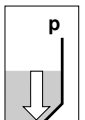


VEGA

Operating Instructions VEGABOX 02



Process pressure/
Hydrostatic



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Supplementary documentation**Tip:**

For safe use and operation of the instrument, the operating instructions manual of the respective pressure transmitter is also required.

1 About this document

1.1 Function

This operating instructions manual provides all the information you need for mounting, connection and setup as well as important instructions for maintenance and fault rectification. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

1.2 Target group

This operating instructions manual is directed to trained 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 protection equipment must always be worn.

2.2 Appropriate use

VEGABOX 02 is a breather housing for pressure transmitters.

The optionally integrated temperature transmitter is used for connection to the resistance Pt 100 in the VEGAWELL 51 - 4 ... 20 mA/HART, VEGAWELL 52 - 4 ... 20 mA/HART Pt 100 and VEGAWELL 72 - 4 ... 20 mA/HART Pt 100 pressure transmitters.

2.3 Warning about misuse

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

This is a high-tech instrument requiring the strict observance of standard regulations and guidelines. The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules.

The instrument must only be operated in a technically flawless and reliable condition. The operator is responsible for trouble-free operation of the instrument.

During the entire duration of use, the user is obliged to determine the compliance of the required occupational safety measures with the current valid rules and regulations and also take note of new regulations.

2.5 Safety instructions for Ex areas

Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions manual and come with the Ex-approved instruments.

2.6 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 "*Packaging, transport and storage*"
- Chapter "*Disposal*"

3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- VEGABOX 02 breather housing
- Protective cover (optional)
- Documentation
 - this operating instructions manual

Components

VEGABOX 02 consists of the following components:

- Breather housing
- Temperature transmitter for Pt 100 (optionally integrated)
- Protective cover (optional)

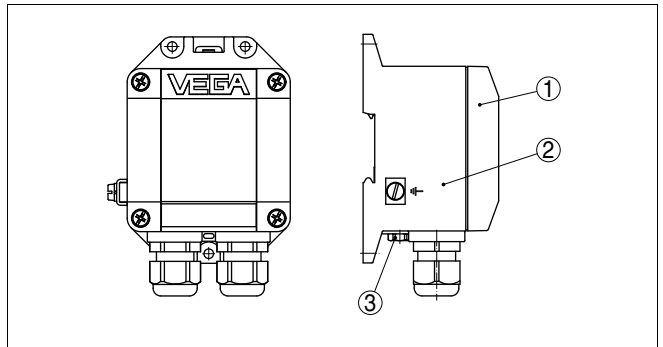


Fig. 1: VEGABOX 02

- 1 Housing cover
- 2 Housing
- 3 Breather facility

3.2 Principle of operation

Application area

VEGABOX 02 is a breather housing for pressure transmitters with connection cable with integrated capillary cable. It is particularly suitable for the following VEGA pressure transmitters:

- VEGAWELL 51 - 4 ... 20 mA
- VEGAWELL 51 - 4 ... 20 mA/HART
- VEGAWELL 52 - 4 ... 20 mA
- VEGAWELL 52 - 4 ... 20 mA/HART Pt 100
- VEGAWELL 72 - 4 ... 20 mA
- VEGAWELL 72 - 4 ... 20 mA/HART
- VEGAWELL 72 - 4 ... 20 mA/HART Pt 100
- VEGABAR 74 - 4 ... 20 mA/HART
- VEGABAR 75 - 4 ... 20 mA/HART

Power supply The connection cable of the sensor as well as the power supply cable are connected to the VEGABOX 02. Connection is carried out via screw terminals.

3.3 Packaging, transport and storage

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.

Transport Transport must be carried out under consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

Transport inspection The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

Storage Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

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

Mounting position

VEGABOX 02 can be mounted in any position. However, vertical mounting is recommended. This avoids pollution of the breather facility and moisture penetration.



Note:

There must be the same atmospheric pressure on the breather facility as well as on the measurement loop. Otherwise the measured value can be adulterated.

Moisture

Use the recommended cables (see chapter "*Connecting to power supply*") and tighten the cable gland.

4.2 Mounting instructions

Mounting versions

VEGABOX 02 can be mounted as follows:

- on carrier rail 35 x 7.5 according to EN 50022
- on mounting plate or on the wall

5 Connecting to power supply

5.1 Preparing the connection

Note safety instructions

Always keep in mind the following safety instructions:

- Connect only in the complete absence of line voltage

Take note of safety instructions for Ex applications



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

Selecting connection cable

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

Use cable with round cross-section. A cable outer diameter of 5 ... 9 mm (0.2 ... 0.35 in) ensures the seal effect of the cable gland. If you are using cable with other diameter or cross-section, you have to exchange the seal or use a suitable cable gland.

When the optionally integrated temperature transmitter is also connected, a four-wire cable is required; when an external temperature transmitter is connected, a six-wire cable is required.

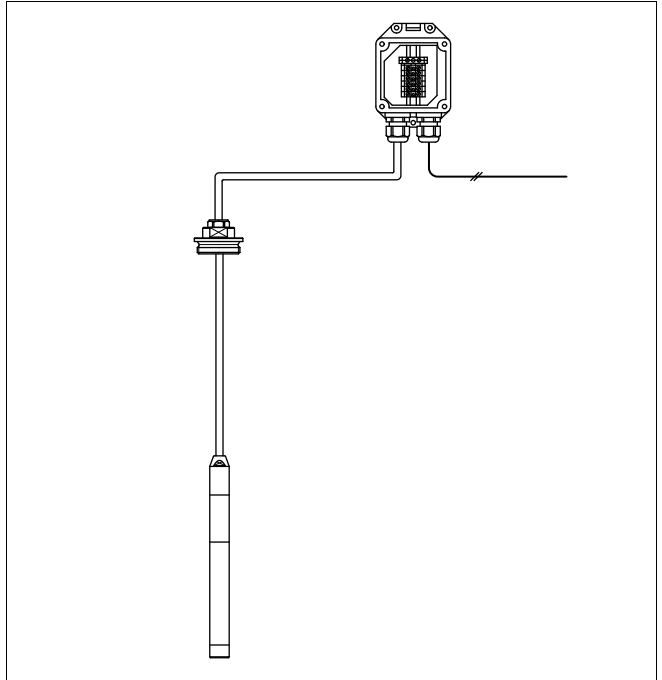


Fig. 2: Connection of VEGABOX 02 to the sensor

Select connection cable for Ex applications



Take note of the corresponding installation regulations for Ex applications.

Cable screening and grounding

If screened cable is necessary, connect the cable screen on both ends to ground potential. In the VEGABOX 02, the screen must be connected directly to the internal ground terminal. The ground terminal on the outside of the housing must be connected to the potential equalisation (low impedance).

If potential equalisation currents are expected, the connection on the processing side must be made via a ceramic capacitor (e. g. 1 nF, 1500 V). The low frequency potential equalisation currents are thus suppressed, but the protective effect against high frequency interference signals remains.

Cable screen and grounding for Ex applications

In Ex applications, one-sided grounding on the sensor is recommended, see EN 60079-14.

5.2 Connection procedure

Proceed as follows:

- 1 Snap VEGABOX 02 onto the carrier rail or screw it to the mounting plate
 - 2 Loosen the cover screws and remove the cover
 - 3 Insert the sensor cable into VEGABOX 02 through the cable entry
 - 4 Loosen the screws with a screwdriver
 - 5 Insert the wire ends into the open terminals according to the wiring plan
 - 6 Tighten the screws with a screwdriver
 - 7 Check the hold of the wires in the terminals by lightly pulling on them
 - 8 Tighten the compression nut of the cable entry. The seal ring must completely encircle the cable
 - 9 Connect the supply cable according to steps 3 to 8
 - 10 Screw the housing cover on
- The electrical connection is finished.

5.3 Wiring plan

VEGAWELL 51 -, 72 - 4 ...
20 mA

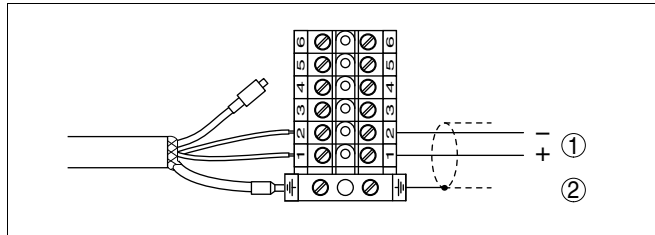


Fig. 3: Terminal assignment VEGABOX 02
1 To power supply or the processing system
2 Shielding ¹⁾

Wire number	Wire colour/Polarity	VEGABOX 02 terminal
1	brown (+)	1
2	blue (-)	2

¹⁾ Connect screen to ground terminal. Connect ground terminal on the outside of the housing as prescribed. The two terminals are galvanically connected.

VEGAWELL 72 - VEGA-BAR 74, 75 - 4 ... 20 mA/HART

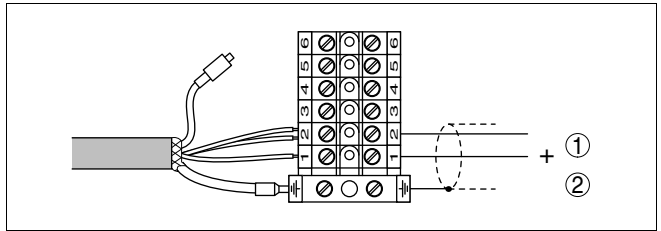


Fig. 4: Terminal assignment VEGABOX 02

- 1 To power supply or the processing system
- 2 Shielding ²⁾

Wire number	Wire colour/Polarity	VEGABOX 02 terminal
1	brown (+)	1
2	blue (-)	2
3	Yellow	2
	Shielding	Ground

VEGAWELL 51 - 4 ... 20 mA/HART, VEGAWELL 72 - 4 ... 20 mA/HART Pt 100

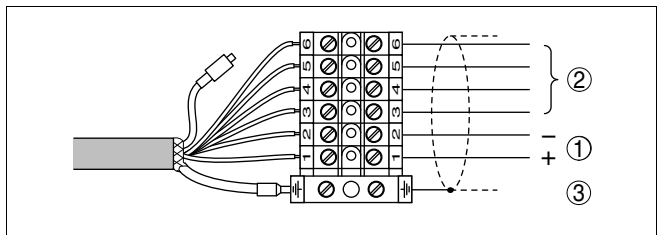


Fig. 5: Terminal assignment VEGABOX 02

- 1 To power supply or the processing system (signal pressure transmitter)
- 2 To power supply or the processing system (connection cables resistance thermometer Pt 100)
- 3 Shielding ³⁾

Wire number	Wire colour/Polarity	VEGABOX 02 terminal
1	brown (+)	1
2	blue (-)	2
3	White	3
4	Yellow	4
5	Red	5
6	Black	6
	Shielding	Ground

- ²⁾ Connect screen to ground terminal. Connect ground terminal on the outside of the housing as prescribed. The two terminals are galvanically connected.
- ³⁾ Connect screen to ground terminal. Connect ground terminal on the outside of the housing as prescribed. The two terminals are galvanically connected.

**VEGAWELL 51 -
4 ... 20 mA/HART, VE-
GAWELL 72 - 4 ... 20 mA/
HART Pt 100**

The following terminal assignment applies to VEGABOX 02 with integrated temperature transmitter for Pt 100.

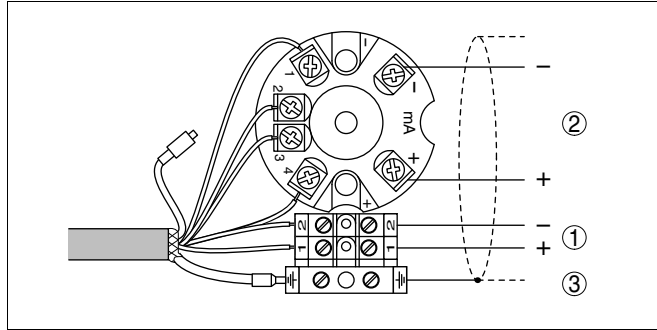


Fig. 6: Terminal assignment VEGABOX 02 with integrated temperature transmitter

- 1 To power supply or the processing system (signal pressure transmitter)
2 To power supply or the processing system (signal temperature transmitter)
3 Shielding ⁴⁾

Wire number	Wire colour/Polarity	VEGABOX 02 terminal
1	brown (+)	1
2	blue (-)	2
	Shielding	Ground

Wire number	Wire colour/Polarity	Terminal, temperature transmitter for Pt 100
3	White	1
4	Yellow	2
5	Red	3
6	Black	4

⁴⁾ Connect screen to ground terminal. Connect ground terminal on the outside of the housing as prescribed. The two terminals are galvanically connected.

6 Set up

6.1 Setup steps, pressure transmitter

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

6.2 Setup steps, temperature transmitter

Setup and adjustment of the temperature transmitter are carried out according to the respective operating instructions manual "*Temperature transmitter type T32*" on www.wika.com.

7 Maintenance and fault rectification

7.1 Maintenance

When used in the correct way, no special maintenance is required in normal operation.

7.2 Instrument repair

If a repair is necessary, please proceed as follows:

You can download a return form (23 KB) from our Internet homepage 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, if need be, also a safety data sheet outside on the packaging
- Please ask the agency serving you for the address of your return shipment. You can find the respective agency on our website www.vega.com under: "*Company - VEGA worldwide*"

8 Dismounting

8.1 Dismounting steps

**Warning:**

Before dismounting, be aware of dangerous process conditions such as e.g. pressure in the vessel, high temperatures, corrosive or toxic products etc.

Take note of chapters "*Mounting*" and "*Connecting to power supply*" 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 electronics to be easily separable.

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.

Correct disposal avoids negative effects to persons and environment and ensures recycling of useful raw materials.

Materials: see chapter "*Technical data*"

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

9 Supplement

9.1 Technical data

General data

316L corresponds to 1.4404 or 1.4435, 316Ti corresponds to 1.4571

Materials

- Housing plastic PBT
- Ground terminal 316Ti/316L

Weight approx. 0.5 kg (1.102 lbs)

Ambient conditions

Ambient temperature -40 ... +85 °C (-40 ... +185 °F)

Storage and transport temperature -40 ... +85 °C (-40 ... +185 °F)

Supply and signal circuit, pressure transmitter

Operating voltage see operating instructions manual of the respective pressure transmitter

Signal current depending on pressure transmitter 4 ... 20 mA or 4 ... 20 mA/HART

Supply and signal circuit temperature transmitter

The data are an excerpt from the WIKA data sheet TE 32.03. You can find the data sheet under www.wika.com

Resistance thermometer (mounted into VE-GAWELL) Pt 100 according to DIN EN 60751

Supply voltage U_B 12 ... 42 V DC

Signal current 4 ... 20 mA/HART according to -20 ... +80 °C (-4 ... +176 °F)

Error of measurement according to DIN EN 60770, 23 °C ± 5 K ± 0.04 % of the span

Temperature coefficient $T_K^{5)}$ ± 0.1 % of the span/10 K_{T_A}

Load R_A $R_A \leq (U_B - 12 \text{ V}) / 0.0255 \text{ A}$ with R_A in Ω and U_B in V

Electromechanical data

Cable gland 2 x cable entry M20 x 1.5 (cable: \varnothing 5 ... 9 mm)

Screw terminals for cable cross-section up to 2.5 mm² (AWG 14)

Electrical protective measures

Protection IP 65

⁵⁾ Within the standard ambient temperature range -40 ... +85 °C (-40 ... +185 °F).

Overvoltage category	III
Protection class	III

Approvals

Depending on the version, instruments with approvals can have different technical data.

For these instruments, the corresponding approval documents have to be taken into account. These are part of the delivery or can be downloaded under www.vega.com via "VEGA Tools" and "serial number search" as well as via "Downloads" and "Approvals".

9.2 Dimensions

VEGABOX 02

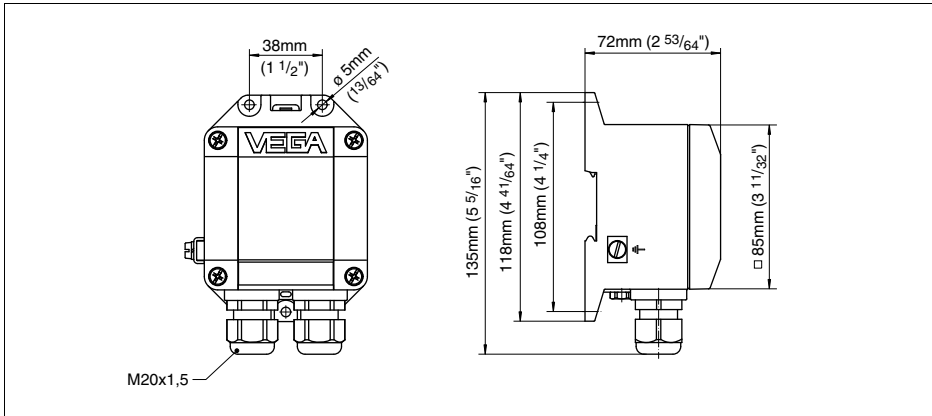


Fig. 7: VEGABOX 02

VEGABOX 02 with protective cover

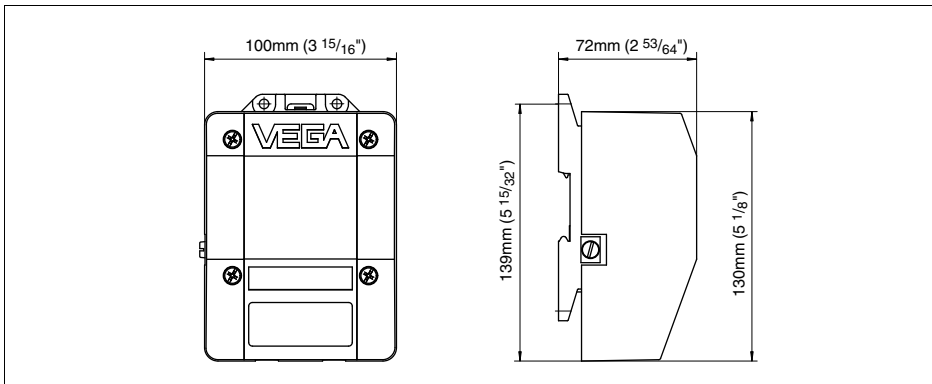


Fig. 8: VEGABOX 02 with protective cover

9.3 Industrial property rights

VEGA product lines are global protected by industrial property rights. Further information see <http://www.vega.com>.

Only in U.S.A.: Further information see patent label at the sensor housing.

VEGA Produktfamilien sind weltweit geschützt durch gewerbliche Schutzrechte.

Nähere Informationen unter <http://www.vega.com>.

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9.4 Trademark

All brands used as well as trade and company names are property of their lawful proprietor/originator.



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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.

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