Instructions in accordance with directive 2014/34/EU   IBExU 16 ATEX 1109

Sludge Layer Sensor type VISY-Sludge   Edition: 05.2016

I   Range of application

The sludge layer sensor is used to determine the distance from the sensor to the sludge layer on the bottom of a light-liquid separator.

II   Standards

The device is designed according to the following European standards

EN 60079-0:2012 + A11:2013   Equipment – General requirements
EN 60079-11:2012   Equipment protection by intrinsic safety "i"

III   Instructions for safe …

III.a   … use

The sludge layer sensor is used as intrinsically safe equipment and is suitable for use in potentially explosive atmospheres. The intrinsically safe sensor may be used in zone 0 and can be used for gas groups IIA and IIB.

III.b   … assembling and dismantling

Opening of the enclosure is not provided. In addition, a disassembly would potentially damage the sludge layer sensor and expire the approval.

III.c   … installation

Wiring may only be carried out without power. Special requirements, inter alia EN 60079-14 or the local installation regulations must be observed.

The sludge layer sensor is suspended from the M12 cable and placed vertical at a suitable location in the water.

Terminal assignment:

Pin	Wire	M12 (Female)
1	+	
2	A	
3	-	
4	B	

Table 1: Terminal assignment of the sensor

The permissible inductance and capacitance of the associated apparatus must not be exceeded during the wiring (preferably blue cable) from the sensor to the associated apparatus.

A potential equalization clamp is provided for the integration of the sludge layer sensor into the potential equalization. According to Table 10 of EN 60079-0, the minimum cross-sectional area of the potential equalizing conductor must be equal to the cross-section of the supply line (+).

III.d   … adjustment

No safety-relevant adjustments are necessary for the operation of the sludge layer sensor.

III.e   … putting into service

Before putting into service, all devices must be checked for correct connection and installation. The electrical supply, including the connected devices, must be checked.

III.f ... maintenance (servicing and emergency repair)

The sludge layer sensor is generally maintenance-free. In the case of a defect, this must be returned to FAFNIR or one of its representations.

There is consistency with the requirements for the dielectric strength according to EN 60079-11, Clause 6.3.13.

IV   Equipment marking

1	Manufacturer:	FAFNIR GmbH, 22525 Hamburg
2	Type designation:	VISY-Sludge
3	Certificate number:	IBExU 16 ATEX 1109
4	Ex marking:	⟨Ex⟩ II 1 G Ex ia IIB T4 Ga
5	CE marking:	CE 0044
6	Technical data:	$U_i \leq 15$ V
		$I_i \leq 60$ mA
		$P_i \leq 100$ mW
		$L_i < 50$ µH
		$C_i < 10$ nF
		$T_a = -20$ °C ... +60 °C

V   Technical data

The following electrical input values apply to the sludge layer sensor:

Input voltage:	$U_i \leq 15$ V
Input current:	$I_i \leq 60$ mA
Input power:	$P_i \leq 100$ mW
Inner inductance:	$L_i < 50$ µH
Inner capacitance:	$C_i < 10$ nF

For use in potentially explosive atmospheres, the maximum temperatures, depending on the temperature classes and the category, can be found in Table 2.

Temperature class	T_a
Category 1 resp. EPL Ga (sludge layer sensor completely installed in zone 0)	
T4, T3, T2, T1	-20 °C ... +60 °C

Table 2: Maximum temperatures of the sludge layer sensor

For use in areas where the equipment protection level Ga is required, the following applies:

The process pressure of the media must be between 0.8 bar and 1.1 bar in the presence of explosive steam / air mixtures. If no explosive mixtures are present, the sludge layer sensor may also be operated outside this range in accordance with its manufacturer specification.

General remark (see also EN 60079-0, Clause 1):

Zone 0 is only given under atmospheric conditions:

Temperature range:	-20 °C ... +60 °C
Pressure range:	0,8 bar ... 1,1 bar
Oxidant:	Air (oxygen content approx. 21 %)

The sludge layer sensor achieves an enclosure protection degree of:

Enclosure protection degree: IP68

VI   Special conditions of use

None.