ECH-8-DM

Controller for water heaters / coolers with EC fan

The ECH-8-DM are controllers for water air coolers or hot water air heaters that are equipped with EC fans. Typically, they are used to cool or to heat warehouses and industrial areas. The temperature setpoint can be steplessly adjusted via the potentiometer. It regulates an output (ON-OFF) to control a water valve or electric heater. The EC fan speed can be manually selected via the rotary switch with 7 positions (Automatic, 5 manual steps and OFF). In Automatic mode, EC fan speed is regulated automatically based on the ambient temperature. All settings can be adjusted via Modbus RTU communication.

Key features

- Selectable range for the analogue output to control EC fan speed (Automatic or 5 manual selectable speeds + Off)
- Unregulated output for water valve / electric heater control
- RGB LED for status indication
- Input for PT500 temperature sensor
- Potentiometer to adjust the temperature setpoint (range 5—35 °C)
- Control switch with 7 positions: EC fan OFF / manual speed selection 1 to 5 / Automatic fan speed control
- Heating/cooling mode can be selected via a jumper or via the Modbus registers
- Continuous variable fan speed control in automatic mode
- Modbus RTU communication

Technical specifications

Supply voltage (Us)		85—305 VAC / 50—60 Hz
Temperature setpoint		5—35 °C
Proportional range		2 °C, adjustable
Enclosure		plastic (R-ABS, UL94-V0, grey RAL 7035)
Protection standard		IP54 (according to EN 60529)
Ambient operating conditions	Temperature	-10—50 °C
	Rel. humidity	5—90% rH (non-condensing)

Article codes

Article code	Supply voltage
ECH-8-DM	85—305 VAC / 50—60 Hz

Area of use

- Warehouse air coolers equipped with EC fan and water valve
- The ideal controller for hot water air heaters in warehouses, sheds/stables, etc.
- Temperature controlled ventilation systems
- For indoor use, surface wall mounted

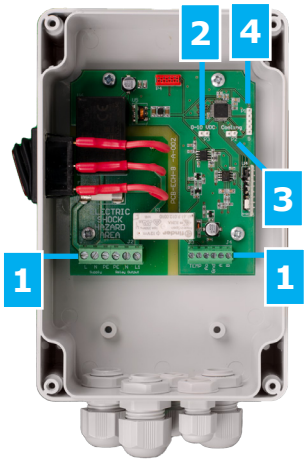
Standards

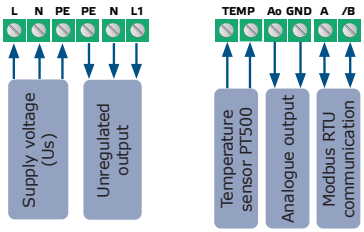
- Low Voltage Directive 2006/95/EC CE
- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- RoHs Directive 2011/65/EU

Wiring and connections

L, N, PE	Supply voltage 85—305 VAC / 50—60 Hz
PE, N, L1	Unregulated output to control an external water valve or electric heater - Imax 10 A
TEMP	Optional temperature sensor PT500 (type FLTSN-P500-010 or similar)
Ao, Gnd	Analogue output to control EC fan speed (0—6 VDC or 0—10 VDC) / Max. load 200 Ω
A, /B	Modbus RTU communication

Legend



1 - Terminal block		
2 - Analogue output range selection	Jumper removed (default) - 0—6 VDC Jumper installed - 0—10 VDC	
3 - Temperature mode selection	Jumper removed (default) - heating Jumper installed - cooling	
4 - PROG header		Put a jumper onto pins 1 and 2 and wait for at least 5 seconds to reset the Modbus communication parameters
		Put a jumper onto pins 3 and 4 and restart the supply to enter bootloader mode

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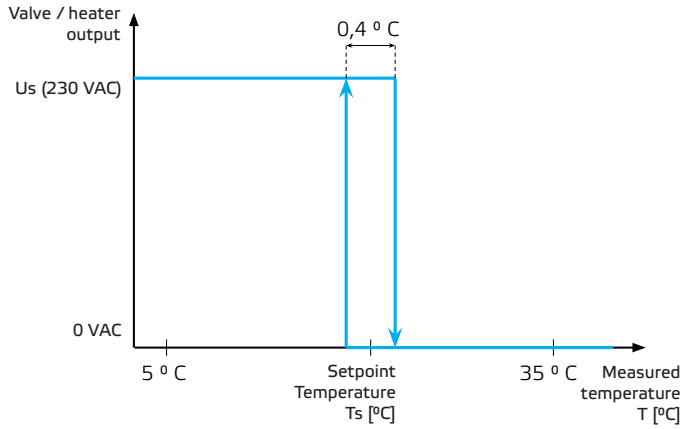
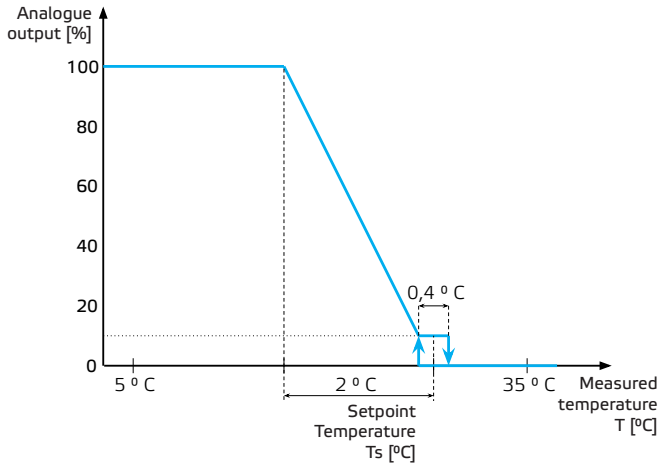
Operational diagrams

Auto mode - heating

Unregulated output - water valve or heater control

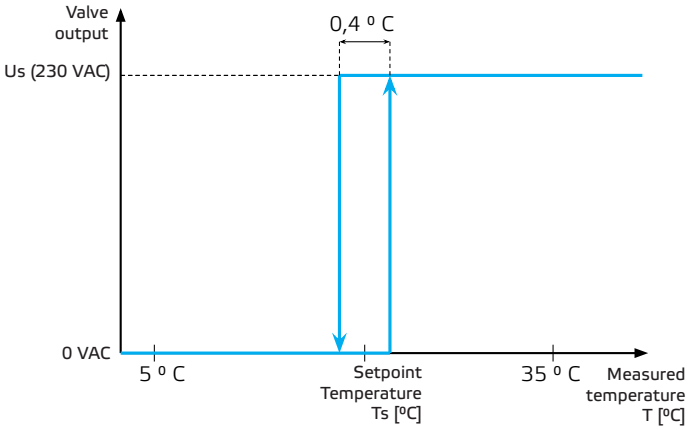


Analogue output - EC fan speed control

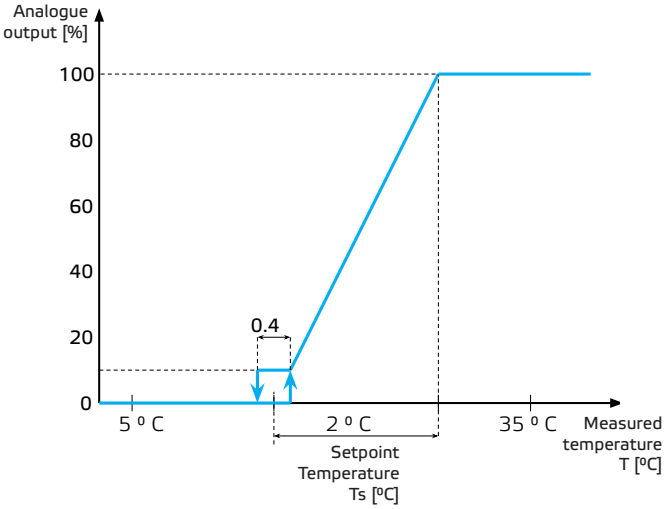


Auto mode - cooling

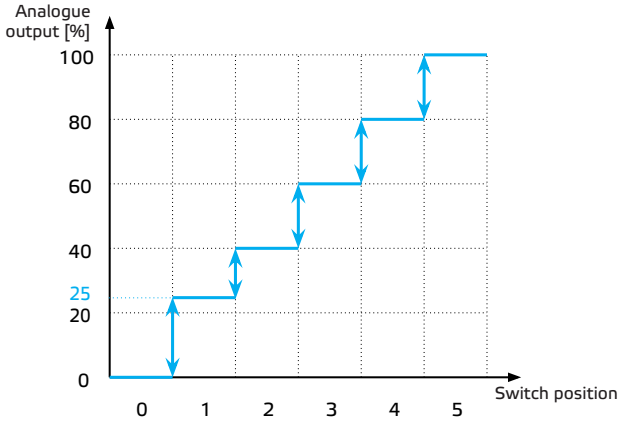
Unregulated output - water valve control



Analogue output - EC fan speed control



Manual mode



	Heating	Cooling
T > Ts	Valve / heater output: 0 VAC EC fan speed: minimum value	Valve / heater output: 230 VAC EC fan speed: According to rotary switch position
T < Ts	Valve / heater output: 230 VAC EC fan speed: According to rotary switch position	Valve / heater output: 0 VAC EC fan speed: minimum value
T – measured temperature Ts – temperature setpoint		

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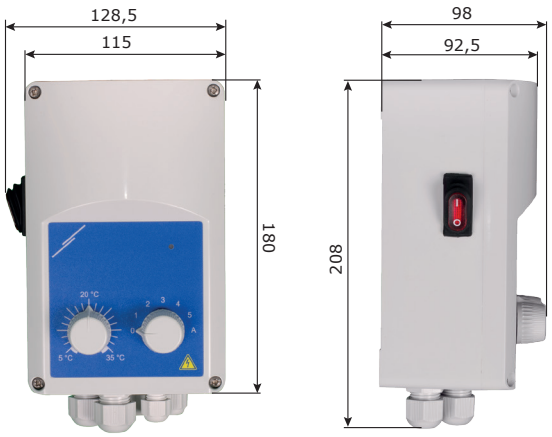
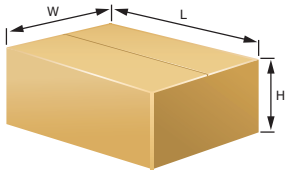
Indications

Operating description	Temperature range	LED
First three seconds after turning on. If device is not calibrated white LED will be lit constantly, except in remote mode	Start up	ON
Modbus connection lost. Only in remote mode and if HR8 value is not 0		Blinking white
Short circuit on the TEMP contacts of the terminal block or temperature is lower than working range	-10 °C	ON
Everything is OK, but the temperature is lower than HR17 value	-10 to +5 °C	ON
Everything is OK	+5 to +35 °C	ON
Everything is OK, but the temperature is higher than HR18 value	+35 to +50 °C	ON
Temperature probe is not connected or temperature is higher than working range	+50 °C	ON

Fixing and dimensions



Packaging



Article code	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight [kg]	Gross weight [kg]
ECH-8-DM	Unit (1 pc.)	210	125	105	0,51	0,61

Global trade item numbers (GTIN)

Packaging	ECH-8-DM
Unit	05401003018651
Box	05401003504260