



**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

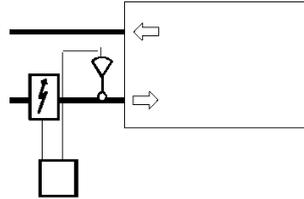
CTR/D can provide night set-back via an external time switch. On closure of the time-switch contact the CTR set-point is lowered by 5 K.

### 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

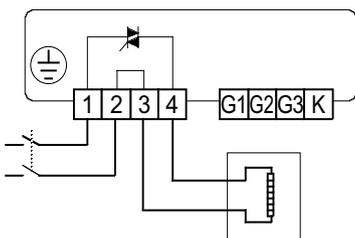
Sensor	One (1) input for main sensor.
Setpoint	Selectable, either internal setpoint potentiometer or external setting device

### Setting

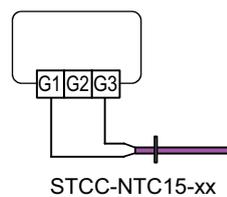
Setpoint	0...30°C. The choice of sensor determines the controller setpoint range
----------	---

## Dimension and wiring

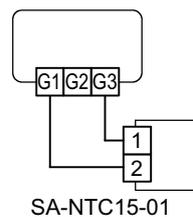
### Supply voltage and load



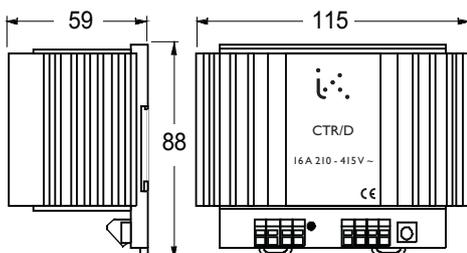
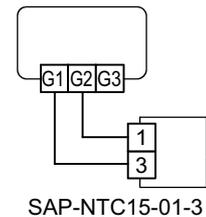
### External sensor and internal setpoint



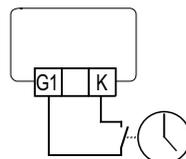
### Room sensor and internal setpoint



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

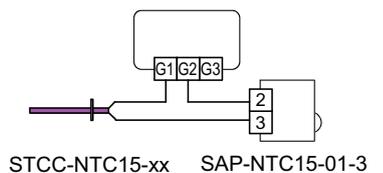


### Night set-back 5 K function



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



### AB Industrietechnik Srl

Via Julius Durst, 70 - 39042 Bressanone (BZ) - Italy  
 Tel. +39 0472/830626 - Fax +39 0472/831840  
 E-mail: info@industrietechnik.it  
 Homepage: www.industrietechnik.it

