

AH2X1-6

Electric heating controller



AH2X1-6 series are electric heating controllers for single-phase or two-phase electric heating. They utilise time-proportional control: the ratio between on-time and off-time alters in order to fit the heating requirements. The current is triac-switched, which minimises wear and tear, while enhanced control accuracy reduces energy costs.

Key features

- Modbus RTU communication
- Master / slave (expansion) unit versions available
- Temperature probe input (pre-wired or separately available depending on the version)
- Current switched at zero phase angle to eliminate network disturbance
- Product versions featuring integrated or external potentiometers for day and night setpoints
- Input for remote on / off switch
- Input for external timer for day / night mode
- LED status indications

Technical specifications

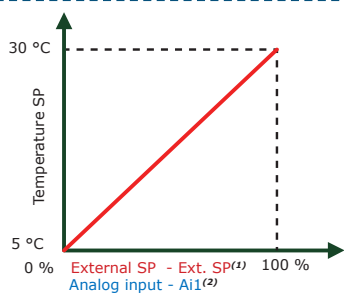
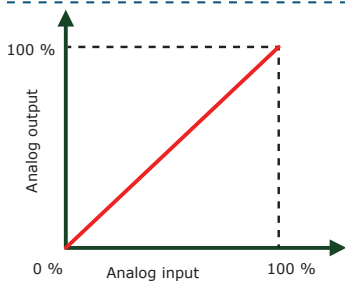
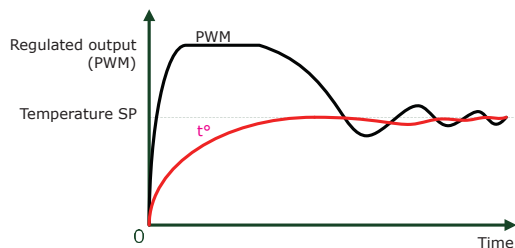
Supply voltage	single-phase	110–240 VAC / 50–60 Hz
	two-phase	400–415 VAC / 50–60 Hz
Regulated output	single-phase	max. 3,2 kW (230 VAC)
	two-phase	6 kW (400 VAC)
Temperature measurement range		-30–70 °C
Analog output		0–10 VDC / 0–20 mA
Analog input		0–10 VDC / 0–20 mA
Digital input		NO and NC contacts
Protection standard		IP54 (according to EN 60529)
Ambient conditions	Temperature	-20–40 °C
	Relative humidity	5–85 % rH (non-condensing)



Article codes

Article code	Device type	Integrated potentiometers	Temperature probe
AH2A1-6	Slave	no	no
AH2C1-6	Master / Slave	yes	no (external PT500 to be used)
AH2C1-6-500	Master / Slave	yes	built-in PT500

Operational diagrams




⁽¹⁾ Master mode
⁽²⁾ Slave mode

Area of use

- Control of heating systems
- For indoor use only

Standards

- Low Voltage Directive 2014/35/EU: 
 - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
 - EN 60730-2-9:2010 Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls
- EMC Directive 2014/30/EU:
 - EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light industrial environments
- WEEE Directive 2012/19/EU
- RoHS Directive 2011/65/EU

Modbus registers



The Sensistant Modbus configurator allows you to easily monitor and/or configure Modbus parameters.

The parameters of the unit can be monitored / configured through the 3SMODBUS software platform. You can download it from the following link:
<https://www.sentera.eu/en/3SMCenter>

For more information about the Modbus registers, please refer to the product Modbus Register Map.

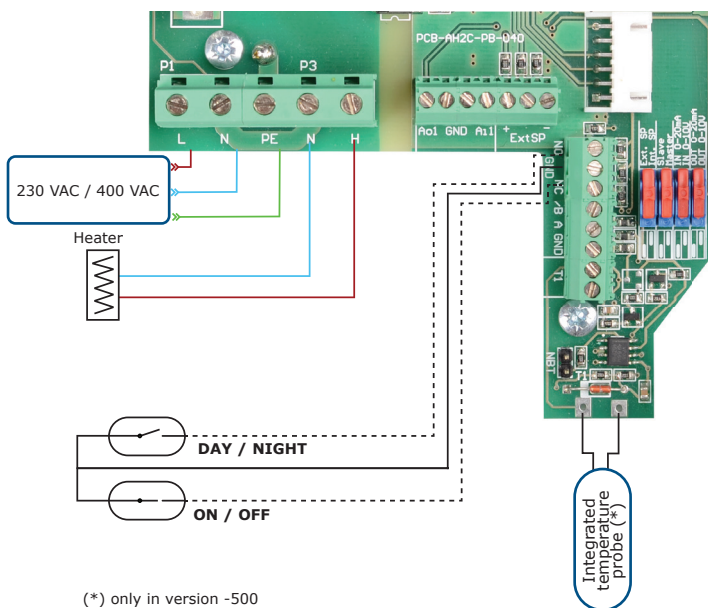
AH2X1-6

Electric heating controller



Wiring and connections

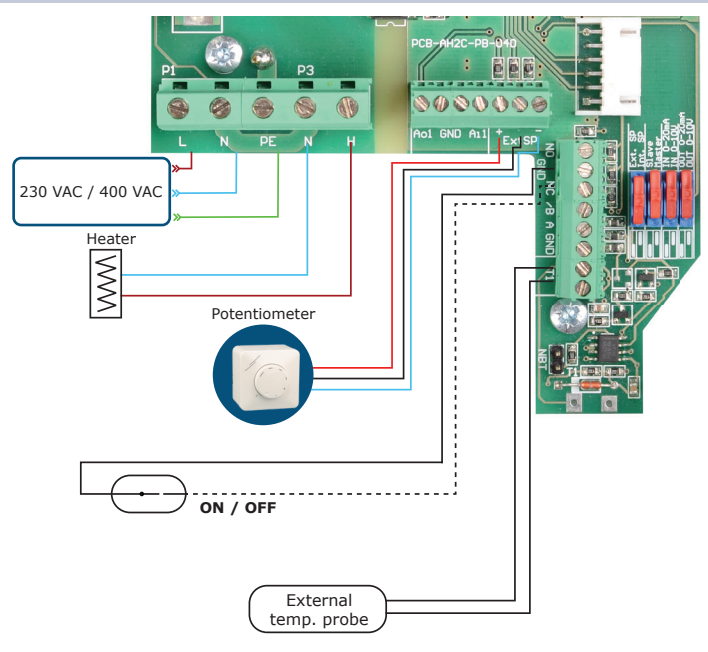
Master mode - example with AH2C1-6-500



(*) only in version -500

L	Power supply (230 VAC or 400 VAC)
N	Neutral for 230 VAC or Line for 400 VAC
PE	Protective earth
N	Load output for heater
H	Load output for heater
Ao1	Analog output for connecting a slave device (if applicable)
GND	Ground for analog input and output
Ai1	Analog input - cannot be used in master mode
+, -	Connection for external potentiometer (e.g. MTP-X10K-NA)
Ext SP	Connection for external potentiometer (e.g. MTP-X10K-NA)
NO	Input - normally open contact to switch from day to night setpoint
GND	GND for NO and NC input contacts
NC	Input - normally closed contact for remote ON / OFF switching
GND	Modbus RTU (RS485), ground
T1	Connection terminals for an external temperature probe in AH2C1-6

Master mode - example with AH2C1-6 and external potentiometer



L	Power supply (230 VAC or 400 VAC)
N	Neutral for 230 VAC or Line for 400 VAC
PE	Protective earth
N	Load output for heater
H	Load output for heater
Ao1	Analog output for connecting a slave device (if applicable)
GND	Ground for analog input and output
Ai1	Analog input - cannot be used in master mode
+, -	Connection for external potentiometer (e.g. MTP-X10K-NA)
Ext SP	Connection for external potentiometer (e.g. MTP-X10K-NA)
NO	Input - cannot be used in combination with an external potentiometer
GND	GND for NO and NC input contacts
NC	Input - normally closed contact for remote ON / OFF switching
/B	Modbus RTU (RS485) communication, signal /B
A	Modbus RTU (RS485) communication, signal A
GND	Modbus RTU (RS485), ground
T1	External temperature probe (only in AH2C1-6)

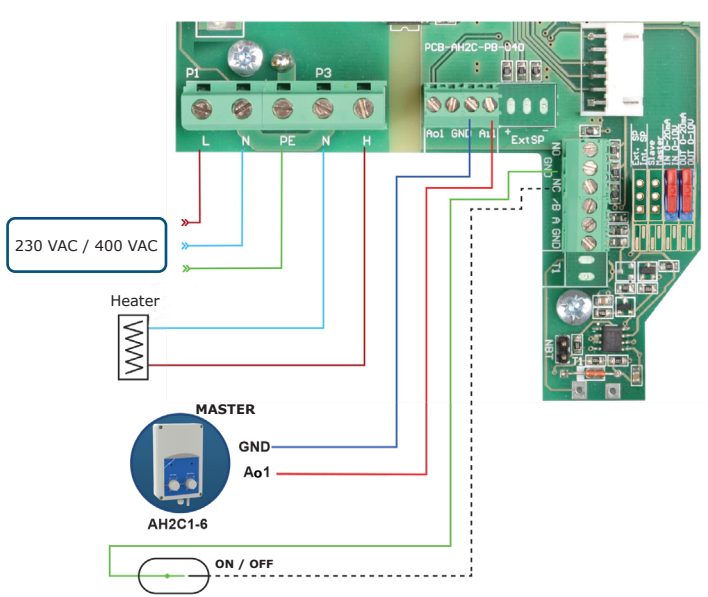


AH2X1-6

Electric heating controller

Wiring and connections

Slave device (expansion unit) - AH2A1-6



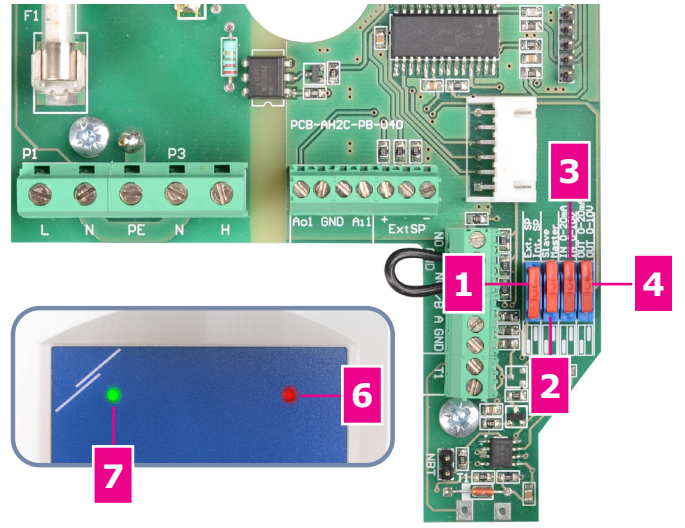
L	Power supply (230 VAC or 400 VAC)
N	Neutral
PE	Protective earth
N	Load output for heater
H	Load output for heater
Ao1	Analog output for connecting another slave device (if applicable)
GND	Ground for analog input and output
Ai1	Analog input for connecting the master device
NO	Input - cannot be used for slave devices
GND	GND for NO and NC input contacts
NC	Input - normally closed contact for remote ON / OFF switching
/B	Modbus RTU (RS485) communication, signal /B
A	Modbus RTU (RS485) communication, signal A

AH2X1-6

Electric heating controller



Settings



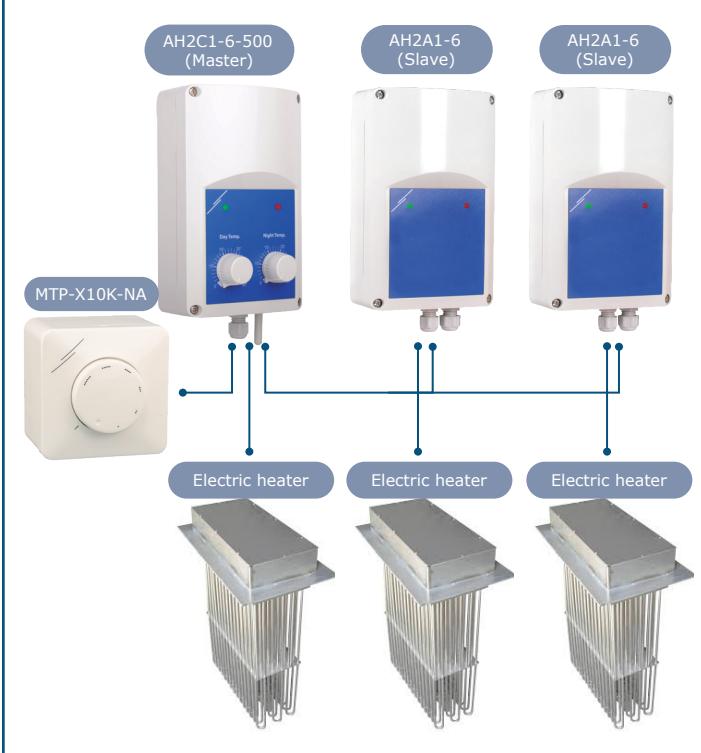
1 - Setpoint		External (external potentiometer is used)
		Internal (the integrated potentiometers are used)
2 - Mode		Slave (expansion unit)
		Master
3 - Input type		0–20 mA
		0–10 VDC
4 - Output type		0–20 mA
		0–10 VDC
5 - Network Bus Termination Resistor (NBT)*		NBT is connected
		NBT is disconnected (factory pre-set)
LED indications		
6 - Red LED		The unit is supplied
7 - Green LED		Active output

* indicates closed position of the jumper.

Application example 1



Application example 2

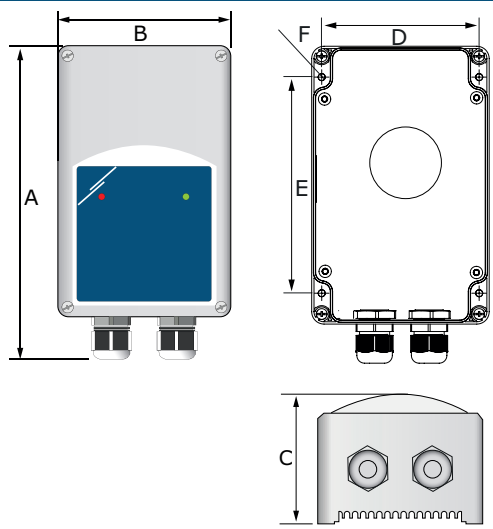


AH2X1-6

Electric heating controller

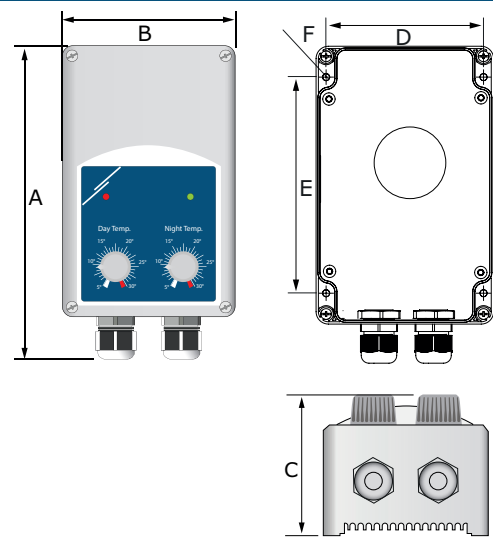


Fixing and dimensions - AH2A1-6



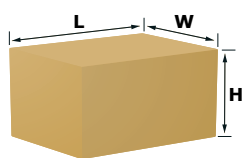
Article code	A	B	C	D	E	F
AH2A1-6	202 mm	115 mm	63 mm	102 mm	140 mm	Ø 4,60 mm

Fixing and dimensions - AH2C1-6



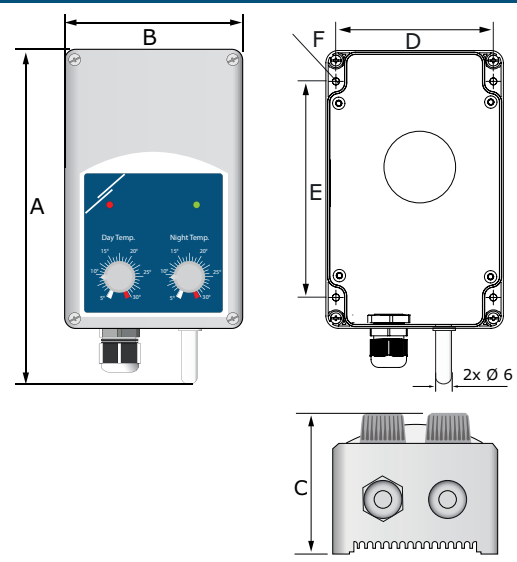
Article code	A	B	C	D	E	F
AH2C1-6	202 mm	115 mm	68 mm	102 mm	140 mm	Ø 4,60 mm

Packaging



Article code	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
AH2A1-6	Unit (1 pc.)	208	121	78	0,60 kg	0,68 kg
	Box (22 pcs.)	590	380	280	13,20 kg	15,82 kg
AH2C1-6	Unit (1 pc.)	208	121	78	0,63 kg	0,70 kg
	Box (22 pcs.)	590	380	280	13,90 kg	16,26 kg
AH2C1-6-500	Unit (1 pc.)	220	128	108	0,63 kg	0,70 kg
	Box (15 pcs.)	590	380	280	9,45 kg	11,36 kg

Fixing and dimensions - AH2C1-6-500



Article code	A	B	C	D	E	F
AH2C1-6-500	209 mm	115 mm	68 mm	102 mm	140 mm	Ø 4,60 mm