

## GTH21

### Transformer fan speed controller for heating and cooling



The GTH21 series of transformer fan speed controllers regulate the rotational speed of single-phase voltage controllable motors in steps by varying the output voltage according to the measured temperature. They are equipped with an auto-transformer and control the speed of fans in automatic or manual mode (in five steps) according to the input provided by the connected temperature sensor. The unregulated output is also controlled in function of the measured temperature and can be used to control a valve (e.g. hot water supply). The settings can be adjusted via Modbus RTU communication.

#### Key features

- Fan speed controller for heating or cooling applications
- 7-step rotary switch: Off position + manual 5-step control + Auto mode
- Unregulated output to control an external valve for hot water supply
- Manual or automatic fan speed selection, selectable by switch
- LEDs for status indication on PCB
- Standalone or Modbus controlled
- Heating/cooling selection via jumper on the PCB or Modbus
- Potentiometer for temperature setpoint (range 5–35 °C) in 1 °C scale
- Input for external PT500 temperature probe (PT500 temperature probe is not included)
- Metal enclosure for easy wall fixing

#### Technical specifications

Supply voltage	230 VAC / 50–60 Hz	
Unregulated output	2 A	
Temperature setpoint	5–35 °C	
Proportional range	1–10 °C	
Enclosure	sheet steel (RAL 7035, polyester powder coating)	
Protection standard	IP54 (according to EN 60529)	
Ambient operating conditions	Temperature	-10–35 °C
	Rel. humidity	< 95 % rH (non-condensing)

#### Article codes

Article code	Rated max. current, [A]	Fuse [A]
GTH21-75L22	7,5 A	T 10 A-H (5*20 mm)
GTH21100L22	10 A	T 12,5 A-H (5*20 mm)

#### Voltage series

Knob position	0	-	1	2	3	4	5	Auto mode
Regulated output [VAC]**	0	80*	110	140	170	190	230	according to temperature setpoint
Unregulated output [VAC]	0	Heating mode:						
		0 VAC if Temperature > Temperature setpoint 230 VAC if Temperature < Temperature setpoint						
Unregulated output [VAC]	0	Cooling mode:						
		0 VAC if Temperature < Temperature setpoint 230 VAC if Temperature > Temperature setpoint						

\* Available but not connected.

\*\* In **heating mode**, the motor will be disabled when  $T > T_s$ . In **cooling mode**, the motor will be disabled when  $T < T_s$ .

#### Area of use

- Applications where a single phase voltage controllable motor and a valve must be controlled in function of temperature (heating or cooling)
- For indoor use, surface mounted
- Clean air with non-aggressive, non-combustible gases
- The ideal controller for hot water air heaters in warehouses, workshops, greenhouses, stables, sheds, etc.



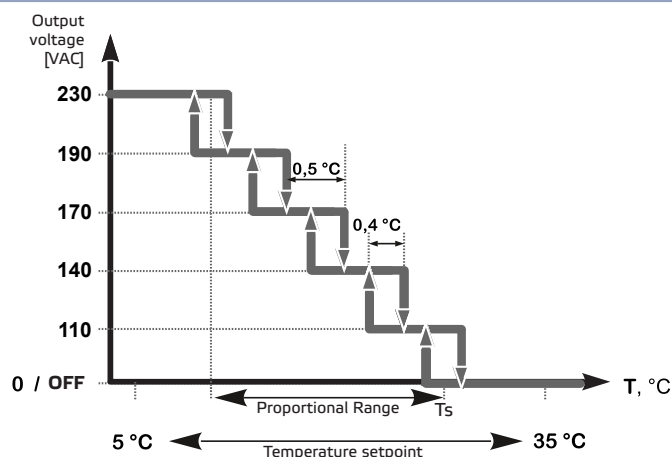
#### Legend

1 - Terminal blocks	
2 - PE terminals	
3 - Fuse	
4 - Mode selection jumper, P4	Removed: heating Installed: cooling
5 - PROG header, P3	Put a jumper onto pins 1 and 2 and wait for at least 15 seconds to reset the Modbus communication parameters Put a jumper onto pins 3 and 4 and restart the supply to enter bootloader mode
6 - LED1	Green Indicates the current state
7 - LED2	Green Indicates the state of the unregulated output if it is ON or OFF

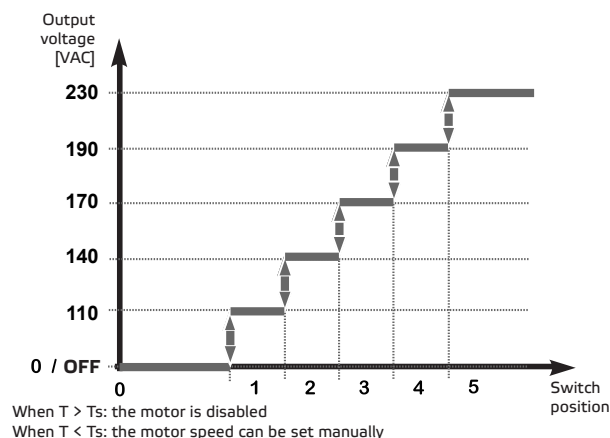


### Operational diagrams

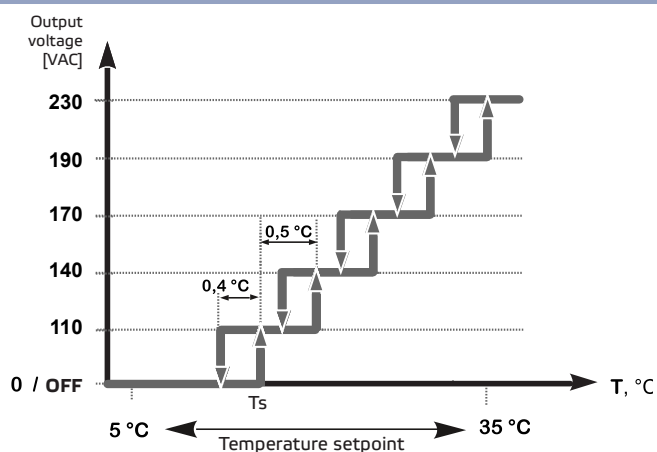
#### Heating - automatic mode



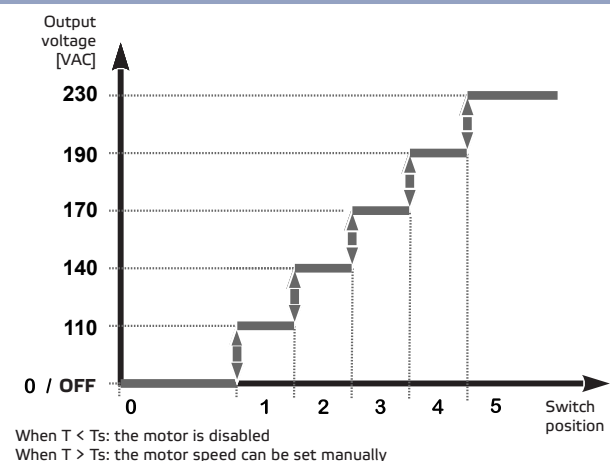
#### Heating - manual mode



#### Cooling - automatic mode



#### Cooling - manual mode



Cooling mode can be selected by putting a jumper on the P4 programming header on the PCB. Heating mode is the default operating mode

### Wiring and connections

<b>L</b>	Power supply, line (230 VAC / 50–60 Hz)
<b>N</b>	Power supply, neutral
<b>PE</b>	Protective earth
<b>U2</b>	Regulated output to motor - line
<b>U1</b>	Regulated output to motor - neutral
<b>PE</b>	Protective earth
<b>L1</b>	Unregulated temperature based output, line
<b>N</b>	Unregulated temperature based output, neutral
<b>PE</b>	Protective earth
<b>A</b>	Modbus RTU communication, signal A
<b>/B</b>	Modbus RTU communication, signal /B
<b>Temp</b>	External temperature probe PT500
<b>Connections</b>	Cable cross section: max. 2,5 mm <sup>2</sup>

### Standards

- Low Voltage Directive 2014/35/EU
  - EN 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendment AC:1993 to EN 60529
  - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
- EMC directive 2014/30/EU:
  - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
  - EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light industrial environments
  - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
- RoHS Directive 2011/65/EU



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## Modbus registers



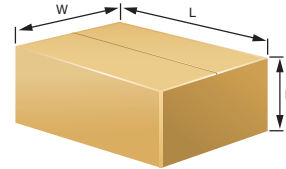
The parameters of the unit can be monitored / configured through the 3SModbus software platform or via the SenteraWeb cloud platform. You can download it from the following link:

<https://www.sentera.eu/en/3SMCenter>



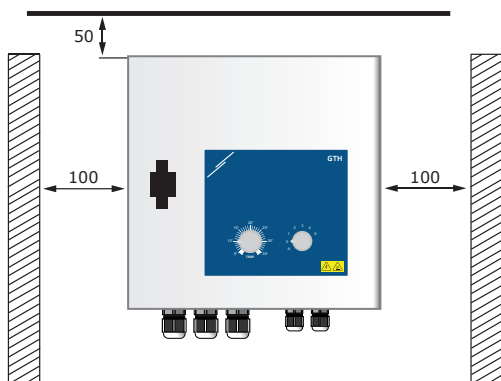
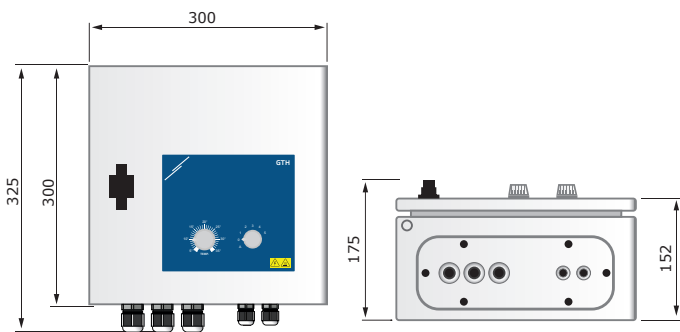
For more information about the Modbus registers, please refer to the product Modbus Register Map.

## Packaging



Article code	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight [kg]	Gross weight [kg]
GTH21-75L22	Unit (1 pc.)	330	300	190	7,0 kg	7,434 kg
	Pallet (55 pcs.)	1.200	800	1.050	385,0 kg	425,27 kg
GTH21100L22	Unit (1 pc.)	330	300	190	12,5 kg	12,94 kg
	Pallet (55 pcs.)	1.200	800	1.050	687,5 kg	727,77 kg

## Fixing and dimensions



## Global trade item numbers (GTIN)

Packaging	GTIN
GTH21-75L22	05401003018811
GTH21100L22	05401003018828

## Application example

