

### Description

TFK-2G3D temperature sensors detect the temperature in ventilation and air conditioning ducts. In combination with transmitters with an intrinsically safe circuit, the sensors can be used within hazardous areas of zones 1, 2 and 22. The sensors are passive, potential-free sensors and remotely supply a resistance change following the temperature, which is converted into a 0...10 VDC and /or 4...20 mA via the transmitter. Areas of application are residential, work, office and business premises, as well as industrial areas, in non-condensing, aggressive ambient air.

**ATEX-compliant for zones 1, 2 and 22 according to the ATEX Directive 2014/34/EU.**



(Fig. similar)

### Delivery program

Type	Product No.	Sensor	Sensor length
TFK-2G3D-100-Pt100	057.1214	Pt100	100 mm
TFK-2G3D-200-Pt100	057.1215	Pt100	200 mm
TFK-2G3D-300-Pt100	057.1210	Pt100	300 mm
TFK-2G3D-400-Pt100	057.1209	Pt100	400 mm
TFK-2G3D-200-Pt1000	057.1217	Pt1000	200 mm
TFK-2G3D-400-Pt1000	057.1216	Pt1000	400 mm
TFK-2G3D-SF-200-Pt100 (silicone-free)	057.1218	Pt100	200 mm

### Intrinsic

Simple electrical equipment according to IEC/EN 60079-11, Section 5.7, suitable for zone 1, 2 and 22. Only for connection to intrinsically safe circuits.

The specified values at the terminals must not be exceeded.

$U_o \leq U_i$	6.5 V ≤ 30 V
$I_o \leq I_i$	19.7 mA ≤ 50 mA
$P_o \leq P_i$	32 mW ≤ 100 mW
$C_o \geq C_i + C_{Cable}$	$C_i = 0 \mu F$
$L_o \geq L_i + L_{Cable}$	$L_i = 0 \mu H$
$C_{Cable}$ , $L_{Cable}$ : see the specifications of the cable manufacturer	
$C_o$ , $L_o$ : see the documentation for the transmitter according to the gas group	

### Technical data

Supply	Via transmitters
Safety class	Simple electrical equipment according to DIN 60079-11
Accuracy	Class B
Sensor current	< 2 mA
Ambient	-30...+60 °C
Storage temperature	-40...+70 °C
Measuring	-30...+150 °C

Electrical connection	Screw terminals, 0.14...1.5 mm <sup>2</sup>
Bezel material	Plastic, IP65 according to EN 60529
Dimensions (W×H×D)	68 x 58 x 35 mm
Weight	150 g
Included	Temperature sensor incl. flange connection

### 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, 2 and 22.
- Observe the maximum connection values during instrumentation.
- Clean with damp cloth only. Avoid electrostatic charging. Remove dust deposits.
- After installation, the enclosure protection class IP65 according to EN60529 must be reliably fulfilled.

#### Assembly and installation

Carry out the installation taking into account the relevant regulations and standards valid for the measuring location.

In particular, consider the following:

- VDE/VDI 3511 Technical temperature measurement/ Guideline
- VDE/VDI 3512 Sheet 2 Measuring arrangement for temperature measurement
- EMC Guidelines
- Measuring
- Permissible pressure, flow velocity

#### Installation instructions

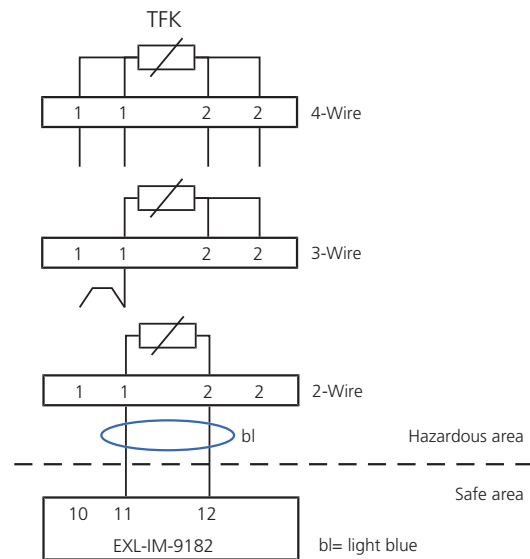
- Absolutely avoid parallel laying with live cables
- Use shielded cables. Place the shield on one side of the DDC / PLC
- Select the installation length and immersion depth so that the error due to heat dissipation remains within the permissible error limits and the max. ambient temperature is not exceeded
- Tighten the screws on the flange part evenly. The lateral pressure screw must clamp securely

#### Recommended transmitter

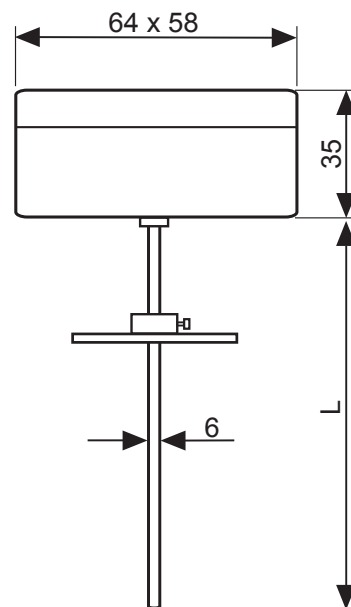
- Transmitter from Company Stahl type EXL-IM-9182-10-51-11s
- When using the sensor together with a transmitter recommended by us, the intrinsic safety for simple circuits is proven
- Manufacturer's certificate for Zone 1, 2 and 22

#### Electrical connection


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



#### 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	
TFK-2G3D	
to which this declaration refers, complies with the following norms or normative documents:	
EN 60079-11:2012 EN 60079-31:2014	EN IEC 60079-0:2018+AC:2020-02
Marking:	
CE Zone 1, Zone 2, Zone 22	
Simple resources	
Managing:	
	
(Dr. Sven Ludwig)	
90579 Langenzenn, 2024-09-01	

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

Item	Duct temperature sensors	Manufacturer	Schischek GmbH
Type	TFK-2G3D	Property	Passive, potential-free
Installation in	Zone 1, 2, 22	Associated equipment	EXL-IM-9182-10-51-11s

### Test goal

The duct temperature sensor has been tested for suitability for installation and operation in hazardous areas of zones 1, 2 and 22. The test is based on Directive 2014/34/EU (ATEX). The standards applied are EN 60079-0 and EN 60079-11. The duct temperature sensor is a simple electrical device within the meaning of EN 60079-11 Section 5.7 and must be operated via an intrinsically safe circuit. The measuring transducer EXL-IM-9182-10-51-11s from Company Stahl is suitable. The measuring transducer may only be installed and operated in non-hazardous areas.

### Proof of intrinsic safety for simple circuits in use with EXL-IM-9182-10-51- 11s

$U_o \leq U_i$	$6.5 \text{ V} \leq 30 \text{ V}$
$I_o \leq I_i$	$19.7 \text{ mA} \leq 50 \text{ mA}$
$P_o \leq P_i$	$32 \text{ mW} \leq 100 \text{ mW}$
$C_o \geq C_i + C_{\text{Cable}}$	$C_i = 0 \text{ }\mu\text{F}$
$L_o \geq L_i + L_{\text{Cable}}$	$L_i = 0 \text{ }\mu\text{H}$
$C_{\text{Cable}}, L_{\text{Cable}}$ : see the specifications of the cable manufacturer	
$C_o, L_o$ : see the documentation for the transmitter according to the gas group	

Test	Result
IP protection	The device meets at least IP65
Inspection of metallic housing parts	Magnesium, titanium and zirconium content < 7.5%
Checking plastic	Suitable in the used ambient temperature range -30 °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. IP65 must be fulfilled
Temperature testing	Together with the switching amplifier EXL-IM-9182-10-51-11s, a temperature increase of <5 K was measured in the event of an error; operating temperature range: -30 °C ... +60 °C

### Overall rating/additional comments

The duct temperature sensor type TFK-2G3D can be used in conjunction with the switching amplifier EXL-IM-9182-10-51-11s in zones 1, 2 and 22. 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 IP65 must be guaranteed.



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

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