

**Cerdi**  
**CerdiMatic 250A**  
-  
**User manual**



The **CerdiMatic 250 MIG** welding machines have been designed to be easy to operate and suitable for a great variety of welding applications. The inverter power source is constructed for a high welding duty cycle and includes a powerful 4-roll wire drive unit. The advanced electronic control allows for full synergic operation.

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## Safety precautions and Security Advices

Please refer to the accident prevention regulations in respect of welding in confined spaces, restricted conditions involving increased electrical hazards to the operator for further details on this subject.

### Hazards from ultraviolet rays

- Wear suitable protective clothing and eye protection.
- Screen the welding area to protect persons working near the welding area
- Wear gauntlets



### Hazards from Gases & Fumes

- Ventilate the welding area to prevent a build-up of gas and fumes

### Hazards from hot materials

- Flame resistant protective suit, leather gloves or leather head shield mask (plus scarf due to radiation) and undamaged protective footwear.
- Secure hot work pieces against accidental contact.



### Hazards from Electricity

- Set the mains switch to the "0" (off) position when servicing the torch
- Keep welding leads and mains cable always in good condition. If any damage is visible, exchange the leads immediately with original parts
- Do not work with the covers off
- Always wear isolating gauntlets
- Persons with Pacemakers: please consult medical advice
- Not suitable for children



### Hazards from Fire

- Any welding work must be approved by the managers of the client company (welding permit)
- Remove any combustible materials from the proposed welding area
- Carefully cover non-removable flammable parts



- Seal any openings.
- During welding, make sure fire-fighting equipment (e. g. powder extinguisher) is functional and present.
- Make sure that the work site is checked several times regarding fire nests in a 24 hours period after completion of the works ("fire watch").

## Use of the welding set:

This set shall never, not even tentatively, be used for a different purpose than the given one (here: MIG / MAG welding).

## Gas cylinders:

- Take special care when handling the gas cylinders. Inert gas cylinders contain gas under pressure and can explode if damaged. As shielding gas cylinders are part of the welding equipment, they must be handled with care.
- Protect gas cylinders containing compressed gas against excessive heat, mechanical shock, slag, open flames, sparks and arcs.
- Mounted gas cylinders vertically and fix as instructed, to prevent fall over. Do not put the torch near the gas cylinder. The gas cylinder must not be touched with the welding electrode.
- Explosion hazard - never weld on a pressurized cylinder.
- Only appropriate, suitable equipment (regulators, hoses, fittings...) must be used. Protective equipment and gas cylinders must only be used in good condition.
- If gas cylinder valve is opened, turn away the face from the outlet.
- Close valve of the gas cylinder after use.
- Store gas cylinders only with the shielding cap in place.

Before any maintenance works, always isolate the unit from the mains electrical supply (pull the plug!). Electric shock can kill.

Only people over 18 years of age are allowed to work with this welding set.

Read Safety Leaflet D/GN/AA/7.41 or BGV D1 and any other appropriate leaflets available to you.

### **IMPORTANT INFORMATION - READ CAREFULLY**

It is recommended that before any form of welding equipment is operated the operator should fully conversant with the relevant safety measures prescribed for welding duties.



## Set-up for various materials

**IMPORTANT:** Please note that the welding result significantly depends on correct set-up of the machine for the chosen material. As well the gas mixture is a crucial factor for success.

### Welding mild steel

- Use steel liner
- Shielding gas: Mixed gas Argon 82%+ CO2 18% for normal MIG/MAG process
- Use wire feed rollers with ,V"-type groove

### Welding Aluminium

Recommended procedure: (parts are available as accessories):

- Use Teflon- or combination (Teflon + brass) liner. Make sure, liner will extend directly to the wire feed roll. Use special inlet tube to support liner.
- Use wire feed rolls with ,Aluminium"-type groove
- Use tips for aluminium (0,8A or 1,0A)
- **Shielding gas: Pure Argon**
- Keep length of torch short: best 3m, maximum 4m

### MIG-Brazing (CuSi3)

- Use Teflon- or combination (Teflon + brass) liner. Make sure, liner will extend directly to the wire feed roll. Use special inlet tube to support liner.
- **Shielding gas: Pure Argon**
- Keep length of torch short: best 3m, maximum 4m

### Welding INOX

- Use inox- or combination (carbon + brass) liner.
- **Shielding gas: Mixed gas Argon 97,5%+ CO2 2,5%**

## Installation

### Location

Position your welding machine in a convenient unobstructed dry place free from dust and grease.

### Electrical Connection

Your **CerdiMatic 250** welding machine comes with a 4-wire cable.

**CerdiMatic 250**      min. 16A (slow)

When connecting a plug, be sure the earth lead (yellow green) is connected to the terminal with the earth sign. The machine is designed to operate on a three phase basis with 400-415V input voltage and therefore the three remaining leads must be connected to the three phases of the three phase supply. The "neutral" terminal is NOT used in these machines.

### Connection of welding torches and earth lead and gas cylinders

A standard torch for MIG/MAG can be connected to the central adaptor "Z" for the FEEDER and secured by fixing the nut.

Connect the welding earth return lead to the terminal "EARTH LEAD" "Y" and turn right to secure. Connect clamp to the work piece ensuring a good electrical connection is made.

Connect the gas supply hose to the regulator, which has to be fitted to the gas supply bottle ensuring the connection is tight and free from leaks. Turn on and adjust the gas flow to 9-12 litres/min.



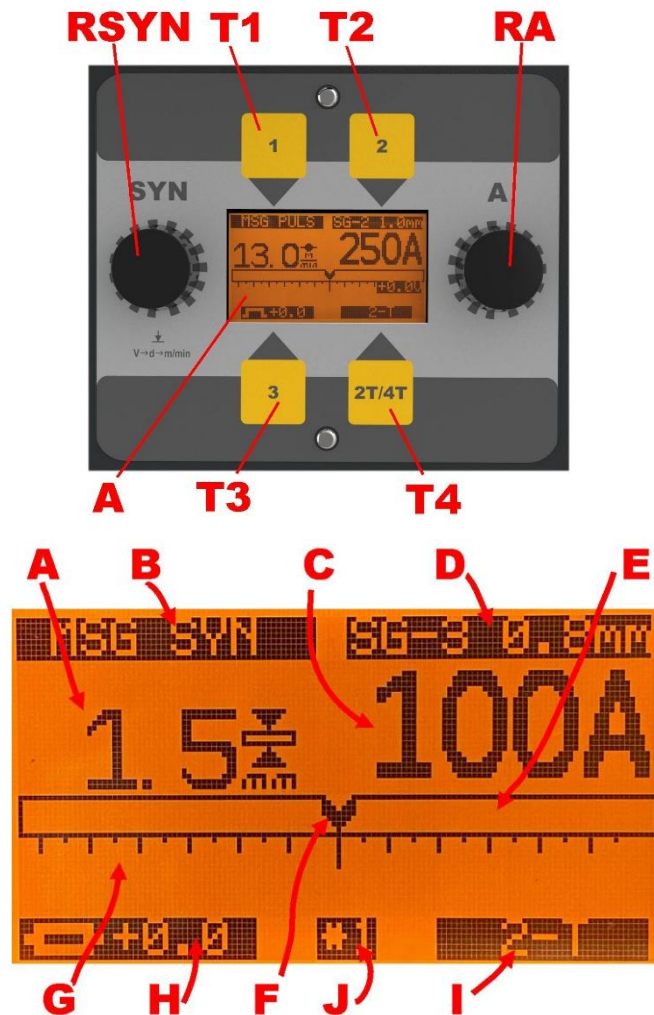


## Wire Feed: How to insert spool and wire

- Make sure machine is switched off.
- Remove the gas nozzle and contact the tip from the welding torch.
- Open the side panel by sliding both quick locks and remove side panel.
- Fit a spool onto the spool holder.
- Prepare the wire feeder: Release wire tensioner. Ensure that the drive rollers are set for the correct wire size if not, remove and reassemble as required.
- Thread the wire into the feeder inlet tube, over the drive rollers and into the torch inlet tube.
- Close the wire tensioner arm and adjust the tensioner screw as required to apply optimum pressure to the drive rollers.
- Switch the mains supply on.
- Press torch trigger of connected torch to select the internal wire feeder (if not yet selected).
- Press the button **BUTTON T1 or T2** so the soft button "Motor" is shown in the display at the right bottom side (see screenshot).
- Now press **BUTTON 2T/4T** to feed the wire throughout the torch.
- Refit the contact tip and gas nozzle.
- Press the button **BUTTON T1 or T2** again to select the normal welding display.

## Operation

The following controls are located on the front panel of the machine and are used to control the welding power output, operating modes and wire feed speed of the machine. After setting the **ON/OFF** switch "V" to position (1), the operating lights on the display will light up, indicating the set is ready for use.



The following error message may be shown on the DISPLAY:

- **„THERMAL OVERLOAD“**: Power section overheated. Please let the machine cool down in idle mode until message disappears.
- **„PHASE MISSING“**: Check Mains cable, plug and socket and mains fuse.
- **„LOW VOLTAGE“**: Check mains voltage, remove very long extension cables



## Selecting the Welding Process

There are two modes to choose: Synergic (MSG SYN) and manual mode (MSG Manual):

- To select, please press button **T1** and use rotary control **RSYN** to select the desired mode.
- Press **RSYN** to activate the choice and leave the menu.
- The chosen mode is displayed in area "B"
- (As well RA can be used for selection and buttons **T1** or **T2** or a press of **RA** will activate/leave the same way).



## MIG/MAG-Synergic welding

In synergic modes, the electronic control selects an appropriate wire feed speed according to the selected wire material and diameter combination and the setting of welding current via **RA**.

Before starting to weld, please make sure the selected material/diameter combination ("program") matches the wire used in the selected torch.

In case you need to select another wire/diameter, please use the program select menu:

- To select program (material/diameter combination), please press button **T2** and use rotary control **RSYN** or **RA** to select the desired program in the drop down list.
- Press **RSYN** or **RA** to activate the choice and exit the menu.
- The chosen program is displayed in area **D**
- (As well the buttons **T1** or **T2** will activate/exit the same way).

Available welding programs:

Program S2	Use for
SG-3 0,6 / 0,8 / 1,0	Steel wires <b>SG-2</b> oder <b>SG3</b> , Diameters 0,6mm, 0,8mm und 1,0mm. Mixed gas Ar 82% + CO2 18%
AlMg 1,0/1,2	Aluminium ( <b>MG</b> ) wires Diameters 0,8mm (for Spoolgun use) and

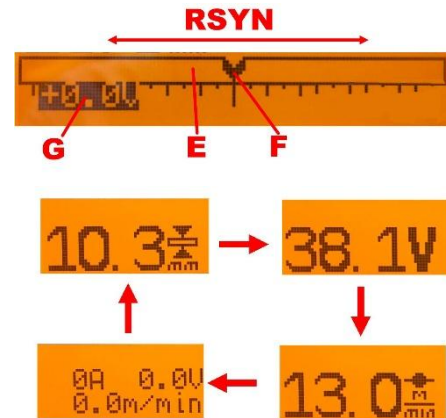
	1,0mm - Gas: Argon
CuSi 0,8 / 1,0	<b>Mig-Brazing</b> CuSi3 or CuAL8. Diameters 0,8mm und 1,0mm - Gas: Argon
CrNi 0,8 / 1,0	Programs apply for INOX wires Diameters 0,8mm, and 1,0mm. Mixed gas Ar 98% + CO2 2%, or Ar 97,5% +CO2 2,5%
Other wires	Use „Hand“-Program, or use most similar wire and use arc adjustments.

## Adjustment output current with RA

Depending on the desired material thickness use rotary control **RA** to adjust the output current to an appropriate position. See "secondary parameters" how to see an estimated material thickness on the left side of the display.

## Adjustment RSYN

In synergic mode, the parameters are automatically selected by the control. So make sure the mark "F" is set to its middle position using the **RSYN** knob. As well individual corrections of welding voltage are possible. By means of **RSYN** control move the mark **F** to left or right in the area **E**. Out of middle position the numerical value **G** shows the offset voltage to the programmed synergic value.



move to left	less voltage	shorter arc
middle position	synergic "spot"	optimum arc length
move to right	higher voltage	longer arc

## Secondary Parameters

While area **C** always shows welding current, it is possible to select the shown parameters in area **A** (only synergic mode). Please **press** control knob **RSYN** to cycle through all secondary displays:

- Material thickness (estimation)
- Welding Voltage
- Wire speed
- Last weld (shows average welding parameters for the last welding job)

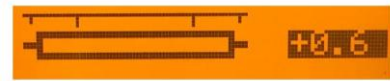


It is recommended to use "material thickness" (default), as this gives an indication what amperage to select. If the welding parameters needs to be documented, "last weld" might be of great help.

## Setting of Arc Dynamics

When pressing button **T3** the area **E** is replaced by a symbol for an "inductor". Using rotary control knob RSYN this inductor can be increased (larger inductor) or decreased (smaller inductor).

- **Smaller Inductor** (-0,1...-0,6) means "harder" arc (more spatter, better control)
- **Middle position** (+0,00): pre-programmed inductor
- **Larger Inductor** (+0,1...+0,6) means "softer" arc (less spatter, but less control)



Another press of **T3** returns to the normal raster. The chosen inductor value is shown in area **H**.

## MIG/MAG welding under manual control ("Hand")

The "MSG Manual" position allows manual welding adjustments: Both voltage and wire feed need to be selected manually (no synergy parameters are used).

- Use **RA** to set arc voltage.
- Use **RSYN** to set wire feed speed.
- Use **T3** to select arc dynamics (if needed)



Note that there is no "preview" of material thickness of welding current in manual mode as there is no material selection.

## Choosing operating mode

Use **BUTTON T4** (2T/4T) to select the operating mode for the set. When **BUTTON T4** is pressed, the operation mode cycles between:

- **2T or 2-stroke operation** (displays "2T"): Press the torch switch and the wire will start to feed, the shielding gas will flow and the arc will strike as soon as the wire gets contact with the work-piece. Releasing the torch switch will immediately stop the arc and wire feed.

- **4T or 4-stroke operation** (displays "4T"): welding is started with a short push on the trigger and finished by another short push. There is no need for pressing the trigger while welding. As well, slope control is activated. As long you hold the trigger on first press, "hot start" is used (when enabled in menu). As long as you hold the trigger on final press, the downslope feature is used. Welding current decreases as set in the menu.

## FEED: Inching wire (MIG/MAG)

The FEED position feeds wire without gas flow and without voltage being present on the output terminals. Used for initially feeding the wire though the torch (see above).

To activate, press either the **BUTTON T1** or **T2**. In the now open menus you will find the "Motor" soft button on the right bottom side (area I). Remove gas shroud and tip, press **BUTTON T4** to feed the wire with constant wire speed until wire sticks out of torch. Mount tip and gas shroud.

**BUTTON T3** can be used to check gas flow. To return to the standard display, press either the **BUTTON T1** or **T2** again.

## Adjustments in Experts Menu

Individual parameters can be changed in the experts menu.

**Note:** This menu is very rarely needed for the practical use. The additional parameters in the experts menu have useful defaults and should only be modified when needed.

### Use of the menu:

- Press the rotary button **RSYN** for some seconds.
- Turn rotary button **RSYN** to select parameters
- To modify a parameter, turn rotary button **RA**.
- To reset a parameter to its initial value press button **T3**



```

Hotstart...: 100%
t hotstart..: 0.0s
Downslope..: 6
t postflow..: 1.50s
t burnback..: 0.02s
Softstart...: 1.0m/mn
Final Pulse: 2ms
Reset      -->
  
```

- Close menu with a Button **T4** (**T1**, **T2** work as well, or just start welding).

## System Menu:

Inductor <b>Scale factor</b>	Same parameter as described in chapter "Setting of Arc Dynamics". Here just numerical visualisation w/o the inductor icon is found.
Hotstart <b>Value in %</b>	Selects a higher voltage level for the first seconds (see time hot start) after the arc start. Can be used for example to avoid joining faults (most useful for aluminium) at the beginning of the welding process. Set the hot start voltage level in percent referenced to the pre-set voltage. For example: adjust Hotstart to 115% with 16V pre-set voltage results in an arc start with 18,4V. Important: 100% means NO hot start.
t hotstart <b>hot start time</b>	Sets the time in seconds, how long the hot start is activated. This time is needed in 2T-mode. In the 4T mode, the length of the hot start is controlled by holding down the torch trigger.
Downslope <b>Scale factor</b>	Scale factor for the Downslope of welding voltage. Small values decrease the voltage fast, higher value of the scale factor allow a longer down slope. Only used in 4T mode with slope control by torch trigger. Downslope is activated by second press and executed as long the trigger is held down.
t postflow <b>post gas time</b>	To avoid oxidation of the welding pool, the shielding gas is kept flowing for a short time after the end of the weld (exactly after the burn-back time).
T burnback <b>burn-back time</b>	Adjusts the time between motor stop and current switch off, so the length of the wire beyond the tip (after finishing the welding process) is controlled. If this time is too long, the wire "burns back" and stick at the tip. Best set to the shortest possible time to keep the "droplet" on the open wire end to a minimum diameter.
Softstart <b>in m/min.</b>	Wire speed slope for improvement of arc start. Controls the initial wire speed before the arc has started. As soon as the arc starts, the speed is increased to the pre-set value. The higher the Softstart value, the faster the arc is started. However, if it is too fast, a "rebound" force on the torch might be possible during arc start.
Final Pulse	Activates an extremely short high current pulse at the end of the weld, to minimise the droplet that builds up when welding is stopped. If value is "0" the final pulse is not activated. Can be set according to wire material + diameter

**NOTE:** Parameters are ONLY modified for the chosen material/wire combination (or "Manual").

## Set-up Menu:

Use of the menu:

- Press the button **T1** for some seconds to select set-up menu.
- Turn rotary button **RSYN** to select parameters
- Turn rotary button **RA** to modify a parameter.
- Reset any parameter to its initial value by pressing button **T3**
- Close menu with a Button **T4** (**T1**, **T2** work as well, or just start welding).



Remote	Not used.
Cable Length	Not used.
Time Cool	Sets active time for air ventilation after welding in minutes (Standard 6 min).
Language	Sets active language (D/EN/F/NL)
Lock menu	Locks the access to system and set-up menus, as well the program selection (however program changes due to torch activations work!). So unwanted changes can be avoided. Unlock: See Reset.

## Maintenance Procedure

The welding plant has been designed and constructed to give trouble free service. Any faults which may arise will most probably be the result of improper treatment or overloading. Repair and servicing work should only be carried out by a competent electrician. If any doubt consult the supplier of the equipment.

- check periodically all cable connections are secure and undamaged
- periodically clean and remove dust from inside of equipment
- regularly inspect torch for damage or wear and replace worn or damaged parts as required

## Faults and how to trace them

**IMPORTANT:** Never perform any work in the machine while the primary supply cable is connected to mains outlet.

- Unit does not function: Mains fuse has blown. Replace fuse
- Power source does not receive voltage. Switch is off or defective. Replace switch if defective.
- No welding current: Torch switch defective. Replace.
- Machine cuts out: Overheated electronics. Allow to cool.

- Poor wire feed, motor runs irregularly. Contact tip or wire feed guide blocked or defective. Clean or replace. Wire feed unit defective. Replace if faulty. Printed circuit card defective. Replace if faulty.
- Wire feeds irregularly: Contact tips is clogged or deformed. Replace. Wire feed slipping on drive roller. Increase wire feed tensioner arm. Damaged or blocked torch assembly. Check, clean or replace.
- Wire does not feed: Loose connection on PCB. Check and tighten. Defective PCB. Replace
- Fluttering arc: Contact tip worn. Replace. Voltage to high. Reduce voltage or increase wire feed speed.
- Unstable arc: Poor contact between earth and workpiece. Tighten and clean. Incorrect setting. Readjust voltage and wire feed control. Dirty workpiece. Clean.
- Porous weld: Gas leak, check and tighten, Gas nozzle clogged. Clean or replace. Not enough shielding gas. Increase gas flow (9-12 litres/min.). Gas shield deflected by draught. Screen off welding area

The information given in the fault finding procedure are for general guidance purposes only and for more detailed information consult the supplier of the equipment.

## Appendix

### Technical Specifications

Spec	Value
Current range	25-250A
Output voltage	15,3-26,5V
Duty cycle <sup>*1*</sup> 35%(20/40°)*	250/220A
Duty cycle <sup>*1*</sup> 60% (20/40°)*	170/140A
Duty cycle <sup>*1*</sup> 100% (25/40°)*	130/110A
Mains Frequency	3x400/3x415V 50/60 Hz
Tolerance Mains Fuse <sup>*2*</sup>	-15% bis+10 % 3 x 16 A
O.C. Volt. (U0)	75V <sup>*4*</sup>
Mains current, effective (100%) I <sub>eff</sub>	7,5A
Maximum Power Input (S1)	8,5KVA
Recommended power for generator	12,0KVA
Idle power P0 <sup>*3*</sup>	26W
Power factor λ Efficiency factor η	95% 85%
Maximum Mains Impedance (@PCC)	246mOhm
Protection class / EMC-class	IP 21 / A
Temperature range	0°C to +40 °C
Cooling / Torch cooling	Ventilator (AF) / Gas
Mains cable Plug	H07RN-F4G1,5 CEE 16A
Wire feed	1,0 - 20m/min
Feed rolls(initial)	0,8-1,0/Steel
Feeder (s)	4-Roll
Max. diameter of wire spools	300mm*
Torch connectors	1 x Euro-ZA
Application class	CE/S
Dimensions LxWxH in mm	758x466x770
Weight	45kg

\*1\* Load timing: 10 min (60 % ED means 6 min. welding, 4 min. idle).

\*2\* Recommended fuses DIAZED gG. Automatic circuit breakers: „C“.

\*3\* Idle Power after cooling time.

\*4\* OCV of Hardware. Might be limited to a lower value due to user mode.

- **For a complete Reset**, switch off machine and wait a small while, press and hold **Button "RSYN"** and switch on machine. Use "T4" to deselect menus.
- **To unlock the "Menu-Lock"-feature**: Hold T1 and switch on.



## CE Declaration of conformity

**PRODUCER:** CERDI BVBA  
**ADDRESS:** BARONSTRAAT 118  
B 8870 IZEGEM  
**TEL:** + 32.51.30.13.58

*Hereby declares that the material listed in this section complies with the following European Directives:*

*European Directive 2014/35/EU ( Machine directive )  
European Directive 2014/30/EU ( EMC directive )  
European Directives 2009/125/EU (+ EU 2019/1784) en 2011/65/EU*

**Brand:** CERDI  
**Type:** CerdiMatic 250  
**Serial number:** \*

*The following harmonised standards were applied:*

EN 60974-1  
EN 60974-5  
EN 60974-10

**Name:** Sam Weydts

**Place and date of issue:**  
Izegem, 26th Feb 2025

**Signature:**



**Stamp:**



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