

Supplementary instructions

External housing

VEGACAP, VEGACAL



Document ID: 31085



VEGA

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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 specialist personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbols 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 of actions

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

An external housing is part of a sensor.

2.3 Safety instructions for Ex areas

Take note of the Ex specific safety instructions for Ex applications. These instructions are attached as documents to the respective sensor with Ex approval and are part of its operating instructions manual.

2.4 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 Configuration

Scope of delivery

The scope of delivery encompasses:

- Level sensor with external housing
- Documentation
 - A device operating instructions manual
 - This supplementary operating instructions
 - Ex specific safety instructions (with Ex versions), if necessary further certificates

Constituent parts

The instrument version "External housing" consists of a sensor housing and the instrument housing.

The fix connected triax cable is part of the scope of delivery. This applies also to the versions with plug.

The metal sensor housing cannot be opened. The electrical connection must be carried out on the instrument housing.

The instrument housing consists of the base element, the screwed cover for the electronics or connection compartment and the housing base.

The housing base is produced in two different materials. The version depends on the selected material of the instrument housing.

- Instrument housing of plastic - housing base: plastic
- Instrument housing of stainless steel - housing base: stainless steel

With continuously measuring sensors, the screwed cover of the instrument housing is with or without inspection window for the display and adjustment module PLICSCOM (depending on the order).

**Version IP 68 (10 bar)
with metal housing**

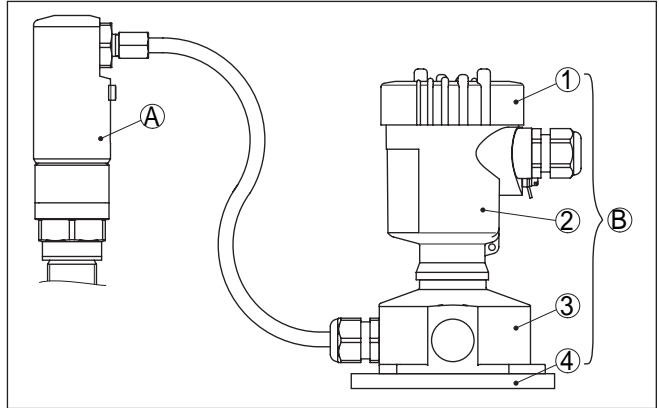


Fig. 1: Components of the external housing for plics® instruments, version IP 68 (10 bar), metal housing

- A Sensor housing - IP 68 (10 bar)
- B Instrument housing
- 1 Screw-on cover
- 2 Base element
- 3 Housing base
- 4 Wall mounting plate

Version IP 67 with metal housing

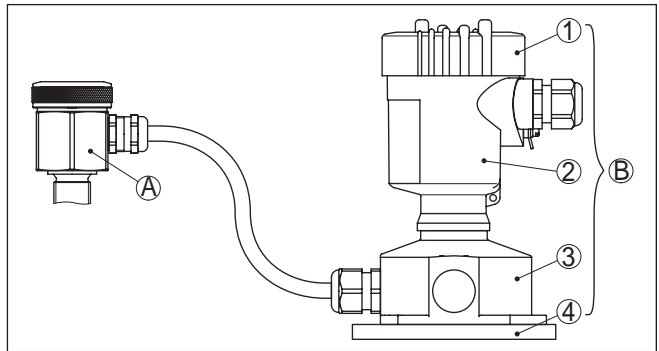


Fig. 2: Components of the external housing for plics® instruments, version IP 67, metal housing

- A Sensor housing - IP 67
- B Instrument housing
- 1 Screw-on cover
- 2 Base element
- 3 Housing base
- 4 Wall mounting plate

Version IP 54 with BNC plug

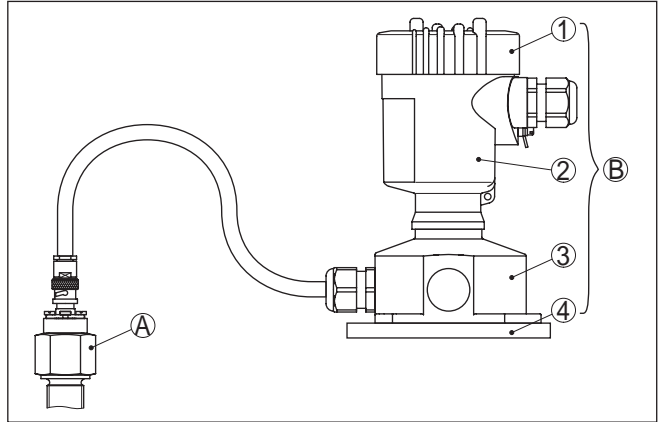


Fig. 3: Components of the external housing for plics® instruments, version IP 54, BNC plug

- A Sensor housing - IP 54
- B Instrument housing
- 1 Screw-on cover
- 2 Base element
- 3 Housing base
- 4 Wall mounting plate

3.2 Principle of operation

Area of application

The external housing is suitable for the following plics® sensors:

- VEGACAL series 60
- VEGACAP series 60.

The external housing is not suitable for VEGACAL 69 and VEGACAP 69.

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 based on ISO 4180.

The outer packaging of standard instruments consists of environment-friendly, recyclable cardboard. PE foam or PE foil is also used for packing the instrument. 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

In the following cases, we recommend using an instrument version with external housing:

- if the standard housing is too big
- if strong vibrations can damage the electronics



In Ex applications, only housings with appropriate Ex approval may be used.

4.2 Mounting preparations

Tools

The following tools are required for mounting the external housing.

Plastic housing:

- Hexagon socket wrench, size 4
- Fork wrench, wrench size 19

Stainless steel housing:

- Fork wrench, wrench size 8
- Fork wrench, wrench size 19

Mounting material

We recommend using additional materials when mounting the wall mounting plate.

- 4 screws, depending on the mounting surface

4.3 Installation procedure

Wall mounting - External housing

1. Mark the holes according to the following drilling template
2. Depending on the mounting surface, fasten the wall mounting plate with 4 screws

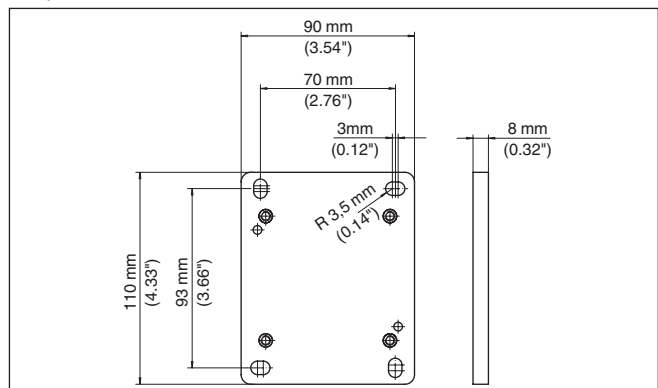


Fig. 4: Hole pattern - wall mounting plate (external housing)

**Tip:**

Mount the wall mounting plate in such a way that the cable gland of the base points downward. Rain and condensation water can thus drain off.

The base of stainless steel can be displaced in 90° increments on the wall mounting plate, the base of plastic by 180°.

Turn the cable gland of the electronics housing downward. The housing can be turned by 330° without the use of any tools.

**Warning:**

With the plastic housing, the four screws of the base may only be screwed in hand tight. Exceeding the max. torque specified in chapter "Technical data" can damage the wall mounting plate.

4.4 Mounting - external housing (instrument housing)

→ Mount the sensor to the bottom, depending on the process fitting

**Note:**

When mounting the sensor, note the instructions in the operating instructions manual of the sensor.

5 Connect the sensor to the external housing

5.1 Preparing the connection

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

5.2 Connection procedure



Note:

The triax cable is part of the scope of delivery and fix connected to the sensor.

The metal sensor housing cannot be opened. The electrical connection must be carried out on the instrument housing.

1. Insert the cable end through the cable entry on the external housing (instrument housing)



Tip:

Only run the cable loosely. The connection cable can only be separated on the external housing (instrument housing) - except BNC plug. If the sensor should be dismantled, the connection cable must be free to take out the sensor.

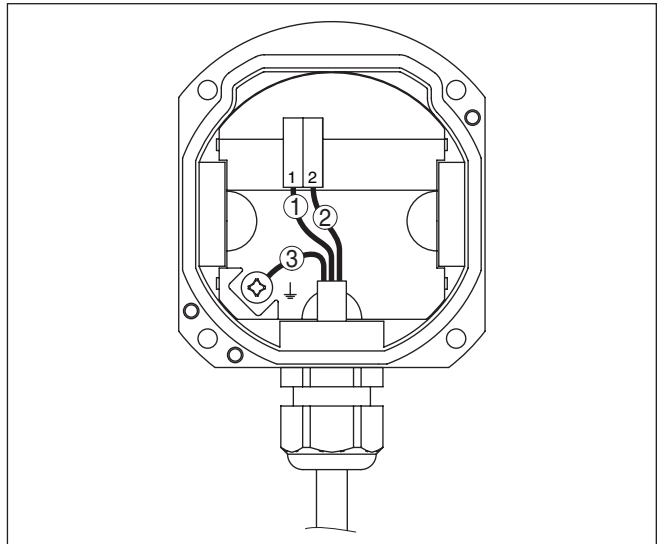


Fig. 5: Connection of the sensor in the socket housing

- 1 red - conductor
- 2 blue - screening
- 3 black - grounding

2. Connect the cables to the terminals in the socket housing.

The cables are numbered and cannot be interchanged. The ground cable (black with ground marking) must be connected to the ground screw.

Conductor (1) wire colour: red

Screening (2) wire colour: blue

Grounding (3) wire colour: black

3. Tighten the compression nut of the cable entry gland. The seal ring must completely encircle the cable

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

6 Setup

6.1 Setup

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

7 Maintenance

7.1 Instrument repair

You can find an instrument return form as well as detailed information about the procedure in the download area of our homepage: www.vega.com.

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

If a repair is necessary, please proceed as follows:

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and, if need be, also a safety data sheet outside on the packaging
- Please contact the agency serving you to get the address for the return shipment. You can find the agency on our home page www.vega.com.

8 Dismount

8.1 Dismounting steps

Take note of chapters "*Mounting*" and "*Connect sensor to the external housing*" and carry out the listed steps in reverse order.

8.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We use recyclable materials and have designed the parts to be easily separable.

Correct disposal avoids negative effects on humans and the environment and ensures recycling of useful raw materials.

Materials: see chapter "*Technical data*"

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

WEEE directive 2002/96/EG

This instrument is not subject to the WEEE directive 2002/96/EG and the respective national laws. Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points. These may be used only for privately used products according to the WEEE directive.

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, non-wetted parts

- Sensor housing - metal housing IP 68 316L
(10 bar)
- Sensor housing - metal housing IP 67 316L
- Sensor housing - BNC plug IP 54 316L
- Plastic instrument housing (external housing) plastic PBT (Polyester)
- Stainless steel instrument housing - electropolished (external housing) 316L
- Housing base plastic PBT (Polyester), 316L
- Wall mounting plate plastic PBT (Polyester)
- Seal between housing socket and wall mounting plate TPE (fixed connected)
- Seal between housing and housing cover (instrument version) Silicone
- Ground terminal 316L
- Connection cable (triax) PTFE/FEP

Weights

- External instrument housing approx. 660 g (23 oz)
- Sensor housing - IP 68 (10 bar) 1100 g (38 oz)
- Sensor housing - IP 67 400 g (14.1 oz)
- Sensor housing - IP 54 190 g (6.7 oz)

Process fittings

- Sensor housing - IP 68 (10 bar) G $\frac{3}{4}$, $\frac{3}{4}$ NPT, G1, 1 NPT, G1 $\frac{1}{2}$, 1 $\frac{1}{2}$ NPT
- Sensor housing - IP 67 G $\frac{1}{2}$, $\frac{1}{2}$ NPT
- Sensor housing - IP 54 G $\frac{1}{2}$, $\frac{1}{2}$ NPT

Cable length to the external housing 2 m, 5 m, 10 m (6.56 ft, 16.41 ft, 32.81 ft)

Process conditions

- Process pressure -1 ... 63 bar/-100 ... 6400 kPa (-14.5 ... 928 psig)
- Process temperature Depending on the sensor
- Ambient temperature on the sensor housing -50 ... +150 °C (-58 ... +302 °F)

Ambient temperature on the sensor housing - with BNC plug connection	-50 ... +100 °C (-58 ... +212 °F)
Ambient temperature on the connection cable	-50 ... +150 °C (-58 ... +302 °F)
Ambient, storage and transport temperature on the instrument housing	
– without PLICSCOM	-40 ... +80 °C (-40 ... +176 °F)
– with PLICSCOM ¹⁾	-20 ... +70 °C (-4 ... +158 °F)

Electromechanical data

Cable entry/plug²⁾

– Instrument housing	– 1 x cable gland M20 x 1.5 (cable: ø 6 ... 12 mm), 2 x blind plug M20 x 1.5 or: – 1 x closing cap ½ NPT, 2 x blind plug ½ NPT or: – 1 x plug (depending on the version), 2 x blind plugs M20 x 1.5
– Housing base	– 1 x cable entry M20 x 1.5 (cable: ø 6 ... 12 mm)
Spring-loaded terminals	for wire cross-section up to 2.5 mm ² (AWG 14)

Electrical protective measures

Protection rating

– Metal housing: IP 68 (NEMA Type 6P)	IP 68 (10 bar) (NEMA Type 6P)
– Metal housing: IP 67 (NEMA Type 4X)	IP 67 (NEMA Type 4X)
– BNC plug	IP 54 (NEMA Type 3S)
– Instrument housing - Instrument socket	IP 66/IP 67 (NEMA Type 4X)

¹⁾ Only with VEGACAL.

²⁾ Depending on the version M12 x 1, according to ISO 4400, Harting, 7/8" FF.

9.2 Dimensions

Sensor housing - Metal (IP 68) and external housing (instrument housing)

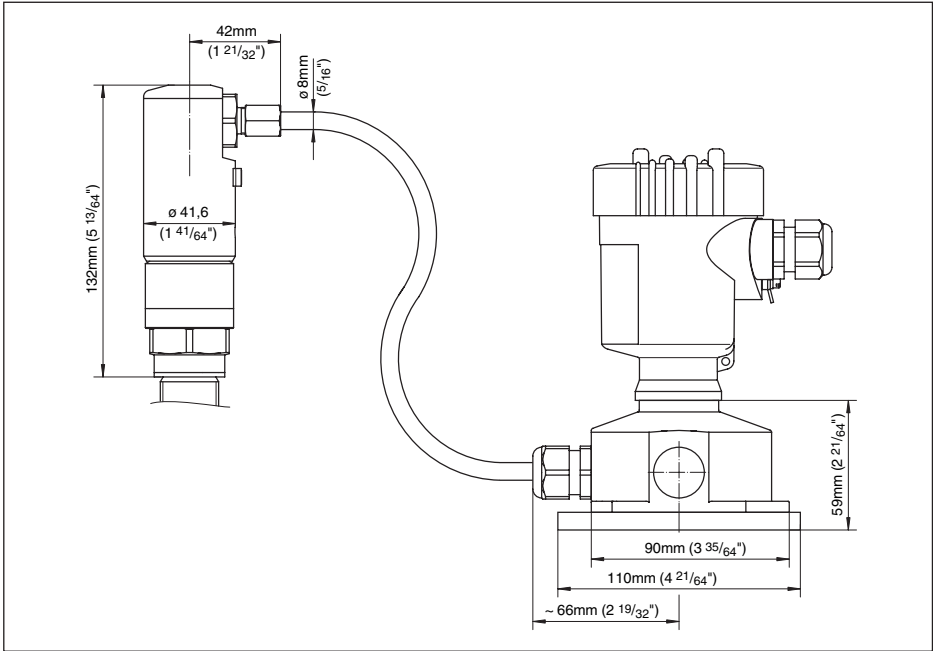


Fig. 6: Sensor housing - IP 68 (10 bar) and external housing (instrument housing)

Sensor housing - Metal (IP 67) and external housing (instrument housing)

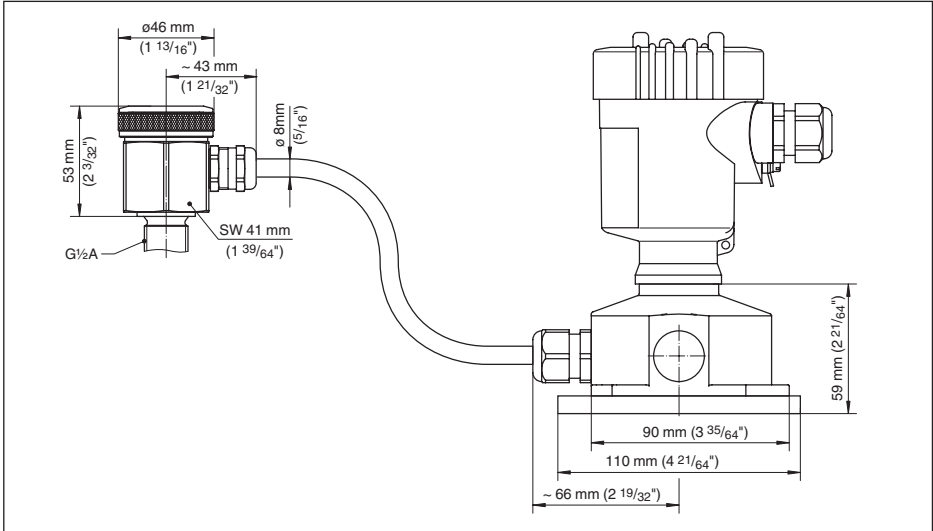


Fig. 7: Sensor housing - IP 67 and external housing (instrument housing)

Sensor housing - BNC plug (IP 54) and external housing (instrument housing)

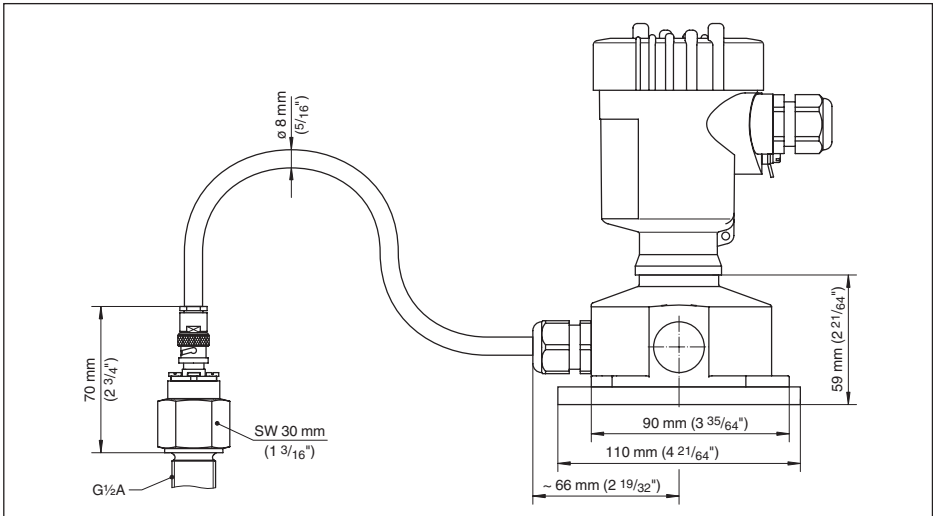


Fig. 8: Sensor housing - IP 54 and external housing (instrument housing)

Housing versions - instrument housing

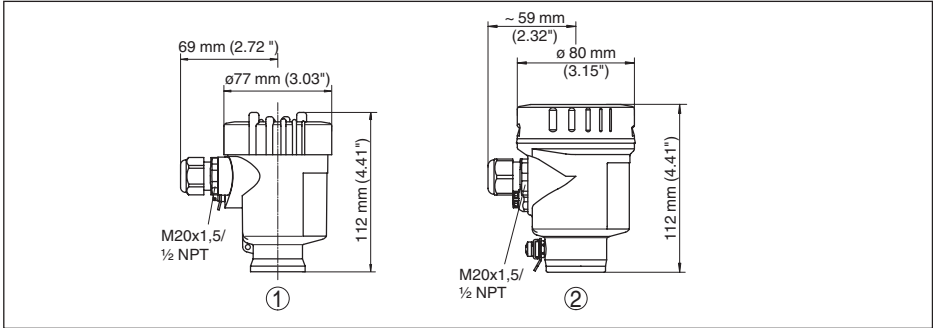


Fig. 9: Housing versions - Instrument housing (with integrated PLICSCOM the housing is 9 mm/0.35 in higher)

- 1 Instrument housing - plastic
- 2 Instrument housing - stainless steel, electropolished

Printing date:

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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

Subject to change without prior notice

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