

# EnergoControl

## Electric Heating Controller EVR



### Short facts about EVR

- Complete electric heating controller with built-in sensor and setpoint adjustment.
- External sensor and external setpoint can be connected.
- For loads up to 3.6 kW (230 V) or 6.4 kW (400 V).
- Automatic adaption to connected supply voltage 210...415 V.
- Adjustable night set-back, 0...10 K.
- Control function adapts automatically, using PI for supply air control and P for room control.

**EVR** is an electric heating controller, with triac control, for single phase or two phase electric heating.

It is intended primarily for wall mounting, and connected in series between a power supply and electric heater; such as radiant heating panels, heating battery or electric radiators.

EVR has a built-in temperature controller featuring external sensor input, where the sensor can for instance be mounted in a room or a supply-air duct. For control of room temperature, the on-board sensor built into EVR may be used.

The controller uses time-proportional control, where the On-time and Off-time ratio is varied to fit the prevailing heating requirement. The cycle-time (the sum of on-time and off-time) is fixed at approximately 60 s, e.g. ON = 30 s and OFF = 30 s

This control accuracy contributes to reduced energy costs, together with an increased comfort and an even temperature. Since the current is switched by a semiconductor, triac, there are no moving parts that can wear out. The current is switched at zero phase angle, to eliminate network disturbance.

EVR automatically adapts its control mode to suit the dynamics of the controlled object.

### Room temperature control

For slow temperature changes, EVR will work as a P controller with a fixed proportional band of 2K.

### Controlling larger electrical outputs

When the electric battery or heater is larger than the capacity of EVR, the load can be split and controlled by EVR in combination with the ancillary unit EVR-ADD (see separate leaflet.)

### Night set-back

Using an external time switch, EVR can provide an adjustable night set-back. When closing the time-switch contact, the setpoint is lowered by the set value, 0...10K.

### Supply air temperature control

For rapid temperature changes, EVR will function as a PI controller. The P band is 20 K and the I-time 6 min.

### Min/max adjustment

When min/max limiting of supply air temp. is required, use EVR-M.

### Technical Data

Supply voltage:	210...415 V AC, 50...60 Hz. 1- or 2-phase, automatic adaptation.
Power output:	Up to 16 A, min. 1 A. At 230 V, the max. output is 3600 W and the min. output 230 W. At 400 V, the max. output is 6400 W and the min. output 400 W. 20 W at full load.
Power emission:	20 W at full load.
Ambient temperature:	0...30°C with no condensation.
Ambient humidity:	Max. 90 % RH.
Storage temperature:	-40...+50°C.
Protection class:	IP20.
Weight:	0.3 kg.



**Low Voltage Directive (LVD) standards:** This product conforms to the requirements of the European Low Voltage Directive (LVD) 2006/95/EC through product standards EN 60730-1 and EN 60730-2-9.

**EMC emissions and immunity standards:** This product conforms to the requirements of the EMC Directive 2004/108/EC through product standards EN 61000-6-1 and EN 61000-6-3.

**RoHS:** This product conforms to the Directive 2011/65/EU of the European Parliament and of the Council.

### Control Unit Parameters

Room control:	P function using P-band 1.5 K.
Supply air control:	PI function using P-band 20 K and I-time 6 min.
Pulse period:	60 s.
Indicator:	Red LED on bottom of EVR, lit when power is pulsed to the heater.

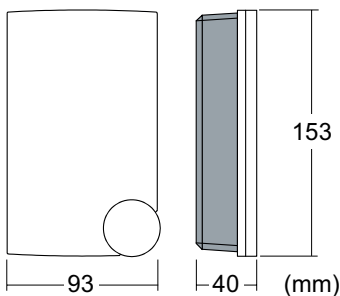
### Sensor

Built-in sensor:	Measurement range 0...30°C.
Input external sensor/setpoint:	For Energotech brand NTC sensors and setpoint devices. Temperature range depends on measuring range of sensor. The sensor connection has high ground zero potential and the installation should therefore follow standard mains voltage installation procedures.

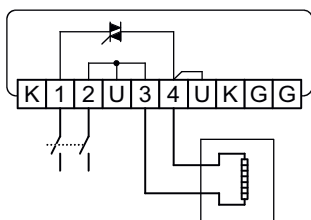
### Settings

Setpoint:	0...30°C. Knob with scale for other temperature ranges can be ordered.
Night set-back:	0...10 K.

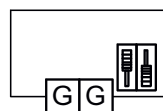
### Dimensions and Wiring



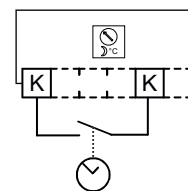
Supply voltage and load



Internal setpoint and sensor



Night set-back function



Other connectivity options are described in the tech. manual

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