

## Operating Instructions / Spare parts list

### Micro 300

Portable Inverter



## EU declaration of conformity

No. CMM0516QNM13\_01

**Product description:** MIG/MAG welding machine  
**Model name:** QINEO MICRO 300  
**Serial number:** Refer to the nameplate on the back of the device  
**Manufacturer:** CARL CLOOS Schweisstechnik GmbH  
**Address:** Industriestrasse 22-36  
35708 Haiger  
Germany

**The manufacturer bears sole responsibility for issuing the declaration of conformity.**

**The aforementioned products covered by the declaration satisfy the relevant statutory provisions of the Union:**

### Low Voltage Directive:

**2014/35/EU** Directive of the European Parliament and of the Council of 26 February 2014 on the harmonisation of laws of Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits; Official Journal of the EU L96, 29/03/2014, Pages 357 - 374

### EMC Directive:

**2014/30/EU** Directive of the European Parliament and of the Council of 26 February 2014 on the harmonisation of laws of Member States relating to electromagnetic compatibility; Official Journal of the EU L96, 29/03/2014, Pages 79 - 106

### RoHS Directive:

**2011/65 /EU** Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of use of certain hazardous substances in electrical and electronic equipment; Official Journal of the EU L174, 01/07/2011, Pages 88 - 110

Agreement of the product stated with the regulations in the directives applied is verified with conformance to the following standards and regulations:

- EN 60974-1 Arc Welding Equipment  
Part 1: Welding Power Sources
- EN 60974-5 Arc Welding Equipment  
Part 5: Wire Feed Units
- EN 60974-10 Arc Welding Equipment  
Part 10: Requirements of Electromagnetic Compatibility (EMC)

Major conversions and add-ons which are not carried out by the manufacturer or the manufacturer's authorised representative(s) result in termination of this declaration of conformity.

Signed for and in the name of:  
CARL CLOOS Schweisstechnik GmbH

35708 Haiger, 30/05/16

Signature:  
Identification of signatory:

  
Gerald Mies  
Managing director

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## 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.

#### KEY

 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

 This symbol accompanies important information concerning the execution of the relevant operations

Micro 300 is a compact and rugged three-phase, synergic inverter power source for MIG/MAG, MMA and TIG Lift welding.

Easy to transport, only 22kg, it is the best option for maintenance and repair on field, shipyard and off-shore operations.

Polarity change allows welding with self shielded wires.

Innovative unique HAC (Hybrid Arc Control) supplies a soft and very stable MIG-MAG arc with excellent weld bead quality and minimal spattering in any working conditions.









3T Mode allows both Hot Start and Crater Filler current setting, for optimal penetration at start and crater filling at bead's end.

Additional parameters, Motor Slope, Soft Start, Burn Back and Post Gas are included for perfect arc ignition and optimum wire cutting at the end of welding.

Microprocessor, inverter technology, digital displays, synergic curves and memory locations for customized welding parameters assure complete welding process repeatability. The inductance can be adjusted electronically by means of the user interface in order to optimize the arc.

A perfect wire feeding is guaranteed thanks to a 4-rolls motor drive included in Micro 300.

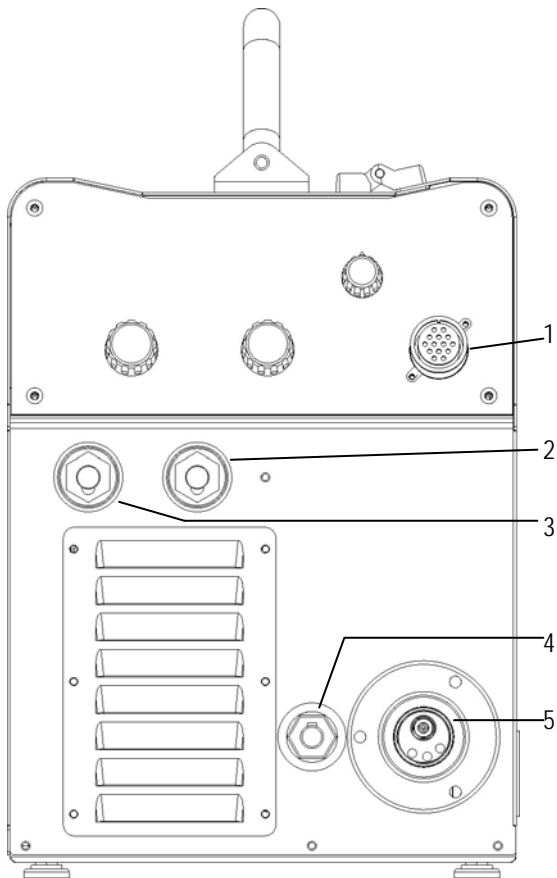
The welding modes and procedures available are those indicated in the table.

MODE	PROCEDURE
 MMA	
 TIG DC LIFT	 2 STEP LIFT-ARC (2T)
	 4 STEP LIFT-ARC (4T)
 MIG/MAG	 2 STEP (2T)
	 4 STEP (4T)
	 3 LEVELS

Accessories that can be connected to the unit:

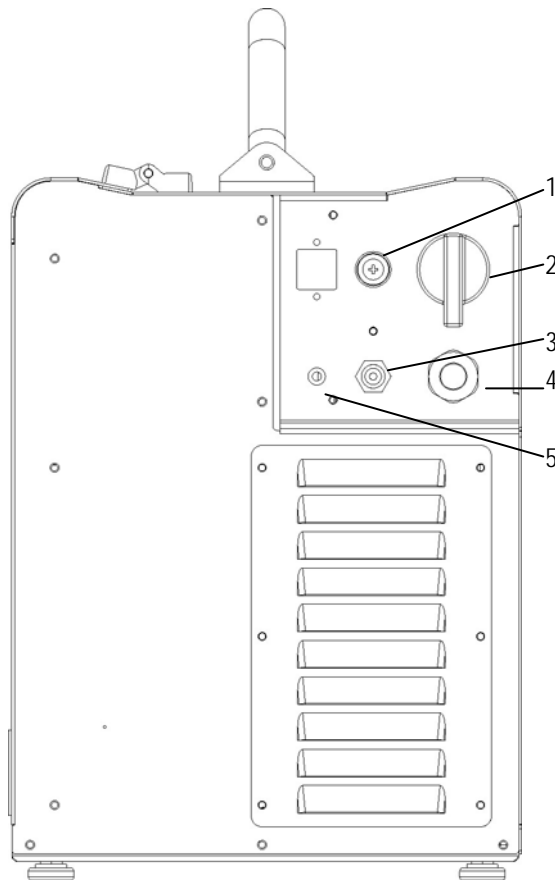
- manual remote controller for remote adjustment of the welding current.

## 2 FRONT PANEL



- 1: Connector for remote control.
- 2: Positive pole welding socket.
- 3: Negative pole welding socket.
- 4: Polarity selector cable.
- 5: EURO TORCH welding socket.

## 3 REAR PANEL



1: Wire feed motor power transformer fuse.

TYPE	Delayed acting (T)
AMPERAGE	630mA
VOLTAGE	500V

2: Welding power source ON/OFF switch.

3: Connector for gas pipe leading from cylinder.

4: Power cable

TOTAL LENGTH (INCLUDING INTERNAL PART)	3,5m
NUMBER AND CROSS SECTION OF WIRES	4x2,5mm <sup>2</sup>
TYPE OF PLUG SUPPLIED	Not supplied

5: Mains protection ON LED.

## 4 INSTALLATION

### 4.1 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 23.

The machine can be connected to motorgenerators provided their voltage is stabilised.

Connect/disconnect the various devices with the machine switched off.

### 4.2 PREPARING FOR MMA WELDING

1. Turn the switch "OFF" (equipment switched off).
2. Connect the power cable to the power 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 plug of the electrode holder clamp to the welding socket on the basis of the polarity required by the type of electrode in question.
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.

**WARNING!**  
**ELECTRIC SHOCK HAZARD!**

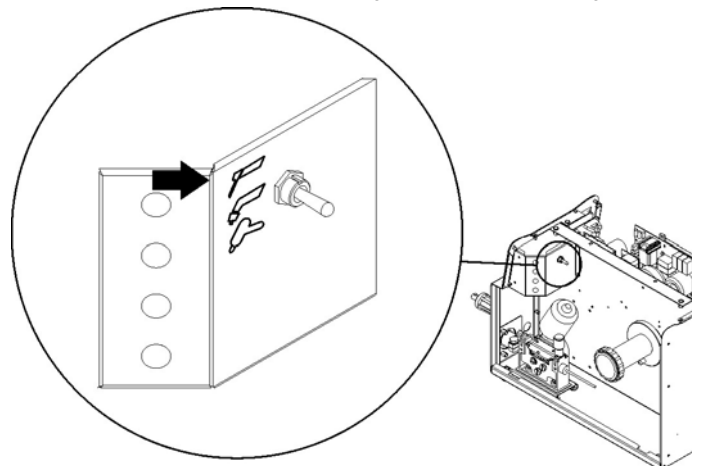
Read the warnings highlighted by the following symbols in the "General prescriptions for use".





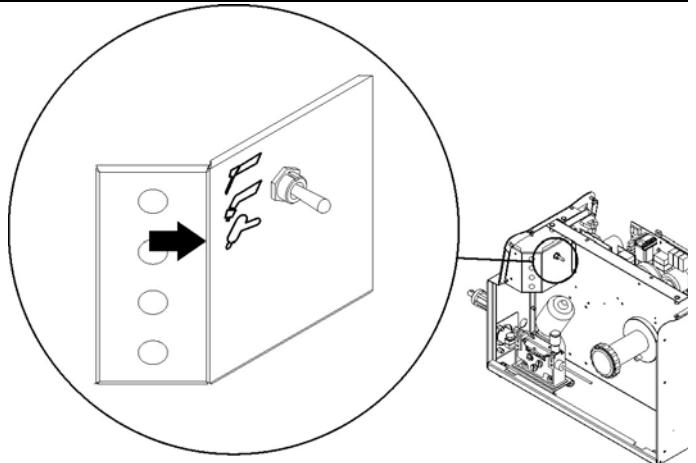
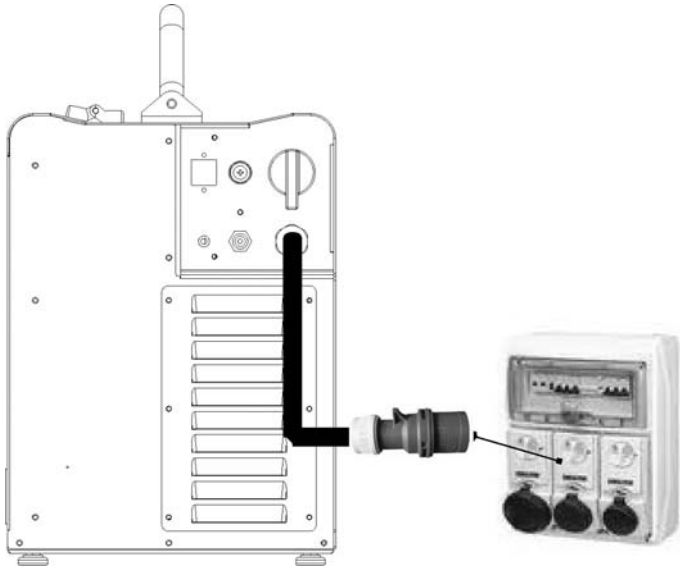


8. Set the welding power source ON/OFF switch to "I" (unit powered).
9. Use the selector in the spool housing to select MMA welding mode.

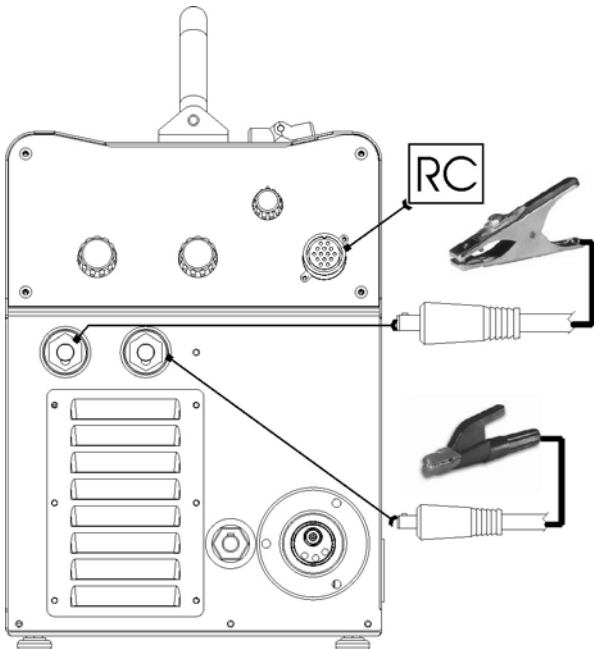


10. Set the required welding parameter values on the user interface.
11. The system is ready to start welding.

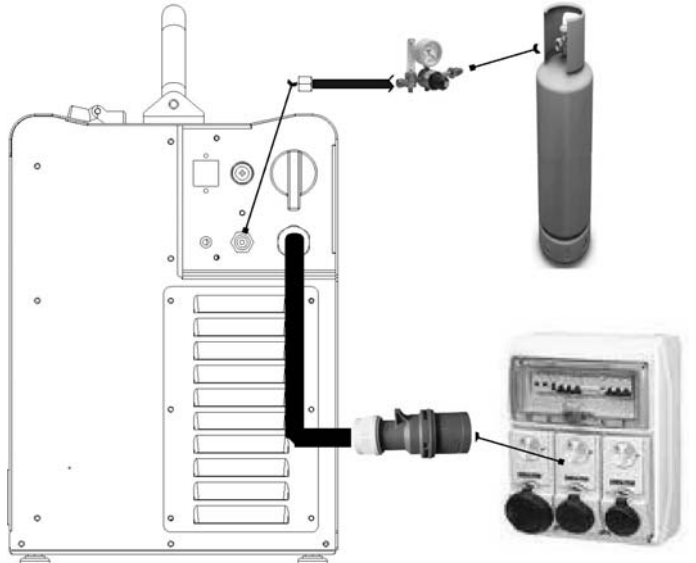
## Preparing for MMA (polarity to basic electrode).



13. Select the torch trigger procedure on the user interface.
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..
17. The system is ready to start welding.

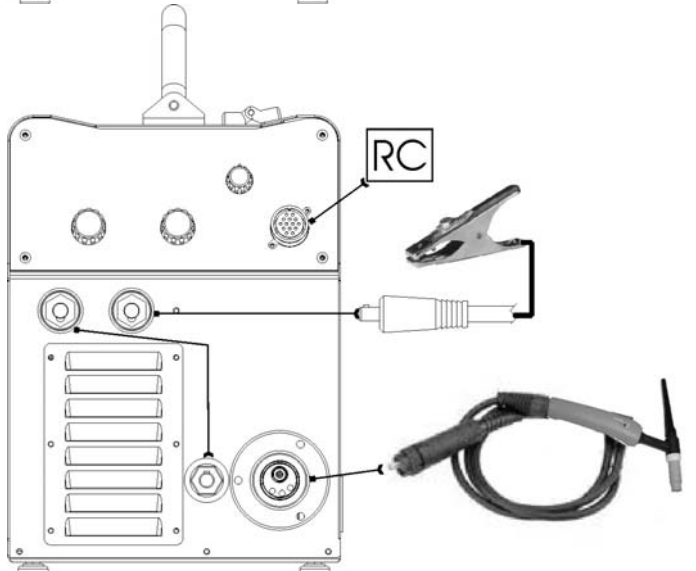


## Preparing for TIG (polarity for tungsten electrode)



### 4.3 PREPARING FOR TIG WELDING

1. Set the welding power source ON/OFF switch to "0" (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 relative socket.
4. Open the cylinder gas valve.
5. Choose the electrode on the basis of the type of material to be welded and the thickness of the workpiece.
6. Insert the electrode in the TIG torch.
7. Connect the TIG torch plug to the EURO TORCH welding socket
8. Connect the plug of the polarity selector cable to the welding socket on the basis of the polarity required.
9. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
10. Connect the earth clamp to the workpiece being processed.
11. Set the welding power source ON/OFF switch to "1" (unit powered).
12. Use the selector in the spool housing to select TIG welding mode.



## 4.4 PREPARING FOR MIG/MAG WELDING

### WIRE SPOOL POSITIONING

1. Open the unit side door to gain access to the spool compartment.
2. Unscrew the cap of the spool holder.



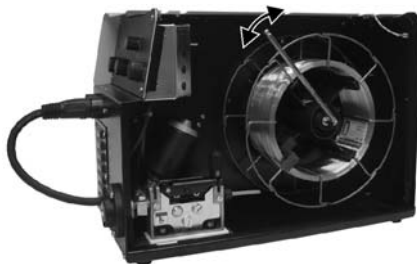
3. If necessary, fit an adapter for the wire spool.



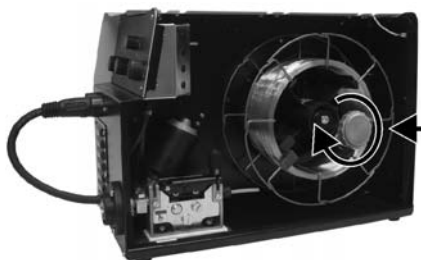
4. Choose the wire on the basis of the workpiece thickness and material type.
5. Fit the spool in the spool holder, ensuring it is located correctly.



6. 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.

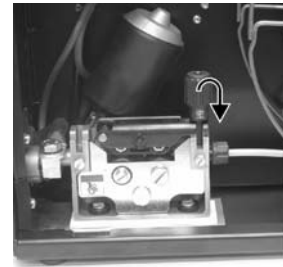


7. Refit the plug.

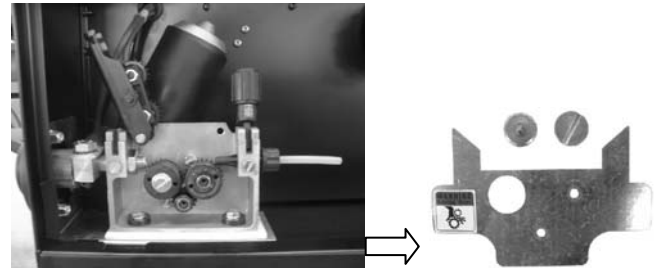


### POSITIONING THE WIRE IN THE WIRE FEEDER

1. Lower the wire feeder pressure devices.



2. Raise the wire feeder pressure arms.
3. Remove the protective cover.



4. Check that the feed rolls are suitable for the wire gauge

ⓘ § 15.2

- ⓘ 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

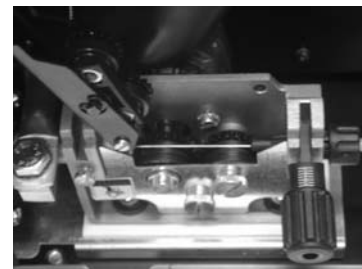
The groove must feature a "U" profile for soft materials (Aluminium and its alloys, CuSi3).

The groove must be "V" shaped for harder materials (SG2-SG3, stainless steels)

Rolls with a knurled groove profile are available for flux-cored wire.

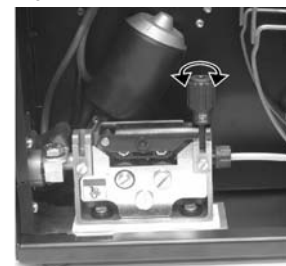
5. Feed the wire between the wire feeder rolls and insert it into the MIG/MAG TORCH connector plug.

- ⓘ Make sure the wire is located correctly in the roll grooves.



6. Close the wire feeder pressure arms.

7. 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.

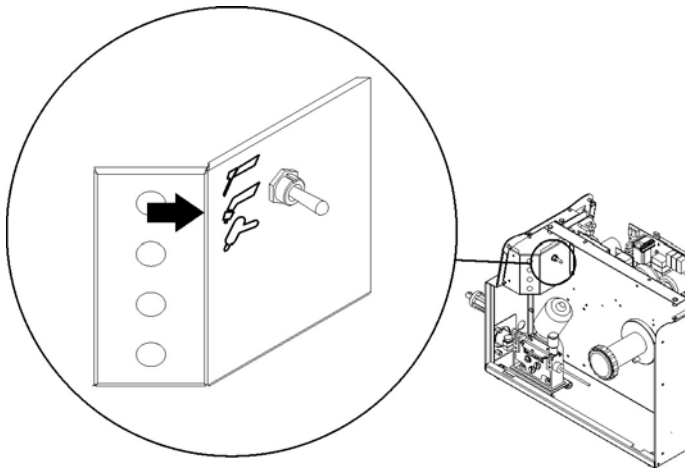


8. Refit the protective cover.

9. Close the spool compartment door in the side of the unit.

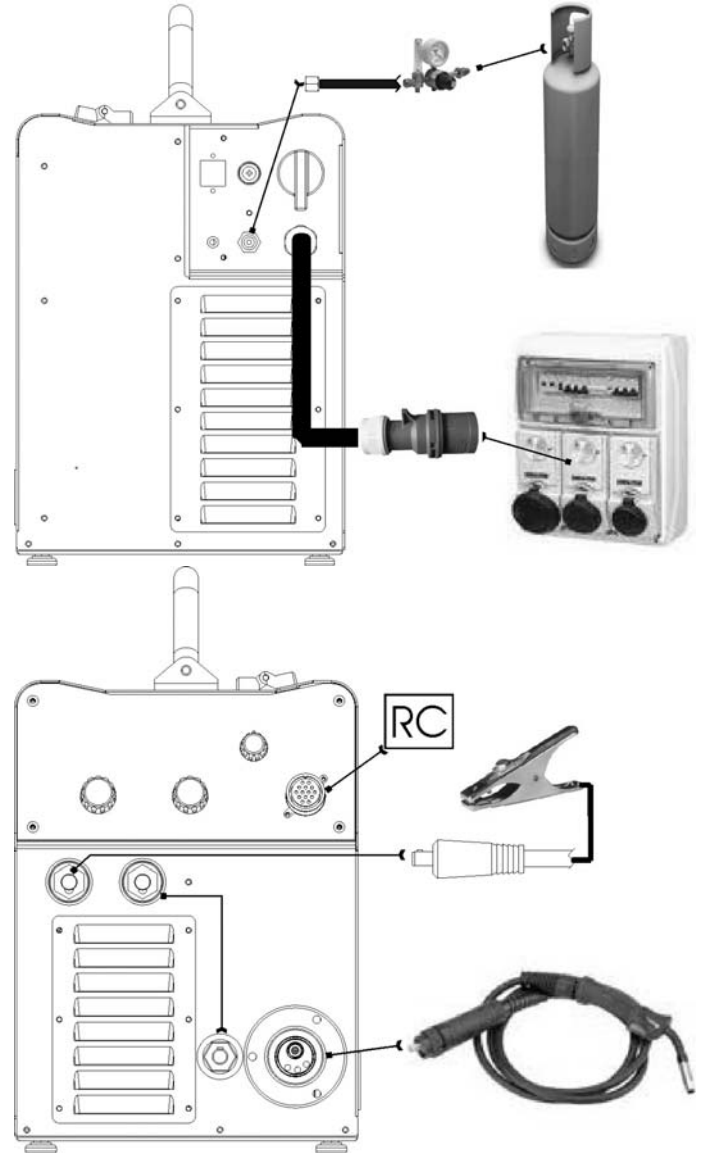
## CONNECTIONS TO SOCKETS

1. Set the welding power source ON/OFF switch to "0" (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 relative socket.
4. Open the cylinder gas valve.
5. Connect the MIG/MAG torch plug to the EURO TORCH welding socket.
6. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
7. Connect the plug of the polarity selector cable to the welding socket on the basis of the polarity required.
8. Connect the earth clamp to the workpiece being processed.
9. Set the welding power source ON/OFF switch to "1" (unit powered).
10. Use the selector in the spool housing to select MIG/MAG welding mode.



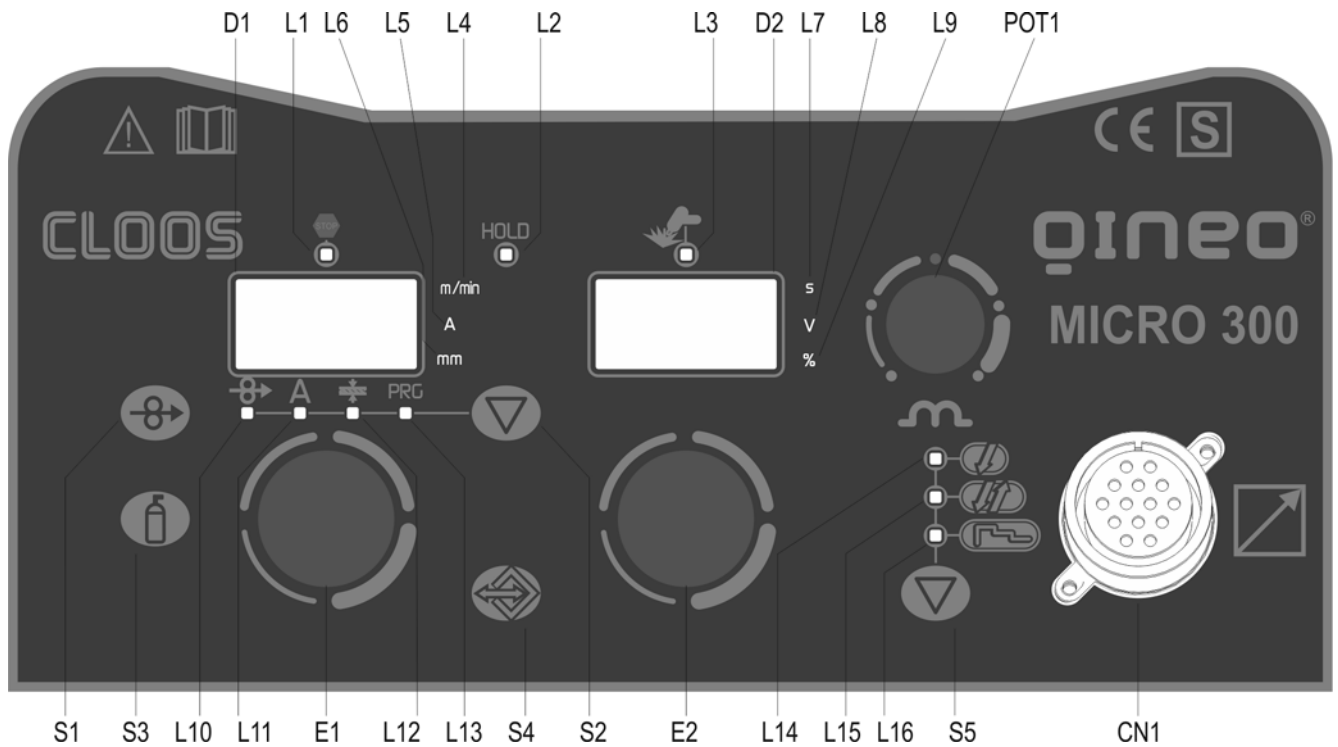
11. Feed the wire through the torch until it protrudes from the tip, pressing button  $\oplus$  on the unit front panel.
12. Select the torch trigger procedure on the user interface.
13. Press the torch trigger with the torch well clear of any metal parts. This serves to open the gas solenoid valve without striking the welding arc.
14. Use the flow control valve to adjust the flow of gas as required while the gas is flowing out.
15. Set the required welding parameter values on the user interface..
16. On connecting and enabling a remote controller [RC] certain settings can be modified from said controller without having to take action on the user interface of the welding power source.
17. The system is ready to start welding.

## Preparing for MIG/MAG





























## 5 USER INTERFACE



Code	Name	Symbol	Description
L1	ALARM		This LED illuminates to show an anomaly in the operating conditions. <b>i</b> § 9
L2	MEASURED VALUE	<b>HOLD</b>	When this LED illuminates the last voltage and current values measured during welding will be shown on displays D1-D2. <b>i</b> The LED switches off when a new welding procedure is started, or when any of the welding settings is modified.
L3	SOCKETS POWERED		This LED illuminates to confirm the presence of power on the output sockets.
L4	UNIT OF MEASUREMENT IN METRES PER MINUTE	<b>m/min</b>	Illuminates to show that the value on display D1 is expressed in metres per minute.
L5	UNIT OF MEASUREMENT IN AMPERES	<b>A</b>	When this LED illuminates the Amperes value is shown on display D1.
L6	UNIT OF MEASUREMENT IN mm	<b>mm</b>	This LED indicates that the value shown on D1 is in mm
L7	UNIT OF MEASUREMENT IN SECONDS	<b>S</b>	This LED indicates that the value shown on D2 is in seconds or milliseconds
L8	UNIT OF MEASUREMENT IN VOLTS	<b>V</b>	When this LED illuminates a Voltage value is shown on display D2.
L9	UNIT OF MEASUREMENT IN %	<b>%</b>	This LED indicates that the value shown on D2 is in a percentage
L10	WIRE FEED RATE		Illuminates to show that the wire feed rate value can be set on display D1
L11	AMPERES	<b>A</b>	Illuminates to show that the welding current value in Amperes can be set on display D1
L12	THICKNESS		Illuminates to confirm the possibility of setting the recommended base material thickness is displayed on D1. <b>i</b> Reference is made to "T" fillet welds on identical thicknesses. The relative value is purely guideline.
L13	PROGRAMS	<b>PRG</b>	Illuminates to show that the required Synergic welding program can be set
L14	TWO TIMES PROCEDURE		This LED illuminates to show that the torch trigger 2 times procedure is selected. <b>i</b> §. 13.1
L15	FOUR TIMES PROCEDURE		This LED illuminates to show that the torch trigger 4 times procedure is selected. <b>i</b> §. 13.2
L16	THREE LEVEL PROCEDURE		This LED illuminates to show that the torch trigger 3 Level procedure is selected. <b>i</b> The procedure can be activated in synergic programs in MIG/MAG mode. §. 13.5

Code	Name	Symbol	Description
			<b>Parameters/functions setting</b>
			<p><b>Manual MIG/MAG mode</b> The display shows the programmed wire feed rate.</p> <p><b>Synergic MIG/MAG mode</b> The display shows the value of the selected main welding parameter.</p> <p> The main welding parameters can be selected with button S2</p>
			<b>Programs setting</b>
D1	AMPERES DISPLAY		The display shows the message P "program no."
			<b>Welding</b>
			<p>The display shows the effective amperes value during welding The display shows the variation of the main welding parameter.</p> <p> The main welding parameter is selected with button S2 and can be set using encoder E1</p>
			<b>Menu function</b>
			The display shows the acronym of the parameter or function to be adjusted
			<b>HOLD function</b>
			The display shows the latest measured current value
			<b>Parameters/functions setting</b>
			<p><b>Manual and Synergic MIG/MAG mode</b> The display shows the programmed voltage</p>
			<b>Programs setting</b>
			The display shows the acronym of the material to be welded on the basis of the selected synergic curve
			<b>Welding</b>
D2	VOLTAGE DISPLAY		<p>The display shows the effective voltage value during welding The display shows the arc correction value imposed by the operator with respect to the default value of the synergic curve.</p> <p> Arc correction is performed by means of encoder E2. 0.0 V is the default value for horizontal or frontal welding.</p> <p> A value &gt;0 produces an increase in the length of the welding arc. A value &lt;0 produces a shorter arc.</p>
			<b>Menu function</b>
			The display shows the value of the parameter or function to be adjusted.
			<b>HOLD function</b>
			The display shows the latest measured voltage value.
			<p><b>MIG/MAG mode</b> This button activates wire feed to insert it through the MIG/MAG torch.</p> <p> The insertion speed is 1.2m/min for 3 seconds, subsequently increasing to 10m/min. When the button is released wire feed is interrupted. This function produces a slower feed rate and hence greater precision when inserting the wire when it enters the torch nozzle.</p> <p><b>MMA mode</b> This button is not enabled.</p> <p><b>DC TIG mode</b> This button is not enabled.</p>
S1	INSERTION BUTTON		
			<p>This button opens the gas solenoid valve to fill the circuit and calibrate the pressure with the regulator on the gas cylinder.</p> <p> §.8.2</p> <p><b>GAS menu function</b> Hold down the button for 3 seconds to open the Menu</p>
S3	GAS BUTTON		
			<p><b>MMA mode</b> This button is not enabled.</p> <p><b>MIG/MAG mode</b> This button selects the torch trigger mode</p> <p> §.13</p>
S5	TORCH TRIGGER MODE SELECTION		<p><b>TIG mode</b> This button selects the torch trigger mode</p> <p> §.13</p>

Code	Name	Symbol	Description
			<b>Parameters/functions setting</b>
			<b>Manual MIG/MAG mode:</b> The button selects the parameters highlighted by illumination of the following LEDs: 
			<b>Synergic MIG/MAG mode:</b> The button selects the parameters highlighted by illumination of the following LEDs:   
S2	PROGRAMS BUTTON		<b>In all welding modes</b> This button provides the facility to gain access to the secondary parameters adjustment menu
			<b>Powering up the unit</b> This button opens the initial setup menu  § 8
S4	JOB BUTTON		Press the button once to open the JOB upload menu Hold down the button for 3 seconds to gain access to the JOB save/delete Menu
			<b>Parameters/functions setting</b>
			<b>Manual MIG/MAG mode</b> The encoder sets the wire feed rate. <b>Synergic MIG/MAG mode</b> The encoder sets the main adjustment value.  By changing the main adjustment value shown on display D1, the voltage value of the synergic curve shown on display D2 changes accordingly.
E1	WIRE FEED RATE/SYNERGY PROGRAMMING		<b>Programs setting</b> The encoder selects the synergic program to be uploaded.
			<b>Menu function</b> The encoder selects the function or parameter to be adjusted.
			<b>Welding</b> The encoder selects the main welding parameter to be set.
			<b>Manual MIG/MAG mode</b> The encoder sets the welding voltage. <b>Synergic MIG/MAG mode</b> The encoder sets the arc correction.
E2	VOLTAGE SETTING		<b>Programs setting</b> The encoder selects the MIG/MAG welding program.
			<b>Menu function</b> The encoder sets the value of the selected function or parameter.
			<b>Manual MIG/MAG mode</b> The potentiometer sets the inductance value <b>Synergic MIG/MAG mode</b> The potentiometer sets the inductance value from the minimum to the maximum permissible value in accordance with the selected synergic curve
POT1	INDUCTANCE POTENTIOMETER		
SEL1	PROCEDURES SELECTOR		Selects the welding mode

## 6 UNIT POWER-UP

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

- ➔ **F x.x** The message appears on displays D2 for a few seconds
  - ❗ F x.x= software version
- ➔ **A L. H E A.** The message appears on displays D1-D2.
  - ❗ 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

## 7 RESET (LOAD FACTORY SETTINGS)



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!

- ❗ 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.



Hold down both buttons simultaneously

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



Release buttons

➔ **r E C F A C** The message appears on displays D1-D2.

❗ Wait for the memory clear procedure to terminate



SIMULTANEOUS ACTIONS

***Tab. 1 Factory settings in MIG/MAG mode***

PARAMETER	VALUE	UNIT OF MEASUREMENT
Wire feed rate (D1)	5.0	m/min
Voltage (D2)	20	V
Arc Correction	0.0	V
Soft-Start	30	%
Motor-Slope	40	ms
Bourn-Back	26	ms
Hot-Start	130	%
Crater-Filler	80	%
3 Levels Slope	0.5	s
Post-gas time	0.3	s
Pre-gas time	0	s
Trigger	2 Step	Not Present
Remote controller selection	OFF	Not Present
Lock status activation	OFF	Not Present
Push-pull activation	OFF	Not Present
Selection of burn type	Std	Not Present
Sequences and Jobs	All deleted	Not Present

## 8 SET-UP (INITIAL SET-UP OF THE WELDING POWER SOURCE)

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

SEL1



Set the selector to the symbol to select MIG/MAG welding mode

S2



Hold down the button

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

**Set uP** The message appears on displays D1-D2 for a few seconds

**rC.** The acronym relative to the setting to be edited is shown on display D1

**oFF** The value relative to the selected setting appears on display D2

E1



Use the encoder to scroll the list of settings to edit

**i** Tab. 2 Setup settings

E2



Using the encoder, edit the value of the selected setting

E1



Select "ESC" with the encoder

S2



Press any button to save the setting and quit the Menu




SIMULTANEOUS ACTIONS

***Tab. 2 Setup settings***

SETTING	Acronym on D1	Value on D2	NOTES
Remote Controller Selection	rC	oFF	No remote controller enabled Setting from user interface
		3	Enables operation of connected remote controller RC03 (1 potentiometer) Wiring diagram 16.2.1 page 30 JOBS can be retrieved When a JOB is active the RC is inhibited The JOB can only be quit from the interface panel
		4	Enables operation of connected remote controller RC04 (2 potentiometers) Wiring diagram 16.2.2 page 30 JOBS can be retrieved When a JOB is active the RC is inhibited The JOB can only be quit from the interface panel
		5	Enables operation of connected remote controller RC05 (1 UP/DOWN) Wiring diagram 16.2.3 page 31 JOBS can be retrieved The JOB can be quit both from the panel and from RC
		6	Enables operation of connected remote controller RC06 (2 UP/DOWN) Wiring diagram 16.2.4 page 31 JOBS can be retrieved The JOB can be quit both from the panel and from RC
		oFF	All adjustments are disabled.
Lock Status Activation	LoC	1	All adjustments are disabled with the exceptions shown in Tab. 3 page 14.
		2	All adjustments are disabled with the exceptions shown in Tab. 3 page 14. The Loc 3 setting becomes active only when a JOB is loaded
		3	All adjustments are disabled with the exceptions shown in Tab. 3 page 14. When no JOB is loaded, the user interface is completely unlocked
Push-Pull Activation	PP	oFF	The setting activates the push-pull torch
		on	The setting deactivates the push-pull torch
Selection Of Burn Type	bb.	SPc	The setting activates Special burning
		Std	The setting activates Standard burning
Quitting The Menu	ESC		To quit the menu select this setting and press button S1









## 8.1 LOCKING PROCEDURE

-  The locks are enabled only in MIG/MAG welding mode.  
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.

### 8.1.1 ENABLING

If no locking status is selected (LoC = oFF) and if you wish to set up a limitation on use of the power source, display the Loc function in the SETUP menu.

Open the Setup menu

-  § 8
-  rC. The acronym relative to the setting to be edited is shown on display D1
-  oFF The value relative to the selected setting appears on display D2
-  E1 Select "LoC" with the encoder
-  E2 Use the encoder to select the required lock status
-  Depending on the selected Lock, certain functions will remain enabled  
Tab. 3 Functions not disabled by Locks
-  E1 Select "ESC" with the encoder
-  S2 Press any button to save the setting and quit the Menu








***Tab. 3 Functions not disabled by Locks***

LoC	User interface	RC03	RC04	RC05	RC06
1	Selection of torch trigger procedure (button S5) Display of main welding parameters (button S2) Arc correction (encoder E2) Wire insertion (button S1) Gas test (button S3)		Arc correction (Potentiometer Pot2)		Arc correction (UP/DOWN lever 2)
2	Selection of torch trigger procedure (button S5) Display of main welding parameters (button S2) Arc correction (encoder E2) Synergy (encoder E1) Wire insertion (button S1) Gas test (button S3)	All adjustments enabled	All adjustments enabled	All adjustments enabled	All adjustments enabled
3	Selection of torch trigger procedure (button S5) Display of main welding parameters (button S2) JOB selection (encoder E2) Wire insertion (button S1) Gas test (button S3)			Scroll JOBS (UP/DOWN lever 1)	Scroll JOBS (UP/DOWN lever 1)

### 8.1.2 DISABLING

If a lock status is selected, you can only edit parameters permitted by the currently active lock status.

Open the Setup menu

-  § 8
-  rC. The acronym relative to the setting to be edited is shown on display D1
-  oFF The value relative to the selected setting appears on display D2
-  E1 Select "LoC" with the encoder
-  E2 Select "oFF" with the encoder
-  E1 Select "ESC" with the encoder
-  S2 Press any button to save the setting and quit the Menu

## 8.2 GAS FLOW ADJUSTMENT

When the unit is powered on the solenoid valve opens for 1 second.  
This serves to fill the gas circuit.



Open the gas solenoid valve by pressing and releasing the button

Adjust the pressure of gas flowing from the torch by means of the flow meter connected to the gas cylinder



Close the gas solenoid valve by pressing and releasing the button

The solenoid valve closes automatically after 30 seconds

## 9 ALARMS MANAGEMENT

The LED illuminates in the presence of alarms

➔ **A L. H E A.** An alarm message appears on displays D1-D2

***Tab. 4 Alarm messages***

MESSAGE	MEANING	EVENT	CHECKS
<b>AL. HEA.</b>	<p>Overheating Alarm</p> <p>Indicates tripping of the welding power source thermal protection.</p> <p>Leave the unit running so that the overheated components cool as rapidly as possible.</p> <p>When the unit has cooled, the welding power source will reset automatically.</p>	<p>All functions disabled.</p> <p>Exceptions:</p> <ul style="list-style-type: none"> <li>- cooling fan</li> <li>- cooler (if switched on)</li> </ul>	<ul style="list-style-type: none"> <li>- Make sure that the power required by the welding process is lower than the maximum rated power output.</li> <li>- Check that the operating conditions are in compliance with the welding power source data plate specifications.</li> <li>- Check for the presence of adequate air circulation around the welding power source.</li> </ul>
<b>AL. Cur.</b>	<p>Current Surge Alarm</p> <p>Indicates tripping of the welding power source current surge protection.</p> <p>Exit the alarm state by performing one of the following actions:</p> <ul style="list-style-type: none"> <li>- Press any button on the user interface</li> <li>- Switch off the power source</li> </ul>	<p>An audible signal will sound (buzzer)</p> <p>Muting the audible signal:</p> <ul style="list-style-type: none"> <li>- in torch trigger procedure T2, release the torch trigger.</li> <li>- in torch trigger procedure 4T or 4TS the alarm mutes automatically after 5 seconds. <p>All functions disabled.</p> <p>Exceptions:</p> <ul style="list-style-type: none"> <li>- cooling fan</li> <li>- cooler (if switched on)</li> </ul> </li></ul>	<ul style="list-style-type: none"> <li>- Check that the programmed arc voltage value is not too high in relation to the thickness of the work to be welded.</li> </ul>

## 10 WELDING SETTINGS

### 10.1 ELECTRODE WELDING (MMA)



Set the selector to the symbol to select MMA welding mode

➔ **MMA** The message appears on displays D2

#### 10.1.1 MMA PARAMETERS SETTING (1ST LEVEL)



Using the encoder, edit the value of the selected setting

ⓘ Tab. 5 Parameters of the 1st level Menu in MMA mode

➔ **80** The value relative to the selected setting appears on display D1

***Tab. 5 Parameters of the 1st level Menu in MMA mode***

PARAMETER	MIN	DEFAULT	MAX	NOTES
MMA WELDING CURRENT	10A	80A	250A	

#### 10.1.2 MMA PARAMETERS SETTING (2ND LEVEL)



Hold down the button for 3 seconds to gain access to the 2nd level Menu

➔ **H.-S.** The acronym relative to the setting to be edited is shown on display D1

➔ **50** The value relative to the selected setting appears on display D2



Use the encoder to scroll the list of settings to edit

ⓘ Tab. 6 Parameters of the 2nd level Menu in MMA mode



Using the encoder, edit the value of the selected setting



Press any button to save the setting and quit the Menu

***Tab. 6 Parameters of the 2nd level Menu in MMA mode***

PARAMETER	MIN	DEFAULT	MAX	NOTES
H.S. HOT-START	0%	50%	100%	
A.F. ARC-FORCE	0%	30%	100%	

### 10.2 DC TIG WELDING



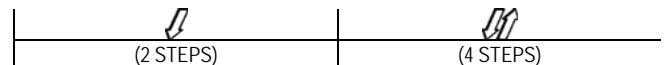
Set the selector to the symbol to select TIG welding mode

➔ **tIG** The message appears on displays D2



Press the button to select the torch trigger procedure

ⓘ The following torch trigger procedures are available:



#### 10.2.1 DC TIG MMA PARAMETERS SETTING (1ST LEVEL)



Using the encoder, edit the value of the selected setting

ⓘ Tab. 7 1st level Menu parameters in continuous TIG mode





➔ **80** The value relative to the selected setting appears on display D1

***Tab. 7 1st level Menu parameters in continuous TIG mode***

PARAMETER	MIN	DEFAULT	MAX	NOTES
TIG WELDING CURRENT	10A	80A	250A	





## 10.2.2 DC TIG PARAMETERS SETTING (GAS MENU)

-  Hold down the button for 3 seconds to gain access to the 2nd level Menu
  - **Po.G.** The acronym relative to the setting to be edited is shown on display D1
  - **3** The value relative to the selected setting appears on display D2
-  Use the encoder to scroll the list of settings to edit
  - ⓘ **Tab. 8 GAS Menu parameters in continuous TIG mode**
-  Using the encoder, edit the value of the selected setting
-  Press any button to save the setting and quit the Menu

***Tab. 8 GAS Menu parameters in continuous TIG mode***



PARAMETER	MIN	DEFAULT	MAX	NOTES
Po.G. POST-GAS TIME	0s	3s	10.0s	When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message "SYN" will be shown on the display

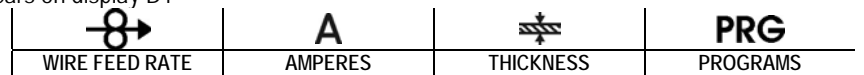
## 10.3 MIG/MAG WELDING

-  Set the selector to the symbol to select MIG/MAG welding mode MIG/MAG
-  Press the button to select the torch trigger procedure
  - ⓘ The following torch trigger procedures are available:







### 10.3.1 SETTING MIG/MAG PARAMETERS (MAIN WELDING PARAMETERS)

-  Press the button to scroll the list of settings to edit
  - The LED associated with the selected setting will illuminate
  - The value relative to the selected setting appears on display D1
- ⓘ The following settings are available
-  Using the encoder, edit the value of the selected setting
  - ⓘ **Tab. 9 Main welding parameters in MIG/MAG mode**
  - ⓘ The value is saved automatically










***Tab. 9 Main welding parameters in MIG/MAG mode***

PARAMETER	MIN	DEFAULT	MAX	NOTES
 WIRE FEED RATE	1m/min		20m/min	
 MIG/MAG WELDING CURRENT		Syn		Not enabled with manual program P0
 THICKNESS		Syn		Not enabled with manual program P0
 PROGRAMS	P0	P0	P34	Tab. 10 Programmed synergic curves

***Tab. 10 Programmed synergic curves***

	WIRE DIAMETER				ACRONYM	WIRE MATERIAL (GAS MIXTURE)
	0.8	1.0	1.2	1.4		
	P0	P0	P0	P0	MAn	MANUAL
	P1	P2	P3	--	FE	SG2/SG3 (80%Ar-20%CO2)
	P4	P5	P6	--	FE	SG2/SG3 (92%Ar- 8%CO2)
	P7	P8	P9	--	FE	SG2/SG3 (100%CO2)
P R O G R A M	P10	P11	P12	--	S.S.	INOX 308 (98%Ar-2%CO2)
	P13	P14	P15	--	S.S.	INOX 316 (98%Ar-2%CO2)
	P16	P17	P18	--	AL	AlMg5 (100%Ar)
	P19	P20	P21	--	AL	AlSi5 (100%Ar)
	P22	P23	P24	--	CU.S.	CuSi3 (100%Ar)
	P25	P26	P27	--	CU.A.	CuAl8 (100%Ar)
	--	--	P28	P29	rFC	RFCW (80%Ar-20%CO2)
	--	--	P30	P31	bFC	BFCW (80%Ar-20%CO2)
	--	--	P32	P33	MFC	MFCW (80%Ar-20%CO2)
	P34	--	--	--	nPr	FREE PROGRAMS








## 10.3.2 MIG/MAG PARAMETERS SETTING (2ND LEVEL)

-  Hold down the button for 3 seconds to gain access to the 2nd level Menu
  -  S.-S. The acronym relative to the setting to be edited is shown on display D1
  -  30 The value relative to the selected setting appears on display D2
-  Use the encoder to scroll the list of settings to edit
  -  Tab. 11 2nd level Menu parameters in MIG/MAG mode
-  Using the encoder, edit the value of the selected setting
-  Press any button to save the setting and quit the Menu

***Tab. 11 2nd level Menu parameters in MIG/MAG mode***

PARAMETER	MIN	DEFAULT	MAX	NOTES
H.-S. HOT-START	1%	130%	200%	Available with 3 Levels procedure selected
C.-F. CRATER-FILLER	1%	80%	200%	Available with 3 Levels procedure selected
S.3L. 3 LEVELS SLOPE	0.1s	0.5s	10.0s	Available with 3 Levels procedure selected
S.-S. SOFT-START	10%	30%	100%	When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message "SYN" will be shown on the display
SLO. MOTOR SLOPE	0ms	40ms	200ms	When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message "SYN" will be shown on the display
b.-b. BOURN BACK	0ms	26ms	100ms	When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message "SYN" will be shown on the display

## 10.3.3 MIG/MAG PARAMETERS SETTING (GAS MENU)













-  Hold down the button for 3 seconds to gain access to the 2nd level Menu
  -  Po.G. The acronym relative to the setting to be edited is shown on display D1
  -  0.3 The value relative to the selected setting appears on display D2
-  Use the encoder to scroll the list of settings to edit
  -  Tab. 12 GAS Menu parameters in MIG/MAG mode
-  Using the encoder, edit the value of the selected setting
-  Press any button to save the setting and quit the Menu








***Tab. 12 GAS Menu parameters in MIG/MAG mode***

PARAMETER	MIN	DEFAULT	MAX	NOTES
Po.G. POST-GAS TIME	0s	0.3s	10.0s	When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message "SYN" will be shown on the display
P.G. PRE-GAS TIME	0s	0s	10.0s	When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message "SYN" will be shown on the display

## 11 WELDING PARAMETERS LIST

Tab. 13 Welding parameters/welding functions enabling

PARAMETER	MODE	SETTING	ACRONYM	NOTES
MIN/DEFAULT/MAX (UNIT OF MEASUREMENT)	PROCEDURE			
MMA welding current 10/80/250 (A)		1st level Menu (\$ 10.1.1)	-	Output current value during MMA welding
Hot-Start 0/50/100 (%)		2nd level Menu (\$ 10.1.2)	H.S.	This parameter aids electrode melting at the time of arc striking. <b>Consequences of a higher value:</b> - Easier arc strike - Increased spatter at welding start - Increase of strike area <b>Consequences of a lower value:</b> - More difficult arc strike - Less spatter at welding start - Smaller strike area
Hot-Start 1/130/200 (%)		2nd level Menu (\$ 10.3.2)	H.S.	This function is useful when using aluminium alloy welding wire <b>Consequences of a higher value:</b> - Greater heat output - Greater penetration <b>Consequences of a lower value:</b> - "Cold" weld bead
Burn-Back 0/26/100 (ms)		2nd level Menu (\$ 10.3.2)	b-b	Establishes the wire cutting length at the end of the welding process <b>Consequences of a higher value:</b> - Shortening of the length of wire that protrudes from the torch <b>Consequences of a lower value:</b> - Increase of the length of wire that protrudes from the torch
Motor-Slope 0/40/200 (ms)		2nd level Menu (\$ 10.3.2)	SLO	Time required to switch from soft-start speed to welding speed
Soft-Start 10/30/100 (%)		2nd level Menu (\$ 10.3.2)	S.S.	Determines the wire feed rate before the arc strike Calculated as a percentage of the programmed wire feed rate
Crater-Filler 1/80/200 (%)		2nd level Menu (\$ 10.3.2)	C-F	This parameter serves to obtain a uniform deposit at the end of the welding process to fill the crater with a reduced wire feed rate to facilitate the deposition of filler material. By keeping the torch trigger pressed during the 3rd time, the wire feed rate is reduced (crater filler speed) thereby ensuring optimal crater filling, until the post gas time is started by releasing the torch trigger (4th time). <b>Consequences of a higher value:</b> - Difficult crater filling (values greater than 100%) <b>Consequences of a lower value:</b> - Cold welding (values close to 1%)
3 Levels Slope 0.1/0.5/10 (s)		2nd level Menu (\$ 10.3.2)	S.3L	Establishes the duration of the slope between the 1st and 2nd time and between the 3rd and 4th time.
Arc-Force 0/30/100 (%)		2nd level Menu (\$ 10.1.2)	A.F.	This parameter helps to avoid electrode sticking during welding <b>Consequences of a higher value:</b> - Fluidity during welding - Welding arc stability - Greater electrode fusion in workpiece - More welding spatter <b>Consequences of a lower value:</b> - The arc is extinguished more easily - Less welding spatter
Maximum TIG welding current 5/80/320 (A)		1st level Menu (\$ 10.2.1)	-	Current output value during TIG welding
Post-gas time 0/3/10 (s)		GAS menu (\$ 10.2.2)	Po.G.	Time of post gas delivery when the welding arc is extinguished. <b>Consequences of a higher value:</b> - More effective pickling (improved appearance of workpiece at the end of the welding pass). - Higher gas consumption. <b>Consequences of a lower value:</b> - Lower gas consumption. - Oxidation of electrode tip (more difficult arc strike).
Post-gas time		GAS menu (\$ 10.3.3)		

PARAMETER	MODE	SETTING	ACRONYM	NOTES
MIN/DEFAULT/MAX (UNIT OF MEASUREMENT)	PROCEDURE			
0/3/10 (s)				
Pre-gas time		GAS menu (\$ 10.3.3)	P.G	Time of gas delivery before the arc strike. <b>Consequences of a higher value:</b> – This parameter allows a shielded environment to be created, thereby eliminating contaminants at the start of the welding pass.
0/0.1/10.0 (s)				
Remote controller selection		SETUP menu (\$8)	rC	
Lock status activation		SETUP menu (\$8)	LoC	
Push-pull activation		SETUP menu (\$8)	PP	
Selection of burn type		SETUP menu (\$8)	bb.	

## 12 JOBS MANAGEMENT


Personalised welding settings, or JOBs, can be saved in memory locations and subsequently uploaded.




**i** The jobs are enabled only in MIG/MAG welding mode.

Up to 50 jobs can be saved (j01-j50).

### 12.1 SAVING A JOB





This function is available when welding mode is not active.

**S4**  
 Hold down the button for 3 seconds  
 ➔ **S A. J. x x** The message appears on displays D1-D2  
**i** J.xx= number of the first free job

**E2**  
 Use the encoder to select the required job number  
**i** On selecting a currently occupied memory location, the job number flashes  
**i** If you confirm at this point, the new job will overwrite the previously saved settings  
**i** **Exit without confirmation**  
 Press any button (except S4)  
 ➔ This action will automatically close the menu  
**i** **Exit with confirmation**  
**S4**  
 Press the following button  
 ➔ This action will automatically close the menu






### 12.2 LOADING A USER JOB OF FACTORY SET JOB

This function is available when welding mode is not active.

**S4**  
 Press and release the button  
 ➔ **LO. J. x x** The message is shown on displays D1-D2 only when the jobs have been uploaded  
**i** J.xx= number of the latest job used  
 ➔ **n 0 J O b** If there are no jobs in the memory the message is shown on displays D1-D2  
**E2**  
 Use the encoder to select the number of the job to be uploaded  
**i** **Exit without confirmation**  
 Press any button (except S4)  
 ➔ This action will automatically close the menu  
**i** **Exit with confirmation**  
**S4**  
 Press the following button  
 ➔ **J. x x** The number of the loaded job remains shown on display D2  
**i** J.xx= number of the loaded job  
 ➔ This action will automatically close the menu

### 12.3 DELETING A JOB

This function is available when welding mode is not active.

**S4**  
 Hold down the button for 3 seconds  
 ➔ **S A. J. x x** The message appears on displays D1-D2  
**i** J.xx= number of the latest job used  
**E1**  
 Select "Er." with the encoder  
**E2**  
 Use the encoder to select the number of the job to be deleted  
**i** **Exit without confirmation**  
 Press any button (except S4)  
 ➔ This action will automatically close the menu  
**i** **Exit with confirmation**  
**(S4)**  
 Press the following button  
 ➔ This action will automatically close the menu

## 13 TORCH TRIGGER MODES

### 13.1 2T LIFT-ARC WELDING

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.

### 13.2 4T LIFT-ARC WELDING

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

### 13.3 2T 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 making contact with the work.
  - The arc strikes and the wire feeder accelerates to the set feed rate value.
3. Release (2T) the trigger to start the weld completion procedure.
  - Gas flow continues for the time set in the POST GAS parameter (adjustable time).

### 13.4 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 making contact with the work.
  - 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).

### 13.5 3 LEVEL MIG/MAG WELDING

1. Bring the torch up to the workpiece.
2. Press (Level 1) the torch trigger.
  - The wire advances at the approach speed until making contact with the work.
  - The welding arc strikes and the wire feed rate changes to the first welding level, 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 (Level 2) the torch trigger to switch to the normal welding feed rate set by means of the 3 LEVELS SLOPE.
4. Press the torch trigger again (Level 3) to switch to the third welding level set as a percentage of the normal welding feed rate by means of the 3 LEVELS SLOPE.
  - ⓘ 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 to close the weld and execute the Post Gas procedure.

## 14 TECHNICAL DATA

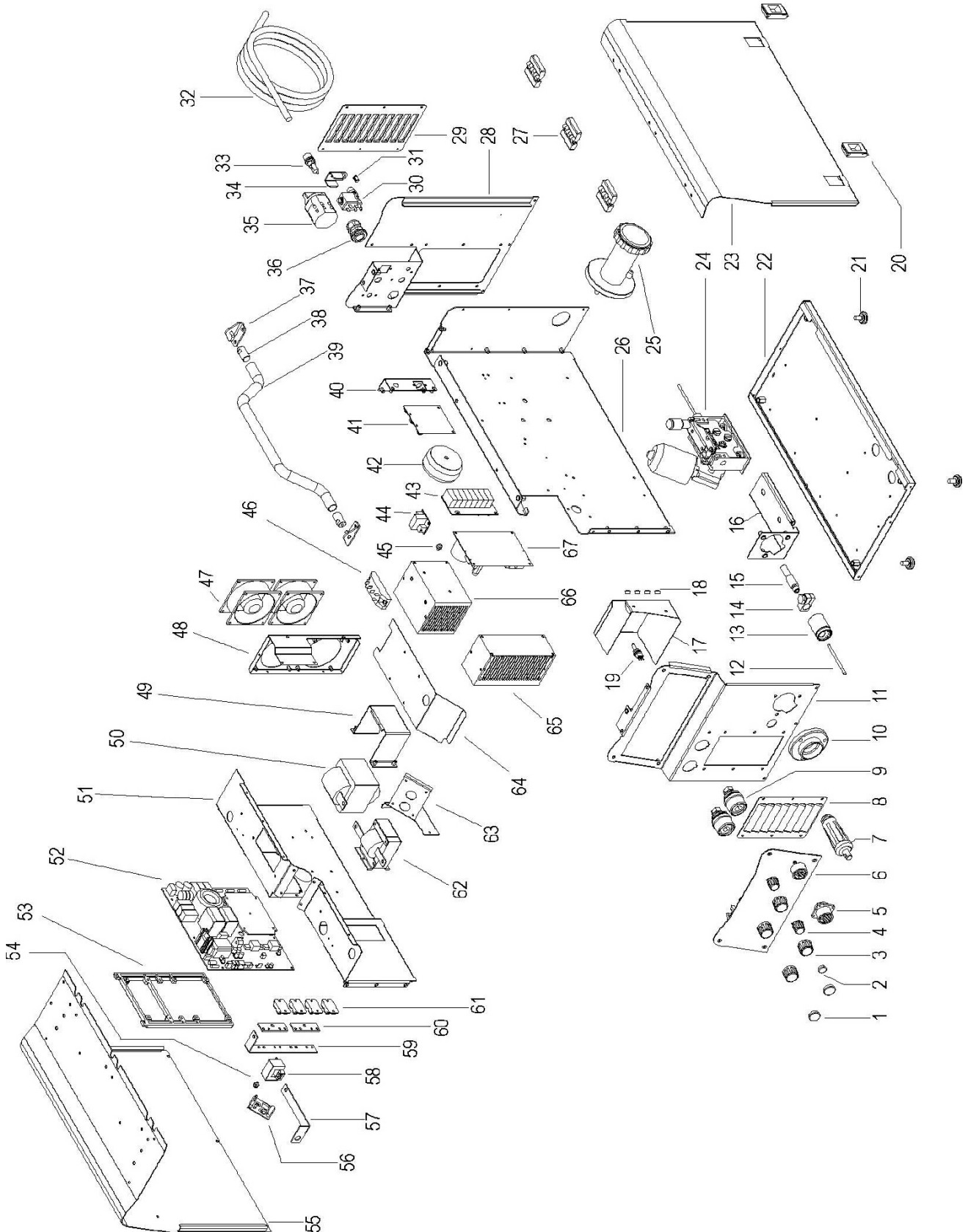
Model	Micro 300
Construction standards	EN 60974-1 EN 60974-5 EN 60974-10 Class A
Power supply voltage	3x400V $\pm$ 15%/50-60Hz
Z <sub>max</sub>	*
Mains protection	16A DELAYED
Insulation class	H
Dimensions ( D x L x H )	560 x 280 x 390 mm
Weight	21 Kg
Protection rating	IP23S
Cooling	AF
Maximum gas pressure	0,5 MPa (5 bar)
MIG/MAG working voltage	14.2-29 V
Wire feeding speed	1,0-20 m/min
Wire spool: dimensions/weight	300mm / 15 kg

Temperature of the environment	40°C								
Welding mode	MMA			TIG			MIG/MAG		
Static characteristic									
Work cycle	40%	60%	100%	50%	60%	100%	35%	60%	100%
Welding current	250A	220A	190A	250A	240A	210A	300A	230A	200A
Working voltage	30V	28.8V	27.6V	20V	19.6V	18.4V	29V	25.5V	24V
Maximum input power	8.7KVA	7.3KVA	6.1KVA	6.1KVA	5.8KVA	4.8KVA	10.3KVA	6.9KVA	5.8KVA
Maximum supply current	12.7 A	10.6 A	8.8 A	8.8 A	8.3 A	6.8 A	15 A	10 A	8.4 A
Open-circuit voltage	53V			53V			53V		

\*If this equipment is connected to a public low voltage system, it is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment may be connected.

## 14. Spare parts

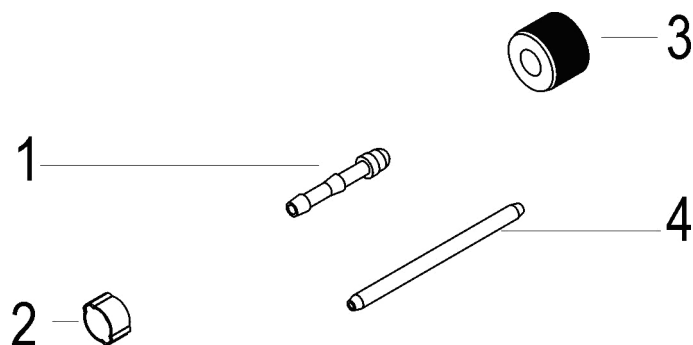
### 14.1 MICRO 300





Item.	Part No.	Designation
1	0831 93 00 01	KNOB CAP
2	0831 93 00 02	KNOB CAP
3	0831 93 00 03	KNOB + CAP
4	0831 93 00 04	KNOB WITH INDEX + CAP
5	0831 93 00 05	REMOTE CONTROL CONNECTOR + CABLE
6	0831 93 00 06	FRONT PANEL + LOGIC BOARD
7	0831 93 00 07	POLARITY SELECTOR CABLE
8	0831 93 00 08	BLIND METAL FRONT PLATE
9	0835 21 00 11	COMPLETE FIXED SOCKET
10	0831 93 00 09	EURO CONNECTOR HOUSING
11	0831 93 00 10	FRONT PLATE
12	0831 93 00 11	CAPILLARY TUBE FOR EURO CONNECTOR
13	0831 93 00 12	AXIAL EURO BODY
14	0831 93 00 13	CURRENT CLAMP FOR BRASS GUIDE FOR EURO CONNECTOR
15	0831 93 00 14	BRASS GUIDE FOR EURO CONNECTOR
16	0831 93 00 15	MOTOR SUPPORT PLATE
17	0831 93 00 16	LOGIC PROTECTION PLATE
18	0831 93 00 17	CAP $\varnothing=10$
19	0831 93 00 18	SWITCH + CABLE
20	0831 93 00 19	PLATE SLIDE CLOSURE
21	0831 93 00 20	RUBBER FOOT
22	0831 93 00 21	BASE PLATE
23	0831 93 00 22	DOOR COVER PANEL
24	0831 93 00 23	WIRE FEEDER MOTOR
25	0831 93 00 24	SPOOL HOLDER
26	0831 93 00 25	INTERNAL PLATE
27	0831 93 00 26	PLASTIC HINGE
28	0831 93 00 27	REAR PLATE
29	0831 93 00 28	BLIND METAL REAR PLATE
30	0831 93 00 29	SOLENOID VALVE
31	0831 93 00 30	RED LED CABLE
32	0835 23 00 17	NEOPRENE CABLE
33	0831 93 00 31	FUSE HOLDER
34	0835 21 00 37	SOLENOID VALVE BLOCK PLATE
35	0835 23 00 19	THREE-POLE SWITCH
36	0835 21 00 31	COMPLETE CABLE CLAMP
37	0831 93 00 32	HANDLE TUBE SUPPORT PLATE
38	0831 93 00 33	PIN
39	0831 93 00 34	HANDLE TUBE
40	0831 93 00 35	REAR FIXING PLATE
41	0831 93 00 36	THREE-PHASE SUPPLY PROTECTION BOARD

Item.	Part No.	Designation
42	0831 93 00 37	AUXILIARY TRANSFORMER
43	0831 93 00 38	PRIMARY CAPACITOR BOARD
44	0831 93 00 39	FAN CONTROL BOARD
45	0831 93 00 40	THERMAL CUT-OUT 75°C
46	0831 93 00 41	THREE PHASE BRIDGE RECTIFIER
47	0831 93 00 42	FAN
48	0831 93 00 43	FANS SUPPORT PLATE
49	0831 93 00 44	TRANSFORMER SUPPORT PLATE
50	0831 93 00 45	TRANSFORMER
51	0831 93 00 46	DEFLECTOR PLATE
52	0831 93 00 47	POWER BOARD
53	0831 93 00 48	INTERNAL FRAMEWORKS
54	0831 93 00 49	THERMAL CUT-OUT 85°C
55	0831 93 00 50	COVER PANEL
56	0835 23 00 13	SNUBBER BOARD
57	0831 93 00 51	HALL-SOCKET COPPER BRACKET
58	0831 93 00 52	HALL EFFECT SENSOR
59	0831 93 00 53	DIODES-HALL COPPER BRACKET
60	0831 93 00 54	DIODES-TRANSFORMER COPPER BRACKET
61	0835 23 00 14	ISOTOP DIODE
62	0831 93 00 55	INDUCTOR
63	0831 93 00 56	OBLIQUE PLATE FOR DEFLECTOR
64	0831 93 00 57	INTERNAL DEFLECTOR PLATE
65	0831 93 00 58	HEAT SINK
66	0831 93 00 59	HEAT SINK
67	0831 93 00 60	MOTOR BOARD



Pos.	Art.Nr.	Bezeichnung
1	0835 21 00 43	SLEEVE HOSE ADAPTER FOR RUBBER HOSE 1/4
2	0835 23 41 28	HOSE CLAMP $\varnothing=11-13$
3	0835 21 00 49	NUT 1/4
4	0831 93 00 11	CAPILLARY TUBE FOR EURO CONNECTOR



### 14.3 Wire drive rollers



2+2 oder 4- Rollen Antrieb,  $\varnothing$  30 mm (CDD I)

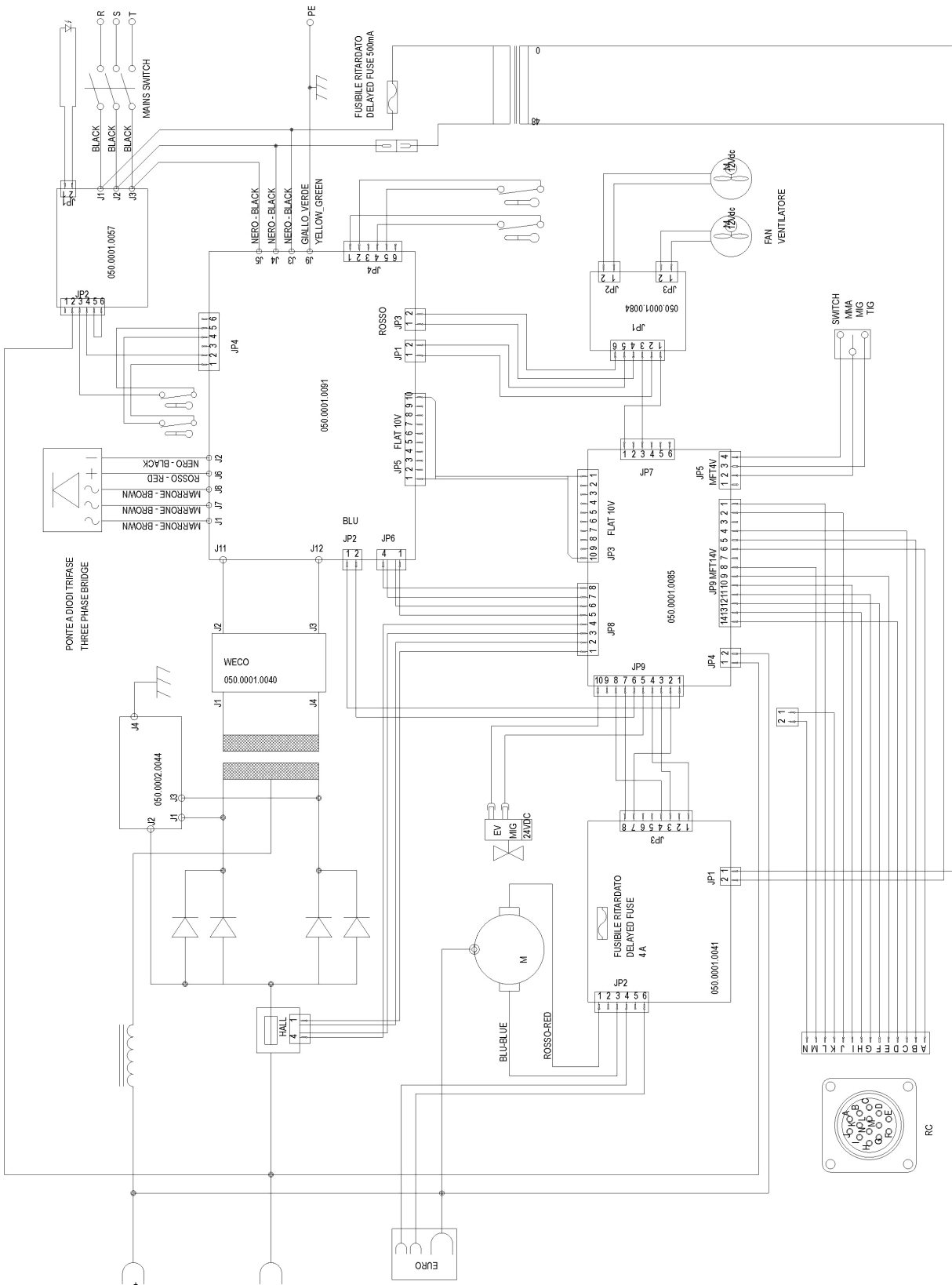
solid steel	cored wire	aluminium	Draht- $\varnothing$ mm
			0,60
0046 03 20 10		0046 03 24 12	0,80
		0046 03 24 12	0,90
0046 03 20 10	0046 03 22 16	0046 03 24 12	1,00
0046 03 20 12		0046 03 24 16	
			1,14
0046 03 20 12	0046 03 22 16	0046 03 24 12	1,20
0046 03 20 16		0046 03 24 16	
		0046 03 24 16	1,32
0046 03 20 14	0046 03 22 16	0046 03 24 16	1,40
	0046 03 22 24		
0046 03 20 14	0046 03 22 16	0046 03 24 16	1,60
0046 03 20 16	0046 03 22 24		
	0046 03 22 24		2,00
	0046 03 22 24		2,40
	0046 03 22 32		2,80
	0046 03 22 32		3,20

Nut gerändelt

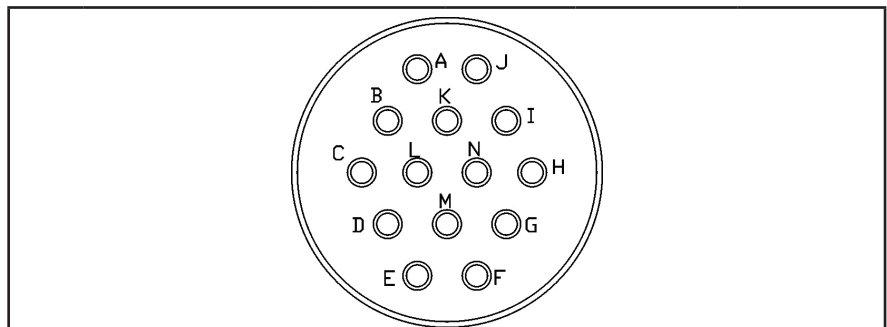
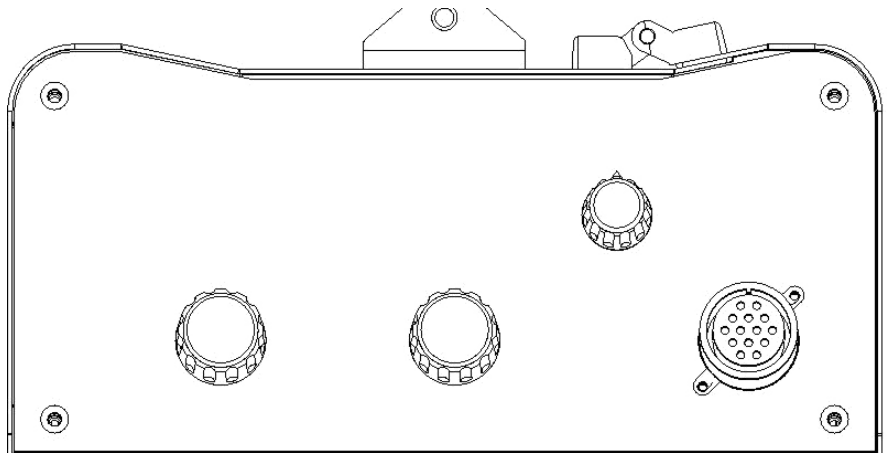
Kennzeichen „K“  
110°-Nut

# 15. Wiring diagram

## 15.1 MICRO 300

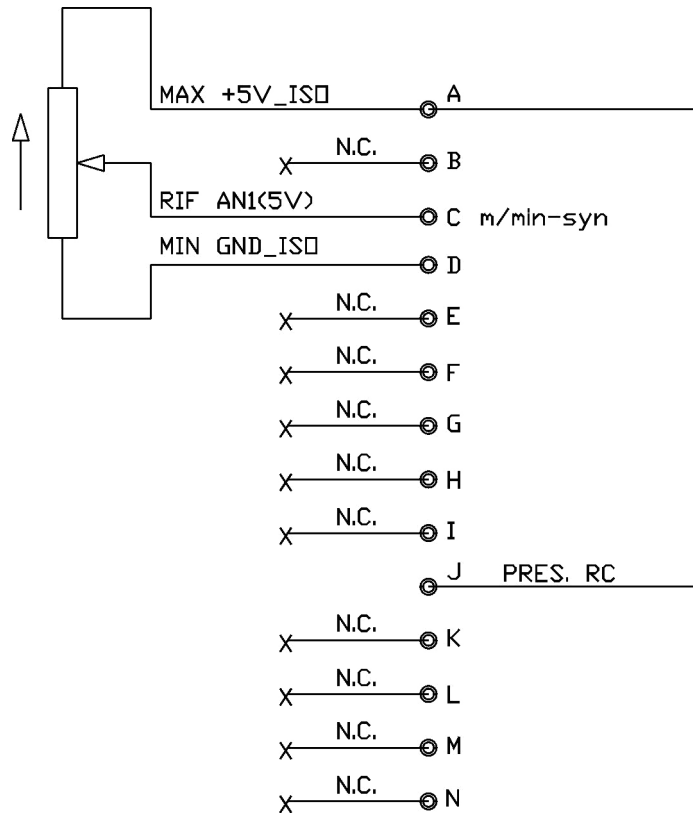


## 15.2 Remote Control



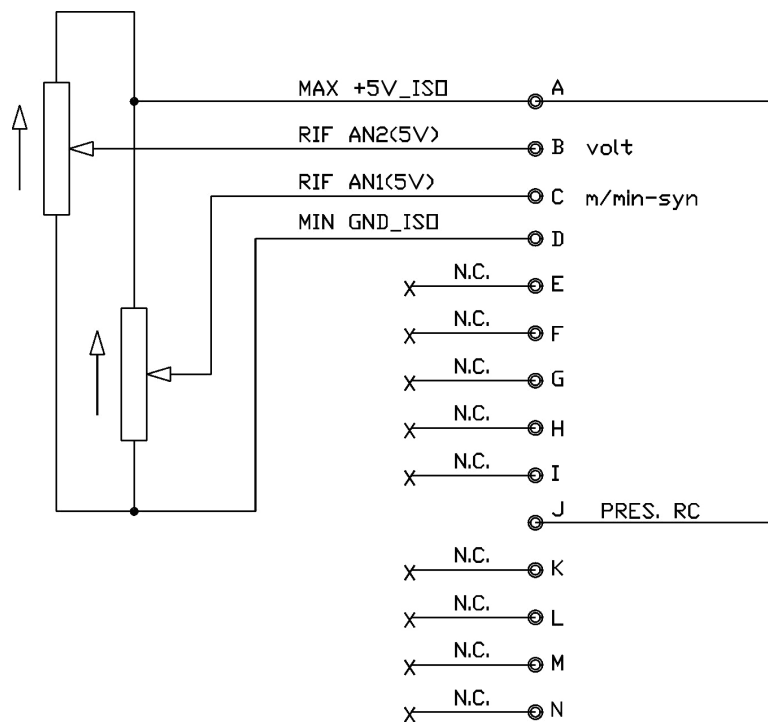
Pin	Name	Spannung	Eingang/Ausgang
A	+5V	5VDC	⊙ → Ausgang
B	AN2 (5V)	~ 0-5V	Eingang ⊙ →
C	AN1 (5V)	~ 0-5V	Eingang ⊙ →
D	GND	GND	⊙ → Ausgang
E	D1-IN	⏏ 0-5V	Eingang ⊙ →
F	D2-IN	⏏ 0-5V	Eingang ⊙ →
G	D3-OUT	⏏ 0-5V	⊙ → Ausgang
H	AN2 (10V)	~ 0-10V	Eingang ⊙ →
I	AN1 (10V)	~ 0-10V	Eingang ⊙ →
J	RC	-	Nicht verwendet
K	-	-	Nicht verwendet
L	-	-	Nicht verwendet
M	-	-	Nicht verwendet
N	-	-	Nicht verwendet

### 15.2.1 RC03: Wiring diagram



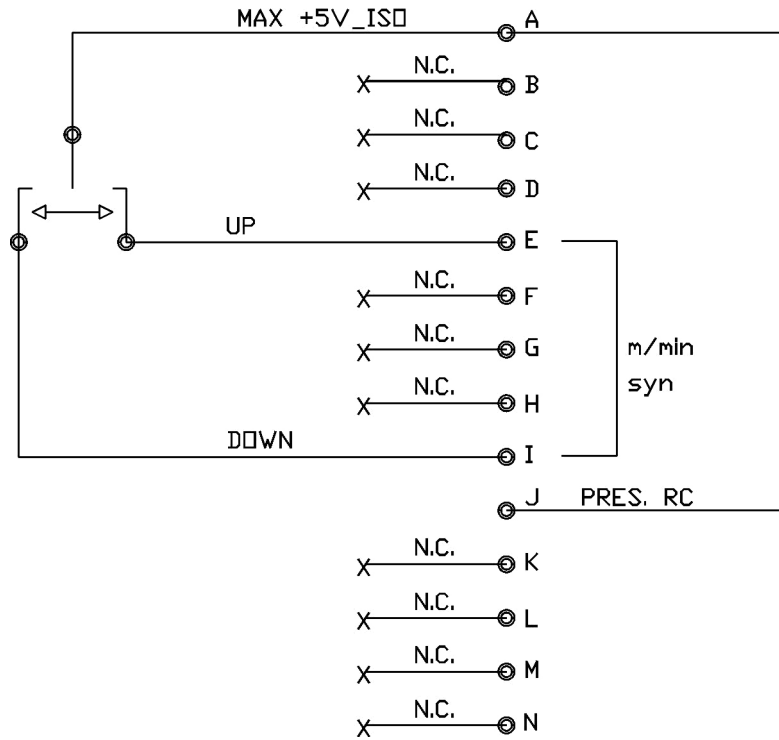
Potenzionometer 2 k $\Omega$  - 10 k $\Omega$

### 15.2.2 RC04: Wiring diagram

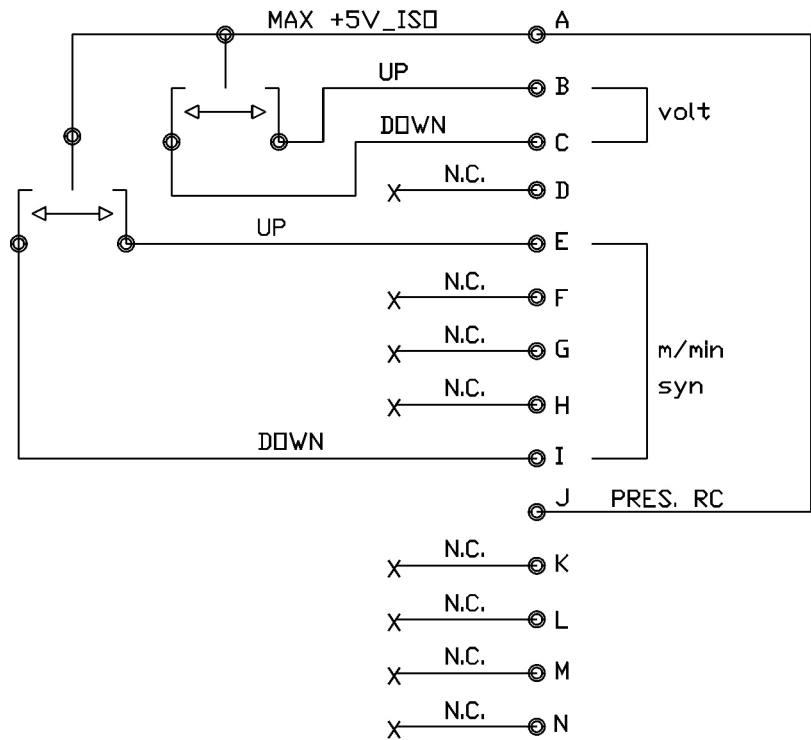


Potenzionometer 2 k $\Omega$  - 10 k $\Omega$

### 15.2.3 RC05: Wiring diagram



### 15.2.4 RC06: Wiring diagram







Weld your way.

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