200 Hz according to EN 60068-2-6 (vibration with resonance)
Shock resistance	100 g, 6 ms according to EN 60068-2-27 (mechanical shock)

Electromechanical data

Options of the cable entry	
− Cable entry	M20 x 1.5, ½ NPT
− Cable gland	M20 x 1.5, ½ NPT
− Blind plug	M20 x 1.5; ½ NPT
− Closing cap	½ NPT
Connection terminals	
− Type	Spring-loaded terminal
− Stripping length	8 mm
Wire cross-section of the connection cable (according to IEC 60228)	
− Massive wire, stranded wire	0.2 … 2.5 mm² (AWG 24 … 14)
− Stranded wire with end sleeve	0.2 … 1.5 mm² (AWG 24 … 16)

Interface to the sensor

Data transmission	Digital (I²C-Bus)
Configuration, connection cable	Four-wire, depending on the sensor version, shielded
Cable length see following table	

Measuring principle	Version	Max. cable length
Radar	Hardware ≥ 1.0.0, Software ≥ 1.1.0	50 m/164.0 ft
	Hardware ≥ 2.0.0, Software ≥ 4.0.0	
Guided radar, pressure transmitter	Hardware ≥ 1.0.0, Software ≥ 1.0.0	
Radiometry	All hardware and software versions	
Radar, ultrasonic sensors, capacitive sensors, pressure transmitters	Hardware < 2.0.0, Software ≤ 3.99	25 m/82.02
All sensors	Signal output Profibus PA or Foundation Fieldbus	

Functional safety   SIL non-reactive

Voltage supply, heating

Operating voltage

− Type   Reliably separated extra low voltage according to VDE 0106 part 10

− Voltage level   24 V DC +5 %

Reverse voltage protection   Integrated

Max. power consumption   1.7 W

Switching reaction

− Heating on   < -5 °C (23°F)

− Heating off   > 0 °C (32 °F)

Electrical protective measures

Protection rating

− Plastic housing   IP66/IP67 nach IEC 60529, NEMA Type 4X

− Housing Aluminium, stainless steel   IP66/IP68 (0.2 bar) acc. to IEC 60529, NEMA Type 6P

Altitude above sea level

− by default   up to 2000 m (6562 ft)

− with connected overvoltage protection up to 5000 m (16404 ft)

Pollution degree[3]   4

[3] When used with fulfilled housing protection

12.2   Dimensions

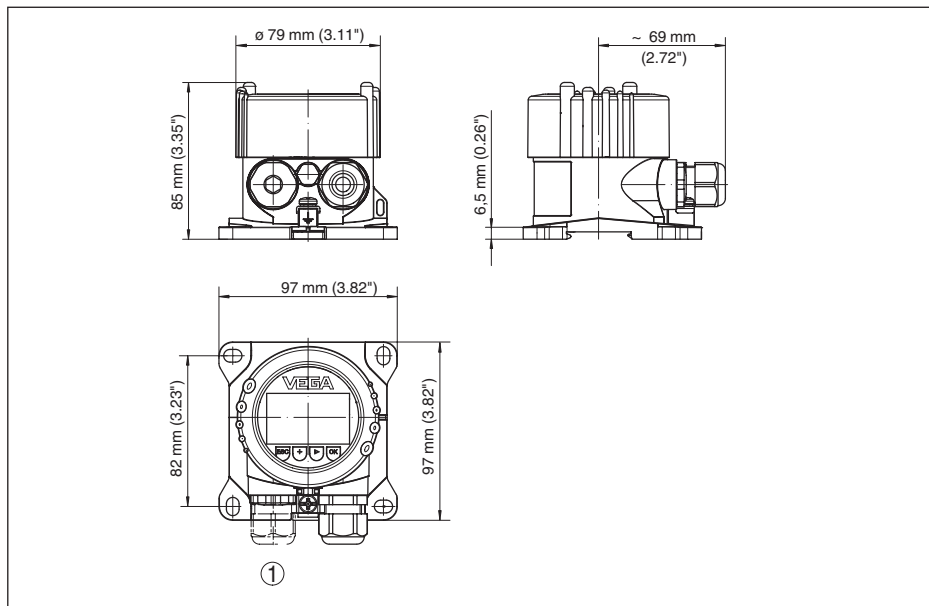**VEGADIS 81, plastic housing**

Fig. 29: VEGADIS 81 with plastic housing

1   Cable gland with version with heated display and adjustment module

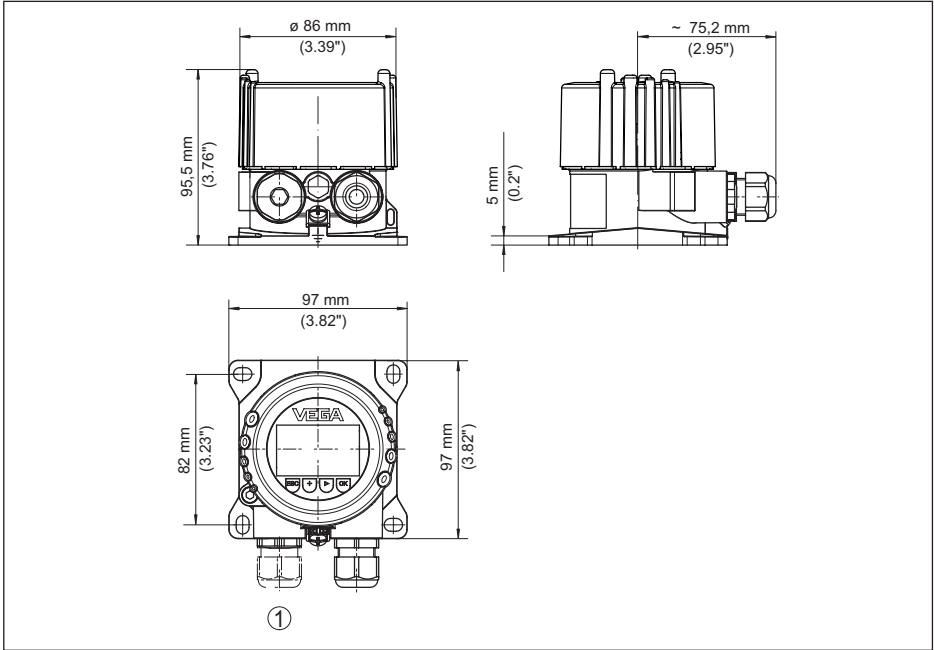**VEGADIS 81, aluminium housing**

Fig. 30: VEGADIS 81 with Aluminium housing

1　　Cable gland with version with heated display and adjustment module

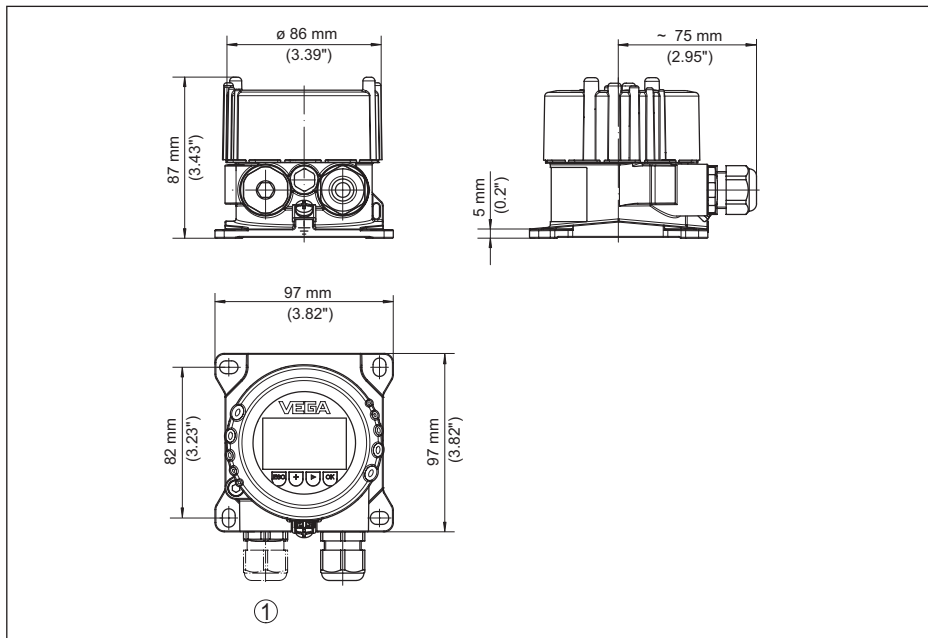**VEGADIS 81, stainless steel precision cast housing**

Fig. 31: VEGADIS 81 with stainless steel, precision cast housing

1   Cable gland with version with heated display and adjustment module
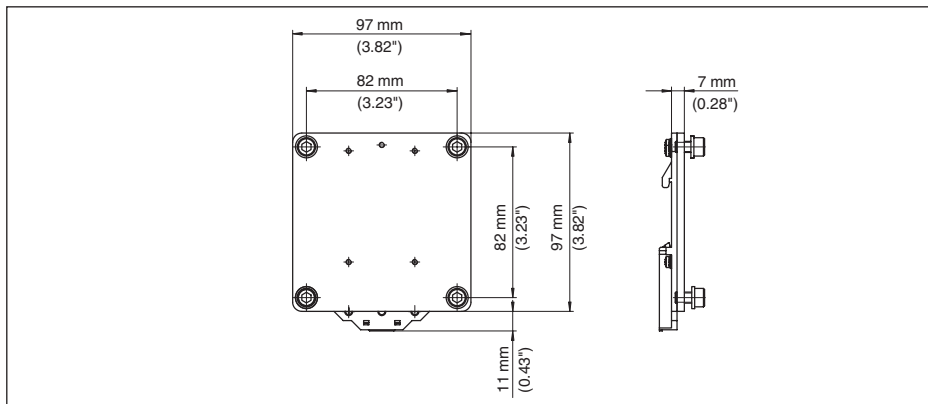
Mounting elements

Fig. 32: Adapter plate for carrier rail mounting of VEGADIS 81
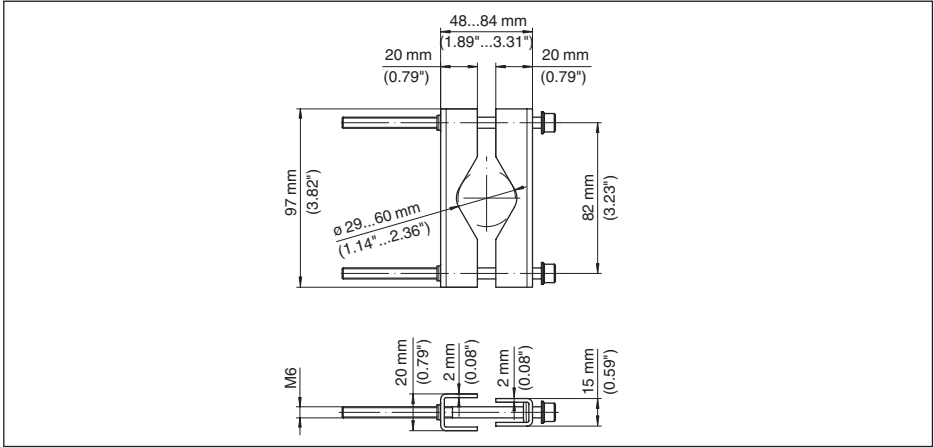
Fig. 33: Brackets for tube mounting of VEGADIS 81

12.3 Industrial property rights

VEGA product lines are global protected by industrial property rights. Further information see www.vega.com.

VEGA Produktfamilien sind weltweit geschützt durch gewerbliche Schutzrechte.

Nähere Informationen unter www.vega.com.

Les lignes de produits VEGA sont globalement protégées par des droits de propriété intellectuelle. Pour plus d'informations, on pourra se référer au site www.vega.com.

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VEGA系列产品在全球享有知识产权保护。

进一步信息请参见网站<www.vega.com。

12.4 Trademark

All the brands as well as trade and company names used are property of their lawful proprietor/originator.

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