

## Safety instructions

### Submersible pressure transmitter model LH-20

GB

IECEX TUN 12.0017 X  
Ex ia IIC T6 Ga, Gb



Submersible pressure transmitter model LH-20



 Part of your business



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Please note:

These safety instructions are part of the operating instructions:

- 14043978 - LH-20
- Certificate of Conformity IECEx TUN 12.0017 X

# 1 Area of applicability

These safety instructions apply to the submersible pressure transmitters LH-20-\*\*\*\*\*-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*-\* according to the IECEx Certificate of Conformity IECEx TUN 12.0017 X (certification number on the nameplate).

## 2 General

The LH-20-\*\*\*\*\*-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*-\* are used for pressure and level measurement even in hazardous areas. The LH-20-\*\*\*\*\*-\*\*\*\*\*-R-\*-IEGB \*\*-\*-\*-\* is also used to measure the process temperature by means of a PT 100 four-wire measurement. The media to be measured can also be combustible liquids, gases, mists or vapours.

The LH-20-\*\*\*\*\*-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*-\* is suitable for applications in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC, for applications requiring EPL-Ga or EPL-Gb instruments.

If the LH-20-\*\*\*\*\*-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*-\* 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 and the appropriate Ex mounting instructions and standards for electrical equipment must be observed.

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

### 2.1 EPL-Ga instruments

The LH-20-\*\*\*\*\*-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*-\* is installed in hazardous areas requiring EPL-Ga instruments.

### 2.2 EPL-Gb instruments

The LH-20-\*\*\*\*\*-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*-\* is installed in hazardous areas requiring EPL-Gb instruments.

## 3 Technical data

### 3.1 Electrical data

The LH-20-\*\*\*\*\*-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*-\* has intrinsically safe circuits. These intrinsically safe circuits are connected directly to the fixed mounted connection cables.

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**Version LH-20-\*\*\*\*\*-\*\*\*\*\*-A-\*-IEGB \*\*-\*\_\*\*\*\_\***

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Power supply and signal circuit (wires: brown [+], blue [-])

In ignition protection type intrinsic safety Ex ia IIC  
For connection to a certified intrinsically safe circuit with linear characteristics.

Maximum values:

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

$$I_i = 131 \text{ mA}$$

$$P_i = 983 \text{ mW}$$

$$L_i = 51 \text{ } \mu\text{H}$$

$$C_{i \text{ wire/wire}} = 2.4 \text{ nF}$$

$$C_{i \text{ wire/screen}} = 1.5 \text{ nF}$$

With regard to the fixed mounted connection cable, the following cable inductances  $L_i'$  and cable capacities  $C_i'$  have to be taken into account in addition to the above mentioned  $C_i$ - and  $L_i$  values.

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

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

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

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**Version LH-20-\*\*\*\*\*-\*\*\*\*\*-R-\*-IEGB \*\*-\*\_\*\*\*\_\***

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Power supply and signal circuit (wires: brown [+], blue [-])

In ignition protection type intrinsic safety Ex ia IIC  
For connection to a certified intrinsically safe circuit with linear characteristics.

Maximum values:

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

$$I_i = 131 \text{ mA}$$

$$P_i = 983 \text{ mW}$$

$$L_i = 51 \text{ } \mu\text{H}$$

$$C_{i \text{ wire/wire}} = 2.4 \text{ nF}$$

$$C_{i \text{ wire/screen}} = 1.5 \text{ nF}$$

With regard to the fixed mounted connection cable, the following cable inductances  $L_i'$  and cable capacities  $C_i'$  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 measuring circuit (wires: white/yellow, red/black)

In ignition protection type intrinsic safety Ex ia IIC  
For connection to a certified intrinsically safe circuit.

Maximum values:

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

$$P_i = 80 \text{ mW}$$

$L_i$  and  $C_i$  negligibly small

With regard to the fixed mounted connection cable, the following cable inductances  $L_i'$  and cable capacities  $C_i'$  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 metallic parts of the LH-20-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*\*\*-\* are electrically connected with the screening of the fixed mounted connection cable.

The intrinsically safe signal and supply circuit and the temperature measuring circuit are galvanically separated. In addition, the intrinsically safe signal and supply circuit is electrically separated from parts which can be grounded.

For applications requiring EPL-Ga instruments, the intrinsically safe power supply and signal circuit must be in conformity with category ia.

For applications requiring EPL-Ga instruments the LH-20-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*\*\*-\* is preferably connected to appropriate instruments with electrically isolated intrinsically safe circuits.

The cable shields have to be connected with the potential equalization in the explosion hazardous area.

## 3.2 Application conditions

### Permissible ambient temperatures

#### For use as EPL-Ga instrument

Temperature class	T6	T5, T4, T3, T2, T1
Permissible ambient temperature on the sensor with electronics	-20 ... +50 °C	-20 ... +60 °C

For applications requiring EPL-Ga instruments the process pressure of the media must be between 0.8 ... 1.1 bar. EN 1127-1 paragr. 6.4.2 is taken into account with the indicated permissible ambient temperatures on the sensor with the electronics.

The application conditions during operation without hazardous mixtures are mentioned in the manufacturers' instructions e.g. the operating instructions manuals.

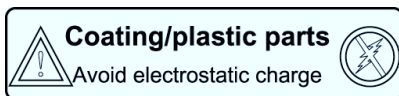
#### For applications as EPL-Gb instrument

Temperature class	T6	T5, T4, T3, T2, T1
Permissible ambient temperature on the sensor with electronics	-40 ... +66 °C	-40 ... +80 °C

The application conditions during operation without hazardous mixtures are mentioned in the manufacturers' instructions e.g. the operating instructions manuals.

## 4 Protection against static electricity

The LH-20-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*\*\*-\* with electrically non conductive connection cable, is provided with a caution label referring to the safety measures that should be taken in case of electrostatic charges during operation.



Caution: Plastic parts! Danger of static charge!

- Avoid friction
- No dry cleaning
- Do not mount in pneumatic filling stream
- Do not mount in areas close to flowing, non-conductive media

## 5 Use of an overvoltage arrester

When used as EPL-Ga instrument, the LH-20-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*\*\*-\* has to be connected to a suitable overvoltage arrester according to IEC 60079-14.

## 6 Installation/mounting

The LH-20-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*\*\*-\* has to be mounted in such a way that it is adequately protected from touching the vessel wall, taking vessel installations and flow conditions into account. This applies especially to cable lengths over 3 m.

## 7 Material resistance

The LH-20-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*\*\*-\* must only be used in media against which the materials of the wetted parts are sufficiently resistant.

## 8 Grounding

The LH-20-\*\*\*\*\*-A/R-\*-IEGB \*\*-\*-\*\*\*-\* must be grounded electrostatically (transfer resistance  $\leq 1 \text{ M}\Omega$ ), e.g. via the screening of the connection cable. The metallic parts of the pressure transmitters are electrically connected with the screening of the fixed mounted connection cable.



Printing date:



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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42267-EN-121220