language

USE AND MAINTENANCE MANUAL

TRANSLATION OF THE ORIGINAL INSTRUCTIONS — ENGLISH

EAS 15-806

- Quadro automatico
- Automatic transfer unit
- Cadre d'intervention automatique
- Cuadro automático
- Notstromautomatik
- Quadro automático
- Автоматическое устройство для транспортировки

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MOSA

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and its partner
CISQ/ICIM
hereby certify that the organization

BCS S.p.A.

***Head Office and Operative Unit*: Viale Mazzini, 161 - I-20081 Abbiategrasso (MI)**
***Operative Units:* Via Valbrina, 17/19 - I-42045 Luzzara (RE)**
Viale Europa, 59 - I-20090 Cusago (MI)

for the following field of activities

Design, production and servicing of tractors, agricultural and green maintenance machines, engine driven welders and generating sets.

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard

ISO 9001:2008

Issued on: **2010-10-19**
Validity date: **2012-03-05**
Registration Number: IT-3722

Michael Drechsel
President of IQNET

Gianrenzo Prati
President of CISQ

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www.icim.it

CERTIFICATO n.
CERTIFICATE No. **0192/5**

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITA' DI
WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY

BCS S.p.A.

UNITA' OPERATIVE
OPERATIVE UNITS

Sede e Unità Operativa
Viale Mazzini, 161 - 20081 Abbiategrasso (MI)
Unità Operative
Via Valbrina, 17/19 - 42045 Luzzara (RE)
Viale Europa, 59 - 20090 Cusago (MI)
Italia

E' CONFORME ALLA NORMA
IS IN COMPLIANCE WITH THE STANDARD

UNI EN ISO 9001:2008

PER LE SEGUENTI ATTIVITA'
FOR THE FOLLOWING ACTIVITIES

EA: 18

Progettazione, produzione ed assistenza di trattori, macchine per agricoltura e manutenzione del verde, motosaldatrici e gruppi elettrogeni.

Design, production and servicing of tractors, agricultural and green maintenance machines, engine driven welders and generating sets.

Riferirsi al Manuale della Qualità per l'applicabilità dei requisiti della norma di riferimento.
Refer to Quality Manual for details of application to reference standard requirements.

Il presente certificato è soggetto al rispetto del regolamento per la certificazione dei sistemi di gestione per la qualità delle aziende.
The use and the validity of this certificate shall satisfy the requirements of the rules for the certification of company quality management systems.

Data emissione *First issue*	Emissione corrente *Current issue*	Data di scadenza *Expiring date*
30/05/1994	19/10/2010	05/03/2012

ICIM S.p.A.
Piazza Don Enrico Mapelli, 75 – 20099 Sesto San Giovanni (MI)

Il presente documento annulla e sostituisce il certificato di pari numero emesso in data 06/03/2009.

CISQ is a member of IQNet
www.iqnet-certification.com

IQNet, the association of the world's first class certification bodies, is the largest provider of management System Certification in the world. IQNet is composed of more than 30 bodies and counts over 150 subsidiaries all over the globe.

CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale

CISQ is the Italian Federation of management system Certification Bodies

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
SGQ N° 004A SSI N° 008G
SGA N° 005D PRD N° 004B
SCR N° 006F ISP N° 046E
Membro degli accordi di Mutuo Riconoscimento EA e IAF
Signatory of EA end IAF Mutual Recogniton Agreement

FEDERAZIONE CISQ
www.cisq.com

ISO 9001:2008 - Cert. 0192

UNI EN ISO 9001 : 2008

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

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

This certification is not a point of arrival but a pledgeon the part of the entire company to maintain a levelof quality of both its products and services whichwill continue to satisfy the needs of its clients, aswell as to improve the transparency and thecommunications regarding all the company's activesin accordance with the official procedures and inharmony with the MOSA Manual of Quality.

The advantages for MOSA clients are:

·Constant quality of products and services at thehigh level which the client expects;

· Continuous efforts to improve the products andtheir performance at competitive conditions;

· Competent support in the solution of problems;

· Information and training in the correct applicationand use of the products to assure the security ofthe operator and protect the environment;

· Regular inspections by ICIM to confirm that therequirements of the company's quality systemand 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

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⚠ ATTENTION

This use and maintenance manual is an important part of the machines in question.
The assistance and maintenance personel 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).

MOSA

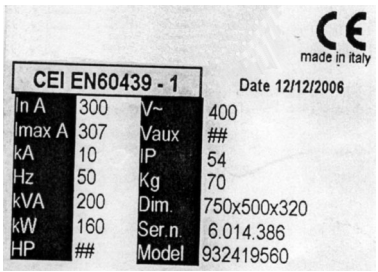
Su ciascun esemplare di quadro è apposta la marcatura CE che attesta la conformità alle direttive applicabili ed il soddisfacimento dei requisiti essenziali di sicurezza del prodotto. L'elenco delle direttive applicabili è riportato nella dichiarazione di conformità.
La marcatura CE è apposta in modo visibile, leggibile ed indelebile in prossimità della matricola del quadro e nella targa dati posizionata all'interno del quadro.

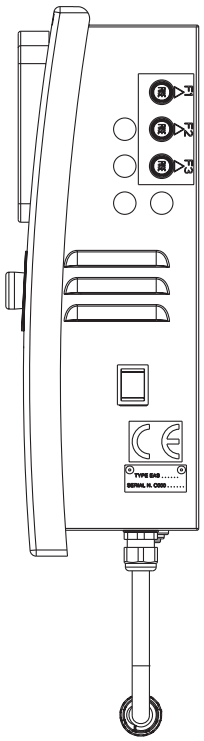
Any of our product is labeled with CE marks attesting its conformity to applicable directives and also the fulfillment of safety requirements of the product itself. The list of applicable rules is reported in the declaration of conformity.
CE marking is also put close to the serial number, neatly visible 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 boitier 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.





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ISO 9001:2008 - Cert. 0192

DICHIARAZIONE DI CONFORMITA'

CE

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 procuct :
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/ Codigo:

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 gemeenschapsrichtlijnemen gerelateerde modificaties:
comple con los requisítos de la **Directiva Comunitaria** y sus anexos:

2006/95/CE - 2004/108/CE

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 addiction, 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

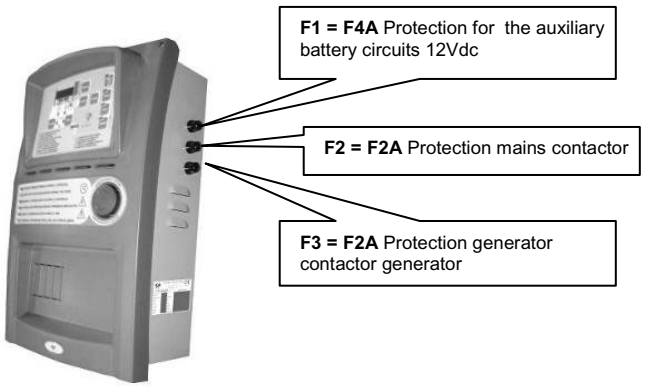
2.1- General information of electrical panel

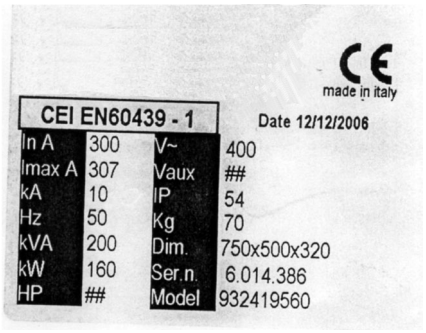
This product permit to control all the functions about a generator

- 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 telerupters @ 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%

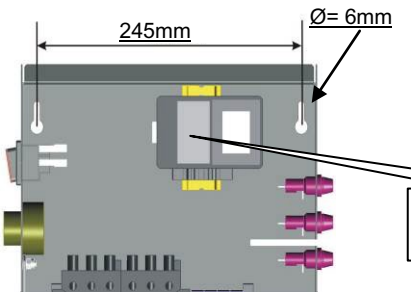
TECHNICAL FEATURES OF THE BOARD/PCB TE806
Nominal voltage battery.....12Vdc
Maximum rated current.....250mA
Maximum rated power 3W
Operating range.....10 ÷17VDC
Accuracy of measurements ..... ÷ 1% - ± 1 digit
Degree of protection front board IP65
Storage temperature.....-30 ÷ +70°C

Description of the data shown on the label plate

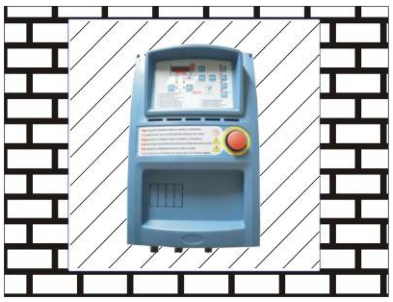
In = nominal current
Imax = maximum rated current
KA = maximum breaking current against short circuit
Hz = frequency
KVA = apparent power (calculated at cos φ 0,8)
KW = active power
HP = horse power
V~ = maximum use voltage of the primaries
Vaux = maximum voltage of the auxiliary circuits
IP = degree 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

Drilling template
(use the two screw anchor provided)

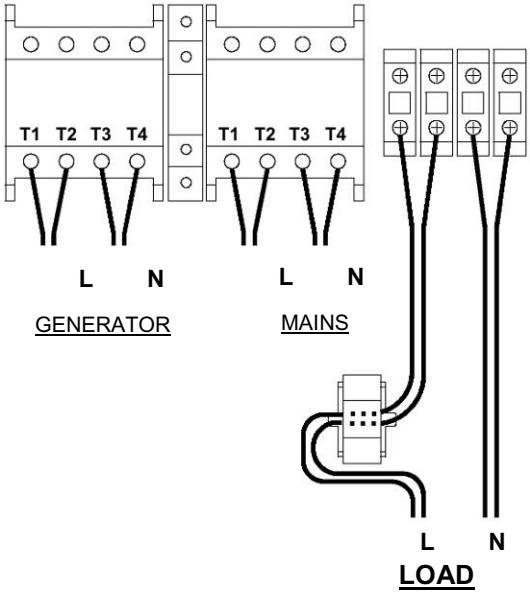


Free space of aeration reason = min. 20cm all around the switchboard

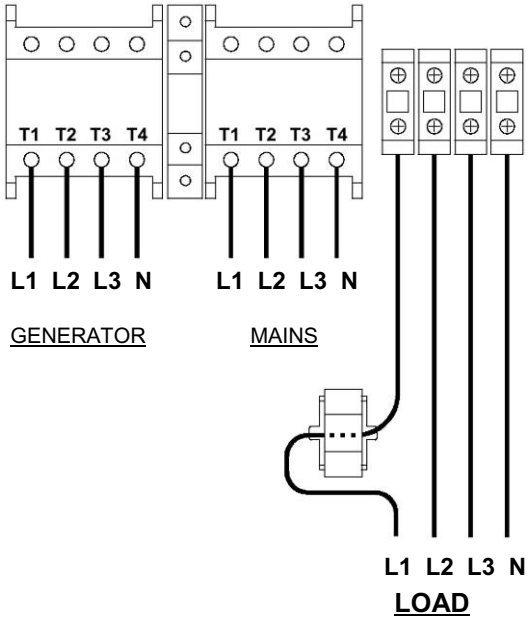


2.4- Power electrical connections

Single-phase systems connections



Three-phase systems connections



⚠ Cables sections

Single-phase system 2P

I max	min sec.	max sec
40A	2x 4mm²	2x 6mm²

Three-phase system 4P

I max	min sec	max sec
25A	1x 4mm²	1x 6mm²

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 programmation of the time is needed

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

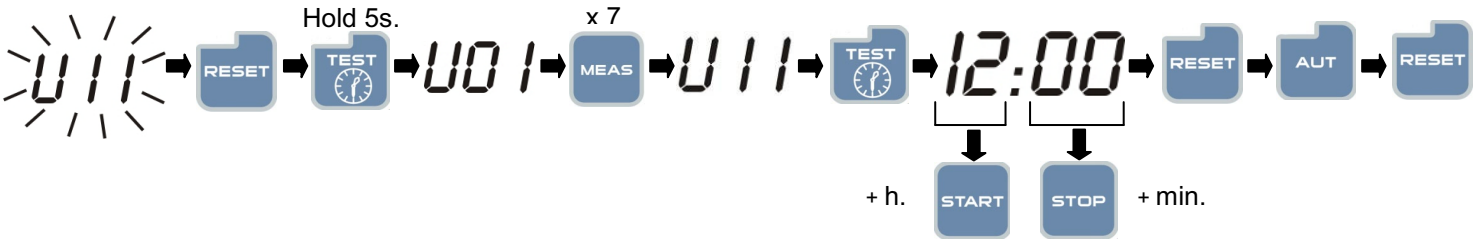
During the first start up, U11 code flashes as a reminder to programming the clock

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

2.6- Power ON – clock programming

To program the time, follow the procedure descripted below:

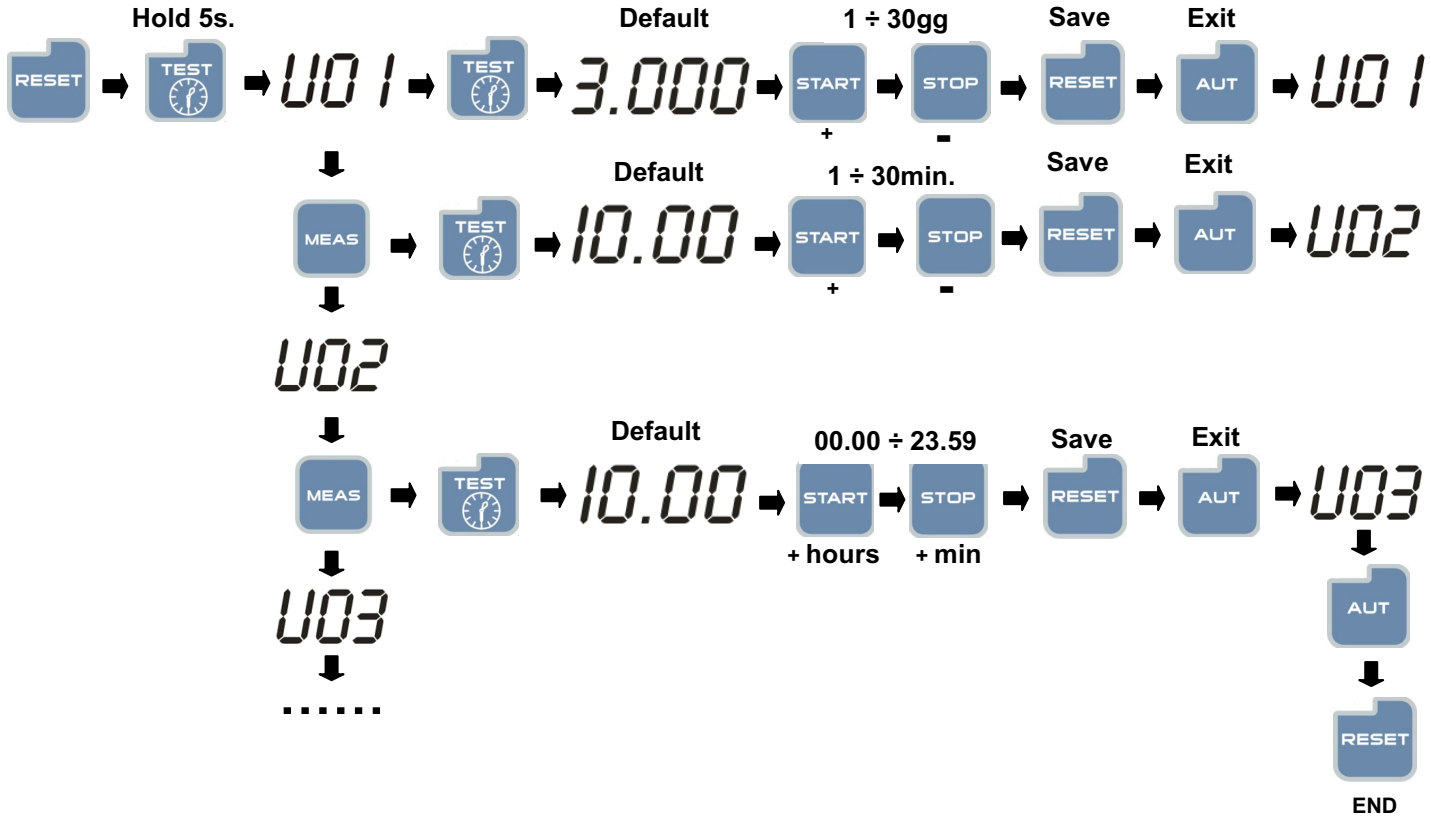
- Press RESET button (if the electronic card is not in that mode).
- Press TEST button for 5 seconds until the display shows "Set"; after that the display shows the first code of the user menu, parameter "**U.01** – Automatic test interval time". To see all the parameters, please check the following table.
- By continuously pressing of MEAS button, reach parameter "**U.11**- Hours" showed on the display.
- Press TEST button to see the value stored now.
- Press START button to increase the value of the hours or press STOP button to increase the value of the minutes.
- When the time is correct, press RESET button to save it and press AUT button to return on the parameter code (the display shows U.11)
- Press RESET button to exit from user menu and return to the normal function mode.



2.7- Automatic test

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

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



EAS

DESCRIPTION

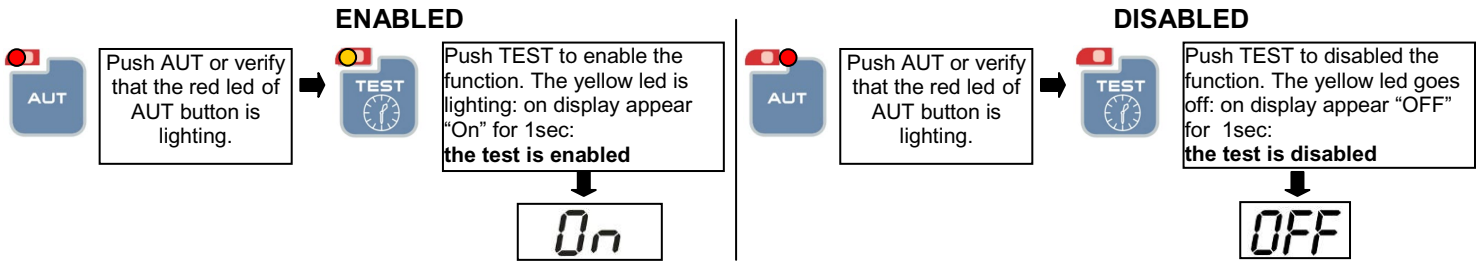
Default set-up:

the test is done every 7 days (U01), it'll start at 10:00 (U03) and it'll finish 10 minutes later (U02).

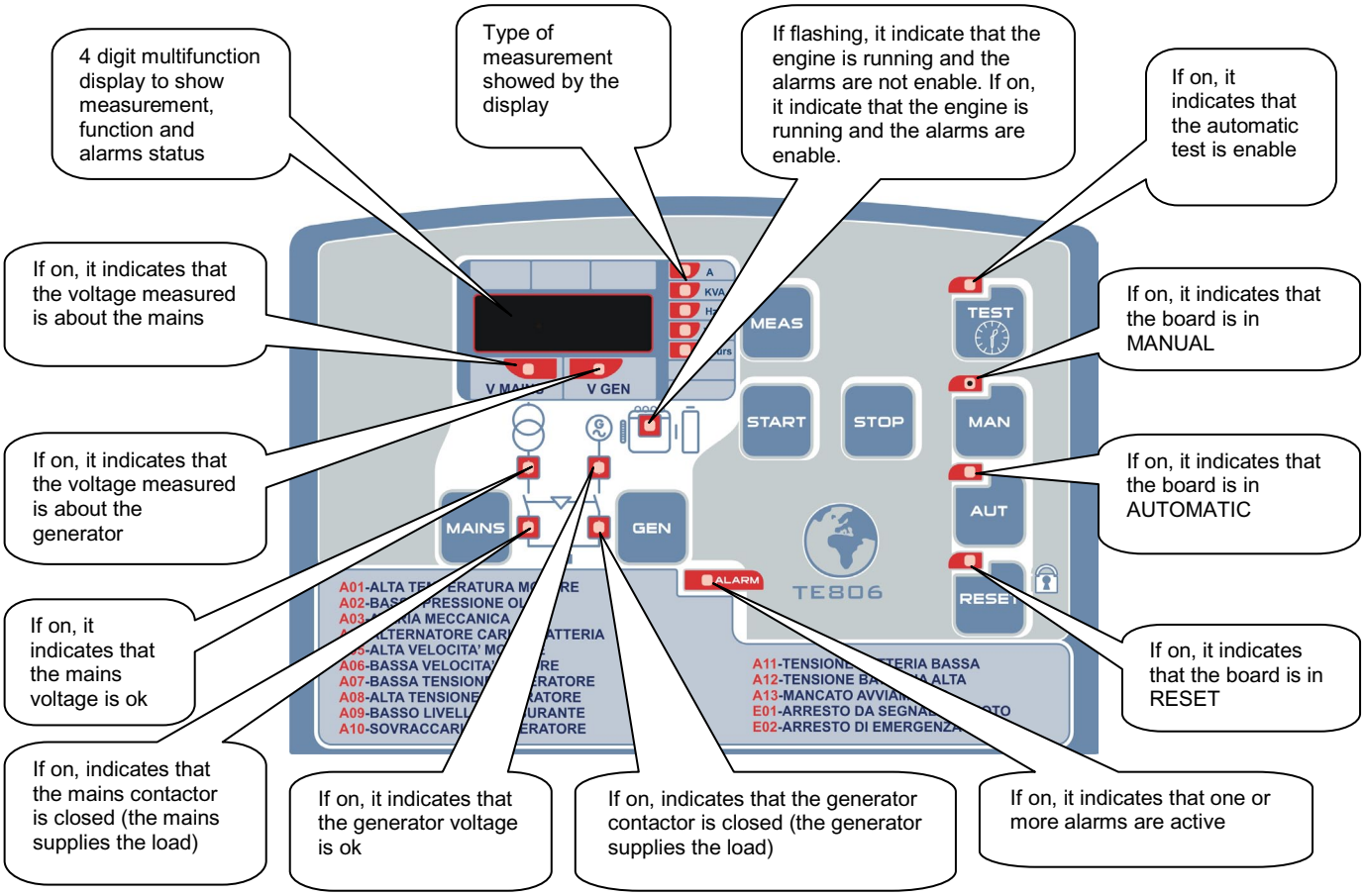
Setup	Description	Range	Default
U.01	Automatic test interval time	1 – 30days	7 days
U.02	Test duration	1 – 30 min	10 min
U.03	Test start time	00:00 – 23:59	10:00

2.8- Automatic test – Enabled and disabled

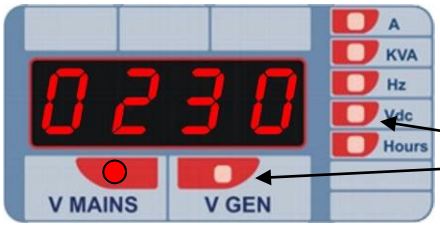
When the automatic test parameters are set, you have to enable this test; with EAS electrical board in automatic mode (AUT), keep pressed TEST until the display shows “ON” and the test led turn ON. From this moment the board starts the counting of the time to make the first test. This test will begin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



2.9- LED indication decription



2.10- Display measures



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

Push MEAS to scroll the measures

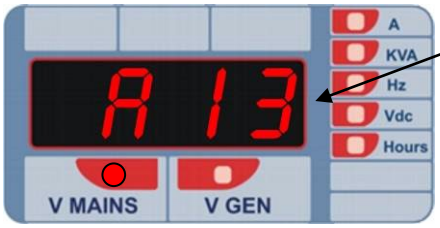
The measure selected is showed by led positioned below or laterally to display

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



In case of alarm, the display shows a alarm identification code: the alarm led turns on.

Verify the type of alarm using the alarms table in front of the panel

Push RESET to clear the alarm signal and put the generator in safety.

2.12- Command buttons decription

It permit to start the generator (enable only in MANUAL function)

It permit to change the type of measurement showed by the display

It permit to activate the automatic test

It permit to close the mains contactor (active only in MANUAL function; press it with MAN button in the same time)

EAS in MANUAL function

EAS in AUTOMATIC function

It permit to close the generator contactor (active only in MANUAL function; press it with MAN button in the same time)

EAS in RESET

It permit to stop the generator (enable only in MANUAL function)

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.

-Switch on the generating set in MAN mode 

- keep on pressing for about 8" the TEST 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.

3.4 - 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

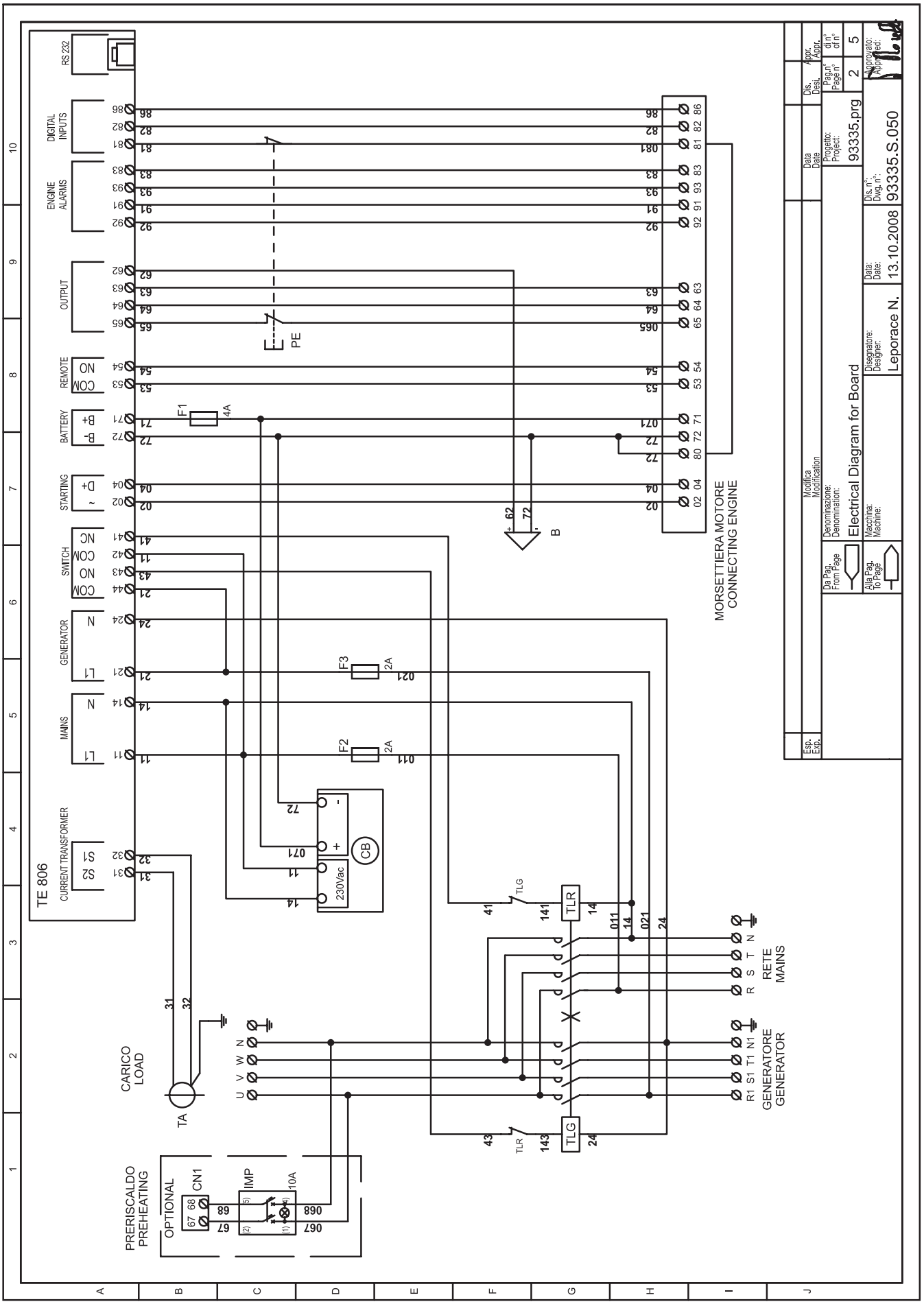
Group 7	Network parameters		
P7.01	Mains voltage minimum threshold (measured)	160 – 230Vac	190Vac
.02	Mains voltage maximum threshold (measured)	200 – 345Vac	270Vac
.03	Mains voltage time out of the limits	1 – 9999s.	5s.
.04	Mains voltage return time within the limits	1 – 9999s.	10s.
Group 8	**Generator 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
		0000 / 0001	
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
		0000 / 0001	
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
		0000 / 0001	
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 (programmation not influential)	**0000 / 0001**	0001 = yes
E1.02	Stop with cooling (programmation 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 (programmation not influential)**	**0000 / 0001**	**0001 = yes**
E2.01	Stop without cooling (programmation not influential)	**0000 / 0001**	0001 = yes
E2.02	Stop with cooling (programmation 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
B : Wire connection unit
C : Capacitor
D : G.F.I.
E : Welding PCB transformer
F : Fuse
G : 400V 3-phase socket
H : 230V 1phase socket
I : 110V 1-phase socket
L : Socket warning light
M : Hour-counter
N : Voltmeter
P : Welding arc regulator
Q : 230V 3-phase socket
R : Welding control PCB
S : Welding current ammeter
T : Welding current regulator
U : Current transformer
V : Welding voltage voltmeter
Z : Welding sockets
X : Shunt
W : D.C. inductor
Y : Welding diode bridge
A1 : Arc striking resistor
B1 : Arc striking circuit
C1 : 110V D.C./48V D.C. diode bridge
D1 : E.P.1 engine protection
E1 : Engine stop solenoid
F1 : Acceleration solenoid
G1 : Fuel level transmitter
H1 : Oil or water thermostat
I1 : 48V D.C. socket
L1 : Oil pressure switch
M1 : Fuel warning light
N1 : Battery charge warning light
O1 : Oil pressure warning light
P1 : Fuse
Q1 : Starter key
R1 : Starter motor
S1 : Battery
T1 : Battery charge alternator
U1 : Battery charge voltage regulator
V1 : Solenoid valve control PCBT
Z1 : Solenoid valve
W1 : Remote control switch
X1 : Remote control and/or wire feeder socket
Y1 : Remote control plug
A2 : Remote control welding regulator
B2 : E.P.2 engine protection
C2 : Fuel level gauge
D2 : Ammeter
E2 : Frequency meter
F2 : Battery charge trasformer
G2 : Battery charge PCB
H2 : Voltage selector switch
I2 : 48V a.c. socket
L2 : Thermal relay
M2 : Contactor
N2 : G.F.I. and circuit breaker
O2 : 42V EEC socket
P2 : G.F.I. resistor
Q2 : T.E.P. engine protection
R2 : Solenoid control PCBT
S2 : Oil level transmitter
T2 : Engine stop push-button T.C.1
U2 : Engine start push-buttonT.C.1
V2 : 24V c.a. socket
Z2 : Thermal magnetic circuit breaker
W2 : S.C.R. protection unit
X2 : Remote control socket
Y2 : Remote control plug
A3 : Insulation moitoring
B3 : E.A.S. connector
C3 : E.A.S. PCB
D3 : Booster socket
E3 : Open circuit voltage switch
F3 : Stop push-button
G3 : Ignition coil
H3 : Spark plug
I3 : Range switch
L3 : Oil shut-down button
M3 : Battery charge diode
N3 : Relay
O3 : Resistor
P3 : Sparkler reactor
Q3 : Output power unit
R3 : Electric siren
S3 : E.P.4 engine protection
T3 : Engine control PCB
U3 : R.P.M. electronic regulator
V3 : PTO HI control PCB
Z3 : PTO HI 20 l/min push-button
W3 : PTO HI 30 l/min push-button
X3 : PTO HI reset push-button
Y3 : PTO HI 20 l/min indicator
A4 : PTO HI 30 l/min indicator
B4 : PTO HI reset indicator
C4 : PTO HI 20 l/min solenoid valve
D4 : PTO HI 30 l/ min solenoid valve
E4 : Hydraulic oil pressure switch
F4 : Hycraulic oil level gauge
G4 : Preheating glow plugs
H4 : Preheating gearbox
I4 : Preheating indicator
L4 : R.C. filter
M4 : Heater with thermostat
N4 : Choke solenoid
O4 : Step relay
P4 : Circuit breaker
Q4 : Battery charge sockets
R4 : Sensor, cooling liquid temperature
S4 : Sensor, air filter clogging
T4 : Warning light, air filter clogging
U4 : Polarity inverter remote control
V4 : Polarity inverter switch
Z4 : Transformer 230/48V
W4 : Diode bridge, polarity change
X4 : Base current diode bridge
Y4 : PCB control unit, polarity inverter
A5 : Base current switch
B5 : Auxiliary push-button ON/OFF
C5 : Accelerator electronic control
D5 : Actuator
E5 : Pick-up
F5 : Warning light, high temperature
G5 : Commutator auxiliary power
H5 : 24V diode bridge
I5 : Y/▲ commutator
L5 : Emergency stop button
M5 : Engine protection EP5
N5 : Pre-heat push-button
O5 : Accelerator solenoid PCB
P5 : Oil pressure switch
Q5 : Water temperature switch
R5 : Water heater
S5 : Engine connector 24 poles
T5 : Electronic GFI relais
U5 : Release coil, circuit breaker
V5 : Oil pressure indicator
Z5 : Water temperature indicator
W5 : Battery voltmeter
X5 : Contactor, polarity change
Y5 : Commutator/switch, series/parallel
A6 : Commutator/switch
B6 : Key switch, on/off
C6 : QEA control unit
D6 : Connector, PAC
E6 : Frequency rpm regulator
F6 : Arc-Force selector
G6 : Device starting motor
H6 : Fuel electro pump 12V c.c.
I6 : Start Local/Remote selector
L6 : Choke button
M6 : Switch CC/CV
N6 : Connector – wire feeder
O6 : 420V/110V 3-phase transformer
P6 : Switch IDLE/RUN
Q6 : Hz/V/A analogic instrument
R6 : EMC filter
S6 : Wire feeder supply switch
T6 : Wire feeder socket
U6 : DSP chopper PCB
V6 : Power chopper supply PCB
Z6 : Switch and leds PCB
W6 : Hall sensor
X6 : Water heather indicator
Y6 : Battery charge indicator
A7 : Transfer pump selector AUT-0-MAN
B7 : Fuel transfer pump
C7 : "GECO" generating set test
D7 : Flooting with level switches
E7 : Voltmeter regulator
F7 : WELD/AUX switch
G7 : Reactor, 3-phase
H7 : Switch disconnector
I7 : Solenoid stop timer
L7 : "VODIA" connector
M7 : "F" EDC4 connector
N7 : OFF-ON-DIAGN. selector
O7 : DIAGNOSTIC push-button
P7 : DIAGNOSTIC indicator
Q7 : Welding selector mode
R7 : VRD load
S7 : 230V 1-phase plug
T7 : V/Hz analogic instrument
U7 : Engine protection EP6
V7 : G.F.I. relay supply switch
Z7 : Radio remote control receiver
W7 : Radio remote control trasnsmitter
X7 : Isometer test push-button
Y7 : Remote start socket
A8 : Transfer fuel pump control
B8 : Ammeter selector switch
C8 : 400V/230V/115V commutator
D8 : 50/60 Hz switch
E8 : Cold start advance with temp. switch
F8 : START/STOP switch
G8 : Polarity inverter two way switch
H8 : Engine protection EP7
I8 : AUTOIDLE switch
L8 : AUTOIDLE PCB
M8 : A4E2 ECM engine PCB
N8 : Remote emergency stop connector
O8 : V/A digital instruments and led VRD PCB
P8 : Water in fuel
Q8 : Battery disconnect switch
R8 : Inverter
S8 : Overload led
T8 : Main IT/TN selector
U8 : NATO socket 12V
V8 : Diesel pressure switch
Z8 : Remote control PCB
W8 : Pressure turbo protection
X8 : Water in fuel sender
Y8 : EDC7-UC31 engine PCB
A9 : Low water level sender
B9 : Interface card
C9 : Limit switch
D9 : Starter timing card
E9 : Luquid pouring level float
F9 : Under voltage coil
G9 : Low water level warning light
H9 : Chopper driver PCB
I9 :
L9 :


RS 232
DIGITAL INPUTS
ENGINE ALARMS
OUTPUT
REMOTE
BATTERY
STARTING
SWITCH
GENERATOR
MAINS
CURRENT TRANSFORMER
TE 806
MORSETTIERA MOTORE
CONNECTING ENGINE
PE
F1 4A
F2 2A
F3 2A
CB
230Vac
TLR
TLG
CARICO
LOAD
TA
RETE
MAINS
GENERATORE
GENERATOR
PREISCALDO
PREHEATING
OPTIONAL
CN1
IMP
10A
Modifica
Modification
Denominazione:
Denomination:
Electrical Diagram for Board
Designatore:
Designer:
Leporace N.
Data:
Date:
13.10.2008
Dis. n°:
Dwg. n°:
93335.S.050
Progetto:
Project:
93335.prg
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2
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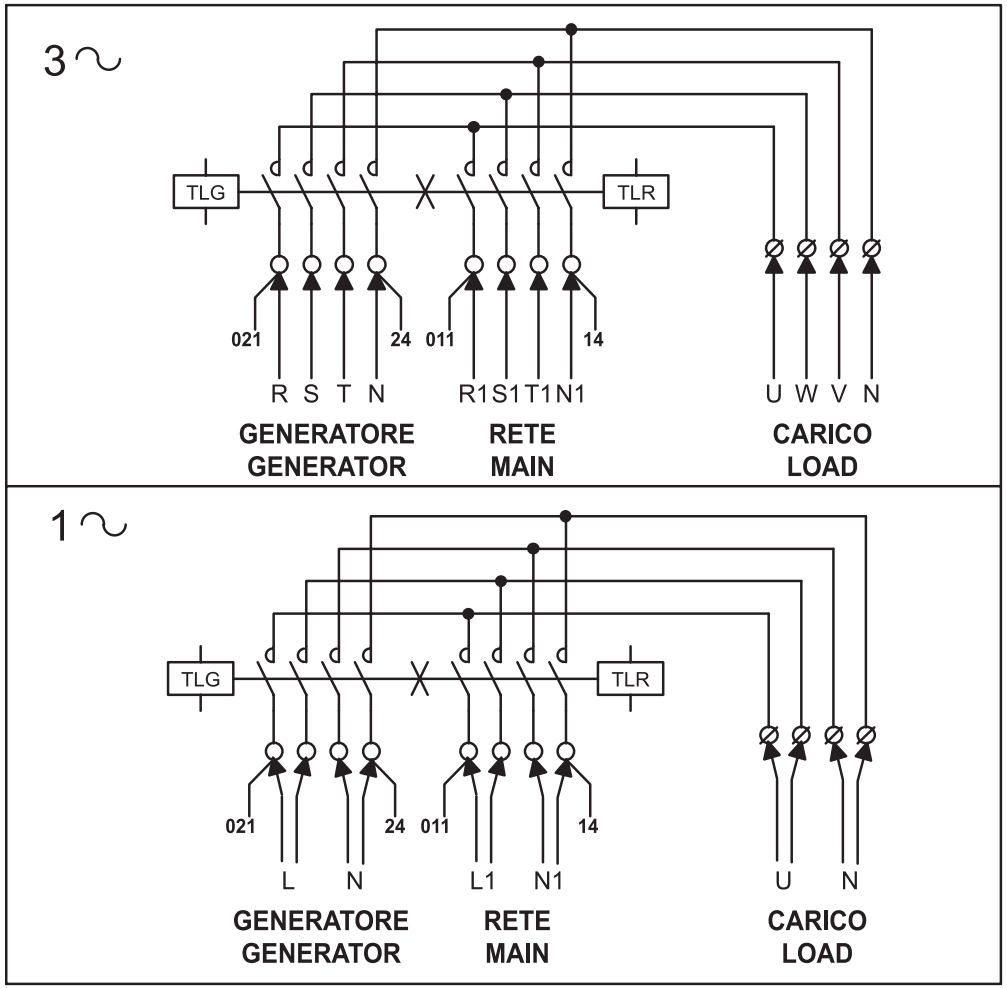
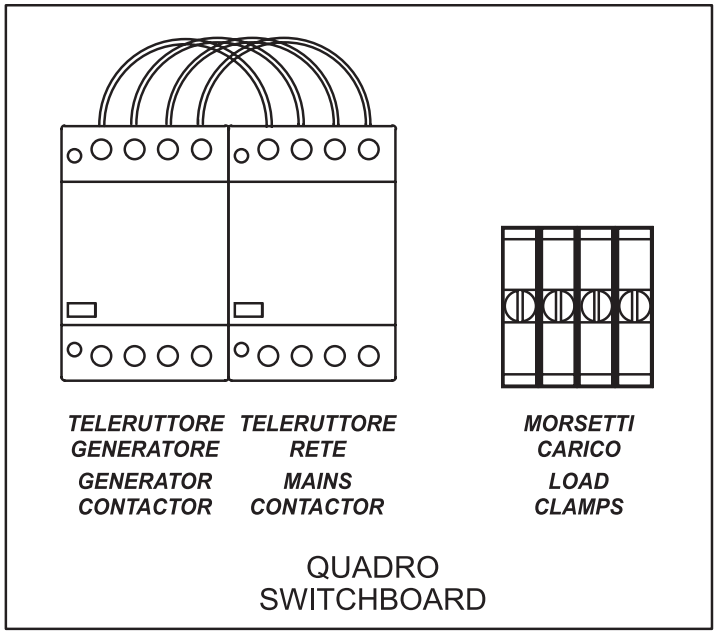
To Page
Macchina:
Machine:
Esp.
Exp.

COLLEGAMENTI DI POTENZA
POWER CONNECTION



POSIZIONAMENTO INTERNO DELLE CONNESSIONI
INTERNAL POSITIONING OF CONNECTION



Esp. Exp.	Modifica Modification	Data Date	Dis. Desi.	Appr. Appr.

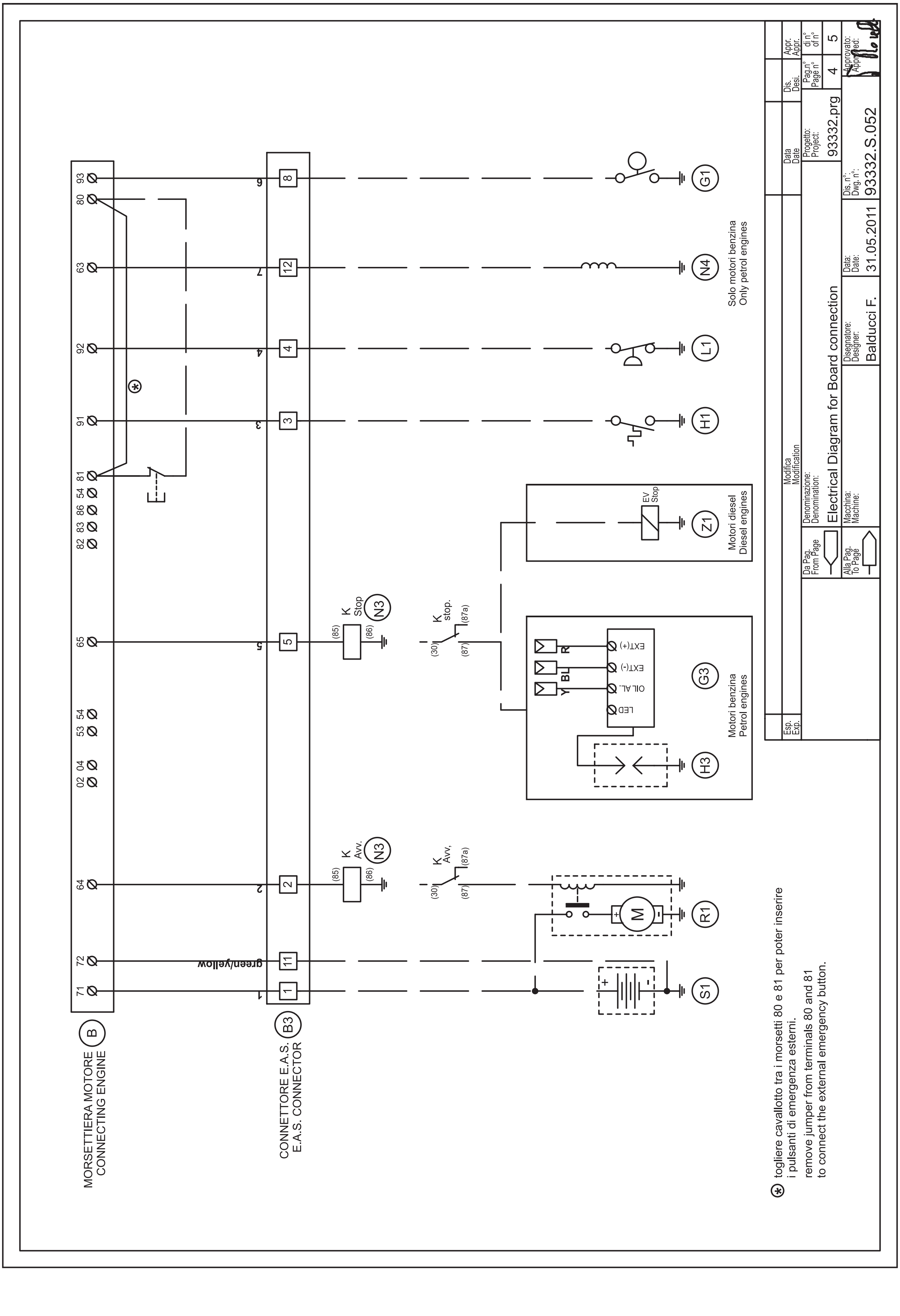
Da Pag. From Page	Denominazione: Denomination: Installation Diagram			Progetto: Project: 93336.prg	Pag.n° Page n° 3	di n° of n° 5
Alla Pag. To Page	Macchina: Machine:	Disegnatore: Designer: Leporace N.	Data: Date: 13.10.2008	Dis. n°: Dwg. n°: 93335.S.051	Approvato: Approved:	

(I) SCHEMA QUADRO
(GB) UNIT DIAGRAM
(F) SCHEMA CADRE
(D) EINHEIT SCHEMA
(E) ESQUEMA CUADRO
(PT)

EAS 15 - 806

M
61.2
REV.0-07/11

Ⓘ **SCHEMA QUADRO**	Ⓓ **EINHEIT SCHEMA**		**M**
ⒼⒷ **UNIT DIAGRAM**	Ⓔ **ESQUEMA CUADRO**	**EAS 15 - 806**	**61.3**
Ⓕ **SCHEMA CADRE**	ⓅⓉ		REV.0-07/11



19/07/11 93332 SK

Ⓘ LISTA COMPONENTI QUADRO Ⓓ SCHALTPLAN TEILLISTE ⒼⒷ PART LIST DIAGRAM Ⓔ RELACIÓN COMPONENTES CUADRO Ⓕ LISTE COMPOSANTES CADRE ⓅⓉ	EAS 15 - 806	M 61.4 REV.0-07/11

NAME	Q.ty	DESCRIPTION	CODE	POS. pag/col
B	1	BUZZER DI ALLARME / ALARM BUZZER	E213006	2/7
CB	1	CARICA BATTERIA AUTOM. / AUTOM. BATTERY CHARGER	E240018G	2/3
F1	1	FUSIBILE / FUSE	E5000138	2/8
F2	1	FUSIBILE / FUSE	E5000135	2/5
F3	1	FUSIBILE / FUSE	E5000135	2/5
IMP	1	PRERISCALDO MOTORE / ENGINE PREHEATING	E200018	2/1
PE	1	PULSANTE EMERGENZA / EMERGENCY STOP PUSH-BUTTON	E200015A	2/8
TA	1	TRASFORMATORE AMPEROMETRICO / CURRENT TRANSFORMER	ETA100/5A	2/2
TE806	1	SCHEDA TE806 / TE806 PCB	ETE806	2/3
TLG	1	TELERUTTORE GENERATORE / GENERATOR CONTACTOR	EMC6A4PAC230	2/2
TLR	1	TELERUTTORE RETE / MAINS CONTACTOR	EMC6A4PAC230	2/3

19/07/11 93332 SK

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