

GTEX1-60 | ELECTRONIC FAN SPEED CONTROLLER

Mounting and operating instructions

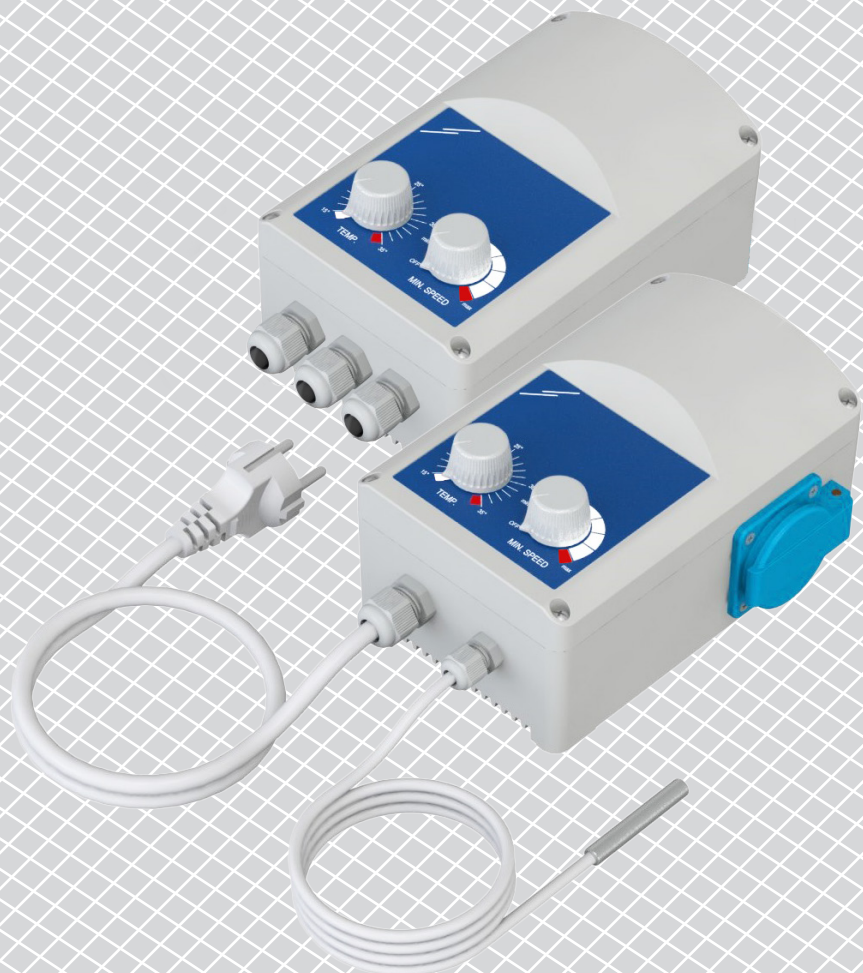


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SAFETY AND PRECAUTIONS



Read all the information, the datasheet, mounting and operating instructions and study the wiring and connection diagram before working with the product. For personal and equipment safety, and for optimum product performance, make sure you entirely understand the contents before installing, using, or maintaining this product.



For safety and licensing (CE) reasons, unauthorised conversion and /or modifications of the product are inadmissible.



The product should not be exposed to abnormal conditions, such as: extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible; avoid condensation.



All installations shall comply with local health and safety regulations and local electrical standards and approved codes. This product can only be installed by an engineer or a technician who has expert knowledge of the product and safety precautions.



Avoid contacts with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.



Always verify that you apply appropriate power supply to the product and use appropriate wire size and characteristics. Make sure that all the screws and nuts are well tightened and fuses (if any) are fitted well.



Recycling of equipment and packaging should be taken into consideration and these should be disposed of in accordance with local and national legislation / regulations.



In case there are any questions that are not answered, please contact your technical support or consult a professional.

PRODUCT DESCRIPTION

The GTE fan speed controller automatically regulates the speed of single phase voltage controllable motors (230 VAC / 50–60 Hz) according to the measured temperature values. The maximum speed can be adjusted via an internal trimmer. The minimum speed and temperature setpoint can be adjusted via external potentiometers. There are two product versions: -DM with Modbus RTU communication and -DT with an integrated motor socket, power cable and a PT500 temperature probe. The fan speed will increase as the measured temperature exceeds the setpoint temperature.

ARTICLE CODES

Code	Temperature range	PT500 temperature sensor included	Schuko socket for simple motor connection	Integrated power supply cable	Modbus RTU
GTE21-60-DM	5–35 °C	no	no	no	yes
GTE21-60-DT	5–35 °C	yes	yes	yes	no
GTE-1-60-DM	15–35 °C	no	no	no	yes
GTE-1-60-DT	15–35 °C	yes	yes	yes	no

INTENDED AREA OF USE

- Greenhouses and temperature controlled ventilation systems
- For indoor use only

TECHNICAL DATA

- Supply voltage: 230 VAC ±10 % / 50–60 Hz
- Output load: max. 6 A
- Potentiometer for minimum speed setting
- Internal trimmer for maximum speed setting
- Adjustable hysteresis and proportional range
- Potentiometer for temperature setpoint range: 5–35 °C or 15–35 °C, depending on the product version
- PT500 temperature probe input (pre-wired for the -DT version and separately available for the -DM version)
- Modbus RTU communication (only in -DM version)
- Schuko socket for motor connection (only in -DT version)
- Euro plug for power supply (only in -DT version)
- Pre-wired temperature sensor and supply cable (only in -DT version)
- Enclosure: plastic R-ABS, V; grey colour (RAL 7035)
- Protection standard: IP54 (according to EN 60529)
- Storage temperature: -40–50 °C
- Operating ambient conditions:
 - temperature: 0–40 °C
 - rel. humidity: <95 % rH (non-condensing)
- Storage temperature: -40–50 °C

STANDARDS

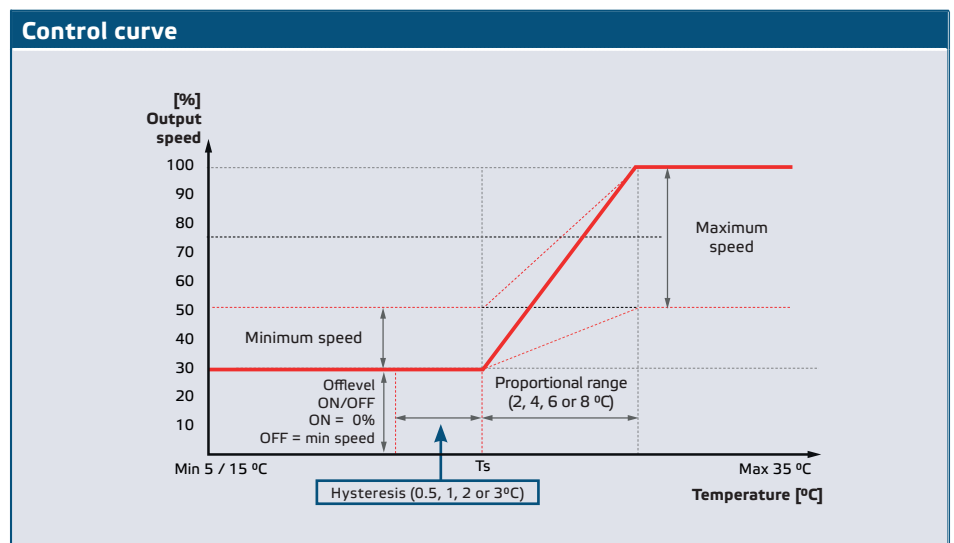
- Low Voltage Directive 2014/35/EC
- EMC Directive 2014/30/EC: EN 61000-3-2:2014, EN 61000-6-2:2005/AC:2005 and EN 61000-6-3:2007/A1:2011/AC:2012
- WEEE Directive 2012/19/EC
- RoHs Directive 2011/65/EC



WIRING AND CONNECTIONS

GTEX1-60-DM	
L	Supply voltage 230 VAC / 50–60 Hz – mono phase ±10 %
N	Neutral
L1	230 VAC unregulated output (max. 2 A)
GND, T (TEMP)	PT500 temperature sensor
A	RS485 signal A
/B	RS485 signal /B
P5	Motor connection
GTEX1-60-DT	
L	Supply voltage 230 VAC / 50–60 Hz – mono phase ±10 %
N	Neutral
PE	Ground
L1	230 VAC unregulated output (max. 2 A)
GND, T (TEMP)	PT500 temperature sensor
Schuko socket	Motor connection

OPERATIONAL DIAGRAM

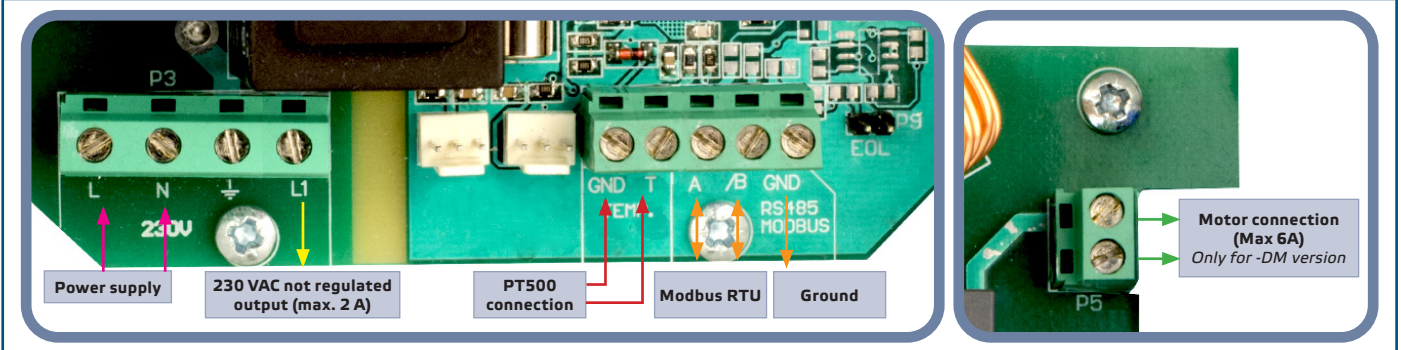


MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting the unit, read carefully **“Safety and Precautions”**. Choose a flat surface for installation (e.g. a wall, panel, etc.) and follow these steps:

1. Insert the supply and sensor cables through the cable glands and do the wiring according to the information in section **“Wiring and connections”** while adhering to **Fig. 1** below.

Fig. 1 Wiring diagram



NOTE

For the -DT version the power supply and the temperature sensor (PT500) are included in the set and factory connected. Also, the -DT version has a Schuko socket to plug in the motor / fan. If your unit is -DT, please skip step 1.

2. Fix the jumpers accordingly - see **Fig. 2** Jumper positions below.

NOTE

The -DM version can be used both as a stand-alone unit or in conjunction with a computer and operated by Sentera’s 3SModbus software or the Sensistant configurator. When used stand-alone, its jumpers need to be set to the desired values. When used in Modbus mode, its parameters are set via Modbus RTU, so the jumpers can remain in their factory set positions. Refer to the **Modbus Holding Registers Table** below for the relevant settings.

Fig. 2 Jumper positions

Propor. Range (JP1 & JP2)		Hysteresis (JP3 & JP4)		Off-level (JP5 & JP6)	
1	<input checked="" type="checkbox"/>	3	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>
2	<input checked="" type="checkbox"/>	4	<input checked="" type="checkbox"/>	5	<input type="checkbox"/>
1	<input type="checkbox"/>	3	<input type="checkbox"/>	On	
2	<input type="checkbox"/>	4	<input checked="" type="checkbox"/>	Off (factory preset)	
1	<input checked="" type="checkbox"/>	3	<input checked="" type="checkbox"/>		
2	<input type="checkbox"/>	4	<input type="checkbox"/>		
1	<input type="checkbox"/>	3	<input type="checkbox"/>		
2	<input type="checkbox"/>	4	<input checked="" type="checkbox"/>		

-DM version mounting steps: [Go to -DT version](#)

1. Make sure the GTE controller is not connected to the mains supply.
2. Unscrew the front cover and open the enclosure. Mind the wires that connect the potentiometer with the printed circuit board.
3. Fix the unit to the wall or panel using the provided screws and dowels. Mind the correct mounting position and unit mounting dimensions. (See **Fig. 3** Mounting dimensions and **Fig. 4** Mounting position).

Fig. 3 Mounting dimensions

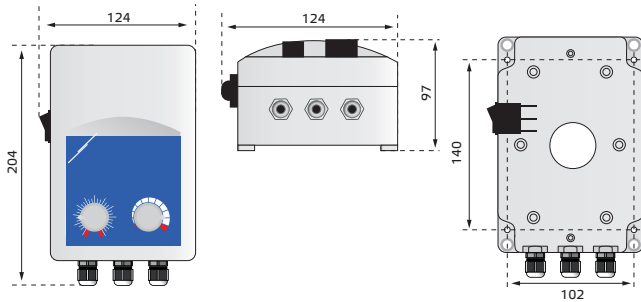
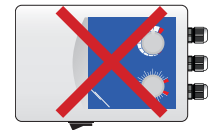


Fig. 4 Mounting position

Correct

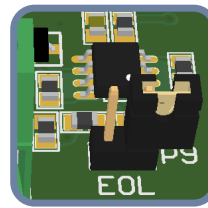


Incorrect



4. Set the maximum speed trimmer to the desired value. You can choose from the range 170–230 VAC. The factory setting is 230 VAC.
5. **Optional setting:**
 - The Network Bus Terminator (NBT) (see **Fig. 5 NBT jumper**) used with Modbus RTU. By default the NBT is disconnected.

Fig. 5 NBT jumper



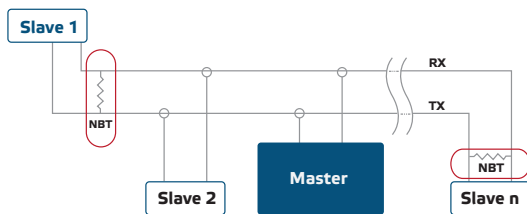
	NBT is connected
	NBT is disconnected (factory pre-set)

NOTE

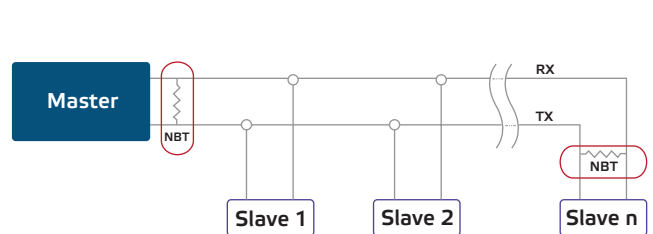
Connect the NBT only in the two most distant units on the network line!

- Connect the NBT by placing the jumper onto the pins as indicated above only if your unit starts or terminates the network. Skip this step if your unit is not the first or last on the network. See the examples below for more information.

Example 1



Example 2



6. Put back the front cover and fix it.

-DT version mounting steps: [Back to -DM version ►](#)

1. Make sure the GTE controller is not connected to the mains supply.
2. Unscrew the front cover and open the enclosure. Mind the wires that connect the potentiometer with the printed circuit board.
3. Fix the unit to the wall or panel using the provided screws and dowels. Mind the correct mounting position and unit mounting dimensions. (See **Fig. 6 Mounting dimensions** and **Fig. 7 Mounting position**)

Fig. 6 Mounting dimensions

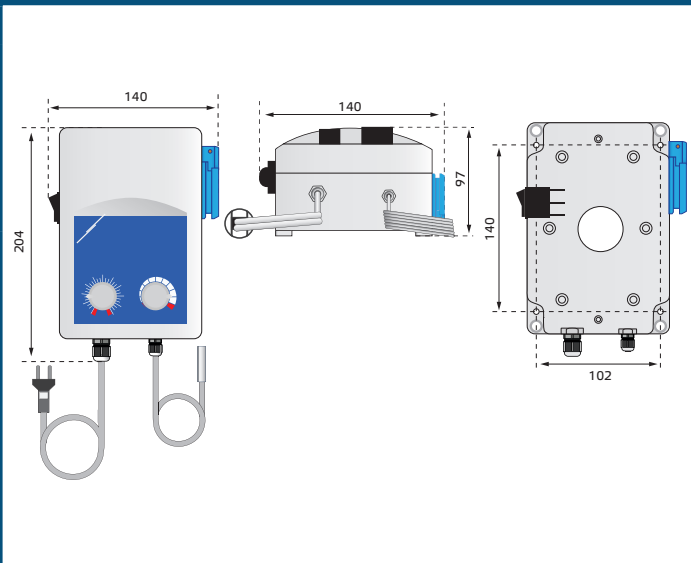
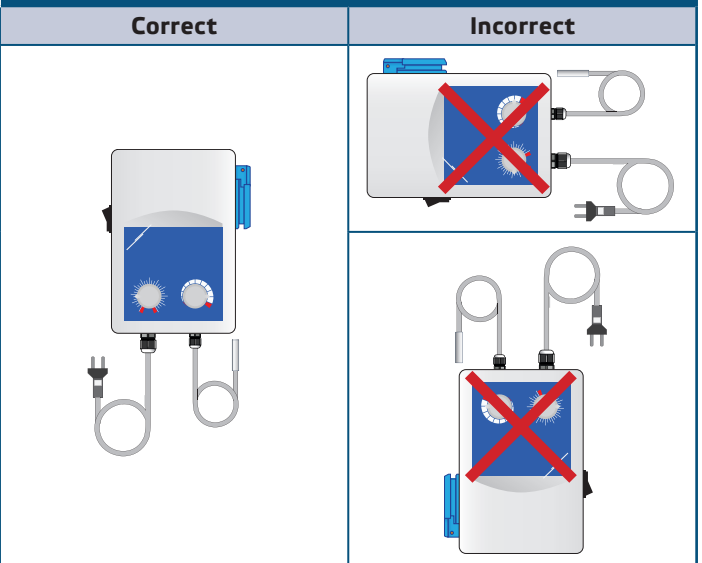
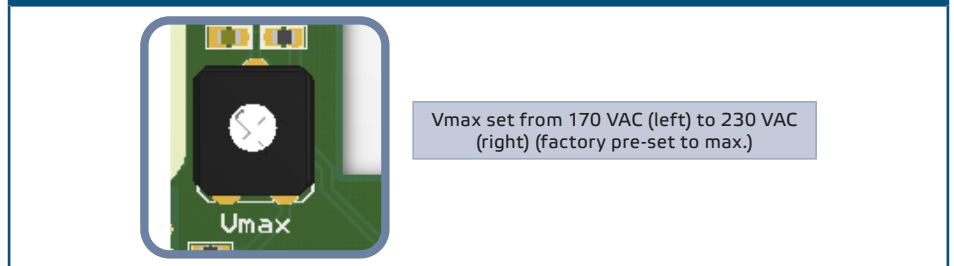


Fig. 7 Mounting position



- Set the maximum speed trimmer to the desired value (see **Fig. 8 Max. speed trimmer**). You can choose from the range 170–230 VAC. The factory setting is 230 VAC.

Fig. 8 Max. speed trimmer



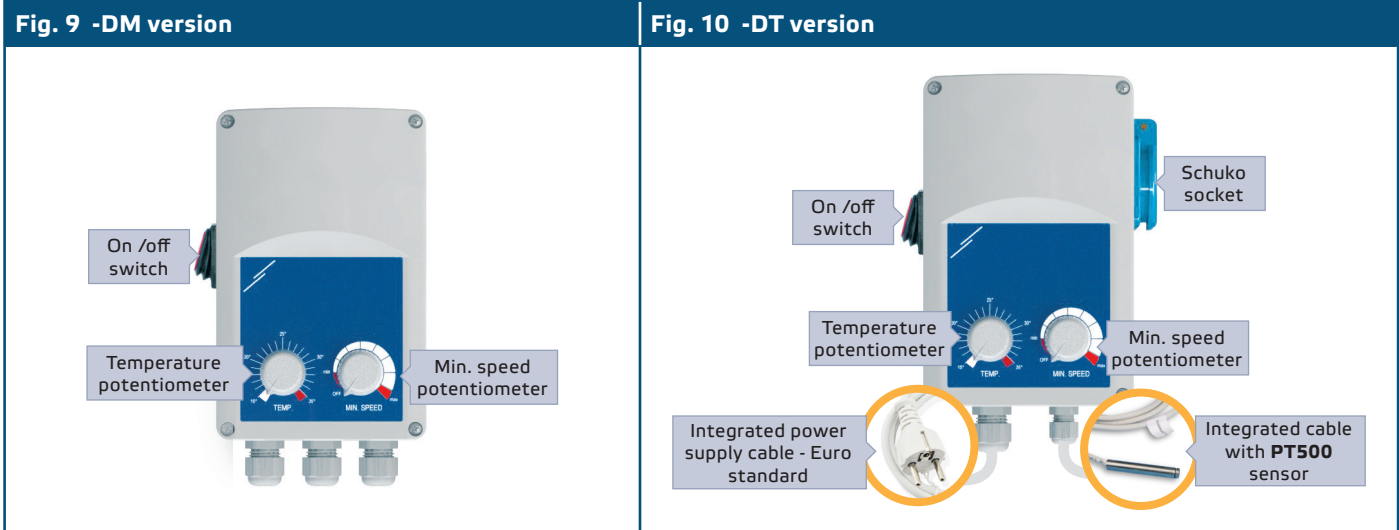
- Put back the front cover and fix it.
- Plug the motor / fan cable into the Schuko socket.

VERIFICATION OF INSTALLATION INSTRUCTIONS

ATTENTION

Use only tools and equipment with non-conducting handles when working on electrical devices..

- Plug in the supply cable.
- Switch on the controller via the illuminated ON/OFF switch.
- Position the TEMP. potentiometer to max. position (35 °C). (See **Fig. 9 -DM version** and **Fig. 10 -DT version**)



4. The connected motor will run at min. speed.
5. Adjust the TEMP. potentiometer to temperature equal to the ambient temperature.
6. The motor / fan will run at min. speed and speed up if the ambient temperature rises (hold the temperature probe in your hands to check).
7. Adjust the temperature potentiometer to the min. position (5 °C for GTE21-60-DM and GTE21-60-DT or 15 °C for GTE-1-60-DM and GTE-1-60-DT)
8. The motor will run at max. selected speed if the difference between the setpoint temperature and the ambient temperature is more than the value of the selected proportional range.
9. If the unit does not operate as explained above, check the connections and settings.

MODBUS REGISTERS MAPS

INPUT REGISTERS (Read-only)							
		Data type	Description	Data	Values		
1	Temperature input	unsigned int.	Analog temperature input	0–600	0 = 600 =	0,0 °C 60.0 °C	
2	Vmax	unsigned int.	Max. motor speed value	170–230	170 = 230 =	170 VAC 230 VAC	
3	Vmin	unsigned int.	Min. motor speed value	80–160	80 = 160 =	80 VAC 160 VAC	
4	Output voltage	unsigned int.	Current output voltage	0,80–230	0 = 80 = 230 =	0 VAC 80 VAC 230 VAC	
5	Temperature setpoint	unsigned int.	Temperature setpoint value	GTE21-60-DM GTE-1-60-DM	50–350 150–350	50 = 150 = 350 =	5,0 °C 15,0 °C 35,0 °C
6	Proportional range	unsigned int.	Proportional temperature value	1–4	1 = 2 = 3 = 4 =	2 °C 4 °C 6 °C 8 °C	
7	Hysteresis	unsigned int.	Hysteresis value	1–4	1 = 2 = 3 = 4 =	0,5 °C 1 °C 2 °C 3 °C	
8	Off level	unsigned int.	Off level value	0, 1	0 = 1 =	OFF ON	
9	Sensor status	unsigned int.	Input sensor status	0, 1	0 = 1 =	sensor connected sensor disconnected	
10			Reserved, Returns '0'				

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

HOLDING REGISTERS (Read/write)									
Address	Data type	Description	Data		Default	Values			
1	Address	Modbus device address	1–247		1				
2	Modbus baud rate	Modbus communication baud rate	1–4		2	1 =	9,600		
						2 =	19,200		
						3 =	38,400		
						4 =	57,600		
3	Modbus parity mode	Parity check mode	0–2		1	0 =	8N1		
						1 =	8E1		
						2 =	8O1		
4	Device type	Device type (Read only)	GTE21-60-DM=3013 GTE-1-60-DM=3003						
5	HW version	Hardware version of the device (Read only)	XXXX			GTE21-60-DM	0x0210 =	HW version 2.10	
						GTE-1-60-DM	0x0200 =	HW version 2.00	
6	SW version	Software version of the device (Read only)	XXXX			GTE21-60-DM	0x0300 =	SW version 3.00	
						GTE-1-60-DM	0x0230 =	SW version 2.30	
7	Operating mode	Mode of operation	0–1		0	0 =	Standalone mode		
						1 =	Modbus mode		
8	Output overwrite	Output overwrite mode	0–1		0	0 =	Disabled		
						1 =	Enabled		
9-10		Reserved, return '0'							
11	Vmax	Max. motor speed value	170–230		230	170 =	170 VAC		
						230 =	230 VAC		
12	Vmin	Min. motor speed value	80–160		80	80 =	80 VAC		
						160 =	160 VAC		
13	Temperature setpoint	Temperature setpoint value	GTE21-60-DM	50–350	150	50 =	5,0 °C		
			GTE-1-60-DM	150–350		150 =	15,0 °C		
						350 =	35,0 °C		
14	Proportional range	Proportional range value	1–4		2	1 =	2 °C		
						2 =	4 °C		
						3 =	6 °C		
						4 =	8 °C		
15	Hysterisis	Hysterisis value	1–4		3	1 =	0,5 °C		
						2 =	1 °C		
						3 =	2 °C		
						4 =	3 °C		
16	Off level	Off level value	0–1		0	0 =	OFF		
						1 =	ON		
17	Modbus time-out control	Modbus time-out control value	0–1		0	0 =	Disabled		
						1 =	Enabled		
18	Modbus time-out	Modbus time-out value	0–60		1	1 =	1 min		
						60 =	60 min.		
19	Vout	Set override output voltage	0,80–230		0	0 =	0 VAC		
						80 =	80 VAC		
						230 =	230 VAC		
20		Reserved, returns '0'							

Note: The holding registers can be managed via the following Modbus commands: "Read Holding Registers", "Write Single Register" or "Write Multiple Registers".
 If you want to find out more about Modbus over serial line, please visit: http://www.modbus.org/docs/Modbus_over_serial_line_V1_02.pdf

TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in the original packing.

WARRANTY AND RESTRICTIONS

Two years from the delivery date against defects in manufacturing. Any modifications or alterations to the product after the date of publication relieve the manufacturer of any responsibilities. The manufacturer bears no responsibility for any misprints or mistakes in this data.



Use only fuses of the type and rating specified above; otherwise, loss of warranty will ensue.

MAINTENANCE

In normal conditions this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.