CTR/D

Triac controller for electric heating
Single phase or two phase

CTR/D is an electric heating controller for controlling electric heating batteries, electric panels etc. The controller can be connected to single phase or two phase 210 ... 415 V AC.

* CTR/D is intended for DIN-rail mounting in a cabinet.
* For loads up to 3.6kW (230 V) or 6.4kW (400 V).
* Automatic adaption of control function, P or PI-control.
* Automatic adaption for supply voltage 200 - 415 V.
* Night set-back 5K.

Function

CTR/D is an electric heating controller (triac control) for single phase or two phase (200 - 415 V) electric heating.
It is intended primarily for DIN-rail mounting in a cabinet and is connected in series between power supply and an electric heater, for example an electric heating battery or electric panel.

CTR/D has a built-in temperature controller with input for a sensor placed in a supply-air duct or in a room, for example.

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 at approximately 60 seconds.

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.

CTR/D automatically adapts control mode to suit the dynamics of the controlled object.

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

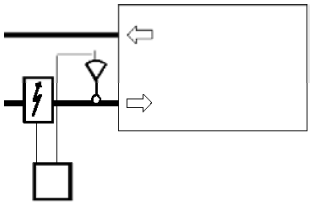
Room temperature control
For slow temperature changes CTR/D will work as a P-controller with a fixed proportional band of 2K.

Night set-back
CTR/D can provide night set-back via an external time switch. On closure of the time-switch contact the CTR set-point is lowered by 5 K.

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

Application example

To control electric heaters in airconditioning or ventilation systems for individual room temperature control. A duct heater controlled by a CTR/D with the sensor in the room or in the duct easily provides the exact 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 40°C with no condensation. N.B. CTR/D generates 20W of heat
Storage temperature	-40 - +50°C
Ambient humidity	90% RH maximum
Dimension (w x h x d)	115 x 88 x 59 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	2K, fixed (Slow temperature change i.e. room control)
Pulse period	60 seconds, fixed
Night set-back	5K
Indicator	LED that is lit when power is pulsed to the heater

Inputs

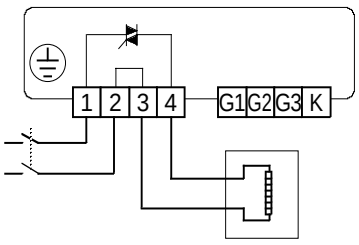
Sensor	One (1) input for main sensor.
Setpoint	Selectable, either internal setpoint potentiometer or external setting device

Setting

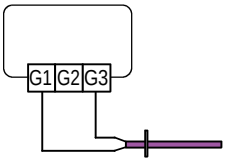
Setpoint	0...30°C. The choice of sensor determines the controller setpoint range

Dimension and wiring

Supply voltage and load



External sensor and internal setpoint



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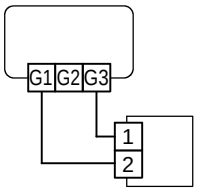
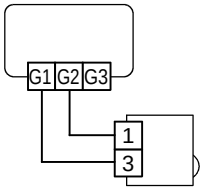
Room sensor and internal setpoint

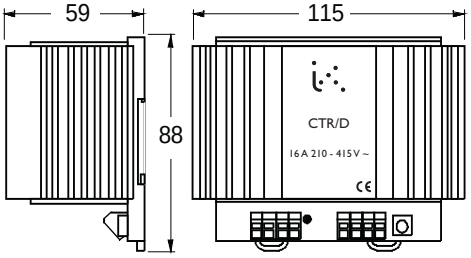


SA-NTC15-01

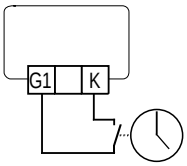
Room sensor using SAP-NTC15-01-3 as external sensor and setpoint



SAP-NTC15-01-3

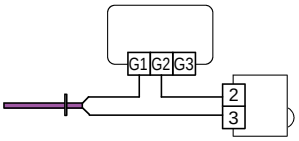


Night set-back 5 K function



External sensor	Range
STCC-NTC15-01	0...+30 °C
STCC-NTC15-02	0...+60 °C
STCC-NTC15-03	+20...+50 °C
STCC-NTC15-04	0...+40 °C

External separate sensor and SAP-NTC15-01-3 as setpoint



STCC-NTC15-xx SAP-NTC15-01-3