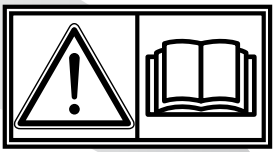
GB

INSTRUCTIONS FOR USE

AUTOMATIC TRANSFER SWITCH FOR GENERATING SET



Models :

AT206 / AT206B

MU_02GE_AT206_AT206B_GB

INDEX:

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 scrupolously 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 "**WORMS Entreprises**" 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 "**WORMS Entreprises**" 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 "**WORMS Entreprises**" who will provide you with specialized, prompt action.

If you have had parts replaced, ask and make sure that only genuine "**WORMS Entreprises**" 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 "**WORMS Entreprises**".

The special composition and design of this panel enables satisfying the most restrictive operator safety standards.
To use "**WORMS Entreprises**" 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 "**WORMS Entreprises**": 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 malfuncion. 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 responsability in to following cases:

  a) misure 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 pairtial failure to follow the instruction.

  h) unforoseen 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. "**WORMS Entreprises**" 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**  Information or procedures that advise the operator on the optimum use of the electric panel to extend its service life and prevent damage.

 **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 "**WORMS Entreprises**".

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 "**WORMS Entreprises**" 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 demages 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 our general sales conditions.

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 and AT206B PANEL DESCRIPTION

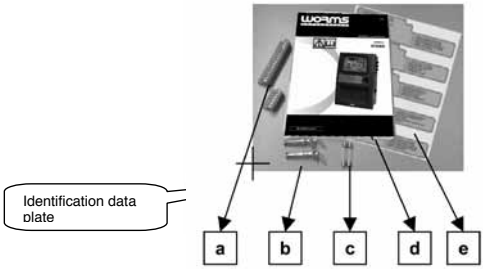
This product permit to control all the functions about a generator

- 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 Single phase, 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.

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) and the instruction manual (d).



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.

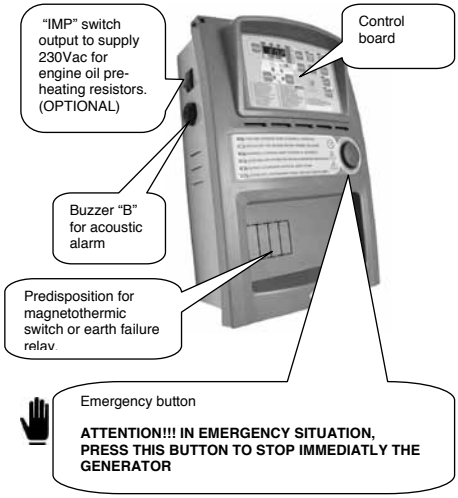
Every time you need to carry out special maintenance, repairs or to request spare parts it is necessary to call the Manufacturer or Dealer, always quote the serial number.

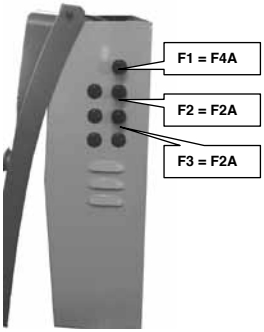
2.1.2 - Identification plate data specifics

Type	Indicates the code of the control panel
Date	Indicates production date
KvA	Maximum power

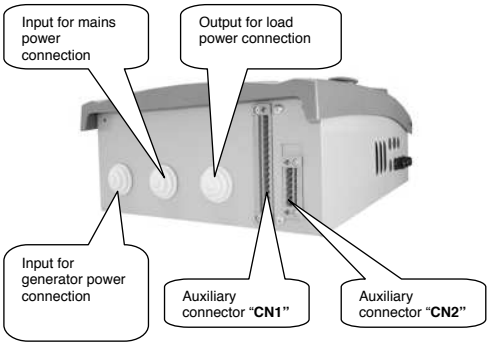
S.Number	Indicate the serial number required to identify the product
Vaux =	Maximum voltage on auxiliary circuits (Warning!!! Depending on machine type voltage may be direct current or alternating current. The cable of the auxiliary circuit is red if the voltage is ac and brown if the voltage is dc
Operator	Indicate operator

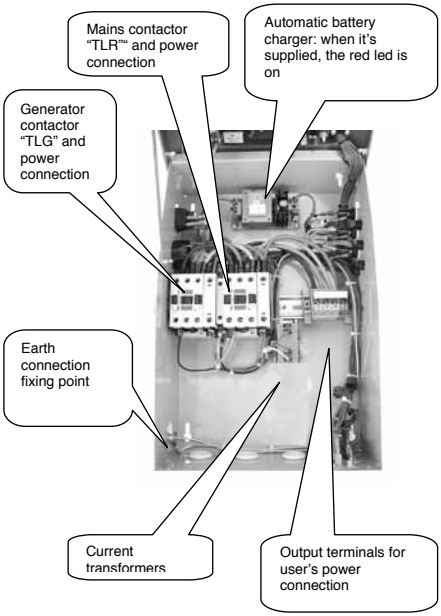
2.2 - Product external and internal view with description





ATTENTION: Change the fuses only with others of the same type and with the same data current values

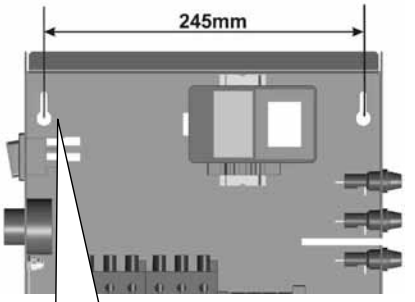




ATTENTION:
The panel in the pictures is only an example and it's one of the model in production; for this reason, the current transformers, the power circuit and the contactors in the panel must be different from the components in the image.

2.3 - Panel wall mounting instructions

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



The panel must be fixed on the wall by two fixing hook in equipment

For air flow reasons, it is necessary that around the panel there is a free space of about 10cm for all the perimeter

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 board is setted in RESET mode.

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 programmation of Hour and Date are needed

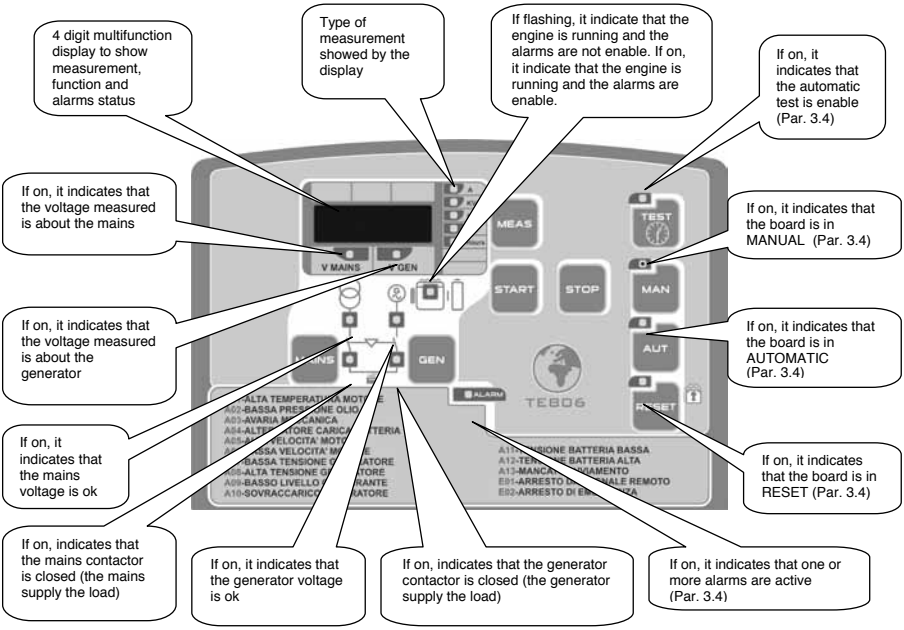
3.1.1 - How programming the Date and time on the panel

To program the Date and time, follow the procedure descripted below:

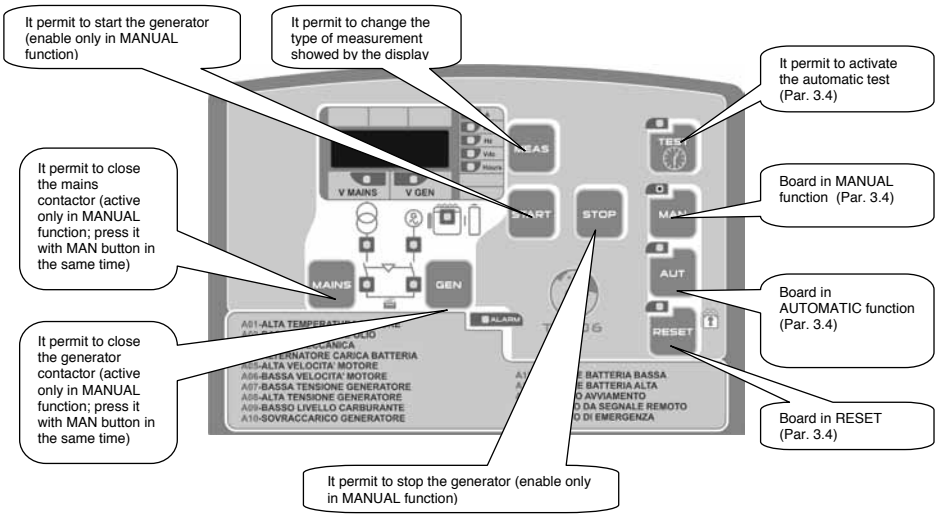
- Press RESET button
- With the board in RESET position, press TEST button for 5 seconds until the display shows "Set"; after that the display shows the first code of the parameter "U.01 – Automatic test delay time". To see all the parameters, please check the following table
- By continously pressing 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 minutes or press STOP button to increase the value of the hours
- When the value is correct, press RESET button to save the modification 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	20 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
U.05	Not enable		
U.06	Not enable		
U.07	Not enable		
Group2	***Various***		
U.08	Siren relay closing time	0 – 60 sec	20 sec
U.09	Engine departure delay from EJP 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
U.12	Not enable		

3.2 - AT206 panel; LED indication decription



3.3 - AT206 panel; command buttons decription



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 immediatly 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 work 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 setted. 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 show an identification code about the problem: after about 2 seconds the display show also a descriptive text about the alarm. By RESET button you can reset the alarms; 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 return to the menu. This parameter specify the delay from one automatic test and the next one. If you press AUT insead of RESET button to exit from parameter to menu, you loose the modification
- 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, exit and save by RESET 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 minutes value or by STOP button increase the hours value to change the starting time of the automatic test. When the value is correct, exit and save by RESET button.
- By pressing MEAS button, go to paramter "U.04" showed on the display. Press TEST button to see the value stored now, then by START button (increase) or STOP button (decrease) 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, exit and save by RESET 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 setted, you have to enable this test; with the board in automatic mode, keep pressed TEST button fo 5 seconds, then 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, keep pressed TEST button for 5 seconds, then the display shows "Off" and the test led turn off.

EXAMPLE:

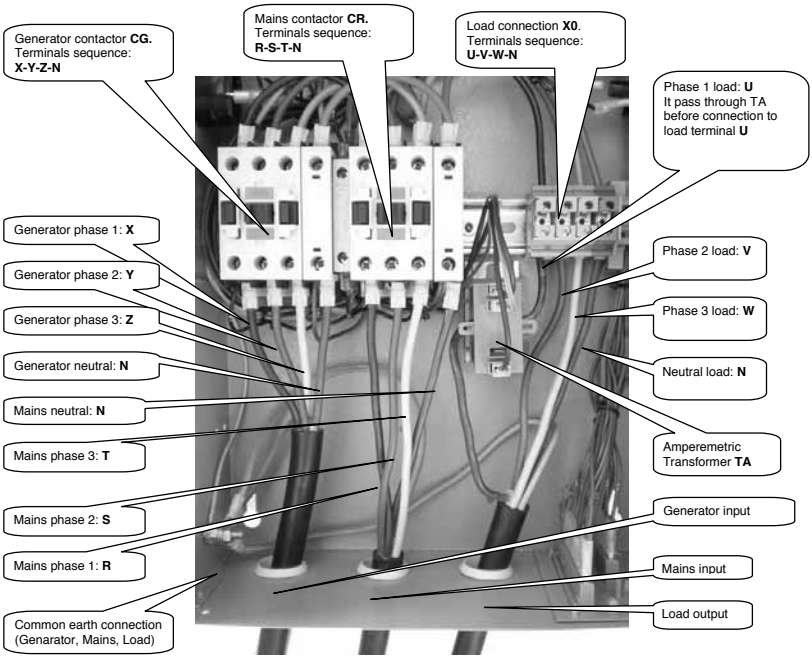
Setup	Description	Range	Default
Group 1	Test		
U.01	Automatic test interval time	1 – 30days	3 days
U.02	Test duration	1 – 30 min	15 min
U.03	Test start time	00:00 – 23:59	10:00
U.04	Test with load	0=load 1=a vuoto	1
U.05	Not enable		
U.06	Not enable		
U.07	Not enable		

If you enable the automatic test (TEST button for 5 seconds) 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

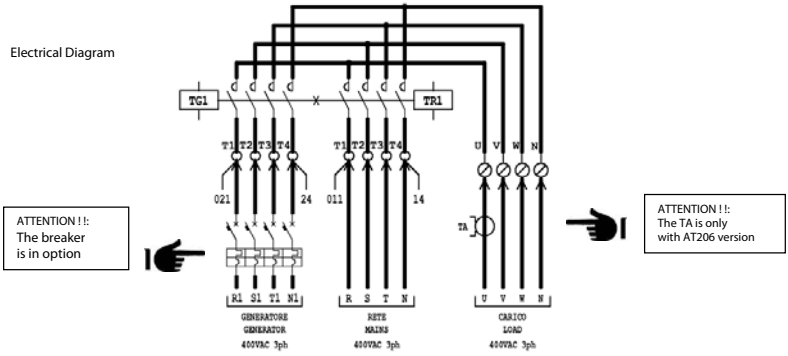
4 – AT206 CONNECTION AND ELECTRICAL DRAWINGS

4.1 - Power connection

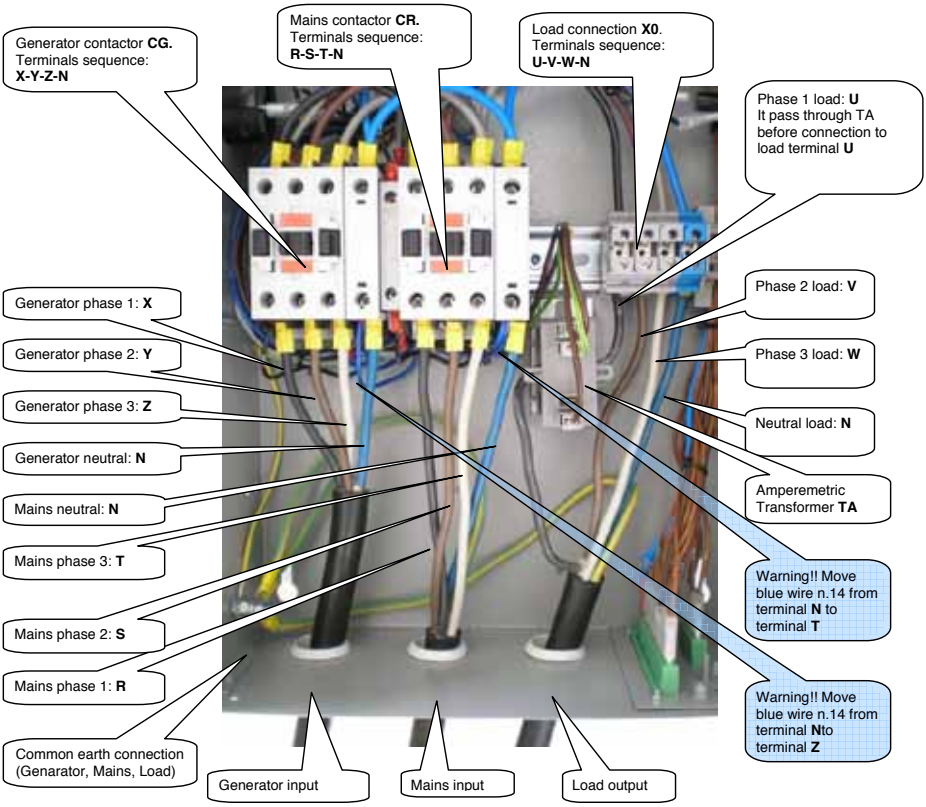
4.1.1 - Triphase connection 400Vac 3P+N



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 togheter with power cables in the terminals.	
Tipo	**mm**	**Nm**	**lbft**
QAMPE-17B	1-6	1,5-1,8	1,1-1,5
QAMPE-30B	2,5-16	2,5-3	1,8-2,2
WARNING !! If the installation of the product is not in accordance to the specifics descripted above, can cause problems in terms of functionality and can also compromises warranty conditions. Then WORMS Entreprises won't be responsible for any direct or not direct damage due to wrong installation.			

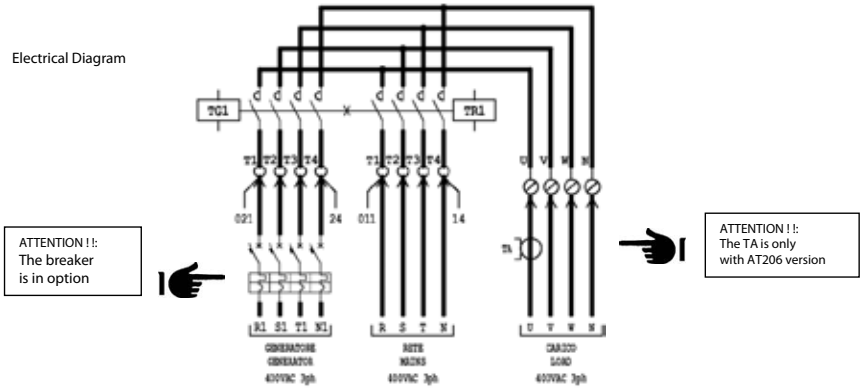


4.1.2 - Triphase connection 230Vac 3P+N

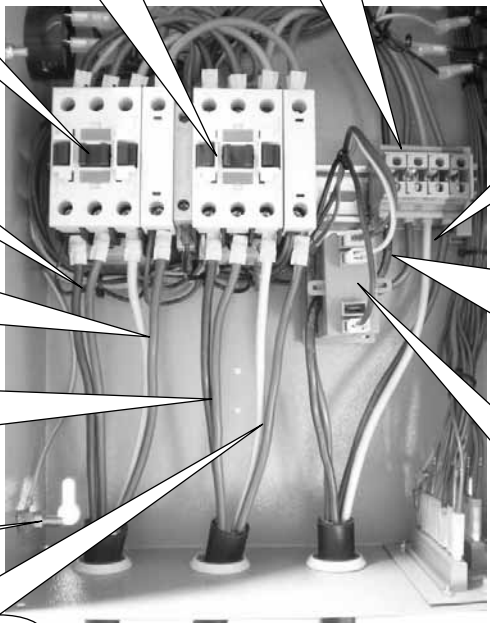


POWER CONVERSION TABLE			
Contactor Ith thermal current	Panel maximum power 400Vac 3P+N ***kVA max / I max***	Panel maximum power 230Vac 3P+N ***kVA max / I max***	Panel maximum power 230Vac 1P+N kVA max / I max
25A	**17kVA / 25A**	**10kVA / 25A**	**9kVA / 40A**
45A	**31kVA / 45A**	**18kVA / 45A**	**16kVA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

Electrical Diagram

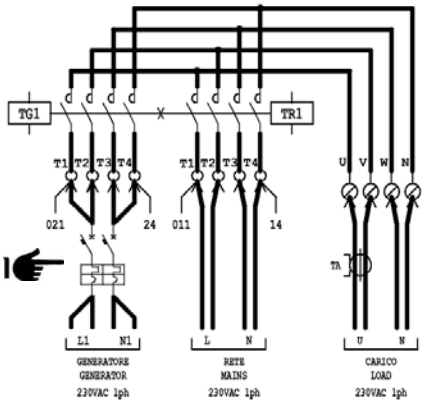


4.1.3 - Single phase connection 230Vac



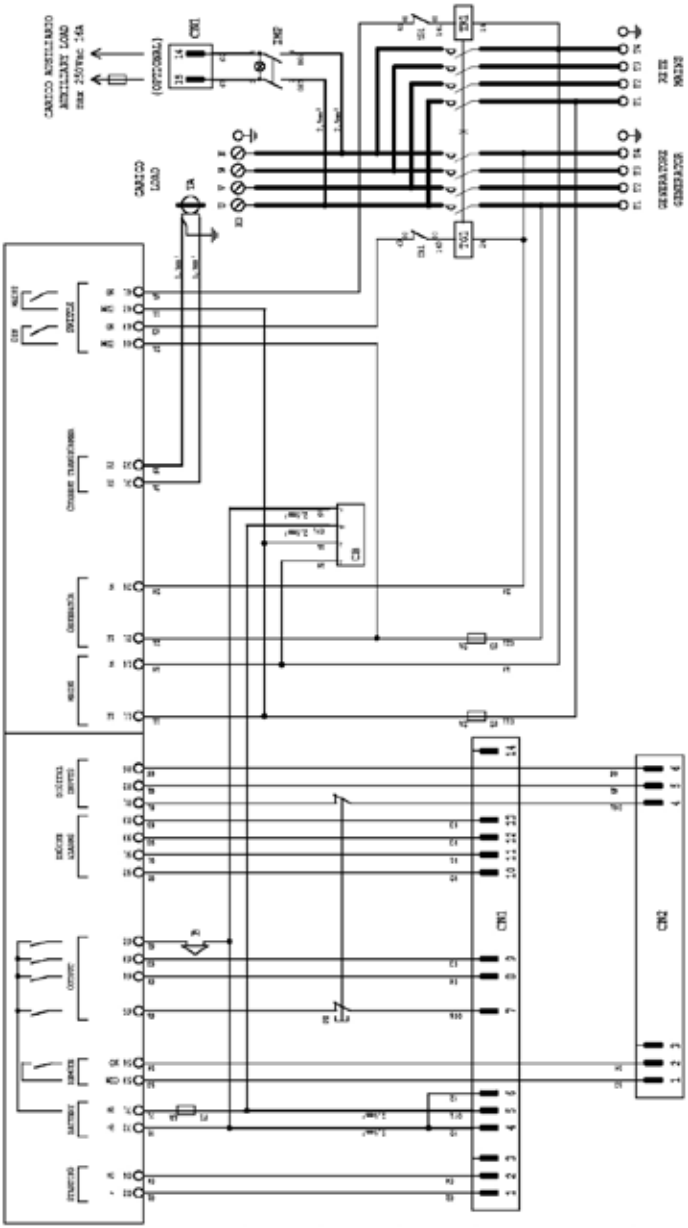
POWER CONVERSION TABLE			
Contactor Ith thermal current	Panel maximum power 400Vac 3P+N ***kVA max / I max***	Panel maximum power 230Vac 3P+N ***kVA max / I max***	Panel maximum power 230Vac 1P+N kVA max / I max
25A	**17kVA / 25A**	**10kVA / 25A**	**9kVA / 40A**
56A	**38kVA / 56A**	**22kVA / 56A**	**20kVA / 89,5A**

Electrical Diagram

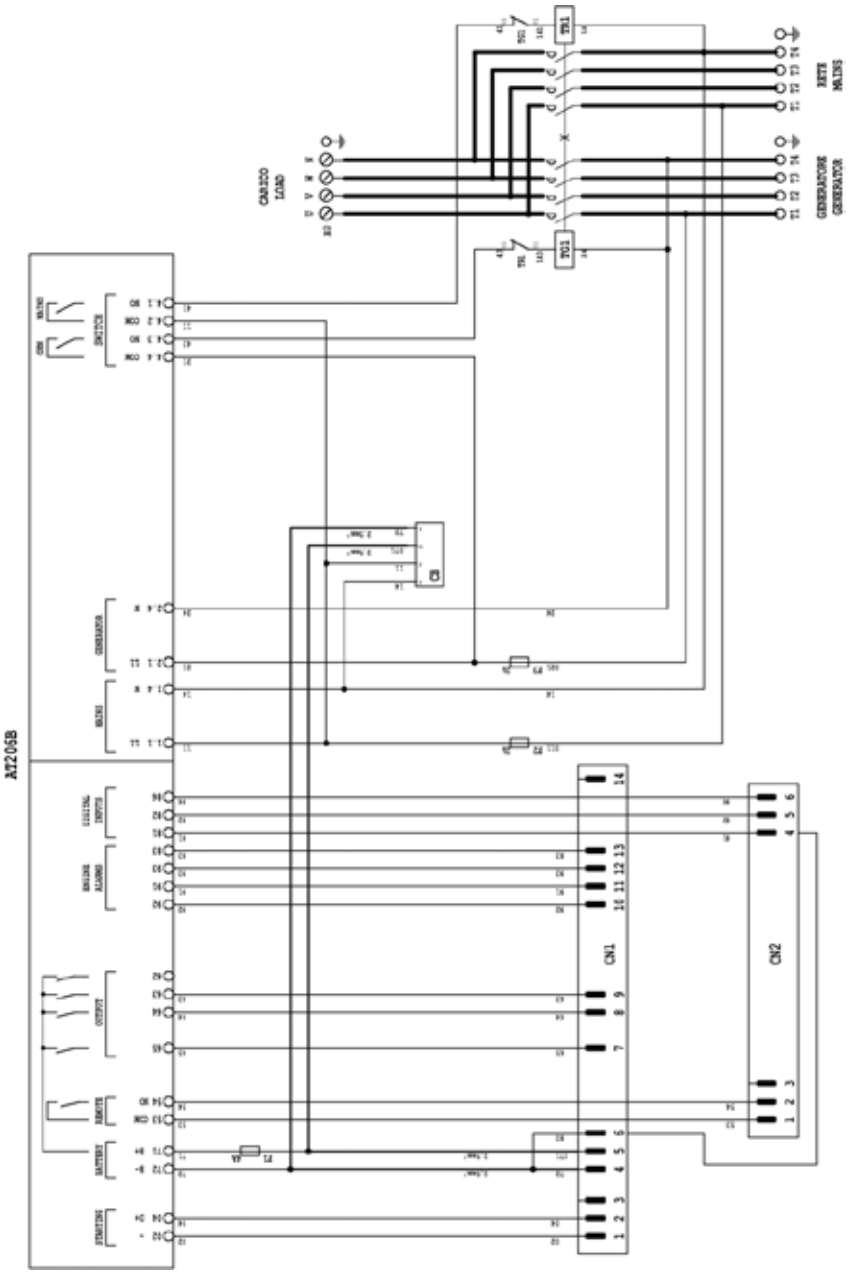


ATTENTION !!:
The breaker is in option

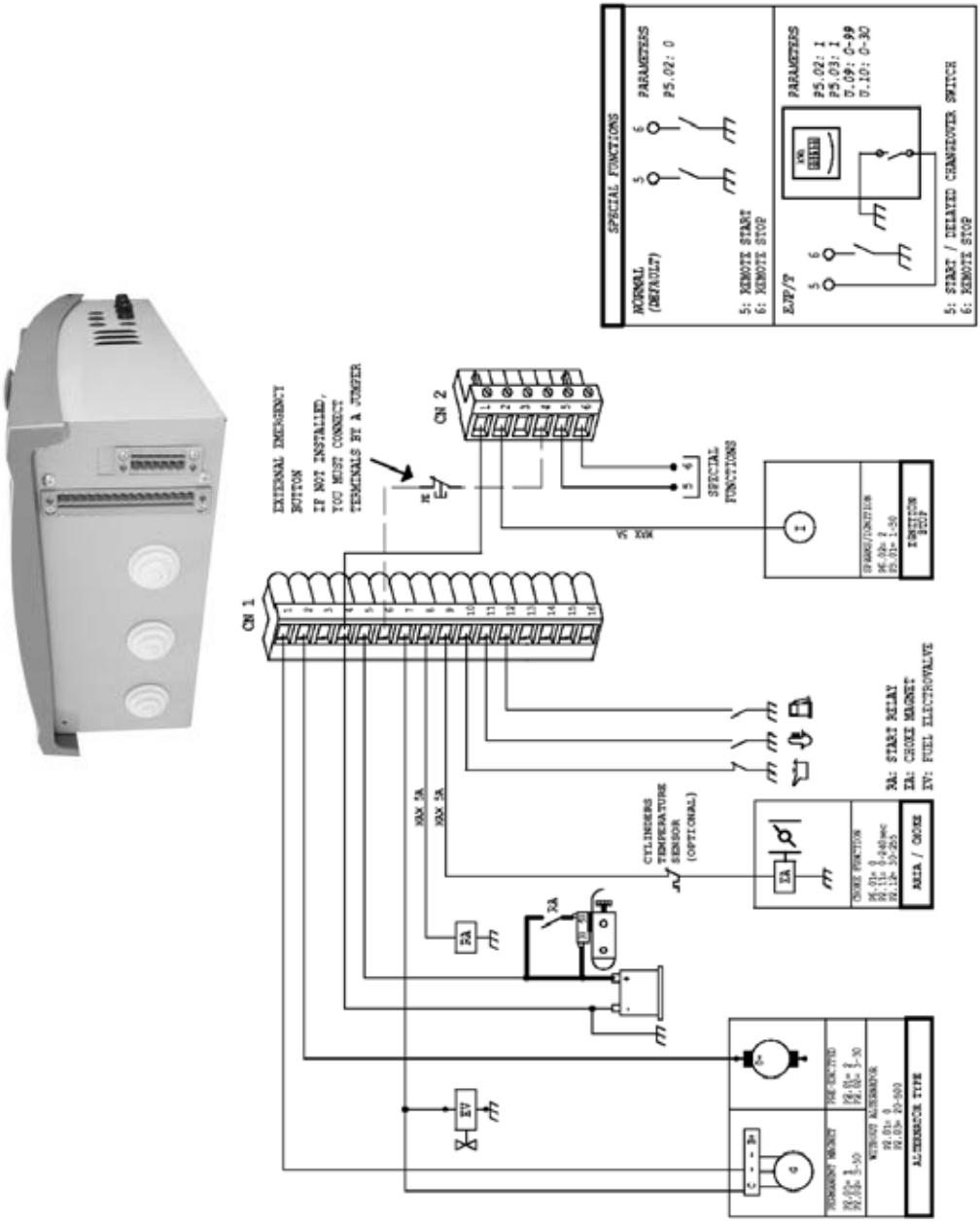
4.2 - Panel electrical drawings



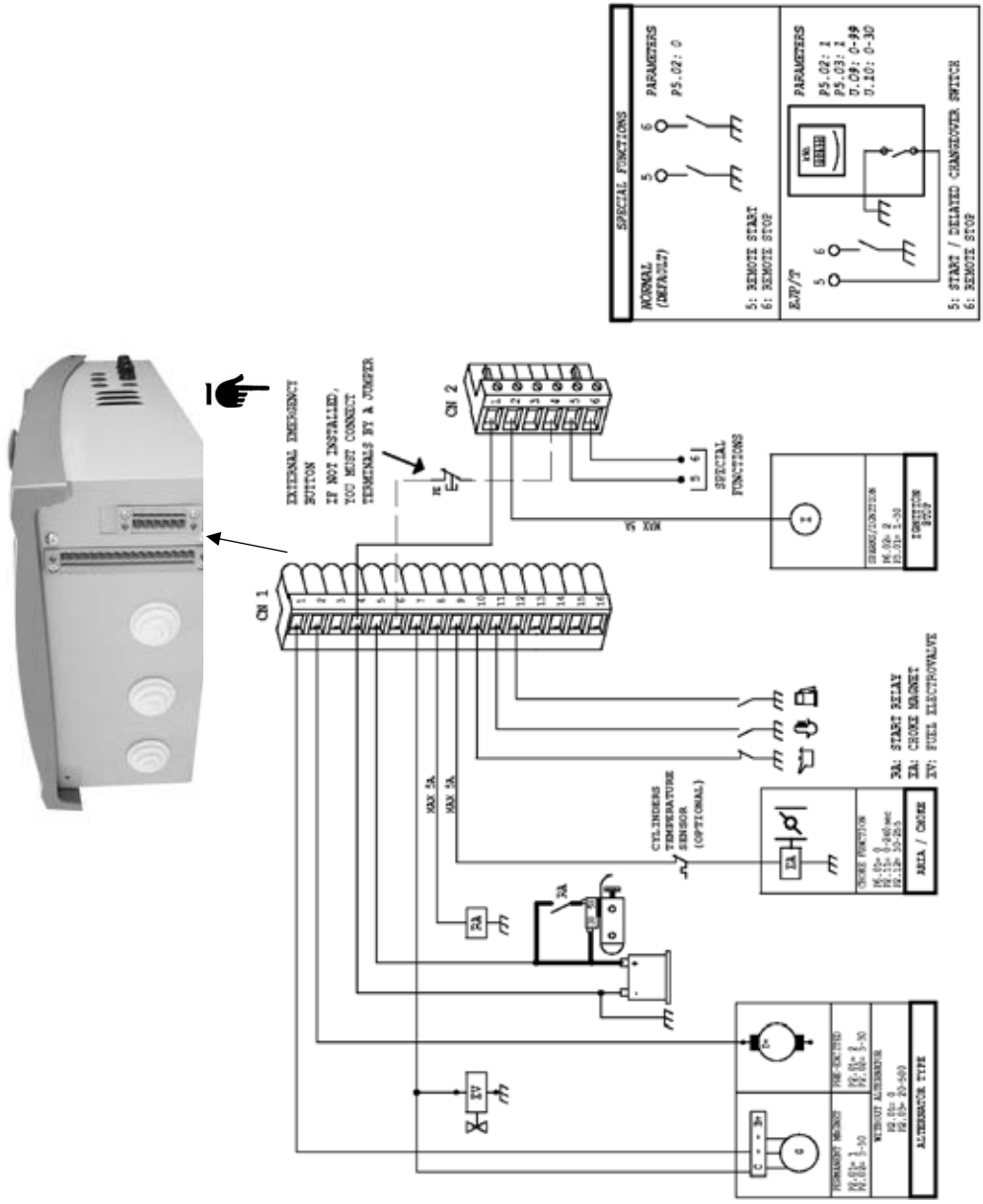
4.3 - Panel Electrical Drawings 10 t0 35 kva



4.4 - Auxiliary connections on Diesel generating set Stone and Echo



4.5 - Auxiliary connections on petrol generating set Cubick and Zip



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"; the description of the parameters is at par 5.3.

To have access to complete menu (advanced menu), you need a different password; please contact the dealer or the manufacturer. The complete description of all the parameters is in the par 5.4

5.2 - Parameters modification instructions

TEST button permit to see the value of the parameter
START button permit to increase the value and STOP button permit to decrease the value. For the time, START button increase the minutes value and STOP button increase the hours value.
RESET button save the value of the parameter and exit from it
MEAS button permit to change (increase) the number of the parameter in a menu
MAN button permit to change (increase) the number of the menu
To exit from programmation, press AUT than RESET buttons

5.3 - User menu parameters

Setup	Description	Range	Default
Group 1	Test		
U.01	Automatic test interval time	1 – 30days	20 days
U.02	Test duration	1 – 30 min	5 min
U.03	Test start time	00:00 – 23:59	10:00
U.04	Test with load	0=load 1=a vuoto	1
U.05	Not enable		
U.06	Not enable		
U.07	Not enable		
Group2	***Various***		
U.08	Siren relay closing time	0 – 60 sec	20 sec
U.09	Engine departure delay from EJP start	0 – 99 min	25 min
U.10	Switching delay for EJP/T(1 wire)	0 – 30 min	5 min
Group3	***Clock setting***		
U.10	Time	00:00 – 23:59	11:11
U.11	Not enable		

5.4 - Advanced menu parameters

Setup	Description	Range	Default
Group 1	***Panel nominal data***		
P1.01	Nominal frequence	50Hz= 0 60Hz=1	0
.02	Current Trasformer ratio (CT 100/5 = 20)	1…2000	20
.03	System (220V Single phase, 220V triphase, 380V triphase)	0=220M 1=220T 2=380T	0-2
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	7
.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	10
.06	Number of starting attempts	1-10	5
.07	Duration of starting attempts	1-30sec	5
.08	Pause time within starting attempts	1-20sec	10
.09	Not active	0 - 255	255
.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	15
.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	15V
.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 2= ejp/t 3= scr	0
P5.03	Re-commutation lock on network in case of alarm during EJP /EJPT / SCR	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	1= glow plugs
P6.02	Programmable relay (terminal 53 - 54)	0= alarm 1= decelerator 2= electromagnet	0= alarm
P6.03	Programmable relay (terminal 62)	0= siren 1= alarm	0= siren

Group 7	*Network parameters*		
P7.01	Mains voltage minimum threshold (measured)	160 – 400Vac	180Vac
.02	Mains voltage maximum threshold (measured)	253 – 600Vac	290Vac
.03	Mains voltage time out of the limits	1 – 9999 sec	5 sec
.04	Mains voltage return time within the limits	1 – 9999 sec	10 sec
Group 8	*Group parameters*		
P8.01	Group voltage minimum threshold (measured)	160 – 400Vac	180Vac
.02	Group voltage maximum threshold (measured)	253 – 600Vac	290Vac
.03	Group voltage delay out of the limits	1 – 9999 sec	5 sec
.04	Group voltage time within the limits	1 – 9999 sec	20 sec

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

	Alarms		
Setup	**Description**	**Range**	**Default**
		0000=no 0001=yes	
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

SALES CONDITIONS

PRICES
Our prices are subject to change at any time without notice.

PRICING OFFERS
Unless stated otherwise, written quotes and offers are valid only for the month following the date on which they are sent.

ORDE ACCEPTANCE
These general conditions apply to orders accepted by our Company, except in special cases by prior express agreement. If the purchaser disagrees with any one or more of the following stipulations, he must notify our Company by registered letter no more than eight days (or 15 days if the purchaser is located outside the country) after the order receipt acknowledgement is sent; otherwise the purchaser is considered to have accepted these conditions, regardless of any stipulation to the contrary that may be included in his own documents and except for any possible special conditions with prior express agreement.

RESERVATION OF TITLE
In accordance with French Law No. 80.335 dated May 12, 1980, our merchandise remains our property until payment in full of the sale price.

DELIVERY TIMES
Probable shipping times are estimates only and imply departure from our stores located at our headquarters. A delivery delay cannot be cause for any indemnity. If delivery has not been made at the end of 60 days following the notice sent by the purchaser, the order will be considered cancelled with full legality.

TRANSPORTATION
Items travel at the risks and perils of the recipient, who is responsible for inspecting shipments upon arrival and for applying the written reserves and recourses on the documents of the carrier. Unless specifically agreed otherwise, the choice of transportation method is left to the discretion of the shipper. Storage charges will be paid by the recipient, beginning five days after the merchandise is made available. Express charges, counter-reimbursement fees, CIF costs, etc. will be paid by the recipient.

RETURNS
Any returns of motors or assemblies must be with prior agreement from WORMS ENTREPRISES. Spare parts may not be returned or exchanged. Authorized returns will be postage paid by the shipper, even for warranty returns.

MODIFICATIONS
We reserve the right to modify our equipment and our prices without notice. Modifications are not made or applied to equipment already delivered or orders in progress.

WARRANTY
The only recourse for a recognized defect in the materials or workmanship of any product we supply is the pure and simple replacement of the parts recognized as defective by our Technical Departments and the corresponding labour costs. This warranty covers motors for 24 months from the date of purchase. It covers generators and pump casings for one year. The warranty applies only to WORMS ENTREPRISES equipment. Any return of motors or spare parts under the warranty must be sent carriage paid by the purchaser. WORMS ENTREPRISES will not honour the warranty in the following cases:

- when the original parts have been replaced by parts not supplied by WORMS ENTREPRISES;
- if the equipment has been modified in any way;
- when the problems are due to user negligence or to a maintenance error;
- when repairs have been made outside the WORMS ENTREPRISES network.

At the customer's request, a repair estimate will be prepared. Any rejected estimate will be billed at €40 before taxes plus postage. There will be no charge for accepted estimates. We specify that the responsibility of WORMS ENTREPRISES is limited strictly to replacing or repairing defective parts, and we may not be required to pay any indemnity or reimbursement for direct or indirect expenses or losses resulting from partial or total inability to use a motor. The equipment guarantee is that granted by the manufacturer of the said equipment.

CASES OF FORCE MAJEURE
WORMS ENTREPRISES is required to fill only the orders that it has accepted, insofar as nothing abnormal impedes production or shipments by the company: in particular, total or partial strikes, production machine accidents, riots, state of war, fires, epidemics, floods, transportation interruptions, problems with raw material supplies, and any case of force majeure that forces us to delay or cancel all or part of an order whose execution has been suspended, with no indemnity incurred.

AGENTS
Since the agents of WORMS ENTREPRISES are not its authorized representatives, they alone are responsible for any agreements they may make with their customers.

JURIDICTION
In case of litigation, jurisdiction is given to the MEAUX Commercial Court, which will be the only competent legal entity.

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