RIZUR–TB–DCS

Thermoregulator RIZUR-TB-DCS is manufactured on the base of a digital control system. The module consists of a microcontroller (regulated by the software) and remote digital air temperature indicator RIZUR-DT or RT 100 (the immersible version can be used for the temperature maintenance in the liquid media).

The hardware-software solution ensures that the temperature will be maintained with the accuracy of 1 °C. The temperature parameters are programmed at the manufacturing facility on the basis of the ordering information. For the purpose of signalizing when the temperature surpasses the set limits, thermoregulator RIZUR-TB-DCS has additional relay outputs, as well as, depending on the design variant, an analogue output signal 4-20mA.

The housing of the thermoregulator also performs the function of a junction box, meaning that there's a terminal block inside and ex-protected cable glands for power cables, heater, and temperature sensors outside.

Thermoregulator RIZUR-TB-DCS is designed specifically for controlling heating elements of high power (up to 5kW), including self-regulating heating cables.

The thermoregulator can withstand the cold starting loads that surpass the nominal power load in 10 times.

Design variants of the thermoregulator RIZUR–TB–DCS

RIZUR–TB–DCS–1	RIZUR–TB–DCS–3	RIZUR–TB–DCS–4
RIZUR-TB-DCS-1 - this version has two digital temperature sensors RIZUR-TD and two relay outputs for signalizing when the temperature surpasses set limits causing an emergency. Thermoregulator RIZUR-TB-DCS-1 can change and control the temperature within the limits from - 50°C to +110°C.	RIZUR-TB-DCS-3 - this version has two temperature sensors RT 100 and two relay outputs for signalizing when the temperature surpasses set limits causing an emergency. Thermoregulator RIZUR-TB-DCS-3 can change and control the temperature within the limits from -200°C to +600°C.	This version has two digital temperature sensors RIZUR-TD, one relay output, and one analogue output signal 4-20mA. Thermoregulator RIZUR-TB-DCS-4 can change and control the temperature within the limits from -50°C to +110 °C. The relay output signal is for signalizing when the temperature surpasses set limits causing an emergency. The analogue output signal 4-20mA is for broadcasting the current temperature value.

Technical characteristics

Design variant	RIZUR-TB-DCS
Installation area	General industrial areas Explosion hazard zones V-1a and V-1g acc. to Ch. 7.3 of PUE
Explosion protection marking	1Ex d X [ia llC Ga] llC T6 G bX
Temperature control	Digital control system
Heating element power	Up to 5000 W
Supply voltage	230 (±15%)V, 24,36-48 V AC/DC (upon an agreement with the manufacturer)
Temperature maintained on the surface	-30°C … +90°C, an increment of 1°C
Temperature maintained inside	-40°C … +50°C, an increment of 1°C
Ingress protection	IP67
Preset temperature limit alarm	Relay, dry contact, 1 A
Warranty period	24 months
Average operation time	Over 15 years

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Order code for the thermoregulator RIZUR–TB–DCS

Ordering information:

RIZUR–TB–DCS–1–(+90/2/0)–(–10/2/0)–(–20)–(+10)–M20–M20–M20

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

1. Design variant	
RIZUR-TB-DCS-1	Thermoregulator with 2 digital temperature sensors RIZUR-DT and 2 relay output signals
RIZUR-TB-DCS-3	Thermoregulator with 2 digital temperature sensors RIZUR-DT and 2 relay output signals
RIZUR-TB-DCS-4	Thermoregulator with 2 digital temperature sensors RIZUR-DT, 1 relay output signal and one analogue output signal 4-20mA
RIZUR-TB-DCS-X	Version with a different combination of the temperature sensors and output signals (upon an agreement with the manufacturer)

2. Parameters of the heating element's temperature control sensor	
N	Without the temperature sensor
(X /_ /_)	Specify the target temperature, °C (for the digital sensor within the limits of -50°C...+110°C; for the temperature sensor RT 100 within the limits of -200°C...+600°C)
(_ / X /_)	Specify the sensor's cable length, meters
(_ /_ /X)	Specify the sensor's cable type: 0-standard cable M-cable protection with a metal hose B-armoured cable

3. Parameters of the surface/heated medium's temperature control sensor	
(X /_ /_)	Specify the target temperature, °C (for the digital sensor within the limits of -50°C...+110°C; for the temperature sensor RT 100 within the limits of -200°C...+600°C)
(_ / X /_)	Specify the sensor's cable length, meters
(_ /_ /X)	Specify the sensor's cable type: 0-standard cable M-cable protection with a metal hose B-armoured cable

Note: in case the sensor is used in the liquid medium, it's necessary to specify the immersion depth and process parameters outside the order code.

4. Setting of the minimal temperature for signaling relay*	
(X)	Specify the target temperature for signalization, °C (signaling relay is activated when the temperature goes below the set limit)

* In case there's no sensor, (N) should be put in the order code

5. Setting of the maximal temperature for signaling relay*/ the limits of the analogue output signal 4-20 mA	
(X)	Specify the target temperature for signalization, °C (signaling relay is activated when the temperature goes above the set limit). For RIZUR-TB-DCS-4 in this section it's necessary to specify the limits for the analogue output 4-20 mA, for example, if the limits are from -50°C to +40°C, the ordering information should have (-50/+40)

* In case there's no sensor, (N) should be put in the order code

6. Cable gland for the heater's cable	
M20	Cable gland M20x1,5 for cable diameter 6-12 mm
MR20	Cable gland M20x1,5 for cable diameter 6-12 mm with fastening for a metal hose DN15
3	3 m
X	Specify cable's length in meters

7. Cable gland for the power cable	
M20	Cable gland M20x1,5 for cable diameter 6-12 mm
MR20	Cable gland M20x1,5 for cable diameter 6-12 mm with fastening for a metal hose DN15
MB20	Cable gland M20x1,5 for armored cable with external diameter 9-17 mm
X	Specify type and grade of cable and metal hose

8. Cable gland for the signaling cables	
M20	Cable gland M20x1,5 for cable diameter 6-12 mm
MR20	Cable gland M20x1,5 for cable diameter 6-12 mm with fastening for a metal hose DN15
MB20	Cable gland M20x1,5 for armored cable with external diameter 9-17 mm
X	Specify type and grade of cable and metal hose