MMA - TIG

INSTRUCTION MANUAL

CE

Rev. 1.2 - Novembre 2014

MODELS

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DIRECTIVES

- **2006/42/CEE (Machinery)**
- **2006/95/CEE (Low Voltage)**
- **2004/108/CEE (EMC)**
- **EN 60974-1 ed. 07/01 (Arc Welding Equipment)**
- **EN 60974-7 ed. 11/00 (Torches)**
- **EN 60974-10 ed. 11/03 (EMC)**
- **2002/95/CE 2002/96/CE (RAEE)**
- **2003/108/CE (RAEE)**
- **2002/95/CE (RoHS)**

INTRODUCTION

Congratulations for your choice. Our products have been designed, manufactured and tested to comply with the latest European Community requirements. The arc welding power system, if used correctly, can be operated in very safe conditions while if the prescribed safety norms are not observed it could cause serious damages to people and objects.

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IMPORTANT
TO BE READ BEFORE USING THIS DEVICE

The following instructions should be read by all concerned before installing or using this device. In case of any doubt contact your distributor or directly the producer to get all the informations that may be needed.

1 --- ELECTROMAGNETIC COMPATIBILITY

FROM EN 60974-10 “EMC product standard for arc welding equipment”

1.1 INTRODUCTION

The user is responsible for installing and using the welding equipment according to the manufacturers instructions. If electromagnetic disturbances are detected then it shall be responsibility of the user of the welding equipment to resolve the situation with the technical assistance of the manufacturer. In some cases this remedial action may be as simple as earthing the welding circuit. In other cases it could involve constructing

an electromagnetic screen enclosing the power source and the work complete with associated input filters. In all cases electromagnetic disturbances must be reduced to the point where they are no longer troublesome.
Note: The welding circuit may or may not be earthed for safety reasons. Changing the earthing arrangements should only be authorized by a person who is competent to asses whether the changes increase the risk of injury, e.g. by allowing parallel welding current return paths which may damage the earth circuits of other equipment.

1.2 ASSESSMENT OF POTENTIAL ELECTROMAGNETIC PROBLEMS

1.2.1 Assessment of area. Before installing welding equipment the user shall make an assessment of potential electromagnetic problems in the surrounding area. The following shall be taken into account:
a) Other supply cables, control cables, signaling and telephone cables above, below and adjacent to the welding equipment;
b) Radio and television transmitters and receivers;
c) Computer and other control equipment;
d) Safety critical equipment, e.g. guarding of industrial equipment;
e) The health of the people around, e.g. the use of pacemakers and hearing aids;
f) Equipment used for calibration or measurement;
g) The immunity of other equipment in the environment. The user shall ensure that other equipment being used in the environment is compatible. This may require additional protection measures;
h) The time of the day that welding or other activities are to be carried out. The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.

1.3 METHODS OF REDUCING EMISSIONS

1.3.1 Mains supply. Welding equipment should be connected to the mains supply according to the manufacturers recommendations. If interference occurs, it may be necessary to take additional precautions such as filtering of the mains supply. Consideration should be given to shielding the supply cable of permanently installed welding equipment, in metallic conduit or equivalent. Shielding should be electrically continuous throughout its length. The shielding should be connected to the welding power source so that good electrical contact is maintained between the conduit and the welding power source enclosure.
1.3.2 Maintenance of the welding equipment. The welding equipment should be routinely maintained according to the manufacturers recommendations. All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustment covered in the manufacturers instructions. In particular, the spark gaps of arc striking and stabilizing devices should be adjusted and maintained according to the manufacturers recommendations.
1.3.3 Welding cables. The welding cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

2 --- INSTRUCTION FOR USE

2.1 USE INSTRUCTIONS

For a correct use of the appliance it is important to follow the indications hereunder.
Do not expose to water dripping, to heat sources, avoid the use in anomalous situations.
The interventions of extraordinary maintenance are not necessary; in any case these last must be executed by authorized service centers.
Every tampering causes the expiry of the guarantee.
During the storage and the transport, the temperature must be comprised between -25 and +55 centigrade degrees.

2.2 PRELIMINARIES BEFORE USE

Generators should only be used by trained personnel.

Generators have been planned for the use in particularly hard environments with temperatures from -20 +40 degrees centigrade
and with humidity:
max 50% up to +40 degrees centigrade
max 90% up to +20 degrees centigrade
1) Check that the mains voltage is the one indicated on the data plate.
2) Never cover the generator with objects (towels, cloths ecc.), as this will jeopardise the proper ventilation and therefore its operation.
3) Do not put the unit in positions limiting its airflow.
4) Use in environments with temperatures below 40 degrees centigrades.
5) Do not use in polluted environments, i.e. in presence of dusts, acids and/or salts, ferrous or metal dusts.
6) Check that the available power of the network is adequate to the one required for the proper operation of the machine.
7) The degree of protection from the external agents of these generators is IP21/23, namely the protection against the vertical fall
of water-droplets and protection against foreign bodies.
Therefore, it is absolutely necessary that:
A) No foreing bodies pass through the loopholes.
B) It is not placed in muddy or damp areas or dipped into liquids.
The generator must never be used without its covering. Besides being harmful to the same unit, it is certainly dangerous for the operator.

3 --- SAFETY

3.1 INTRODUCTION

Arc welding processes as developed after many years of welding experience can be used with a high degree of safety provided that proper care and attention is given to common sense practices and to manufacturer's recommended methods. It is therefore imperative that management and safety personnel make sure that all personnel who will operate or maintain the welding equipment be given the opportunity to read this information.

3.2 GENERAL PRECAUTIONS

3.2.1 Prevention of burns sparks, slag, hot metal and radiations produced by the welding arc can be seriously damaging to the eyes and skin. As the operator or any other person comes close to the welding area, the level of exposure increases rapidly. Proper protective clothing and equipment must be worn by the operator and any other persons working in the vicinity of the arc. Gauntlet gloves designed for use in welding, safety shoes, and a hat are required. Flame retardant clothing which covers all exposed areas and cuffless trousers to prevent entry of sparks and slag are recommended. Proper safety goggles or glasses with side shields of the appropriate welding lens shade MUST be worn to protect the operator's eyes from radiant energy and flying sparks or hot metal.
3.2.2 Fire prevention Since electric welding arc produces hot metal, sparks, and slag, precautions must be taken to prevent fire and/or explosions. Make sure that appropriate fire extinguishing equipment is available in the immediate welding area. All combustible materials must be removed from the immediate welding area to a distance of at least 10 meters(35 feets) away. Never arc weld empty containers which have held toxic or potentially explosive materials. Those containers must be thoroughly cleaned prior to welding. Never arc weld in an atmosphere which contains heavy concentrations of dust, flammable gas, or combustible liquid vapors(such as gasoline). After each welding operation make sure to let welded material to cool down before touching it or putting it in contact with combustible or flammable materials.
3.2.3 Toxic Fumes Proper precautions must be exercised to prevent the exposure of the operator or others in the surrounding area to possible toxic fumes which may be generated during electric are welding. Certain chlorinated solvents will decompose under ultraviolet radiations to form phosgene gas. Care must be exercised to avoid the use of these solvents on materials being weld with electric arc welding equipment. Containers of these solvents and other degreasing agents must be removed from the immediate area near the welding

arc. Metals coated with or containing significant amounts of lead, cadmium, zinc, mercury, and beryllium can produce harmful concentration of toxic fumes when subject to electric arc welding operations. Adequate local exhaust ventilation must be used or the operator must be wearing special equipment to guarantee a supply of fresh air as a respirator or air supplied helmet. Do not weld metals coated with materials which emit toxic fumes unless 1) the coating is removed prior to welding, 2) the area is adequately ventilated, or 3) the operator is supplied with fresh-air breathing equipment.

3.2.4 Radiation Ultra-violet radiations created by the arc may be harmful to the eyes and burn the skin; it is therefore imperative to wear protective clothing and helmet. Contact lenses should not be used as the intense heat coming from the arc may cause them to stick to the cornea. The mask used during welding should be equipped with grade DIN 10 safety lenses at least and they should immediately be replaced whenever damaged or broken. Since the arc may damage the eyes it is considered dangerous up to a distance of 15 meters (50 feets) and it should never be locked at with the naked eye.

3.2.5 Electric shock All electric shocks are potentially fatal and therefore live wires and/or parts should never be touched. Insulation must be kept from the piece to be welded and from the ground by wearing insulation gloves and clothing. Garments such as gloves, shoes, hats, clothings and body must be kept dry at all times and it is to be avoided working in humid or wet areas. Never touch or hold the piece to be welded by hand; if the slightest electric shock is felt, welding should be stopped immediately; the unit is not to be used until the problem is identified and solved by qualified personnel. Frequently inspect the primary power cable for damage or cracking of the cover and replace immediately damaged cable. Disconnect power supply cable from mains before replacing cables or before removing unit covers. Always replace any damaged parts of the unit, with original material. Never short out or in any other way defeat the safety interlock devices and make sure that the power supply line is equipped with an efficient earth plug. Make sure that the work table is connected to a good earth ground. Any maintenance is to be carried out by qualified personnel only that is to be aware of the risks due to dangerous voltages necessary for the operation of the unit.

3.2.6 Pacemaker Person wearing electronic life support devices (such as pacemaker) should consult with their doctor before going near arc welding, cutting, gouging or spot welding operations in order to make sure that magnetic fields associated with high currents do not affected their devices.

4 --- GENERAL DESCRIPTIONS AND PRODUCT SPECIFICATIONS

4.1 INTRODUCTION

The welding power supplies deliver constant current and are designed with INVERTER technology using components having high performance and high reliability and can use for stick electrode and TIG welding.

4.2 SYSTEM DESCRIPTION

The power supply is built on a single main board with the control logics on separate interchangeable hybrid boards which give the system a very high degree of reliability and simplify maintenance and service. The power module uses an INVERTER working at a frequency higher than 80 kHz with a very low dynamic response time (500 millisecond) resulting in an extremely smooth welding characteristic which gives easier starting, more homogeneous droplet size, better penetration and smoother bead appearance.

4.3 TECHNICAL SYMBOLS EXPLANATION

- IEC 974 / EN60974 — The power supply is manufactured according to these international standards.
- S/N..... — Serial number to be stated for any question relating to the unit.
-  — Single phase stating frequency converter-transformer-rectifier.
-  — Dropping characteristic.
- MMA — Suitable for welding with coated electrodes.
- TIG — Suitable for TIG welding.
- U_o — Secondary no-load voltage.
- X — Duty-factor percentage: The duty-factor expresses the percentage of 10 minutes in which the power supply can operate at a without overheating
- I_2 — Welding current.

- U_2 Secondary voltage with welding current I_2.
- U_1 Nominal supply voltage.
- 1~ 50/60Hz Single phase supply 50 or 60 Hz..
- I_1 Absorbed current at the corresponding welding current I_2.
  When using the power supply for TIG welding, value by 1.6
- IPxx Grade of protection of metal frame.
- S Suitable for working in high-risk areas.
- NOTE The power supply has been designed to operate in areas with grade 3 pollution (IEC 664).

4.4 PROTECTION DEVICES

4.4.1 Overheating and main supply anomalies protection. The power supply is protected by a device installed in such a way as to act in case of overheating and/or main supply anomalies. When this device intervenes, the unit stops supplying current but the cooling fan keeps working. The acting of the device is shown by the LED turning on. The turning off of the LED signals the resumed ability of the unit to be in operating conditions.

5 --- INSTALLATION PROCEDURE

5.1 UNPACKING AND SETUP

Unpack the unit and carefully inspect it for shipping damages. Any claims for damages which may have occurred in transit must be filed by the purchaser with the carrier and in order not to loose any right to file such a claim no clean receipt should be signed but a mention should be made to reserve the right to file a claim for transit damages that can be discovered only after unpacking. All communications regarding this equipment must indicate the model and serial number located on the back of the power supply. After unpacking place the unit in a properly ventilated, possibly undusted area, making sure that the air flow near the cooling slots in not obstructed.

WARNING: it is extremely important not to restrict the air flow around the unit since this may cause the unit to over heat and could possibly damage internal parts. Keep at least 200 mm of unrestricted space on all sides of the unit. Do not Place any filter device or cover over the air intake slots of the power supply as this will void the warranty. NOTE: if the unit is carried over shoulder make sure that the air intake slots on the frame are not obstructed.

5.2 STARTUP PROCEDURE

This unit must be installed by skilled personnel. All connections must conform to the existing rules and in full compliance with safety regulations (CENELEC HD 427).

5.3 GENERAL NOTES

Before using this power supply, carefully read the CENELEC standards HD 407 and HD 433, check insulation of cables, electrode holder clamp, sockets and plugs and make sure that the length and section of welding cables are compatible with current used:
Up to 5 mt. cable section 16 mm² min.
From 5 mt. to 20 mt. cable section 25 mm² min.
From 20 mt. to 30 mt. cable section 35 mm² min.

6 --- OPERATION

6.1 DESCRIPTION OF CONTROL PANEL

On the front panel one finds:

1. Current adjustment knob
2. Electrode and earth clamp cable connectors
3. Welding current LED indicator (ok if on)
4. AC power input fault
   (voltage outside the + - 10% of 220 V range) or overheating condition LED indicator (OK if off).

6.2 COATED ELECTRODE WELDING

This power supply is suitable for welding with all types of electrodes. For the cellulose ones (AWS 6010), only specific power supply can be used, see the technical tables.

Use electrode holder clamps in compliance with the safety standards and without projecting tightening screws.

Make sure that the main switch on the back is on 0 position or that main supply plug is not inserted in main outlet then connect welding cables in accordance with polarity indications given by the electrode manufacturer.

The welding circuit should not be deliberately placed in direct or indirect contact with protection wire if not on piece to be welded. If earthing is deliberately made on the work piece by means of protection wire, the connection must be as direct as possible, with the wire having a section at least equal to the welding current return wire and connected to the piece being worked on, in the same place as the return wire, using the return wire terminal or a second earth terminal closely.

All possible precautions must be taken in order to avoid stray currents. Check that the input supply voltage matches the voltage indicated on the power supply technical specification tag.

Connect main supply cable: when mounting a plug make sure that its capacity is adequate and that the yellow-green wire of the mains cable is connected to the earth plug pin. The capacity of the magnetothermic switch or the fuses in the mains supply line should be higher than or equal to current I1 absorbed by the unit. The absorbed current I1 is determined by reading the technical specifications on the unit as corresponding to the main supply voltage U1.

Any extension cord should have a section adequate for the absorbed current I1.

Turn on the power supply with the main switch on the back of the unit.

WARNING: ELECTRIC SHOCK CAN KILL.

Do not touch live electric parts.

Do not touch weld output terminals when unit is energized.

Do not touch torch or electrode and earth clamp at the same time. Set current according to the electrode diameter, welding position and type of joint to be welded. When finished welding always remember to turn the main switch off and to remove electrode from electrode holder.

6.3 TIG WELDING (for all models)

This power supply is suitable for TIG welding stainless steel, iron and copper.

Connect earth cable wire to positive (+) pole of welding unit and connect terminal clamp to working piece as close as possible to power supply, making sure there is a good electrical contact.

Use proper TIG torch and connect power wire to negative pole of welding unit.

The welding circuit should not be deliberately in direct or indirect contact with protection wire if not on piece to be welded.

If earthing is deliberately made on the workpiece by means of protection wire, the connection must be as direct as possible, with the wire having a section at least equal to that of the welding current return wire and connected to the piece being worked on, in the same place as the return wire, using the return wire terminal or a second earth terminal closely.

All possible precautions must be taken in order to avoid stray current.

Connect gas pipe to pressure reducer output connected to an ARGON cylinder and regulate gas flow adjusting the regulation knob on the torch handle. Inside the torch handle a valve allows the gas flow to be shut.

Use a 2% thoriated tungsten electrode having a diameter chosen according the negative electrode direct current (Argon) value as follows:

up to 60A	Ø 1 mm
from 60A to 180A	Ø 1.6 mm
from 180A to 250A	Ø 2,4 mm

The electrode tip should be prepared for welding according to procedure indicated hereafter (Fig. 01 Pag. 54).

Check the main supply voltage to match the voltage on the power supply technical specification tag.

Connect main supply cable: when mounting a plug make sure that its capacity is adequate and that the yellow-green wire of the mains cable is connected to the earth plug pin.

The capacity of the magnetothermic switch or the fuses in the mains supply line should be higher than or

equal to current I1 absorbed by the unit. The absorbed current I1 is determined by dividing by 1.6 the value stated on the table.
Any extension cord should have a section adequate for the absorbed current I1.
Set welding current based on the weld to be performed then adjust the gas flow with knob on torch handle.
Start the arc, by contact, with a quick scratch on the surface to be welded.
CAUTION do not use commercial ignition devices.
The TIG torch is designed in such a way that using the valve on the torch body the gas flow can continue after the weld is performed to protect the electrode while it is still hot.
After the proper amount of time /few seconds) the gas flow can be stopped by shutting the valve on the torch handle.
Once welding is finished the unit is to be turned off and the gas cylinder valve is to be closed.

6.4 TIG HF (for HF models only)
On the front of the control panel the following can be found
1. Welding current regulation potentiometer
2. Holder/torch and earth sockets
3. Current manual setting/remote control lever switch
4. TIG/MMA welding lever switch
5. Digital A-meter to read the current draw upon arc ignition
6. Current rise time regulation knob
7. Current fall time regulation knob
8. Current Post-gas time regulation knob
9. Socket for remote control connection
10. 2 time/4 time operation mode lever switch
11. Gas outlet
12. Torch push-button connector

Five LED warning lights on the left side of the front panel signal the following, respectively:

A. Generator under voltage (GREEN LED)
B. Line surge or overheating (YELLOW LED)
C. High frequency igniter on (RED LED)
D. Argon gas supply (GREEN LED)
E. Inverter on (YELLOW LED)

This welding machine is suitable for TIG welding of inox steel, iron and copper. Connect the earth cable connector to the positive terminal of the welding machine and the clamp as close as possible to the welding spot, making sure good electrical contact is made. Use the special TIG torch (for HF). The welding circuit must not be put into direct or indirect contact with the safety conductor except on the work piece. If the work piece is deliberately earthed through the safety conductor having a section equal to or greater than that of the welding current return conductor connected to the work piece at the same point as the return conductor with the return conductor clamp or another earth clamp next to it. Take the utmost care to avoid welding stray currents. Connect the gas inlet on the rear panel of the generator to the output of the pressure reducer connected to an argon cylinder. Adjust the gas pressure by means of the flow meter. Use a 2% thoriated tungsten electrode chosen according to the following table:

up to 60 A	Ø 1.0 mm
from 60 A to 180 A	Ø 1.6 mm
from 180A to 250A	Ø 2,4 mm

The preparation of the electrode tip should be done as explained in schemas section (Fig. 01 Pag. 54). Check that the supply voltage is the one indicated on the technical specification plate of the welding machine. Connect the power cable. Switch on the welding machine by closing the power switch on the rear panel; adjust the current according to the job to be carried out, set switch 2/4T to 4T mode, set the current rise and fall times as preferred and the post-gas time; then bring the electrode within 3 mm approximately from the work piece and let out a pulse upon pressing the torch push-button (press and release it). The following will occur:

1. Gas is let out and the relevant LED lights up. (LED D)
2. The high frequency circuit stars (within a second or so and ignites an arc) (LED C)
3. Current rises until it reaches the value set, as the A-meter will show.
At this stage, the generator will keep the arc going until another pulse is applied upon pressing the torch push-button. The following will then occur:
4. Current starts falling.
5. The arc nearly extinguishes itself.
6. The post-gas phase starts.
It a relatively long current fall time was set, and one does not wish to wait for automatic extinction of the arc, another pulse may be applied to stop welding at any moment.
However, if the 2T mode selected, the torch push-button must be kept depressed during arc ignition, current rise and welding, and then released to allow current fall and arc extinction.
This generator uses an inverter of the seventh generation (the latest available, as there are no other single-card technology inverters of the same power at 90 kHz) and therefore incorporates the following exclusive capabilities and devices.

TIG PROCESS

- Very low-noise, fully electronic, solid-state high frequency igniter (no spark points as found in older igniters).
- Safety device which switches off the igniter and resets the cycle if an arc is not ignited within about fifteen seconds.

After welding, do not forget to switch off the welding machine off and shut the gas cylinder valve.
Electrode preparation. It is necessary to use special attention when preparing the electrode tip grinding it so as to obtain vertical makings as shown in figure (see in schemas section):
CAUTION: HOT FLYING METAL PARTICLES can injure personnel, start fires and damages equipment.
TUNGSTEN CONTAMINATION can lower weld quality. Shape tungsten electrode tip only on grinder with proper guards in a safe location wearing proper face, hand and body protection. Shape tungsten electrode tip on a fine grit, hard abrasive wheel used only for tungsten shaping. Grind the end of the tungsten electrode to a taper for a length of 1.5 to 2 electrode diameters.

STAND BY

-Special saving circuit that, if the generator is not used within 30 s from ignition, disables all function and reduces power consumption to only 25 W (no greater than a light bulb's), thus eliminating any undue internal heating, increasing generator life and, more important, saving 1 kWh every four hours of operation. Of course, as soon as the generator starts a welding phase the device automatically re-enables all the generator functions preventing any inconvenience.

8 ---- CUSTOMER CARE - WARRANTY

Fixing and Warranty

Answering the assistance and warranty needs is part of our work, and since we take great care to create professional products capable of satisfying the most demanding requests, we bring ourselves into play with participation and a great sense of responsibility, in order to solve the smallest snags that might occur. We do this willingly and passionately, while respecting precise rules that are necessary to safeguard the rights of all the concerned parts:

What we recognize

• We commit ourselves to recognize any manufacturing defect for two years, starting from the purchase moment. The date written on the document bears witness to the purchase (receipt or invoice) and must explicitly indicate the purchased product description.
• Immediate and free replacement including all shipping costs (there and back – within the European boundaries) if the fault is detected within 15 days from the purchase date.
• The warranty includes the free faulty products replacement.
• The warranty includes the labour necessary for the faulty products replacement.
• The warranty always includes the transport costs for the welder return.

What we do not recognize

• We do not recognize for any reason the warranty on items without a document proving the purchase (receipt or invoice) or whose purchase document presents generic values or descriptions that cannot be directly traced back to our products.
• The warranty does not include the costs to dispatch the welder to the technical support centre from the 16th day after the purchase.
• The warranty does not include the fixing costs if the welder has been opened or tampered with by other people.
• The warranty does not include the fixing costs if the welder shows clear impact evidences.
• The warranty does not include the fixing costs if the welder has clear signs of wrong feeding.
Special cases subject to inspection
The warranty is recognized subject to confirmation and after specific evaluations on a case-by- case basis if the purchase date indicated on the receipt is 4 days higher than the machine production date. The latter is easily found from the first two figures composing the serial number SN, which is printed on the data plate of each machine.

And what if the machine is out of warranty?
When a machine is received by the assistance centre EPS, it is analysed in order to evaluate an average maximum cost, that is then notified to the customer. This is a completely free estimate in case the fixing is then authorised. Whereas should the notified cost not meet the customer's interest, the analysis carried out on the machine will be paid (25.00 € + VAT). The return for items out of warranty upon fixing payment (or payment of the analysis only if the machine is not fixed) always implies that the transport costs are at consignee's expense.

Do you think it impossible to manage the assistance from Italy?
Nowadays the transport times and costs within the European Community are similar to those of your countries, so that shipping a machine from your country to Italy costs a few Euros by the most known carriers, and even less by postal services. The service is fast, efficient and with the confidence that you will get a perfect fixing, the one that can be provided only by the manufacturer.

Every product that has been fixed at our assistance centre undergoes a test bench with on-load and off-load simulations, in order to verify its conformity to the safety regulations; then all the current and working values setting are restored and an actual final welding test is performed, together with the verification of all the working parameters.

WARNING! All technical interventions, as well as the possible warranty cases involving EPS products, are managed directly by the manufacturer. There are no recognized assistance centres and there is no external company officially being licensed to perform fixings or replacements, for which the manufacturer does not respond!

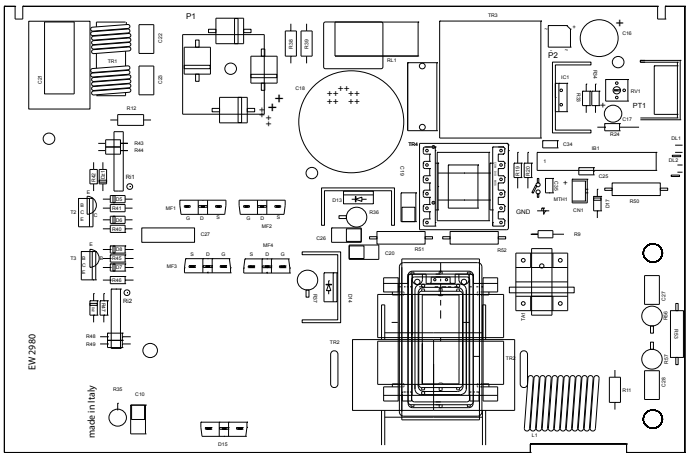
EPS products assistance centre:
VIVA ELETTRONICA! S.R.L.
Via delle Industrie 218/A
17012 Albissola Marina (SV) ITALIA
service@vivaelettronica.it

8 ---- SPARE PARTS

ALL EPS ORIGINAL PARTS ARE AVAILABLE FOR CONSULTATION AND PURCHASE ON-LINE IN THE WEB SITE WWW.EPS-INVERTER.COM

For the replacement of both mechanical and electronic components we always recommend the use of original parts, available and at disposal for purchase on-line at any time directly from the website **www.eps-inverter.com**, where in correspondence of each model it can be found the relevant section with dedicated spare parts, inclusive codes and pictures, constantly updated and containing all technical modifications made over the years.

EW 2980



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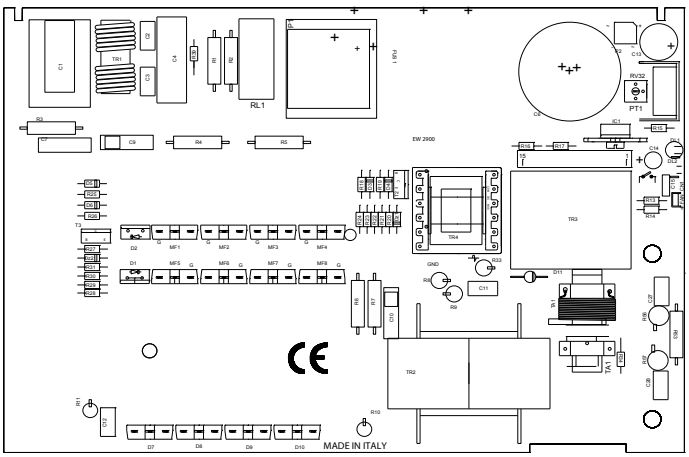

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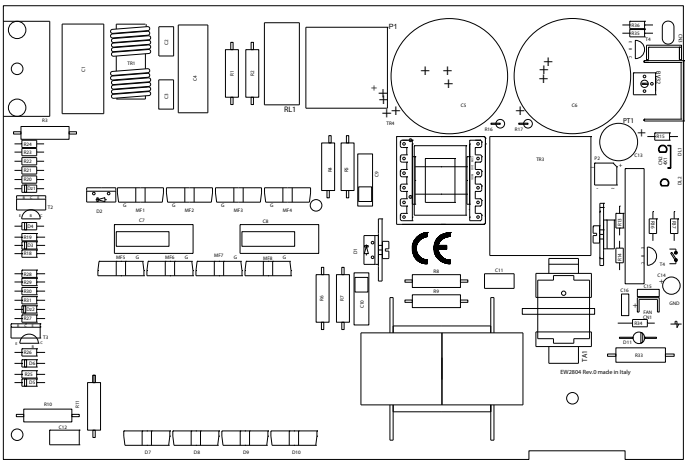

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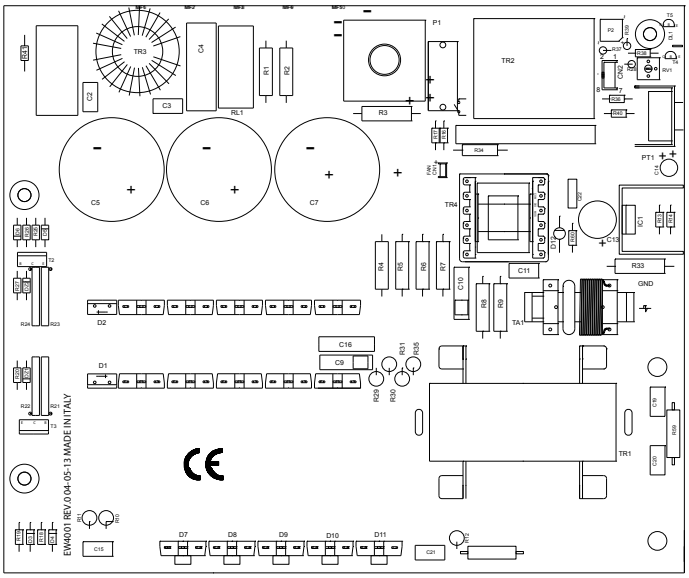

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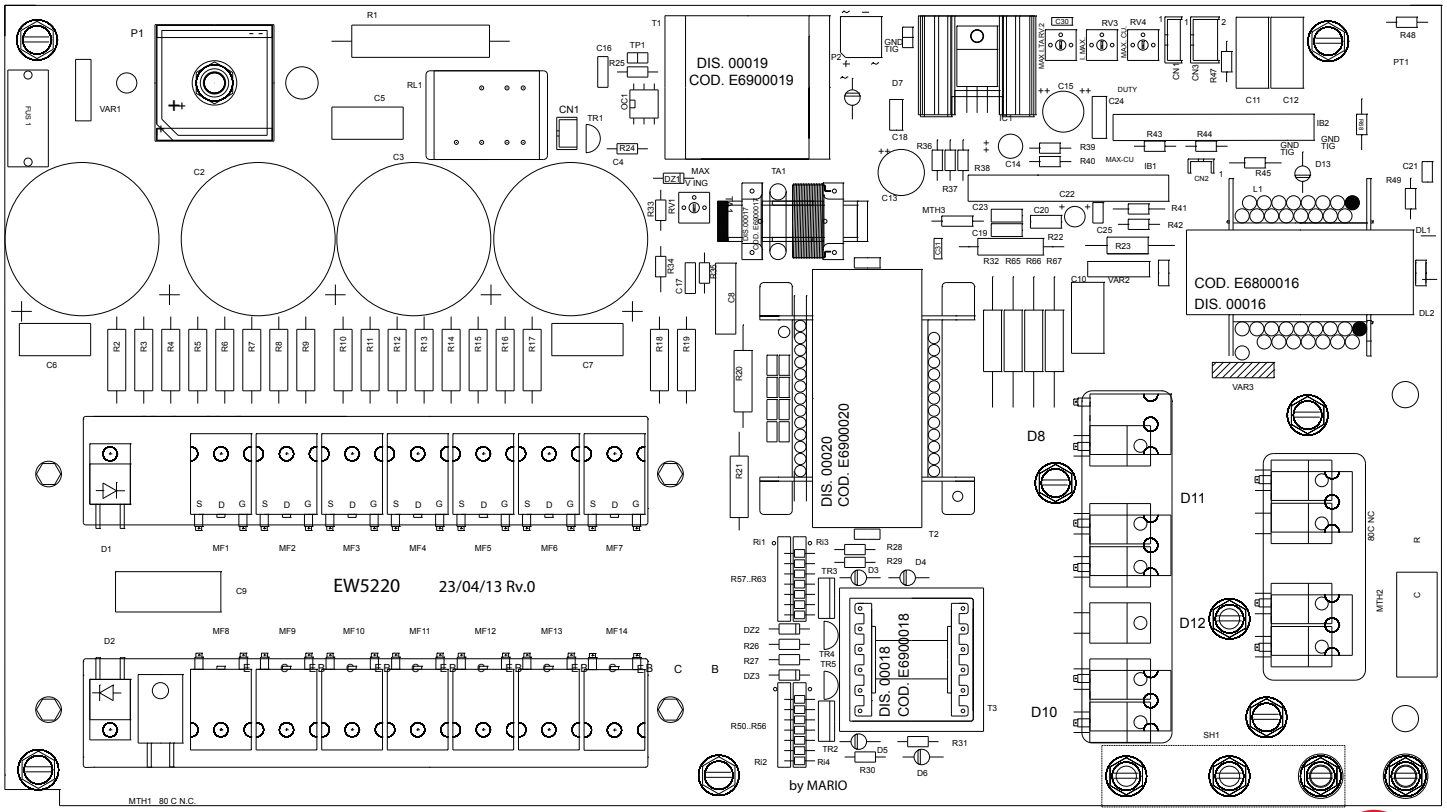


Tab. 01

Duty cycle 15%			
Main voltage	230 VAC	230 VAC	230 VAC
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Cos φ	0.99	0.99	0.99
Efficiency	0.85	0.85	0.85
Current range	8 - 100 A	8 – 130 A	8 – 160 A
Off load voltage	60 V	60 V	60 V
Output current 35%	65 A	85 A	115 A
Output current 15%	100 A	130 A	160 A
Absorbed power 35%	1,9 KVA	2.6 KVA	3.7 KVA
Absorbed power 15%	3,2 KVA	4,3 KVA	5,5 KVA
Main current 35%	8,3 A	11,3 A	16 A
Main current 15%	13,6 A	18,6 A	24 A

Tab. 02

Duty cycle 20%	80 A	100 A	130 A
Main voltage	230 /115 VAC	230/115 VAC	230 VAC
Frequency	50/60 Hz	50/60	Hz 50/60 Hz
Cos φ	0.99	0.99	0.99
Efficiency	0.85	0.85	0.85
Current range	5-80 A	5 – 100 A	5 – 130 A
Off load voltage	80 V	80 V	80 V
Output current 35%	65 A	85 A	115 A
Output current 20%	80 A	100 A	130 A
Absorbed power 35%	1.8 KVA	2.3 KVA	3.3 KVA
Absorbed power 20%	2.1 KVA	2.8 KVA	3.8 KVA
Main current 35%	8.3/17 A	11.3/22.6 A	16.1 A
Main current 20%	10.5/21 A	13.6/27.2 A	18.6 A

Tab. 03

Duty cycle 25%	110 A	130 A
Main voltage	230 VAC	230 VAC
Frequency	50/60 Hz	50/60 Hz
Cos φ	0.99	0.99
Efficiency	0.85	0.85
Current range	5 – 110 A	5 – 130 A
Off load voltage	80 V	80 V
Output current 35%	90 A	115 A
Output current 20%	110 A	130 A
Absorbed power 35%	2.3 KVA	3.3 KVA
Absorbed power 20%	2.8 KVA	3.8 KVA
Main current 35%	11.3 A	16.1 A
Main current 25%	13.6 A	18.6 A

Tab. 04

Duty cycle 35%		
Main voltage	230 VAC	230 VAC
Frequency	50÷60 Hz	50÷60 Hz
Cos φ	0.99	0.99
Efficiency	0.85	0.85
Current range	5 – 130 A	5 – 140 A
Off load voltage	80 V	80 V
Output current 60%	85 A	120 A
Output current 35%	130 A	150 A
Absorbed power 60%	2,6 KVA	3.9 KVA
Absorbed power 35%	4,3 KVA	5,1 KVA
Main current 60%	11,3 A	16,9 A
Main current 35%	18,6 A	22,2 A

Tab. 05

Duty cycle 40%				
Main voltage	230 VAC	230 VAC	230 VAC	230 VAC
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Cos φ	0.99	0.99	0.99	0.99
Efficiency	0.85	0.85	0.85	0.85
Current range	5 – 130 A	5 – 150 A	5 – 160 A	5 – 180 A
Off load voltage	80 V	80 V	80 V	80 V
Output current 60%	85 A	120 A	140 A	150 A
Output current 35%	130 A	150 A	160 A	180 A
Absorbed power 60%	2,6 KVA	3.9 KVA	4,6 KVA	5.1 KVA
Absorbed power 40%	4.3 KVA	5,1 KVA	5.5 KVA	6.4 KVA
Main current 60%	11,3 A	16,9 A	20,3 A	22,2
Main current 40%	18,6 A	22,2 A	24 A	27,8 A

Tab. 06/A

Duty cycle 60%						
Main voltage	230 VAC	230VAC	230 VAC	230 VAC	230 VAC	230 VAC
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Cos φ	0.99	0.99	0.99	0.99	0.99	0.99
Efficiency	0.85	0.85	0.85	0.85	0.85	0,85
Current range	5 – 160 A	5 – 160 A	1 – 140 A	1 – 160 A	1 – 180 A	1 – 200 A
Off load voltage	80 V	90 V	60 V	60 V	60 V	60 V
Output current 100%	120 A	120 A	110 A	130 A	140 A	160 A
Output current 60%	160 A	140 A	140 A	160 A	180 A	200 A
Absorbed power 100%	3.9 KVA	4,3 KVA	3.5 KVA	4.2 KVA	4.9 KVA	5.5 KVA
Absorbed power 60%	5,5 KVA	4,7 KVA	4.7 KVA	5.5 KVA	6.2 KVA	7.3 KVA
Main current 100%	16,9 A	18,6 A	17 A	20 A	25 A	24 A
Main current 60%	24 A	20,4 A	22.7 A	26 A	28 A	31 A

Tab. 06/B

Duty cycle 60% - 3 Ph			
Main voltage	400 VAC	400 VAC	400 VAC
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Cos φ	0.99	0.99	0.99
Efficiency	0.85	0.85	0.85
Current range	5 – 220 A	5 – 270 A	5 – 330 A
Off load voltage	60 V	60 V	60 V
Output current 100%	190 A	220 A	220 A
Output current 60%	220 A	270 A	330 A
Absorbed power 100%	6,8 KVA	8,3 KVA	8,3 KVA
Absorbed power 60%	8,3 KVA	10,9 KVA	14,3 KVA
Main current 100%	9,9 A	12 A	12 A
Main current 60%	12 A	15,7 A	20,7 A

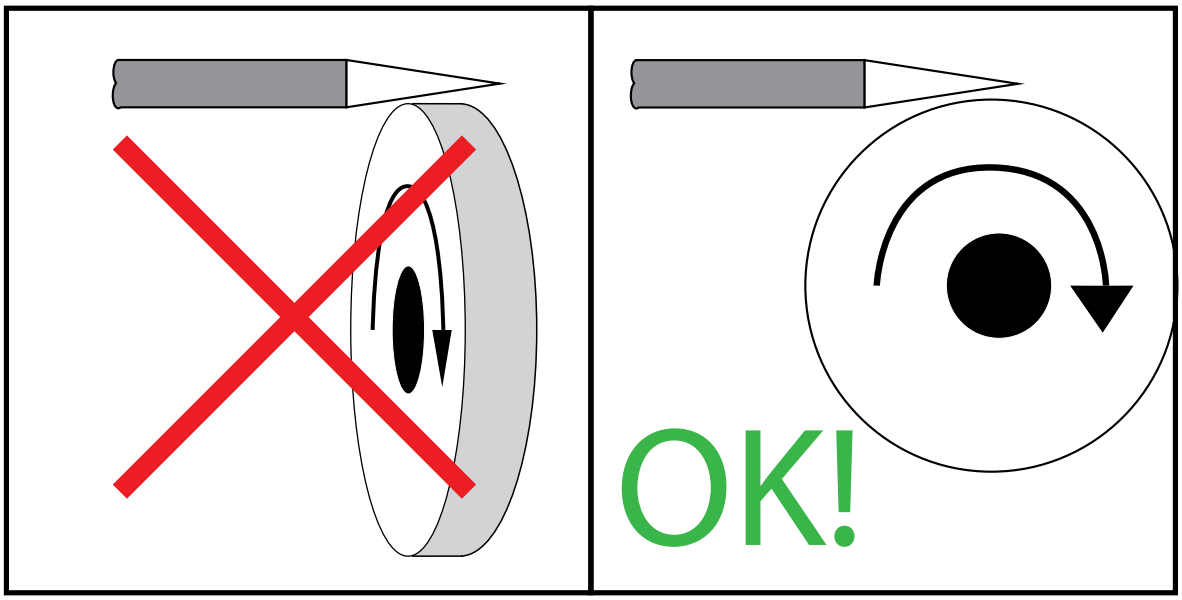
Tab. 07

Duty cycle 70%			
Main voltage	230 VAC	230 VAC	230 VAC
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Cos φ	0.99	0.99	0.99
Efficiency	0.85	0.85	0.85
Current range	5 – 160 A	5 – 180 A	5 – 200 A
Off load voltage	60 V	60 V	60 V
Output current 100%	140 A	150 A	170 A
Output current 70%	160 A	180 A	200 A
Absorbed power 100%	4,7 KVA	5,1 KVA	6 KVA
Absorbed power 70%	5.5 KVA	6,4 KVA	7,3 KVA
Main current 100%	20,3 A	22,2 A	25,9 A
Main current 70%	24 A	27,8 A	31,8 A

Tab. 08

TIG	**mma**	**tig**	**mma**	**tig**	**mma**	**tig**
Duty Cycle	60% -160 A		40% - 200 A		40% - 250 A	
Main voltage	230 VAC		230 VAC		400 VAC	
Frequency	50/60 Hz		50/60 Hz		50/60 Hz	
Cos φ	0.99		0.99		0.99	
Efficiency	0.85		0.85		0.85	
Current range	5 – 160 A		5 – 200 A		5 - 250 A	
Off load voltage	80 V		60 V		80 V	
Output current 40%	-		200 A		250 A	
Output current 60%	160 A		160 A		210 A	
Output current 100%	130 A		140 A		180 A	
Absorbed power 40%	-	-	7,3 KVA	4,7 KVA	9,8 KVA	6,5 KVA
Absorbed power 60%	5.5 KVA	3,4 KVA	5,5 KVA	3,4 KVA	7,8 KVA	5,1 KVA
Absorbed power 100%	4,3 KVA	2,6 KVA	4,7 KVA	2,9 KVA	6,4 KVA	4,1 KVA
Main current 40%	-	-	31,9 A	20,5 A	14,2 A	9,5 A
Main current 60%	24 A	14,9 A	24 A	14,9 A	11,3 A	7,3 A
Main current 100%	16,9 A	11,3 A	10,4 A	12,5 A	9,3 A	5,9 A

Fig. 01



CE

DICHIARAZIONE DI CONFORMITA’
DECLARATION OF CONFORMITY
DECLARACION DE CONFORMIDAD
KONFORMITATSERKLARUNG
DECLARATION DE CONFORMITE’

Si dichiara che l’apparecchio tipo / We hereby state than the machine type /
On déclare que la machine type / Die Maschine von Typ /
se declara que el aparato tipo / Declara se que a màquina tipo

.....

E’ conforme alle direttive / Is in compliance with the directives / entspricht den Richtlinien /
est conforme aux directives / es conforme a las directivas / é conforme as directivas

2009/95/CEE REQUISITI APPARECCHI BASSA TENSIONE

2004/108/CEE COMPATIBILITA’ ELETTROMAGNETICA

2006/42/CEE REQUISITI ESSENZIALI DI SICUREZZA

Verifiche e prove eseguite conformemente alle norme:
EN 60974-1 ed. 07/01
EN 60974-7 ed. 11/00
EN 60974-10 ed. 11/03

Albissola Marina, 04/02/2014
Viva Elettronica!

Viva Elettronica!
Amministratore Unico

Viva Elettronica! s.r.l.
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