



## Manufacturer-Declaration for Sensors in hazardous locations

<b>Sensor-Type</b>	TFFR-2G	<b>Manufacturer</b>	Schischek GmbH
<b>Function</b>	Room temperature humidity sensor	<b>Property</b>	passive potential free
<b>Installation in</b>	Zone 1, 2	<b>Associated IS apparatus</b>	Type EXL-IMU-1

### Test target

The sensor was tested concerning qualification for installation in hazardous locations.

Application in gas explosion proof zones 1 and 2

Test base is the directive 94/9/EC (ATEX), applied standards are the EN 50014 and EN 50020.

The device must be connected with an intrinsically safe circuit. Suitable is the transducer Type EXL-IMU-1, approved acc. to ATEX with II(1)GD [Ex ia] IIC. PTB03ATEX2092

### Proof of intrinsic safety simple circuits in use with EXL-IMU-1

#### Terminals 1 - 2 - 3

$U_o \leq U_i$  7,5 V < 9V OK

$I_o \leq I_i$  5 mA  $\leq$  5mA OK

$P_o \leq P_i$  10mW  $\leq$  10mW OK

$C_o \geq C_i + C_{cable}$   $C_i = 10$  pF

$L_o \geq L_i + L_{cable}$   $L_i = 100$   $\mu$ H

$C_{cable}$ ,  $L_{cable}$  see wire manufacturer

$C_o$ ,  $L_o$  see EXL-IMU-1 Data sheet regarding gas group

#### Terminals 4 - 5 - 6

$U_o \leq U_i$  7,5 V < 9V OK

$I_o \leq I_i$  5 mA  $\leq$  5mA OK

$P_o \leq P_i$  10mW  $\leq$  10mW OK

$C_o \geq C_i + C_{cable}$   $C_i = 0$

$L_o \geq L_i + L_{cable}$   $L_i = 0$

Test	Result	Conform
IP-protection class	The device fulfils min. IP20	✓
Metallic enclosure	The magnesium part is less than 6%	✓
Plastic enclosure	Suitable in ambient temperature range -10°C ... +50°C	✓
Electrostatics	In groups IIA and IIB without restrictions applicable, in group IIC observe the note "only wet cleaning"	✓
Fasteners and locking	No particular conditions, not applicable	✓
Earthing (potential equalisation)	Double isolation, no PE, PA necessary	✓
Cable- and wire entry	No particular conditions, the enclosure must meet IP20 after installation	✓
Temperature test	Together with transducer EXL-IMU-1. In case of fault conditions is a temperature increasing of 5K measurable.	✓

### Evaluation / additional marks

The room temperature humidity sensor TFFR-2G in combination with transducer EXL-IMU-1 is approved for use in the zone 1 and 2.

Application in gas group IIC, consider the note regarding electrostatic charge.

The tests were applied in the room of manufacturer Schischek GmbH.

Langenzenn, Oct. 24, 2003

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Explosion proof specialist

