

Supplementary instructions

Float for oil/water detection

for VEGASWING 63 and EL 3



Document ID:
36676



Vibration

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1 About this document

1.1 Function

This supplementary manual, together with the attached operating instructions manual, has all the information you need for quick setup and safe operation. Please read this manual before you start setup.

1.2 Target group

This operating instructions manual is directed to trained qualified personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbolism used



Information, tip, note

This symbol indicates helpful additional information.



Caution: If this warning is ignored, faults or malfunctions can result.

Warning: If this warning is ignored, injury to persons and/or serious damage to the instrument can result.

Danger: If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.



Ex applications

This symbol indicates special instructions for Ex applications.



List

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



Action

This arrow indicates a single action.



Sequence

Numbers set in front indicate successive steps in a procedure.

2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

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

2.2 Appropriate use

The float for oil/water detection is part of a sensor system. It is used for detection of liquids or light liquids on water. The system can differentiate between water and light liquids.

2.3 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter "*Storage and transport*"
- Chapter "*Disposal*"

3 Product description

3.1 Structure

Scope of delivery

The scope of delivery encompasses:

- Floating body for two point level sensors
- Nut G $\frac{3}{4}$ (316 Ti)
- Nut G1 $\frac{1}{2}$ (316 Ti)
- Documentation
 - This supplementary operating instructions

Constituent parts

The instrument version "Float for oil/water detection for VEGA-SWING 63 and EL 3" consists of a floating body on which a point level sensor VEGASWING 63 and a conductive electrode EL 3 are mounted.

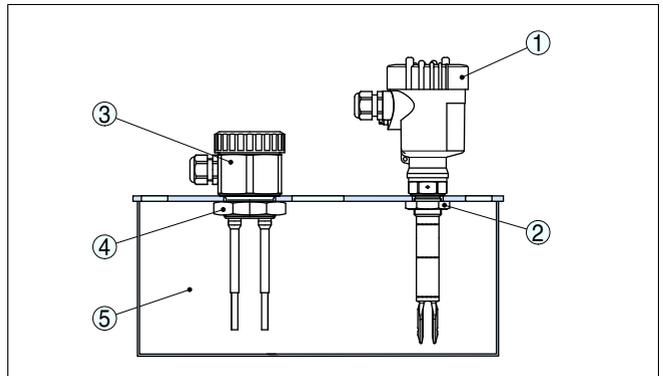


Fig. 1: Components of the float probe

- 1 Point level sensor VEGASWING 63
- 2 Nut G $\frac{3}{4}$ (316 Ti)
- 3 Conductive probe EL 3
- 4 Nut G1 $\frac{1}{2}$ (316 Ti)
- 5 Float

3.2 Principle of operation

Application area

The float is suitable for the following sensors:

- VEGASWING 63
- Conductive probe EL 3

Functional principle

The measuring system can detect the following statuses (situations):

- No liquid present
- Water or hydrous (conductive) liquid present
- Oil or a liquid similar to oil (non-conductive) present

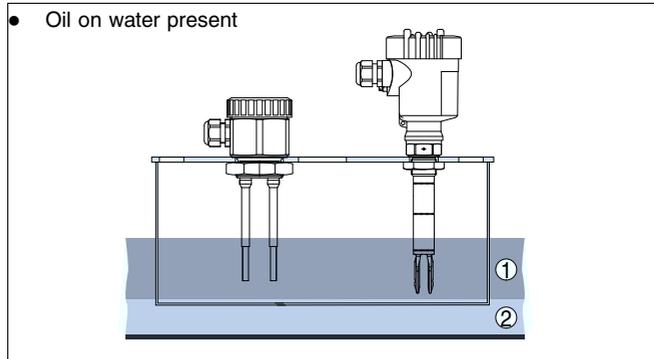


Fig. 2: Measuring system for liquid detection

- 1 Non-conductive liquid, for example oil
- 2 Conductive liquid, for example, water

In general, liquids from a height of approximately 25 mm (1 in) can be detected.

From a level of approximately 60 mm (2.36 in), the measuring system floats on the liquid and the sensors are immersed up to 75 mm (3 in) due to the specific weight of the liquid and the weight of the measuring system.

If, for example, there is oil on the water surface, the measuring system immerses deeper depending on the specific weight of the oil (approx. 75 mm/3 in).

An oil layer on water can be detected from a layer thickness of max. 50 mm (2 in). If the layer thickness increases, the measuring system detects only the oil.

A typical application is oil or leakage detection in tank enclosures of fuel storage facilities and in pump stations of pipelines.

3.3 Storage and transport

Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test according to DIN EN 24180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

Storage and transport temperature

- Storage and transport temperature see chapter "Supplement - Technical data - Ambient conditions"
- Relative humidity 20 ... 85 %

4 Mounting

4.1 General instructions

Guidance

To prevent the float from touching the vessel wall, it can be guided vertically.

Use two thin vertical rods or two vertically strained wires at a distance of 306 mm (12 in) which you lead through the holes in the float plate.

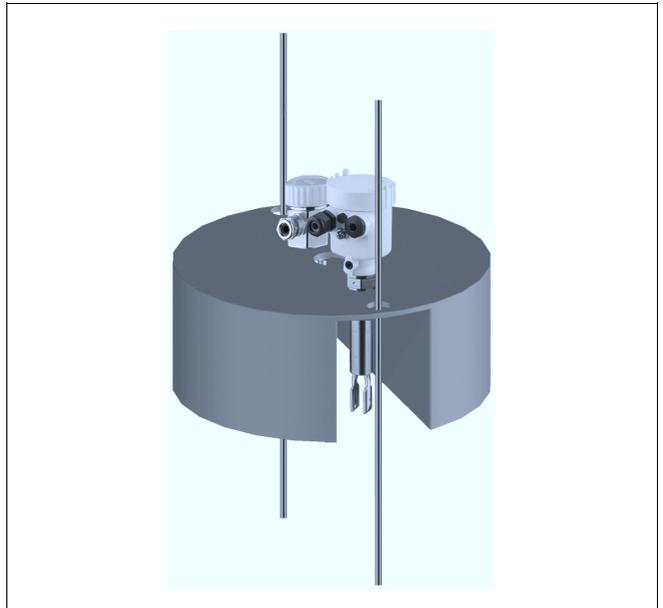


Fig. 3: Guidance of the float

Connection cable

The connection cable can influence the float position of the measuring system and therefore adulterate the measuring result.

If possible, use a light, flexible connection cable and fasten the cable with a cable holder. In case of considerable height differences of the float, you should use a light helix cable.

Product movements

Product movements can influence the measurement. In this case, use a signal conditioning instrument with adjustable damping to avoid fluctuations of the measured value.

Static charges

There is a danger of static charging on the plastic floating body.

Avoid friction

No dry cleaning

Do not mount in areas with flowing, non-conductive products

5 Connect the sensor

5.1 Preparing the connection

Follow the instructions in the operating instructions manual of the sensor.



Note:

The connection cable can influence the floating position of the measuring system. For this reason, use a light, flexible connection cable and fasten the cable on a cable holder.

5.2 Connection procedure

The electrical connection is described in the operating instructions of the sensor.

6 Setup

6.1 Setup

Setup is carried out according to the operating instructions manual of the respective sensor.

The measuring system can detect the following statuses (situations):

- No liquid present
- Water or hydrous (conductive) liquid present
- Oil or a liquid similar to oil (non-conductive) present
- Oil layer on water present

In general, liquids from a height of approximately 25 mm (1 in) can be detected.

Oil layers up to a thickness of max. 50 mm (2 in) can be detected. Upwards of this layer thickness, the measuring system detects only the oil layer.



Note:

We recommend connecting the level switches in such a way that the switching circuit is open when there is a level signal, line break or failure (safe condition).

An open switch symbol corresponds to the detection of a liquid in the following drawing

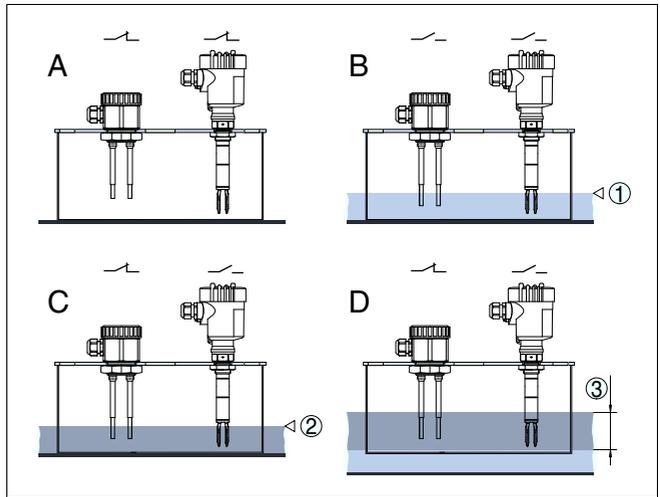


Fig. 4: Switching status of the measuring system

- A No liquid present
- B Water > 25 mm (> 1 in)
- C Oil > 25 mm (> 1 in)
- D Oil layer on water, layer thickness > 50 mm (> 2 in)
- 1 Liquid height water > 25 mm (> 1 in)
- 2 Liquid level oil > 25 mm (> 1 in)
- 3 Layer thickness oil > 50 mm (> 2 in)



Note:

Keep in mind that the conductive electrode responds a little earlier when being covered with water to ensure a reliable detection of water (to avoid false alarm).

Settings - VEGASWING 63

The level switch VEGASWING 63 must be operated in mode A (overflow protection).

The sensitivity switch of VEGASWING 63 must be set to density 0.7 g/cm³.

Settings - EL 3

The conductive electrode EL 3 must be operated in max. mode (overflow protection).

Immerse the two electrode rods approximately 10 mm (0.4 in) into water.

Carry out an adjustment on the corresponding signal conditioning instrument. The adjustment is described in the operating instructions of the signal conditioning instrument.

The evaluation and interpretation of the switching conditions can be realized via a PLC or a process control system.

7 Maintaining

7.1 Instrument repair

If a repair of the instrument is necessary, please proceed as follows:

You can download a return form (23 KB) from our homepage at www.vega.com under: "*Downloads - Forms and certificates - Repair form*".

By doing this you help us carry out the repair quickly and without having to call back for needed information.

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and probably a safety data sheet to the instrument
- Send the instrument to the address of the agency serving you. In Germany, send it to the company headquarters in Schiltach.

8 Dismounting

8.1 Dismounting steps

Note chapter "*Mounting*" and carry out the described steps in reverse order.

8.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We have purposely designed the electronic modules to be easily separable. Mark the instrument as scrap and dispose of it according to national government regulations (e.g. in Germany according to electronic scrap ordinance).

Materials: see chapter "*Technical data*"

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

9 Supplement

9.1 Technical data

Technical data

Following you find all data deviating from the standard instrument. All other technical data are specified in the operating instruction of the respective sensor.

General data

Material 316L corresponds to 1.4404 or 1.4435

Materials, wetted parts

- | | |
|---------|-----------------|
| – Float | PVC |
| – Nut | 316 Ti (1.4571) |

Weights

- | | |
|---------|------------------------|
| – Float | approx. 2400 g (85 oz) |
|---------|------------------------|

Point level sensors

VEGASWING 63, conductive electrode EL 3

Suitable point level sensor - VEGASWING 63

- | | |
|---------------------------------------|----------------------------------|
| – Order length L - Point level sensor | 140 mm (5.51 in) |
| – Housing material | Plastic (single chamber housing) |
| – Process fitting | G¾ A |

Suitable point level sensor - EL 3

- | | |
|---------------------------------------|------------------|
| – Order length L - Point level sensor | 130 mm (5.12 in) |
| – Number of rods | 2 |
| – Housing material | Stainless steel |
| – Process fitting | G1½ A |
-

Process conditions

Process temperature	-30 ... +60 °C (-22 ... +140 °F)
---------------------	----------------------------------

Approvals

The floating body can be used in Ex area zone 1 (ATEX II 2G).

There is a danger of static charging on the plastic floating body.

- Avoid friction
- No dry cleaning
- Do not mount in areas with flowing, non-conductive products

9.2 Dimensions

Measuring system for oil/water detection

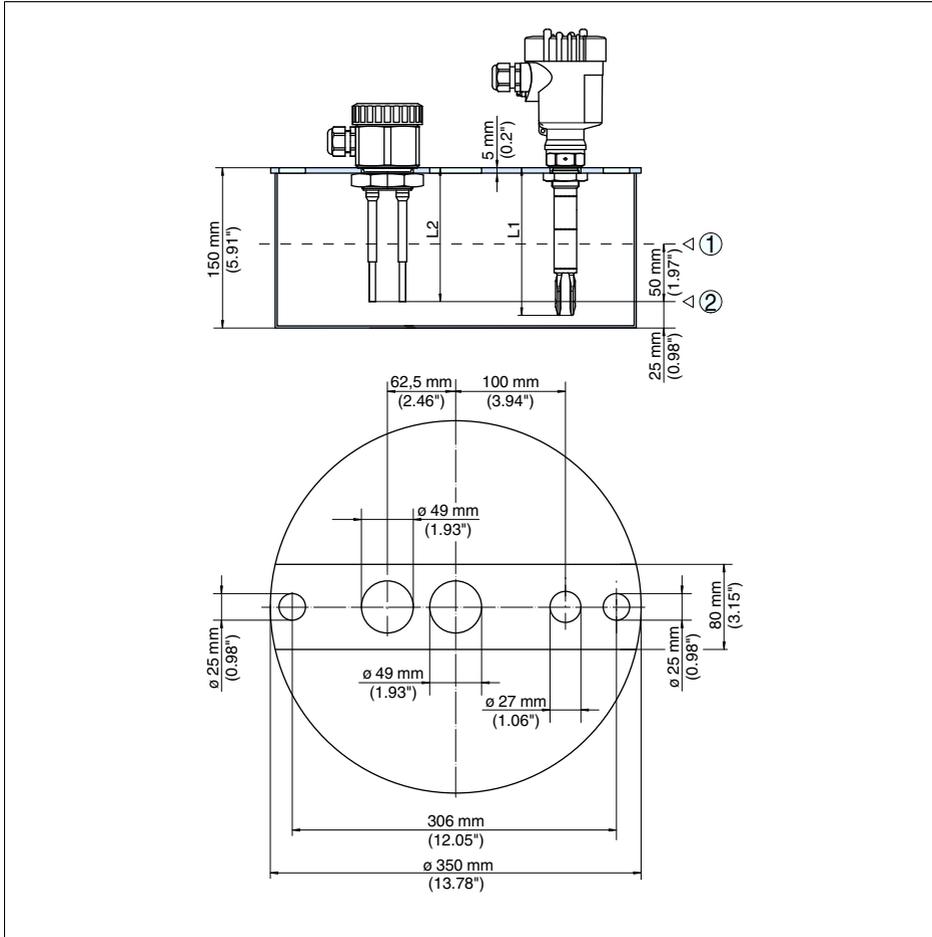


Fig. 5: Measuring system for oil/water detection with point level sensor VEGASWING 63 and conductive electrode EL 3

- 1 Immersion depth in oil (density 0.9 g/cm^3)¹⁾
- 2 Switching point
- L1 Length - VEGASWING
- L2 Length - EL 3

¹⁾ determine the exact value by testing with the original liquid



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