Description

Room hygrostats FBR-2G monitor the relative humidity in a non-aggressive environment. In conjunction with switching amplifiers with an intrinsically safe circuit, the sensors can be used in potentially explosive areas of zones 1 and 2.

The device is maintenance-free.

ATEX-compliant for zone 1 and 2 according to ATEX Directive 2014/34/EU.

(Fig. similar)

Delivery program

Type	Product No.	Adjustment range
FBR-2G	057.1500	35 ... 100 RH

Intrinsic

Simple electrical equipment according to IEC/EN 60079-11, Section 5.7, suitable for zone 1 and 2. Only for connection to intrinsically safe circuits.

The specified values at the terminals must not be exceeded.

$U_o \leq U_i$	9.6 V ≤ 30 V
$I_o \leq I_i$	10 mA ≤ 50 mA
$P_o \leq P_i$	24 mW ≤ 100 mW
$C_o \geq C_i + C_{Cable}$	C_i = 0 µF
$L_o \geq L_i + L_{Cable}$	L_i = 0 µH
C_{Cable}, L_{Cable}: see the specifications of the cable manufacturer	
C_o, L_o: see the documentation for the switching amplifier according to the gas group	

Technical data

Supply	Via switching amplifiers
Contact	Dust-encapsulated microswitch as a single-pole, potential-free changeover switch
Ambient temperature range	0...+40 °C
Storage temperature	0...+60 °C
Adjustment range	35 ... 100 RH non-condensing
Gear shift difference	~4% RH
Housing	Plastic, ABS, IP20
Physical dimensions	95 × 95 × 33 mm
Safety class	Simple electrical equipment according to EN 60079-11
CE	2014/34/EU (ATEX)
Included	Room hygrostat

Installation and operation

Safety instructions

All relevant national and international standards and regulations for hazardous areas must be observed. Equipment must be installed in accordance with the manufacturer's instructions. If the device is used in a manner different from that specified by the manufacturer, the safety level of the device may be reduced. EN/IEC 60079-14 can be used for the design, selection and construction of electrical systems.

- Intrinsically safe circuits are designed in such a way that the energy content is below the minimum level that would be required to cause ignition of an explosive atmosphere in the event of a spark occurring.
- Intrinsically safe circuits are shown in light blue and are to be laid separately from non-intrinsically safe circuits.
- The intrinsically safe sensor is passive, potential-free and approved for zones 1 and 2.
- Observe the maximum connection values during instrumentation.
- Clean with damp cloth only. Avoid electrostatic charging. Remove dust deposits.

Assembly and installation

The setpoint can be set on the rotary switch under the housing. The device can be mounted on the surface at a height of about 1.5 m freely for air convection. The hygrostat is to be mounted horizontally. No direct exposure to water, e.g. spray water. Do not use silicones to seal the cable outlet.

Function

Dehumidify

Contacts 1-2 are connected.

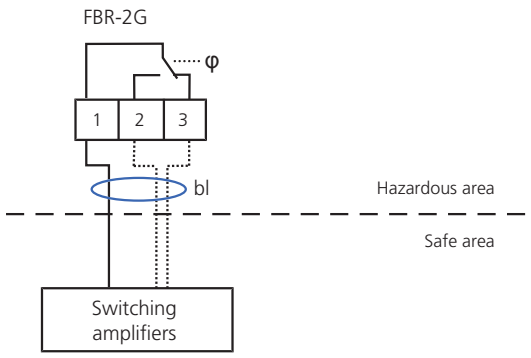
Humidify

Contacts 1-3 are connected.

Recommended switching amplifier

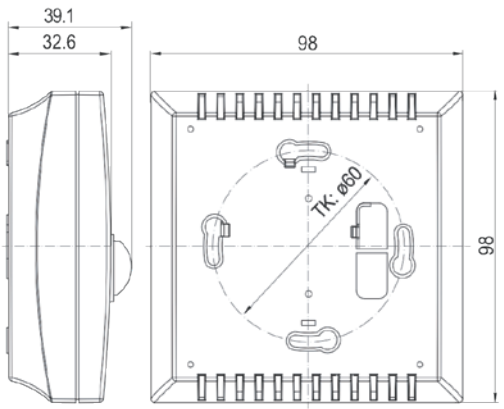
- Ex-i switching amplifier by Company Stahl type EXL-IR-9170-11-12-11s
- When using the sensor together with a switching amplifier recommended by us, the intrinsic safety for simple circuits is proven
- Manufacturer's certificate for zone 1, 2

Electrical connection



bl: light blue

Dimensions



(all measurements in mm)

We, the

Schischek GmbH
Mühlsteig 45
Business Park South 5
90579 Langenzenn
GERMANY

declare under sole responsibility in accordance with the provisions of the guidelines:

2014/34/EU

that the product

FBR-2G

to which this declaration refers, complies with the following norms or normative documents:

EN IEC 60079-0:2018+AC2020-02 EN 60079-11:2012

Marking:

CE Zone 1, Zone 2

Simple resources

Managing:

(Dr. Sven Ludwig)

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Manufacturer's declaration for sensors for use in hazardous areas

Item	Room hygrostat	**Manufacturer**	Schischek GmbH
Type	FBR-2G	**Property**	Passive, potential-free
Installation in	Zone 1, 2	**Associated equipment**	EXL-IR-9170

Test goal

The room hygrostat was tested for suitability for installation and operation in hazardous areas of zones 1 and 2. The test is based on Directive 2014/34/EU (ATEX). The applied standards are EN 60079-0 and EN 60079-11. The room hygrostat is a simple electrical equipment within the meaning of EN 60079-11 Section 5.7 and must be operated via an intrinsically safe power circuit. The switching amplifier EXL-IR-9170 from Company Stahl. The switching amplifier may only be installed and operated in non-explosion hazardous areas.

Proof of intrinsic safety for simple circuits in use with EXL-IR-9170

$U_o \leq U_i$	9.6 V ≤ 30 V
$I_o \leq I_i$	10 mA ≤ 50 mA
$P_o \leq P_i$	24 mW ≤ 100 mW
$C_o \geq C_i + C_{Cable}$	C_i = 0 µF
$L_o \geq L_i + L_{Cable}$	L_i = 0 µH
C_{Cable}, L_{Cable}: see the specifications of the cable manufacturer	
C_o, L_o: see the documentation for the switching amplifier according to the gas group	

Test	Result
IP protection	The device meets at least IP20
Inspection of metallic housing parts	Magnesium, titanium and zirconium content < 7.5 %
Checking plastic	Suitable in the used ambient temperature range 0 °C ... +40 °C
Electrostatics	Can be used without restriction in groups IIA and IIB, for group IIC the warning "Wipe only with a damp cloth" applies
Locks and latches	Not to comply with special conditions, not relevant
Grounding (potential equalisation)	Double insulation, no PE, PA necessary or grounded via system components
Cable and cable entries	The cables must be protected from mechanical and thermal stress, after installation, min. IP20 must be fulfilled
Temperature testing	Together with the switching amplifier EXL-IR-9170, a temperature increase of <5 K was measured in the event of an error; Operating temperature range: 0 °C ... +40 °C

Overall rating/additional comments

The room hygrostat type FBR-2G can be used in conjunction with the switching amplifier EXL-IR-9170 from Company Stahl in zones 1 and 2. The information in the data sheet or the operating instructions must be observed. The warnings regarding electrostatic charging must also be observed. After installation, at least the protection class IP20 must be guaranteed.

Langenzenn, 01. Sept. 2024
Wen Liu
Explosion Protection Officer

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Contact us now
mail@rotork.com
www.rotork.com

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