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TEMPERATURE REGULATOR with adjustable fan speed

RT-833

5 9 0 8 3 1 2 5 9 8 5 9 6

Purpose

The regulator is designed for direct control of 12/24 V DC fan speed in the control panels (or similar installations) as a function of temperature.

Operation

Once the temperature rises above the set point T_{min}, the fan starts, and its rotational speed will be proportional to the measured temperature and regulator settings:

- for temperature T_{min} the rotational speed will be equal to the set minimum speed.
- for temperature $T_{min} + \Delta$ the rotational speed is 100%.
- for temperature in range T_{min} <> $T_{min} + \Delta$ rotational speed is mapped proportionally in the range from the set minimum speed up to 100%.

The regulator has a relay output that signals too high temperature or damage (no power) to the regulator.
During normal operation, the contact 7-9 is closed. If the measured temperature is higher than the maximum value ($T_{min}+\Delta$) for a period of three minutes, the contact is switched off. If the regulator is damaged or the power is off, contacts 7-9 can be used for error signaling.

To avoid the problem with the motor stalling at low speeds, the regulator can start from the maximum speed - the fan starts from the maximum speed and then slows down to a suitable value.

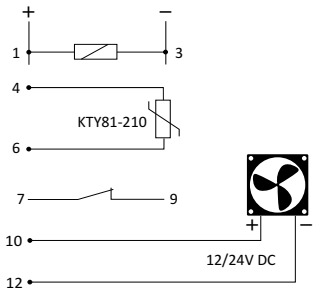
Signalling

1. Green LED U – system power
2. Red LED ↑:
   - off – temperature below T_{min}
   - flashes (50% ON - 50% OFF) - temperatures above T_{min}, but within the adjustment range.
   - on - temperature constantly (longer than three minutes) above the limit value

Setting

1. T_{min} - minimum temperature, adjustment range 25÷60°C
2. ΔT - temperature increase, adjustment range 5÷30°C
3. RS - minimum speed, range 0÷80%

Description IN/OUT



1-3	regulator power
4-6	input of the temperature probe
7-9	NC contact
10-12	fan control output

Installation

1. Disconnect the power supply.
2. Install the regulator on rail in the connection box.
3. Connect power wires: „+" to terminal 1; „-" to terminal 3.
4. Connect the temperature probe to terminals 4 and 6. Any polarity.
5. Connect the fan: „+" to terminal 10; „-" to terminal 12.
6. The power supply circuit of signalling of over-temperature and errors system, connect in series with 7-9 contacts.

Specifications

power supply	12÷24V DC
DC load current (10-12)	<6A
alarm contact (load)	1NC separated (10A)
temperature adjustment range	
T_{min}	25÷60°C
ΔT	5÷30°C
accuracy of measurement	±1°C
start speed setting	0÷80%
temperature sensor	KTY 81-210
power indication	green LED
status indication	red LED
power consumption (standby/operation)	0,05W/0,6W
operating temperature	-15÷50°C
terminal	2,5mm² screw terminals
tightening torque	0,4Nm
dimensions	1 module (18mm)
mounting	on TH-35 rail
ingress protection	IP20

Dedicated temperature probe [F&F]

designation	RT
temperature sensor	KTY 81-210
dimensions	Ø5; h=20mm
isolation of sensor	heat shrink
wire	OMY 2×0,34mm²; l=2,5m

designation	RT823
temperature sensor	KTY 81-210
dimensions	Ø8; h=40mm
isolation of sensor	steel sleeve
wire	heat-resist SIHF 2×0,5mm²; l=2,5m

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