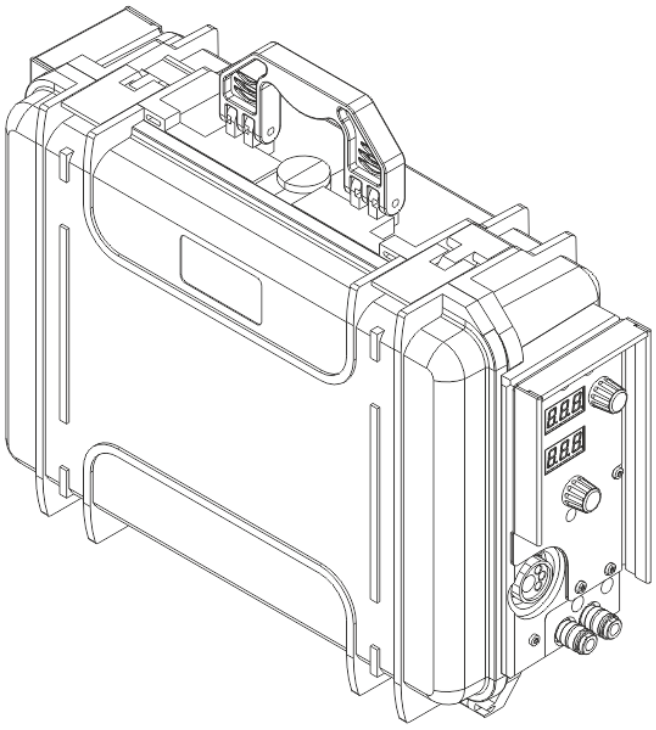
WELD THE WORLD

# WF-203sc

## Instruction Manual

**ENGLISH**

Translation of the original instructions in Italian



Cod.006.0001.2280
03/05/2022 V.1.0

# GENERAL INDEX

# 1 GENERAL INFORMATION

**IMPORTANT!**
**For your safety**

This handbook must be consigned to the user prior to installation and commissioning of the unit.
**Read the "General prescriptions for use" handbook supplied separately from this manual before installing and commissioning the unit.**
The meaning of the symbols in this manual and the associated precautionary information are given in the "GENERAL PRESCRIPTIONS FOR USE".
If the "GENERAL PRESCRIPTIONS FOR USE" are not present, it is mandatory to request a replacement copy from the manufacturer or from your dealer.
Retain these documents for future consultation.

## Meaning of the symbols

**DANGER!**
**This pictogram warns of danger of death or serious injury.**

**WARNING!**
**This pictogram warns of a risk of injury or damage to property.**

**CAUTION!**
**This pictogram warns of a potentially hazardous situation.**

**WARNING!**
**This pictogram gives important information concerning the execution of the relevant operations.**

**Information**
**This pictogram indicates additional information or refers to another section of the manual with the related information.**

- In the tables:
  - minimum value
  - default value
  - maximum value
- In the illustrations:
  - press
  - turn the encoder
  - press the encoder
- **Note:** The figures in this manual are purely guideline and the images may contain differences with respect to the actual equipment to which they refer.

## 1.1 PRESENTATION

Wire feeder WF-203sc is designed for connection to a power source for MIG/MAG welding.
The welding modes and procedures available are those indicated in the table.

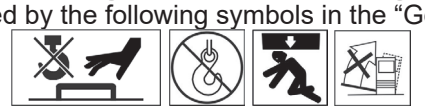
| MODE | PROCEDURE | |
|---|---|---|
| MANUAL MIG/MAG |  | TWO TIMES (2T)<br>TWO SPOT TIMES (2T SPOT) |
| |  | FOUR TIMES (4T) |
| SYNERGIC MIG/MAG |  | TWO TIMES (2T)<br>TWO SPOT TIMES (2T SPOT) |
| PULSED SYNERGIC MIG/MAG<br>(available in PIONEER PULSE MSR line power sources) |  | FOUR TIMES (4T) |
| DOUBLE PULSED SYNERGIC MIG/MAG<br>(available in PIONEER PULSE MSR line power sources) |  | THREE LEVELS (3T) |
| TIG |  | TWO TIMES (2T) |
| |  | FOUR TIMES (4T) |
| MMA | | |
| ARC AIR | | |

# 2 INSTALLATION AND ASSEMBLY

**DANGER!**

**Lifting and positioning**

Read the warnings highlighted by the following symbols in the “General prescriptions for use”.



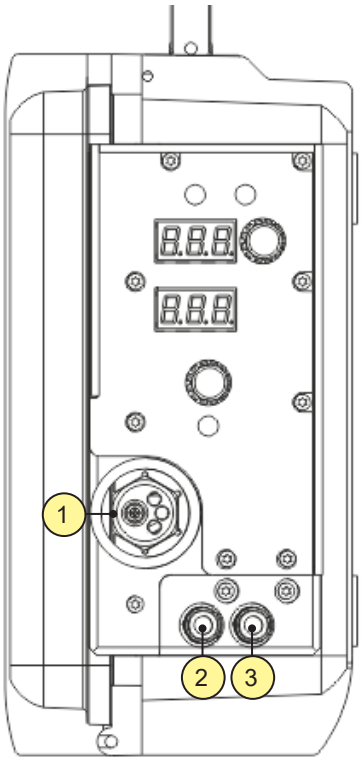
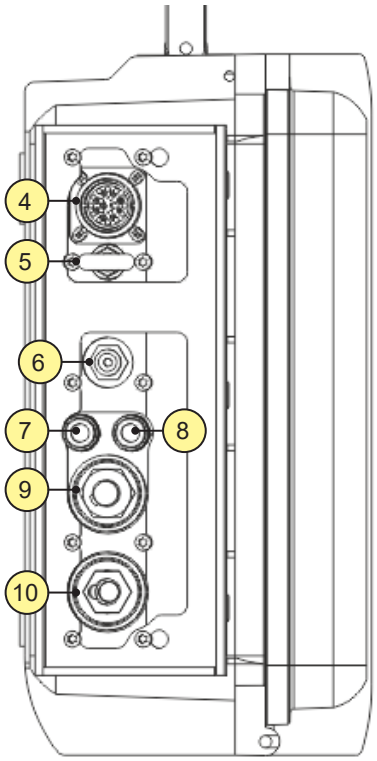
**DANGER!**

Disconnect the equipment from the mains before performing any assembly operations.
Closing the power switch does not guarantee disconnection from the mains.

**WARNING!** Assemble the various units as described in the instruction manual of the power source trolley.

**WARNING!** For the cooler to power source assembly procedure refer to the cooler instruction manual.

## 2.1 CONNECTIONS AND SOCKETS

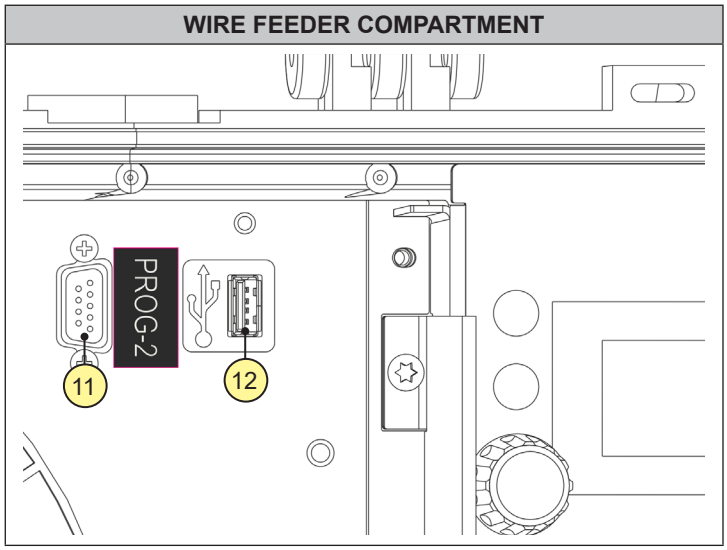
| FRONT VIEW | REAR VIEW |
|---|---|
|  |  |



- [1] EURO TORCH welding socket.
- [2] Connection for the coolant return hose from the torch (red).
- [3] Connection for the coolant supply hose to the torch (blue).
- [4] REMOTE Connector for remote connection (to connect the WF to the power generator).

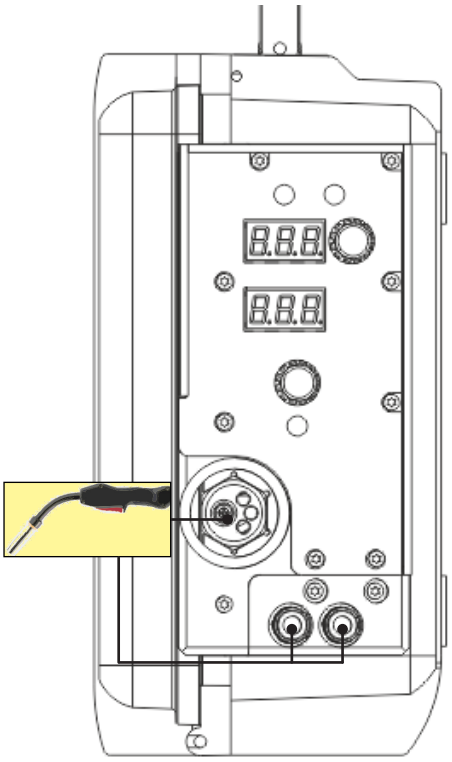
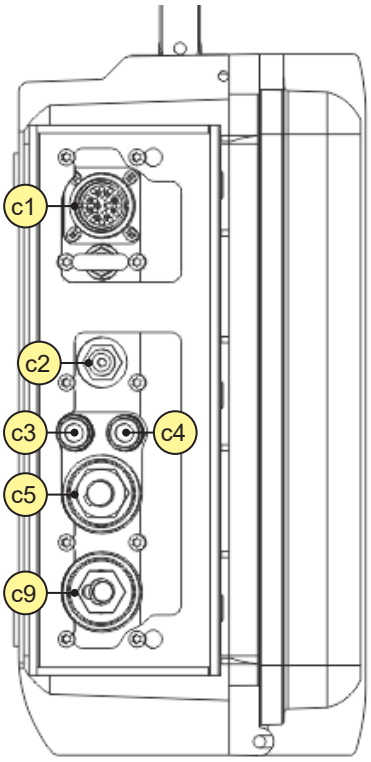
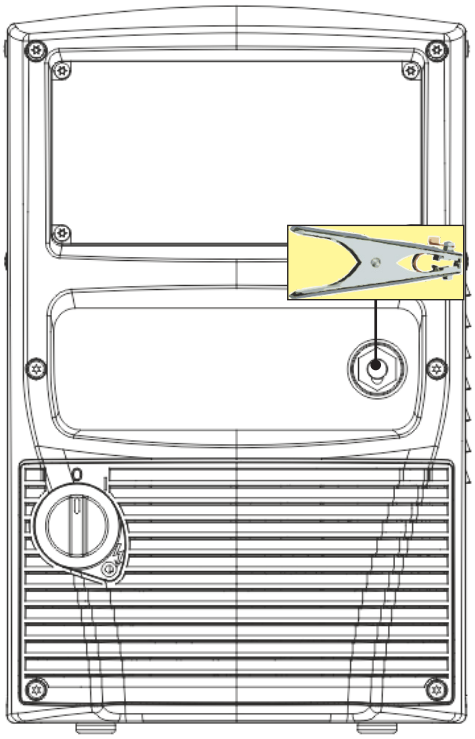
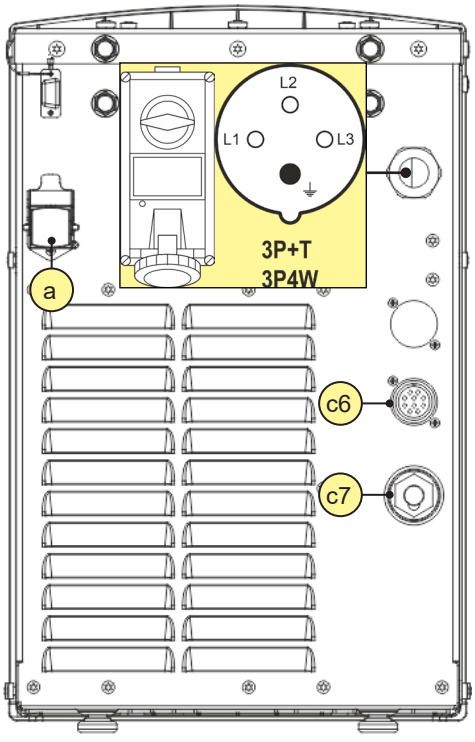
- [5]  Hook to hold the cable bundle.
  **WARNING!** The attachment point is not designed for lifting the equipment.
  Do not connect belts, ropes, chains or other towing or lifting devices to this attachment point.
- [6]  Connector for the gas supply hose between the cylinder and the generator.
- [7]  Connection for the coolant supply hose from the cooling system (blue).
- [8]  Connection for the coolant return hose to the cooling system (red).
- [9]  Socket for the connection of the power cable coming from the cable bundle.
- [10]  MMA welding socket (for coated electrode welding directly from the wire feeder).

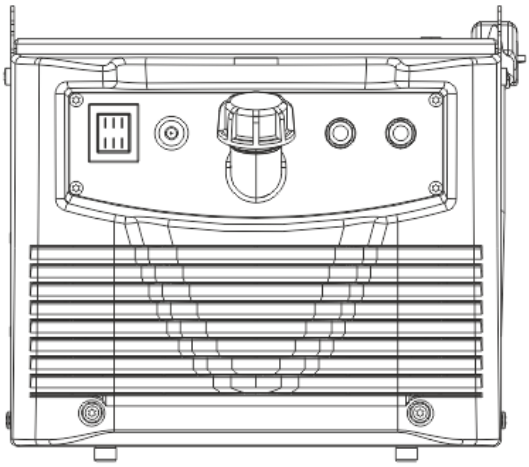
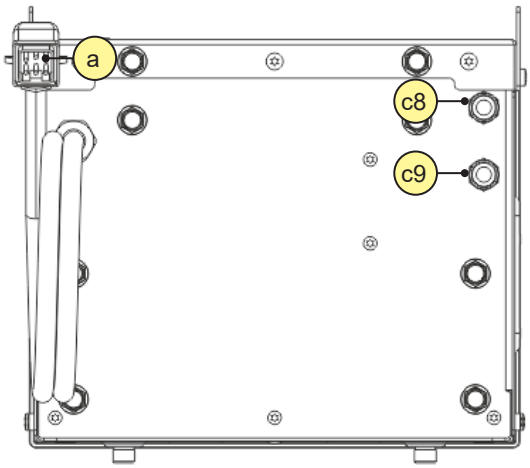
**WIRE FEEDER COMPARTMENT**

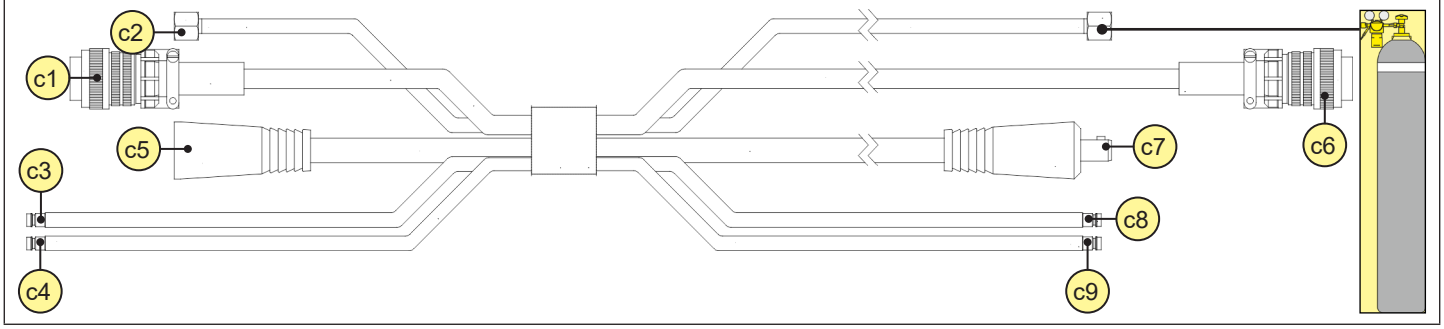



- [11] Connector for connection to the programmer.
  You can update the software of the equipment using the programming kit.
- [12] Port provided to connect a USB memory stick to export/import JOBs.

## 2.2 Preparing for MIG/MAG welding

| FRONT VIEW | REAR VIEW |
|---|---|
|  |  |
|  |  |

| FRONT VIEW | REAR VIEW |
|---|---|
|  |  |



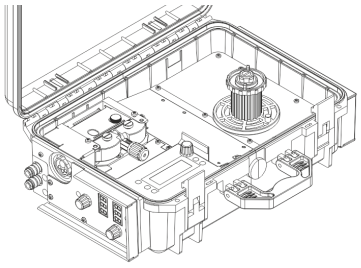

1. Set the welding power source ON/OFF switch to “O” (unit switched off).
2. Connect the cable bundle between the various devices.
3. Connect the MIG/MAG torch plug to the EURO TORCH welding socket.
4. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
5. Connect the earth clamp to the workpiece being processed.
6. Position the wire spool and the wire in the wire feeder

## Positioning the wire spool and the wire in the wire feeder

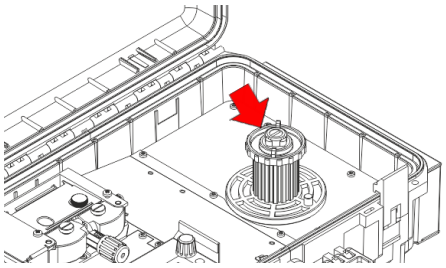
**WARNING!**

**Mechanical risks**

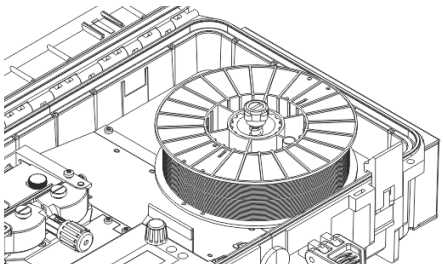
Read the warnings highlighted by the following symbols in the “General prescriptions for use”.



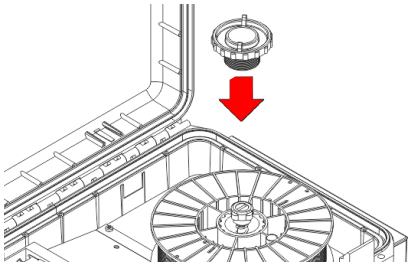
1. Open the unit side door to gain access to the spool compartment.



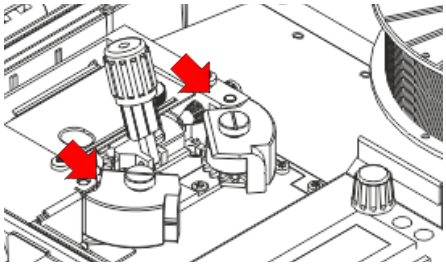
2. Unscrew the cap of the spool holder.
   If necessary, fit an adapter for the wire spool.



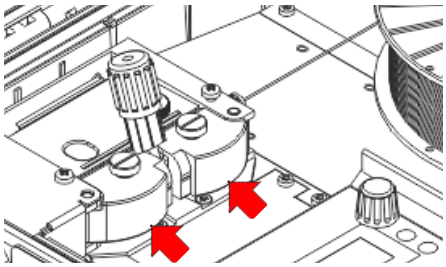
3. Fit the spool in the spool holder, ensuring it is located correctly.



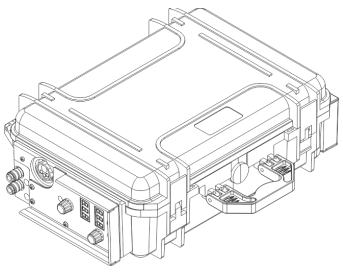
5. Refit the plug.



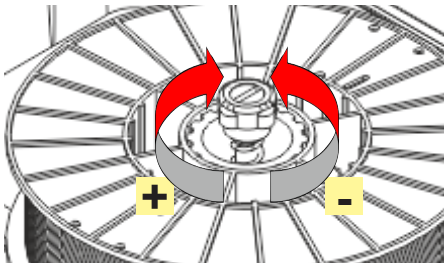
7. Raise the wire feeder pressure arms.
8. Check that the feed rolls are suitable for the wire gauge.
   **Information** follow the instructions given on page 84.



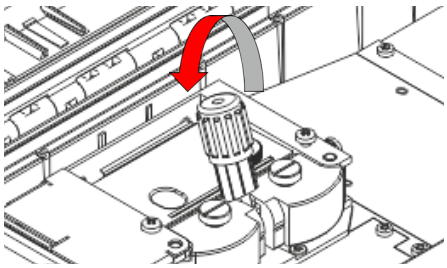
11. Close the wire feeder pressure arms.



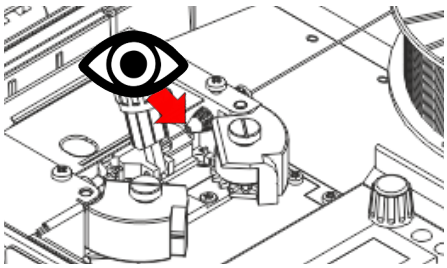
13. Close the unit side door.



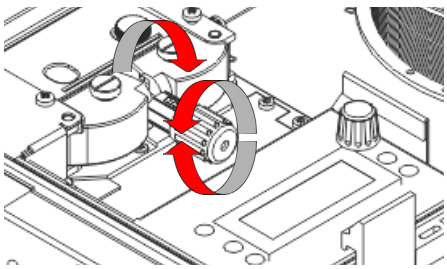

4. Adjust the spool holder braking system by tightening/ loosening the screw in such a way that the wire feed force is not excessive and when the spool stops rotating no excess wire is released.



6. Lower the wire feeder pressure devices.



9. Feed the wire between the wire feeder rolls and insert it into the MIG/MAG TORCH connector plug.
10. Make sure the wire is located correctly in the roll grooves.



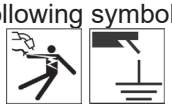
12. Adjust the pressure system so that the arms press the wire with a force that does not deform it while also ensuring constant feed rate without slipping.

14. Connect the power source mains supply cable to the mains socket outlet.

**DANGER!**

**Electric shock hazard!**

Read the warnings highlighted by the following symbols in the “General prescriptions for use”.



15. Set the welding power source ON/OFF switch to “I” (unit powered).
16. Select the following welding mode on the user interface: MIG/MAG.
17. Slide the wire into the torch until it comes out of its tip, by pressing button  located on the user interface.
    The insertion speed is 2.0 m/min for 3 seconds, subsequently increasing to 15 m/min. When the button is released, the wire stops. This function produces a slower feed rate and hence greater precision when inserting the wire when it enters the torch nozzle.
18. Open the gas cylinder valve.
19. Open the gas solenoid valve by pressing and releasing button  .
20. Use the flow control valve to adjust the flow of gas as required while the gas is flowing out.
21. Close the gas solenoid valve by pressing and releasing the button.
22. Select the torch trigger procedure via the user interface.
23. Set the required welding parameter values on the user interface.
    The system is ready to start welding.

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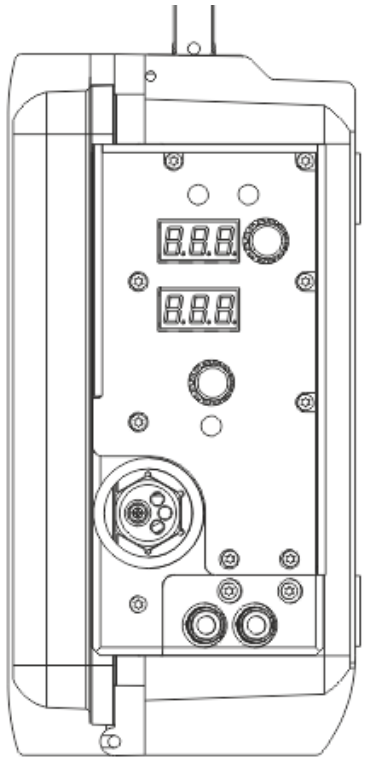
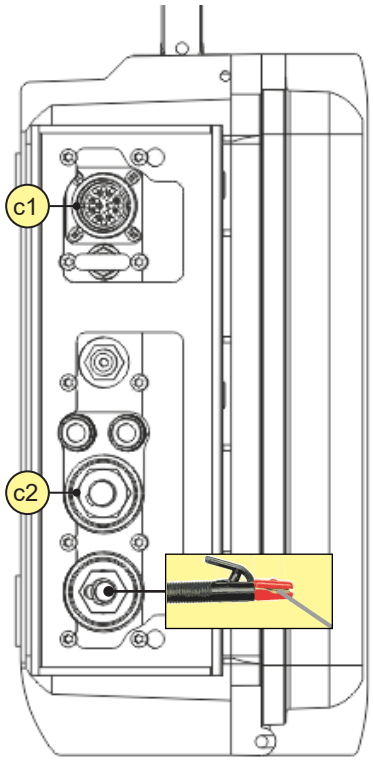
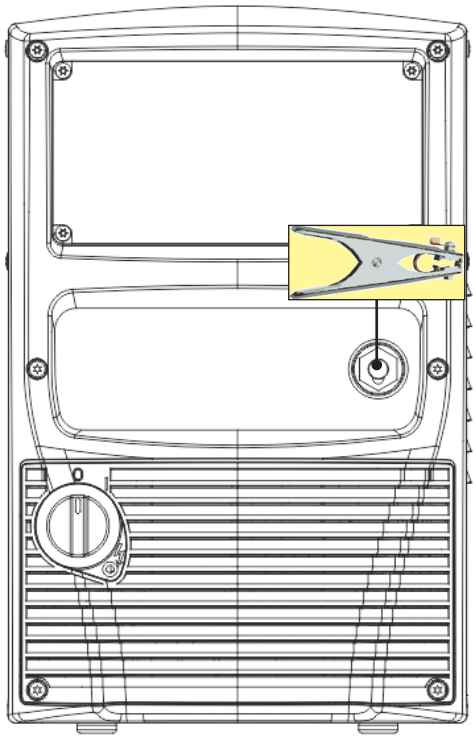
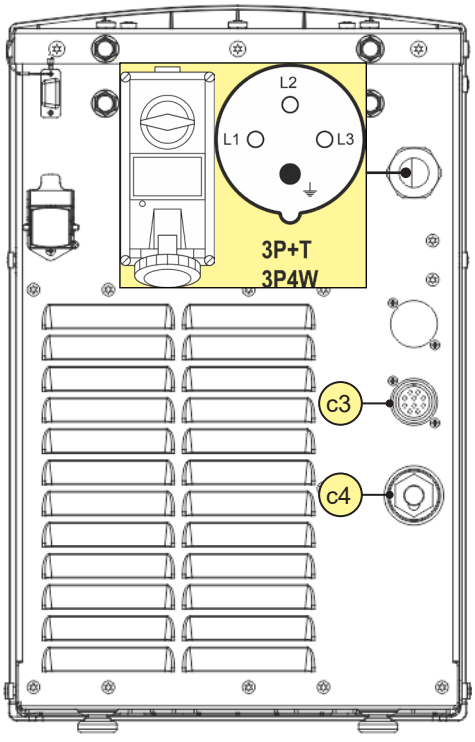
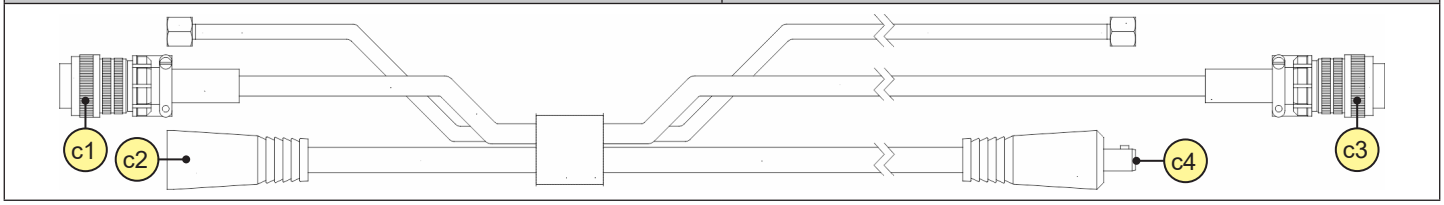
## 2.3 PREPARING FOR MMA WELDING

| FRONT VIEW | REAR VIEW |
|---|---|
|  |  |
|  |  |

| FRONT VIEW | REAR VIEW |
|---|---|

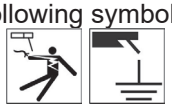



1. Set the welding power source ON/OFF switch to “O” (unit switched off).
2. Connect the electrode holder cable to the welding socket based on the polarity requested by the type of electrode used.
3. Choose the electrode based on the type of material and thickness of the workpiece to be welded.
4. Insert the electrode in the electrode holder.
5. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
6. Connect the earth clamp to the workpiece being processed.
7. Plug the power cable plug into a mains socket outlet.

**DANGER!**

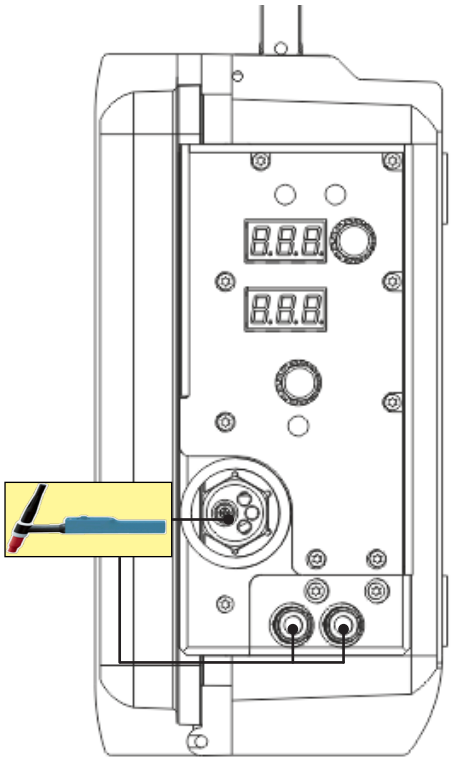
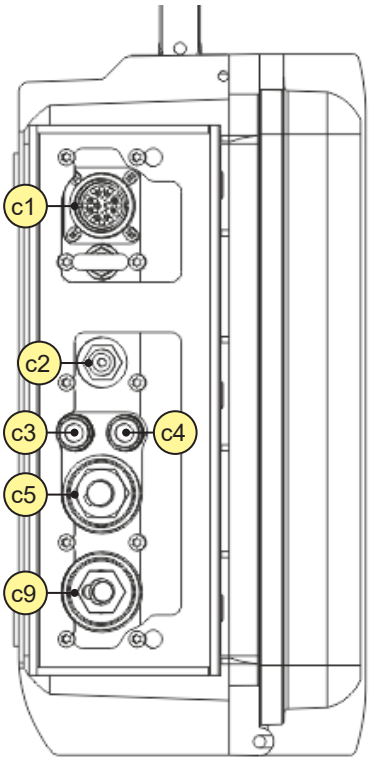
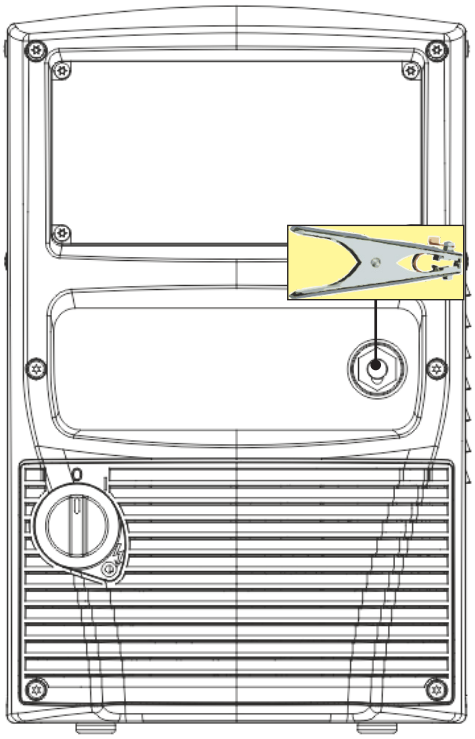
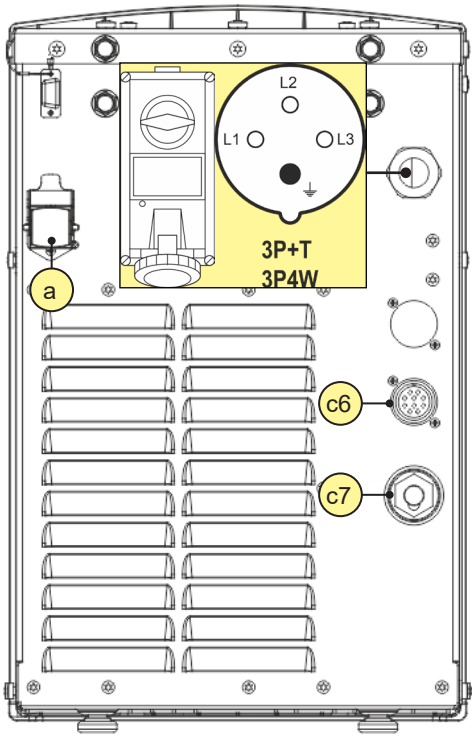
**Electric shock hazard!**

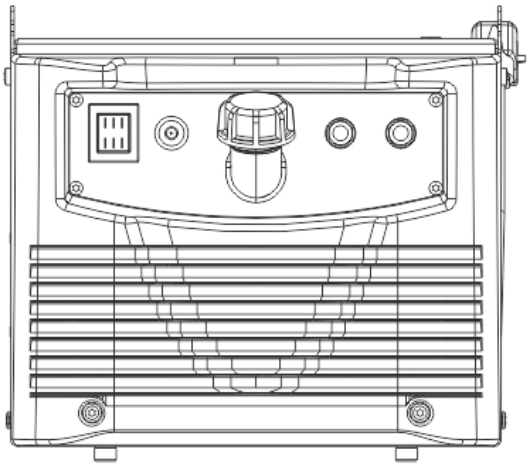
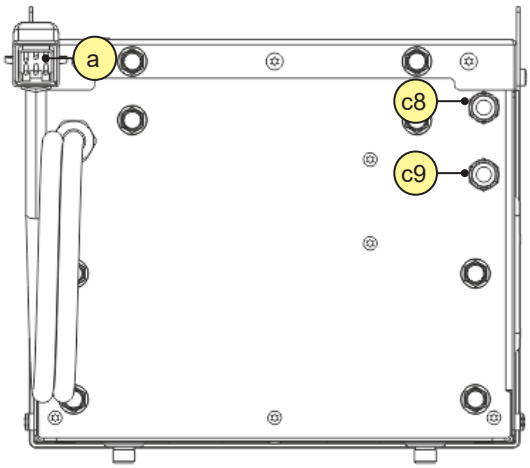
Read the warnings highlighted by the following symbols in the “General prescriptions for use”.

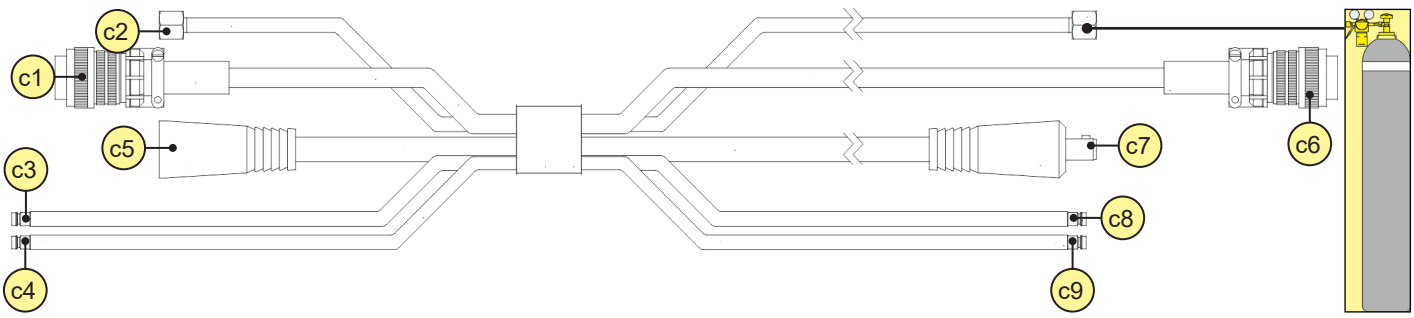


8. Set the welding power source ON/OFF switch to “I” (unit powered).
9. Select the following welding mode on the user interface: MMA.
10. Set the required welding parameter values on the user interface.
    The system is ready to start welding.

## 2.4 Preparing for TIG welding

| FRONT VIEW | REAR VIEW |
|---|---|
|  |  |
|  |  |

| FRONT VIEW | REAR VIEW |
|---|---|
|  |  |

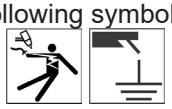



1. Set the welding power source ON/OFF switch to “O” (unit switched off).
2. Connect the TIG torch plug to the EURO TORCH welding socket.
3. Choose the electrode based on the type of material and thickness of the workpiece to be welded.
4. Insert the electrode in the TIG torch.
5. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
6. Connect the earth clamp to the workpiece being processed.
7. Plug the power cable plug into a mains socket outlet.

**DANGER!**

## Electric shock hazard!

Read the warnings highlighted by the following symbols in the “General prescriptions for use”.

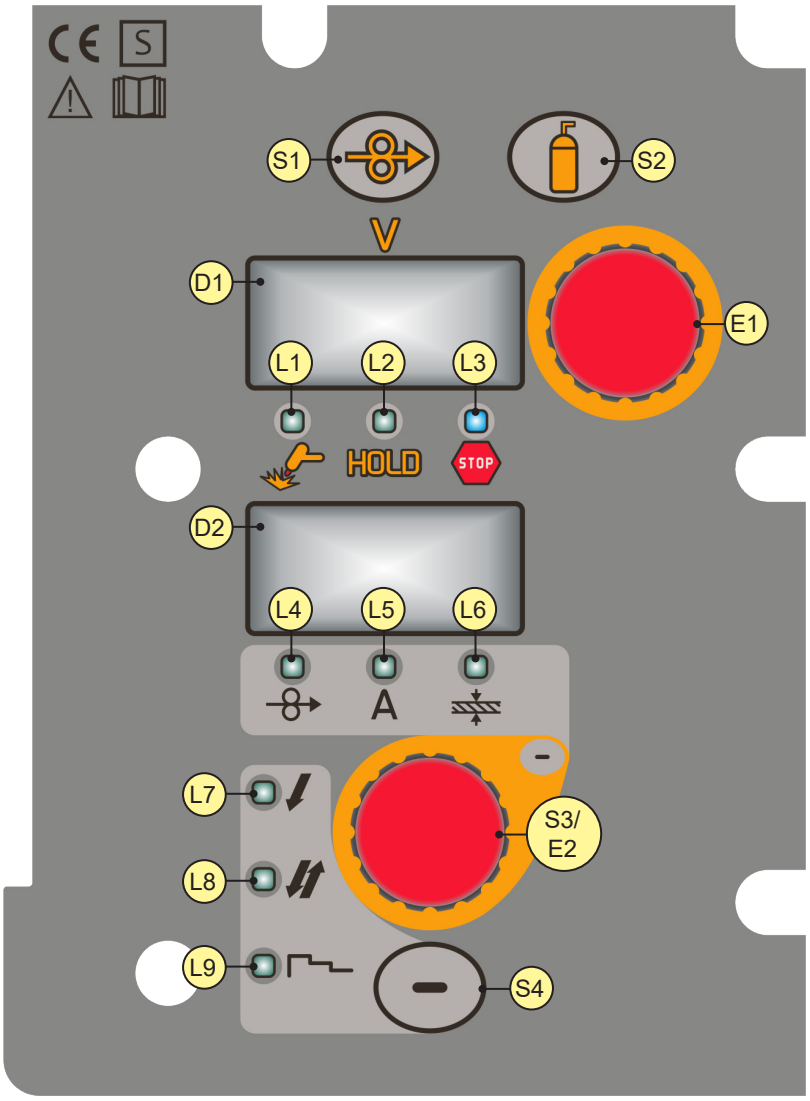


8. Set the welding power source ON/OFF switch to “I” (unit powered).
9. Select the following welding mode on the user interface: DC TIG.
10. Select the torch trigger procedure via the user interface.
11. Open the gas cylinder valve.
12. Open the gas solenoid valve by pressing and releasing button  .
13. Use the flow control valve to adjust the flow of gas as required while the gas is flowing out.
14. Set the required welding parameter values on the user interface.
    The system is ready to start welding.

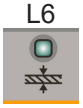
# 3 USER INTERFACE

## WF-203sc

*External user interface*

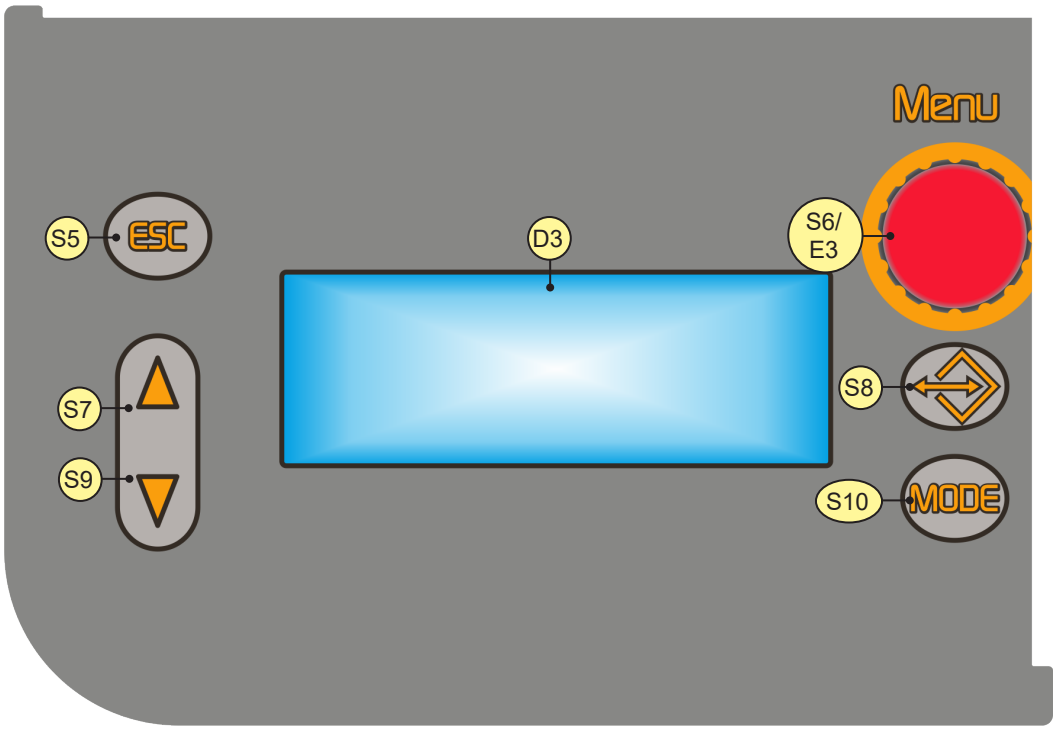



| ELEMENT | FUNCTION |
|---|---|
| S1  | This button activates wire feed to insert it through the MIG/MAG torch. |
| S2  | ► This button opens the gas solenoid valve to fill the circuit and calibrate the pressure with the regulator on the gas cylinder.<br>► **GAS menu function:** Press and hold the button for 3 seconds to enter the menu. |
| S4  | This button selects the torch trigger procedure. |

| ELEMENT | FUNCTION |
|---|---|
| S3/E2  | **ENCODER WITH BUILT-IN BUTTON**<br>► **Data setting:** The encoder adjusts the main welding (and synergy) parameter, shown on the following display: D1<br>► **Manual MIG/MAG mode:** The button is not active.<br>► **Synergic MIG/MAG mode:** The button cycles through the following LEDs in sequence, selecting only one:  |
| E1  | ► **Manual MIG/MAG mode:** The encoder adjusts the welding voltage, and the relative value is shown, in volts, on the following display: D2<br>► **Synergic MIG/MAG mode:** The encoder is used to correct the factory-set value of the selected synergic curve, the value of which is shown on the following display: D3 |
| D1  | ► **Data setting:** The display shows the value, in Volts, of the selected welding voltage.<br>► **Parameter/function setting (Synergic MIG/MAG welding):** The display shows the correction value of the arc made by the operator with respect to the default value of the synergic curve. The arc correction is made using the E2 encoder. After 3 seconds, the display shows the actual voltage value during welding.<br>► **Welding:** The display shows the effective voltage value during welding.<br>► **HOLD function (at welding end):** The display shows the latest measured voltage value. |
| D2  | ► **During illumination of the following LEDs:**  . The display shows the value of the selected parameter.<br>► **Welding:** The display shows the effective amperes value during welding.<br>► **HOLD function (at welding end):** The display shows the latest measured current value. |
| L1  | This LED illuminates to confirm the presence of power on the output sockets. |
| L2  | Illuminates to show the last voltage and current values measured during welding. The LED switches off when a new welding procedure is started, or when any of the welding settings is modified. The value appears on the display : D1-D2 |
| L3  | This LED illuminates to show an anomaly in the operating conditions.<br>An alarm message will appear on the following display: D3 |
| L4  | illumination shows that the following parameter can be set: WIRE FEED RATE.<br>The value appears on the following display: D1 |
| L5  | ► **Short-Spray, pulsed and synergic MIG/MAG welding:** illumination shows that the following parameter can be set: WELDING CURRENT<br>► **HOLD function (at welding end):** Illuminates to show a value in the following unit of measurement: AMPERES. The value appears on the following display: D1 |
| L6  | illumination shows that the following parameter can be set: WELDING THICKNESS.<br>The value appears on the following display: D1 |
| L7  | ► Illumination shows that the following function has been activated: 2 times procedure<br>► A flashing signal means the following function is activated: 2 spot times procedure |
| L8  | Illumination shows that the following function has been activated: 4 times procedure |

| ELEMENT | FUNCTION |
|---|---|
| L9  | Illumination shows that the following function has been activated: 3 levels procedure |

*internal user interface*



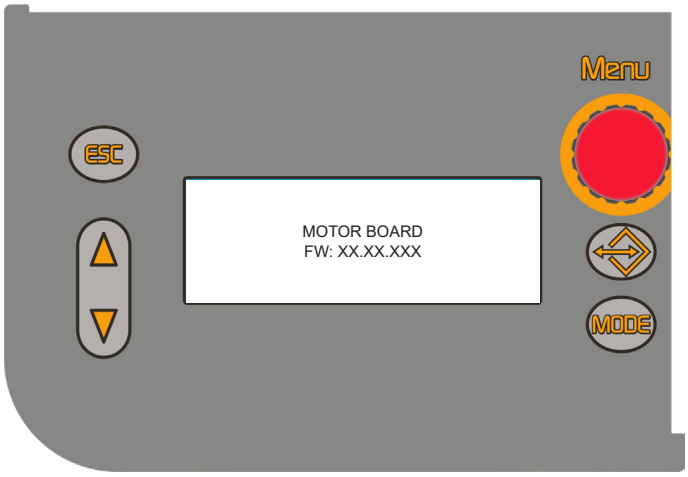

| ELEMENT | FUNCTION |
|---|---|
| S5  | ► The button serves to exit any menu without saving any changes.<br>► The button restores the main menu of display D3, starting from any other page. |
| S7  | The button scrolls the selection made on the menus upwards or to the right. |
| S9  | The button scrolls the selection made on the menus downwards or to the left. |
| S8  | ► **Press and release:** the button takes you to the JOB load menu.<br>► **Press and hold for 3 seconds:** the button takes you to the JOB save and erasure menu. |
| S10  | This button selects the welding mode. |
| S6/E3  | **ENCODER WITH BUILT-IN BUTTON**<br>► The encoder changes the setting of the selected parameter shown on the following display: D3. The selected parameter is shown by the following symbol: ➔.<br>► The button selects the various submenus visible in the following display: D3 |

| ELEMENT | FUNCTION |
|---|---|
| D3  | ► The display shows the selected parameter.<br>► **Data setting:** The display shows the various welding menus relative to the selected processes. |

# 4 UNIT POWER-UP

Set the welding power source ON/OFF switch to “I” to switch on the unit.

*Messages upon power-up*




MOTOR BOARD
FW: XX.XX.XXX
XX.XX.XXX= motor board software version.
PROGRAM UPDATE
WF-203sc
The welding unit is updating the software of the wire feeder and of the welding power source.
PIONEER ZZZ
FW: YY.YY.YYY
WELDING UNIT OK
ZZZ= welding power source Ampere rating.
YY.YY.YYY= pulsed board software version.

**► First power-up or power-ups following a RESET procedure**
The welding power source sets up for welding with the preset factory values.

**► Subsequent power-ups**
The welding power source sets up for welding in the latest stable welding configuration that was active at the time of power-off. During power-up, all functions are inhibited and the following displays remain blank: D1, D2

## 4.1 RESET (LOAD FACTORY SETTINGS)

**WARNING!** To carry out the reset procedure, the welding power source must be managed via remote control. Refer to the welding power source manual for this procedure.
The reset procedure involves complete restoration of the default values, parameters and memory settings set in the factory.
The reset procedure is useful in the following cases:

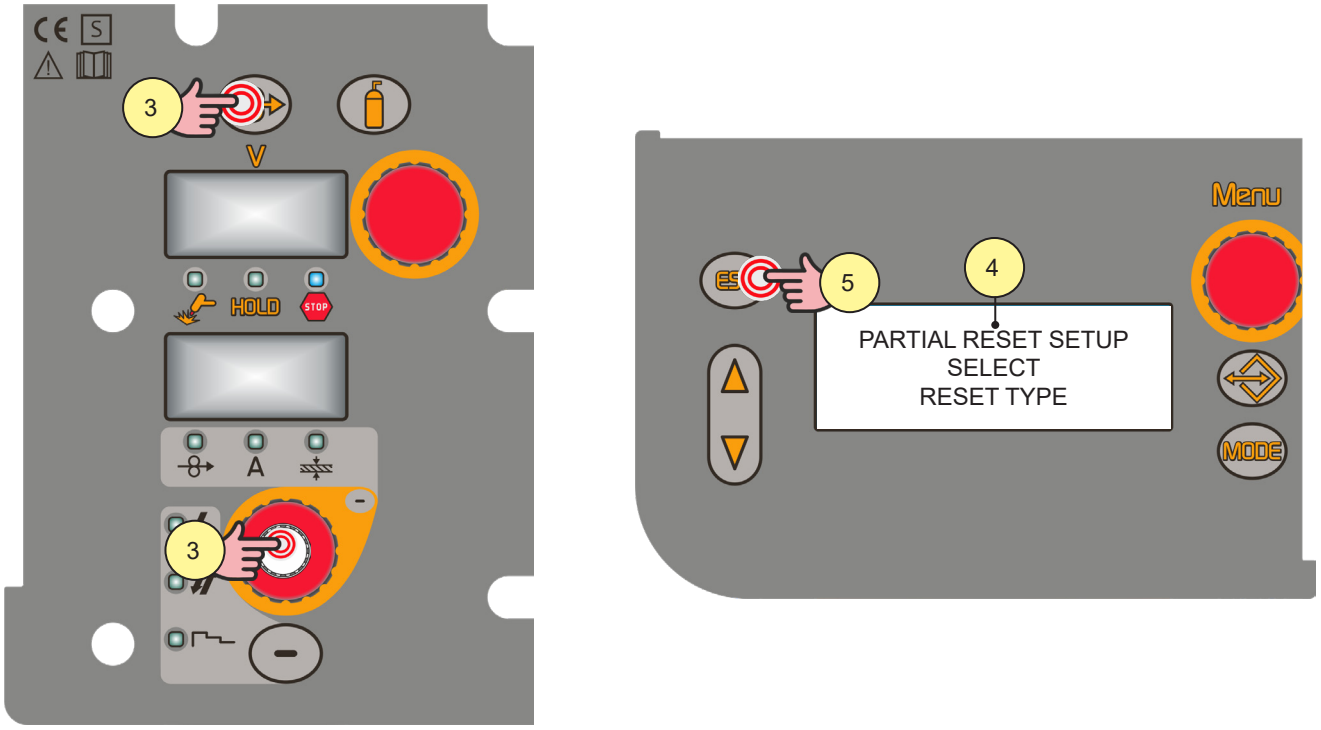
- Too many changes made to the welding parameters so user finds it difficult to restore defaults.
- Unidentified software problems that prevent the welding power source from functioning correctly.

### Partial reset setup

The reset procedure involves restoration of the parameter values and settings, except the following settings:

- Settings of the SETUP menu
- Saved JOBS
- Set language

1. Set the welding power source ON/OFF switch to “O” to switch the unit off.
2. Set the welding power source ON/OFF switch to “I” to switch on the unit.




3. **WARNING!** Perform this operation while switching on.
   Simultaneously press and hold buttons [S1] and [S3].
4. Display [D3] will show the message: “PARTIAL RESET SETUP SELECT RESET TYPE”.

### To confirm

5. Press [S4].
   Display [D3] will show the message: “MEMORY CLEANING”.
   Wait for the memory cleaning procedure to terminate. The unit restarts with the power-up procedure..

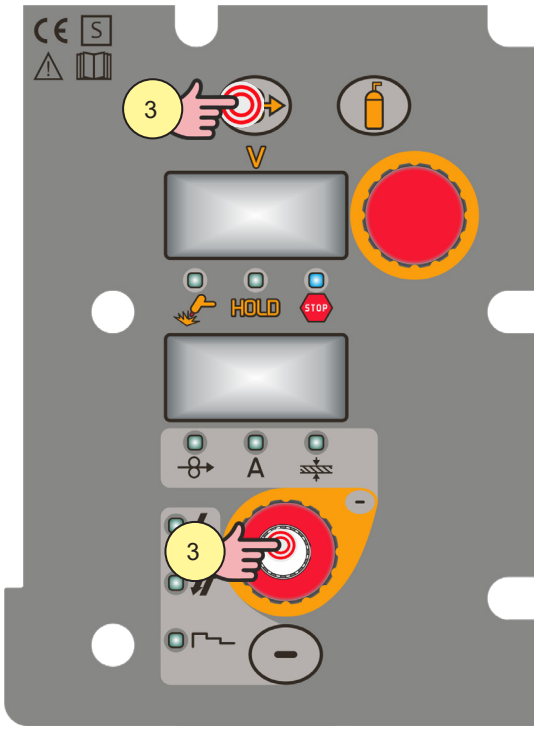
### In order not to confirm

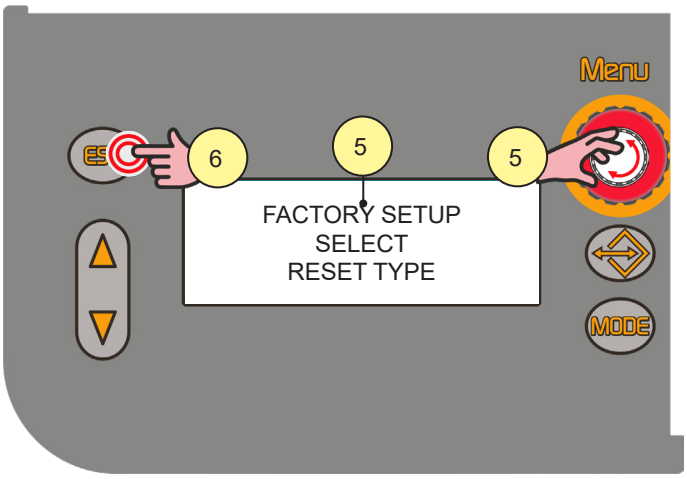
6. Set the welding power source ON/OFF switch to “O” to switch off the unit. Set the welding power source ON/OFF switch to “I” to switch on the unit.

## Factory setup

The reset procedure involves complete restoration of the default values, parameters and memory settings set in the factory.
All memory locations will be reset and hence all your personal welding settings will be lost!

1. Set the welding power source ON/OFF switch to “O” to switch the unit off.
2. Set the welding power source ON/OFF switch to “I” to switch on the unit.




3. **WARNING!** Perform this operation while switching on.
   Simultaneously press and hold buttons [S1] and [S3].
4. Display [D3] will show the message: “PARTIAL RESET SETUP SELECT RESET TYPE”.
5. Using encoder [E3], select the setting “FACTORY SETUP”.

### To confirm

6. Press [S4].
   Display [D3] will show the message: “MEMORY CLEANING”.
   Wait for the memory cleaning procedure to terminate. The unit restarts with the power-up procedure..

### In order not to confirm

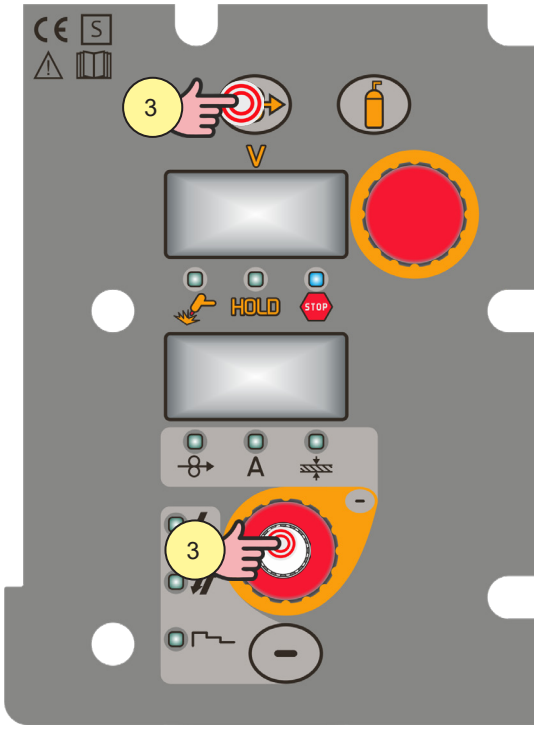
7. Set the welding power source ON/OFF switch to “O” to switch off the unit. Set the welding power source ON/OFF switch to “I” to switch on the unit.

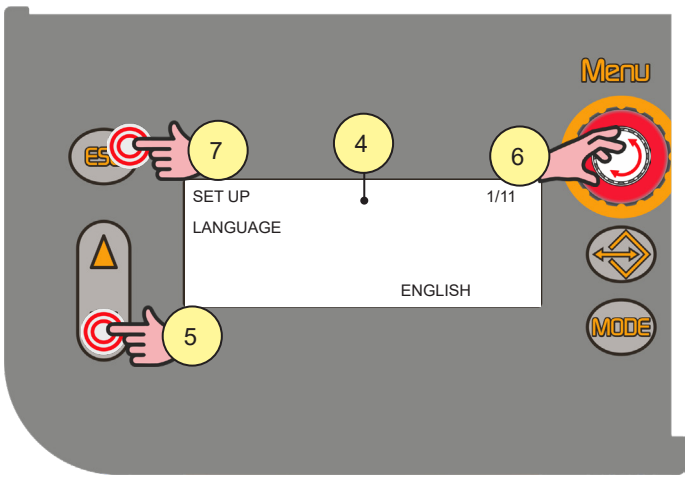
# 5 SET UP (INITIAL SET UP OF THE WELDING POWER SOURCE)

**WARNING!** With locked status active it is not possible to access this function.

## Set up upon device power-up

1. Set the welding power source ON/OFF switch to “O” to switch the unit off.
2. Set the welding power source ON/OFF switch to “I” to switch on the unit.




SET UP X/Y
X = number of the currently displayed menu page.
Y = total number of menu pages.

3. **WARNING!** Perform this operation while switching on.
   Press and hold button [S6].
4. Display [D3] will show the message: “SET UP X/Y”.
   SET UP MENU: (SELECT LANGUAGE, COOLING TYPE, DISPLAY CONTRAST, CONTROL TYPE, LOCK STATUS, ARC CORRECTION, HOUR COUNTER, SERVICE, PUSH-PULL, TRIGGER TYPE, CONNECTION TYPE)
5. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
   **Information** The activation of the “ADJUSTMENT LOCK” requires a specific procedure.
6. Using encoder [E3], edit the value of the selected setting.

## To confirm

7. Press [S4].

**NOTE:** During normal use of the welding power source, it is possible to enter the SET UP menu by pressing and holding encoder button [S6] for 3 seconds (this is how to access the SET UP with the machine on).

## Set up with device on

3. Press and hold button [S6] for 5 seconds.
4. Display [D3] will show the message: “SET UP X/Y”.
5. Press buttons [S7] and [S9] to scroll down the list of settings to edit.

## 5.1 SET UP SETTINGS

### SELECT LANGUAGE

► SET UP 1/11
► Adjustment range: ENGLISH, ITALIANO, FRANÇAIS, DEUTSCH, ESPAÑOL, PORTUGUES, DUTCH, CESKY, SRBSKI, POLSKI, SUOMI

### COOLING TYPE

► SET UP 2/11
► Adjustment range:
- ON: The cooling system is always running when the power source is switched on. This mode is preferable for heavy duty and automatic welding procedures.
- OFF: The cooling system is always disabled because an air-cooled torch is in use.
- AUTO: When the unit is switched on, the cooling system is switched on for 15 s. During welding procedures, the cooling system runs constantly. When welding is terminated the cooler continues to run for 90 s plus a number of seconds equivalent to the average current value shown using the HOLD function.

### DISPLAY CONTRAST

► SET UP 3/11
► Adjustment range: minimum (0%) - default (50%) - maximum (100%)

### CONTROL TYPE

► SET UP 4/11
► Adjustment range: OFF - RC03 - RC04 - RC05 - RC06 - RC08

**Information** This device cannot connect remote controls.

### LOCK STATUS

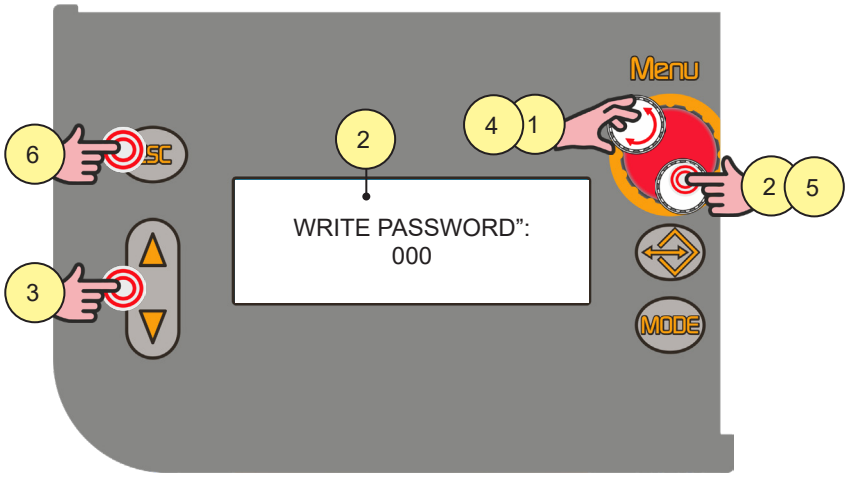
► SET UP 5/11
► The procedure inhibits unit adjustments, allowing the user to modify only certain settings depending on the selected lock status. The procedure is used to prevent accidental alteration of the unit settings and welding settings by the operator.
► Adjustment range:
- OFF: All adjustments enabled.
- LOCK 1: All adjustments are locked with the exceptions listed on page 26.
- LOCK 2: All adjustments are locked with the exceptions listed on page 26.

► **WARNING!** When the “CONNECTION TYPE” parameter is set to a value other than “OFF”, it is not possible to activate a lock status.

### Enabling

If no lock status is selected (“LOCK STATUS = OFF”) and if you wish to set up a limitation on use of the welding unit, view page 5/11 of the SETUP menu.

**WARNING!** When the “CONNECTION TYPE” parameter is set to a value other than “OFF”, it is not possible to activate a lock status.




1. Use encoder [E3] to select the required lock status.
2. Press encoder button [S6].
   Display [D3] will show the message: “WRITE PASSWORD”: 0000”
   NOTE: Default password: 000

### Enter a 3 digit numerical password

3. Use buttons [S7] and [S9] to select the digit to be changed.
   The selected digit will flash.
4. Use encoder [E3] to set the value.

### To confirm

5. Press encoder button [S6].
   The unit restarts with the power-up procedure..
   The password becomes active. **Make a note of the password you set!**

### In order not to confirm

6. Press [S5].

### Functions not disabled by the Locks

► LOCK OFF
- All adjustments enabled.

► LOCK 1
- Selection of torch trigger procedure (button [S4])
- Display of main welding parameters (button [S3])
- Arc correction (encoder [E2])
- Wire insertion (button [S1])
- Gas test (button [S2])

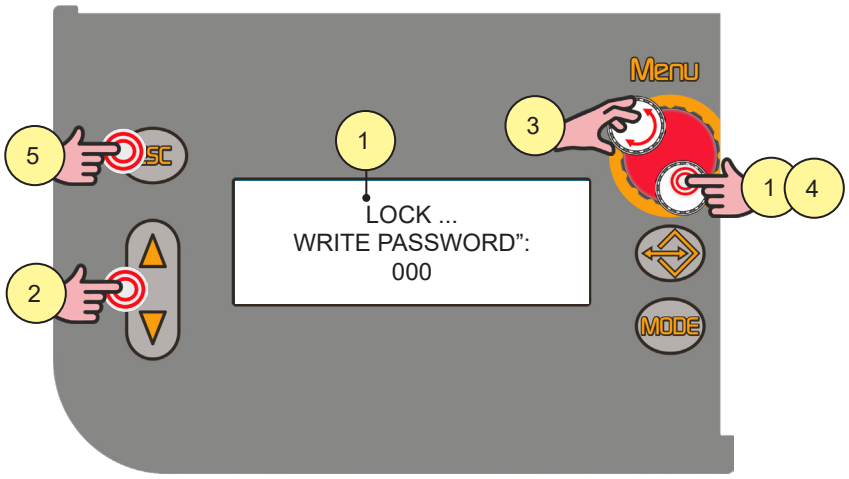
► LOCK 2
- Selection of torch trigger procedure (button [S4])
- Display of main welding parameters (button [S3])
- Arc correction (encoder [E1])
- Synergy (encoder [E2])

- Wire insertion (button [S1])
- Gas test (button [S2])

### Disabling

If a lock status is selected, you can only edit parameters permitted by the currently active lock status. If you cannot recall the password the only way to exit lock status is to perform the welding power source RESET procedure.

**WARNING!** The welding power source must be on and set up for welding.




1. Press and hold encoder button [S6] for 5 seconds.
   Display [D3] will show the message: "LOCK ... WRITE PASSWORD": 000"
   Use encoder [E3] to select the required lock status.

### Enter a 4 digit numerical password.

2. Use buttons [S7] and [S9] to select the digit to be changed.
   The selected digit will flash.
3. Use encoder [E3] to set the value.

### To confirm

4. Press encoder button [S6].
   The unit restarts with the power-up procedure..
   Quit lock status.

### In order not to confirm

5. Press [S5].

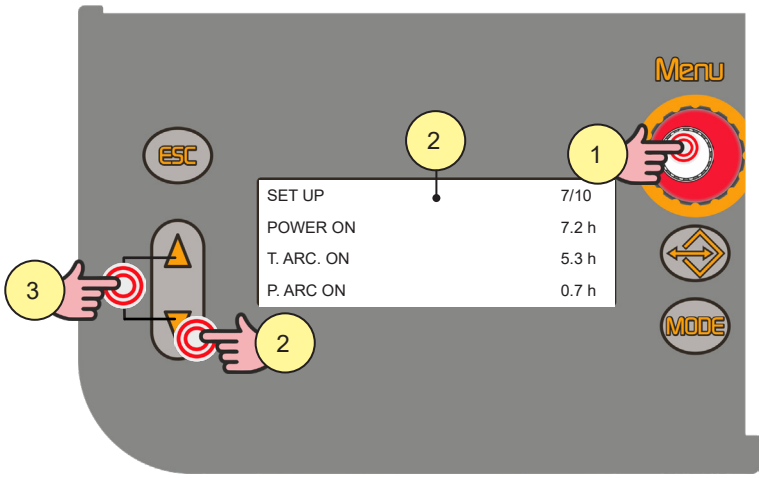
### ARC CORRECTION

► SET UP 6/11
► Adjustment range: volt - m/min

## HOUR COUNTER

► SET UP 7/11
► The menu page shows the processing hour counters.

### Partial count reset




### Working hours counter

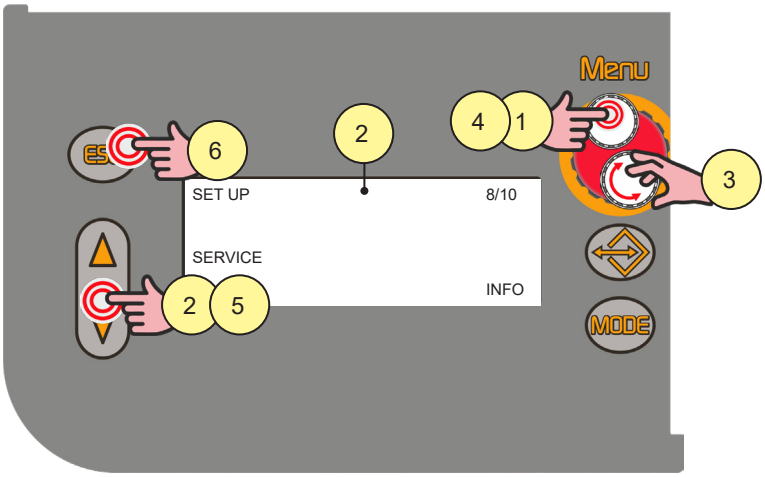
- POWER ON: Total hours the machine has been on (mains-powered).
- T.ARC ON: Total hours the welding arc has been on.
- P.ARC ON: Partial hours the welding arc has been on.

7.2h; it is read in this way:
7 hours and ...
(0.2x60) 12 minutes.

1. Press and hold encoder button [S6] for 3 seconds. This is how to access the SET UP with the machine on.
2. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
   Select “SET UP 7/10”.
3. Simultaneously press and hold buttons [S7] and [S9] for 3 seconds.
   The value “P.ARC ON” is brought to 0.0h.

## SERVICE

► SET UP 8/11
► Adjustment range:
- INFO
- CALIBRATION: Access to the submenu of the calibration and validation services.




4. Press and hold encoder button [S6] for 3 seconds. This is how to access the SET UP with the machine on.
5. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
   Select “SET UP 8/11”.

6. Use encoder [E3] to select the requested item.
7. Press encoder button [S6].
8. Press buttons [S7] and [S9] to scroll down the pages to be displayed.
9. Press button [S5] to exit.

### Service menu

► INFO: The following information is displayed:
- Software version and machine type (page 1/3)
- Temperature measured by the thermal sensors inside the power generator (page 2/3)
- Voltage display of the power generator 3 phases (page 3/3).

► ALARM LIST: The last 12 alarm codes are displayed with the counter value POWER ON when the alarm is triggered. The list is displayed on 4 pages.

### Service procedures

This setting enables the machine validation “VAL.” and “CALIBRATION” operations.

**Information** The SERVICE procedure is not described in this manual as it can be carried out only by specialised, suitably trained and equipped technical staff. The testing methods and the equipment required are set out in the relevant technical standards.

► CURRENT VAL.: The validation procedure allows the current value (Ampere) to be correctly detected and displayed on the equipment display. The validation procedure requires the equipment to be connected to a suitable static load.
► VOLTAGE VAL.: The validation procedure allows the voltage value (Volt) to be correctly detected and displayed on the equipment display. The validation procedure requires the equipment to be connected to a suitable static load.
► WIRE S. VAL.: The validation procedure allows the wire feed rate (m/min) to be correctly detected and displayed on the equipment display.
► CALIBRATION: The calibration procedure allows the machine current to be calibrated.

### PUSH-PULL

► SET UP 9/11
► Adjustment range: minimum (OFF) - default (OFF) - maximum (ON)

### TRIGGER TYPE

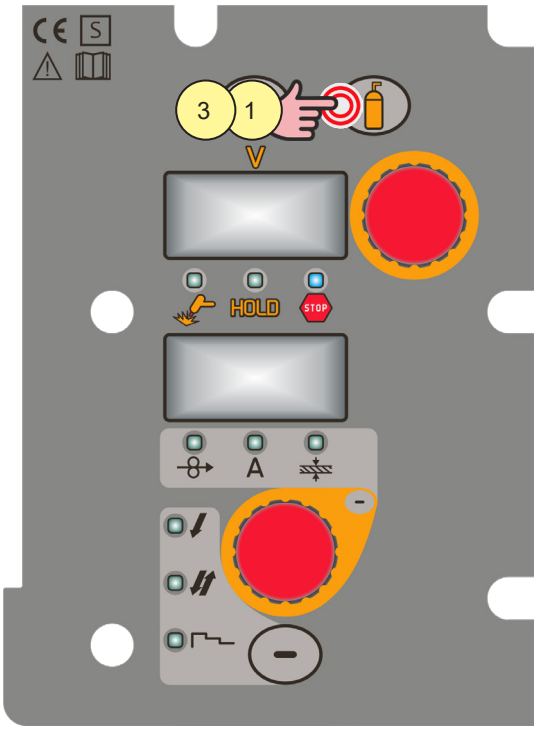
► SET UP 10/11
► Adjustment range:
- OFF: Normal operation of the torch trigger.
- T01: Enable Job scroll function in welding by pressing the torch trigger.
  In T01 mode, the torch trigger operates in 4 times or 4 times 3 levels with B-level functions disabled. Therefore, if jobs are saved with different modes, they are automatically provided according to these conditions (which are not saved).

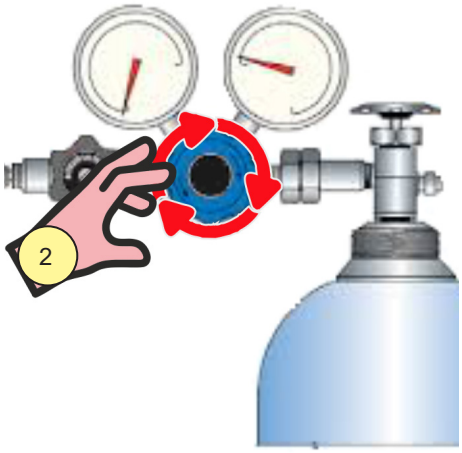
### CONNECTION TYPE

► SET UP 11/11
► Adjustment range:
- OFF: Communication with IR not active.
- NC01: Communication with IR active in data transmission.
- NC02: Communication with IR active in data transmission and reception.

## 5.2 GAS FLOW ADJUSTMENT

When the unit is powered on, straight after program update, the solenoid valve opens for 1 second. This serves to fill the gas circuit.



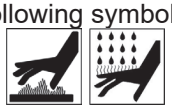

1. Open the gas solenoid valve by pressing and releasing button [S2].
2. Adjust the pressure of gas flowing from the torch by means of the flow meter connected to the gas cylinder.
3. Close the gas solenoid valve by pressing and releasing the button [S2].
   The solenoid valve closes automatically after 30 seconds.

## 5.3 TORCH FILLING

**WARNING!**

**Risk of scalding**

Read the warnings highlighted by the following symbols in the “General prescriptions for use”.



**WARNING!**

**Make sure the torch in use is correctly sized in relation to the welding current required and for the available and selected cooling type. This prevents the risk of burns to which the operator is potentially exposed, potential faults, and irreversible damage to the torch and the system.**
**If a torch is installed or replaced while the unit is running, the circuit of the newly installed must be filled with coolant to avoid the risk of damage to the torch in the case of high voltage arc strikes without any liquid in the circuit.**

### Power-up with operation of the cooling system set to “ON” or “AUTO” mode

A check is performed automatically of the presence of liquid in the cooling circuit and the cooling system is switched on for 30 seconds.

- If the coolant circuit is full, the power source sets up in the most recent stable welding configuration.
- If the coolant circuit is not full, all functions are inhibited and there will be no output power present.
- Display [D3] will show the message: “COOLING SYSTEM TEST”.
- Press button [S5] or the torch trigger to repeat the test procedure for an additional 30 seconds.
  If the problem persists rectify the cause of the alarm.
  During this checking operation, the setup menu can be accessed by pressing button [S6] for 5 seconds.

### Power-up with operation of the cooling system set to “OFF”

Operation of the cooling system and the cooling system alarm are disabled.
Welding is performed without liquid cooling of the torch.

### Torch change-over with operation of the cooling system set to “AUTO”

Press and release the torch trigger.
This serves to start the cooling system for 80 seconds to fill the torch cooling circuit.

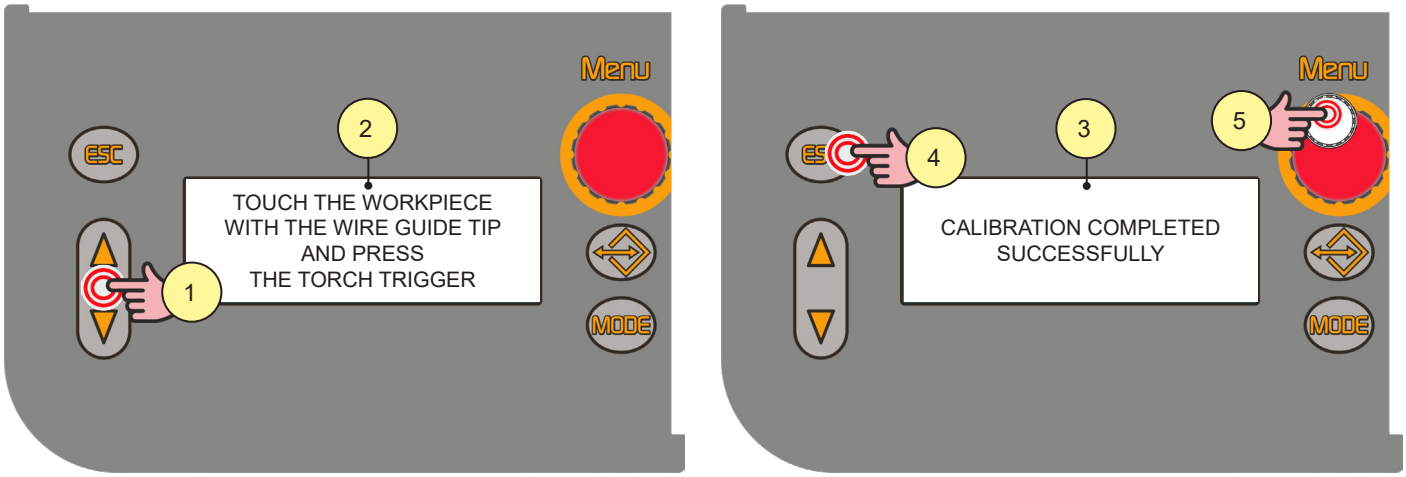
## 5.4 RESISTIVE CALIBRATION OF THE WELDING CIRCUIT

When the wire feeder is used with the associated cable bundle, the welding circuit “r” resistance must be measured by using the calibration function. This allows to achieve a consistent welding quality when the cable bundle length and the torch is changed. The welding circuit resistance depends on the cable bundle and the torch used, therefore the calibration procedure must be repeated when these components are changed.

### Calibration after welding power source RESET

If the power source FACTORY SETUP is carried out, the calibration value will be replaced by the default value. If a PARTIAL RESET SETUP is carried out, the measured value will be stored.
Calibration is not compulsory therefore, should the user decide not to carry it out, the machine will keep the default value.

**WARNING!** The welding power source must be on and not set up for welding. The power source remote control must be enabled.




1. Press and hold buttons [S7] and [S9] for 3 seconds.
2. Display [D3] will show the message: “TOUCH THE WORKPIECE WITH THE WIRE GUIDE TIP AND PRESS THE TORCH TRIGGER”.
   Display [D2] will show the message: “CAL”.
   Display [D1] will show the welding circuit resistance value (mΩ) measured during the last calibration. After a FACTORY SETUP, the default value will appear.

Remove the gas nozzle from the torch and lean the guide wire tip (without the wire) onto the surface of the workpiece, making sure it sticks well; check that the contact between the guide wire tip and the workpiece is on a clean area of the piece’s surface. Press the torch trigger to perform the calibration.

### Calibration carried out correctly

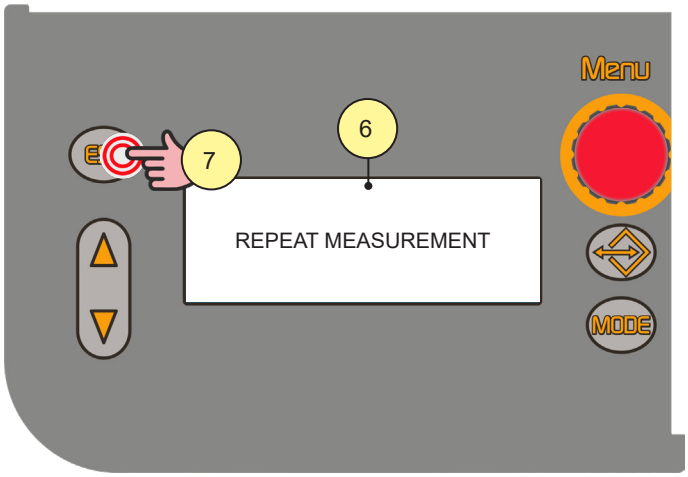
3. Display [D3] will show the message: “CALIBRATION COMPLETED SUCCESSFULLY”.
   The calibration value appears on display [D1].
   You can make several subsequent calibrations by pressing and releasing the torch trigger. In this case the last value revealed is memorized.

### Exiting without saving

4. Press [S5].

### Exit and save

5. Press [S6].




### Calibration carried out incorrectly

6. Display [D3] will show the message: “REPEAT MEASUREMENT”.
   Display [D1] [D2] will show the message: “CAL. Err.”.
   Press the torch trigger to perform the calibration.

### Exiting without saving

7. Press [S5].

# 6 ALARM MANAGEMENT


This LED illuminates if an incorrect operating condition occurs.
An alarm message will appear on display [D3].

### E02: ALARM NTC DISCONNECTED

► Meaning: It indicates that at least one of the NTCs is disconnected.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
- the cooling system (if switched on).

► Solution:
- Qualified technical personnel are required.

### E03: ALARM PRIMARY CURRENT CABLE DISCONNECTED

► Meaning: It indicates that the primary current cabling is disconnected.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
- the cooling system (if switched on).

► Solution:
- Qualified technical personnel are required.

### E04: ALARM OPEN-CIRCUIT VOLTAGE NOT PRESENT

► Event: All functions are disabled. Exceptions:
- the cooling fan.

► Solution:
- Ensure the welding sockets are not short circuiting before switching on the power source.
- If the problem persists: qualified technical personnel are required for maintenance.

### E05: ALARM TRIGGER PRESSED

► Meaning: It indicates that at the welding system power-up or after an alarm reset, a short circuit was detected on the torch trigger input. When the problem is solved, the welding power source will reset automatically.
► Event: All functions are disabled. Exceptions:
- the cooling fan.

► Solution:
- Make sure that the torch trigger is not pressed, jammed, or short circuiting.
- Make sure that the torch and MIG/MAG torch connector are intact.
- If the problem persists: qualified technical personnel are required.

### E26: ALARM GROUND CURRENT

► Meaning: Current is re-circulated on the ground circuit
► Event:
► Solution:
- Qualified technical staff must be called out to carry out the repairs/maintenance operations.

### E27: ALARM UNDERVOLTAGE

► Meaning: It indicates that the voltage on at least one phase is lower than the minimum threshold.
► Event: The RED LED next to the ON/OFF switch of the welding power source turns on.
All functions are disabled. Exceptions:
- the cooling fan.

► Solution:
- Make sure that the welding system supply voltage complies with the plate values.

### E28: ALARM OVERVOLTAGE

► Meaning: It indicates that the voltage on at least one phase is greater than the maximum threshold.
► Event: The RED LED next to the ON/OFF switch of the welding power source turns on.
All functions are disabled. Exceptions:
- the cooling fan.
► Solution:
- Make sure that the welding system supply voltage complies with the plate values.

### E29: ALARM PHASE MISSING

► Meaning: It indicates that a phase is missing in the equipment power supply line.
► Event: The LED next to the ON/OFF switch turns on.
All functions are disabled. Exceptions:
- the cooling fan.
► Solution:
- Check if the equipment power supply line has all the phases.

### E30: ALARM PRIMARY OVERCURRENT

► Meaning: It indicates that the primary overcurrent protector has tripped.
► Event: The LED next to the ON/OFF switch turns on.
All functions are disabled. Exceptions:
- the cooling fan.
- the cooling system (if switched on).
► Solution:
- Exit the alarm status by performing one of the following actions:
• Turn the welding power source OFF.
• Press the following button: [ESC]
- If the problem persists: qualified technical personnel are required.

### E31: ALARM PRIMARY OVERTEMPERATURE

► Meaning: It indicates that the welding power source thermal cut-out switch has tripped.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
- the cooling system (if switched on).
► Solution:
- Leave the equipment running so that the overheated components cool as rapidly as possible. When the problem is solved, the welding power source will reset automatically.
- Make sure that the power required by the welding process is lower than the maximum rated power output.
- Check that the operating conditions are in compliance with the welding power source data plate specifications.
- Check for the presence of adequate air circulation around the welding power source.

### E32: ALARM SECONDARY OVERTEMPERATURE

► Meaning: It indicates that the welding power source thermal cut-out switch has tripped.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
- the cooling system (if switched on).
► Solution:
- Leave the equipment running so that the overheated components cool as rapidly as possible. When the problem is solved, the welding power source will reset automatically.
- Make sure that the power required by the welding process is lower than the maximum rated power output.
- Check that the operating conditions are in compliance with the welding power source data plate specifications.

- Check for the presence of adequate air circulation around the welding power source.

### E35: ALARM THERMIC MAGNETIC

► Meaning: It indicates that the welding power source thermal cut-out switch has tripped.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
- the cooling system (if switched on).

► Solution:
- Leave the equipment running so that the overheated components cool as rapidly as possible. When the problem is solved, the welding power source will reset automatically.
- Make sure that the power required by the welding process is lower than the maximum rated power output.
- Check that the operating conditions are in compliance with the welding power source data plate specifications.
- Check for the presence of adequate air circulation around the welding power source.

### E37: ALARM CURRENT LEVEL EXCEEDED

► Meaning: It indicates that the welding power source current surge protector has tripped.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
- the cooling system (if switched on).

► Solution:
- Exit the alarm status by performing one of the following actions:
• Turn the welding power source OFF.
• Press the following button: [ESC]
- Check that the set arc voltage value is not too high for the thickness of the workpiece (check welding parameters, RESET the parameters).

### E40: ALARM CAN BUS COMMUNICATION

► Meaning: It indicates a CAN communication problem.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
- the cooling system (if switched on).

► Solution:
- Check that the connecting cable between power source and wire feeder is intact and make sure the connectors are securely tightened.
- If the problem persists: qualified technical personnel are required.

### E49: ALARM DATA LOSS

► Meaning: It indicates a factory setting data loss condition of the board.
► Event: All functions are disabled. Exceptions:
- the cooling fan.

► Solution:
- qualified technical personnel are required.

### E50: ALARM COOLING SYSTEM

► Meaning: Indicates insufficient pressure in the torch liquid cooling circuit.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
- The alarm message persists on the display until the first operation is performed on the user interface.
Signalling of the alarm depends on the following settings:
Coo = on: the alarm is signalled if the cooling system is connected to the power source and if it is running.
Coo = oFF: the alarm is never signalled, irrespective of the circumstances.
Coo = Aut: the alarm is signalled if the cooling system is connected to the power source and if it is running.

► Solution:
- Check that the connection to the cooling system is correct.
- Check that the “O/I” switch is set to “I” and that it illuminates when the pump is running.
- Check that the cooling system is filled with coolant.
- Check that the cooling circuit is liquid tight, notably the torch hoses, the fuse and the internal connections of the cooling system.

### E58: ALARM INTERNAL POWER SUPPLY

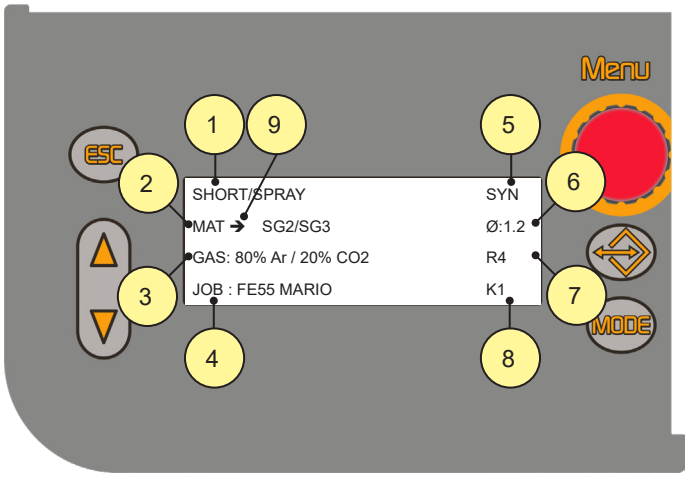
► Meaning: It indicates a power supply problem in one of the electronic boards.
► Event: All functions are disabled. Exceptions:
- the cooling fan.
► Solution:
- qualified technical personnel are required.

# 7 WELDING SETTINGS

## 7.1 CHARACTERISTICS OF THE MENU LEVELS

### 1st Level

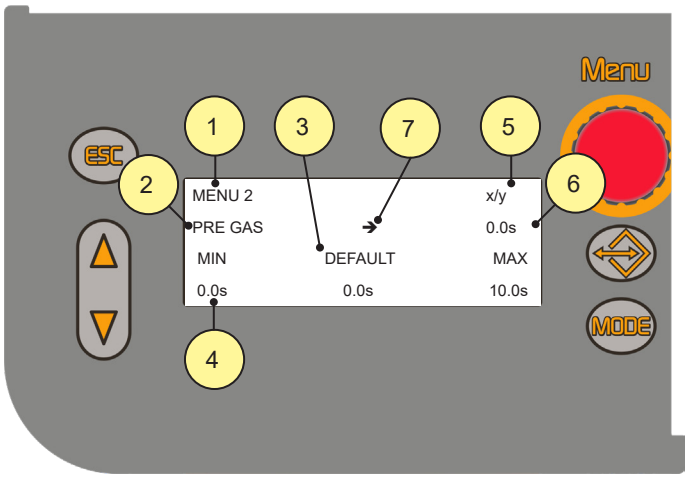
The menu shows the setting of the most important welding parameters (or synergic settings) relative to the selected welding process.




1. Acronym of the selected welding process.
2. MAT: This parameter sets the material of the welding wire utilised.
3. GAS: This parameter sets the type of gas utilised for welding.
4. Name of loaded JOB.
5. SYN: This code indicates that parameters control is synergic.
   MAN: This code indicates that parameters control is manual.
6. Ø: This parameter sets the diameter of the wire utilised for welding procedures.
7. R: Type of remote control enabled.
   If no remote control is enabled no message is displayed.
   ⓘ **Information** This device cannot connect remote controls.
8. K: Type of lock enabled. If no Lock is loaded no message is displayed.
   N: Connection type enabled. If no connection is set, no message is displayed.
9. When the indicator becomes "➔", it means that it is possible to edit the parameter value.
   The value is saved automatically.
   After pressing the torch trigger or after 10 seconds without any commands, the indicator switches to ":".
   To reactivate the parameter value editing function press one of the following buttons: [S7]/[S9].

### 2nd Level

For each process selection the menu shows the "secondary" welding parameters that can be modified with respect to their synergic values. If the type of wire, gas, or diameter is changed within a welding process, the second level parameters return to their default values. The changed parameters remain saved for the relative process selection (manual MIG/MAG, synergic, pulsed synergic, double pulsed synergic ). To save and retrieve the changes made, utilise the JOBs storage procedure.

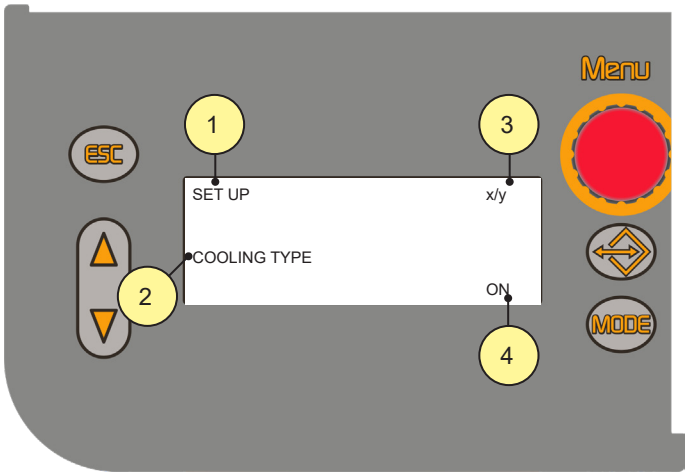



1. Menu level.
2. Selected parameter.
3. When the message “DEFAULT” is replaced by the letters “SYN” this means that the value changes in relation to the selected synergic curve.
4. Minimum value “MIN”, maximum value “MAX” and factory value “DEFAULT” of the selected parameter.
5. x = number of the currently displayed menu page.
   y = total number of menu pages.
6. Set value.
7. Arrow cursor.

### 3rd Level

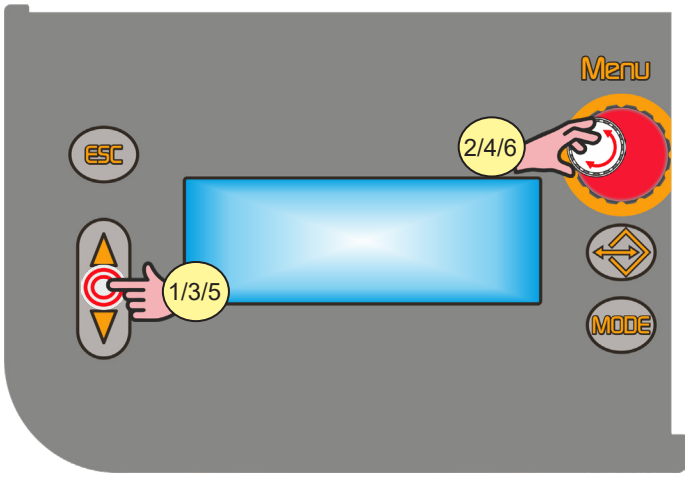
The menu contains the settings and values that are changed infrequently and are to be set up the first time the unit is powered up. The changed parameters remain saved until the next modification or reset of the unit.

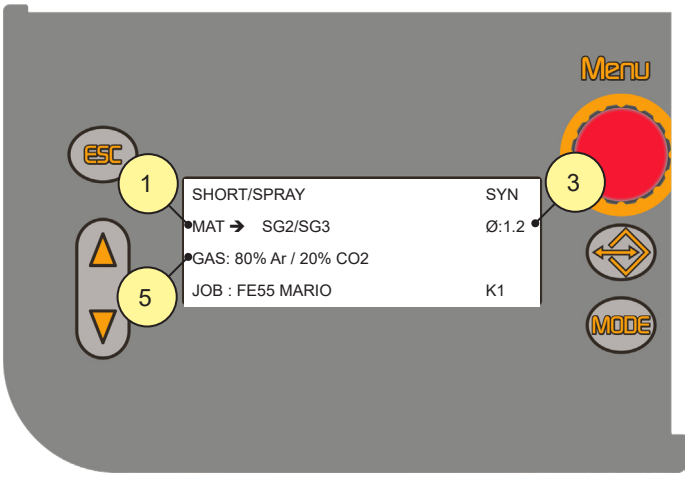
**Information** How do you enter the SETUP menu?; see page 24.




1. Menu level.
2. Selected parameter.
   x = number of the currently displayed menu page.
   y = total number of menu pages.
3. Set value.

## 7.2 WELDING CURVE SELECTION




1. Select the parameter “MAT” using buttons [S7] and [S9].
2. Using encoder [E3], edit the value of the selected parameter.
3. Select the parameter “Ø” using buttons [S7] and [S9].
4. Using encoder [E3], edit the value of the selected parameter.
5. Select the parameter “GAS” using buttons [S7] and [S9].
6. Using encoder [E3], edit the value of the selected parameter.

### Special curves: POWER FOCUS and POWER ROOT

**NOTE:** No specific procedures are required to activate these curves. The special curves appear in the list together with the standard curves.


#### POWER FOCUS CURVES

The curves are available in HSL series welding power sources, in MIG/MAG SHORT SPRAY SYNERGIC mode. These curves differ from the other standard curves because of the acronym “PF” which is displayed after the reference to the welding wire material.
The difference between a Standard MIG/MAG arc and a Power Focus arc is its concentration and pressure. The POWER FOCUS arc concentration allows the welder to focus the high temperature of the arc in the central section of the weld, without overheating the sides of the weld. The thermally changed area with the POWER FOCUS arc is less widespread.


### POWER ROOT CURVES

The curves are available in MIG/MAG SHORT SPRAY SYNERGIC mode. These curves differ from the other standard curves because of the acronym “PR” which is displayed after the reference to the welding wire material. POWER ROOT is an optimised short arc transfer with the feature of having a cold drop transfer. POWER ROOT allows to achieve a very high quality in root passes.

## 7.3 SELECTING THE WELDING MODE AND THE TORCH TRIGGER PROCEDURE

### MIG/MAG 2T welding

1. Bring the torch up to the workpiece.
2. (1T) Press and hold the torch trigger.
   The wire advances at the approach speed until it makes contact with the material. If the arc does not strike after 10 cm wire protrusion, wire feeding is locked and the welding unit outputs are de-energized.
   The arc strikes and the wire feeder accelerates to the set feed rate value.
3. (2T) Release the button to start the weld completion procedure.
   Gas flow continues for the time set in the “POST GAS” parameter (adjustable time).

### 2T SPOT MIG/MAG WELDING

1. Bring the torch up to the workpiece.
2. Press (1T) and keep the torch trigger pressed.
   The wire advances at the approach speed until it makes contact with the material. If the arc does not strike after 10 cm wire protrusion, wire feeding is locked and the welding unit outputs are de-energized.
   The arc strikes and the wire feeder accelerates to the set feed rate value.
   The welding procedure continues, at the preset current, for the time set with the “SPOT TIME” parameter.
   The welding completion procedure starts. The arc is extinguished.
   Gas flow continues for the time set in the post gas parameter (adjustable time).

### 4T MIG/MAG WELDING

1. Bring the torch up to the workpiece.
2. Press (1T) and release (2T) the torch trigger.
   The wire advances at the approach speed until it makes contact with the material. If the arc does not strike after 10 cm wire protrusion, wire feeding is locked and the welding unit outputs are de-energized.
   The arc strikes and the wire feeder accelerates to the set feed rate value.
3. Press (3T) the trigger to start the weld completion procedure.
   Gas flow continues until the torch trigger is released.
4. Release (4T) the torch trigger to start the “POST GAS” procedure (adjustable time).

## 4T B-LEVEL MIG/MAG WELDING

1. Bring the torch up to the workpiece.
2. Press (1T) and release (2T) the torch trigger.
   The wire advances at the approach speed until it makes contact with the material. If the arc does not strike after 10 cm wire protrusion, wire feeding is locked and the welding unit outputs are de-energized.
   The arc strikes and the wire feeder accelerates to the set feed rate value.
   During normal speed welding, press and immediately release the torch trigger to switch to the second welding current.
   The trigger must not be pressed for more than 0.3 seconds; otherwise, the weld completion stage will start. When the trigger is pressed and released immediately, the system returns to the welding current.
3. Press (3T) trigger and keep it pressed to start the weld completion procedure.
   Gas flow continues until the torch trigger is released.
4. Release (4T) the torch trigger to start the “POST GAS” procedure (adjustable time).

## 2T MIG/MAG WELDING - 3 LEVELS

1. Bring the torch up to the workpiece.
2. Press (1T) torch trigger.
   The wire advances at the approach speed until it makes contact with the material. If the arc does not strike after 10 cm wire protrusion, wire feeding is locked and the welding unit outputs are de-energized.
   The welding arc strikes and the wire feed rate changes to the first welding level “HOT START”, which is set as a percentage of the normal welding feed rate.
   This first level is used to create the weld pool: for example, when welding aluminium a value of 130 % is recommended.
   The “HOT START” level continues for the start time, which is settable in seconds; then it switches to normal welding speed in accordance with the start slope, which can be set in seconds.
3. Release (2 T) the torch trigger to switch to the third welding level “CRATER FILLER”, which is set as a percentage of the normal welding feed rate.
   The switch of welding current level in terms of crater filling is performed in accordance with the crater slope, which can be set in seconds.
   This third level is used to complete the weld and fill the final crater (crater filler) in the weld pool: for example, when welding aluminium a value of 80 % is recommended.
4. The “CRATER FILLER” level continues for the crater time, which is settable in seconds; at the end of this time welding is interrupted and the post gas stage is performed.

## 2T SPOT MIG/MAG WELDING - 3 LEVELS

The welding process is the same as the 2T - 3 LEVELS process, except that the welding procedure continues, at the preset current, for the time set with the “SPOT TIME” parameter.
The weld is closed in the same way as with the 2T - 3 LEVELS process.

## 4T MIG/MAG WELDING - 3 LEVELS

1. Bring the torch up to the workpiece.
2. Press (1T) torch trigger.
   The wire advances at the approach speed until it makes contact with the material. If the arc does not strike after 10 cm wire protrusion, wire feeding is locked and the welding unit outputs are de-energized.
   The welding arc strikes and the wire feed rate changes to the first welding level “HOT START”, which is set as a percentage of the normal welding feed rate.
   This first level is used to create the weld pool: for example, when welding aluminium a value of 130 % is recommended.
3. Release (2T) trigger to switch to normal welding speed; then switch to normal welding speed is performed in accordance with the start ramp, which can be set in seconds.
4. Press the torch trigger again (3T) to switch to the third welding level “CRATER FILLER”, which is set as a percentage of the normal welding feed rate.
   The switch of welding current level in terms of crater filling is performed in accordance with the crater slope, which can be set in seconds.
   This third level is used to complete the weld and fill the final crater (crater filler) in the weld pool: for example, when welding aluminium a value of 80 % is recommended.
5. Release the torch trigger a second time (4T) to close the weld and perform the “POST GAS” procedure.

## 4T B-LEVEL MIG/MAG WELDING - 3 LEVELS

The welding process is the same as the 4T - 3 LEVELS process except that during normal speed welding pressing and immediately releasing the torch trigger switches the unit to the second welding current.
The trigger must not be pressed for more than 0.3 seconds; otherwise, the weld completion stage will start. When the trigger is pressed and released immediately, the system returns to the welding current.

1. Press (3T) trigger and keep it pressed to start the crater filler procedure.

The weld is closed in the same way as with the 4T - 3 LEVELS process.

## 7.4 ACTIVATION OF WELDING PARAMETERS

The welding parameters are available in accordance with the selected welding mode and procedure.
Certain parameters are available only after other parameters or functions of the unit have been enabled or set.
The table shows the settings required to enable each parameter.

0: always available
1: available in HSL welding power sources when one of the “PF” curves is selected (e.g.: SG2/SG3 PF)
2: available when one of the “PR” curves is selected (e.g.: SG2/SG3 PR)
3: available in PIONEER PULSE MSR welding power sources

| MENU | MODE | MANUAL MIG/MAG | | SYNERGIC MIG/MAG | | | PULSED SYNERGIC MIG/MAG | | | DOUBLE PULSED SYNERGIC MIG/MAG | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PROCEDURE | | | | | | | | | | | |
| | PARAMETER | | | | | | | | | | | |
| - | ARC CORRECTION IN VOLTS | | | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 |
| - | ARC CORRECTION IN METRES PER MINUTE | | | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 |
| - | ARC CORRECTION WITH POWER ROOT | | | 2 | 2 | 2 | | | | | | |
| 1st | INDUCTANCE | 0 | 0 | | | | | | | | | |
| 2° | INDUCTANCE | | | 0 | 0 | 0 | | | | | | |
| 2° | PR START | | | 2 | 2 | 2 | | | | | | |
| 2° | ARC SET | | | | | | 3 | 3 | 3 | 3 | 3 | 3 |
| 2° | PRE GAS | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2° | SOFT START | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2° | BURN BACK | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2° | POST GAS | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2° | POWER FOCUS | | | 1 | 1 | 1 | | | | | | |
| 2° | SPOT TIME | 0 | | 0 | | | 3 | | | 3 | | |
| 2° | B-LEVEL | | | | 0 | 0 | | 3 | 3 | | 3 | 3 |
| 2° | START 3LEV | | | | | 0 | | | 3 | | | 3 |
| 2° | CRATER 3LEV | | | | | 0 | | | 3 | | | 3 |
| 2° | SLOPE 3LEV 1 | | | | | 0 | | | 3 | | | 3 |
| 2° | SLOPE 3LEV 2 | | | | | 0 | | | 3 | | | 3 |
| 2° | CURR. 3LEV1 | | | | | 0 | | | | | | |
| 2° | CURR. 3LEV2 | | | | | 0 | | | | | | |
| 2° | FREQ 2PULS | | | | | | | | | 3 | 3 | 3 |
| 2° | RANGE 2PULS | | | | | | | | | 3 | 3 | 3 |
| 2° | CYCLE 2PULS | | | | | | | | | 3 | 3 | 3 |
| 2° | ARC2 2PULS | | | | | | | | | 3 | 3 | 3 |
| 2° | ARC2 2PULS | | | | | | | | | 3 | 3 | 3 |

## MIG/MAG welding parameters

### ARC CORRECTION IN VOLTS

► This parameter corrects the synergic voltage value relative to the synergic point of the synergic and pulsed MIG/MAG processes, while it manages correction of the voltage of the high value in the MIG/MAG double pulsed process.
The default value for horizontal and frontal welding is 0.0 V.
A value >0 produces an increase in the length of the welding arc, while a value <0 produces a shorter arc.

### ARC CORRECTION IN METRES PER MINUTE

► This parameter corrects the wire feed rate synergic value relative to the synergic point of the synergic and pulsed MIG/MAG processes, while it manages the wire feed rate of the high value in the MIG/MAG double pulsed process.
The default value for horizontal and frontal welding is 0.0 V.
A value <0 produces an increase in the length of the welding arc, while a value >0 produces a shorter arc.

### ARC CORRECTION WITH POWER ROOT

► The parameter corrects the arc dynamics in the POWER ROOT process.
The default value is 0.
Values >0 produce a «softer» weld, while values <0 produce a «harder» weld.

### INDUCTANCE (MIG/MAG manual welding)

Consequences of a higher value:
- “Softer” welding.
- Less spatter.
- Less positive starting.

Consequences of a lower value:
- “Harder” welding.
- More spatter.
- More reliable starting.

### INDUCTANCE

The value SYN=0 denotes the optimal synergic inductance value chosen by the manufacturer.
**NOTE:** This inductance value does not correspond to the equivalent number set in manual MIG/MAG welding.
Consequences of a higher value:
- “Softer” welding.
- Less spatter.
- Less positive starting.

Consequences of a lower value:
- “Harder” welding.
- More spatter.
- More reliable starting.

### PR START

The value SYN=0 denotes the optimal synergic inductance value chosen by the manufacturer.
**NOTE:** This inductance value corresponds to start-up with the POWER ROOT curves.
Consequences of a higher value:
- Less positive starting.

Consequences of a lower value:
- More reliable starting.

### ARC SET

► In pulsed synergic welding this parameter directly influences the size of the welding pulses.
The value SYN=100 denotes the optimal synergic value chosen by the manufacturer.
If you set a value other than SYN, this value is stored and fixed.
**NOTE:** This parameter should be adjusted as little as possible. To correct synergy it is advisable to use arc correction by means of the voltage parameter. This parameter can be useful if the material or gas used is different from that of the synergic curve.
Consequences of a higher value:
- Hotter welding.

Consequences of a lower value:
- Cooler welding.

### PRE GAS

► Time of gas delivery before the arc strike.
**NOTE:** if it is too long, it slows down the welding procedure. Other than in the presence of special requirements the value should generally be kept at 0.0 s or anyway very low.
Consequences of a higher value:
- This parameter allows a shielded environment to be created, thereby eliminating contaminants at the start of the welding pass.

### SOFT START (MIG/MAG manual welding mode)

► The “SOFT START” is the wire approach speed to the workpiece.
The value is expressed as a percentage of the set feed rate.
Consequences of a lower value:
- The start of welding is “softer”.

Consequences of a higher value:
- The welding start may prove difficult.

### SOFT START

► The “SOFT START” is the wire approach speed to the workpiece. The value is expressed as a percentage of the set feed rate.
In synergic welding, the optimal “SOFT START” value (indicated with SYN) varies in general when the synergic parameters change. In synergic welding, if the value “SOFT START” = SYN is selected the welding power source will always have the optimal “SOFT START” value set when the main welding parameter changes. If you set a value other than SYN, this value is stored and fixed.
Consequences of a lower value:
- The start of welding is “softer”.

Consequences of a higher value:
- The welding start may prove difficult.

### BURN BACK (MIG/MAG manual welding mode)

► The “BURN BACK” value is associated with the quantity of wire that is burnt at the end of the welding procedure.
Consequences of a higher value:
Wire significantly retracted into the torch nozzle.
Consequences of a lower value:
Stick-out at welding start is longer.

### BURN BACK

► The “BURN BACK” value is associated with the quantity of wire that is burnt at the end of the welding procedure.
In synergic welding, the optimal “BURN BACK” value (indicated with SYN) varies in general when the synergic parameters change. In synergic welding, if the value “BURN BACK” = SYN is selected the welding power source will

always have the optimal “BURN BACK” value set when the main welding parameter changes. If you set a value other than SYN, this value is stored and fixed.
Consequences of a higher value:
- Wire significantly retracted into the torch nozzle.

Consequences of a lower value:
- Stick-out at welding start is longer.

### POST GAS

► Time of post gas delivery when the welding arc is extinguished. This is useful when welding at high current values or with materials that oxidise readily to cool the weld pool in an uncontaminated atmosphere. In the absence of specific requirements the value should generally be kept low.
Consequences of a higher value:
- More effective pickling (improved appearance of workpiece at the end of the welding pass).
- Higher gas consumption.

Consequences of a lower value:
- Lower gas consumption.
- Oxidation of electrode tip (more difficult arc strike).

### POWER FOCUS

► The parameter changes the concentration of the electric arc, increasing or reducing the energy transferred to the workpiece.
Consequences of a higher value:
- Welding arc concentration.
- Penetration increase.

### SPOT TIME

- When the torch trigger is pressed the welding arc persists for the time set in the parameter.
- Press the torch trigger again to resume the welding process.
- The welding process cannot be interrupted once it has been started.
- When the torch trigger is pressed, if the arc does not strike within 10 seconds, the process is deactivated.
- The welding parameters can be modified during the welding process.

### B-LEVEL

► The parameter enables a special torch trigger function.
- Pressing and releasing the torch trigger rapidly in welding mode (in time 2) serves to switch from the main welding current to a secondary current.
- Pressing and releasing the torch trigger again switches from the secondary current to the main current. This switching can be performed repeatedly at the discretion of the operator.
- To close the welding cycle (time 3) operate the torch trigger with a prolonged press. When the trigger is released the welding cycle will close (time 4).

### START 3LEV

► Start in 3-level operation
The parameter adjusts the 1st level wire feed rate as a percentage of the wire feed rate set for welding (2nd level). The time is determined by the operator on the basis of the time he presses the torch trigger during the third time. This is helpful to start the weld run with different heat input compared to steady state welding conditions. High values (e.g. 130 %) are generally required by aluminium alloys to create a weld pool.

### CRATER 3LEV

► Crater in 3-level operation
The parameter adjusts the 3rd level wire feed rate as a percentage of the wire feed rate set for welding (2nd level).

The time is determined by the operator on the basis of the time he presses the torch trigger during the third time. This is helpful to finish the weld run with different heat input compared to steady state welding conditions. This function is generally required with aluminium alloys, in which the final crater must be filled.
Consequences of a lower value:

- Less formation of the welding final crater (crater filler).

### SLOPE 3LEV 1

► Initial slope in 3-level operation
The parameter adjusts the slope time between the “HOT START” level and the welding level. The setting is dependent on the specific needs of the operator. Values from 0.5 s to 1.0 s are suitable for the vast majority of applications.

### SLOPE 3LEV 2

► Final slope in 3-level operation.
The parameter controls the slope time connecting the welding level and the crater filler level. The setting is dependent on the specific needs of the operator. Values from 0.5 s to 1.0 s are suitable for the vast majority of applications.

### CORR. 3LEV 1

► Initial correction in 3-level operation
The parameter corrects the synergic value of the wire feed rate or of the arc voltage during the Hot Start time.

### CORR. 3LEV 2

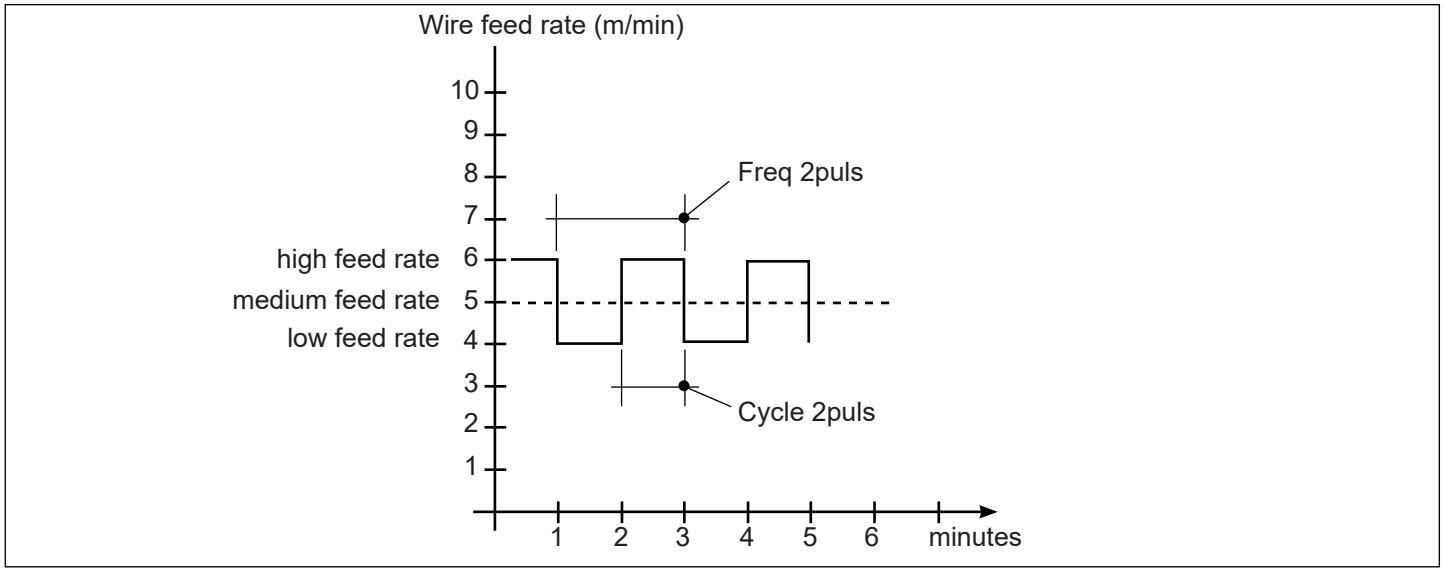
► Final correction in 3-level operation
The parameter corrects the synergic value of the wire feed rate or of the arc voltage during the down slope time.

### FREQ 2PULS

► Double pulsed frequency.
This parameter adjusts the frequency of alternation of the two wire feed rates set with the “RANGE 2PULS” parameter. The setting is dependent on the specific needs of the operator. The best results are obtained with frequencies of approximately 1.5 Hertz.

### RANGE 2PULS

► Double pulsed range
The parameter generates the two wire feed rates (high and low) used in the double pulsed process, which alternate with the frequency defined by the FREQ 2PULS parameter. Values that are not excessively high are preferable for stability of the welding arc. This value is expressed as a percentage of the set wire feed rate and it determines the high and low feed rate values in compliance with the following rule:
High wire feed rate = wire feed rate (D2) + [wire feed rate (D2)*RANGE 2PULS]/2
Low wire feed rate = wire feed rate (D2) - [wire feed rate (D2)*RANGE 2PULS]/2
Example: if 5 m/min is set on the main adjustment (on display D2) (medium feed rate) and 40 % on RANGE 2PULS (on display D3), the wire feed rate will vary between 4 m/min (low feed rate) and 6 m/min (high feed rate).




### CYCLE 2PULS

► Duty cycle of the double pulsed process
The parameter adjusts the high feed rate time. The value is expressed as a percentage over the pulse frequency period.

### ARC2 2PULS

► Arc2 voltage in the double pulsed process
The parameter corrects the synergic value of the voltage relating to the low wire feed rate value of the double pulsed process.
**NOTE:** A value >0 produces an increase in the length of the welding arc, while a value <0 produces a shorter arc.

### ARC2 2PULS

► Arc2 wire feed rate in the double pulsed process
The parameter corrects the synergic value of the wire feed rate relating to the low voltage value of the double pulsed process.
NOTE: A value <0 produces an increase in the length of the welding arc, while a value >0 produces a shorter arc.

## MMA welding parameters

### WELDING CURRENT

► It is the current supplied during welding.

### HOT-START

► This parameter aids electrode melting at the time of arc striking.
Consequences of a higher value:
- Easy arc striking.
- More spraying at the start.
- Increased arc striking area.

Consequences of a lower value:
- Difficult arc striking.
- Less spraying at the start.
- Decreased arc striking area.

### ARC-FORCE

► This parameter helps to avoid electrode sticking during welding. It is set as a percentage referred to the value of the following parameter: “WELDING CURRENT”.
Consequences of a higher value:
- Smooth welding.
- Welding arc stability.
- Greater melting of the electrode inside the workpiece.
- More spraying during welding.

Consequences of a lower value:
- The arc is extinguished more easily.
- Less spraying during welding.

## TIG welding parameters

### DOWN SLOPE

► Time during which the current changes from the welding value to the end value by means of a slope. Prevents the formation of craters in the process of turning off the arc.

### FINAL CURRENT

► During electrode welding the parameter makes it possible to obtain a uniform deposit of filler material from the start to the end of the welding process, closing the deposition crater with a current such as to deposit a final droplet of filler material.
The value of this parameter can be set as a percentage of the welding current or as an absolute value expressed in Amperes.
Press and hold the torch trigger button during the 3rd time to maintain the crater closing current which allows for the optimal closing of the crater until the torch trigger button is released (4th time) which starts the “POST GAS” time.

### POST GAS TIME

► Time of post gas delivery when the welding arc is extinguished.
Consequences of a higher value:
- More effective pickling (improved appearance of workpiece at the end of the welding pass).
- Higher gas consumption.

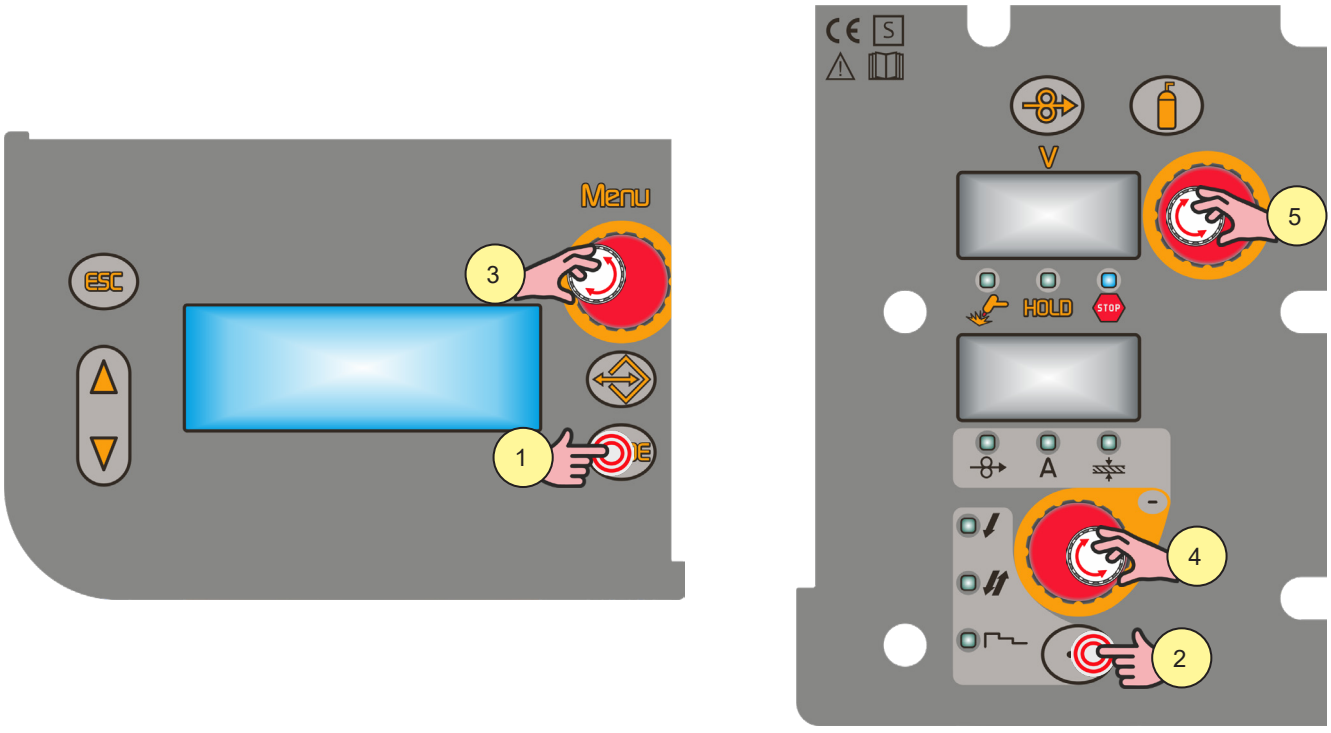
Consequences of a lower value:
- Lower gas consumption.
- Oxidation of electrode tip (more difficult arc strike).

## 7.5 MANUAL MIG/MAG WELDING

Welding is of the Short/Spray type.
Adjustment of the main welding parameters, wire feed rate and voltage is entirely at the discretion of the operator. The optimal work point must be identified for the required welding type.
During a welding operation with an active JOB, it is possible to temporarily change the parameters shown on displays [D1] and [D2] with their encoders to test the temporary changes made to the welding operation. At the end of the welding operation (and HOLD is quit) the values of the loaded JOB are reset. When the welding operation is not being carried out and a JOB is active through encoder [E3], the JOBs belonging to its sequence can be scrolled.

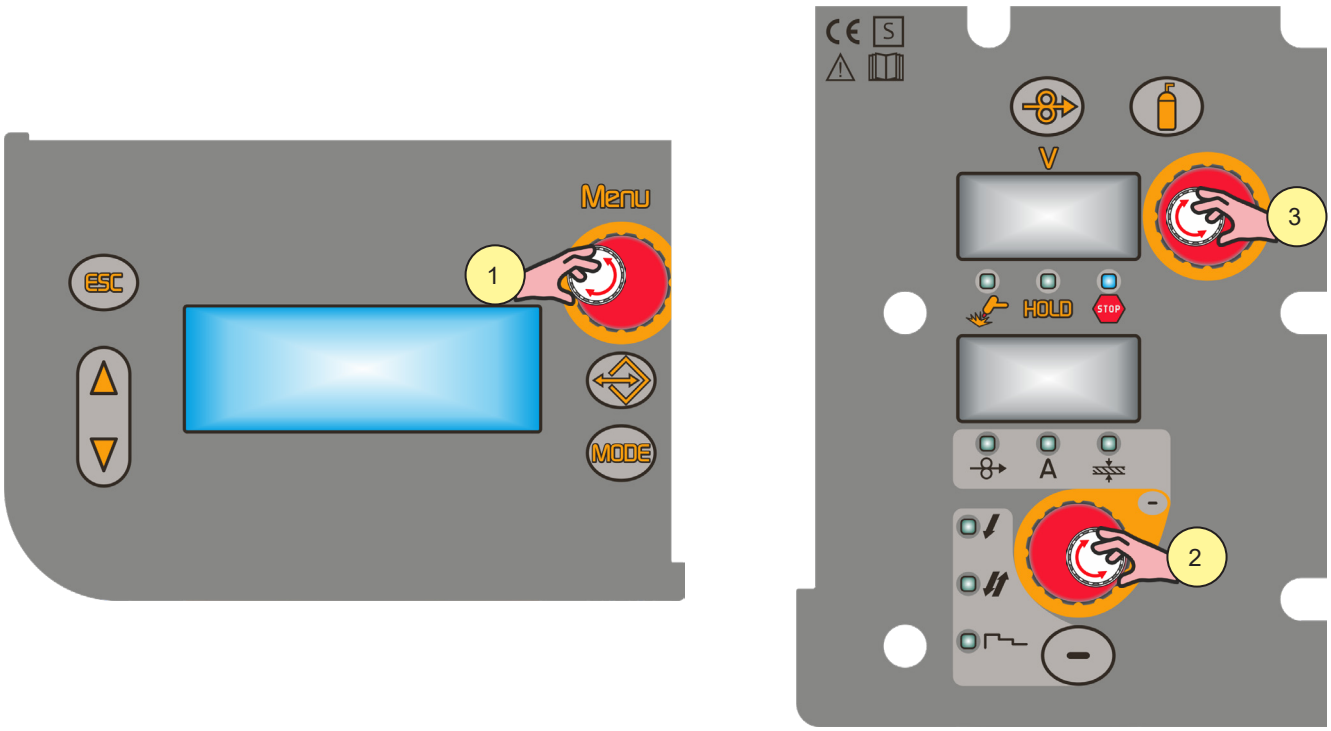
*Main settings and displays in MANUAL MIG/MAG mode*

| | DISPLAY [D1] | DISPLAY [D2] |
|---|---|---|
| **Data setting** | Shows the set welding voltage, which can be adjusted with the following encoder: [E1]. | Shows the wire feed rate setting in m/min, which can be altered by means of the following encoder: [E2]. |
| **Welding** | Shows the average voltage measured during welding. | Shows the average current measured during welding. |
| **HOLD function (At welding end)** | Shows the average voltage measured during the last welding procedure performed. | Shows the average current measured during the last welding procedure performed. |




1. Press [S10].
   Select the following welding mode: MANUAL MIG/MAG
2. Press [S4].
   Select one of the following torch trigger procedures:
   - 2 TIMES
   - 2 SPOT TIMES:
     The procedure is active when the “SPOT TIME” parameter is set to a value other than “OFF”.
   - 4 TIMES

## Manual MIG/MAG parameters setting (1st level): inductance setting.




1. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.
   **Information** IND: This parameter allows electronic adjustment of the welding inductance from the main menu.

## Manual MIG/MAG parameters setting (1st level)

2. Using encoder [E2], edit the value of the selected parameter.
   The value is saved automatically.

*1st level menu parameters in MANUAL MIG/MAG mode*

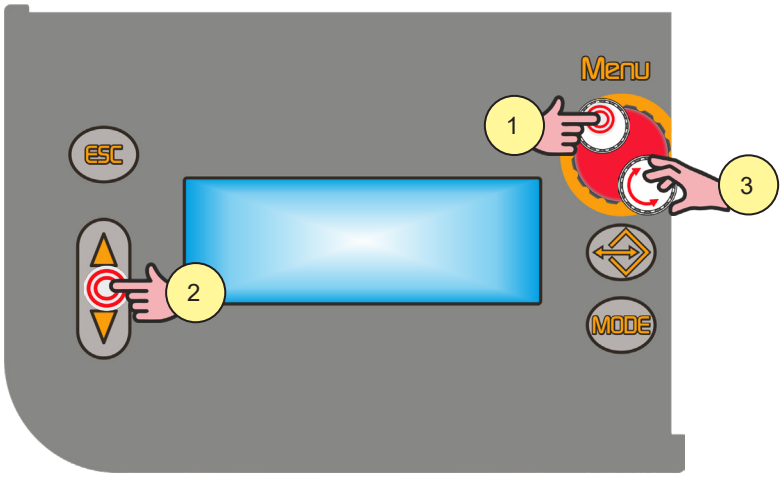
| PARAMETER | | | |
|---|---|---|---|
| WIRE FEED RATE | 1.0 m/min | 5.0 m/min | 24.0 m/min |

3. Using encoder [E1], edit the value of the selected parameter.
   The value is saved automatically.

*1st level menu parameters in MANUAL MIG/MAG mode*

| PARAMETER | | | |
|---|---|---|---|
| WELDING VOLTAGE | 10.0 V | 20.0 V | 40.0 V |

## Manual MIG/MAG parameters setting (2nd level)




1. Press [S6]. This gives access to the 2nd level menu.
2. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
3. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

*2nd level menu parameters in MANUAL MIG/MAG mode*

| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
| 2 TIMES<br>2 SPOT TIMES | INDUCTANCE | -100 | 0 | 100 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | 35 % | 100 % |
| | BURN BACK | 1 % | 25 % | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | SPOT TIME [1)] | 0.1 s | OFF | 25.0 s |
| 4 TIMES | INDUCTANCE | -100 | 0 | 100 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | 35 % | 100 % |
| | BURN BACK | 1 % | 25 % | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |

1) The parameter value is stored for each welding procedure

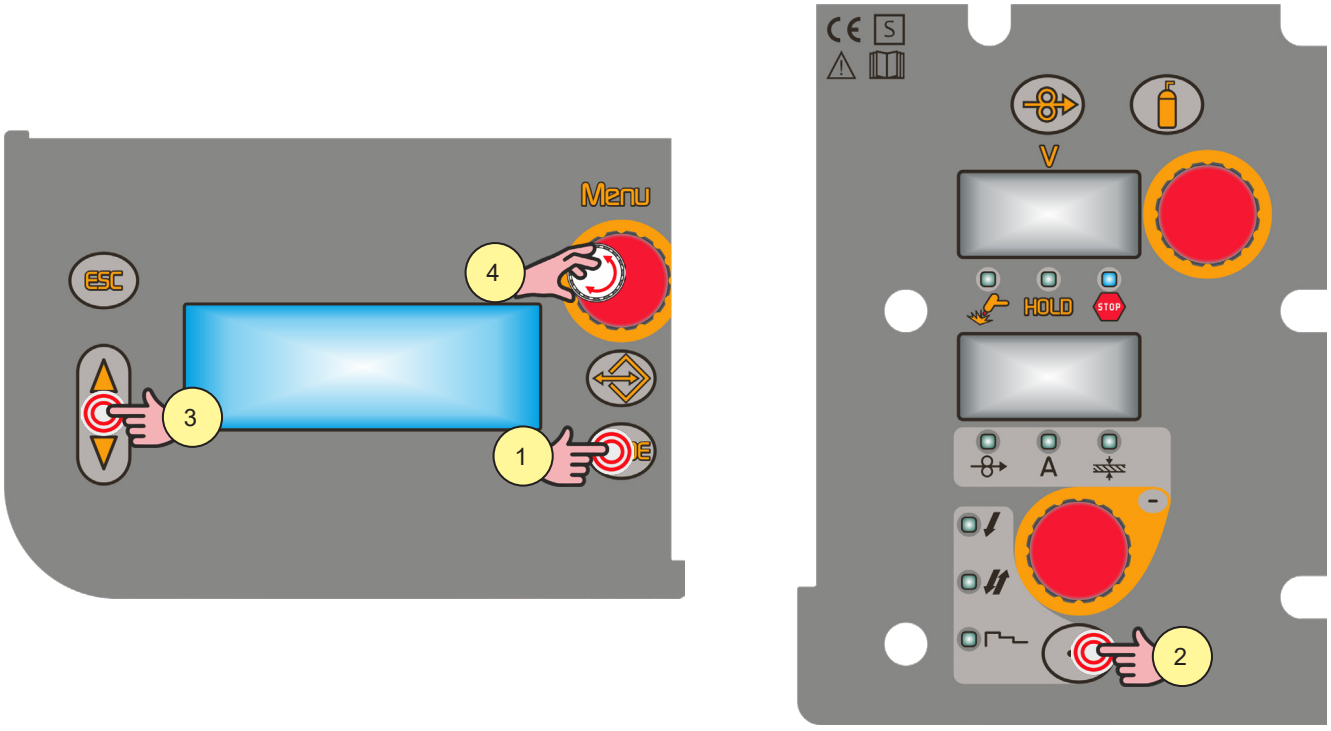
## 7.6 SYNERGIC MIG/MAG WELDING

Set the welding data (material, wire diameter, gas type), shown on display [D3] and just one welding parameter, chosen among wire feed rate, Amperes, and workpiece Thickness, shown on display [D2]. NOTE: The synergic curves were created with reference to a fillet weld in position PB (horizontal-vertical) with 10 mm stick-out (distance from torch to workpiece).
In general, the parameter set is the wire feed rate (associated with the deposition of filler material) and the synergic welding power source automatically sets the most suitable welding voltage. Encoder [E1] can be used to adjust the arc correction shown on display [D3], in order to make minor adjustments in accordance with requirements.
During a welding operation with an active JOB, it is possible to temporarily change the parameters shown on displays [D1] and [D2] with their encoders to test the temporary changes made to the welding operation. At the end of the welding operation (and HOLD is quit) the values of the loaded JOB are reset. When the welding operation is not being carried out and a JOB is active through encoder [E3], the JOBs belonging to its sequence can be scrolled.
The welding power source also automatically adjusts several secondary parameters that are relevant for welding quality.

*Main settings and displays in SYNERGIC MIG/MAG mode*

| | DISPLAY [D1] | DISPLAY [D2] |
|---|---|---|
| **Data setting** | Shows the set welding voltage, which can be adjusted with the following encoder: [E1].<br>Shows the arc correction made by the operator with encoder [E1].<br>The parameter corrects the arc dynamics in the POWER ROOT process. | Shows the main synergy parameter (wire feed rate, Amperes, recommended thickness), which can be adjusted with the following encoder: [E2]. |
| **Welding** | Shows the average voltage measured during welding. | Shows the average current measured during welding. |
| **HOLD function (At welding end)** | Shows the average voltage measured during the last welding procedure performed. | Shows the average current measured during the last welding procedure performed. |

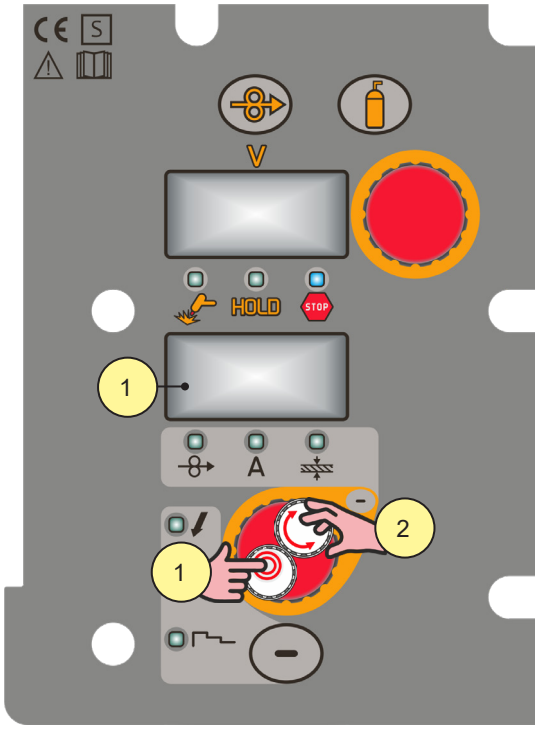
### Synergic MIG/MAG parameters setting (1st level): synergic curve setting




1. Press [S10].
   Select the following welding mode: SYNERGIC MIG/MAG

2. Press [S4].
   Select one of the following torch trigger procedures:
   - 2 TIMES
   - 2 SPOT TIMES:
     The procedure is active when the “SPOT TIME” parameter is set to a value other than “OFF”.
   - 4 TIMES
   - 4 TIMES B-LEVEL:
     The procedure is active when the “B-LEVEL” parameter is set to a value other than “OFF”.
   - 3 LEVELS 2 TIMES
   - 3 LEVELS 2 SPOT TIMES:
     The procedure is active when the “SPOT TIME” parameter is set to a value other than “OFF”.
     If the “SPOT TIME” parameter is active in the 3 LEVELS procedure, its value denotes the time for which the main welding current is supplied.
   - 3 LEVELS 4 TIMES
   - 3 LEVELS 4 TIMES B-LEVEL:
     The procedure is active when the “B-LEVEL” parameter is set to a value other than “OFF”.
3. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
4. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

## Synergic MIG/MAG parameters setting (1st level)



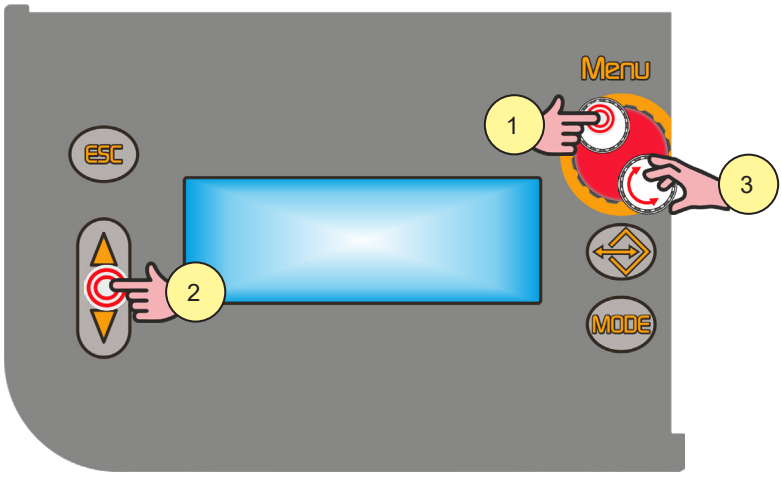

1. Press button [S3] to scroll down the settings to edit.
   The LED associated with the selected setting turns on. The value of the selected setting appears on display [D2]
2. Using encoder [E2], edit the value of the selected parameter.
   The value is saved automatically.

*1st level menu parameters in SYNERGIC MIG/MAG mode*

| PARAMETER | | | |
|---|---|---|---|
| WIRE FEED RATE [1] | 1.0 m/min | 5.0 m/min | 24.0 m/min |
| WELDING CURRENT [1] | SYN [3] | SYN | SYN |
| THICKNESS [2] | SYN | SYN | SYN |

1) By changing the main adjustment value shown on display D2, the voltage value of the synergic curve shown on display D1 is also changed.
2) By changing the main adjustment value shown on display D2, the voltage value of the synergic curve shown on display D1 is also changed. Reference is made to “T” fillet welds on identical thicknesses. The relative value is purely indicative.
3) SYN: Synergy means a simple and fast way to fine tune the welding power source. Using this function, all the welding parameters in all the positions are optimally balanced, thus facilitating the user.
For this purpose, the synergy curves of the main types of wire have been entered; however, it is also possible to correct these curves so that the user can optimise their welding procedure.
**NOTE:** The synergic curves were created with reference to a fillet weld in position PB (horizontal-vertical) with 10 mm stick-out (distance from torch to workpiece).

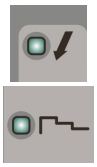
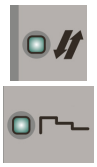
## Synergic MIG/MAG parameters setting (2nd level)




1. Press [S6]. This gives access to the 2nd level menu.
2. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
3. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

*2nd level menu parameters in SYNERGIC MIG/MAG mode*

| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
|  2 TIMES 2 SPOT TIMES | INDUCTANCE | -100 | SYN | 100 |
| | PR START [2] | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | SPOT TIME [1] | 0.1 s | OFF | 25.0 s |
|  4 TIMES 4 TIMES B-LEVEL | INDUCTANCE | -100 | SYN | 100 |
| | PR START [2] | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | B-LEVEL [1] | 1 % | OFF | 200 % |

| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
|  3 LEVELS 2 TIMES<br>3 LEVELS 2 SPOT TIMES | INDUCTANCE | -100 | SYN | 100 |
| | PR START [2] | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | START 3LEV | 10 % | 130 % | 200 % |
| | START TIME | 0.0 s | 0.5 s | 10.0 s |
| | SLOPE 3LEV 1 | 0.1 s | 0.5 s | 10.0 s |
| | CORR.3LEV1 | -9.9 V<br>-4.0 m/min | 0.0 V<br>0.0 m/min | 9.9 V<br>4.0 m/min |
| | SLOPE 3LEV 2 | 0.1 s | 0.5 s | 10.0 s |
| | CORR. 3LEV 2 | -9.9 V<br>-4.0 m/min | 0.0 V<br>0.0 m/min | 9.9 V<br>4.0 m/min |
| | CRATER 3LEV | 10 % | 80 % | 200 % |
| | CRATER TIME | 0.0 s | 0.5 s | 10.0 s |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | SPOT TIME [1] | 0.1 s | OFF | 25.0 s |
|  3 LEVELS 4 TIMES<br>3 LEVELS 4 TIMES B-LEVEL | INDUCTANCE | -100 | SYN | 100 |
| | PR START [2] | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | START 3LEV | 10 % | 130 % | 200 % |
| | SLOPE 3LEV 1 | 0.1 s | 0.5 s | 10.0 s |
| | CORR. 3LEV 1 | -9.9 V<br>-4.0 m/min | 0.0 V<br>0.0 m/min | 9.9 V<br>4.0 m/min |
| | SLOPE 3LEV 2 | 0.1 s | 0.5 s | 10.0 s |
| | CORR. 3LEV 2 | -9.9 V<br>-4.0 m/min | 0.0 V<br>0.0 m/min | 9.9 V<br>4.0 m/min |
| | CRATER 3LEV | 10 % | 80 % | 200 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | B-LEVEL [1] | 1 % | OFF | 200 % |

1) The parameter value is stored for each welding procedure.
2) This parameter is present exclusively with POWER ROOT.

## 7.7 PULSED SYNERGIC MIG/MAG WELDING

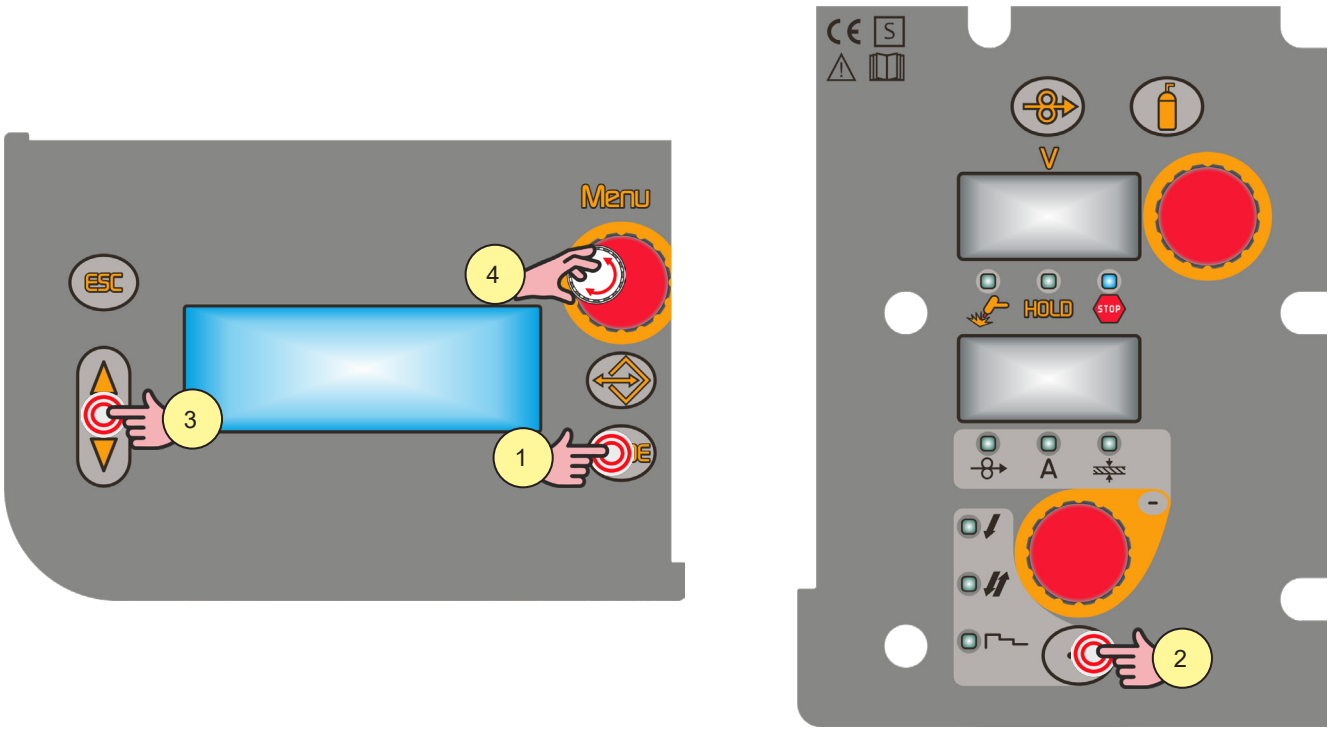
**Information** (available in PIONEER PULSE MSR welding power sources)

Set the welding data (material, wire diameter, gas type), shown on display [D3] and just one welding parameter, chosen among wire feed rate, Amperes, and workpiece Thickness, shown on display [D2]. NOTE: The synergic curves were created with reference to a fillet weld in position PB (horizontal-vertical) with 10 mm stick-out (distance from torch to workpiece).
In general, the parameter set is the wire feed rate (associated with the deposition of filler material) and the synergic welding power source automatically sets the most suitable welding voltage. Encoder [E1] can be used to adjust the arc correction shown on display [D3], in order to make minor adjustments in accordance with requirements.
During a welding operation with an active JOB, it is possible to temporarily change the parameters shown on displays [D1] and [D2] with their encoders to test the temporary changes made to the welding operation. At the end of the welding operation (and HOLD is quit) the values of the loaded JOB are reset. When the welding operation is not being carried out and a JOB is active through encoder [E3], the JOBs belonging to its sequence can be scrolled.
The welding power source also automatically adjusts several secondary parameters that are relevant for welding quality.

*Main settings and displays in PULSED SYNERGIC MIG/MAG mode*

| | DISPLAY [D1] | DISPLAY [D2] |
|---|---|---|
| **Data setting** | Shows the set welding voltage, which can be adjusted with the following encoder: [E1]. | Shows the main synergy parameter (wire feed rate, Amperes, recommended thickness), which can be adjusted with the following encoder: [E2]. |
| **Welding** | Shows the average voltage measured during welding. | Shows the average current measured during welding. |
| **HOLD function (At welding end)** | Shows the average voltage measured during the last welding procedure performed. | Shows the average current measured during the last welding procedure performed. |

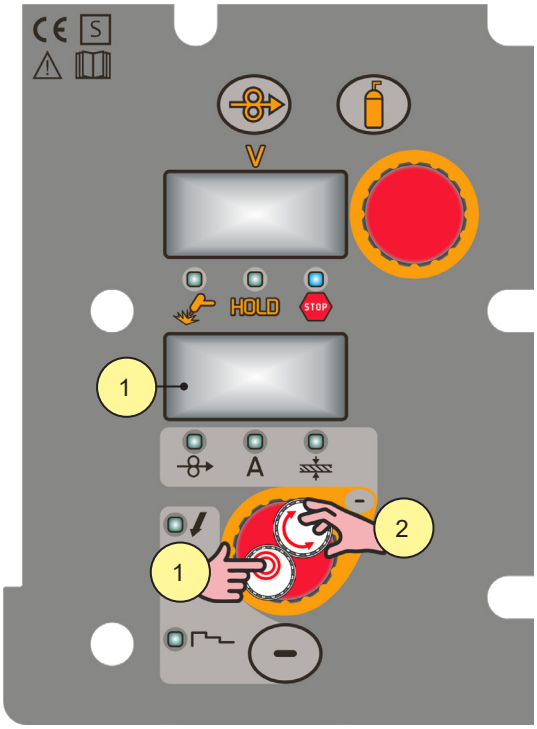
### Pulsed synergic MIG/MAG parameters setting (1st level): synergic curve setting




1. Press [S10].
   Select the following welding mode: PULSED SYNERGIC MIG/MAG

2. Press [S4].
   Select one of the following torch trigger procedures:
   - 2 TIMES
   - 2 SPOT TIMES:
     The procedure is active when the “SPOT TIME” parameter is set to a value other than “OFF”.
   - 4 TIMES
   - 4 TIMES B-LEVEL:
     The procedure is active when the “B-LEVEL” parameter is set to a value other than “OFF”.
   - 3 LEVELS 2 TIMES
   - 3 LEVELS 2 SPOT TIMES:
     The procedure is active when the “SPOT TIME” parameter is set to a value other than “OFF”.
     If the “SPOT TIME” parameter is active in the 3 LEVELS procedure, its value denotes the time for which the main welding current is supplied.
   - 3 LEVELS 4 TIMES
   - 3 LEVELS 4 TIMES B-LEVEL:
     The procedure is active when the “B-LEVEL” parameter is set to a value other than “OFF”.
3. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
4. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

## Pulsed synergic MIG/MAG parameters setting (1st level)



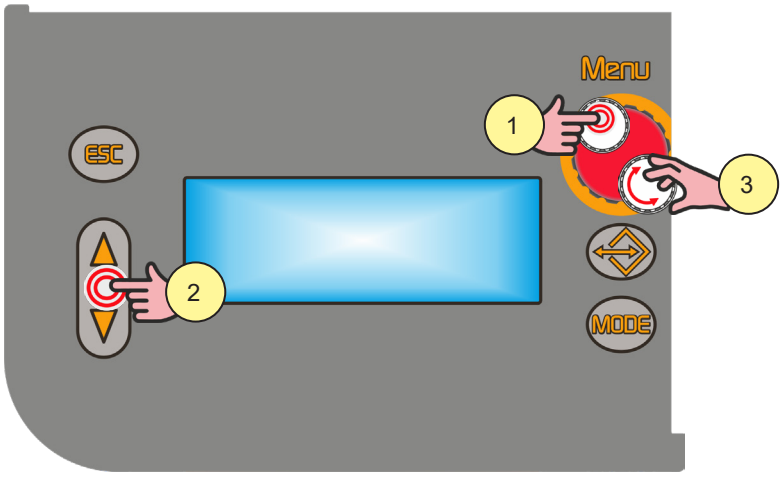

1. Press button [S3] to scroll down the settings to edit.
   The LED associated with the selected setting turns on. The value of the selected setting appears on display [D2]
2. Using encoder [E2], edit the value of the selected parameter.
   The value is saved automatically.

*1st level menu parameters in SYNERGIC MIG/MAG mode*

| PARAMETER | | | |
|---|---|---|---|
| WIRE FEED RATE [1] | 1.0 m/min | 5.0 m/min | 24.0 m/min |
| WELDING CURRENT [1] | SYN [3] | SYN | SYN |
| THICKNESS [2] | SYN | SYN | SYN |

1) By changing the main adjustment value shown on display D2, the voltage value of the synergic curve shown on display D1 is also changed.
2) By changing the main adjustment value shown on display D2, the voltage value of the synergic curve shown on display D1 is also changed. Reference is made to “T” fillet welds on identical thicknesses. The relative value is purely indicative.
3) SYN: Synergy means a simple and fast way to fine tune the welding power source. Using this function, all the welding parameters in all the positions are optimally balanced, thus facilitating the user.
For this purpose, the synergy curves of the main types of wire have been entered; however, it is also possible to correct these curves so that the user can optimise their welding procedure.
**NOTE:** The synergic curves were created with reference to a fillet weld in position PB (horizontal-vertical) with 10 mm stick-out (distance from torch to workpiece).

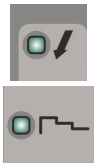
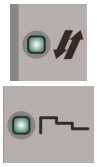
## Pulsed synergic MIG/MAG parameters setting (2nd level)




1. Press [S6]. This gives access to the 2nd level menu.
2. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
3. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

*2nd level menu parameters in PULSED SYNERGIC MIG/MAG mode*

| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
| 2 TIMES<br>2 SPOT TIMES | ARC SET | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | SPOT TIME [1)] | 0.1 s | OFF | 25.0 s |
| 4 TIMES<br>4 TIMES B-LEVEL | ARC SET | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | B-LEVEL [1)] | 1 % | OFF | 200 % |

| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
|  <br>3 LEVELS 2 TIMES<br>3 LEVELS 2 SPOT TIMES | ARC SET | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | SYN | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | START 3LEV | 10 % | 130 % | 200 % |
| | START TIME | 0.0 s | 0.5 s | 10.0 s |
| | SLOPE 3LEV 1 | 0.1 s | 0.5 s | 10.0 s |
| | SLOPE 3LEV 2 | 0.1 s | 0.5 s | 10.0 s |
| | CRATER 3LEV | 10 % | 80 % | 200 % |
| | CRATER TIME | 0.0 s | 0.5 s | 10.0 s |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | SPOT TIME [1] | 0.1 s | OFF | 25.0 s |
|  <br>3 LEVELS 4 TIMES<br>3 LEVELS 4 TIMES B-LEVEL | ARC SET | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | SYN | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | START 3LEV | 10 % | 130 % | 200 % |
| | SLOPE 3LEV 1 | 0.1 s | 0.5 s | 10.0 s |
| | SLOPE 3LEV 2 | 0.1 s | 0.5 s | 10.0 s |
| | CRATER 3LEV | 10 % | 80 % | 200 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | B-LEVEL [1] | 1 % | OFF | 200 % |

1) The parameter value is stored for each welding procedure.

## 7.8 DOUBLE PULSED SYNERGIC MIG/MAG WELDING

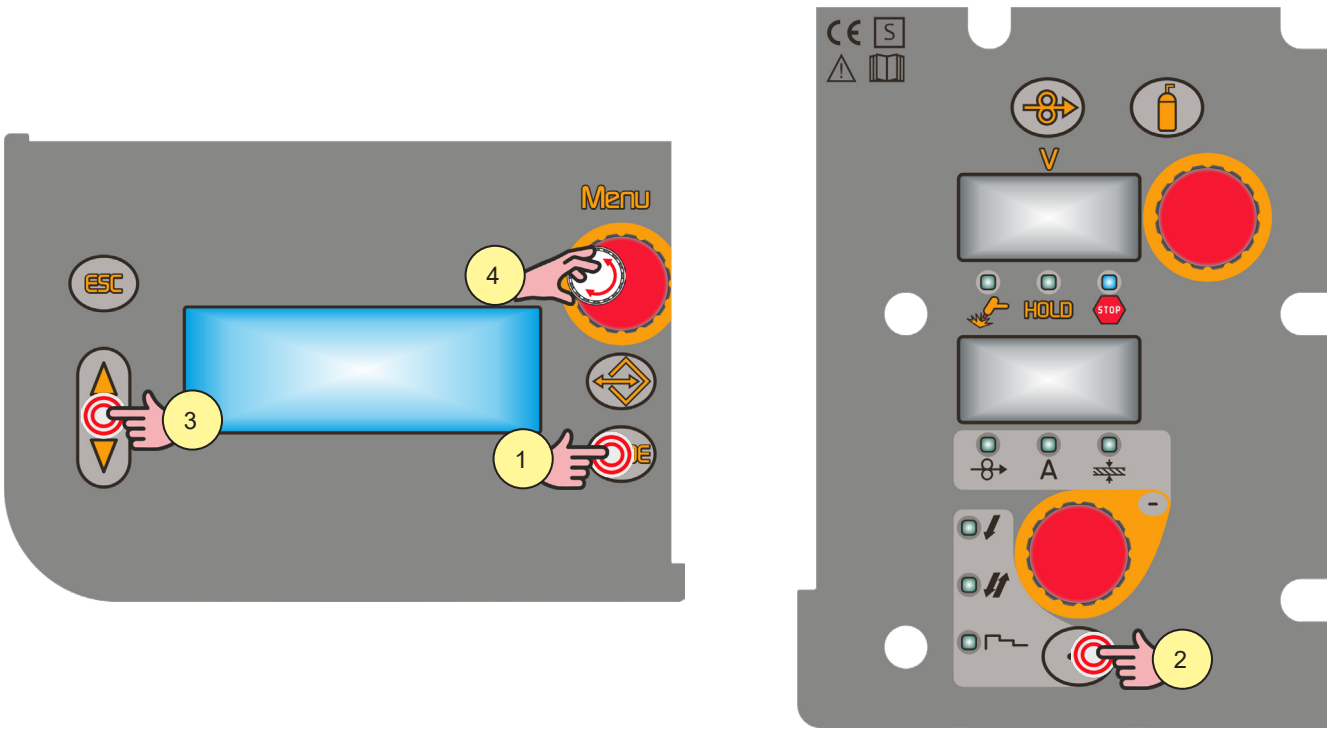
**Information** (available in PIONEER PULSE MSR welding power sources)

This mode involves a variable frequency pulse between two parameters of the Pulsed Synergic curve.
Set the welding data (material, wire diameter, gas type), shown on display [D3] and just one welding parameter, chosen among wire feed rate, Amperes, and workpiece Thickness, shown on display [D2]. NOTE: The synergic curves were created with reference to a fillet weld in position PB (horizontal-vertical) with 10 mm stick-out (distance from torch to workpiece).
In general, the parameter set is the wire feed rate (associated with the deposition of filler material) and the synergic welding power source automatically sets the most suitable welding voltage. Encoder [E1] can be used to adjust the arc correction shown on display [D3], in order to make minor adjustments in accordance with requirements.
During a welding operation with an active JOB, it is possible to temporarily change the parameters shown on displays [D1] and [D2] with their encoders to test the temporary changes made to the welding operation. At the end of the welding operation (and HOLD is quit) the values of the loaded JOB are reset. When the welding operation is not being carried out and a JOB is active through encoder [E3], the JOBs belonging to its sequence can be scrolled.
The welding power source also automatically adjusts several secondary parameters that are relevant for welding quality.
This mode involves a variable frequency pulse between two parameters of the Pulsed Synergic curve.

*Main settings and displays in DOUBLE PULSED SYNERGIC MIG/MAG mode*

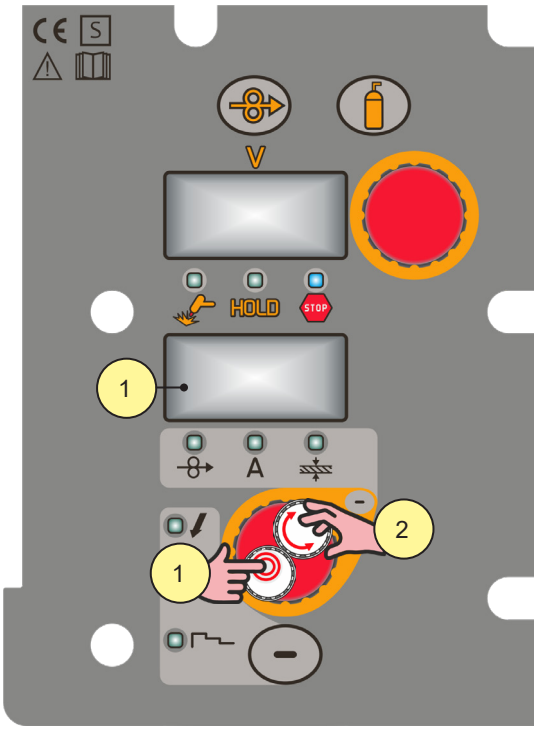
| | DISPLAY [D1] | DISPLAY [D2] |
|---|---|---|
| **Data setting** | Shows the set welding voltage, which can be adjusted with the following encoder: [E1]. | Shows the main synergy parameter (wire feed rate, Amperes, recommended thickness), which can be adjusted with the following encoder: [E2]. |
| **Welding** | Shows the average voltage measured during welding. | Shows the average current measured during welding. |
| **HOLD function (At welding end)** | Shows the average voltage measured during the last welding procedure performed. | Shows the average current measured during the last welding procedure performed. |

### Double pulsed synergic MIG/MAG parameters setting (1st level): synergic curve setting.



1. Press [S10].
   Select the following welding mode: DOUBLE PULSED SYNERGIC MIG/MAG
2. Press [S4].
   Select one of the following torch trigger procedures:
   - 2 TIMES
   - 2 SPOT TIMES:
     The procedure is active when the “SPOT TIME” parameter is set to a value other than “OFF”.
   - 4 TIMES
   - 4 TIMES B-LEVEL:
     The procedure is active when the “B-LEVEL” parameter is set to a value other than “OFF”.
   - 3 LEVELS 2 TIMES
   - 3 LEVELS 2 SPOT TIMES:
     The procedure is active when the “SPOT TIME” parameter is set to a value other than “OFF”.
     If the “SPOT TIME” parameter is active in the 3 LEVELS procedure, its value denotes the time for which the main welding current is supplied.
   - 3 LEVELS 4 TIMES
   - 3 LEVELS 4 TIMES B-LEVEL:
     The procedure is active when the “B-LEVEL” parameter is set to a value other than “OFF”.
3. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
4. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

## Double pulsed synergic MIG/MAG parameters setting (1st level)




1. Press button [S3] to scroll down the settings to edit.
   The LED associated with the selected setting turns on. The value of the selected setting appears on display [D2]
2. Using encoder [E2], edit the value of the selected parameter.
   The value is saved automatically.

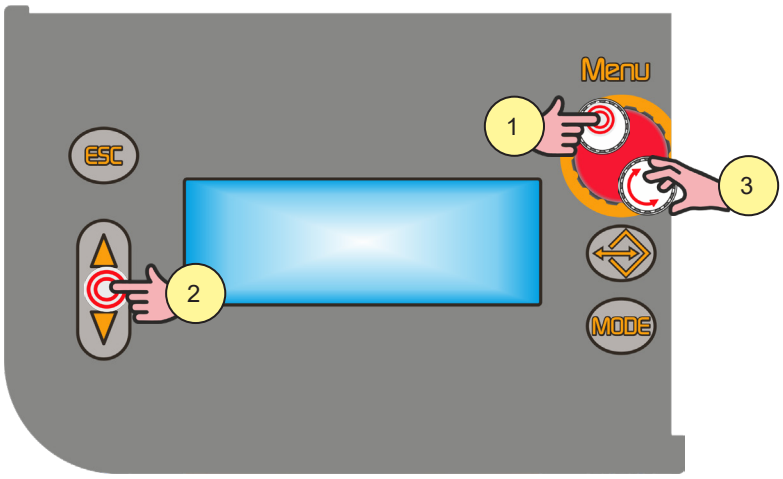
*1st level menu parameters in SYNERGIC MIG/MAG mode*

| PARAMETER | | | |
|---|---|---|---|
| WIRE FEED RATE [1] | 1.0 m/min | 5.0 m/min | 24.0 m/min |
| WELDING CURRENT [1] | SYN [3] | SYN | SYN |

| PARAMETER | | | |
|---|---|---|---|
| THICKNESS [2] | SYN | SYN | SYN |

1) By changing the main adjustment value shown on display D2, the voltage value of the synergic curve shown on display D1 is also changed.
2) By changing the main adjustment value shown on display D2, the voltage value of the synergic curve shown on display D1 is also changed. Reference is made to “T” fillet welds on identical thicknesses. The relative value is purely indicative.
3) SYN: Synergy means a simple and fast way to fine tune the welding power source. Using this function, all the welding parameters in all the positions are optimally balanced, thus facilitating the user.
For this purpose, the synergy curves of the main types of wire have been entered; however, it is also possible to correct these curves so that the user can optimise their welding procedure.
**NOTE:** The synergic curves were created with reference to a fillet weld in position PB (horizontal-vertical) with 10 mm stick-out (distance from torch to workpiece).

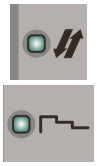
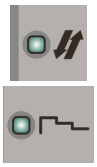
## Double pulsed synergic MIG/MAG parameters setting (2nd level).




1. Press [S6]. This gives access to the 2nd level menu.
2. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
3. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

*2nd level menu parameters in DOUBLE PULSED SYNERGIC MIG/MAG mode*

| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
|  2 TIMES 2 SPOT TIMES | ARC SET | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | SPOT TIME [1] | 0.1 s | OFF | 25.0 s |
| | FREQ 2PULS | 0.1 Hz | 1.5 Hz | 10.0 Hz |
| | RANGE 2PULS | 10 % | 50 % | 90 % |
| | CYCLE 2PULS | 10 % | 50 % | 90 % |
| | ARC2 2PULS | - 9.9 V<br>- 4.0 m/min | 0.0 V<br>0.0 m/min | 9.9 V<br>4.0 m/min |

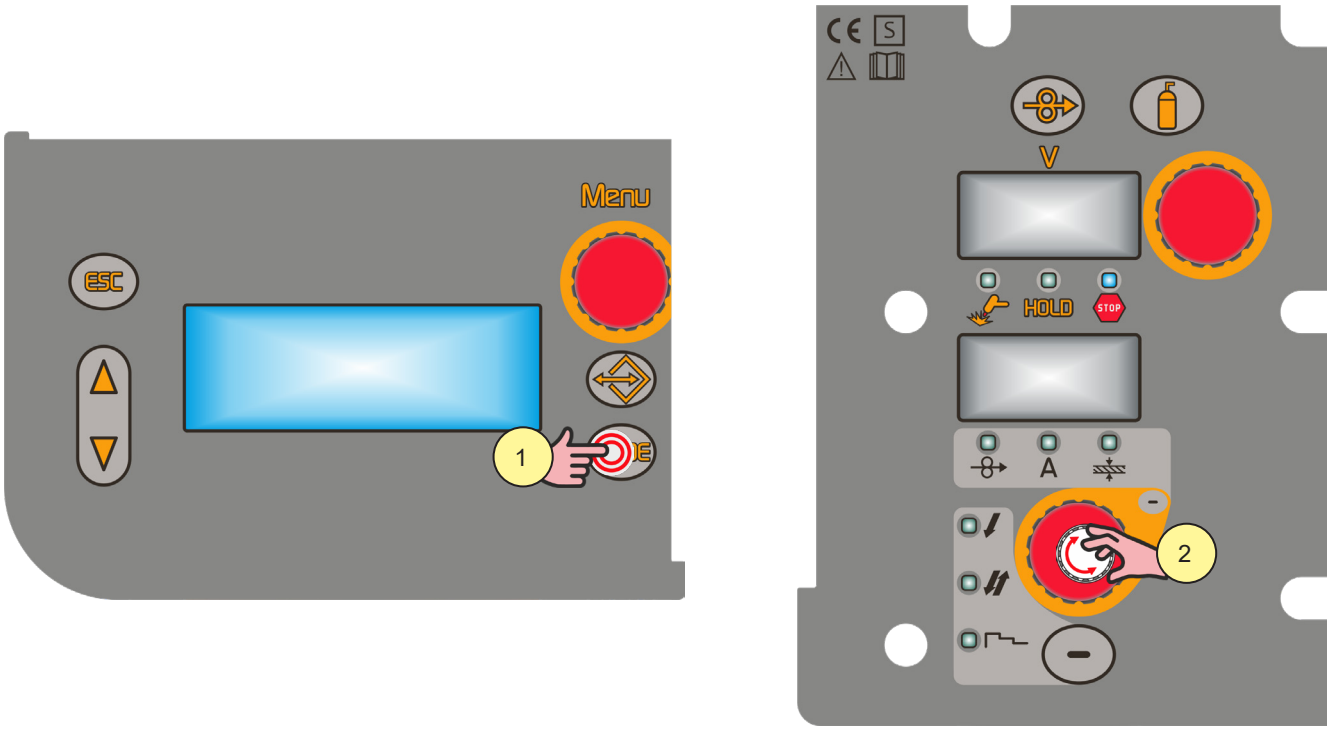
| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
|  4 TIMES 4 TIMES B-LEVEL | ARC SET | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | 0.0 s | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | B-LEVEL [1] | 1 % | OFF | 200 % |
| | FREQ 2PULS | 0.1 Hz | 1.5 Hz | 10.0 Hz |
| | RANGE 2PULS | 10 % | 50 % | 90 % |
| | CYCLE 2PULS | 10 % | 50 % | 90 % |
| | ARC2 2PULS | - 9.9 V<br>- 4.0 m/min | 0.0 V<br>0.0 m/min | 9.9 V<br>4.0 m/min |
|  3 LEVELS 2 TIMES 3 LEVELS 2 SPOT TIMES | ARC SET | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | SYN | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | START 3LEV | 10 % | 130 % | 200 % |
| | START TIME | 0.0 s | 0.5 s | 10.0 s |
| | SLOPE 3LEV 1 | 0.1 s | 0.5 s | 10.0 s |
| | SLOPE 3LEV 2 | 0.1 s | 0.5 s | 10.0 s |
| | CRATER 3LEV | 10 % | 80 % | 200 % |
| | CRATER TIME | 0.0 s | 0.5 s | 10.0 s |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | SPOT TIME [1] | 0.1 s | OFF | 25.0 s |
| | FREQ 2PULS | 0.1 Hz | 1.5 Hz | 10.0 Hz |
| | RANGE 2PULS | 10 % | 50 % | 90 % |
| | CYCLE 2PULS | 10 % | 50 % | 90 % |
| | ARC2 2PULS | - 9.9 V | 0.0 V | 9.9 V |
| | | - 4.0 m/min | 0.0 m/min | 4.0 m/min |
|  3 LEVELS 4 TIMES 3 LEVELS 4 TIMES B-LEVEL | ARC SET | 1 | SYN | 200 |
| | PRE GAS | 0.0 s | SYN | 10.0 s |
| | SOFT START | 1 % | SYN | 100 % |
| | START 3LEV | 10 % | 130 % | 200 % |
| | SLOPE 3LEV 1 | 0.1 s | 0.5 s | 10.0 s |
| | SLOPE 3LEV 2 | 0.1 s | 0.5 s | 10.0 s |
| | CRATER 3LEV | 10 % | 80 % | 200 % |
| | BURN BACK | 1 % | SYN | 200 % |
| | POST GAS | 0.0 s | 1.0 s | 10.0 s |
| | B-LEVEL [1] | 1 % | OFF | 200 % |
| | FREQ 2PULS | 0.1 Hz | 1.5 Hz | 10.0 Hz |
| | RANGE 2PULS | 10 % | 50 % | 90 % |
| | CYCLE 2PULS | 10 % | 50 % | 90 % |
| | ARC2 2PULS | - 9.9 V | 0.0 V | 9.9 V |
| | | - 4.0 m/min | 0.0 m/min | 4.0 m/min |

1) The parameter value is stored for each welding procedure.

## 7.9 MMA WELDING

*Main settings and displays in MMA mode*

| | DISPLAY [D1] | DISPLAY [D2] |
|---|---|---|
| **Data setting** | Shows the tension between the welding sockets. | Shows the preset welding current |
| **Welding** | Shows the average voltage measured during welding. | Shows the average current measured during welding. |
| **HOLD function (At welding end)** | Shows the average voltage measured during the last welding procedure performed. | Shows the average current measured during the last welding procedure performed. |

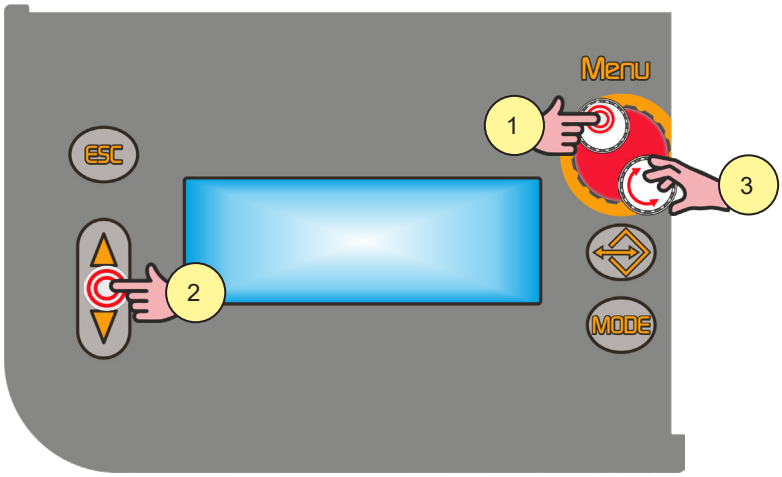



1. Press [S10].
   Select the following welding mode: MMA

### MMA Parameters Setting (1st Level): welding current setting

2. Using encoder [E2], edit the value of the WELDING CURRENT parameter.
   The value is saved automatically.

## MMA Parameters Setting (2nd Level)




1. Press [S6]. This gives access to the 2nd level menu.
2. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
3. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

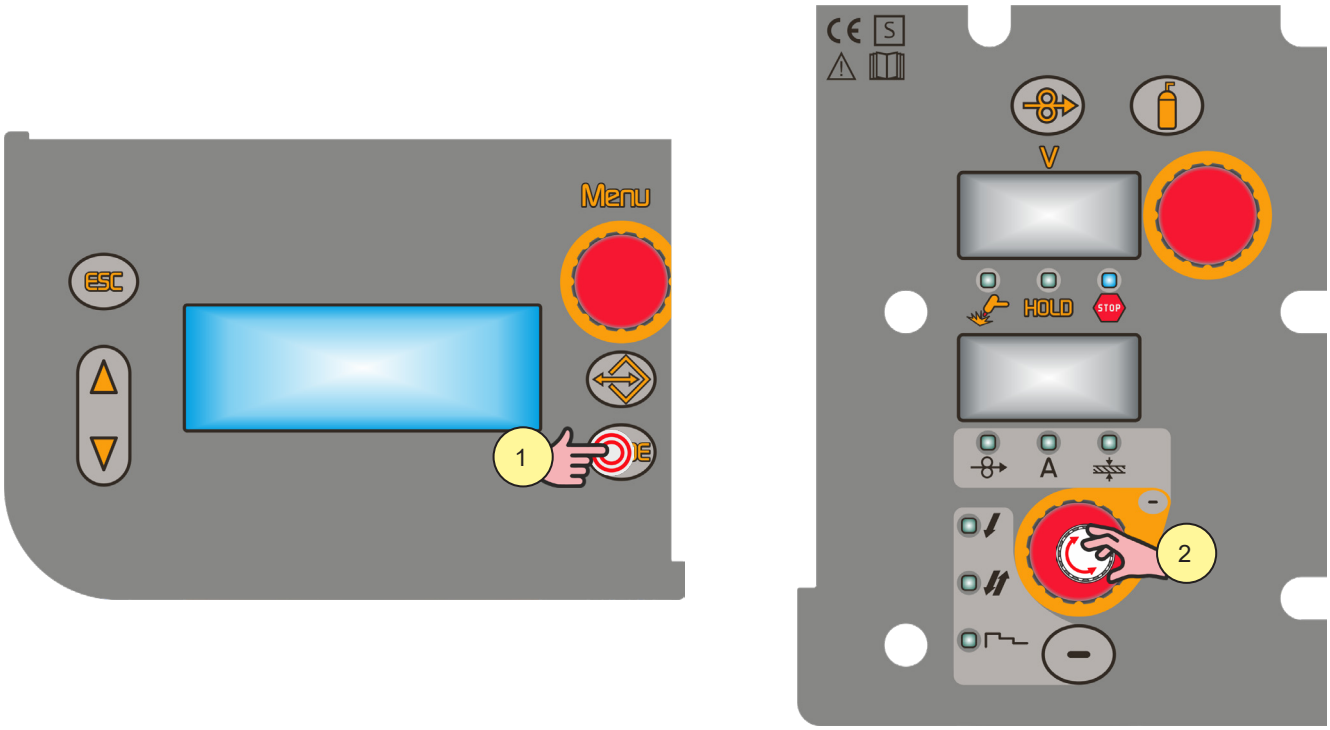
*2nd level menu parameters in MMA mode*

| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
| MMA | HOT START | 0 % | 50 % | 100 % |
| | ARC FORCE | 0 % | 30 % | 100 % |
| | VRD | OFF | OFF | ON |

## 7.10 ARC AIR WELDING

*Main settings and displays in ARC AIR mode*

| | DISPLAY [D1] | DISPLAY [D2] |
|---|---|---|
| **Data setting** | Shows the tension between the welding sockets. | Shows the preset welding current |
| **Welding** | Shows the average voltage measured during welding. | Shows the average current measured during welding. |
| **HOLD function (At welding end)** | Shows the average voltage measured during the last welding procedure performed. | Shows the average current measured during the last welding procedure performed. |

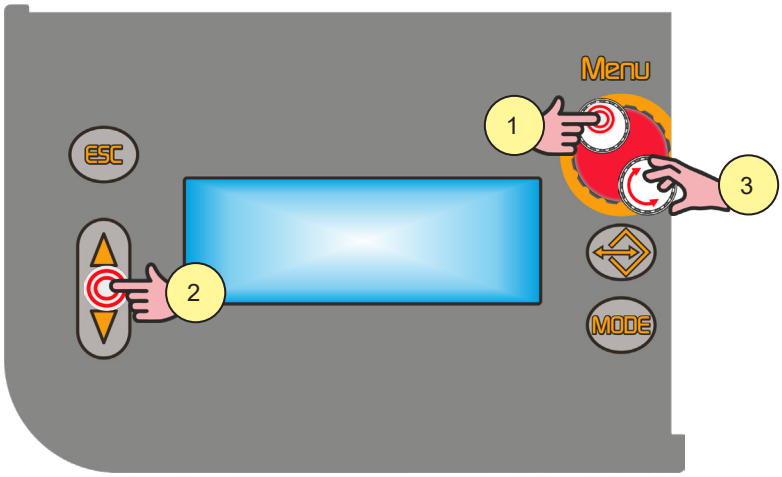



1. Press [S10].
   Select the following welding mode: ARC AIR

### ARC AIR parameters setting (1st level): current setting

2. Using encoder [E2], edit the value of the CURRENT parameter.
   The value is saved automatically.

## ARC AIR Parameters Setting (2nd Level)




1. Press [S6]. This gives access to the 2nd level menu.
2. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
3. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

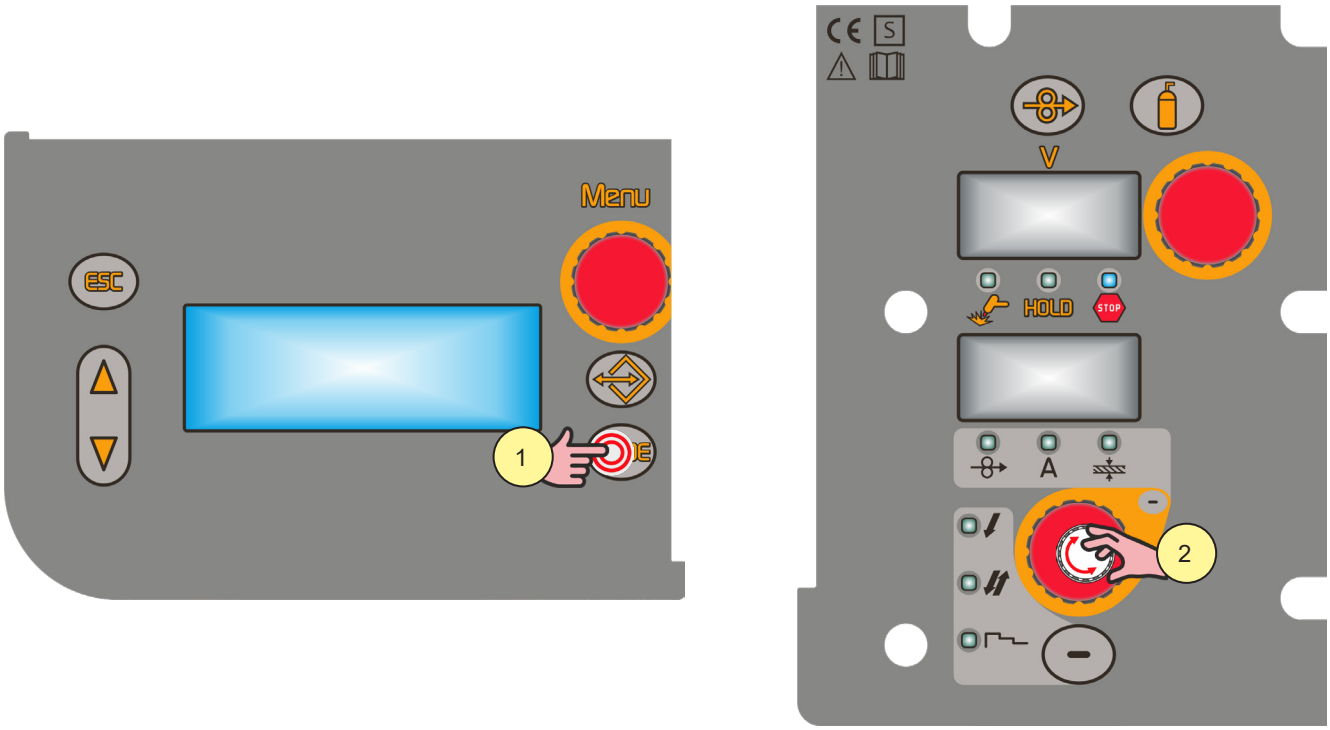
*2nd level menu parameters in ARC AIR mode*

| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
| ARC AIR | VRD | OFF | OFF | ON |

## 7.11 TIG WELDING

*Main settings and displays in TIG mode*

| | DISPLAY [D1] | DISPLAY [D2] |
|---|---|---|
| **Data setting** | Shows the tension between the welding sockets. | Shows the preset welding current |
| **Welding** | Shows the average voltage measured during welding. | Shows the average current measured during welding. |
| **HOLD function (At welding end)** | Shows the average voltage measured during the last welding procedure performed. | Shows the average current measured during the last welding procedure performed. |

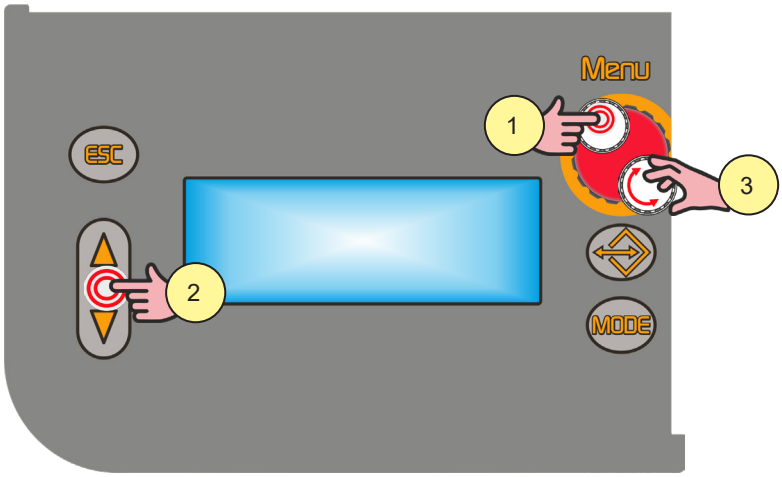



1. Press [S10].
   Select the following welding mode: TIG

### ARC AIR parameters setting (1st level): welding current setting

2. Using encoder [E2], edit the value of the WELDING CURRENT parameter.
   The value is saved automatically.

## ARC AIR Parameters Setting (2nd Level)




1. Press [S6]. This gives access to the 2nd level menu.
2. Press buttons [S7] and [S9] to scroll down the list of settings to edit.
3. Using encoder [E3], edit the value of the selected parameter.
   The value is saved automatically.

*2nd level menu parameters in TIG mode*

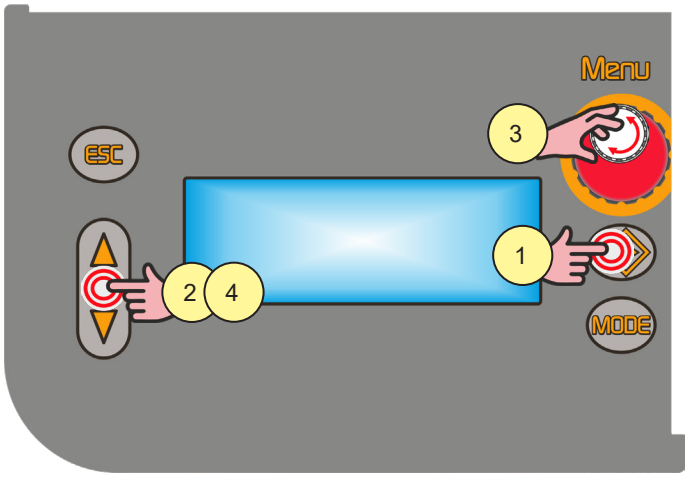
| PROCEDURE | PARAMETER | | | |
|---|---|---|---|---|
| TIG | SLOPE DOWN | 0.0 s | 0.0 s | 25.0 s |
| | FINAL CURRENT | 5 % | 5 % | 80 % |
| | POST GAS | 0.0 s | 10.0 s | 10.0 s |

# 8 JOBS MANAGEMENT

Personalised welding settings, or JOBs, can be saved in memory locations and subsequently uploaded.
Up to 99 jobs can be saved (j01-j99).
The settings of the SETUP menu are not saved.

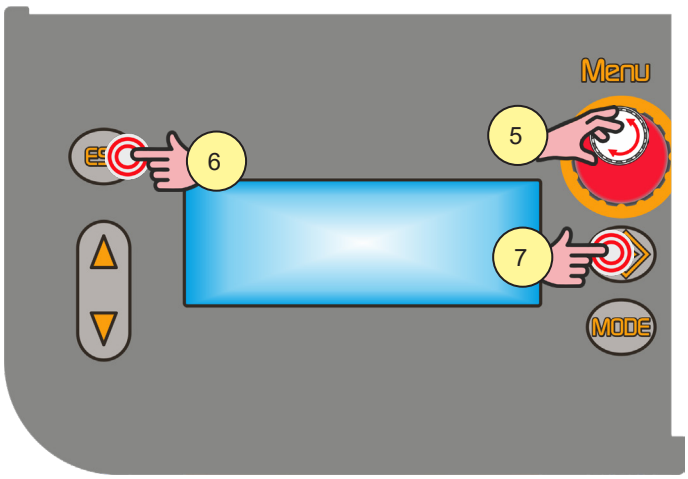
## 8.1 SAVE JOB

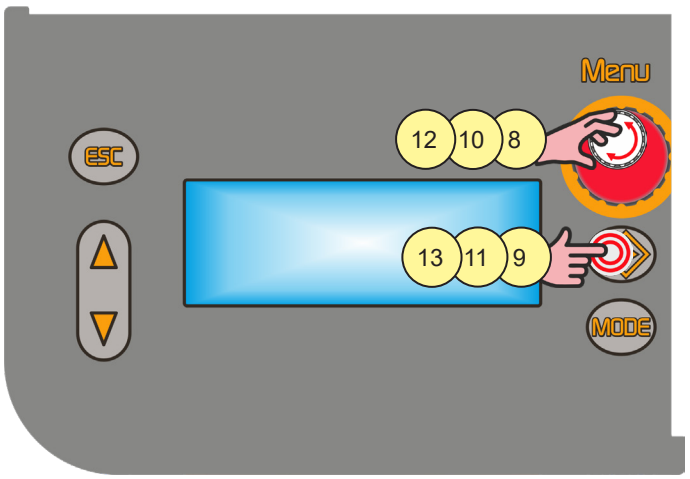
This function is available when welding mode is not active.




1. Press [S8]. This gives access to the job menu.
   The job menu is shown on display [D3]
2. Use buttons [S7] and [S9] to select “OPT”.
   The selected parameter is shown by the following symbol “➔”.
3. Use encoder [E3] to select “SAVE”.
4. Use buttons [S7] and [S9] to select “JOB”.
   The first free memory location is displayed.
   If all the memory locations are occupied, the word JOB flashes and the first JOB is displayed.
   If the memory location is already occupied by another job, when a new JOB is written to the location it will overwrite the existing JOB.
   The names of unnamed jobs are “-“ after a space following the number corresponding to the memory location by default

   **Information** How are JOBs named? See page 73



### Save and keep original

5. Using encoder [E3], select one of the unoccupied jobs.

### Exit without confirmation

6. Press [S5].
   This action will automatically close the menu.

### Exit with confirmation

7. Press [S8].
   This action will automatically close the menu.

### Save by overwriting

8. Using encoder [E3], select one of the unoccupied jobs.
9. Press [S8].
   Display [D3] will show the message: “CONFIRM JOB CHANGE”.

### Exit without confirmation

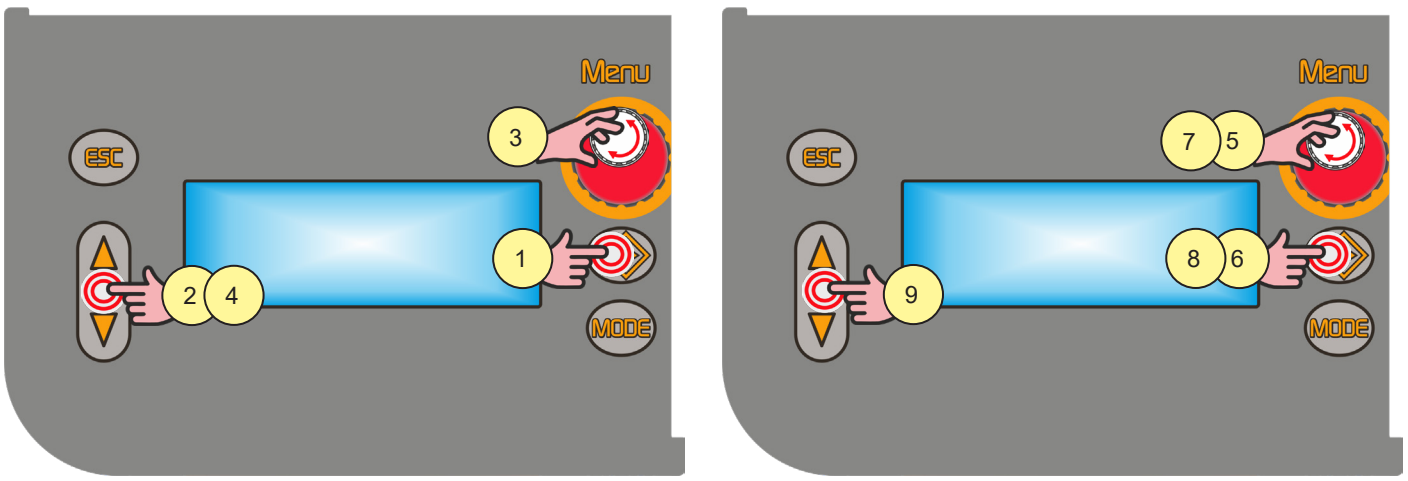
10. Use encoder [E3] to select “NO”.
11. Press [S8].
    This action will automatically close the menu.

### Exit with confirmation

12. Use encoder [E3] to select “YES”.
13. Press [S8].
    This action will automatically close the menu.

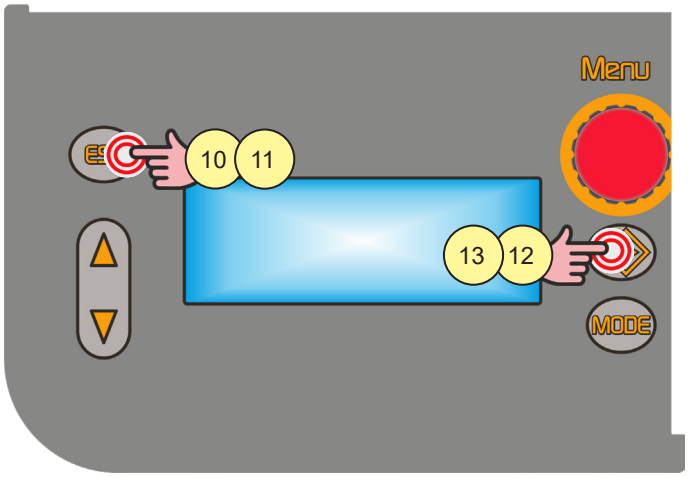
## 8.2 NAMING JOBS

JOBS can be named and renamed (maximum 9 characters) in the JOB MENU, LOAD, or SAVE.
This function is available when welding mode is not active.




1. Press [S8]. This gives access to the job menu.
   The job menu is shown on display [D3]
2. Use buttons [S7] and [S9] to select “OPT”.
   The selected parameter is shown by the following symbol “➔”.
3. Use encoder [E3] to select “LOAD/SAVE”.
4. Use buttons [S7] and [S9] to select “JOB”.
5. Use encoder [E3] to select the position of the job to be renamed.
6. Press and hold button [S8] for 3 seconds.
   The first letter of the name blinks.

7. Use encoder [E3] to change the letter.
8. Press button [S8] to confirm.
9. Use buttons [S7] and [S9] to select the digit to be changed.




### Exit without confirmation

10. Press [S5].
    Return to the job menu.
11. Press button [S5] to exit.

### Exit with confirmation

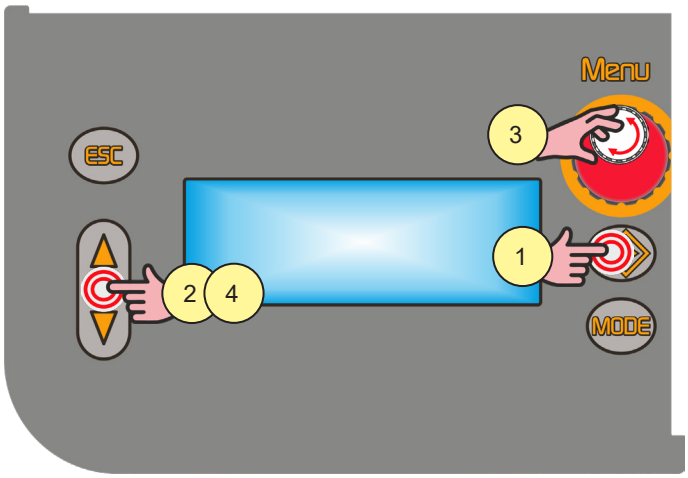
12. Press and hold button [S8] for 3 seconds.
    Return to the job menu.
13. Press button [S8] to exit.

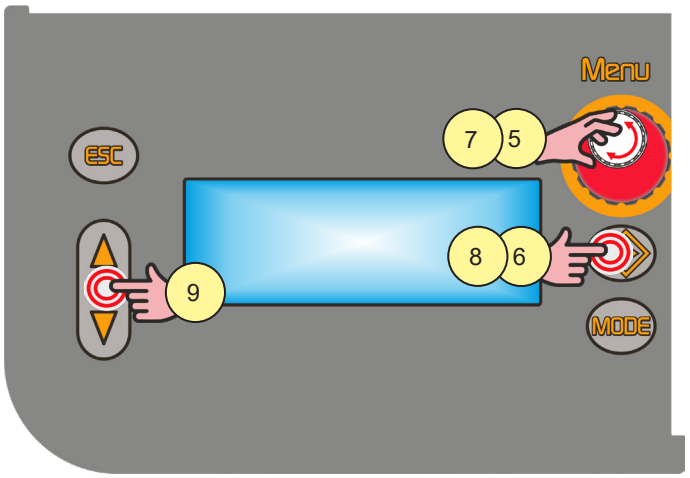
## 8.3 LOAD USER JOB

If using a torch with UP/DOWN buttons you can scroll through the uploaded JOBs.
You can quit the uploaded job with the following methods:

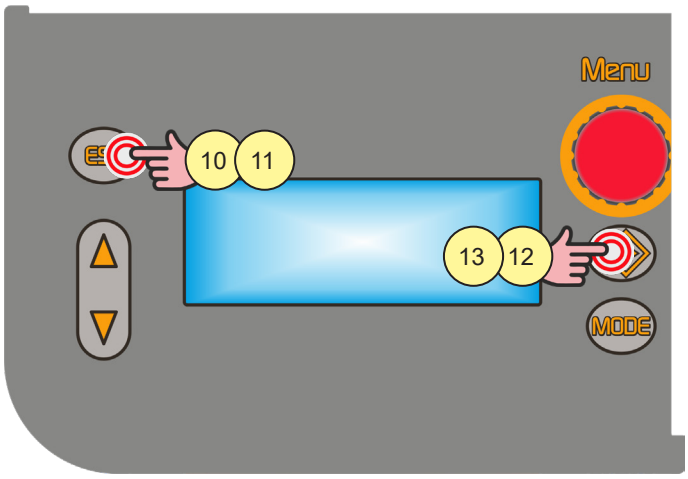
- by turning encoders [E1] - [E2] to change the welding current or volts
- by pressing button [S10] to select the welding mode
- by pressing button [S5]

If there are no JOBS loaded, the UP/DOWN buttons on the torch serve to adjust the welding current.
This function is available when welding mode is not active.



1. Press [S8]. This gives access to the job menu.
   The job menu is shown on display [D3].
2. Use buttons [S7] and [S9] to select “OPT”.
   The selected parameter is shown by the following symbol “➔”.
3. Use encoder [E3] to select “LOAD”.
4. Use buttons [S7] and [S9] to select “JOB”.
   The JOB displayed is the one that was most recently used.
   When there are no saved jobs the following message appears on the bottom line: “NO JOB”.
5. Using encoder [E3], select one of the jobs displayed.




### Exit without confirmation

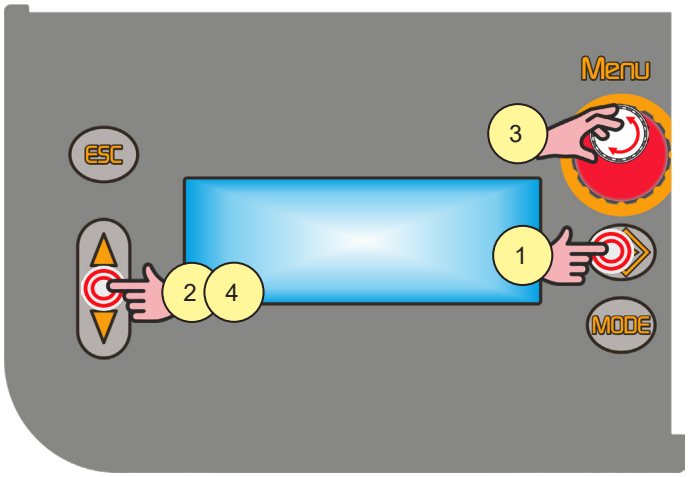
6. Press [S5].
   This action will automatically close the menu.

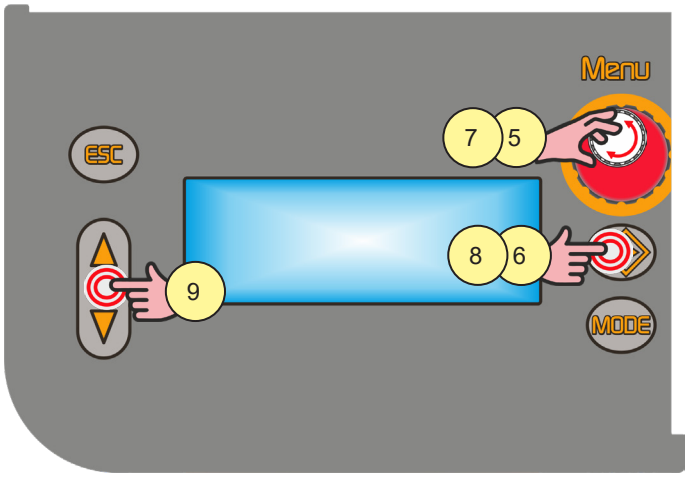
### Exit with confirmation

7. Press [S8].
   This action will automatically close the menu.

## 8.4 JOB ERASURE

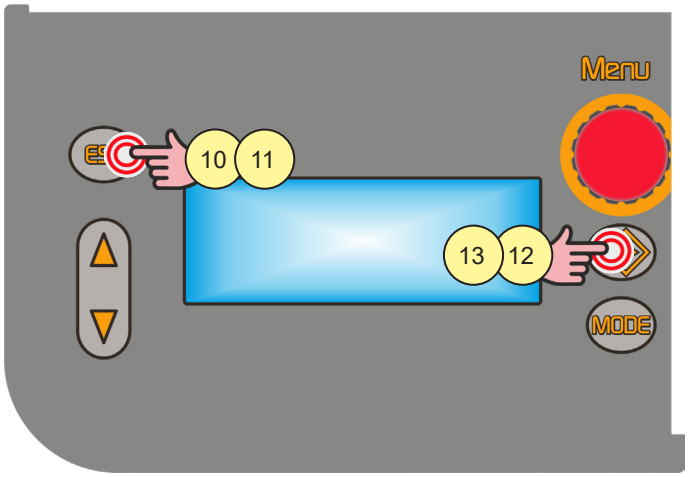
This function is available when welding mode is not active.




1. Press [S8]. This gives access to the job menu.
   The job menu is shown on display [D3].

2. Use buttons [S7] and [S9] to select “OPT”.
   The selected parameter is shown by the following symbol “➔”.
3. Use encoder [E3] to select “DELETE”.
4. Use buttons [S7] and [S9] to select “JOB”.
   The JOB displayed is the one that was most recently used.
   When there are no saved jobs the following message appears on the bottom line: “NO JOB”.
5. Using encoder [E3], select one of the jobs displayed.




### Exit without confirmation

6. Press [S5].
   This action will automatically close the menu.

### Exit with confirmation

7. Press [S8].
   This action will automatically close the menu.

## 8.5 EXPORT/IMPORT JOB (VIA USB)

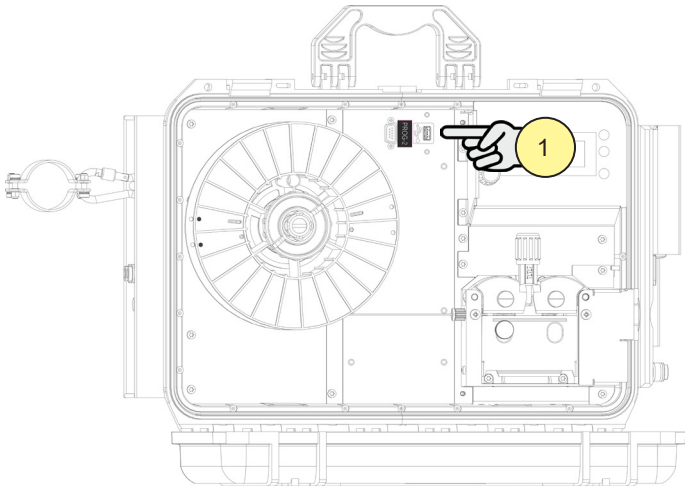
By using a USB memory stick, the JOBs saved on the panel can be imported into another panel. When a USB memory stick is connected, the “JOB MENU” will display the items related to the import and export procedure.

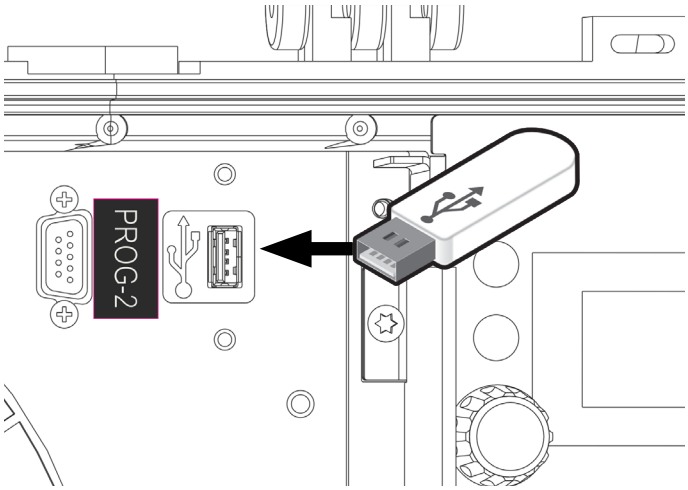
**WARNING!**

The JOBs are exported to the USB memory stick with the name of the location where they are saved on the panel. If the file names of the JOBs saved onto the USB memory stick are changed by using a PC, after they are imported into the destination panel, they will still be saved in their original location. This means that, if the destination panel already contains JOBs saved in the same location as those exported to the memory stick, they will be overwritten.

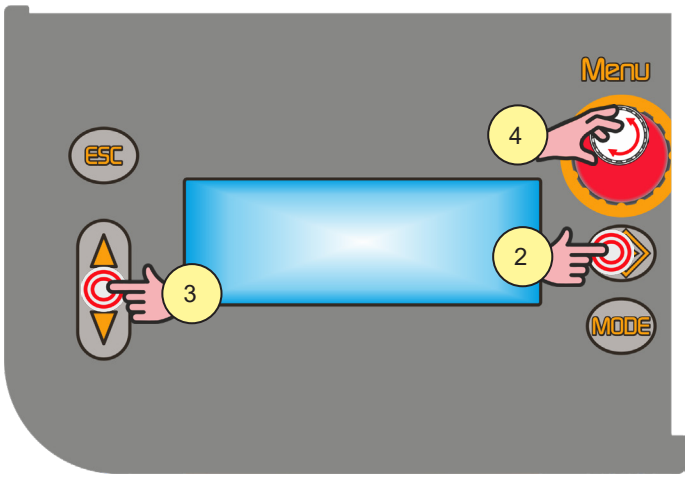
- We recommend not to change the name of the files exported to the USB memory stick. The file extension (.bin) must never be changed.
- JOBs to be kept must be moved in a location of the destination panel different from the location of the JOBs exported to the USB memory stick.
- To be usable, the memory stick must be formatted as FAT32.

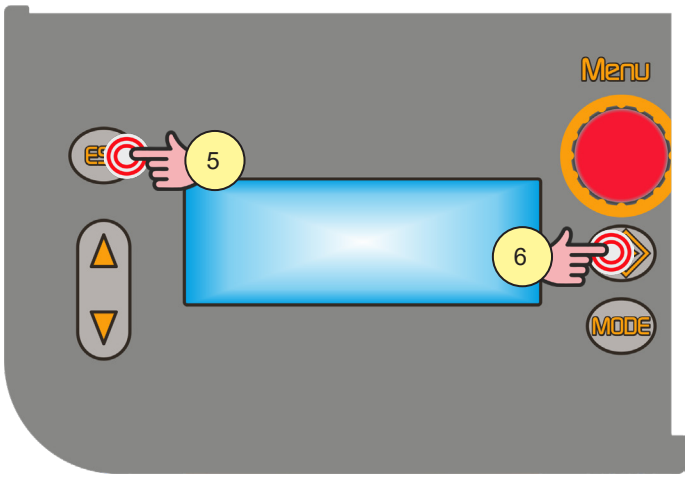
## 8.6 EXPORT JOB




1. Insert the memory stick in the USB port.




2. Press [S8]. This gives access to the job menu.
   The job menu is shown on display [D3].
3. Use buttons [S7] and [S9] to select “OPT”.
   The selected parameter is shown by the following symbol “➔”.

4. Use encoder [E3] to select “USB EXPORT”.
   When there are no saved jobs the following message appears on the bottom line: “NO JOB”.

### Exit without confirmation

5. Press [S5].
   This action will automatically close the menu.

### Exit with confirmation

6. Press [S8].
   This action will automatically close the menu.

## JOB export operation messages

### USB DEVICE NOT FOUND

► Meaning: USB device not found.
► Checks:
- memory stick not inserted correctly.
- memory stick removed before completing the operation.

### EXPORT FAILED

► Meaning: Export procedure failed.
► Checks:
- USB not formatted as FAT32.
- unidentifiable generic error: re-insert the memory stick and try again.
- the connected USB drive is damaged.

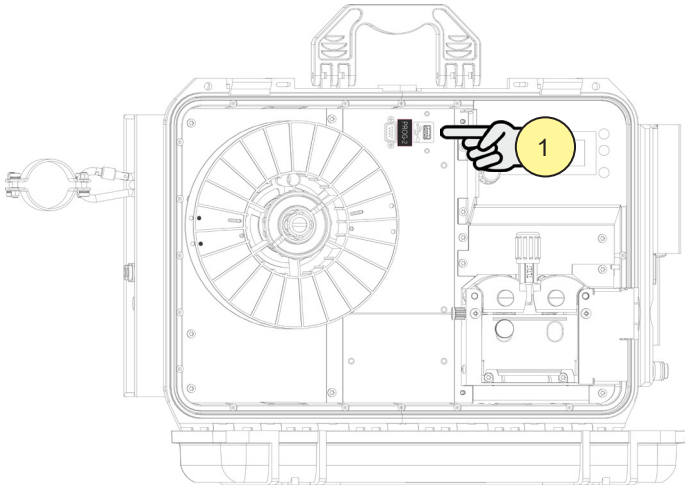
### EXPORT IN PROGRESS

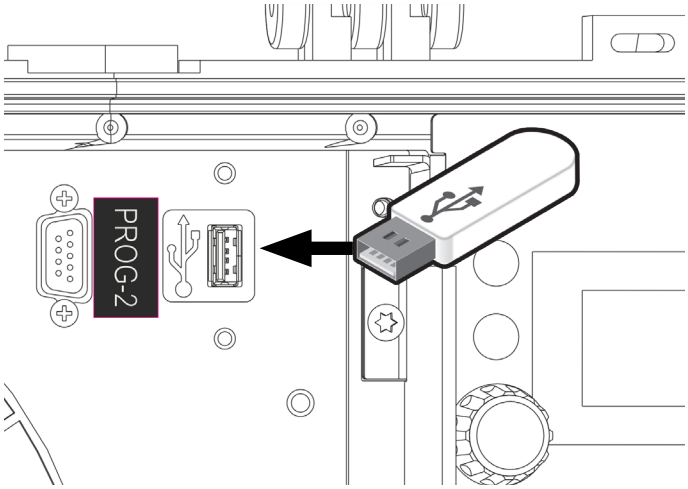
► Meaning: The JOBs saved on the panel are being exported.

### EXPORT COMPLETE

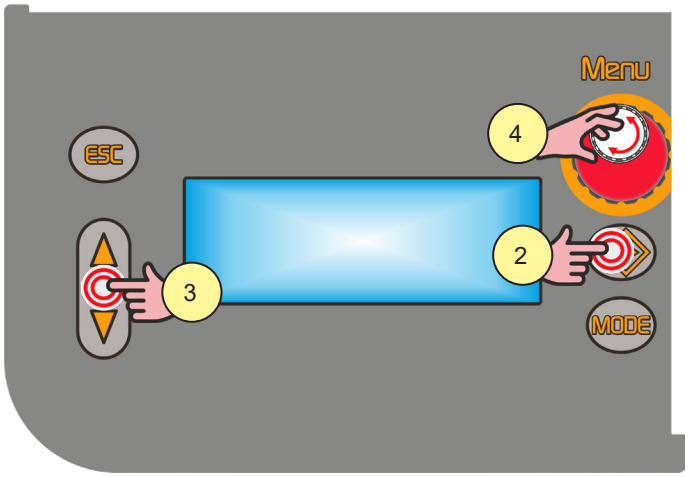
► Meaning: Export procedure completed.

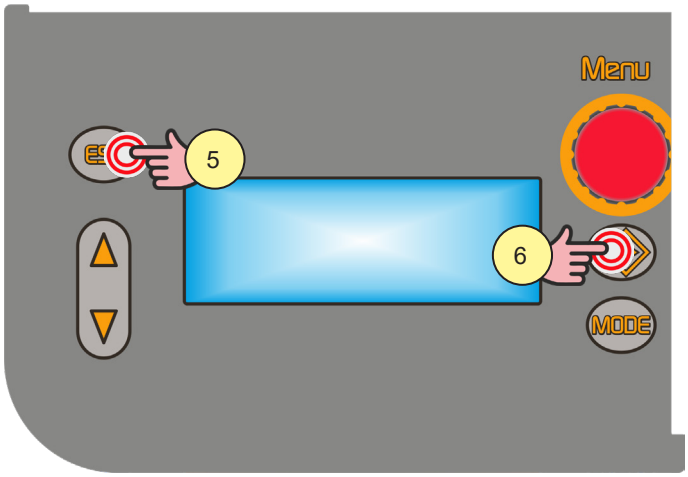
## 8.7 IMPORT JOB




1. Insert the memory stick in the USB port.




2. Press [S8]. This gives access to the job menu.
   The job menu is shown on display [D3].
3. Use buttons [S7] and [S9] to select “OPT”.
   The selected parameter is shown by the following symbol “➔”.
4. Use encoder [E3] to select “USB IMPORT”.
   When there are no saved jobs the following message appears on the bottom line: “NO JOB”.

### Exit without confirmation

5. Press [S5].
   This action will automatically close the menu.

### Exit with confirmation

6. Press [S8].
   This action will automatically close the menu.

### JOB import operation messages

#### USB DEVICE NOT FOUND

► Meaning: USB device not found.
► Checks:
- memory stick not inserted correctly.
- memory stick removed before completing the operation.

#### FILE NOT FOUND

► Meaning: File not found.
► Checks:
- there are no JOBs loaded onto the USB memory stick.

#### IMPORT FAILED

► Meaning: Import procedure failed.
► Checks:
- USB not formatted as FAT32.
- unidentifiable generic error: re-insert the memory stick and try again.
- the connected USB drive is damaged.

#### IMPORT IN PROGRESS

► Meaning: The JOBs saved on the USB memory stick are being imported.

#### IMPORT COMPLETE

► Meaning: Import procedure completed.

## 8.8 JOB SELECTION USING THE TORCH UP/DOWN BUTTONS

### UP/DOWN torch

When an UP/DOWN torch is installed, JOBs can be selected in a JOB sequence using the buttons on the welding torch. JOBs can be scrolled only when the welding operation is not being carried out.
During the welding operation (with an active JOB) the parameter values displayed can be temporarily changed with the UP/DOWN keys; at the end of the welding operation, the original values are restored.

### DIGIMANAGER torch

When a DIGIMANAGER torch is installed the operations described above can be carried out, with the following differences:
- a job can be loaded directly from the torch
- jobs can be scrolled regardless of the sequence they belong to

• Select and upload one of the JOBs belonging to the desired sequence (e.g. J.06) through the power source user interface.
• Use the torch buttons to scroll through the JOBs of sequence 2 (J.05, J.06, J.07).

| Sequence 1 | | | JOB not saved | Sequence 2 | | | JOB not saved | Sequence 3 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J.01 | J.02 | J.03 | | J.05 | J.06 | J.07 | | J.09 | J.10 | J.11 |

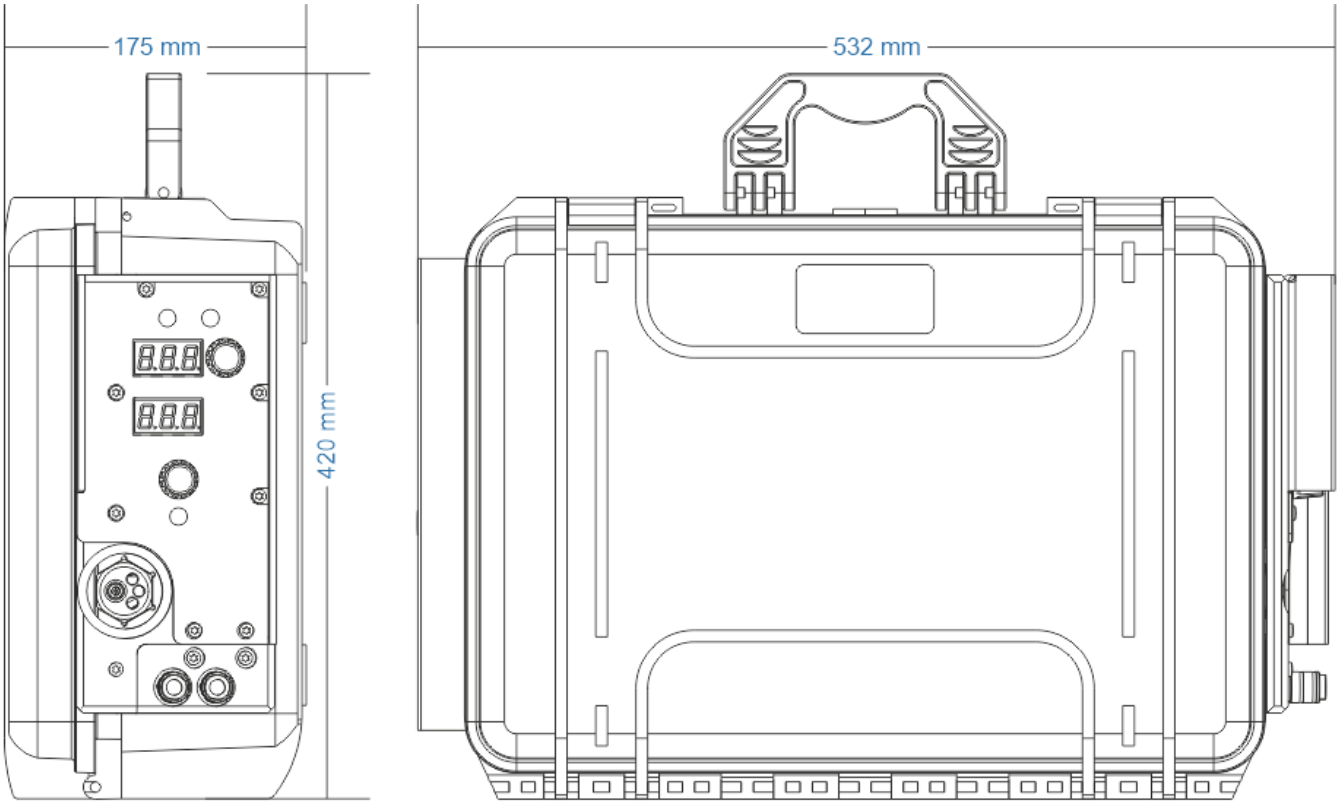
**Information** For more detailed information, refer to the instruction manual of the DIGIMANAGER torch.

# 9 TECHNICAL DATA

| | |
|---|---|
| **Directives applied** | Waste electrical and electronic equipment (WEEE) |
| | Electromagnetic compatibility (EMC) |
| | Low voltage (LVD) |
| | Restriction of the use of certain hazardous substances (RoHS) |
| | Eco Design of energy-related products |
| **Construction standards** | EN 60974-1; EN 60974-5; EN 60974-10 Class A |
| **Conformity markings** | Equipment compliant with European directives in force |
| | Equipment suitable in an environment with increased hazard of electric shock |
| | Equipment compliant with WEEE directive |
| | Equipment compliant with RoHS directive |

## 9.1 WF-203sc

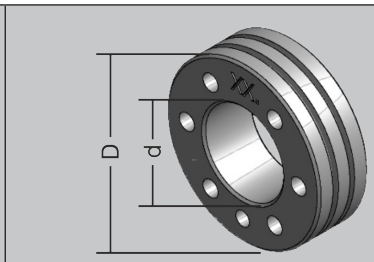
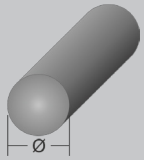
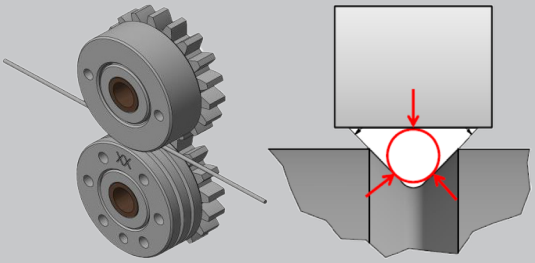
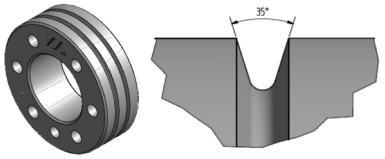
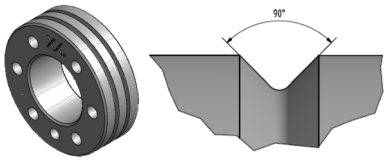
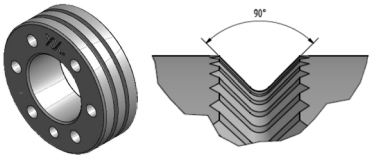
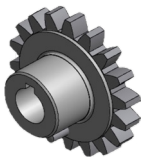
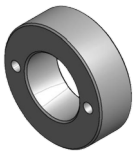
| | | | | |
|---|---|---|---|---|
| **Supply voltage** | 48 V a.c. | | | |
| **Dimensions** | height: 420 mm / width: 175 mm / depth: 532 mm | | | |
| **Weight** | 16.0 kg | | | |
| **Insulation class** | H | | | |
| **Protection rating** | IP23 | | | |
| **Maximum gas pressure** | 0,5 MPa (5 bar) | | | |
| **Motor speed** | 1.0-24.0 m/min | | | |
| **Wire spool: (dimensions/weight)** | 200 mm / 5 kg – 300 mm / 15 kg | | | |
| **Static characteristic** | MMA: Falling characteristic | | | |
| | TIG: Falling characteristic | | | |
| | MIG: Static characteristic | | | |
| **Welding mode** | | MMA | TIG | MIG |
| **Current and voltage adjustment range (when installed on 403MSR)** | | 10 A / 20.4 V<br>400 A / 36.0 V | 10 A / 10.4 V<br>400 A / 26.0 V | 10 A / 14.5 V<br>400 A / 34.0 V |
| **Welding current / Operating voltage (with ambient temperature 40°C)** | 65% (40 °C) | 400 A / 36.0 V | --- | 400 A / 34.0 V |
| | 100% (40 °C) | 370 A / 34.8 V | 400 A / 26.0 V | 370 A / 32.5 V |
| **Essential raw materials** | According to the information given by our suppliers, this product does not contain essential raw materials in quantities exceeding 1 g per component. | | | |


175 mm
420 mm
532 mm

# 10 SPARE PARTS

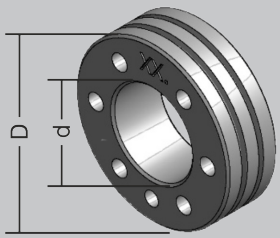
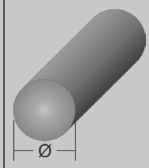
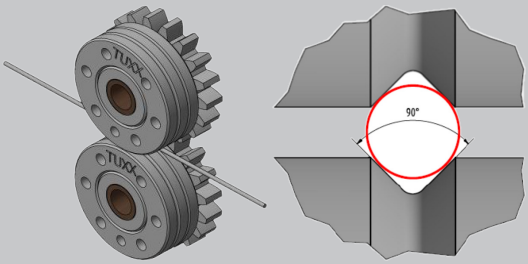
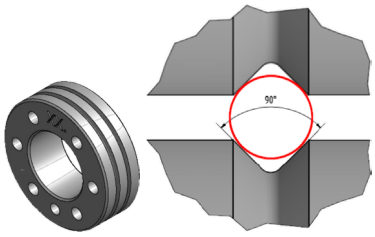
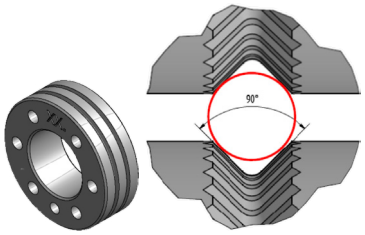
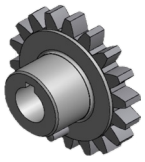
## 10.1 WIRE FEEDER ROLLS

### Double feed roll (2 roll with groove + 2 flat roll)

| |  |  |  |
|---|---|---|---|
| **CODE** | **DESCRIPTION** | **Ø WIRE** | **TYPE** |
| 002.0000.0119 | D=30x12/d=14 V | 0.6/0.8 |  <br>35° V-shaped groove<br>for solid wires (steel, stainless steel) |
| 002.0000.0120 | D=30x12/d=14 V | 0.8/1.0 | |
| 002.0000.0121 | D=30x12/d=14 V | 1.0/1.2 | |
| 002.0000.0119 | D=30x12/d=14 V | 0.6/0.8 |  <br>90° V-shaped groove<br>for aluminium wires |
| 002.0000.0120 | D=30x12/d=14 V | 0.8/1.0 | |
| 002.0000.0124 | D=30x12/d=14 VK | 1.0/1.2 |  <br>90° knurled VK-groove<br>for tubular wires |
| 002.0000.0369 | GEAR ADAPTOR FEED ROLL<br>(BRONZE BUSHING) | |  |
| 002.0000.0370 | SMOOTH FOR DOUBLE FEED ROLL | |  |

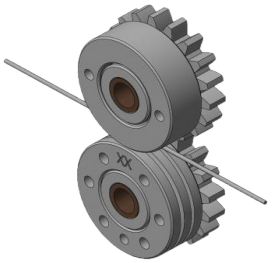
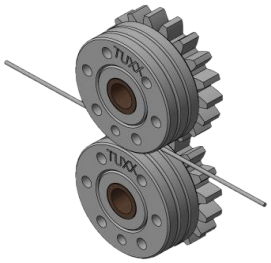
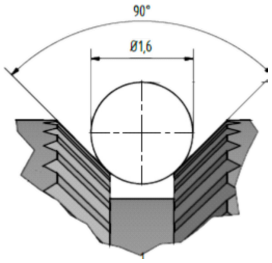
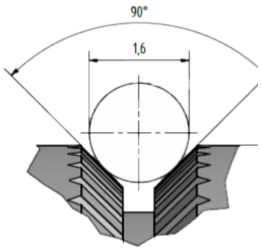
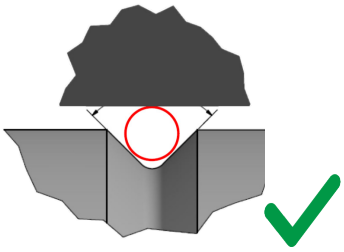
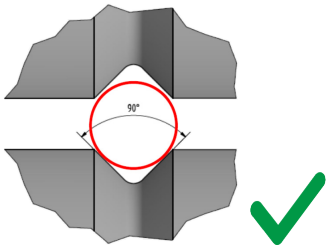
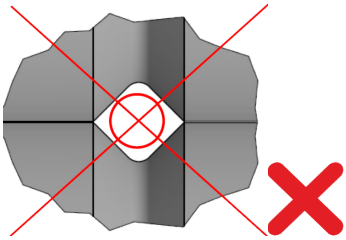
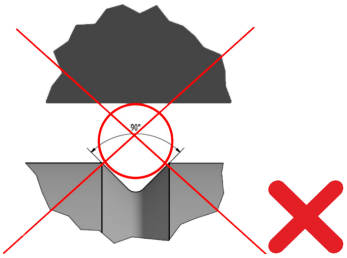
- ► The diameter of the roll groove must be compatible with the diameter of the welding wire.
- ► The roll must be of suitable shape in relation to the composition of the wire material.
  - The groove must be “V 35°” for harder materials (SG2-SG3, stainless steels).
  - The groove must be “V 90°” for soft materials (Aluminium and its alloys, CuSi3).
  - The groove must be knurled “VK 90°” for flux-cored wire

## Double feed roll (4 roll with groove) - RECOMMENDED CONFIGURATION

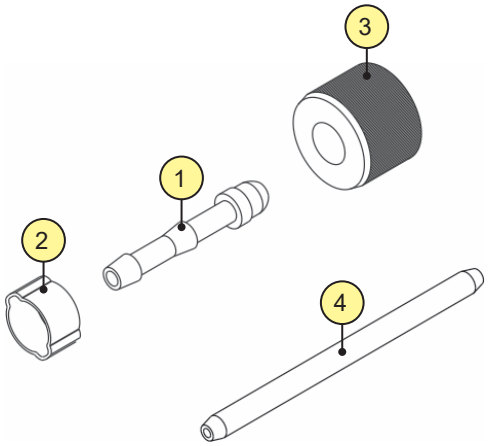
| |  |  |  |
|---|---|---|---|
| **CODE** | **DESCRIPTION** | **Ø WIRE** | **TYPE** |
| 002.0000.0170 | D=30x12/d=14 V DOUBLE D. | 1.0/1.2 |  <br>90° V-shaped groove<br>for aluminium wires |
| 002.0000.0178 | D=30x12/d=14 VK DOUBLE D. | 1.0/1.2 |  <br>90° knurled VK-groove<br>for tubular wires |
| 002.0000.0369 | GEAR ADAPTOR FEED ROLL<br>(BRONZE BUSHING) | |  |

► The diameter of the roll groove must be compatible with the diameter of the welding wire.
► The roll must be of suitable shape in relation to the composition of the wire material.
- The groove must be “V 90°” for soft materials (Aluminium and its alloys, CuSi3).
- The groove must be knurled “VK 90°” for flux-cored wire

## Standard feed rolls vs double feed rolls

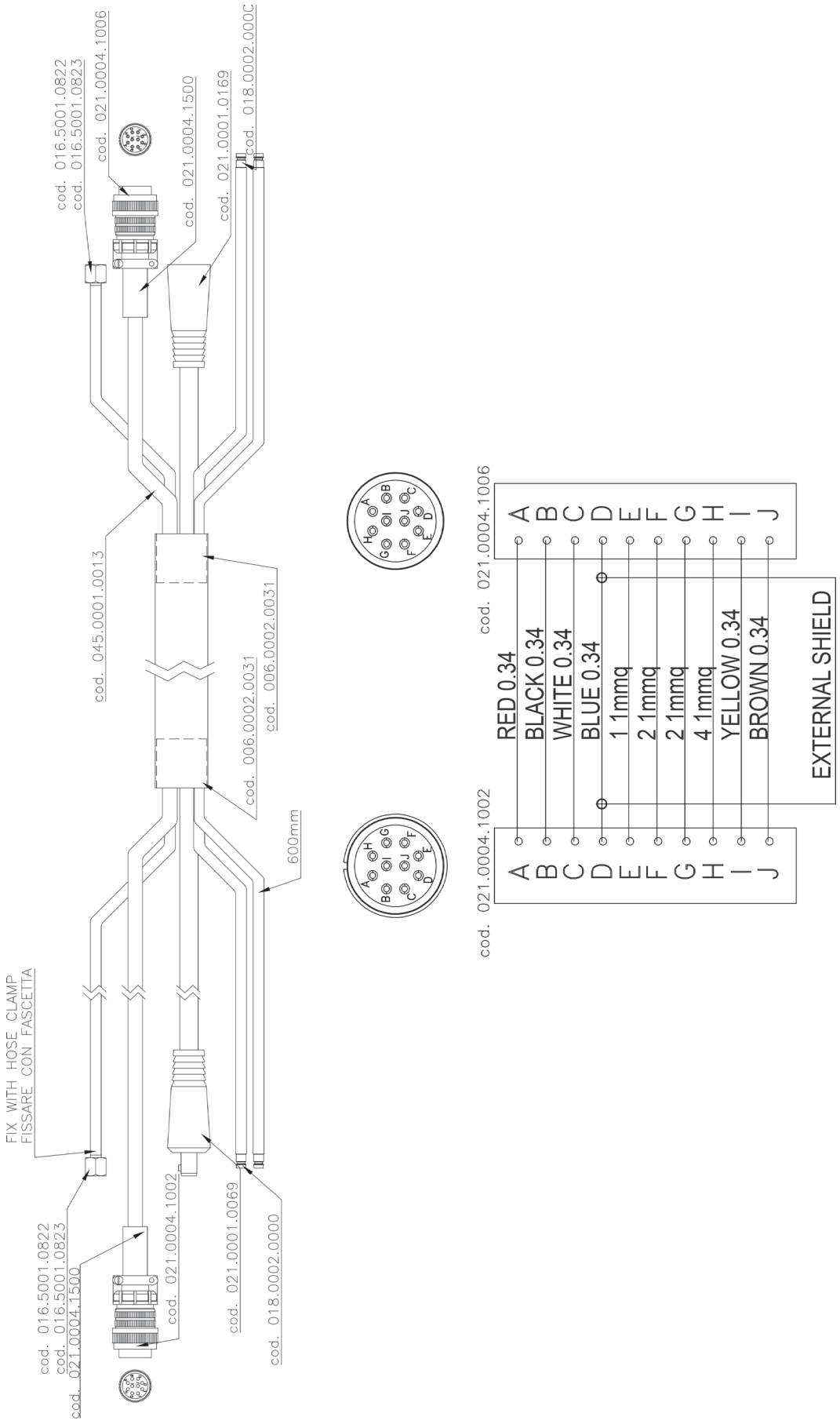
| Standard feed roll | Double feed roll |
|---|---|
|  |  |
|  |  |
| **Position of the centre of the wire with respect to the edge of the groove** | |
|  |  |
|  |  |

## 10.2 TORCH CONNECTOR KIT




| No. | CODE | DESCRIPTION |
|---|---|---|
| - | 021.0000.0009 | COMPLETE TORCH CONNECTOR KIT |
| 1 | 016.5001.0822 | HOSE CONNECTOR 1/4” |
| 2 | 016.0007.0001 | CLAMPS Ø 11-13 |
| 3 | 016.5001.0823 | NUT 1/4 |
| 4 | 021.0001.2028 | TUBE |

## 10.3 CABLE BUNDLE



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03/05/2022 V.1.0