Operating Instructions

VEGABOX 02

Document ID: 32798

Contents

Supplementary documentation

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

Editing status:2014-06-24

32798-EN-140801

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 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.

SIL applications
This symbol indicates instructions for functional safety which must be taken into account particularly for safety-relevant applications.

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

→ **Action**
This arrow indicates a single action.

1 **Sequence of actions**
Numbers set in front indicate successive steps in a procedure.

Battery disposal
This symbol indicates special information about the disposal of batteries and accumulators.

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 VEGABOX 02 is a breather housing for pressure transmitters VEGAWELL 52 and VEGAWELL 72.

The optionally integrated temperature transmitter is used for connection to the resistance thermometer Pt 100, which is dependent on the version integrated in the pressure transmitters.

2.3 Warning about incorrect use

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 state-of-the-art instrument complying with all prevailing regulations and guidelines. The instrument must only be operated in a technically flawless and reliable condition. The operator is responsible for the trouble-free operation of the instrument.

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

The safety instructions in this operating instructions manual, the national installation standards as well as the valid safety regulations and accident prevention rules must be observed by the user.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by the manufacturer. Arbitrary conversions or modifications are explicitly forbidden.

The safety approval markings and safety tips on the device must also be observed.

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.

32798-EN-140801

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 fulfill 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

Constituent parts

The VEGABOX 02 consists of the components:

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

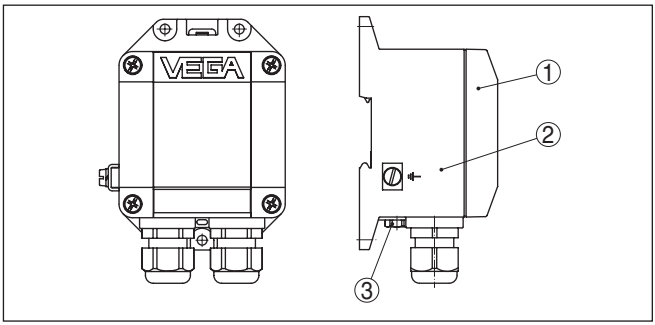

Fig. 1: VEGABOX 02

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 lines. It is particularly suitable for the following VEGA pressure transmitters:

- VEGAWELL 52 - 4 … 20 mA
- 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

Voltage 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.

32798-EN-140801

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 based on ISO 4180.

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 in due 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

Installation 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 on the measuring point. 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

32798-EN-140801

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 must take note of the respective regulations, conformity and type approval certificates of the sensors and power supply units.

Select 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 a different diameter or cross-section, 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.

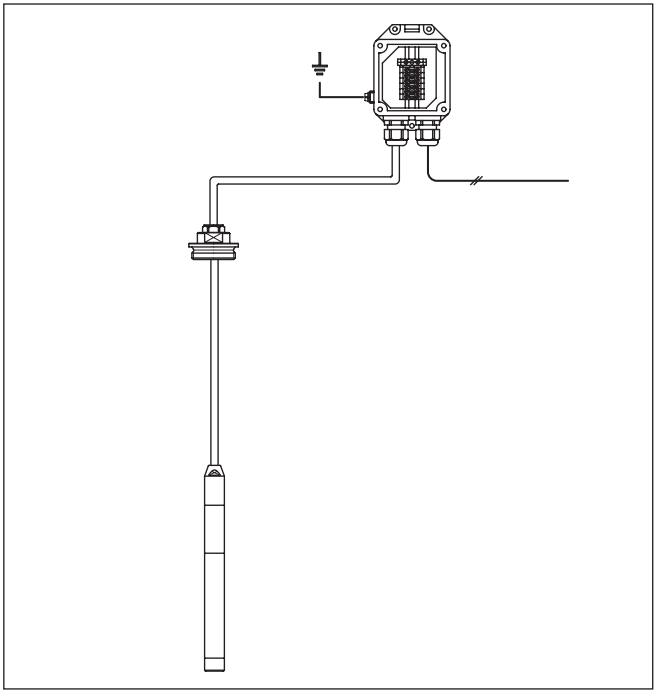

Fig. 2: Connection of VEGABOX 02 to the sensor

Select connection cable for Ex applications

Take note of the corresponding installation regulations for Ex applications.

Cable screening and grounding

If screened cable is required, 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 screening 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 gland. The seal ring must completely encircle the cable
9. Connect the supply cable according to steps 3 to 8
10. Screw the housing cover back on

The electrical connection is finished.

5.3 Wiring plan

VEGAWELL 52, 72 - 4 … 20 mA

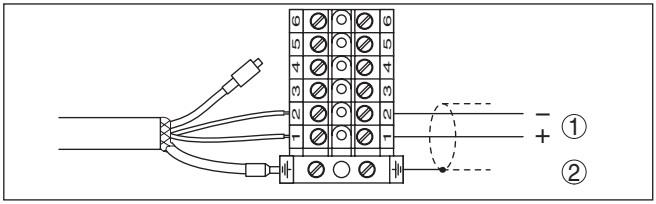

Fig. 3: Terminal assignment VEGABOX 02

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

VEGAWELL 72 - VEGABAR 74, 75 - 4 … 20 mA/HART

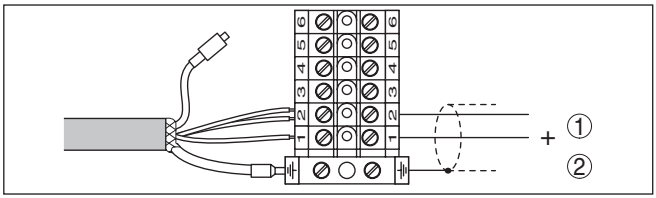

Fig. 4: Terminal assignment VEGABOX 02

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	El. ground

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

VEGAWELL 52 - 4 … 20 mA/HART, VEGAWELL 72 - 4 … 20 mA/HART Pt 100

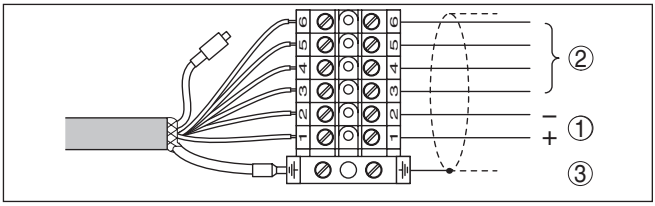

Fig. 5: Terminal assignment VEGABOX 02

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	El. ground

VEGAWELL 52 - 4 … 20 mA/HART, VEGAWELL 72 - 4 … 20 mA/HART Pt 100

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

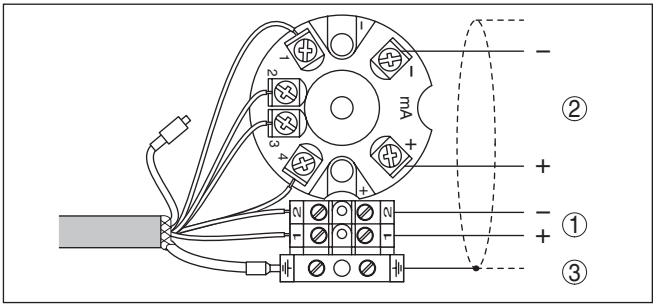

Fig. 6: Terminal assignment VEGABOX 02 with integrated temperature transmitter

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)]

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

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

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

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

6 Setup

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

If the instrument is used properly, no special maintenance is required in normal operation.

7.2 How to proceed if a repair is needed

You can find a repair form as well as detailed information on how to proceed at www.vega.com/downloads and "*Forms and certificates*".

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

Warning:
Before dismounting, be aware of dangerous process conditions such as e.g. pressure in the vessel or pipeline, 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 parts 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 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.

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 T 32.1S	
The data are an excerpt from the WIKA data sheet TE 32.04. You can find the data sheet under www.wika.com	
Resistance thermometer (mounted into VEGAWELL)	Pt 100 according to DIN EN 60751
Operating voltage U_B	10.5 … 30 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_{Ta}
Load R_A	$R_A \leq (U_B\text{-}12\ V)/0.0255\ A$ with R_A in Ω and U_B in V

Electromechanical data	
Cable gland	2 x cable entry M20 x 1.5 (cable: ø 5 … 9 mm)
Screw terminals for cable cross-section up to	2.5 mm² (AWG 14)

Electrical protective measures	
Protection rating	IP 66
Overvoltage category	III
Protection class	III

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

Approvals

Instruments with approvals can have different technical specifications depending on the version.

For that reason the associated approval documents of these instruments have to be carefully noted. They are part of the delivery or can be downloaded under www.vega.com via "*VEGA Tools*" and "*Instrument search*" as well as via "*Downloads*" and "*Approvals*".

9.2 Dimensions

VEGABOX 02

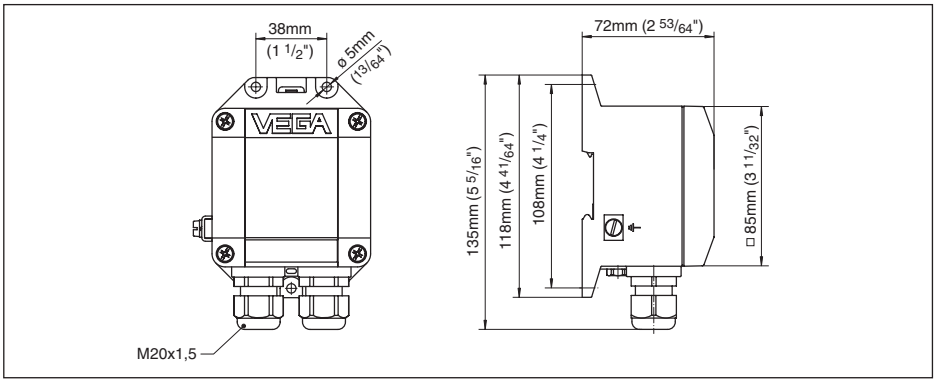

Fig. 7: VEGABOX 02

VEGABOX 02 with protective cover

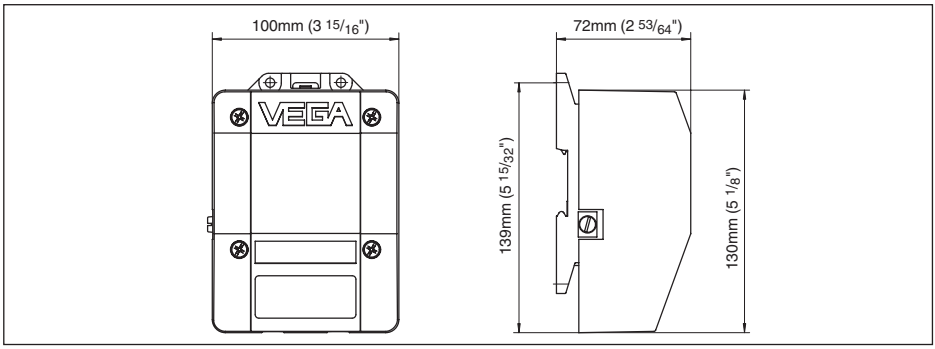

Fig. 8: VEGABOX 02 with protective cover

9.3 Industrial property rights

VEGA product lines are global protected by industrial property rights. Further information see 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 www.vega.com.

Les lignes de produits VEGA sont globalement protégées par des droits de propriété intellectuelle. Pour plus d'informations, on pourra se référer au site www.vega.com.

VEGA lineas de productos están protegidas por los derechos en el campo de la propiedad industrial. Para mayor información revise la pagina web www.vega.com.

Линии продукции фирмы ВЕГА защищаются по всему миру правами на интеллектуальную собственность. Дальнейшую информацию смотрите на сайте www.vega.com.

VEGA系列产品在全球享有知识产权保护。

进一步信息请参见网站<www.vega.com。

9.4 Trademark

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

Printing date:

32798-EN-140801

VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Phone +49 7836 50-0
Fax +49 7836 50-201
E-mail: info.de@vega.com
www.vega.com