PULSER

Triac controller for electric heating
Single phase or two phase

PULSER® is an electric heating controller for controlling electric heating batteries, electric panels etc. The controller can be connected to single phase or two phase.

* PULSER is a complete controller with built-in sensor and setpoint adjustment.
* External sensor and external setpoint can be connected.
* For loads up to 3.6kW (230 V) or 6.4kW (400 V).
* Automatic adaption of control function, P or PI-control.
* Automatic adaption to connected supply voltage 200 - 415 V.
* Adjustable night set-back 0...10K.

Function

PULSER is an electric heating controller (triac control) for single phase or two phase (200 - 415 V) electric heating. It is intended primarily for wall mounting and is connected in series between power supply and an electric heater, for example an electric heating battery or electric panel.

PULSER has a built-in temperature controller with input for an external sensor which is placed in a supply-air duct or in a room, for example. For controlling room temperature the built-in sensor in PULSER can be used.

Function
The controller pulses the entire power output ON/OFF. The controller utilises time-proportional control, the ratio between On-time and Off-time is varied to fit the prevailing heating requirement e.g. ON = 30 s and OFF = 30 s gives 50% output power.The cycle-time (the sum of on-time and off-time) is fixed approx 60s.

This control accuracy contributes to reduced energy costs and to the increased comfort of 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 .

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

Supply air temperature control
For rapid temperature changes, PULSER will work as a PI-controller with a fixed proportional band of 20K and a fixed reset time of 6 minutes.

Room temperature control
For slow temperature changes PULSER will work as a P controller with a fixed proportional band of 2K.

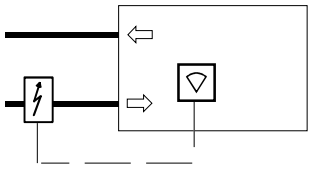
Night set-back
PULSER can, via an external time switch, provide an adjustable night set-back. On closure of the time-switch contact the PULSER set-point is lowered by the set value, 0...10K.

Controlling larger electric heaters
When the electric heater is larger than the capacity of PULSER the load can be split and controlled by PULSER in combination with the ancillary unit PULSER-ADD, see separate leaflet.

Adjustment of minimum and maximum limit control
When minimum or maximum limiting of the supply air temperature is required use PULSER-M.

Application examples

To control electric heaters in airconditioning or ventilation systems for individual room temperature control. A duct heater controlled by a PULSER as supplement to a heatexchanger with the sensor in the room or in the duct easily provides the exact room temperature required.



Technical data

General

Supply voltage	200... 415 V AC 50-60 Hz, single or two phase. Automatic adaption.
Power output	Maximum 16A, minimum 1A
Ambient temperature	Maximum 30°C with no condensation. N.B. Pulser generates 20W.
Storage temperature	-40 - +50°C.
Ambient humidity	90% RH maximum.
Dimension (w x h x d)	94 x 150 x 43 mm.
Form of protection	IP20
CE	This product conforms with the requirements of European EMC standards CENELEC EN 50081-1 and EN 50082-1, European LVD standards IEC 669-1 and IEC 669-2-1 and carries the CE mark.

Control unit parameters

Proportional band	20K, fixed (Rapid temperature changes i.e. supply air control).
Reset time	6 minutes, fixed (Rapid temperature changes i.e. supply air control).
Proportional band	1,5K, fixed (Slow temperature change i.e. room control.
Pulse period	60 seconds, fixed.
Indicator	LED that is lit when power is pulsed to the heater.

Inputs

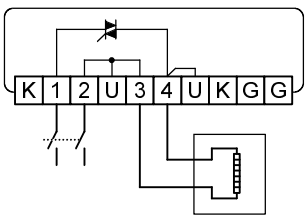
Sensor	One (1) input for main sensor. See Section 6-100 for choice of sensor.
Setpoint	Selectable, either internal setpoint potentiometer or external setting device.

Settings

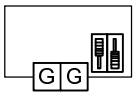
Setpoint	0...30°C. The choice of sensor determines the controller setpoint range.
Night set-back	0...10K

Dimension and wiring

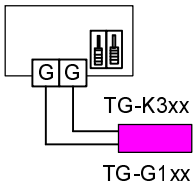
Supply voltage and load



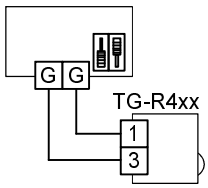
Internal setpoint and sensor



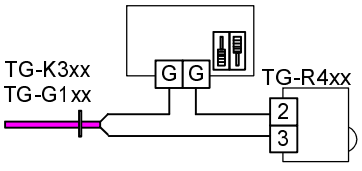
External sensor and internal setpoint



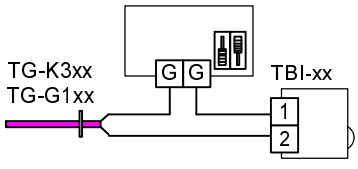
Room control using TG-R4XX as sensor and setpoint



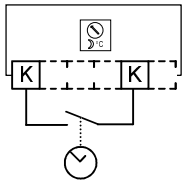
External separate sensor and TG-R4XX as setpoint



External separate sensor and potentiometer TBI-XX as setpoint



Night set-back



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