

GTH21 | TRANSFORMER CONTROLLER FOR HEATING AND COOLING WITH MODBUS

Modbus register map



MODBUS REGISTER MAP

| INPUT REGISTERS | | | | | | |
|-----------------|--------------------------|------------------|-------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Register | Name | Data type | Description | Raw data range | Values | |
| 1 | Operating mode | unsigned integer | Operating mode selected | 0–6 | 0 = Auto mode 1 = Position 1 2 = Position 2 3 = Position 3 4 = Position 4 5 = Position 5 6 = Standby Mode (OFF) | |
| 2 | Temperature sensor state | unsigned integer | Connected temperature sensor status | 0–3 | 0 = Connected 1 = Not connected or temperature is higher than operating range 2 = Short circuit or temperature is lower than operating range 3 = Not calibrated | |
| 3 | Temperature setpoint | unsigned integer | Temperature setpoint | 50–350 | 50 = 5,0 °C 350 = 35,0 °C | |
| 4 | Actual temperature | signed integer | Temperature value measured | -100–400 | -100 = -10,0 °C 400 = 40,0 °C | |
| 5 | Output step | unsigned integer | Output step | 0–15 | In Auto and Manual mode: 0 = OFF 1 = Step 1 2 = Step 2 3 = Step 3 4 = Step 4 5 = Step 5 | |
| | | | | | In Overwrite Mode: 10 = OFF 11 = Step 1 12 = Step 2 13 = Step 3 14 = Step 4 15 = Step 5 | |
| 6 | 230 VAC output | unsigned integer | 230 VAC output status | 0–11 | In Auto and Manual mode: 0 = Off / 0 VAC 1 = On / 230 VAC | |
| | | | | | In Overwrite Mode: 10 = Off / 0 VAC 11 = On / 230 VAC | |
| 7 | Control mode | unsigned integer | Cooling or Heating mode | 0, 1 | 0 = Cooling 1 = Heating | |

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

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) | | GTH21-75L22 = 4.012 GTH21100L22 = 4.013 | |
| 5 | HW version | unsigned int. | Hardware version of the device (Read only) | | 0 x 0100 = HW version 1.0 0 x 0100 = FW version 1.0 | |
| 6 | FW version | unsigned int. | Firmware version of the device (Read only) | | | |
| 7 | | | Reserved, returns 0 | | | |
| 8 | Modbus safety timeout | unsigned int. | Timeout setting for no Modbus communication. After time runs out, regulated output will be set to "position 1" value and unregulated output to "OFF state" | 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 range | unsigned int. | Proportional range value in °C | 10–100 | 10 = 1,0 °C 100 = 10,0 °C | 20 |
| 12 | Temperature hysteresis | unsigned int. | Temperature hysteresis for each step | 1–10 | 1 = 0,1 °C 10 = 1,0 °C | 4 |
| 13 | Output step overwrite enable | unsigned int. | Enables the direct control over regulated output steps | 0, 1 | 0 = Disabled 1 = Enabled | 0 |

HOLDING REGISTERS

| | | Data type | Description | Raw data range | Values | Factory default values |
|----|---------------------------------|--------------|---------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------|------------------------|
| 14 | Output step overwrite | unsigned int | Overwrite regulated output step. <i>Active only if Holding register 13 is set to 1</i> | 0–5 | 0 = OFF 1 = Step 1 2 = Step 2 3 = Step 3 4 = Step 4 5 = Step 5 | 0 |
| 15 | 230 VAC output overwrite enable | unsigned int | Enables the direct control over 230 VAC (unregulated) output. | 0, 1 | 0 = Disabled 1 = Enabled | 0 |
| 16 | 230 VAC output overwrite | unsigned int | Unregulated 230 VAC output On/Off. <i>Active only if Holding register 15 is set to 1</i> | 0, 1 | 0 = Off / 0 VAC 1 = On / 230 VAC | 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/3smcenter>