

ECH-8-DM

CONTROLLER FOR WATER
HEATERS / COOLERS
WITH EC FAN

Modbus register map



MODBUS REGISTER MAP

| INPUT REGISTERS | | | | | |
|-----------------|--------------------------|--------------|------------------------------------|----------------|--|
| | | Data type | Description | Raw data range | Values |
| 1 | Operating mode | unsigned int | Operating mode selected | 0 - 7 | 0 = Standby 1 = Position 1 2 = Position 2 3 = Position 3 4 = Position 4 5 = Position 5 6 = Auto mode 7 = Remote mode |
| 2 | Temperature sensor state | unsigned int | Connected temperature sensor state | 0 - 3 | 0 = Connected 1 = Not connected or temperature is greater than working range 2 = Short circuit or temperature is less than working range 3 = Not calibrated |
| 3 | Temperature setpoint | unsigned int | Temperature setpoint | 50 - 350 | 50 = 5,0°C 350 = 35,0°C |
| 4 | Actual temperature | int | Temperature value measured | -100 - 500 | -100 = -10,0°C 500 = 50,0°C |
| 5 | Relay output | unsigned int | Unregulated output state | 0 - 1 | 0 = Off / 0 VAC 1 = On / Us VAC |
| 6 | Analogue output mode | unsigned int | Analogue output mode | 0 - 1 | 0 = 0-6 VDC 1 = 0-10 VDC |
| 7 | Analogue output | unsigned int | Analogue output | 0 - 1000 | 0 = 0,0% output 1000 = 100,0% output |
| 8 | Control mode | unsigned int | Cooling or Heating mode | 0 - 1 | 0 = Cooling 1 = Heating |
| 9 | LED indication | unsigned int | LED indication | 0 - 6 | 0 = Overwrite 1 = Blue 2 = Cyan 3 = Green 4 = Yellow 5 = Red 6 = White |

| HOLDING REGISTERS | | | | | | |
|-------------------|-----------------------------|--------------|---|----------------|--|------------------------|
| | | Data type | Description | Raw data range | Values | Factory default values |
| 1 | Device slave address | unsigned int | Modbus device address | 1–247 | | 1 |
| 2 | Modbus baud rate | unsigned int | 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 int | Parity check mode | 0–2 | 0 = 8N1 1 = 8E1 2 = 8O1 | 1 |
| 4 | Device type | unsigned int | Device type. Read only | 2117 | 2117 = ECH-8-DM | |
| 5 | HW version | unsigned int | Hardware version of the device. Read only | XXXX | 0x0100 = HW version 1.0 | |
| 6 | FW version | unsigned int | Firmware version of the device, read only | XXXX | 0x0100 = FW version 1.0 | |
| 7 | | unsigned int | Reserved, returns 0 | | | |
| 8 | Modbus safety timeout | unsigned int | Timeout setting for no Modbus communication. After time runs out, analogue output will be set to "Analogue output position 1" value | 0–60 | 0 = no timeout 60 = 60 minutes | 0 |
| 9 | Modbus resistor termination | unsigned int | Modbus termination resistor | 0 - 1 | 0 = disconnected 1 = connected | 0 |
| 10 | Modbus registers reset | unsigned int | Resets Modbus Holding registers to default values. When finished this register is automatically reset to '0' | 0 - 1 | 0 = Idle 1 = Reset Modbus Registers | 0 |
| 11 | Proportional control range | unsigned int | Proportional range in °C | 1 - 100 | 1 = 0,1°C 100 = 10,0°C | 20 |
| 12 | Analogue output position 1 | unsigned int | Analogue output value position 1 | 0 - 1000 | 200 = 20,0% output | 200 |
| 13 | Analogue output position 2 | unsigned int | Analogue output value position 2 | 0 - 1000 | 400 = 40,0% output | 400 |
| 14 | Analogue output position 3 | unsigned int | Analogue output value position 3 | 0– 1000 | 600 = 60,0% output | 600 |

| HOLDING REGISTERS | | | | | | |
|-------------------|------------------------------------|--------------|---|----------------|--|------------------------|
| | | Data type | Description | Raw data range | Values | Factory default values |
| 15 | Analogue output position 4 | unsigned int | Analogue output value position 4 | 0 - 1000 | 800 = 80,0% output | 800 |
| 16 | Analogue output position 5 | unsigned int | Analogue output value position 5 | 0 - 1000 | 1000 = 100,0% output | 1000 |
| 17 | Minimum temperature LED indication | int | Set minimum temperature for green indication | -100 - 500 | 50 = 5,0°C | 50 |
| 18 | Maximum temperature LED indication | int | Set maximum temperature for green indication | -100 - 500 | 350 = 35,0°C | 350 |
| 19 | LED brightness | unsigned int | Set brightness of indication LED | 0 - 10 | 0 = Off 10 = 100% brightness | 5 |
| 20 | Remote mode | unsigned int | Remote mode (all manual control is disabled) | 0 - 1 | 0 = Off 1 = On - next 4 registers are allowed | 0 |
| 21 | Relay output control | unsigned int | Unregulated output control (allowed in remote mode only) | 0 - 1 | 0 = Off / 0 VAC 1 = On / Us VAC | 0 |
| 22 | Analogue output range | unsigned int | Analogue output mode range (allowed in remote mode only) | 0 - 1 | 0 = 0-6 VDC 1 = 0-10 VDC | 0 |
| 23 | Analogue output overwrite | unsigned int | Analogue output overwrite value (allowed in remote mode only) | 0 - 1000 | 0 = 0,0% output 1000 = 100,0% output | 0 |
| 24 | LED overwrite | unsigned int | Indication LED overwrite value (allowed in remote mode only) | 0 - 6 | 0 = LED off 1 = blue LED on 2 = cyan LED on 3 = green LED on 4 = yellow LED on 5 = red LED on 6 = white LED on | 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 3SModbus can be downloaded via: <https://www.sentera.eu/en/3SModbus>