Description

TFR-AN-2G3D temperature sensors measure surface temperatures. In conjunction with a transmitter with an intrinsically safe circuit, the sensors may be used within potentially explosive areas of zones 1, 2 and 22.

The sensor is a passive, potential-free sensor. It supplies a resistance change following the temperature, which is converted into an output signal (0...10 VDC and/or 4...20 mA) via the measuring converter. Areas of application are temperature detection on pipes and conduits, in non-condensing aggressive ambient air.

The device is maintenance-free.

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

(Fig. similar)

Delivery program

Type	Product No.	Measuring	Sensor
TFR-AN-2G3D-Pt100	057.1225	–30 ... +110 °C	Pt100 DIN

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 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 transmitter according to the gas group	

Technical data

Supply	Via transmitters
Sensor	Pt100 DIN, contact sensor with tension band
Safety class	Simple electrical equipment according to IEC/EN 60079-11
Accuracy	Class B
Sensor current	< 2 mA
Ambient temperature range	-30...+60 °C
Storage temperature	-40...+70 °C

Electrical connection	Screw terminals, 0.14...1.5 mm²
Housing	Plastic, IP65 according to EN 60529
Spannband	d = 13 ... 92 mm, adjustable
Dimensions (W× H× D)	64 × 72 × 39.4 mm
Weight	152 g
Temperature class	T4 (135 °C)
CE	2014/34/EU (ATEX)
Included	Contact sensor including tension band

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 deviates from the way 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.
- The permissible ambient temperature must not be exceeded.

Instructions for commissioning

Notes on mechanical installation and mounting

The installation must be carried out taking into account the relevant regulations and standards valid for the measuring location. In particular, it is necessary to take into account:

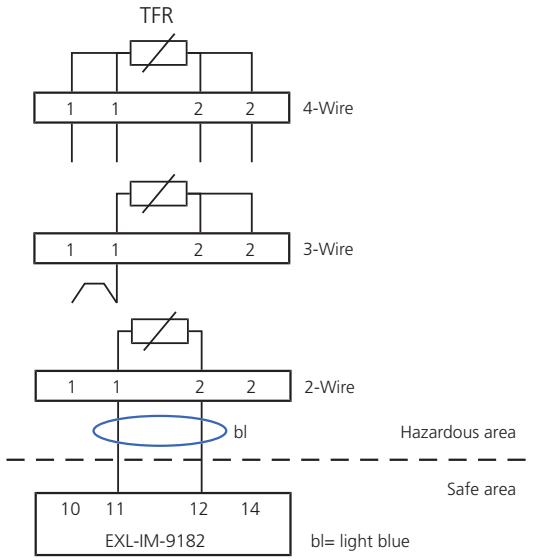
- The EMC guidelines must be complied with
- Parallel installation with live cables must be avoided without fail
- It is recommended to use shielded wires. The shield must be placed on one side of the DDC / PLC
- During installation, make sure that errors caused by heat dissipation remain within the permissible error limits and that the max. ambient temperature is not exceeded
- Vibrations, vibration, shocks
- The temperature to be measured must be maintained in accordance with the temperature class

Recommended transmitter

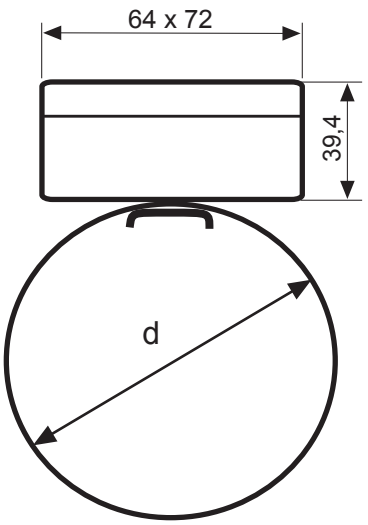
- Transmitter from Company Stahl type EXL-IM-9182-10-51-11s
- When using the sensor together with a transmitter recommended by us, the intrinsic safety for simple circuits is proven
- Manufacturer's certificate for zone 1, 2 and 22

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

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

Test goal

The contact 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, EN 60079-11 and EN 60079-31. The contact 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 switching amplifier EXL-IM-9182-10-51- 11s 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-IM-9182-10-51-11s

$U_o \leq U_i$	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 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 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 contact temperature sensor type TFR-AN-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

SCHISCHEK
A rotork Brand

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

PUB113-434-00
Issue 03/25