Instructions

Edition: 12.2012

Pressure Sensor VPS-...

IECEx TUN 12.0042

I Range of application

The pressure sensor VPS- ... is used to measure tank internal pressures, absolute or differential pressure.

II Standards

The intrinsically safe apparatus is designed in accordance with the following international standards

IEC 60079-0:2011-06, Edition 6.0	Equipment - General requirements
IEC 60079-11:2011-06, Edition 6.0	Equipment protection by intrinsic safety "i"
IEC 60079-26:2006-08, Edition 2	Equipment with equipment protection level (EPL) Ga

III Instructions for safe ...

III.a ... use

The pressure sensor is designed as intrinsically safe apparatus and is approved for use in potentially explosive areas. The pressure sensor may be used for all gas groups (IIA, IIB and IIC).

The approval applies to the device versions

VPS-L	for absolute pressure measurement (0 bar ... 25 bar)
VPS-V	for differential pressure measurement (±30 mbar)

III.b ... assembly or disassembly

To operate the pressure sensor disassembly is not provided. Disassembly may damage the pressure sensor and expire its approval.

III.c ... installation

All wiring operations must solely be carried out with the power disconnected. Special rules and regulations, including EN 60079-14 respectively local installation regulations, must be observed.

The pressure sensor can be screwed directly into the tank. The sensor is supplied with a G 1/2 inch thread.

General information (see also IEC 60079-26, clause 4.6):

Attention must be paid, if the sensor is built into the boundary wall between Zone 0 and Zone 1, that a protection class of at least IP67 is achieved after installation.

When wiring the sensor to the evaluation unit (preferably blue coloured cable), the approved inductance and capacitance of the associated equipment must not be exceeded.

The electrical connection is made using the M12 plug. The cable coding is:

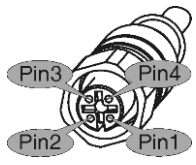
Pin		VPS-L	VPS-V	
1	+	brown		
2	A	white		
4	B	black		
3	-	blue		

Table 1: Pin assignment of the pressure sensor

For integration of the pressure sensor in the potential equalization, a PA terminal at the sensor housing is present.

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III.d ... adjustment

To operate the device security settings are not necessary.

III.e ... putting into service

Before putting into service, all equipment must be checked to ensure it is properly connected and installed. The power supply, as well of connected equipment, must be checked.

III.f ... maintenance, overhaul and repair

Generally the device is maintenance-free. In case of a defect it must be send back to FAFNIR or one of his representations.

When performing an isolation test with 500 V under well-controlled conditions, it is not necessary to disconnect the pressure sensor, since there is conformity in accordance with IEC 60079-11, clause 6.3.13.

IV Equipment marking

1	Manufacturer:	FAFNIR GmbH, Hamburg
2	Type designation:	VPS-...
3	Serial number:	Ser. N°: ...
4	Certificate Number:	IECEx TUN 12.0042
5	Ex marking:	Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb Ex ia IIC T6 Gb
6	Technical data:	See instruction manual for technical data

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V Technical data

The following safety-related values are defined with:

Input voltage:	U_i	≤	15 V
Input current:	I_i	≤	100 mA
Input power:	P_i	≤	100 mW

The externally effective capacitance and inductance are:

Internal capacitance:	C_i	<	10 nF
Internal inductance:	L_i	<	50 µH

When used in potentially explosive atmospheres, the maximum temperatures depending on the temperature classes and equipment protection level can be found in the table 2.

Temperature class	Range of ambient and media temperature T_a
Equipment protection level Ga (pressure sensor completely installed in Zone 0)	
T6	-20 °C … +45 °C
T5, T4, T3, T2, T1	-20 °C … +60 °C
Equipment protection level Ga/Gb (pressure sensor installed into the boundary wall)	
T6	-20 °C … +45 °C
T5, T4, T3, T2, T1	-20 °C … +60 °C
Equipment protection level Gb (pressure sensor completely installed in Zone 1)	
T6	-20 °C … +45 °C
T5	-20 °C … +60 °C
T4, T3, T2, T1	-20 °C … +70 °C

Table 2: Service temperatures

For use with EPL Ga and EPL Ga/Gb applies:

The process pressure for the media must be between 0.8 bar and 1.1 bar where explosive vapour-air mixtures are present. If no explosive mixtures are present, the equipment may also be operated outside this area according to the manufacturer's specification.

General information (see also IEC 60079-0, clause 1):

Zone 0 exists only under atmospheric conditions:

Temperature range:	-20 °C … +60 °C
Pressure range:	0.8 bar … 1.1 bar
Oxidants:	Air (oxygen content approx. 21 %)

VI Specific conditions

None.

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