



TECHNICAL MANUAL



BOILER MANAGEMENT SYSTEM QETERM01CE – QETERM01RU2

Technical manual QETERM01CE - QETERM01RU2 Rev. 2014-07



*Dear user,
thank you for choosing our product. ICI Kronos comes from a non-stop research and state of the art technology. Genuine quality materials and components make our device a very reliable product. Our range of products follows all UNI, CEI and EN directives related to safety and electromagnetic compatibility (Directive 72/23/EEC relating to electrical equipment designed for use within certain voltage limits and Directive 89/336/CEE relating to electromagnetic compatibility). We recommend to follow the instructions in this manual with great care.*

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1 GENERAL FEATURES

- Electronic board with upgradeable firmware *
- Provision of remote management through optional modem
- Management burner control with three-points; Modulating burner management with 0-10 Volt control

- Temperature regulation of the flow delivery temperature with optional external probe
- 2 Programmable outputs (230Vac / 2A) for:
 - boiler pump/valve
 - water heater pump (with thermostat or optional sensor)
 - condensate pump
 - forward zone system pump
 - mixed zone pump
 - cascade collector pump
 - cumulative alarms
 - solar circuit pump
- boiler input probe PT1000
- 2 programmable inputs configurable for:
 - PT1000 probe (water heater temperature, mixed zone, combustion gas, solar panel, puffer, etc.)
 - digital control
- Programmable input configurable for:
 - NTC sensor
 - digital control
- Mixing valve management with 0 -10 Volt control (if modulating burner management with 0-10 Volt control is not provided)
- Three point mixing valve management (if a single-stage or modulating burner with 0 -10 control Volt is provided)
- Input 0-10 Volt programmable for:
 - digital control
 - boiler temperature remote control
 - 0-10 Volt transducer visualization
- Cascade management (with function as master or slave)
- Pump anti-lock function
- Thermal inertia exhaust
- Burner stop on fumes temperature threshold
- Antifreeze protection
- Alarm function liter count for reintegration threshold exceeding

The functions can be set within available input and output limits.

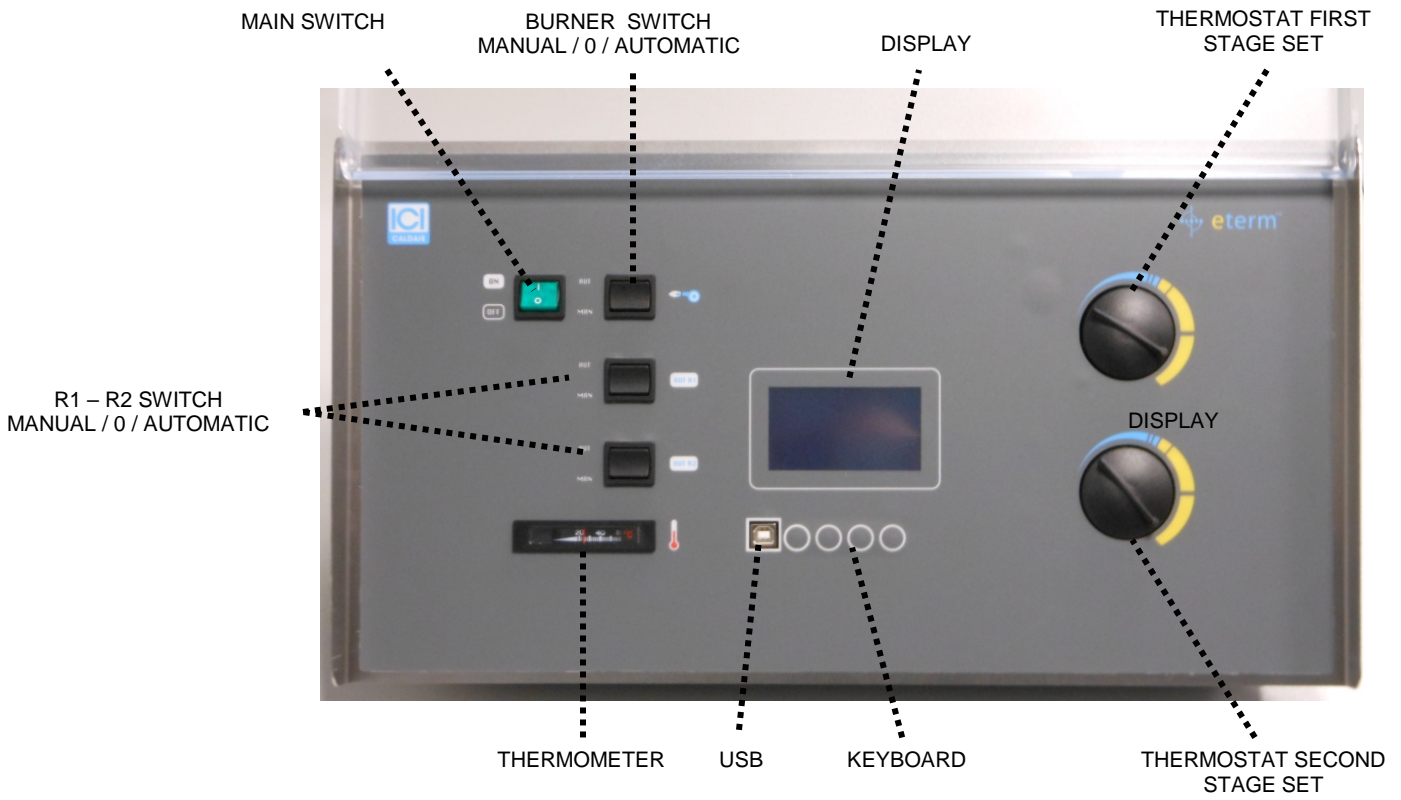
**** The functions are dependent on installed firmware.***

ICI Caldaie SpA reserves the right to make changes and additions in order to improve the product

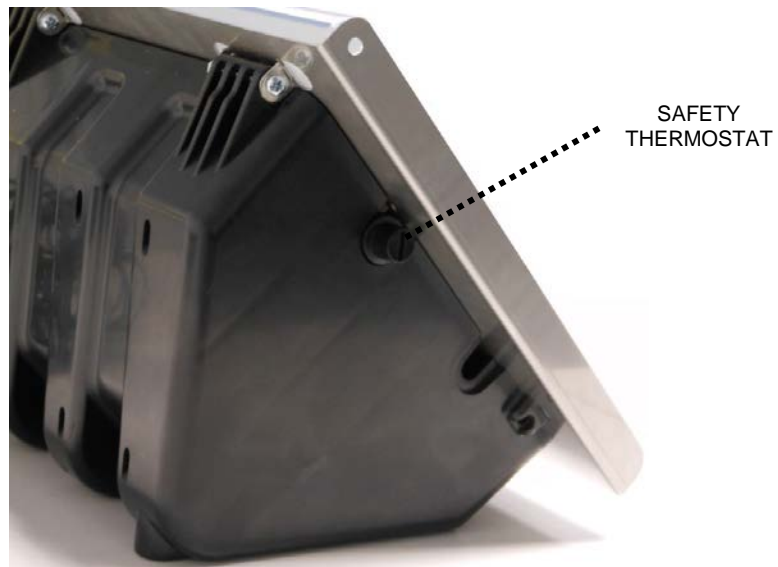
- Connectors for communication and remote management
 - Modem connector
 - USB slot
 - RS485 for board connection to possible own Master (Boiler Board or Master Nereix)
 - RS485 connection to any own slave (Boiler Board or System Management)
- Power supply 230 Vac.
- Dimensions 480 x 217 x 217 mm.

**FOR ELECTRONIC BOARD SETUP AND OPERATION
SEE SPECIFIC MANUAL**

FRONT CONTROL PANEL



SAFETY THERMOSTAT



2 STANDARD EQUIPMENT, SPARE PARTS AND ACCESSORIES

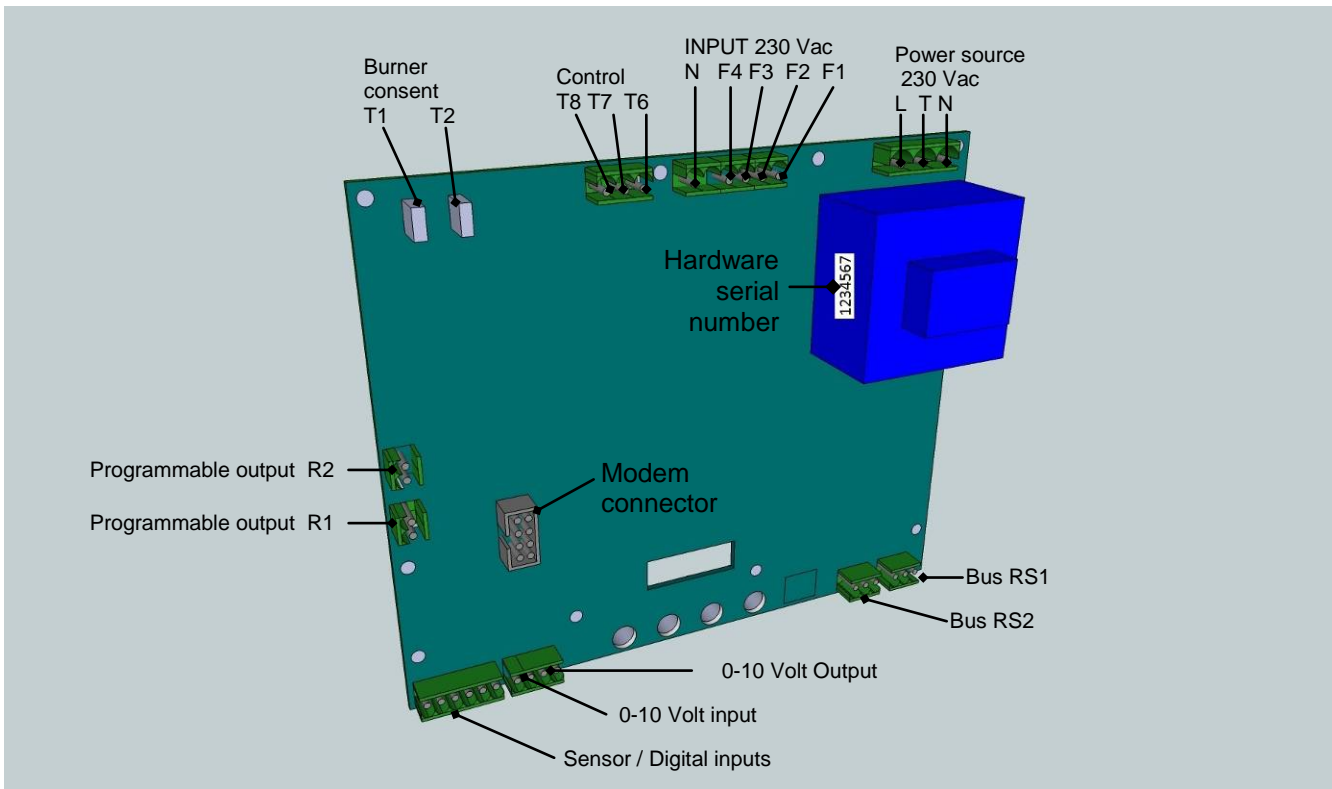
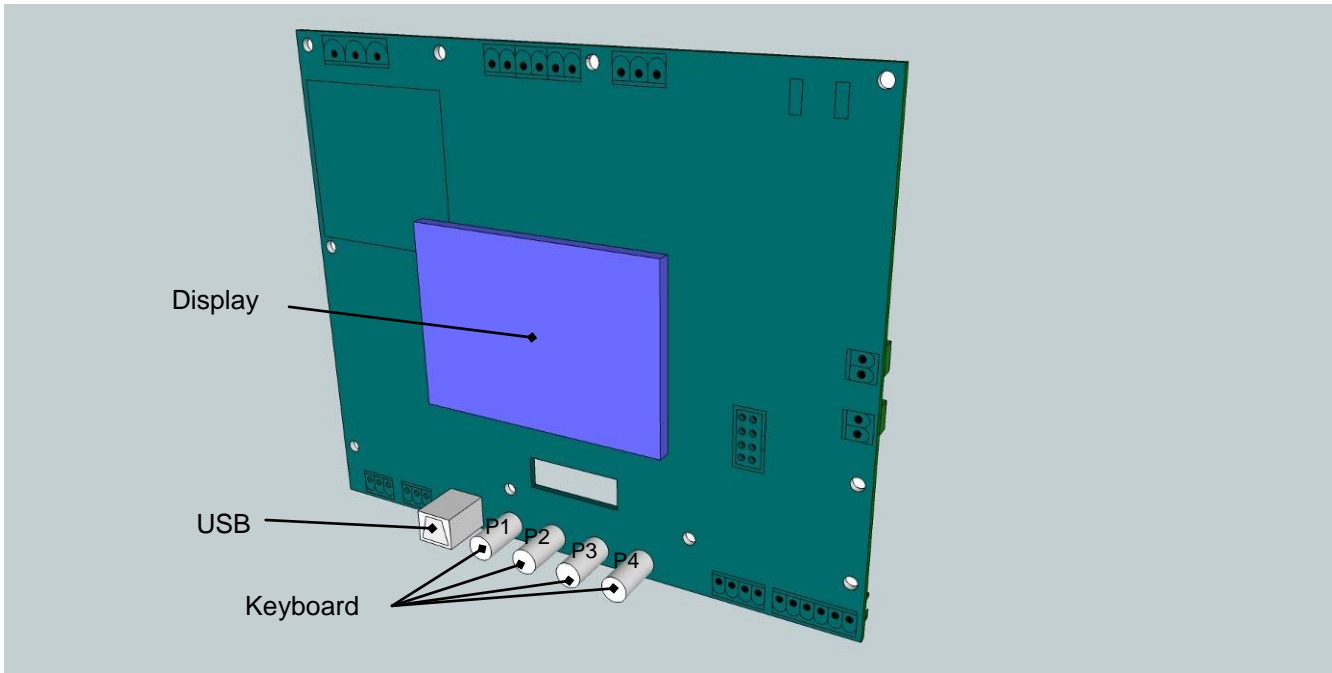
Standard Equipment and main part codes

- eterm electronic board manual	
- Electronic card	Part No. 17120273
- LCD display	Part No. 17120274
- Main switch	
- Burner operation switch (Manual / Off / Automatic)	
- Operation switch of the 2 programmable outputs (Manual / Off / Automatic)	
- Boiler PT1000 probe	Part No. 16111247
Version QETERM01CE	
- Thermostats (first and second stage) for EC / ISPEL full scale 100 °C adjustment	part No. 16090029
- Safety thermostat EC / ISPEL 110 °C	Part No. 16090032
- Thermometer CE / ISPEL	Part No. 16080209
Version QETERM01RU2	
- Thermostats (first and second stage) for full scale 110°C adjustment	Part No. 16090038
- Safety thermostat 115 °C	Part No. 16090256
- Thermometer CE / ISPEL	Part No. 16080209

Accessories (Optional)

Input and output system management framework implementation... ..	Cod. QETERM02
External probe	Cod. 17120012
Temperature probe PT1000	Cod. 16111247
Immersion probe for water heaters, mixed zone, solar panels, etc.	
Temperature probe NTC	Cod. 18022218
Immersion probe for water heaters, mixed zone, etc.	
Temperature probe PT1000	Cod. CB1093
Canal temperature probe PT1000	Cod. CB1091
Air duct probe	
Canal temperature probe NTC	CB1092
Air duct probe	
Antenna modem KIT complete with 1,5 meter cable	Cod. CB876
For installation inside of boiler framework	
Modem antenna with 10 meter cable.....	Cod. CB913
PC station modem	Cod. CB916
For communications between remote computer and system modem	

3 BOILER MANAGEMENT SYSTEM



**FOR ELECTRONIC BOARD SETUP AND OPERATION
SEE SPECIFIC MANUAL**

4 SPECIFICATIONS

POWER SOURCE

L T N 230 Vac

OPTO-ISOLATED INPUTS

F1 Programmable input provided by:

Safety intervention signals (when they are not lit it means that the safeties are on)

F2 Programmable input provided for:

Modulating burners, when there is tension it means that the burner is turned on (standard burner plug B4)

Two-stage burner, when there is tension it means that the burner is on at primary flame (standard burner plug B4)

F3 Programmable input provided for:

Two-stage burner, when there is tension it means that the burner is on at second flame (burner standard plug B4)

F4 Programmable input provided for:

For each type of burner, when it is on it means that the burner is fault (standard burner plug S3)

CONSENT FOR OUTPUT / BURNER MODULATION

T1-T2 Contact consent for burner start up (standard burner plug T1-T2)

Maximum load 230 Vac / 6.5 A

T6-T7 / T6-T8 Contacts burner modulations / mixing valves

Maximum load 230 Vac / 1 A

For single-stage burners:

Contacts not used

Two-stage burner:

Main flame T6-T7 closed - T6-T8 open

Second flame T6-T7 closed - T6-T8 closed

For progressive burners:

Main flame T6-T7 closed - T6-T8 open

Second flame T6-T7 open - T6-T8 closed

For modulating burners:

Linear decrease of power - T6-T7 closed - T6-T8 open

Linear increase of power - T6-T7 open - T6-T8 closed

Steady state power - T6-T7 open - T6-T8 open

For burners with three stages:

Main flame - T6-T7 open - T6-T8 open (T1-T2 closed)

Second flame - ended T6-T7 - T6-T8 open

Third flame - T6-T7 closed - T6-T8 closed

If there is a single-stage or modulating burner with a 0-10 Volt signal, T6-T7-T8 can be used to control a mixing valve actuator with three points.

Linear closure of the valve - T6-T7 closed - T6-T8 open

Linear opening of the valve - T6-T7 open - T6-T8 closed

Steady opening - T6-T7 open - T6-T8 open

The outputs (T6-T7), (T6-T8) are made with triac, for contact activation the triac extremities must be maintained between a voltage of at least 24 Vac (alternating current)

Use when user and/or auxiliary contacts are supplied with at least 24 Vac to 230 Vac

If the mixing valve is serving a floor system, an external security system is provided in order to prevent circulation of excessively hot water, in case of faulty operation and/or lack of board power supply.

PROGRAMMABLE OUTPUTS

R1 - R2 Programmable Outputs
Maximum load 230 Vac / 2 A

The various programmable outputs can be configured for
Boiler pump consent
Header pump consent (for cascade)
System pump consent
Cylinder pump consent

SENSOR INPUTS - DIGITAL

PT1 Input PT 1000 provided for the boiler probe
PT2 Programmable input PT 1000 / Digital
PT3 Programmable input PT 1000 / Digital
NTC Programmable input NTC / Digital

The various programmable inputs can be configured for the
Cylinder sensor
Header sensor (for cascade)
Flow sensor system
Return sensor
Flue probe
Tank thermostat - free contact
External sensor (NTC)
Control for climate operation or with set point
INPUT 0-10 Volt / DIGITAL
Programmable input configurable for:
Modulation of boiler temperature
Modulation of header temperature (for cascade)
Control for climate operation or with set point
CO2 sensor
Other inputs from transducers 0-10 Volt
OUTPUT 0-10 Volt
Programmable output configurable for:
Mixing valve system control
Burner modulation control

COMMUNICATION

Modem connector
USB socket

RS1 - Connection RS485 for connecting the system via bus to its own Master (other boiler system or MASTER NEREIX)

RS2 - Connection RS485 for connecting the system via bus to its own slaves (other boiler systems or system management boards)

The boiler board can work alone to control a single burner; in this case, it can be directly connected to a modem for remote management.

More boiler boards (maximum 16) can be connected together using a special bus connection; in this case one of the boards will be set as Master and it can be connected to the modem.

If the system has a Nereix Master board, it can be connected to a boiler board with special input; in this case the boiler board will become a slave like a satellite use module NEREIX.

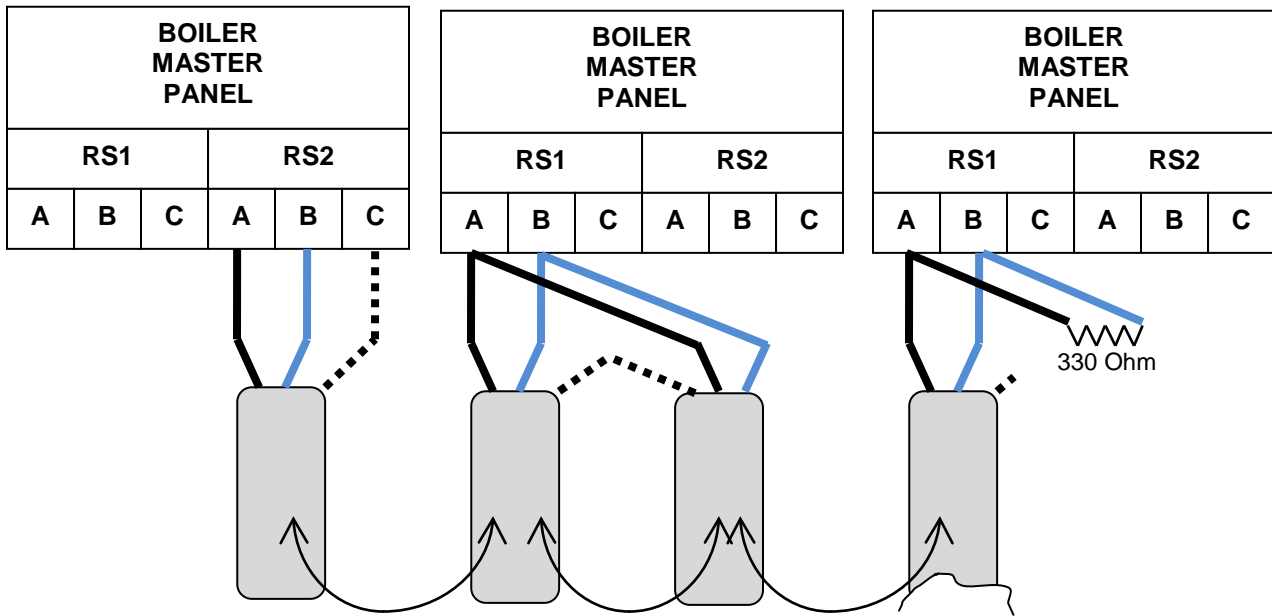
If there are more boards in cascade, the Master Nereix will be connected to the boiler board that will be set as Master.

The board management system can be a slave of the boiler board or the Master Nereix board

BUS BETWEEN BOILERS IN CASCADE

Use shielded cable 2 x 0.35 mm² for connecting the bus.

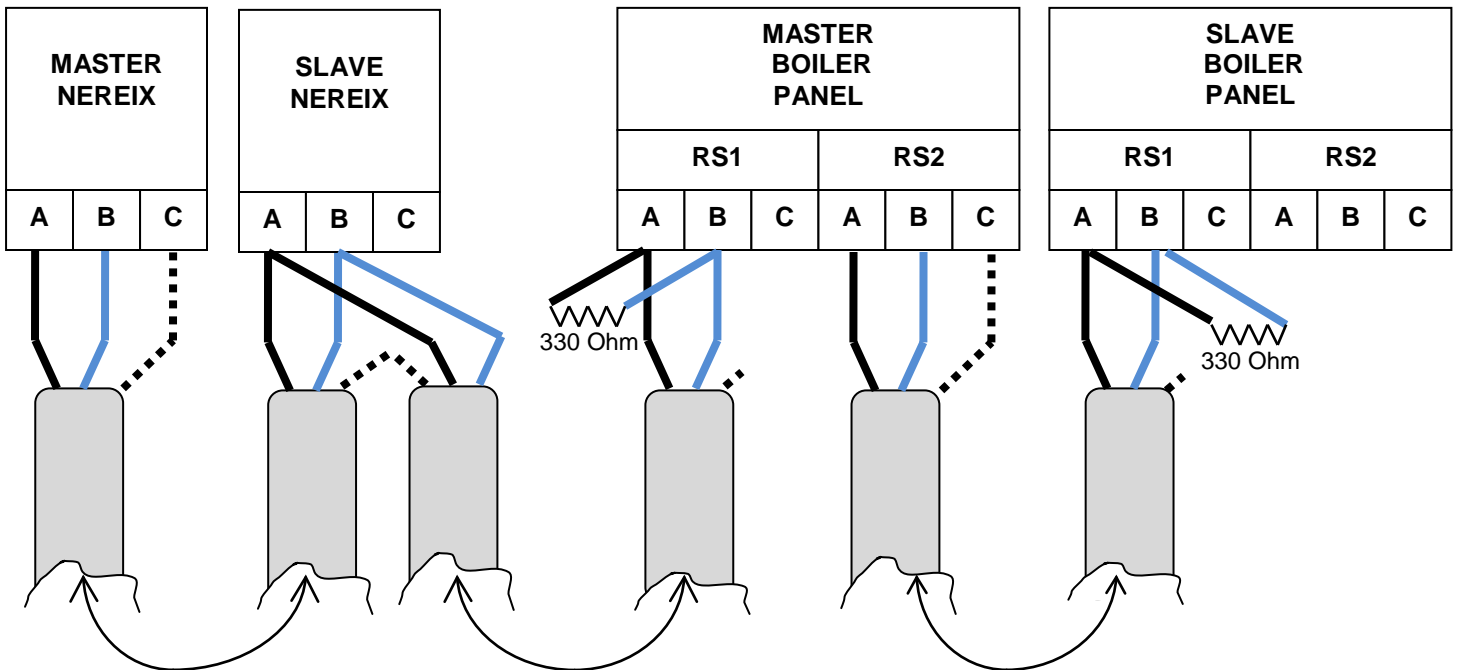
The RS1 C contact (corresponding to terminal 33) is only for support of the cable shield; it is not necessary to connect it to the last slave



BUS BETWEEN NEREIX MASTER AND BOILER IN CASCADE

The RS1 C contact (corresponding to terminal 33) is only for support of the cable shield; it is not necessary to connect it to the last slave.

In wiring the slave boards there must be continuity between the shields.

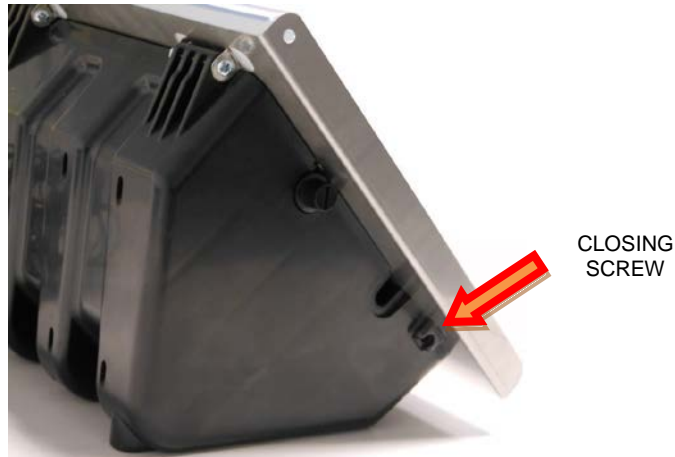


5 ASSEMBLY



ALL THE OPERATIONS OF INSTALLATION AND WIRING MUST BE CARRIED OUT WHEN THE ELECTRICITY IS DISCONNECTED

Remove the screws that are set on the bottom of the front and open it.



After finishing with the thermostat capillaries, depending on type of assembly, secure the frame on the boiler casing with the supplied screws.

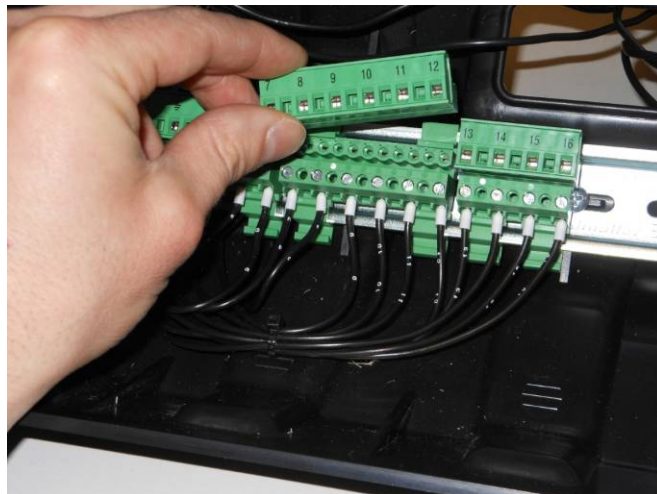
Depending on the boiler model, the panel can be set at the top or vertically on the casing.

Set the panel using the holes on the boiler casing and on the frame itself.

Cut holes in the plastic container for possible cables .

The holes can be cut in front or back of the box being careful not to damage internal components or excessively weaken the container structure

Connect the wires to the removable terminals according to what is stated in the section "TERMINAL BLOCK FOR ELECTRIC CONNECTIONS".



Replace the removable terminals wired to the male couplings mounted inside the cabinet on the DIN bar.

Respect any polarity

Close the panel and replace the screws.

6 TERMINAL BLOCK FOR ELECTRONIC CONNECTIONS

TERMINAL BLOCK	WRITTEN ON TERMINAL	FUNCTION
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HIGH VOLTAGE

X 1 5 POLE	L	GENERAL POWER SUPPLY PANEL	L
	T		T
	N		N
	1	EXTERNAL SAFETIES	IN
	2		OUT
X 2 5 POLE	3	BURNER POWER SUPPLY	L
	T		T
	4		N
	5	BURNER CONSENT *	T1
	6		T2
X 3 6 POLE	7	FIRST STAGE SIGNAL **	B4
	8	SECOND STAGE SIGNAL	B5
	9	FAULT SIGNAL	S3
	10	3 POINT OUTPUT * (FOR BURNER OR MIXING VALVE)	T6
	11		T7
	12		T8
X 4 4 POLE	13	UNUSED CONTACT OUT R1	IN
	14		OUT
	15	UNUSED CONTACT OUT R2	IN
	16		OUT

LOW VOLTAGE / SIGNAL

X 5 10 POLE	17	PT1 – BOYLER SENSOR (PT1000)	1
	18		2
	19	PT2	1
	20		2
	21	PT3	1
	22		2
	23	NTC	1
	24		2
	25	IN 0-10 V	+
	26		-
X 6 7 POLE	27	OUT 0-10 V (FOR BURNER OR MIXING VALVE)	+
	28		-
	29	RS485 (RS1)	A
	30		B
	31	RS485 (RS2)	A
	32		B
	33		C

The outputs (T6-T7), (T6-T8) are made with triac, for contact activation the triac extremities must be maintained between a voltage of at least 24 Vac (alternating current)

Use when user and/or auxiliary contacts are supplied with at least 24 Vac to 230 Vac

** If the burner does not have output B4:

- Connect jumpers to terminals 6 and 7 if T1 output of the burner is a 230 Vac phase .
- Connect jumpers to terminals 3 and 7 in any other cases

7 MODEM (OPTIONAL)



ALL THE OPERATIONS OF ASSEMBLY AND WIRING MUST BE CARRIED OUT WHEN THE ELECTRICITY IS OFF

GENERAL FEATURES OF THE MODEM

The modem, through the flat, is powered directly by the board.

Turn off the power when connecting the modem and when inserting the SIM card.

The SIM card must be enabled for data traffic (not voice!).

The SIM must be pushed all the way in: a click will result when the insertion is done.

Before inserting the SIM, disable the PIN using a cellular phone.

Main features:

- GSM Modem Module - Quad-Band GPRS
- LED status registers on the GSM network
- Buzzer for acoustic signaling
- TTL Interface
- Compatible with Master NEREIX board

RADIO FEATURES

- Quad-band EGSM 850/900/1800/1900 MHz
- Power of emission:
 - Class 4 (2W) @ 850/900 MHz
 - Class 1 (1W) @ 1800/1900 MHz
- Sensitivity:
 - 107 dBm (type) @ 850/900 MHz
 - 106 dBm (type) @ 1800/1900 MHz

FEATURES GPRS

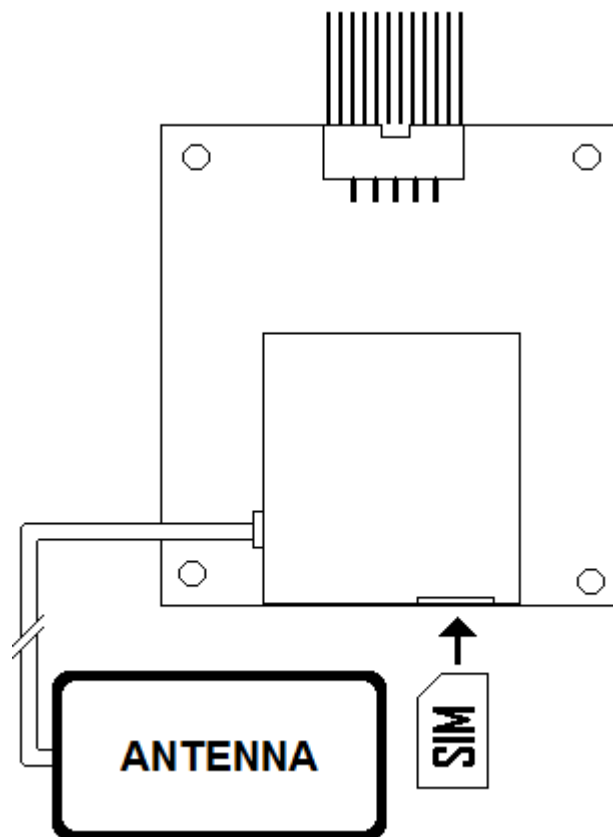
- GPRS class 10
- Mobile station class B
- Coding layouts: by 1 to 4
- Support PBCCH

A green LED status has the following meanings:

- FLASHING FAST = searching for network
- SLOW FLASH = Registering on network
- ON CONTINUOUS = Data connection in progress

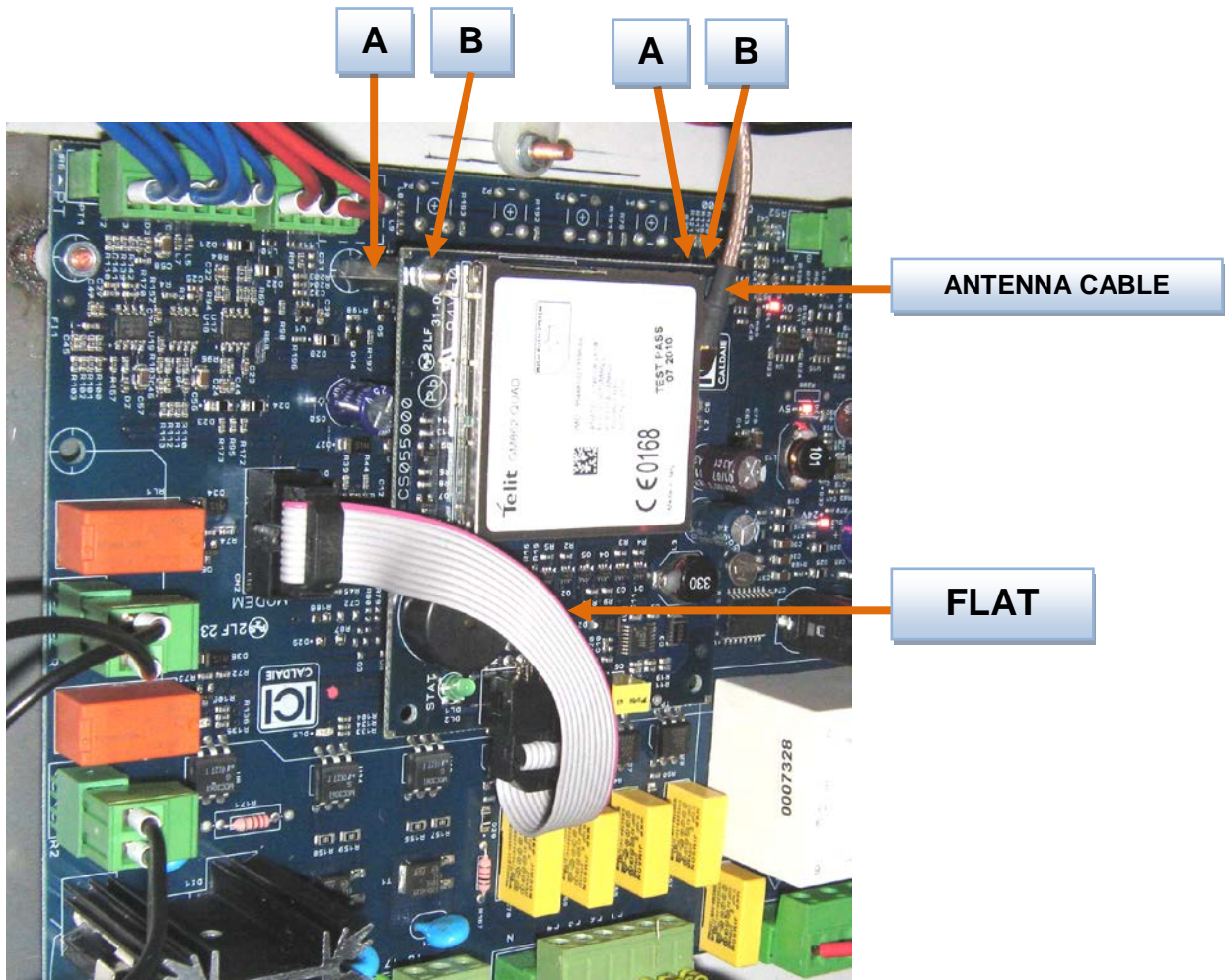
To attach the antenna with optional extension, remove the one from the series by pulling the plug directly from the connector module and inserting the new one.

Insert the antenna into the proper hole (if using the antenna with the extension, use a press cable for the output of same).



MODEM INSTALLATION

Remove the two central nuts that attach the board to the bottom (adjacent to the keys).
Fit the two hexagonal towers (A)
Place the modem board after removing the antenna.
Secure the board with the 2 nuts (B) previously removed.
Connect the flat to the board and the modem.



The standard antenna can be mounted inside the panel (with its double-sided adhesive) or put on the outside in a manner consistent with the length of the cable provided.

If necessary to improve reception, use the optional 10m antenna extension,

8 WIRING DIAGRAM

FIG. 1 / F.S. 2

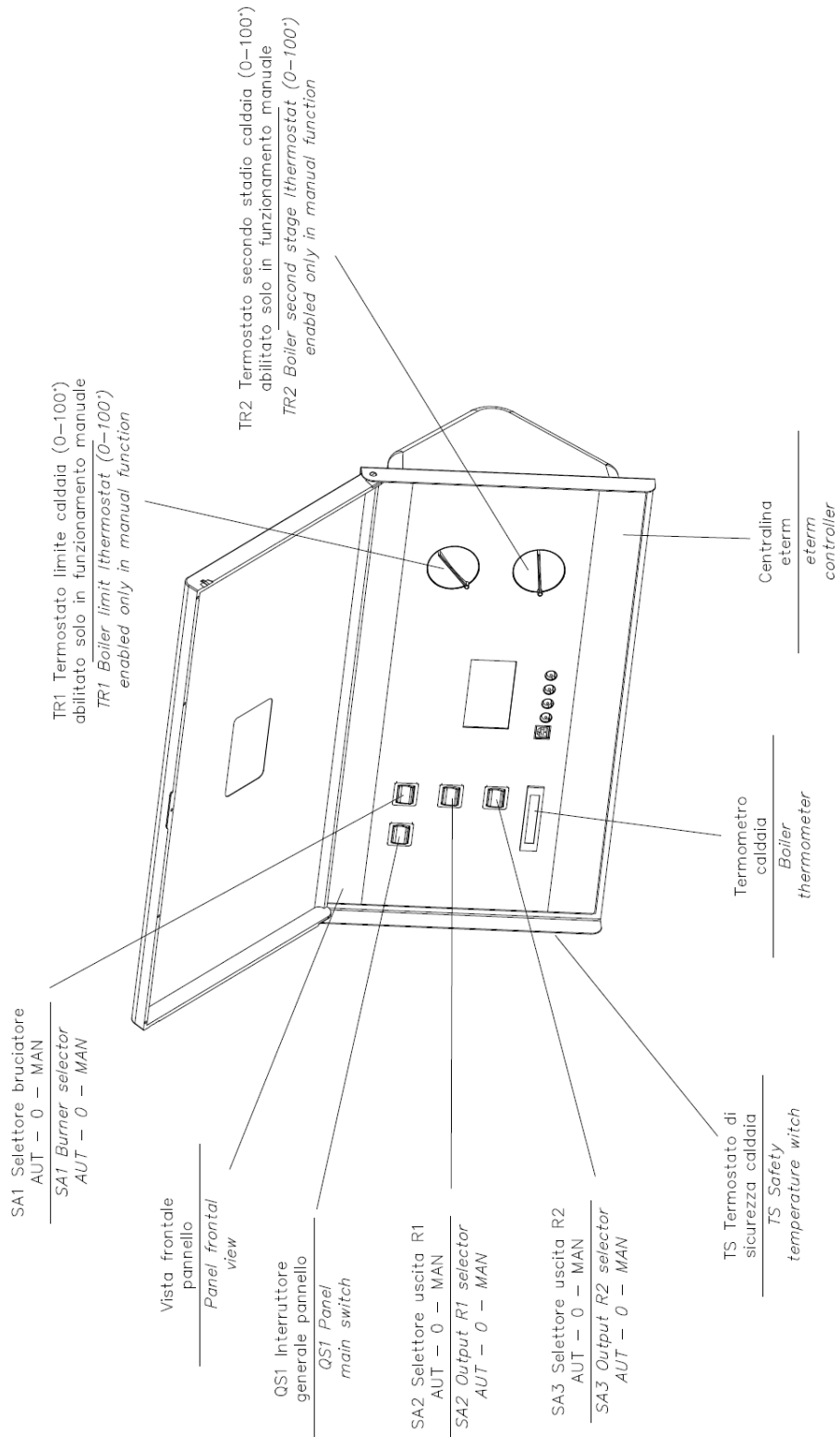


FIG. 2 / F.S. 3

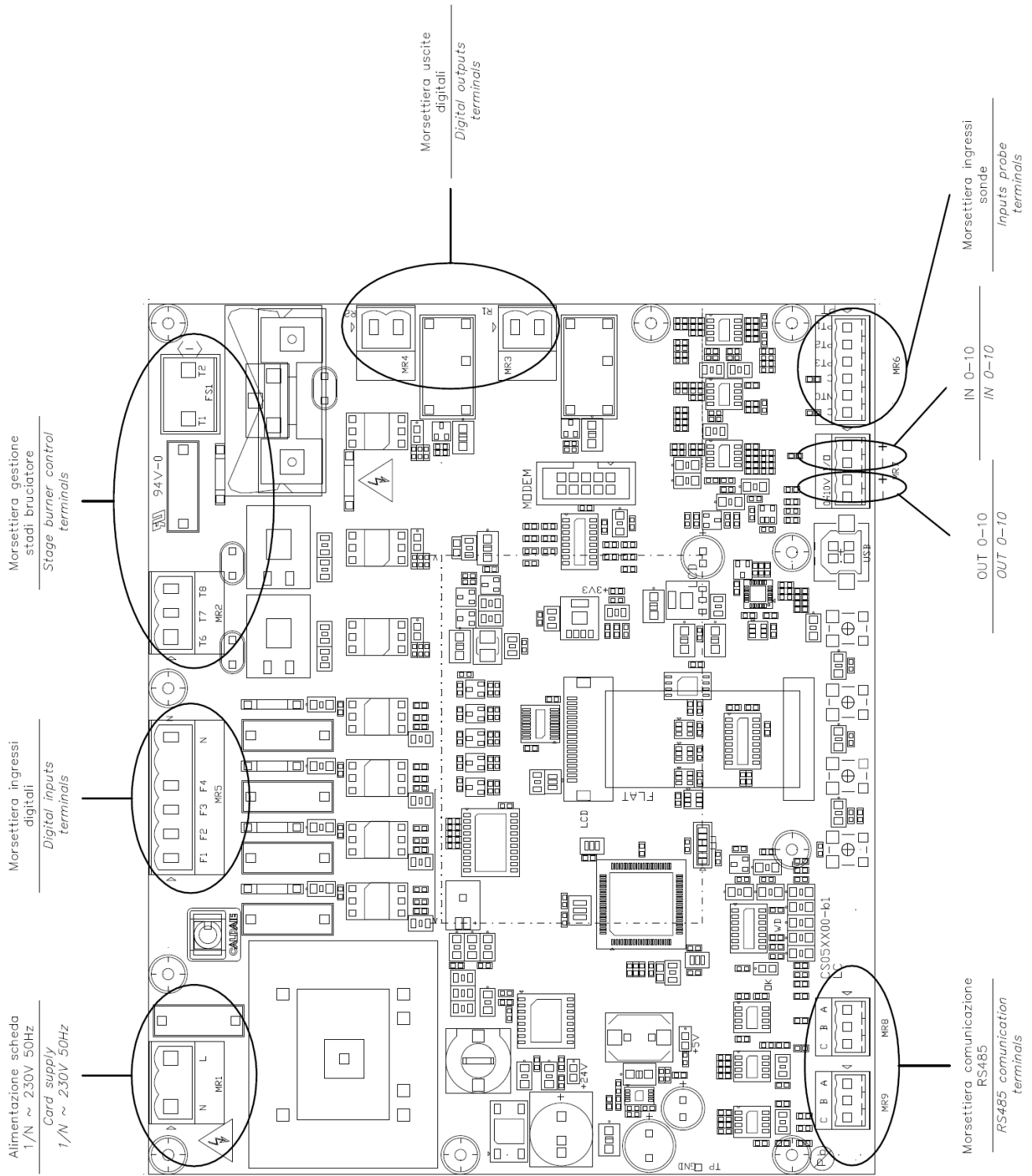
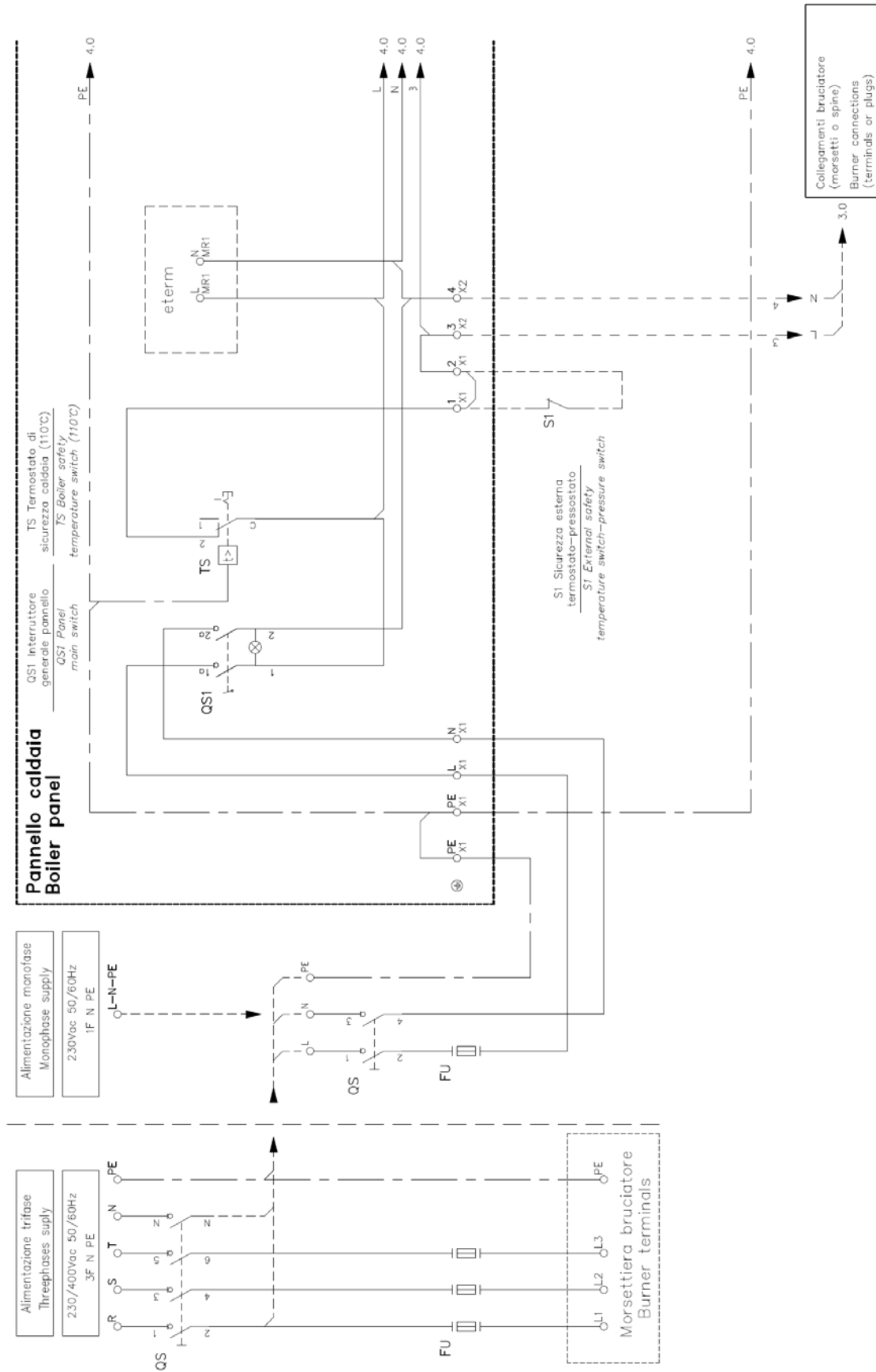


FIG. 3 / F.S. 4



FG. 4 / F.S. 5

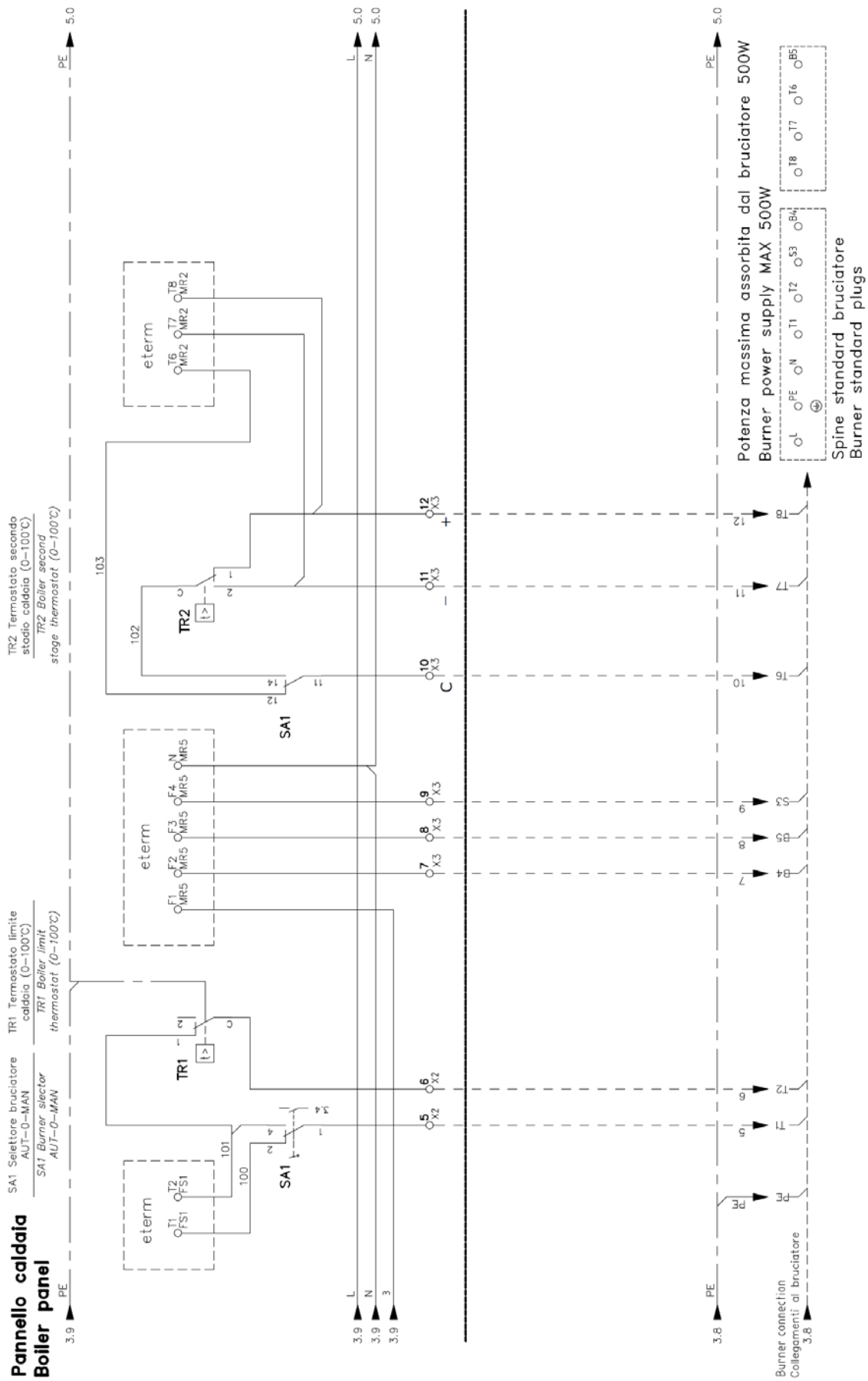
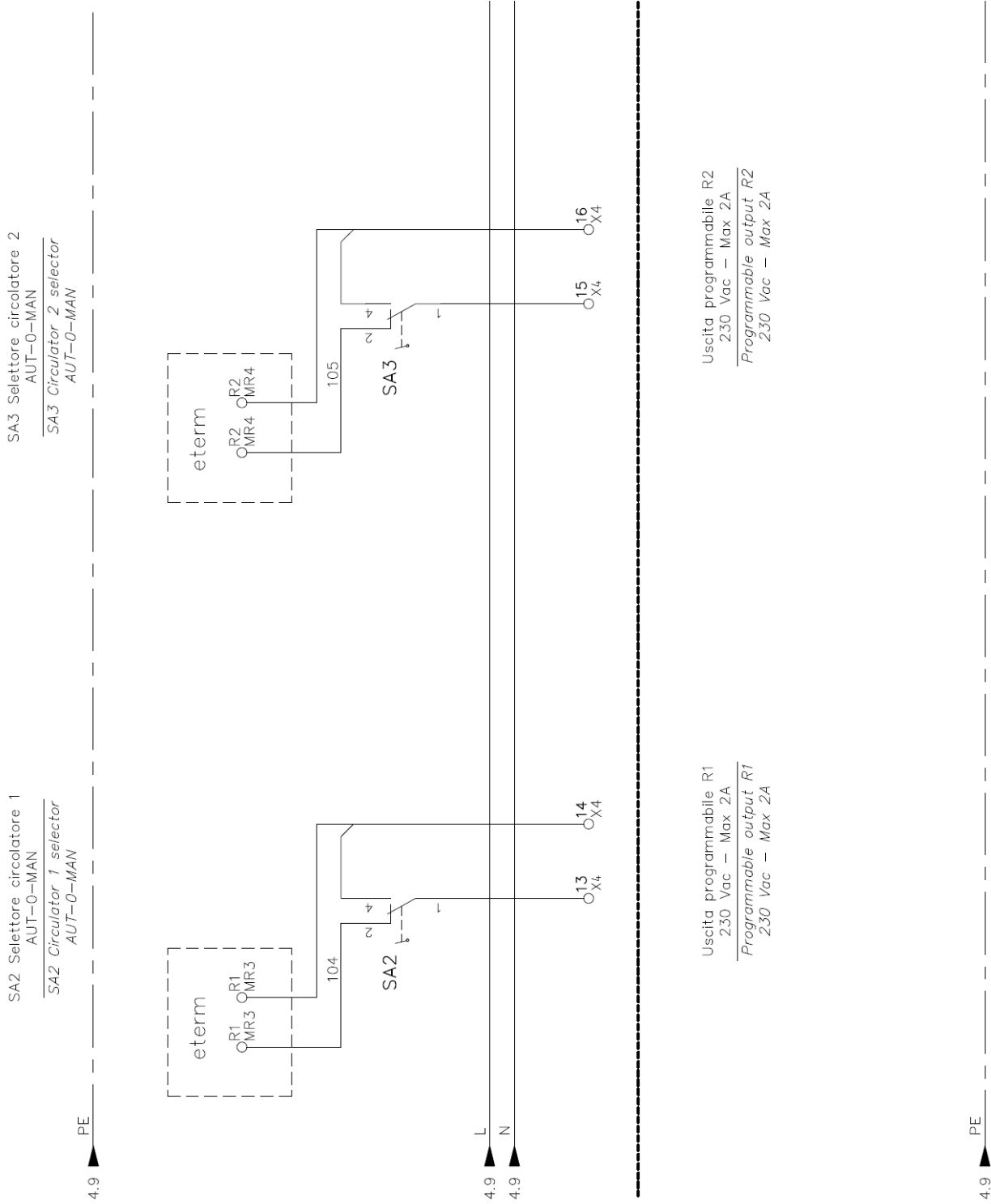
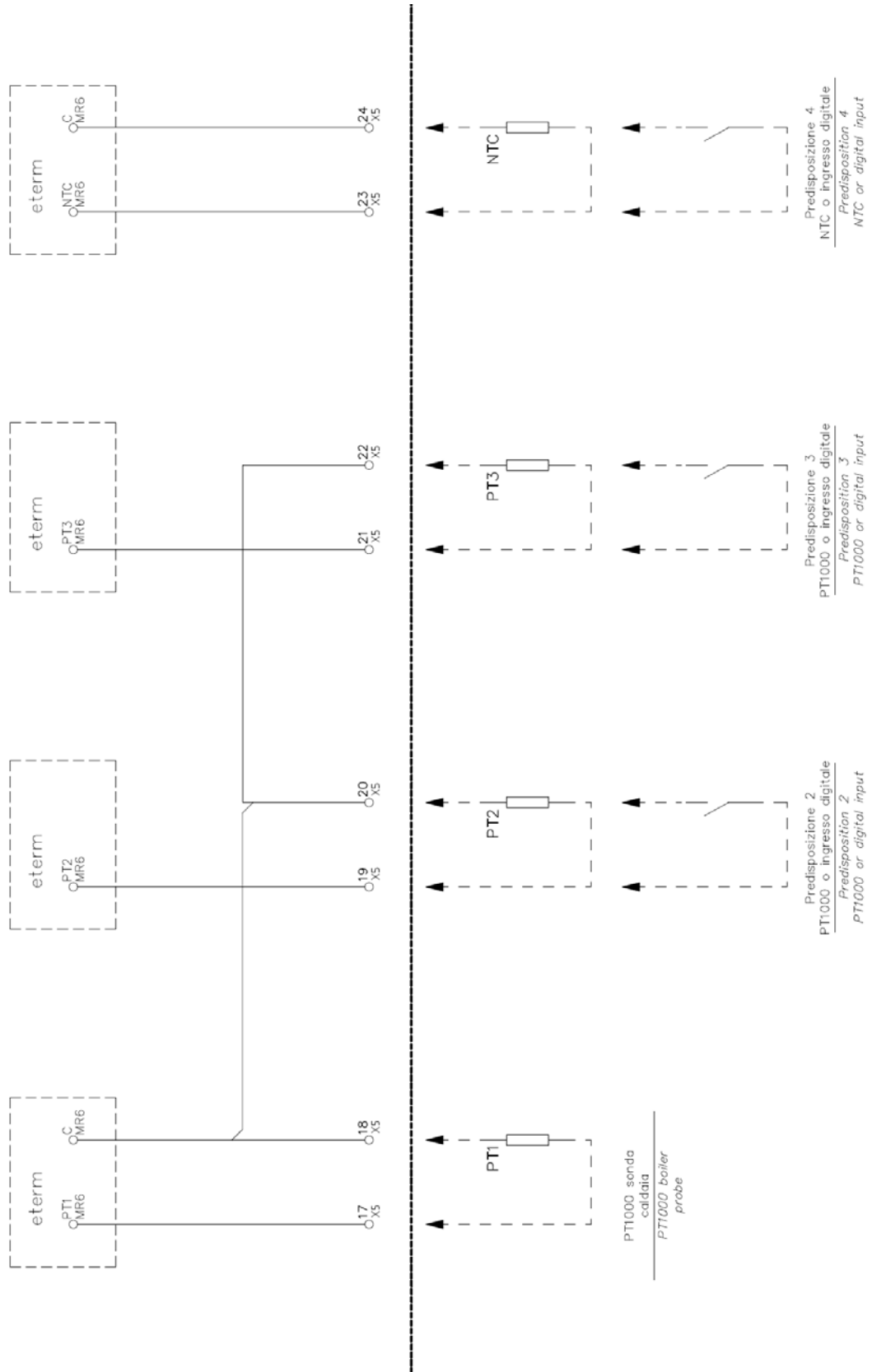


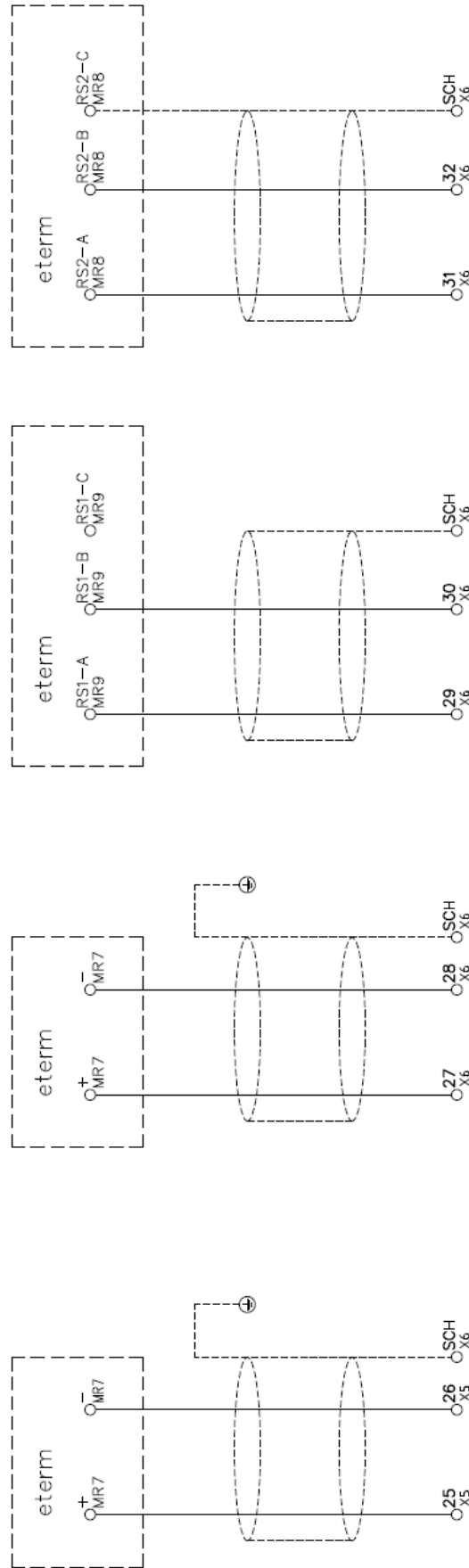
FIG. 5 / F.S. 6



FG. 6 / F.S. 7



FG. 7 / F.S. 8



Ingresso 0-10V o ingresso digitale <i>Input 0-10V or digital input</i>	RS485 NEREIX master RS485 NEREIX master	RS485 gestione impianto RS485 management system
Uscita 0-10V <i>Output 0-10V</i>		

9 USING BURNER OR 0-10 VOLT MIXING VALVE

To control a burner or a 0-10 Volt mixing valve, use the specific output and properly configure the electronic control unit.

It is not possible to use the burner and a 0-10 Volt valve simultaneously.

If a 0-10 volt burner (such as premixed G150MXK or G250MX) is connected, disconnect the connector T6-T7-T8 directly on the electric board.

When the consent is given (closing T1-T2), with the switch in "AUTO" function, the burner automatically runs with the 0-10 V control when it detects voltage on the appropriate input (see burner diagram).

When the operation "MAN" is selected, the burner detects the closure of one of the two contacts (T6/T7 or T6/T8) and modulation automatically starts to the three points, ignoring the 0-10 V input.

In manual mode, the burner will then run in two-stages with the dual thermostat operation.

0-10 Volt operation modulation is automatically restored by placing the switch at "AUTO" on the condition that there is an interruption request (opening of T1 and T2) and at the beginning of the new request the function switch is in "AUTO"

For this reason you should leave the switch at the 0 position for some time before moving on to "AUTO" Otherwise the 0-10 volt operation will reset after the first OFF, up until the time when the burner will be driven at the power previously commanded by the dual thermostat in the input T6-T7-T8.

Burners other than those cited in the example may have a switching mode (0-10 Volts / 3 points) different from that described or may not have any switching (eg., burners made only for 0-10 volts).

Closely monitor the function mode of the burner installed.

10 USING THE MIXING VALVE WITH THREE POINTS 230 VAC

To control a 3-point mixing valve connect the burner in 0-10 Volt mode, as described in the previous section.

Use the connector T6-T7-T8 of the electric board after removing and isolating the three factory wired cables.

The junction of the valve actuator must be connected to T6, the contact down to T7 and T8 the contact up to T8.

After the connection, configure the line circuit board consistently (see the specific manual).

**It is not possible to use a mixing valve with three points if the burner requires
a command from the contacts T6-T7-T8:
A mixer with three points can be used only in the case of single-stage burner or 0-10 Volt.**

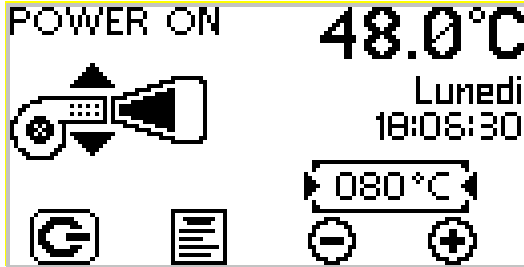
11 RAPID CONFIGURATION

The firmware loaded on the electronic card is upgradeable, in conclusion then the functions can be implemented.

For more details, see the manual ETERM01 regarding boiler management.

FIRMWARE UPGRADE AND CONFIGURATION VIA PC ARE CARRIED OUT BY THE PROGRAM
etermPCmanager AVAILABLE ON www.eterm.it AND www.icicaldaie.com

DISPLAY

<p>BURNER OUTPUT STATUS</p> <p>RISING MODULATION</p> <p>CONSENSUS EXTERNAL SAFETIES</p> <p>DEGRESING MODULATION</p> <p>OFF / MANUAL / AUTOMATIC / FORCING</p>		<p>BOILER TEMPERATURE</p> <p>DAY / HOUR / MINUTE / SECOND</p> <p>BOILER SET POINT</p>
<p>⏟</p> <p>VIZUALIZATION OF LOWER BUTTON FUNCTIONS</p>		

ELECTRICAL CONNECTION VERIFICATION PROCEDURE

For R1 and R2 outputs

Place mechanical switches in:

- "Manual" position and verify that the devices connected to R1 and R2 are operational
- "0" position and verify that the devices connected to R1 and R2 are disrupted

For burner control, switching to "manual":

- Make sure that the first stage thermostat causes burner start
- Make sure that the second stage thermostat switches the power of the burner (for modulating burners to three points or two-stage)

Probe

Connection probes depend on the commanded operation configuration, the boiler probe being nevertheless necessary and its reading must be signaled at in the top right corner(boiler temperature).

Burner reports:

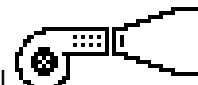
Check if by feeding the burner auxiliaries the action is presented in the symbol display



Check if in case of burner blockage the action arises on the symbol display



Verify that when the burner is lit (flame presence) the display shows the symbol
If the burner does not have signaling output for flame presence then run the jumpers listed in chapter TERMINALS



In the event of a fault (for example unconnected or short circuited probe), to the "menu" icon alternates the

"alarm" icon



To verify the alarm type course select the menu "Instant alerts".

ELECTRONIC BOARD SETUP


Key significance is variable, refer to the corresponding icon on the display.


Standard configurations are preloaded in the electronic board firmware, configurations that can be used as a starting point for the configuration of your system:

- General default: all parameters are set to the value indicated in the manual (for single boiler with 3 point burner)
- Master - 3pt mod: for a cascade master with three point burner
- Slave 1/2/3 – 3pt mod : for a cascade slave with three point burner
- Single 3pt Card : for single boiler with 3 point burner with external probe and climatic curve
- other depending on board loaded firmware

It is always recommended that a quick setup is performed before the start of a configuration (even if by PC), in order to clear previous settings performed by mistake or by a third party.

After a quick setup all the parameters are still editable.

Enter the menu  and scroll through using the arrows to the "Quick Setup" menu

Enter the menu by pressing  and then select the desired default setup

Press and hold the key  restart is caused

MAIN PARAMETERS TO CHECK

Some parameters can be locked in order to prevent configuration tampering

For this purpose two levels exist (user and technical), controller factory settings are under "technical" level and therefore allows the complete freedom of configuration.

For a level change see electronic board manual.

"General configuration" menu

Contains parameters for:

- Language
- Address assignment (if necessary)
- External probe (yes / no / by system if the board is slave to a master with external probe)
- Boiler mode (single / master / slave)
- Cascade parameters (if the device is cascade master)
- Display contrast

"Burner parameters" menu

- Burner type: adjustment in order to select of correct type of connected burner
- Time from minimum to maximum power: set air damper run time or time required by the burner to go from minimum to maximum power (a fundamental parameter for 0-10 volt modulators and 3 points).
- Fumes sensor: input activation (off = no probe fumes) and possible burner threshold.

"Operation type" menu

This menu offers the possibility for detailed rule configuration of setpoint determination in automatic mode.

The menu expands with necessary parameters when various functions are activated:

- Fixed point 1/2: requires input use with digital function (open/closed)

Enabling this feature will determine the request of temperature to be associated with contact closing and eventual time programmer affecting the request.

Attention: an input may not be used while typing and as analog (temperature probe or input 0-10 Volts).

Programming by PC means allows configuration inconsistency avoidance

- Program operation: fixed temperature (comfort / reduced / off) depending on time programming, associated programmer and temperature choosing is required (off = the boiler will adopt antifreeze temperature)
- Climatic boiler curve : Select the climatic curve (OFF = function not active) and then select possible digital consent and/or time programmer which affect the request.
- 0-10 volt operation: Function selection, the temperature corresponding to 10 Volts and possible digital consent and/or time programmer which affect the request (0 volts always corresponds to 0 °C).
- Time periods and temperature: Allows the setting of:

- Maximum and minimum boiler temperatures
- Antifreeze temperature
- Set point limits in function manual and climatic curve
- Post circulation pumps
- Various probe offset (correction of displayed reading)
- Condensate pump temperature : if different from off, PT3 input is associated with the return probe and when appointed temperature is reached the condensate pump stops (see output configuring).

"Sanitary water" menu

To configure if a water heater is present

"Output configuration" menu

In order to associate R1 and R2 outputs, the following reasoning is possible:

- Boiler pump (or valve)
 - Cascade pump
 - Condensate pump
 - Water heater pump
 - Solar circuit pump
- (By setting this function PT2 is associated with the solar panel and PT3 to the solar system storage tank probe)
- Regarding alarms (the contact closes if the board detects an alarm: probes, burner, communication bus)
(when setting the board from a PC, configuration of additional alarm conditions like contact opening/closing , temperature limits, etc. is possible)
 - System pump
 - Direct climate
 - Mix climate
 - Fixed Point 1/2
 - Time schedule 1-2-3

"Sanitary water" menu

To configure if a mix circuit is present

Forcing

Allows the force digital and analog outputs in order to verify the functionality of the board and/or the connected users.

Boiler status

Allows the view all of the operational information and contacts.

Date / time /period

Attention:

- The settings are not editable if the device is configured as slave
- Climate operation is active only in winter.

Time programs

There are 3 time programs and may be associated with distinct functions:

- Operation type
- Water heater
- Mixing valve

Instant alarms

Displays in course alarms (currently present)

Alarm history

Displays the last 50 alarms (resettable from PC and by using the keypad - see electronic board manual)

12 CASCADE BOILER CONFIGURATION

When dealing with a cascade the master setpoint (manual or automatic) represents the delivery collector setpoint.


Collector's probe connection to PT2 input of the master and bus connections should be verified.

Use the specific quick setup :

- Master - 3pt mod: for a cascade master with three point burner
- Slave 1/2/3 – 3pt mod : for a cascade slave with three point burner

If there are more than 4 boilers set all subsequent as 'Slave 3 - mod 3pt' and then change the parameter "Address secondary bus" in the "General configuration" menu .

The fifth boiler will be address 4, and so on.



Once the quick setup for all slaves is complete, from the master go up through the menu to the "addressing" menu and press the key, holding it 

If the configurations are correct, and if the bus is connected correctly, a list of tags present in the cascade will appear on the display of the master.

PC configuration is executed, instead, by typing in the board serial numbers in the address list.

However, it is recommended to run the quick setup even before a PC configuration

The board serial number is indicated in the transformer and appears on the display during the device start up.

After master address setting is completed,  icon will appear on the master unit and  icon will appear on the slave unit

If the slave units addresses are not configured or if there is an interruption in the bus connection, then the



icon will appear.

Devices have cascade symbols that blink intermittently.

When displayed and cascade symbols are accessed (determined by the master unit).

When displayed and boiler setpoints are turned off.

Each boiler is then configured as described in the previous paragraph paying particular attention to burner parameters and configuration outputs.

"Operation types" will be set only by the master unit (which determines the collector setpoint).

When configuring the master unit ("General configuration" menu) check these fundamental parameters:

- Cascade time reversal :

OFF = no rotation of priority

0 = Priority inversion for each request interruption / restoration

XX hours = priority inversion after xx hours is carried out after a request interruption / restoration

- Collector initial dosage adjustment: initial setpoint differential temperature between boilers and collector

13 USER INSTRUCTIONS

If the controller is not configured or fails the burner can be controlled by mechanical thermostats. This can be accomplished by placing the burner mechanical switch on MAN

Similarly devices connected to R1 and R2 can be activated.

Once the electronic control unit has been configured, all the electronic switches must be placed on AUTO.

The electronic board has three operating modes. The modes can be selected by pressing the left side button (from the main screen) a prolonged period of time:



Standby = is only function active is the anti-freeze function



Manual = boiler setpoint (or collector setpoint if the boiler is the master unit of the cascade) can be set manually with the "+" and "-" keys .



Automatic = boiler or collector setpoint (if the electronic board is the master unit of the cascade) is determined automatically, depending on the configuration (types of operation - sanitary water - mixing valve).

If the cascade slave unit is located in:



Standby = is only function active is the anti-freeze function



Manual = boiler setpoint can be set manually with the "+" and "-" keys and the boilers is disconnected from cascade master unit commands.



Automatic = boiler setpoint depends exclusively on master unit commands
When cascaded, slave units will normally be on Automatic.

For the user a special menu is predisposed in which only parameters useful for current configuration are represented.

On automatic setting, from the main screen you can quickly access time programmers by pressing the

key.  **PROG** .

During operation the following icons may appear:



if a request for production of domestic hot water is active.



if a request from the mixed circuits active

If there are more concurrent requests the symbols alternate.



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