

# VEGA

## Safety instructions

**VEGABOX 02 BOX02.C\_\*\*\***

IECEX TUN 08.0015 X

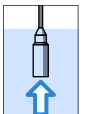
Ex ia IIC T6 ... T1 Ga, Gb



0044



40602



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Please note:

These safety instructions are part of the following documentation:

- 40603 - IECEx Certificate of conformity IECEx TUN 08.0015 X
- 32798 - VEGABOX 02

## 1 Area of applicability

These safety instructions apply to the breather housing VEGABOX 02 series BOX02.C\_\*\*\* according to the IECEx Certificate of conformity IECEx TUN 08.0015 X with the 1st supplement (certificate number on the type label) and for all instruments with the number of the safety instruction (40602) on the type label.

## 2 General information

The VEGABOX 02 is preferably used for field mounting for separated connection of sensor circuits and as breather housing. The VEGABOX 02 of type series BOX02.C\_\*\*\* with optionally integrated connection terminals or integrated connection terminals and a temperature transmitter are preferably used for pressure compensation of the pressure measuring cell and as terminal box in conjunction with pressure transmitters of Messrs. VEGA in the cable version with capillary cable.

The VEGABOX 02 can optionally be provided only with connection blocks as type BOX02.C\_A\*\* for connection of intrinsically safe circuits or connecting terminals and additionally a certified intrinsically safe temperature transmitter as type BOX02.C\_C\*\* to implement a PT100 four-wire measurement into a 4 ... 20 mA measuring signal with superimposed HART signal. The connection block is preferably used for connection of an intrinsically safe circuit of VEGA pressure transmitters in the version with connection cable with an appropriate power supply unit or signal conditioning instrument.

The BOX02.C\_\*\*\* is an intrinsically safe electrical instrument for installation in hazardous areas with combustible gases, mist or vapour, requiring Ga-instruments or Gb-instruments or for installation outside of hazardous areas. The BOX02.C\_\*\*\* is an intrinsically safe instrument for installation in hazardous areas of all combustible materials of explosion group IIA, IIB and IIC.

If the BOX02.C\_\*\*\* is installed and operated in hazardous areas, the general Ex mounting instructions IEC 60079-14 and these safety instructions must be observed.

The operating instructions as well as the corresponding valid Ex installation regulations or standards for electrical equipment must be observed.

The installation of explosion-endangered systems must always be carried out by qualified personnel.

### 2.1 Ga-instruments

The BOX02.C\_\*\*\* is installed in hazardous areas requiring Ga-instruments.

### 2.2 Gb-instruments

The BOX02.C\_\*\*\* is installed in hazardous areas requiring Gb-instruments.

### 3 Electrical data

#### In the version VEGABOX02.C\_C\*\* with integrated temperature transmitter type T32.1S.OIS

Power supply and signal circuit: (terminals 8[-], 9[+] on the temperature transmitter)

In ignition protection type intrinsic safety Ex ia IIC/IIB  
For connection to an intrinsically safe circuit.

Maximum values:

$U_i = 30 \text{ V}$

$I_i = 130 \text{ mA}$

$P_i = 800 \text{ mW}$

$C_i = 7.8 \text{ nF}$

$L_i = 100 \text{ }\mu\text{H}$

When using the supplied connection cable, the following cable inductances  $L_i'$  and cable capacitances  $C_i'$  have to be taken into account in addition to the above mentioned  $C_i$  and  $L_i$  values:

$L_i = 0.6 \text{ }\mu\text{H/m}$

$C_{i \text{ wire/wire}} = 133 \text{ pF/m}$

$C_{i \text{ wire/screen}} = 215 \text{ pF/m}$

Temperature circuit: (terminals 1 ... 4 on the temperature transmitter)

In ignition protection type intrinsic safety Ex ia IIC/IIB  
For connection to an intrinsically safe circuit.

Maximum values:

$U_o = 6.5 \text{ V}$

$I_o = 9.3 \text{ mA}$

$P_o = 15.2 \text{ mW}$

$L_o = 365 \text{ mH}$  für Gruppe IIC

$L_o = 1644 \text{ mH}$  für Gruppe IIB

$C_o = 24 \text{ }\mu\text{F}$  for group IIC

$C_o = 570 \text{ }\mu\text{F}$  for group IIB

When using the supplied connection cable, the following cable inductances  $L_i'$  and cable capacitances  $C_i'$  have to be taken into account:

$L_i = 0,6 \text{ }\mu\text{H/m}$

$C_{i \text{ wire/wire}} = 188 \text{ pF/m}$

$C_{i \text{ wire/screen}} = 555 \text{ pF/m}$

Supply and signal circuit to the pressure transmitter: (terminal 1, 2)

In ignition protection type intrinsic safety Ex ia IIC/IIB  
For connection to intrinsically safe pressure transmitter circuits.

Maximum values:

$U_i = 30 \text{ V}$

$I_i = 150 \text{ mA}$

$P_i = 1000 \text{ mW}$

$C_i = 0$

$L_i = 0$

When using the supplied connection cable, the following cable inductances  $L_i'$  and cable capacitances  $C_i'$  have to be taken into account:

$$L_i = 0.6 \mu\text{H/m}$$

$$C_{i \text{ wire/wire}} = 133 \text{ pF/m}$$

$$C_{i \text{ wire/screen}} = 215 \text{ pF/m}$$

The intrinsically safe circuits are electrically isolated from each other and from parts which can be grounded.

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**In the version VEGABOX02.C\_A\*\* with integrated terminal blocks**

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Power supply and signal circuit: (terminals 1, 2)

In ignition protection type intrinsic safety Ex ia IIC/IIB  
For connection to an intrinsically safe circuit.

Maximum values:

$$U_i = 30 \text{ V}$$

$$I_i = 150 \text{ mA}$$

$$P_i = 1000 \text{ mW}$$

$$C_i = 0$$

$$L_i = 0$$

When using the supplied connection cable, the following cable inductances  $L_i'$  and cable capacitances  $C_i'$  have to be taken into account:

$$L_i = 0.6 \mu\text{H/m}$$

$$C_{i \text{ wire/wire}} = 133 \text{ pF/m}$$

$$C_{i \text{ wire/screen}} = 215 \text{ pF/m}$$

Temperature circuit: (terminals 3 ... 6)

In ignition protection type intrinsic safety Ex ia IIC/IIB  
For connection to an intrinsically safe circuit.

Maximum values:

$$U_i = 30 \text{ V}$$

$$I_i = 100 \text{ mA}$$

$$P_i = 500 \text{ mW}$$

$$C_i = 0$$

$$L_i = 0$$

When using the supplied connection cable, the following cable inductances  $L_i'$  and cable capacitances  $C_i'$  have to be taken into account:

$$L_i = 0.6 \mu\text{H/m}$$

$$C_{i \text{ wire/wire}} = 188 \text{ pF/m}$$

$$C_{i \text{ wire/screen}} = 555 \text{ pF/m}$$

The intrinsically safe circuits are electrically isolated from each other and from parts which can be grounded.

## 4 Application conditions

### 4.1 In the version BOX02.C\_A\*\* with terminal blocks

#### Permissible ambient temperatures depending on temperature class

##### For use as Ga-instrument

Temperature class	T6 ... T1
Permissible ambient temperature	-20 ... +60 °C

The connection housing must only be operated in a hazardous area requiring Ga-instruments if there are atmospheric conditions (pressure of 0.8 bar to 1.1 bar). If there is no explosive atmosphere, then the permissible operating temperatures and pressures must be taken from the manufacturer specifications.

##### For use as Gb-instrument

Temperature class	T6 ... T1
Permissible ambient temperature	-50 ... +85 °C

The permissible operating temperatures without explosion-endangered atmosphere are mentioned in the respective manufacturer instructions, e.g. operating instructions manuals.

### 4.2 In the version BOX02.C\_C\*\* with integrated temperature transmitter

#### Permissible ambient temperatures depending on temperature class

##### For use as Ga-instrument

Temperature class	Zulässige Umgebungstemperatur
T6	-20 ... +44 °C
T5	-20 ... +56 °C
T4 ... T1	-20 ... +60 °C

The connection housing must only be operated in a hazardous area requiring Ga-instruments if there are atmospheric conditions (pressure of 0.8 bar to 1.1 bar). If there is no explosive atmosphere, then the permissible operating temperatures and pressures must be taken from the manufacturer specifications.

For the max. permissible ambient temperatures, EN 1127-1: 2008, section 6.4.2 was taken into consideration.

##### For use as Gb-instrument

Temperature class	Zulässige Umgebungstemperatur
T6	-50 ... +60 °C
T5	-50 ... +75 °C
T4 ... T1	-50 ... +85 °C

The permissible operating temperatures without explosion-endangered atmosphere are mentioned in the respective manufacturer instructions, e.g. operating instructions manuals.

## Permissible operating pressure

For use as Ga-instrument: 0.8 ... 1.1 bar

The permissible operating pressures without explosion-endangered atmosphere are mentioned in the appropriate manufacturer instructions, as e.g. the operating instructions manuals.

## 5 Protection against static electricity



The BOX02.C\_\*\*\* housing has a warning label referring to the safety instructions that must be followed in case there is a danger of electrostatic charging during operation in explosion-endangered areas.

Caution: Plastic parts! Danger of static charge!

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

## 6 Installation

If a cable other than the VEGA connection cable is used as interconnection for signal and power supply circuit and the temperature circuit (PT100-measuring circuit), please make sure that the insulation voltage of at least 500 V AC according to IEC 60079-11 sect. 6.3.12 is maintained and the insulation thickness of the wire insulation is at least 0.25 mm.

## 7 Grounding

The external earth terminal of BOX02.C\_\*\*\*\* must be grounded. When using a screened connection cable between BOX02.C\_\*\*\* and the signal conditioning instrument, the cable screen is only connected to the intended earth terminal in the BOX02.C\_\*\*\*. If another grounding of the cable screen is necessary, it should be carried out according to IEC 60079-14 sect. 12.2.2.3

## 8 Material resistance

The instrument should only be used in media against which the wetted parts are sufficiently resistant.

## 9 IP-protection class

The IP protection class IP 54 according to EN 60529 is maintained after the housing lid is screwed down tightly.



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