Description

TFH-...-2G temperature sensors detect the temperature in ventilation and air conditioning ducts. In combination with transmitters with an intrinsically safe sensor circuit, the sensors can be used within hazardous areas of zones 1, 2. The sensors are passive, potential-free sensors and provide a resistance change following the temperature, which is converted into a 0...10 VDC and / or 4...20 mA VDC via the measuring converter. Areas of application are ventilation ducts in the entire plant construction, as well as industrial areas, in non-condensing, aggressive ambient air.

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

(Fig. similar)

Delivery program

Type	Product No.	Measuring
TFH-2G-8-Pt100-PVC	057.1241	Tb: –20…+80 °C
TFH-2G-3-Pt100-PVC	057.1242	Tb: –20…+80 °C
TFH-2G-5-PTFE-Pt100-IP68	057.1243	Tb: –50…+250 °C
TFH-2G-5-Silicone-Pt100-IP68	057.1238	Tb: –50…+180 °C
TFH-2G-50-Silicone-Pt1000-IP68	057.1239	Tb: –50…+180 °C
TFH-2G-30-Pt1000	057.1240	Tb: –40…+150 °C

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.

$U_o \leq U_i$	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	TFH-2G-50-Silicone-Pt1000-IP68 TFH-2G-30-Silicone-Pt1000	Pt1000 DIN
	TFH-2G-8-PVC-Pt100 TFH-2G-3-PVC-Pt100 TFH-2G-5-PTFE-Pt100-IP68 TFH-2G-5-Silicone-Pt100-IP68	Pt100 DIN
Measuring medium		Non-condensing, aggressive ambient air
Ambient	TFH-2G-5-Silicone-Pt100-IP68 TFH-2G-50-Silicone-Pt1000-IP68	–40 ... +80 °C
	TFH-2G-30-PT1000	–40 ... +80 °C
	TFH-2G-8-PT100 TFH-2G-3-PT100 TFH-2G-5-PTFE-PT100-IP68	–20 ... +80 °C
Protective tube		Stainless steel 1.4571 d = 9 mm, 50 mm
Management	TFH-2G-30-PT1000	30 m, silicone
	TFH-2G-8-PT100	8 m, PVC
	TFH-2G-3-PT100	3 m, PVC
	TFH-2G-5-PTFE-PT100-IP68	5 m, PTFE
	TFH-2G-5-Silicone-Pt100-IP68	5 m, silicone
	TFH-2G-50-Silicone-Pt1000-IP68	50 m, silicone
Laying		Minimum bending radius 35 mm No vibration load <1/2 G
Electrical connection		Strand 0.25 mm^2
Sensor current		< 2 mA
Safety class		Simple electrical equipment according to EN 60079-0 / EN 60079-11
Protection class according to EN 60529		IP68
Weight	TFH-2G-30-PT1000	658 g
	TFH-2G-8-PT100	244 g
	TFH-2G-3-PT100	94 g
	TFH-2G-5-PTFE-PT100-IP68	80 g
	TFH-2G-5-Silicone-Pt100-IP68	400 g
	TFH-2G-50-Silicone-Pt1000-IP68	1000 g
Included		Sensor

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 must be installed 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.
- Guide the sensor in a protective tube.
- After installation, the enclosure protection class IP65 according to EN60529 must be reliably fulfilled.
- The permissible ambient temperature must not be exceeded.
- Observe separate documentation:
  - Measuring transducer

Location and installation

Notes on mechanical installation and mounting

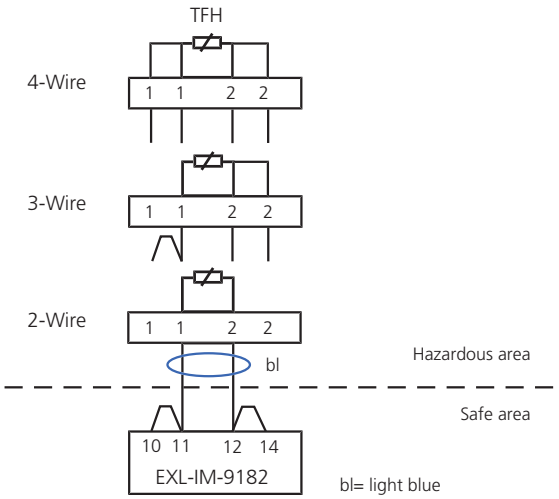
The installation must be carried out taking into account the relevant regulations and standards valid for the measuring location. In particular, it is necessary to take into account:

- VDE/VDI 3511 Technical temperature measurement/ Guideline
- VDE/VDI 3512 Sheet 2 Measuring arrangement for temperature measurement
- 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

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

Electrical connection



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

TFH-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)

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Manufacturer's declaration for sensors for use in hazardous areas

Item	Cable temperature sensors	**Manufacturer**	Schischek GmbH
Type	TFH-2G	**Property**	Passive, potential-free
Installation in	Zone 1, 2	**Associated equipment**	EXL-IM-9182

Test goal

The cable temperature sensor 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 used are EN 60079-0 and EN 60079-11. The cable 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 EXL-IM-9182 transmitter from from Company Stahl is suitable. The transmitter 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
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 EXL-IM-9182 transmitter, 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 cable temperature sensor type TFH-2G can be used in conjunction with the EXL-IM-9182 transmitter 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 IP65 must be guaranteed.

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

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PUB113-430-00
Issue 03/25