



Manufacturer-Declaration for Sensors in hazardous locations

Sensor-Type	TBK-FR-2G	Manufacturer	Schischek GmbH
Function	Antifreeze thermostat	Property	passive potential free
Installation in	Zone 1, 2	Associated IS apparatus	Type EXL-IRU-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 switching module Type EXL-IRU-1, approved acc. to ATEX with II(1)GD [EEx ia] IIC. PTB02ATEX2195

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

$U_o \leq U_i$	13,5 V < 15V	OK	$C_o \geq C_i + C_{cable}$	$C_i = 0$
$I_o \leq I_i$	23 mA <= 50 mA	OK	$L_o \geq L_i + L_{cable}$	$L_i = 0$
$P_o \leq P_i$	76 mW <= 100 mW	OK	C _{cable} , L _{cable} see wire manufacturer	
Co, Lo see EXL-IRU-1 Data sheet regarding gas group				

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 0°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 module EXL-IRU-1. In case of fault conditions is a temperature increasing of 5K measurable.	✓

Evaluation / additional marks

The antifreeze thermostat TBK-FR-2G in combination with module EXL-IRU-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, Nov. 05, 2003

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