

KAPILLARY REGULATORS (THERMOSTATS) KR XX.NN



Type designation symbols

KR X	1 – to 0 ÷ 15 °C to 20 ÷ 90 °C
	2 – to 20 ÷ 40 °C to 90 ÷ 140 °C
X.	0 – no signal terminal
	1 – signal terminal
NN	Specific requirements according to technical conditions

Description

Capillary regulator KR XX.NN is a single-pole thermostat based on the principle of liquid dilatation. KR XX.NN is a cyclically operating control device with a temperature sensor, designed to maintain the temperature between two particular values under normal operating conditions. It allows user settings.

Installation

The thermostat may be installed and connected to the electrical circuit only by a person qualified at least according to decree No.50/1978 §6.

Following guidelines must be observed during installation:

- Install the thermostat only in appliances specified in this manual (appliances class I) with the connection terminals under the unremovable cover.
- Fasten the switching mechanism by 2 M4 screws (torque 1,2 Nm) to a control panel or a support of the appliance. The M4 screws may be only as long so as not to reach into the switching mechanism.
- The switch head may be mounted in normal environment with the listed deviations and temperature surrounding the switching mechanism 0 °C až + 90 °C AB5, AE1, AM1,

AN1, BE1, the capillary system may not come into contact with aggressive agents.

- The capillary regulator is to be placed in the environment of pollution degree 2.
- Bend the capillary to a radius of at least R = 5 mm.
- Insert the whole sensor + min. 1-2cm of the capillary system into the controlled environment.
- The sensor for thermoregulation in liquids must be placed in a protective well.
- The position of the sensor and switching mechanism does not matter.
- Touchable parts of the capillary system must be insulated.
- Use sleeves 6,3 x 0,8 mm (ČSN EN 61210) to connect the terminals to the electrical circuit and the ground pin.
- The spade terminals 6,3 x 0,8 must not be tilted or otherwise mechanically stressed.

Methods of use

Capillary regulator under normal conditions maintains temperature in an appliance or its part within limits set by the user by automatically opening and closing the electrical circuit. It performs micro disconnection of the phase conductor. It may signal the micro disconnection of the electrical load.

KR 1X.NN – for thermoregulation of water in electric accumulation heaters for household and similar applications with water temperature under boiling point and the rated current 240 V with single-phase appliances and 400 V with other appliances.

KR 2X.NN – for thermoregulation of household and similar electric heaters whose rated voltage does not exceed 240 V with single-phase appliances and 400 V with other appliances.

The thermostats are not intended for disconnecting an appliance from the network!!! Other methods of use must be discussed with the manufacturer!!!

Specifications

Type	KR 10 (KR 11)	KR 20 (KR 21)
Operating temperature range	(7 ÷ 77) °C	(35 ÷ 95) °C
Variation of max. cutout temperature	+ 6 °C	± 4 °C
Max. sensor temperature	90 °C	110 °C

Switching difference	(2 ÷ 6) K
Rated voltage	240V / 400 V ~
Terminal rated current 1-2	16 A / 10 A
Signaling circuit terminal rated current	1-4 2 A
Minimum current	2 A
Type of load	cosφ min.= 0,95
Switching unit temp. range	0 ÷ 90 °C
Protection	IP 00
Protection class	I
Lifetime	100 000 operating cycles
Automatic type operation	2 BL
Min. radius of capillary bend	5 mm
Connection	spade terminals 6,3 x 0,8
Max. allowed force for sliding the sleeve onto the spade terminal	80N
Max. allowed force for stripping the sleeve from the spade terminal	70N

Manufacturing variation and switching difference of KR XX.NN is checked at the switch head temperature of (23 ± 2) °C and the increase / decrease of the sensor environment temperature of (1 ÷ 2) K/min.

Storage conditions

Packed KR may be stored in rooms with temperatures 0 to 45 °C and the relative humidity up to 75%. Devices must not be mechanically damaged during storage and reloading. The thermostats must be handled carefully without excessive vibrations and shocks. Storage areas must be free of harmful gases.

Method of use or disposal



"This device is subject to a special mode of waste management in accordance with the Waste Act, as amended."

Possible minor defects and troubleshooting

Replace the capillary regulator if it fails during operation. Replacement in an appliance may be performed only by a person qualified at least according to decree No. 50/78 section 6.

Damage liability

Requirements stated in the manual must be observed during installation, connection, operation and maintenance of the capillary regulator KR XX.NN. The user must not manipulate the capillary regulator KR XX.NN otherwise than set the temperature by means of the regulation knob.

The maximum torque in the extreme positions of the control range is 0.5 Nm. Capillary regulator must not be repaired outside the manufacturing factory.

Warranty

If positioned, wired and used in compliance with the guidelines stated in the Installation and Operation Instructions Manual the manufacturer provides a warranty according to the current code, unless otherwise agreed.

The manufacturer will refuse warranty service if the unit has been damaged:

- during transport and storage by the purchaser or his customers
- during installation or removal from a purchaser's or his customers' appliance
- by improper handling and installation in another device than that specified in the manual
- if RT has been exposed to environments other than those specified in the manual

Warranty and post-warranty repairs

Send the faulty product to:

APATOR METRA s.r.o.

Havlíčková 919/24
787 01 Šumperk
Czech Republic

Tel.: 583 718 263

Fax: 583 718 150

E-mail: prodej@metra-su.cz

www: <http://www.metra-su.cz>