

MOSA

Automatic transfer unit EAS 15 - 806





UNI EN ISO 9001 : 2008

ISO 9001:2008 - Cert. 0192

MOSA has certified its quality system according to UNI EN ISO 9001:2008 to ensure a constant, highquality of its products. This certification covers the design, production and servicing of engine driven welders and generating sets.

The certifying institute, ICIM, which is a member of the International Certification Network IQNet, awarded the official approval to MOSA after an examination of its operations at the head office and plant in Cusago (MI), Italy.

This certification is not a point of arrival but a pledge on the part of the entire company to maintain a level of quality of both its products and services which will continue to satisfy the needs of its clients, as well as to improve the transparency and the communications regarding all the company's activities in accordance with the official procedures and in harmony with the MOSA Manual of Quality.

The advantages for MOSA clients are:

- Constant quality of products and services at the high level which the client expects;
- Continuous efforts to improve the products and their performance at competitive conditions;
- Competent support in the solution of problems;
- Information and training in the correct application and use of the products to assure the security of the operator and protect the environment;
- Regular inspections by ICIM to confirm that the requirements of the company's quality system and ISO 9001 are being respected.

All these advantages are guaranteed by the CERTIFICATE OF QUALITY SYSTEM No.0192 issued by ICIM S.p.A. - Milano (Italy) - www.icim.it

INDEX	Pag.
M 1.01 Copyright	3
M 1.4 CE mark	4
M 1.4.1 Declaration of conformity	5
1 - General	6
1.1 – Introduction	6
1.2 – General warning	6
1.3 – Symbols in the manual	7
1.4 – Important tips	7
1.5 – Cautions	8
1.6 – Noise	8
1.7 – Cautions levels	8
1.8 – Temporary Storage	8
1.9 – Transporting	8
1.10 – Overall size and template	9
1.11 – Disposal	9
2 – First starting of the TE806 board, use and description	9
2.1 – Operation to do during the first starting of the TE806 Board	9
2.2 – Technical features	9
2.3 – Installation	10
2.4 – Power electrical connections	10
2.5 – Power ON and first start up	10
2.6 – Power ON – clock programming	11
2.7 – Automatic test	11
2.8 – Automatic test – Enabled and disabled	12
2.9 – LED indication description	12
2.10 – Display measures	13
2.11 – Display alarms	13
2.12 – Command buttons description	13
2.13 – Function description	14
2.14 – Function steps	14
2.15 – Alarms description	15
3 – EAS electrical panel programming instruction	16
3.1 – Access procedure USER MENU and ADVANCED MENU description	16
3.2 – Parameters modification instructions (user and/or advanced menu)	16
3.3 – Setting of gen-set voltage	16
3.4 – Setting of mains voltage	17
3.5 – User menu parameters description	17
3.6 – Advanced menu parameters description	17
M 61... Electrical system	21
M 61.4 List of control panel components	24



ATTENTION

This use and maintenance manual is an important part of the machines in question.

The assistance and maintenance personnel must keep said manual at disposal, as well as that for the engine and alternator (if the machine is synchronous) and all other documentation about the machine.

We advise you to pay attention to the pages concerning the security (see page M1.1).



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Su ciascun esemplare di quadro è apposta la marcatura CE che attesta la conformità alle direttive applicabili ed il soddisfacimento dei requisiti essenziali di sicurezza del prodotto. L'elenco delle direttive applicabili è riportato nella dichiarazione di conformità.

La marcatura CE è apposta in modo visibile, leggibile ed indelebile in prossimità della matricola del quadro e nella targa dati posizionata all'interno del quadro.

Any of our product is labeled with CE marks attesting its conformity to applicable directives and also the fulfillment of safety requirements of the product itself. The list of applicable rules is reported in the declaration of conformity. CE marking is also put close to the serial number, neatly visible and non-erasable, and also on the data plate inside the control panel.

Chacun de nos produits est équipé avec une marque CE qui affirme la conformité aux directives en vigueur et qui affirme aussi la conformité du produit aux mesures de sécurité concertantes son utilisation. La liste des directives en vigueur est aussi intégrée à la déclaration de conformité.

La marque CE est placée en façon bien lisible et non-effaçable soit à coté du n° de série soit à l'intérieur du boîtier de contrôle.

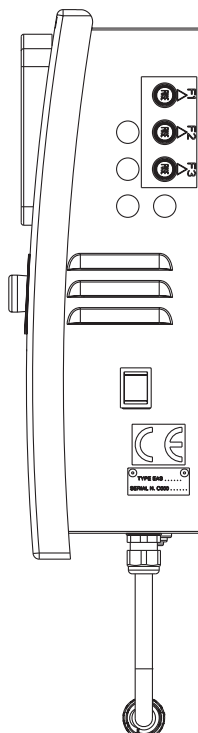
Jede Einheit ist mit dem CE Kennzeichen versehen. Das Kennzeichen CE bescheinigt, dass das Produkt die wesentlichen Sicherheitsvoraussetzungen nach den einschlägigen europäischen Richtlinien erfüllt. Diese Richtlinien sind in der Konformitätserklärung aufgelistet, die jeder Maschine beiliegt.

Das CE Kennzeichen ist gut sichtbar, lesbar und unauslöschlich angebracht nahe der Seriennummer der Einheit und auf dem Typenschild im Inneren der Einheit.

En cada ejemplar de cuadro está incluido el distintivo CE que certifica la conformidad con las directivas aplicables y el cumplimiento de los requisitos esenciales de seguridad del producto. La relación de directivas aplicables está especificada en la propia declaración de conformidad.

El distintivo CE está colocado de forma visible, legible e indeleble, cerca de la matrícula del cuadro y en la targeta de datos colocada dentro del cuadro.

CEI EN60439 - 1				Date 12/12/2006	
In A	300	V~	400		
I _{max} A	307	Vaux	##		
kA	10	IP	54		
Hz	50	Kg	70		
kVA	200	Dim.	750x500x320		
kW	160	Ser.n.	6.014.386		
HP	##	Model	932419560		



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DICHIARAZIONE DI CONFORMITA'



Déclaration de Conformité – Declaration of Conformity – Konformitätserklärung
Conformiteitsverklaring – Declaración de Conformidad

MOSA dichiara sotto la propria responsabilità che il prodotto : QUADRO DI INTERVENTO AUTOMATICO
MOSA déclare, sous sa propre responsabilité, que le produit :
MOSA declares, under its own responsibility, that the product :
MOSA erklärt, daß das Produkt :
MOSA verklaard, onder haar eigen verantwoordelijkheid, dat de produkt :
MOSA declara bajo su responsabilidad que el producto :

Modello/Modèle/Model/Modell/Model/Modelo:

Codice/ Code/ Code/ Kode/ Code/ Código:

è conforme con quanto previsto dalle **Direttive Comunitarie** e relative modifiche:
est en conformité avec ce qui est prévu par les **Directives Communautaires** et relatives modifications:
conforms with the **Community Directives** and related modifications:
mit den Vorschriften der Gemeinschaft und deren Ergänzungen übereinstimmt:
in overeenkomst is met de inhoud van gemeenschapsrichtlijnen en gerelateerde modificaties:
comple con los requisitos de la **Directiva Comunitaria** y sus anexos.

2006/95/CE - 2004/108/CE

FAC SIMILE

Cusago,

Ing. Benso Marelli
Direttore Generale

1 – GENERAL WARNING AND MANUAL USE

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.

The Firm 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 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 the producer who will provide you with specialized, prompt action.

If you have had parts replaced, ask and make sure that only genuine 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.

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

To use "**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.
- 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 electric panel.
- 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 after receiving written authorization by the producer; 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.
- Make sure that earthing complies with the standards in force in the country in which the appliance is used.
- 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.
- 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) serious lack of due maintenance.
 - d) unauthorized modifications or servicing.
 - e) use of non-original or non-specific spare parts for the model.
 - f) total or partial failure to follow the instruction.
 - g) Exceptional events ect.



The instruction manual can never substitute a sufficiently experienced user.



Warning: This booklet is not binding. The producer 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 -30°C and +80°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, please inform immediately the supplier.

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- Getting rid

After use or in the case of demolition, the electrical panel 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 plate identification of the electrical panel and any other documents.

1.11 - Assistance center

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

2 – POWER ON OF THE EAS ELECTRICAL PANEL, USE AND DESCRIPTION

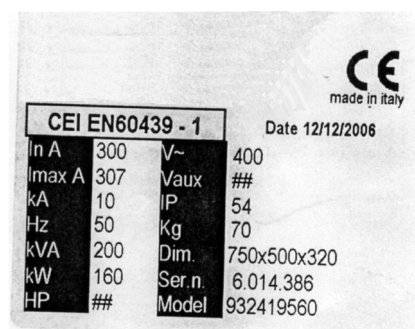
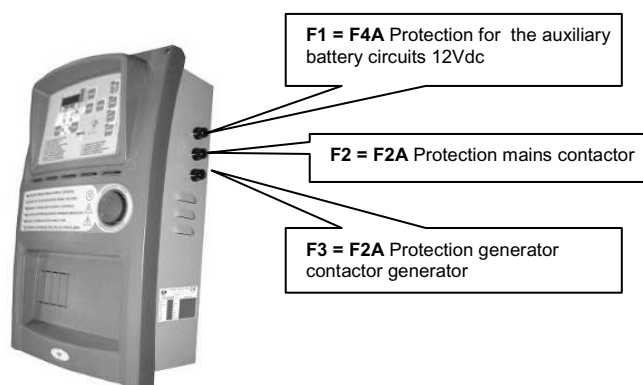
2.1- General information of electrical panel

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 built to monitor single-phase or three-phase with neutral systems in alternate current; it permit to transfer the user's load on generator when the mains voltage is faulty.

2.2- Technical features



TECHNICAL FEATURES

Current of the telerrupters @ 40°C.....	25A
Power (AC1) 400 Vac three-phase	17kVA
Power (AC3) 400 Vac three-phase	7.7kVA
Power (AC1) 230 Vac three-phase	10kVA
Power (AC1) 230 Vac single-phase	9.5kVA
Frequency range	45 ÷ 65Hz
Battery charger	12Vdc-900mA
Dimensions h x l x p	450x285x160 mm
Weight	10 Kg
Degree of protection of switchboard	IP20
Operating temperature	-20 ÷ +50°C
Maximum rated humidity	<90%

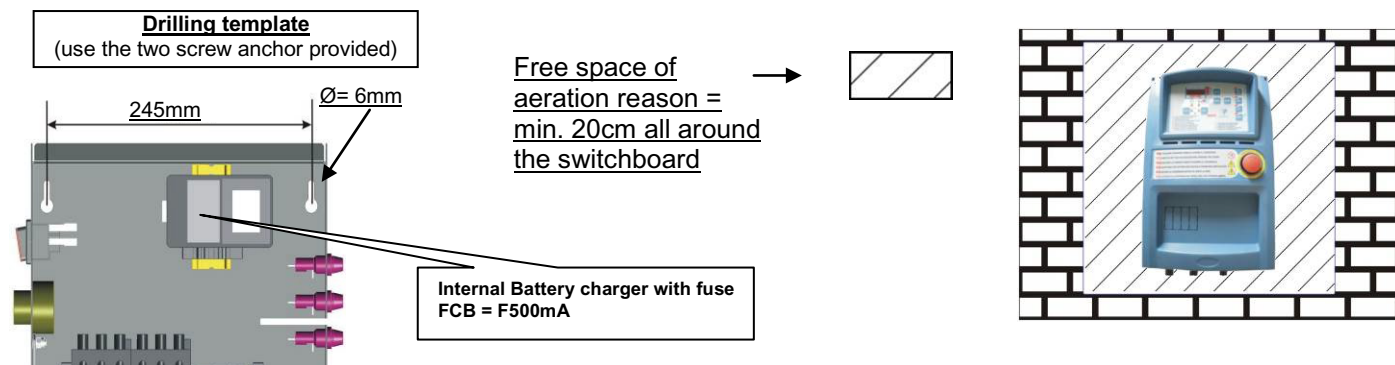
TECHNICAL FEATURES OF THE BOARD/PCB TE806

Nominal voltage battery	12Vdc
Maximum rated current	250mA
Maximum rated power	3W
Operating range	10 ÷ 17VDC
Accuracy of measurements	÷ 1% - ± 1 digit
Degree of protection front board	IP65
Storage temperature	-30 ÷ +70°C

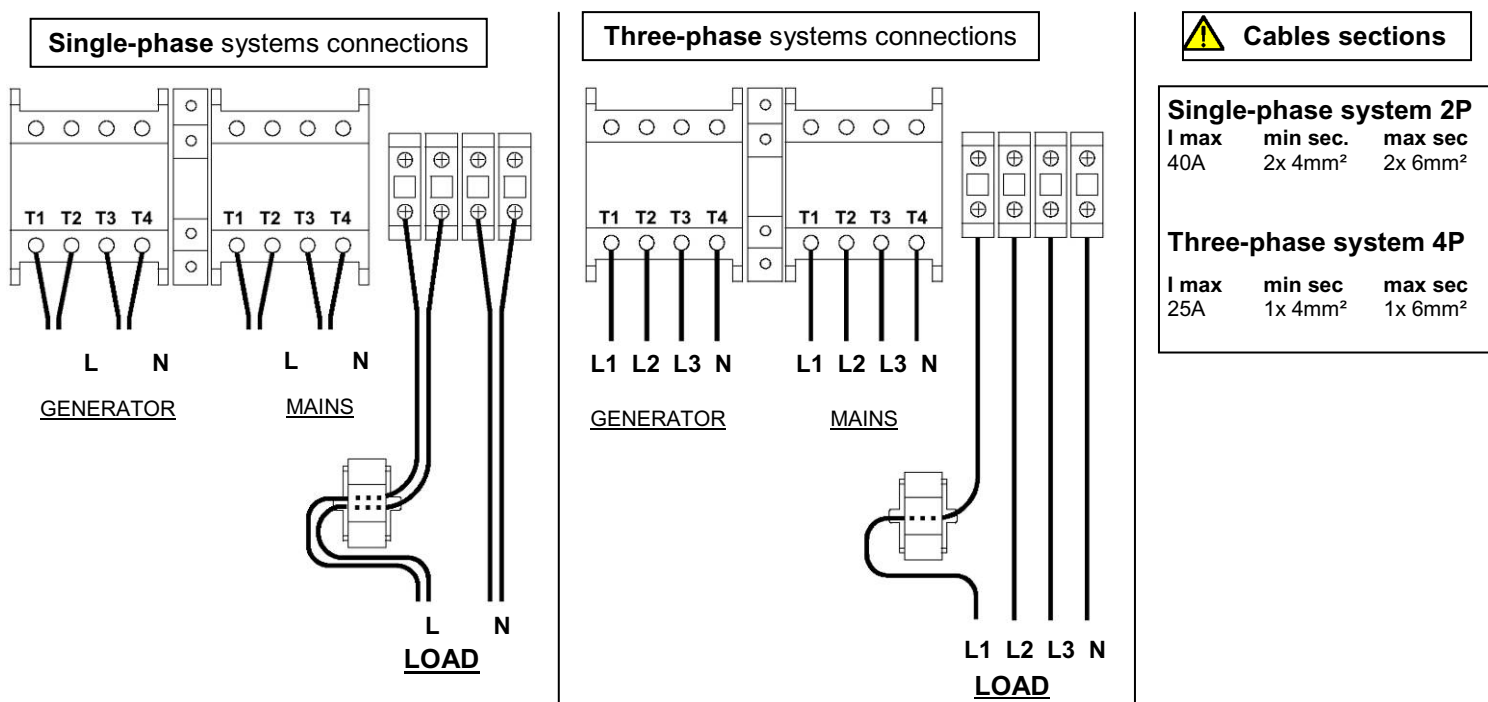
Description of the data shown on the label plate

In = nominal current
I_{max} = maximum rated current
KA = maximum breaking current against short circuit
Hz = frequency
KVA = apparent power (calculated at cos 0,8)
KW = active power
HP = horse power
V~ = maximum use voltage of the primaries
V_{aux} = maximum voltage of the auxiliary circuits
IP = degree of protection against external agents
Kg = approximate weight
Dim = dimensions Height x Width x Depth
Ser.n = serial number
Model = product code

2.3- Installation



2.4- Power electrical connections



2.5- Power ON and first start up



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" are in accordance with the characteristics of the present electrical system.



The programming of the time is needed

Verify that the Emergency button is released: if not, rotate it in clockwise direction to unlock it.



During the first start up, U11 code flashes as a reminder to programming the clock



Push RESET button to confirm the message, and remove it from display



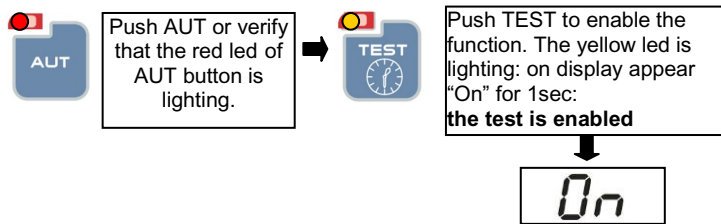
Setup	Description	Range	Default
U.01	Automatic test interval time	1 – 30days	7 days
U.02	Test duration	1 – 30 min	10 min
U.03	Test start time	00:00 – 23:59	10:00

2.8- Automatic test – Enabled and disabled

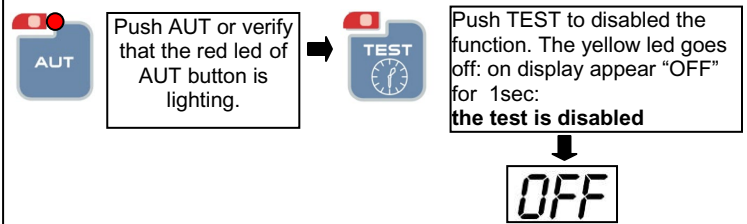
When the automatic test parameters are set, you have to enable this test; with EAS electrical board in automatic mode (AUT), keep pressed TEST until the display shows "ON" and the test led turn ON. From this moment the board starts the counting of the time to make the first test. This test will begin 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.

When the EAS electrical board is in Manual (MAN) the automatic test is disabled.

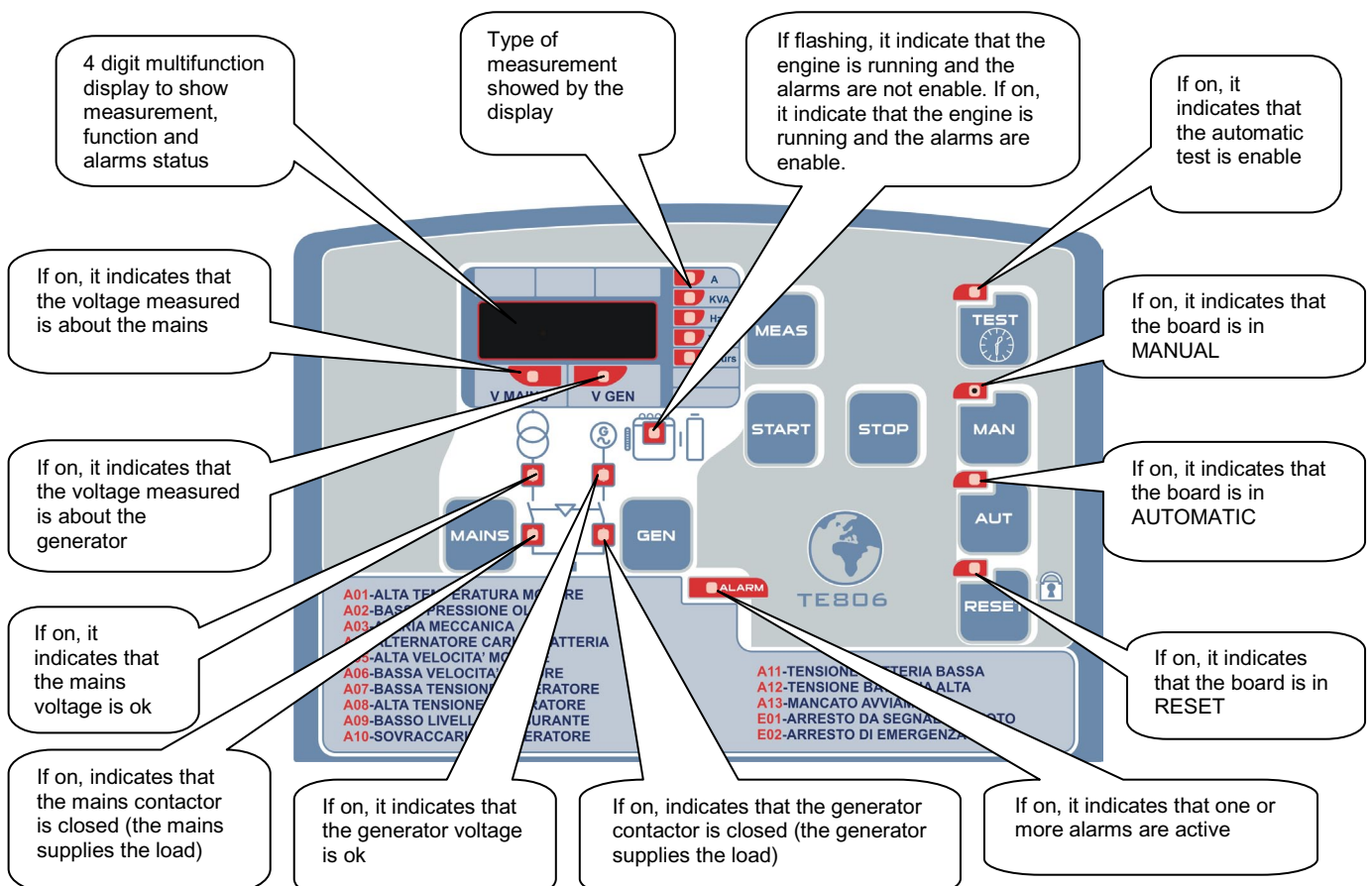
ENABLED



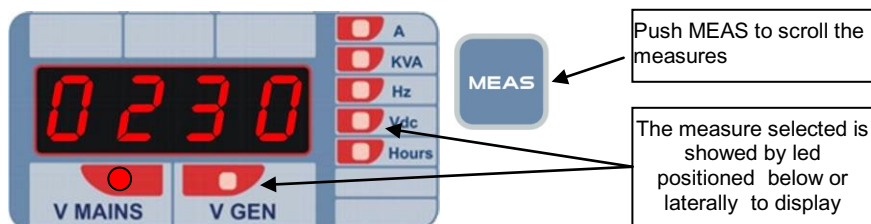
DISABLED



2.9- LED indication decription



2.10- Display measures



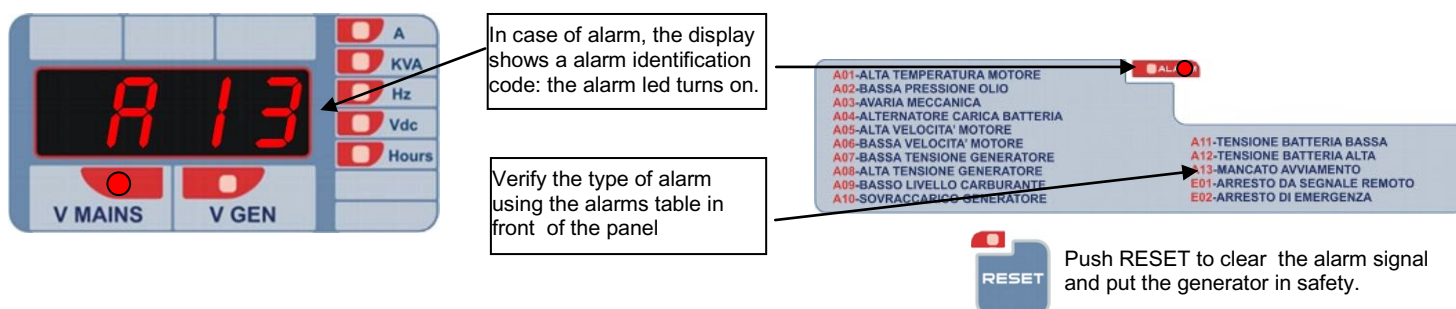
In this example the display shows the mains voltage of 230V

Table of the parameters show on display:

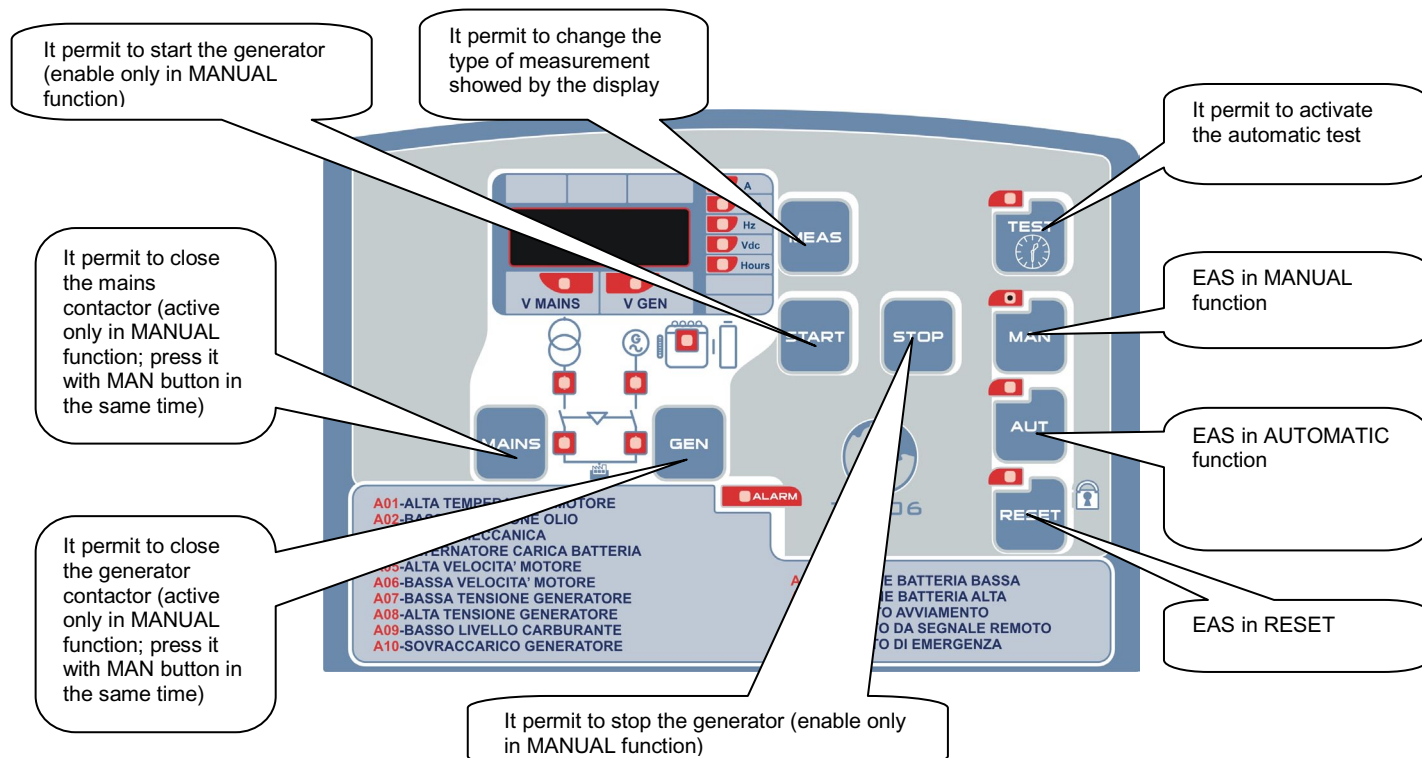
V MAINS: Mains voltage
 V GEN: Generator voltage
 A: Generator output current
 KVA: Generator power output
 Hz: Generator frequency
 Vdc: Battery voltage
 Hours: Generator work hours

If all leds are turned off, the display shows the actual time.

2.11- Display alarms



2.12- Command buttons description



2.13- Function description



BOARD IN RESET

If it is pressed, it switches on the RESET led and switches off eventual MAN, AUT or TEST leds. If the generator is in running, the load is disconnected and the stop phase begins (without cooling)

No function of the generator can be executed.
Reset all alarms (if the cause doesn't continue)

It is possible to read the measurements or the current time on the display



BOARD IN MANUAL (MAN)

If it is pressed, it switches on the MAN led and switches off eventual RESET, AUT or TEST leds.

If the generator was in AUT mode, the state of the generator and the remote control switch is maintained.

By pressing the START pushbutton the start cycle begins.

By pressing the STOP pushbutton the stop phase begins.

The state of the remote control switches never changes automatically during the stop and start phases, but their change over is however possible by pressing the relative MAINS and GEN pushbuttons. In manual mode the "remote start and stop" inputs are ignored. It is necessary to press RESET or AUT to exit from the manual mode.



BOARD IN AUTOMATIC (AUT)

If it is pressed, it switches on the AUT led and switches off the eventual MAN or RESET leds.

Control of the mains voltage: if the net is included between P7.01 and P7.02 "Mains voltage presence" is switched on and the load is changed over.

If the mains voltage is greater than P7.02 or smaller than P7.01, for a longer time than P7.03, the led "Mains voltage presence" switches off and the starting phase begins.

If after the starting phase, the generator voltage is greater than P8.01, the led "Generator voltage presence" switches on.

If the generator voltage remains within the limits for a time longer than P8.04, the network remote control switch (signalled by the switching off of the led "network remote control switch state") opens and after the P5.01 time, the generator remote control switch (signalled by the switching on of the led "generator remote control switch state") closes.

If the generator voltage exits from the P8.01 and P8.02 limits, for a time longer than P8.03, the generator remote control switch opens and the stop phase begins.

If the mains voltage comes again within the limits for a time longer than P7.04, the generator remote control switch opens and after the time of P5.01 the network remote control switch closes and the stop phase with cooling begins.

When the generator remote control switch is closed, the display visualizes the generator voltage and switches on the "V GEN" led.

When the network remote control switch is closed, the display visualizes the mains voltage and the led "V MAINS" switches on.

In automatic mode, the START and STOP pushbuttons are ignored as well as the MAINS and GEN change over pushbuttons.

When the generator is running, during whichever type of operation, it is possible to stop it pressing the RESET.

Every time the generator is stopped, also because of an alarm, the load is disconnected.



AUTOMATIC TEST (TEST)

It can only be enabled in automatic mode

If it is pressed for more than 5sec, the display visualizes "ON" (enabled)

If it is released and pressed for more than 5 sec, the display visualizes "OFF"

If it is enabled, it waits for the time U.01 and the time U.03 and then it switches on the siren exit for 3sec, it waits for 3sec and then the start phase begins.

After the engine start-up, it waits for U.02 and then the stop phase begins; the test happens with or without load as per U.04)

If the mains voltage exits from the limits during the test, the load is changed over on the generator; the generator remains operating also at the end of the test until the network has been restored.

If the generator is in automatic mode and it is already running, the test phase is ignored.

2.14- Function steps

Starting

It closes the "start-up" 64 output, it closes the 65 solenoid valve output, then until P2.02 or P2.03 "started engine" threshold is exceeded and for the maximum time of P2.07.

If P2.07 is exceeded, wait for P2.08 and repeat the procedure. The cycle goes on until the "started engine" threshold is exceeded and/or the maximum limit of attempts equal to P2.06.

During the start phase all protections of the group 4 are ignored as well as all alarms of oil minimum pressure and group minimum voltage.

When the "started engine" threshold is exceeded, the "Running engine" led flashes.

Wait for P2.10 and restore the protections; when the protections are enabled the led "running engine" remains switched on with a fixed light.

- Glow plugs: before every start-up, the output 6.3 is closed for a P2.05 time (if enabled)

- Air (starter): during the start-up, if the head thermostat input is closed, the 6.3 output is closed for a P2.11 max. time and not over P2.12 (if enabled)

- Head thermostat: it inhibits the working of the air starter if the engine is warm

- EV (solenoid valve): it closes before the start phase and it reopens between the various attempts of start-up and remains always closed until the stop.

- Decelerator: after the start-up, if enabled, it waits for the overcoming of P8.01, it closes the 5.3 – 5.4 output for a P3.02 time so as to avoid that the cold engine exceeds a certain speed (rpm). During this deceleration phase, the "electrical" alarms are inhibited (voltage, frequency)

If before a start-up, the engine is detected in running, the start-up is not allowed.

Stopping

If enabled, the cooling phase begins (the load is switch off) for a P3.03 time.

Then it opens the EV (solenoid valve) output or, if enabled, it closes the P6.02 output for a P3.01 time (electromagnet)

Remote start (input on terminal 8.2)

It is only active in automatic mode

When the start input is closed and the remote stop is open, the start phase begins.

When it is reopened, the stop phase starts.

When the power failure is detected, the teleswitching occurs.

If the network returns, the load is switched again, but the generator doesn't stop if this input is not reopened.

Remote stop (input on terminal 8.6)

It is only active in automatic mode.

When it is closed, the stop phase begins. When it is reopened, it restores the starting possibility.

It is priority compared to the remote start; if both are closed, the stop is produced.

EJP/T function

It is enabled with P5.02 and it is only active AUTOMATIC mode.

The start input becomes "start EJP" and the authorization to teleswitching happens by time.

When the start input is kept closed, wait for U09 time and then the start phase begins (also with network presence) and "EJPT" appears on the display.

After "started engine" wait for U.10 time and if the voltage is within the parameters the load is switched from the network to the group

At the opening of the start input, the load is switched again to the network and the stop phase with cooling begins.

In case of anomaly to the group, the load is switched again to the network if P5.03 is not enabled.

2.15- Allarms description

A01 Engine over-temperature

If the input temperature" 91 is closed for a longer time than 1 sec, the alarm as per table is executed. The display visualizes A01

A02 Low oil pressure

After "started engine" and P2.10 time, if the input "oil low pressure oil" 92 is closed for a longer time than 1sec., the alarm as per table is executed. The display visualizes A2

A03 Mechanical failure

After "started engine" and P2.10 time, if the 500rpm signal comes down under the P2.02 threshold for a longer time than P4.09 and the generator voltage come downs under the P8.01 threshold for a longer time than 0,5 sec, the alarm as per table is executed. The display visualizes A03

A04 Alternator breakdown (strap breaking)

After "started engine" and P2.10 time, if the 500rpm signal comes down under the P2.02 threshold for a time greater than P4.08 and the generator voltage remains within the P8.01 and P8.02 thresholds, the alarm as per table is executed. The display visualizes A04

A05 High speed engine

After "started engine" and P2.10 time, if the frequency of the generator exceeds the P4.02 threshold for a longer time than P4.03, the alarm as per table is executed. The display visualizes A05

A06 Low speed engine

After "started engine" and P2.10 time, if the frequency of the generator comes down under the P4.01 threshold for a longer time than 1sec, the alarm as per table is executed. The display visualizes A06

A07 Low voltage generator

After "started engine" and P2.10 time, if the voltage of the generator comes down under the P8.01 threshold for a longer time than P8.03, the alarm as per table is executed. The display visualizes A07

A08 High voltage generator

After "started engine" and the P2.10 time, if the voltage of the generator exceeds the P8.02 threshold for a longer time than P8.03, the alarm as per table is executed. The display visualizes A08.

A09 Low fuel level

During the generator operation, if the input "fuel" 93 is closed for a longer time than 1sec, the alarm as per table is executed. The display visualizes A09

A10 Overload generator

During the generator operation, if the current exceeds the P4.06 threshold for a longer time than P4.07, the alarm as per table is executed. The display visualizes A10

A11 Low battery voltage

During the generator operation, if the battery voltage comes down under the P4.04 threshold for a longer time than 5 sec, the alarm as per table is executed. The display visualizes A11

A12 High battery voltage

During the generator operation, if the battery voltage exceeds the P4.05 threshold for a longer time than 2 sec, the alarm as per table is executed. The display visualizes A12

A13 Starting failure

When the starting attempts are concluded, if the engine is not running, this alarm is displayed

E01 Remote stop

During the generator operation, in AUT mode, if the stop input is closed for a longer time than 0,5sec, the alarm as per table is executed. The display visualizes E01

E02 Emergency stop

During the generator operation, if the emergency input is closed for a longer time than 0,3sec, the alarm as per table is executed. The display visualizes E02

E03 Alarm auxiliary

During the generator operation, if you close the input 83 (auxiliary alarm) for a longer time than E3.05 (programmable), the alarm as per table is executed. The display visualizes E03

During the alarm, if enabled, the siren output closes for a time equal to U.08.

During the alarm, if enabled, the output alarm closes until the cause of the alarm has disappeared.

It is possible to deactivate the siren and the alarm by pressing "RESET".

3 - EAS ELECTRICAL PANEL PROGRAMMATION INSTRUCTION

3.1- Access procedure USER MENU and ADVANCED MENU description

USER MENU:

Access to the user menu is possible through this procedure:

- 1) Press RESET button.
- 2) Hold TEST button for 5 s. → the display shows the first parameter of the USER MENU: "U01 - Automatic test interval time"

The description of the user menu parameters is showed on the specific table.



Warning: the changes of advanced menu parameters, could cause serious functioning problems at the EAS electrical panel or the generator.

ADVANCED MENU:

Access to the advanced menu is possible through this procedure:

- 1) Hold RESET button for 8s. → the display shows -
- 2) Hold START button for 2s. → the display shows - -
- 3) Hold STOP button for 2s. → the display shows - - -
- 4) Hold MEAS button for 2s. → the display shows - - - -
- 5) Press START button → the display shows the first parameter of the ADVANCED MENU: "P1.01 – Nominal frequency"

The description of the advanced menu parameters is showed on the specific table.

3.2 - Parameters modification instructions (user and/or advanced menu)

TEST button allows to see the default value of the parameter.

START button allows to increase the value and STOP button allows to decrease the value. For the time, START button increases the hours value and STOP button increases the minutes value.

RESET button saves the value of the modified parameter, and AUT button exits from it.

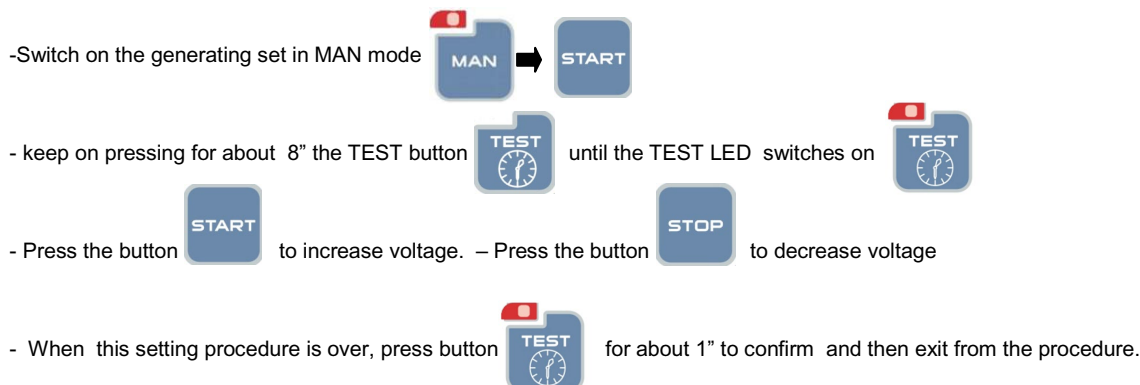
MEAS button allows to change (increase) the number of the parameter in a same menu.

MAN button allows to change (increase) the number of the menu (only for advanced menu).

Once the programming is done, press AUT then RESET to save and exit to the programming mode to function mode.

3.3 – Setting the generator voltage

Any panel has original factory settings, it may be necessary anyway to adjust it once installed. It is therefore necessary that readings on the display are checked with an external tester to make sure they're correct. In case of difference it is strictly necessary to recommence the setting procedure so that to avoid any malfunction.



3.4 - Setting the MAINS voltage

- Set the board to 
- keep on pressing for about 8" the STOP button  until the TEST LED switches on 
- Press the button  to increase voltage. – Press the button  to decrease voltage
- When this setting procedure is over, press button  for about 1" to confirm and then exit from the procedure.

3.5 - User menu parameters description

Setup	Description	Range	Default
Group 1	Test		
U.01	Automatic test interval time	1 – 30 days	7 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	22:00
U.12	Not enable		

3.6 - User menu parameters description

Setup	Description	Range	Default
Group 1	Panel nominal data		
P1.01	Nominal frequency	50Hz= 0 60Hz=1	0
.02	Current Transformer ratio (CT 100/5 = 20)	1...2000	20
.03	System (220V mono-phase, 220V tri-phase, 380V tri-phase)	0=220M 1=220T 2=380T	0



Attention: to check the setting of the parameter P1.03 "System" in case of wrong reading of the voltage on the display

Group 2	Engine starting		
P2.01	500 rpm signal from alternator or generator (started engine)	0= from alternator Vac 1= permanent magnet alt. (saprisa) 2= pre-excited alternator (D+)	0
.02	Started engine alternator battery charger voltage threshold	3-30V	10V
.03	Started engine generator voltage threshold	20-500V	20V
.04	Starting with power failure	On=1 Off=0	1
.05	Preheating time	1-60s.	1s.
.06	Number of starting attempts	1-10	5
.07	Duration of starting attempts	1-30s.	5s.
.08	Pause time within starting attempts	1-20s.	5s.
.09	Automatic test enabling with remote stop signal presence	0= start not enable 1= start enable	0
.10	Alarm enabling delay at starting (oil/V/freq.)	1-60s.	8s.
.11	Choke time	0-240s.	3s.
.12	Choke switch-off threshold	30-255V	30V
Group 3	Engine stopping		
P3.01	Stopping times (electromagnet closing time / gasoline engine stop time)	1-30s.	10s.
.02	Decelerated function time	1-60s.	60s.
.03	Cooling time	1 – 300s.	30s.

Group 4	Protections		
P4.01	Minimum frequency (fixed delay 5sec)	80 – 100 %	90%
.02	Maximum frequency (over-speed)	100 – 120%	110%
.03	Maximum frequency alarm tripping delay	0-15s.	2s.
.04	Minimum voltage battery	7-12V	10V
.05	Maximum voltage battery	13 – 17V	16V
.06	Load maximum current	10 – 2550A	100A
.07	Maximum current delay	0 – 600s.	10s.
.08	"500rpm failure" tripping delay (strap breaking)	0 – 10s.	5s.
.09	"Mechanical failure" tripping delay	0 - 10s.	5s.
Group 5	Various	Range	Default
P5.01	Generator and network contactor closing delay	0,1 – 5s.	1s.
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	Hour-counter value	0 – 999.999	0
Group 6	Programmable outputs		
P6.01	Programmable relay (terminal 63)	0= choke 1= glow plugs 2= alarm 3= fuel electrovalve	0= choke
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



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

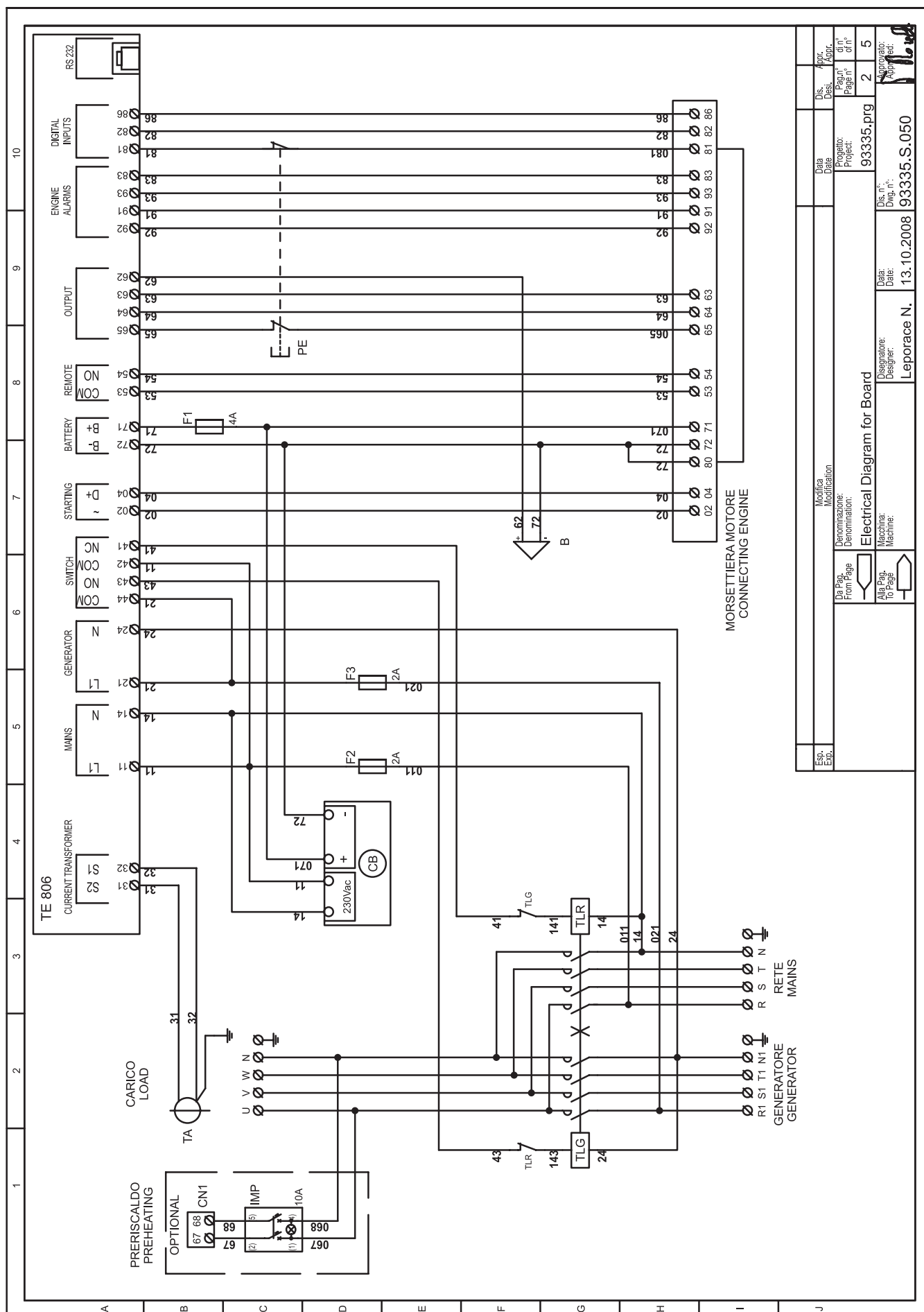
Group 7	Network parameters		
P7.01	Mains voltage minimum threshold (measured)	160 – 230Vac	190Vac
.02	Mains voltage maximum threshold (measured)	200 – 345Vac	270Vac
.03	Mains voltage time out of the limits	1 – 9999s.	5s.
.04	Mains voltage return time within the limits	1 – 9999s.	10s.
Group 8	Generator parameters		
P8.01	Generator voltage minimum threshold (measured)	160 – 230Vac	190Vac
.02	Generator voltage maximum threshold (measured)	200 – 345Vac	270Vac
.03	Generator voltage delay out of the limits	1 – 9999s	5s.
.04	Generator voltage time within the limits	1 – 9999s.	20s.

Alarms			
Setup	Description	Range	Default
		0000=no 0001=yes	
A1.00	High temperature engine	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
A2.00	Low pressure oil	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
A3.00	Mechanical failure	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

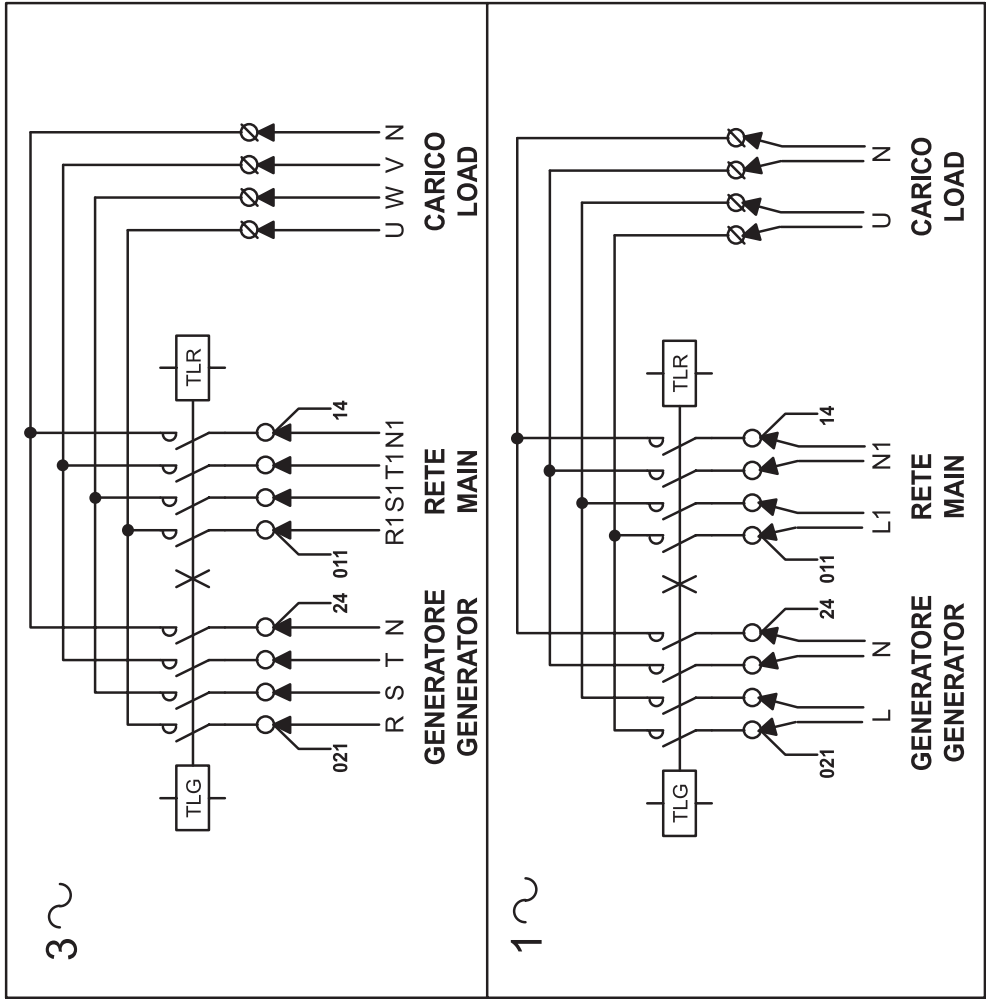
A4.00	Battery charger/alternator failure (strap breaking)	0000 / 0001	0001 = yes
A4.01	Stop without cooling	0000 / 0001	0000 = no
A4.02	Stop with cooling	0000 / 0001	0000 = no
A4.03	Siren relay	0000 / 0001	0001 = yes
A4.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
A4.05	Not used	0000 / 0001	0000 = no
A5.00	High speed engine (high 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
A6.00	Low speed engine (low frequency, fixed delay 5s.)	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
A7.00	Low voltage generator	0000 / 0001	0001 = yes
A7.01	Stop without cooling	0000 / 0001	0001 = no
A7.02	Stop with cooling	0000 / 0001	0000 = yes
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
A8.00	High voltage generator	0000 / 0001	0001 = yes
A8.01	Stop without cooling	0000 / 0001	0000 = yes
A8.02	Stop with cooling	0000 / 0001	0001 = no
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
A9.00	Low level fuel	0000 / 0001	0001 = yes
A9.01	Stop without cooling	0000 / 0001	0000 = no
A9.02	Stop with cooling	0000 / 0001	0000 = yes
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
A10.00	Overload generator	0000 / 0001	0001 = no
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
A11.00	Low voltage battery	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
A12.00	High voltage battery	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
A13.00	Starting failure	0000 / 0001	0001 = yes
A13.01	Stop without cooling (programmation not influential)	0000 / 0001	0000 = yes
A13.02	Stop with cooling (programmation not influential)	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

E1.00	Remote stop	0000 / 0001	0001 = yes
E1.01	Stop without cooling (programming not influential)	0000 / 0001	0001 = yes
E1.02	Stop with cooling (programming not influential)	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
E2.00	Emergency stop (programming not influential)	0000 / 0001	0001 = yes
E2.01	Stop without cooling (programming not influential)	0000 / 0001	0001 = yes
E2.02	Stop with cooling (programming not influential)	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
E3.00	Auxiliary alarm (to input terminal 83)	0000 / 0001	0001 = no
E2.01	Stop without cooling	0000 / 0001	0001 = yes
E2.02	Stop with cooling	0000 / 0001	0000 = no
E2.03	Siren relay	0000 / 0001	0001 = yes
E2.04	Alarm relay (if enabled)	0000 / 0001	0001 = yes
E2.05	Time delay input terminal 83	1 ÷ 2000s.	1s.

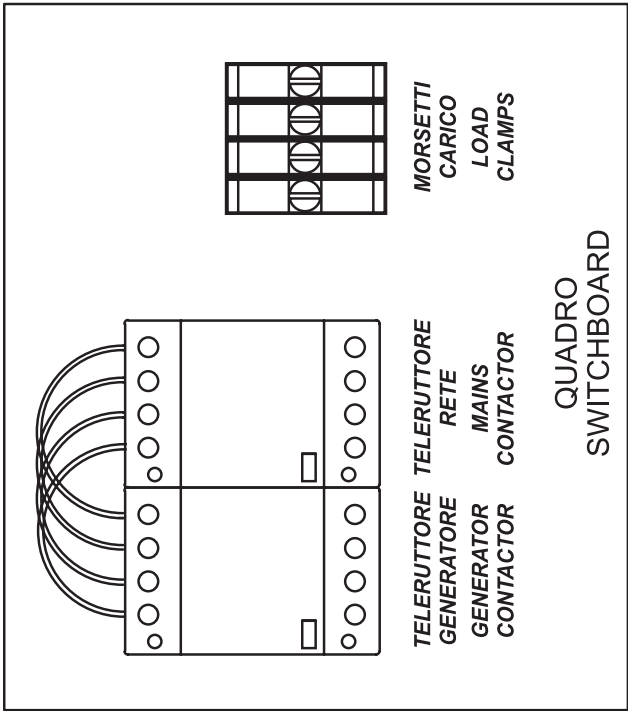
A : Alternator	F3 : Stop push-button	L6 : Choke button
B : Wire connection unit	G3 : Ignition coil	M6 : Switch CC/CV
C : Capacitor	H3 : Spark plug	N6 : Connector – wire feeder
D : G.F.I.	I3 : Range switch	O6 : 420V/110V 3-phase transformer
E : Welding PCB transformer	L3 : Oil shut-down button	P6 : Switch IDLE/RUN
F : Fuse	M3 : Battery charge diode	Q6 : Hz/V/A analogic instrument
G : 400V 3-phase socket	N3 : Relay	R6 : EMC filter
H : 230V 1phase socket	O3 : Resistor	S6 : Wire feeder supply switch
I : 110V 1-phase socket	P3 : Sparkler reactor	T6 : Wire feeder socket
L : Socket warning light	Q3 : Output power unit	U6 : DSP chopper PCB
M : Hour-counter	R3 : Electric siren	V6 : Power chopper supply PCB
N : Voltmeter	S3 : E.P.4 engine protection	Z6 : Switch and leds PCB
P : Welding arc regulator	T3 : Engine control PCB	W6 : Hall sensor
Q : 230V 3-phase socket	U3 : R.P.M. electronic regulator	X6 : Water heather indicator
R : Welding control PCB	V3 : PTO HI control PCB	Y6 : Battery charge indicator
S : Welding current ammeter	Z3 : PTO HI 20 l/min push-button	A7 : Transfer pump selector AUT-0-MAN
T : Welding current regulator	W3 : PTO HI 30 l/min push-button	B7 : Fuel transfer pump
U : Current transformer	X3 : PTO HI reset push-button	C7 : "GECO" generating set test
V : Welding voltage voltmeter	Y3 : PTO HI 20 l/min indicator	D7 : Flooting with level switches
Z : Welding sockets	A4 : PTO HI 30 l/min indicator	E7 : Voltmeter regulator
X : Shunt	B4 : PTO HI reset indicator	F7 : WELD/AUX switch
W : D.C. inductor	C4 : PTO HI 20 l/min solenoid valve	G7 : Reactor, 3-phase
Y : Welding diode bridge	D4 : PTO HI 30 l/min solenoid valve	H7 : Switch disconnecter
A1 : Arc striking resistor	E4 : Hydraulic oil pressure switch	I7 : Solenoid stop timer
B1 : Arc striking circuit	F4 : Hydraulic oil level gauge	L7 : "VODIA" connector
C1 : 110V D.C./48V D.C. diode bridge	G4 : Preheating glow plugs	M7 : "F" EDC4 connector
D1 : E.P.1 engine protection	H4 : Preheating gearbox	N7 : OFF-ON-DIAGN. selector
E1 : Engine stop solenoid	I4 : Preheating indicator	O7 : DIAGNOSTIC push-button
F1 : Acceleration solenoid	L4 : R.C. filter	P7 : DIAGNOSTIC indicator
G1 : Fuel level transmitter	M4 : Heater with thermostat	Q7 : Welding selector mode
H1 : Oil or water thermostat	N4 : Choke solenoid	R7 : VRD load
I1 : 48V D.C. socket	O4 : Step relay	S7 : 230V 1-phase plug
L1 : Oil pressure switch	P4 : Circuit breaker	T7 : V/Hz analogic instrument
M1 : Fuel warning light	Q4 : Battery charge sockets	U7 : Engine protection EP6
N1 : Battery charge warning light	R4 : Sensor, cooling liquid temperature	V7 : G.F.I. relay supply switch
O1 : Oil pressure warning light	S4 : Sensor, air filter clogging	Z7 : Radio remote control receiver
P1 : Fuse	T4 : Warning light, air filter clogging	W7 : Radio remote control transmitter
Q1 : Starter key	U4 : Polarity inverter remote control	X7 : Isometer test push-button
R1 : Starter motor	V4 : Polarity inverter switch	Y7 : Remote start socket
S1 : Battery	Z4 : Transformer 230/48V	A8 : Transfer fuel pump control
T1 : Battery charge alternator	W4 : Diode bridge, polarity change	B8 : Ammeter selector switch
U1 : Battery charge voltage regulator	X4 : Base current diode bridge	C8 : 400V/230V/115V commutator
V1 : Solenoid valve control PCBT	Y4 : PCB control unit, polarity inverter	D8 : 50/60 Hz switch
Z1 : Solenoid valve	A5 : Base current switch	E8 : Cold start advance with temp. switch
W1 : Remote control switch	B5 : Auxiliary push-button ON/OFF	F8 : START/STOP switch
X1 : Remote control and/or wire feeder socket	C5 : Accelerator electronic control	G8 : Polarity inverter two way switch
Y1 : Remote control plug	D5 : Actuator	H8 : Engine protection EP7
A2 : Remote control welding regulator	E5 : Pick-up	I8 : AUTOIDLE switch
B2 : E.P.2 engine protection	F5 : Warning light, high temperature	L8 : AUTOIDLE PCB
C2 : Fuel level gauge	G5 : Commutator auxiliary power	M8 : A4E2 ECM engine PCB
D2 : Ammeter	H5 : 24V diode bridge	N8 : Remote emergency stop connector
E2 : Frequency meter	I5 : Y/▲ commutator	O8 : V/A digital instruments and led VRD PCB
F2 : Battery charge transformer	L5 : Emergency stop button	P8 : Water in fuel
G2 : Battery charge PCB	M5 : Engine protection EP5	Q8 : Battery disconnect switch
H2 : Voltage selector switch	N5 : Pre-heat push-button	R8 : Inverter
I2 : 48V a.c. socket	O5 : Accelerator solenoid PCB	S8 : Overload led
L2 : Thermal relay	P5 : Oil pressure switch	T8 : Main IT/TN selector
M2 : Contactor	Q5 : Water temperature switch	U8 : NATO socket 12V
N2 : G.F.I. and circuit breaker	R5 : Water heater	V8 : Diesel pressure switch
O2 : 42V EEC socket	S5 : Engine connector 24 poles	Z8 : Remote control PCB
P2 : G.F.I. resistor	T5 : Electronic GFI relais	W8 : Pressure turbo protection
Q2 : T.E.P. engine protection	U5 : Release coil, circuit breaker	X8 : Water in fuel sender
R2 : Solenoid control PCBT	V5 : Oil pressure indicator	Y8 : EDC7-UC31 engine PCB
S2 : Oil level transmitter	Z5 : Water temperature indicator	A9 : Low water level sender
T2 : Engine stop push-button T.C.1	W5 : Battery voltmeter	B9 : Interface card
U2 : Engine start push-button T.C.1	X5 : Contactor, polarity change	C9 : Limit switch
V2 : 24V c.a. socket	Y5 : Commutator/switch, series/parallel	D9 : Starter timing card
Z2 : Thermal magnetic circuit breaker	A6 : Commutator/switch	E9 : Liquid pouring level float
W2 : S.C.R. protection unit	B6 : Key switch, on/off	F9 : Under voltage coil
X2 : Remote control socket	C6 : QEA control unit	G9 : Low water level warning light
Y2 : Remote control plug	D6 : Connector, PAC	H9 : Chopper driver PCB
A3 : Insulation monitoring	E6 : Frequency rpm regulator	I9 :
B3 : E.A.S. connector	F6 : Arc-Force selector	L9 :
C3 : E.A.S. PCB	G6 : Device starting motor	
D3 : Booster socket	H6 : Fuel electro pump 12V c.c.	
E3 : Open circuit voltage switch	I6 : Start Local/Remote selector	



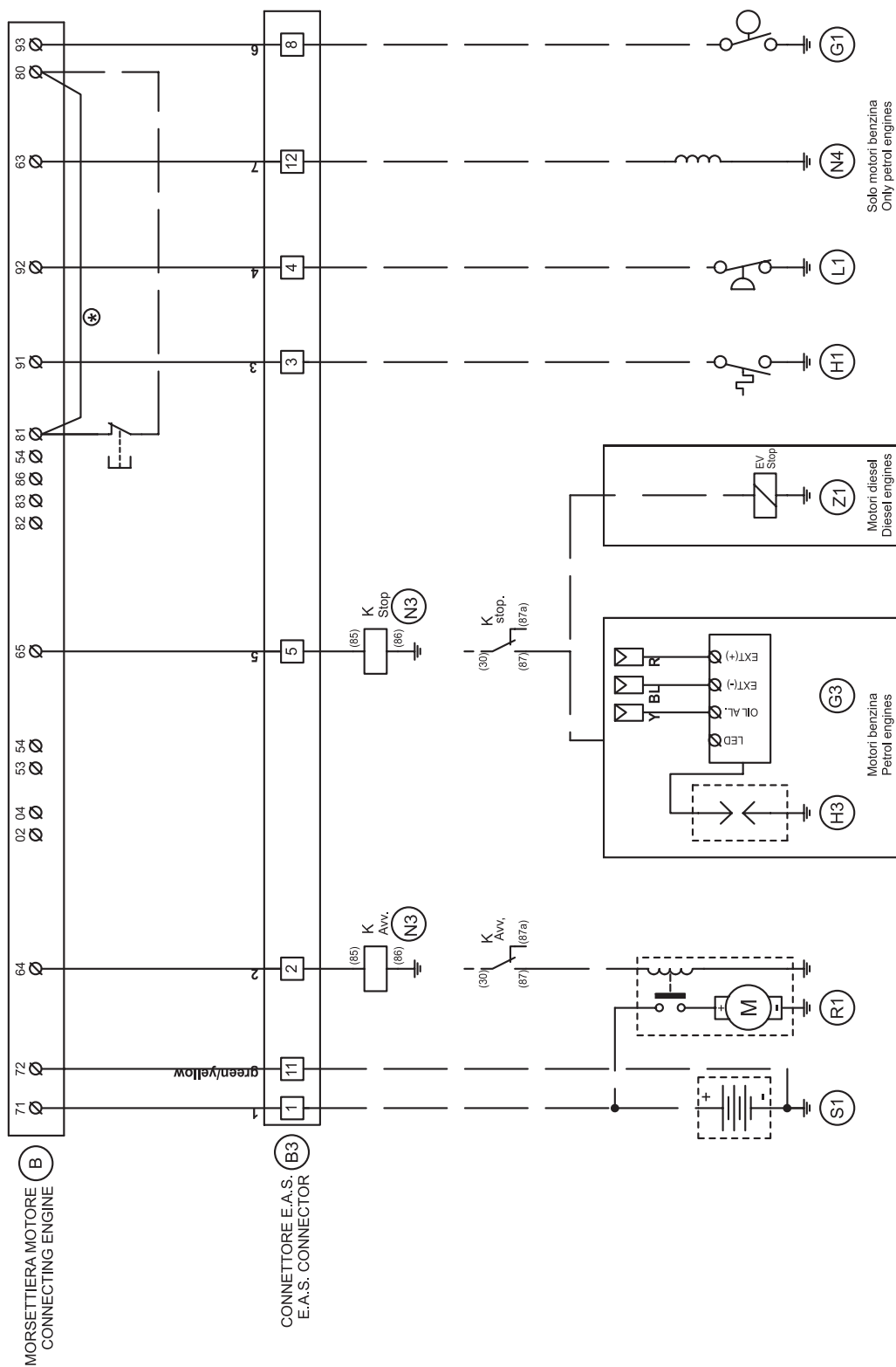
COLLEGAMENTI DI POTENZA
POWER CONNECTION



POSIZIONAMENTO INTERNO DELLE CONNESSIONI
INTERNAL POSITIONING OF CONNECTION



Modifica Modification	Data Date	Dis. Des.	Appr. Appr.
Denominazione: Denomination:	Progetto: Project:	Pag. n° Page n°	di n° of n°
Da Pag. From Page	Installation Diagram	93336.prg	3 5
Alla Pag. To Page	Disegnato: Designer:	Dis. n° Dwg. n°:	Approvato: Approved:
	Leporace N.	13.10.2008	93335.S.051



⊛ togliere cavallotto tra i morsetti 80 e 81 per poter inserire i pulsanti di emergenza esterni.
remove jumper from terminals 80 and 81 to connect the external emergency button.

[illegible]

