ECH-8-DM

CONTROLLER FOR WATER HEATERS / COOLERS WITH EC FAN

Modbus register map



MODBUS REGISTER MAP

INPUT REGISTERS

Input register		Data Type	Description	Raw Data Range	Values
1	Operating mode	unsigned integer	The selected operating mode.	0—7	0 = Standby 1 = Position 1 2 = Position 2 3 = Position 3 4 = Position 4 5 = Position 5 6 = Auto mode 7 = Overwrite mode
2	Temperature sensor state	unsigned integer	State of the connected temperature sensor.	0—3	0 = Connected 1 = Not connected or the temperature is greater than the working range 2 = Short circuit or the temperature is less than the working range 3 = Not calibrated
3	Temperature setpoint	unsigned integer	Temperature setpoint.	50—350	50 = 5 °C 350 = 35 °C
4	Temperature level	signed integer	The measured temperature value.	-100—500	-100 = -10 °C 500 = 50 °C
5	Relay output state	unsigned integer	State of the unregulated output.	0, 1	0 = Off / 0 VAC 1 = On / Us VAC
6	Output control mode	unsigned integer	Analogue output mode.	0, 1	0 = 0—6 VDC 1 = 0—10 VDC
7	Output value	unsigned integer	Value of the analogue output.	0—1000	0 = 0 % output 1000 = 100 % output

INPUT REGISTERS

Input register		Data Type	Description	Raw Data Range	Values
8	Control mode	unsigned integer	Cooling or Heating mode.	0, 1	0 = Cooling 1 = Heating
9	LED indication	unsigned integer	LED indication.	0—6	0 = Overwrite 1 = Blue 2 = Cyan 3 = Green 4 = Yellow 5 = Red 6 = White

Note: The input registers can be read via the Modbus command: "Read input registers".

HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Values	Factory Default Values
1	Device slave address	unsigned integer	Modbus device address.	1—247		1
2	Modbus baud rate	unsigned integer	Modbus communication baud rate.	0—6	0 = 4.800 1 = 9.600 2 = 19.200 3 = 38.400 4 = 57.600 5 = 115.200 6 = 230.400	2
3	Modbus parity	unsigned integer	Parity check mode.	0—2	0 = 8N1 1 = 8E1 2 = 8O1	1
4	Device type	unsigned integer	Sentera article code of the device (*read only*).	2.117	2.117 = ECH-8-DM	
5	HW Version	unsigned integer	Hardware version of the device (*read only*).	XXXX	0x0100 = HW version 1.0	
6	FW Version	unsigned integer	Firmware version of the device (*read only*).	XXXX	0x0130 = FW version 1.3	
8	Modbus safety timeout	unsigned integer	Timeout setting for no Modbus communication. After the time runs out, the analogue output is set to the value "Analogue output position 1".	0—60	0 = no timeout 60 = 60 minutes	0
9	Modbus resistor termination	unsigned integer	To avoid communication losses and reflections on the Modbus line, the NBT in two devices (at both ends of the line) must be activated.	0, 1	0 = disconnected 1 = connected	0
10	Modbus registers reset	unsigned integer	To reset the Modbus Holding registers to their default values, set this register to "1". After the reset is completed, the register is automatically set back to "0".	0, 1	0 = Idle 1 = Reset Modbus Registers	0

HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Values	Factory Default Values
11	Proportional range	unsigned integer	Proportional range in °C.	1—100	1 = 0,1 °C 100 = 10 °C	20
12	Output (Position 1)	unsigned integer	Analogue output value of position 1	0—1.000	250 = 25 % output	250
13	Output (Position 2)	unsigned integer	Analogue output value of position 2	0—1.000	400 = 40 % output	400
14	Output (Position 3)	unsigned integer	Analogue output value of position 3	0—1.000	600 = 60 % output	600
15	Output (Position 4)	unsigned integer	Analogue output value of position 4	0—1.000	800 = 80 % output	800
16	Output (Position 5)	unsigned integer	Analogue output value of position 5	0—1.000	1.000 100 % output	1.000
17	Minimum temperature LED indication	signed integer	Sets the minimum temperature for green indication.	-100—500	50 = 5 °C	50
18	Maximum temperature LED indication	signed integer	Sets the maximum temperature for green indication.	-100—500	350 = 35 °C	350
19	LED indication brightness	unsigned integer	Sets the brightness of the LED indication.	0—10	0 = Off 10 = 100 % brightness	5
20	Overwrite mode	unsigned integer	Overwrite mode (all manual control is disabled).	0, 1	0 = Off / 0 VAC 1 = On / Us VAC	0

HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Values	Factory Default Values
21	Relay output control	unsigned integer	Control of the unregulated output (allowed in Overwrite mode only).	0, 1	0 = Off / 0 VAC 1 = On / Us VAC	0
23	Output overwrite value	unsigned integer	Overwrite value of the analogue output (allowed in Overwrite mode only).	0—1.000	0 = 0 % output 1.000 = 1.000 % output	0
25	Temperature setpoint overwrite enable	unsigned integer	Selects the source of the temperature setpoint.	0, 1	0 = Potentiometer 1 = Overwrite value HR26	0
26	Temperature setpoint overwrite value	unsigned integer	Overwrite value of the temperature setpoint (active only when HR25 is set to 1).	50—350	50 = 5 °C 350 = 35 °C	200
27	Temperature correction value	signed integer	Correction value of the manual temperature offset.	-50—50	50 = 5 °C	0
31	Output minimum voltage	unsigned integer	When 'Always ON' is enabled (HR32 = 1), the fan will continue running at this speed or higher and will not stop. This function is active in Auto mode only.	100—500	300 = 30 % output	300
32	Output always ON	unsigned integer	When enabled, the fan will continue running at the minimum speed specified in HR31 or higher and will not stop. This function is active in Auto mode only.	0, 1	0 = Disable 1 = Enable	0
33	Control mode overwrite	unsigned integer	Selects the control mode.	0—2	0 = Selected via jumper 1 = Cooling mode 2 = Heating mode	0
34	Output range overwrite	unsigned integer	Selects the analogue output range.	0—2	0 = Selected via jumper 1 = 0—6 VDC 2 = 0—10 VDC	0

Note: The holding registers can be managed via the following Modbus commands: “Read Holding Registers”, “Write Single Register” or “Write Multiple Registers”.

The free Sentera configuration and monitoring software SenCom can be accessed at: https://www.senteraweb.eu/en/sencom