

ELECTRIC POWER REGULATION

STS 4 converts 0...10 V signal to one time proportional and up to 3 contact outputs. Each step must be identical in power.

supply	24 Vac, 1 VA
input	0...10 Vdc < 1 mA
output 1	for solid state relay 15 Vdc < 50 mA, time proportional
outputs 2-4	40 Vdc < 100 mA, valid for AR 1 and RY 1 relays
number of steps	selectable, 1-4 pcs
housing	IP20, 11-pole relay housing



TYPE	ART NO.	
STS 4	1140020	electric power controller
PR 50/440	1140030	solid state relay 230...400 Vac, < 25 A, input 8...32 Vdc
PR 10/440	1140060	solid state relay 230...400 Vac, < 10 A, input 3...32 Vdc
PRMK	1140070	solid state relay control signal converter, Vac -> Vdc
AR 1	1183010	relay, normally open (no) contact 230 Vac, 10 A
RY 1	1183020	relay, change-over contact 230 Vac, 10 A

TEMPERATURE CONTROLLERS

HLS 16 is a 1-stage controller for room temperature control. Both heating and cooling are controlled by using the same valve. The function of the valve can be changed by using external (summer/winter) switch connected to the Z1 terminal.

room °C

supply	24 Vac, 2 VA
set point	+18...+24 °C, ±3°C
accuracy	±0,5 °C
outputs A1 (NC) and A2 (NO)	24 Vac, 1 A for thermal actuator
ambient temperature	0...+50 °C
housing	IP20, ABS plastic
mounting	with screws on wall or on a junction box (hole distance 60 mm)



TYPE	ART NO.	
HLS 16	1150160	controller for floor heating/cooling
HLS 16-N	1150161	with display

TEMPERATURE CONTROLLERS

HLS 21 is a 2-stage controller for room temperature control. The controller has one thermal (PWM) actuator stage for both heating and cooling.

room °C

supply	24 Vac, 2 VA
set point	+18...+24 °C, ±3 °C
output A1, cooling	24 Vac < 1 A thermal actuator
output A2, heating	24 Vac < 1 A thermal actuator
ambient temperature	0...+50 °C
housing	IP20, ABS plastic
mounting	with screws on wall or on a junction box (hole distance 60 mm)



TYPE	ART NO.	
HLS 21	1150100	controller with internal temperature sensor
HLS 21-N	1150101	with display
HLS 21-EXT	1150102	controller for an external NTC10 temperature sensor
HLS 21-N-EXT	1150103	controller for an external NTC10 temperature sensor and display

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TEMPERATURE CONTROLLERS

HLS 33 is a room temperature controller with 2 or 3 stages. One stage is for heating and up to two stages for cooling. The controllers can be used with 0...10 V, 3-point or thermal (PWM) actuators.

room °C

supply	24 Vac, 2 VA
set point	+18...+24 °C, ±3 °C
output Y1, cooling	0...10 V / 10...0 V < 2 mA
output Y2, heating	0...10 V / 10...0 V < 2 mA
output A1, cooling	24 Vac < 1 A, 3-point or thermal actuator
output A2, heating	24 Vac < 1 A, 3-point or thermal actuator
ambient temperature	0...+50 °C
housing	IP20, ABS plastic
mounting	with screws on wall or on a junction box (hole distance 60 mm)



TYPE	ART NO.	
HLS 33	1150090	controller with internal temperature sensor
HLS 33-N	1150091	with display
HLS 33-EXT	1150092	controller for an external NTC10 temperature sensor
HLS 33-N-EXT	1150093	for an external NTC10 temperature sensor with display
TH 5	1183090	driver for thermal actuators

External NTC 10 temperature sensor, e.g. TEKHA NTC 10.

TEMPERATURE CONTROLLERS

HLS 44 is a multifunctional controller designed especially for individual room temperature and zone control applications. Controller has a galvanically isolated RS-485 connection for Modbus RTU communication.

room °C

supply	24 Vac/dc, < 1 VA
	NOTE: Only the 0...10 V outputs and Modbus work when using DC supply voltage.
set point	adjusting by push buttons or by Modbus communication
output Y1, VAV	0...10 V < 2 mA
output Y2, fan	0...10 V < 2 mA
output Y3, cooling	0...10 V / 10...0 V < 2 mA
output Y4, heating	0...10 V / 10...0 V < 2 mA
output A1, cooling	24 Vac < 1 A, thermal actuator
output A2, heating	24 Vac < 1 A, thermal actuator
ambient temperature	0...+50 °C
mounting	with screws on wall or on a junction box
housing	IP20



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TYPE ART NO.

HLS 44	1150250	room temperature controller with Modbus communication
FCRY 3	1183070	fan coil relay
HLS 44-SER	1150251	configuration tool for HLS 44

TEMPERATURE CONTROLLERS

HLS 44-V is a multifunctional controller designed especially for individual room temperature and light control applications. Controller has a galvanically isolated RS-485 connection for Modbus RTU communication.

room °C

supply	24 Vac/dc, < 1 VA
	NOTE: Only the 0...10 V outputs and Modbus work when using DC supply voltage.
set point	adjusting by push buttons or by Modbus communication
output Y1, VAV	0...10 V < 2 mA
output Y2, fan	0...10 V < 2 mA
output A1, cooling	24 Vac < 1 A, thermal actuator
output A2, heating	24 Vac < 1 A, thermal actuator
output B1, on/off damper	24 Vac < 0,5 A
output B2, light control	24 Vac < 0,5 A
ambient temperature	0...+50 °C
mounting	with screws on wall or on a junction box
housing	IP20



TYPE ART NO.

HLS 44-V	1150260	room temperature controller for fan coil VAV and lights, Modbus communication
FCRY 3	1183070	fan coil relay
RYVA 16	1183060	relay for fluorescent lamps 230 V, 16 A
HLS 44-SER	1150251	configuration tool for HLS 44

TEMPERATURE CONTROLLERS

HLS 44-3P is a multifunctional controller designed especially for individual room temperature and zone control applications. Controller has a galvanically isolated RS-485 connection for Modbus RTU communication.

room °C

supply	24 Vac/dc, < 1 VA
	NOTE: Only the 0...10 V outputs and Modbus work when using DC supply voltage.
set point	adjusting by push buttons or by Modbus communication
outputs	0...10 V < 2 mA for VAV
	0...10 V < 2 mA for fan
	2 x 24 Vac < 1 A, for thermal actuators or 3-point actuator
	2 x 24 Vac < 0.5 A, for thermal actuators or 3-point actuator
ambient temperature	0...+50 °C
mounting	with screws on wall or on a junction box
housing	IP20



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TYPE ART NO.

HLS 44-3P	1150280	room temperature controller with Modbus communication, 3-point actuator control
FCRY 3	1183070	fan coil relay
HLS 44-3P-SER	1150281	configuration tool for HLS 44-3P

TEMPERATURE CONTROLLERS

HLS 45 is a versatile room controller for individual room temperature and VAV control applications. HLS 45 is excellent for both 2-pipe FCU and floor heating and cooling applications. The controller has a galvanically isolated RS-485 connection for Modbus RTU communication.

room °C

supply	24 Vac/dc, < 1 VA
	NOTE: Only the 0...10 V outputs and Modbus work when using DC supply voltage.
set point	adjusting by push buttons or by Modbus communication
outputs	0...10 V < 2 mA for VAV
	0...10 V < 2 mA for fan
	0...10 V < 2 mA for heating/cooling valve control
	2 x 24 Vac < 1 A for thermal actuators or 3-point actuator
ambient temperature	0...+50 °C
mounting	with screws on wall or on a junction box
housing	IP20, ABS plastic



TYPE ART NO.

HLS 45	1150270	room temperature controller with Modbus communication
FCRY 3	1183070	fan coil relay
HLS 45-SER	1150271	configuration tool for HLS 45

TEMPERATURE CONTROLLERS

PDS 2 is a temperature controller for air handling unit, hot domestic water and heating applications. The controller supports Pt1000 temperature sensors. The thermal actuators can be either 0...10 V controlled or 3-point controlled. The controller has RS-485 connection for Modbus RTU communication.

°C

supply	24 Vac/dc < 2 VA
	NOTE: Only the 0...10 V outputs and Modbus work when using DC supply voltage.
inputs	3 x Pt1000 or 2 x Pt1000 + 1 x potentiometer
	1 x 0...10 V / digital
outputs	3 or 4 x 0...10 Vdc, 2 mA
	4 x 24 Vac 1 A triac
housing	IP20, for 35 mm DIN rail
dimensions	53 x 90 x 58 mm



TYPE	ART NO.	
PDS 2	1150120	controller
TEAT PT 1000	1174070	immersion water sensor
AT 80	1170010	pocket
TEHR PT 1000	1174190	room sensor
TEK PT 1000	1174040	duct sensor
TENA PT 1000	1174050	domestic water sensor
TEP PT 1000	1174080	pipe strap-on sensor
TEU PT 1000	1174090	outdoor sensor
TEHR PT 1000-P/PDS 2	1174231	room sensor + set point for PDS 2

UNIVERSAL CONTROLLERS

HS 2.2 is a universal controller designed for HVAC applications. It can be used for controlling e.g. pressure, differential pressure, temperature or illumination level. Display is possible to scale according to the measurement. The controller has RS-485 connection for Modbus RTU communication.

°C, % rH, Pa, bar, CO, CO₂, m/s, lx

supply	24 Vac/dc, < 1 VA
	NOTE: Only the 0...10 V outputs work when using DC supply voltage.
inputs	1 x 0...10 V, 10 kΩ
	2 x DI, potential free
outputs	3 x 0...10 Vdc, 2 mA
	1 x 0/10 Vdc
	1 x 24 Vac, < 1 A, for thermal or 3-point actuators
housing	IP20, ABS plastic
mounting	with screws on wall or on a junction box
	(hole distance 60 mm)



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TYPE **ART NO.**

HS 2.2 1150240 universal controller, room housing

UNIVERSAL CONTROLLERS

PDS 2.2 universal controller can be used for controlling e.g. pressure, humidity or temperature. The controller supports 0...10 V controlled, 3-point controlled or thermal actuators. The controller has RS-485 connection for Modbus RTU communication.

°C, % rH, Pa, bar, CO, CO₂, m/s, lx

supply	24 Vac/dc, < 2 VA
	NOTE: Only the 0...10 V outputs and Modbus work when using DC supply voltage.
inputs	0...10 V measurement
	0...10 V external set point setting
outputs	1 x 0...10 Vdc, 2 mA
	2 x 24 Vac, < 1 A, for thermal or 3-point actuators
	1 x 10 Vdc, 2 mA, for 4,7...220 kΩ potentiometer
housing	IP20, for 35 mm DIN rail
dimensions	53 x 90 x 58 mm



TYPE **ART NO.**

PDS 2.2 1150150 universal controller