



# CSTTC40F

3-phase controller for electric heating,  
230 or 400V / 40 A

**CSTTC40F 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.**

- Built-in temperature controller with 0...10V signal for control of output unit
- Automatic adaptation to connected 230 or 400V supply voltage
- Model TTC40FX is intended for control using an external 0...10V control signal

CSTTC40F 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.

CSTTC40F 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...60 s.

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

- For DIN-rail mounting
- Settable min. and max. limitation
- Adjustable cycle time

CSTTC40F has a built-in function for automatically adapting 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 CSTTC40F, the load can be divided and controlled by use of a CSTT-S4/D or CSTT-S6/D step controller in combination with the CSTTC40F. Slave control of one or more CSTTC25X / CSTTC40FX units via the CSTTC40F is also possible.

#### CSTTC40FX

This electric heating controller is intended only for control using an external 0...10V control signal. For this reason, it does not offer a built in control unit. It is otherwise identical to the CSTTC40F.

## Models

Model	Description
<b>CSTTC40F</b>	Triac controller featuring built-in temperature controller
<b>CSTTC40FX</b>	Triac controller for external 0...10V control signal

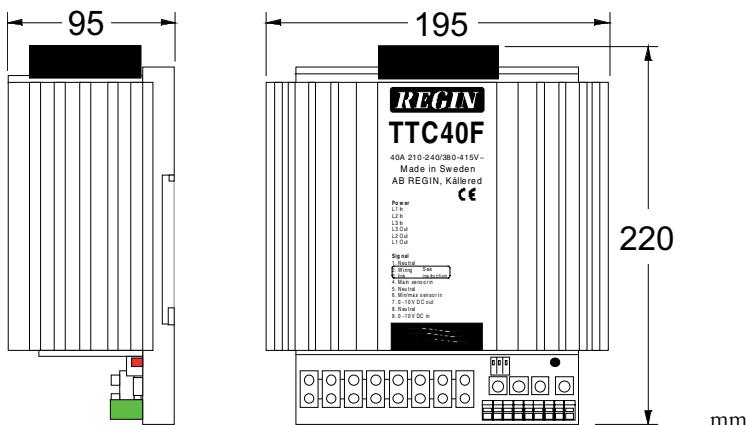
## Technical data

Supply voltage	3-phase, 210...255 / 380...415 V AC. Automatic adaptation
Power output	Max. 40 A, min. 4 A/phase. At 400 V, max. effect will be 27 kW
Safety function	The feed to the TTC should be interlocked with a high temp. limit switch
Power emission	70 W at full load
Cycle time	Factory setting 60 sec. Adjustable 6...60 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
<b>CE</b>	<p><b>Low Voltage Directive (LVD) standards:</b> This product conforms to the requirements of the European Low Voltage Directive (LVD) 2006/95/EC through product standard EN 60730-1.</p> <p><b>EMC emissions &amp; immunity standards:</b> 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.</p> <p><b>RoHS:</b> This product conforms with the Directive 2011/65/EU of the European Parliament and of the Council.</p>

### Control unit

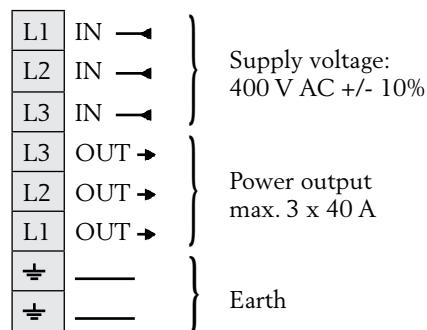
Sensor inputs	Main and min./max. sensor. Min./max. sensor: working range 0...60°C 0...30°C. Other areas dependant on connected sensor.
Main setpoint	Includes external setpoint (e.g. TG-R430)
Control parameters, primary control	Rapid control circuits: PI-function with a P-band of 20K and I-time of 6 minutes. 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)
<b>CSTTC40FX</b>	
Control input	For external control signal 0...10 V. No integrated control unit. No function for min. and max. limitation. Other technical data as above

## Dimensions

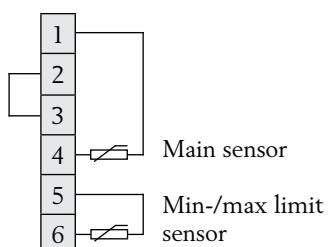


## Wiring

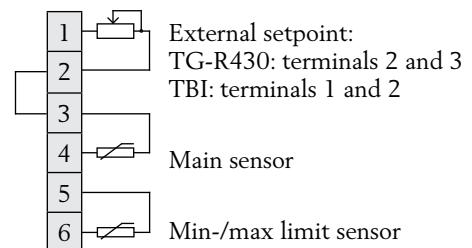
### Power



### Room temperature control

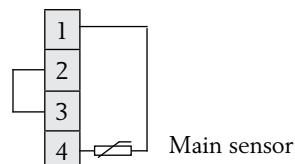


### Room temperature control with external setpoint

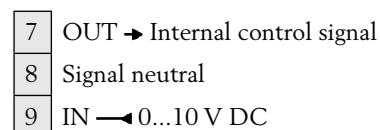


NOTE: When controlling Y-connected loads, the load must be symmetric and the signal neutral must not be connected!

### Constant supply air

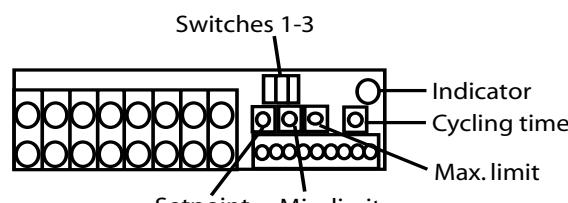


### External signal 0...10 V DC



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

Terminals 1-7 are not present on model TTC40FX.



### 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 CSTTC40F	Instruction for CSTTC40F
Instruction CSTTC40FX	Instruction for CSTTC40FX