

Instructions

Edition: 12.2012

Pressure Sensor VPS-...

TÜV 12 ATEX 111601

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 European standards

EN 60079-0:2009	Equipment - General requirements
EN 60079-11:2012	Equipment protection by intrinsic safety "i"
EN 60079-26:2007	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 EN 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:

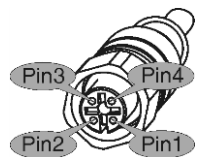
Pin		VPS-L	VPS-V	
1	+	brown		
2	A	white		
4	B	black		
3	-	blue		

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.

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 EN 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: | TÜV 12 ATEX 111601 |
| 5 | Ex marking: |  II 1 G Ex ia IIC T6 Ga
II 1/2 G Ex ia IIC T6 Ga/Gb
II 2 G Ex ia IIC T6 Gb |
| 6 | CE marking: |  0044 |
| 7 | Technical data: | See instruction manual for technical data |

V Technical data

The following safety-related values are defined with:

Input voltage:	$U_i \leq 15 \text{ V}$
Input current:	$I_i \leq 100 \text{ mA}$
Input power:	$P_i \leq 100 \text{ mW}$

The externally effective capacitance and inductance are:

Internal capacitance:	$C_i < 10 \text{ nF}$
Internal inductance:	$L_i < 50 \text{ }\mu\text{H}$

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

Temperature class	Range of ambient and media temperature T_a
Category 1 resp. 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
Category 1/2 resp. 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
Category 2 resp. 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 in Category 1 and Category 1/2 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 EN 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.