

TRIAC power controller for electric heaters

RNS



■ Applications

Applied in ventilation systems for regulating the power output of electric heaters with load current rating up to 120 A.

■ Design and control

The controller casing is made of flame-retardant thermoplastic. The controller is equipped with an ON/OFF button and a heating temperature control knob. Electric power output is regulated by proportional connection and disconnection of the full load depending on the pre-set heating temperature. The RNS-16 is capable of controlling only one heating stage. Unlike the smaller models, RNS-25 are capable of controlling one or three heating stages with the power output equal or exceeding that of the controlled stage. The power output of the first stage is controlled steplessly by switching the full load on and off. The second and third stages are controlled in steps. For overheating protection the electric heater must be equipped with two built-in thermal contacts: TK50 with intervention temperature of +50 °C and automatic restarting and TK90 with response temperature of +90 °C and manual restarting. The air

temperature is set by means of the built-in potentiometer or the external control device generating a 0-10 V control input for increasing the duct temperature proportionally in the range from 0 to +40 °C. The duct temperature sensor must be installed downstream of the heater in the direction of the air stream at the minimum distance of 50 cm from the heater. If the controller runs in the heating power output mode in disregard of the temperature sensor feedback, no duct temperature sensor is necessary whereas the heating power output is regulated in the 0 to 100 % range by means of the 0-10 V control signal.

■ Protection

Input circuit of the power controller has a thermal fuse for overload protection.

■ Mounting

The controller is designed for indoor mounting. Installation shall be performed with respect to the free air circulation for inner circuit cooling. The controller is for vertical installation. Do not install the controller above the heaters and in bad air convection areas.

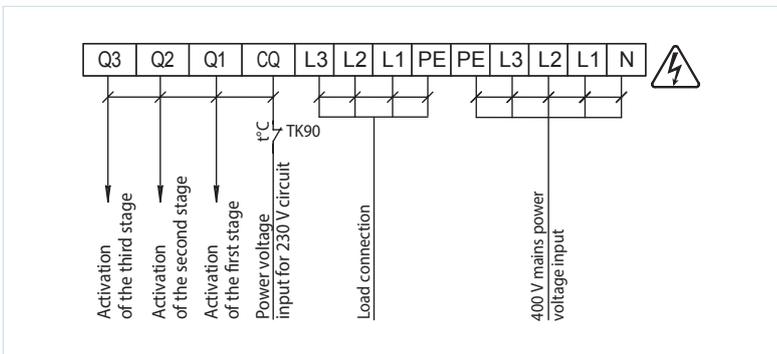
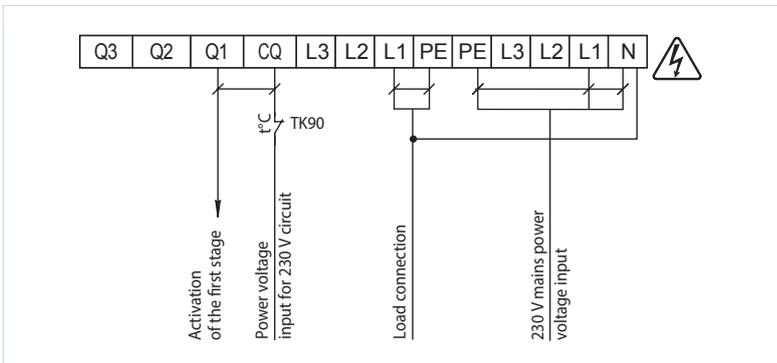
Technical data

	RNS-16	RNS-25
Max. load current (single stage) [A]	25	40
Heater power (single stage) [kW]	16	25
Max. load current (three stages) [A]	–	120
Heater power (three stages) [kW]	–	75
Control circuit supply voltage	~230 V/50 Hz	
Nominal current of control circuit board fuse [A]	0.1	
Cross-section area of screw terminal block input pin [mm ²]	4...10	
Protection rating	IP54	
Overall dimensions [mm]	170x255x140	
Weight [kg]	1.2	
Mains parameters:		
• voltage [V]	210-255, 380-415	
• frequency [Hz]	50-60	
• phases	1 or 3	
Operating temperature range [°C]	+5...+40	

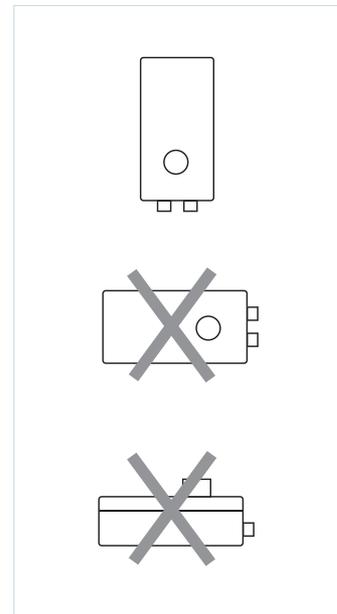
Note: heat generated by the RNS-16 controller themselves is 50 W, by the RNS-25 controller – 80 W.

Control parameters	
Regulation time [s]	0.1 (fixed)
Cycle length [s]	1...10 (adjustable)
Indication	Power, operation and malfunction indicator
Type of temperature sensor used	LM 60
Input signal parameters [V]	0...10 (direct current)
Set temperature range [°C]	0...40 (adjustable)

External connections diagram



Attention!
THE CONTROLLER IS INTENDED
FOR VERTICAL MOUNTING ONLY!



Control unit wiring diagrams

