Controls for HVAC applications

The Pulser controllers are intended for control of radiators or electric heating batteries. They can either be mounted on a wall or in a cabinet. Humidistats are used for controlling humidifying and/or dehumidifying in HVAC systems. The humidistats have human hair or a synthetic element as sensor medium.

SINUS JEVI

Liquids Gasses Solids Spaces Resistors

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Electric Heating Controllers

Wall mounting

DIN-rail mounting

The Pulser controllers are intended for control of radiators or electric heating batteries. They can either be mounted on a wall or in a cabinet. The controllers pulse the entire power output ON/OFF and utilise time-proportional triac-control. Automatic adaption of control function, P or PI-control.

- Automatic adaption of control function and supply voltage
- 1-phase or 2-phase supply

Technical data	
Supply voltage	200... 415 V AC, 50... 60Hz, 1-phase or 2-phase, automatic adaption
Ambient temperature	Max. 30°C (N.B. Pulser generates 20W heating at full load).
P-band	20 K (Rapid temperature changes) 1.5 K (Slow temperature changes)
Reset-time	6 min (Rapid temperature changes)
Pulse period	60 s
Inputs	
Sensor	One (1), main sensor or two (2) (Only Pulser-M)
Setpoint	0...30°C, the sensor determines the scale range (NTC-sensor)
Night set-back	0... 10 K
Output (load)	16 A (1 A) 1-phase max. 3.6kW, 2-phase max 6.4 kW
Mounting	DIN-rail or wall-mounting
Protection class	IP30 (PULSER/D IP20)

For automatic adaption both 230 V AC or 400 V AC

Description	**Mounting**	**Type**
Basic model	Wall	PULSER
Basic model	DIN-rail, 6.6 modules (115x88x59)	PULSER/D
ADD-on unit	Wall	PULSER-ADD
With min/max limitation	Wall	PULSER-M
For external control signal 0... 10 V DC	DIN-rail, 6.6 modules (115x88x59)	PULSER-X/D

1-phase, 230 V AC or 2-phase, 400 V AC

Description	**Supply Voltage**	**Mounting**	**Type**
With reset function for heater high temperature limit	230 V AC	Wall	PULSER220R
For external control signal 0... 10 V DC	230 V AC	Wall	PULSER220x010
For external control signal 0... 10 V DC	400 V AC	Wall	PULSER380x010

Electric Heating Controllers

Pulser-DSP is a room controller intended for electric heating control. The controller can be connected to 1-phase or 2-phase electric heating i.e. electric batteries, radiators etc. Pulser-DSP has a built-in sensor and an external sensor can be used, as well. Presence detector can be connected for control of so called comfort heating. This means that, when the room is empty, the controller is set to stand-by position with reduced setpoint. Setpoint, P-band and stand-by settings etc. are set by using the buttons on the controller.

- With display
- Adjustable P-band and I-time

Technical data	
Supply voltage	200... 415 V AC, automatic adaption
Output (load)	2.3 kW at 230 V AC, 4 kW at 400 V AC
Settings	
Setpoint	0...30°C, the sensor determines the scale range (NTC-sensor)
Comfort heating	0...30°C
Stand-by temperature	0...30°C
P-band	0.5...99.9 k
I-time	1...999 s
Presence detection	On/Off
Mounting	Wall-mounting
Protection class	IP30

Pulser-LON is a room controller based on LON-technology. It has a triac output for controlling electric heating (10 A) and an extra output (cooling or heating), 3-position or 24 V AC thermal actuator. The controller has a built in sensor and setpoint knob. The setpoint can be shifted +/- 3°C. An external sensor or setpoint device can also be used. Pulser-LON can operate in different running modes: present, nonpresent and stand-by. The basic set-point can be shifted with different values for heating and cooling. A window contact can be used to block the control when a window is open.

- With LonWorks communication
- Heating and cooling

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 scale range (NTC-sensor)
Setpoint adjustment	+/-3°C adjustment
Load (extra output)	24 V AC, 3-point or one on/off, 0.5 A
Mounting	Wall mounting
Protection class	IP30

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

Electric Heating Controllers

The controller TTC2000 is designed for wall-mounting and can be used with internal or external setpoint. Automatic adaption of control function, P or PI control. The controller can also be set to be controlled by an external 0...10 V DC signal. To control extra load the slave board TT-S1 can be easily mounted into the unit.

- 3-phase
- Wall mounting

Technical data	
Supply voltage	3-phase, 210...255 / 380...415 V AC, automatic adaption
Setpoint	0... 30°C, the sensor determines the scale range
Max load	Max 25 A, min 3 A / phase
Sensor inputs	Two (2), main- and min/max limit sensors (NTC-sensor)
Control signal	0... 10 V DC (external signal)
Mounting	Wall-mounting
Protection class	IP30

Description	
Controller for electric heating	TTC2000

Slave Board

The slave board TT-S1 is intended to be used together with the electric heating controller TTC2000 in order to control extra loads.

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

Scales and knobs for Pulser and TTC

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

Scales for TTC25/40 and Pulser/D	Temperature range	Type
Temperature range	20...50°C	3933
Temperature range	40... 70°C	3934
Temperature range	60...90°C	3935
Knobs for TTC2000		
Temperature range	20... 50°C	3608
Temperature range	40... 70°C	3609
Temperature range	60... 90°C	3610
Knobs for Pulser		
Temperature range	0... 30°C	2271
Temperature range	20... 50°C	1588
Temperature range	40... 70°C	1589
Temperature range	60... 90°C	1590

Electric Heating Controllers

TTC25

These TTC-electric heating controllers are intended for control of electric heating batteries or radiators. The controller pulses the entire power output ON/OFF and utilise time-proportional triac control. the controller is intended for DIN-rail mounting. Automatic adaption of control function, P or PI control. It can also be set to be controlled by an external 0... 10 V DC signal.

- 3-phase
- DIN-rail

TTC40F

TTC63F

Technical data	
Supply voltage	
TTC25... 40	3-phase, 210... 255 / 380... 415 V AC, automatic adaption
TTC63... 80	3-phase, 400 V AC
Output	
TTC25...	25 A, 400 V AC, 17 kW (230 V, 10 kW)
TTC40...	40 A, 400 V AC, 27 kW (230 V, 16 kW)
TTC63F	63 A, 400 V AC, 43 kW
TTC80F	80 A, 400 V AC, 55 kW
Setpoint	0... 30°C (sensor determines the scale range) N.B. Not on TTC... X models
Sensor inputs	Two (2), main- and max, min limit sensors (NTC sensor) N.B. Not on TTC... X models
Control signal	0... 10 V DC
Mounting	DIN-rail
TTC25...	195x100x95, 11.2 modules
TTC40...	195x220x95, 11.2 modules
TTC63F	195x220x95, 11.2 modules
TTC80F	195x220x102, 11.2 modules
Protection class	IP20

TTC80F

Description	Load	Type
TTC-electric heating controllers with temperature controller, also for 0... 10 V DC control signal	25 A	TTC25
TTC-electric heating controllers for external control signal 0... 10 V DC only	25 A	TTC25X
TTC-electric heating controllers with temperature controller, also for 0... 10 V DC control signal	40 A	TTC40F
TTC-electric heating controllers for external control signal 0... 10 V DC only	40 A	TTC40FX
TTC-electric heating controllers with temperature controller, also for 0... 10 V DC control signal	63 A	TTC63F
TTC-electric heating controllers with temperature controller, also for 0... 10 V DC control signal	80 A	TTC80F

! To control larger electrical loads see step controllers TT-S4/D and TT-S6/D

Sensors & Switches - Humidity

Humidity transmitters have a capacitive thin-film element that gives a signal that is proportional to the relative humidity (RH). The measuring element rapidly responds to changes in humitity and can be subjected to up to 100% RH without being damaged.

- High accuracy and rapid response
- Good long-term stability
- Resistant to contamination
- Supply voltage: 24 V AC or 15... 35 V DC
- Automatic adaption to the connected voltages
- Room, wall or duct mounting
- Available as single humidity transmitters or as combined humidity and temperature transmitter

The HRTN series - Room humidity/temperature transmitters, wall mounting with or without display

Output	0... 10 V DC or 4... 20 mA
Working range Humidity	0... 90% RH
Working range temp.	0... 50°C
Accuracy humidity	±2% RH (40... 60% RH) otherwise ±3% RH
Accuracy Temp.	±0.25 K and ±0.4 K depending on type
Protection class	IP 30

The HRT series - Wall humidity/temperature transmitters, wall mounting

Output	0... 10 V DC or 4... 20 mA
Working range HRT350 series	
Humidity	20... 90% RH
Temperature	0... 50°C
Working range HRT250 series	
Humidity	0... 100% RH
Temperature	-20... +80°C
Accuracy / humidity	
HRT350 series	±3% RH (40... 60% RH) otherwise ±5% RH
HRT250 series	±2% RH (40... 60% RH)
Accuracy/temperature	
HRT350 series	±0.5K at 20°C
HRT250 series	±0.2 K at 20°C
Protection class	IP65

The HDT series - Duct humidity / temperature transmitters

Output	0... 10 V DC or 4... 20 mA
Working range HDT2200 series	
Humidity	0... 100% RH
Temperature	0... +50°C
Working range HDT3200 series	
Humidity	20... 95% RH
Temperature	0... +50°C
Accuracy / temperature	
HDT2200 series	±2% RH (±2% RH 90... 100% RH)
HDT3200 series	±3% RH (±5% RH 40... 60% RH)
Accurancy / temperature	
HDT2200 series	±0.4 K at 20°C
HDT3200 series	±0.7 K at 20°C
Protection class	IP65

Humidistats

Humidistats are used for controlling humidifying and/or dehumidifying in HVAC systems. The humidistats have human hair or a synthetic element as sensor medium. The hair stretches as the humidity increases. The changes are transmitted to a micro switch.

- Reliable construction with a high degree of accuracy
- Contacts of the changeover type: 2 step humidistat

The HR-S series - Room humidistats, mechanical

Output	One (1) 230 V AC, 5 A, change-over
Setpoint	35... 95% RH
Hysteresis	7% RH
Mounting	Wall mounting
Protection class	IP 30

The HMH series - Duct/Wall humidistats, mechanical

Output	One (1) or two (2) 10 A, 250V AC, change-over
Setpoint	10... 100% RH
Hysteresis	3% RH
Step differential (HMH2)	0... 25% RH
Mounting	Duct or wall mounting
Protection class	IP 54

The HDI series - Electronic humidistats

Output	One (1) or two (2), 10 A, 250 V AC, change-over
Input	0... 10 V DC
Humidity rangeability	20... 95% RH
Hysteresis	1... 20% RH
Step diff. (HD2)	0... 20% RH
Mounting	DIN-rail 3 modules
Protection class	IP 20

Pressure and Air Flow

Differential pressure switch

The differential switch has a synthetic spring suspended membrane which is linked to a changeover contact. When the differential pressure exceeds the setpoint value the contact switches. the differential pressure switch is used to supervise and monitor fans, filters and air handling units, to control defrosting functions etc.

Pressure transmitters

Pressure and differential pressure transmitters use a ceramic measure beam. The differential pressure affects a membrane that works directly against the measuring beam with a film resistor. When the resistance changes it is converted to a proportional output control signal.

- High degree of accuracy
- Few moving parts - rapid response
- Excellent long-term stability

The DMD series - Differential pressure transmitters for air with LED display

Output	Selectable 0... 10 V DC or 4... 20 mA
Working range	4 selectable ranges 0... 1000 Pa
Accuracy	Better than ±1% at 20°C
Electronic damping	0... 20 s
Protection class	IP 54

The DTV series - Differential pressure switches, for air and non-corrosive gases

Output	5 A (0.8 A) 250 V AC
Working range	Selectable pressure range from 20... 5000 Pa
Max. overload pressure	5000 Pa
Ambient temperature	-20... +85°C
Protection class	IP 54

The DTL series - Differential pressure transmitters for air and non-corrosive gases

Output	0... 10 V DC or 4... 20 mA
Working range	Selectable -50... 5000 Pa
Accuracy	±1% fs
Ambient temperature	0... 70°C
Protection class	IP 54

SINUS JEVI

Sinus is one of the pioneers in the field of explosion proof heating equipment, today we are still operating at the forefront. We manufacture according to ATEX as well as IECEx and EAC directives.

For the production of Ex-proof equipment a PQAN (Product Quality Assurance Notification) is issued by TUV-Nord. Our ISO-9001 and ISO-14001 systems are also monitored by this organisation.

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