Instructions

Edition: 07.2012

Measuring Transducer type LOF 500 ...

TÜV 03 ATEX 2172

I Range of application

The measuring transducer is used in conjunction with a sensor for detecting a liquid level.

II Standards

The equipment 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 device serves as associated equipment and is not approved for use in potentially explosive areas. The intrinsically safe sensor circuit can be conducted to Ex Zone 0 and is suitable for all gas groups (IIA, IIB and IIC). The measuring transducer LOF 500 19" Duo has two galvanically isolated intrinsically safe sensor circuits.

The approval applies to the equipment types LOF 500 ...

III.b ... assembly or disassembly

The assembly and disassembly must solely be carried out with the power disconnected!

For the top-hat rail or wall mounting, the housing upper part must be removed from the lower part. For this, loosen the two screws from the housing upper part and pull apart both parts.

After installation, put back the upper housing part onto the lower part and tighten it by using the two housing screws.

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Ⅲ.c ... installation

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

The LOF 500 ... measuring transducer is suitable for top hat rail and wall mounting. The equipment type LOF 500 19" ... is designed as a plug-in card and provided for establishing in a 19-inch casing. The measuring transducer must be installed outside potentially explosive atmospheres/areas.

The LOF 500 19" ... must be installed with a minimum casing protection class of IP20. The LOF 500 ... measuring transducer is built in a casing with protection class IP40. If the measuring transducer is mounted outdoors, the casing protection class must be at least IP54.

When wiring the evaluation unit to the sensor (preferably blue coloured cable), the inductance and capacitance approved in section V must not be exceeded. The terminal assignment is:

	LOF 500 ...	LOF 500 19" ...	LOF 500 19" Duo
Power supply			
L (+)	14	d30	d32
N (-)	15	d32	z32
PE	12, 13	d14, d28, z14, z28	d16, d30, z16, z30
Output circuit (potential-free relay contact) order of relay contacts: Changer, Normal Close, Normal Open			
1st Sensor	8, 6, 7	d16, d18, d20	d18, d20, d22
"S" or "Z" (optional)*	11, 9, 10	d22, d24, d26	
2nd Sensor			d24, d26, d28
Sensor circuit			
1st Sensor	1, 2	d2, d4	d2, z2
2nd Sensor			d8, z8

*Option: S = Error relay; Z = Second relay.

Ⅲ.d ... calibration

To operate the device security settings are not necessary.

Ⅲ.e ... commissioning

Before commissioning, 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.

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IV Equipment marking

1	Manufacturer:	FAFNIR GmbH, Hamburg
2	Type designation:	LOF 500 ...
3	Serial number:	Ser. N°: ...
4	Certificate Number:	TÜV 03 ATEX 2172
5	Ex-marking:	Ⓔx II (1) G [Ex ia Ga] IIC
6	CE-marking:	CE 0044
7	Technical data:	T_a = -25 °C ... +50 °C U_o ≤ 15.8 V I_o ≤ 26 mA P_o ≤ 154 mW C_i ≤ 1.2 nF See instruction manual for permissible outer inductance and capacitance

V Technical data

The power supply for the measuring transducer, depending on model:

U =	24 V d.c. ± 20 %,		~5 W (or ~10 W for the LOF 500 19" Duo), or
U =	24 V a.c. ± 10 %,	50 Hz ... 60 Hz,	~4 VA (or ~8 VA for the LOF 500 19" Duo), or
U =	115 V a.c. ± 10 %,	50 Hz ... 60 Hz,	~4 VA (or ~8 VA for the LOF 500 19" Duo), or
U =	230 V a.c. ± 10 %,	50 Hz ... 60 Hz,	~4 VA (or ~8 VA for the LOF 500 19" Duo).

The safe maximum voltage is

U_m = 100 V at d.c. supply
U_m = 253 V at a.c. supply

The electric circuit of the sensor is designed with "Intrinsic safety" [ia] ignition protection class with a trapezoidal output characteristic. The output values are:

Output voltage	U_o ≤	15.8 V						
Output current	I_o ≤	26 mA						
Output power	P_o ≤	154 mW						
Internal resistance	R_i ≤	950 Ω						
Internal capacitance	C_i ≤	1.2 nF						
Internal inductance	L_i	negligibly small						
permissible external			IIC			IIB		
- inductance:	L_o ≤	5 mH	2 mH	1 mH		20 mH	10 mH	5 mH
- capacitance	C_o ≤	230 nF	290 nF	340 nF		1.2 µF	1.5 µF	1.7 µF

The maximum values of the parameter pairings may simultaneously be used as concentrated capacitances and concentrated inductances.

As outputs a maximum of two relays are available with potential-free relay contacts. The terminal values are:

a.c. voltage	U ≤ 250 V; I ≤ 4 A; P ≤ 100 VA; cos φ ≥ 0.7
d.c. voltage	U ≤ 250 V; I ≤ 250 mA; P ≤ 50 W

The intrinsically safe sensor circuit of the measuring transducer is galvanically isolated from the power supply safely up to a peak value of 190 V d.c. supply and 375 V a.c. supply. It is galvanically isolated safely up to a peak value of 375 V of the output circuits.

The sensor can be used in the following ambient temperature range:

T_a = -25 °C ... +50 °C

VI Specific conditions

None.

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