Level measurement
in liquids

Ultrasonic

VEGASON 61
VEGASON 62
VEGASON 63

Product Information

VEGA

Contents

Take note of safety instructions for Ex applications

Please note the Ex specific safety information which you can find on our homepage www.vega.com\services\downloads and which comes with every 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.

29023-EN-070511

1 Description of the measuring principle

Measuring principle

Short ultrasonic pulses in the range of 35 kHz to 70 kHz are emitted by the transducer in the direction of the product surface, reflected there and received back by the transducer. The pulses travel at the speed of sound - the elapsed time from emission to reception of the signals depends on the level in the vessel.

The latest microcomputer technology and the proven ECHOFOX software select the level echo from among any number of false echoes and calculate the exact distance to the product surface. An integrated temperature sensor detects the temperature in the vessel and compensates the influence of temperature on the signal running time.

By simply entering the vessel dimensions, a level-proportional signal is generated from the distance. Filling the vessel is not necessary for adjustment.

Wide application range

VEGASON 61, 62 and 63 ultrasonic sensors are especially suitable for level measurement of liquids, but are also good for solids. The instruments differ in their measuring range, transducer version and process fitting. Through different, adapted emitting frequencies, levels in a measuring range of 5 … 15 m can be measured. Resistant materials for transducers and process fittings also allow applications in corrosive products (depending on the model). A practical mounting strap (optional) enables easy orientation of VEGASON 63.

Independent of product characteristics

Fluctuations in product composition or even complete product changes do not influence the measuring result. A fresh adjustment is not necessary.

Service and maintenance friendly

Thanks to the non-contact measuring principle, VEGASON 61, 62 and 63 sensors are especially easy to service and maintain.

1.1 Application examples

Open basins

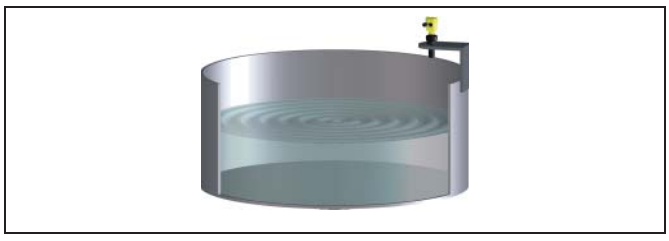

Fig. 1: Level measurement in an open basin with VEGASON 61

A typical application for VEGASON 61 sensors is level measurement of open basins. The measured media are rain water and sewage water and are thus charged with impurities. Here is where the advantages of non-contact measurement with VEGASON come into their own: simple and maintenance free. The degree of pollution of the water or an accumulation of mud in the basin is not critical because VEGASON measures the surface.

Sludge container

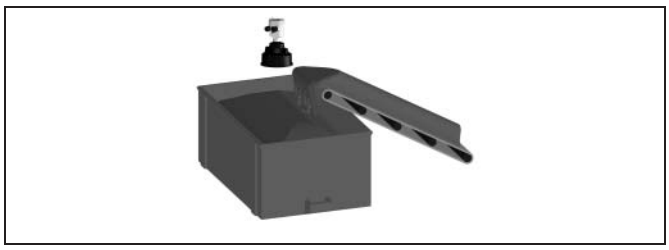

Fig. 2: Level measurement in a container with VEGASON 63

In sewage treatment plants, the accumulated sludge is dewatered and transported via conveyor belts to containers. The VEGASON 63 sensor measures the filling of the container. An empty container can thus be readied in good time before the max. level is reached. Thanks to the metal transducer diaphragm, measurement functionality is also ensured even under conditions of fluctuating temperatures and steam generation.

Information:
Continuative documentation:

- 28775 - VEGASON 61
- 28776 - VEGASON 62
- 28777 - VEGASON 63
- 32774 - Functionale safety VEGASON series 60 - 4 … 20 mA/HART

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2 Type overview

	VEGASON 61	VEGASON 62	VEGASON 63
			
Applications:	liquids and solids in virtually all industries, particularly in water and waste water management	liquids and solids in virtually all industries, particularly in water and waste water management	liquids and solids in virtually all industries
Measuring range:	Liquids: 0.25 … 5 m (0.8 … 16.4 ft) Solids: 0.25 … 2 m (0.8 … 6.6 ft)	Liquids: 0.4 … 8 m (1.3 … 26.2 ft) Solids: 0.4 … 3.5 m (1.3 … 11.5 ft)	liquids: 0.6 … 15 m (2 … 49.2 ft) solids: 0.6 … 7 m (2 … 23 ft)
Process fitting:	G1½ A of PVDF	G2 A of PVDF	compression flange or mounting strap
Process temperature:	-40 … +80 °C (-40 … +176 °F)	-40 … +80 °C (-40 … +176 °F)	-40 … +80 °C (-40 … +176 °F)
Process pressure:	-0.2 … 2 bar/-20 … 200 kPa (-2.9 … 29 psi)	-0.2 … 2 bar/-20 … 200 kPa (-2.9 … 29 psi)	-0.2 … 1 bar/-20 … 100 kPa (-2.9 … 14.5 psi)

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PLICSCOM

Indicating and adjustment module

Plastic

Stainless steel

Aluminium

Aluminium (double chamber)

Housing

4 … 20 mA/HART

4 … 20 mA/HART four-wire

Profibus PA

Foundation Field-bus

Electronics

Transducer 1½"

Transducer 2"

Transducer 4"

Sensors

Gas explosion protection

FM

Ship

Approvals

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3 Mounting instructions

Measuring range
The reference plane for the measurement is the lower edge of the transducer. All statements concerning the measuring range as well as the internal signal processing refer to this.

With all instruments, a minimum distance from the lower edge of the flange - the so-called dead band, in which measurement is not possible - must be maintained. The exact value of the dead band, depending on the instrument version, is stated in chapter Technical Data.

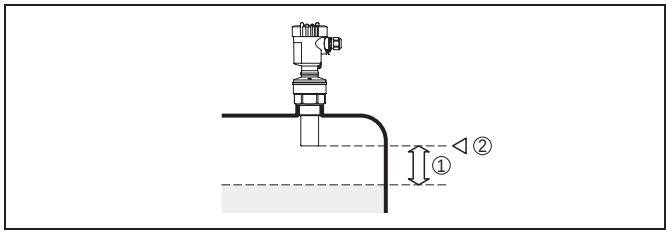

Fig. 3: Min. distance to the max. level

1 Dead band
2 Reference plane for the measurement

Note:
If the medium reaches the transducer, buildup can form on it and cause faulty measurements later on.

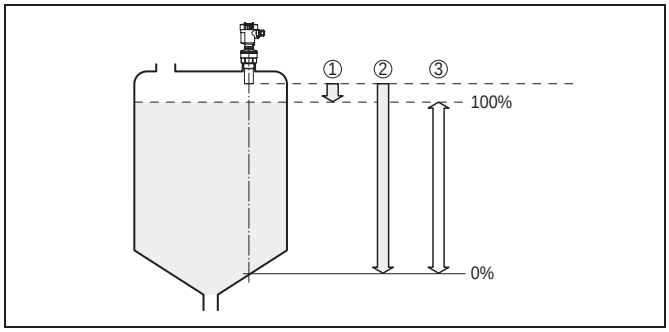

Fig. 4: Measuring range and max. measuring distance

1 full
2 empty (max. measuring distance)
3 Max. measuring range

Pressure/Vacuum
Gauge pressure in the vessel does not influence VEGASON. Low pressure or vacuum does, however, damp the ultrasonic pulses. This influences the measuring result, particularly if the level is very low. With pressures under -0.2 bar (-20 kPa) you should use a different measuring principle, e.g. radar or guided microwave.

Installation position
The mounting position of VEGASON must be at least 200 mm (7.9 in) from the vessel wall. If the sensor is installed in the center of dished or round vessel tops, multiple echoes can result. These can be faded out, however, through an appropriate adjustment.

If you cannot keep this distance you should carry out a false echo memory before setup. This applies mainly if buildup on the vessel wall is expected . In this case, we recommend repeating a false echo memory later with existing buildup.

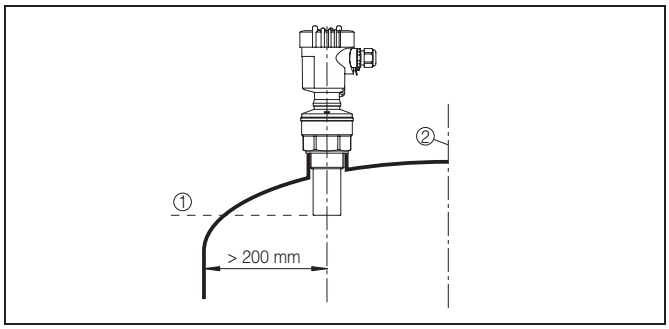

Fig. 5: Mounting on round vessel tops

1 Reference plane
2 Vessel center or symmetry axis

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.

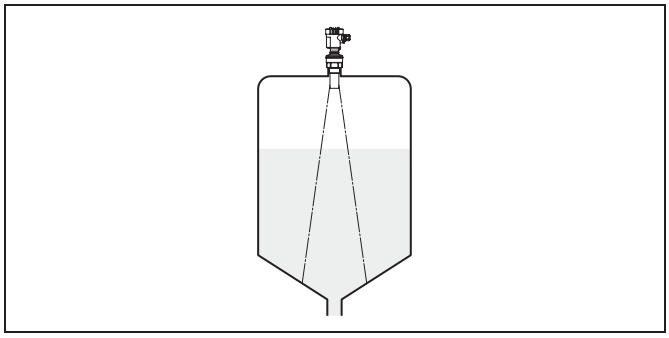

Fig. 6: Vessel with conical bottom

Socket
Socket pieces should be dimensioned such that the lower end of the transducer protrudes at least 10 mm (0.4 in) out of the socket.

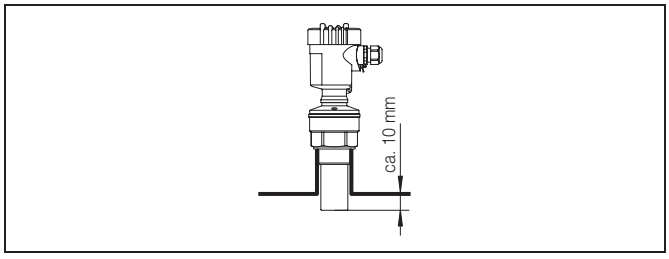

Fig. 7: Recommended socket mounting

If the reflective properties of the medium are good, you can mount VEGASON on sockets higher than the transducer length. You will find recommended values for socket heights in the operating instructions manual of the respective instrument. The socket end should be smooth and burr-free, if possible also rounded. A false echo storage is recommended.

Sensor orientation
With liquids, align the sensor as close to vertical as possible to achieve optimum measuring results.

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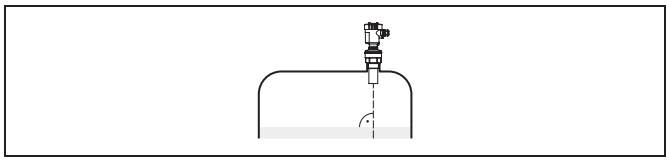

Fig. 8: Orientation in liquids

To reduce the min. distance to the medium, you can also mount VEGASON with a beam deflector of corrosion-resistant material. By doing this, it is possible to fill the vessel nearly to maximum. Such an arrangement is suitable primarily for open vessels such as e.g. overflow basins.

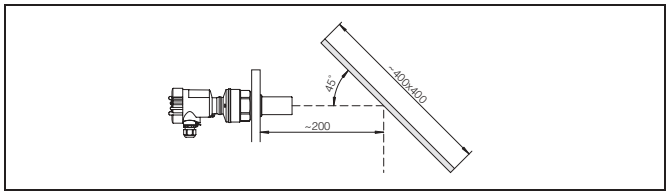

Fig. 9: Beam deflector

Vessel installations
The ultrasonic sensor should be installed at a location where no installations cross the ultrasonic beam.

If large vessel installations such as struts or supports cause false echoes, these can be attenuated through supplementary measures. Small, inclined sheet metal or plastic baffles above the installations scatter the ultrasonic signals and avoid direct false echoes.

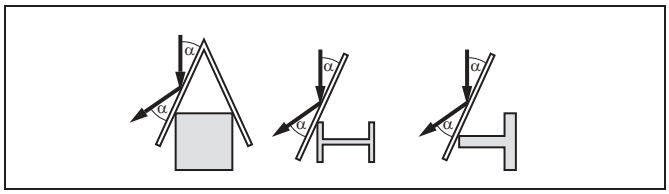

Fig. 10: Cover smooth profiles with deflectors

Inflowing medium
The instruments must not be mounted in or above the filling stream. Make sure that the product surface is detected, not the inflowing material.

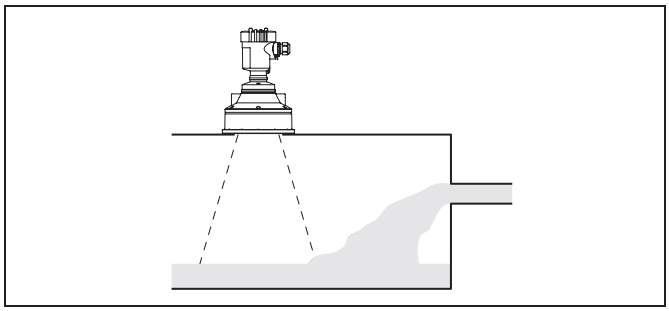

Fig. 11: Inflowing liquid

Foam
Through the action of filling, stirring and other processes in the vessel, dense foams which considerably damp the emitted signals may form on the product surface.

If foams cause measurement errors, the sensor should be used in a standpipe or, alternatively, the more suitable VEGAFLEX guided microwave sensors should be used.

Guided microwaves are not influenced by foam generation and are particularly suitable for such applications.

Air turbulences
If there are strong air currents in the vessel, e.g. due to strong winds in outdoor installations, or because of air turbulence, you should mount VEGASON in a standpipe or use a different measuring principle, e.g. radar or guided radar (TDR).

Standpipe measurement
When used in a standpipe (surge pipe or bypass tube), the influence of installations, foam generation and turbulence is excluded. Details on standpipe measurement can be found in the operating instructions manual of the respective instrument.

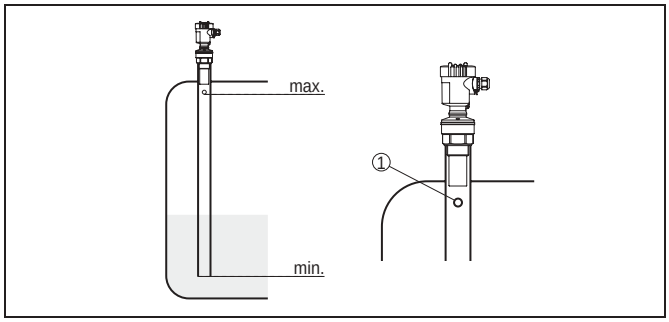

Fig. 12: Standpipe in tank

1 Vent hole ø 5 … 10 mm (0.2 … 0.4 in)

Measurement in a standpipe however is not recommended for very adhesive products.

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4 Electrical connection

4.1 General prerequisites

The supply voltage range can differ depending on the instrument version. You can find exact specifications in chapter "*Technical data*".

Take note of country-specific installation standards (e.g. the VDE regulations in Germany) as well as prevailing safety regulations and accident prevention rules.

In hazardous areas you should take note of the appropriate regulations, conformity and type approval certificates of the sensors and power supply units.

4.2 Voltage supply

4 … 20 mA/HART two-wire
The VEGA power supply units VEGATRENN 149AEx, VEGASTAB 690, VEGADIS 371 as well as VEGAMET signal conditioning instruments are suitable for power supply. When one of these instruments is used, a reliable separation of the supply circuits from the mains circuits according to DIN VDE 0106 part 101 is ensured for the sensor.

4 … 20 mA/HART four-wire
Power supply and current output are carried on two separate connection cables.

The standard version can be operated with an earth-connected current output, the Exd version must be operated with a floating output.

The instrument is designed in protection class I. To maintain this protection class, it is absolutely necessary that the ground conductor be connected to the internal ground conductor terminal.

Profibus PA
Power is supplied by a Profibus DP/PA segment coupler or a VEGALOG 571 EP input card.

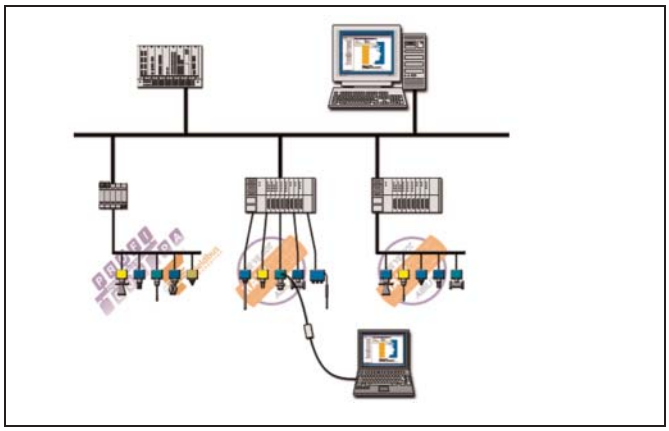

Fig. 13: Integration of instruments in a Profibus PA system via segment coupler DP/PA or data recording systems with Profibus PA input card

Foundation Fieldbus
Power supply via the H1 Fieldbus cable.

4.3 Connection cable and installation

In general
The sensors are connected with standard cable without screen. An outer cable diameter of 5 … 9 mm ensures the seal effect of the cable entry.

VEGASON are optionally available with usual plug connectors (see "*Technical data*").

4 … 20 mA/HART two-wire and four-wire
If electromagnetic interference is expected which is above the test values of EN 61326 for industrial areas, screened cable should be used. In HART multidrop mode the use of screened cable is generally recommended.

Profibus PA, Foundation Fieldbus
The installation must be carried out according to the appropriate bus specification. VEGASON is connected respectively with screened cable according to the bus specification. Power supply and digital bus signal are transmitted via the same two-wire connection cable. Make sure that the bus is terminated via appropriate terminating resistors.

In Ex applications, the corresponding installation regulations must be noted for the connection cable.

4.4 Cable screening and grounding

If screened cable is necessary, the cable screen must be connected on both ends to ground potential. If potential equalisation currents are expected, the connection on the evaluation side must be made via a ceramic capacitor (e.g. 1 nF, 1500 V).

Profibus PA, Foundation Fieldbus
In systems with potential separation, the cable screen is connected directly to ground potential on the power supply unit, in the connection box and directly on the sensor.

In systems without potential equalisation, connect the cable screen directly to ground potential only at the power supply unit and at the sensor - do not connect to ground potential in the connection box or T-distributor.

4.5 Wiring plan

Single chamber housing

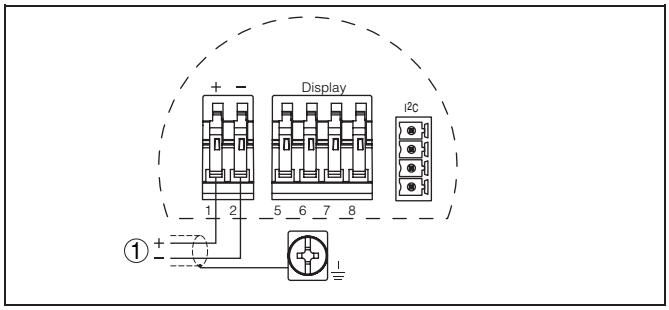

Fig. 14: Connection HART two-wire, Profibus PA, Foundation Fieldbus

1 Voltage supply and signal output

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Double chamber housing - two-wire

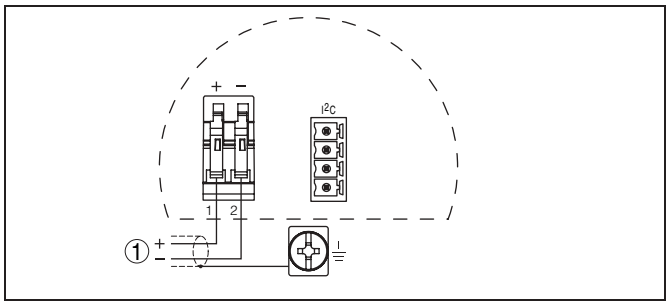

Fig. 15: Connection HART two-wire, Profibus PA, Foundation Fieldbus

1 Voltage supply and signal output

Double chamber housing - 4 … 20 mA/HART four-wire

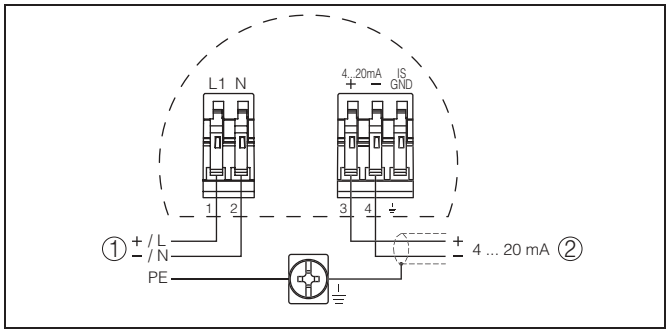

Fig. 16: Connection 4 … 20 mA/HART four-wire

1 Voltage supply
2 Signal output

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

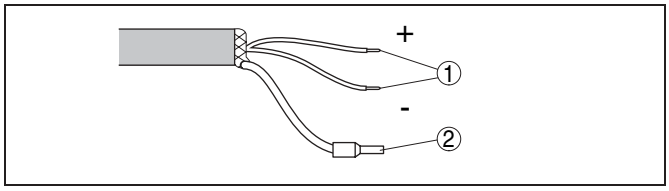

Fig. 17: Wire assignment, connection cable

1 brown (+) and blue (-) to power supply or to the processing system
2 Screen

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5 Operation

5.1 Overview

The sensors can be adjusted with the following adjustment media:

- with indicating and adjustment module
- an adjustment software according to FDT/DTM standard, e.g. PACTware™ and PC

and, depending on the signal output, also with:

- a HART handheld (4 … 20 mA/HART)
- the adjustment program AMS (4 … 20 mA/HART and Foundation Fieldbus)
- the adjustment program PDM (Profibus PA)
- a configuration tool (Foundation Fieldbus)

The entered parameters are generally saved in the sensor, optionally also in PLICSCOM or in the adjustment program.

5.2 Compatibility according to NAMUR NE 53

VEGASON meet NAMUR recommendation NE 53. VEGA instruments are generally upward and downward compatible:

- Sensor software to DTM VEGASON HART, PA or FF
- DTM VEGASON for adjustment software PACTware™
- Indicating and adjustment module PLICSCOM for sensor software

The parameter adjustment of the basic sensor functions is independent of the software version. The range of available functions depends on the respective software version of the individual components.

5.3 Adjustment with the indicating and adjustment module PLICSCOM

Setup and indication

PLICSCOM is a pluggable indication and adjustment module for plics® sensors. It can be placed in four different positions on the instrument (each displaced by 90°). Indication and adjustment are made via four keys and a clear, graphic-capable dot matrix indication. The adjustment menu with language selection is clearly structured and enables easy setup. After setup, PLICSCOM serves as indicating instrument: through the screwed cover with glass insert, measured values can be read directly in the requested unit and presentation style.

The integrated background lighting of the display can be switched on via the adjustment menu.[1)]

PLICSCOM adjustment

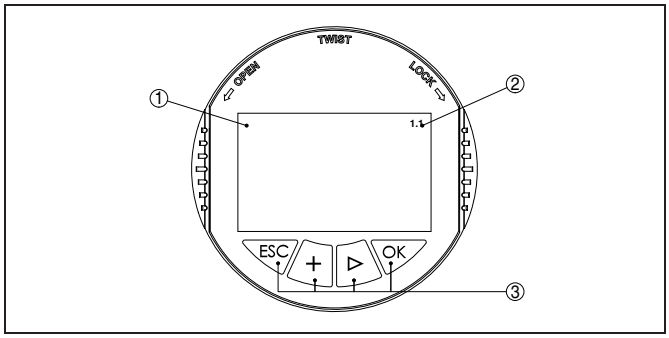

Fig. 18: Indicating and adjustment elements

1 LC display
2 Indication of the menu item number
3 Adjustment keys

Key functions

- ***[OK]*** key:
  - move to the menu overview
  - confirm selected menu
  - Edit parameter
  - Save value
- ***[->]*** key to select:
  - menu change
  - list entry
  - Select editing position
- ***[+]*** key:
  - Change value of a parameter
- ***[ESC]*** key:
  - interrupt input
  - jump to the next higher menu

5.4 Adjustment with PACTware™

PACTware™/DTM

Independent of the respective signal output 4 … 20 mA/HART, Profibus PA or Foundation Fieldbus, the sensors can be operated directly on the instrument via PACTware™. The sensors with signal output 4 … 20 mA/HART can be also operated via the HART signal on the signal cable.

An VEGACONNECT interface adapter as well as an instrument driver for the respective sensor is necessary for the adjustment with PACTware™. All currently available VEGA DTMs are included as DTM Collection with the current PACTware™ version on a CD. They are available for a protective fee from our respective VEGA agency. In addition, this DTM Collection incl. the basic version of PACTware™ can be downloaded free-of-charge from the Internet.

To use the entire range of functions of a DTM, incl. project documentation, a DTM licence is required for that particular instrument family. This licence can be bought from the VEGA agency serving you.

1) For instruments with national approvals, such as e.g. according to FM and CSA, only available at a later date.

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Connection of the PC via VEGACONNECT 3

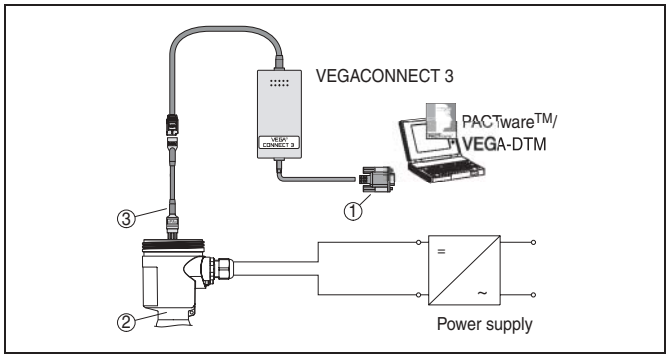

Fig. 19: Connection of the PC via I²C interface directly on the sensor

1 RS232 connection
2 VEGASON
3 I²C adapter cable for VEGACONNECT 3

To adjust with PACTware™, a VEGACONNECT 3 with I²C adapter cable (art. no. 2.27323) as well as a power supply unit is necessary in addition to the PC and the suitable VEGA-DTM.

Connection of the PC via VEGACONNECT 4

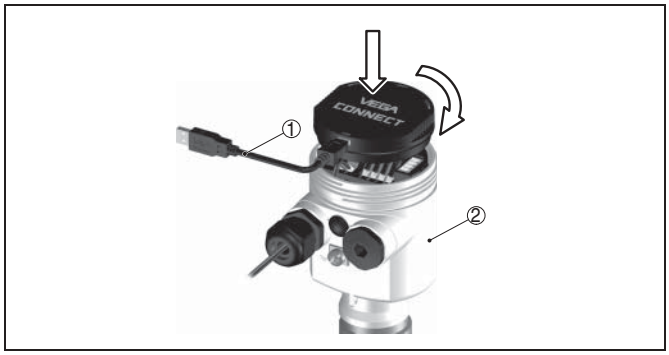

Fig. 20: Internal connection of the PC via I²C interface directly on the sensor

1 USB cable
2 Sensor

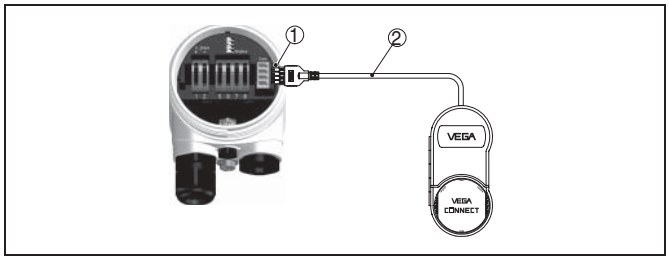

Fig. 21: External connection of the PC via I²C interface directly on the sensor

1 I²C bus (Com.) interface
2 I²C connection cable of VEGACONNECT 4

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5.5 Adjustment with other adjustment programs

PDM

For VEGA PA sensors, device descriptions are also available as EDD for the adjustment program PDM. The device descriptions are already implemented in the current versions of PDM. For older versions of PDM they are available as a free-of-charge download from the Internet.

AMS

For VEGA FF sensors, device descriptions are also available as DD for the adjustment program AMS™. The device descriptions are already implemented in the current version of AMS™. For older versions of AMS™, a free-of-charge download is available via Internet.

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6 Technical data

General data

VEGASON 61 and 62

Materials, wetted parts	
– Process fitting	PVDF
– Transducer	PVDF
– Seal transducer/process fitting	EPDM, FKM (e.g. Viton)

VEGASON 63

Materials, wetted parts	
– Mounting strap	1.4301
– Process fitting	UP
– Transducer diaphragm	316Ti
– Seal transducer/process fitting	EPDM
Materials, non-wetted parts	
– compression flange (VEGASON 63)	PPH, 316L
– Housing	Plastic PBT (Polyester), Alu die-casting powder-coated, 316L
– Seal ring between housing and housing cover	NBR (stainless steel housing), silicone (Alu/plastic housing)
– Inspection window in housing cover for PLICSCOM	Polycarbonate
– Ground terminal	316Ti/316L
Weight	
– VEGASON 61, 62	1.8 … 4 kg (4 … 8.8 lbs), depending on process fitting and housing
– VEGASON 63	2.7 … 5.7 kg (6 … 12.6 lbs), depending on the process fitting and housing

Output variable

4 … 20 mA/HART

Output signal	4 … 20 mA/HART
Signal resolution	1.6 µA
Failure message	Current output unchanged 20.5 mA, 22 mA, <3.6 mA (adjustable)
Max. output current	22 mA
Load	
– 4 … 20 mA/HART two-wire instrument	see load diagram under Power supply
– 4 … 20 mA/HART four-wire instrument	max. 500 Ohm[2)]
Damping (63 % of the input variable)	0 … 999 s, adjustable
Fulfilled NAMUR recommendations	NE 43

Profibus PA

Output signal	digital output signal, format according to IEEE-754
Sensor address	126 (default setting)
Current value	10 mA, ±0.5 mA
Integration time (63 % of the input variable)	0 … 999 s, adjustable

Foundation Fieldbus

Output	
– Signal	digital output signal, Foundation Fieldbus protocol
– Physical layer	according to IEC 61158-2
Channel Numbers	
– Channel 1	Primary Value
– Channel 2	Secondary Value 1
– Channel 3	Secondary Value 2
Transmission rate	31.25 Kbit/s
Current value	10 mA, ±0.5 mA
Integration time (63 % of the input variable)	0 … 999 s, adjustable

Input variable

Parameter	distance between lower edge of the transducer and product surface
Dead zone	
– VEGASON 61	0.25 m (0.8 ft)
– VEGASON 62	0.4 m (1.3 ft)
– VEGASON 63	0.6 m (2 ft)

2) With inductive load ohmic share min. 25 Ohm/mH.

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Measuring range	
– VEGASON 61	up to 5 m (16.4 ft) liquid/up to 2 m (6.6 ft) solid
– VEGASON 62	up to 8 m (26.2 ft) liquid/up to 3.5 m (11.5 ft) solid
– VEGASON 63	up to 15 m (49.2 ft) liquid/up to 7 m (23 ft) solid

Measuring characteristics

Ultrasonic frequency	
– VEGASON 61	70 kHz
– VEGASON 62	55 kHz
– VEGASON 63	35 kHz
Interval	>2 s (dependent on the parameter adjustment)
Beam angle at -3 dB	
– VEGASON 61, 62	11°
– VEGASON 63	6°
Step response or adjustment time[3]	>3 s (dependent on the parameter adjustment)

Measuring accuracy

Resolution, general	max. 1 mm (0.039 in)
Deviation[4]	see diagram

VEGASON 61

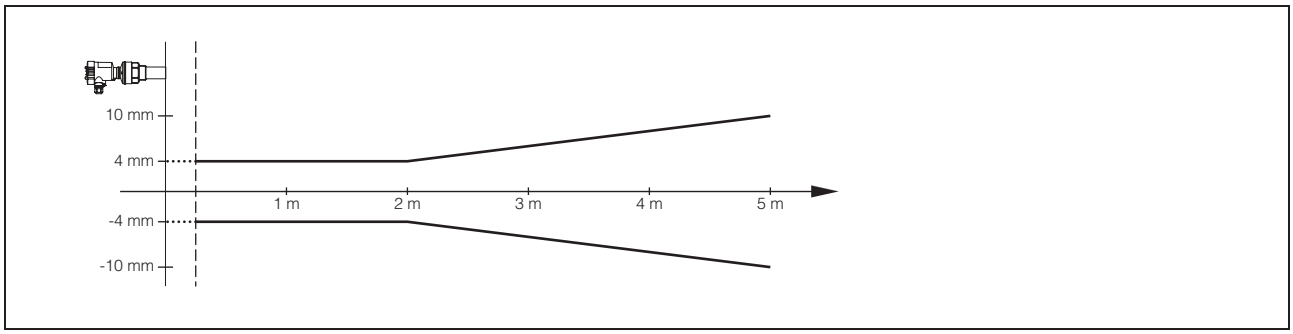

Fig. 22: Deviation VEGASON 61

VEGASON 62

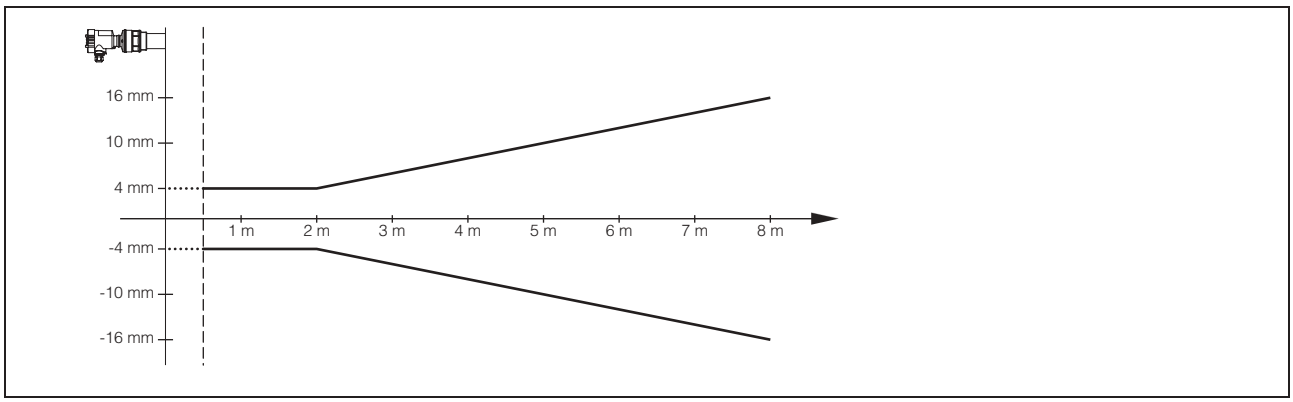

Fig. 23: Deviation VEGASON 62

[3] Time to output the correct level (with max. 10 % deviation) after a sudden level change.
[4] Incl. non-linearity, hysteresis and non-repeatability.

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VEGASON 63

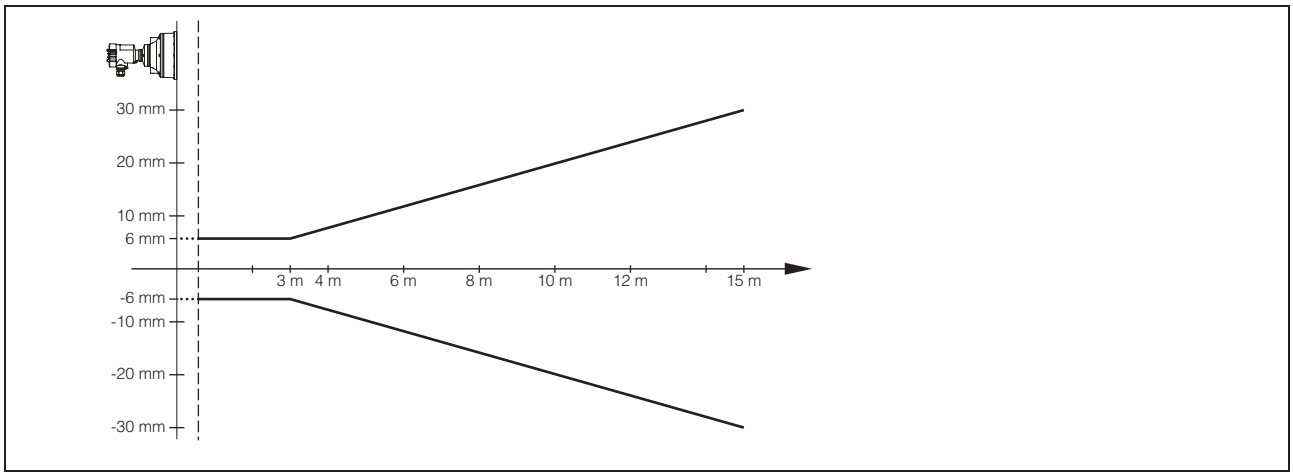

Fig. 24: Deviation VEGASON 63

Ambient conditions

Ambient, storage and transport temperature	
– Standard version	-40 … +80 °C (-40 … +176 °F)
– Version IP 66/IP 68 1 bar with connection cable PE	-20 … +60 °C (-4 … +140 °F)

Process conditions

Vessel pressure	
– VEGASON 61, 62	-0,2 … 2 bar/-20 … 200 kPa
– VEGASON 63 with compression flange	-0.2 … 1 bar/-20 … 100 kPa
– VEGASON 63 with mounting strap	0 kPa (0 bar), since no sealing possibility
Process temperature (transducer temperature)	-40 … +80 °C (-40 … +176 °F)
Vibration resistance	mechanical vibrations with 4 g and 5 … 100 Hz[5)]

Electromechanical data - version IP 66/IP 67 and IP 66/IP 68; 0.2 bar

Cable entry/plug[6)]	
– Single chamber housing	• 1x cable entry M20x1.5 (cable-ø 5 … 9 mm), 1x blind stopper M20x1.5 or: • 1x closing cap M20x1.5; 1x blind stopper M20x1.5 or: • 1x closing cap ½ NPT, 1x blind plug ½ NPT or: • 1x plug (depending on the version), 1x blind plug M20x1.5
– Double chamber housing	• 1x cable entry M20x1.5 (cable-ø 5 … 9 mm), 1x blind stopper M20x1.5; 1x blind stopper M16x1.5 or optionally 1x plug M12x1 for VEGADIS 61 or: • 1x closing cap ½ NPT, 1x blind stopper ½ NPT, 1x blind stopper M16x1.5 or optionally 1x plug M12x1 for VEGADIS 61 or: • 1x plug (depending on the version), 1x blind stopper M20x1.5; 1x blind stopper M16x1.5 or optionally 1x plug M12x1 for VEGADIS 61
Screwed terminals	Spring-loaded terminals for wire cross-section up to 2.5 mm²

5) Tested according to the regulations of German Lloyd, GL directive 2
6) Depending on the version M12x1, according to DIN 43650, Harting, Amphenol-Tuchel, 7/8" FF.

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Electromechanical data - version IP 66/IP 68, 1 bar

Cable entry	
– Single chamber housing	• 1x IP 68 cable entry M20x1.5; 1x blind stopper M20x1.5 or: • 1x closing cap ½ NPT, 1x blind plug ½ NPT
– Double chamber housing	• 1x IP 68 cable entry M20x1.5; 1x blind stopper M20x1.5; plug M12x1 for VEGADIS 61 (optional) or: • 1x closing cap ½ NPT, 1x blind stopper ½ NPT, plug M12x1 for VEGADIS 61 (optional)
Connection cable	
– Wire cross-section	0.5 mm^2
– wire resistance	<0.036 Ohm/m
– Tensile strength	>1200 N (270 pounds force)
– Standard length	5 m (16.404 ft)
– Max. length	1000 m (3280 ft)
– Min. bending radius	25 mm (0.984 in) at 25 °C (77 °F)
– Diameter	approx. 8 mm (0.315 in)
– Colour - standard PE	Black
– Colour - standard PUR	Blue
– Colour - Ex-version	Blue

Indicating and adjustment module

Power supply and data transmission	through the sensor
Indication	LC display in Dot matrix
Adjustment elements	4 keys
Protection	
– unassembled	IP 20
– mounted into the sensor without cover	IP 40
Materials	
– Housing	ABS
– Inspection window	Polyester foil

Supply voltage - 4 … 20 mA/HART

Standard version

Supply voltage	
– Non-Ex instrument	14 … 36 V DC
– EEx ia instrument	14 … 30 V DC
– EExd ia instrument	20 … 36 V DC
Supply voltage with lighted indicating and adjustment module[7)]	
– Non-Ex instrument	20 … 36 V DC
– EEx ia instrument	20 … 30 V DC
– EExd ia instrument	20 … 36 V DC
Permissible residual ripple	
– <100 Hz	U_{ss} <1 V
– 100 Hz … 10 kHz	U_{ss} <10 mV
Load	see diagram

7) For instruments with national approvals such as e.g. according to CSA only available at a later date.

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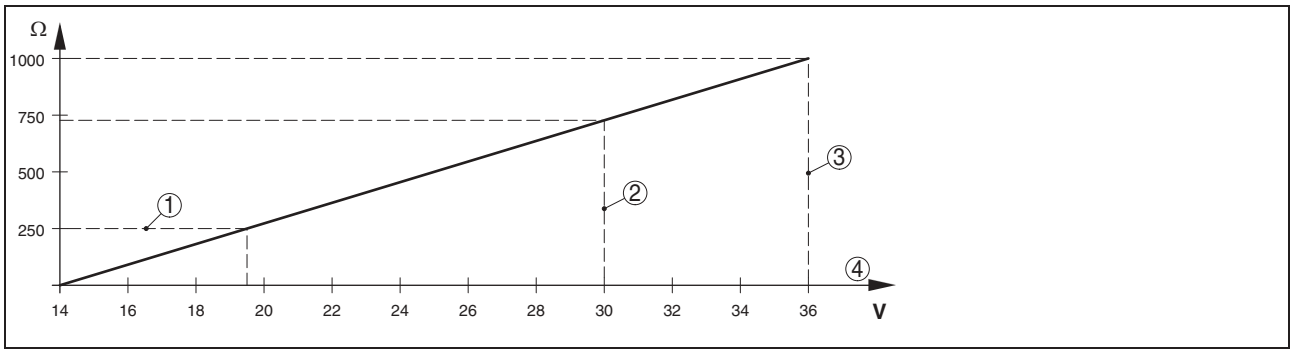

Fig. 25: Voltage diagram

1 HART load
2 Voltage limit EEx ia instrument
3 Voltage limit non-Ex instrument
4 Supply voltage

Voltage supply - 4 … 20 mA/HART four wire instrument

Supply voltage	
– Non-Ex and Exd instrument	20 … 72 V DC, 20 … 253 V AC, 50/60 Hz (with and without lighting of the indicating and adjustment module)
Power consumption	max. 4 VA, max. 2.1 W

Power supply - Profibus PA

Supply voltage	
– Non-Ex instrument	9 … 32 V DC
– EEx ia instrument	9 … 24 V DC
Supply voltage with lighted indicating and adjustment module[8)]	
– Non-Ex instrument	12 … 36 V DC
– EEx ia instrument	12 … 30 V DC
Power supply by/max. number of sensors	
– DP/PA segment coupler	max. 32 (max. 10 with Ex)
– VEGALOG 571 EP card	max. 15 (max. 10 with Ex)

Power supply - Foundation Fieldbus

Supply voltage	
– Non-Ex instrument	9 … 32 V DC
– EEx ia instrument	9 … 24 V DC
Supply voltage with lighted indicating and adjustment module[9)]	
– Non-Ex instrument	12 … 32 V DC
– EEx ia instrument	12 … 24 V DC
Power supply by/max. number of sensors	
– H1 power supply	max. 32 (max. 10 with Ex)

Electrical protective measures

Protection	
– Plastic housing	IP 66/IP 67
– Double chamber Alu-housing, four-wire instruments	IP 66/IP 67
– Alu and stainless steel housing, two-wire instruments	IP 66/IP 68 (0.2 bar)[10)]
– Alu and stainless steel housing optional, two-wire instruments	IP 66/IP 68 (1 bar)
Overvoltage category	III
Protection class	
– two-wire, Profibus PA, Foundation Fieldbus	II
– four-wire	I

[8)] For instruments with national approvals such as e.g. according to CSA only available at a later date.
[9)] For instruments with national approvals such as e.g. according to CSA only available at a later date.
[10)] Prerequisite for maintaining the protection is a suitable cable.

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Functional safety (SIL)

You can find detailled information in the Safety Manual of VEGASON or under www.vega.com.	
Functional safety according to IEC 61508-4	
– Single channel architecture 1oo1D	up to SIL2
– double channel diversitary redundant architecture (1oo2D)	up to SIL3

Approvals VEGASON 61 and 62[11)]

ATEX	ATEX II 1G, 1/2G, 2G EEx ia IIC T6
IEC	IEC Ex ia IIC T6
FM	FM (NI) Cl.I., Div2 GP ABCD; FM (DIP) Cl.II, III, Div1 GP EFG; FM (IS) Cl.I, II, III, Div1 GP ABCDEF
CSA	CSA (NI) Cl.I., Div2 GP ABCD; CSA (DIP) Cl.II, III, Div1 GP EFG; CSA (IS) Cl.I, II, III, Div1 GP ABCDEFG
Ship approvals	GL, LRS, ABS, CCS, RINA, DNV

Approvals VEGASON 63[12)]

Ship approvals	GL, LRS, ABS, CCS, RINA, DNV

CE conformity

EMC (89/336/EWG)	Emission EN 61326: 1997 (class A), susceptibility EN 61326: 1997/A1: 1998
LVD (73/23/EWG)	EN 61010-1: 2001

Environmental instructions

VEGA environment management system[13)]	certified according to DIN EN ISO 14001

[11)] Deviating data in Ex applications: see separate safety instructions.
[12)] Deviating data in Ex applications: see separate safety instructions.
[13)] You can find detailed information under www.vega.com.

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7 Dimensions

Housing in protection IP 66/IP67 and IP 66/IP 68; 0.2 bar

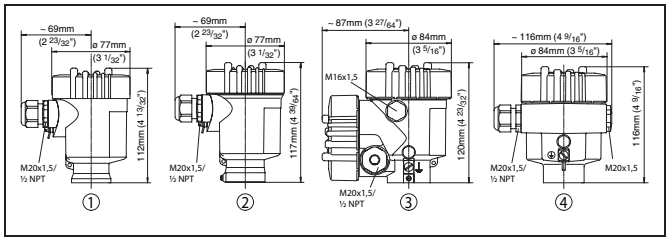

Fig. 26: Housing versions in protection IP 66/IP 67 and IP 66/IP 68; 0.2 bar, with integrated indicating and adjustment module the housing is 9 mm ($^1/_{64}$") higher

1 Plastic housing
2 Stainless steel housing
3 Aluminium double chamber housing
4 Aluminium housing

Housing in protection IP 66/IP 68, 1 bar

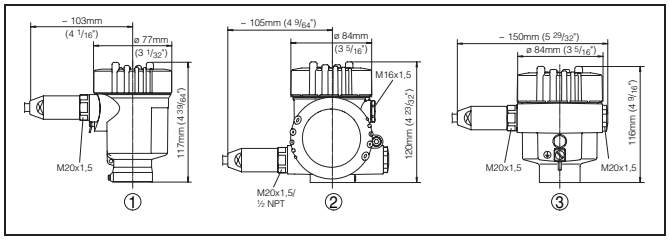

Fig. 27: Housing versions in protection IP 66/IP 68, 1 bar, with integrated indicating and adjustment module the housing is 9 mm ($^1/_{64}$") higher

1 Stainless steel housing
2 Aluminium double chamber housing
3 Aluminium housing

VEGASON 61

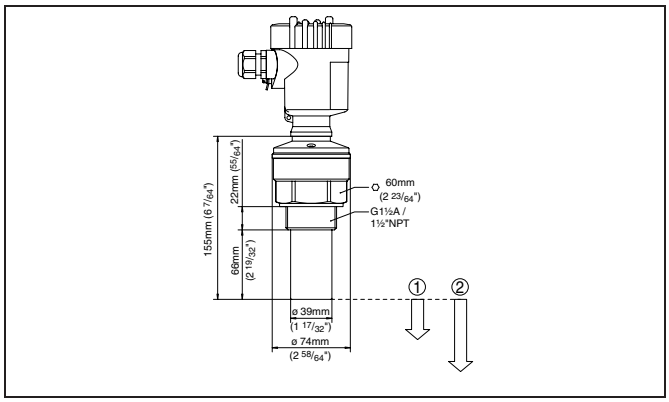

Fig. 28: VEGASON 61

1 Dead zone: 0.25 m (0.8 ft)
2 Measuring range: with liquids up to 5 m (16.4 ft), with solids up to 2 m (6.6 ft)

VEGASON 62

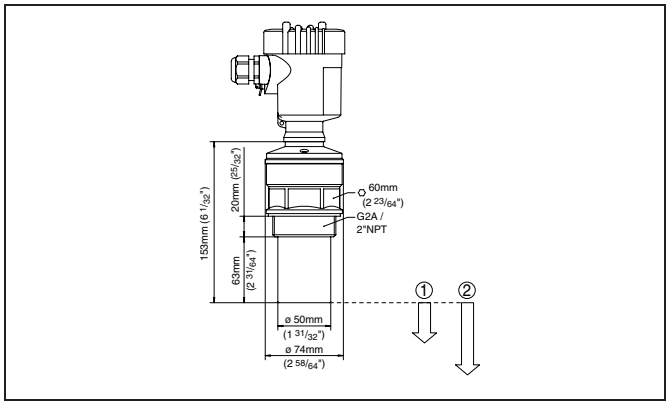

Fig. 29: VEGASON 62

1 Dead zone: 0.4 m (1.3 ft)
2 Measuring range: with liquids up to 8 m (26.2 ft), with solids up to 3.5 m (11.5 ft)

VEGASON 63

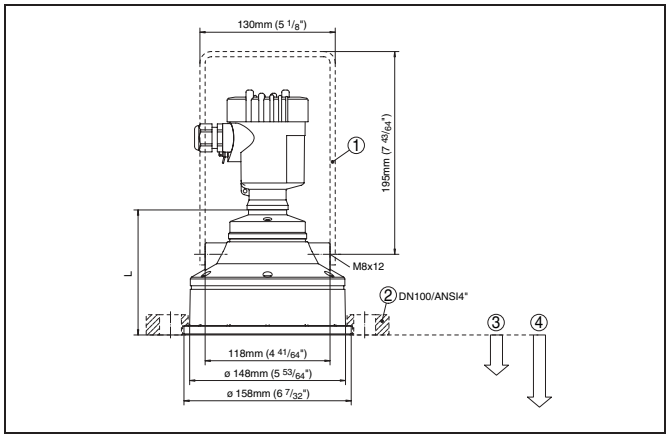

Fig. 30: VEGASON 63, dimension L with Alu housing = 118 mm (4 41/64"), dimension L with plastic and stainless steel housing = 113 mm (4 29/64")

1 Mounting strap
2 Compression flange
3 Dead zone: 0.6 m (2 ft)
4 Measuring range: with liquids up to 15 m (49.2 ft), with solids up to 7 m (23 ft)

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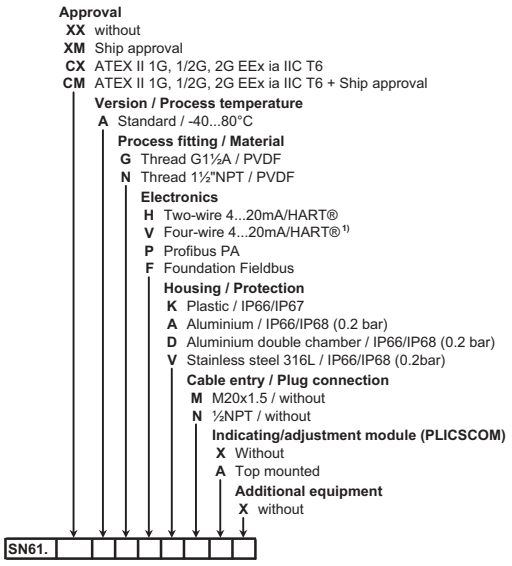
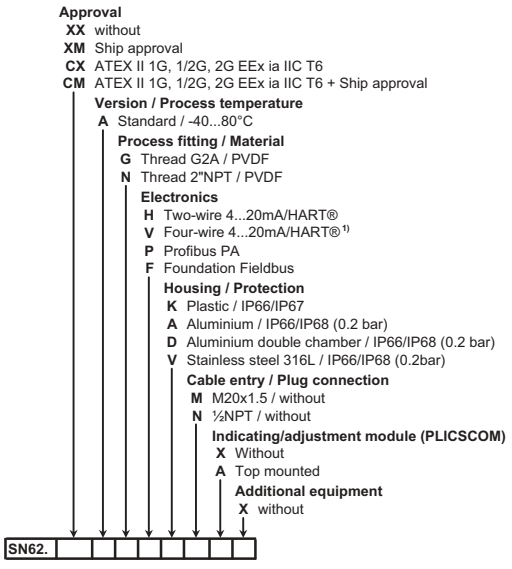
8 Product code

VEGASON 61



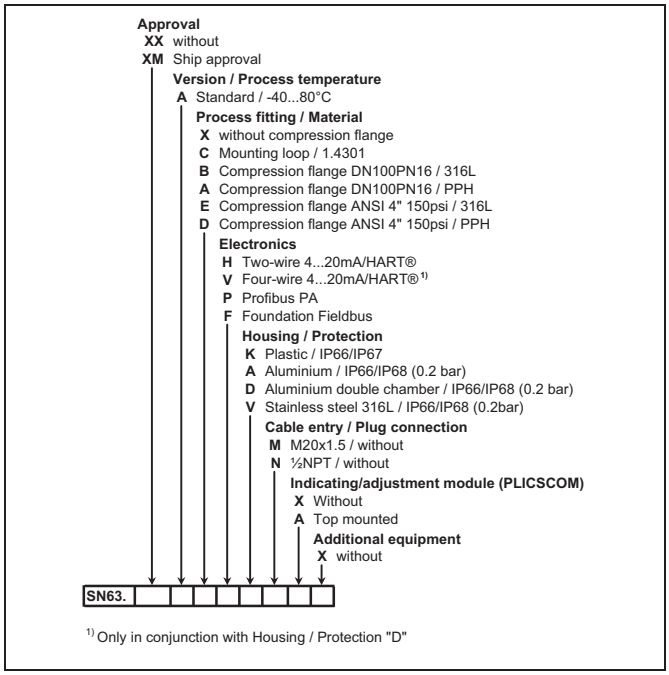
1) Only in conjunction with Housing / Protection "D"

VEGASON 62



1) Only in conjunction with Housing / Protection "D"

VEGASON 63



1) Only in conjunction with Housing / Protection "D"

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You can find at **www.vega.com** downloads of the following

- operating instructions manuals
- menu schematics
- software
- certificates
- approvals

and much, much more

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