DIGITECH VP2 vision PULSE 2 3300 - 4000 - 5000

EN *Operator's manual*

READ CAREFULLY

WELDING TOGETHER

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EN ENGLISH

Declaration of conformity

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CE

IT	**Dichiarazione di conformità**	DA	**Overensstemmelseerklaering**
EN	**Declaration of conformity**	SV	**Forsakran om overensstämmelse**
FR	**Déclaration de conformité**	FI	**Vaatimustenmukaisuusvakuutus**
DE	**Konformitätserklärung**	N	**Forsikring om overensstemmelse**
ES	**Declaración de conformidad**	EL	**Δηλωση συμφωνιασ**
NL	**Overeenskomstigheidsverklaring**	PL	**Deklaracja zgodności**
PT	**Declaração de conformidade**	RU	**Заявление соответствия**

IT	La CEA S.p.A. dichiara sotto la propria responsabilità che l'apparecchio destinato alla saldatura ad arco e/o al taglio plasma:	DA	CEA SpA erklærer under eget ansvar at apparatet, møntet på buesvejsning og/eller plasmaskæring:
EN	CEA SpA declares, assuming full responsibility that the device destined for arc welding and/or plasma cutting:	SV	CEA SpA intygar på eget ansvar att apparaten som är avsedd för bågsvetsning och/eller plasmaskärning:
FR	CEA SpA déclare, sous sa responsabilité, que l'appareil destiné au soudage à l'arc et/ou à la coupe au plasma:	FI	CEA SpA vakuuttaa omalla vastuullaa, että laite, jota käytetään kaarihitsaukseen ja/tai plasmaleikkaukseen:
DE	CEA SpA erklärt auf eigene Verantwortung, dass das zum Lichtbogenschweißen und/oder Plasmaschneiden bestimmte Gerät:	N	CEA SpA erklærer under eget ansvar at apparatet som skal benyttes til buesveising og/eller plasmakutting:
ES	CEA SpA declara bajo su propia responsabilidad que el aparato destinado a la soldadura por arco y/o por corte plasma:	EL	Η εταιρεία CEA SpA δηλώνει υπ'ευθύνη της τι η συσκευή πυ πρρίεται για κλληση με τ Και / ή για κπή με πλάσμα:
NL	CEA SpA verklaart op eigen verantwoording dat het apparaat bestemd voor booglassen en/of plasma snijden:	PL	Spółka CEA S.p.A. oświadcza na własną odpowiedzialność, że urządzenie przeznaczone do spawania łukowego i/lub cięcia plazmowego:
PT	La CEA SpA declara sob a sua propria responsabilidade que o aparelho destinado à saldatura a arco e/ao corte plasma:	RU	Компания CEA S.p.A. заявляет под свою ответственность, что аппарат предназначен для дуговой сварки и/или плазменной резки:

SERIAL NUMBER

IT	E' conforme alle norme	DA	Er i overnsstemmelse med standard	IT	Ai sensi dei requisiti previsti dalle direttive	DA	Ifolge betingelserne i direktiv
EN	Complies with standards	SV	Överensstämmelse med standard	EN	In accordance with requirements of directives	SV	Enligt villkoren i direktiv
FR	Répond aux normes	FI	Täyttää standardin	FR	Conformément aux directives	FI	Vaatimukset direktiivin
DE	Mit den Normen in Übereinstimmung steht	N	Er i samsvar med standard	DE	Gemäß den Bedingungen der Richtlinien	N	I overensstemmelse med bestemmelsene i direktiv
ES	Está fabricado de conformidad con la normativa	EL	Πληρουν τισ ροδιαγραΦεσ	ES	Según los requisitos de las directivas	EL	Συ μφωνα με τιο α αιτησεισ των οδ μγιων
NL	Overeenkomt met norm	PL	Jest zgodne z normami	NL	Volgens richtlijn	PL	W oparciu o wymagania przewidziane przez dyrektywy
PT	Está em conformidade com a norma	RU	Соответствует нормам	PT	Segundo os requisitos costantes na directiva	RU	В соответствии с требованиями, предусмотренными директивами

EN/IEC 60974-1:2017	**EN/IEC 60974-2:2013**
EN/IEC 60974-5:2013	**EN/IEC 60974-10:2014**
IEC 62321:2008	**EN 50581:2012**

2014/35/EU **2014/30/EU** **2011/65/EU**

Lecco, 12 Aprile 2018

Francesco Annettoni

Safety norms

GENERAL SAFETY NORMS

- This welding machine / cutting plant is a **tool for professional use** and so it may only be used by people that have been trained and that have experience. Operators must respect safety standards in order to ensure their and third parties' safety.
- The welding or plasma cutting plant must be used to the specifically designed welding and cutting purposes only. Any other way of use is considered as improper and is a breach of these safety rules.
- These safety rules are valid both for welding machines and for plasma cutting machines unless otherwise specified.

PREVENTION AGAINST ELECTRIC SHOCK

- Do not make any repair with the equipment connected to a power source.
- Disconnect the power source before making any repairs or any maintenance operation.
- Make sure the machine has been connected up to an earthing system in sound condition.
- The equipment must be installed by qualified personnel. All connections must meet the standards in force and the accident prevention laws.
- Do not weld or cut in damp or wet premises or under the rain.
- Do not weld or cut with frayed, loosened cables. All cables must be checked frequently to make sure there are no isolation defects, naked wires or loosened couplings.
- Do not weld or cut with cables with insufficient cross-section and stop any work if the cables become overheated, to avoid rapidly deteriorating the isolation.
- Never touch directly parts which are electrically charged. After using the equipment, take care to put away the torch or the electrode holder avoiding any contact with parts connected to the earth cable.
- Do not use the machine without the safety covers
- Make sure the system has been switched off when it is not being used.

SAFETY AGAINST FUMES AND WELDING GASES

- Purify the work place from gas and fumes developed while the machine was being used, especially when working in restricted areas.
- Place the welding or plasma cutting plant in well-aired premises.
- Remove eventual layers of paint covering parts to be welded or cut to avoid creating eventual toxic gasses. In any case ventilate the work place.
- Do not weld in places where there is a suspected gas leak or near to internal combustion engines.
- Install the welding or plasma cutting plant at a distance from degreasing tanks using solvents such as trichloroethylene vapours or other chlorinated hydrocarbons, as the weld arc (or cutting arc) and ultra-violet rays that it produces react with these vapours producing phosgene, a highly toxic gas.

PREVENTION AGAINST RADIATION AND BURNS

- Never use broken or faulty masks.
- Do not look at the weld or cutting arc without appropriate shield or protective helmet.
- Protect your eyes by means of the proper shield equipped with filter lens (protection degree 9÷14 EN 169).
- Replace unsuitable or damaged filter lens immediately.
- Place a transparent glass in front of the filter lens to protect it.
- Do not ignite the welding or cutting arc without making sure those persons nearby have the necessary protective devices.
- Do not use contact lenses! The intense heat radiated by the arc could stick them to the cornea.

PROTECTION AGAINST NOISE

- Some of the welding or cutting operations may produce noise exceeding lawful limits. Users must therefore be adequately protected to avoid damaging the auditory organs.
- When noise exceeds the limits allowed, wear safety earmuffs or earplugs to protect your hearing.

PROTECTION FROM PARTS IN MOVEMENT

- Do not wear wet gloves while inserting the wire and replacing the spool.
- Wear heavy leather gloves, to avoid burns, and to protect the hands whilst handing the pieces to be welded.
- When the machine is functioning and the appropriate protective devices have been removed, do not go near the parts that could cause injury, such as the motor rollers or the fans.
- Keep doors, panels, covers and the various protective devices well closed.

WELDING WIRE IS POTENTIALLY HARMFUL

- Do not press the torch button until you have very carefully read the instructions on how to use it.
- Welding wire can cause perforating injuries.
- Do not point the torch towards other people, parts of your own body and metals while press-ing the ON switch.

PRECAUTIONS AGAINST FIRE AND EXPLOSION

- Remove any combustible matter from the working area.
- Do not weld or cut near inflammable materials or liquids or in rooms saturated with explosive gasses.
- Do not wear clothes soaked with oil or grease because fire can be started by sparks.
- Place the welding or plasma cutting plant at a distance from inflammable materials or any how far enough not to cause any problems (electrical short circuits, etc.) or fires or explosions.
- Do not weld or cut containers that have been holding inflammable substances, or materials possibly generating toxic or inflammable vapours if they are welded or cut.
- Do not weld or cut a container without making sure first what it has been holding. Even a small residue of gas or inflammable liquid can cause an explosion.
- Never use oxygen to remove gas from a container.
- Do not weld or cut cast items with large cavities that have not been appropriately degassed.
- Keep an extinguisher next to the working area.
- Never use oxygen for a welding or cutting torch but only inert gas or relevant mixtures.
- Be careful that the eyes of persons nearby are not damaged by the ultra-violet rays produced by the welding or cutting arc.
- Always use the proper clothing, safety goggles and gloves.

RISKS DUE TO MAGNETIC FIELDS

- The magnetic field generated by a welding set can be dangerous for persons with pacemakers, hearing aids and similar apparatuses. These persons must consult their doctor, before approaching a machine which is running.
- Do not go near a welding set in operation, with watches, or electronic data collectors, timers, etc. These objects can be irreparably damaged by the magnetic field.
- **RF DECLARATION**

This **class A** system complies with the protection requirements established in directive 2004/108/EC concerning electromagnetic compatibility (EMC). In particular, it complies with the technical requirements of standard **EN 60974-10** and is designed for use in all industrial buildings and not in those for domestic use where electricity is provided via a low voltage public distribution system. Difficulties may arise in assuring **class A** electromagnetic compatibility for systems installed in domestic locations due to conducted and radiated disturbances.
In case of electromagnetic problems, it is the responsibility of the user, to resolve the situation with the manufacturer's assistance. In some cases it may be necessary to shield the welding equipment, and fit suitable filters on the mains supply.

- **LF DECLARATION**

Power supply requirements (see technical data in the product instructions manual).
Due to the elevated absorbance of primary current from the power supply network, high power systems affect the quality of power provided by the network. Consequently, connection restrictions or maximum impedance requirements permitted by the network at the public network connection point (common connection point, CCP) must be applied to these systems.
In this case, the fitter or the user are responsible for ensuring that the system can be connected, consulting the electricity provider if necessary.

MATERIALS AND THEIR DISPOSAL

- These machines are manufactured with materials which do not contain any toxic or poisonous substances dangerous to the operator.
- When the welder is scrapped, it should be dismantled separating the components according to the type of material.
- Do not dispose of electrical equipment together with normal waste! In observance of European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative. By applying this European Directive you will improve the environment and human health!

HANDLING AND STOCKING COMPRESSED GASES

- Care should be taken when moving compressed gas cylinders to avoid damage and accidents which could result in injury. Always avoid contact between cables carrying welding current and compressed gases cylinder and their storage systems.
- Use gas bottles that have the type of gas they contain clearly marked on them; do not trust identification by means of colors only.
- Always close the valves on the compressed gas cylinders when not in use.
- Make sure that cylinders are not exposed to the possibility of being dropped or accidentally hit.
- Use only quality hoses and connections and replace them when damaged.
- Use the correct pressure regulator and mount it manually on the gas bottle. In case of suspected malfunctioning, replace the regulator.
- Open the valve slowly to let the pressure in the regulator increase slowly.
- When the indicator is under pressure, let the valve in the current position.
- The valves on inert gas cylinder should always be fully opened when in use.

Introduction

Thank you for buying our product.
In order to obtain the best performance from the system and to ensure the maximum lifespan of its parts, read and strictly apply the use and maintenance instructions **and safety norms contained** in this manual. If repairs to the plant are required, we recommend that our clients contact our service centre workshops, as they have the necessary equipment and personnel that are specifically trained and constantly updated.
All our machines and equipment are constantly developed and so changes may be made in terms of their construction and features.

Description

MULTI-FUNCTION INVERTER GENERATOR FOR MIG-MAG, MMA, and TIG WELDING
The **DIGITECH VP2** series of multi-function equipments are characterised by cutting edge, attractive design combined with latest generation inverter technology and digital welding control. Innovative, technologically advanced, robust, and easy to use, they can be used for very high quality MIG-MAG and Pulse MIG welding for all materials and especially stainless steel and aluminium, reducing repeat work due to spray to a minimum, using electrodes, and in TIG with “Lift” type ignition, and they represent the best solution for all industrial fields and all specialist welding purposes that call for high precision and repeatable results. **DIGITECH VP2** equipments, fitted with an innovative synergic digital control, colour display, and the extraordinary VISION-ARC meet the needs of those that wish to combine synergy with complete control of all welding parameters.
They come in a version with a separate feeder (HT5).
These are systems open to the future evolution of technology - the control software can be kept up to date with the latest versions with the help of a personal computer.

Operating features

The main feature of the welding unit **DIGITECH 3300-4000-5000 VP2** are:
- Metallic main structure with shockproof plastic front frames.
- Controls protected by a visor.
- Spatter free exceptional welding characteristics in both MIG/MAG, MIG Pulsed and MIG Dual Pulsed on any material and with any gas.
- High welding performance in both MMA and TIG by “Lift” mode striking.
- Synergic digital control (DH) of all welding parameters, displayed via the innovative colour display, also featuring the following functions:
  - Allows less expert operators to regulate all welding parameters in a user-friendly way and extremely easily, choosing the type of program on the basis of the material, wire diameter, and gas used.
  - Innovative “VISION ARC” software for controlling all welding parameters.
  - With the special MIG torches you can adjust the welding parameters at a distance straight from the torch.
  - BURN BACK control. At the end of each weld, in any condition and with any material, the digital control ensures a perfect wire cut, prevents the typical “wire globule” from forming and ensures correct arc restriking.
  - WSC Wire start control. This arc striking control device prevents wire from sticking to the workpiece or torch nozzle and ensures precise and smooth arc striking, particularly when welding aluminium.
  - Welding parameters that are controlled digitally by a microprocessor, are monitored and modified in just a few seconds, maintaining a consistently precise and stable arc as the welding conditions continue to vary due to the movement of the torch and the irregularities of the parts to be welded.
  - Exclusive SWS “Smart Welding Stop” system at the end of TIG welding. Lifting up the torch without switching off the arc will introduce a slope down and it will switch off automatically.
  - “Energy Saving” function to operate the power source cooling fan and the torch water cooling only when necessary.
  - Auto-diagnostic feature for trouble shooting.
  - Password-controlled total or partial equipment access.
- High electrical performance resulting in a reduction in energy consumption.
- Remote parameter adjustment directly from HT5 feeder.

Special processes for DIGITECH

The specific utilization of special welding processes is an ideal choice for automation and allows to optimize specific welding applications, by granting far better performances in terms of quality and welding speed.

Special processes (optional)
vision.ARC2, available on **DIGITECH** equipment, is the support basis in order to weld by means of the special processes shown in table 1.

Table 1

MIG/MAG	
	vision.PIPE for a more accurate welding in pipe first root pass.
	vision.COLD to weld thin thickness laminations with low heat transfer.
	vision.ULTRASPEED for high speed welding.
	vision.POWER for a more concentrated arc and deeper penetration on medium and thick thickness.
PULSED MIG	
	vision.PULSE-UP for a quicker and more precise vertical up welding.
	vision.PULSE-POWER for a more penetrated and smoothly shaped welding on medium large thickness.
	vision.PULSE-RUN for a colder and faster pulsed welding.

Technical data

The general technical data of the system are summarized in table 2.

Usage limits (IEC 60974-1)

The use of a welder is typically discontinuous, in that it is made up of effective work periods (welding) and rest periods (for the positioning of parts, the replacement of wire and underflushing operations etc. This welder is dimensioned to supply a I_2 max nominal current in complete safety for a period of work of 40/50% of the total usage time. The regulations in force establish the total usage time to be 10 minutes. The work cycle is considered to be 40/50% of this period of time. Exceeding the work cycle allowed could cause a trip switch to trip (for further information see the DH control panel manual), which protects the components inside the welding machine against dangerous overheating. After several minutes the overheat cut-off rearms automatically and the welder is ready for use again.

Ambient conditions

The manufacturer does not accept any responsibility for damage that may result from the plant being used or stored in ambient conditions that do not conform.

- The ambient air temperature range must be as follows:
  - When in use: from -10 °C to +40 °C (from 14 °F to 104 °F).
  - When being transported and stored: from -20 °C to +55 °C (from -4 °F to 131 °F).
- The relative humidity of the air must be as follows:
  - Up to 50% at 40 °C (104 °F).
  - Up to 90% at 20 °C (68 °F).
- Altitude (above sea level): up to 2000 m (6561 feet 8.16 in.).
- Ambient air: free of dust, acids, corrosive substances or gases, etc.

How to lift up the system

Strap the system safely and securely in the slings working from the bottom, then lift up from the ground.
This welding machine has a robust handle built into the frame for moving the equipment.

NOTE: *These hoisting and transportation devices conform to European standards. Do not use other hoisting and transportation systems.*

Table 2

Model		DIGITECH 3300 VP2	DIGITECH 4000 VP2	DIGITECH 5000 VP2
		MIG-MAG welding		
Three-phase input 50/60 Hz	V	400 ± 20%	400 ± 20%	400 ± 20%
Mains supply: Z_{max}	Ω	0,037	0,028	0,017
Input power @ I_2 Max	kVA	18,8	25,5	32
Delayed fuse (I_2 @ 60%)	A	25	30	40
Power factor / cosφ		0,64 / 0,99	0,66 / 0,99	0,66 / 0,99
Efficiency degree	η	0,83	0,86	0,89
Open circuit voltage	V	63	70	70
Current range	A	10 ÷ 330	10 ÷ 400	10÷500
Duty cycle @ 100% (40°C)	A	280	350	380
Duty cycle @ 60% (40°C)	A	300	-	460
Duty cycle @ X% (40°C)	A	330 (40%)	400 (60%)	500 (50%)
Wires diameter (*)	mm	0,6 ÷ 1,2 (*)	0,6 ÷ 1,6 (*)	0,6 ÷ 1,6 (*)
N° rollers (*)		4 (*)	4 (*)	4 (*)
Power output of feeder motor (*)	W	100 (*)	100 (*)	100 (*)
Rated wire feeding speed (*)	m/min	0,5 ÷ 25 (*)	0,5 ÷ 25 (*)	0,5 ÷ 25 (*)
Spool (*) Diameter Weight	 mm kg	 Ø300 (*) 15 (*)	 Ø300 (*) 15 (*)	 Ø300 (*) 15 (*)
Standards		IEC 60974-1 - IEC 60974-5 (*) - IEC 60974-10 CE S		
Protection class		IP 23 S	IP 23 S	IP 23 S
Insulation class		H	H	H
Dimensions	mm	660 - 515 - 290	660 - 515 - 290	660 - 515 - 290
Weight	kg	35	40	44

(*) On the HT5 feeder, fitted separately.

WARNING: *This equipment complies with* **EN//IEC 61000-3-12** *provided that the maximum permissible system impedance Z_{max} is less than or equal to 0,037 Ω DIGITECH 3300 VP2 - 0,028 Ω DIGITECH 4000 VP2 - 0,017 Ω DIGITECH 5000 VP2 at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with maximum permissible system impedance Z_{max} less than or equal to 0,037 Ω DIGITECH 3300 VP2 - 0,028 Ω DIGITECH 4000 VP2 - 0,017 Ω DIGITECH 5000 VP2.*

This system, tested according to **EN/IEC 61000-3-3**, *meets the requirements of* **EN/IEC 61000-3-11**.

Table 3

Model		DIGITECH 3300 VP2	DIGITECH 4000 VP2	DIGITECH 5000 VP2
		MIG-MAG welding		
Input power @ I_2 Max	V	18,8	25,5	32
Delayed fuse (I_2 @ 60%)	Ω	25	30	40
Duty cycle @ X% (40°C)	kVA	330 (40%)	400 (60%)	500 (50%)
Mains cable: length / section	m / mm^2	4 / 4 × 2,5	4,5 / 4 × 4	4,5 / 4 × 6
Ground cable	mm^2	50	50	70

Opening the packaging

The system essentially consists of:
- **DIGITECH VP2 3300** or **4000** or **5000** weld unit.
- Separately:
  - HT5 wire-feeder unit (supplied separately).
  - MIG-MAG welding torch (optional).
  - Wire-feeder/generator interconnection cable (supplied separately).
  - Coolant unit for welding torch (optional).
  - Trolley to carry it around (optional).

Perform the following operations on receiving the apparatus:
- Remove the welding generator and all accessories and components from the packaging.
- Check that the welding apparatus is in good condition; otherwise immediately inform the retailer or distributor.
- Check that all the ventilation grilles are open and that there is nothing to obstruct the correct air flow.

Installation and connections

The installation site for the system must be carefully chosen in order to ensure its satisfactory and safe use. The user is responsible for the installation and use of the system in accordance with the producer's instructions contained in this manual. Before installing the system the user must take into consideration the potential electromagnetic problems in the work area. In particular, we suggest that you should avoid installing the system close to:
- Signalling, control and telephone cables.
- Radio and television transmitters and receivers.
- Computers and control and measurement instruments.
- Security and protection instruments.

Persons fitted with pace-makers, hearing aids and similar equipment must consult their doctor before going near a machine in operation. The equipment's installation environment must comply to the protection level of the frame.
The welding unit is characterized by the following classes:
- IP 23 S protection class indicates that the generator can be used in both interior and exterior environments.
- The "S" usage class indicates that the generator can be employed in environments with a high risk of electrical shocks.

This system is cooled by means of the forced circulation of air, and must therefore be placed in such a way that the air may be easily sucked in and expelled through the apertures made in the frame.
Assemble the system in the following way:
- Assemble the trolley.
- Fixing the cooling unit to the trolley.
- Fixing of the welding machine to the trolley and the cooling unit (electrical and plumbing connections).
- Fitting the feeder unit to the generator.
- Connect up the welder to the mains.
- Connect up the wire-feeder/generator interconnection cable.
- Connect up the welding cables.

Instructions for fitting the individual components / optional extras are contained in the relevant packaging.

Connection to the electrical supply

Connection of the machine to the user line (electrical current) must be performed by qualified personnel.
Before connecting the welding machine to the mains power supply, make sure that rated voltage and frequency correspond to those provided by the mains power supply and that the welding machine's power switch is turned to "O".
Use the welder's own plug to connect it up to the main power supply. Proceed as follows if you have to replace the plug:
- 3 conducting wires are needed for connecting the machine to the supply.
- The fourth, which is YELLOW GREEN in colour is used for making the "GROUND" connection.

Connect a suitable load of normalised plug (3P+T) to the power cable and provide for an electrical socket complete with fuses or an automatic switch. The ground terminal must be connected to the ground conducting wire (YELLOW-GREEN) of the supply.
Table 3 shows the capacity values that are recommended for fuses in the line with delays.

NOTE: *Any extensions to the power cable must be of a suitable diameter, and absolutely not of a smaller diameter than the special cable supplied with the machine.*

CONTROL APPARATUS (Fig. A)
Pos. 1 "DH" control panel.
Pos. 2 Fast coupling positive polarity.
Pos. 3 Fast coupling negative polarity.
Pos. 4 Mains switch. In the "O" position the welder is off.
Pos. 5 Connector for connecting the interconnection cable or auxiliary welding controls.
Pos. 6 Fast coupling reverse polarity.
Pos. 7 Connector for connecting the cooling system.
Pos. 8 Mains cable.

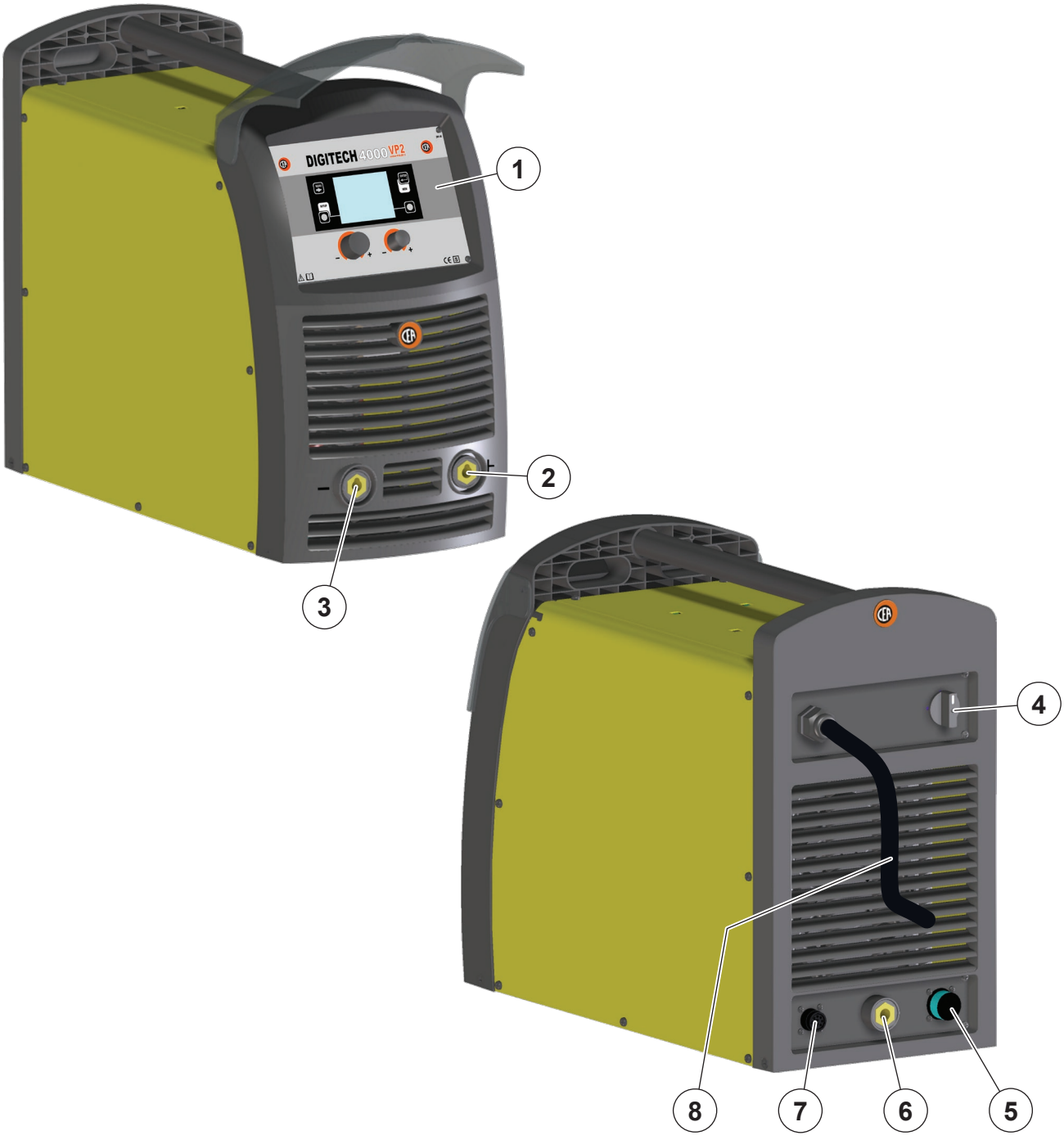


FIG. A

MIG-MAG / PULSE MIG / DOUBLE PULSE MIG Welding

To begin MIG-MAG / PULSE MIG / DOUBLE PULSE MIG welding, carry out the following tasks (with the machine switched off).

1 - Connecting the gas hose and torch (Fig. B1-B2)

- Connect the gas hose to the pressure reducer fitted on the cylinder beforehand.
- Screw the torch onto the centralised connection on the front panel of the feeder and connect the feed (blue) and return (red) water hoses for cooling the torch to the respective (blue and red) rapid couplings on the front panel of the feeder.

2A - Connecting the cables - Welding with a POSITIVE POLE TORCH (Fig. B1)

1) The feeder - generator connecting cable is used to connect the welding machine to the feeder.

   WARNING: *Do not disconnect the wire-feeder until the machine has been switched off.*

   Connect up the interconnection cables (power cable, ancillary wiring and gas tube) to the special attachments and couplings shown in Fig. B1.
   The delivery (blue coloured) and return (red coloured) water tubes, used for cooling the torch of the welding machine, are part of the interconnection cable and should be connected as follows:
   - Interconnection cable on generator side: connect up tubes to their rapid couplings (blue and red coloured) at the back of the coolant system.
   - Wire feeder side connecting cable: connect the red and blue pipes to their respective bulkhead grommets on the rear panel of the feeder.

2) Connect up the earthing system cable to the rapid coupling marked by a - (negative) symbol and then the relevant ground clamps to the piece being welded or to its support in an area free from rust, paint and grease. Using particularly long earthing cables reduces the voltage and causes some problems from increased resistance and inductance of the cables that could cause faulty welding. Follow instructions to avoid these problems:
   - Use earthing and extension cables with appropriate section.
   - Lay out the cables as a flat as possible to prevent them from coiling up.

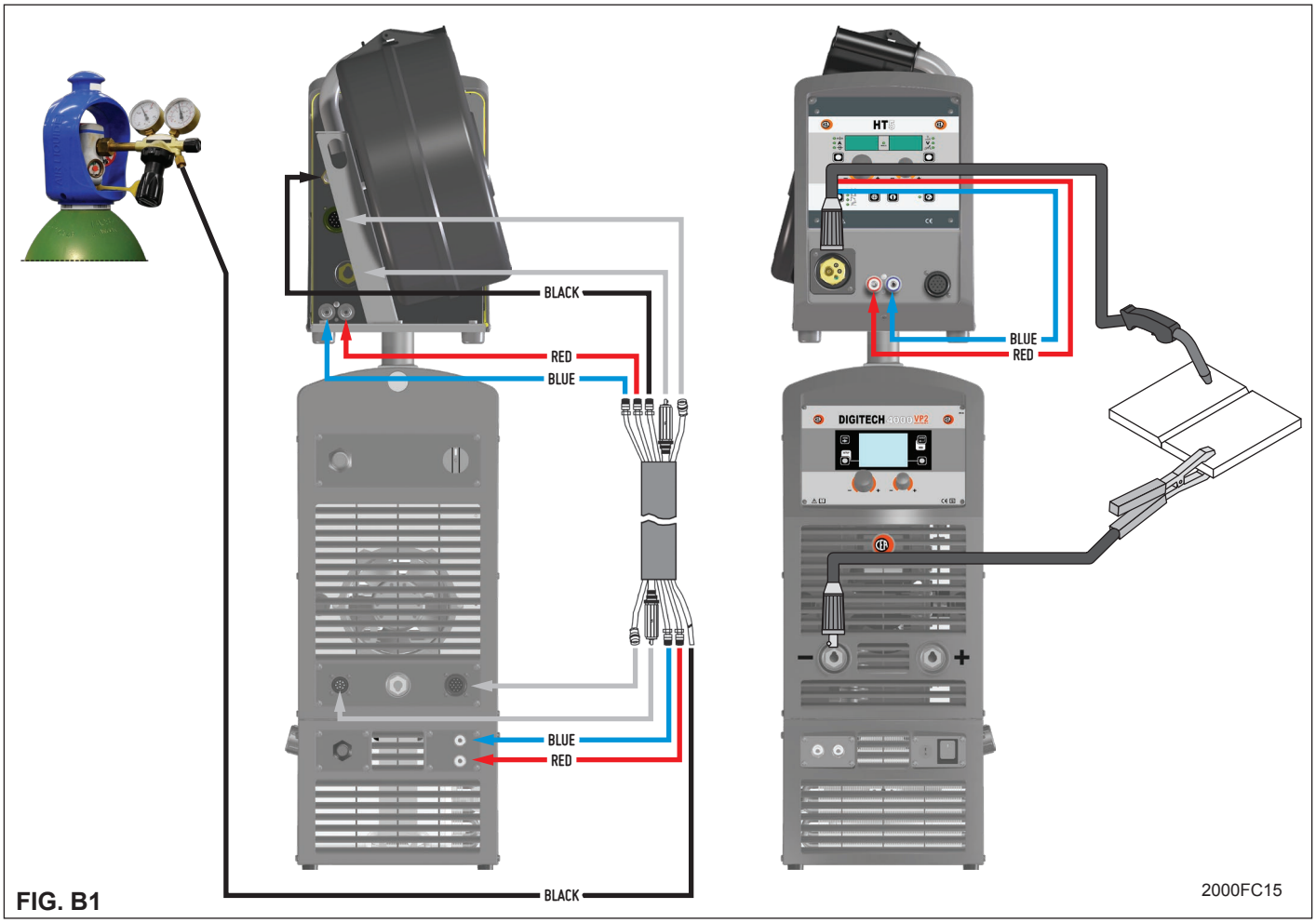


FIG. B1

2B - Connecting the cables - Welding with a NEGATIVE POLE TORCH (Fig. B2)

1) Connect the generator - feeder connection cable using the extension cable in addition to invert the polarity (optional).

   WARNING: *Do not disconnect the wire-feeder until the machine has been switched off.*

   Connect up the interconnection cables (power cable, ancillary wiring and gas tube) to the special attachments and couplings shown in Fig. B2.
   The delivery (blue coloured) and return (red coloured) water tubes, used for cooling the torch of the welding machine, are part of the interconnection cable and should be connected as follows:
   - Interconnection cable on generator side: connect up tubes to their rapid couplings (blue and red coloured) at the back of the coolant system.
   - Wire feeder side connecting cable: connect the red and blue pipes to their respective bulkhead grommets on the rear panel of the feeder.

2) Connect up the earthing system cable to the rapid coupling marked by a + (positive) symbol and then the relevant ground clamps to the piece being welded or to its support in an area free from rust, paint and grease. Using particularly long earthing cables reduces the voltage and causes some problems from increased resistance and inductance of the cables that could cause faulty welding. Follow instructions to avoid these problems:
   - Use earthing and extension cables with appropriate section.
   - Lay out the cables as a flat as possible to prevent them from coiling up.

3 - Welding

1) Switch the welding machine on by moving the power supply switch to **I** (Pos. 4, Fig. A).
2) Make the adjustments and do the parameter settings on the control panel (for further information see the DH control panel manual).
3) Load the wire (see the relevant paragraph in the feeder manual) using the motor test button, after having removed the wire guide nozzle from the torch to allow the wire to come out freely during loading (remember that the wire guide nozzle must correspond to the diameter of the wire used).
4) Open the tap on the cylinder slowly and adjust the reducer knob to obtain a pressure of about 1,3 to 1,7 bar, and then activate the gas test button and regulate the flow to a value between 14 and 20 lit/min to suit the current used for welding.
5) The welding machine is ready to weld. Make the adjustments and select the parameters for the feeder or, if selected, on the control panel (for further information see the DH control panel manual). Start welding by moving close to the welding point and press the torch button.
6) Once welding has been completed remove any slag, switch off the machine (which is only to be done when the fan is not running), and close the gas cylinder.

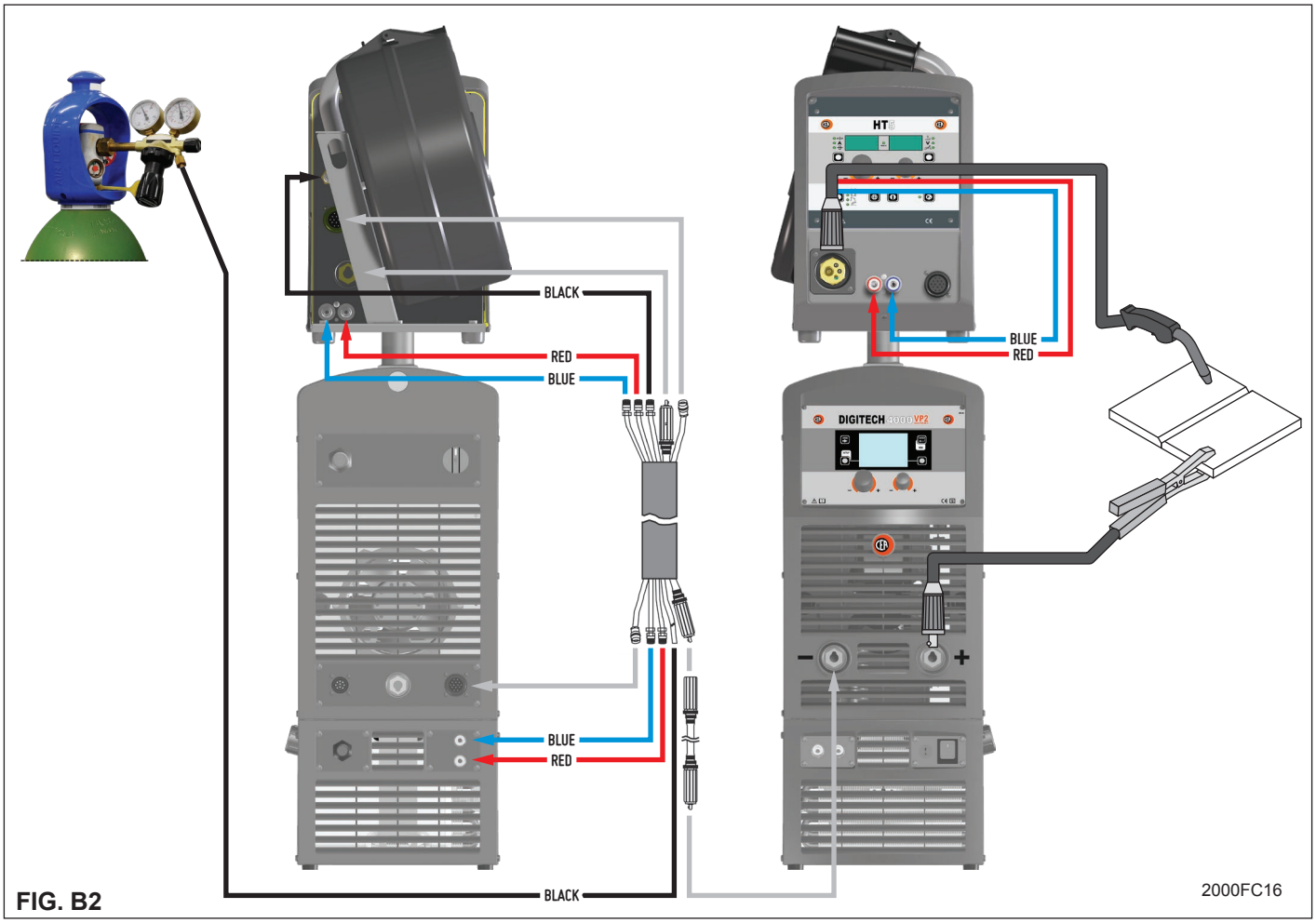


FIG. B2

Spot welding

The substantial difference with MIG-MAG welding is essentially related to the torch and the adjustments that must be made on the DH control panel.
- The gas guide nozzle specifically for spot welding must be fitted on the torch (see Fig. C).
- On the DH control panel, select the spot welding mode and set the time.

To begin spot welding:
- Press the torch button to start the welding current and wire feed.
- When the spot welding time expires, the wire feed stops automatically.
- When the torch button is pushed again a new welding cycle starts.
- Release the torch button.

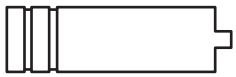


FIG. C

Interval welding

The basic difference from spot welding is the addition of an additional time known as the “stitch pause”.
On the DH control panel, select the interval welding mode and then set the following times for it:
- Stitch time.
- Stitch pause.

To begin interval welding:
- Press the torch button to start the welding current and wire feed.
- At this point the welding machine automatically carries out a succession of welded portions followed by a pause, according to the times entered previously. This procedure stops automatically only when the torch button is released.
- When the torch button is pushed again the torch begins a new interval welding cycle.

Aluminium welding

To weld with aluminum wire proceed as follows:
- Replace the drive rolls with special ones for aluminium wire.
- Use a torch with a 3M cable and a carbon Teflon sheath.
- Set the pressure between the drive rollers at the minimum, by turning the screw provided.
- Use argon gas at a pressure of 1,3 - 1,7 bar and regulate the flow to a value between 14 and 20 lit/min to suit the current used for welding.

Electrode welding (MMA)

On the **DIGITECH 3300-4000-5000 VP2** machine, electrode welding is used to weld most metals (different types of steel, etc.) using coated rutilic and basic electrodes with diameters ranging from Ø 1.6 mm to Ø 6 mm, and devices that the user can adjust for “Arc Force”, “Hot Start”, and Anti-sticking functions to avoid the electrodes sticking.

1) Connecting the welding cables (Fig. D):
   Disconnect the machine from the mains power supply and connect the welding cables to the output terminals (Positive and Negative) of the welding machine, attaching them to the clamp and ground with the polarity specified for the type of electrode being used (Fig.D). Always follow the electrode manufacturer’s instructions. The welding cables must be as short as possible, they must be near to one another, positioned at or near floor level. Do not touch the electrode clamp and the ground clamp simultaneously.
2) Switch the welding machine on by moving the power supply switch to **I** (Pos. 3, Fig. A).
3) Make the adjustments and do the parameter settings on the control panel (for further information see the DH control panel manual).
4) Carry out welding by moving the torch to the workpiece. Strike the arc (press the electrode quickly against the metal and then lift it) to melt the electrode, the coating of which forms a protective residue. Then continue welding at an inclination of about 60° compared with the metal in relation to the direction of welding.

PART TO BE WELDED

The part to be welded must always be connected to ground in order to reduce electromagnetic emission. Much attention must be afforded so that the ground connection of the part to be welded does not increase the risk of accident to the user or the risk of damage to other electric equipment. When it is necessary to connect the part to be welded to ground, you should make a direct connection between the part and the ground shaft. In those countries in which such a connection is not allowed, connect the part to be welded to ground using suitable capacitors, in compliance with the national regulations.

WELDING PARAMETERS

Table 4 shows some general indications for the choice of electrode, based on the thickness of the parts to be welded. The values of current to use are shown in the table 5 with the respective electrodes for the welding of common steels and low-grade alloys. These data have no absolute value and are indicative data only. For a precise choice follow the instructions provided by the electrode manufacturer.

Table 4

Welding thickness (mm)	Ø electrode (mm)
1,2 ÷ 2	1,6
1,5 ÷ 3	2
3 ÷ 5	2,5
5 ÷ 12	3,25
≥ 12	4
≥ 20	≥ 5

Table 5

Ø electrode (mm)	Current (A)
1,6	30 ÷ 60
2	40 ÷ 75
2,5	60 ÷ 110
3,25	95 ÷ 140
4	140 ÷ 190
5	190 ÷ 240
6	220 ÷ 330

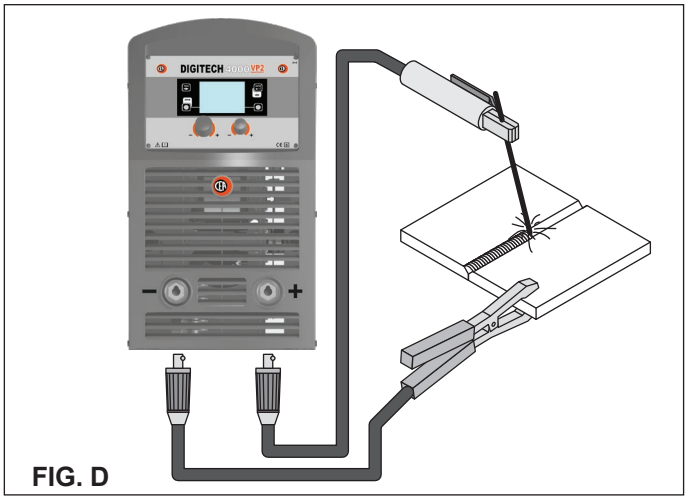


FIG. D

The current to be used depends on the welding positions and the type of joint, and it increases according to the thickness and dimensions of the part.
The current intensity to be used for the different types of welding, within the field of regulation shown in table 5 is:
- High for plane, frontal plane and vertical upwards welding.
- Medium for overhead welding.
- Low for vertical downwards welding and for joining small preheated pieces.

A fairly approximate indication of the average current to use in the welding of electrodes for ordinary steel is given by the following formula:

$$I = 50 \times (Øe - 1)$$

Where:
I = intensity of the welding current
Øe = electrode diameter
Example:
For electrode diameter 4 mm

$$I = 50 \times (4 - 1) = 50 \times 3 = 150A$$

TIG welding with “Lift”

In the TIG process welding is achieved by melting the two metal pieces to be joined, with the possible addition of material from the outside, using an arc ignited by a tungsten electrode. The “Lift” type ignition used in **DIGITECH VP2** equipments makes it possible to reduce tungsten inclusions on ignition to a minimum. The molten bath and the electrode are protected by and inert gas (for example, Argon). This type of welding is used to weld thin sheet metal or when elevated quality is required.

1) Connecting the welding cables (Fig. E):
   - Connect one end of the gas hose to the gas connecter on the TIG torch and the other end to the pressure reducer on the inert gas cylinder (Argon or similar).
   - With the machine switched off:
     - Connect the ground cable to the snap-on connector marked + (positive).
     - Connect the relative ground clamp to the workpiece or to the workpiece support in an area free of rust, paint, grease, etc..
     - Connect the TIG torch power cable to the snap-on connector marked - (negative).
2) Switch the welding machine on by moving the power supply switch to **I** (Pos. 3, Fig. A).
3) Make the adjustments and do the parameter settings on the control panel (for further information see the DH control panel manual).
4) Open the gas cylinder and regulate the flow by adjusting the valve on the TIG torch by hand.
5) Ignite the electric arc by contact, using a decisive, quick movement without dragging the tungsten electrode on the piece to be welded (“Lift” type ignition).
6) The welder has a SWS “Smart Welding Stop” system for the end of TIG welding. Lifting up the torch without switching off the arc will introduce a slope down and it will switch off automatically.
7) When you have finished welding remember to shut the valve on the gas cylinder.

Table 6 shows the currents to use with the respective electrodes for TIG DC welding. This input is not absolute but is for your guidance only; read the electrode manufacturers’ instructions for a specific choice. The diameter of the electrode to use is directly proportional to the current being used for welding.

Table 6

Ø ELECTRODE (mm)	ELECTRODE TYPE Current adjustment field (A)	
	TIG DC	
	Tungsten Ce 1% Grey	Tungsten Rare ground 2% Turchoise
1	10-50	10-50
1,6	50-80	50-80
2,4	80-150	80-150
3,2	150-250	150-250
4	200-400	200-400

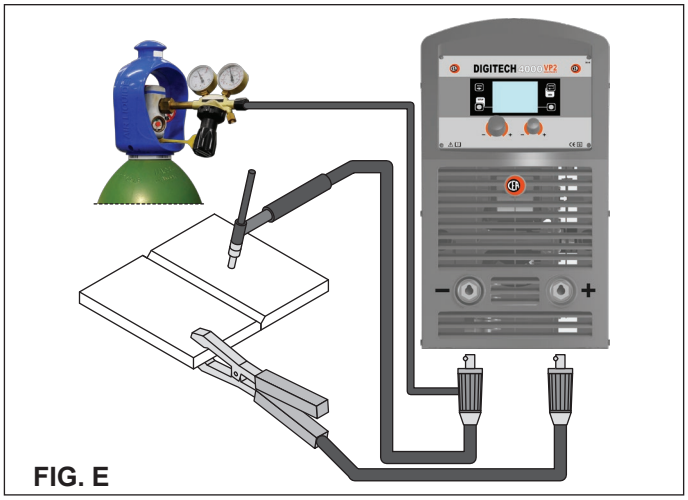


FIG. E

Maintenance

ATTENTION: *Cut off the power supply to the equipment before effecting any internal inspection.*

DIGITECH 3300-4000-5000 VP2

IMPORTANT: *For fully electronic welding machines, removing the dust by sucking it into the machine by the fans, is of utmost importance.*

In order to achieve correct functioning of the machine, proceed as described:
- Periodic removal of accumulations of dirt and dust inside the equipment using compressed air. Do not point the jet of air directly at the electrical parts as this could damage them.
- Periodical inspection for worn cables or loose connections that could cause overheating.

TORCH

The torch is subjected to high temperatures and is also stressed by traction and torsion. We recommend not to twist the wire and not to use the torch to pull the welder. As a result of the above the torch will require frequent maintenance such as:
- Cleaning welding splashes from the gas diffuser so that the gas flows freely.
- Substitution of the contact point when the hole is deformed.
- Cleaning of the wire guide liner using trichloroethylene or specific solvents.
- Check of the insulation and connections of the power cable; the connections must be in good electrical and mechanical condition.

SPARE PARTS

Original spares have been specifically designed for our equipment. The use of spares that are not original may cause variations in the performance and reduce the safety level of the equipment. We are not liable for damage due to use of spare parts that are not original.

Optional

NOTE: *The digital control unit of the generator is fitted with a control recognition device which allows it to identify which device is connected and take action accordingly.*

REMOTE CONTROL ANALOGIC RC
(must be plugged into the relevant connector on the front panel of the HT5 drawing unit)
This command works as an alternative to:
- Completely replaces the ENCODER - A knob on the HT5 feeder's front panel.
- Partially (depending on the welding process selected) replaces the ENCODER - V knob on the HT5 feeder's front panel (for further information see the DH control panel manual).

AIR AND/OR WATER COOLED UP/DOWN TORCH
(must be plugged into the relevant connector on the front panel of the HT5 drawing unit)
This command works as an alternative to:
- The ENCODER - A knob on the HT5 feeder's front panel. In "synergic" MIG MAG and "manual" MIG MAG welding processes, by pressing the two right (+) and left (-) buttons you can regulate the values for the synergic welding parameters.
- The ENCODER - V knob on the HT5 feeder's front panel. In the JOB welding process, by pressing the two right (+) and left (-) buttons you can scroll the welding points set previously.

PUSH-PULL TORCH
(must be plugged into the relevant connector on the front panel of the HT5 drawing unit)
The push-pull torch makes it possible to improve the aluminium wire feed, using the motor on the torch itself. The parameters normally regulated using the ENCODER - A knob on the HT5 feeder's front panel, when this torch is on, are now regulated using the potentiometer on the torch itself.

TORCH WITH DISPLAY (DIGITORCH)
(must be plugged into the relevant connector on the front panel of the HT5 drawing unit)
The new Digitorch keep all information within easy reach. The innovative microcontroller with display integrated into the grip allows the main welding parameters to be displayed and adjusted:
- Current
- Thickness of material
- Wire speed
- Arc length
- Electronic inductance
- Memorised programme number

Press the up/down buttons, depending on the selected operating method, to move from one programme to another or increase and decreases the parameters on the synergic curves in use.

The pointing out of any difficulties and their elimination

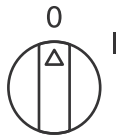
The supply line is attributed with the cause of the most common difficulties. In the case of breakdown, proceed as follows:
1) Check the value of the supply voltage.
2) Check that the power cable is perfectly connected to the plug and the supply switch.
3) Check that the power fuses are not burned out or loose.
4) Check whether the following are defective:
   - The switch that supplies the machine
   - The plug socket in the wall
   - The generator switch

NOTE: *Given the required technical skills necessary for the repair of the generator, in case of breakdown we advise you to contact skilled personnel or our technical service department.*

Replacing the digital interface PCB

Proceed as follows:
- Unscrew the 4 screws fastening the front rack panel.
- Remove both the adjustment knobs.
- Extract wiring connectors from the digital interface PCB.
- Unscrew the nuts and washers on the support.
- Remove the digital interface PCB by lifting it out of its supports.
- Proceed vice versa to assemble the new digital interface PCB.

Meaning of graphic symbols on machine

	Power supply switch
	System for use in environments with increased risk of electroshock
	Product suitable for free circulation in the European Community
	Danger! high voltage
	Grounding
	Positive pole snap-in connector
	Negative pole snap-in connector
	Warning!
	Before using the equipment you should carefully read the instructions included in this manual
	Special disposal

Wiring diagram

Key to the electrical diagram

C2	SNUBBER capacitor for output diodes
CCI	Interconnection cable connector
CHR	Cooling system power connector
Cp	Quick connection protection capacitor
D2	Secondary diode
F-EMC	EMC filter
IL	Mains switch
L2	Secondary inductor
MIH	Primary upper IGBT
MIL	Lower primary IGBT
MV1-2	Fan motor
P1	Main primary transformer (start)
P2	Main primary transformer (end)
R2	Output diode snubber resistor
RP	Primary rectifier
RS	Secondary rectifier
S-INT DIG	Digital interface PCB
S-INV	Inverter PCB
S-LINK	Capacitors PCB
S-PS	Power Source PCB
TA	Hall effect transformer
TH2	Secondary thermostat
TP	Main transformer
VR	Output diodes snubber varistor

Colour key

Ar	Orange
Az	Sky Blue
Bc	White
Bl	Blue
Gg	Grey
Gl	Yellow
GV	Yellow-Green
Mr	Brown
NA	Black-Sky Blue
Nr	Black
RN	Red-Black
Ro	Pink
Rs	Red
Vd	Green
Vl	Violet

2101EA86

S-PS

CN8 Nr, Mr
12V-100mA CN7 Ar, Gl
10V-200mA CN7 Gg, Vl
CN6 Nr, Rs
CN5 Nr, Rs
CN4 Ar, Vd
CN3 Az, Nr, Bl, Ro, Gl, BN, AN
CN2 Rs, Nr

18AWG + VCC
CN1
18AWG 0 VCC

MV1
MV2

CCI
N M L K J I H G F E D C B A
0 VCC, CAN L, CAN H, 0 VCC, 0V POT, +10V POT, 0VDC, 24VDC
Ar Vd Az Gg Gl Mr NA RN Bl Vl Bc Ro Nr Rs

4-6mm²
4-6mm²
+ VCC
0 VCC
S-LINK

S-INV
CN5 TH2
CN4
CN3
CN2
CN1 Az, Nr, Bl, Ro, Gl, BN, AN
0 VCC
+ VCC
MIH
MIL
P1
P2

GV External cover
GV
PE GV
R Nr
S Mr
T Bl
3ph ~ 400V 50/60Hz
IL
R Mr
S
T Ar
W1
V1
U1
RP
F-EMC

CN1 Ar, Gl, Nr, Rs
CN6 1 2 3 4 5 6 7 8
Rs Nr Nr Rs
CN2 Rs, Ro, Bc, Vl
CN3 Vl, Gg, Ro, Bc, Vl, Bl, RN, NA, Mr, Gl, Az, Gg
CN5 Rs Vd Nr Az
CN4
CN8
CN9
S-INT DIG

Az Nr Vd Rs
+15V, -15V, OUT, 0V
TA

Bc Ro Nr Ar Rs GV
1 2 3 4 5 6 7 8 9
n.o. n.o.
0V 400V
DT
Pump
CHR

TP

D2
R2
C2
VR
VR
C2 R2
D2
RS

Rs
Nr
Cp
Cp
L2

DIGITECH VP2 vision PULSE 2 3300 - 4000 - 5000

IT *Lista ricambi* — LEGGERE ATTENTAMENTE

EN *Spare parts list* — READ CAREFULLY

WELDING TOGETHER

CEA COSTRUZIONI ELETTROMECCANICHE ANNETTONI S.p.A.

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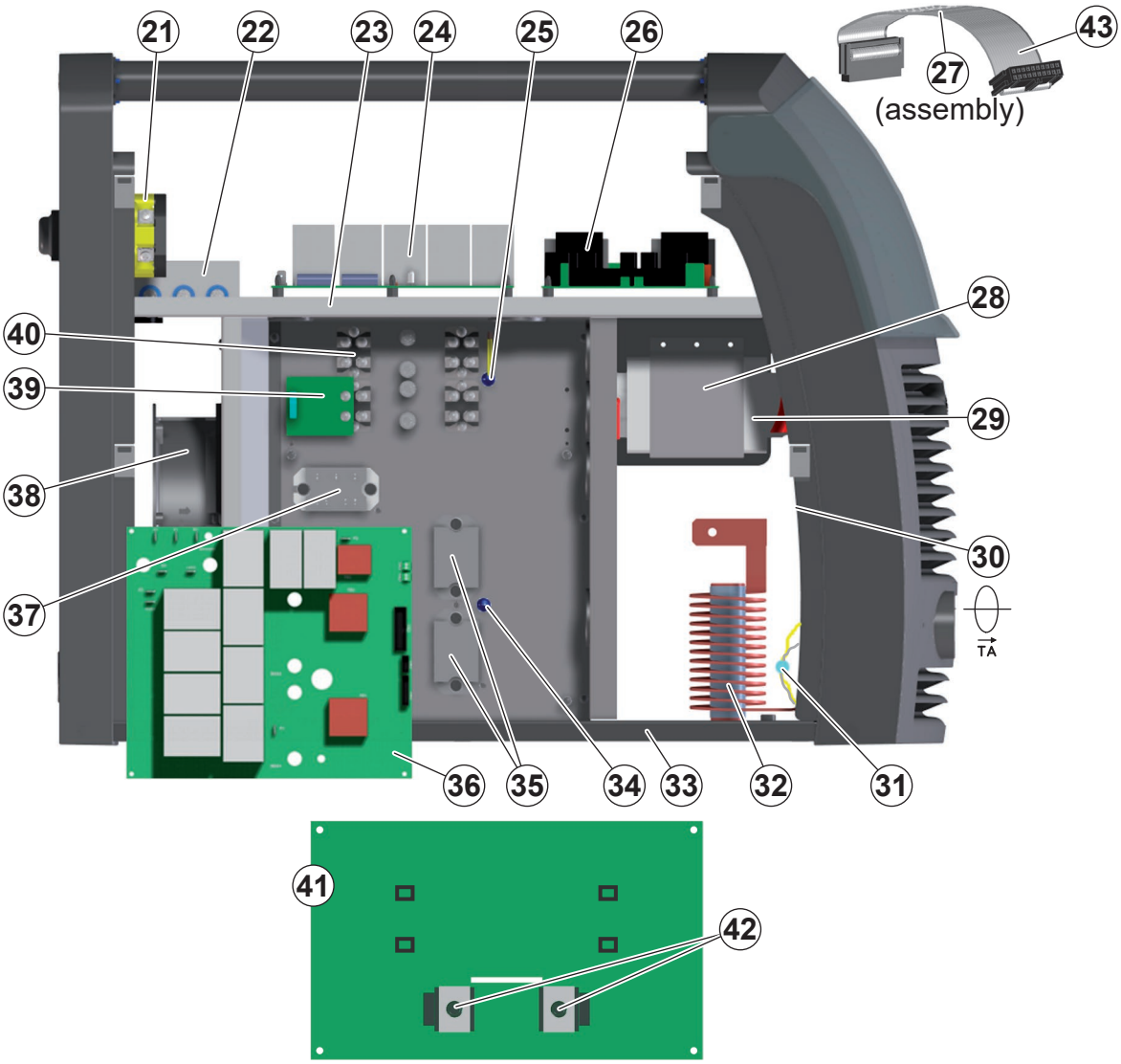
Cas. Post. (P.O.BOX) 205
E-mail: cea@ceaweld.com - web: www.ceaweld.com

Pos.	DIGITECH 3300 VP2	Descrizione	Description
1	352389	Pivot	Pivot
2	352461	Visiera rack frontale	Front rack visor
3	439406	Pannello rack, con adesivo "DIGITECH", senza display	Rack panel with "DIGITECH" sticker without display
4	378020	Display	Display
5	438849	Manopola senza indice Ø22mm	Ø22mm knob without index
6	438888	Manopola senza indice Ø29mm	Ø29mm knob without index
7	468725	Adesivo logo CEA Ø30mm	CEA logo sticker Ø30mm
8	352458	Pannello frontale senza adesivo logo CEA Ø30mm	Front panel without CEA logo sticker Ø30mm
9	403611	Attacco rapido	Quick connection
10	420576	Coperchio lato sinistro	Left cover

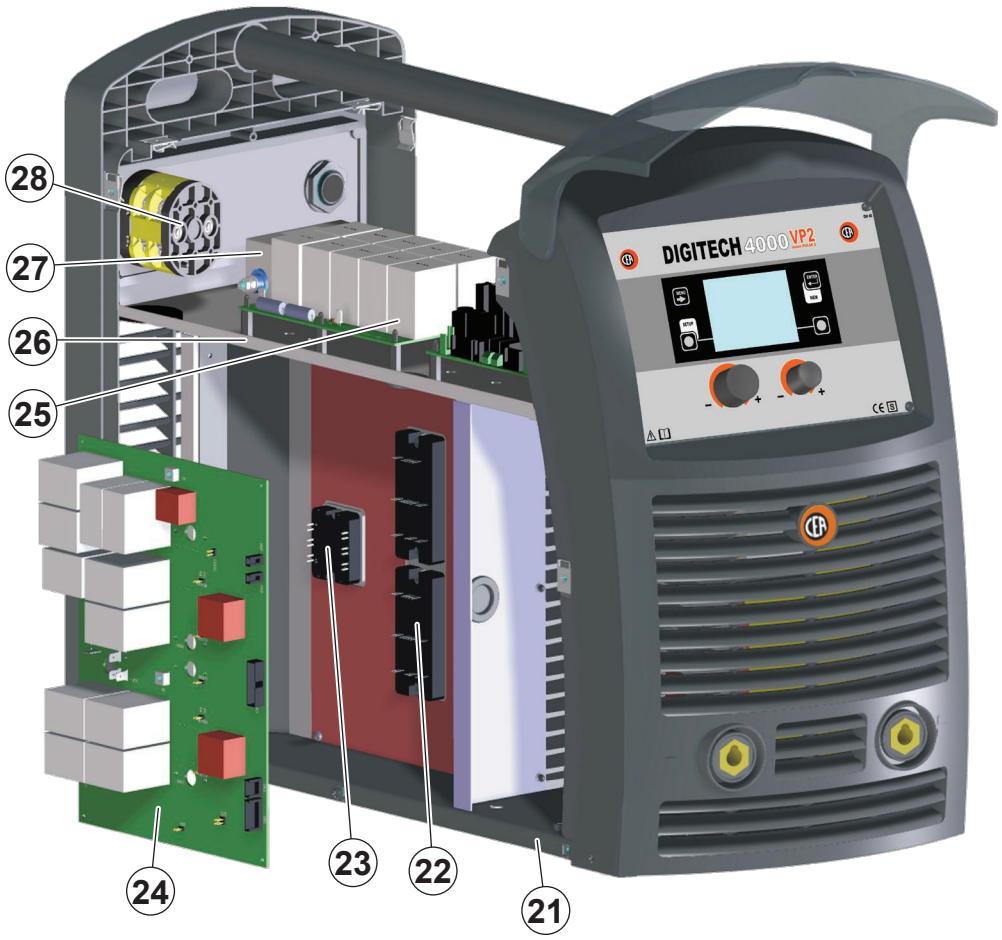
Pos.	DIGITECH 3300 VP2	Descrizione	Description
11	420577	Coperchio superiore	Top cover
12	438111	Maniglia	Handle
13	438720	Manopola interruttore alimentazione	Mains switch knob
14	427883	Pressacavo con ghiera	Cable clamp with lock ring
15	235948	Cavo alimentazione	Mains cable
16	352459	Pannello posteriore senza adesivo logo CEA Ø30mm	Rear panel without CEA logo sticker Ø30mm
17	453145	Connettore cavo interconnessione	Interconnection cable connector
18	403611	Attacco rapido	Quick connection
19	419049	Connettore alimentazione impianto di raffreddamento	Cooling system power connector
20	420575	Coperchio lato destro	Right cover



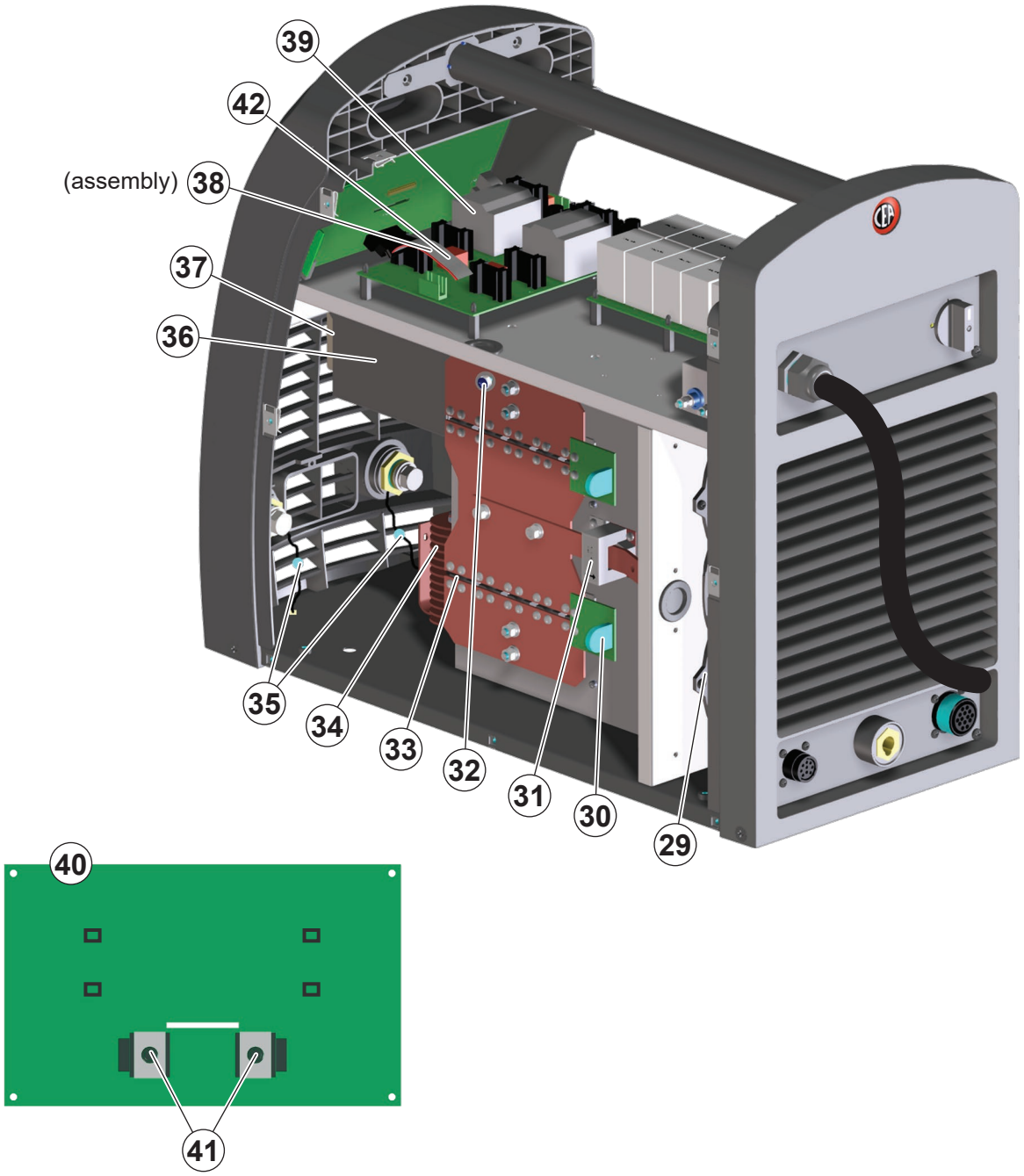
Pos.	DIGITECH 3300 VP2	Descrizione	Description
21	435753	Interruttore alimentazione	Mains switch
22	427667	Filtro EMC	EMC Filter
23	449578	Pianale superiore	Upper plate
24	377133	Scheda condensatori	Capacitors PCB
25	478786	Termostato secondario	Secondary thermostat
26	377113	Scheda power source	Power source PCB
27	413499	Assieme cablaggio ausiliario con flat cable	Auxiliary wiring with flat cable assembly
28	463215	Staffa fissaggio trasformatore	Transformer support
29	481424	Trasformatore principale	Main transformer
30	481954	Trasformatore ad effetto di Hall	Hall effect transformer
31	418874	Condensatore di protezione attacco rapido	Quick connection protection capacitor
32	247494	Induttore secondario	Secondary inductor
33	404931	Basamento	Base
34	478846	Termostato primario	Primary thermostat
35	286019	IGBT primario	Primary IGBT
36	240474	Complessivo inverter primario	Primary inverter assembly
37	455512	Raddrizzatore primario	Primary rectifier
38	486379	Motore ventilatore	Fan motor
39	377105	Scheda di snubber secondaria	Snubber secondary PCB
40	423236	Diodo secondario	Secondary diode
41	377205F	Scheda interfaccia digitale fino a matricola N° AS111005	Digital Interface PCB up to serial number No. AS111005
41	377205NF	Scheda interfaccia digitale a partire da matricola N° AX115001	Digital Interface PCB starting from serial number No. AX115001
42	454150	Encoder	Encoder
43	413424	Flat cable	Flat cable

Pos.	DIGITECH 4000 VP2	DIGITECH 5000 VP2	Descrizione	Description
1	352389	352389	Pivot	Pivot
2	352461	352461	Visiera rack frontale	Front rack visor
3	439407	439408	Pannello rack, con adesivo "DIGITECH", senza display	Rack panel with "DIGITECH" sticker without display
4	378020	378020	Display	Display
5	438849	438849	Manopola senza indice Ø22mm	Ø22mm Knob without index
6	438888	438888	Manopola senza indice Ø29mm	Ø29mm Knob without index
7	468725	468725	Adesivo logo CEA Ø30mm	CEA logo sticker Ø30mm
8	352458	352458	Pannello frontale senza adesivo logo CEA Ø30mm	Front panel without CEA logo sticker Ø30mm
9	403617	403617	Attacco rapido	Quick connection
10	420576	420576	Coperchio lato sinistro	Left cover

Pos.	DIGITECH 4000 VP2	DIGITECH 5000 VP2	Descrizione	Description
11	420577	420577	Coperchio superiore	Top cover
12	438111	438111	Maniglia	Handle
13	438720	438720	Manopola interruttore alimentazione	Mains switch knob
14	427883	427883	Pressacavo con ghiera	Cable clamp with lock ring
15	235999	235943	Cavo alimentazione	Mains cable
16	352459	352459	Pannello posteriore senza adesivo logo CEA Ø30mm	Rear panel without CEA logo sticker Ø30mm
17	453145	453145	Connettore cavo interconnessione	Interconnection cable connector
18	403617	403617	Attacco rapido	Quick connection
19	419049	419049	Connettore alimentazione impianto di raffreddamento	Cooling system power connector
20	420575	420575	Coperchio lato destro	Right cover



Pos.	DIGITECH 4000 VP2	DIGITECH 5000 VP2	Descrizione	Description
21	404931	404931	Basamento	Base
22	286034	286042	IGBT primario	Primary IGBT
23	455508	455508	Raddrizzatore primario	Primary rectifier
24	240466	240468	Complessivo inverter primario	Primary inverter assembly
25	377133	377133	Scheda condensatori	Capacitors PCB
26	449578	449578	Pianale superiore	Upper plate
27	427667	427667	Filtro EMC	EMC Filter
28	435753	435753	Interruttore alimentazione	Mains switch



Pos.	DIGITECH 4000 VP2	DIGITECH 5000 VP2	Descrizione	Description
29	486379	486379	Motore ventilatore	Fan motor
30	377105	377105	Scheda di snubber secondaria	Snubber secondary PCB
31	481954	481954	Trasformatore ad effetto di Hall	Hall effect transformer
32	478786	478786	Termostato secondario	Secondary thermostat
33	423236	423236	Diodo secondario	Secondary diode
34	247494	247494	Induttore secondario	Secondary inductor
35	418887	418887	Condensatore di protezione attacco rapido	Quick connection protection capacitor
36	463215	463216	Staffa fissaggio trasformatore	Transformer support
37	481421	481422	Trasformatore principale	Main transformer
38	413499	413499	Assieme cablaggio ausiliario con flat cable	Auxiliary wiring with flat cable assembly
39	377113	377113	Scheda power source	Power source PCB
40	377205G	377205H	Scheda interfaccia digitale fino a matricola N° AU107015-KM105019	Digital Interface PCB up to serial number No. AU107015-KM105019
40	377205NG	377205NH	Scheda interfaccia digitale a partire da matricola N° AU107016-KM105020	Digital Interface PCB starting from serial number No. AU107016-KM105020
41	454150	454150	Encoder	Encoder
42	413424	413424	Flat cable	Flat cable

IT Ordinazione dei pezzi di ricambio

Per la richiesta di pezzi di ricambio indicare chiaramente:
1) Il numero di codice del particolare
2) Il tipo di impianto
3) La tensione e la frequenza che rileverete dalla targhetta dei dati posta sull'impianto
4) Il numero di matricola

ESEMPIO
N° 2 pezzi, codice n. 486379 - per l'impianto DIGITECH 5000 VP2 - 400 V - 50/60 Hz - Matricola n° .....

EN Ordering spare parts

To ask for spare parts clearly state:
1) The code number of the piece
2) The type of device
3) The voltage and frequency read on the rating plate
4) The serial number of the same

EXAMPLE
N. 2 pieces code n. 486379 - for DIGITECH 5000 VP2 - 400 V - 50/60 Hz - Serial number .....

DH 32 • 33 • 40 • 50

EN *Operator's manual*

READ CAREFULLY

WELDING
TOGETHER

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EN ENGLISH

Introduction

This manual describes the functions of the software operating the following control panels:

- **DH 32**
- **DH 33 + HT5 (manual welding)**
- **DH 33 + RBS15 (robot welding)**
- **DH 40 + HT5 (manual welding)**
- **DH 40 + RBS15 (robot welding)**
- **DH 50 + HT5 (manual welding)**
- **DH 50 + RBS15 (robot welding)**

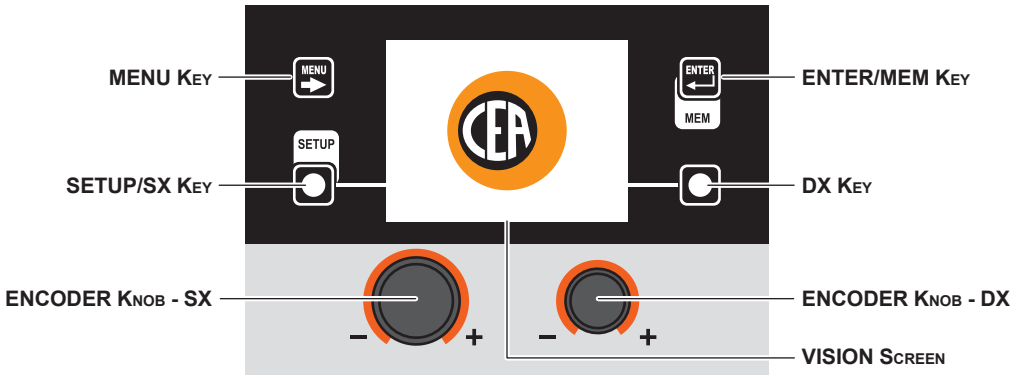
Functioning of the panels listed above is identical (the functions are the same but the characteristics differ depending on the type of machine they are fitted on (e.g.: current regulation field).

General notes

- **Any adjustments/changes made on the welder control panel are also displayed automatically on the drag-and-drop control panel and vice versa, the images on the displays of both weld system components could however differ one from the other, as the displays are consistent with adjustments/changes but also independent as far as visualization is concerned.**
- **The adjustments / changes made are immediately available to the operator, unless indicated otherwise in the manual.**

Welding machine control panel

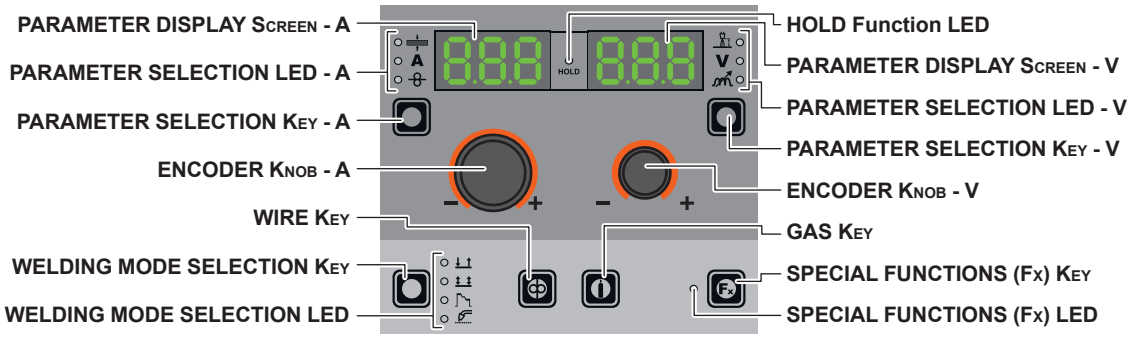
The panel on the generator has four keys, two encoders, and a colour display. The figure below shows the panel. The figure below shows the image of the panel.



"DH" CONTROL PANEL

Wire feeder control panel (not used with DH 32)

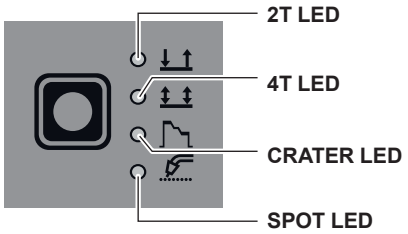
The **HT5** wire feeder panel has 2 keys, 2 encoders and 7 LEDs in the upper section and 4 keys and 5 LEDs in the lower section. The figure below shows the panel. The figure below shows the image of the panel.



"HT5" CONTROL PANEL

WELDING MODE SELECTION Key (not used with DH 32)

Each time this is pushed the following welding modes can be selected (only for pulsed and double pulsed MIG, synergic and manual welding processes) on the feeder (on the welding machine the welding mode is selected using a specific menu - see the appropriate paragraphs) according to a specific sequence:



WELDING MODE SELECTION LED

TWO STROKE (2T)	**2T LED** (↓ ↑) switched on
Pressing the TORCH TRIGGER starts the welding cycle, which will stop when it is released.	
FOUR STROKE (4T)	**4T LED** (↕ ↕) switched on
1) Pressing and releasing the TORCH TRIGGER will start the welding cycle. 2) Pressing and releasing the TORCH TRIGGER will stop the welding cycle.	
CRATER 2T	**2T LED** (↓ ↑) switched on - **CRATER LED** (⌐) switched on
1) When the TORCH TRIGGER is pushed the arc ignites and the parameters assume the values for the “initial crater” for a time set by means of the INITIAL CRATER DURATION (F10) function. After that the parameter values become those for “welding” for a time defined by the INITIAL SLOPE (F11) function. 2) When the TORCH TRIGGER is released the parameters take on the “final crater” values for a time set by means of the FINAL CRATER TIME (F15) function, for a period of time set using the FINAL SLOPE (F12) function.	
CRATER 4T	**4T LED** (↕ ↕) switched on - **CRATER LED** (⌐) switched on
1) When the TORCH TRIGGER is pushed the arc ignites and the parameters assume the values for the “initial crater”. 2) When the TORCH TRIGGER is released the parameters take on the “welding” values for a time set using the INITIAL SLOPE (F11) function. 3) When the TORCH TRIGGER is pushed again the parameters take on the “final crater” values for a time defined using the FINAL SLOPE (F12) function. 4) Releasing the TORCH TRIGGER will end the welding cycle.	
SPOT WELDING	**2T LED** (↓ ↑) switched on - **SPOT LED** (⌒) switched on
This is used so that on pressing the TORCH TRIGGER spot welding is done for a time period set beforehand (in seconds), after which the arc switches off automatically.	
STITCH WELDING	**2T LED** (↓ ↑) switched on - **SPOT LED** (⌒) flashing
To begin stitch welding: 1) Press the TORCH TRIGGER to start the welding current and wire feed. At this point the welding machine automatically carries out a succession of welded portions followed by a pause, according to the times entered previously. This procedure stops automatically only when the TORCH TRIGGER is released. 2) When the TORCH TRIGGER is pushed again the torch begins a new interval welding cycle.	
CYCLE	**4T LED** (↕ ↕) switched on - **CRATER LED** (⌐) flashing
■ STANDARD 1) When the TORCH TRIGGER is pushed the arc ignites and the parameters assume the values for the “initial crater”. 2) When the TORCH TRIGGER is released the parameters take on the “welding” values for a time set using the INITIAL SLOPE (F11) function. 3) When the TORCH TRIGGER is pushed and released within **1** second, the parameters activated are those set for the “cycle” functions. The operation can be repeated by switching between the “cycle” level and the “welding” level an infinite number of times. 4) When the TORCH TRIGGER is pushed and held down for a period of time of **more than 1** second, the parameters activated are those with the values for the “final crater” for a period of time defined using the FINAL SLOPE (F12) function. Releasing the TORCH TRIGGER will end the welding cycle. **■ ADVANCED** In ADVANCED operating mode, in addition to the settings described above, the welder is able to set the up “slope” (FIRST SLOPE (F18)) and down “slope” (SECOND SLOPE (F21)) for the “cycle” level.	

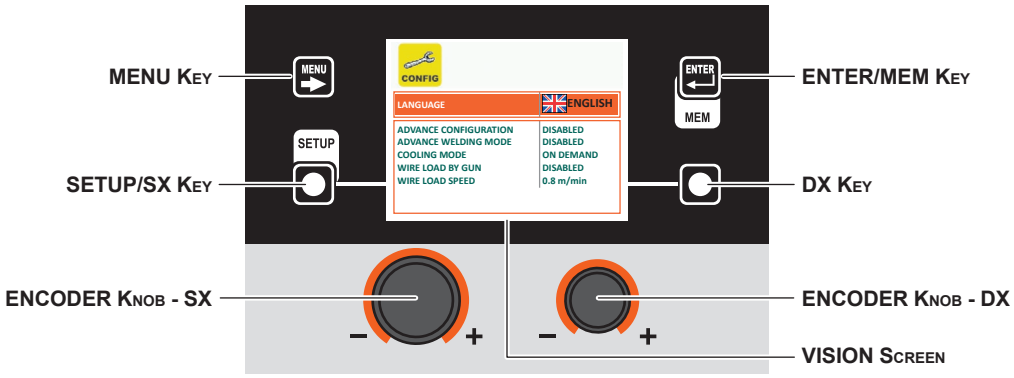
Switching on the welding machine

When the unit is switched on the welding machine's **VISION SCREEN**, shows the logo as shown below:

VISION Screen

During this operation, on the DH panel:
- All the keys and all the encoders are disabled.

Language selection



"DH" CONTROL PANEL

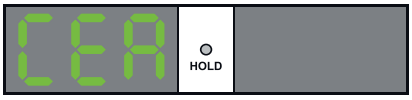
On the **VISION SCREEN** the DEFAULT language set by is ENGLISH.
To select another language, proceed as follows:
- Open the *SETUP Menu* by holding the **SETUP/SX KEY** down for at least **5** consecutive seconds.
- Select the *CONFIG Menu* by rotating the **ENCODER KNOB - SX** until the correct icon is reached.
- Push the **ENTER/MEM KEY** to open the *CONFIG Menu*.
- Select the *LANGUAGE Sub-menu* by rotating the **ENCODER KNOB - SX**.
- Select the language required by rotating the **ENCODER KNOB - DX**.
- Push the **MENU KEY** to close the *CONFIG Menu*.
- Push the **MENU KEY** to close the *SETUP Menu*.

Once this has closed, the **VISION SCREEN** will show the various text / screens in the language selected.

Screen saver

After a pause or period of inactivity of the welding machine:
- The **VISION SCREEN** shows the SCREEN SAVER.
- On both the HT5 displays for the wire feeder, "CEA" appears and scrolls continuously.

VISION Screen



Display HT5 (not used with DH 32)

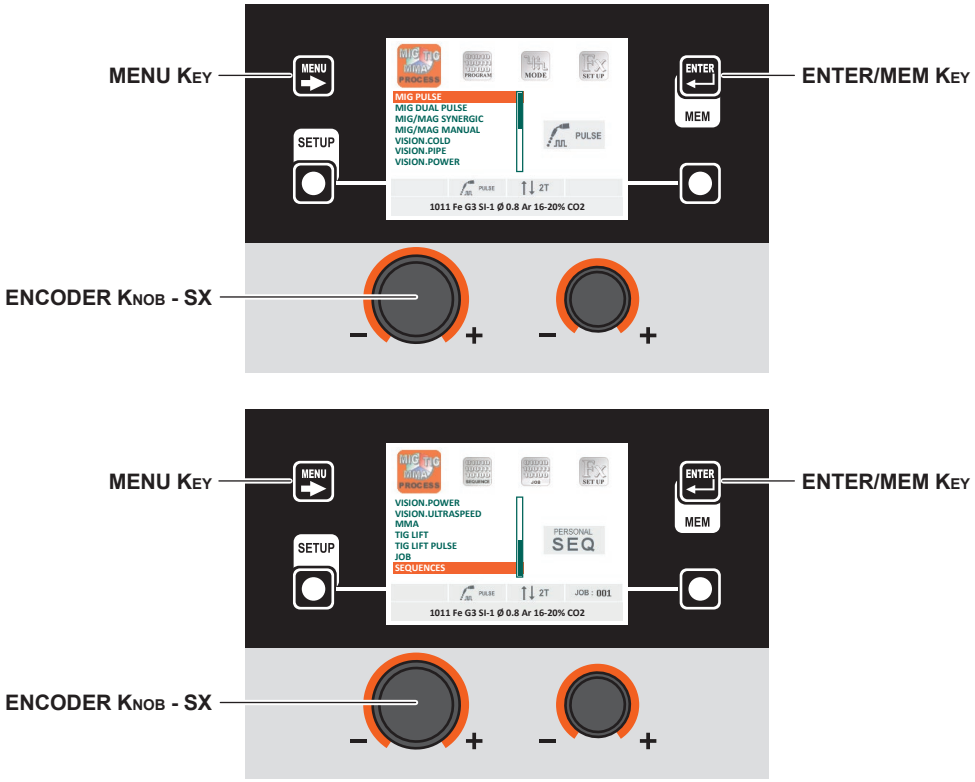
The *SCREEN SAVER* mode can be exited in one of the following ways:
- By pushing any key or moving any knob on the welding machine's panel or that of the wire feeder.
- Starting the welding process, in which case the welding is activated in context.
- Moving a remote control.

When the *SCREEN SAVER* is exited, the welding machine goes back to the working condition prior to activation of the screen saver.

WELDING PROCESS SELECTION Menu (PROCESS)

"DH" CONTROL PANEL

To access the *PROCESS SELECTION Menu (PROCESS)* push the **MENU KEY**.



MENU KEY	Provides access to the next menus.
ENCODER KNOB - SX	Select the welding process.
ENTER/MEM KEY	This key is used to access *PRE-SETTING* for the process selected.

The following processes are available:
- MIG PULSE
- MIG DUAL PULSE
- MIG-MAG SYNERGIC
- MIG-MAG MANUAL
- vision.COLD (if activated)
- vision.PIPE (if activated)
- vision.POWER (if activated)
- vision.ULTRASPEED (if activated)
- vision.PULSE-UP (if activated)
- vision.PULSE-POWER (if activated)
- vision.PULSE-RUN (if activated)
- MMA
- TIG LIFT
- TIG LIFT PULSE
- JOB (if JOBS have been created)
- SEQUENCES (if SEQUENCES have been created)

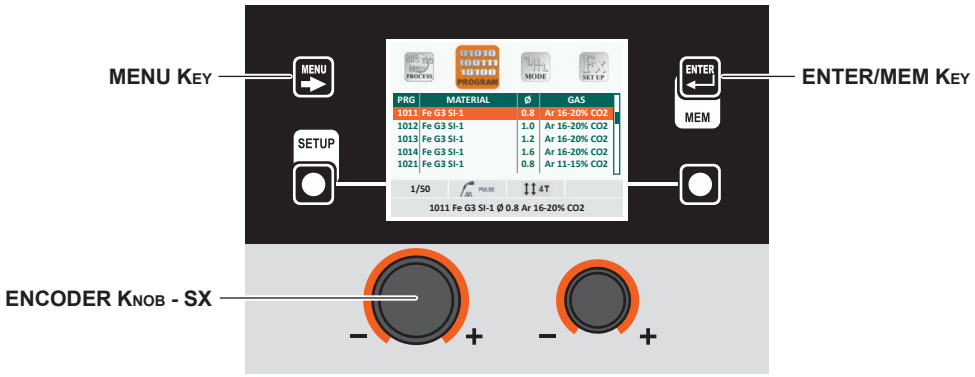
"HT5" CONTROL PANEL (not used with DH 32)

It is not possible to access the *PROCESS SELECTION Menu (PROCESS)* via the HT5 control panel.

1 - PROGRAM SELECTION Menu (PROGRAM)

"DH" CONTROL PANEL

To access the *PROGRAM SELECTION Menu (PROGRAM)* push the **MENU KEY**.



MENU KEY	Used to access subsequent menus if there are any.
ENCODER KNOB - SX	Select the welding program.
ENTER/MEM KEY	Used to access *PRE-SETTING* of the program selected.

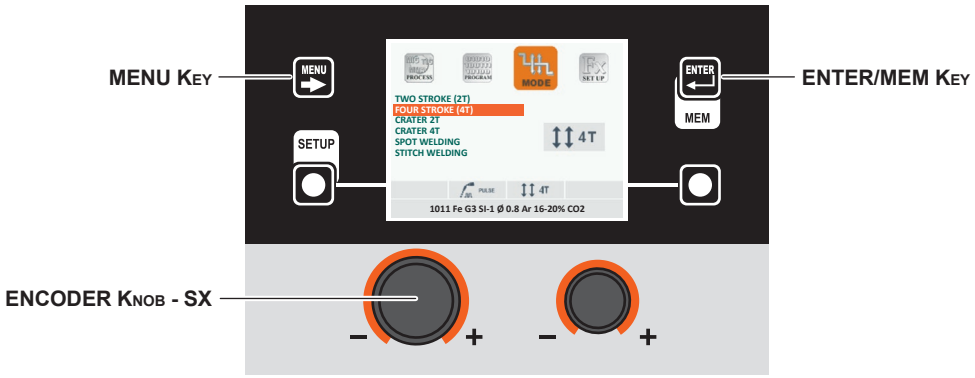
"HT5" CONTROL PANEL (not used with DH 32)

It is not possible to access the *PROGRAM SELECTION Menu (PROGRAM)* via the HT5 control panel.

2 - WELDING MODE SELECTION Menu (MODE)

"DH" CONTROL PANEL

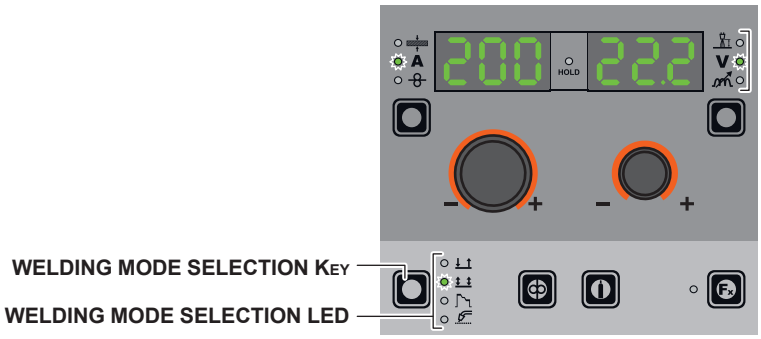
To access the *WELDING MODE SELECTION Menu (MODE)* push the **MENU KEY**.



MENU KEY	Used to access subsequent menus if there are any.
ENCODER KNOB - SX	Select the welding mode.
ENTER/MEM KEY	Used to access the *PRE-SETTING* for the program selected beforehand, in the *MODE* chosen.

"HT5" CONTROL PANEL (not used with DH 32)

To access the *WELDING MODE SELECTION Menu (MODE)* push the **WELDING MODE SELECTION KEY**.

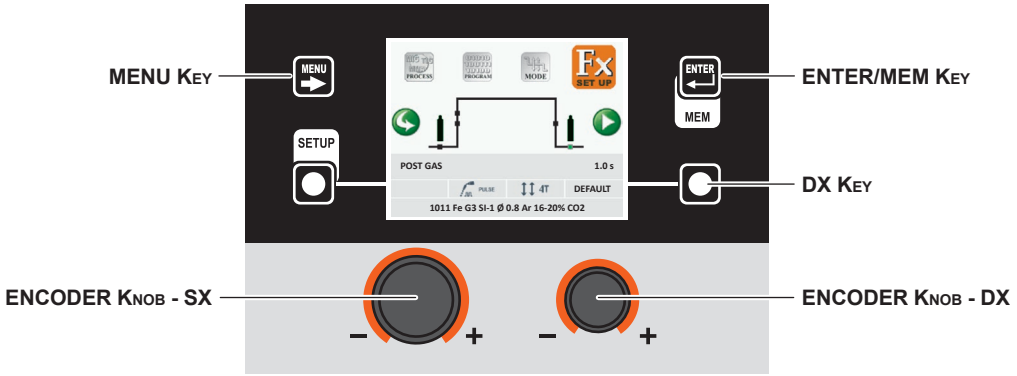


WELDING MODE SELECTION KEY	Scrolls the various welding modes available in succession.
WELDING MODE SELECTION LED	Displays the welding mode selected.

3 - SPECIAL FUNCTIONS Menu (SET UP Fx)

"DH" CONTROL PANEL

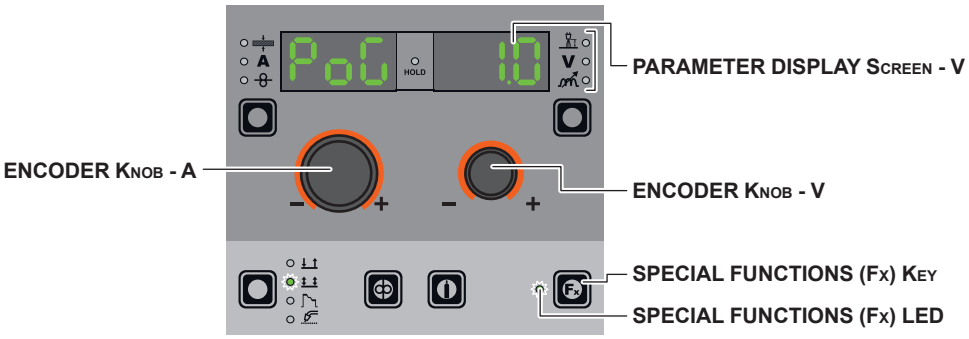
To access the *SPECIAL FUNCTIONS Menu (SET UP Fx)* push the **MENU KEY**.



MENU KEY	Used to access subsequent menus if there are any.
ENCODER KNOB - SX	Used to select the various *SPECIAL FUNCTIONS (Fx)*.
ENTER/MEM KEY	Used to access the *PRE-SETTING* for the program selected beforehand, in the *MODE* chosen and with the changes made to the *SPECIAL FUNCTIONS (Fx)*.
DX KEY	If held down for **2** seconds it makes it possible to return the value for the *SPECIAL FUNCTION (Fx)* selected to the DEFAULT value.
ENCODER KNOB - DX	Used to change the selected *SPECIAL FUNCTION (Fx)* value.

"HT5" CONTROL PANEL (not used with DH 32)

To access the *SPECIAL FUNCTIONS Menu (SET UP Fx)* push the **SPECIAL FUNCTIONS (Fx) KEY**.



PARAMETER DISPLAY SCREEN - A	Displays the selected *SPECIAL FUNCTION (Fx)*.
ENCODER KNOB - A	Used to select the various *SPECIAL FUNCTIONS (Fx)*.
PARAMETER DISPLAY SCREEN - V	Displays the value for the selected *SPECIAL FUNCTION (Fx)*.
ENCODER KNOB - V	Used to change the selected *SPECIAL FUNCTION (Fx)* value.
SPECIAL FUNCTIONS (Fx) KEY	Only enables entering and exit afterwards from the *SPECIAL FUNCTIONS Menu (SET UP Fx)* on the HT5 panel and not on the DH panel.
SPECIAL FUNCTIONS (Fx) LED	The operator must press the **SPECIAL FUNCTIONS (SET UP Fx) KEY** for it to light up and be included in the *SPECIAL FUNCTIONS Menu (SET UP Fx)*.

The *SPECIAL FUNCTIONS (Fx)* related to the *MIG-MAG synergic*, *MIG pulsed*, *MIG double pulsed*, *vision.PIPE*, *vision.COLD*, *vision.POWER*, and *vision.ULTRASPEED* processes, correspond to the feeder (when fitted) as follows:

Table A

Fx ADJUSTABLE SPECIAL FUNCTIONS

Special function	PARAMETER DISPLAY Screen - A	PARAMETER DISPLAY Screen - V		Welding mode							
		Default	Range	TWO STROKE (2T)	FOUR STROKE (4T)	CRATER 2T	CRATER 4T	SPOT WELDING	STITCH WELDING	CYCLE STANDARD	CYCLE ADVANCED
PRE GAS	PrG	0.1s	(0.0 - 2.0)s	●	●	●	●	●	●	●	●
STARTING SPEED	StS	0	-30 - +30	●	●	●	●	●	●	●	●
HOT START	Hot	0	-30 - +30	●	●	●	●	●	●	●	●
STITCH TIME	F05	1.0s	(0.1 - 20.0)s						●		
STITCH PAUSE	F06	1.0s	(0.1 - 20.0)s						●		
SPOT TIME	F07	3.0s	(0.1 - 20.0)s					●			
INITIAL CURRENT	F08	20%	-50% - +100%			●	●			●	●
INITIAL ARC LENGTH	F09	0	-30 - +30			● (*)	● (*)			● (*)	● (*)
INITIAL CRATER TIME	F10	1.0s	(0.0 - 20.0)s			●					
INITIAL SLOPE	F11	1.0s	(0.0 - 20.0)s			●	●			●	●
FINAL SLOPE	F12	1.0s	(0.0 - 20.0)s			●	●			●	●

(continued)

Fx ADJUSTABLE SPECIAL FUNCTIONS

Special function	PARAMETER DISPLAY Screen - A	PARAMETER DISPLAY Screen - V		Welding mode							
		Default	Range	TWO STROKE (2T)	FOUR STROKE (4T)	CRATER 2T	CRATER 4T	SPOT WELDING	STITCH WELDING	CYCLE STANDARD	CYCLE ADVANCED
FINAL CURRENT	F13	-30%	-99% - +50%			●	●			●	●
FINAL ARC LENGTH	F14	0	-30 - +30			● (*)	● (*)			● (*)	● (*)
FINAL CRATER TIME	F15	0.0s	(0.0 - 20.0)s			●					
BURN BACK	bub	0	-30 - +30	●	●	●	●	●	●	●	●
POST GAS	PoG	1.0s	(0.0 - 10.0)s	●	●	●	●	●	●	●	●
FIRST SLOPE (I1 TO I2)	F18	0.05s	(0.00 - 2.00)s								●
CYCLE CURRENT	F19	20%	-99% - +100%							●	●
CYCLE ARC LENGTH	F20	0	-30 - +30							●	●
SECOND SLOPE (I2 TO I1)	F21	0.05s	(0.00 - 2.00)s								●
FIRST SLOPE (I1 TO I2)	F22 *	5	(0 - 100)	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)
DUAL PULSE DELTA CURRENT	F23 *	50%	-99% - +500%	●	●	●	●	●	●	●	●
DUAL PULSE ARC LENGTH	F24 *	0	-30 - +30	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)
DUAL PULSE BALANCE	F25 *	0%	-40% - +40%	●	●	●	●	●	●	●	●
DUAL PULSE FREQUENCY	F26 *	2.7Hz	(0.1 - 5.0)Hz	●	●	●	●	●	●	●	●
SECOND SLOPE (I2 TO I1)	F27 *	5	(0 - 100)	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)	● (°)
SLOPE JOB	F28	0.5s	(0.1 - 20.0) s	●	●	●	●	●	●	●	●
DYNAMICS	din **	0	-30 - +30	●	●	●	●	●	●	●	●
FIRST SLOPE (I1 TO I2)	F32 ***	5	(0 - 100)	●	●	●	●	●	●	●	●
BALANCE	F25 ***	0	-40 - +40	●	●	●	●	●	●	●	●
FREQUENCY vision.PULSE-UP vision.PULSE-POWER vision.PULSE-RUN	F26 ***	 1.0 Hz 5.0 Hz 8.0 Hz	 (0.1 - 10.0)Hz (0.1 - 20.0)Hz (0.1 - 20.0)Hz	 ● ● ●	 ● ● ●	 ● ● ●	 ● ● ●	 ● ● ●	 ● ● ●	 ● ● ●	 ● ● ●
SECOND SLOPE (I2 TO I1)	F33 ***	5	(0 - 100)	●	●	●	●	●	●	●	●

* Only for the *MIG double pulsed* process.
** Only for the *vision.ULTRASPEED* process.
*** Only for *vision.PULSE-UP*, *vision.PULSE-RUN*, *vision.PULSE-POWER* processes.

WARNING:
- The STANDARD or ADVANCED welding CYCLE mode can only be activated by opening the *ADVANCED SETUP Menu - ADVANCED MODE - CYCLE* (for further explanations, see the relevant paragraph).
- (*) This *SPECIAL FUNCTION* is only to be found if the *ADVANCED CRATER* function has been activated by accessing the *ADVANCED SETUP Menu - ADVANCED MODE - CRATER - ADVANCED* (for further explanations, see the relevant paragraph).
- (°) These *SPECIAL FUNCTIONS* can only be activated for all the welding machine's welding modes but going to the *ADVANCED SETTINGS Menu - ADVANCED MODE - DOUBLE PULSED - ADVANCED* (for further explanations, see the relevant paragraph).
- It is possible to access editing of the *SPECIAL FUNCTIONS (Fx)* during welding.
- Some of the values edited will be used immediately by the operator, while others will be active from when the next welding task begins.
- The *HOLD* function is not active within the *SPECIAL FUNCTIONS Menu (SET UP Fx)*.

The *SPECIAL FUNCTIONS (Fx)* for the *MIG-MAG manual* process correspond to the feeder (when fitted) as follows:

Table B

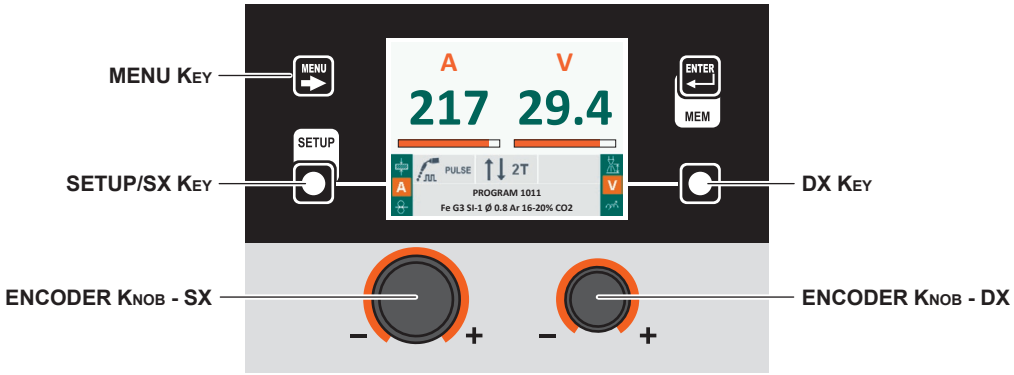
Fx ADJUSTABLE SPECIAL FUNCTIONS

Special function	PARAMETER DISPLAY Screen - A	PARAMETER DISPLAY Screen - V		Welding mode							
		Default	Range	TWO STROKE (2T)	FOUR STROKE (4T)	CRATER 2T	CRATER 4T	SPOT WELDING	STITCH WELDING	CYCLE STANDARD	CYCLE ADVANCED
PRE GAS	PrG	0.1s	(0.0 - 2.0)s	●	●	●	●	●	●	●	●
STARTING SPEED	StS	0	-30 - +30	●	●	●	●	●	●	●	●
HOT START	Hot	0	-30 - +30	●	●	●	●	●	●	●	●
STITCH TIME	F05	1.0s	(0.1 - 20.0)s						●		
STITCH PAUSE	F06	1.0s	(0.1 - 20.0)s						●		
SPOT TIME	F07	3.0s	(0.1 - 20.0)s					●			
INITIAL WIRE SPEED	F08	5.0m/min	(0.6-MAX)m/min			●	●			●	●
INITIAL VOLTAGE	F09	25.0V	(10 - MAX)V			●	●			●	●
INITIAL CRATER TIME	F10	1.0s	(0.0 - 20.0)s			●					
INITIAL SLOPE	F11	1.0s	(0.0 - 20.0)s			●	●			●	●
FINAL SLOPE	F12	1.0s	(0.0 - 20.0)s			●	●			●	●
FINAL WIRE SPEED	F13	5.0m/min	(0.6-MAX)m/min			●	●			●	●
FINAL VOLTAGE	F14	25.0V	(10 - MAX)V			●	●			●	●
FINAL CRATER TIME	F15	0.0s	(0.0 - 5.0)s			●					
BURN BACK	bub	0	-30 - +30	●	●	●	●	●	●	●	●
POST GAS	PoG	1.0s	(0.0 - 10.0)s	●	●	●	●	●	●	●	●
FIRST SLOPE (I_1 TO I_2)	F18	0.05s	(0.00 - 2.00)s								●
CYCLE WIRE SPEED	F19	5.0m/min	(0.6-MAX)m/min							●	●
CYCLE VOLTAGE	F20	25.0V	(10 - MAX)V							●	●
SECOND SLOPE (I_2 TO I_1)	F21	0.05s	(0.00 - 2.00)s								●
SLOPE JOB	F28	0.5s	(0.1 - 20.0) s	●	●	●	●	●	●	●	●

WARNING:
- The STANDARD or ADVANCED welding CYCLE mode can only be activated by opening the *ADVANCED SETUP Menu - ADVANCED MODE - CYCLE* (for further explanations, see the relevant paragraph).
- It is possible to access editing of the *SPECIAL FUNCTIONS (Fx)* during welding.
- Some of the values edited will be used immediately by the operator, while others will be active from when the next welding task begins.
- The *HOLD* function is not active within the *SPECIAL FUNCTIONS Menu (SET UP Fx)*.

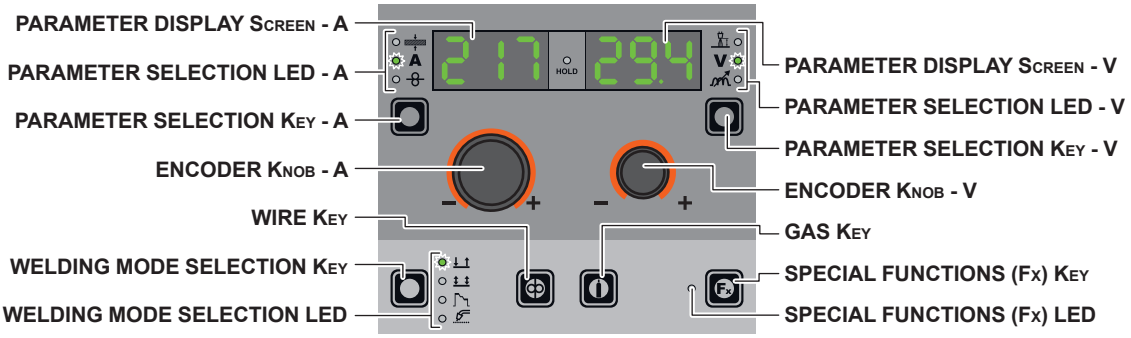
4 - PRE-SETTING

"DH" CONTROL PANEL



MENU KEY	Used to access the *PROCESS SELECTION Menu (PROCESS)* and subsequent menus, as applicable.
SETUP/SX KEY	Scrolls in succession *THICKNESS OF WELDED ITEM* (⎓) - *WELDING CURRENT* (**A**) - *WIRE SPEED* (⚙) - *WELDING POWER* [kJ/min] (**W**) only on the **VISION SCREEN** (this operation is activated when the key is released).
ENCODER KNOB - SX	Adjusts the parameter selected using the **SETUP/SX KEY**.
DX KEY	Scrolls in succession *ARC LENGTH ADJUSTMENT* (⏚) - *WELDING VOLTAGE* (**V**) - *ELECTRONIC INDUCTANCE* (〰) only on the **VISION SCREEN** (this operation is activated when the key is released).
ENCODER KNOB - DX	Adjusts the parameter selected using the **DX KEY**.

"HT5" CONTROL PANEL (not used with DH 32)



PARAMETER DISPLAY SCREEN - A	Shows the value for the parameter indicated by the **PARAMETER SELECTION LED - A**.
PARAMETER SELECTION LED - A	The LED unit shows the welding parameter selected using the **PARAMETER SELECTION KEY - A**. Note: The *WELDING POWER* selected is indicated by the flashing LED ⎓.
PARAMETER SELECTION KEY - A	Scrolls in succession *THICKNESS OF WELDED ITEM* (⎓) - *WELDING CURRENT* (**A**) - *WIRE SPEED* (⚙) - *WELDING POWER* [kJ/min] (⎓ flashing).
ENCODER KNOB - A	Adjusts the parameter displayed by the **PARAMETER DISPLAY SCREEN - A**.
WIRE KEY	Activates loading of the wire.
WELDING MODE SELECTION KEY	Scrolls the various welding modes in succession.
WELDING MODE SELECTION LED	The LED unit indicates the welding mode selected according to the **VISION SCREEN**.
PARAMETER DISPLAY SCREEN - V	Shows the parameter indicated by the **PARAMETER SELECTION LED - V**.
PARAMETER SELECTION LED - V	The LED unit indicates the welding parameter selected using the **PARAMETER SELECTION KEY - V**.
PARAMETER SELECTION KEY - V	Scrolls in succession *ARC LENGTH ADJUSTMENT* (⏚) - *WELDING VOLTAGE* (**V**) - *ELECTRONIC INDUCTANCE* (〰).

(continued)

ENCODER KNOB - V	Adjusts the parameter displayed by the **PARAMETER DISPLAY SCREEN - V**.
GAS KEY	Activates the flow of gas.
SPECIAL FUNCTIONS (FX) KEY	Only enables entering and exit afterwards from the *SPECIAL FUNCTIONS Menu (SET UP Fx)* on the HT5 panel and not on the DH panel.

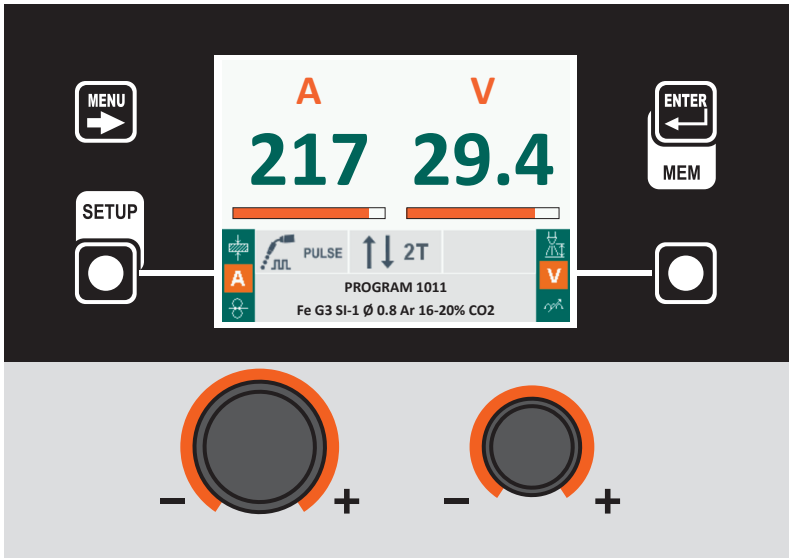
HOW TO SET THE WELDING PARAMETERS

- Select the suitable process and program.
- Select the thickness of the piece to be welded.
- Proceed with welding.
- Set the following parameters:
  - Arc length: the correct length is when optimum welding can be achieved with the shortest possible arc.
  - Electronic inductance: the correct inductance is when the correct heat can be added to the welding pool (positive values result in a hotter pool, whereas negative values result in a cooler pool).
  - Delta current (only DUAL PULSE MIG processes, **vision.PULSE-UP**, **vision.PULSE-RUN** and **vision.PULSE-POWER** when activated): mixed processes are regulated like any other synergic process, beginning with the thickness of the workpiece to be welded, adjust the Delta Current until the desired weld is obtained.

5 - WELDING

When welding takes place the fields in the displays show the same values as those included for pre-setting **with the difference that now they are those measured**.

"DH" CONTROL PANEL

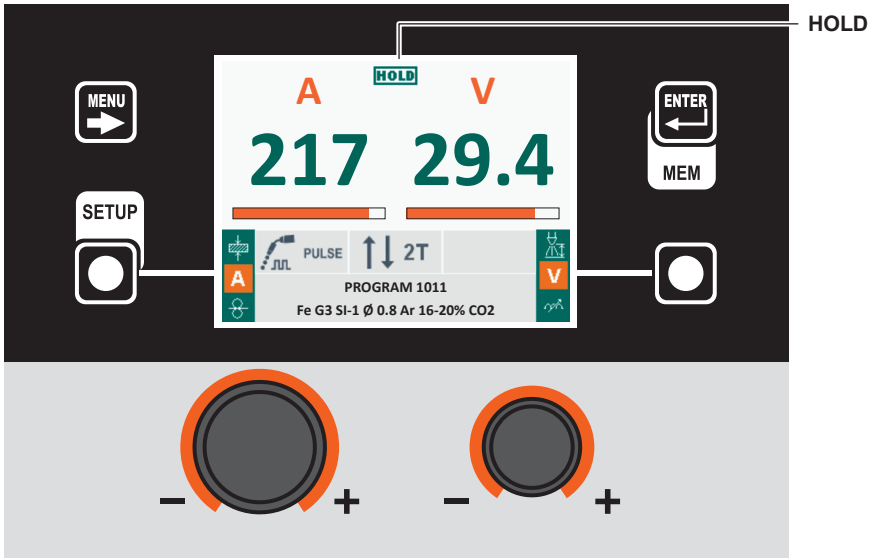


"HT5" CONTROL PANEL (not used with DH 32)

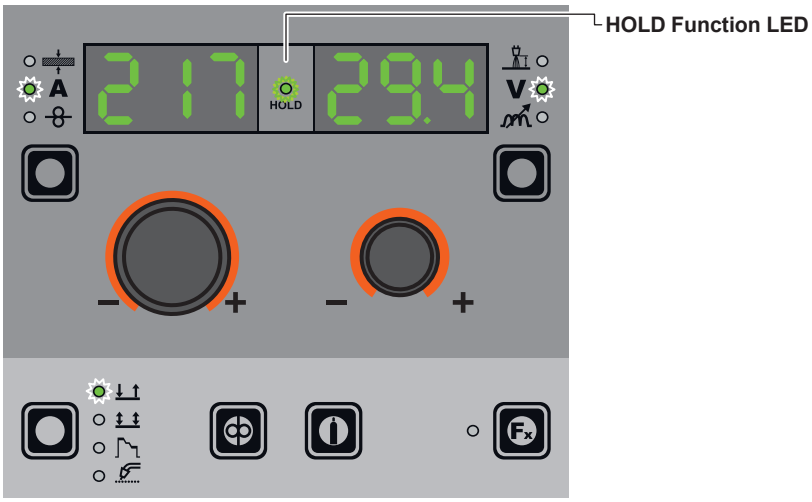
6 - HOLD

When welding ends the fields in the display must show the same values that were displayed during welding, with the difference that they are now values defined as *HOLD*. In this phase the **VISION SCREEN** shows the *HOLD* box highlighted, while on the HT5 panel the **HOLD FUNCTION LED** flashes until the end of the *HOLD Function*. If the *HOLD Function* is Interrupted via a panel (e.g. DH), it will also be interrupted automatically on the other (HT5) and vice-versa.

"DH" CONTROL PANEL

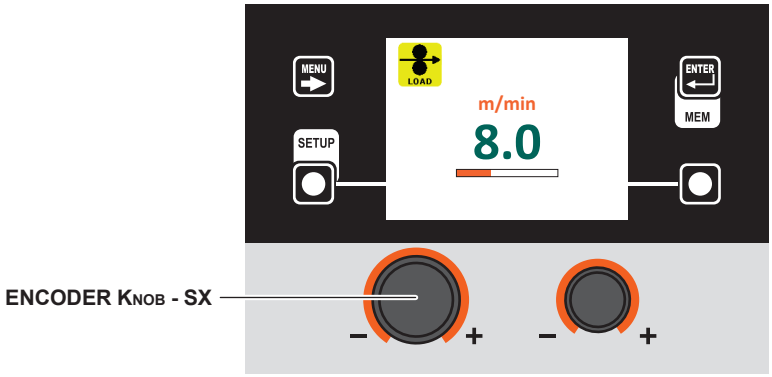


"HT5" CONTROL PANEL (not used with DH 32)



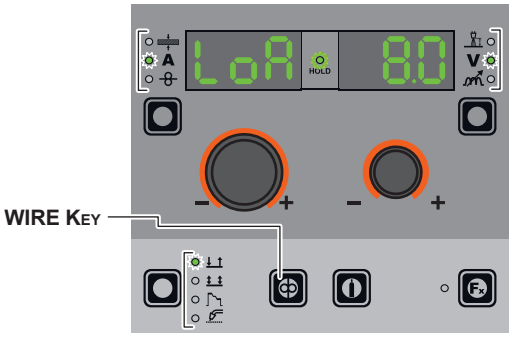
7 - WIRE LOADING

The purpose of this menu it to allow the operator to load the welding wire and set the loading speed, **only when welding is not is progress**. If the wire loading function is activated (also see the CONFIG menu), to enable it hold the torch button or the loading button on the feeder down for 4 seconds.



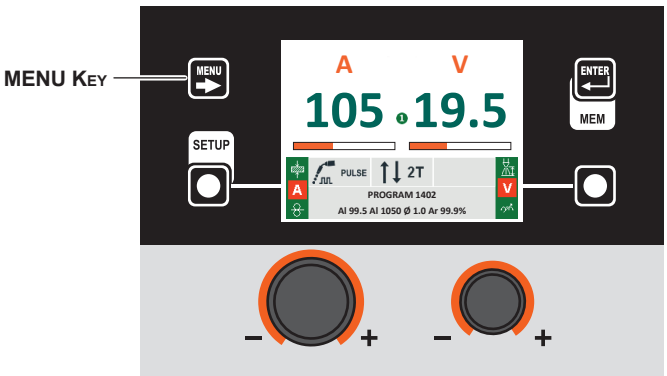
Rotate the **ENCODER KNOB - SX** the wire loading speed can be changed from 1,0 to 25,0 (default 8,0). The other keys and knobs are not active.
When the torch button or the wire loading key on the HT5 feeder are released, the machine goes back to its previous status. **For models not fitted with an HT5 feeder, that is DH 32, loading is done by pushing the relevant (wire test / gas test) button, located in the space in which the wire coil is housed.**

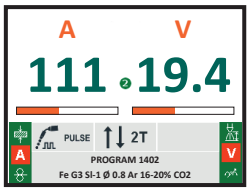
NOTE: *Wire loading cannot be accessed when their are errors on the machine or in the set-up procedure.*



8 - DOUBLE FEEDER

Two feeders can be connected to the same generator simultaneously. Once everything has been configured correctly, as indicated in the HT5 operator's manual and set as indicated in the equipment layout section, the machine's display shows one of the following two images.
The number ❶ or ❷ on the display indicates that the feeder in use at that time is number 1 or 2. If no number is displayed, this means that only one feeder has been configured.





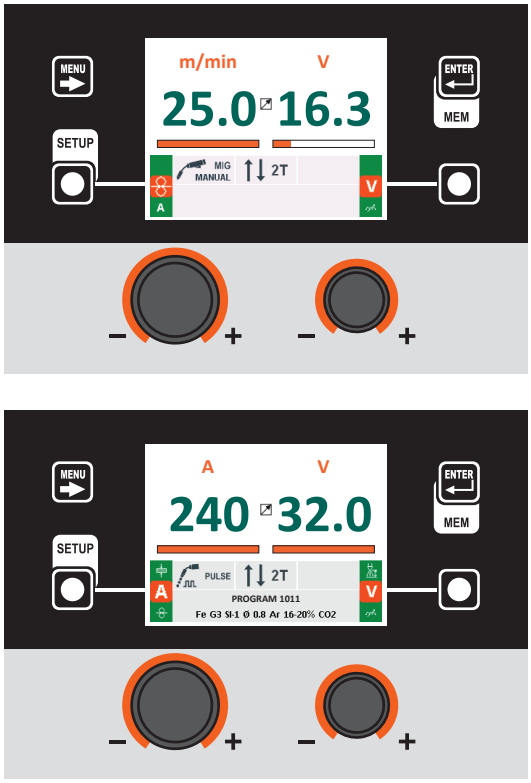
MENU KEY	To switch from one feeder to the other, hold down the **MENU KEY**. (*)

(*) Switching from one feeder to the other can also be done by pushing the relevant torch button.

9 - REMOTE CONTROL

The following types of remote control are in place:
- **RC 178** for regulating synergy / arc length (in synergic MIG) to regulate the wire/tension (in manual MIG).
- **TORCH PUSH PULL** for regulating synergy.

The inclusion of these types of remote control is highlighted by the relevant symbol on the panel, as shown in the photos that follow.



- **TORCH UP/DOWN** for regulating synergy / JOB number.
- **DIGITORCH** for regulating synergy / arc length / JOB number.

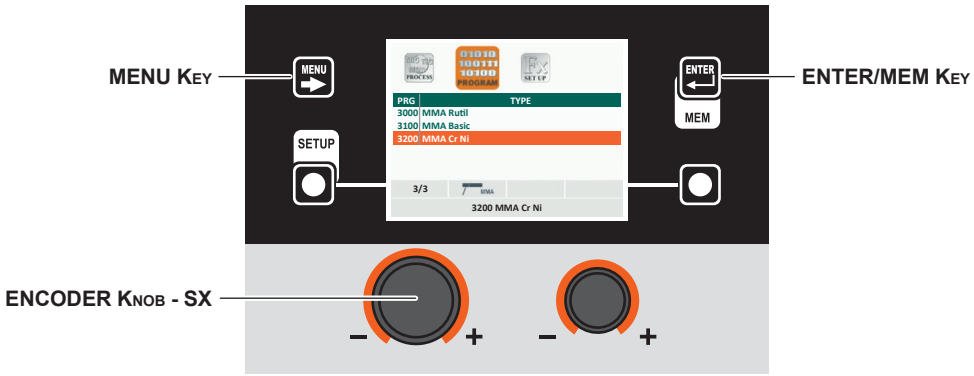
MMA

Select the MMA welding process by using the **MENU** KEY as explained on page 7.

1 - PROGRAM SELECTION Menu (PROGRAM) MMA

"DH" CONTROL PANEL

To access the *PROGRAM SELECTION Menu (PROGRAM)* push the **MENU KEY**.



MENU KEY	Used to access subsequent menus if there are any.
ENCODER KNOB - SX	Select the welding program.
ENTER/MEM KEY	Used to access *PRE-SETTING* of the program selected.

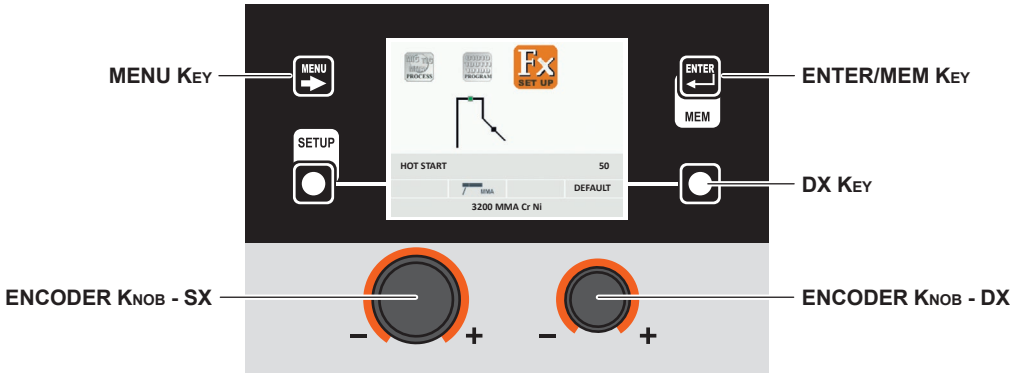
"HT5" CONTROL PANEL (not used with DH 32)

It is not possible to access the *PROGRAM SELECTION Menu (PROGRAM)* via the HT5 control panel.

2 - SPECIAL FUNCTIONS Menu (SET UP Fx) MMA

"DH" CONTROL PANEL

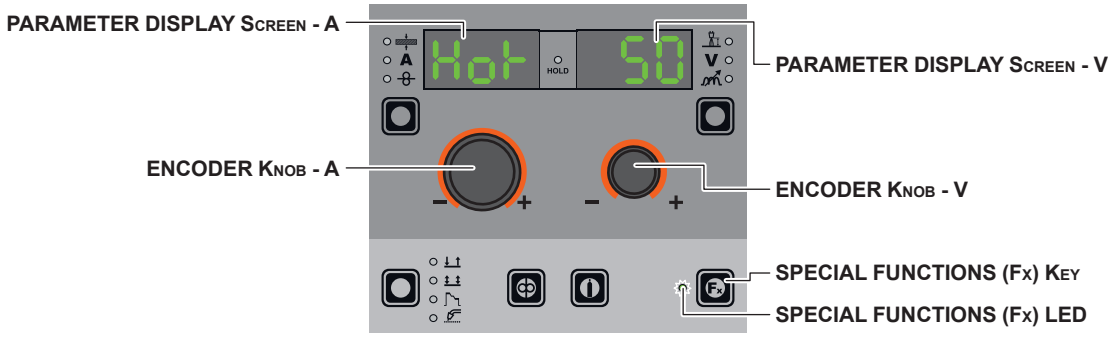
To access the *SPECIAL FUNCTIONS Menu (SET UP Fx)* push the **MENU KEY**.



MENU KEY	Used to access subsequent menus if there are any.
ENCODER KNOB - SX	Used to select the various *SPECIAL FUNCTIONS (Fx)*.
ENTER/MEM KEY	Used to access the *PRE-SETTING* with the changes made to the *SPECIAL FUNCTIONS (Fx)*.
DX KEY	If held down for **2** seconds it makes it possible to return the value for the *SPECIAL FUNCTION (Fx)* selected to the DEFAULT value.
ENCODER KNOB - DX	Used to change the selected *SPECIAL FUNCTION (Fx)* value.

"HT5" CONTROL PANEL (not used with DH 32)

To access the *SPECIAL FUNCTIONS Menu (SET UP Fx)* push the **SPECIAL FUNCTIONS (Fx) KEY**.



PARAMETER DISPLAY SCREEN - A	Displays the selected *SPECIAL FUNCTION (Fx)*.
ENCODER KNOB - A	Used to select the various *SPECIAL FUNCTIONS (Fx)*.
PARAMETER DISPLAY SCREEN - V	Displays the value for the selected *SPECIAL FUNCTION (Fx)*.
ENCODER KNOB - V	Used to change the selected *SPECIAL FUNCTION (Fx)* value.
SPECIAL FUNCTIONS (Fx) KEY	Only enables entering and exit afterwards from the *SPECIAL FUNCTIONS Menu (SET UP Fx)* on the HT5 panel and not on the DH panel.
SPECIAL FUNCTIONS (Fx) LED	The operator must press the **SPECIAL FUNCTIONS (SET UP Fx) KEY** for it to light up and be included in the *SPECIAL FUNCTIONS Menu (SET UP Fx)*.

The *SPECIAL FUNCTIONS (Fx)* related to the *MMA* process correspond as follows to those on the wire feeder:

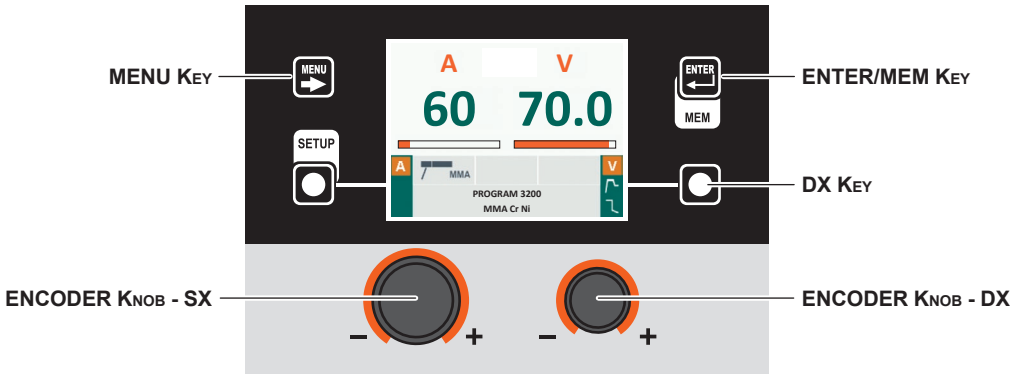
Fx ADJUSTABLE SPECIAL FUNCTIONS

Special function	PARAMETER DISPLAY Screen - A	PARAMETER DISPLAY Screen - V	
		Default	Range
HOT START	Hot	50	(0 - 100)
ARC FORCE	ArC	50	(0 - 100)

WARNING:
- It is possible to access editing of the *SPECIAL FUNCTIONS (Fx)* during welding.
- Some of the values edited will be used immediately by the operator, while others will be active from when the next welding task begins.
- The *HOLD* function is not active within the *SPECIAL FUNCTIONS Menu (SET UP Fx)*.

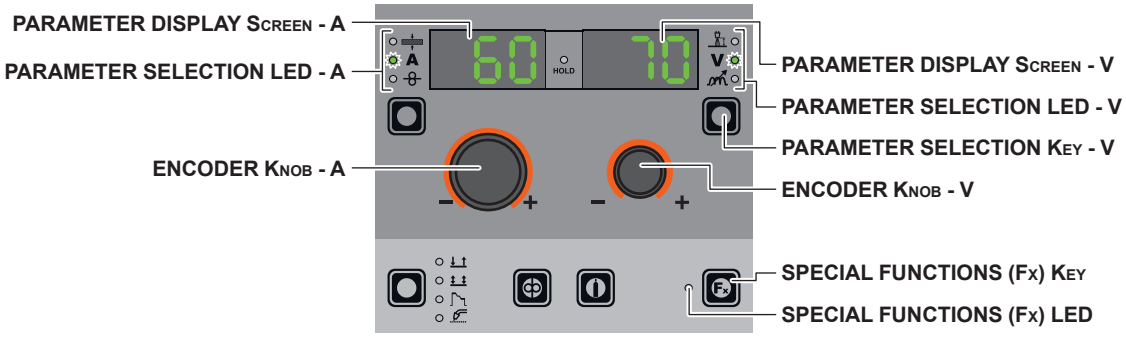
3 - PRE-SETTING MMA

"DH" CONTROL PANEL



MENU KEY	Used to access the *PROCESS SELECTION Menu (PROCESS)* and subsequent menus, as applicable.
ENCODER KNOB - SX	Adjust the value of the parameter *WELDING CURRENT* (**A**).
DX KEY	Scrolls in succession *WELDING VOLTAGE* (**V**) - *HOT START* (⎍) - *ARC FORCE* (⎍) only on the **VISION SCREEN** (the operation is activated when the key is released).
ENCODER KNOB - DX	Adjusts the parameter selected using the **DX KEY** (only *HOT START* (⎍) - *ARC FORCE* (⎍)).

"HT5" CONTROL PANEL (not used with DH 32)



PARAMETER DISPLAY SCREEN - A	Displays the value of the parameter *WELDING CURRENT* (**A**).
PARAMETER SELECTION LED - A	The LED unit shows the *WELDING CURRENT* (**A**) switched on.
ENCODER KNOB - A	Adjust the value of the parameter *WELDING CURRENT* (**A**).

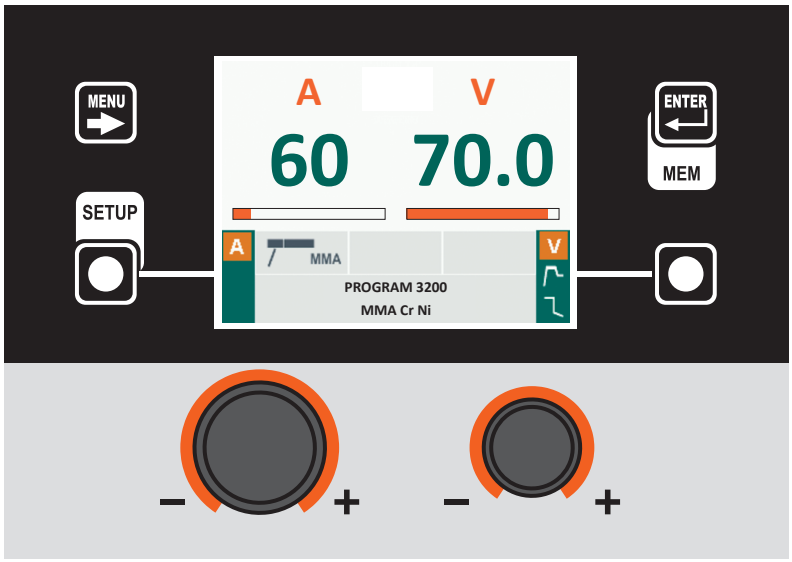
(continued)

PARAMETER DISPLAY SCREEN - V	Shows the parameter indicated by the **PARAMETER SELECTION LED - V**. The *WELDING VOLTAGE* shown is the measured voltage.
PARAMETER SELECTION LED - V	The LED unit indicates the welding parameter selected using the **PARAMETER SELECTION KEY - V**.
PARAMETER SELECTION KEY - V	Scrolls in succession the parameters *HOT START* (⎍) - *WELDING VOLTAGE* (**V**) - *ARC FORCE* (⋔).
ENCODER KNOB - V	Adjusts the parameter displayed by the **PARAMETER DISPLAY SCREEN - V**.
SPECIAL FUNCTIONS (Fx) KEY	Only enables entering and exit afterwards from the *SPECIAL FUNCTIONS Menu (SET UP Fx)* on the HT5 panel and not on the DH panel.

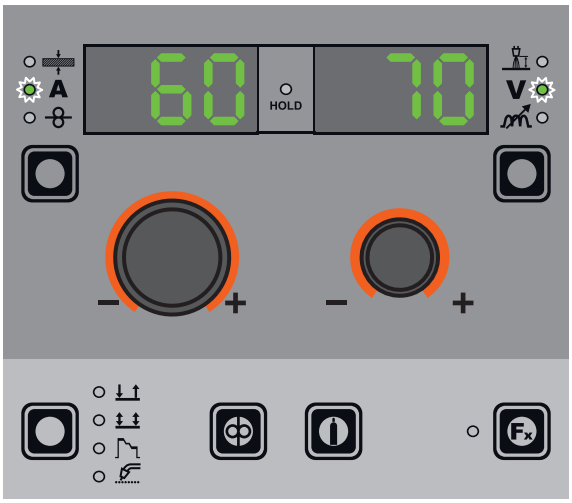
4 - WELDING MMA

When welding takes place the fields in the displays show the same values as those included for pre-setting **with the difference that now they are those measured**.

"DH" CONTROL PANEL



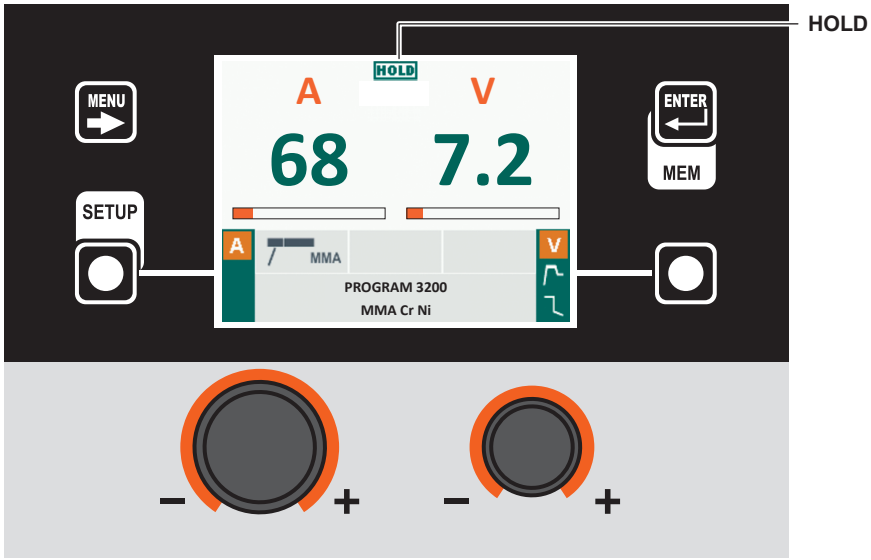
"HT5" CONTROL PANEL (not used with DH 32)



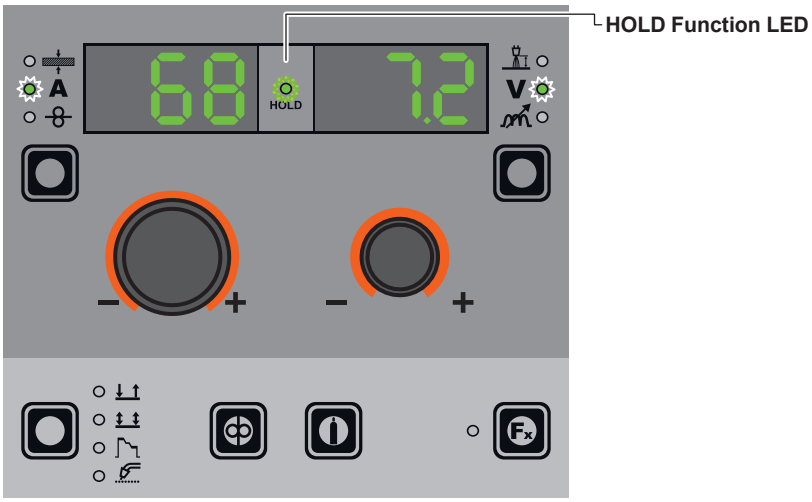
5 - HOLD MMA

When welding ends the fields in the display must show the same values that were displayed during welding, with the difference that they are now values defined as *HOLD*. In this phase the **VISION SCREEN** shows the *HOLD* box highlighted, while on the HT5 panel the **HOLD FUNCTION LED** flashes until the end of the *HOLD Function*. If the *HOLD Function* is Interrupted via a panel (e.g. DH), it will also be interrupted automatically on the other (HT5) and vice-versa.

"DH" CONTROL PANEL



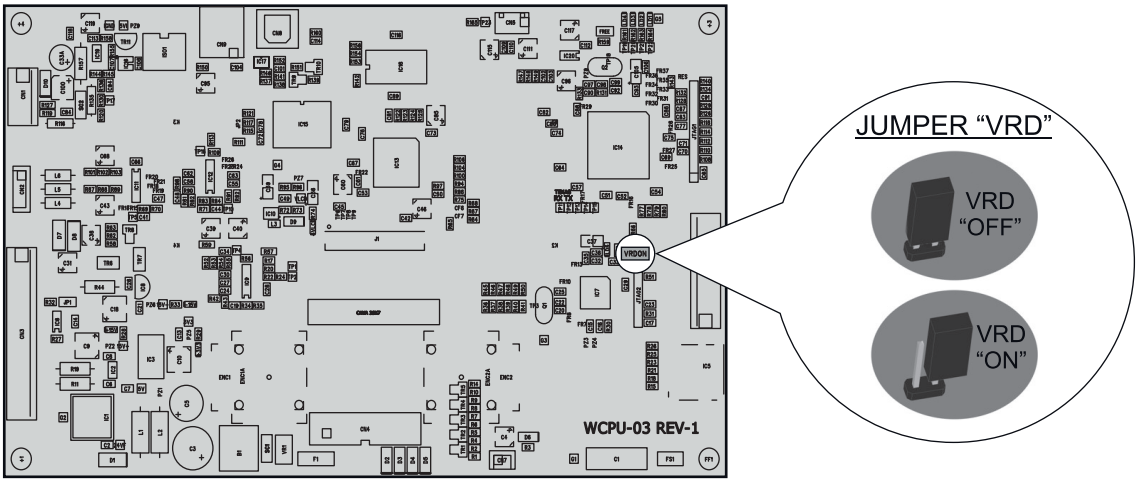
"HT5" CONTROL PANEL (not used with DH 32)



6 - ACTIVATING THE VRD DEVICE MMA

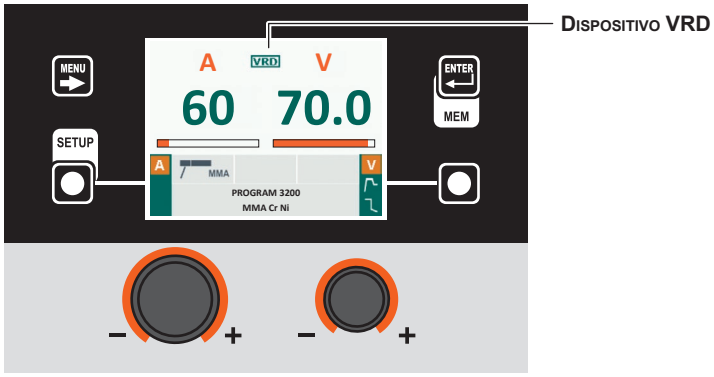
The Voltage Reduction Device (VRD) is a safety device that reduces voltage. It prevents voltages forming on the output terminals that may pose a danger to people. The standard settings and those defined beforehand by do not provide for the VRD to be active on the welding machine and so the **VISION SCREEN** does not normally provide any indication.

If the operator wishes to weld in MMA using the VRD device (which must be done with the welding machine switched off), they must:
1) Use a suitable screwdriver to unscrew the 4 screws that fix the DH control panel to the welding machine.
2) Remove the "VRD" JUMPER on the DIGITAL INTERFACE PCB (see figure).



3) Use a suitable screwdriver to tighten the 4 screws that fix the DH control panel to the welding machine.
4) Start the welding machine by turning the switch on the rear panel to position I.

When it switches on, but with the machine in stand-by, the DH control panel shows that the VRD device is active (indication on the **VISION SCREEN** green colour - see enclosed image: MMA - PRE-SETTING).

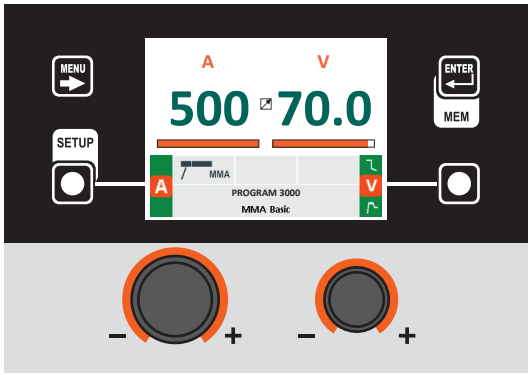


During the welding phase the VRD device is activated (indication on the **VISION SCREEN** red colour (does not indicate malfunctioning of the welding machine) - see enclosed image: MMA - WELDING) and when welding is ended the voltage will be reduced within a maximum time of **0,3** seconds.

7 - REMOTE CONTROL

There is only the remote control indicated below:
- **RC 178** for regulating current, using the knob marked by the letter **A**.

The inclusion of this remote control is highlighted by the relevant symbol on the panel, as shown in the photo that follows.



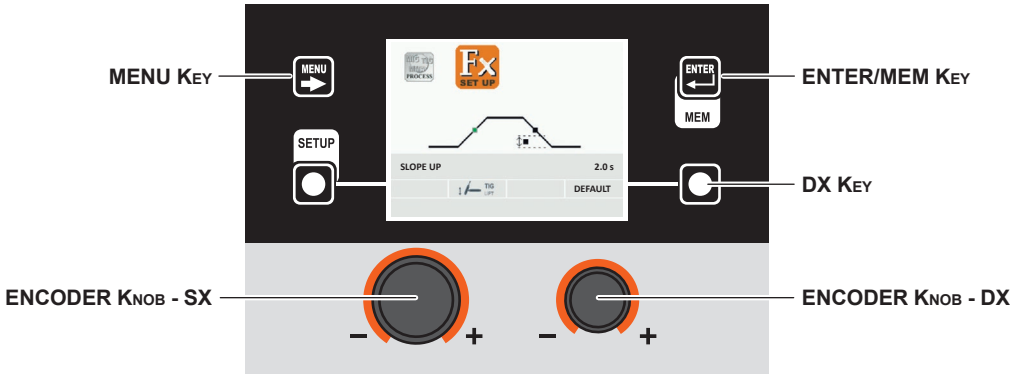
TIG LIFT

Select the TIG LIFT welding process by using the **MENU** KEY as explained on page 7.

1 - SPECIAL FUNCTIONS Menu (SET UP Fx) TIG LIFT

"DH" CONTROL PANEL

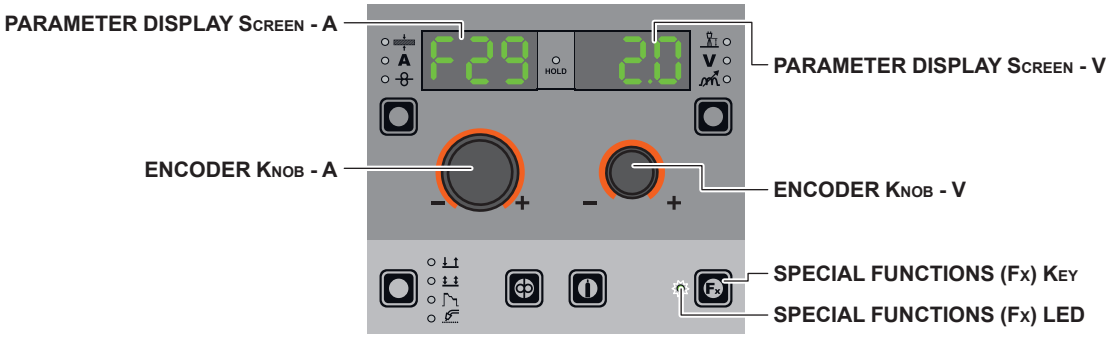
To access the *SPECIAL FUNCTIONS Menu (SET UP Fx)* push the **MENU KEY**.



MENU KEY	Used to access subsequent menus if there are any.
ENCODER KNOB - SX	Used to select the various *SPECIAL FUNCTIONS (Fx)*.
ENTER/MEM KEY	Used to access the *PRE-SETTING* with the changes made to the *SPECIAL FUNCTIONS (Fx)*.
DX KEY	If held down for **2** seconds it makes it possible to return the value for the *SPECIAL FUNCTION (Fx)* selected to the DEFAULT value.
ENCODER KNOB - DX	Used to change the selected *SPECIAL FUNCTION (Fx)* value.

"HT5" CONTROL PANEL (not used with DH 32)

To access the *SPECIAL FUNCTIONS Menu (SET UP Fx)* push the **SPECIAL FUNCTIONS (Fx) KEY**.



PARAMETER DISPLAY SCREEN - A	Displays the selected *SPECIAL FUNCTION (Fx)*.
ENCODER KNOB - A	Used to select the various *SPECIAL FUNCTIONS (Fx)*.
PARAMETER DISPLAY SCREEN - V	Displays the value for the selected *SPECIAL FUNCTION (Fx)*.
ENCODER KNOB - V	Used to change the selected *SPECIAL FUNCTION (Fx)* value.
SPECIAL FUNCTIONS (Fx) KEY	Only enables entering and exit afterwards from the *SPECIAL FUNCTIONS Menu (SET UP Fx)* on the HT5 panel and not on the DH panel.
SPECIAL FUNCTIONS (Fx) LED	The operator must press the **SPECIAL FUNCTIONS (SET UP Fx) KEY** for it to light up and be included in the *SPECIAL FUNCTIONS Menu (SET UP Fx)*.

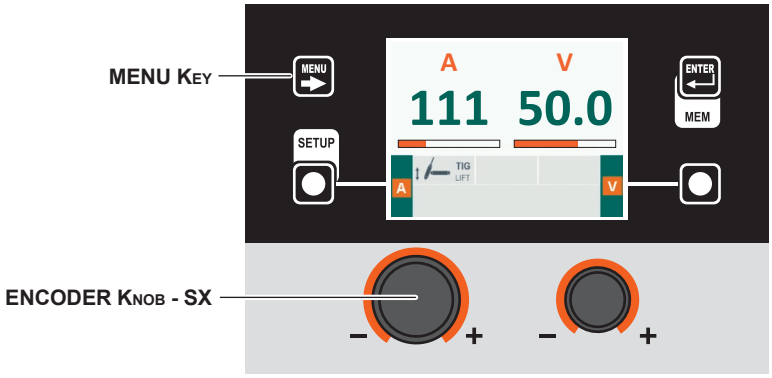
The *SPECIAL FUNCTIONS (Fx)* related to the *TIG LIFT* process correspond as follows to those on the wire feeder:

Fx ADJUSTABLE SPECIAL FUNCTIONS			
Special function	**PARAMETER DISPLAY Screen - A**	**PARAMETER DISPLAY Screen - V**	
		Default	**Range**
UP SLOPE	F29	0.0s	(0.0 - 5.0)s
DOWN SLOPE	F30	2.0s	(0.0 - 8.0)s
TIG PULSE DELTA CURRENT	F23	-50%	(-100 ÷ 1000)%
TIG PULSE BALANCE	F25	0	(-40 ÷ 40)%
TIG PULSE FREQUENCY	F26	100.0Hz	(0.1 ÷ 500.0)Hz
SWS VOLTAGE THRESHOLD	F31	0	-30 - +30

WARNING:
- It is possible to access editing of the *SPECIAL FUNCTIONS (Fx)* during welding.
- Some of the values edited will be used immediately by the operator, while others will be active from when the next welding task begins.
- The *HOLD* function is not active within the *SPECIAL FUNCTIONS Menu (SET UP Fx)*.

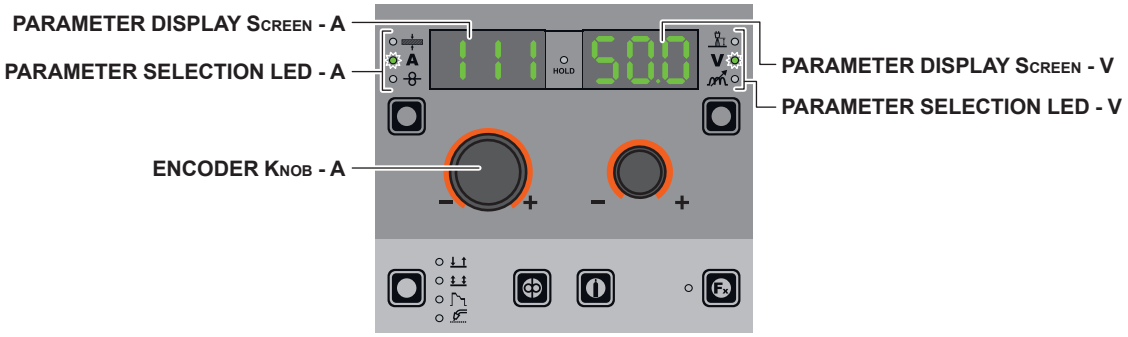
2 - PRE-SETTING — TIG LIFT

"DH" CONTROL PANEL



MENU Key	Used to access the *PROCESS SELECTION Menu (PROCESS)* and subsequent menus, as applicable.
ENCODER Knob - SX	Adjust the value of the parameter *WELDING CURRENT* (**A**).

"HT5" CONTROL PANEL (not used with DH 32)



PARAMETER DISPLAY Screen - A	Displays the value of the parameter *WELDING CURRENT* (**A**).
PARAMETER SELECTION LED - A	The LED unit shows the *WELDING CURRENT* (**A**) switched on.

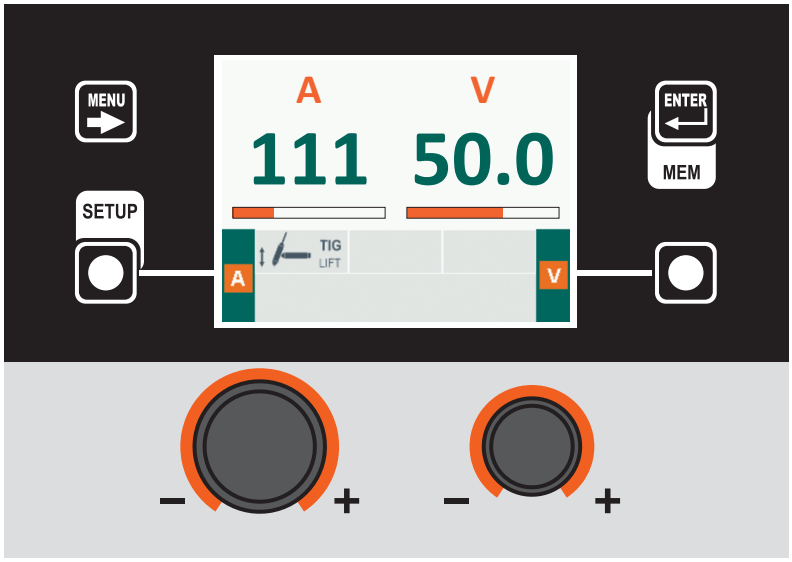
(continued)

ENCODER KNOB - A	Adjust the value of the parameter *WELDING CURRENT* (**A**).
PARAMETER DISPLAY SCREEN - V	Displays the value of the parameter *WELDING VOLTAGE* (**V**). The *WELDING VOLTAGE* shown is the measured voltage.
PARAMETER SELECTION LED - V	The LED unit shows the *WELDING VOLTAGE* (**V**) switched on.

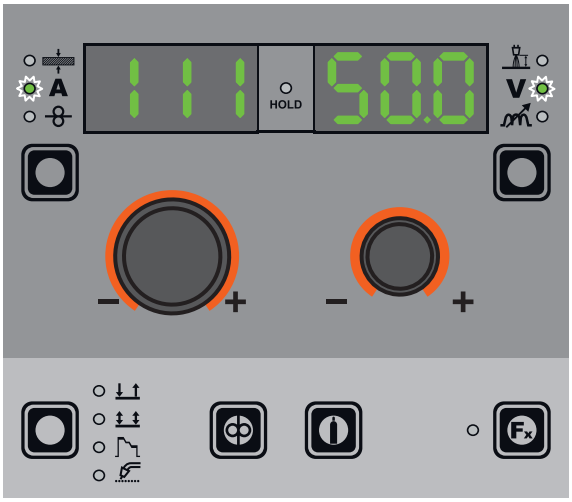
3 - WELDING — TIG LIFT

When welding takes place the fields in the displays show the same values as those included for pre-setting **with the difference that now they are those measured**.

"DH" CONTROL PANEL



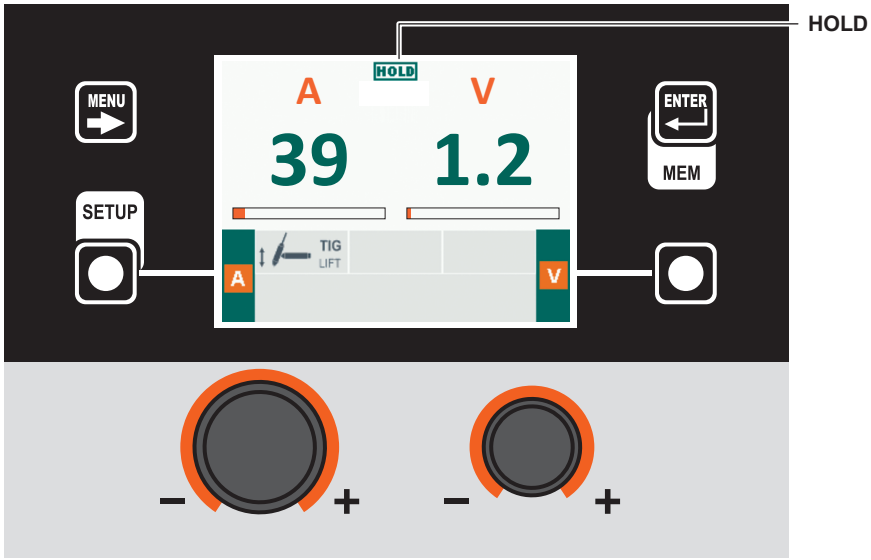
"HT5" CONTROL PANEL (not used with DH 32)



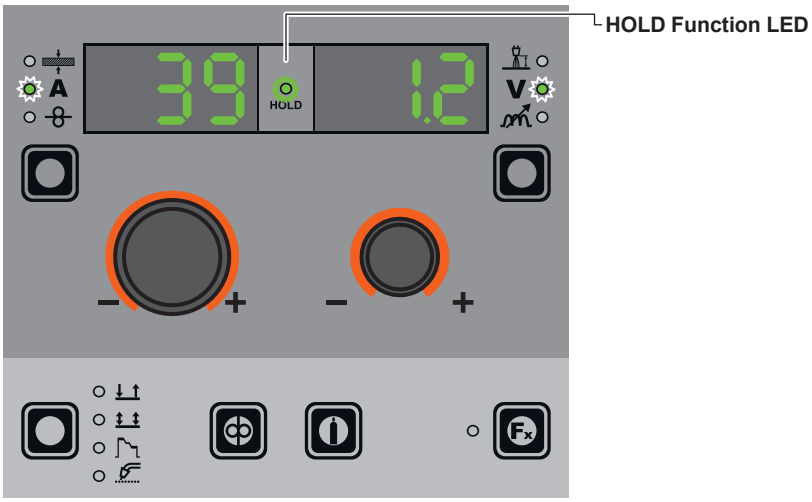
4 - HOLD TIG LIFT

When welding ends the fields in the display must show the same values that were displayed during welding, with the difference that they are now values defined as *HOLD*. In this phase the **VISION SCREEN** shows the *HOLD* box highlighted, while on the HT5 panel the **HOLD FUNCTION LED** flashes until the end of the *HOLD Function*. If the *HOLD Function* is Interrupted via a panel (e.g. DH), it will also be interrupted automatically on the other (HT5) and vice-versa.

"DH" CONTROL PANEL



"HT5" CONTROL PANEL (not used with DH 32)

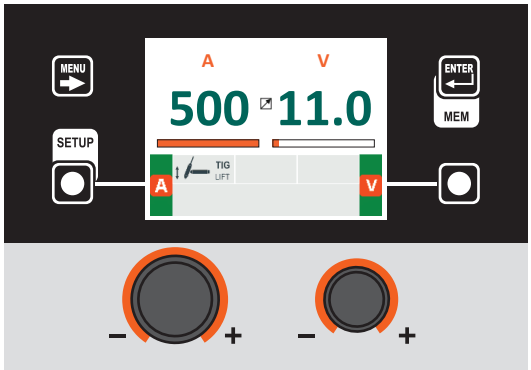


5 - REMOTE CONTROL

There is only the remote control indicated below:

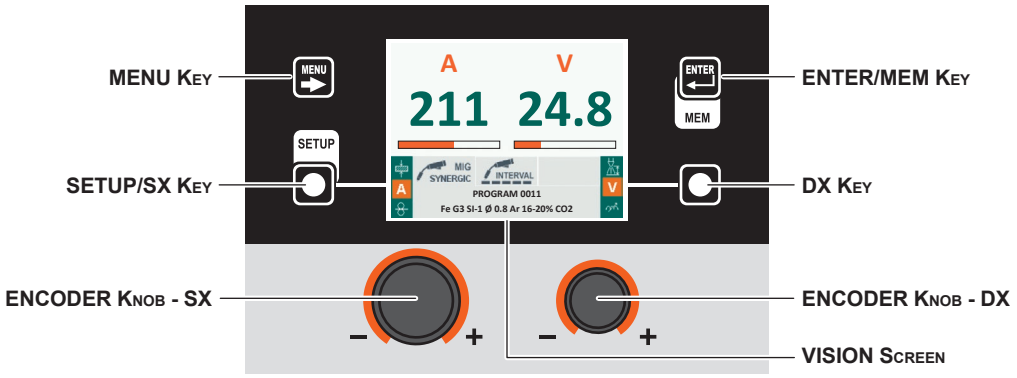
- **RC 178** for regulating current, using the knob marked by the letter **A**.

The inclusion of this remote control is highlighted by the relevant symbol on the panel, as shown in the photo that follows.



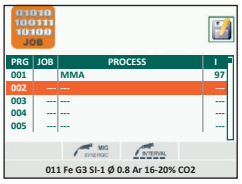
1 - Creating and saving / editing and overwriting a JOB/SEQUENCES (*) JOB/SEQUENCES

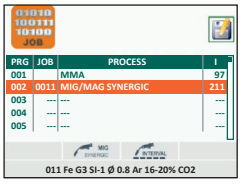
"DH" CONTROL PANEL



(*) For the sequences, see the relevant paragraph in the settings menu.

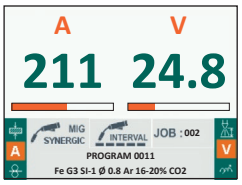
CREATING AND SAVING A JOB

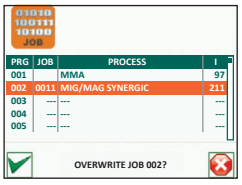




To create and save a *JOB* (automatic welding point) proceed as follows:
- During any welding process and at any time, once you have acquired the necessary parameters, hold the **ENTER/MEM KEY** down for **3** consecutive seconds.
- The **VISION SCREEN** automatically goes to the first free position in the *JOB* table.
- Choose the position in which the *JOB* is to be saved by rotating the **ENCODER KNOB - SX**.
- Push the **ENTER/MEM KEY** to confirm and finalise saving of the *JOB* created.

EDITING AND OVERWRITING A JOB





To edit and/or overwrite a *JOB* proceed as follows:
- During any welding process and at any time push the **MENU KEY** to exit the welding phase.
- Select the welding process *JOB* by rotating the **ENCODER KNOB - SX**.
- Push the **MENU KEY** to open the *JOB* table.
- Select the *JOB* to be edited by rotating the **ENCODER KNOB - SX**.
- Push the **ENTER/MEM KEY** to view the settings on the **VISION SCREEN** for the *JOB* to be edited.
- Hold down the **ENTER/MEM KEY** for about **3** consecutive seconds, until the **VISION SCREEN** loads all the parameters / data for the *JOB* onto the screen (making them available to the operator).
- Acquire the parameters necessary for editing the *JOB*.
- Hold down the **ENTER/MEM KEY** for **3** consecutive seconds.
- The **VISION SCREEN** automatically goes to the first free position in the *JOB* table.
- Choose the free position in which the edited *JOB* is to be saved, or a position already occupied in which the edited *JOB* will be overwritten, by rotating the **ENCODER KNOB - SX**.
- Push the **ENTER/MEM KEY** to confirm the operation.
- Push the **SETUP/SX KEY** to confirm the overwriting operation or the **DX KEY** to cancel it.

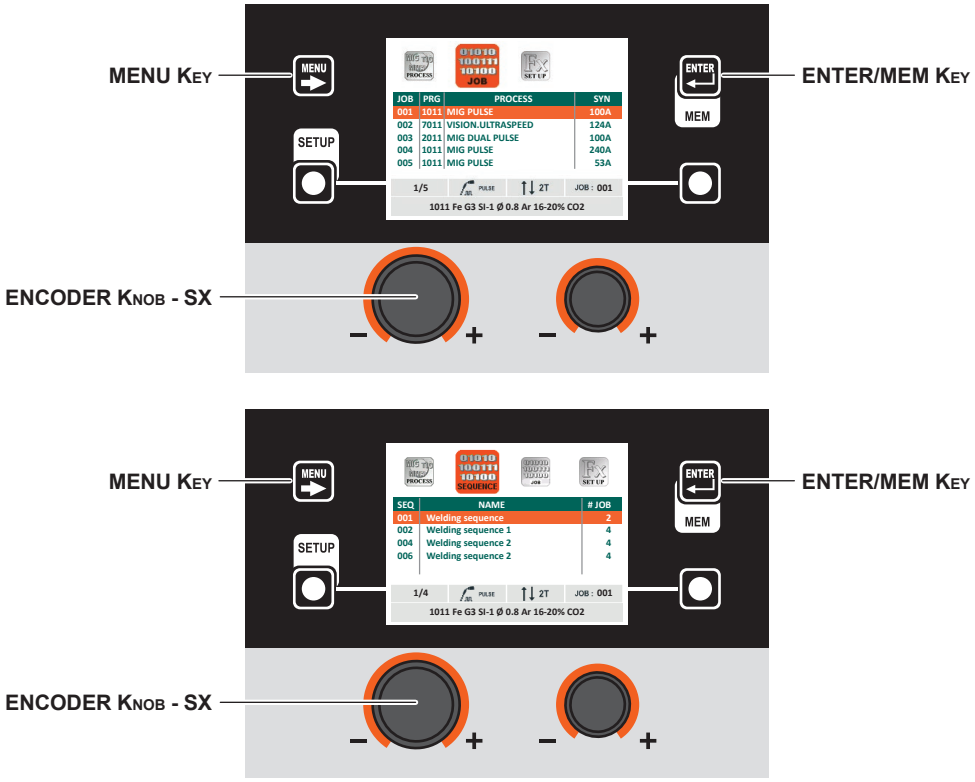
"HT5" CONTROL PANEL (not used with DH 32)

It is not possible to create, save, edit or overwrite a *JOB/SEQUENCE* using the "HT5" control panel.

WARNING: *All the parameters saved within a JOB/SEQUENCE (including SPECIAL FUNCTIONS (Fx)) can be viewed but not edited!*

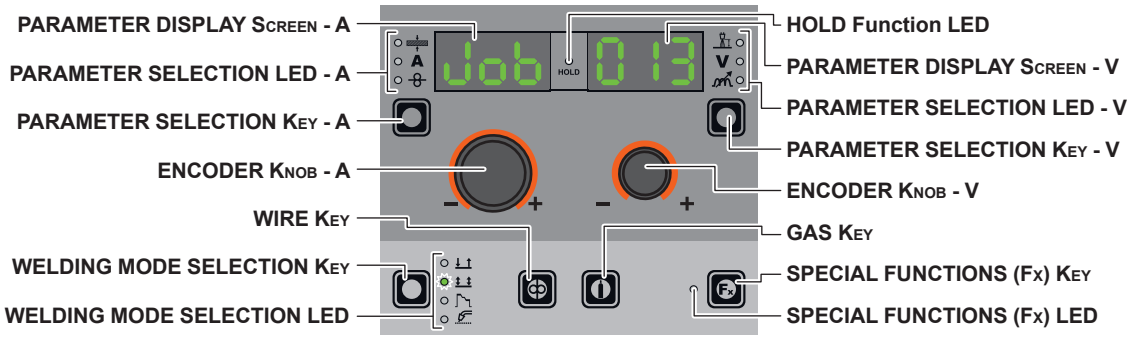
"DH" CONTROL PANEL

To access the *JOB/SEQUENCES SELECTION Menu* push the **MENU KEY**.



MENU KEY	Used to access subsequent menus.
ENCODER KNOB - SX	Used to scroll and select a *JOB/SEQUENCES*.
ENTER/MEM KEY	Used to select the *JOB/SEQUENCE* displayed.

"HT5" CONTROL PANEL (not used with DH 32)



PARAMETER DISPLAY SCREEN - A	Shows the JOB term or value of the parameter indicated by the **PARAMETER SELECTION LED - A**.
PARAMETER SELECTION LED - A	The LED unit shows the welding parameter selected using the **PARAMETER SELECTION KEY - A**.
PARAMETER SELECTION KEY - A	Scrolls the active parameters in succession, based on the type of welding process saved in the *JOB* selected.
WIRE KEY	Activates loading of the wire.

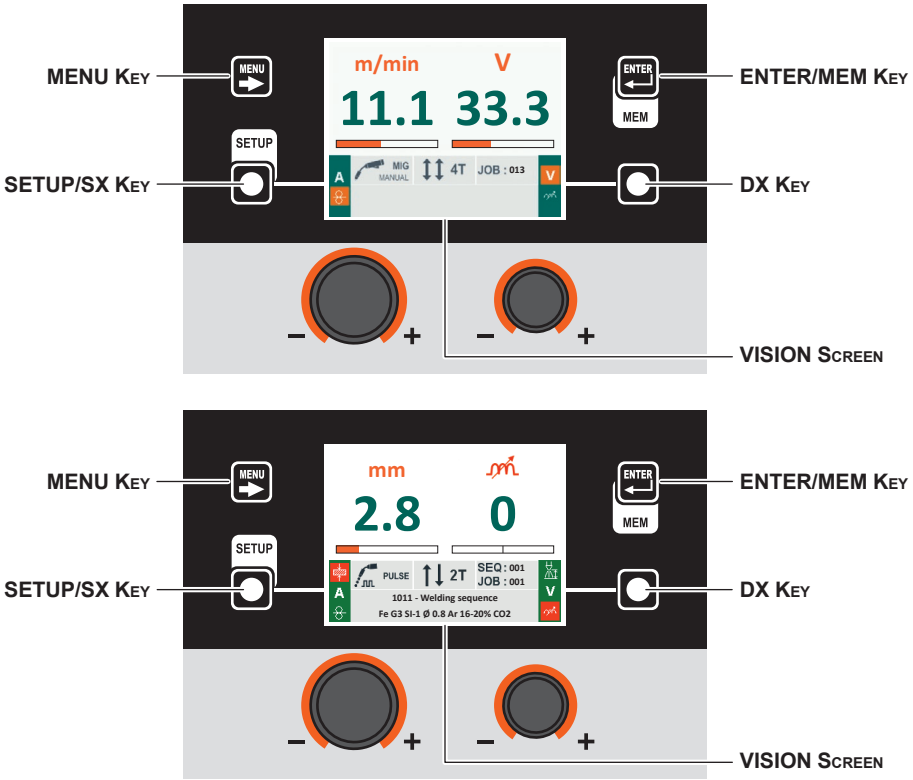
(continued)

WELDING MODE SELECTION LED	The LED unit indicates the welding mode saved in the *JOB* selected, which is coherent with the **VISION SCREEN**.
PARAMETER DISPLAY SCREEN - V	Displays the *JOB* number also selected in the *SEQUENCES* or the value for the parameter indicated by the **PARAMETER SELECTION LED - V**.
PARAMETER SELECTION KEY - V	Scrolls the active parameters in succession, based on the type of welding process saved in the *JOB* selected.
ENCODER KNOB - V	Used to scroll through the *JOBS* in the *SEQUENCES* as well.
GAS KEY	Activates the flow of gas.
SPECIAL FUNCTIONS (FX) KEY	Used to access displaying of the *SPECIAL FUNCTIONS (Fx)* saved in the *JOB* selected.

3 - PRE-SETTING JOB/SEQUENCES

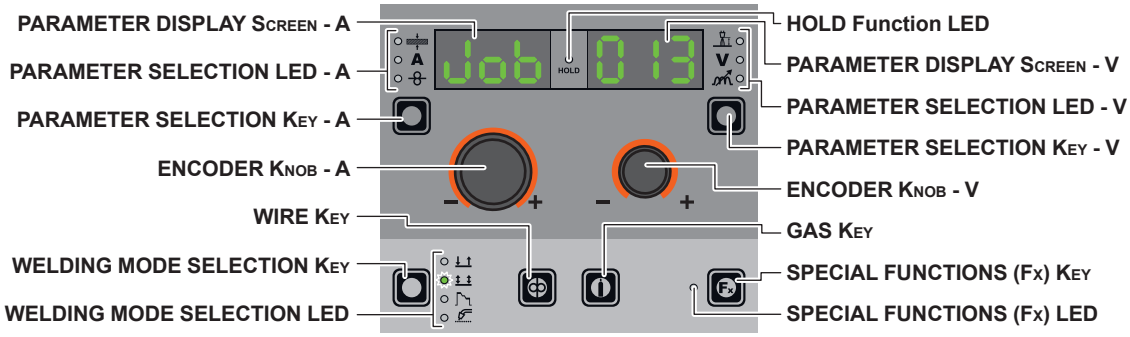
WARNING: *All the parameters saved within a JOB (including SPECIAL FUNCTIONS (Fx)) can be viewed but not edited!*

"DH" CONTROL PANEL



MENU KEY	Used to access the *PROCESS SELECTION Menu (PROCESS)* and subsequent menus, as applicable.
SETUP/SX KEY	Scrolls the active parameters in succession, based on the type of welding process saved in the *JOB* selected.
ENTER/MEM KEY	If held down for a period of about **3** consecutive seconds, this key allows the **VISION SCREEN** to load all the parameters for the *JOB* onto the screen (making them available to the operator).
DX KEY	Scrolls the active parameters in succession, based on the type of welding process saved in the *JOB* selected.

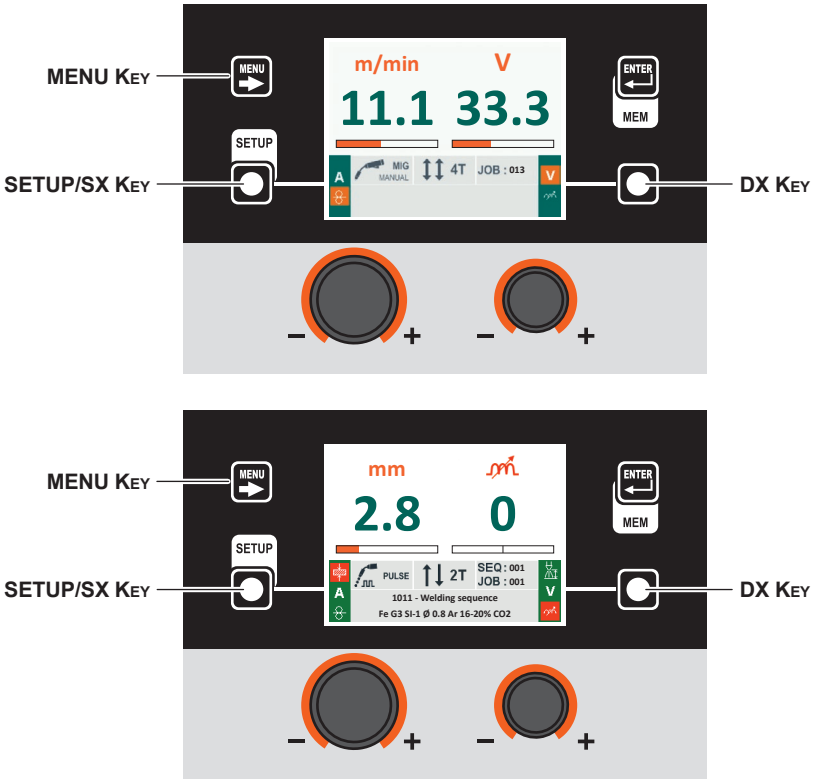
"HT5" CONTROL PANEL (not used with DH 32)



PARAMETER DISPLAY SCREEN - A	Shows the JOB term or value of the parameter indicated by the **PARAMETER SELECTION LED - A**.
PARAMETER SELECTION LED - A	The LED unit shows the welding parameter selected using the **PARAMETER SELECTION KEY - A**.
PARAMETER SELECTION KEY - A	Scrolls the active parameters in succession, based on the type of welding process saved in the *JOB* selected.
WIRE KEY	Activates loading of the wire.
WELDING MODE SELECTION LED	The LED unit indicates the welding mode saved in the *JOB* selected, which is coherent with the **VISION SCREEN**.
PARAMETER DISPLAY SCREEN - V	Displays the *JOB* number also selected in the *SEQUENCES* or the value for the parameter indicated by the **PARAMETER SELECTION LED - V**.
PARAMETER SELECTION LED - V	The LED unit indicates the welding parameter selected using the **PARAMETER SELECTION KEY - V**.
PARAMETER SELECTION KEY - V	Scrolls the active parameters in succession, based on the type of welding process saved in the *JOB* selected.
ENCODER KNOB - V	Used to scroll through the *JOBS* in the *SEQUENCES* as well.
GAS KEY	Activates the flow of gas.
SPECIAL FUNCTIONS (FX) KEY	Used to access the *SPECIAL FUNCTIONS (Fx)* saved in the *JOB* selected.

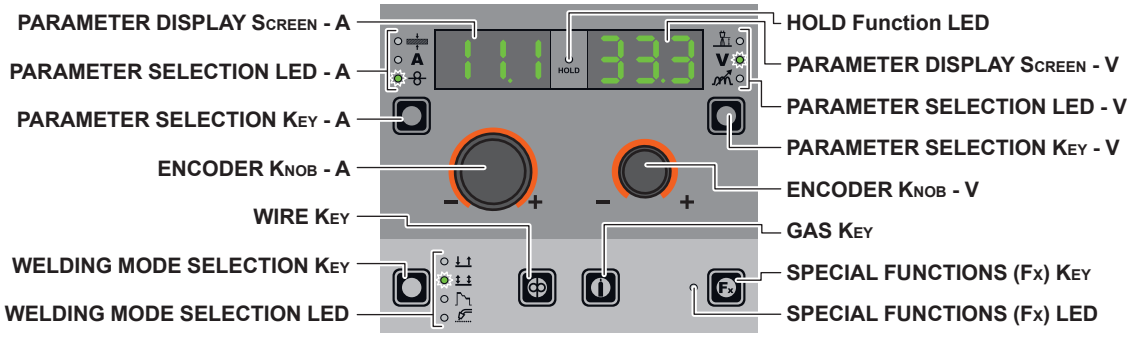
WARNING: *All the parameters saved within a JOB (including SPECIAL FUNCTIONS (Fx)) can be viewed but not edited!*

"DH" CONTROL PANEL



MENU KEY	Used to access the *PROCESS SELECTION Menu (PROCESS)* and subsequent menus, as applicable.
SETUP/SX KEY	Scrolls the active parameters in succession, only on the **VISION SCREEN**, based on the type of welding process saved in the *JOB* selected. In this case, where possible, the values displayed will be those measured.
DX KEY	Scrolls the active parameters in succession, only on the **VISION SCREEN**, based on the type of welding process saved in the *JOB* selected. In this case, where possible, the values displayed will be those measured.

"HT5" CONTROL PANEL (not used with DH 32)



PARAMETER DISPLAY SCREEN - A	Shows the JOB term or value of the parameter indicated by the **PARAMETER SELECTION LED - A**.
PARAMETER SELECTION LED - A	The LED unit shows the welding parameter selected using the **PARAMETER SELECTION KEY - A**.
PARAMETER SELECTION KEY - A	Scrolls the active parameters in succession, based on the type of welding process saved in the *JOB* selected. In this case, where possible, the values displayed will be those measured.

(continued)

WELDING MODE SELECTION LED	The LED unit indicates the welding mode saved in the *JOB* selected, which is coherent with the **VISION SCREEN**.
PARAMETER DISPLAY SCREEN - V	Displays the *JOB* number also selected in the *SEQUENCES* or the value for the parameter indicated by the **PARAMETER SELECTION LED - V**.
PARAMETER SELECTION LED - V	The LED unit indicates the welding parameter selected using the **PARAMETER SELECTION KEY - V**.
PARAMETER SELECTION KEY - V	Used to access displaying of the *SPECIAL FUNCTIONS (Fx)* saved in the *JOB* selected.
ENCODER KNOB - V	Used to scroll through the *JOBS* in the *SEQUENCES* as well, only if these are coherent. (*)
SPECIAL FUNCTIONS (FX) KEY	Used to access the *SPECIAL FUNCTIONS (Fx)* saved in the *JOB* selected.

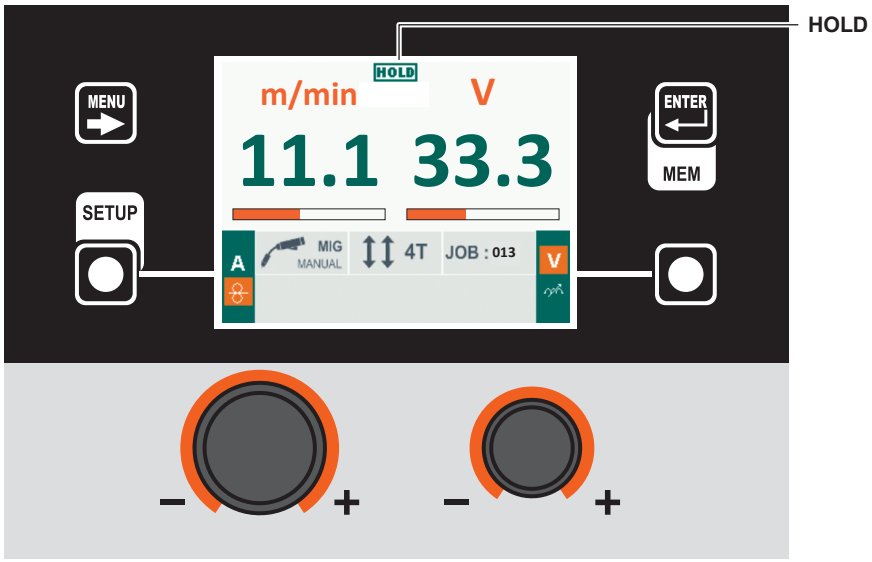
(*) The JOBS included in the SEQUENCES as well as considered to be coherent when the last three figures (wire type, gas, wire diameter) are equal. WHEN THIS IS THE CASE JOBS CAN BE CHANGED DURING WELDING WITHOUT INTERRUPTION.

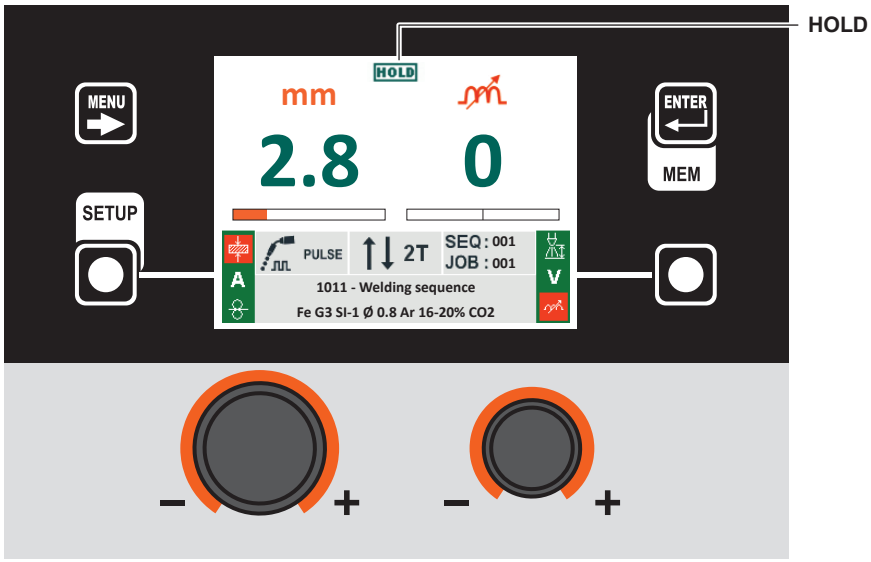
5 - HOLD JOB/SEQUENCES

When welding ends the fields in the display must show the same values that were displayed during welding, with the difference that they are now values defined as *HOLD*. In this phase the **VISION SCREEN** shows the *HOLD* box highlighted, while on the HT5 panel the **HOLD FUNCTION LED** flashes until the end of the *HOLD Function*. If the *HOLD Function* is Interrupted via a panel (e.g. DH), it will also be interrupted automatically on the other (HT5) and vice-versa.

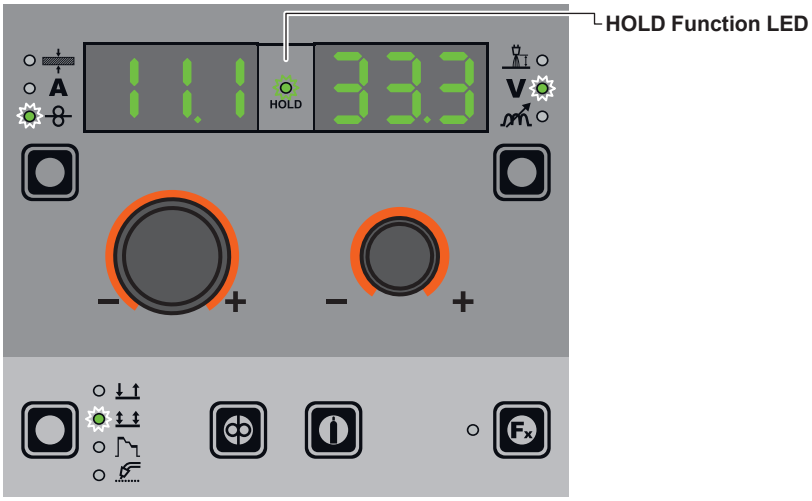
WARNING: *All the parameters saved within a JOB (including SPECIAL FUNCTIONS (Fx)) can be viewed but not edited!*

"DH" CONTROL PANEL





"HT5" CONTROL PANEL (not used with DH 32)

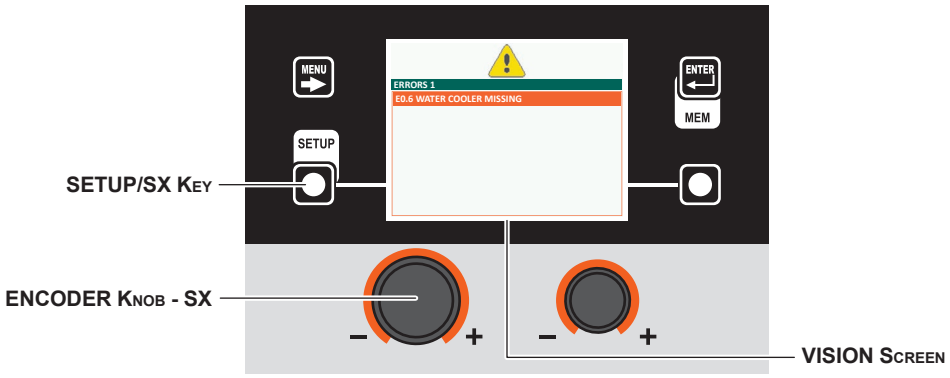


Error condition

WARNING: *Under normal conditions of use it is not possible to open the "ERROR LOG Menu" display since the alarm message appears instantaneously on the* **VISION SCREEN** *as soon as the problem arises on the welding plant.* ***At this stage it is not possible to weld!***

As soon as the error message appears:

"DH" CONTROL PANEL



SETUP/SX KEY	If held down for a period of about **5** consecutive seconds it takes the **VISION SCREEN** to the *SETUP Menu*.
ENCODER KNOB - SX	Used to scroll the alarms activated.
VISION SCREEN	Shows the alarm signal (⚠), number of the errors that have occurred (e.g. ERRORS 1) and an indication of what happened (e.g. E.06 WATER COOLER MISSING) of the welding machine.

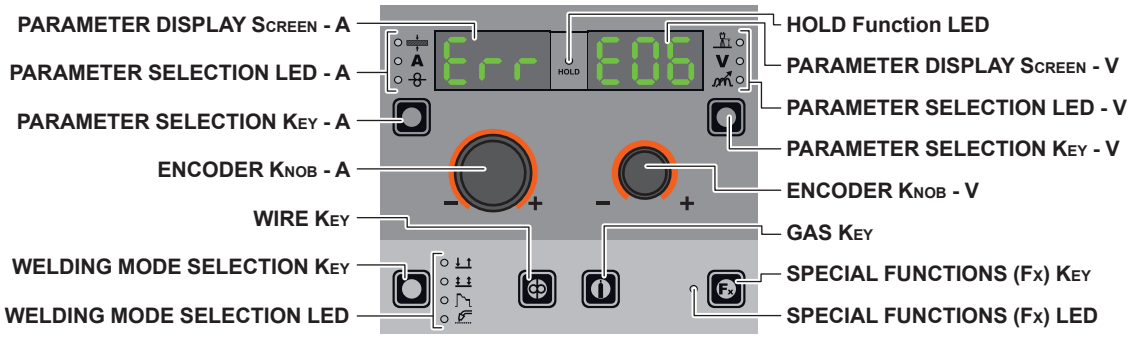
In the case of an **Automatically reset error** once the alarm condition has ended (reinstatement completed correctly), the welding plant is once again ready and the operator can recommence welding! The alarm state disappears and the **VISION SCREEN** returns to precisely the same point at which it was operating previously.

PLEASE NOTE: *After resetting has been completed, during normal operation of the machine, the* **VISION SCREEN** *will still show the error signal to inform the operator of the event (⚠), but this can be removed visually from the display by simply pushing the* **MENU KEY**. **WARNING:** *This only removes the visual error indication but not the history of what happened!*

In the case of **NON automatically reset errors**, to remove the alarm status and reinstate correct operation of the machine, the welding plant must be switched off.
When it is switched on again, the machine will be working again and the operator can weld again!

PLEASE NOTE: ***If, when switching on, the error status presents itself again, immediately contact's Technical Assistance Department.***

"HT5" CONTROL PANEL (not used with DH 32)



PARAMETER DISPLAY SCREEN - A	Displays the error message (e.g. Err.).
PARAMETER DISPLAY SCREEN - V	Shows the alarm code (e.g. E0.6) of in succession, the codes for the alarms in succession if there are a number of errors.

In the case of an **Automatically reset error** once the alarm condition has ended (reinstatement completed correctly), the welding plant is once again ready and the operator can recommence welding! The alarm state disappears and the **VISION SCREEN** returns to precisely the same point at which it was operating previously.

PLEASE NOTE: *After resetting has been completed, during normal operation of the machine, the* **VISION SCREEN** *will still show the error signal to inform the operator of the event (⚠), but this can be removed visually from the display by simply pushing the* **MENU KEY**. **WARNING:** *This only removes the visual error indication but not the history of what happened!*

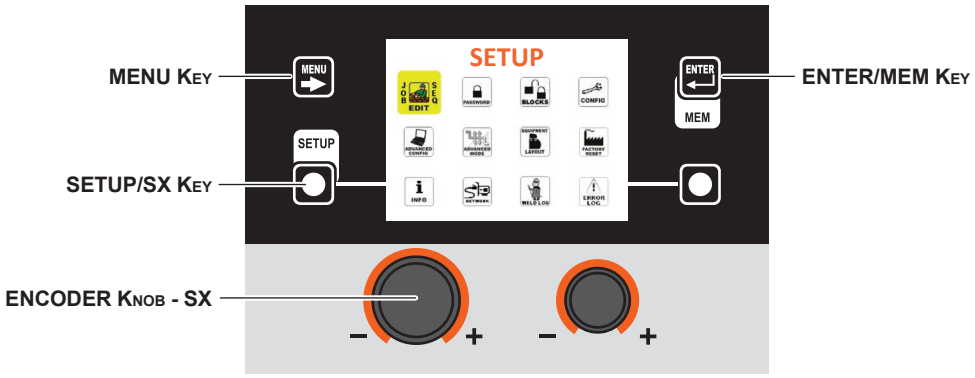
If an **Error NOT automatically resettable** arises, to eliminate the alarm state and reinstate correct functioning of the machine, switch the plant off and then on again, or hold down the **DX KEY**.
When it is switched on again, the machine will be working again and the operator can weld again!

PLEASE NOTE: ***If, when switching on, the error status presents itself again, immediately contact Technical Assistance Department.***

SETUP Menu

"DH" CONTROL PANEL

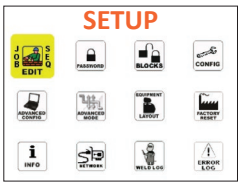
To access the *SETUP Menu* hold down for at least **5** consecutive seconds the **SETUP/SX KEY**.



MENU KEY	Used to exit the *SETUP Menu* and take the **VISION SCREEN** back to the entry phase.
ENCODER KNOB - SX	Used to scroll the various icons (sub-menus) in the menu and then select them.
ENTER/MEM KEY	Used to access the menu related to the icon selected.

WARNING:
- **It is impossible to weld!**
- **If the VISION SCREEN is protected by a password, access to this menu will only be allowed by entering the correct password.**

The icons (sub-menus) available and that can be viewed within the *SETUP Menu* are:
- JOB EDIT
- PASSWORD
- BLOCKS
- CONFIG
- FACTORY RESET
- INFO
- NETWORK
- ERROR LOG

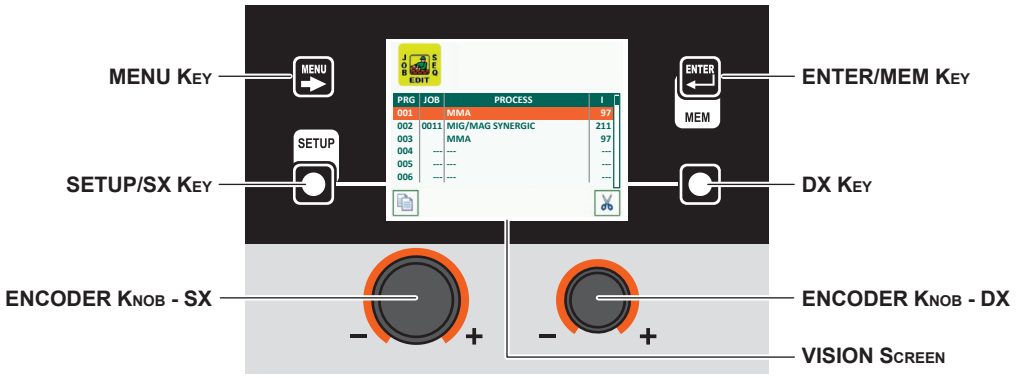
ACCESSING THE SUB-MENUS	
	To access the sub-menus included in the *SETUP Menu*, you must: • Turn the **ENCODER KNOB - SX** to select the desired icon. • Push the **ENTER/MEM KEY**.

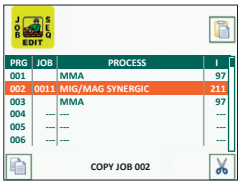
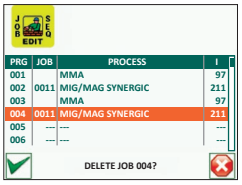
"HT5" CONTROL PANEL (not used with DH 32)

It is not possible to access the *SETUP Menu* and all the related sub-menus using the "HT5" control panel.

The purpose of this menu is to allow the operator to copy or delete a *JOB* (automatic welding point) entered previously.

To access the *JOB EDIT Menu* from the *SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.

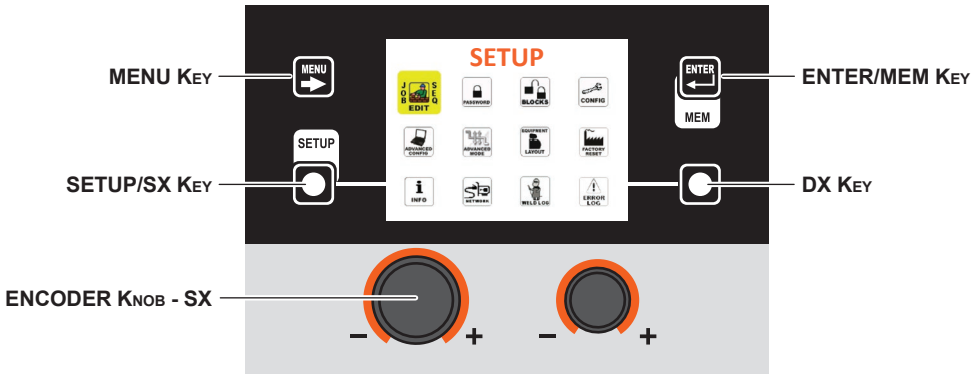


COPYING THE JOB SELECTED	
	To copy the *JOB* selected, proceed as follows: • Select the *JOB* to be copied by rotating the **ENCODER KNOB - SX**. • Push the **SETUP/SX KEY**. • Choose the position to which the *JOB* selected is to be copied (or overwritten *) by rotating the **ENCODER KNOB - SX**. • Push the **ENTER/MEM KEY** to confirm and finalise copying of the *JOB* selected. * In the case of overwriting, confirmation will be requested.
DELETING THE JOB SELECTED	
	To delete the *JOB* selected, proceed as follows: • Select the *JOB* to be deleted by rotating the **ENCODER KNOB - SX**. • Push the **DX KEY**. • Push the **SETUP/SX KEY** to confirm and finalise deletion of the *JOB* selected. • To cancel the operation of deleting the *JOB* selected, push the **DX KEY**.

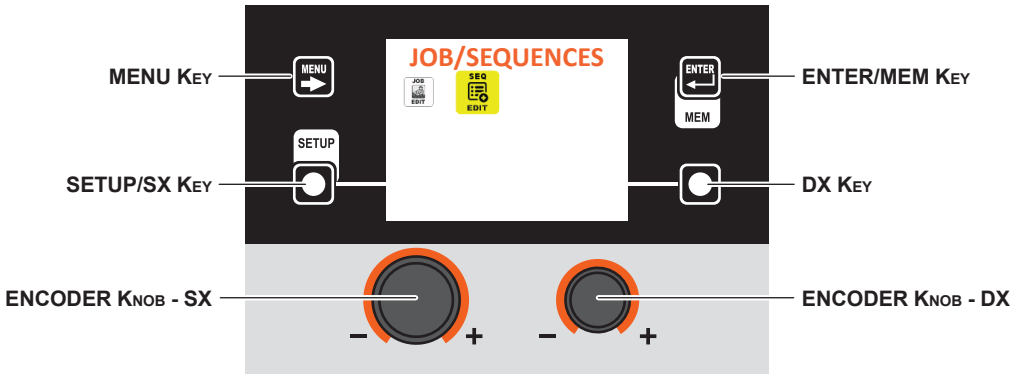
To exit the *JOB EDIT Menu* and go back to the *SETUP Menu*:
- Push the **MENU KEY**.

The purpose of this menu is to allow the operator to create, copy, overwrite, or delete a welding sequence.

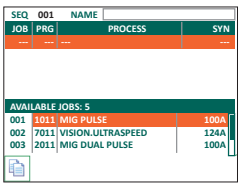
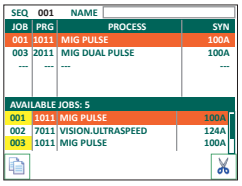
To access the *SEQ EDIT Menu* from the *SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



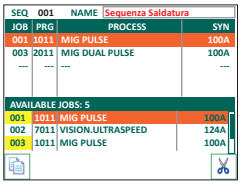
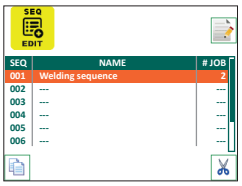
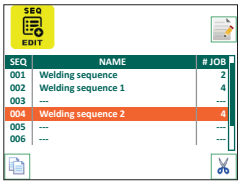
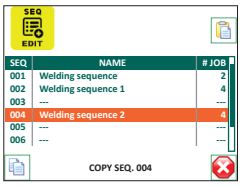
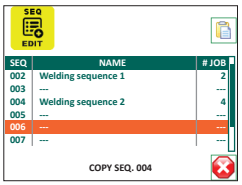
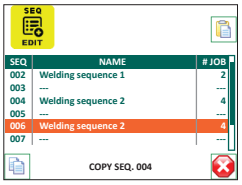
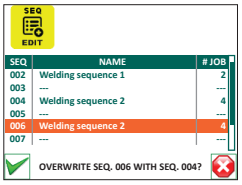
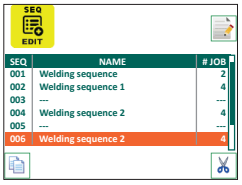
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



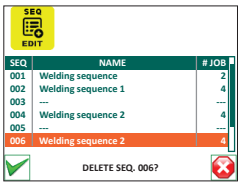
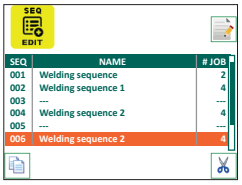
The following image appears:

CREATING A SEQUENCE	
	Use the **ENTER/MEM KEY** to create a new sequence.
	Use the **SETUP/SX KEY** to add the JOB selected using the **ENCODER KNOB - DX** to the section of the sequence selected using the **ENCODER KNOB - SX**. The image shows the two jobs (001 and 003) added to the sequence. The yellow colour indicates that the JOBS have already been used. The JOBS already used can be used again in other sections of the sequence.

(continua)

	Use the **DX KEY** to remove the JOB from the section of the sequence selected using the **ENCODER KNOB - SX**. Push the **ENTER/MEM KEY** to be able to edit the sequence name.
	Use the **ENCODER KNOB - DX** and the **ENCODER KNOB - SX** SX respectively to select the which of the characters available is required, and to move to the position of the next or the previous character. Once creation of the sequence has been completed, push the **MENU KEY** to save it. As you can see, the sequence number is shown on the left, the name of the sequence in the centre, and the total number of jobs used for the sequence on the right. Once the welding sequence has been created, the **SETUP/SX KEY** can be used to copy it, the **DX KEY** to delete it, or the **ENTER/MEM KEY** to edit it.
COPYING A SEQUENCE	
	Select the sequence to be copied using the **ENCODER KNOB - SX** and push the **SETUP/SX KEY**.
	The copy sequence 004 message displayed indicates that sequence 4 has been selected.
	Select the position of the sequence to be added, using the **ENCODER KNOB - SX** (e.g. in this case, position 6). Until the **DX KEY** is pushed of a new sequence is selected using the **SETUP/SX KEY**, sequence 004 can be added in all the positions it is required.
	Push the **ENTER/MEM KEY** to copy the sequence.
	If the sequence position chosen is already in use, when the **ENTER/MEM KEY** is pushed the image to the left is displayed. Push the **SETUP/SX KEY** and sequence4 6 will be replaced by sequence 4, whereas the **DX KEY** cancels everything.
DELETING A SEQUENCE	
	Select the sequence to be deleted using the **ENCODER KNOB - SX** and push the **SETUP/SX KEY**.

(continua)

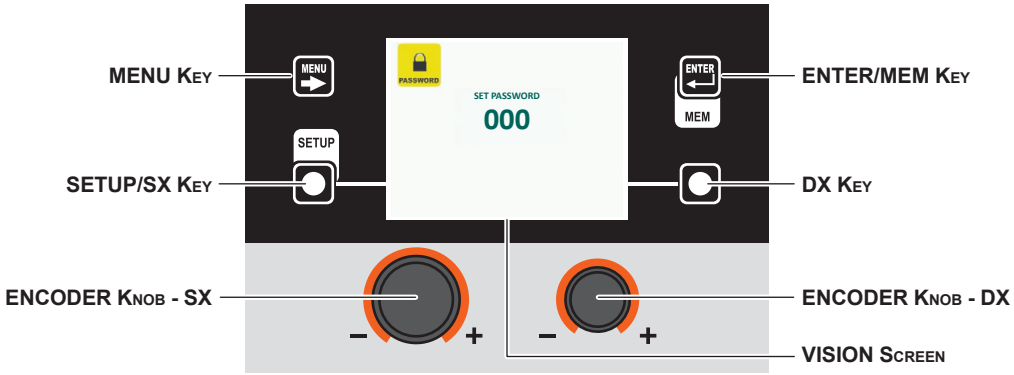
	Confirm using the **SETUP/SX KEY** or cancel using the **DX KEY**.
EDITING A SEQUENCE	
	Select the position of the sequence to be edited using the **ENCODER KNOB - SX** and push the **ENTER/MEM KEY**. The sequence to be edited will be displayed, with all already described for creating the sequence.

To exit the *JOB EDIT Menu* and go back to the *SETUP Menu*:
- Push the **MENU KEY**.

PASSWORD — SETUP Menu

The purpose of this menu is to allow the operator to enter a *PASSWORD* for accessing the *SETUP Menu*.

To access the *PASSWORD Menu* from the *SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.

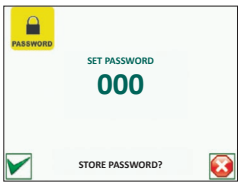


The **VISION SCREEN** can have various configurations, the meaning of which is indicated in the table below.

Diaplay VISION DESCRIPTION	Meaning
000	The *SETUP Menu* **ARE NOT** protected by any *PASSWORD*.
***	The *SETUP Menu* **ARE** protected by any *PASSWORD*.
Number between 001 and 999	The *SETUP Menu* **ARE** protected by a *PASSWORD* and this can be seen by the operator only because they are working inside the *SETUP Menu*.

ENTERING A NEW PASSWORD	
	To enter a new *PASSWORD* proceed as follows: • Make sure that the **VISION SCREEN** displays the text **000**. • Choose the new *PASSWORD* to be entered by rotating the **ENCODER KNOB - DX**. • Push the **ENTER/MEM KEY** to confirm the operation of entering the *PASSWORD*. • Push the **SETUP/SX KEY** to confirm and finalise entering of the new *PASSWORD*. • To cancel the operation of entering a *PASSWORD* push the **DX KEY**.

(continued)

EDITING THE EXISTING PASSWORD	
	**WARNING:** *This operation is only possible after having accessed the SETUP Menu using the password you wish to edit!* To edit the existing *PASSWORD* proceed as follows: • Make sure the **VISION SCREEN** shows the *PASSWORD* entered previously (**a number that must be between 001 and 999**). • Choose the new *PASSWORD* to be entered by rotating the **ENCODER KNOB - DX**. • Push the **ENTER/MEM KEY** to confirm the operation of editing the *PASSWORD*. • Push the **SETUP/SX KEY** to confirm and finalise editing of the *PASSWORD*. • To cancel the operation of editing a *PASSWORD* push the **DX KEY**.
DELETING THE EXISTING PASSWORD	
	**WARNING:** *This operation is only possible after having accessed the SETUP Menu using the password you wish to delete!* To delete the existing *PASSWORD* proceed as follows: • Make sure the **VISION SCREEN** shows the *PASSWORD* entered previously (**a number that must be between 001 and 999**). • Take the **VISION SCREEN** to number **000** by rotating the **ENCODER KNOB - DX**. • Push the **ENTER/MEM KEY** to confirm the deletion of the *PASSWORD*. • Push the **SETUP/SX KEY** to confirm and finalise deleting of the *PASSWORD*. • To cancel the operation of deleting a *PASSWORD* push the **DX KEY**.

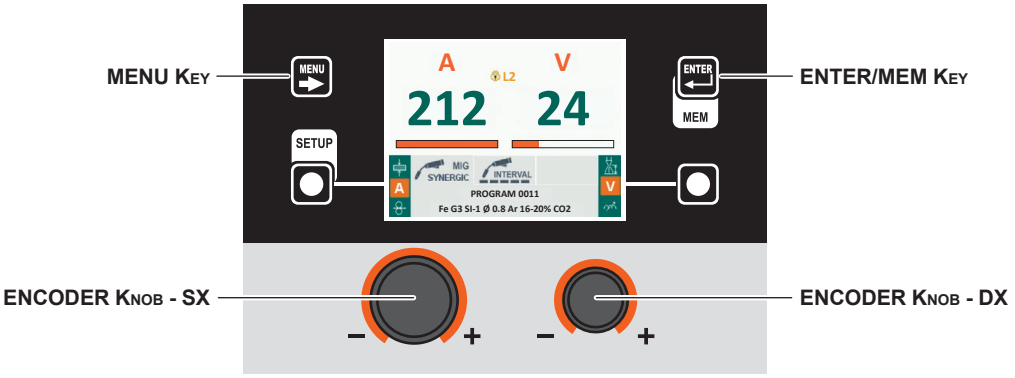
To exit the *PASSWORD Menu* and go back to the *SETUP Menu*:
• Push the **MENU KEY**.

BLOCKS — SETUP Menu

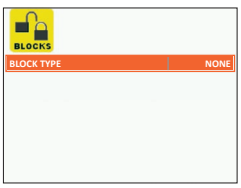
The purpose of this menu is to allow the operator to block or limit use of the welding machine and/or certain welding parameters / functions.

To access the *BLOCKS Menu* from the *SETUP Menu*:
• Turn the **ENCODER KNOB - SX** to select the desired icon.
• Push the **ENTER/MEM KEY**.

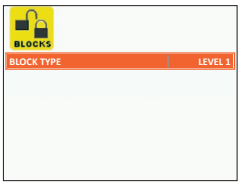
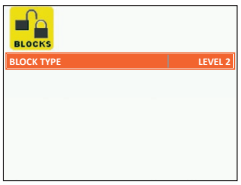
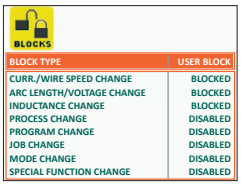
The image graphically shows how the type of block is shown on the **VISION SCREEN** when the welding machine is operating normally.



Within the *BLOCKS Menu* it is possible to select, by rotating the **ENCODER KNOB - DX**, the block required **(this operation does not require confirmation)** from the **4** options available:

Block type	Description
NONE 	BLOCK ABSENT or RELEASE MACHINE Does not allow any block to be activated on the welding machine, but allows the operator to release the machine if its was blocked previously.

(continued)

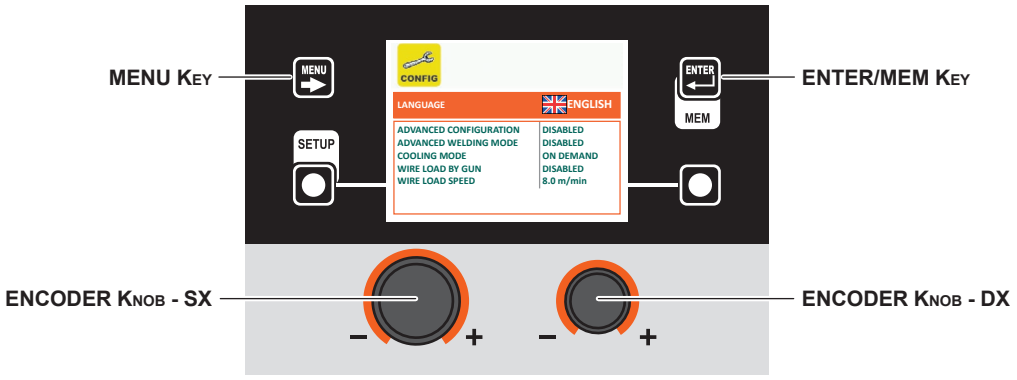
Block type	Description
LEVEL 1 	PARTIAL BLOCK The operator can weld using the parameters set prior to the block and may make adjustments and/or changes to the welding parameters using the knobs on the control panels on the welding machine and the wire feeder (if fitted).
LEVEL 2 	TOTAL BLOCK The operator can weld only using the parameters set prior to the block and cannot adjust and/or edit the welding parameters.
USER BLOCK 	PERSONALISED BLOCK Used to block or limit some adjustments and/or functions of the welding machine.

To exit the *BLOCKS Menu* and go back to the *SETUP Menu*:
- Push the **MENU KEY**.

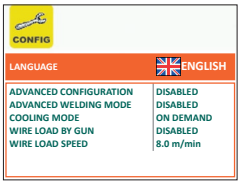
CONFIG — SETUP Menu

The purpose of this menu is to allow the operator to select the language used for the **VISION SCREEN**, change the *SETTINGS menu* to *ADVANCED SETTINGS menu*, enter advanced welding mode, set how cooling is managed, and set wire loading via the torch button.

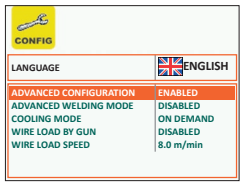
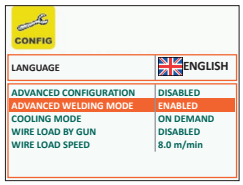
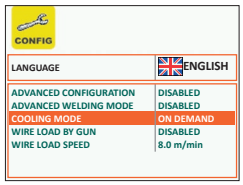
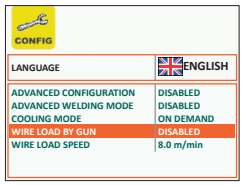
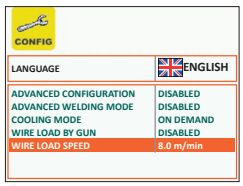
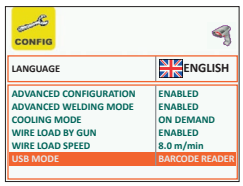
To access the *CONFIG Menu* from the *SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



When the *CONFIG Menu* is open, the **ENCODER KNOB - SX** can be rotated to select the which of the 6 functions available is required. This can be enabled (**the operation does not require confirmation**) by rotating the **ENCODER KNOB - DX**.

Function	Description
LANGUAGE 	Indicates the languages that can be set for the **VISION SCREEN**. As regards the procedure for selecting a language on the **VISION SCREEN** see the relevant paragraph in the manual (“Language Selection”).

(continued)

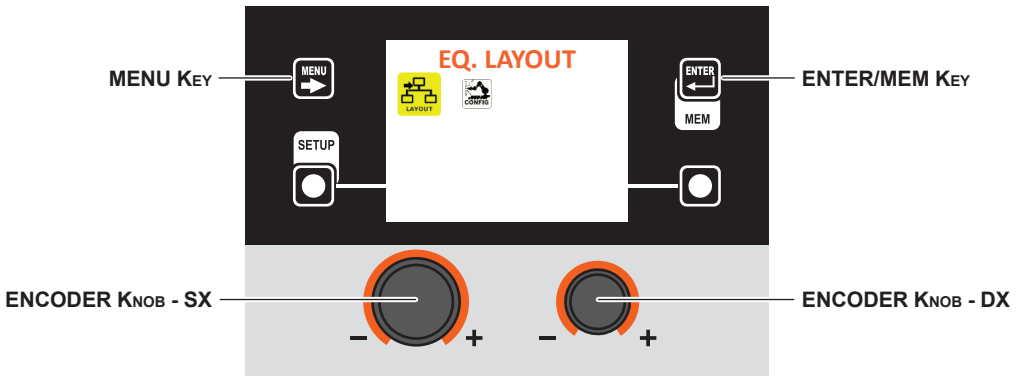
Function	Description
ADVANCED CONFIGURATION 	If enabled, this configuration offers the welder the following additional menus (the following icons will be created in the *ADVANCED SETUP Menu*): • ADVANCED CONFIG • WELD LOG
ADVANCED WELDING MODE 	If enabled, this configuration allows the welder to have further welding modes available to them (the following icons will be created in the *ADVANCED SETUP Menu*): • ADVANCED MODE
COOLING MODE 	This configuration allows the welder to set cooling as follows: • WHEN REQUESTED. IIn this case, cooling is managed in relation to the welding done. • ALWAYS ON. In this case, cooling comes on when the machine is switched on, and stays on until the machine is switched off. Cooling only stops when an alarm is activated. • ALWAYS INACTIVE. In this case, cooling is always deactivated. **WARNING:** ***dangerous configuration! Only use for a non-cooled torch!***
WIRE LOAD BY GUN 	This configuration allows the welder to enable or disable the type of wire loading from the torch: • ACTIVE. In this case wire loading is activated from the torch (also see relevant section). • NOT ACTIVE. In this case, wire loading can only be done using the relevant button on the feeder.
WIRE LOAD SPEED 	The parameter is used to set the loading speed, both for the torch (if active) and for the feeder. The range for this parameter is 1,0 m/min to 22,0 m/min.
USB MODE 	The parameter is used to enable a barcode reader connected to the CN9 connector of the front board. To use this option, refer to the CQM software manual.

WARNING: *The additional menus are explained in the manual, in the "ADVANCED SETUP Menu" paragraph.*

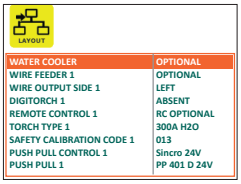
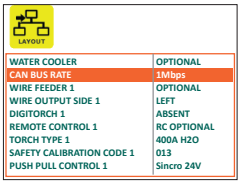
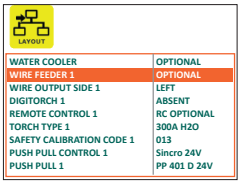
To exit the *CONFIG Menu* and go back to the *SETUP Menu*:
• Push the **MENU KEY**.

The purpose of this menu is to allow the operator to manage connections of components and accessories that are part of the welding plant.

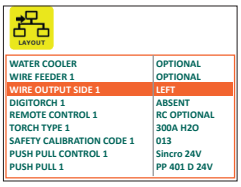
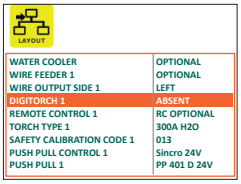
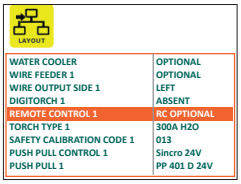
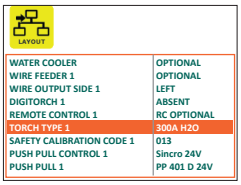
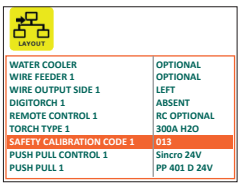
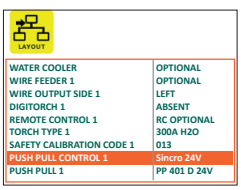
To access the *EQUIPMENT LAYOUT Menu* from the *SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



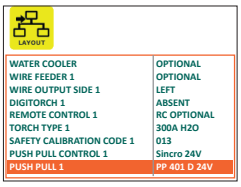
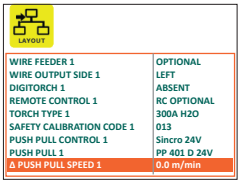
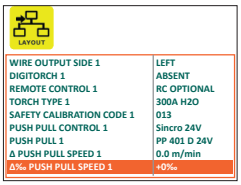
Within the *EQUIPMENT LAYOUT Menu*, it is possible, by rotating the **ENCODER KNOB - SX**, to select the component of the welding plant, while by rotating the **ENCODER KNOB - DX**, you can decide the type of connection required (e.g. Optional) or the type of component (e.g. Torch 400 A H2O) that is to be connected to the plant **(this operation does not require confirmation)**.

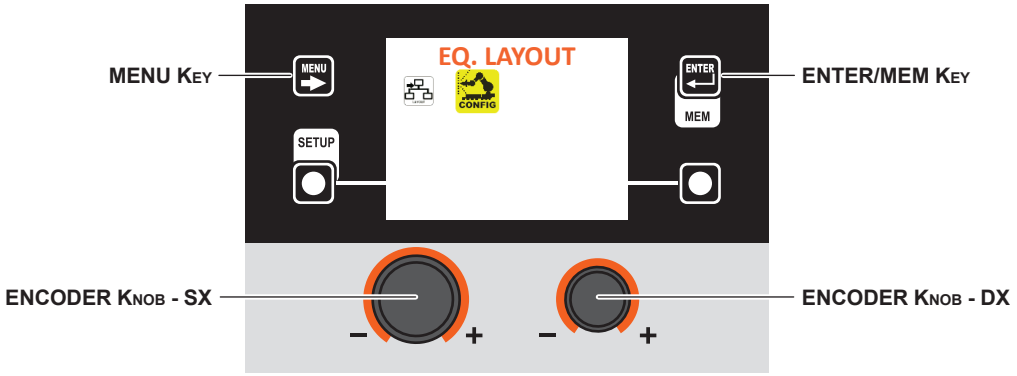
Function	Description
WATER COOLER 	OPTIONAL - Means that the water cooler system may or may not be connected to the welding machine. OBLIGATORY - Means that it is obligatory for the water cooler system to be connected to the welding plant. A error condition is generated when: • Switching on or at any other time if the welding plant does not detect the presence. • During normal operation if the water cooler system is disconnected. Also see the CONFIG menu if it is necessary to keep the cooling system working continuously.
CAN BUS RATE 	1Mbps - Means that the transmission speed on the CAN BUS is set at 1Mb per second. 500 Kbps - Means that the transmission speed on the CAN BUS is set at 500Kb per second (only for extensions longer than 40m).
WIRE FEEDER 1 / WIRE FEEDER 2 	OPTIONAL - This means that FEEDER 1-2 can or cannot be connected to the welding plant. Once feeder 1-2 is detected when the plant is switched on, its presence becomes obligatory. OBLIGATORY - This means that it is obligatory for FEEDER 1-2 to be connected to the welding plant, even when the plant is switched on. A error condition is generated when: • When switched on, if the welding plant does not detect its presence. • During normal operation if the wire feeder is disconnected. MISSING - Means that feeder 2 must not be managed by the plant, even if it is connected up. **NOTE:** *The FEEDER 2 section must also be set to allow feeder 2 to work in a robotised plant*.

(continued)

Function	Description
WIRE OUTPUT SIDE 1 WIRE OUTPUT SIDE 2 	This indicates the output side (right or left) of the welding wire, in relation to the DH setting panel.
DIGITORCH 1 DIGITORCH 2 	OPTIONAL - This means that DIGITORCH 1-2 can or cannot be connected to the welding plant. Once the DIGITORCH 1-2 is detected when the plant is switched on, its presence becomes obligatory. OBLIGATORY - This means that it is obligatory for DIGITORCH 1-2 to be connected to the welding plant, even when the plant is switched on. An error status is generated: • When switched on, if the welding plant does not detect its presence. • During normal operation, if it is disconnected. MISSING - Means that DIGITORCH 2 must not be managed by the plant, even if it is connected up. **NOTE:** *The DIGITORCH 2 section must also be set to allow DIGITORCH 2 to work in a robotised plant.*
REMOTE CONTROL 1 / REMOTE CONTROL 2 	DISABLED - Means that REMOTE CONTROL 1-2 must not be managed by the plant, even if it is connected up. OPTIONAL - This means that REMOTE CONTROL 1-2 can or cannot be connected to the welding plant. If it is disconnected while the plant is running, no alarm is raised. OBLIGATORY - This means that it is obligatory for REMOTE CONTROL 1-2 to be connected to the welding plant, even when the plant is switched on. A error condition is generated when: • Switching on or at any other time if the welding plant does not detect the presence (only if set as obligatory). • During normal operation, if the remote control is disconnected. **WARNING:** *For indications on use and functioning of the ANALOGIC RC remote control see the manuals for the welding machine and the wire feeder, enclosed with the documentation*.
TORCH TYPE 1 / TORCH TYPE 2 	Used to set the TORCH TYPE 1/2 that will subsequently be connected to the welding plant. This operation must be done in order to size the plant correctly and as a result, the welding parameters.
SAFETY CALIBRATION CODE 1 / SAFETY CALIBRATION CODE 2 	By turning **ENCODER KNOB - DX**, go to CALIBRATION value to read and check instruments values (voltmeter and ammeter) of the power source. **NOTE:** *At the end of such operation, before restarting welding, you should put back the previous value by always turning the* **ENCODER KNOB - DX**.
PUSH PULL CONTROL 1 PUSH PULL CONTROL 2 	This indicates the type of PUSH-PULL control HARDWARE in the welding machine, specifically: • RESIST. 24 if a resistance is fitted. • Sincro 24 is a syncro board is fitted.

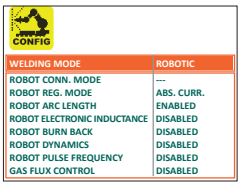
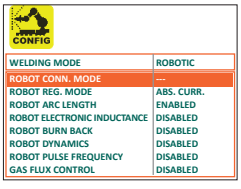
(continued)

Function	Description
PUSH PULL 1 PUSH PULL 2 	This indicates the type of PUSH-PULL unit used (the standard type is BINZEL PP 401 D 24V). When the knob is switched to the OFF position, the push-pull unit is not managed.
Δ PUSH PULL SPEED 1 Δ PUSH PULL SPEED 2 	This indicates the absolute speed difference between push-pull 1-2 and the default value.
Δ‰ PUSH PULL SPEED 1 Δ‰ PUSH PULL SPEED 2 	This indicates the relative 0/00 speed difference between push-pull 1-2 and the default value.

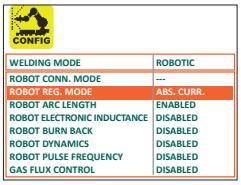
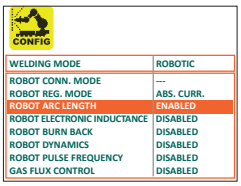
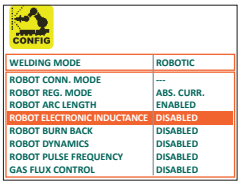
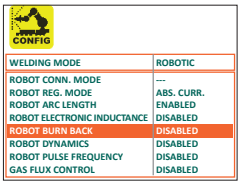
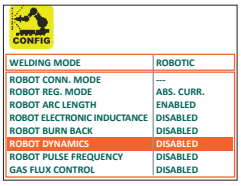
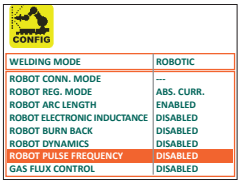
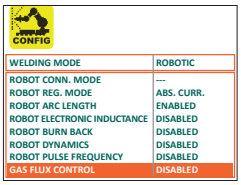


When in the *CONFIG menu*, rotate the **ENCODER KNOB - SX** to select activation of robot configuration.

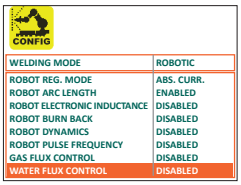
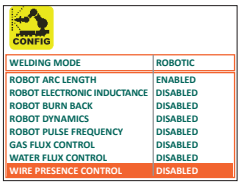
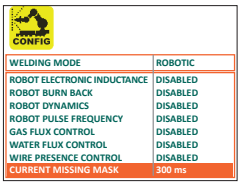
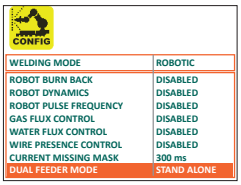
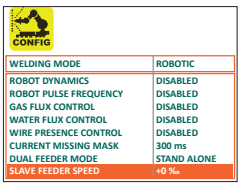
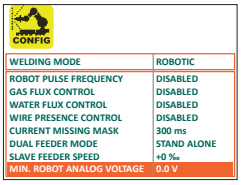
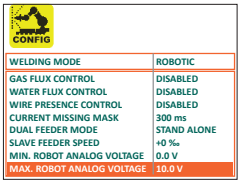
NOTE: *If robot configuration is activated when no robot interface is connected, an error message will be displayed and it will not be possible to weld.*

Function	Description
ROBOT WELDING 	MANUAL - Means that manual welding is used. ROBOTIC - Means that welding is enabled with the robot interface board. Once this function has been selected, the welding plant will require the robot interface board to be connected correctly. If this is not the case, an error message will be displayed and it will not be possible to weld. AUTOMATIC - This means that welding is manual, but it is possible to move the wire (forward or back) using the UP and DOWN inputs.
ROBOT CONN. MODE (ROBOT CONNECTION MODE) 	RI-A 1 - Means that the presence of an interface board for analogue / digital type robots is detected RI-D 2 - Means that the presence of an interface board for Device net type robots is detected or Ethernet ------- - Means that no type of robot board is detected

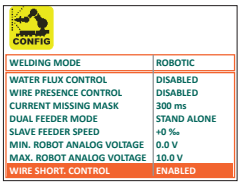
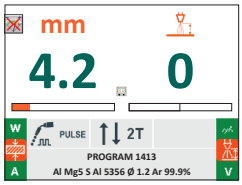
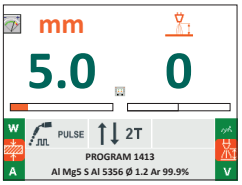
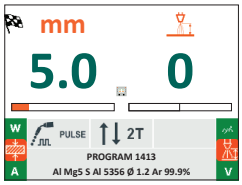
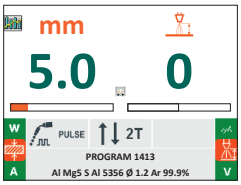
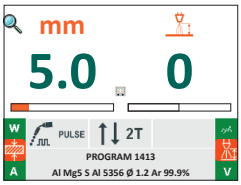
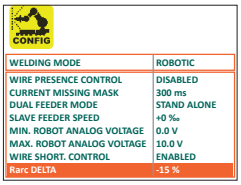
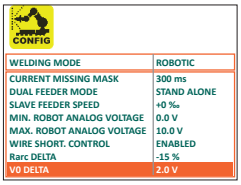
(continua)

Function	Description
ROBOT REG. MODE (ROBOT REGULATION MODE)  CONFIG WELDING MODE: ROBOTIC ROBOT CONN. MODE: --- ROBOT REG. MODE: ABS. CURR. ROBOT ARC LENGTH: ENABLED ROBOT ELECTRONIC INDUCTANCE: DISABLED ROBOT BURN BACK: DISABLED ROBOT DYNAMICS: DISABLED ROBOT PULSE FREQUENCY: DISABLED GAS FLUX CONTROL: DISABLED	ASS. CURRENT - In this mode, a MINIMUM ROBOT ANALOGUE V - MAXIMUM ROBOT ANALOGUE V (*) input corresponds to a current supplied of 0-500A. REL. CURRENT - In this mode, a MINIMUM ROBOT ANALOGUE V - MAXIMUM ROBOT ANALOGUE V (*) input corresponds to extreme currents on the welding curve used. ASS. WIRE SPEED - In this mode, a MINIMUM ROBOT ANALOGUE V - MAXIMUM ROBOT ANALOGUE V (*) input corresponds to a wire speed of 0-25 m/min. REL. WIRE SPEED - In this mode, a MINIMUM ROBOT ANALOGUE V - MAXIMUM ROBOT ANALOGUE V (*) input corresponds to extreme wire speeds on the welding curve used. (*) These values can be set as described below.
ROBOT VOLTAGE  CONFIG WELDING MODE: ROBOTIC ROBOT CONN. MODE: --- ROBOT REG. MODE: ABS. CURR. ROBOT ARC LENGTH: ENABLED ROBOT ELECTRONIC INDUCTANCE: DISABLED ROBOT BURN BACK: DISABLED ROBOT DYNAMICS: DISABLED ROBOT PULSE FREQUENCY: DISABLED GAS FLUX CONTROL: DISABLED	NOT ACTIVE - In this mode, regulation of the ARC LENGTH is active, via the welding machine's panel. ACTIVE - In this mode, regulation of the ARC LENGTH is active, via the robot interface board.
ROBOT ELECTRONIC INDUCTANCE  CONFIG WELDING MODE: ROBOTIC ROBOT CONN. MODE: --- ROBOT REG. MODE: ABS. CURR. ROBOT ARC LENGTH: ENABLED ROBOT ELECTRONIC INDUCTANCE: DISABLED ROBOT BURN BACK: DISABLED ROBOT DYNAMICS: DISABLED ROBOT PULSE FREQUENCY: DISABLED GAS FLUX CONTROL: DISABLED	NOT ACTIVE - In this mode, regulation of the ELECTRONIC INDUCTANCE is active, via the welding machine's panel. ACTIVE - In this mode, regulation of the ELECTRONIC INDUCTANCE is active, via the robot interface board.
ROBOT BURN BACK  CONFIG WELDING MODE: ROBOTIC ROBOT CONN. MODE: --- ROBOT REG. MODE: ABS. CURR. ROBOT ARC LENGTH: ENABLED ROBOT ELECTRONIC INDUCTANCE: DISABLED ROBOT BURN BACK: DISABLED ROBOT DYNAMICS: DISABLED ROBOT PULSE FREQUENCY: DISABLED GAS FLUX CONTROL: DISABLED	NOT ACTIVE - In this mode, regulation of the BURN BACK is active, via the welding machine's panel. ACTIVE - In this mode, regulation of the BURN BACK is active, via the robot interface board.
ROBOT DYNAMICS  CONFIG WELDING MODE: ROBOTIC ROBOT CONN. MODE: --- ROBOT REG. MODE: ABS. CURR. ROBOT ARC LENGTH: ENABLED ROBOT ELECTRONIC INDUCTANCE: DISABLED ROBOT BURN BACK: DISABLED ROBOT DYNAMICS: DISABLED ROBOT PULSE FREQUENCY: DISABLED GAS FLUX CONTROL: DISABLED	NOT ACTIVE - In this mode, DYNAMIC regulation is active, via the welding machine's panel. ACTIVE - In this mode, DYNAMIC regulation is active, via the robot interface board.
ROBOT PULSE FREQ. (ROBOT PULSE FREQUENCY)  CONFIG WELDING MODE: ROBOTIC ROBOT CONN. MODE: --- ROBOT REG. MODE: ABS. CURR. ROBOT ARC LENGTH: ENABLED ROBOT ELECTRONIC INDUCTANCE: DISABLED ROBOT BURN BACK: DISABLED ROBOT DYNAMICS: DISABLED ROBOT PULSE FREQUENCY: DISABLED GAS FLUX CONTROL: DISABLED	NOT ACTIVE - In this mode, PULSATION FREQUENCY regulation is active, via the welding machine's panel. ACTIVE - In this mode, PULSATION FREQUENCY regulation is active, via the robot interface board.
GAS FLUX CONTROL  CONFIG WELDING MODE: ROBOTIC ROBOT CONN. MODE: --- ROBOT REG. MODE: ABS. CURR. ROBOT ARC LENGTH: ENABLED ROBOT ELECTRONIC INDUCTANCE: DISABLED ROBOT BURN BACK: DISABLED ROBOT DYNAMICS: DISABLED ROBOT PULSE FREQUENCY: DISABLED GAS FLUX CONTROL: DISABLED	NOT ACTIVE - In this mode the GAS FLOW input for the MCB-3 motor control box is ignored. ACTIVE - In this mode the GAS FLOW input for the MCB-3 motor control box is checked, and if necessary the relevant alarm is activated.

(continua)

Function	Description
WATER FLUX CONTROL  	NOT ACTIVE - In this mode the WATER FLOW input for the MCB-3 motor control box is ignored. ACTIVE - In this mode the WATER FLOW input for the MCB-3 motor control box is tested, and if necessary the relevant WATER FAULT alarm is activated via the output of the box.
WIRE PRESENCE CONTROL  	NOT ACTIVE - In this mode the WIRE PRESENCE input for the MCB-3 motor control box is ignored. ACTIVE - In this mode the WIRE PRESENCE input for the MCB-3 motor control box is tested, and if necessary the relevant WIRE MISSING alarm is activated via the robot interface board.
CURRENT MISSING MASK  	XXX [ms] - During and on completion of welding, this indicates the time lapse between current zeroing and deactivation of the CURRENT SENSE digital output on the robot interface board.
DUAL FEEDER MODE  	SEPARATE - If a double feeder is chosen in the EQUIPMENT LAYOUT menu, in this mode the second feeder operates separately from the first. SLAVED - If a double feeder is chosen in the EQUIPMENT LAYOUT menu, in this mode the second feeder operates simultaneously with and parallel to the first.
SLAVE FEEDER SPEED  	The parameter indicates the speed difference in ‰ for the slave feeder, compared to the main feeder.
MIN. ROBOT ANALOG VOLTAGE  MAX. ROBOT ANALOG VOLTAGE  	These parameters are used to set the maximum and minimum voltage settings used to control the robot board’s analogue inputs. The settable values are: MINIMUM ROBOT ANALOGUE V from 0V to 2V MAXIMUM ROBOT ANALOGUE V from 5V to 14,5V

(continua)

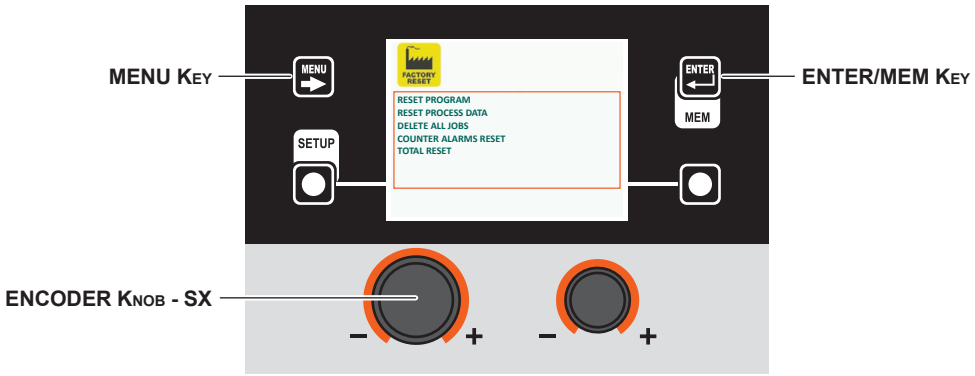
Function	Description
CHECK WIRE STABILITY  	When active, the stability of the wire can be checked while welding, based on the values recorded during the acquisition procedures described below. If the thresholds are exceeded, with the check active, an error is generated that stops welding immediately (see E9.2 in the error description paragraph). **DESCRIPTION OF THE ACQUISITION PROCEDURE (only in robotic mode, with a pulsed process)** The procedure for checking the (pulsed arc) wire stability can be enabled as follows: • Activate this parameter (in the CONFIG menu, select ACTIVE). Then go back to the welding window, which will display the icon in the top left corner that indicates that the check is active, without calibration (Fig. 1). • Start the robot welding procedure a number of times, until the desired result is achieved. Then, during welding, hold the keys marked in red down together for at least 5 seconds. • During acquisition, the icon will be displayed, as shown in Fig. 2.  • When welding is ended, the icon will appear in the top left corner indicating that the check is active, calibrated, and awaiting the start (Fig. 3) • Enable welding. For the first 3 seconds, the WARM-UP icon will appear (Fig. 4) • Then the icon will appear that indicates that the system will activate checking of the welding. If necessary, the E9.2 error will be generated, which will immediately stop welding if the values acquired during calibration are not respected (Fig. 5). 1  2  3  4  5 
VARIATION OF ARC RESISTANCE  VARIATION OF V0 VOLTAGE  	Setting these parameters defines the (absolute and percentage value) thresholds, at which the system intervenes, in relation to the values acquired during the calibration procedure described above.

To exit the *EQUIPMENT LAYOUT Menu* and go back to the *SETUP Menu*:
• Push the **MENU KEY**.

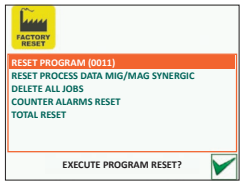
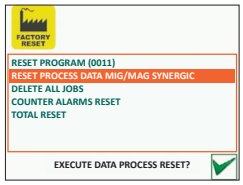
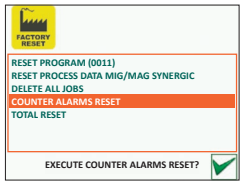
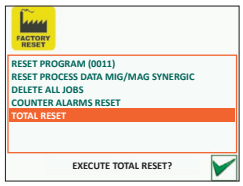
FACTORY RESET — SETUP Menu

The purpose of this menu is to allow the operator to return the welding machine partially or totally to the factory settings.

To access the *FACTORY RESET Menu* from the *SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



Within the *FACTORY RESET Menu* it is possible, by rotating the **ENCODER KNOB - SX**, to select the individual *RESET* required, from the **5** functions available:

Function	Description
RESET PROGRAM 	Used to return the *Special functions (Fx)* of the PROGRAM that the operator is using to their DEFAULT settings (only for welding processes for which welding programs are set beforehand). **NOTE:** *The welding PROGRAM NUMBER for which the Special Functions (Fx) are to be returned to the factory settings is indicated on the* **VISION SCREEN**.
RESET PROCESS DATA 	Used to return the *Special functions (Fx)* of the welding PROCESS the operator is using to their DEFAULT settings. **NOTE:** *The welding PROCESS for which the Special Functions (Fx) are to be returned to the factory settings, is indicated on the* **VISION SCREEN**.
DELETE ALL JOBS 	Used to delete all the *JOBS* saved previously by the operator. **WARNING:** *Remember that, when it leaves the factory the welding machine DOES NOT HAVE any JOB saved in it!*
COUNTER ALARMS RESET 	Used to reset the counters for all the alarms (Curr. - Tot. ---- see *ERROR LOG Menu*) that have occurred in the welding plant. **WARNING:** *This operation resets the counters for the alarms but does not delete the individual alarms!*
TOTAL RESET 	Used to return the welding plant to the factory settings. **WARNING:** ***Resetting will take place as soon as the key is released to confirm the operation!***

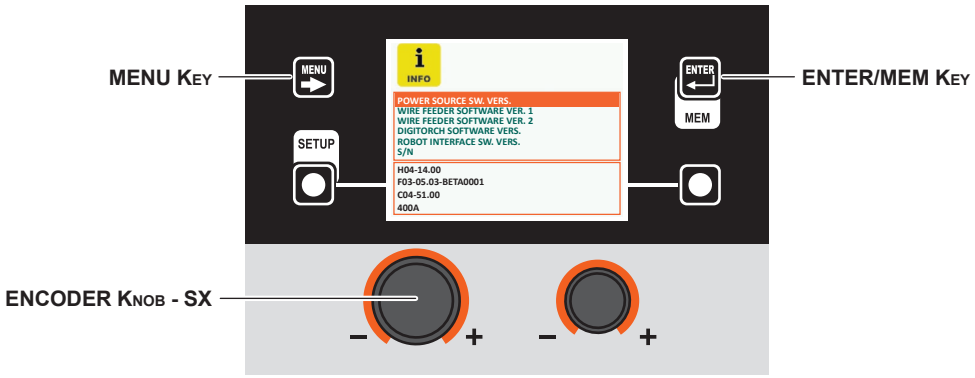
All the functions included in this menu can be used as follows:
- Choose the function (e.g. RESET PROCESS DATA) that you intend to use by rotating the **ENCODER KNOB - SX**.
- EXECUTE PROCESS DATA RESETTING by pushing the **DX KEY**.
- PROCEED by finalising the reset by pushing the **SETUP/SX KEY** or cancel the operation by pushing the **DX KEY**.

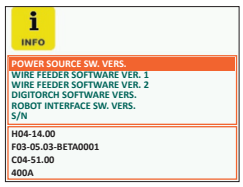
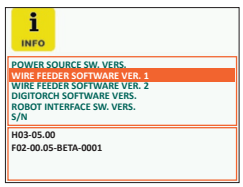
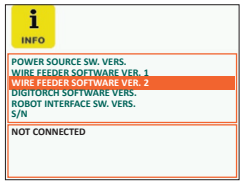
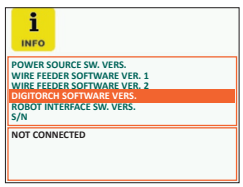
To exit the *FACTORY RESET Menu* and go back to the *SETUP Menu*:
- Push the **MENU KEY**.

INFO — SETUP Menu

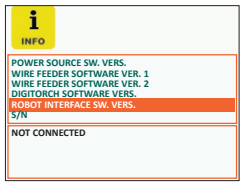
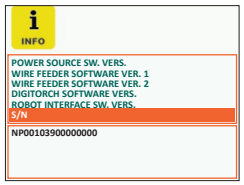
The purpose of this menu is to allow the operator to know what version of the software has been loaded into each component that is part of the welding plant.

To access the *INFO Menu* from the *SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.

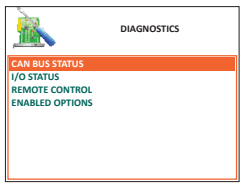
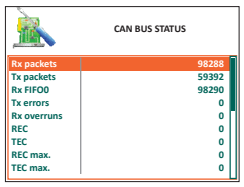
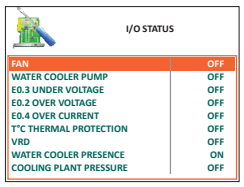
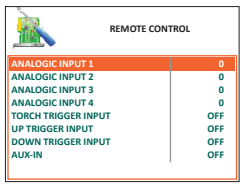
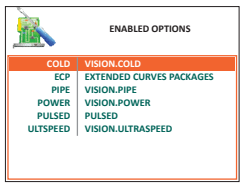


Software	Description
POWER SOURCE SW. VERS. 	Indicates the version of the software loaded into the welding machine.
WIRE FEEDER SOFTWARE VERS. 1/2  	This indicates the software version loaded in feeder 1/2, if applicable.
DIGITORCH SOFTWARE VERSION 	This indicates the software version loaded in the Digitorch board, if applicable.

(continued)

Software	Description
ROBOT INTERFACE SW. VERS. 	This indicates the software version loaded in the robot interface board, if applicable.
S/N 	This indicates the serial number for the microprocessor contained in the digital interface board. This is the serial number required for loading special functions at additional cost.

A diagnostics menu can also be accessed by holding down the **DX KEY** and the **SETUP/SX KEY** for three seconds.

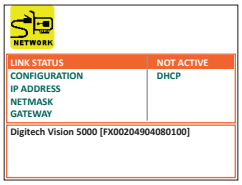
Software	Descrizione
DIAGNOSTICS MENU 	This menu has 4 diagnostics windows: • CAN BUS STATUS • I/O STATUS • REMOTE CONTROLS STATUS • ENABLED OPTIONS
CAN BUS STATUS 	Number of packages transmitted and received (Rx.. and TX..) and the number of transmission errors.
I/O STATUS 	The status of the inputs and outputs on the generator.
REMOTE CONTROLS STATUS 	The status of the inputs: • ANALOGUE INPUT 1 (synergic remote control input) • ANALOGUE INPUT 2 (arc length remote control input) • ANALOGUE INPUTS 3 & 4 not connected • TORCH BUTTON • UP AND DOWN BUTTONS on the torch • AUX-IN not connected
ENABLED OPTIONS 	The special programs enabled, specifically: • PULSED • ECP estended curves package • vision.COLD • vision.PIPE • vision.POWER • vision.ULTRASPEED • vision.PULSE-UP • vision-PULSE-RUN • vision-PULSE-POWER

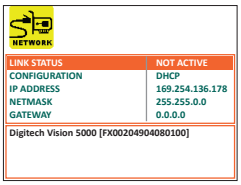
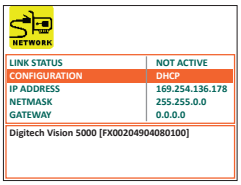
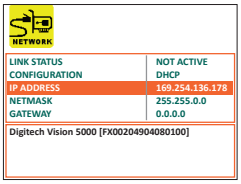
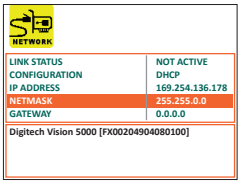
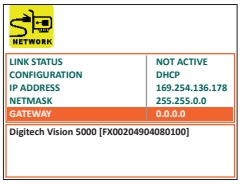
The contents of thus menu are for information only, the operator cannot change anything they can only read the information contained by scrolling the various options available in the menu by rotating the **ENCODER KNOB - SX**.

To exit the *INFO Menu* and go back to the *SETUP Menu*:
- Push the **MENU KEY**.

NETWORK — SETUP Menu

This menu is used to view the settings for the Ethernet network if connected. If not, the following image is displayed:

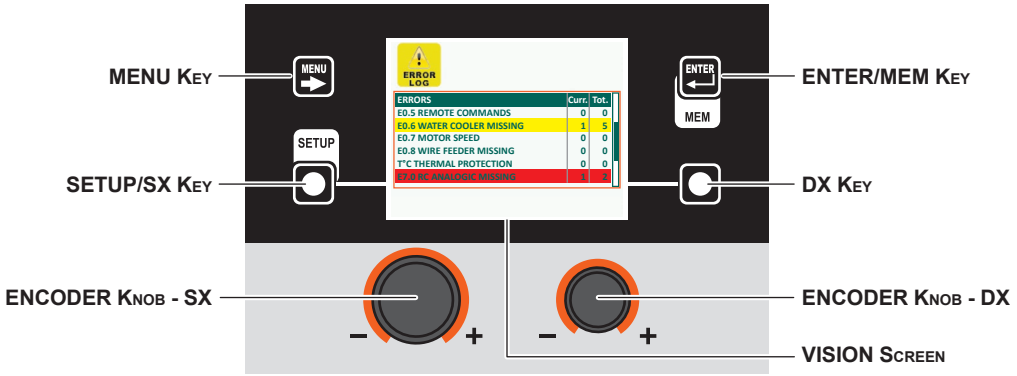


Function	Description
LINK STATUS 	This indicates that the welding machine has an active connection to the Ethernet network.
CONFIGURATION 	This indicates the type of network configuration used. The DHCP protocol is obligatory.
IP ADDRESS 	This indicates the IP address to which the welding machine has been assigned.
NETMASK 	This indicates the sub-network template number to which the welding machine has been assigned.
GATEWAY 	This indicates the gateway number to which the welding machine has been assigned.

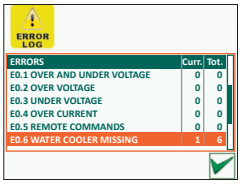
To exit the *DATA IN-OUT Menu* and go back to the *SETUP Menu*:
- Push the **MENU KEY**.

The purpose of this menu is to allow the operator to know, interpret, and understand error conditions that have occurred or may be encountered on the welding plant.

To access the *ERROR LOG Menu* from the *SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



Within the menu the following is indicated for each individual error:
- Its code (e.g. E1.0).
- A short description (e.g. no configuration file).
- The number of times this has occurred since the last time the machine was switched on (Curr).
- The number of times this has occurred since the last ALARM COUNTER RESET or TOTAL RESET (Tot.) of the welding machine.
- Errors that have occurred on the welding plant and subsequently been corrected, but not yet partially reset, are highlighted in yellow.
- Errors that have occurred on the welding machine, but that have not yet been resolved and so are still active, are highlighted in red.

RESET Curr (RESET PARTIAL ERROR COUNT)	
	The counter that indicates how many times a error or alarm has occurred since the last time the machine was switched on is part of this menu, and can be zeroed as follows: • Choose the error for which the partial counter (Curr) must be reset by rotating the **SX - ENCODER KNOB**. • The **VISION SCREEN** displays an icon in the bottom right corner (see image) that indicates that you can proceed with resetting. • Hold down the **DX KEY** until resetting of the (Curr) counter has been completed.

Within the menu, by rotating the **ENCODER KNOB - SX** it is possible to scroll the errors (also indicated in the table below), view them and select them.

Error condition	Error code	Error description and possible diagnosis
Err	E0.0	POWER SUPPLY FAILURE **NON automatic reset error.** This error can only arise when switching on and not when the welding plant is working normally. Error visible on **VISION SCREEN** ONLY in the event of a fault and NOT in the *ERROR LOG Menu*.
Err	E0.1	OVER AND UNDER VOLTAGE Automatic reset error.
Err	E0.2	OVER VOLTAGE Automatic reset error.
Err	E0.3	UNDER VOLTAGE Automatic reset error.
Err	E0.4	OVER CURRENT Automatic reset error.
Err	E0.5	REMOTE COMMANDS No feed for remote commands. **NON automatic reset error.**

(continued)

Error condition	Error code	Error description and possible diagnosis
Err	E0.6	WATER COOLER MISSING **NON automatic reset error.** Check that the WATER COOLER SYSTEM - OBLIGATORY function is included within the *ADVANCED SETUP Menu* / *EQUIPMENT LAYOUT*. After this initial check you need to know that this error can only occur in the following cases: • Water cooler system not connected to the welding machine. • The welding machine does not recognise the water cooler system, even though it is connected correctly. • Water cooler system disconnected when the machine is operating normally. Once the water cooler system has been reactivated, this error condition **resets itself automatically**! If the alarm occurs even when the WATER COOLER SYSTEM - OPTIONAL function is included in the *ADVANCED SETUP Menu* / *EQUIPMENT LAYOUT*, **call Technical Assistance Department immediately**.
Err	E0.7	MOTOR FAULT **NON automatic reset error.** **Immediately contact technical assistance dept.** Error visible on **VISION SCREEN** ONLY in the event of a fault and NOT in the *ERROR LOG Menu*.
Err	E0.8	WIRE FEEDER MISSING **NON automatic reset error.** Check that the WIRE FEEDER - OBLIGATORY function is included within the *ADVANCED SETUP Menu* / *EQUIPMENT LAYOUT*. After this initial check you need to know that this error can only occur in the following cases: • Wire feeder not connected to the welding machine. • The welding machine does not recognise the wire feeder, even though it is connected correctly. • Wire feeder disconnected when the machine is operating normally. Once the wire feeder has been reactivated, this error condition **resets itself automatically**! If the alarm occurs even when the WIRE FEEDER - OPTIONAL function is included in the *ADVANCED SETUP Menu* / *EQUIPMENT LAYOUT*, **call Technical Assistance Department immediately**.
Err	E0.9	CAN INTERNAL ERROR Faulty communication between the generator and the feeder. **NON automatic reset error.** Error visible on **VISION SCREEN** ONLY in the event of a fault and NOT in the *ERROR LOG Menu*.
Err	T°C	THERMAL PROTECTION The welding stops due to an excessively high temperature (thermostat activated). Automatic reset error.
Err	H20	COOLER PRESSURE The fluid in the cooling system is at low pressure. **NON automatic reset error.**
Err	E3.2	STICKING This error is displayed when a short-circuit has been formed between the machine's output terminals for more than 1.2 seconds. **NON automatic reset error.** To remove the error state, eliminate the short circuit so that the voltage on the torch goes above the threshold value again. At this stage the error condition disappears and the welding machine goes back to the mode prior to the sticking. If the torch trigger is still pushed, it must be released and pressed again to begin welding again.
Err	E3.3	MOTOR SPEED FAULT **NON automatic reset error.** Check that the rollers on the wire feeder mechanism are not stuck and that the welding wire comes out correctly, otherwise **contact Technical Assistance Department immediately**.
Err	E3.4	CIRCUIT CALIBRATION ERROR **NON automatic reset error.** This error occurs when the welding circuit detection procedure has not been carried out.
Err	E6.0	HT5 CAN LINK MISSING **NON automatic reset error.** **Immediately contact technical assistance dept.**
Err	E6.1	ROBOT LINK MISSING **NON automatic reset error.** **Immediately contact technical assistance dept.**

(continued)

Error condition	Error code	Error description and possible diagnosis
Err	E6.2	NO DIGITORCH LINK **NON automatic reset error.** **Immediately contact the technical assistance department.**
Err	E6.3	CAN LINK ERROR **NON automatic reset error.** **Immediately contact the technical assistance department.**
Err	E6.4	DIGITORCH MISSING **NON automatic reset error.** Check that the DIGITORCH function is available - OBLIGATORY in the *ADVANCED SETTINGS / EQUIPMENT LAYOUT Menu*. After this initial check you need to know that this error can **only** occur in the following cases: • DIGITORCH not connected to the welding machine. • The welding machine does not detect the DIGITORCH even if this is connected correctly. • DIGITORCH disconnected while the machine is working normally. When the DIGITORCH is activated again, this error state **is reset automatically!** Should this alarm occur even when the OPTIONAL FEEDER function is active in the *ADVANCED SETTINGS / EQUIPMENT LAYOUT Menu*, **call our technical service department immediately.**
Err	E6.5	NO ROBOT INTERFACE Automatic reset error.
Err	E7.0	RC ANALOGIC MISSING **NON automatic reset error.** Check that the ANALOGIC RC - OBLIGATORY function is included within the *ADVANCED SETUP Menu / EQUIPMENT LAYOUT*. After this initial check you need to know that this error can **only** occur in the following cases: • ANALOGIC RC remote control not connected to the relevant connector. • The welding plant does not recognise the ANALOGIC RC remote control, even though it is connected correctly. • The ANALOGIC RC remote control disconnected when the welding plant is working normally. As soon as the remote control is connected again this error condition **resets itself automatically!** If the alarm occurs even when the ANALOGIC RC - OPTIONAL function is included in the *ADVANCED SETUP Menu / EQUIPMENT LAYOUT*, **call Technical Assistance Department immediately.**
Err	E8.2	INVALID ROBOT JOBS Automatic reset error.
Err	E8.3	NO GAS FLOW Error reset by a command from the robot's board (see robot interface manual).
Err	E8.4	NO H2O FLOW Error reset by a command from the robot's board (see robot interface manual).
Err	E8.5	SEQUENCES NOT VALID **NON automatic reset error.** **Immediately contact technical assistance dept.** Error visible on **VISION SCREEN** ONLY in the event of a fault and NOT in the *ERROR LOG Menu*.
Err	E8.6	ROBOT INTERFACE NOT SUPPORTED This alarm is activated when the generator software and the robot interface board are not compatible. **NON automatic reset error.** **Immediately contact technical assistance dept.**

(continued)

Error condition	Error code	Error description and possible diagnosis
Err	E8.7	NO WELDING WIRE Error reset by a command from the robot's board (see robot interface manual).
Err	E9.0	NO ROBOT CONNECTION Error reset by a command from the robot's board (see robot interface manual).
Err	E9.1	CONSENSUS NOT RECEIVED For more information see the CQM software manual.
Err	E9.2	CHECK WIRE STABILITY This alarm occurs during welding if the values measured during the calibration procedure, described in the relevant paragraph, are exceeded. **NON automatic reset error.**
AUT	ADJ	POWER LIMITATION This alarm appears if the power limit is exceeded. The alarm alternates with the standard display every 1.5 seconds, despite which the machine continues to weld, supplying limited power, but complying with the values shown on the data plate.

WARNING!

When Errors E1.0 ÷ E2.0 and Errors E4.0 ÷ E5.9 (system errors) appear, contact technical assistance immediately.

The table provides a simple summary of all the error conditions that may arise on the welding plant and, if possible, what the operator must do to attempt to resolve the problem.
The table includes **2** types of errors:

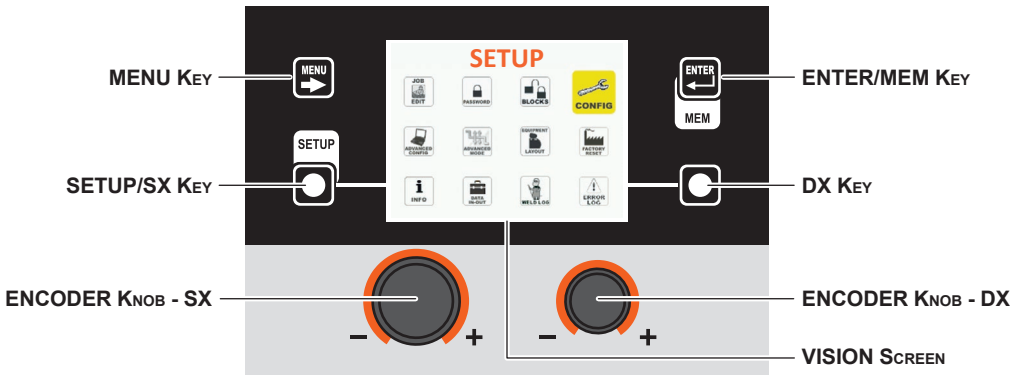
- **Automatic reset error:** Once the alarm condition has been resolved the welding machine starts working again and the operator can weld again! The **VISION SCREEN** goes back to exactly the same point it was at prior to signalling the alarm!
  PLEASE NOTE: *After resetting has been completed, during normal operation of the machine, the* **VISION SCREEN** *will still show the error signal to inform the operator of the event (⚠), but this can be removed visually from the display by simply pushing the* **MENU KEY**.
  WARNING: *This only removes the visual error indication but not the history of what happened!*
- **NON automatic reset error:** To remove the alarm status and reinstate correct operation of the machine, the welding plant must be switched off.
  The machine will then be working again and the operator can weld again!
  PLEASE NOTE: ***If, when switching on, the error status presents itself again, immediately contact Technical Assistance Department***.
  This is necessary so that our technical assistance dept (**that must be contacted each time the error messages appear on the welding machine's operator interface**) is able to resolve the problems more easily and as quickly as possible, thanks to the reports by the user, and also because, in the meantime the welding machine does not allow the operator to do their work.

To exit the *ERROR LOG Menu* and go back to the *SETUP Menu*:

- Push the **MENU KEY**.

ADVANCED SETUP Menu

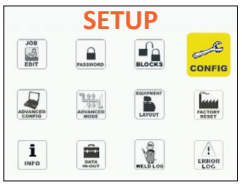
"DH" CONTROL PANEL



To access the *ADVANCED SETUP Menu* from any point on the control panel:
- Open the *SETUP Menu* by holding the **SETUP/SX KEY** down for at least **5** consecutive seconds.
- Open the *CONFIG Menu* by rotating the **ENCODER KNOB - SX** until the icon required is reached, and then push the **ENTER/MEM KEY**.
- Access the ADVANCED CONFIGURATION function by rotating the **ENCODER KNOB - SX** and select ACTIVATE by rotating the **ENCODER KNOB - DX**.
- Access the ADVANCED WELDING MODE function by rotating the **ENCODER KNOB - SX** and select ACTIVATE by rotating the **ENCODER KNOB - DX**.
- Exit the *CONFIG Menu* by pushing the **MENU KEY**.
- At this stage the *SETUP Menu* has been transformed into the *ADVANCED SETUP Menu* and the **VISION SCREEN** displays the following additional icons:
  - ADVANCED CONFIG
  - ADVANCED MODE
  - WELD LOG

MENU KEY	Used to exit the *ADVANCED SETUP Menu* and take the **VISION SCREEN** back to the welding phase.
ENCODER KNOB - SX	Used to scroll the various icons (sub-menus) in the menu and then select them.
ENTER/MEM KEY	Used to access the menu related to the icon selected.

WARNING:
- It is impossible to weld!
- If the **VISION SCREEN** is protected by a password, access to this menu will only be allowed by entering the correct password.

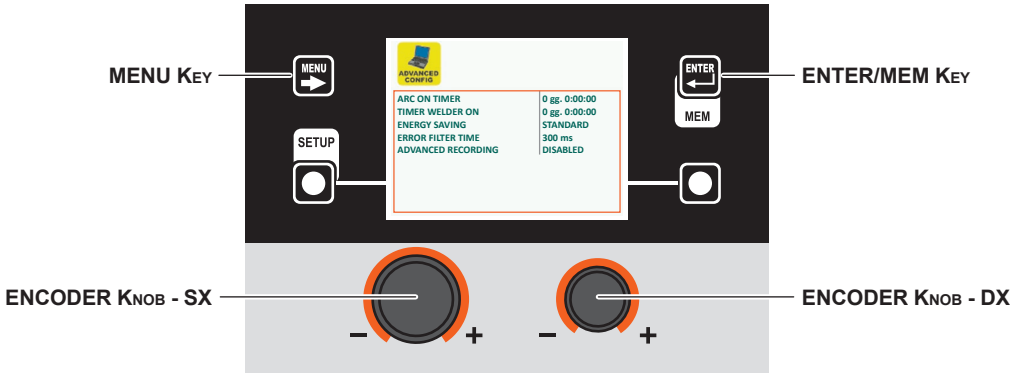
ACCESSING THE SUB-MENUS	
	To access the sub-menus included in the *ADVANCED SETUP Menu*, you must: • Turn the **ENCODER KNOB - SX** to select the desired icon. • Push the **ENTER/MEM KEY**.

"HT5" CONTROL PANEL (not used with DH 32)

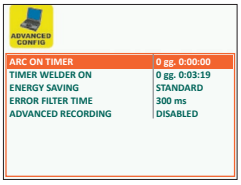
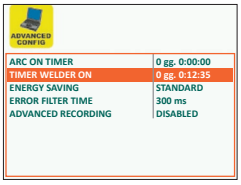
It is not possible to access the *ADVANCED SETUP Menu* and all the related sub-menus using the "HT5" control panel.

The purpose of this menu is to allow the operator to know the actual working time and operation of the welding machine, to configure the ENERGY SAVING mode in the best way to allow the best energy saving on the welding plant, and to be able to enable an analogue output on the welding plant that can be used for connecting total remote controls equipped with automatic self-recognition.

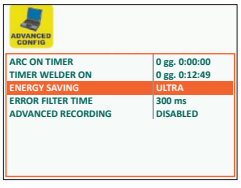
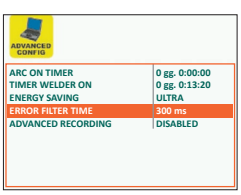
To access the *ADVANCED CONFIG Menu* from the *ADVANCED SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



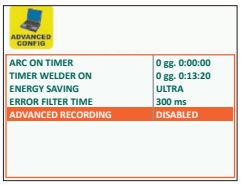
Within the *ADVANCED CONFIG Menu* the operator can view:

Advanced function	Description
ARC ON TIMER 	Indicates the actual time the machine is used for welding. **WARNING:** *This time can only be zeroed by means of a TOTAL RESET (see the relevant paragraph) of the welding plant.*
TIME WELDER ON 	Indicates the actual time the machine works, even when the screen saver is activated. **WARNING:** *This time can only be zeroed by means of a TOTAL RESET (see the relevant paragraph) of the welding plant.*

WARNING: *The content of the part of the menu described above is for information only, the operator cannot make any changes, they can only view and read the information available on the screen.*

Advanced function	Description
ENERGY SAVING 	By rotating the **ENCODER KNOB - DX** (**this operation does not require confirmation**) it is possible to choose the energy saving mode you prefer from the **3** available for the welding plant: • **STANDARD -** Energy saving is achieved by the screen saver being activated for the screens on both the generator and the feeder after a set time that cannot be changed by the operator (see the relevant paragraph). • **ULTRA -** Energy saving is obtained by the screens on the generator and the feeder being switched off after a set time, equal to that for the screen saver, which cannot be changed by the operator. • **EXTRA -** Energy saving is obtained by the screens on the generator and the feeder switching off as soon as the machine is switched on.
ERROR FILTER TIME 	This is used to set the minimum time an alarm remains active before it is displayed.

(continued)

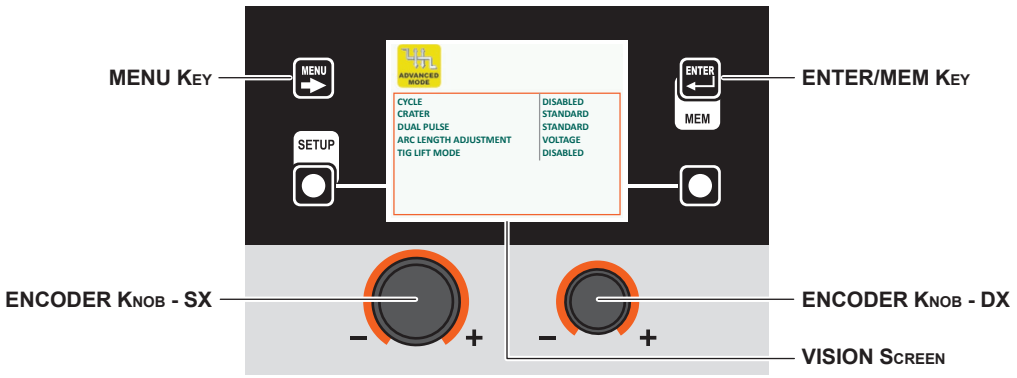
Advanced function	Description
ADVANCED RECORDING 	This makes it possible to use the CQM software (if installed) for free (not active) or automatic (active) recording. See the CQM software manual.

To exit the *ADVANCED CONFIG Menu* and go back to the *ADVANCED SETUP Menu*:
- Push the **MENU KEY**.

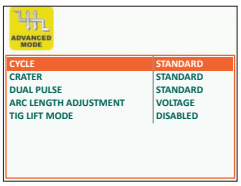
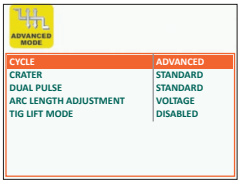
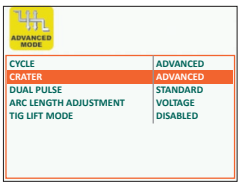
ADVANCED MODE — ADVANCED SETUP Menu

The purpose of this menu is to allow the operator to further refine adjustments to the welding parameters for the machine.

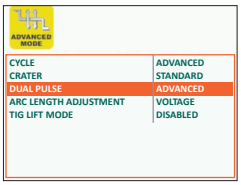
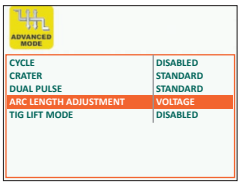
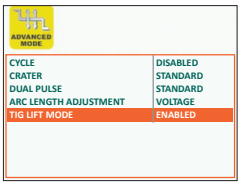
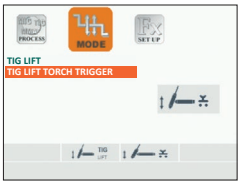
To access the *ADVANCED MODE Menu* from the *ADVANCED SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



Within the *ADVANCED MODE Menu* it is possible, by rotating the **ENCODER KNOB - SX**, to choose the advanced welding mode required from the **4** available (according to the welding process selected) and this can be ACTIVATED **(this operation does not require confirmation)** by rotating the **ENCODER KNOB - DX**.

Advanced function	Description
CYCLE  	If enabled, when operating in STANDARD or ADVANCED mode, this function provides the operator with a further welding mode (CYCLE) and the special functions associated with it, when using MIG (pulsed, double pulsed, synergic, or manual) welding processes: • CURRENT CYCLE, CYCLE WIRE SPEED (see TAB. A/B parameter F19). • CYCLE ARC LENGTH, CYCLE VOLTAGE (see TAB. A/B parameter F20). • FIRST SLOPE (from I1 to I2) see TAB. A/B parameter F18) - advanced cycle only. • SECOND SLOPE (from I2 to I1) (see TAB. A/B parameter F21) - advanced cycle only. The *WELDING MODE SELECTION Menu (MODE)* menu will therefore be changed. This function can only be activated, with the above procedure, on the VISION Display, whilst it can also be set on the HT5 drag-and-drop once it is activated. See the special “WELD MODE SELECTION Key” paragraph for correct functioning of the CYCLE welding mode.
CRATER 	If enabled, when working in ADVANCED mode, this function provides the operator with further welding modes related to the CRATER as well as the **2** special functions explained below that make it possible to vary the length of the arc in the welding crater, when using MIG (pulsed, double pulsed, synergic, and manual) welding processes. • INITIAL ARC LENGTH, INITIAL VOLTAGE (see TAB. A/B parameter F09) • FINAL ARC LENGTH, FINAL VOLTAGE (see TAB. A/B parameter F14)

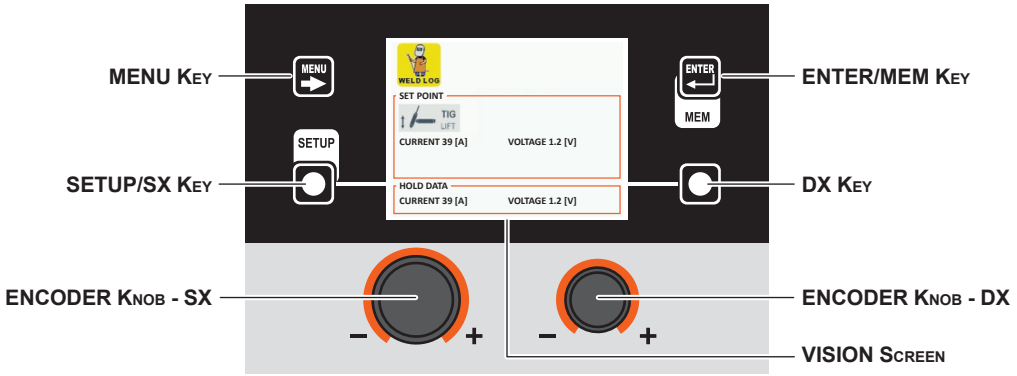
(continued)

Advanced function	Description
DOUBLE PULSED 	If enabled, when working in ADVANCED mode, this function provides the operator with the following special functions, when using the double pulsed MIG welding process: • DOUBLE PULSED ARC LENGTH (F24) Allows the welder to adjust the length of the arc on both double pulsed levels. • FIRST SLOPE (from I1 to I2) (see TAB. A parameter F22) • SECOND SLOPE (from I2 to I1) (see TAB. A parameter F27) These two special functions allow the welder to adjust the ramp for passing between the two double pulsed levels.
ARC LENGTH ADJUSTMENT 	This function allows an operator using the (pulsed, double pulsed, synergic and manual) MIG welding process to adjust the *ARC LENGTH ADJUSTMENT* (⎍) parameter with the *WELDING VOLTAGE* (**V**) or the *WIRE SPEED* (⊖).
TIG LIFT MODE  	If activated, this function makes an additional welding mode known as TIG LIFT TORCH TRIGGER available to an operator using the TIG LIFT welding process. In this mode the welder can control the *WELDING CURRENT* (**A**) parameter, using the button on the TIG torch. ***WARNING: To allow TIG LIFT WITH TORCH TRIGGER welding, the DIGITECH PULSE needs a specific female connector to be fitted on it (NON-STANDARD MACHINE) to which the corresponding male connector on the TIG torch is to be connected.*** Therefore, for the TIG LIFT welding process, a new menu will be created (see figure) named *WELDING MODE SELECTION Menu (MODE)*. **WELDING MODE SELECTION Menu (MODE)** To access the *WELDING MODE SELECTION Menu (MODE)* push the **MENU KEY**. **“DH” CONTROL PANEL** **MENU KEY** - Used to access subsequent menus, where applicable. **ENCODER KNOB - SX** - Selects the welding mode. **ENTER/MEM KEY** - Used to access the *PRE-SETTING* for the program selected beforehand, with the welding *MODE* chosen. **“HT5” CONTROL PANEL** It is not possible to access the *WELDING MODE SELECTION Menu (MODE)* via the “HT5” control panel.

To exit the *ADVANCED MODE Menu* and go back to the *ADVANCED SETUP Menu*:
- Push the **MENU KEY**.

The purpose of this menu is to allow the operator to know the latest welding parameters set on the machine, as well as the latest data saved on the machine.

To access the *WELD LOG Menu* from the *ADVANCED SETUP Menu*:
- Turn the **ENCODER KNOB - SX** to select the desired icon.
- Push the **ENTER/MEM KEY**.



The content of this menu is for information only, the operator cannot make any changes, they can only read the information available on the screen.

To exit the *WELD LOG Menu* and go back to the *ADVANCED SETUP Menu*:
- Push the **MENU KEY**.

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