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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, reflected by the product surface 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. It is not necessary to fill the vessel for the 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 properties
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

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 are not critical because VEGASON only measures the surface.

Sludge container

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:

- 28775 - VEGASON 61
- 28776 - VEGASON 62
- 28777 - VEGASON 63
- 32774 - Safety Manual VEGASON series 60 - 4 … 20 mA/HART
2 Type overview

VEGASON 61

Applications: liquids and solids in virtually all industries, particularly in water and waste water management

Measuring range:
Liquids: 0.25 … 5 m (0.82 … 16.4 ft)
Solids: 0.25 … 2 m (0.82 … 6.562 ft)

Process fitting: G1½ A of PVDF

Process temperature: -40 … +80 °C (-40 … +176 °F)

Process pressure: -0.2 … 2 bar/-20 … 200 kPa (-2.9 … 29 psig)

VEGASON 62

Applications: liquids and solids in virtually all industries, particularly in water and waste water management

Measuring range:
Liquids: 0.4 … 8 m (1.312 … 26.25 ft)
Solids: 0.4 … 3.5 m (1.312 … 11.48 ft)

Process fitting: G2 A of PVDF

Process temperature: -40 … +80 °C (-40 … +176 °F)

Process pressure: -0.2 … 2 bar/-20 … 200 kPa (-2.9 … 29 psig)

VEGASON 63

Applications: liquids and solids in virtually all industries

Measuring range:
Liquids: 0.6 … 15 m (1.969 … 49.21 ft)
Solids: 0.6 … 7 m (1.969 … 22.97 ft)

Process fitting: compression flange or mounting strap

Process temperature: -40 … +80 °C (-40 … +176 °F)

Process pressure: -0.2 … 1 bar/-20 … 100 kPa (-2.9 … 14.5 psig)
### Indicating and adjustment module

| PLICSCOM |

### Housing

| Plastic | Stainless steel | Aluminium | Aluminium (double chamber) |

### Electronics

| 4 … 20 mA/HART | 4 … 20 mA/HART four-wire | Profibus PA | Foundation Fieldbus |

### Sensors

| Transducer 1½" | Transducer 2" | Transducer 4" |

### Approvals

| FM | CSA |

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Ultrasonic – Level measurement
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".

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

![Fig. 3: Minimum distance to the max. level](image)

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](image)

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.

Mounting position
When mounting VEGASON, keep a distance of at least 200 mm (7.874 in) to the vessel wall. If the sensor is installed in the center of dished or spherical vessel tops, multiple echoes can arise. These can, however, be faded out by an appropriate adjustment.

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. 5: Mounting on round vessel tops](image)

1 Reference plane
2 Vessel center or symmetry axis

Socket
Socket pieces should be dimensioned so that the lower end of the transducer protrudes at least 10 mm (0.394 in) out of the socket.

![Fig. 6: Vessel with conical bottom](image)

![Fig. 7: Recommended socket mounting](image)

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 in-
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.

![Fig. 8: Alignment in liquids](image)

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](image)

**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 defectors](image)

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

![Fig. 12: Standpipe in tank](image)

1 Vent hole: ø 5…10 mm (0.197 … 0.394 in)

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

**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 unaffected 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 over outdoor installations or air turbulence in the vessel, VEGASON should be mounted in a standpipe or you should 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.
4 Electrical connection

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

The national installation standards as well as the valid safety regulations and accident prevention rules must be observed.

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 Power supply
4 … 20 mA/HART two-wire
The VEGA power supply units VEGATRENN 149AEx, VEGAS-Tab 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.

Foundation Fieldbus
Power supply via the H1 Fieldbus cable.

4.3 Connection cable and installation
General information
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 appropriately 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.

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

Single chamber housing

![Diagram of a single chamber housing with connections labeled 1 to 8, and a display icon.]

**Fig. 14:** Connection HART two-wire, Profinet PA, Foundation Fieldbus
1. Voltage supply and signal output

Double chamber housing - two-wire

![Diagram of a double chamber housing with connections labeled 1 to 4, and an I2C icon.]

**Fig. 15:** Connection HART two-wire, Profinet PA, Foundation Fieldbus
1. Voltage supply and signal output

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

![Diagram of a double chamber housing with connections labeled 1 to 6, and an I2C icon.]

**Fig. 16:** Connection 4 ... 20 mA/HART four-wire
1. Power supply
2. Signal output

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

![Diagram of a connection cable with connections labeled 1 and 2, and a + and - symbol.]

**Fig. 17:** Wire assignment, connection cable
1. Brown (+) and blue (-) to power supply or to the processing system
2. Shielding

Electrical connection
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 (Proibus PA)
- A configuration tool (Foundation Fieldbus)

The entered parameters are generally saved in the sensor, optionally also in the indicating and adjustment module 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 for 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 carried out via four keys and a clear, graphic-capable dot matrix display. 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

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 the 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, Proibus PA or Foundation Fieldbus, the sensors can be adjusted with PACTware directly on site. The sensors with signal output 4 ... 20 mA/HART can be also operated via the HART signal on the signal cable.

A VEGACONNECT interface adapter as well as an instrument driver for the respective sensor is necessary for adjustment with PACTware. All currently available VEGA DTM are included as a DTM Collection with the current PACTware version on a CD. They can be purchased for a token fee from the responsible 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, including project documentation, a DTM licence is required for that particular in-

¹) For instruments with national approvals such as e.g. according to FM or CSA, only available at a later date.
instrument family. This licence can be bought from the VEGA agency serving you.

**Connection of the PC via VEGACONNECT**

![Diagram of connection](image1)

**Fig. 19: Connection of the PC via VEGACONNECT directly to the sensor**

1. USB cable to the PC
2. VEGACONNECT
3. Sensor

![Diagram of connection](image2)

**Fig. 20: Connection via I²C connection cable**

1. I²C bus (com.) interface on the sensor
2. I²C connection cable of VEGACONNECT
3. VEGACONNECT
4. USB cable to the PC

**Necessary components:**

- VEGASON
- PC with PACTware and suitable VEGA DTM
- VEGACONNECT
- Power supply unit or processing system

### 5.5 Adjustment with other adjustment programs

**PDM**

For VEGA Profibus PA sensors, instrument descriptions for the adjustment program PDM are available as EDD. The instrument descriptions are already implemented in the current version of PDM. For older versions of PDM, a free-of-charge download is available via Internet.

**AMS**

For VEGA Foundation Fieldbus sensors, instrument descriptions for the adjustment program AMSTM are available as DD. The
6 Technical data

General data

**VEGASON 61, 62**
Materials, wetted parts
- Process fitting: PVDF
- Transducer: PVDF
- Seal transducer/process fitting: EPDM, FKM (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 between housing and housing cover: NBR (stainless steel housing), silicone (Alu/plastic housing)
- Inspection window in housing cover for PLICSCOM: Polycarbonate
- Ground terminal: 316 Ti/316L

Weight
- **VEGASON 61, 62**: 1.8 … 4 kg (4 … 8.8 lbs), depending on the 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
- Fault 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 Ω

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
Damping (63 % of the input variable): 0 … 999 s, adjustable

**Foundation Fieldbus**
Output
- Signal: digital output signal, Foundation Fieldbus protocol according to IEC 61158-2
- Physical layer: Primary Value

Channel Numbers
- Channel 1: Secondary Value 1
- Channel 2: Secondary Value 2
- Channel 3: 31.25 Kbit/s
Current value: 10 mA, ±0.5 mA
Damping (63 % of the input variable): 0 … 999 s, adjustable

Input variable

Measured value
- Distance between lower edge of the transducer and product surface

2) With inductive load ohmic share min. 25 Ω/mH.
Measuring range
- VEGASON 61 up to 5 m (16.4 ft) liquid/up to 2 m (6.562 ft) solid
- VEGASON 62 up to 8 m (26.25 ft) liquid/up to 3.5 m (11.48 ft) solid
- VEGASON 63 up to 15 m (49.21 ft) liquid/up to 7 m (22.97 ft) solid

Dead band
- VEGASON 61 0.25 m (0.82 ft)
- VEGASON 62 0.4 m (1.312 ft)
- VEGASON 63 0.6 m (1.969 ft)

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 < 1 mm (0.039 in)
Deviation 4) see diagram

VEGASON 61

Fig. 21: Deviation VEGASON 61

VEGASON 62

Fig. 22: 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.
**Ambient conditions**

- Ambient, storage and transport temperature
  - without PLICSCOM: -40 ... +80 °C (-40 ... +176 °F)
  - with PLICSCOM: -20 ... +70 °C (-4 ... +158 °F)
  - Four-wire instrument: -40 ... +70 °C (-40 ... +158 °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

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

- Cable entry/plug\(^6\)
  - Single chamber housing
    - 1 x cable gland M20 x 1.5 (cable: ø 5 ... 9 mm), 1 x blind stopper M20 x 1.5
    - 1 x closing cap M20 x 1.5; 1 x blind stopper M20 x 1.5
    - 1 x closing cap ½ NPT, 1 x blind plug ½ NPT
    - 1 x plug (depending on the version), 1 x blind stopper M20 x 1.5

  - Double chamber housing
    - 1 x cable entry M20 x 1.5 (cable: ø 5 ... 9 mm), 1 x blind stopper M20 x 1.5; 1 x blind stopper M16 x 1.5 or optionally available with 1 x plug M12 x 1 for VEGADIS 61
    - 1 x closing cap ½ NPT, 1 x blind stopper ½ NPT, 1 x blind stopper M16 x 1.5 or optionally 1 x plug M12 x 1 for VEGADIS 61

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\(^{5}\) Tested according to the regulations of German Lloyd, GL directive 2.

\(^{6}\) Depending on the version M12 x 1, according to DIN 43650, Harting, 7/8" FF.
or:
- 1 x plug (depending on the version), 1 x blind stopper M20 x 1.5; 1 x blind stopper M16 x 1.5 or optionally available with 1 x plug M12 x 1 for VEGADIS 61

Connection terminals
- Spring-loaded terminals for wire cross-section up to 2.5 mm² (AWG 14)

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

**Cable entry**
- Single chamber housing
  - 1 x IP 68 cable gland M20 x 1.5; 1 x blind stopper M20 x 1.5
  - 1 x closing cap ½ NPT, 1 x blind plug ½ NPT
- Double chamber housing
  - 1 x IP 68 cable gland M20 x 1.5; 1 x blind stopper M20 x 1.5; plug M12 x 1 for VEGADIS 61 (optional)
  - 1 x closing cap ½ NPT, 1 x blind stopper ½ NPT, plug M12 x 1 for VEGADIS 61 (optional)

**Connection cable**
- Wire cross-section: 0.5 mm²
- Wire resistance: < 0.036 Ω/m
- Tensile strength: > 1200 N (270 pounds force)
- Standard length: 5 m (16.4 ft)
- Max. length: 1000 m (3280 ft)
- Min. bending radius: 25 mm (0.984 in) with 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

- Voltage 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

- Operating voltage:
  - Non-Ex instrument: 14 ... 36 V DC
  - EEEx-ia instrument: 14 ... 30 V DC
  - EEEx-d-ia instrument: 20 ... 36 V DC

- Operating voltage with lighted indicating and adjustment module[^1]:
  - Non-Ex instrument: 20 ... 36 V DC
  - EEEx-ia instrument: 20 ... 30 V DC
  - EEEx-d-ia instrument: 20 ... 36 V DC

[^1]: For instruments with national approvals such as e.g. according to CSA, only available at a later date.
Permissible residual ripple
- $< 100 \text{ Hz}$
- $100 \text{ Hz} \ldots 10 \text{ kHz}$

Load
- $U_{\text{ss}} < 1 \text{ V}$
- $U_{\text{ss}} < 10 \text{ mV}$
- see diagram

**Fig. 24: Voltage diagram**

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

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

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

Power consumption

**Voltage supply - Profield PA**

Operating voltage
- Non-Ex instrument
  - 9 … 32 V DC
- EEx-ia instrument
  - 9 … 24 V DC

Operating voltage with lighted indicating and adjustment module
- 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**

Operating voltage
- Non-Ex instrument
  - 9 … 32 V DC
- EEx-ia instrument
  - 9 … 24 V DC

Operating voltage with lighted indicating and adjustment module
- 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
  - Double chamber Alu-housing, four-wire instruments
  - Alu and stainless steel housing, two-wire instruments

Overvoltage category
- I
- II
- III

Protection class
- two-wire, Profinet PA
- four-wire

Appraisals VEGASON 61 and 62

<table>
<thead>
<tr>
<th>FM</th>
<th>CSA</th>
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<tr>
<td>FM (NI) CI.I., Div2 GP ABCD; FM (DIP) CI.II, II, III, Div1 GP ABCDEF</td>
<td>CSA (NI) CI.I., Div2 GP ABCD; CSA (DIP) CI.II, III, Div1 GP EFG; CSA (IS) CI.I, II, III, Div1 GP ABCDEFG</td>
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</tbody>
</table>

CE conformity

| 2006/95/EG (LVD) | EN 61010-1: 2001 |

Functional safety (SIL)

- Single channel architecture (1oo1D) up to SIL2
- Double channel diversitary redundant architecture (1oo2D) up to SIL3

You can find detailed information in the Safety Manual of VEGASON or under www.vega.com.

Environmental instructions

VEGA environment management system certified according to DIN EN ISO 14001
You can find detailed information under www.vega.com.

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* A suitable cable is the prerequisite for maintaining the protection class.
* Deviating data in Ex applications: see separate safety instructions.
7 Dimensions

Housing in protection IP 66/IP 67 and IP 66/IP 68; 0.2 bar

Fig. 25: 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. 26: 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. 27: VEGASON 61
1 Dead zone: 0.25 m (0.82 ft)
2 Measuring range: with liquids up to 5 m (16.4 ft), with solids up to 2 m (6.56 ft)

VEGASON 62

Fig. 28: VEGASON 62
1 Dead zone: 0.4 m (1.312 ft)
2 Measuring range: with liquids up to 8 m (26.25 ft), with solids up to 3.5 m (11.48 ft)
VEGASON 63

Fig. 29: VEGASON, dimension L with Alu housing = 108 mm (4.252"), dimension L with plastic and stainless steel housing = 114.5 mm (4.508")

1 Mounting strap
2 Compression flange
3 Dead zone: 0.6 m (1.969 ft)
4 Measuring range: with liquids up to 15 m (49.21 ft), with solids up to 7 m (22.97 ft)
8 Product code

VEGASON 61

Approval
UX FM/N(I)LD(I,II,III, DIV1, GP EFG
UF FM/S(I)LI,II, DIV 1.0 GP ABCDEF
KX CSA/N(I)LD 2.0 GP ABCD/BDPLC I,II,III, DIV1, GP EFG
KF CSA/S(I)LI,II, III, DIV1, GP ABCDEFG

Version / Process temperature
A Seal EPDM -40...80°C

Process fitting / Material
N Thread 1½NPT / PVDF
H Two-wire 4...20mA/HART®
P Profibus PA
F Foundation Fieldbus

Housing / Protection
X Plastic / IP66/IP67
A Aluminium / IP66/IP68 (0.2 bar)
D Aluminium double chamber / IP66/IP67
V SS (precision casting) 316L / IP66/IP68 (0.2bar)

Cable entry / Plug connection
H ½NPT / without
X Without
A Top mounted
B Laterally mounted

Indicating/adjustment module (PLICSCOM)

X Additional equipment
X without

SN61

1) Only available with Housing / Protection “D”

VEGASON 62

Approval
UX FM/N(I)LD(I,II,III, DIV1, GP EFG
UF FM/S(I)LI,II, DIV 1.0 GP ABCDEF
KX CSA/N(I)LD 2.0 GP ABCD/BDPLC I,II,III, DIV1, GP EFG
KF CSA/S(I)LI,II, III, DIV1, GP ABCDEFG

Version / Process temperature
A Seal EPDM -40...80°C

Process fitting / Material
X without compression flange
C Mounting loop / 1.4301
E Compression flange ANSI 4" 150psi / 316L
D Compression flange ANSI 4" 150psi / PPH

Electronics
H Two-wire 4...20mA/HART®
P Profibus PA
F Foundation Fieldbus

Housing / Protection
K Plastic / IP66/IP67
A Aluminium / IP66/IP68 (0.2 bar)
D Aluminium double chamber / IP66/IP67
V SS (precision casting) 316L / IP66/IP68 (0.2bar)

Cable entry / Plug connection
N ½NPT / without
X Without
A Top mounted
B Laterally mounted

Indicating/adjustment module (PLICSCOM)

X Additional equipment
X without

SN62

1) Only available with Housing / Protection “D”

VEGASON 63

Approval
XX without

Version / Process temperature
A Seal EPDM -40...80°C

Process fitting / Material
N Thread 2"NPT / PVDF

Electronics
H Two-wire 4...20mA/HART®
P Profibus PA
F Foundation Fieldbus

Housing / Protection
K Plastic / IP66/IP67
A Aluminium / IP66/IP68 (0.2 bar)
D Aluminium double chamber / IP66/IP67
V SS (precision casting) 316L / IP66/IP68 (0.2bar)

Cable entry / Plug connection
N ½NPT / without
X Without
A Top mounted
B Laterally mounted

Indicating/adjustment module (PLICSCOM)

X Additional equipment
X without

SN63

1) Only available with Housing / Protection “D”
You can find at [www.ohmartvega.com](http://www.ohmartvega.com) downloads of the following

- operating instructions manuals
- menu schematics
- software
- certificates
- approvals
and much, much more

Subject to change without prior notice