Operating Instructions

External display and adjustment unit

VEGADIS 82

4 … 20 mA

Contents

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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

The VEGADIS 82 is suitable for measured value indication in 4 … 20 mA signal current 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.

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

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:

- VEGADIS 82
- Display and adjustment module (optional)
- Mounting accessories (optional)
- Documentation
    - This operating instructions manual
    - Ex-specific "*Safety instructions*" (with Ex versions)
    - If necessary, further certificates

> **Information:**
> Optional instrument features are also described in this operating instructions. The respective scope of delivery results from the order specification.

Instrument versions

The VEGADIS 82 is available in different housing materials, see chapter "*Technical data*".

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

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

The VEGADIS 82 is suitable as measured value indication with 4 … 20 mA current loops. The instrument can be connected at any point to the 4 … 20 mA signal cable. Separate, external energy is not required.

The VEGADIS 82 is also suitable for use in a 4 … 20 mA/HART current loop. The HART signal is not influenced, however a sensors parameter adjustment is not possible.

The measured value indication is carried out in the VEGADIS 82 integrated in the display and adjustment module.

Note:
The operation of a display and adjustment module with integrated Bluetooth function is not supported by VEGADIS 82.

Sensors

The VEGADIS 82 is suitable for connection to any 4 … 20 mA sensor.

The instrument is particularly designed for:

● VEGAPULS WL 61
● VEGAWELL 52

The housing of VEGADIS 82 contains a filter element for ventilation. The instrument is thus also used for atmospheric pressure compensation for a submersible pressure transmitter.

The VEGADIS 82 can also be used as an external indicating device for any four-wire sensor or a VEGAMET controller with active 4 … 20 mA output.
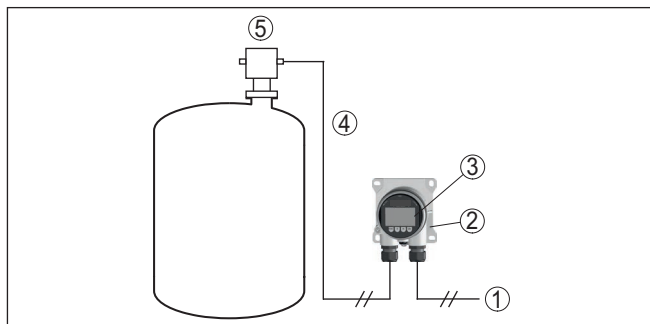
Connection

Fig. 1: Connection of VEGADIS 82 to the sensor

1 Voltage supply/Signal output sensor
2 VEGADIS 82
3 Display and adjustment module
4 4 … 20 mA signal cable
5 Sensor

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 moisture 20 … 85 %

3.4   Accessories

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

VEGACONNECT   The interface adapter VEGACONNECT enables the connection of communication-capable instruments to the USB interface of a PC.

Overvoltage protection   The overvoltage arrester B81-35 is used instead of the terminals.

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 82 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

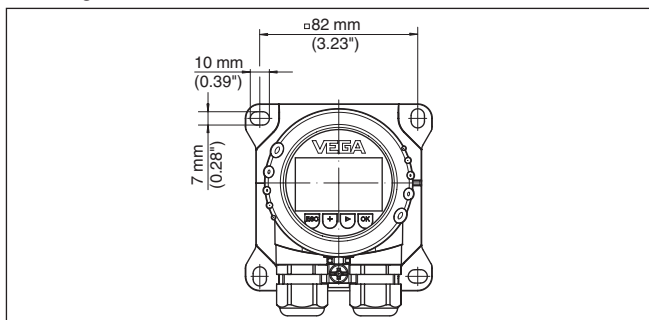The VEGADIS 82 in all available housing materials is suitable for wall mounting.

Fig. 2: Drilling dimensions for VEGADIS 82 for wall mounting

Carrier rail mounting

The VEGADIS 82 with plastic housing is suitable for direct carrier rail mounting according to EN 50022.
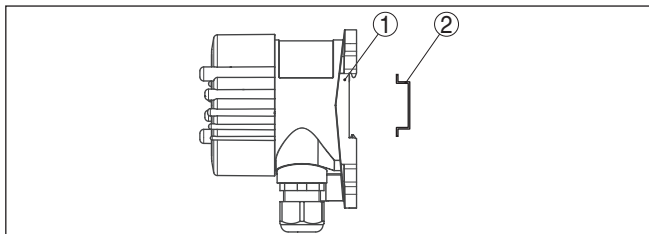
Fig. 3: VEGADIS 82 with plastic housing for carrier rail mounting

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 82 by the user.

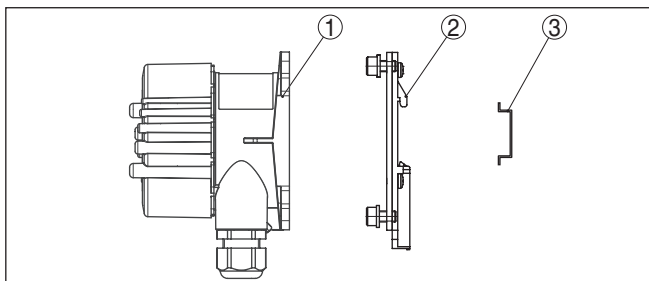*Fig. 4: VEGADIS 82 with aluminium and stainless steel housing for carrier rail mounting*

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

Tube mounting

The VEGADIS 82 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 82 by the user.
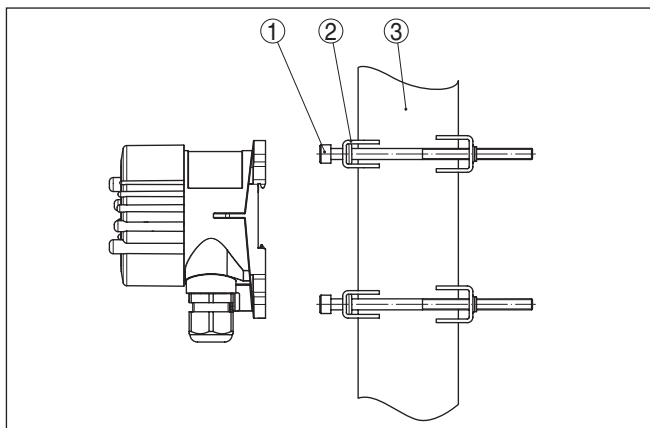
Fig. 5: VEGADIS 82 for tube mounting

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

Front panel mounting

The VEGADIS 82 is also available with a plastic housing for panel mounting. The housing is fastened to the rear of the panel by means of the supplied screw clamps.
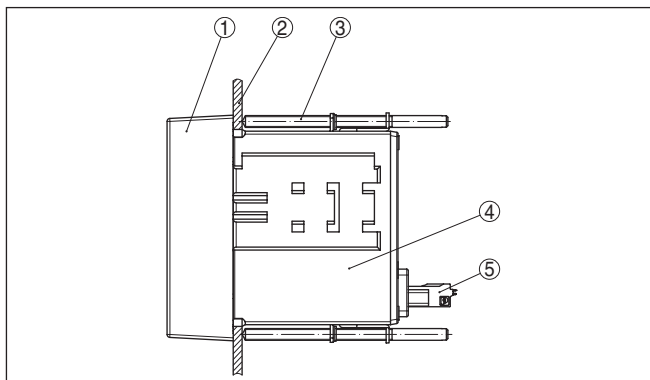

Fig. 6: VEGADIS 82 for panel mounting

1   Inspection window
2   Front panel
3   Screw clamp
4   Housing
5   Plug connector

5 Connecting to power supply

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.

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 version.

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

⚠️ **Note:**
Power the instrument via an energy-limited circuit (power max. 100 W) acc. to IEC 61010-1, e.g.

- Class 2 power supply unit (acc. to UL1310)
- SELV power supply unit (safety extra-low voltage) with suitable internal or external limitation of the output current

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

- 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 signal)
- Voltage loss on the VEGADIS 82 (see supply circuit in chapter "*Technical data*")

You can find information on the load resistance in chapter "*Technical data*", (voltage supply of the respective sensor)

Connection cable

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

Use cable with round cross-section. 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.

You can find an overview of the cable glands in chapter "*Technical data*".

Cable glands

Metric threads:
In the case of instrument housings with metric thread, the cable glands are screwed in at the factory. They are sealed with plastic plugs as transport protection.

Note:
You have to remove these plugs before electrical connection.

NPT thread:
In the case of instrument housings with self-sealing NPT threads, it is not possible to have the cable entries screwed in at the factory. The free openings for the cable glands are therefore covered with red dust protection caps as transport protection.

Note:
Prior to setup you have to replace these protective caps with approved cable glands or close the openings with suitable blind plugs.

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

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

Cable screening and grounding

If shielded cable is necessary, we recommend connecting the cable shield on both ends to ground potential. In the VEGADIS 82, the shield should be connected directly to the internal ground terminal.

In Ex systems it must be ensured that the grounding complies with the installation regulations.

In electroplating plants as well as plants for 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.

5.2 Connection technology and steps

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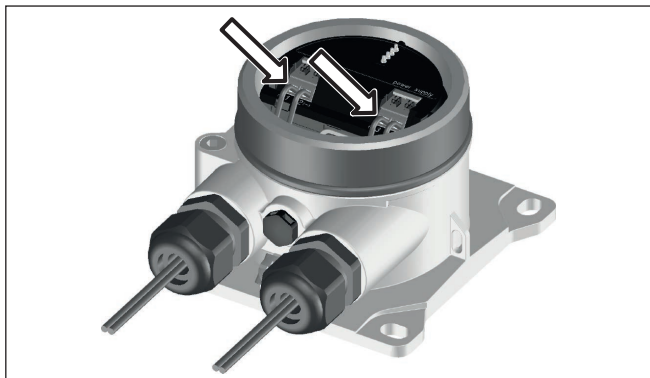5. Insert the cable into the sensor through the cable entry

Fig. 7: 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

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

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5.3 Wiring plan

Wiring plan

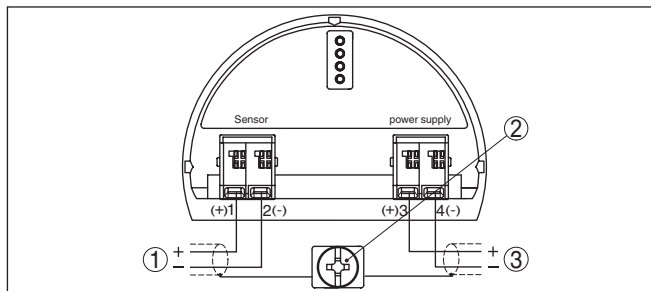*Fig. 8: Wiring plan VEGADIS 82 for 4 … 20 mA sensors*

1   To the sensor
2   Terminal for connection of the cable screening
3   Processing system/PLC/Voltage supply
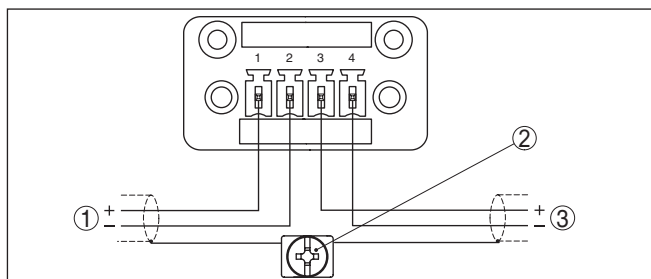
Wiring plan - Panel mounting

Fig. 9: Wiring plan VEGADIS 82 for 4 … 20 mA sensors - panel mounting

1   To the sensor
2   Ground terminal in the switching cabinet for connection of the cable screen
3   Processing system/PLC/Voltage supply

5.4 Connection to a controller or four-wire sensor

The following illustrations show the connection of VEGADIS 82 to a controller VEGAMET or a four-wire sensor with active 4 … 20 mA output.
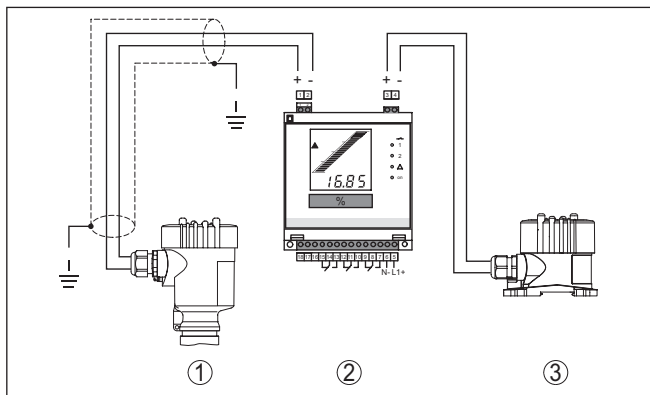
Controller VEGAMET

Fig. 10: Connection of VEGADIS 82 as external display to a controller

1   Sensor
2   Controller
3   VEGADIS 82

For this, terminals 1 and 2 on VEGADIS 82 must be bridged.
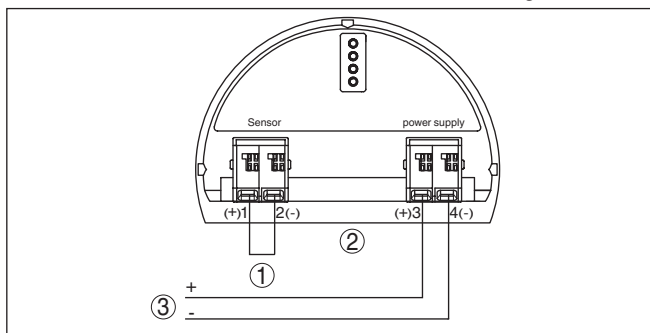

Fig. 11: Bridge on terminals 1 and 2 on the VEGADIS 82

1   Bridge
2   VEGADIS 82
3   Controller

Four-wire sensor

The following illustration shows the simplified the connection of VEGADIS 82 to a four-wire sensor with active 4 … 20 mA output.

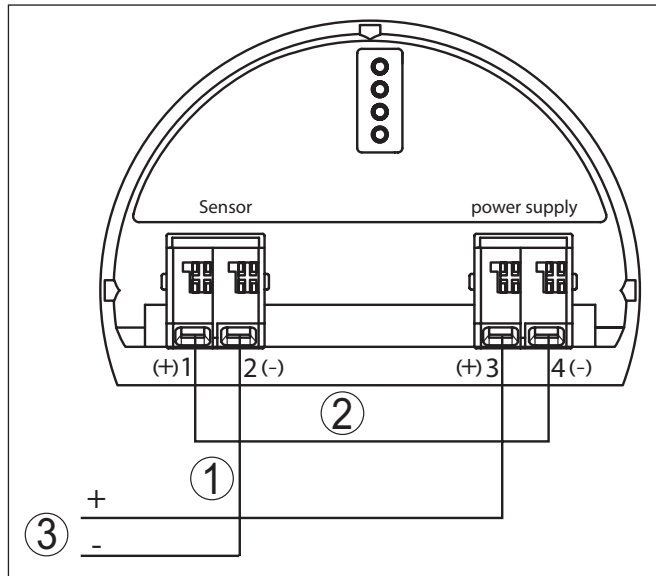There terminals 1 and 4 on VEGADIS 82 must be bridged (see following illustration):

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Fig. 12: Connection of VEGADIS 82 as external display to a four-wire sensor with active 4 … 20 mA output

1   Bridge
2   VEGADIS 82
3   Four-wire sensor with active current output

The following illustration shows the simplified connection of VEGADIS 82 to a four-wire sensor with active 4 … 20 mA output and an additional processing system/PLC.

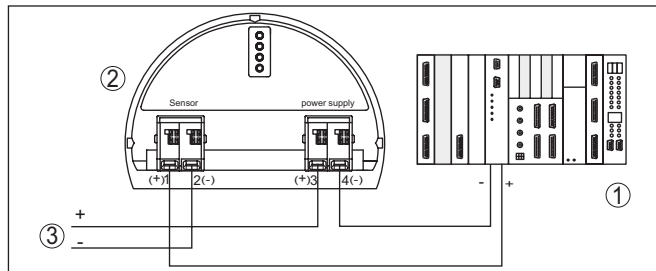*Fig. 13: Connection of VEGADIS 82 as external display to a four-wire sensors with active 4 … 20 mA output with additional processing system/PLC*

1   Processing system/PLC
2   VEGADIS 82
3   Four-wire sensor with active current output

5.5   Connection example

The following illustrations show the connection of VEGADIS 82 with a 4 … 20 mA/HART sensor and processing system/PLC/voltage supply.
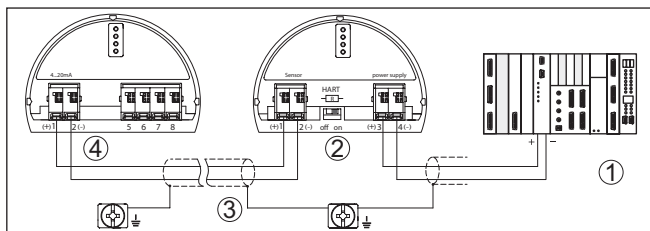
Fig. 14: Connection example 4 … 20 mA sensor and processing system/PLC

1   Processing system/PLC/Voltage supply
2   VEGADIS 82
3   Connection cable
4   4 … 20 mA sensor

5.6   Switch-on phase

After connecting the instrument to power supply or after a voltage recurrence, the instrument carries out a self-check for approx. 10 s:

● Internal check of the electronics
● Indication of the instrument type, hardware and software version, measurement loop name on the display or PC
● Indication of a status message on the display or PC

The duration of the warm-up phase depends on the connected sensor.

Then the actual measured value is displayed. You can find further information on the display in chapter "*Measured value indication - Selection national language*".

6 Set up with the display and adjustment module

6.1 Insert display and adjustment module

Mount/dismount display and adjustment module

The display and adjustment module can be inserted into the VEGADIS 82 and removed again at any time. It is not necessary to interrupt the power supply.

Note:
The operation of a display and adjustment module with integrated Bluetooth function is not supported by VEGADIS 82.

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

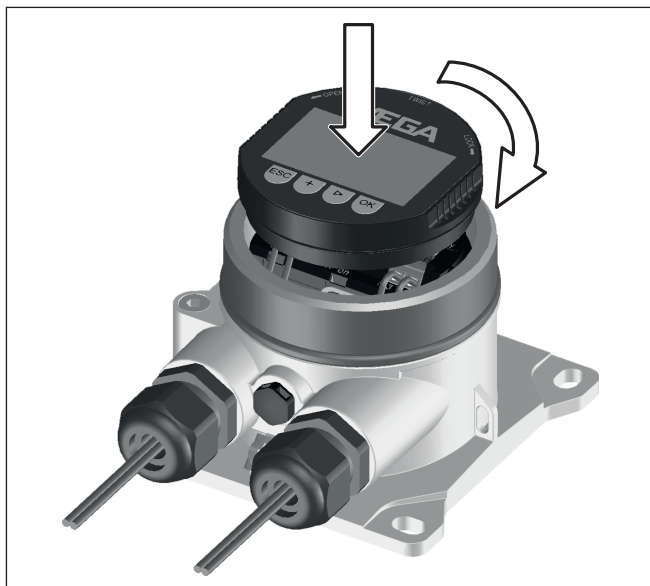Disassembly is carried out in reverse order.

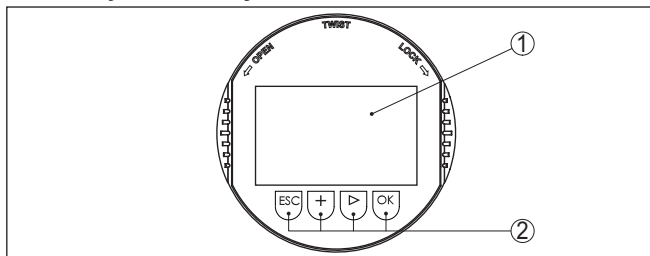*Fig. 15: Mounting of the display and adjustment module*

6.2 Adjustment system

Fig. 16: 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

● *[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.

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.
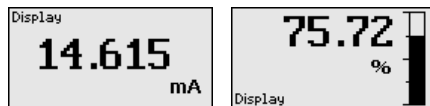
6.3 Measured value indication - Selection of national language

Measured value indication

With the *[->]* key you can move between two different views:

First view: Display value 1 in big lettering, TAG number

Second view: Display value 1, a bargraph corresponding to the 4 … 20 mA value, TAG number

During the initial setup of an instrument shipped with factory settings, use the "*OK*" key to get to the menu "*National language*".
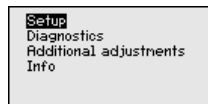
Selection of national language

This menu item is used to select the national language for further parameter adjustment. You can change the selection via the menu item "*Setup - Display, Menu language*".

With the "*OK*" key you move to the main menu.

6.4 Parameter adjustment - VEGADIS 82

Main menu

The main menu is divided into four areas with the following functions:

Setup: Settings, e.g. to measurement loop name, damping, scaling

Diagnosis: Information on the device status

Additional adjustments: Reset, copy display settings

Info: Instrument name, instrument version, date of manufacture, instrument features

For optimum adjustment of the instrument, the individual submenu items should be selected one after the other in the main menu item "*Setup*" and provided with the correct parameter values.

Setup - Measurement loop name

In the menu item "*Measurement loop name*" you edit a twelve digit measurement loop designation label.

You can enter an unambiguous designation for the measured value, e.g. the measurement loop name or the tank or product designation. In digital systems and in the documentation of larger plants, a singular designation must be entered for exact identification of individual measuring points.

The character set comprises the following ASCII signs with extension according to ISO 8859-1:

- Letters from A … Z
- Numbers from 0 … 9
- Special characters such as +, -, /, - etc.

VEGADIS 82 • 4 … 20 mA

```
Setup
 Measurement loop name
 Display
 Damping
 Scaling
 Lock adjustment
```

```
Measurement loop name

 Display
```
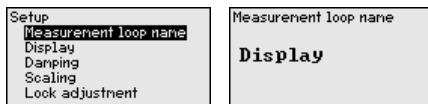
Setup - Display, menu language   This menu item allows a change of the national language.

```
Setup
 Measurement loop name
 Display
 Damping
 Scaling
 Lock adjustment
```

```
Display
 Menu language
 Displayed value
 Backlight
```

The following languages are available:

- German
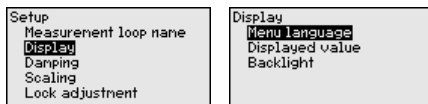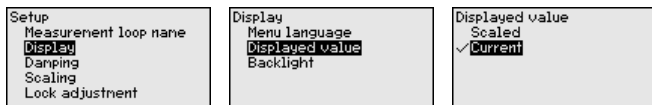- English
- French
- Spanish
- Russian
- Italian
- Dutch
- Portuguese
- Turkish
- Polish
- Czech
- Chinese
- Japanese

Setup - Display, indication value   In this menu item you can define the way measured values are indicated on the display.

```
Setup
 Measurement loop name
 Display
 Damping
 Scaling
 Lock adjustment
```

```
Display
 Menu language
 Displayed value
 Backlight
```

```
Displayed value
 Scaled
✓Current
```

The default setting for the display value is "*Current*".

Setup - Display, lighting   The display and adjustment module has a backlight for the display. In this menu item you can switch on the lighting. You can find the required operating voltage in chapter "*Technical data*".

```
Display
 Menu language
 Displayed value
 Backlight
```

```
Backlight

 Switched off
```
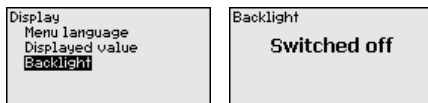
The lighting is switched off in delivery status.

Note:
The lighting switches off automatically when the current in the signal circuit is lower than 4 mA.

It switches on automatically when the current in the signal circuit is 4 mA or higher.

VEGA

Setup - Damping

To damp process-dependent measured value fluctuations, set an integration time of 0 … 999 s in this menu item. The increment is 0.1 s.

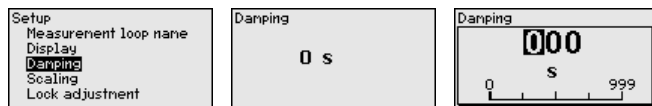The entered integration time influences the current value and the display. The HART value remains unaffected.
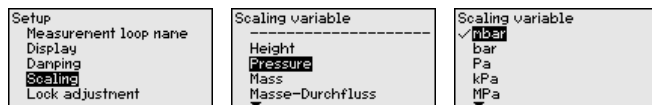
Factory setting is 0 s.

Setup - Scaling

In the menu item "*Scaling variable*" you define the scaling variable and unit of the measured value on the display, e.g. volume in l.

In addition to the offered standard units, there is the possibility, to create a user-defined unit.

Furthermore, via menu item "*Scaling format*" you define the position of the comma and the assignment of the measured value for 0 % and 100 %.
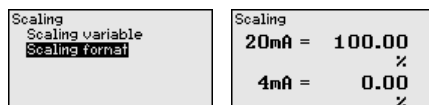
Lock/unlock setup - Adjustment

In the menu item "*Lock/unlock adjustment*", you can protect the instrument parameters against unauthorized modification. The PIN is activated/deactivated permanently.

With active PIN, only the following adjustment functions are possible without entering a PIN:

● Select menu items and show data
● Read data from the sensor into the display and adjustment module

⚠ **Caution:**
When the PIN is active, adjustment via PACTware/DTM as well as other systems is also blocked.

The PIN number is entered while locking.

Diagnostics - Device status

In this menu item, the device status is displayed.

In case of instrument failure, an error code with text message is displayed. You can find information on cause and rectification in chapter "*Diagnosis and service*".
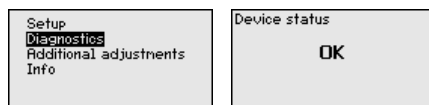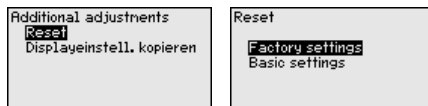
Additional settings - Reset

After a reset, certain parameter adjustments made by the user are reset.

```
Additional adjustments      Reset
Reset                         Factory settings
Displayeinstell. kopieren     Basic settings
```

The following table shows the default values of the instrument. Depending on the instrument version or application, all menu items may not be available or some may be differently assigned:
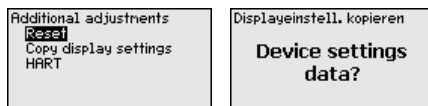
Reset - Setup

Menu item	Parameter	Default value
Measurement loop name		Display
Display	Language	English
		Order-specific
	Displayed value	Signal current
	Backlight	Switched off
Damping	Integration time	0 s
Scaling	Scaling size	%
	Scaling format	20 mA correspond to 100.00 %
		4 mA correspond to 0.00 %
Lock adjustment		Released

Additional adjustments - Copy display settings

This function copies the following display settings.

The following parameters or settings are saved:

● All parameters of the menu "*Setup*"

```
Additional adjustments      Displayeinstell. kopieren
Reset                         Device settings
Copy display settings            data?
HART
```

The copied data are permanently saved in the display and adjustment module. They remain even in case of voltage loss.

> **Note:**
> Before the data are stored in the instrument, they are checked to make sure they match the instrument. For this purpose, the instrument type of the source data as well as the target instrument are displayed. Storage takes place only after approval.

Info - Instrument name

In this menu item, you can read out the instrument name and the instrument serial number:

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Info
  Device name
  Instrument version
  Factory calibration date
  Instrument features
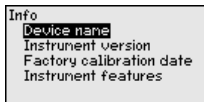
Info - Instrument version   In this menu item, the hardware and software version of the sensor is displayed.

Info
  Device name
  Instrument version
  Factory calibration date
  Instrument features
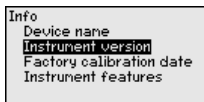
Info - Factory calibration date   In this menu item, the date of the factory calibration of the instrument as well as the date of the last change of sensor parameters is displayed via the PC.

Info
  Device name
  Instrument version
  Factory calibration date
  Instrument features
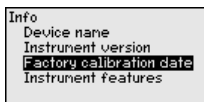
Info - Instrument features   In this menu item, instrument features such as approvals, electronics, housing as well as others are displayed.

Info
  Device name
  Instrument version
  Factory calibration date
  Instrument features

Instrument features

Change/Show now?
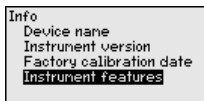
7 Setup via PACTware

7.1 Connect the PC

Via the interface adapter on VEGADIS 82

The PC is connected via the interface adapter VEGACONNECT to VEGADIS 82.

Parameter adjustment options:

- VEGADIS 82
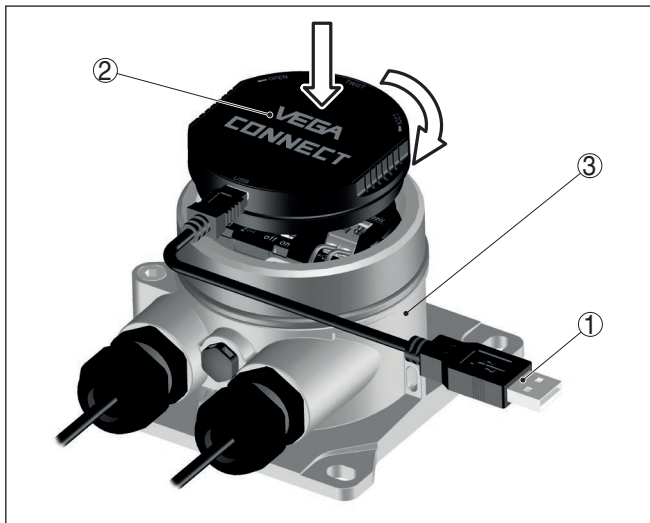
Fig. 17: Connection of the PC via interface adapter

1   USB cable to the PC
2   Interface adapter VEGACONNECT
3   VEGADIS 82

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.
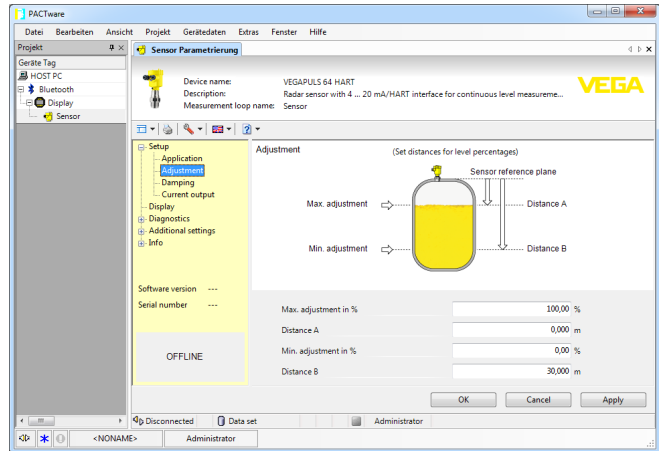

Fig. 18: Example of a DTM view

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 Diagnostics and servicing

8.1 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

8.2 Diagnostics

Sensors

The instrument supports the self-monitoring and diagnosis of the connected sensor. Status or failure messages are displayed according to the sensor via display and adjustment module, PACTware/DTM and EDD.

You can find a detailed overview of this function in the operating instructions of the respective sensor.

External display and adjustment unit

Code Text message	Cause	Rectification
S003 CRC-error	CRC error during self-check	Carry out a reset Send instrument for repair
F014 Sensor input: Short-circuit	Short-circuit or sensor current > 21 mA	Check cable Check sensor
F015 Sensor input: Line break	Line break or sensor current < 3.6 mA	Check cable Check sensor, probably already in the run-in period
S021 Scaling: Span too small	Scaling span too small	Carry out a fresh scaling, increase the distance between min. and max. scaling.
S022 Scaling: Value too high	Scaling value too high	Check scaling values and correct, if necessary
F034 EEPROM: CRC error	EEPROM: CRC error	Switch the instrument off and on Carry out reset to default setting Send instrument for repair
F035 ROM: CRC error	ROM: CRC error	Switch the instrument off and on Carry out reset to default setting Send instrument for repair
F037 RAM defective	Error of the RAM in the internal data memory	Switch the instrument off and on Carry out reset to default setting Send instrument for repair

Code Text message	Cause	Rectification
F040 General hardware error	Hardware error	Switch the instrument off and on Carry out reset to default setting Send instrument for repair

8.3 Rectify faults

Reaction when malfunction occurs

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

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	Fluctuating measured value	Set damping
4 … 20 mA signal missing	Electrical connection faulty	Check connection, correct, if necessary
	Voltage supply missing	Check cables for breaks; repair if necessary
	Operating voltage too low, load resistance too high	Check, adapt if necessary
Current signal greater than 22 mA, less than 3.6 mA	Sensor electronics defective	Replace device or send in for repair depending on device version

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.

8.4 Exchanging the electronics module

In case of a defect, the user can replace the electronics module with another one of identical type.

In Ex applications, only instruments and electronics modules with appropriate Ex approval may be used.

If there is no electronics module available on site, one can be ordered from the agency serving you.

8.5 Software update

The following components are required to update the instrument software:

● Instrument
● Voltage supply
● Interface adapter VEGACONNECT
● PC with PACTware
● Current instrument software as file

You can find the current instrument software as well as detailed information on the procedure in the download area of our homepage: www.vega.com.

You can find information about the installation in the download file.

⚠ **Caution:**
Instruments with approvals can be bound to certain software versions. Therefore make sure that the approval is still effective after a software update is carried out.

You can find detailed information in the download area at www.vega.com.

8.6 How to proceed if a repair is necessary

On our homepage you will find detailed information on how to proceed in the event of a repair.

So that we can carry out the repair quickly and without queries, generate a instrument return form there with the data of your device.

The following is required:

● The serial number of the instrument
● A short description of the fault
● Details of the medium, if applicable

Print the generated instrument return form.

Clean the instrument and pack it damage-proof.

Send the printed instrument return form and possibly a safety data sheet together with the device.

You will find the address for the return on the generated instrument return form.

9 Dismount

9.1 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 media etc.

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

9.2 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.

10 Certificates and approvals

10.1 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.

10.2 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.

10.3 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.

10.4 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.

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11 Supplement

11.1 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)

Torques

Max. torque for NPT cable glands and Conduit tubes

− Plastic housing	10 Nm (7.376 lbf ft)
− Aluminium/Stainless steel housing	50 Nm (36.88 lbf ft)

Signal and supply circuit

Operating voltage max.	35 V DC
Voltage drop with current value 4 … 20 mA	
− Without lighting	max. 2.2 V
− With lighting	max. 3.2 V
Current range	3.5 … 22.5 mA[1]
Overcurrent resistance	100 mA
Fuse	Power supply side
Reverse voltage protection	Available
Functional safety	SIL non-reactive

Current measurement (reference temperature 20 °C)

Measuring range loop current	3.5 … 22.5 mA
Deviation	±0.1 % of 20 mA
Temperature coefficient	±0.1 % of the span/10 K
Interval	250 ms

Display and adjustment module

Display element	Display with backlight
Measured value indication	
− Number of digits	5
Adjustment elements	
− 4 keys	*[OK]*, *[->]*, *[+]*, *[ESC]*
Protection rating	
− unassembled	IP20
− Mounted in the housing without lid	IP40
Materials	
− Housing	ABS
− Inspection window	Polyester foil
Functional safety	SIL non-reactive

Ambient conditions

Storage and transport temperature	-40 … +80 °C (-40 … +176 °F)

[1] If the loop current is not sufficient for operation, the display remains dark. When the measured values are outside the measuring range, a message is displayed instead of the measured value.

Ambient temperature

− without display and adjustment module	-40 … +80 °C (-40 … +176 °F)
− With display and adjustment module	-20 … +70 °C (-4 … +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)

Electromechanical data - Panel mounting

Terminals, plug connector	
− 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 … 1.5 mm² (AWG 24 … 16)
− Stranded wire with end sleeve	0.25 … 0.75 mm² (AWG 24 … 18)

Electrical protective measures

Protection rating	
− Plastic housing	IP66/IP67 acc. to IEC 60529, Type 4X acc. to NEMA
− Housing for panel mounting (mounted)	IP40 acc. to IEC 60529, Type 1 acc. to NEMA
− Aluminium/Stainless steel housing	IP66/IP68 (0.2 bar) acc. to IEC 60529, type 6P acc. to NEMA
Connection of the feeding power supply unit	Networks of overvoltage category III

Altitude above sea level

– by default	up to 2000 m (6562 ft)
– with connected overvoltage protection	up to 5000 m (16404 ft)
Pollution degree[2]	4
Protection class	II

11.2 Dimensions
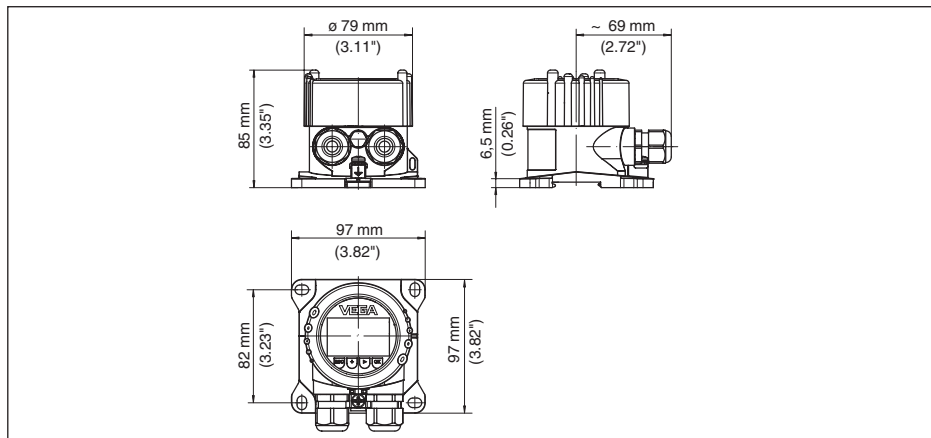
VEGADIS 82, plastic housing

Fig. 19: VEGADIS 82 with plastic housing
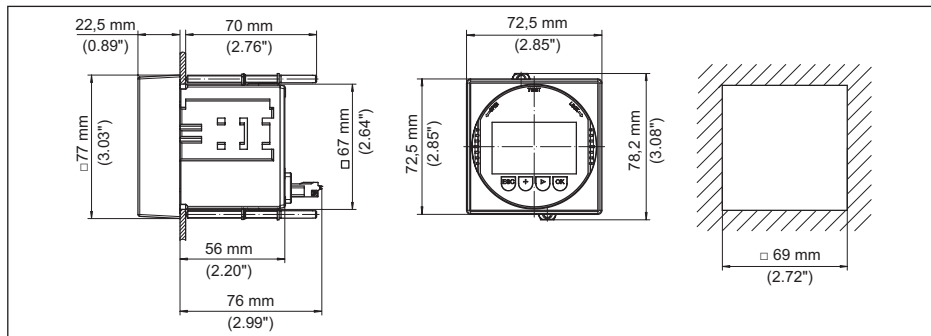
VEGADIS 82, plastic housing (panel mounting)

Fig. 20: VEGADIS 82 with plastic housing for panel mounting

[2] When used with fulfilled housing protection

VEGADIS 82, aluminium housing
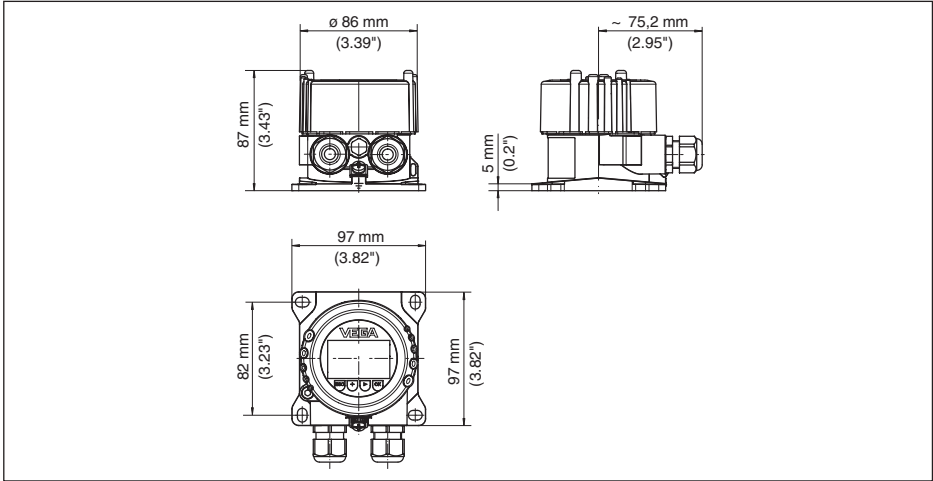
Fig. 21: VEGADIS 82 with Aluminium housing

VEGADIS 82, Stainless steel housing (precision casting)
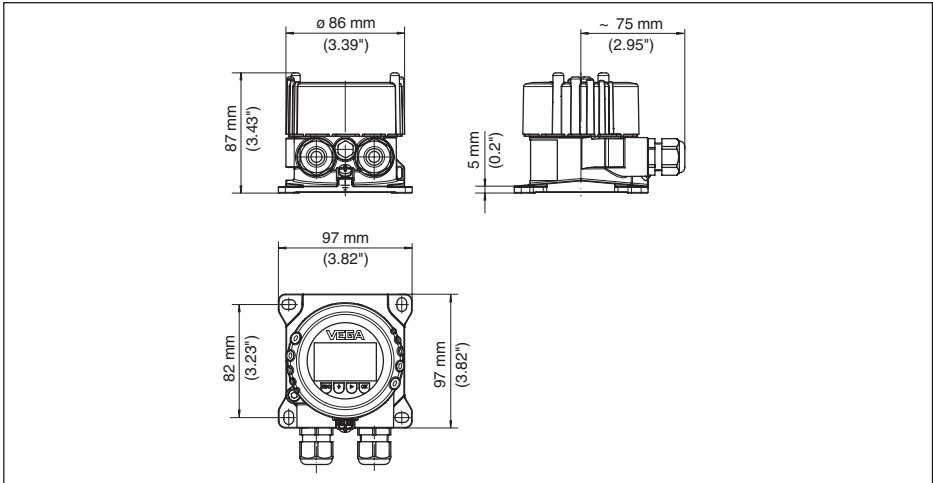
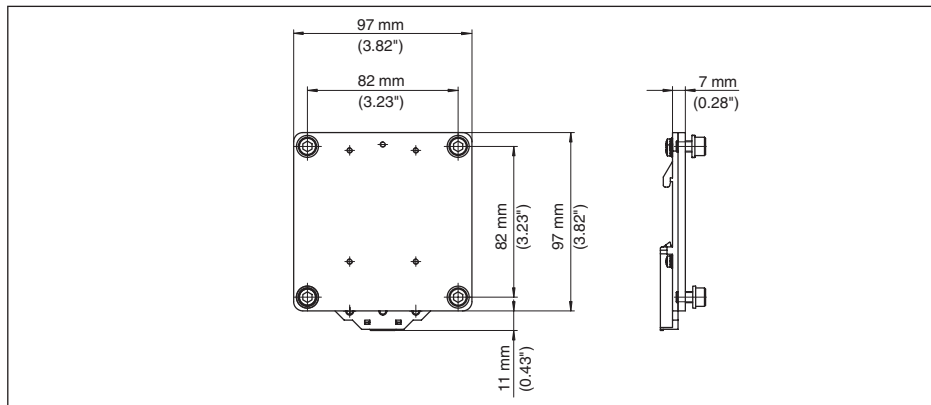*Fig. 22: VEGADIS 82, with stainless steel housing (precision casting)*

Mounting elements

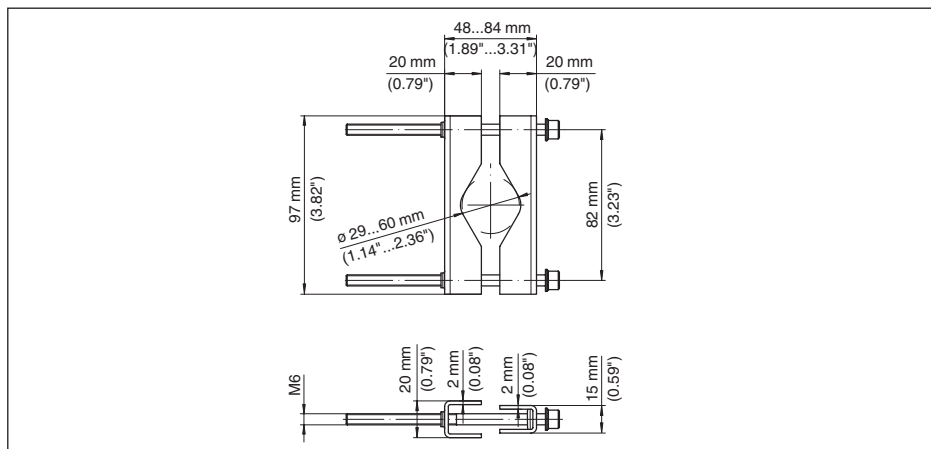*Fig. 23: Adapter plate for carrier rail mounting of VEGADIS 82*

Fig. 24: Brackets for tube mounting of VEGADIS 82

VEGA

11.3 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.

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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。

11.4 Trademark

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

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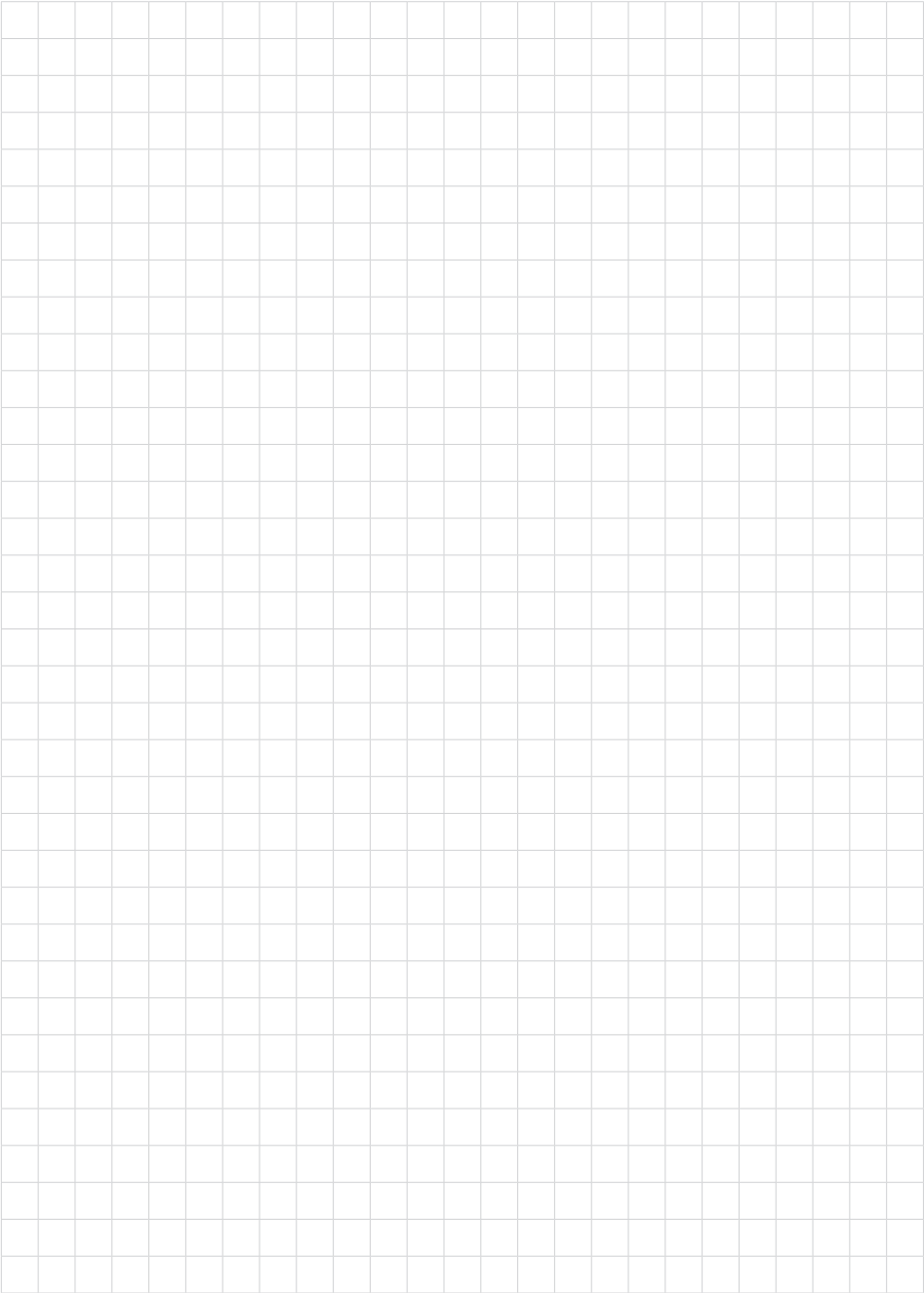– Tube 11

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