



ELECTRICAL PANEL AT206 / AT206B

USER MANUAL





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1 - GENERAL



The Instruction for Use are integral part of the machine and must accompany it for all its useful life until its demolition.

For every operation one must always apply to what is prescribed in the Instructions.

Follow scrupulously all indication reported in the Instructions

Prevent from making use of the machine operators not knowing the prescription based on the Instructions

Keep complete and legible Instructions in a place accessible to operators.

Hand over the manual to any other user or successive owner of the machine.



Verify if the registration number reproduced on the technical card of the acquired model agrees with that one cut with the label of the "Marking CE"

The Firm "**TECNOELETTRA s.r.l.**" will not think he is responsible for difficulties, breaks, accidents etc. due to the no knowledge or at any rate to the no application of the rules held in this manual.

The same is told for the execution of changes and variants or for the installation of accessory not previously authorized.

1.1 - Introduction

Dear Customer,

We would like to thank you for your attention and for purchasing a "**TECNOELETTRA**" high-quality "Electric Panel."

Our Technical Service and Spare Parts departments will do their utmost to help you should you need it.

To this regard, for all control and overhaul operations, please call "**TECNOELETTRA**" who will provide you with specialized, prompt action.

If you have had parts replaced, ask and make sure that only genuine "**TECNOELETTRA**" spare parts are used in order to assure you that the initial performance and safety required by current standards are restored.



Use of **non-genuine spare parts shall immediately forfeit all right to warranty** and Technical Service by "**TECNOELETTRA**".

The special composition and design of this panel enables satisfying the most restrictive operator safety standards.

To use "**TECNOELETTRA Electric Panels**" in the best way, below we give the most important rules to be followed.



1.2 - General warning

- This manual has been drawn up for the **USER**, the **MAINTENANCE TECHNICIAN**, the **REPAIRS TECHNICIAN**.
- Read this manual carefully since it server as a guide to the way the electric control board is designed to be used, to its technical features, to supply the instructions for installation, assembly, regulation and use. It is also useful for personnel training, to indicate the maintenance operations, for ordering spare parts and to give indications of the outstanding hazards.
- It is wise to remember that should any difficulty arise in its use, installation or whatever, our Technical Service is always at your disposal for any explanations or action.
- The instruction manual should be considered as part of the equipment and must be "**KEPT FOR FUTURE REFERENCE**" as long as the equipment is assembled.
- The manual must always be available for consultation near the electric control board and kept in a suitable manner (in protected, dry places, away from direct sunlight, etc.).
- It should be borne in mind that some diagrams it contains have only the purpose of identifying the parts described and therefore might not correspond to your machine.
- After opening the package, check the entire unit in case of problems with this unit do not use it until you have consulted an the **Retailer or Manufacturer** otherwise all warranty rights will be voided.



- This electric panel has only to be used for the purpose for which it was specifically designed. Any other use shall be considered improper and, therefore, dangerous.
- Our products are made in conformity with current safety standards so it is recommended to use all these devices and take care that their use causes no injury or damage.
- All operations concerning the installation of the control panel should be carried out by skilled personnel in conformity with present regulations.
- During work it is recommended to keep to the current personal safety rules in force in the country the product is destined for (clothing, work tools, etc.).
- When the unit is working do not use the electric control board parts.
- Never for any reason modify any part of the electric panel (connections, holes, electrical or mechanical devices, etc.) unless duly authorized to do so in writing by "TECNOELETTRA": the responsibility deriving from any such action shall fall on the person doing it since he then in fact becomes its manufacturer.
- Before doing any cleaning or maintenance, **de-energise** and switch off the machine it is connected to.
- De-energise and disconnect the equipment in the event of breakdown or malfunction. If any repairs is needed contact an **Authorized Retailer only and ask that only original spare parts are used**. Failing to observe the above instructions may put the safety of the electric control board at risk and the warranty will immediately decline.
- When installing the control panel comply with the IP protection seal indicated on the identification plate. If the IP protection seal is not indicated and for different kinds of "IP" protections diverse contact one of our service centres or contact our technical office directly.
- Make sure that earthing complies with the standards in force in the country in which the appliance is used.
- Check that control panels that are installed on the machine are not subjected to vibrations that could damage the parts.

N.B.: The panel size depends on an ambient temperature of 35 degrees Centigrade.

- As a consequence, please make sure that these levels are complied with. As concerns atmospheric conditions, the prescriptions contained in the CEI EN 60439-1 (6.1.2) have to be complied with.
- Check that the information on the control panel identification plate is compatible with appliance ratings such as voltage, current, frequency, etc.
- If the control panel can be locked, make sure that only authorised personnel can use the key to open the control panel.
- For the protection of inlet lines are not protected comply strictly with the regulations in force in the country in which the control panel is used.
- If the control panel is fitted with guards that need to be removed to wire up the control panel, make sure that they are refitted after the control panel has been wired up. Make sure that the control panel is disconnected and locked out during these operations and that no parts carry residual current.
- Strictly follow the wiring diagram that accompanies the control panel.
- The manufacturer declines any responsibility in to following cases:
 - a) misuse of the machine or use by persons not trained for its operation.
 - b) incorrect installation.
 - c) operating faults machine is applied who to electric control board.
 - d) serious lack of due maintenance.
 - e) unauthorized modifications or servicing.
 - f) use of non-original or non-specific spare parts for the model.
 - g) total or partial failure to follow the instruction.
 - h) **unforeseen events ect.**



The instruction manual can never substitute a sufficiently experienced user.

The panels' interruption power is 10 kA. For more powerful systems, please make sure that the right protection levels in the panel inlet lines are supplied.



Warning: This booklet is not binding. "TECNOELETTRA" reserves the right, without prejudice to the essential features of the model herein described and illustrated, to make improvements and modifications to parts and accessories without moreover undertaking to update this manual in time.

1.3 - Symbols in the manual

The symbols contained in this manual have the purpose of drawing the user's attention in order to prevent trouble or danger both for persons and objects or the equipment.

These symbols moreover have the purpose of drawing your attention in order to indicate correct use and obtain good operation from your electric panel.



1.4 - Important tips

User tips on safety:



N.B. The information contained in this manual may be changed without notice.
Any damage caused in relation to the use of these instructions shall not be considered since they are **only guidelines**.
We remind you that failure to observe the instructions we give could cause injury or damage.
It is anyhow understood that current local regulations and/or laws must be observed.

1.5 - Cautions



Hazardous situations - safety for persons and objects.
USE ONLY WITH SAFE INSTALLATIONS

It is prohibited to fail to comply with, take away or put out of service the instructions, safety and supervision functions.

USE ONLY IN PERFECT TECHNICAL CONDITIONS

The electric panels must be used in perfect technical conditions. Any defects that may alter safety must immediately be eliminated.
Never install the electric panels close to sources of heat, in areas where there is a risk of explosion or fire hazard.
Where possible, repair the electric panels in a dry place far from water, protecting them against moisture.

1.6 - Noise

This appliance is in conformity with the provisions of EEC Directive 86/594 since the level of sound pressure is “**irrelevant**” (it is not perceptible by the hearing of a human being) since its operation is given by the flow of energy passing through the control components and by the management of the electric control panel.

1.7 - Cautions levels

Below we give the symbols used in the manual to draw the reader's attention to the different levels of danger in the “Use and Maintenance” of the electric panel.



DANGER!!



Information or procedures that, unless carried out meticulously, cause death or serious injury.



CAUTION!!



Information or procedures that, unless carried out meticulously, could cause death or serious injury.



PRUDENCE!!



Information or procedures that, unless carried out meticulously, could cause slight injury or damage to the electric panel.



WARNING



and prevent damage.

Information or procedures that advise the operator on the optimum use of the electric panel to extend its service life



NOTE



Important information and procedures.

1.8 - Temporary Storage

In the case of temporary storage of the electric panel, before final installation it is necessary to take some precautions so as not to damage the external structure and internal electric and electronic devices.

Store the electric panel packed in a closed, covered place.



Position it in a stable manner with no risk of it accidentally falling.

- Position the electric panel in a place protected against atmospheric agents with a humidity level between 30 and 75% and a temperature between - 25° C and +55° C with short times not exceeding 24 hours, up to +70° C.
- Stack the electric panels without stacking too many one on top of another.



1.9 - Transporting

Transportation of the electric panel must be done so as not to jeopardize its structure.

On receiving the panel, inspect it for any damage suffered in transit and that the data given on the rating plate correspond to what you requested. Any damage must be reported in writing to the carrier directly when the goods are received. Compensation for damage will be paid in accordance with current legislation on carriage.

In the event of damage due to transportation or delivery of the wrong model, call the firm that carried out the service and **"TECNOELETTRA"**.

Before removing the packing from the electric panel, carefully read the user warnings given in this handbook.

All the packing material of the electric panel must be disposed of in accordance with current regulations.

1.10 - Overall size

The size of the control panels is suited to meet customer requirements and their dimensions are therefore shown on the **"Technical Data"** identification plate.

1.11 - Disposal

After use or in the case of demolition, the appliance must be disposed of according to the legislative provisions in force in the country it is destined for.

CAUTION!

In addition, it is wise to destroy the machine's identification plate and any other documents.

1.12 - Assistance center

All maintenance work and technical service must be performed by **"Specialized personnel"** authorized by **"TECNOELETTRA"** who will arrange for a technician to step in after the customer's call.

1.13 - Repairs and spare parts

For any further inconveniences, not mentioned in this booklet or any damages of the machine, we suggest you to go to the **Retailer or Manufacturer** for the repair or possible replacement of any original spare parts.

When requesting spare parts, always:

- Quote serial number.

Identification abbreviation that is stamped onto the part.



Do not wait for the components to be worn out.

Replacing a component at the right moment means to improve the electric control board operation and at the same time avoid greater damages.

1.14 - Guarantee conditions

See document n.5159 at the end of this section of the instruction manual

1.15 - Ordering spare parts

The spare parts orders must be accompanied with following indications:

- Serial number of the board.

- Letter/code stamped on the component to be replaced.

Due to the different types of product, it is not possible to enclose drawings of spare parts. They need to be requested with the serial number of the board and the code of each single component.



2- AT206 PANEL DESCRIPTION

This product permit to control all the functions about a generator

- Engine command and protection module for diesel or gasoline generators
- Measurement system for main electric values
- Automatic control module for two different supply sources (Automatic Mains Failure)
- Automatic changeover switch from two different supply sources (Automatic Transfer Switch)

It's builded to monitor monophas, triphase or triphase with neutral systems in alternate current; it permit to transfer the user's load on generator when the mains voltage is faulty. Voltage and current detection are monophas.

2.1 - How is the package and what is included

The packing must be completely closed and it must be in good conditions.

In the package, there is the panel but there are also a pocket with a couple of connectors for auxiliary connections (a), a couple of fixing hooks (b), a couple of spare fuses (c), the instruction manual (d) and labels with alarms list in several languages (e).

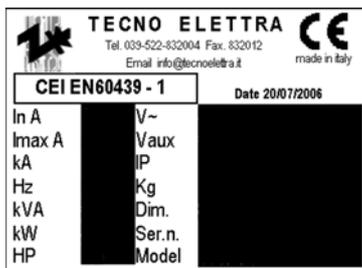


The identification plate data give all the informations about the product; you can found it on the package and on a side of the panel



WARNING: check if the product received is in accordance to the product ordered.

2.1.1 - Identification data plate



The technical plate is secured on the outside of the electric panel, it gives the main particulars and certifies its conformity with the EEC machine directive 89/392 (attachment H). Therefore its CE marking is valid only when mounted with machines made in accordance with the provisions of the EEC machine directive 89/392 and subsequent amendments introduced 91/368 EEC, 83/44 EEC, 93/68 EEC.

Every time you need to carry out special maintenance, repairs or to request spare parts it is necessary to call the Manufacturer or Dealer, always quote the serial number.

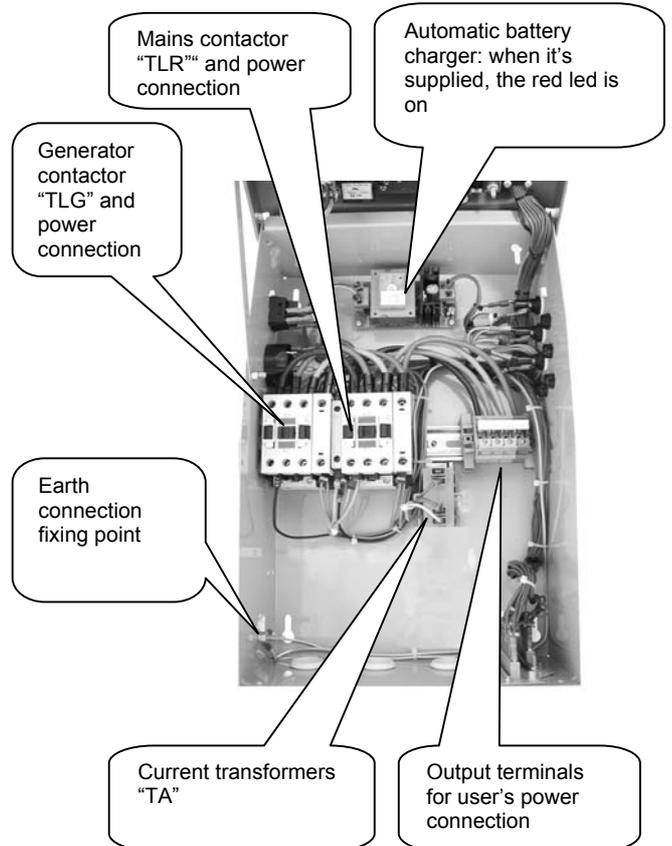
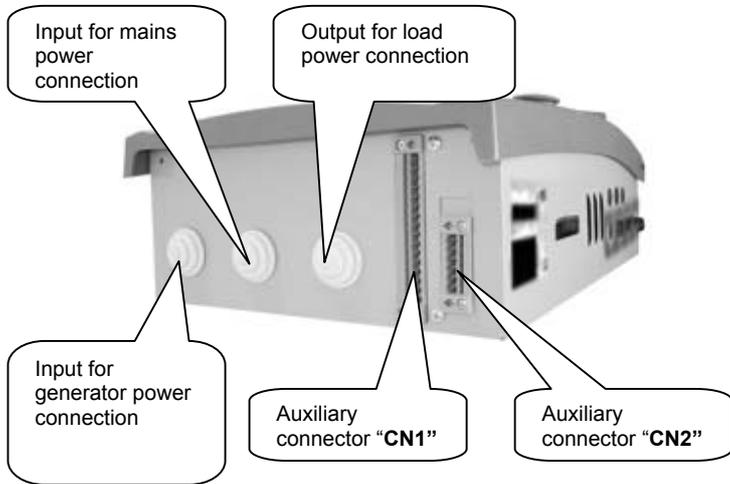
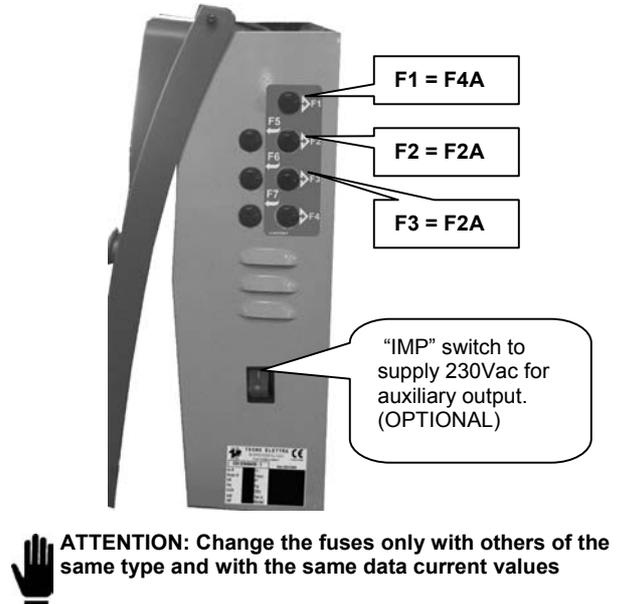
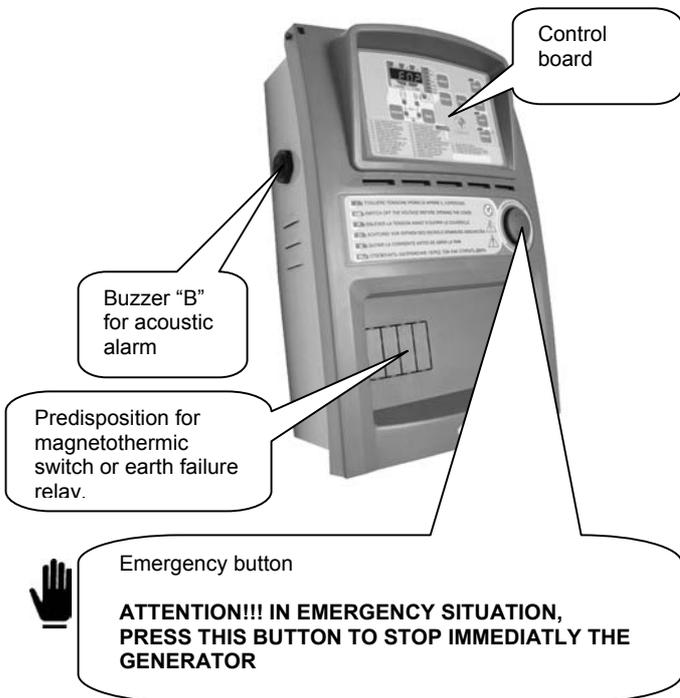
2.1.2 - Identification plate data specifics

In =	Nominal current
I_{max} =	Maximum permitted current
KA =	Maximum current that is safe from short circuits
Hz =	Nominal frequency
KVA =	Apparent power (calculated at a 0,8 cos)
KW =	Active power
HP =	Horsepower (not important)

V =	Nominal voltage on power circuits
Vaux =	Nominal voltage on auxiliary circuits
IP =	The protection seal is IP 20 for all the type of panel
Kg =	Weight (only approximate and is subject to variation)
Dim =	Sizes (refer to dimensions of the box and do not consider any components whose installation might modify base dimensions). The measurements are expressed as "height x width x depth".
Ser.n =	Indicate the serial number required to identify the product. This number must always be quoted in requests for spare parts.
Model =	Indicates the code of the control panel that enables the type to be identified.



2.2 - Product external and internal view with description



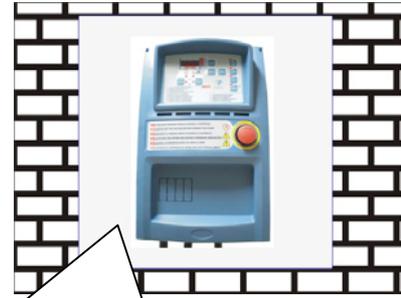
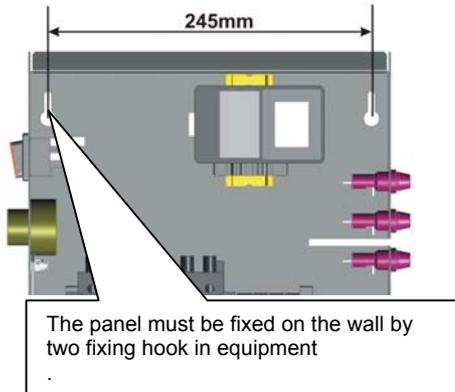
ATTENTION:

The panel in the pictures is only an example and it's one of the model in production; for this reason, the current transformers, the power circuit and the contactors in the panel must be different from the components in the image.



2.3 - Panel wall mounting instructions

WARNING: THE INSTALLATION OF THE PANEL MUST BE MADE ONLY BY SKILLED PEOPLE



3 - FIRST STARTING OF THE PRODUCT, USE AND DESCRIPTION

3.1 - Operation to do during the first starting of the AT206 panel

When you supply for the first time the panel, the display shows "U11" flashing, to remember you the time programming (User menu, parameter U11). Press RESET button to stop this flashing and set the board in RESET position.



The non observance of the indications given about the first starting of the product, can cause faulty situations on the same product



Before the first starting of the panel, check that the indications on the "Identification data plate" (par. 2.1.1) are in accordance with the characteristics of the present electrical system.



The programming of time is needed

3.1.1 - How programming the time on the panel

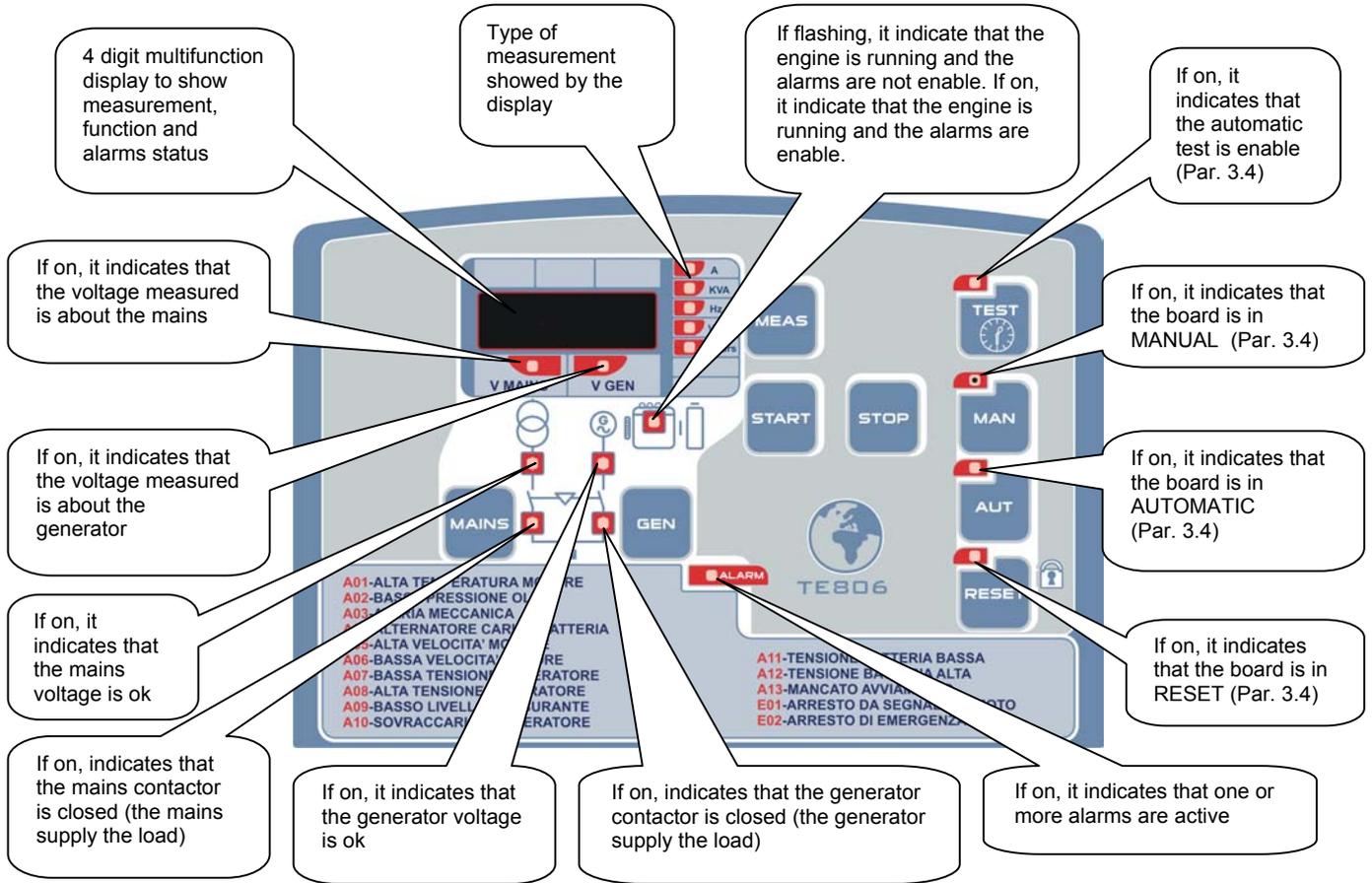
To program the time, follow the procedure described below:

- Press RESET button
- With the board in RESET position, press TEST button for 5 seconds until the display shows "Set"; after that the display shows the first code of the parameter "U.01 – Automatic test interval time". To see all the parameters, please check the following table
- By continuously pressing of MEAS button, reach parameter "U.11" showed on the display. This parameter is about the actual time.
- Press TEST button to see the value stored now.
- Press START button to increase the value of the hour or press STOP button to increase the value of the minutes
- When the time is correct, press RESET button to save it and press AUT button to return on the parameter code (the display shows U.11)
- Press AUT button than RESET button to exit from menu and return to the normal function mode.

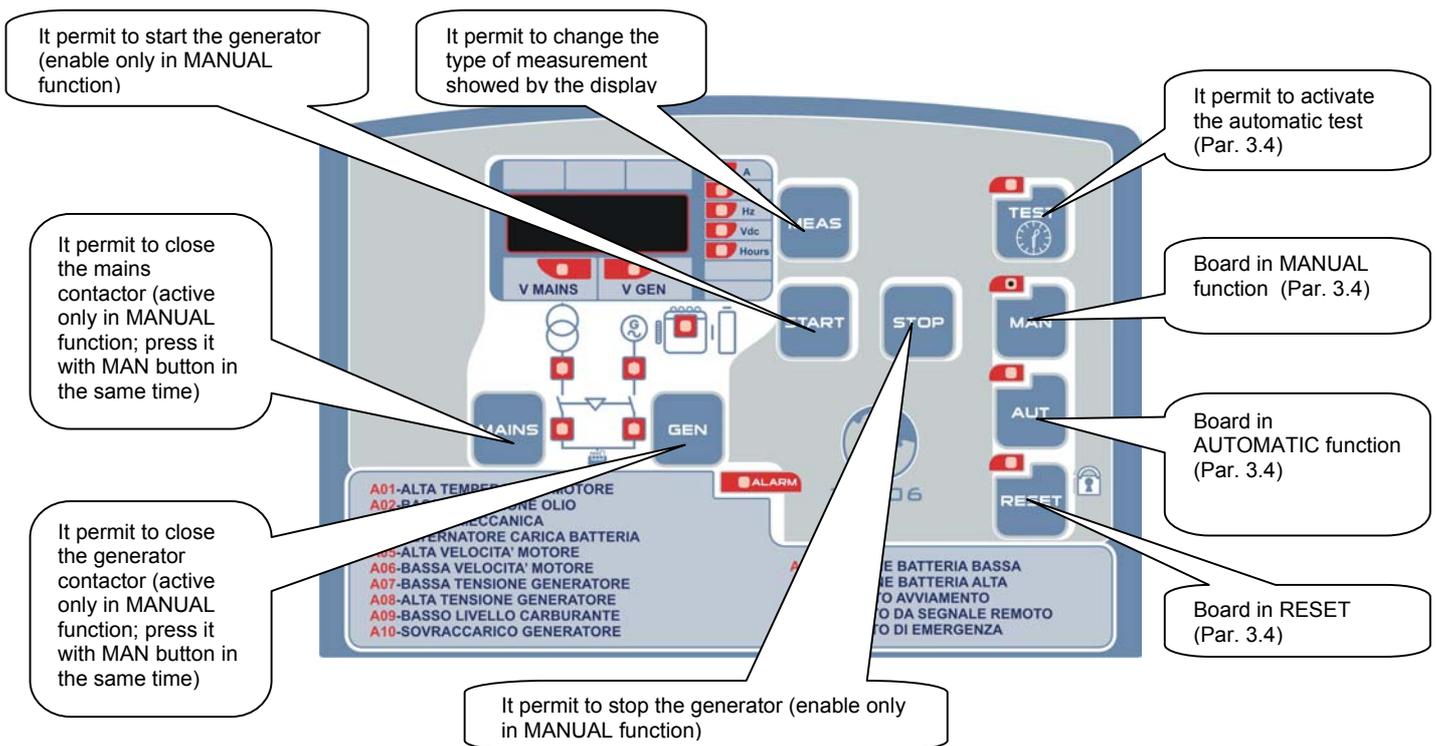
Setup	Description	Range	Default
Group 1	Test		
U.01	Automatic test interval time	1 – 30days	3 days
U.02	Test duration	1 – 30 min	10 min
U.03	Test start time	00:00 – 23:59	10:00
U.04	Test with load	0=with load 1=without load	1
Group2	Various		
U.08	Siren relay closing time	0 – 60 sec	20 sec
U.09	Engine departure delay from EJP/T start	0 – 99 min	25 min
U.10	Switching delay for EJP/T(1 wire)	0 – 30 min	5 min
Group3	Clock setting		
U.11	Time	00:00 – 23:59	11:11



3.2 - AT206 panel; LED indication description



3.3 - AT206 panel; command buttons description





3.4 - AT206 panel; function description

BOARD IN RESET

The generator can't work. If the mains is ok, the mains contactor is closed. If the generator is running, when you change to this function mode the engine is stopped immediately and the eventual alarms are resetted. The alarm can't be resetted if the cause of alarm still remain.

BOARD IN MANUAL

The generator can be started and stopped only manually by START and STOP buttons; also the changeover switch function works from mains to generator and viceversa by MAINS and GEN buttons.

BOARD IN AUTOMATIC

The generator start automatically when there is a mains failure and stop automatically when the mains is ok.

AUTOMATIC TEST

Is enable only if the board is in automatic function. If enable, make a complete starting procedure in accordance to the programmation set. If the mains is ok, this test is without changeover switch on the generator contactor; if during this test there is a mains failure, automatically the board close the generator contactor to supply the load by the generator. The stop procedure begin only when the mains come back to correct values.

ALARMS

When there is an alarm, the display shows an identification code about the problem: on the label of the boards there is a list with alarms code and description. By RESET button you can reset the alarms and by this you prevent an involuntayr restart of the generator. If the alarm on the display doesn't disappear, you have to remove the cause of the alarm.

3.4.1 - Procedure to setting tha automatic test



It's strongly reccomended the enabling of the automatic test to prevent problems caused by a long inactivity of the generator

To enable the automatic test, please follow the instruction below:

- Press RESET button
- With the board in RESET position, press TEST button for 5 seconds until the display shows "Set"; after that the display shows the first code of the parameter "U.01 – Automatic test delay time". To see all the parameters, please check the following table
- Press TEST button to see the value stored now, then press START button to increase this value or STOP button to decrease it. When the value is correct, press RESET button to save the modification and press AUT to exit from parameter. This parameter specifies the delay from one automatic test and the next one. If you don't press RESET before exit by pressing AUT, modifications made on the parameter won't be saved.
- By pressing MEAS button, go to parameter "U.02" showed on the display. Press TEST button to see the value stored now, then by START button (increase) or STOP button (decrease) change the duration time of the automatic test. When the value is correct, press RESET then AUT button.
- By pressing MEAS button, go to parameter "U.03" showed on the display. Press TEST button to see the value stored now, then by START button increase the hours value or by STOP button increase the minutes value to change the starting time of the automatic test. When the value is correct, press RESET then AUT button.
- By pressing MEAS button, go to parameter "U.04" showed on the display. Press TEST button to see the value stored now, then by START button (increase) or STOP button (decrease) it; change if you want the automatic test with changeover switch (set it to "0") or without changeover switch (set it to "1"). When the value is correct, press RESET then AUT button.
- At the end, press AUT then RESET button to exit from menu and to return to the normal operating mode.

When the automatic test parameters are set, you have to enable this test; with the board in automatic mode, keep pressed TEST until the display shows "On" and the test led turn ON. From this moment the board starts the counting of the time to make the first test. This test will begin after the set days in parameter "U.01", at the set time in parameter "U.03" and for a set duration in parameter "U.02". To disable the automatic test, with the board in AUT position keep pressed TEST button until the display shows "Off" and the test led turn off.

EXAMPLE:

Setup	Description	Range	Default
Group 1	Test		
U.01	Automatic test interval time	1 – 30days	3 days
U.02	Test duration	1 – 30 min	15 min
U.03	Test start time	00:00 – 23:59	10:00
U.04	Test with load	0=load 1=a vuoto	1

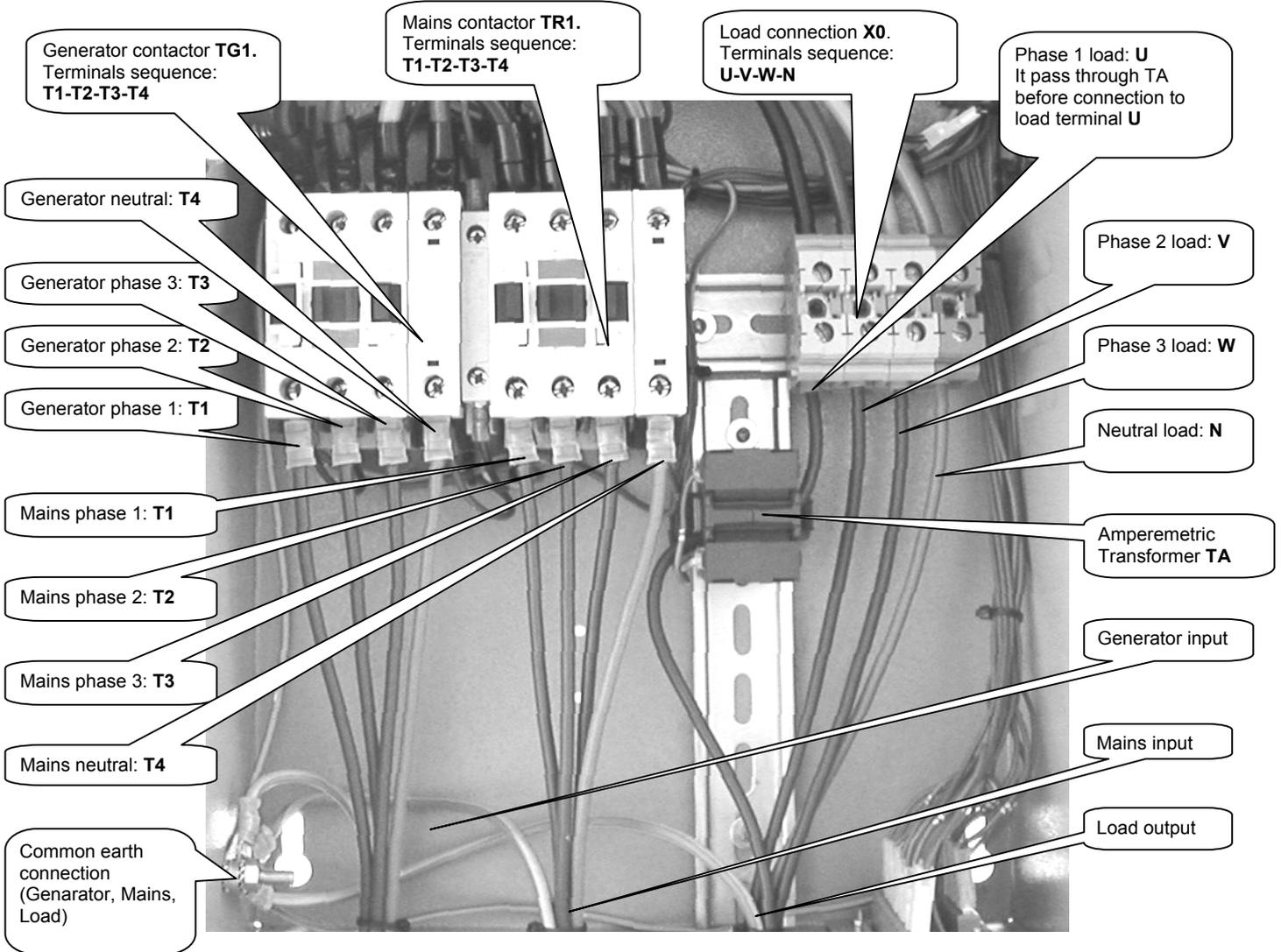
If you enable the automatic test with TEST button on Monday afternoon at 15.00, first test will start 3 days after (on Thursday) from 10.00 to 10.15. Second test will start on next Sunday (3 more days later) always from 10.00 to 10.15



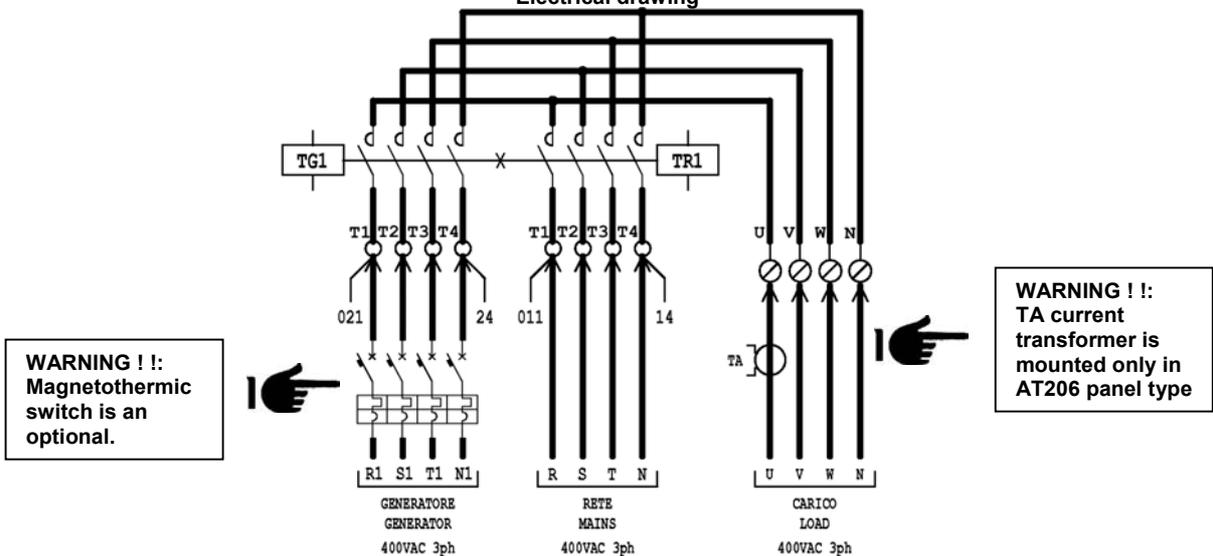
4 - AT206 CONNECTION AND ELECTRICAL DRAWINGS

4.1 - Power connection

4.1.1 - Triphase connection 400Vac 3P+N

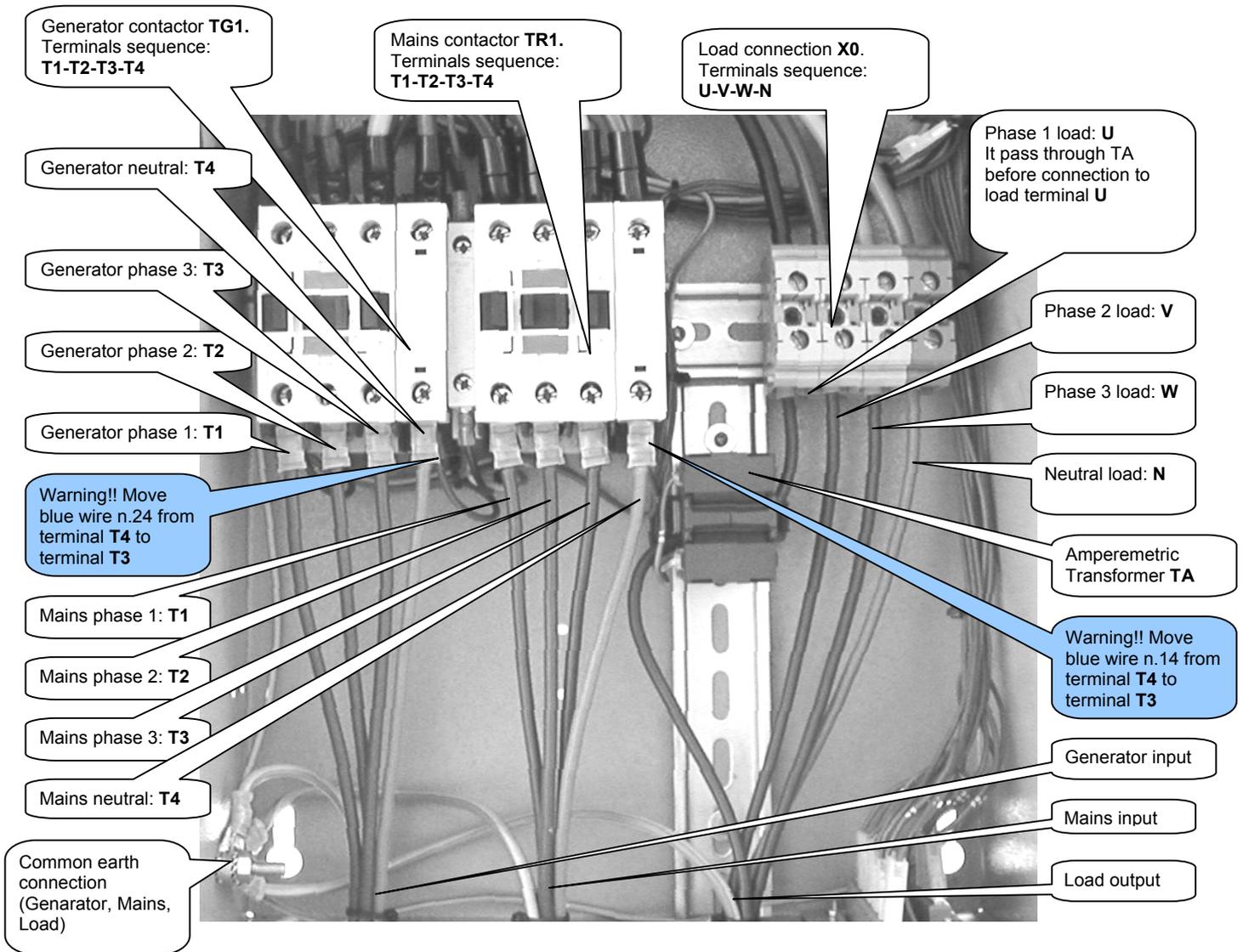


Electrical drawing

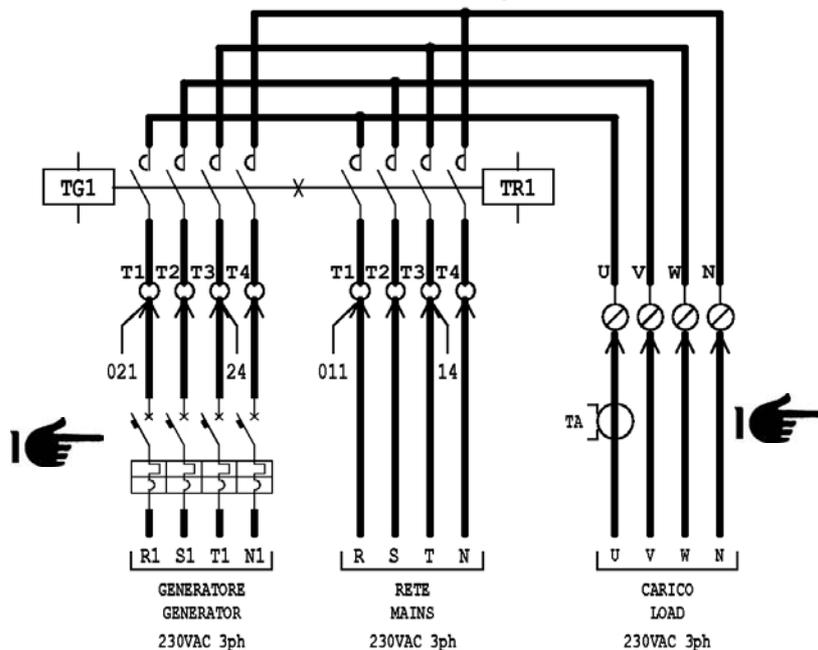




4.1.2 - Triphase connection 230Vac 3P+N



Electrical drawing

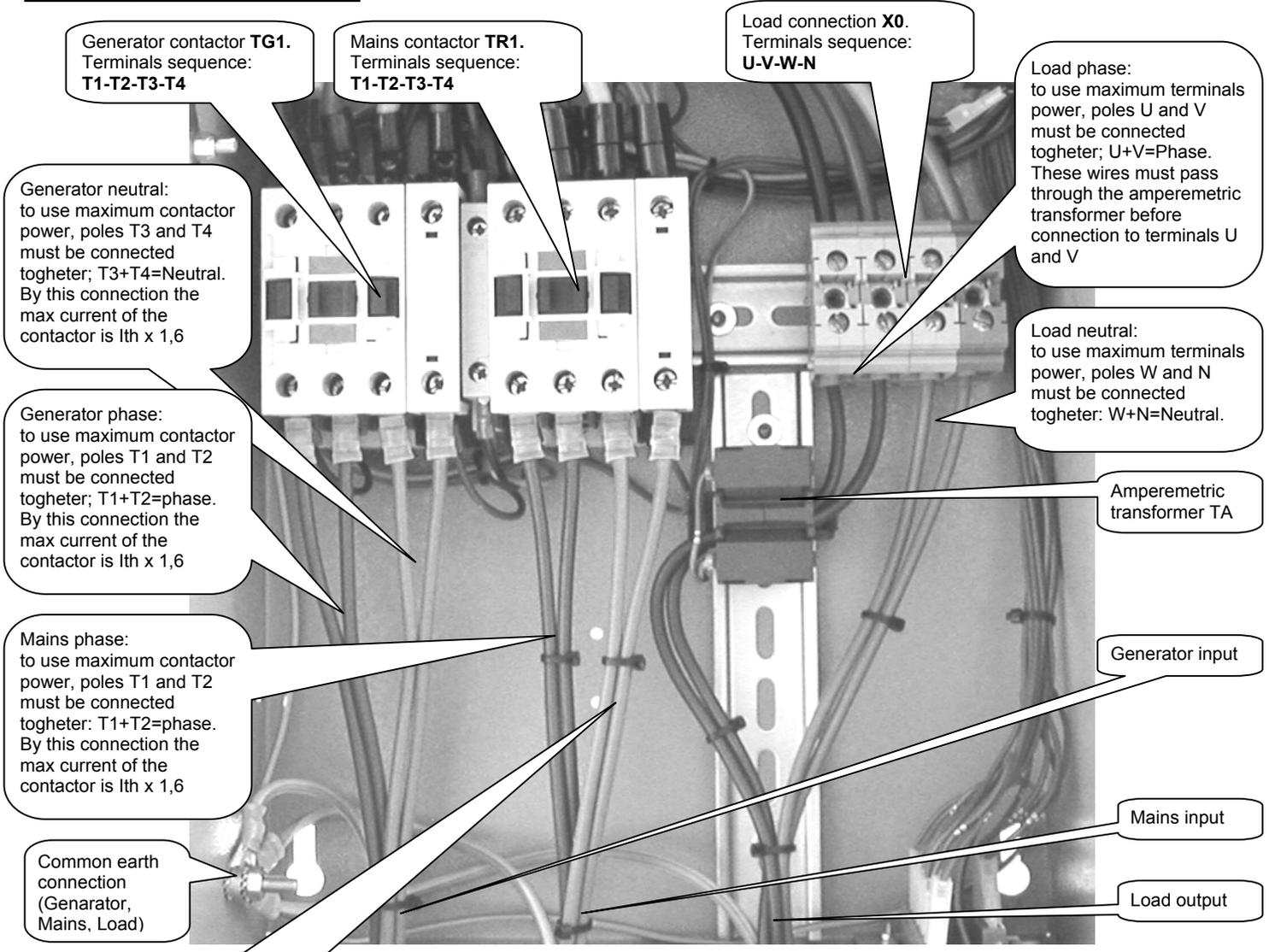


WARNING !!:
Magnetothermic switch is an optional.

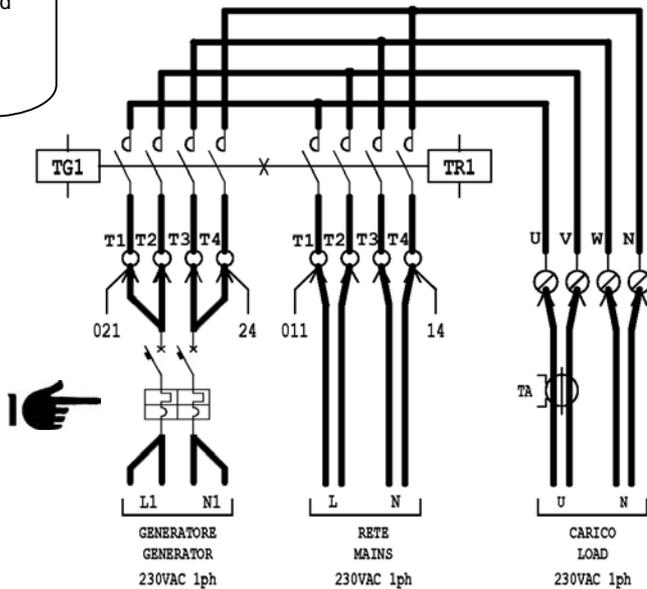
WARNING !!:
TA current transformer is mounted only in AT206 panel type



4.1.3 - Monophase connection 230Vac



Electrical drawing

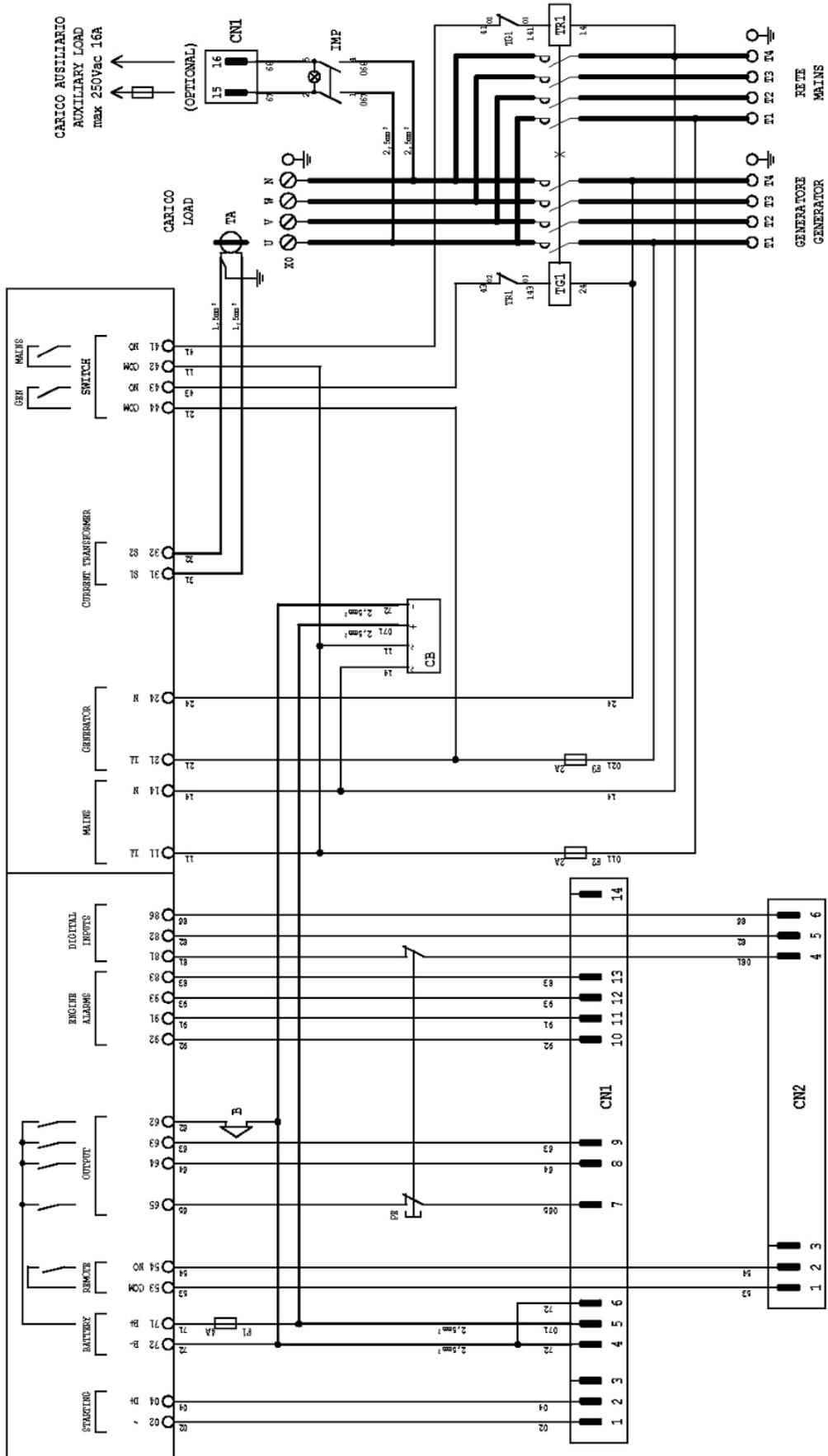


WARNING !!:
Magnetothermic switch is an optional.

WARNING !!:
TA current transformer is mounted only in AT206 panel type

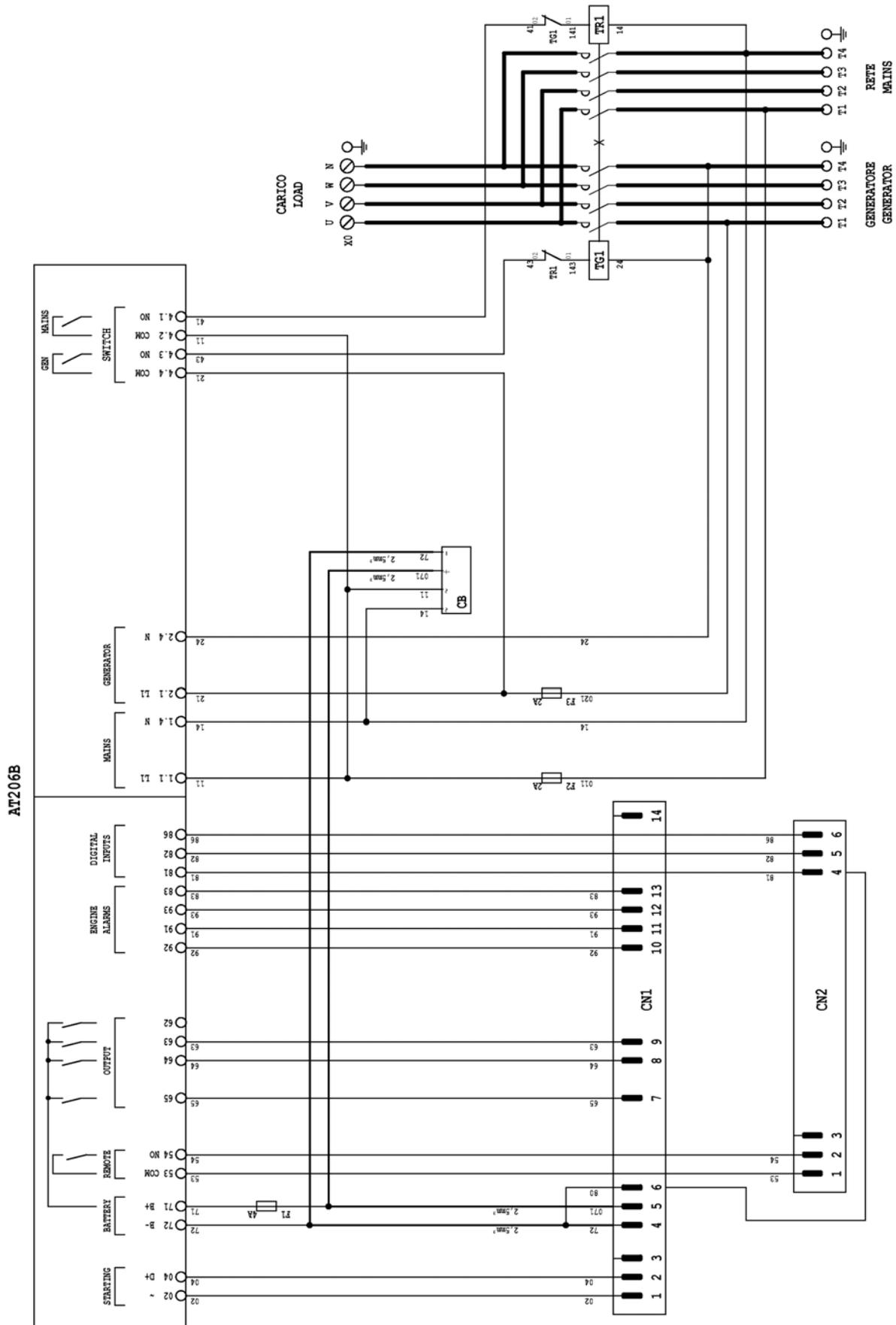


4.2 - AT206 panel electrical drawing



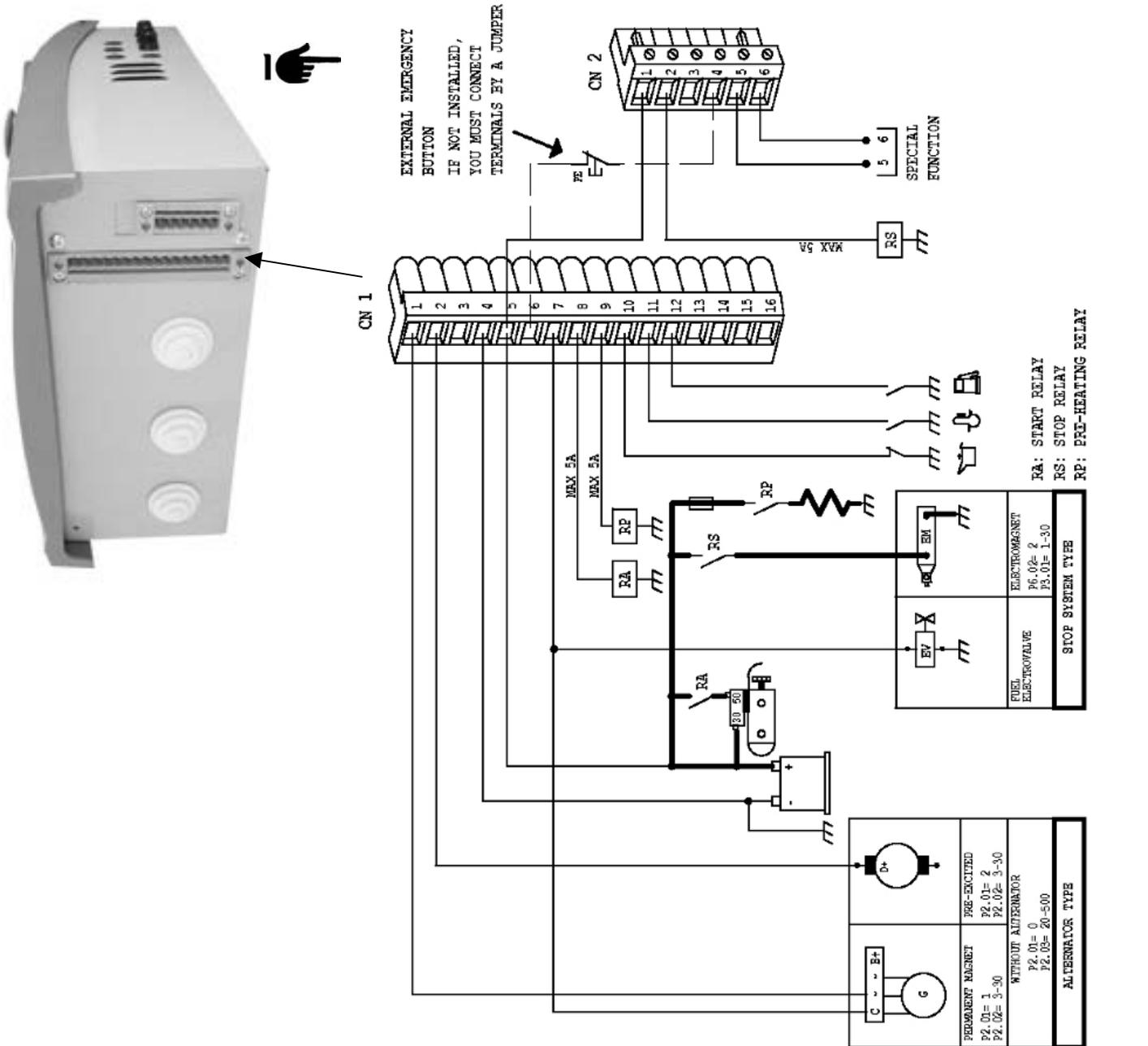


4.3 - AT206B panel electrical drawing



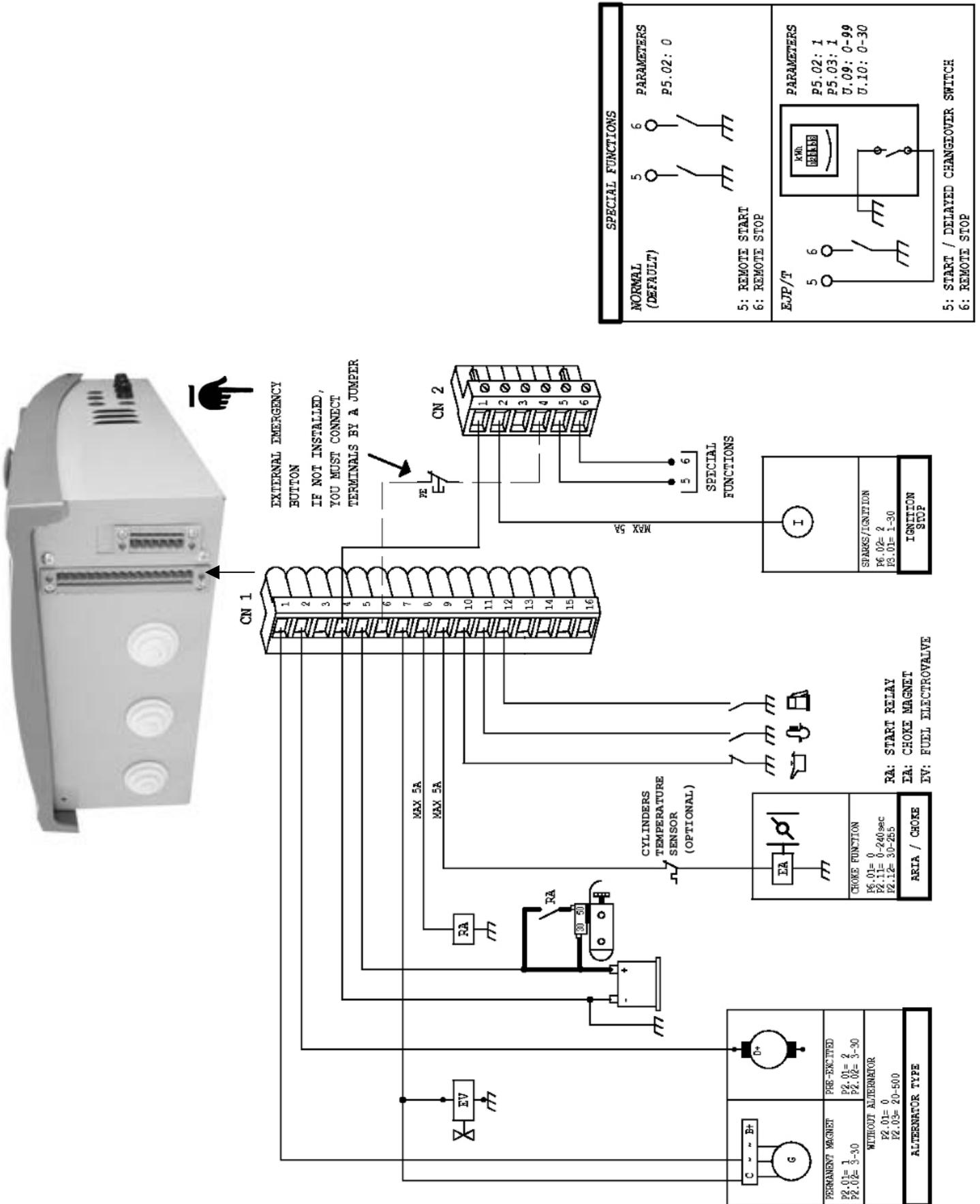


4.4 - Diesel engine auxiliary connection





4.5 - Gasoline engine auxiliary connection





Cable connection and fixing power on contactor's terminals and output terminals, must be in accordance to following data

Contactor (check the type installed in the panel)	Minimum and maximum section of the cables connected without terminals	Minimum and maximum terminals fixing power .Warning!!! During the power cables connection, don't move the auxiliary wires from the contactor terminals and check if they are properly fixed together with power cables in the terminals.	
Tipo	mm	Nm	lbft
BF9T	1-6	1,5-1,8	1,1-1,5
BF12T	1-6	1,5-1,8	1,1-1,5
BF18T	1-6	1,5-1,8	1,1-1,5
BF26T	2,5-6	2,5-3	1,8-2,2
BF38T	2,5-16	2,5-3	1,8-2,2
CL04	2,5-16	1,4	1,02

WARNING !! If the installation of the product is not in accordance to the specifics described above, can cause problems in terms of functionality and can also compromises warranty conditions. Then Tecnoelettra srl won't be responsible for any direct or not direct damage due to wrong installation.

POWER CONVERSION TABLE

Contactor Ith thermal current	Panel maximum power 400Vac 3P+N kVA max / I max	Panel maximum power 230Vac 3P+N kVA max / I max	Panel maximum power 230Vac 1P+N kVA max / I max
25A	17kVA / 25A	10kVA / 25A	9kVA / 40A
32A	22kVA / 32A	12kVA / 32A	11kVA / 50A
45A	31kVA / 45A	18kVA / 45A	16kVA / 72A
56A	38kVA / 56A	22kVA / 56A	20kVA / 89,5A
60A	42kVA / 60A	24kVA / 60A	22kVA / 96A

5 - AT206 PANEL PROGRAMMATION INSTRUCTION

5.1 - Programmation menu access description

With the board in RESET position, press TEST button for 5 seconds; after that, the entrance in the menu is showed by the display with the first code of the parameter "U.01".

This procedure permit to enter only in the "User menu"; that permits to modify only the normal use parameters (described in par. 5.3); by this you are not able to enter in the technical parameters that can cause function problem in the panel (these parameters are described in par.5.4).

To have access to complete menu (advanced menu), you need a different password.
To have it, please contact the dealer or the manufacturer.

5.2 - Parameters modification instructions

TEST button permits to see the value of the parameter

START button permits to increase the value and STOP button permit to decrease the value. For the time setting, START button increase the hours value and STOP button increase the minutes value.

To save the value set and exit from parameter, press RESET then AUT button. (In advanced menu only RESET button to save and exit)

To exit from parameter without saving, press AUT button.

MEAS button permits to change (increase) the number of the parameter in a menu

MAN button permits to change (increase) the number of the menu

At the end of the programmation, press AUT than RESET buttons to return definitively from programmation mode to operative mode.

5.3 - User menu parameters

Setup	Description	Range	Default
Group 1	Test		
U.01	Automatic test interval time	1 – 30days	3 days
U.02	Test duration	1 – 30 min	10 min
U.03	Test start time	00:00 – 23:59	10:00
U.04	Test with load	0=with load 1=without load	1
Group2	Various		
U.08	Siren relay closing time	0 – 60 sec	20 sec
U.09	Engine starting delay from EJP/T signal	0 – 99 min	25 min
U.10	Switching delay for EJP/T(1 wire)	0 – 30 min	5 min
Group3	Clock setting		
U.11	Time	00:00 – 23:59	11:11



5.4 - Advanced menu parameters

Setup	Description	Range	Default
Group 1	Panel nominal data		
P1.01	Nominal frequency	50Hz= 0 60Hz=1	0
.02	Current Trasformer ratio (CT 100/5 = 20)	1...2000	20
.03	System (220V monophas, 220V triphase, 380V triphase)	0=220M 1=220T 2=380T	0
Group 2	Engine start-up		
P2.01	500 rpm signal from alternator or gen. (started engine)	0= from alternator Vac 1= permanent magnet alt. (saprisa) 2= pre-excited alternator (D+)	0
.02	Started engine alternator batterycharger voltage threshold	3-30V	10
.03	Started engine generator voltage threshold	20-500V	50
.04	Starting with power failure	On=1 Off=0	1
.05	Preheating time	1-60 sec	7
.06	Number of starting attempts	1-10	6
.07	Duration of starting attempts	1-30sec	5
.08	Pause time within starting attempts	1-20sec	10
.09	Automatic test enabling with remote stop signal presence	0= start not enable 1= start enable	1
.10	Alarm enabling delay at starting (oil/V/freq.)	1-60sec	8
.11	Air time	0-240 sec	5
.12	Air switch-off threshold	30-255V	100
Group 3	Motor stop		
P3.01	Stop times (electromagnet closing time / gasoline engine stop time)	1-30sec	10
.02	Decelerated funct. time	1-60 sec	30
.03	Cooling time	1 – 300sec	120
Group 4	Protections		
P4.01	Minimum frequency (fixed delay 5sec)	80 – 100 %	90%
.02	Maximum frequency (overspeed)	100 – 120%	110%
.03	Maximum frequency al. tripping delay	0-15 sec	2 sec
.04	Battery minimum frequency	7-12V	9
.05	Battery maximum frequency	13 – 17V	17V
.06	Load maximum current	10 – 2550A	100A
.07	Maximum current delay	0 – 600sec	10
.08	Tripping delay of "500rpm failure" (strap breaking)	0 –10 sec	5
.09	"Mechanical failure" tripping delay	0 - 10 sec	5
Group 5	Various	Range	Default
P5.01	Generator and network contactor closing delay	0,1 –5 sec	1
P5.02	Remote start input function	0= normal 1= ejp/t	0
P5.03	Re-commutation lock on network in case of alarm during EJP/T	1 = on 0 = off	0
P5.04	Hourcounter value	0 – 999.999	0
Group 6	Programmable outputs		
P6.01	Programmable relay (terminal 63)	0= choke / air 1= glow plugs 2= alarm 3= fuel electrovalve	1= glow plugs
P6.02	Programmable relay (terminal 53 - 54)	0= alarm 1= decelerator 2= electromagnet or gasoline stop	0= alarm
P6.03	Programmable relay (terminal 62)	0= siren 1= alarm	0= siren

 Note : Range P7.01, P7.02, P8.01 E P8.02 must always set in reference to 230V also if P1.03 =1 or P1.03=2



Group 7			
<i>Network parameters</i>			
P7.01	Mains voltage minimum threshold (measured)	160 – 230Vac	195Vac
.02	Mains voltage maximum threshold (measured)	200 – 345Vac	260Vac
.03	Mains voltage time out of the limits	5 – 9999 sec	5 sec
.04	Mains voltage return time within the limits	5 – 9999 sec	10 sec
Group 8			
<i>Generator parameters</i>			
P8.01	Generator voltage minimum threshold (measured)	160 – 230Vac	195Vac
.02	Generator voltage maximum threshold (measured)	200 – 345Vac	260Vac
.03	Generator voltage delay out of the limits	5 – 9999 sec	5 sec
.04	Generator voltage time within the limits	5 – 9999 sec	20 sec

Alarms			
Setup	Description	Range 0000=no 0001=yes	Default
A1	Engine overtemperature	0000 / 0001	0001 = yes
A1.01	Stop without cooling	0000 / 0001	0001 = yes
A1.02	Stop with cooling	0000 / 0001	0000 = no
A1.03	Siren relay	0000 / 0001	0001 = yes
A1.04	Alarm relay (if enabled see P6.02)	0000 / 0001	0001 = yes
A1.05	Not used	0000 / 0001	0000 = no
A2	Oil low pressure	0000 / 0001	0001 = yes
A2.01	Stop without cooling	0000 / 0001	0001 = yes
A2.02	Stop with cooling	0000 / 0001	0000 = no
A2.03	Siren relay	0000 / 0001	0001 = yes
A2.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A2.05	Not used	0000 / 0001	0000 = no
A3	Avaria meccanica	0000 / 0001	0001 = yes
A3.01	Stop without cooling	0000 / 0001	0001 = yes
A3.02	Stop with cooling	0000 / 0001	0000 = no
A3.03	Siren relay	0000 / 0001	0001 = yes
A3.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A3.05	Not used	0000 / 0001	0000 = no
A4	500 rpm failure (strap breaking)	0000 / 0001	0001 = yes
A4.01	Stop without cooling	0000 / 0001	0000 = no
A4.02	Stop with cooling	0000 / 0001	0000 = no
A4.03	Siren relay	0000 / 0001	0001 = yes
A4.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A4.05	Not used	0000 / 0001	0000 = no
A5	Overspeed (maximum frequency)	0000 / 0001	0001 = yes
A5.01	Stop without cooling	0000 / 0001	0001 = yes
A5.02	Stop with cooling	0000 / 0001	0000 = no
A5.03	Siren relay	0000 / 0001	0001 = yes
A5.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A5.05	Not used	0000 / 0001	0000 = no
A6	Minimum frequency (fixed delay 5sec)	0000 / 0001	0001 = yes
A6.01	Stop without cooling	0000 / 0001	0000 = no
A6.02	Stop with cooling	0000 / 0001	0001 = yes
A6.03	Siren relay	0000 / 0001	0001 = yes
A6.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A6.05	Not used	0000 / 0001	0000 = no
A7	Generator minimum voltage	0000 / 0001	0001 = yes
A7.01	Stop without cooling	0000 / 0001	0001 = yes
A7.02	Stop with cooling	0000 / 0001	0000 = no
A7.03	Siren relay	0000 / 0001	0001 = yes
A7.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A7.05	Not used	0000 / 0001	0000 = no



A8	Generator maximum voltage	0000 / 0001	0001 = yes
A8.01	Stop without cooling	0000 / 0001	0000 = no
A8.02	Stop with cooling	0000 / 0001	0001 = yes
A8.03	Siren relay	0000 / 0001	0001 = yes
A8.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A8.05	Not used	0000 / 0001	0000 = no
A9	Fuel	0000 / 0001	0001 = yes
A9.01	Stop without cooling	0000 / 0001	0000 = no
A9.02	Stop with cooling	0000 / 0001	0000 = no
A9.03	Siren relay	0000 / 0001	0001 = yes
A9.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A9.05	Not used	0000 / 0001	0000 = no
A10	Maximum current	0000 / 0001	0001 = yes
A10.01	Stop without cooling	0000 / 0001	0000 = no
A10.02	Stop with cooling	0000 / 0001	0001 = yes
A10.03	Siren relay	0000 / 0001	0001 = yes
A10.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A10.05	Not used	0000 / 0001	0000 = no
A11	Battery minimum voltage	0000 / 0001	0001 = yes
A11.01	Stop without cooling	0000 / 0001	0000 = no
A11.02	Stop with cooling	0000 / 0001	0000 = no
A11.03	Siren relay	0000 / 0001	0001 = yes
A11.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A11.05	Not used	0000 / 0001	0000 = no
A12	Battery maximum voltage	0000 / 0001	0001 = yes
A12.01	Stop without cooling	0000 / 0001	0000 = no
A12.02	Stop with cooling	0000 / 0001	0001 = yes
A12.03	Siren relay	0000 / 0001	0001 = yes
A12.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A12.05	Not used	0000 / 0001	0000 = no
A13	Starting failure	0000 / 0001	0001 = yes
A13.01	Stop without cooling (not influential, always as set to "no")	0000 / 0001	0000 = no
A13.02	Stop with cooling (not influential, always as set to "no")	0000 / 0001	0000 = no
A13.03	Siren relay	0000 / 0001	0001 = yes
A13.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A13.05	Not used	0000 / 0001	0000 = no
E1	Remote stop	0000 / 0001	0001 = yes
E1.01	Stop without cooling (not influential, always as set to "yes")	0000 / 0001	0001 = yes
E1.02	Stop with cooling (not influential, always as set to "no")	0000 / 0001	0000 = no
E1.03	Siren relay	0000 / 0001	0001 = yes
E1.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
E1.05	Not used	0000 / 0001	0000 = no
E2	Emergency stop (not influential, always as set to "yes")	0000 / 0001	0001 = yes
E2.01	Stop without cooling (not influential, always as set to "yes")	0000 / 0001	0001 = yes
E2.02	Stop with cooling (not influential, always as set to "no")	0000 / 0001	0000 = no
E2.03	Siren relay	0000 / 0001	0001 = yes
E2.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
E2.05	Not used	0000 / 0001	0000 = no



6 - GENERAL SALES CONDITIONS AND WARRANTY

PRICES

The prices are those specifically valid of the ruling price list, VAT excluded. Furthermore, they do not cover the costs of packing, carriage, delivery, custom duties and/or any other charges, unless stated otherwise. Except when agreed with **TECNOELETTRA** in writing, the ruling prices shall be applied to all deliveries beginning from January 1. Furthermore, the prices are not binding and for general guidance only: the Seller shall have the right to increase or decrease prices for eventual variations occurring in the cost of raw materials.

MODIFICATIONS TO PRODUCTS

The Seller reserves the right and the faculty, without previous warning, to make any modification for improvement of the products, including constructive ones without however altering the overall structure or dimensions but assuring a total interchangeability at all times.

SUPPLY

The terms of the contract only include what is clearly and specifically described in the Seller's order. At any moment, the contract shall be suspended in case the Buyer's property conditions change as per the Italian Civil Code art.1461. Performance of the contract by the Seller is subject to availability of goods and material from time to time.

DELIVERY

Unless otherwise agreed in writing, as a general rule, delivery shall be ex works Guastalla. All responsibility on the Seller's part shall cease when the goods subject of the contract are despatched from the Seller's premises; goods are consequently transported at the risk and danger of the Buyer.

DELIVERY TIMES

The delivery times defined in the Seller's quotations and in any other document issued by the Seller, begin from the date of receipt of the Buyer's order and are an estimate only.

The Seller reserves the right to extend the delivery time whenever the Buyer delays to fulfil the contract obligations and in particular if:

- there is a breach of payment;
- the Buyer does not provide each necessary data on time or does not promptly communicate his approval for drawings or schematic diagrams, whenever requested;
- the Buyer requires modifications during the contract period;
- the Buyer does not supply the materials of his supply on time
- circumstance beyond the Seller's control; which circumstances shall include but not be limited to weather conditions, fire, breakdown in the Seller's plant or machinery, floods, earthquakes, war;
- immobilisation requisitions, embargo, insurrection, shortage or breakdown of transport materials or plant, restrictions on the use of power, lockout, strike, stoppages, industrial disputes or acts of terrorism, etc.

DELIVERY DELAYS

Eventual delivery delays do not give the Buyer the right to cancel the contract, totally or partially, and to receive damages, except when regularly stipulated in the contract.

PACKING

It is always gratis.

WARRANTY AND GUARANTEE

The Seller guarantees that the products the subject of the contract shall be free from defects including components and manufacture and specifications of the contract. The warranty period is 12 months from the date the goods the subject of the contract are despatched from the Seller's premises.

The warranty is applicable to the products supplied by the Seller and includes parts and components purchased from other suppliers of the Seller.

The guarantee does not cover:

- parts subject to normal wear
- parts damaged for improper usage
- parts damaged for inattentive and/or careless treatment
- parts damaged for improper assembly
- parts damaged for excessive stress imposed to materials
- parts damaged for negligence in the maintenance operations
- parts damaged for circumstances not subject to the Seller's control.

The Seller shall replace or repair all products or components which present proven manufacture defects on condition that they are claimed for in writing within the validity of the warranty period. Each repaired or replaced item is guaranteed for a period as the previous one.

The Buyer has no right to claim for damage or loss whatsoever kind arising out of the provision or performance. The guarantee is subject to the respect by the Buyer of the contract obligations, with particular respect of the terms of payment.

PAYMENT

The payment of the Seller's invoice must be made in the form expressly specified in the contract.

The Buyer's takes upon himself all risks involved in the transfer of the sums, whichever the method used.

For the amounts which will not be received at the payment due date, the current bank interest of the Seller shall be applied.

Payment will not be withheld pending the settlement of eventual technical or commercial objections raised.

Eventual payment breaches give the Seller the right to suspend the outstanding contracts or to require their payment in advance.

RETURN OF MATERIALS

The return of goods shall not be accepted unless previously agreed and authorized in a writing.

The acceptance of returned materials for causes not due to the Seller, depends only on the Seller's unquestionable discretion and at the conditions given herebelow:

- standard material normally on stock
- original packing
- no visible damage
- indication of the purchase date, if possible, on the return documents
- validity of the product warranty
- 20% deduction for handling charges, VAT excluded
- return of material free of charge

PROPER LAW

For any dispute, the only competent court shall be Reggio Emilia. Whenever the Buyer intends to apply a penalty, it is to be notified by registered letter. Retroactive effect to the date of letter receipt is not accepted. For all legal proceedings, our registered office at Via Dimeo Vioni 5, Guastalla, Reggio Emilia, Italy is valid.

The proper law governing each contract is the Law of Italy.

Conditions mentioned above cancel and substitute all previous ones.

