

# I- or 2-phase

## I- or 2-phase, 200...415 V

Controllers intended for control of radiators or electric heating coils. They can be mounted on a wall or in a cabinet. The controllers pulse the whole load on/off and utilise time-proportional triac control. Automatic control function adaptation, P- or PI-control.



Wall mounting



DIN-rail mounting

Technical data	
Supply voltage	200...415 V AC, 50...60 Hz, 1- or 2-phase, automatic adaptation
Ambient temperature	Max. 30°C (NOTE! Pulsar generates 20 W heating at full load.)
P-band	20 K (rapid temperature changes) 1,5 K (slow temperature changes)
I-time	6 min (rapid temperature changes)
Pulse period	60 s
Inputs/outputs (I/Os)	
Sensor	One main sensor or two main sensors (only PULSER-M)
Setpoint	0...30°C (the sensor determines the temperature range (Regin NTC sensor))
Night setback	0...10 K
Output (load)	16 A (min. 1 A) 1-phase max. 3.6 kW) 2-phase max. 6.4 kW

With automatic adaptation to 230 V AC or 400 V AC

Article	Description	Mounting	Number of modules	Protection class
PULSER	Electric heating controller	Wall	-	IP30
PULSER/D	Electric heating controller	DIN-rail	6.6 (115 x 88 x 59)	IP20
PULSER-ADD	Add-on unit	Wall	-	IP30
PULSER-M	Electric heating controller with min./max. limitation	Wall	-	IP30
PULSER-X/D	Electric heating controller for external 0...10 V DC control signal	DIN-rail	6.6 (115 x 88 x 59)	IP30

I-phase (230 V AC) or 2-phase (400 V AC)

Article	Description	Supply voltage	Mounting
PULSER220X010	Electric heating controller for external 0...10 V DC control signal	230 V AC	Wall
PULSER380X010	Electric heating controller for external 0...10 V DC control signal	400 V AC	Wall

### I-phase, 230V and 24V, LON communication



PULSER-HC-LON is a room controller based on LON technology. It has a triac output for control of electric heating (10 A) and an extra output (cooling or heating) for 3-position or 24 V AC thermal actuators. The controller has a built-in sensor and a setpoint knob. The setpoint can be adjusted by  $\pm 3^{\circ}\text{C}$ . An external sensor or setpoint device can also be used.

PULSER-HC-LON has three different running modes, present, not present and standby. It is possible to set the basic setpoint to different values for heating and cooling. A window contact can be used to block the control when a window is open.

Technical data	
Supply voltage	1-phase, 230 V AC and 24 V AC
Output (load)	10 A
Setpoint	0...30°C (the sensor determines the temperature range (Regin NTC sensor))
Setpoint adjustment	$\pm 3^{\circ}\text{C}$
Load (extra output)	24 V AC, 3-point or one on/off, 0.5 A
Mounting	Wall
Protection class	IP30

Article	Description
PULSER-HC-LON	Room controller with LON communication, heating or cooling in sequence

## 3-phase

### 3-phase, 210...415 V, 25 A, wall mounting

TTC2000 can be used with internal or external setpoint. Automatic control function adaptation, P- or PI-control. The controller can also be set to be controlled by an external 0...10 V DC signal.



Technical data	
Supply voltage	3-phase, 210...255 / 380...415 V AC, automatic adaptation
Setpoint	0...30°C (the sensor determines the range)
Max. load	Max. 25 A, min. 3 A/phase
Sensor inputs	Two, main and min./max. limiting sensors (Regin NTC sensor)
Control signal	0...10 V DC (external signal)
Mounting	Wall
Protection class	IP30
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time (supply air temperature control)	6 min, fixed
Pulse period	6...120 s

Article	Description
TTC2000	Electric heating controller



To control extra loads, the slave board TT-S1 can easily be mounted into the unit.

## 210...415 V, 25 A, DIN mounting



For control of electric heating coils or radiators. The controllers pulse the whole load on/off and utilise time-proportional triac control. Automatic control function adaptation, P- or PI-control. The controllers can also be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 210...255 / 380...415 V AC, automatic adaptation
Ambient temperature	0...40°C
Mounting	DIN-rail
Dimensions (WxHxD)	195 x 200 x 95 mm
Protection class	IP20
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time	6 min, fixed
Pulse period	6...60 s
Load	25 A
Output	25 A, 3 x 400 V AC, 17 kW (3 x 230 V, 10 kW)
Inputs	
Setpoint	0...30°C (the sensor determines the range) NOTE: Does not apply to TTC25X.
Sensor inputs	Two, main and max./min. limiting sensors (Regin NTC sensor). Note: Does not apply to TTC25X.
Control signal	0...10 V DC

Article	Description	For use with Regin NTC sensor	For external 0...10 V DC control signal only	External 0...10 V DC control signal option
TTC25	Electric heating controller with temperature control	X	-	X
TTC25X	Electric heating controller	-	X	-



To control larger electrical loads, see the step controllers TT-S4/D and TT-S6/D.

## 210...415 V, 40 A, DIN mounting



For control of electric heating coils or radiators. The controllers pulse the whole load on/off and utilise time-proportional triac control. Automatic control function adaptation, P- or PI-control. The controllers can also be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 210...255 / 380...415 V AC, automatic adaptation
Ambient temperature	0...40°C
Mounting	DIN-rail
Dimensions (WxHxD)	195 x 220 x 95 mm
Protection class	IP20
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time	6 min, fixed
Pulse period	6...60 s
Load	40 A
Output	40 A, 3 x 400 V AC, 27 kW (3 x 230 V, 16 kW)
Inputs	
Setpoint	0...30°C (the sensor determines the range) Note: Does not apply to TTC40FX.
Sensor inputs	Two, main and max./min. limiting sensors (Regin NTC sensor). Note: Does not apply to TTC40FX.
Control signal	0...10 V DC

Article	Description	For use with Regin NTC sensor	For external 0...10 V DC control signal only	External 0...10 V DC control signal option
TTC40F	Electric heating controller with temperature control	X	-	X
TTC40FX	Electric heating controller	-	X	-



To control larger electrical loads, see the step controllers TT-S4/D and TT-S6/D.

## 210...415 V, 63 A, DIN mounting



For control of electric heating coils or radiators. The controller pulses the whole load on/off through time-proportional triac control. Automatic control function adaptation, P- or PI-control. The controller can also be set to be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 400 V AC
Ambient temperature	0...40°C
Mounting	DIN-rail
Dimensions (WxHxD)	195 x 220 x 105 mm
Protection class	IP20
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time	6 min, fixed
Pulse period	6...120 s
Load	63 A
Output	63 A, 3 x 400 V AC, 43 kW
Inputs	
Setpoint	0...30°C (the sensor determines the range)
Sensor inputs	Two, main and max./min. limiting sensors (Regin NTC sensor).
Control signal	0...10 V DC

Article	Description	For use with Regin NTC sensor	For external 0...10 V DC control signal only	External 0...10 V DC control signal option
TTC63F	Electric heating controller with temperature control	X	-	X



To control larger electrical loads, see the step controllers TT-S4/D and TT-S6/D.

## 210...415 V, 80 A, DIN mounting



For control of electric heating coils or radiators. The controller pulses the whole load on/off through time-proportional triac control. Automatic control function adaptation, P- or PI-control. The controller can also be set to be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 400 V AC
Ambient temperature	0...40°C
Mounting	DIN-rail
Dimensions (WxHxD)	195 x 220 x 105 mm
Protection class	IP20
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time	6 min, fixed
Pulse period	6...120 s
Load	80 A
Output	80 A, 3 x 400 V AC, 55 kW
Inputs	
Setpoint	0...30°C (the sensor determines the range)
Sensor inputs	Two, main and max./min. limiting sensors (Regin NTC sensor).
Control signal	0...10 V DC

Article	Description	For use with Regin NTC sensor	For external 0...10 V DC control signal only	External 0...10 V DC control signal option
TTC80F	Electric heating controller with temperature control	X	-	X



To control larger electrical loads, see the step controllers TT-S4/D and TT-S6/D.

## Accessories

### Slave board for TTC2000



TT-S1 is intended for use together with the electric heating controller TTC2000, in order to control extra loads.

Article	Description
TT-S1	Slave board for control of extra loads (+17 kW)

### Scales and knobs for Pulser and TTC

Alternative setpoint scales and knobs, when using sensors with other temperature ranges.

#### Scales for TTC25/40 and Pulser/D

Article	Description	Temperature range
SKALA-3933	Scales for TTC25/40 and Pulser/D	20...50°C
SKALA-3934	Scales for TTC25/40 and Pulser/D	40...70°C
SKALA-3935	Scales for TTC25/40 and Pulser/D	60...90°C

#### Knobs for TTC2000

Article	Description	Temperature range
TRY-RATT-3608	Knobs for TTC2000	20...50°C
TRY-RATT-3609	Knobs for TTC2000	40...70°C
TRY-RATT-3610	Knobs for TTC2000	60...90°C

#### Knobs for Pulser

Article	Description	Temperature range
TRY-RATT-2271	Knobs for Pulser	0...30°C
TRY-RATT-1588	Knobs for Pulser	20...50°C
TRY-RATT-1589	Knobs for Pulser	40...70°C
TRY-RATT-1590	Knobs for Pulser	60...90°C



### Step controller, 4- or 6-stage



Controllers intended for control of electric heating coils, four or six relays. The controller can be set to sequential or binary control. It can be used with any controller with an 0...10 V DC or 10...2 V DC output signal. 2 V DC output signal.

The required number of steps is set by means of the rotating switch on the front. The 0...10 V DC input signal is divided up into the number of steps, thus setting the switch-on point for each step. Relay 6 on TT-S6/D can be used as a time-lag relay to delay shut-off of the fan when shutting down the system (3 min. delay).

The step controllers also have an analogue output (0...10 V) for control of an electric heating controller (TTC or similar) to give proportional heating between steps.

Technical data	
Supply voltage	24 V AC, 6 VA
Output	4 alt. 6 relays (closing), binary or sequential control
Input signal	0...10 V DC
Output signal	0...10 V DC
Mounting	DIN-rail
Number of modules	6
Protection class	IP20

Article	Description	Run-on time
TT-S4/D	Step controller with 4 relays	-
TT-S6/D	Step controller with 6 relays	3 min