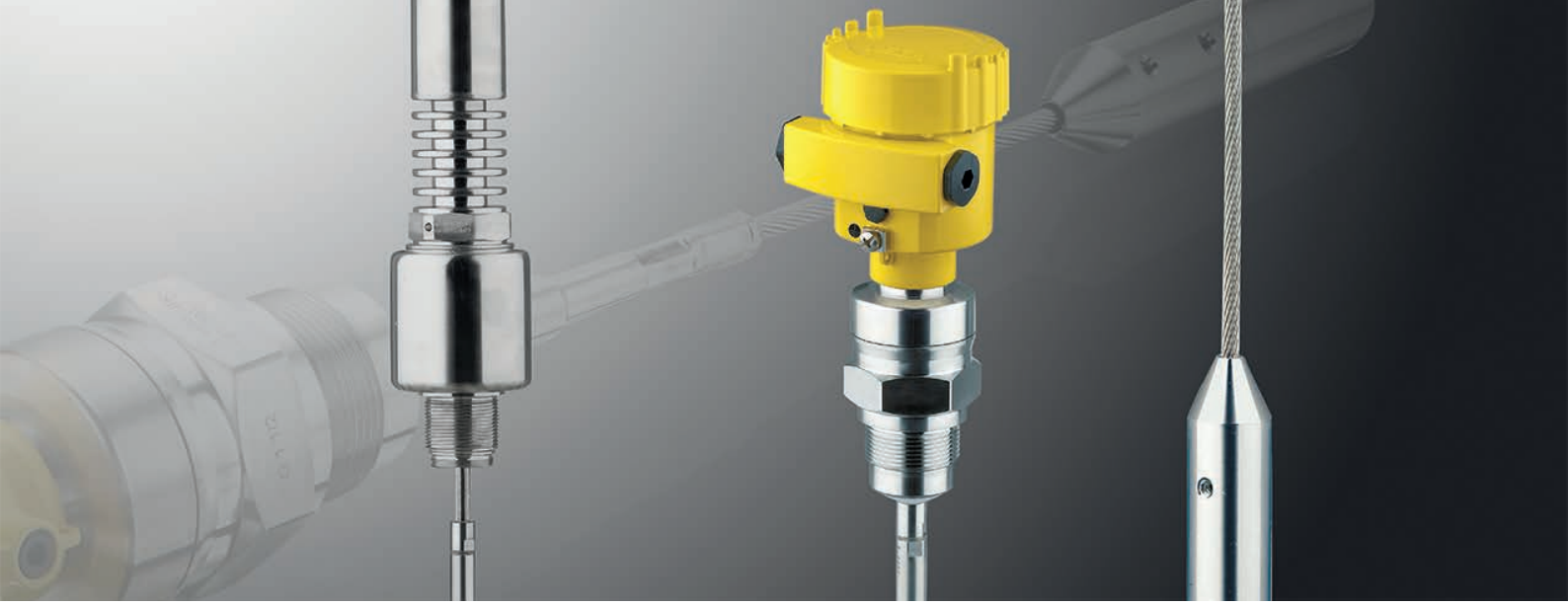


Product information

Guided Wave Radar

Level measurement in bulk solids

VEGAFLEX 82
VEGAFLEX 86

Document ID: 46598

Contents

Take note of safety instructions for Ex applications

Please note the Ex specific safety information that you can find at www.vega.com and that comes with each instrument. In hazardous areas you should take note of the appropriate regulations, conformity and type approval certificates of the sensors and power supply units. The sensors must only be operated on intrinsically safe circuits. The permissible electrical values are stated in the certificate.

46598-EN-160921

1 Measuring principle

Measuring principle

High frequency microwave pulses are coupled onto a cable or rod and guided along the probe. The pulse is reflected by the product surface. The time from emission to reception of the signals is proportional to the distance of the level.

The instrument is supplied with the probe length (0 % and 100 %) already adjusted. In most cases setup on site is not required. In any case, you set up VEGAFLEX without medium. The shortenable cable and rod versions can be simply adapted to the local requirements, if necessary.

Applications in bulk solids

Typical process properties in bulk solids are strong dust and noise generation, buildup, condensation and of course the generation of material cones. VEGAFLEX is the ideal measuring system for silos or bunkers with such conditions.

Typical product properties, such as moisture content, mixing ratio or granulate size, do not affect the function of the instrument, which makes planning really simple. The intelligent software guarantees high measurement certainty and a well monitored probe. Even in products with low dielectric constant (from 1.1) the sophisticated processing ensures reliable measuring results.

Different probes are available

- Cable probes for applications in high vessels up to 75 m (246 ft)
- Rod probes for applications in vessels up to 6 m (20 ft)

Input variable

The measured quantity is the distance between process fitting of the sensor and product surface. Depending on the sensor version, the reference plane is the seal surface on the hexagon or the lower side of the flange.

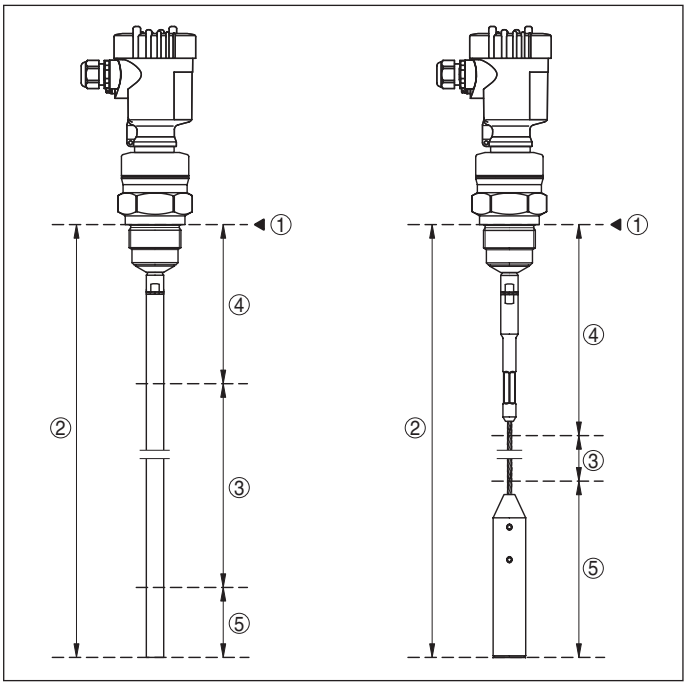


Fig. 1: Measuring ranges of VEGAFLEX

1 Reference plane
2 Probe length (L)
3 Measuring range
4 Upper dead band
5 Lower dead band

2 Type overview

VEGAFLEX 82
Cable version

VEGAFLEX 82
Rod version

Applications	High storage silos, silos with product movement	Storage silos
Max. measuring range	75 m (246 ft)	6 m (19.69 ft)
Probe	Cable probe ø 4 mm ø 6 mm ø 11 mm	Rod probe ø 16 mm
Process fitting/Material	Thread G1½ , 1½ NPT Flanges DN 50, 2"	Thread G1½ , 1½ NPT Flanges DN 50, 2"
Process temperature	-40 … +200 °C (-40 … +392 °F)	-40 … +200 °C (-40 … +392 °F)
Process pressure	-1 … +40 bar/-100 … +4000 kPa (-14.5 … +580 psi)	-1 … +40 bar/-100 … +4000 kPa (-14.5 … +580 psi)
Deviation	±2 mm	±2 mm
Signal output	• 4 … 20 mA/HART - two-wire • 4 … 20 mA/HART - four-wire • Profibus PA • Foundation Fieldbus • Modbus and Levelmaster protocol	
Indication/Adjustment	• PLICSCOM • PACTware • VEGADIS 62 • VEGADIS 81	
Approvals	• ATEX • IEC • Shipbuilding • FM • CSA • EAC (Gost)	

46598-EN-160921

VEGAFLEX 86
Cable version

VEGAFLEX 86
Rod version

Applications	High temperature applications	High temperature applications
Max. measuring range	75 m (246 ft)	6 m (19.69 ft)
Probe	Cable probe ø 2 mm ø 4 mm	Rod probe ø 16 mm
Process fitting/Material	Thread G1½ , 1½ NPT Flanges DN 50, 2"	Thread G1½ , 1½ NPT Flanges DN 50, 2"
Process temperature	-196 … +450 °C (-320 … +842 °F)	-196 … +450 °C (-320 … +842 °F)
Process pressure	-1 … +400 bar/-100 … +40000 kPa (-14.5 … +5800 psi)	-1 … +400 bar/-100 … +40000 kPa (-14.5 … +5800 psi)
Deviation	±2 mm	±2 mm
Signal output	• 4 … 20 mA/HART - two-wire • 4 … 20 mA/HART - four-wire • Profibus PA • Foundation Fieldbus • Modbus and Levelmaster protocol	
Indication/Adjustment	• PLICSCOM • PACTware • VEGADIS 62 • VEGADIS 81	
Approvals	• ATEX • IEC • Shipbuilding • FM • CSA • EAC (Gost)	

3 Instrument selection

Application areas

VEGAFLEX 82
VEGAFLEX 82 allows maintenance-free measurement of light and heavy bulk solids. Even in applications with strong dust generation, condensation or buildup, the sensor delivers precise and reliable measured values. Automatic probe end tracking enables measurement of virtually any kind of bulk solid material.

VEGAFLEX 86
VEGAFLEX 86 is especially suitable for high-temperature applications in all kinds of bulk solids. Even in applications with strong dust generation, condensation or buildup the sensor delivers precise and reliable measured values. Many application possibilities can be found in primary industries, e.g. in cement production.

Advantages

Immune to dust and vapour
Process conditions such as extreme dust and noise generation do not influence the accuracy of the measurement.

Unaffected by material fluctuations
Density fluctuations, different granulate sizes or also fluidizing do not influence the accuracy. Even the change from dry to wet gravel has no effect.

Buildup: no problem
Stong buildup on the probe or vessel wall does not influence the measurement result.

Wide application range
With measuring ranges up to 75 m the sensors are also suitable for high vessels. Temperature range from -196 °C up to +450 °C and pressures from vacuum up to 400 bar cover a wide application spectrum.

Applications

Level measurement in conical vessels
During operation, the probe must not touch any installations or the vessel wall. If necessary, fasten the probe end.

In vessels with conical bottom it can be advantageous to mount the sensor in the center of the vessel, as measurement is then possible down to the lowest point of the vessel bottom.

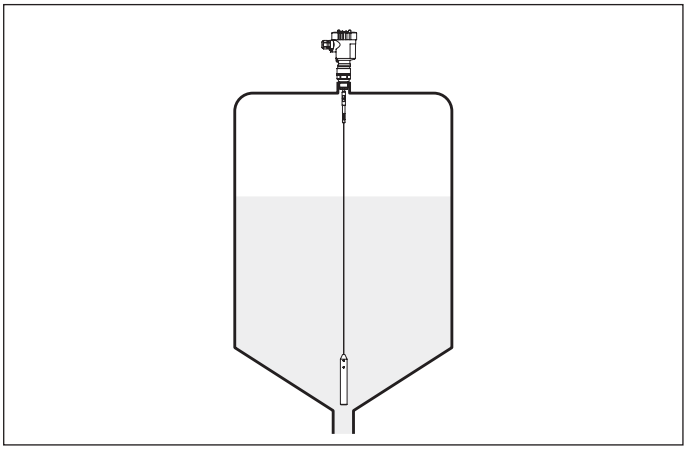


Fig. 6: Vessel with conical bottom

Installation position
Mount VEGAFLEX so that the probe does not touch any installations or the vessel wall during operation. If necessary, fasten the probe end.

When mounting the cable and rod versions of VEGAFLEX, keep a distance of at least 300 mm (11.81 in) to other vessel installations or to the vessel wall.

If possible, mount the sensor flush with the vessel top. If this is not possible, use short sockets with small diameter.

In case of unfavourable mounting conditions such as e.g. very high (h > 200 mm/7.9 in) or very wide (ø > 200 mm/7.9 in) sockets or an insufficient distance to the vessel wall or vessel installations (< 300 mm/11.81 in), we recommend carrying out a false echo suppression for the area in question. Use the adjustment software PACTware with DTM.

Inflowing medium
Make sure that the probe is not subjected to strong lateral forces. Mount VEGAFLEX at a position in the vessel where no mechanical disturbances, e.g. from filling openings, agitators, etc., can occur.

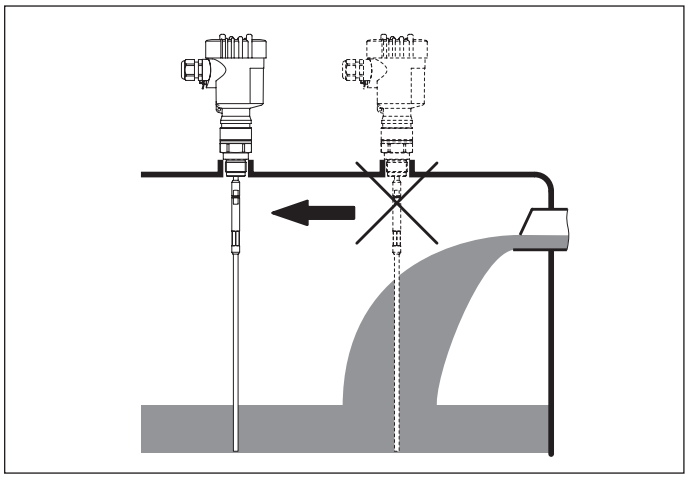


Fig. 7: Lateral load

Mounting socket
If possible, avoid sockets. Mount the sensor flush with the vessel top. If this is not possible, use short sockets with small diameter.

Higher sockets or sockets with a bigger diameter can generally be used. They can, however, increase the upper blocking distance (dead band). Check if this is relevant for your measurement.

In such cases, always carry out a false signal suppression after installation. You can find further information under "*Setup procedure*".

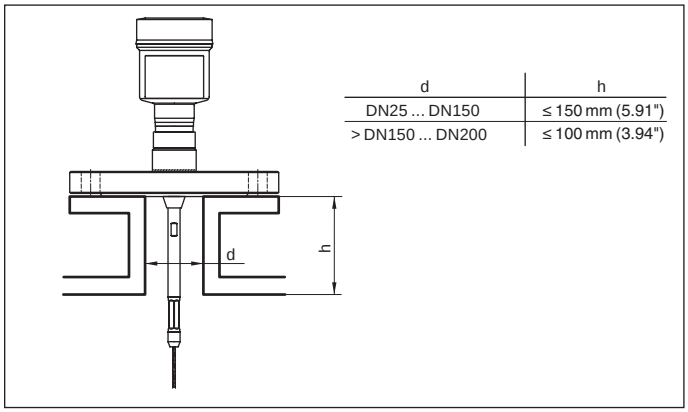


Fig. 8: Mounting socket

When welding the socket, make sure that the socket is flush with the vessel top.

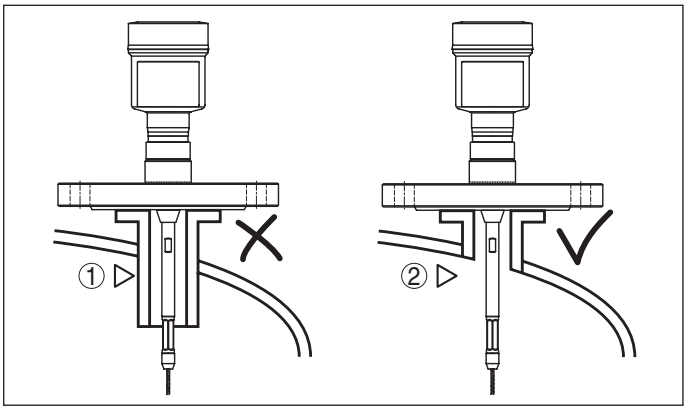


Fig. 9: Socket must be installed flush

1 Unfavourable installation
2 Socket flush - optimum installation

Type of vessel

Plastic vessel

The guided microwave principle requires a metallic surface on the process fitting. Therefore, in plastic vessels, etc., use an instrument version with flange (from DN 50) or place a metal sheet (ø > 200 mm/8 in) beneath the process fitting when screwing it in.

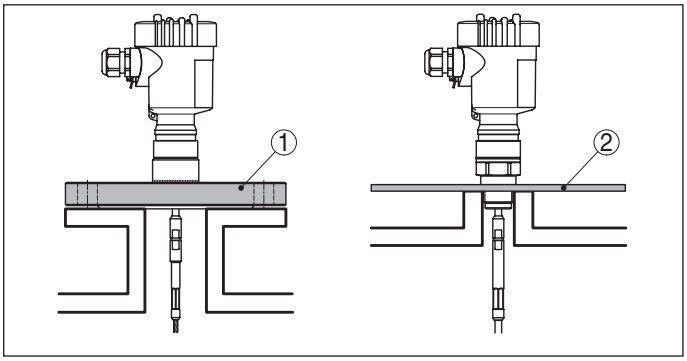


Fig. 10: Installation in plastic silo

1 Flange
2 Metal plate

Concrete vessel

When installed in thick concrete ceilings, VEGAFLEX should be mounted front flush to the lower edge. In concrete silos, the distance to the wall should be at least 500 mm (20 in).

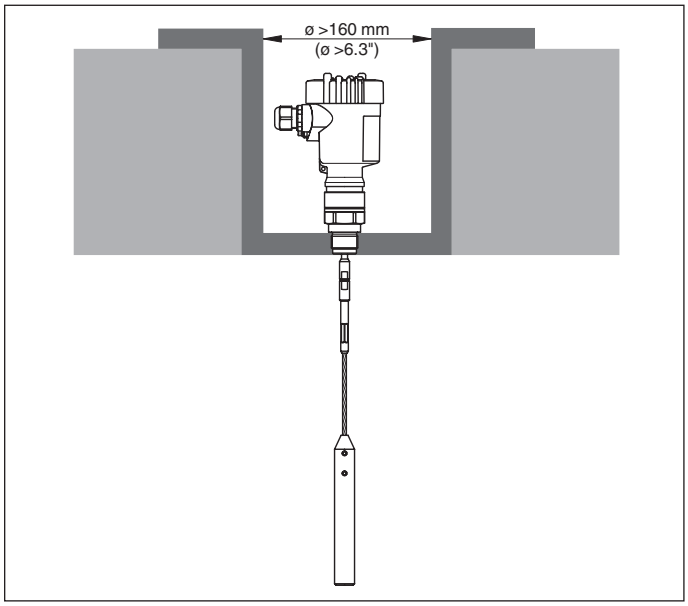


Fig. 11: Installation in concrete silo

4 Selection criteria

		VEGAFLEX 82		VEGAFLEX 86	
		Cable	**Rod**	**Cable**	**Rod**
Vessel	Vessels < 6 m	●	○	○	○
	High vessels > 6 m	●	–	○	–
Process	Buildup	●	●	●	●
	Dust	●	●	●	●
	Temperatures > 200 °C	–	–	●	●
	Abrasive bulk solids	–	–	–	–
	Strong extraction forces	●	●	–	–
	Tangential filling	○	●	○	●
Process fittings	Threaded fittings	●	●	●	●
	Flange connections	●	●	●	●
Probe	Separable rod	–	●	–	●
	Probe can be shortened	●	●	●	●
Industry	Chemical	●	●	●	●
	Power generation	●	●	●	●
	Foodstuffs	●	●	●	●
	Metal production	○	○	○	○
	Paper	●	●	○	○
	Shipbuilding	●	●	○	○
	Environment and recycling industry	●	●	○	○
	Cement industry	●	●	●	●

– not recommended

○ possible with limitations

● optimum suitability

5 Housing overview

Plastic PBT		
Protection rating	IP 66/IP 67	IP 66/IP 67
Version	Single chamber	Double chamber
Application area	Industrial environment	Industrial environment

Aluminium		
Protection rating	IP 66/IP 67, IP 66/IP 68 (1 bar)	IP 66/IP 67, IP 66/IP 68 (1 bar)
Version	Single chamber	Double chamber
Application area	Industrial environment with increased mechanical stress	Industrial environment with increased mechanical stress

Stainless steel 316L			
Protection rating	IP 66/IP 67	IP 66/IP 67, IP 66/IP 68 (1 bar)	IP 66/IP 67, IP 66/IP 68 (1 bar)
Version	Single chamber, electropolished	Single chamber, precision casting	Double chamber, precision casting
Application area	Aggressive environment, food processing, pharmaceutical	Aggressive environment, extreme mechanical stress	Aggressive environment, extreme mechanical stress

6 Mounting

Mounting examples

The following illustrations show mounting examples and measurement setups.

Foodstuffs and animal feed

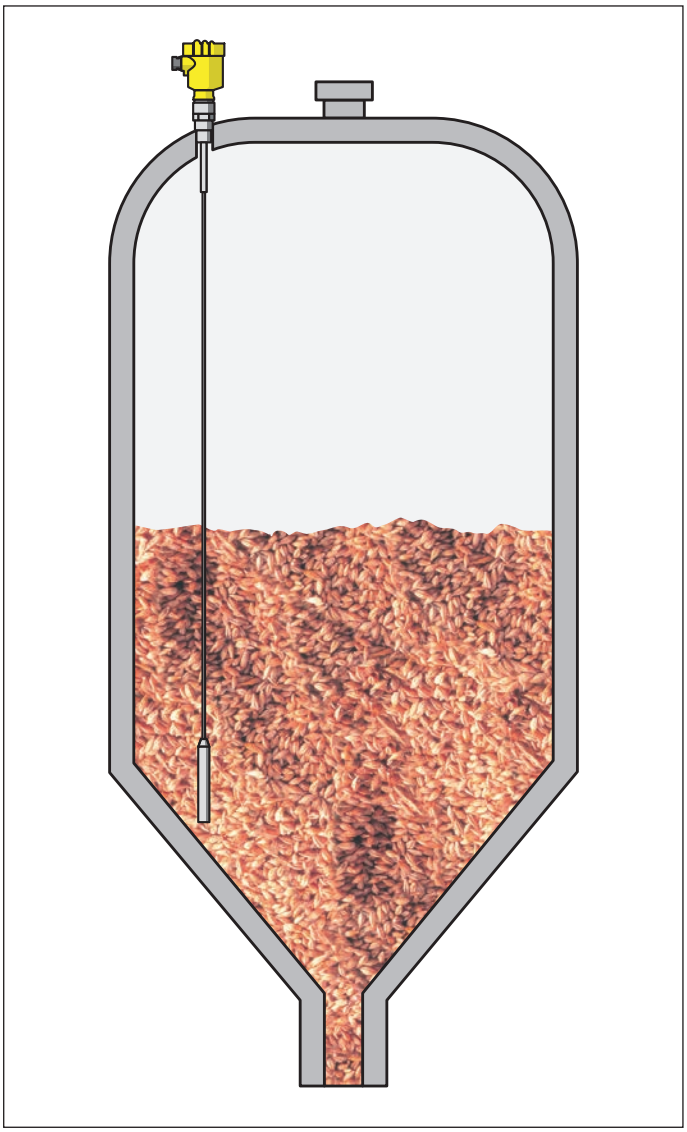


Fig. 19: Level measurement in a grain silo with VEGAFLEX 82

Cereals, sugar, flour, coffee, cornflakes, cacao, instant powder, animal feed - bulk solid levels have to be measured everywhere in the food industry.

The guided microwave principle works independently of product characteristics such as moisture, intense dust or noise generation and the shape of the material cone.

Even very tall silos are no problem. Cable probes, also with PA coating, are available for different loads and in lengths up to 75 m (246 ft).

VEGAFLEX also meets the requirements of dust-Ex Zone 20 (1/2D).

Plastics

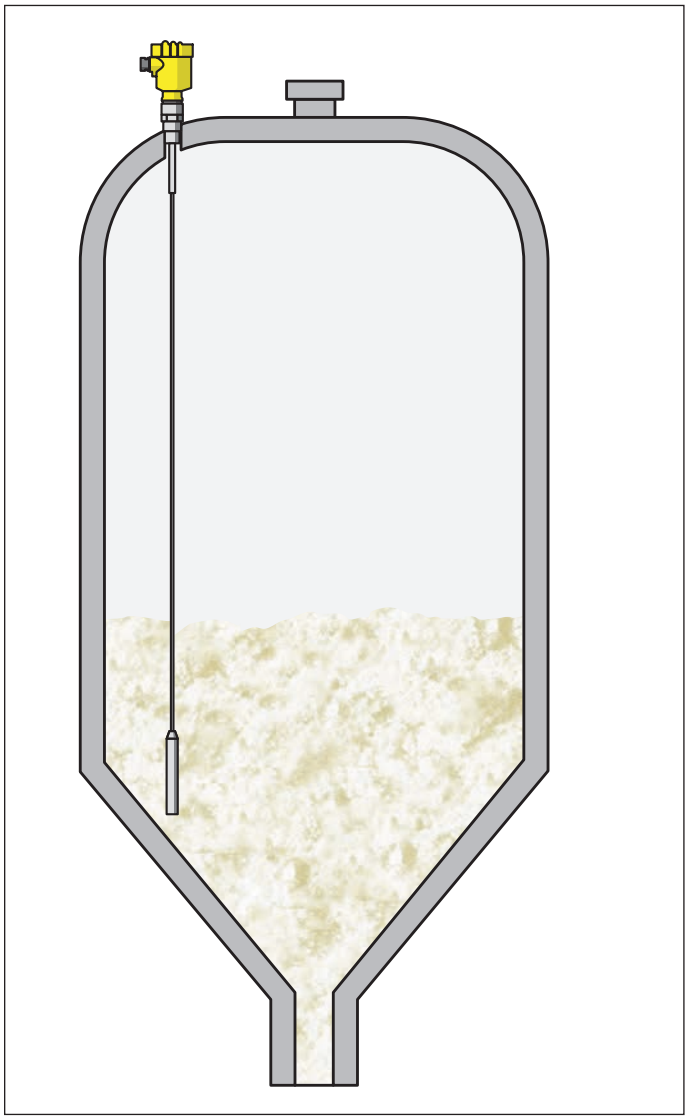


Fig. 20: Level measurement of plastic granules with VEGAFLEX 82

Many finished products in the chemical industry are produced as powder, granules or pellets. The different and sometimes fluctuating product characteristics place heavy demands on the level measurement.

The measuring result is influenced neither by fluctuating product quality nor by dust generation or the shape of the material cone.

Even strong electrostatic discharges cannot harm VEGAFLEX 82.

Unaffected by product properties, the sensor delivers accurate, reproducible level data.

Building materials

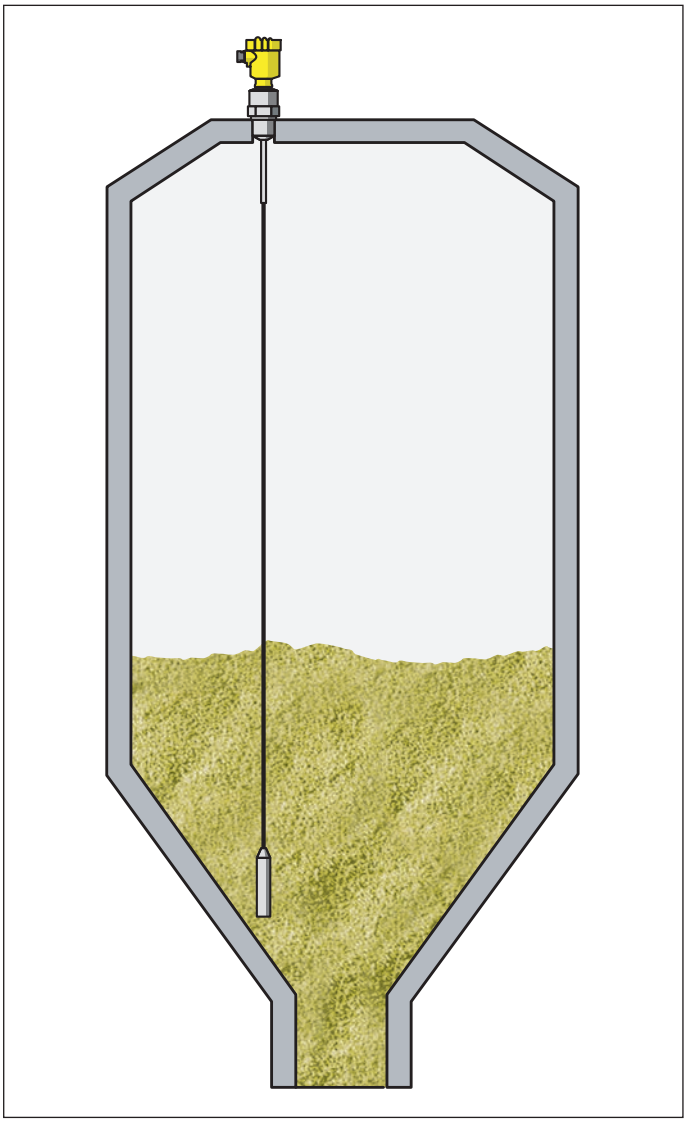


Fig. 21: Level measurement in a storage vessel with VEGAFLEX 82

In the building industry, different additives are stored in single or multiple chamber silos - e.g. cement, sand, filler with varying properties such as moisture content, grain size, material cone shape and flow behavior.

The guided microwave is ideal for level measurement in vessels containing bulk solids. Due to the physical measuring principle, adjustment with medium is no longer necessary. The sensor only has to be electrically connected.

The measuring result is influenced neither by fluctuating product quality nor by dust generation, condensation or the shape of the material cone and therefore has a high reproducibility.

Cable probes are available for different lengths and loads. Tractive forces on the cable up to 3 tons (6000 lbs) are no problem for the stable VEGAFLEX 82.

The measurement is unaffected by product properties such as density, temperature, dielectric constant and buildup. Because it is available in a wide range of versions, VEGAFLEX can even measure products such as light-weight fly ash or hot asphalt.

Cement

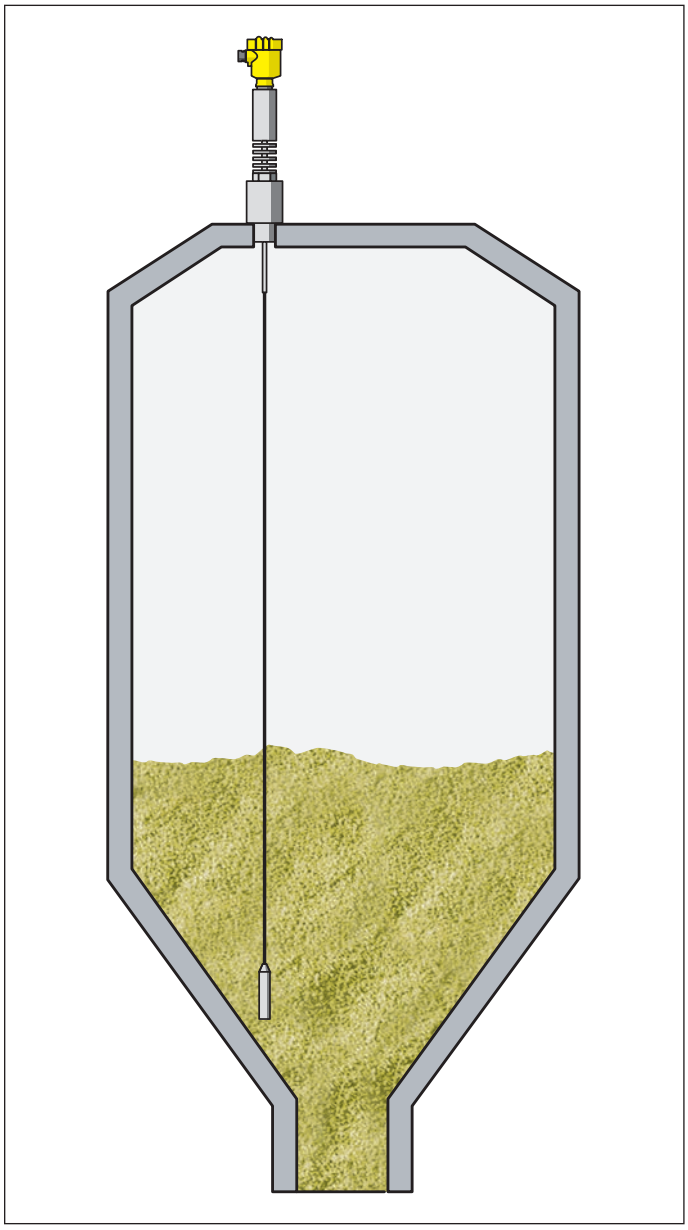


Fig. 22: Level measurement in a clinker vessel with VEGAFLEX 86

In the cement industry, clinker with different consistencies is stored after burning of the raw meal for further processing. Beside the strong dust generation, the high product temperatures and strong abrasion place heavy demands on the measurement technology. Depending on the production capacity of the cement plant, clinker silos can have enormous dimensions, sometimes reaching a height of more than 50 m and a diamter of more than 30 m. They are filled and emptied through different openings.

The guided microwave is ideal for level measurement in vessels containing bulk solids. Due to the physical measuring principle, adjustment with medium is no longer necessary. The sensor only has to be electrically connected.

The measurement is independent of product properties such as density, dielectric constant and buildup. Thanks to its wide range of models, VEGAFLEX can also measure extremely hot products, such as clinker coming directly from the furnace.

7 Electronics - 4 … 20 mA/HART - two-wire

Configuration of the electronics

The plug-in electronics is mounted in the electronics compartment of the instrument and can be exchanged by the user when servicing is required. The electronics is completely encapsulated to protect against vibration and moisture.

The terminals for voltage supply as well as the contact pins with I^2C interface for parameter adjustment are located on the upper side of the electronics. In the double-chamber housing, the terminals are located in the separate terminal compartment.

Voltage supply

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

You can find the data of the voltage supply in chapter "*Technical data*" in the operating instructions manual of the respective instrument.

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

Specifications of the voltage supply:

- Operating voltage
  - 9.6 … 35 V DC
  - 12 … 35 V DC
- Permissible residual ripple - Non-Ex, Ex-ia instrument
  - for 9.6 V< U_N < 14 V: ≤ 0.7 V_{eff} (16 … 400 Hz)
  - for 18 V< U_N < 35 V: ≤ 1.0 V_{eff} (16 … 400 Hz)

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

- Lower output voltage of the power supply unit under nominal load (e.g. with a sensor current of 20.5 mA or 22 mA in case of fault)
- Influence of additional instruments in the circuit (see load values in chapter "*Technical data*" of the operating instructions of the respective instrument)

Connection cable

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

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

Cable screening and grounding

If screened cable is required, we recommend connecting the cable screen on both ends to ground potential. In the sensor, the screen must be connected directly to the internal ground terminal. The ground terminal on the outside of the housing must be connected to the ground potential (low impedance).

Connection

Single chamber housing

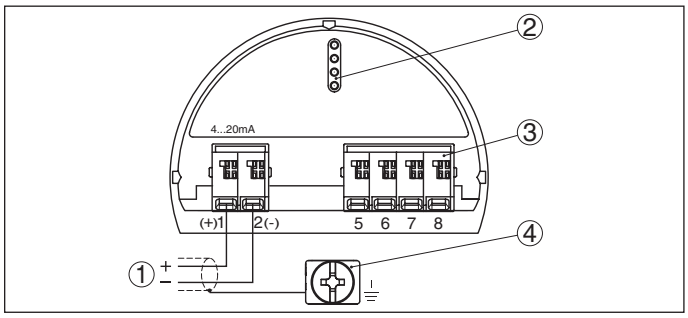


Fig. 23: Electronics and terminal compartment, single chamber housing

1 Voltage supply/Signal output
2 For display and adjustment module or interface adapter
3 For external display and adjustment unit
4 Ground terminal for connection of the cable screen

Double chamber housing

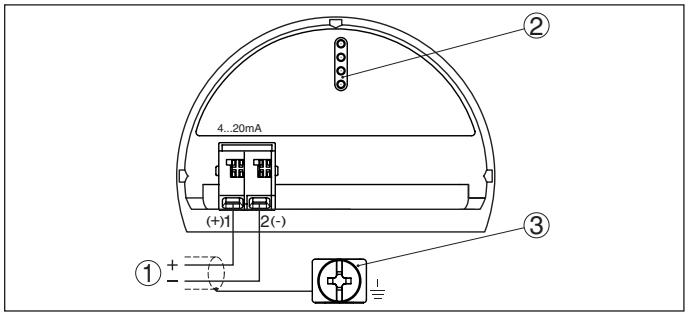


Fig. 24: Terminal compartment, double chamber housing

1 Voltage supply/Signal output
2 For display and adjustment module or interface adapter
3 Ground terminal for connection of the cable screen

Wire assignment, connection cable with version IP 66/IP 68, 1 bar

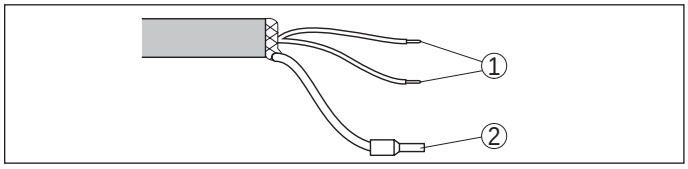


Fig. 25: Wire assignment in permanently connected connection cable

1 Brown (+) and blue (-) to power supply or to the processing system
2 Shielding

8 Electronics - 4 … 20 mA/HART - four-wire

Configuration of the electronics

The plug-in electronics is mounted in the electronics compartment of the instrument and can be exchanged by the user when servicing is required. The electronics is completely encapsulated to protect against vibration and moisture.

The contact pins with I^2C interface for parameter adjustment are located on the upper side of the electronics. The terminals for the power supply are located in the separate connection compartment.

Voltage supply

If a reliable separation is required, the power supply and the current output are transmitted over separate two-wire connection cables.

- Operating voltage with version for low voltage
  - 9.6 … 48 V DC, 20 … 42 V AC, 50/60 Hz
- Operating voltage with version for mains voltage
  - 90 … 253 V AC, 50/60 Hz

Connection cable

The 4 … 20 mA current output is connected with standard two-wire cable without screen. If electromagnetic interference is expected which is above the test values of EN 61326 for industrial areas, screened cable should be used.

For power supply, an approved installation cable with PE conductor is required.

Cable screening and grounding

If screened cable is required, we recommend connecting the cable screen on both ends to ground potential. In the sensor, the screen must be connected directly to the internal ground terminal. The ground terminal on the outside of the housing must be connected to the ground potential (low impedance).

Connection, double chamber housing

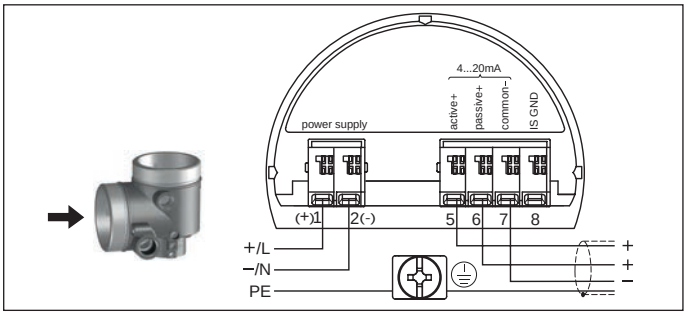


Fig. 26: Terminal compartment, double chamber housing

1 Voltage supply
2 4 … 20 mA signal output active
3 4 … 20 mA signal output passive

Terminal	Function	Polarity
1	Voltage supply	+/L
2	Voltage supply	-/N
5	4 … 20 mA output (active)	+
6	4 … 20 mA output (passive)	+
7	Mass - output	-
8	Functional ground with installation according to CSA	

9 Electronics - Profibus PA

Configuration of the electronics

The plug-in electronics is mounted in the electronics compartment of the instrument and can be exchanged by the user when servicing is required. The electronics is completely encapsulated to protect against vibration and moisture.

The terminals for voltage supply as well as the plug with I^2C interface for parameter adjustment are located on the upper side of the electronics. In the double-chamber housing, these connection elements are located in the separate terminal compartment.

Voltage supply

The voltage supply is provided by a Profibus DP /PA segment coupler.

Specifications of the voltage supply:

- Operating voltage
  - 9 … 32 V DC
- Max. number of sensors per DP/PA segment coupler
  - 32

Connection cable

Connection is carried out with screened cable according to Profibus specification.

Make sure that the entire installation is carried out according to the Profibus specification. In particular, make sure that the bus is terminated with suitable terminating resistors.

Cable screening and grounding

In systems with potential equalisation, connect the cable screen directly to ground potential at the power supply unit, in the connection box and at the sensor. The screen in the sensor must be connected directly to the internal ground terminal. The ground terminal outside on the housing must be connected to the potential equalisation (low impedance).

In systems without potential equalisation, connect the cable screen directly to ground potential on the power supply unit and the sensor. In the connection box or T-distributor, the screen of the short stub to the sensor may not be connected to ground potential or to another cable screen.

Connection

Single chamber housing

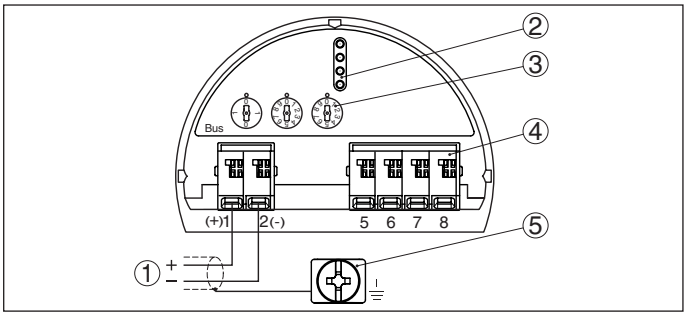


Fig. 27: Electronics and terminal compartment, single chamber housing

1 Voltage supply/Signal output
2 For display and adjustment module or interface adapter
3 Selection switch for bus address
4 For external display and adjustment unit
5 Ground terminal for connection of the cable screen

Double chamber housing

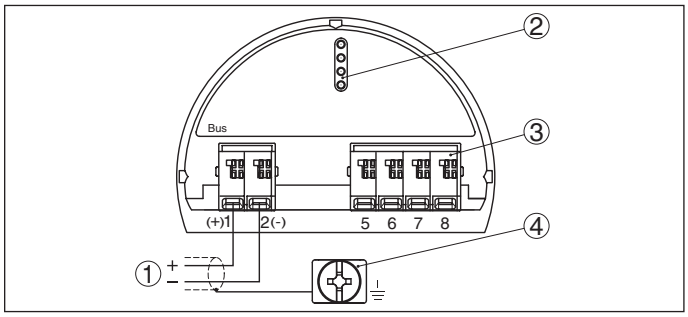


Fig. 28: Terminal compartment, double chamber housing

1 Voltage supply, signal output
2 For display and adjustment module or interface adapter
3 For external display and adjustment unit
4 Ground terminal for connection of the cable screen

Wire assignment, connection cable with version IP 66/IP 68, 1 bar

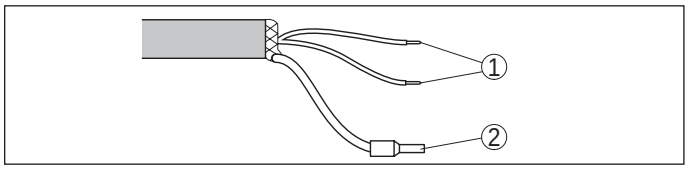


Fig. 29: Wire assignment in permanently connected connection cable

1 Brown (+) and blue (-) to power supply or to the processing system
2 Shielding

10 Electronics - Foundation Fieldbus

Configuration of the electronics

The plug-in electronics is mounted in the electronics compartment of the instrument and can be exchanged by the user when servicing is required. The electronics is completely encapsulated to protect against vibration and moisture.

The terminals for voltage supply as well as the contact pins with I^2C interface for parameter adjustment are located on the upper side of the electronics. In the double-chamber housing, the terminals are located in the separate terminal compartment.

Voltage supply

Power supply via the H1 Fieldbus cable.

Specifications of the voltage supply:

- Operating voltage
  - 9 … 32 V DC
- max. number of sensors
  - 32

Connection cable

Connection is carried out with screened cable according to Fieldbus specification.

Make sure that the entire installation is carried out according to the Fieldbus specification. In particular, make sure that the bus is terminated with suitable terminating resistors.

Cable screening and grounding

In systems with potential equalisation, connect the cable screen directly to ground potential at the power supply unit, in the connection box and at the sensor. The screen in the sensor must be connected directly to the internal ground terminal. The ground terminal outside on the housing must be connected to the potential equalisation (low impedance).

In systems without potential equalisation, connect the cable screen directly to ground potential on the power supply unit and the sensor. In the connection box or T-distributor, the screen of the short stub to the sensor may not be connected to ground potential or to another cable screen.

Connection

Single chamber housing

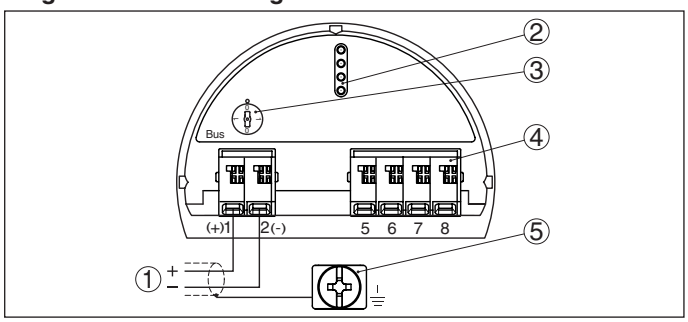


Fig. 30: Electronics and terminal compartment, single chamber housing

1 Voltage supply/Signal output
2 Contact pins for the display and adjustment module or interface adapter
3 Selection switch for bus address
4 For external display and adjustment unit
5 Ground terminal for connection of the cable screen

Double chamber housing

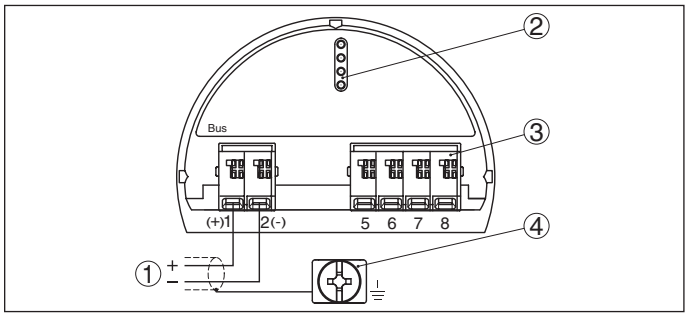


Fig. 31: Terminal compartment, double chamber housing

1 Voltage supply, signal output
2 For display and adjustment module or interface adapter
3 For external display and adjustment unit
4 Ground terminal for connection of the cable screen

Wire assignment, connection cable with version IP 66/IP 68, 1 bar

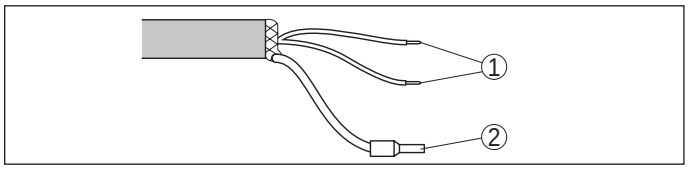


Fig. 32: Wire assignment in permanently connected connection cable

1 Brown (+) and blue (-) to power supply or to the processing system
2 Shielding

11 Electronics, Modbus, Levelmaster protocol

Configuration of the electronics

The plug-in electronics is mounted in the electronics compartment of the instrument and can be exchanged by the user when servicing is required. The electronics is completely encapsulated to protect against vibration and moisture.

The contact pins with I^2C interface for parameter adjustment are located on the upper side of the electronics. The terminals for the power supply are located in the separate connection compartment.

Voltage supply

Power supply via the Modbus host (RTU)

- Operating voltage
  - 8 … 30 V DC
- max. number of sensors
  - 32

Connection cable

Connection is carried out with screened cable according to Fieldbus specification.

For power supply, a separate two-wire cable is required.

In the product configurator of VEGAFLEX, different cable glands can be selected. They cover all cable diameters in the range of 4 … 12 mm (0.16 … 0.47 in).

Make sure that the entire installation is carried out according to the Fieldbus specification. In particular, make sure that the bus is terminated with suitable terminating resistors.

Cable screening and grounding

In systems with potential equalisation, connect the cable screen directly to ground potential at the power supply unit, in the connection box and at the sensor. The screen in the sensor must be connected directly to the internal ground terminal. The ground terminal outside on the housing must be connected to the potential equalisation (low impedance).

In systems without potential equalisation, connect the cable screen directly to ground potential on the power supply unit and the sensor. In the connection box or T-distributor, the screen of the short stub to the sensor may not be connected to ground potential or to another cable screen.

Connection

Double chamber housing

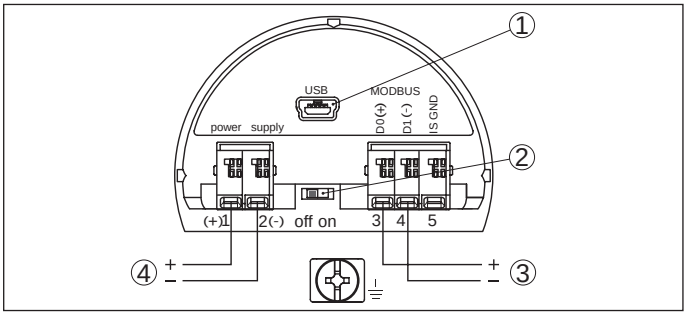


Fig. 33: Terminal compartment

1 USB interface
2 Slide switch for integrated termination resistor (120 Ω)
3 Voltage supply
4 Modbus signal

12 Adjustment

12.1 Adjustment on the measurement loop

Via the display and adjustment module through keys
The plug-in display and adjustment module is used for measured value indication, adjustment and diagnosis. It is equipped with an illuminated full dot matrix as well as four keys for adjustment.

Fig. 34: Display and adjustment module with single chamber housing

Via the display and adjustment module through magnetic pen
With the Bluetooth version of the display and adjustment module, the sensor can also be adjusted with the magnetic pen. This is done right through the closed lid (with inspection window) of the sensor housing.

Fig. 35: Display and adjustment module - with adjustment via magnetic pen

Via a PC with PACTware/DTM
The interface converter VEGACONNECT is required for connection of the PC. The converter is placed on the sensor instead of the display and adjustment module and connected to the USB interface of the PC.

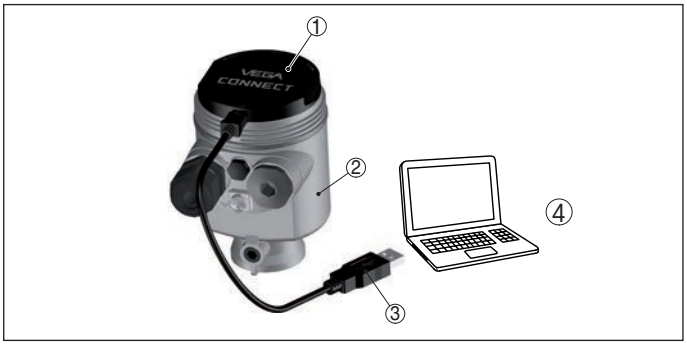


Fig. 36: Connection of the PC via VEGACONNECT and USB

1 *VEGACONNECT*
2 *Sensor*
3 *USB cable to the PC*
4 *PC with PACTware/DTM*

PACTware is an adjustment software for configuration, parameter adjustment, documentation and diagnosis of field devices. The corresponding device drivers are called DTMs.

12.2 Operation in the measurement loop environment - wireless via Bluetooth

Via a smartphone/tablet
The display and adjustment module with integrated Bluetooth functionality allows wireless connection to smartphones/tablets with iOS or Android operating system. The adjustment is carried out via the VEGA Tools app from the Apple App Store or Google Play Store.

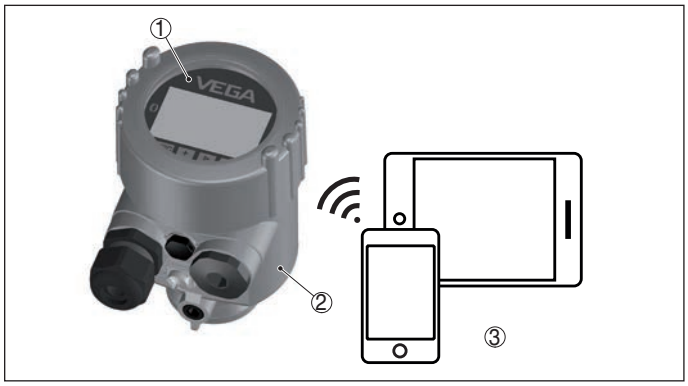


Fig. 37: Wireless connection to smartphones/tables

1 *Display and adjustment module*
2 *Sensor*
3 *Smartphone/Tablet*

Via a PC with PACTware/DTM
The wireless connection from the PC to the sensor is carried out via the Bluetooth USB adapter and a display and adjustment module with integrated Bluetooth function. The adjustment is carried out via the PC with PACtware/DTM.

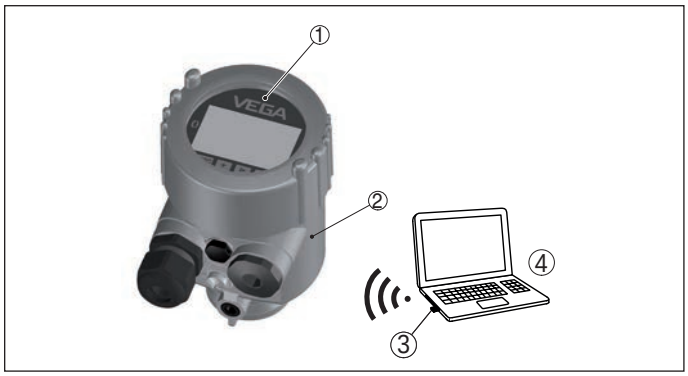


Fig. 38: Connection of the PC via Bluetooth adapter

1 *Display and adjustment module*
2 *Sensor*
3 *Bluetooth USB adapter*
4 *PC with PACTware/DTM*

12.3 Adjustment carried out at position remote from the measuring point - wired

Via external display and adjustment units
For this, the external display and adjustment units VEGADIS 81 and 82 are available. The adjustment is carried out via the keys of the built-in display and adjustment module.

The VEGADIS 81 is mounted at a distance of 50 m from the sensor and directly to the sensor electronics. VEGADIS 82 is looped directly into the signal cable at any point.

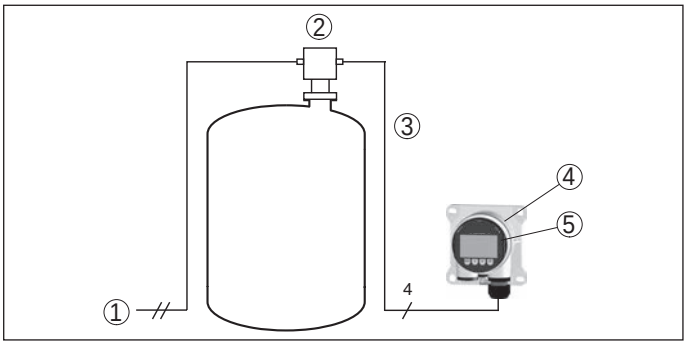


Fig. 39: Connection of VEGADIS 81 to the sensor

1 *Voltage supply/Signal output sensor*
2 *Sensor*
3 *Connection cable sensor - external display and adjustment unit*
4 *External display and adjustment unit*
5 *Display and adjustment module*

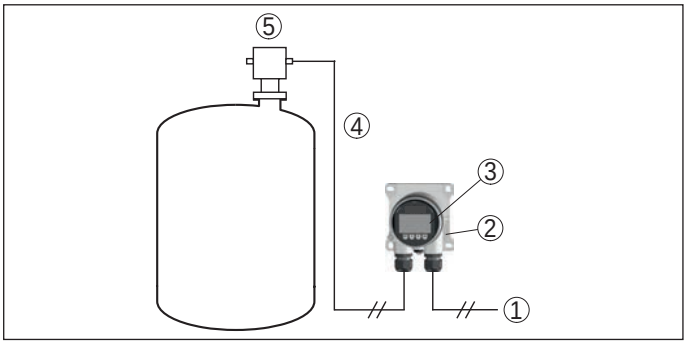


Fig. 40: Connection of VEGADIS 82 to the sensor

1 *Voltage supply/Signal output sensor*
2 *External display and adjustment unit*
3 *Display and adjustment module*
4 *4 … 20 mA/HART signal cable*
5 *Sensor*

Via a PC with PACTware/DTM
The sensor adjustment is carried out via a PC with PACTware/DTM.

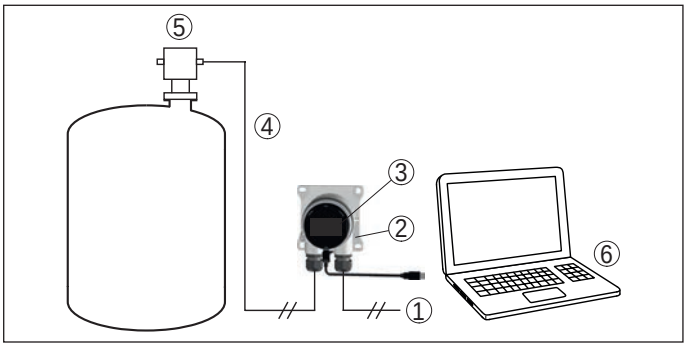


Fig. 41: Connection of VEGADIS 82 to the sensor, adjustment via PC with PACTware

1 *Voltage supply/Signal output sensor*
2 *External display and adjustment unit*
3 *VEGACONNECT*
4 *4 … 20 mA/HART signal cable*
5 *Sensor*
6 *PC with PACTware/DTM*

12.4 Adjustment carried out at position remote from the measuring point - wireless through mobile network

As an option, the radio module PLICSMOBILE can be mounted into a plics® sensor with double chamber housing. It is used for transmission of measured values and for remote parameter adjustment of the sensor.

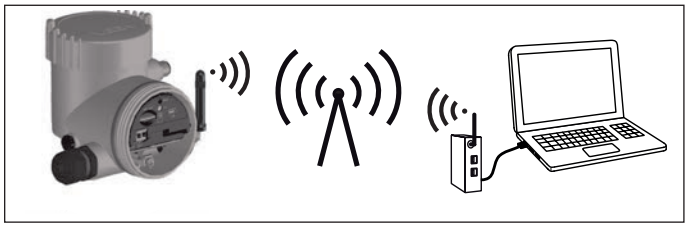


Fig. 42: Transmission of measured values and remote parameter adjustment of the sensor via mobile phone network.

12.5 Alternative adjustment programs

DD adjustment programs
Device descriptions as Enhanced Device Description (EDD) are available for DD adjustment programs such as, for example, AMS™ and PDM.

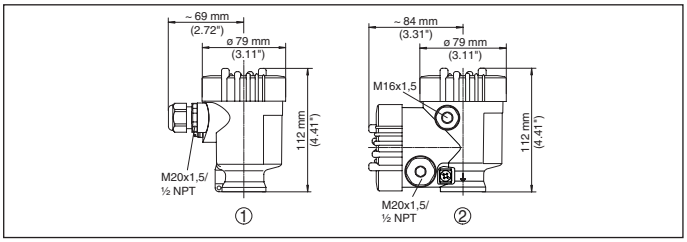
The files can be downloaded at www.vega.com/downloads under "*Software*".

Field Communicator 375, 475
Device descriptions for the instrument are available as EDD for parameter adjustment with the Field Communicator 375 or 475.

For the integration of the EDD in the Field Communicator 375 or 475, the software "Easy Upgrade Utility" is required which is available from the manufacturer. This software is updated via the Internet and new EDDs are automatically taken over into the device catalogue of this software after they are released by the manufacturer. They can then be transferred to a Field Communicator.

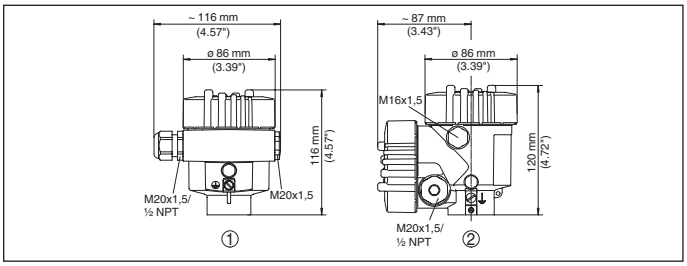
13 Dimensions

Plastic housing



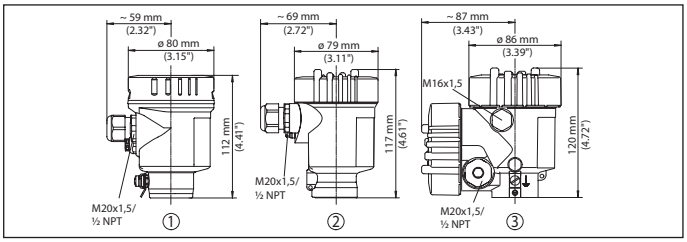
1 Single chamber housing
2 Double chamber housing

Aluminium housing



1 Single chamber housing
2 Double chamber housing

Stainless steel housing



1 Single chamber housing, electropolished
2 Single chamber housing, precision casting
2 Double chamber housing, precision casting

VEGAFLEX 82, cable and rod version

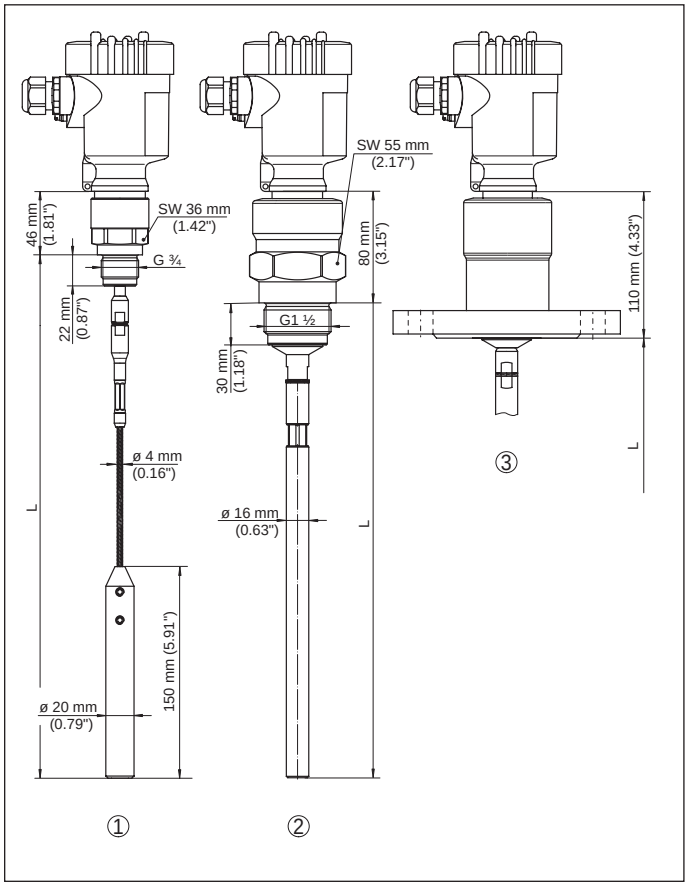


Fig. 46: VEGAFLEX 82, cable and rod version

1 Cable version, ø 4 mm (0.16 in) with threaded fitting
2 Rod version, ø 16 mm (0.63 in) with threaded fitting
3 Rod version, ø 16 mm (0.63 in) with flange connection
L Sensor length, see chapter "Technical data"

VEGAFLEX 86, cable and rod version

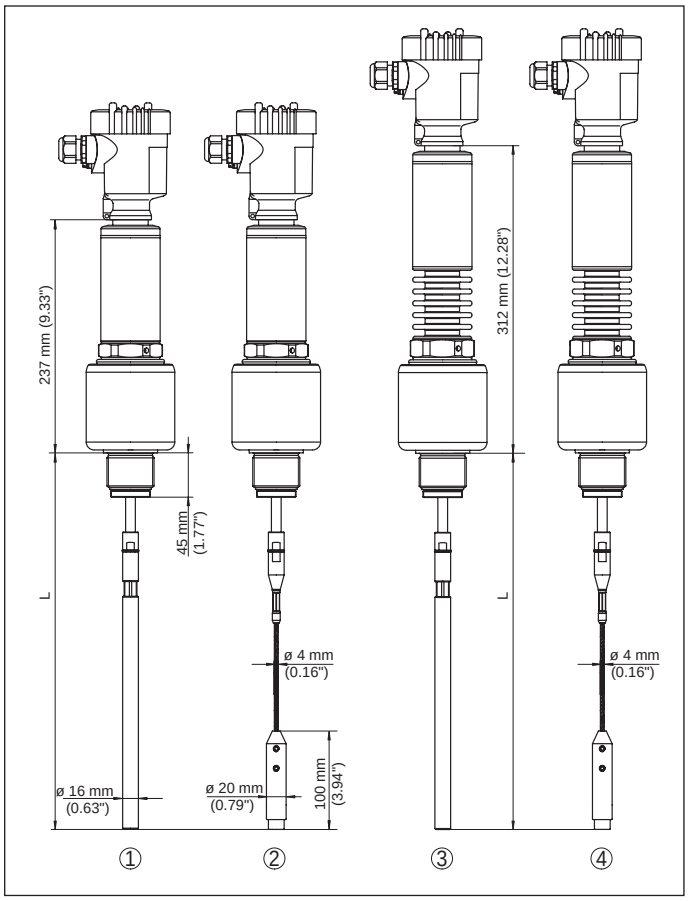


Fig. 47: VEGAFLEX 86, cable and rod version with threaded fitting

1 Rod version, ø 16 mm (0.63 in), -20 … +250 °C/-4 … +482 °F
2 Cable version, ø 4 mm (0.16 in), -20 … +250 °C/-4 … +482 °F
3 Rod version, ø 16 mm (0.63 in), -200 … +400 °C/-328 … +752 °F
4 Cable version, ø 4 mm (0.16 in), -200 … +400 °C/-328 … +752 °F
L Sensor length, see chapter "Technical data"

The listed drawings are only an excerpt of the available process fittings. You can find more drawings on our homepage www.vega.com » Downloads » Drawings.

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