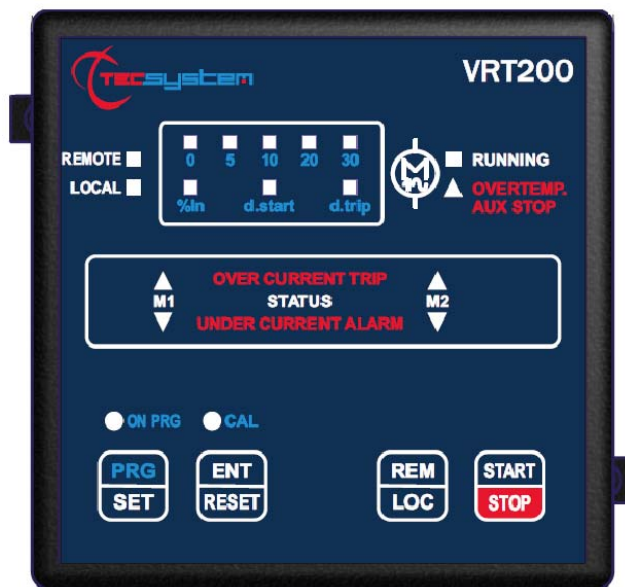


# INSTRUCTION MANUAL

## VRT200



1MN0046 REV. 0



operates with ISO9001 certified quality system

**TECSYSTEM S.r.l.**  
20094 Corsico (MI)  
Tel.: +39-024581861  
Fax: +39-0248600783

<http://www.tecsystem.it>

R. 1.4 07/11/16

ENGLISH

“Translations of the original instructions”

# INTRODUCTION

First of all we wish to thank you for choosing to use a **TECSYSTEM** product and recommend you read this instruction manual carefully: You will understand the use of the equipment and therefore be able to take advantage of all its functions.

ATTENTION! THIS MANUAL IS VALID AND COMPLETE FOR THE UNIT VRT200

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## SAFETY REQUIREMENTS



### ATTENTION:

Read the manual carefully before starting to use the control unit. Keep the instructions for future reference.



Do not open the device, touching any internal components can cause electric shock. Contact with 230 Volts AC can be fatal. To reduce the risk of electric shock, do not dismantle the back of the device for any reason. Moreover its opening would void the warranty.

**Before connecting the device to the power supply, make sure that all the connections are correct.** Always disconnect the unit from the supply before any cabling modification.



Any intervention on the equipment must be entrusted to a qualified repair engineer.

**Failure to comply with these instructions can cause damages, fires or electric shock, and possible serious injuries!**

### POWER SUPPLY

The VRT200 series can be supplied by 230Vac 50/60Hz .

Before using it, make sure the power cable is not damaged, kinked or pinched. Do not tamper with the power cable. Never disconnect the unit by pulling the cable, avoid touching the pins. Do not carry out any connecting/disconnecting with wet hands. To disconnect the device, do not use objects such as levers. Immediately disconnect the device if you smell burning or see any smoke: contact technical service.

### LIQUIDS

Do not expose the equipment to splashes or drops, do not position it in places with humidity exceeding 90% and never touch with wet or humid hands during storms. If any liquid penetrates the control unit, disconnect it immediately and contact technical service.

### CLEANING

Disconnect the power cable before cleaning the control unit, use a dry cloth to dust it, without any solvent or detergents, and compressed air.

### OBJECTS

Never insert any objects into the cracks of the control unit. If this happens, disconnect the control unit and contact an engineer.

### USE RESERVED TO QUALIFIED PERSONNEL

The purchased goods are a sophisticated electronic device that is totally unsuitable to be used by non-qualified personnel. Any intervention must be carried out by a specialist engineer.

### ACCESSORIES

The use of non-original accessories or spare parts might damage the unit and endanger users' safety. In the event of faults, contact technical service.

### LOCATION

Install the control unit indoors, in a place protected from water splashes and sun rays. Do not place near heat sources exceeding the parameters stated in this manual. Position on a stable surface, far from any possible vibrations. Position the unit as far as possible from any intense magnetic fields.

### REPAIRS

Do not open the control unit. For any fault, always use qualified personnel. The opening of the control unit and/or the removal of the series identifying label entails the automatic forfeiture of the warranty. The Warranty seal is applied to all devices, any attempt to open the unit would break the seal and cause the consequent automatic forfeiture of the warranty.

### TECHNICAL INFORMATION

Mail: [ufficiotecnico@tecsystem.it](mailto:ufficiotecnico@tecsystem.it) — tel: 02/4581861

## ACCESSORIES

The following objects are present inside the box:

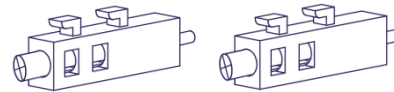
Control unit



Start guide and QR CODE



2 blocks for panel mounting



1 ENABLE contact terminal 2 poles pitch 5  
Code: 2PL0363 - Screws tightening torque 0.5Nm



2 Supply and relay terminal 3 poles pitch 5  
Code: 2PL0367 - Screws tightening torque 0.5Nm



1 PTC line connection terminal 3 poles



1 motor line terminal 4 poles pitch 5  
Code: 2PL0369 - Screws tightening torque 0.5Nm

1MN0030 REV. 2

**ATTENTION:** always install the device using the terminals included in the pack. The use of terminals other than those included with the control unit might cause malfunctions.

<b>TECHNICAL SPECIFICATIONS</b>	<b>VRT200</b>
<b>POWER SUPPLY</b>	
Supply rated values	230 Vac $\pm 10\%$ (10 A max) 50/60 Hz
<b>INPUTS</b>	
1 contact enabling remote control (ENABLE)	●
2 inputs for temperature control with PTC or AUX contact	●
1 motor line supply input 250Vac max (10 A max) 50/60 Hz	NO
Connections on removable terminal strips	●
<b>OUTPUTS</b>	
1 fault sensor or operating failure (FAULT) relay <b>SPDT</b>	●
Output relay with 5A-250Vac-res $\text{COS}\Phi=1$ contacts.	●
2 M1-M2 outputs: 250Vac max $\pm 10\%$ 5A max 50/60Hz. <b>SPST</b>	●
<b>DIMENSIONS</b>	
100x100 mm– din43700-depth 131mm (terminal block included)	Hole 92 x 92 mm
<b>TEST AND PERFORMANCE</b>	
Construction in compliance with CE regulations	●
Protection from electrical interference EN 61000-4-4	●

## TECHNICAL SPECIFICATIONS

VRT200

### TEST AND PERFORMANCE

Dielectric strength 1500 Vac for 1 minute: supply - relay fault, supply - remote.

•

Ambient operating temperature from -20°C to +60°C

•

Humidity 90% non-condensing

•

Housing NORYL 94\_V0

•

Absorption 5VA (max)

•

Protection treatment of the electronic part

Option

Front polycarbonate IP65

•

### DISPLAY AND DATA MANAGEMENT

LED's alarm: undercurrent, overcurrent, (overtemp-aux stop only on VRT200).

•

LED's running: remote, local

•

LED's prg setting, cal.

•

Initial AUTO-TUNING to set up motors' operation

•

Front button to START/STOP motors locally

•

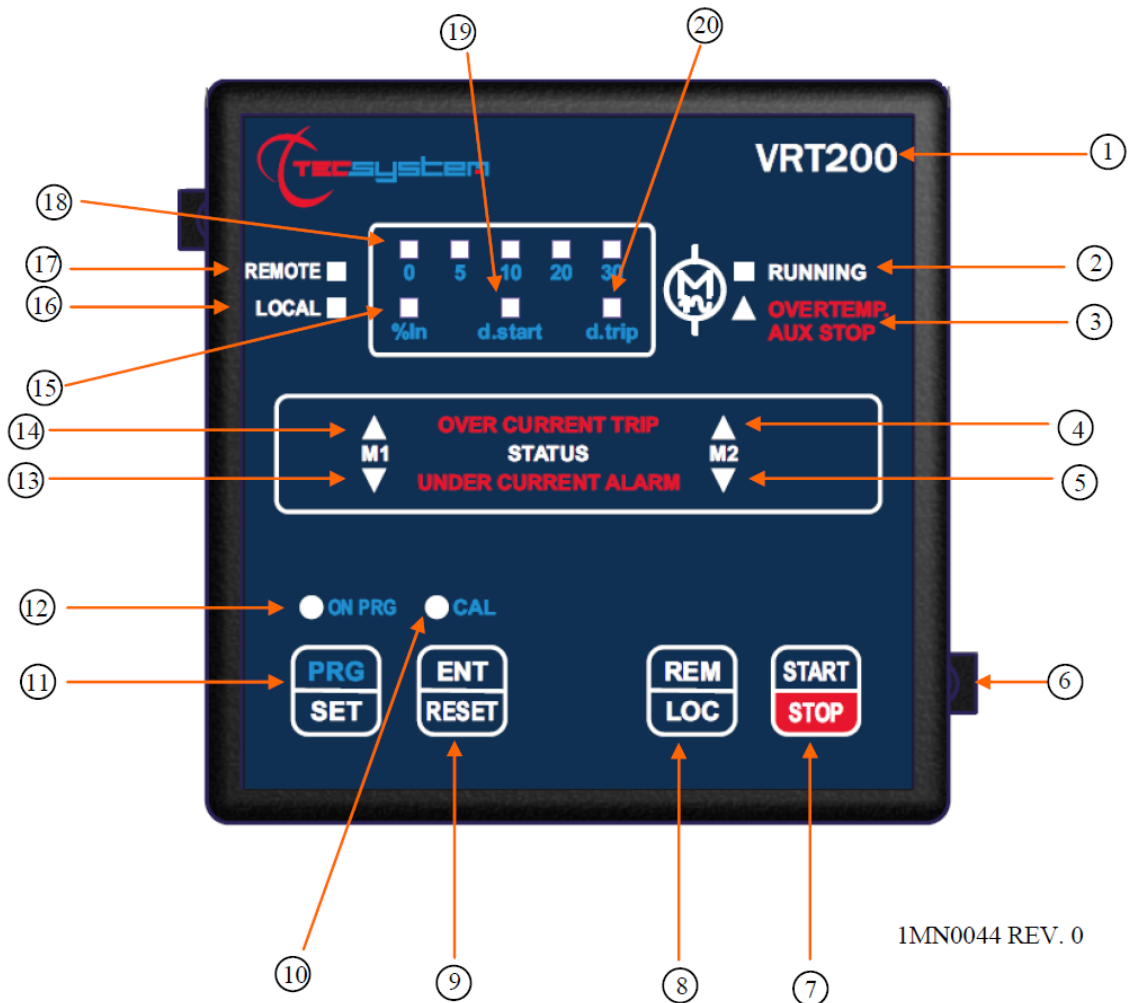
Front alarm RESET button

•

Access to programming through front button

•

## FRONT PANEL

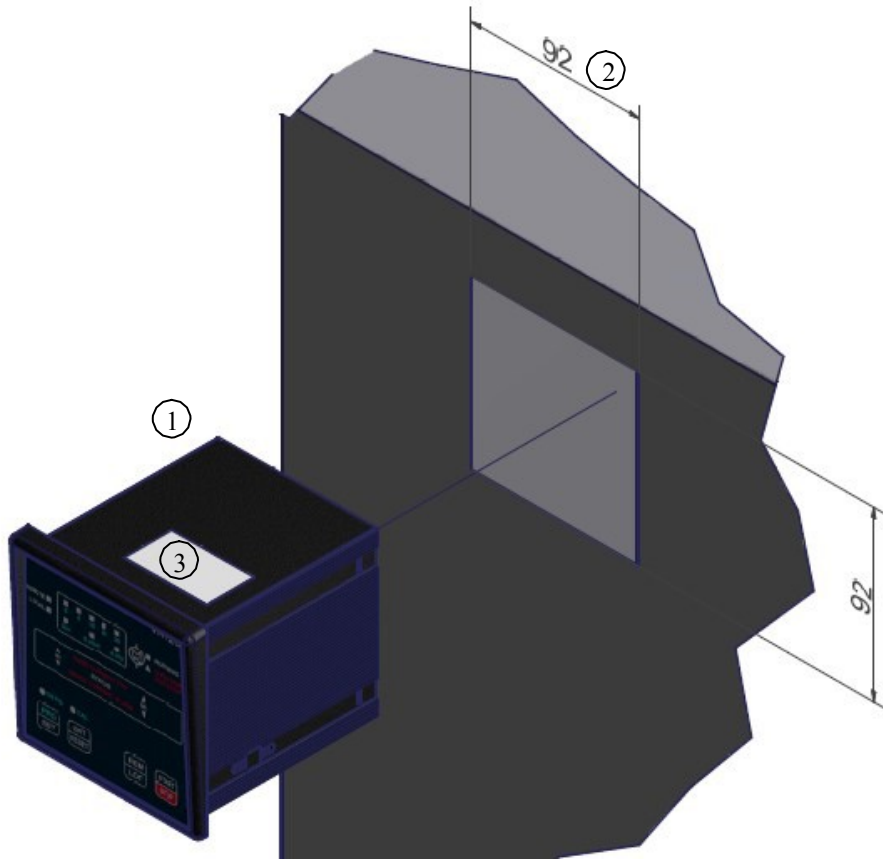


1MN0044 REV. 0

1)	Control unit series	11)	PRG/SET button: entering programming and going on to the following step
2)	Active (running) ventilation LED (green)	12)	Programming phase ON PRG LED (yellow)
3)	Overtemperature stop LED (red) (only VRT200)	13)	M1 motor in under-current LED (yellow)
4)	M2 motor in over-current LED (red)	14)	M1 motor in over-current LED (red)
5)	M2 motor in under-current LED (yellow)	15)	Current variation LED (yellow)
6)	Fixing block	16)	Fans' local management LED (red)
7)	Fans' local START/STOP button	17)	Fans' remote control LED (green)
8)	Fans' control mode REM/LOC button (REMOTE or LOCAL)	18)	Programming selection LED (yellow) (% In, d.start, d.trip)
9)	ENT/RESET button: alarm reset and programming data selection	19)	Monitoring delay LED (yellow) at start up d.start
10)	Motors' auto-tuning phase LED (yellow)	20)	Trip delay LED (yellow) d.trip

## MOUNTING

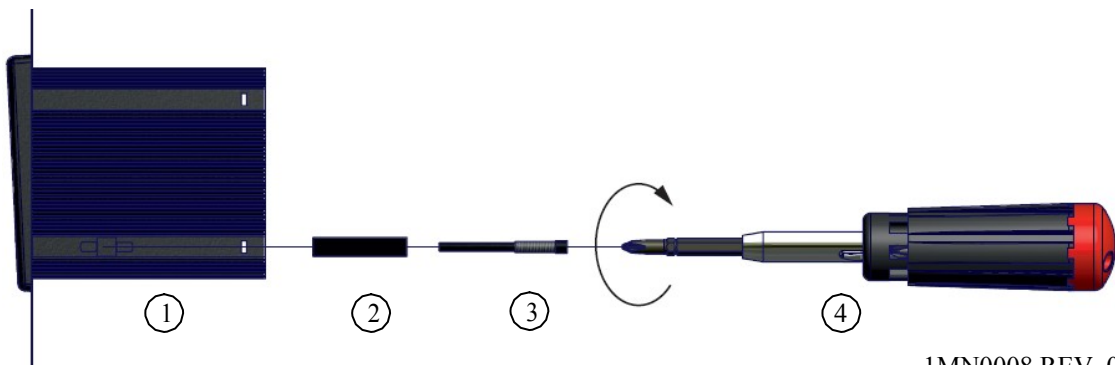
Drill a 92 x 92 mm hole in the panel sheet.



1MN0063 REV. 0

1)	Control unit	2)	Panel hole dimensions (+0.8mm tolerance)
3)	Identification label		

Fix the unit securely with the blocks supplied.



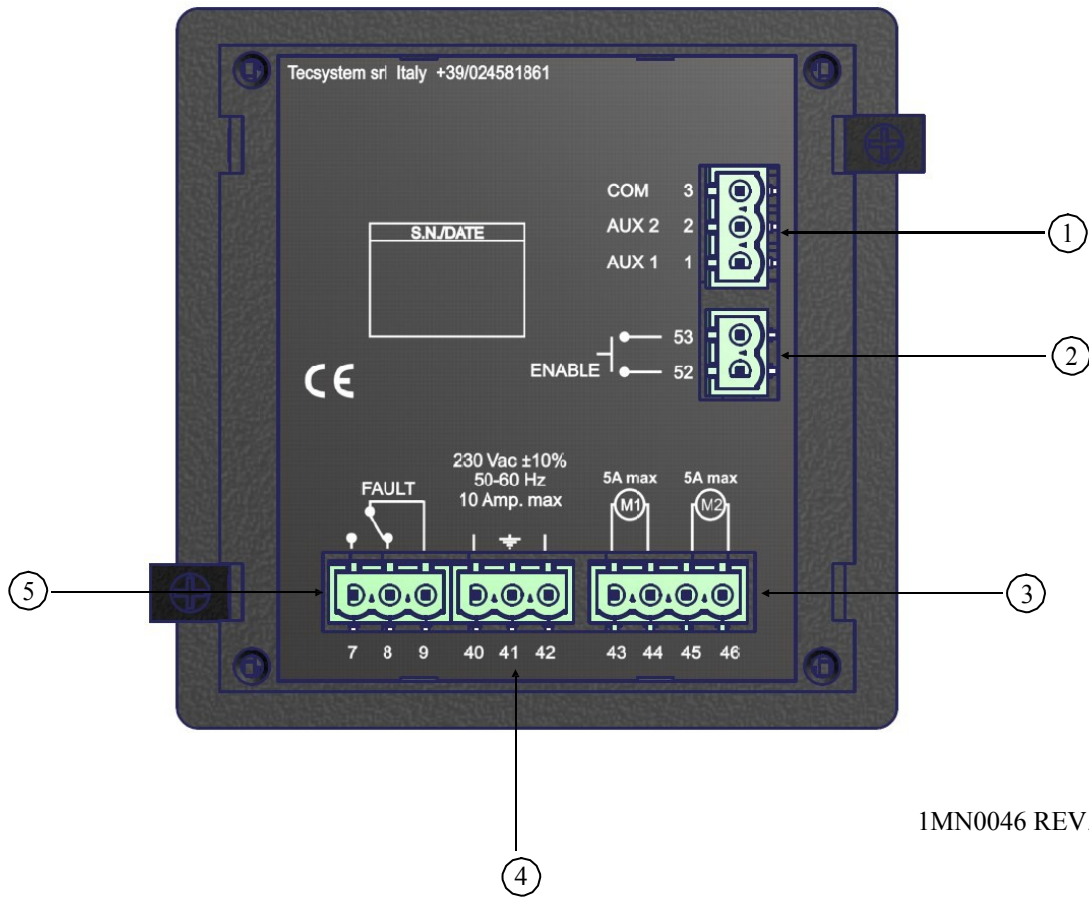
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1)	Control unit	3)	Fixing screw
2)	Fixing block	4)	Crosshead screwdriver #1X100mm



# ELECTRICAL CONNECTIONS

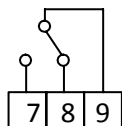
VRT200



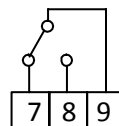
1MN0046 REV. 0

1)	AUX 1 - AUX 2 (COM) inputs fan temperature control PTC sensor connection	4)	Control unit and fan line supply 230V±10% 50-60 Hz 10 Amp.max
2)	Remote enabling contact ENABLE	5)	FAULT relay (fault signal)
3)	M1-M2 motor line connection (5A max)		

**Note:** with the power to the unit ON, the FAULT relay switches, contacts 8-9 open (NO) and 7-9 closed (NC).



FAULT 8-9 NC: ALARM FAULT OR POWER OFF



FAULT 7-9: NC POWER ON

## **POWER SUPPLY**

The VRT200 control unit must be supplied with 230Vac  $\pm 10\%$  50/60Hz, check the connection diagrams on pages 9 and 10.

A variation in the network voltage of over 10% might cause alarms because of the current variation in the load.

If the electrical system is affected by harmonic frequencies, alarm warnings might be triggered because of the consequent variation in the current absorbed by the motors.

It is good practice to make sure that the level of system harmonics is not such as to cause malfunction or damages to all the connected electrical and electronic instruments, in compliance with the regulations in force for the type of system.

## **OPERATION**

When switched on, the device carries out a LAMP TEST and is set either in REMOTE or LOCAL mode, according to how it was set before being switched off.

In REMOTE mode the fans are activated when contact 52-53 closes, which must be connected to the FAN contact of the temperature control unit.

In LOCAL mode the fans are activated by pressing the <START-STOP> button. The status of operation is stored in case of power failure.

## **HOW TO CHECK THE ALARM STATUS**

- **Running LED OFF:** no ventilation activation control
- **Running LED ON:** REMOTE or LOCAL ventilation activation
- **Over- and under-current LEDs OFF:** motor operating correctly
- **Over-current LED ON:** motor stopped due to over-current
- **Under-current LED ON:** motor working + under-current alarm signal
- **Over- and under-current LEDs ON + overtemp aux stop:** overtemperature alarm
- **Under-current LED flashing:** motor disconnected while auto-tuning
- **Over-current LED ON:** motor consumption  $> 5.5A$  (immediate trip without any delay)
- **All LEDs flashing:** corrupted memory error (ech); press reset and repeat the programming procedure

**N.B.:** A motor in a state of alarm or the interruption of supply to the device make contacts 8-9 of the FAULT relay close.

## **HOW TO RESET A MOTOR IN ALARM**

To reset an alarm due to under-current, over-current, overtemp-aux, press the RESET button after carrying out the necessary checks and any repairs might be required.

## **OPERATION WITH BAR 400 OR 600**

The 400 and 600 bars are fitted with low current variation motors in case of a motor block. **To optimise the operation of the VRT200 control unit with these bars, we recommend the alarm threshold is programmed at 5%.**

## **OPERATION WITH FANS NOT TECSYSTEM**

The proper functioning of the VRT unit is guaranteed only for: fans with current absorption between 250mA (IN MAX 20%) or 300mA (IN MAX 30%) and 5A , single phase, single speed and power variation is not greater than  $\pm 10\%$ .













**IMPORTANT NOTE:** if an existing control unit must be replaced with a new one, to guarantee its correct and safe operation, all the connecting terminals must be replaced with the new terminals supplied, on condition the brand of the new terminals is different from the one of the previously installed ones.



# PROGRAMMING

## VRT200

STEP	PRESS	EFFECT	PRESS	NOTES
1		Programming start		Keep pressing for 5 seconds until the ON PRG LED switches ON.
2		Programming "%In"		Set the maximum current variation allowed as a percentage (5-10-20-30%) of the In. rated value.  Default 5%
3		Going to the "d.start" programming step		Start delay: fan start time during which no alarm is generated
4		Selection of the time in seconds "d.start"		Select the desired time (5-10-20-30 sec.)  Default 5
5		Going to the "d.trip" programming step		Trip delay: time during which the alarm persists, necessary for signalling
6		Selection of the time in seconds "d.trip"		Select the desired time (5-10-20-30 sec.)  Default 5
7		<b>VRT200</b> Going to the "OVERTEMP-AUX STOP" programming step		By enabling this function it is possible to connect a PTC (or series of PTCs) to control the motor temperature. AUX1 for the M1 line and AUX2 for the M2 line
8		<b>VRT200</b> Enabling or disabling PTC inputs.		LEDs ▲ ON: PTCs enabled LEDs ▼ ON: PTC disabled N.B.: if the PTC sensors are not connected, the function must be disabled.  Default disabled
9		Motor start for automatic calibration CAL LED ON 		To perform the "automatic calibration" all motors must be connected as per final configuration. At the START the motors are switched ON for 60 seconds, the CAL LED flashes and LEDs 0-5-10-20-30 light up in sequence. When the calibration is completed, the control unit resets and goes into REMOTE mode

**N.B.:** any connection or programming errors might cause fan malfunctions.



**ATTENTION:**

We recommend you check the control unit before starting the device.

The default parameters set by TECSYSTEM might not suit your requirements.

Programming the device is the end user's responsibility: the set alarm thresholds and the enabled functions described in this manual must be checked (by a specialized technician) referring them to the application and system characteristics on which the control unit is installed.

## WARRANTY CONDITIONS

The Product purchased is covered by the manufacturer's or seller's warranty at the terms and conditions set forth in the "Tecsystem s.r.l.'s General Conditions of Sale", available at [www.tecsystem.it](http://www.tecsystem.it) and / or in the purchase agreement.

The warranty is considered valid only when the product is damaged by causes attributable to TECSYSTEM srl, such as manufacturing or components defects.

The warranty is invalid if the Product proves to have been tampered with / modified, incorrectly connected, because of voltages outside the limits, non-compliance with the assembly and use technical data, as described in this instruction manual.

The warranty is always ex Corsico as stated in the "General Conditions of Sale".

TROUBLESHOOTING	CAUSES AND SOLUTIONS
The control unit does not switch on and the supply to terminals 40-42 is correct.	Check that: the connector is correctly inserted into its housing, the wires are tightened, there is no evidence of burning on the connectors. Disconnect the power supply, carry out the above and reconnect.
M1 or M2 over-current red LED ON	Check the condition of the fans and replace any faulty ones. Re-program the device.
M1 or M2 under-current yellow LED ON	Check the condition of the fans, the cables and the supply. Re-program the device.
All the LEDs are flashing	Memory error, press RESET and repeat the programming procedure.
All the LEDs are ON	Likely microcontroller fault, return the device to Tecsystem for repair.

Contact *TECSYSTEM Technical Department* if the problem persists.

## EQUIPMENT DISPOSAL

European directives 2012/19/EC (WEEE) and 2011/65/EC (RoHS) have been approved to reduce electrical and electronic waste and promote the recycling and reuse of the materials and components of this equipment, cutting down on the disposal of the residues and harmful components of electrical and electronic materials.



All the electrical and electronic equipment supplied after 13 August 2005 is marked with this symbol, pursuant to the European directive 2002/96/EEC on electrical and electronic waste (WEEE). Any electrical or electronic equipment marked with this symbol must be disposed of separately from normal domestic waste.

Returning used electrical devices: contact TECSYSTEM or the TECSYSTEM agent for information on the correct disposal of the devices.

TECSYSTEM is aware of the impact its products have on the environment and asks its customers active support in the correct and environmentally-friendly disposal of its devices.

## USEFUL CONTACTS

TECHNICAL INFORMATION : [ufficiotecnico@tecsystem.it](mailto:ufficiotecnico@tecsystem.it)

SALES INFORMATION : [info@tecsystem.it](mailto:info@tecsystem.it)

