

EH3C4-15 | ELECTRIC HEATING CONTROLLER

Mounting and operating instructions



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SAFETY AND PRECAUTIONS



Read all the information, the datasheet, mounting and operating instructions and study the wiring and connection diagram before working with the product. For personal and equipment safety, and for optimum product performance, make sure you entirely understand the contents before installing, using or maintaining this product.



For safety and licensing (CE) reasons, unauthorised conversion and /or modifications of the product are inadmissible.



The product should not be exposed to abnormal conditions, such as: extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible; avoid condensation.



All installations shall comply with local health and safety regulations and local electrical standards and approved codes. This product can only be installed by an engineer or a technician who has expert knowledge of the product and safety precautions.



Avoid contacts with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.



Always verify that you apply appropriate power supply to the product and use appropriate wire size and characteristics. Make sure that all the screws and nuts are well tightened and fuses (if any) are fitted well.



Recycling of equipment and packaging should be taken into consideration and these should be disposed of in accordance with local and national legislation / regulations.



In case there are any questions that are not answered, please contact our technical support or consult a professional.

PRODUCT DESCRIPTION

EH3C proportional electric heating controllers are designed to regulate the air temperature in three phase (400 V) heating systems by providing a continuously adjustable control of the load. The controller regulates the ratio between on-time and off-time to generate the required heating power.

ARTICLE CODES

Article code	Current rating 400 VAC	Current low voltage part	Fuse low voltage part
EH3C4-15	22 A	0,2 A	0,630 A

INTENDED AREA OF USE

- Control of heating systems
- For indoor use only

TECHNICAL DATA

- PT500 sensor is required (e.g. FLTSN-P500-010 or ROTSN-P500)
- Thermal protection with auto reset and shut down in case of overheating
- LED indication for output and power
- Can be controlled via an analogue signal generated by another temperature controller or by a BMS system
- Front panel knobs for temperature setpoint selection (5–30 °C) - day and night
- Analogue output (0–10 V or 0–20 mA) available for slave functionality with multiple EH3C devices or an EVS(S) electronic fan speed controller
- Robust metal enclosure
- Protection standard: IP20 (according to EN 60529)
- Operating ambient conditions:
 - ▶ temperature: -40–50 °C
 - ▶ rel. humidity: < 90 % rH (non-condensing)

STANDARDS

- Low Voltage Directive 2014/35/EU
 - ▶ Standard IEC669-2-1
 - ▶ Standard IEC669-1
- EMC Directive 2014/30/EU:
 - ▶ CENELEC EN61000-6-3
 - ▶ EN61000-6-2



WIRING AND CONNECTIONS

Master mode	
R	Power supply, 3x 400 VAC / 50–60 Hz
S	
T	
U	
V	Output to electrical heater
W	
Pe	
Ai	Analogue input for remote control (BMS signal) - 0–2 V heater stops / 2–10 V heater runs (put bridge between “+” from “Ext” and Ai when not in use)
Ti	Passive PT500 temperature sensor (e.g. FLTSN-P500-010 or ROTSN-P500)
CC	Contact normally closed – switch for remote control (when CC is opened the heater stops)
OC	Contact normally open – input for timer for night temperature (when OC is closed, setpoint depends on position of potentiometer)
Ao	Analogue output
GND	Ground, analogue output

Slave mode	
R	Power supply, 3x 400 VAC / 50–60 Hz
S	
T	
U	
V	Output to electrical heater
W	
Pe	
Ai	Analogue input for remote control (for BMS signal or EH3C4-15 master) - 0–2 V heater stops / 2–10 V heater runs (put bridge between “+” from “Ext” and Ai when not in use)
Ti	Passive PT500 temperature sensor (e.g. FLTSN-P500-010 or ROTSN-P500)
CC	Contact normally closed – switch for remote control (when CC is opened the heater stops)
OC	Contact normally open – input for timer for night temperature (when OC is closed setpoint depends on position of potentiometer)
Ao	Analogue output
GND	Ground , analogue output

MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting the unit, read carefully **“Safety and Precautions”**. Choose a smooth solid surface for installation (e.g. a wall, a panel, etc.) or a standard DIN rail.

ATTENTION

Before mounting the device switch off the mains supply!

Follow these steps:

1. Fix the unit using screws and dowels. Mind the correct mounting position and unit mounting dimensions (see **Fig. 1 Mounting dimensions** and **Fig. 2 Mounting position**).

Fig. 1 Mounting dimensions

Article code	A	B	C	D	E	Weight
EH3C4-15	162 mm	99,5 mm	75 mm	172 mm	12,5 mm	1050 g

Fig. 2 Mounting position

Correct	Incorrect

2. Do the wiring according to the wiring diagram (see **Fig. 3**), bearing in mind that the unit can operate both as a Master and a Slave device. Master and Slave modes are selected via the DIP switch. Depending on the selected mode and the intended use, the controller needs to be connected to the relevant external devices.

Fig. 3 Wiring

Master

Slave

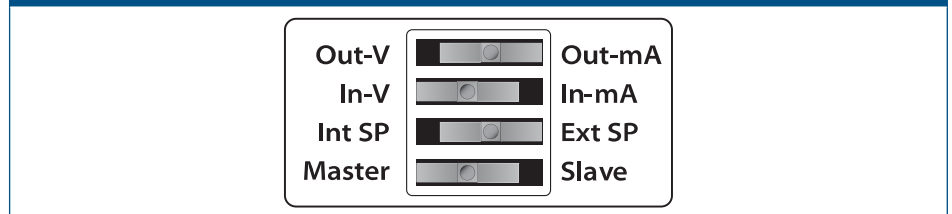
OPERATING INSTRUCTIONS

The EH3C series feature overtemperature protection with automatic reset and output and power LED indication. The front panel knobs are used to adjust setpoint temperatures (day and night). This device can also be controlled with an external signal from another controller or BMS system. An external potentiometer such as the MTP010 can be connected. An analogue output (0-10 V or 0-20 mA) is available for slave functionality with multiple EH3C devices and/or an EVS(S).

Switches positions

1. Out-V / Out-mA: output 0–10 V or 0–20 mA
2. In-V / In-mA: input 0–10 V or 0–20 mA
3. Int SP/EXT SP: inner or external setpoint potentiometer
4. Master/Slave: master mode or slave mode

Fig. 4 Master mode example



LED indications (Fig. 5)

1. Solid on red LED indicates that the controller is powered.
2. Blinking red LED indicates that the controller is overheating, i.e. the heatsink temperature is too high.
3. Solid on green LED indicates that the heater is powered.

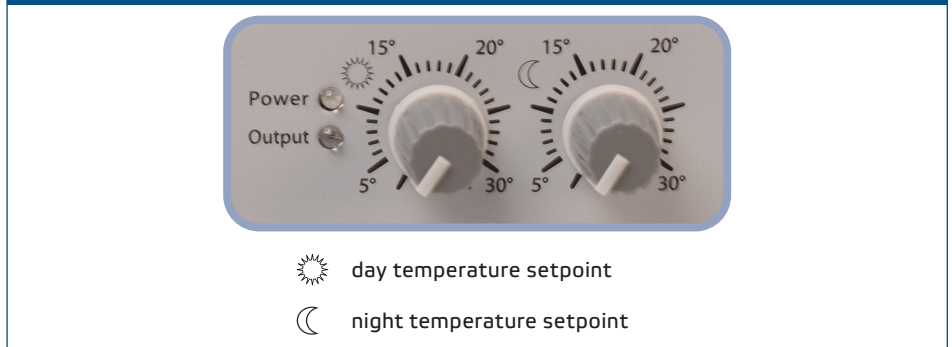
Fig. 5 LED indications



Temperature setpoints

Temperature setpoints are selected using the two knobs, see **Fig. 5**.

Fig. 6 Temperature setpoints



VERIFICATION OF INSTALLATION



ATTENTION

Use only tools and equipment with non-conducting handles when working on electrical devices.

1. Switch on the mains supply.
2. Turn the DAY potentiometer to maximum temperature (30 °C).
3. The red and green LEDs should be on.
4. Turn the DAY potentiometer to minimum temperature (5 °C).
5. The red LED should be on to indicate that the unit is supplied. The green LED should be off.

TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in original packing.

WARRANTY AND RESTRICTIONS

The warranty against manufacturing flaws is valid for two years starting from the date of delivery. Any alterations or adjustments to the product absolve the manufacturer of all liability. The manufacturer disclaims all liability for typographical or other errors in this document.

MAINTENANCE

In normal conditions this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.