



Manufacturer-Declaration for Sensors in hazardous locations

Sensor-Type	TFR-2G3D	Manufacturer	Schischek GmbH
Function	Room temperature sensor	Property	passive potential free
Installation in	Zone 1, 2 and 22	Associated IS apparatus	Type EXL-IMU-1, ExCos-A, RedCos-A

Test target

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

Application in gas explosion proof zones 1, 2 and dust area zone 22

Test base is the directive 94/9/EC (ATEX), applied standards are the EN 60079-0, EN 60079-11 and EN 60079-31.

The device must be connected with an intrinsically safe circuit. Suitable is the transducer Type EXL-IMU-1, ExCos-A or RedCos-A.

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

$U_o \leq U_i$	7,5 V < 10 V	OK	$C_o \geq C_i + C_{cable}$	$C_i = 0$
$I_o \leq I_i$	5 mA < 10 mA	OK	$L_o \geq L_i + L_{cable}$	$L_i = 0$
$P_o \leq P_i$	10mW < 15mW	OK	C _{cable} , L _{cable} see wire manufacturer	
Co, Lo see EXL-IMU-1 Data sheet regarding gas group				

Proof of intrinsic safety simple circuits in use with RedCos-A, ExCos-A

$U_o \leq U_i$	7,9 V <= 10 V	OK	$C_o \geq C_i + C_{Kabel}$	$C_i = 0$
$I_o \leq I_i$	6,4 mA <= 10 mA	OK	$L_o \geq L_i + L_{Kabel}$	$L_i = 0$
$P_o \leq P_i$	12,7mW <= 15 mW	OK	C _{cable} , L _{cable} see wire manufacturer	
Co, Lo see Ex/RedCos Data sheet regarding gas group				

Test	Result	Conform
IP-protection class	The device fulfils min. IP65	✓
Metallic enclosure	The magnesium part is less than 6%	✓
Plastic enclosure	Suitable in ambient temperature range -30°C ... +60°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 IP65 after installation	✓
Temperature test	Together with transducer EXL-IMU-1, ExCos-A, RedCos-A. In case of fault conditions is a temperature increasing of 5K measurable.	✓

Evaluation / additional marks

The room temperature sensor TFR-2G3D in combination with transducer EXL-IMU-1, ExCos-A, RedCos-A is approved for use in the zone 1, 2 and 22. Application in gas group IIC, consider the note regarding electrostatic charge. After installation the protection class IP65 acc. to EN 60529 must be fulfilled

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

Langenzenn, July 23, 2013

Thomas Kellermann
Explosion proof specialist

