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# Discovery 162T

# CONTENTS

# 1 INTRODUCTION

## IMPORTANT!

**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 handbook 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.**

## LEGEND

**DANGER!**

This pictogram warns of danger of death or serious injury.

**INFORMATION**

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

This symbol identifies an action that occurs automatically as a result of a previous action.

This symbol identifies additional information or a reference to a different section of the manual containing the associated information.

§ This symbol identifies a reference to a chapter of the manual.

## NOTES

The figures in this manual are purely guideline and the images may contain differences with respect to the actual equipment to which they refer.

## INTRODUCTION

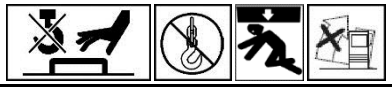
Discovery 162T is an inverter DC TIG/MMA portable welding power source.
The solidity of the components of this unit makes it a reliable working companion for workshop and outdoor applications.
The simply and intuitive interface allows high precision adjustments.
Special HF control provides 100 % rapid and precise arc ignition.
Up to 3,25 mm diameter electrode welding is possible in MMA.

**Accessories that can be connected to the unit:**
- Overcut device to protect the power source from power supply voltage spikes that could damage the electrical components.

# 2 INSTALLATION

**DANGER!**
**Lifting and positioning**

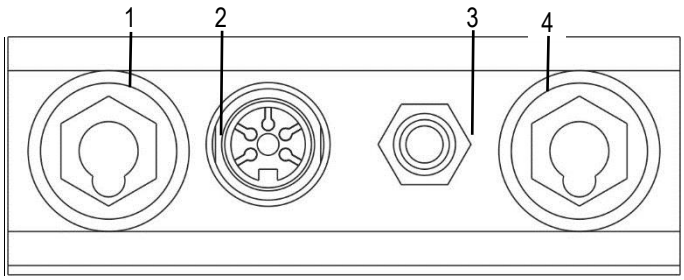
Read the warnings highlighted by the following symbols in the "General prescriptions for use".



## 2.1 CONNECTIONS TO THE ELECTRICAL MAINS NETWORK

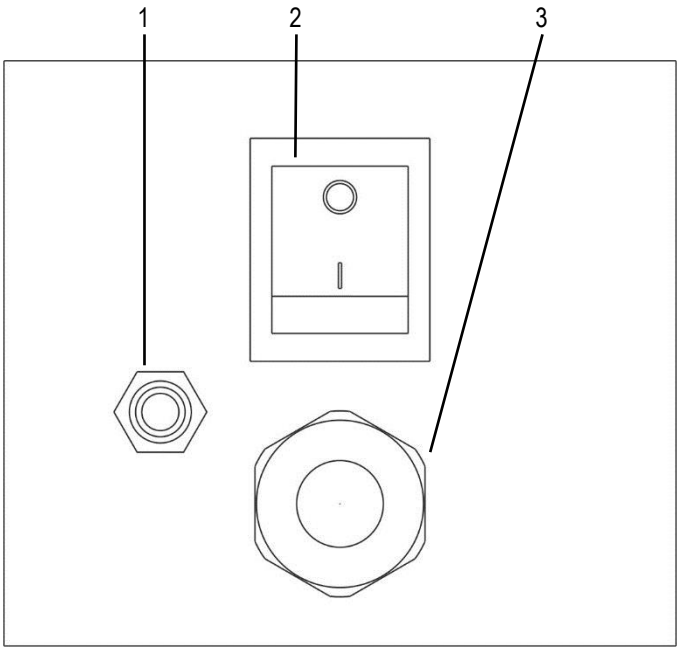
The characteristics of the mains power supply to which the equipment shall be connected are given in the section entitled "Technical data" on page 14.
The machine can be connected to motorgenerators provided their voltage is stabilised.
Connect/disconnect the various devices with the machine switched off.

## 2.2 FRONT PANEL




1. Negative pole welding socket.
2. Connector for logic signals of TIG torch.
3. Connector for gas feed hose:
   power source → torch
4. Positive pole welding socket.

## 2.3 REAR PANEL



1. Connector for gas feed hose: cylinder → power source
2. Welding power source ON/OFF switch.
3. Power cable.

Total length (including internal part): 2,5 m

ⓘ Number and cross section of wires: 3 x 2,5 $mm^2$

Power plug type: Schuko

## 2.4 PREPARING FOR MMA WELDING

1. Set the welding power source ON/OFF switch to “O” (unit de-energized).
2. Plug the power cable plug into a mains socket outlet.
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 electrode holder cable to the welding socket based on the polarity requested by the type of electrode used.
6. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
7. Connect the earth clamp to the workpiece being processed.

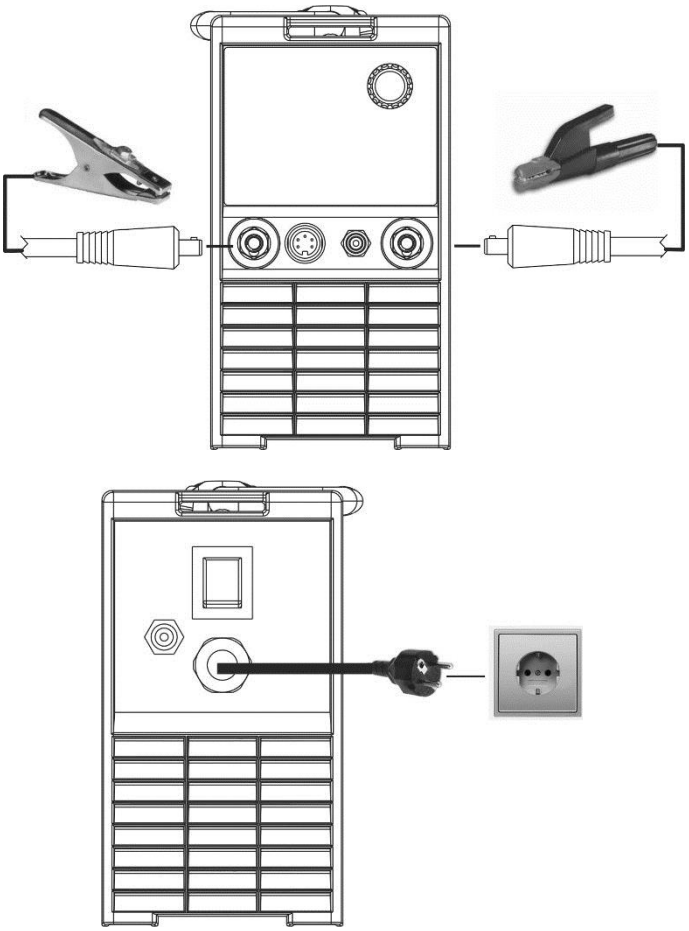
**DANGER!**
**Electric shock hazard!**

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.

Preparing for MMA (polarity to basic electrode)

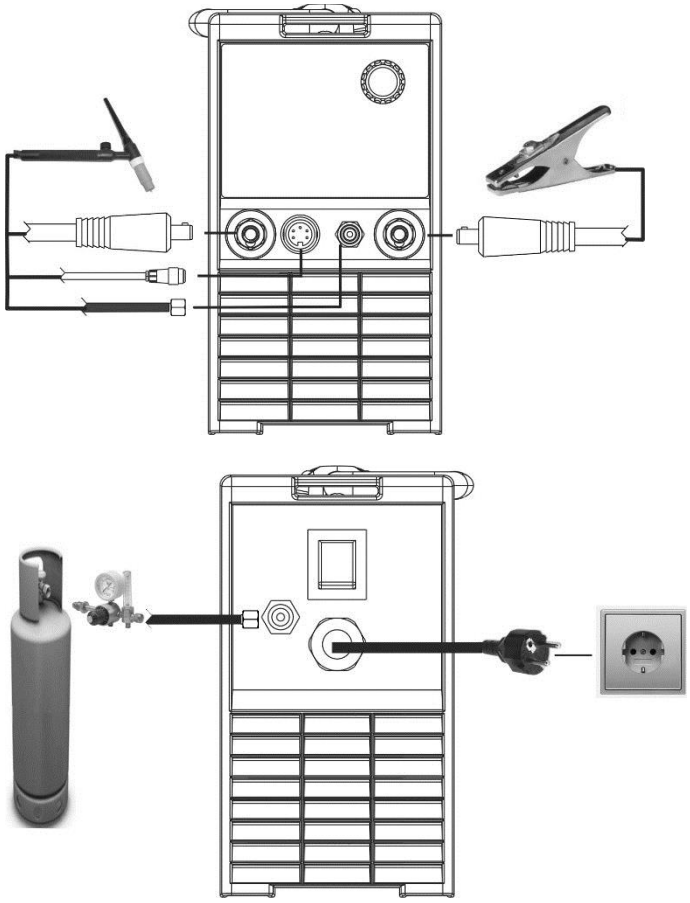


## 2.5 PREPARING FOR TIG WELDING

1. Set the welding power source ON/OFF switch to “O” (unit de-energized).
2. Plug the power cable plug into a mains socket outlet.
3. Connect the gas hose from the welding gas cylinder to the rear gas socket.
4. Open the cylinder gas valve.
5. Choose the electrode based on the type of material and thickness of the workpiece to be welded.
6. Insert the electrode in the TIG torch.
7. Connect the torch plug to the welding socket on the basis of the polarity required by the type of electrode in question.
8. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
9. Connect the gas hose from the welding torch to the front gas socket.
10. Couple the welding torch connector to the TIG torch signals connector.
11. Connect the earth clamp to the workpiece being processed.
12. Set the welding power source ON/OFF switch to “I” (unit powered).
13. Select the following welding mode on the user interface: DC TIG
14. Press the torch trigger with the torch well clear of any metal parts. This serves to open the gas solenoid valve without striking the welding arc.
15. Use the flow control valve to adjust the flow of gas as required while the gas is flowing out.
16. Set the required welding parameter values on the user interface.

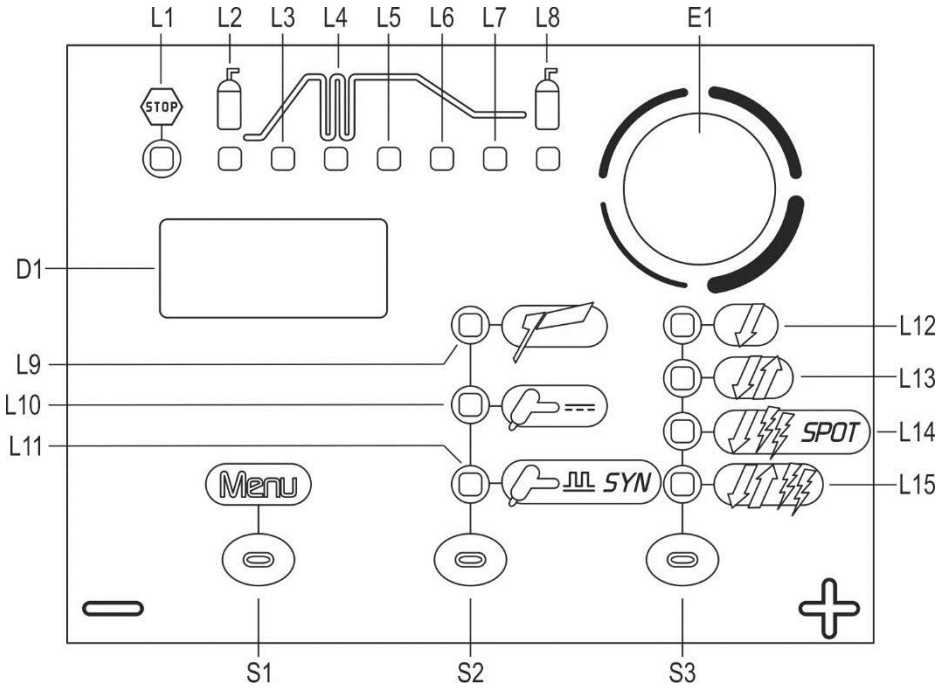
    The system is ready to start welding.

Preparing for TIG (polarity for tungsten electrode)



# 3 COMMISSIONING

## 3.1 USER INTERFACE




| CODE | SYMBOL | DESCRIPTION |
|---|---|---|
| L1 | | **Overheating alarm**<br>Indicates tripping of the welding power source thermal protection.<br>Leave the unit running so that the overheated components cool as rapidly as possible.<br>When the unit has cooled, the welding power source will reset automatically.<br>- Make sure that the power required by the welding process is lower than the maximum rated power output.<br>- Check that the operating conditions are in compliance with the welding power source data plate specifications.<br>- Check for the presence of adequate air circulation around the welding power source. |
| L2 | | When this LED illuminates the following parameter can be set: PRE-GAS TIME |
| L3 | | When this LED illuminates the following parameter can be set: SLOPE UP |
| L4 | | When this LED illuminates the following parameter can be set: PULSED CURRENT FREQUENCY |
| L5 | | When this LED illuminates the following parameter can be set: WELDING CURRENT |
| L6 | | When this LED illuminates the following parameter can be set: DOWN SLOPE |
| L7 | | When this LED illuminates the following parameter can be set: FINAL CURRENT |
| L8 | | When this LED illuminates the following parameter can be set: POST GAS TIME |
| L12 | | Illumination shows that the following function has been activated: 2 stroke procedure. |
| L13 | | Illumination shows that the following function has been activated: 4 stroke procedure. |
| L14 | SPOT | Illumination shows that the following function has been activated: 2 stroke procedure + high frequency arc strike (HF).<br>A flashing signal means the following function has been activated: 2 stroke spot procedure + high frequency arc strike (HF). |
| L15 | | Illumination shows that the following function has been activated: 4 stroke procedure + high frequency arc strike (HF). |
| L9 | | This LED illuminates to show that the following welding mode is selected: MMA |

| CODE | SYMBOL | DESCRIPTION |
|---|---|---|
| L10 | | This LED illuminates to show that the following welding mode is selected: TIG DC CONTINUOUS |
| L11 | SYN | This LED illuminates to show that the following welding mode is selected: PULSED DC TIG<br>A flashing signal means the following welding mode is selected: SYNERGIC PULSED DC TIG |
| D1 | | The display shows the value of the selected parameter. |
| S1 | | Press the button to select the parameter to be set.<br>Hold down the button for 3 seconds to gain access to the second level menu. |
| S2 | | This button selects the welding mode. |
| S3 | | This button selects the torch trigger procedure.<br>ⓘ See § 4.1 page 9. |
| E1 | | The encoder sets the value of the selected parameter. |

## 3.2 UNIT POWER-UP

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

➔ **Fx.x** The message appears on the following displays: D1
x.x= software version

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

## 3.3 RESET (LOAD FACTORY SETTINGS)

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.

Set the welding power source ON/OFF switch to "O" to switch the unit off.

S1 S3 Hold down both buttons simultaneously.

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

SIMULTANEOUS ACTIONS

➔ FAC The message appears on the following displays: D1
Release buttons.

# 4 WELDING SETTINGS

## 4.1 TORCH TRIGGER PROCEDURE

### 2 STROKE LIFT-ARC WELDING (2T)

1. Touch the workpiece with the torch electrode.
2. Press (1T) and keep the torch trigger pressed.
3. Slowly lift the torch to strike the arc.

➔ The welding current reaches the preset value, by way of a up slope time, if programmed.

4. Release (2T) the trigger to start the weld completion procedure.

➔ The current reaches the end current value in the time set in the down slope time parameter.
➔ The arc is extinguished.
➔ Gas delivery continues for the time set in the post gas parameter.

### 2 STROKE WELDING WITH HIGH FREQUENCY ARC STRIKE (2T HF)

1. Bring the torch up to the work until the electrode tip is approximately 2 or 3 mm away.
2. Press (1T) and keep the torch trigger pressed.

➔ The arc strikes without contact with the workpiece and the voltage discharges (HF) cease automatically.
➔ The welding current reaches the preset value, by way of a up slope time, if programmed.

3. Release (2T) the trigger to start the weld completion procedure.

➔ The current reaches the end current value in the time set in the down slope time parameter.
➔ The arc is extinguished.
➔ Gas delivery continues for the time set in the post gas parameter.

### 2 STROKE SPOT WELDING WITH HIGH FREQUENCY ARC STRIKE (2T SPOT HF)

1. Bring the torch up to the work until the electrode tip is approximately 2 or 3 mm away.
2. Press (1T) the torch trigger.

➔ The arc strikes without contact with the workpiece and the voltage discharges (HF) cease automatically.

3. Release (2T) the torch trigger.

➔ The welding current reaches the preset value, by way of a up slope time, if programmed.
➔ The welding procedure continues, at the preset current, for the time set with the spot time parameter.
➔ The current reaches the end current value in the time set in the down slope time parameter.
➔ The arc is extinguished.
➔ Gas delivery continues for the time set in the post gas parameter.

### 4 STROKE LIFT-ARC WELDING (4T)

1. Touch the workpiece with the torch electrode.
2. Press (1T) and release (2T) the torch trigger.
3. Slowly lift the torch to strike the arc.

➔ The welding current reaches the preset value, by way of a up slope time, if programmed.

4. Press (3T) the trigger and keep it pressed to start the weld completion procedure.

➔ The current reaches the end current value in the time set in the down slope time parameter.
➔ The arc continues and the current output will be the value set in the end current parameter.
ⓘ In these conditions the weld pool can be closed (crater filler current).

5. Release (4T) the trigger to extinguish the arc.

➔ Gas delivery continues for the time set in the post gas parameter.

### 4 STROKE WELDING WITH HIGH FREQUENCY ARC STRIKE (4T HF)

1. Bring the torch up to the work until the electrode tip is approximately 2 or 3 mm away.
2. Press (1T) and release (2T) the torch trigger.

➔ The arc strikes without contact with the workpiece and the voltage discharges (HF) cease automatically.
➔ The welding current reaches the preset value, by way of a up slope time, if programmed.

3. Press (3T) the trigger and keep it pressed to start the weld completion procedure.

➔ The current reaches the end current value in the time set in the down slope time parameter.
➔ The arc continues and the current output will be the value set in the end current parameter.
ⓘ In these conditions the weld pool can be closed (crater filler current).

4. Release (4T) the trigger to extinguish the arc.

➔ Gas delivery continues for the time set in the post gas parameter.

## 4.2 SELECTION OF THE WELDING MODE AND TORCH TRIGGER PROCEDURE

**LEGEND**

2T: 2 STROKE LIFT-ARC
2T HF: 2 STROKE WITH HIGH FREQUENCY ARC STRIKE (HF)
2T HF SPOT: 2 STROKE SPOT WITH HIGH FREQUENCY ARC STRIKE (HF)
4T: 4 STROKE LIFT-ARC
4T HF: 4 STROKE WITH HIGH FREQUENCY ARC STRIKE (HF)

S2 ⓞ Use this button to select one of the following welding modes.
S3 ⓞ Use this button to select one of the following torch trigger procedures.

| | | PROCEDURE | | | | |
|---|---|---|---|---|---|---|
| | | 2T | 2T HF | 2T HF SPOT | 4T | 4T HF |
| **MODE** | | | | | | |
| MMA | | | | | | |
| TIG DC CONTINUOUS | | ✓ | ✓ | ✓ | ✓ | ✓ |
| PULSED DC TIG | | ✓ | ✓ | ✓ | ✓ | ✓ |
| TIG DC SYNERGIC | | ✓ | ✓ | ✓ | ✓ | ✓ |

## 4.3 WELDING PARAMETERS

**WELDING CURRENT**

Output current value during welding.

**HOT-START**

This parameter aids electrode melting at the time of arc striking.

**ARC FORCE**

This parameter helps to avoid electrode sticking during welding. During electrode fusion low conductivity parts of the coating become detached and tend to become interposed between the electrode tip as it is fusing and the workpiece. This condition results in an interruption of the arc. In addition, it may occur that the electrode comes into contact with the workpiece creating a short circuit and consequent quenching of the arc. To avoid arc quenching the power source therefore delivers instantaneous peak currents in correspondence with preset arc voltage thresholds.

**PRE-GAS TIME**

Time of gas delivery before the arc strike.
This adjustment is required when fixing points must be created or when welding in hard-to-reach positions that call for the presence of inert atmospheres before striking the arc.
Consequences of a higher value:
- This parameter allows a shielded environment to be created, thereby eliminating contaminants at the start of the welding pass.

**STARTING CURRENT**

Unit current output value immediately after the arc strike.

**SLOPE UP**

Time during which the current changes from the starting value to the welding value by means of a slope.
This setting is used to avoid damaging the edges of the joint with excessively high current values at the moment of arc striking. The value of the main welding current is increased gradually in order to control the uniformity of material deposition and weld penetration.

**PULSED CURRENT FREQUENCY**

Consequences of a higher value:
- Slower melt speed.
- Reduction of heat-affected zone.

**DOWN SLOPE**

Time during which the current changes from the welding value to the end value by means of a slope.

**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.
By keeping the torch trigger pressed during the 3rd time, the crater filler current is maintained thereby ensuring optimal crater filling, until the post gas time is started by releasing the torch trigger (4th 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).

**SPOT TIG 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 arc strike procedure is as follows:
Positioning of the torch with the electrode on the workpiece.
Press the torch trigger and keep it pressed.
Lift the torch slightly.
As soon as the electrode is lifted then the HF ignition starts.
The arc ignites for few hundredths of a second (time can be set up).
The result of this is a very precise, not oxidized welding spot without any plastic deformation of the sheet.

**BASE CURRENT**

Pulsed wave minimum current.
Consequences of a higher value:
- Faster creation of weld pool.
- Increase of heat-affected zone.

**PEAK TIME**

Time for which the current pulse is at the maximum value.
Consequences of a higher value:
- Greater weld penetration.
- Facility to make deeper cuts.

Consequences of a lower value:
- Reduction of heat-affected zone.
- Difficult to create a weld pool.

## 4.4 PARAMETERS ACTIVATION

The welding parameters are available in accordance with the selected welding mode and procedure.
The table shows the settings required to enable each parameter.

| MENU | MODE → | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ↓ | PROCEDURE → | | | | SPOT | | | | | SPOT | | | | | SPOT | | |
| | PARAMETER ↓ | | | | | | | | | | | | | | | | |
| 1° | WELDING CURRENT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 1° | HOT-START | ✓ | | | | | | | | | | | | | | | |
| 1° | ARC FORCE | ✓ | | | | | | | | | | | | | | | |
| 1° | PRE-GAS TIME | | | ✓ | ✓ | | ✓ | | ✓ | ✓ | | ✓ | | ✓ | ✓ | | ✓ |
| 1° | STARTING CURRENT | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1° | SLOPE UP | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1° | PULSED CURRENT FREQUENCY | | | | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 1° | DOWN SLOPE | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1° | FINAL CURRENT | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1° | POST GAS TIME | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2° | SPOT WELDING TIME | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| 2° | BASE CURRENT | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2° | PEAK TIME | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

## 4.5 PARAMETERS SETTING: 1ST LEVEL

S1 Press this button to scroll the list of settings to edit.
E1 Using the encoder, edit the value of the selected setting.
The value is saved automatically.
Press any key (except S1) to save the setting and quit the menu.

***Tab. 1 - Parameters of the 1st level menu: MMA mode***

| PARAMETER | MIN | DEFAULT | MAX | NOTES |
|---|---|---|---|---|
| WELDING CURRENT | 5 A | 80 A | 150 A | |
| HOT-START | - | 50 % | - | Set by the manufacturer. Not user-adjustable. Not displayed. |
| ARC FORCE | - | 50 % | - | Set by the manufacturer. Not user-adjustable. Not displayed. |

***Tab. 2 - Parameters of the 1st level menu: CONTINUOUS DC TIG mode***

| PARAMETER | MIN | DEFAULT | MAX | NOTES |
|---|---|---|---|---|
| PRE-GAS TIME | 0.0 s | 0.0 s | 3.0 s | |
| STARTING CURRENT | - | | - | Set by the manufacturer. Not user-adjustable. Not displayed. |
| SLOPE UP | 0.0 s | 0.0 s | 20.0 s | |
| WELDING CURRENT | 5 A | 80 A | 160 A | |
| DOWN SLOPE | 0.0 s | 0.0 s | 20.0 s | |
| FINAL CURRENT | 5 A | 5 A | 160 A | |
| POST GAS TIME | 0.0 s | 3.0 s | 25.0 s | |

***Tab. 3 - Parameters of the 1st level menu: PULSED TIG DC mode***

| PARAMETER | MIN | DEFAULT | MAX | NOTES |
|---|---|---|---|---|
| PRE-GAS TIME | 0.0 s | 0.0 s | 3.0 s | |
| STARTING CURRENT | - | | - | Set by the manufacturer. Not user-adjustable. Not displayed. |
| SLOPE UP | 0.0 s | 0.0 s | 20.0 s | |
| WELDING CURRENT | 5 A | 80 A | 160 A | |
| PULSED CURRENT FREQUENCY | 0.5 Hz | 125 Hz | 500 Hz | |
| DOWN SLOPE | 0.0 s | 0.0 s | 20.0 s | |
| FINAL CURRENT | 5 A | 5 A | 160 A | |
| POST GAS TIME | 0.0 s | 3.0 s | 25.0 s | |

***Tab. 4 - Parameters of the 1st level menu: SYNERGIC DC TIG mode***

| PARAMETER | MIN | DEFAULT | MAX | NOTES |
|---|---|---|---|---|
| PRE-GAS TIME | 0.0 s | 0.0 s | 3.0 s | |
| STARTING CURRENT | - | *1 | - | Set by the manufacturer. Not user-adjustable. Not displayed. |
| SLOPE UP | 0.0 s | 0.0 s | 20.0 s | |
| WELDING CURRENT | 5 A | 80 A | 160 A | |
| PULSED CURRENT FREQUENCY | 0.5 Hz | 125 Hz | 500 Hz | |
| DOWN SLOPE | 0.0 s | 0.0 s | 20.0 s | |
| FINAL CURRENT | 5 A | 5 A | 160 A | |
| POST GAS TIME | 0.0 s | 3.0 s | 25.0 s | |

*1: This parameter is set as a percentage referred to the value of the following parameter: WELDING CURRENT

## 4.6 PARAMETERS SETTING: 2ND LEVEL

S1 Hold down the button for 3 seconds to gain access to the 2nd level menu.
SPt The acronym relative to the selected setting appears on the following displays: D1
E1 Use the encoder to scroll the list of settings to edit.
S1 Press the button to confirm.
E1 Using the encoder, edit the value of the selected setting.
The value is saved automatically.
Press any key (except S1) to save the setting and quit the menu.

***Tab. 5 - Parameters of the 1st level menu: CONTINUOUS DC TIG mode***

| ACRONYM | PARAMETER | MIN | DEFAULT | MAX |
|---|---|---|---|---|
| SPt | SPOT WELDING TIME | 0.01 s | 0.1 s | 10.0 s |

***Tab. 6 - Parameters of the 1st level menu: PULSED TIG DC mode***

| ACRONYM | PARAMETER | MIN | DEFAULT | MAX |
|---|---|---|---|---|
| SPt | SPOT WELDING TIME | 0.01 s | 0.1 s | 10.0 s |
| b.Cu. | BASE CURRENT | 1% | 40% | 200% |
| PE.t. | PEAK TIME | 1% | 50% | 99% |

***Tab. 7 - Parameters of the 1st level menu: SYNERGIC DC TIG mode***

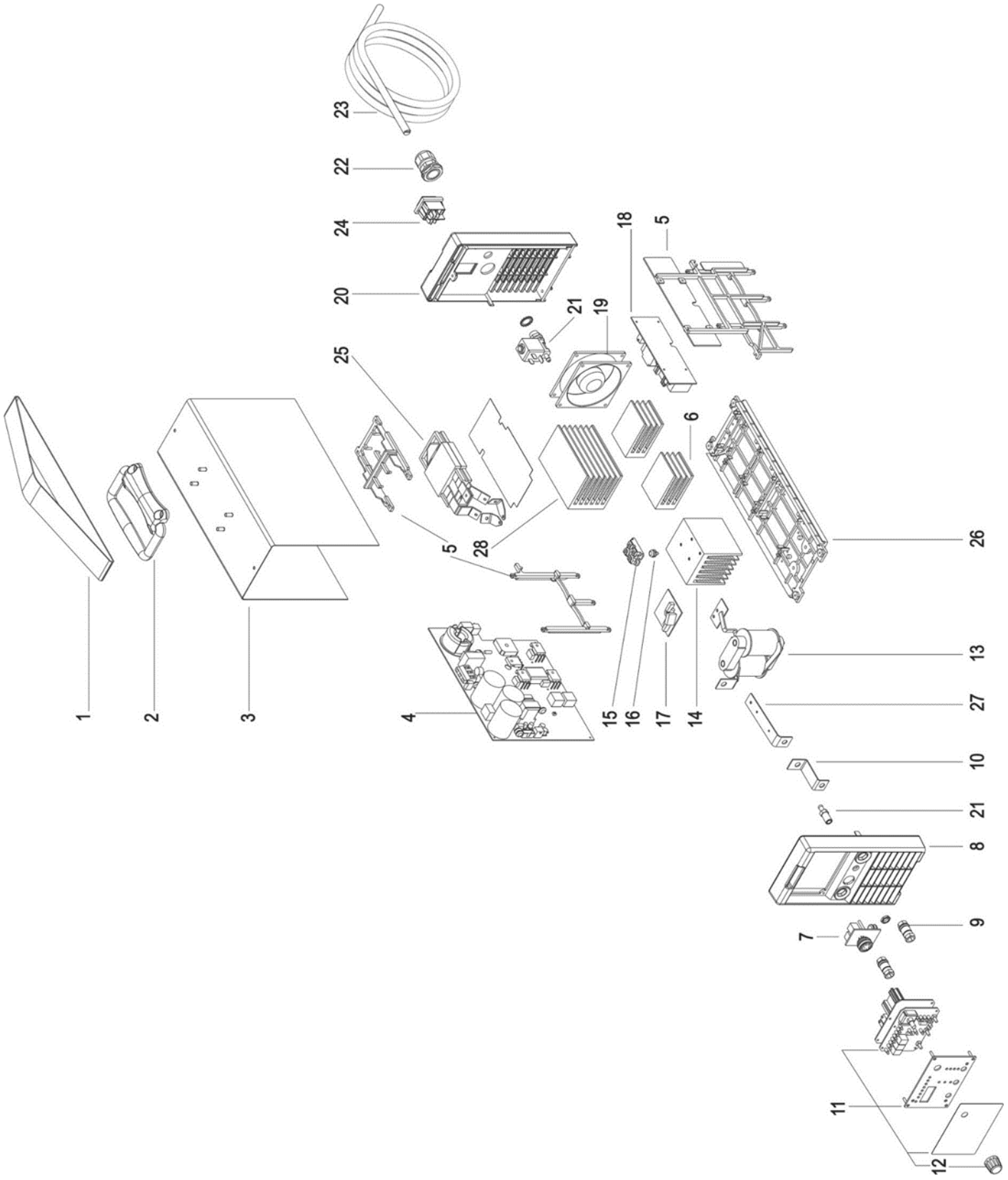
| ACRONYM | PARAMETER | MIN | DEFAULT | MAX |
|---|---|---|---|---|
| SPt | SPOT WELDING TIME | 0.01 s | 0.1 s | 10.0 s |
| b.Cu. | BASE CURRENT | 1% | *SYN | 200% |
| PE.t. | PEAK TIME | 1% | *SYN | 99% |

*SYN: This code indicates that parameters control is synergic. The optimal value of this parameter is set automatically by the microprocessor on the basis of the preset welding current value.

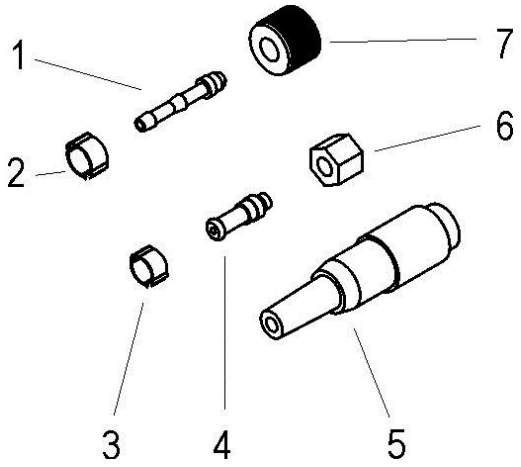
# 5 TECHNICAL DATA

| | | | |
|---|---|---|---|
| **Directives applied** | Waste electrical and electronic equipment (WEEE) | | |
| | Electromagnetic compatibility (EMC) | | |
| | Low voltage (LVD) | | |
| | Restriction of the use of certain hazardous substances (RoHS) | | |
| **Construction standards** | EN 60974-1; EN 60974-3; EN 60974-10 Class A | | |
| **Conformity markings** | CE Equipment compliant with European directives in force | | |
| | S Equipment suitable in an environment with increased hazard of electric shock | | |
| | Equipment compliant with WEEE directive | | |
| | RoHS Equipment compliant with RoHS directive | | |
| **Supply voltage** | 1 x 230 Va.c. ± 15 % / 50-60 Hz | | |
| **Mains protection** | 16 A Delayed | | |
| **$Z_{max}$** | This equipment complies with IEC 61000-3-12 provided that the maximum permissible system impedance is less than or equal to 44 mΩ at the interface point between the user's supply and the public system.<br>It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with maximum permissible system impedance less than or equal to 44 mΩ. | | |
| **Dimensions ( L x D x H )** | 360 x 120 x 215 mm | | |
| **Weight** | 5.4 kg | | |
| **Insulation class** | B | | |
| **Protection rating** | IP23S | | |
| **Cooling** | AF: Air-over cooling (fan assisted) | | |
| **Maximum gas pressure** | 0,5 MPa (5 bar) | | |
| **Static characteristic** | MMA | Drooping characteristic | |
| | TIG | Drooping characteristic | |
| **Current and voltage adjustment range** | MMA | 5 A / 20.2 V - 150 A / 26.0 V | |
| | TIG | 5 A / 10.2 V - 160 A / 16.4 V | |
| **Welding current / Working voltage** | MMA | 30 % (40° C) | 150 A - 26.0 V |
| | | 60 % (40° C) | 115 A - 24.6 V |
| | | 100 % (40° C) | 100 A - 24.0 V |
| | TIG | 25 % (40° C) | 160 A - 16.4 V |
| | | 60 % (40° C) | 120 A - 14.8 V |
| | | 100 % (40° C) | 100 A - 14.0 V |
| **Maximum input power** | MMA | 30 % (40° C) | 6.4 kVA – 4.6 kW |
| | | 60 % (40° C) | 4.8 kVA – 3.3 kW |
| | | 100 % (40° C) | 3.9 kVA – 2.8 kW |
| | TIG | 25 % (40° C) | 4.9 kVA – 3.3 kW |
| | | 60 % (40° C) | 3.2 kVA – 2.2 kW |
| | | 100 % (40° C) | 2.5 kVA – 1.7 kW |
| **Maximum supply current** | MMA | 30 % (40° C) | 28.2 A |
| | | 60 % (40° C) | 20.6 A |
| | | 100 % (40° C) | 17.0 A |
| | TIG | 25 % (40° C) | 21.4 A |
| | | 60 % (40° C) | 14.0 A |
| | | 100 % (40° C) | 10.9 A |
| **Maximum effective supply current** | MMA | 30 % (40° C) | 15.4 A |
| | | 60 % (40° C) | 15.9 A |
| | | 100 % (40° C) | 17.0 A |
| | TIG | 25 % (40° C) | 10.7 A |
| | | 60 % (40° C) | 10.8 A |
| | | 100 % (40° C) | 10.9 A |
| **No-load voltage ($U_0$)** | MMA | 54 V | |
| | TIG | 54 V | |
| **Reduced no-load voltage ($U_r$)** | MMA | 9 V | |
| | TIG | 9 V | |
| **Rated HF peak voltage ($U_p$)** | 11.3 kV - Arc striking device designed to work with manual guided torch. | | |

# 6 SPARE PARTS



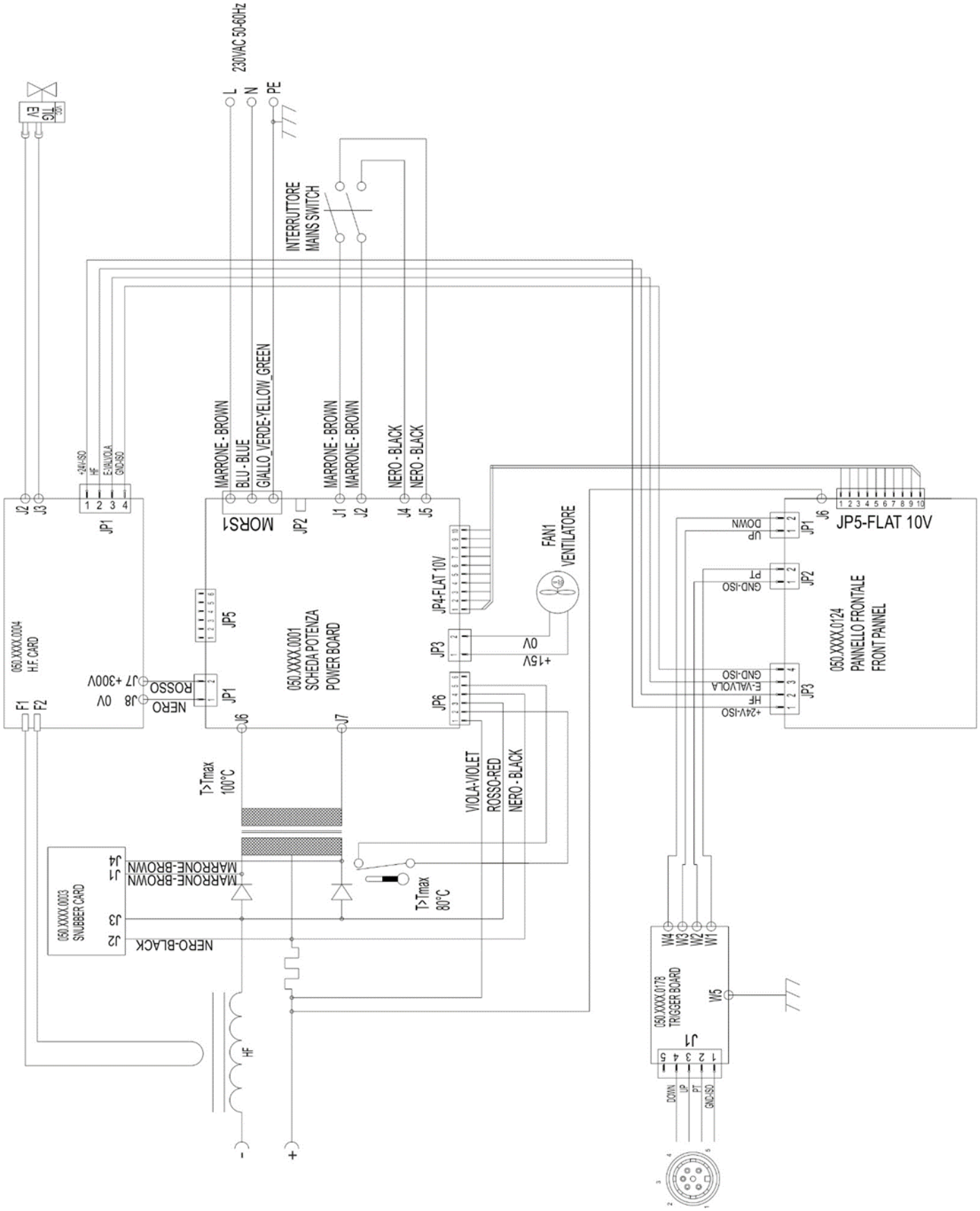
| N° | CODE | DESCRIPTION |
|---|---|---|
| 1 | 005.0001.0002 | BELT |
| 2 | 011.0006.0031 | HANDLE |
| 3 | 011.0000.0061 | COVER PLATE |
| 4 | 050.0006.0001 | POWER BOARD |
| 5 | 012.0001.0000 | INTERNAL FRAMEWORKS |
| 6 | 015.0001.0002 | HEAT SINK L= 50 mm |
| 7 | 050.0001.0178 | TORCH CONNECTOR BOARD |
| 8 | 010.0006.0040 | FRONT PLASTIC PANEL |
| 9 | 021.0001.1022 | FIXED SOCKET 200 A |
| 10 | 045.0006.0005 | SHUNT/PLUG PLATE |
| 11 | 050.5048.0000 | FRONT PANEL |
| 12 | 014.0002.0002 | KNOB WITH CAP |
| 13 | 010.0002.0001 | HF COIL |
| 14 | 015.0001.0027 | HEAT SINK L= 75 mm |
| 15 | 032.0002.2003 | ISOTOP DIODE |
| 16 | 040.0003.1080 | THERMAL CUT-OUT 80°C |
| 17 | 050.0001.0003 | SNUBBER BOARD |
| 18 | 050.0001.0004 | HF BOARD |
| 19 | 003.0002.0002 | FAN |
| 20 | 010.0006.0006 | COMPLETE REAR PLASTIC PANEL |
| 21 | 017.0001.5542 | COMPLETE SOLENOID VALVE |
| 22 | 045.0000.0007 | COMPLETE CABLE CLAMP |
| 23 | 045.0002.0001 | NEOPRENE CABLE |
| 24 | 040.0001.0004 | BI-POLE SWITCH |
| 25 | 010.0007.0005 | PLANAR TRANSFORMER |
| 26 | 012.0002.0001 | LOWER COVER |
| 27 | 045.0005.0005 | SHUNT |
| 28 | 015.0001.0001 | HEAT SINK L= 107mm |



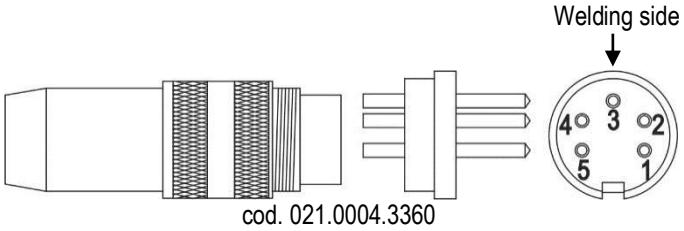

| N° | CODE | DESCRIPTION |
|---|---|---|
| | 021.0000.0001 | TORCH CONNECTORS COMPLETE KIT |
| 1 | 016.5001.0822 | HOSE ADAPTER 1/4 |
| 2 | 016.0007.1113 | HOSE CLAMP Ø= 11-13 |
| 3 | 016.0007.0709 | HOSE CLAMP Ø= 07-09 |
| 4 | 016.5001.0821 | SLEEVE HOSE ADAPTER FOR RUBBER HOSE M10 |
| 5 | 021.0004.3360 | AMPHT3360-001 M/5V. VOL. CONNECTOR |
| 6 | 016.5001.1311 | NUT M10 |
| 7 | 016.5001.0823 | NUT 1/4 |

# 7 ELECTRICAL DIAGRAM

## 7.1 DISCOVERY 162T

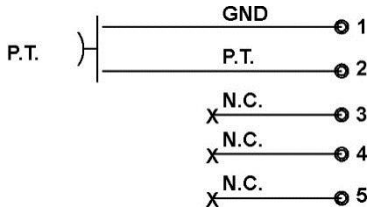


## 7.2 TORCH CONNECTOR




cod. 021.0004.3360

**Torch**




**Up & Down Torch**