



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

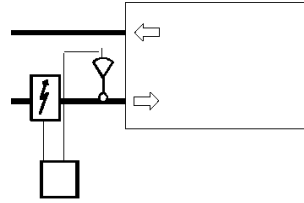
CTR/D can provide night set-back via an external time switch. On closure of the time-switch contact the CTR set-point is lowered by 5 K.

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 |



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

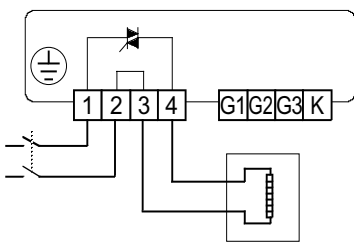
| | |
|----------|---|
| Sensor | One (1) input for main sensor. |
| Setpoint | Selectable, either internal setpoint potentiometer or external setting device |

Setting

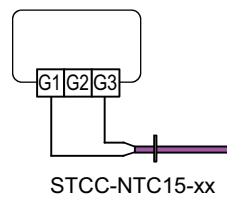
| | |
|----------|---|
| Setpoint | 0...30°C. The choice of sensor determines the controller setpoint range |
|----------|---|

Dimension and wiring

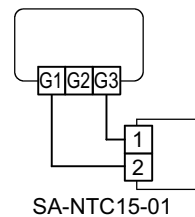
Supply voltage and load



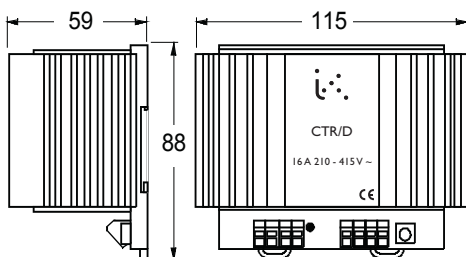
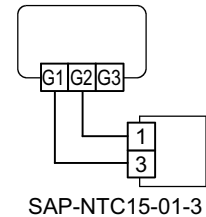
External sensor and internal setpoint



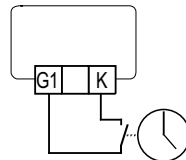
Room sensor and internal setpoint



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

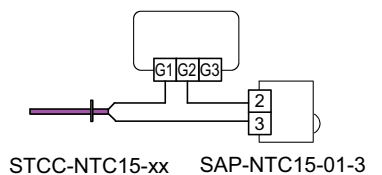


Night set-back 5 K function



| 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



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