

## Room sensor for Temperature and Humidity

**Temperature and Humidity sensor with resistor output 0...1 kOhm and Pt100 passive sensor in hazardous locations zones 1, 2**

**Type TFFR-2G  
ATEX compliant**

### APPLICATION

**TFFR-2G** Humidity/temperature sensor with resistance output for determining relative humidity and temperature in rooms. In combination with Ex-i transmitter type EXL-IM-9182 with intrinsic safe circuit the sensors may be used in hazardous areas zones 1 and 2. The passive resistance output of the sensor is changed into an active signal of 0(2)... 10 V- or 0(4)... 20 mA.

### TECHNICAL DATA

<b>Type</b>	<b>TFFR-2G</b>
Supply	by Ex-i transmitter
Sensor	0...1000 $\Omega$ / Pt100 2(3) wire, resistor linear
Accuracy	< 40 % r.H. = $\pm$ 3,5 % r.H. > 40 % r.H. = $\pm$ 2,5 % r.H. Pt100 $\pm$ 0,5°C
Measure-, work-range	0...100% r.H., 30...100 % r.H.
Ambient temperature	-10...+50 °C
Storage temperature	-20...+60 °C
Connection	Screw clamps 0,5 mm <sup>2</sup>
Enclosure	Plastic, IP20, for wall mounting
Dimension and weight	115 x 70 x 43 mm, approx. 200 g
Protection class	simple apparatus acc. to EN60079-11
CE	2014/34/EU (ATEX)
Included in price	1 Room humidity + Pt100 sensor TFFR-2G
Installation area	Hazardous locations in zone 1, 2 with transmitter type EXL-IM-9182 for temperature and one more EXL-IM-9182 for humidity

suitable for  
Zone 1, 2  
acc. to ATEX



### Ex-i CIRCUITS - TABLE 1

**Operation values maximum at terminal**  
Simple apparatus suitable for Zone 1, 2  
maximum operating / connection values

Terminals		1-2-3	4-5-6
Voltage	U <sub>o</sub>	30 VDC	30 VDC
Current	I <sub>o</sub>	50 mA	50 mA
Power	P <sub>o</sub>	100 mW	100 mW
Capacity	C <sub>i</sub>	< 10 pF	0
Inductivity	L <sub>i</sub>	< 100 $\mu$ H	0

**The maximum values must not be exceeded!**  
Please check your external capacities and inductivities in acc. to the length of the cable and the methode of installation.

### MOUNTING AND INSTALLATION

Notes to mechanical installation. The installation must comply with relevant directives and standards. Particularly with regard to:

- Comply with the EMC directive
- Avoid parallel wiring of power cable this cause measurement errors
- Recommendation: Use shielded cable. Connect shield at PLC or control room area, sensor side is open
- Best measuring effect will achieved when air flow vertical through the device
- Measuring points beside doors, windows, heating sources or air blower can be irritate the results

### MAINTENANCE

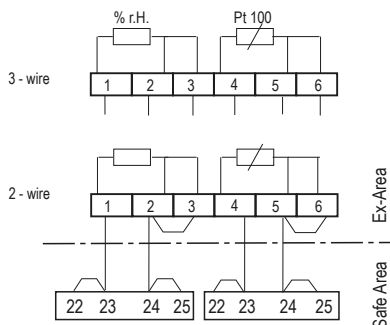
In clean air, the measuring element is maintenance-free. Aggressive and solvent containing agents as per their type and concentration may cause faulty measurements. Water repellent protective film forming deposits on the sensor, resin aerosoles, lacquer aerosoles, smoke deposits etc. are harmful to almost all types of humidity sensors. The water resistance of the sensors makes it possible to clean them with water, solvents should not be used.

### RECOMMENDED TRANSMITTER

- Transmitter Mfr. Stahl type EXL-IM-9182
- When using the sensor in combination with a transmitter type EXL-IM-9182, the proof of intrinsic safety for simple circuits is given
- Manufacturer declaration zone 1 and 2

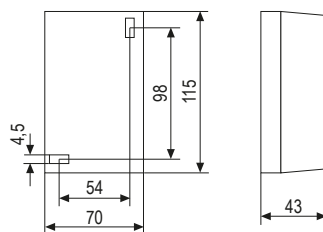
### ELECTRICAL CONNECTION

#### Humidity/Temperature Sensor TFFR-2G



**Ex-i Module EXL-IM-9182 (2 pieces)**

### DIMENSIONS



Dimensions in mm

### ATTENTION!

- For installation, use and maintenance the official standards and rules must be applied
- The energy of intrinsically safe circuits are below the level to start an explosion in case of a spark
- Intrinsic safe circuits must be installed with light blue coloured and separate from non intrinsic safe circuits
- The sensor is passiv and potential free for use in hazardous locations in zone 1, 2
- Pay attention to the max values for wiring, listed in table 1
- Avoid electrostatic discharge
- Only wet cleaning

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