

### Description

FBK-2G duct humidistats monitor relative humidity in non-aggressive environments. In combination with a switching amplifier core with an intrinsically safe circuit, the sensors can be used within hazardous 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
FBK-2G	057.1510	35...95% RH, non-condensing

### Technical data

<b>Supply</b>	Via Ex-i switching amplifiers
<b>Contact</b>	Dust-encapsulated microswitch as a single-pole, potential-free changeover switch
<b>Ambient temperature range</b>	0...+60 °C
<b>Storage temperature</b>	0...+80 °C
<b>Accuracy</b>	4% RH
<b>Sensor sleeve</b>	Nickel-plated brass, L = 220 mm

<b>Temperature coefficient</b>	-0.2% RH at 20 °C
<b>Time constant</b>	at V = 2 m/s 120 s
<b>Air velocity</b>	Max 8 m/s
<b>Housing</b>	Plastic, PA GF30, IP44 (EN 60529)
<b>Gear shift difference</b>	5% RH
<b>Physical dimensions</b>	292 x 80 x 120 mm
<b>Weight</b>	Approx. 450 g
<b>Included</b>	Duct humidistat

### 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 two intrinsically safe contacts must be installed separately from each other and must not be connected together.

- 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.
- Observe separate documentation:
  - Switching amplifiers

### Function

The setpoint can be set on the rotary switch on the housing

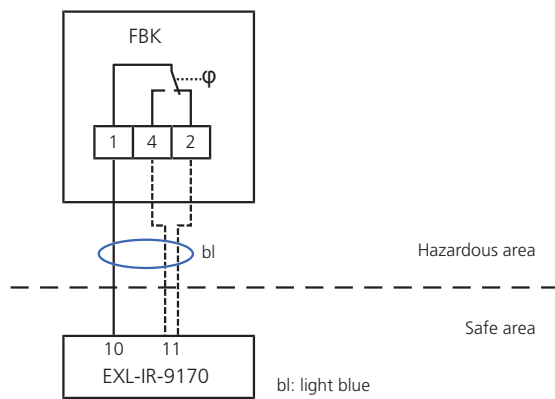
- Relative humidity > set setpoint → Contacts 1 and 4 are connected
- Relative humidity < set setpoint → Contacts 1 and 2 are connected.

### Recommended switching amplifier

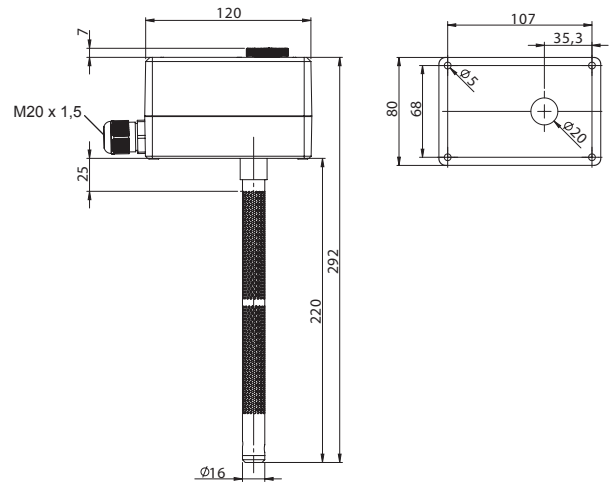
- Ex-i switching amplifier by Company Stahl type EXL-IR-9170-11-12-11s
- When using the sensor together with a switching amplifier recommended by us, the intrinsic safety for simple circuits is proven
- Manufacturer's certificate for zone 1, 2

### Electrical connection

The electrical connection is made according to the operating instructions of the switching amplifier.



### 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	
FBK-2G	
to which this declaration refers, complies with the following norms or normative documents:	
EN 60079-11:2012	EN IEC 60079-0:2018+AC:2020-02
Marking:	
<div>CE Zone 1, Zone 2</div> <div>Simple resources</div>	
Managing:	
<div>S. L.</div> <div>(Dr. Sven Ludwig)</div>	
90579 Langenzenn, 2024-09-01	

## Manufacturer's declaration for sensors for use in hazardous areas

Item	Duct humidistat	Manufacturer	Schischek GmbH
Type	FBK-2G	Property	Passive, potential-free
Installation in	Zone 1, 2	Associated equipment	EXL-IR-9170

### Test goal

The duct humidistat has been 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 standards applied are EN 60079-0 and EN 60079-11. The duct humidistat 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

$U_o \leq U_i$	$9.6 \text{ V} \leq 30 \text{ V}$
$I_o \leq I_i$	$10 \text{ mA} \leq 50 \text{ mA}$
$P_o \leq P_i$	$24 \text{ mW} \leq 100 \text{ mW}$
$C_o \geq C_i + C_{\text{Cable}}$	$C_i = 0 \text{ }\mu\text{F}$
$L_o \geq L_i + L_{\text{Cable}}$	$L_i = 0 \text{ }\mu\text{H}$
$C_{\text{Cable}}, L_{\text{Cable}}$ : 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 IP44
Inspection of metallic housing parts	Magnesium, titanium and zirconium content < 7.5 %
Checking plastic	Suitable in the used ambient temperature range 0°C ... +60 °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 ... +60 °C

### Overall rating/additional comments

The duct humidistat type FBK-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 IP44 must be guaranteed.



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

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