CTR80

3-phase controller for electric heating, 400 V / 80 A

CTR80 is a 3-phase controller intended for time-proportional control of electric heaters, radiators, etc. The controller is capable of controlling both D- and Y-connected loads.

- **3-phase 400 V AC +/- 10%, max. 55 kW**
- **PI-control for supply air control and P-control for room control**
- **Can be controlled with external 0...10Vcontrol signal**
- **For DIN-rail mounting**
- **Settable min. and max. limitation**
- **Adjustable cycle time**

CTR80 is a 3-phase triac controller for control of electric heaters. The device is connected in series between the power supply and an electric heater or radiator.

CTR80 has a temperature controller with inputs for sensors placed, for instance, in a supply air duct or room. It can also be controlled using an external control signal.

The controller utilises stepless, time-proportional control. I.e.: the ratio between on-time and off-time is varied in order to fit the present heating requirement.

Example: A controller output of 50 % will equal an on-time of 30 s and an off-time of 30 s if the cycle time is 60 s. The cycle time is adjustable 6...120 s.

Triac control is considerably more accurate than on/off control, meaning increased heating comfort and lowered energy costs.

CTR80 has a built-in function for automatically adaptating the control mode as needed:

Supply air control

For rapid temperature changes, the supply air controller will function as a PI-controller. The P-band will be 20K with an I-time of 6 minutes.

Room temperature control

For slower temperature changes, the room controller will function as a P-controller. The P-band will be 1.5K. The supply air controller will retain the same settings as before. During room temperature control, the supply air temperature can be provided with a min. or max. limitation.

Control of larger loads

In cases where the electric heater is larger than the capacity of CTR80, the load can be divided and controlled by use of a SC4 or SC6 step controller in combination with the CTR80.

External control signal

CTR80 can also be run against a 0...10 V DC control signal from another controller. 0 V input signal will give 0 % output and 10 V input will give 100 % output.

Minimum and maximum limit functions are not active when using an external control signal.

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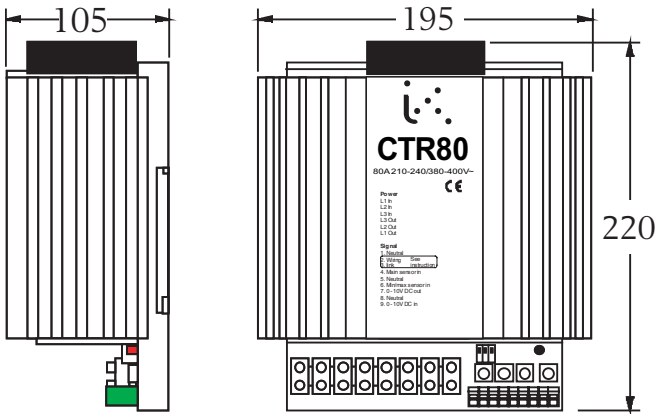
Technical data

Supply voltage	3-phase, 400V AC. Automatic adaptation
Power output	Max. 80 A, min. 4 A/phase. At 400 V, max. effect will be 55 kW
Safety function	The feed to the TTC should be interlocked with a high temp. limit switch
Power emission	150 W at full load
Cycle time	Factory setting 60 sec. Adjustable 6...120 sec
Indicator	Red LED, lit when power is pulsed to heater
Ambient temperature, operation	0...40°C
Ambient humidity	Max 90 %rH
Storage temperature	-40...+50°C
Protection class	IP20
CE	**Low Voltage Directive (LVD) standards:** This product conforms to the requirements of the European Low Voltage Directive (LVD) 2006/95/EC through product standard EN 60730-1. **EMC emissions & 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 with the Directive 2011/65/EU of the European Parliament and of the Council.
Control unit	
Sensor inputs	Main and min./max. sensor. Min./max. sensor: working range 0...60°C
Main setpoint	0...30°C. Other areas dependant on connected sensor. Includes external setpoint (e.g. SAP-NTC15-01-3)
Control parameters, primary control	Rapid control circuits: PI-function with a P-band of 20K and I-time of 6 minutes. Slower control circuits: P-function with a P-band of 1.5 K
Setpoint, min. limitation	0...30°C
Setpoint, max. limitation	20...60°C
Control parameters, limitation	PI-function with a P-band of 20K and an I-time of 6 minutes
Output signal, controller	0...10 V. Connected to control input of output unit by wire strap (terminal 7-9)

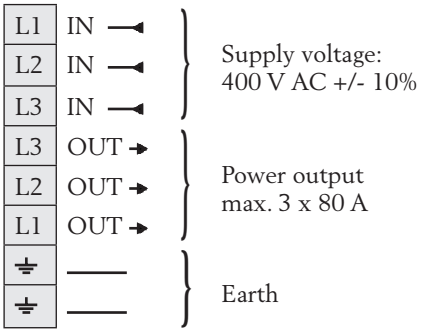
Dimensions



mm

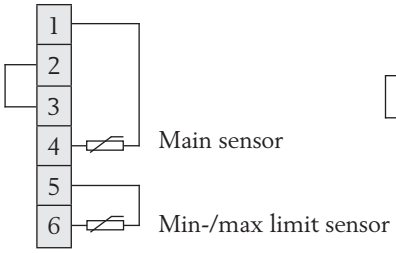
Wiring

Power

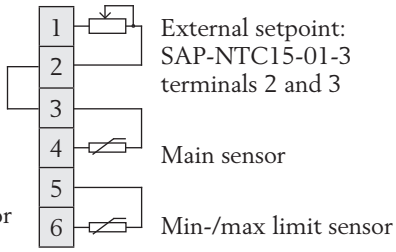


NOTE: When controlling Y-connected loads, the load must be symmetric and the signal neutral must not be connected!

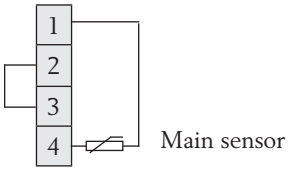
Room temperature control



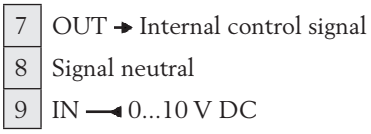
Room temperature control with external setpoint



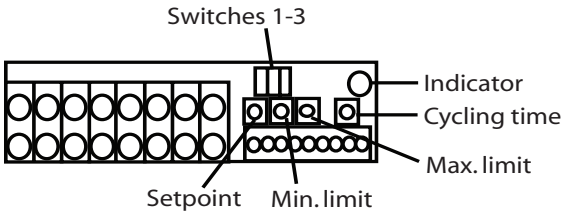
Constant supply air



External signal 0...10 V DC



Terminals 7 and 9 are connected by a factory-mounted wire strap. Remove the wire strap when using external control signal.



Operating switches:

1 - Setpoint:
Up: Built-in setpoint
Down: External setpoint

2 - Min. temp. limit.:
Up: Activated
Down: Deactivated

3 - Max. temp. limit.:
Up: Activated
Down: Deactivated

Min. and max. limit. function can be active simultaneously

Product documentation

Document	Type
Instruction CTR80	Instruction for CTR80

The documents can be downloaded from www.industrietechnik.it.

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