Step Control by 2 to 12 Relays

ETT-6

- Three-point control
- Extendable for up to 12 relays
- Proportional control output

Step control by 2 to 12 relays
ETT-6 step controllers are used for step-by-step connection of electric heating coils or refrigeration compressors. They are also ideal for staged connection of fans, cooling packs, pumps, compressors and boilers.

ETT-6 is particularly suitable for ventilation systems in which the supply air temperature is controlled by sectional electric heating coils or several refrigeration compressors.

ETT-6 can be connected to an EFM power controller, thus providing a cost effective and accurate infinitely variable regulation of very large electric heating coils in the entire output range.

Adjustable steps
ETT-6 allows loads to be controlled with uniform sections (1:1:1:1:1:1) or either of two types of binary distribution (1:2:4:8:8:8 / 1:2:4:8:16:32).

Any number of steps between 2 and 6 can be selected and the maximum number can be increased to 12 by interconnecting two ETT-6 controllers.

Change-over time between successive output steps can be set between 2 and 200 seconds, allowing adjustment to suit the controller concerned.

Proportional control output
ETT-6 is equipped with an integral 0-10 V output for the control of a power controller or a frequency converter in order to obtain infinitely variable regulation between individual stages. The result is fully proportional control in the entire range and very accurate regulation.

Fan operation
On/Off control of a fan can be made via relay1 if the DIP switch is set to fan operation. The fan is thus started by a control signal of 0.2 V DC and it is ensured that the fan always runs before the heating is connected.

In order for the fan to aftercool the heating coil, relay1 stays On for 3 minutes after the control signal has decreased to below 0.2 V.

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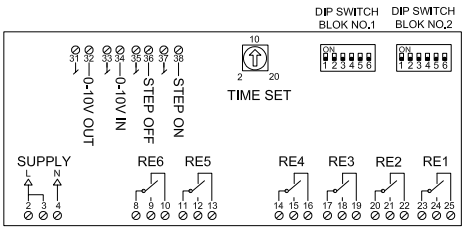
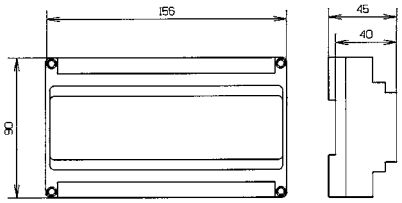


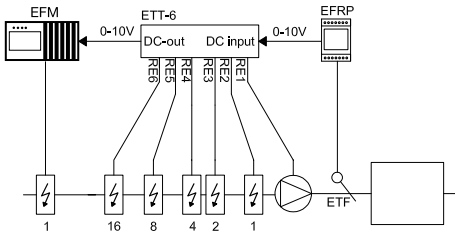
Connection example

BR820A12a



Dimensions

BR826B02



Application example

BR820A25c

Extendable for up to 12 relays

If more than 6 linear stages are required, 2 ETT-6s can be connected to make the system form one step controller that can be set to 7-12 linear stages.

Incremental mode

If outputs of connected heating sections are equal, "Incremental mode" can be set on ETT-6 by means of DIP switches. The individual relays are thus connected evenly to prevent premature wear of individual heating sections and extend service life of the system.

Three-point control

By shifting one DIP switch, the control of ETT-6 can be changed from 0-10 V control signal to three-point control. Up/down control of ETT-6 positions is thus carried out through on/off signals on Step ON and Step OFF inputs. An inexpensive controller with two digital outputs can then be used instead of one analog output.

CE Marking

The ETT-6 meets the requirements of the below standards.

EMC directive	Low voltage directive
EN 61000-6-2 EN 61000-6-3	EN 60730-2-9

Installation

ETT-6 step controllers are designed to be mounted on a DIN rail inside an enclosure with a suitable rating.

Control signal cable installation

Control signal cables may be up to 50 m long. Control signal cables should not be run parallel to mains carrying cables as voltage signals may be produced that can interfere with step controllers function.

PRODUCT PROGRAMME

Type	Product
ETT-6-11	Stage connector with 6 relays 230 V AC
ETT-6-31	Stage connector with 6 relays 24 V AC

Controller & Accessories	
TRD	Temperature controller for DIN rail mounting
EFRP-31	Temperature controller for DIN rail mounting
EFRP-91	Temperature controller for wall mounting
EFRP-900	Potentiometer, manual setting (0-100%), for wall mounting
EFM	1/2 phase power controller
ETTB	Base increasing the DIN rail height to 71 mm

TECHNICAL DATA

Supply voltage	ETT-6-11: 230V AC ±10%, 50/60Hz ETT-6-31: 24V AC ±10%, 50/60Hz
Input signal	0-10V DC, 10kΩ three-point, floating
Output signal	0-10V DC, max. 10 mA Pulse Width Modulation (PWM)
Output relays	6 pcs. SPST NO, 6A, 250V (12 with ETT-6 slave)
No. of stages	2-63
Time setting	2-20 / 20-200
Ambient temperature	0/+40°C
Power consumption	6 VA
Enclosure	IP20
Dimensions (w x d x h)	156 x 45 x 90 mm
Weight	450 g

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