

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

General information (see also EN 60079-11, clause 3.1.5 or EN 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 EN 60079-11, clause 10.9 was carried out, in which there was no displacement of the sheath.

### **III.c ... installation**

Wiring may only be carried out without power. Special requirements, including EN 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 (servicing and emergency 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 EN 60079-11, clause 6.3.13.

#### IV Equipment marking

- 1 Manufacturer: FAFNIR GmbH, Hamburg
- 2 Type designation: RLD
- 3 Certificate number: Simple Apparatus
- 4 CE marking: **CE**
- 5 Technical data:
  - $U_i \leq 50 \text{ V}$
  - $I_i \leq 200 \text{ mA}$
  - $P_i \leq 1 \text{ W}$
  - $C_i < 1 \text{ nF}$
  - $L_i < 10 \text{ }\mu\text{H}$
  - $T_a = -20 \text{ }^\circ\text{C} \dots +85 \text{ }^\circ\text{C}$

#### V Technical data

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

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

When using the environmental sensor in potentially explosive atmospheres, the maximum temperatures, depending on the temperature classes and the category/equipment protection level (EPL), can be found in Table V.

Temperature class	$T_a$
<b>Category 1 resp. EPL Ga (environmental sensor in zone 0 installed)</b>	
T6	-20 °C ... +40 °C
T5	-20 °C ... +55 °C
T4, T3, T2, T1	-20 °C ... +60 °C
<b>Category 2 resp. EPL Gb (environmental sensor in zone 1 installed)</b>	
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 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 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
oxidizing agents:	Air (oxygen content about 21 %)

The environmental sensor achieves an enclosure protection rating of IP68.

#### VI Special conditions of use

None.