Description

Room thermostat with contact output

Room thermostats TBR-2G3D-... monitor, regulate and limit temperatures in a non-aggressive environment. In combination with switching amplifiers with an intrinsically safe circuit, the sensors can be used within hazardous areas of zones 1, 2 and 22.

The device is maintenance-free.

ATEX-compliant for zones 1, 2 and 22 according to the ATEX Directive 2014/34/EU.

(Fig. similar)

Delivery program

Type	Product No.	Adjustment range
TBR-2G3D --35-+30	057.1408	-35…+30 °C
TBR-2G3D-0-60	057.1410	0…+60 °C

Intrinsic

Simple electrical equipment according to IEC/EN 60079-11, Section 5.7, suitable for zone 1, 2 and 22. Only for connection to intrinsically safe circuits.

The specified values at the terminals must not be exceeded.

$U_o \leq U_i$	9.6 V ≤ 30 V
$I_o \leq I_i$	10 mA ≤ 50 mA
$P_o \leq P_i$	24 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 switching amplifier according to the gas group	

Technical data

Supply	Via switching amplifiers
Contact	Dust-encapsulated microswitch as a single-pole, potential-free changeover switch
Ambient	-20…+50 °C
Storage temperature	-20…+60 °C
Gear shift difference	2...20 K adjustable
Housing	Plastic, ABS, IP65 (EN60529)
Dimensions (L×W×D)	165 x 71 x 68 mm
Weight	Approx. 500 g
Included	Room thermostat

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 is used in a manner different from that 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 are shown in light blue and are to be laid separately from non-intrinsically safe circuits.
- The intrinsically safe sensor is passive, potential-free and approved for zones 1, 2 and 22.
- Observe the maximum connection values during instrumentation.
- Clean with damp cloth only. Avoid electrostatic charging. Remove dust deposits.
- Observe separate documentation:
  - Switching amplifiers

Assembly and installation

The device can be mounted in any position. The setpoint is set on the rotary switch.

Function

Heating

The set setpoint (scale value) corresponds to the shutdown value of the heater. The switch-on value is lower by the switching difference. Contact Red - Blue opens when the temperature rises to the set setpoint.

Cooling

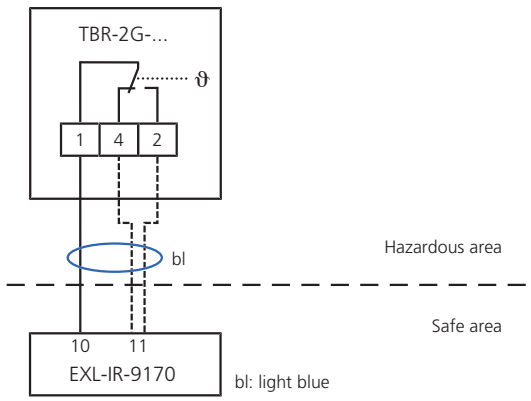
The set setpoint (scale value) corresponds to the shutdown value of the cooling. The switch-off value is lower by the switching difference. Contact Red - white closes when the temperature rises to the set setpoint.

Recommended switching amplifier

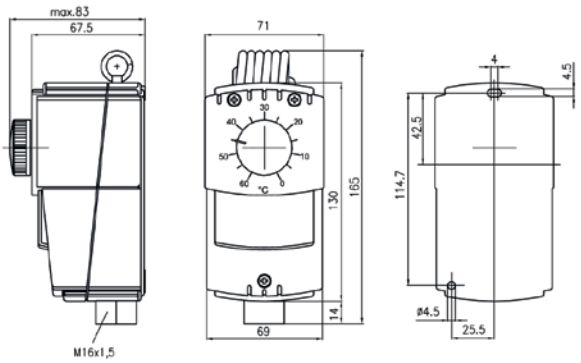
- Ex-i switching amplifier from Company Stahl type EXL-IR-9170-11-12-11s
- When using the sensor together with a switching amplifier recommended by us, the intrinsic safety for simple circuits is proven
- Manufacturer's certificate for Zone 1, 2 and 22

Electrical connection

The electrical connection is made according to the operating instructions of the switching amplifier.



Dimensions



(all measurements in mm)

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

TBR-2G3D

to which this declaration refers, complies with the following norms or normative documents:

EN 60079-11:2012
EN 60079-31:2014

EN IEC 60079-0:2018+AC:2020-02

Marking:

CE Zone 1, Zone 2, Zone 22

Simple resources

Managing:

(Dr. Sven Ludwig)

90579 Langenzenn, 2024-09-01

Manufacturer's declaration for sensors for use in hazardous areas

Item	Room thermostat	**Manufacturer**	Schischek GmbH
Type	TBR-2G3D	**Property**	Passive, potential-free
Installation in	Zone 1, 2	**Associated equipment**	EXL-IR-9170

Test goal

The room thermostat 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 applied are EN 60079-0, EN 60079-11 and EN 60079-31. The room thermostat 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 switching amplifier EXL-IR-9170 from Company Stahl is suitable. The switching amplifier may only be installed and operated in non-hazardous areas.

Proof of intrinsic safety for simple circuits in use with EXL-IR-9170

$U_o \leq U_i$	9.6 V ≤ 30 V
$I_o \leq I_i$	10 mA ≤ 50 mA
$P_o \leq P_i$	24 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 switching amplifier 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 for use in the ambient temperature range -20 °C ... +50 °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 or grounded via system components
Cable and cable entries	The cables must be protected from mechanical and thermal stress, after installation, min. IP65 must be fulfilled
Temperature testing	Together with the switching amplifier EXL-IR-9170, a temperature increase of <5 K was measured in the event of an error; operating temperature range: -20 °C ... +50 °C

Overall rating/additional comments

The room thermostat TBR-2G3D can be used in conjunction with the switching amplifier EXL-IR-9170 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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