Description

WFBK-2G wind vane relays monitor flows of gaseous media in air ducts. In combination with a switching amplifier core with an intrinsically safe circuit, the sensors can be used within hazardous areas of zones 1 or 2. Areas of application are supply or exhaust air devices of fans or electric heating registers.

The device is maintenance-free.

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

Delivery program

Type	Product No.	Adjustment range
WFBK-2G	057.1310	35 ... 100 r.F.

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

Contact	Dust-encapsulated microswitch as a single-pole, potential-free changeover switch
Gear shift difference	≥ 1 m/s
Ambient temperature range	-20...+50 °C
Storage temperature	-40...+80 °C
Measuring medium	Gaseous, depressurised, non-aggressive
Housing	Plastic, PA glass ball reinforced, IP65; IP30 to the channel
Physical dimensions	108 × 73.5 × 70 mm
Base body	Galvanised steel
Flag	Stainless steel, V2A (1.4301)
Safety class	Simple electrical equipment according to EN 60079-11
CE	2014/34/EU (ATEX)
Included	Wind vane relays

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

Installation vertically in a horizontal air duct. In addition, a seal is supplied, which must be attached to the mounting plate.

The air flow monitor is set to the minimum cut-off value at the factory. A higher value can be selected by turning the range screw clockwise. Due to the risk of the flag breaking at air speeds higher than 5 m / s, it must be trimmed laterally at the indicated markings, but this increases the set minimum cut-off value from 1 m / s to 2.5 m / s. It is important, if possible, to provide a calming distance of 5 × pipe diameter before and after the installation site in order to avoid air turbulence that makes the vehicle unstable.

Function

Contacts 1 - 2 open when the flow drops to the set value. At the same time, the contacts 1 - 3 close and can be used as a signal contact.

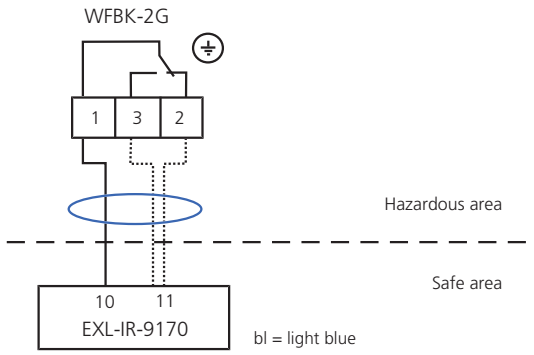
- min. switch-on value 2.5 m/s
- min. switch-off value 1.0 m/s
- max. switch-on value 9.2 m/s
- max. cut-off value 8.0 m/s

Recommended switching amplifier

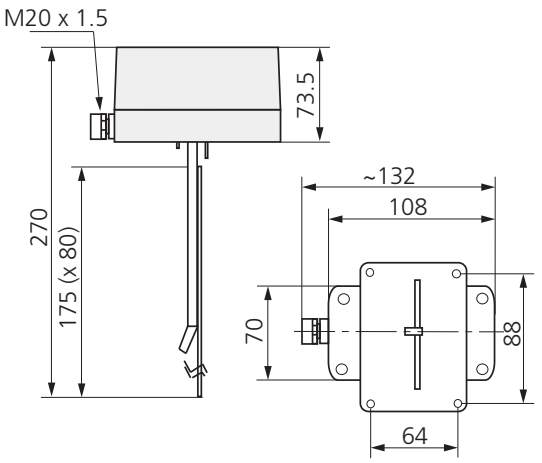
- Ex-i switching amplifier from Company Stahl type EXL-IR-9170-11-12-11s
- When using the sensor together with a switching amplifier recommended by us, the intrinsic safety for simple circuits is proven
- Manufacturer's certificate for zone 1, 2

Electrical connection

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



Dimensions



(all measurements in mm)

Spare

Product No.	Description
057.1313	Spare paddle-WFBK-2G
057.1319	Spare paddle-WFBK-2G bent

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

WFBK-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:

CE Zone 1, Zone 2

Simple resources

Managing:

(Dr. Sven Ludwig)

90579 Langenzenn, 2024-09-01

Manufacturer's declaration for sensors for use in hazardous areas

Item	Wind vane relays	**Manufacturer**	Schischek GmbH
Type	WFBK-2G	**Property**	Passive, potential-free
Installation in	Zone 1, 2	**Associated equipment**	EXL-IR-9170

Test goal

The wind vane relay 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 wind vane relay is a simple electrical equipment within the meaning of EN 60079-11 Section 5.7 and must be operated via an intrinsically safe circuit. The switching amplifier EXL-IR-9170 from Company Stahl is suitable. The switching amplifier may only be installed and operated in non-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 IP30
Inspection of metallic housing parts	Magnesium, titanium and zirconium content < 7.5%
Checking plastic	Suitable in the used ambient temperature range -20 °C ... +50 °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	No temperature increase >5K; the sensor is suitable for -20 °C to +50 °C

Overall rating/additional comments

The wind vane relay type WFBK-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. The potential equalisation must be ensured via the pipeline in which the wind vane relay is installed. After installation, at least the protection class IP30 must be guaranteed.

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

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PUB113-436-00
Issue 03/25