Instructions according to IEC 60079-0 Simple apparatus

Environmental Sensor for Leakage Detection type RLD Stand: 11.2016

I Range of application

The environmental sensor is used for leak detection in a potentially explosive atmosphere.

II Standards

The environmental sensor is designed according to the following international standards

IEC 60079-0:2011-06, Edition 6.0 Betriebsmittel – Allgemeine Anforderungen
IEC 60079-11:2011-06, Edition 6.0 Geräteschutz durch Eigensicherheit „i"

III Instructions for safety

III.a Use

The environmental sensor serves for leakage detection and is designed as a simple apparatus (passive component → switch) in accordance with IEC 60079-11, clause 5.7 and can be integrated in an intrinsically safe circuit (ia) without an IECEx certificate of conformity. The use of the environmental sensor must also be assessed by the installer or operator.

General information (see also IEC 60079-11, clause 3.1.5 or IEC 60079-14:2014, clause 3.5.5):

Electrical component or combination of components of simple construction with well-defined electrical parameters and which is compatible with the intrinsic safety of the circuit in which it is used.

III.b Assembling and dismantling

The environmental sensor is built in a stainless steel enclosure with a protective cover made of nickel-plated brass. An assembly or disassembly of the enclosure is not provided.

The environmental sensor is equipped with a permanently connected cable. A breakage of the integral cable couldn't result in intrinsic safety being invalidated. Nevertheless, a cable pull test according to IEC 60079-11, clause 10.9 was carried out, in which there was no displace of the sheath.

III.c Installation

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

When wiring from the environmental sensor to the measuring transducer (preferably a blue cable), the permissible inductance and capacitance of the associated apparatus must not be exceeded. The connections of the environmental sensor are the contacts of the internal reed switch. For the integration of the environmental sensor into the potential equalization, a potential equalization terminal is provided on the enclosure.

III.d Adjustment

No ex-relevant adjustments are necessary for the operation of the environmental 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, overhaul and repair

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

Compliance with the requirements for the dielectric strength between the intrinsic circuit and the chassis of the environmental sensor according to IEC 60079-11, clause 6.3.13.

FAFNIR GmbH • Schnackenburgallee 149 c • 22525 Hamburg • Tel.: +49 / (0) 40 / 39 82 07-0 • Fax: +49 / (0) 40 / 390 63 39

IV Equipment marking

1	Manufacturer:	FAFNIR GmbH, Hamburg
2	Type designation:	RLD
3	Certificate number:	Simple Apparatus
4	Technical data:	$U_i \leq 50$ V
		$I_i \leq 200$ mA
		$P_i \leq 1$ W
		$C_i < 1$ nF
		$L_i < 10$ µH
		$T_a =$ -20 °C … +85 °C

V Technical data

The following electrical input values are defined for the environmental sensor:

Input voltage	$U_i \leq$	50 V
Input current	$I_i \leq$	200 mA
Input power	$P_i \leq$	1 W
Internal capacitance	$C_i <$	1 nF
Internal inductance	$L_i <$	10 µH

When using the environmental sensor in potentially explosive atmospheres, the maximum temperatures, depending on the temperature classes and the EPL, can be found in Table V.

Temperature class	T_a
EPL Ga (environmental sensor in zone 0 installed)	
T6	-20 °C … +40 °C
T5	-20 °C … +55 °C
T4, T3, T2, T1	-20 °C … +60 °C
EPL Gb (environmental sensor in zone 1 installed)	
T6	-20 °C … +40 °C
T5	-20 °C … +55 °C
T4	-20 °C … +80 °C
T3, T2, T1	-20 °C … +85 °C

Table V: Maximum temperatures of the environmental sensor

For use in areas where the equipment protection level (EPL) 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 devices may also be operated outside this range in accordance with their manufacturer's specification.

General remark (see also IEC 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
oxidizing agents:	Air (oxygen content about 21 %)

The environmental sensor achieves an enclosure protection rating of IP68.

VI Specific conditions of use

None.

FAFNIR GmbH • Schnackenburgallee 149 c • 22525 Hamburg • Tel.: +49 / (0) 40 / 39 82 07-0 • Fax: +49 / (0) 40 / 390 63 39