

Operating Instructions

TransPocket 180 RC HW



EN-US | Operating instructions



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Safety Instructions

Explanation of Safety Instructions



DANGER!

Indicates an immediate danger.

- ▶ Death or serious injury may result if appropriate precautions are not taken.



WARNING!

Indicates a possibly dangerous situation.

- ▶ Death or serious injury may result if appropriate precautions are not taken.



CAUTION!

Indicates a situation where damage or injury could occur.

- ▶ Minor injury or damage to property may result if appropriate precautions are not taken.

NOTE!

Indicates the possibility of flawed results and damage to the equipment.

General

The device has been manufactured using state-of-the-art technology and according to recognized safety standards. If used incorrectly or misused, however, it can cause

- Injury or death to the operator or a third party
- Damage to the device and other material assets belonging to the operating company
- Inefficient operation of the equipment

All persons involved in the commissioning, operation, maintenance, and servicing of the device must

- Be suitably qualified
- Have knowledge of welding
- Have completely read and followed these Operating Instructions

The Operating Instructions must always be at hand wherever the device is being used. In addition to the Operating Instructions, all applicable local rules and regulations regarding accident prevention and environmental protection must also be followed.

All safety and danger notices on the device must

- Be kept in a legible state
- Not be damaged/marked
- Not be removed
- Not be covered, pasted, or painted over

For the location of the safety and danger notices on the device, refer to the section headed "General" in the Operating Instructions for the device.

Before switching on the device, remove any faults that could compromise safety.

Your personal safety is at stake!

Intended Use

The device is to be used exclusively for its intended purpose.

The device is intended exclusively for the welding process specified on the rating plate.

Utilization for any other purpose, or in any other manner, shall be deemed to be "not in accordance with the intended purpose." The manufacturer is not responsible for any damage resulting from improper use.

Proper use also means

- Completely reading and obeying all instructions in the Operating Instructions
- Completely reading and obeying all safety instructions and danger notices
- Carrying out all the specified inspection and servicing work

Never use the device for the following applications:

- Thawing pipes
- Charging batteries
- Starting motors

The device is designed for operation in industry and business. The manufacturer shall not be liable for any damage resulting from use in a living area.

The manufacturer shall also not be liable for faulty or incorrect work results.

Environmental Conditions

Operation or storage of the device outside the stipulated area will be deemed as not in accordance with the intended purpose. The manufacturer accepts no liability for any damage resulting from improper use.

Temperature range of the ambient air:

- During operation: -10°C to +40°C (14°F to 104°F)
- During transport and storage: -20°C to +55°C (-4°F to 131°F)

Relative humidity:

- Up to 50% at 40°C (104°F)
- Up to 90% at 20°C (68°F)

Ambient air: free of dust, acids, corrosive gases or substances, etc.

Altitude above sea level: up to 2000 m (6561 ft. 8.16 in.)

Obligations of the Operating Company

- The operating company must only allow persons to work with the device if they
- Are familiar with the basic occupational safety and accident prevention regulations and are trained in handling the device
 - Have read and understood these Operating Instructions, especially the section "Safety Rules," and have confirmed this with their signature
 - Are trained according to the requirements for the work results

The safety-conscious work of the personnel must be checked regularly.

Obligations of Personnel

All persons who are assigned to work with the device must do the following before beginning the work:

- Follow the basic regulations for occupational safety and accident prevention
- Read these Operating Instructions, especially the section "Safety Rules," and confirm that they have understood and will follow them by signing

Before leaving the workplace, ensure that no personal injury or property damage can occur in one's absence.

Grid Connection Devices with a high output can influence the energy quality of the grid due to their current consumption.

This may affect a number of device types in terms of:

- connection restrictions
- criteria regarding maximum permissible grid impedance ^{*)}
- criteria regarding the minimum required short-circuit power ^{*)}

^{*)} both at the interface with the public grid

See technical data

In this case, the operator or the person using the device should check whether or not the device is allowed to be connected, where appropriate through discussion with the power supply company.

IMPORTANT! Ensure secure grounding of the grid connection!

Residual current circuit breaker Local regulations and national guidelines may mean that a residual current circuit breaker is required when connecting a device to the public grid. The residual current circuit breaker recommended for the device by the manufacturer can be found in the technical data.

Personal Protection and Protection of Others You are exposed to numerous hazards while handling the device, for example:

- Flying sparks and pieces of hot metal
- Arc radiation that poses a risk of injury to the eyes and skin
- Hazardous electromagnetic fields that pose a risk of death for individuals with pacemakers
- Electrical risks from grid current and welding current
- Increased noise exposure
- Harmful welding fumes and gases

Wear suitable protective clothing when dealing with the device. The protective clothing must have the following properties:

- Flame resistant
 - Insulating and dry
 - Covering the entire body and in good condition with no damage
 - Safety helmet
 - Cuffless pants
-

Protective clothing involves the following:

- Protecting the face and eyes from UV radiation, heat and flying sparks with a face guard featuring a regulation-compliant filter
 - Wearing regulation-compliant protective goggles with side protection behind the face guard
 - Wearing rigid, wet-insulating footwear
 - Protecting hands with appropriate gloves (featuring electrical insulation and thermal protection)
 - Wearing ear protection to reduce noise exposure and protect against injury
-

Keep persons, especially children, away during the operation of the devices and during the welding process. If persons are in the vicinity, however:

- Instruct them about all hazards (blinding hazard due to arcs, risk of injury from flying sparks, welding fumes hazardous to health, noise exposure, possible hazard due to grid current or welding current, etc.)
- Provide suitable protective equipment or
- Construct suitable protective walls and curtains.

Data on noise emission values

The device produces a maximum noise level of <80 dB(A) (ref. 1pW) when idling and in the cooling phase following operation in relation to the maximum permitted operating point at standard loading in accordance with EN 60974-1.

A workplace-specific emission value for welding (and cutting) cannot be specified because this value depends on the welding process and the environmental conditions. It is influenced by a wide range of parameters, such as the welding process itself (MIG/MAG, TIG welding), the selected current type (direct current, alternating current), the power range, the type of weld metal, the resonance properties of the workpiece, the workplace environment, and many other factors.

Danger from toxic gases and vapors

The fumes produced during welding contain toxic gases and vapors.

Welding fumes contain substances that cause cancer, as stated in monograph 118 from the International Agency for Research on Cancer.

Use at-source extraction source and a room extraction system.
If possible, use a welding torch with an integrated extraction device.

Keep your head out of the welding fumes and gases.

Take the following precautionary measures for fumes and harmful gases:

- Do not breathe them in.
- Extract them from the work area using appropriate equipment.

Ensure that there is a sufficient supply of fresh air. Ensure that there is a ventilation flow rate of at least 20 m³ per hour.

Use a welding helmet with air supply if there is insufficient ventilation.

If there is uncertainty as to whether the extraction capacity is sufficient, compare the measured toxic emission values against the permissible limit values.

The following components are factors that determine how toxic the welding fumes are:

- The metals used for the workpiece
- Electrodes
- Coatings
- Cleaning agents, degreasers, and the like
- The welding process used

Consult the corresponding material safety data sheets and manufacturer's instructions for the components listed above.

Recommendations for exposure scenarios, risk management measures and identifying working conditions can be found on the European Welding Association website under Health & Safety (<https://european-welding.org>).

Keep flammable vapors (such as solvent vapors) out of the arc radiation range.

When no welding is taking place, close the valve of the shielding gas cylinder or the main gas supply.

Danger from Flying Sparks

Flying sparks can cause fires and explosions.

Never undertake welding near flammable materials.

Flammable materials must be kept at least 11 meters (36 ft. 1.07 in.) from the arc or protected with a certified cover.

Keep suitable, tested fire extinguishers on hand.

Sparks and pieces of hot metal may also get into surrounding areas through small cracks and openings. Take appropriate measures to ensure that there is no risk of injury or fire.

Do not undertake welding in areas at risk of fire and explosion, or on sealed tanks, drums, or pipes if these have not been prepared in accordance with corresponding national and international standards.

Do not undertake welding on containers in which gases, fuels, mineral oils, and the like are/were stored. Residues pose a risk of explosion.

Risks from grid current and welding current

An electric shock can be fatal.

Do not touch voltage-carrying parts inside or outside the device.

During MIG/MAG welding and TIG welding, the welding wire, the wirespool, the feed rollers, as well as all pieces of metal that are in contact with the welding wire, are live.

Always place the wirefeeder on a sufficiently insulated base or use a suitable insulating wirefeeder holder.

Ensure suitable personal protection with dry temporary backing or cover with sufficient insulation against the ground potential. The temporary backing or cover must completely cover the entire area between the body and the ground potential.

All cables and leads must be secured, undamaged, insulated, and adequately dimensioned. Replace loose connections and scorched, damaged, or inadequately dimensioned cables and leads immediately.

Before every use, check power connections for secure fit by hand.

In the case of power cables with bayonet connectors, turn the power cable by at least 180° around the longitudinal axis and pretension.

Do not wrap cables or leads around your body or parts of the body.

Concerning the electrode (rod electrode, tungsten electrode, welding wire, etc.)

- Never immerse it in liquids to cool it
 - Never touch it when the power source is switched on.
-

The open circuit voltage of a welding system may double, for example, between the electrodes of two welding systems. Touching the potentials of both electrodes at the same time may be life-threatening in some cases.

Have the grid and device supply lead regularly inspected by an electrician to ensure that the ground conductor is functioning properly.

Protection class I devices require a grid with a ground conductor and a connector system with ground conductor contact for proper operation.

Operation of the device on a grid without a ground conductor and on a socket without a ground conductor contact is only permitted if all national regulations for protective separation are observed.

Otherwise, this is considered gross negligence. The manufacturer accepts no liability for any damage resulting from improper use.

Use suitable equipment to ensure that the workpiece is sufficiently grounded if necessary.

Switch off unused devices.

When working at elevated heights, wear a safety harness to prevent falls.

Before working on the device, switch off the device and remove the grid plug.

Secure the device to prevent the grid plug from being connected and switched on again by applying a clearly legible and understandable warning sign.

After opening the device:

- Discharge all electrically charged components
 - Ensure that all components are disconnected from the power supply.
-

If work is needed on voltage-carrying parts, bring in a second person who will switch off the main switch at the correct time.

Stray welding currents

If the following instructions are not observed, stray welding currents may occur, which pose a risk of the following:

- Fire
 - Overheating of parts connected to the workpiece
 - Irreparable damage to ground conductors
 - Damage to the device and other electrical equipment
-

Ensure that the workpiece clamp is securely connected to the workpiece.

Secure the workpiece clamp as close to the spot to be welded as possible.

Position the device with sufficient insulation against electrically conductive environments, e.g., insulation against electrically conductive floors or electrically conductive mounts.

Observe the following when using power distribution boards, twin-head mounts, etc.: Even the electrode of the welding torch/electrode holder not in use carries electric potential. Ensure that there is sufficient insulation when the unused welding torch/electrode holder is stored.

In automated MIG/MAG applications, only guide the wire electrode from the welding wire drum, large spool, or wirepool to the wirefeeder with insulation.

EMC Device Classifications

Devices in emission class A:

- Are only designed for use in industrial settings
 - Can cause line-bound and radiated interference in other areas
-

Devices in emission class B:

- Satisfy the emissions criteria for residential and industrial areas. This is also true for residential areas in which the energy is supplied from the public low-voltage grid.
-

EMC device classification as per the rating plate or technical data.

EMC measures

In certain cases, even though a device complies with the standard limit values for emissions, it may affect the application area for which it was designed (e.g., when there is sensitive equipment at the same location, or if the site where the device is installed is close to either radio or television receivers).

If this is the case, then the operating company is obliged to take appropriate action to rectify the situation.

Test and assess the immunity of equipment in the vicinity of the device in accordance with national and international provisions. Examples of interference-prone equipment that could be affected by the device:

- Safety devices
- Grid power lines, signal lines, and data transfer lines
- IT and telecommunications equipment
- Devices for measuring and calibrating

Supporting measures to avoid EMC problems:

1. Grid power supply
 - If electromagnetic interference occurs despite a grid connection that complies with regulations, take additional measures (e.g., use a suitable grid filter).
2. Welding power-leads
 - Keep them as short as possible
 - Route them close together (also to avoid EMF problems)
 - Route them far from other lines
3. Equipotential bonding
4. Workpiece grounding
 - If necessary, establish grounding using suitable capacitors.
5. Shield, if necessary
 - Shield other devices in the vicinity
 - Shield the entire welding installation

EMF measures

Electromagnetic fields may cause health problems that are not yet known:

- Effects on the health of persons close by, e.g., those with pacemakers and hearing aids
- Persons with pacemakers must seek advice from their doctor before staying in the immediate vicinity of the device and the welding process
- Keep distances between welding power-leads and the head/torso of the welder as great as possible for safety reasons
- Do not carry welding power-leads and hosepacks over your shoulder or wrap them around your body or body parts

Particular hazard areas

Keep hands, hair, loose clothing, and tools away from moving parts, such as:

- Fans
- Gears
- Rollers
- Shafts
- Wirespools and welding wires

Do not reach into rotating gears of the wire drive or into rotating drive parts.

Covers and side panels must only be opened/removed during maintenance and repair work.

During operation

- Ensure that all covers are closed, and all side parts have been mounted properly.
- Keep all covers and side parts closed.

The protrusion of welding wire from the welding torch represents a high risk of injury (cuts to the hand, facial and eye injuries, etc.).

Therefore, always hold the welding torch away from the body (devices with wirefeeder) and use suitable protective goggles.

Do not touch the workpiece during or after welding – risk of burns.

Slag may fly off cooling workpieces. Therefore, also wear regulation-compliant protective equipment when reworking workpieces and ensure that other persons are sufficiently protected.

Leave the welding torch and other parts with a high operating temperature to cool before working on them.

Special regulations apply in areas at risk of fire or explosion
– follow the appropriate national and international regulations.

Power sources for work in areas with increased electrical hazard (e.g., boilers) must be labeled with the symbol (Safety). However, the power source may not be located in such areas.

Risk of scalding due to leaking coolant. Switch off the cooling unit before disconnecting connections for the coolant supply or return.

When handling coolant, observe the information on the coolant safety data sheet. The coolant safety data sheet can be obtained from your service center or via the manufacturer's website.

Only use suitable load-carrying equipment from the manufacturer to transport devices by crane.

- Attach chains or ropes to all designated attachments of the suitable load-carrying equipment.
 - Chains or ropes must be the smallest angle possible from vertical.
 - Remove gas cylinder and wirefeeder (MIG/MAG and TIG devices).
-

In the event of crane attachment of the wirefeeder during welding, always use a suitable, insulating wirefeeder hoisting attachment (MIG/MAG and TIG devices).

If the device is equipped with a carrier belt or handle, then this is used exclusively for transport by hand. The carrier belt is not suitable for transport by crane, counterbalanced lift truck, or other mechanical lifting tools.

All lifting equipment (belts, buckles, chains, etc.), which is used in association with the device or its components, must be checked regularly (e.g., for mechanical damage, corrosion, or changes due to other environmental influences). The test interval and scope must at least comply with the respective valid national standards and guidelines.

There is a risk of colorless, odorless shielding gas escaping without notice if an adapter is used for the shielding gas connection. Use suitable Teflon tape to seal the thread of the shielding gas connection adapter on the device side before installation.

Requirement for the shielding gas

Especially with ring lines, contaminated shielding gas can cause damage to equipment and reduce welding quality.

Meet the following requirements regarding shielding gas quality:

- Solid particle size < 40 µm
 - Pressure condensation point < -20 °C
 - Max. oil content < 25 mg/m³
-

Use filters if necessary.

Danger from Shielding Gas Cylinders

Shielding gas cylinders contain compressed gas and may explode if damaged. Shielding gas cylinders are an integral part of the welding equipment, so they must be handled very carefully.

Protect shielding gas cylinders with compressed gas from excessive heat, mechanical impact, slag, open flames, sparks, and arcs.

Mount the shielding gas cylinders vertically and secure them in accordance with instructions so they cannot fall over.

Keep shielding gas cylinders away from welding or other electrical circuits.

Never hang a welding torch on a shielding gas cylinder.

Never touch a shielding gas cylinder with an electrode.

Risk of explosion: Never weld on a compressed shielding gas cylinder.

Always use suitable shielding gas cylinders for the application in question and the correct matching accessories (controller, hoses, and fittings, etc.) Only use shielding gas cylinders and accessories that are in good condition.

If a valve on a shielding gas cylinder is open, turn your face away from the outlet.

When no welding is taking place, close the valve of the shielding gas cylinder.

Leave the cap on the valve of the shielding gas cylinder when the cylinder is not connected.

Follow the manufacturer's instructions and applicable national and international provisions for shielding gas cylinders and accessories.

Safety Measures at the Setup Location and During Transport

A toppling device can be deadly! Set up the device securely on an even, solid surface

- The maximum permitted tilt angle is 10°.

Special regulations apply in areas at risk of fire or explosion

- Follow the appropriate national and international regulations.

Use instructions and checks within the company to ensure that the vicinity of the workplace is always clean and organized.

Only set up and operate the device in accordance with the protection class shown on the rating plate.

When setting up the device, ensure that there is an all-round clearance of 0.5 m (1 ft. 7.69 in.) to allow cooling air to circulate unhindered.

Take care to ensure that the applicable national and regional guidelines and accident prevention regulations are observed when transporting the device, especially guidelines concerning hazards during transport and shipment.

Do not lift or transport any active devices. Switch off devices before transport or lifting.

Before transporting the device, completely drain the coolant and dismantle the following components:

- wirefeeder
- wirespool
- shielding gas cylinder

It is essential to conduct a visual inspection of the device to check for damage after it has been transported but before commissioning. Have any damage repaired by trained service technicians before commissioning the device.

**Safety Measures
in Normal Oper-
ation**

Only operate the device when all safety devices are fully functional. If the safety devices are not fully functional, there is a danger of:

- Injury or death to the operator or a third party
- Damage to the device and other material assets belonging to the operating company
- Inefficient operation of the device

Safety devices that are not fully functional must be repaired before the device is switched on.

Never bypass or disable safety devices.

Before switching on the device, ensure that no one can be put in danger.

The device must be examined at least once a week for externally detectable damage and functionality of the safety devices.

Always secure the shielding gas cylinder well and remove before transporting by crane.

Only the original coolant from the manufacturer is suitable for use in our devices due to its properties (electrical conductivity, anti-freeze, material compatibility, flammability, etc.)

Only use appropriate original coolant from the manufacturer.

Do not mix original coolant from the manufacturer with other coolants.

Only connect system components from the manufacturer to the cooling unit circuit.

If there is damage due to use of other system components or other coolants, the manufacturer accepts no liability for this and all warranty claims are forfeited.

Cooling Liquid FCL 10/20 is not flammable. The ethanol-based coolant is flammable in certain conditions. Only transport the coolant in closed original containers and keep away from sources of ignition.

Properly dispose of used coolant according to national and international regulations. The coolant safety data sheet can be obtained from your service center or via the manufacturer's website.

When the system is cool, always check the coolant level before starting welding.

**Maintenance and
repair**

It is impossible to guarantee that bought-in parts are designed and manufactured to meet the demands made of them, or that they satisfy safety requirements.

- Use only original spare and wearing parts (also applies to standard parts).
- Do not carry out any modifications, alterations, etc. to the device without the manufacturer's consent.
- Components that are not in perfect condition must be replaced immediately.
- When ordering, please give the exact designation and part number as shown in the spare parts list, as well as the serial number of your device.

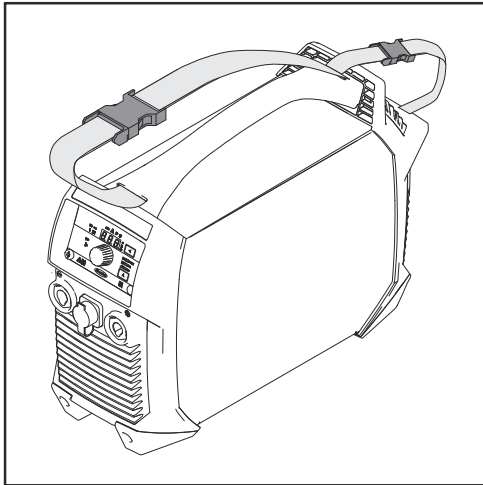
The housing screws provide the ground conductor connection for earthing the housing parts.

Only use original housing screws in the correct number and tightened to the specified torque.

Safety Inspection	<p>The manufacturer recommends that a safety inspection of the device be performed at least every 12 months.</p> <hr/> <p>The manufacturer recommends calibrating power sources within the same 12-month interval.</p> <hr/> <p>A safety inspection by a certified electrician is recommended:</p> <ul style="list-style-type: none"> - After changes - After alterations - After repair, care, and maintenance - At least every 12 months <hr/> <p>For the safety inspection, follow the appropriate national and international standards and guidelines.</p> <hr/> <p>You can obtain more information about the safety inspection and calibration from your service center. The service center will provide the necessary documents upon request.</p>
Disposal	<p>To comply with European directives and national law, waste electrical and electronic equipment must be collected separately and sent for environmentally-friendly recycling. Used devices must be returned to a distributor or an approved collection and recycling facility in your area. Proper disposal of used devices promotes the sustainable recycling of material resources. Ignoring this may have potentially adverse effects on the environment and your health.</p> <p>Packaging materials Materials collected separately. Check the regulations in your area. Reduce the volume of cardboard.</p>
Safety symbols	<p>Devices with the CE label satisfy the essential requirements of the low-voltage and electromagnetic compatibility directive (e.g., relevant product standards of the EN 60974 series).</p> <p>Fronius International GmbH declares that the device complies with Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available on the following website: http://www.fronius.com</p> <hr/> <p>Devices marked with the CSA test mark satisfy the requirements of the relevant standards for Canada and the USA.</p>
Data backup	<p>The user is responsible for backing up any changes made to the factory settings. The manufacturer accepts no liability for any deleted personal settings.</p>
Copyright	<p>Copyright of these Operating Instructions remains with the manufacturer.</p> <hr/> <p>Text and illustrations were accurate at the time of printing. Fronius reserves the right to make changes. The contents of the Operating Instructions shall not provide the basis for any claims whatsoever on the part of the purchaser. If you have any suggestions for improvement, or can point out any mistakes that you have found in the Operating Instructions, we will be most grateful for your comments.</p>

General

Device concept



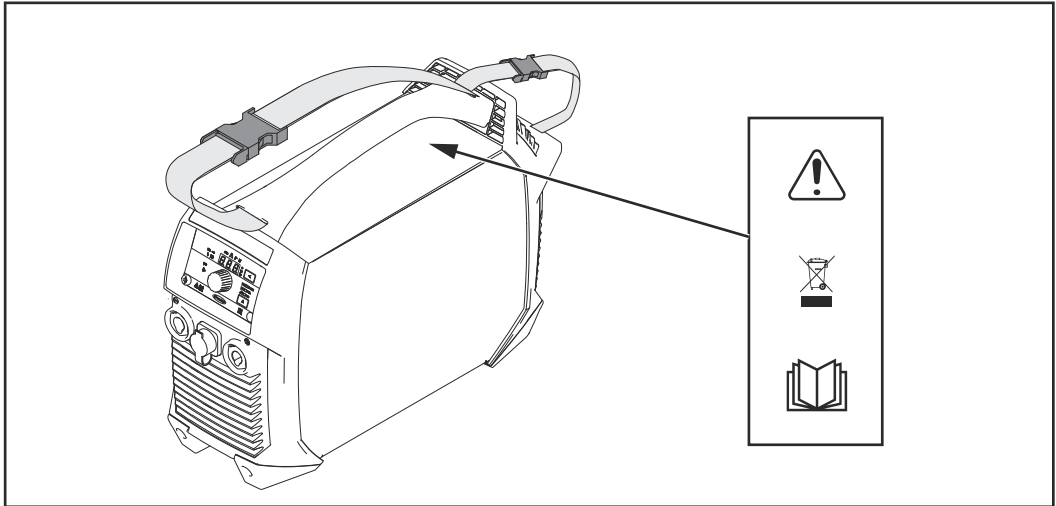
The power source is specifically designed to pre-heat welding wires during TIG hot-wire welding and has the following characteristics:

- Compact dimensions
- Robust plastic housing
- High reliability even under tough usage conditions
- Carrier belt for easy transport even on construction sites
- Securely attached operating elements
- Current sockets with bayonet latch

Additionally, the power source offers Power Factor Correction, meaning the current consumption of the power source is adapted to the sinusoidal grid voltage. This has many advantages for the user, such as:

- Low primary current
- Low conductivity losses
- Late tripping of the power circuit breaker
- Improved stability during voltage fluctuations
- Compatibility with long grid leads

Warning Notices on the Device



The warning notices and safety symbols located on the power source must not be removed or painted over. They warn against incorrect operation, which may result in serious injury and damage.

Meaning of the safety symbols on the device:



Welding is dangerous. To ensure that this device can be used correctly and safely, the following basic requirements must be met:

- Adequate welding qualifications
- Appropriate protective equipment
- Keep unauthorized people away from the welding process



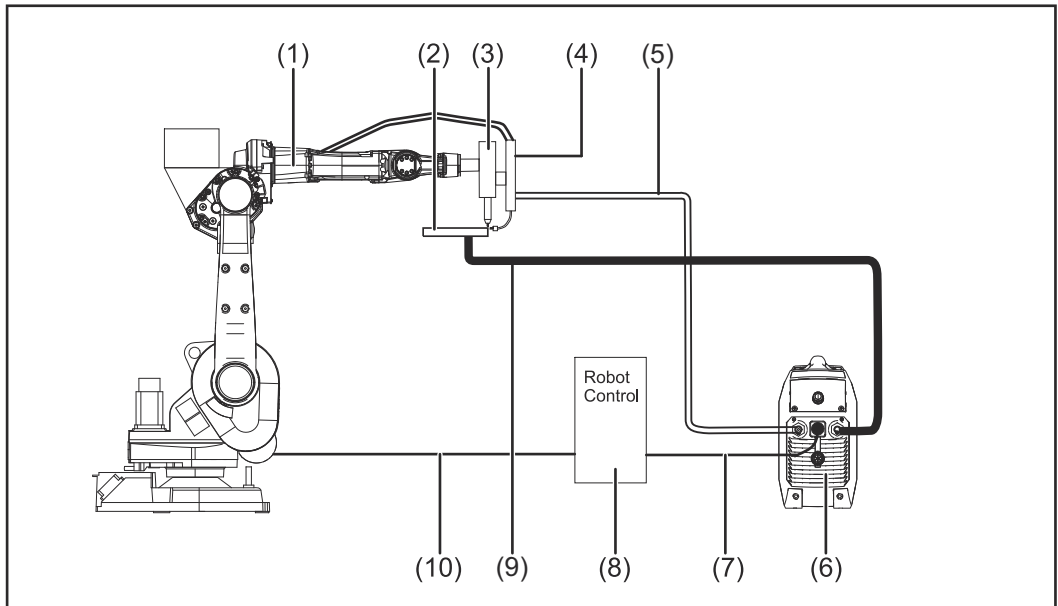
Do not use the functions described here until you have fully read and understood the following documents:

- These Operating Instructions
- All operating instructions for the system components of the power source, especially the safety rules



Dispose of old devices in accordance with safety rules and not in normal domestic waste.

**Application Ex-
ample**



- (1) Robot
- (2) Workpiece
- (3) Welding torch
- (4) Wirefeeder
- (5) Power cable (positive pole)
- (6) Power source
- (7) Robot control/power source connection cable
- (8) Robot control
- (9) Grounding cable (negative pole)
- (10) Robot control/robot connection cable

Before installation

Safety



WARNING!

Danger from incorrect operation and work that is not carried out properly.

This can result in serious personal injury and damage to property.

- ▶ All the work and functions described in this document must only be carried out by technically trained and qualified personnel.
- ▶ Read and understand this document in full.
- ▶ Read and understand all safety rules and user documentation for this equipment and all system components.

Intended Use

The power source is intended exclusively for pre-heating welding wires during TIG hot-wire welding in combination with the manufacturer's system components.

Any other use does not constitute proper use.

The manufacturer is not responsible for any damage resulting from improper use.

Proper use also means:

- Reading these Operating Instructions in their entirety
- Following all instructions and safety rules in these Operating Instructions
- Carrying out all the specified inspection and servicing work

Setup Regulations



WARNING!

Danger from machines falling or toppling over.

This can result in severe personal injury and damage to property.

- ▶ Securely set up the devices on a level and stable surface.

The device has been tested according to degree of protection IP23. This means:

- Protection against solid foreign bodies larger than Ø 12.5 mm (0.49 in.)
- Protection against spraywater up to an inclined angle of 60°

Cooling air

The device must be set up so that cooling air can flow through the air vents on the front and back unhindered.

Dust

Ensure that any metallic dust is not sucked into the device fan during grinding work, for example.

Operation outdoors

The device can be installed and operated outdoors in accordance with degree of protection IP23. Avoid the effects of direct moisture (from rain, for example).

Generator-Powered Operation

The power source is generator-compatible.

The maximum apparent power S_{1max} of the power source is required for dimensioning the necessary generator output.

The maximum apparent power $S_{1\max}$ of the power source is calculated as follows:

$$S_{1\max} = I_{1\max} \times U_1$$

$I_{1\max}$ and U_1 according to the device rating plate and technical data

The generator apparent power S_{GEN} needed is calculated using the following rule of thumb:

$$S_{\text{GEN}} = S_{1\max} \times 1.35$$

A smaller generator can be used when not welding at full power.

IMPORTANT! The generator apparent power S_{GEN} must not be less than the maximum apparent power $S_{1\max}$ of the power source!

When single phase devices are being operated with a 3-phase generator, note that the stated apparent power of the generator is often just the total that can be present across all three phases of the generator. If necessary, obtain further information about the single-phase power of the generator from the generator manufacturer.

NOTE!

The voltage delivered by the generator must never fall outside of the mains voltage tolerance range.

The mains voltage tolerance is specified in the "Technical Data" section.

Operating controls, connections and mechanical components

Safety



WARNING!

Danger from incorrect operation and work that is not carried out properly.

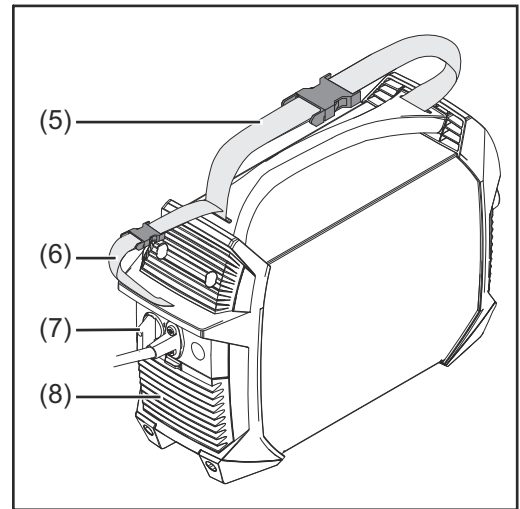
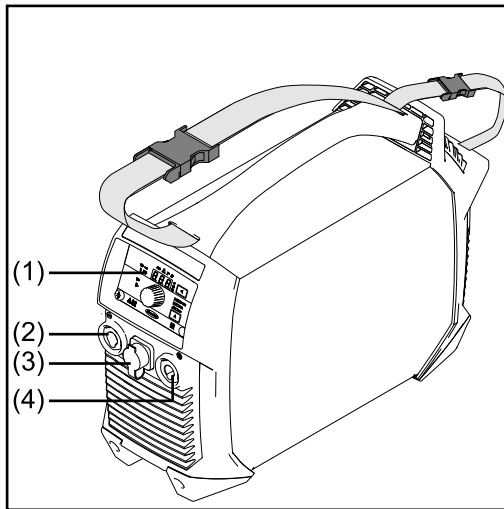
This can result in serious personal injury and damage to property.

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 - ▶ Read and understand this document in full.
 - ▶ Read and understand all safety rules and user documentation for this equipment and all system components.
-

As a result of software updates, you may find that there are functions available on your device that are not described in these Operating Instructions, or vice versa.

Certain illustrations may also differ slightly from the actual operating elements on your device, but these operating elements function in exactly the same way.

Operating Controls, Connections, and Mechanical Components



(1) Control panel

(2) (-) current socket
Connect the grounding cable here

(3) TIG Multi Connector
For connecting an external control system

(4) (+) current socket
For connecting the power cable to the wirefeeder

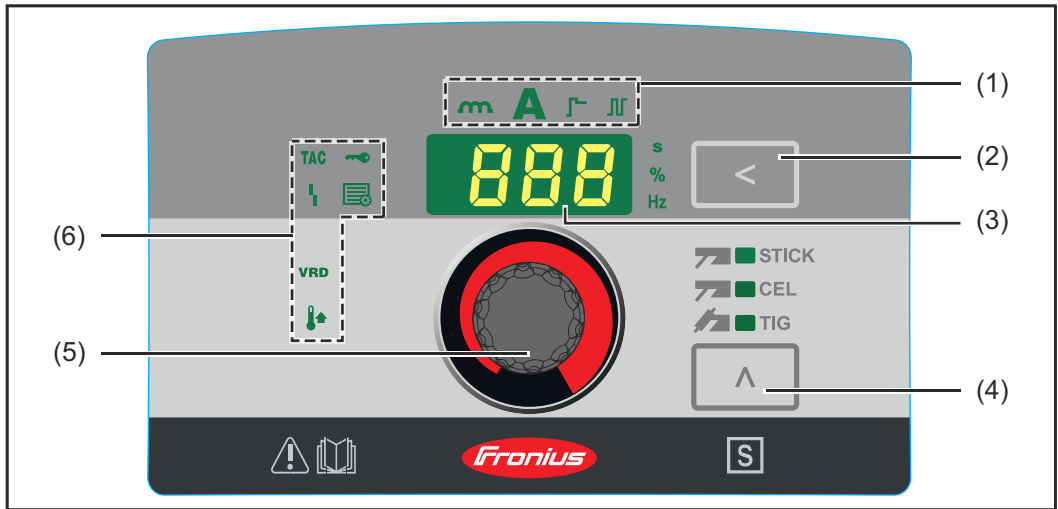
(5) Carry strap

(6) Cable strap
To hold the mains cable and the welding power-leads
Do not use to transport the device!

(7) Power switch

(8) Air filter

Control Panel



(1) **Set value display**
 displays the currently selected amperage
 - The symbol is always lit; the other indicators have no function



(2) **Setup button 1**
 For accessing the Setup menu

(3) **Display**

(4) **Setup button 2**
 For accessing the Setup menu

(5) **Selection dial**
 To change the amperage | To navigate through the Setup menu

(6) **Status indicators**
 Used to indicate the different operating statuses of the power source:

VRD - No function



Setup - Lights up when in Setup mode



Temperature - Lights up when the device is outside of the permitted temperature range



Error - Lights up when there is an error, also see **Fault Correction** section on page 32

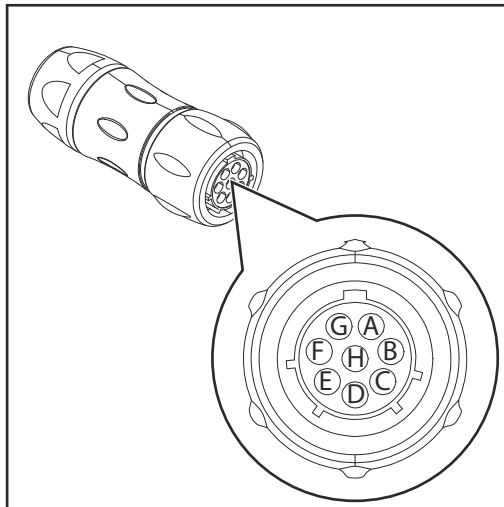


TAC - No function



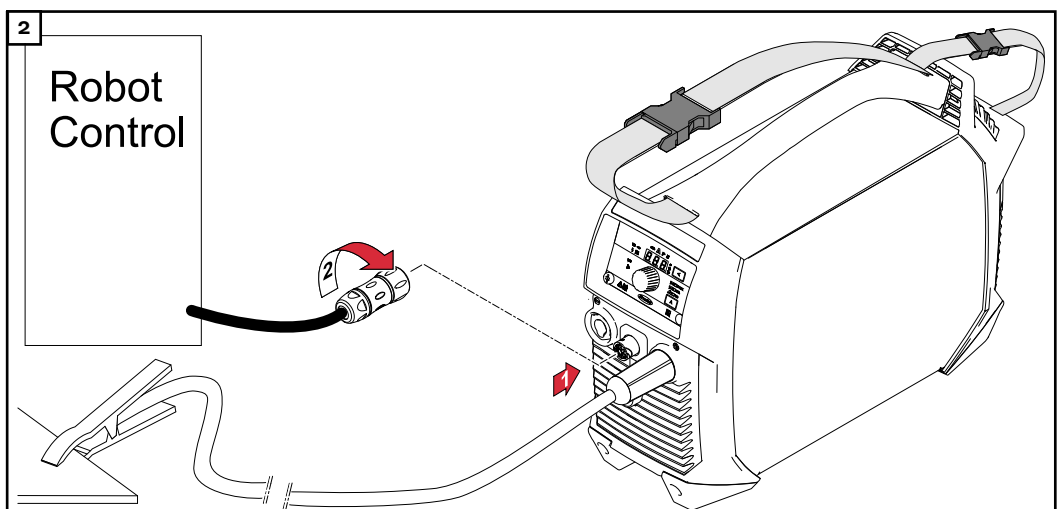
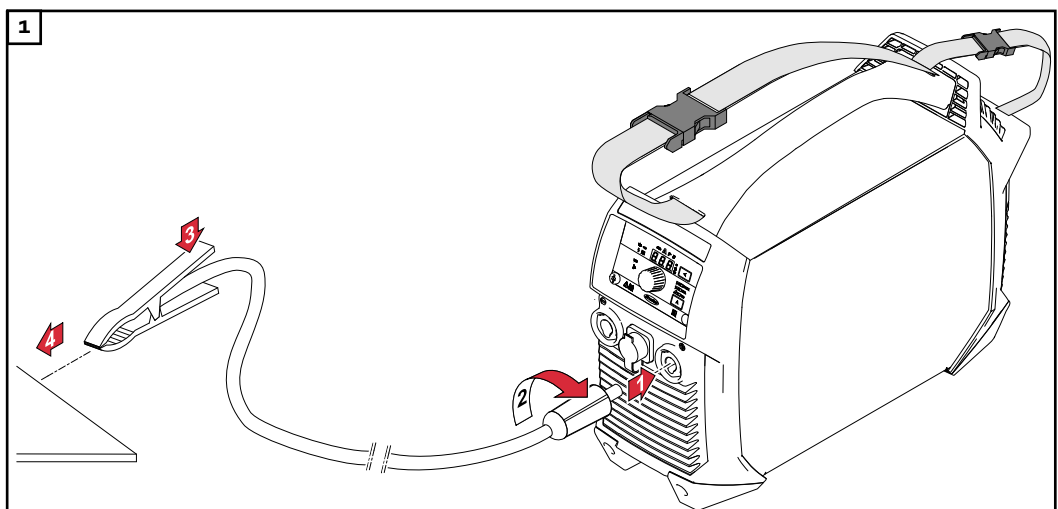
Connecting and Starting the Power Source

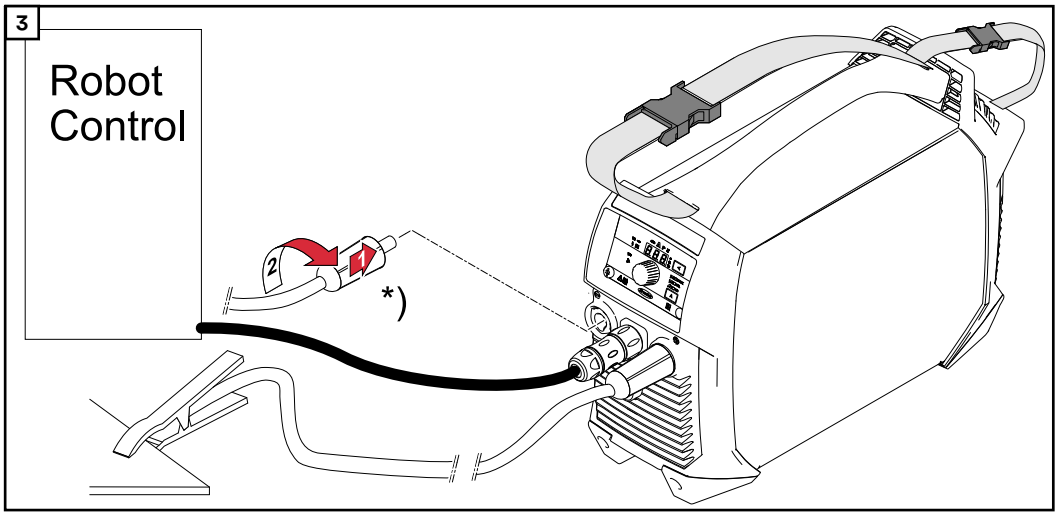
Configuring the TIG Multi Connector Plug



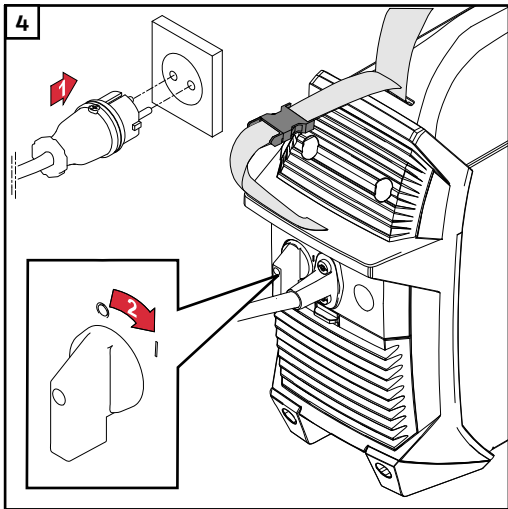
- 1 Connect the TIG Multi Connector plug to the robot control unit and connect pins B (pink cable) and E (green cable) with a floating switch - the pins B and E are needed to start the pre-heating process

Installing the Power Source





* Correctly connect the cable to the wirefeeder



Starting Pre-heating

- 1 Set the desired amperage using the selection dial on the control panel of the power source
- 2 Activate pre-heating through a signal on the robot control unit (close the switch between pin B and pin E on the TIG Multi Connector plug - also see [Configuring the TIG Multi Connector Plug](#), on page 24)

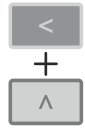
NOTE!

The power source will pre-heat the welding wire for as long as the signal from the robot control unit is active.

Setup Menu

Accessing the Setup Menu

- 1 Press both buttons at the same time
 - The code of the first parameter from the Setup menu is displayed on the control panel



Adjusting Parameters

- 1 Turn the selection dial to select the desired parameter



- 2 Press the selection dial to display the set value of the parameter



- 3 Press the selection dial to change the value
 - The set value is immediately active
 - Exception: When resetting to the factory settings, the selection dial needs to be pressed after changing the value in order to activate the change.



- 4 Press the selection dial to go back in the list of parameters






Exiting the Setup Menu

- 1 Press Setup 1 **or** Setup 2 button to exit the Setup menu



Setup Menu Parameters



Parameter	Description	Range	Unit
	Factory setting (FACTory) Here the device can be reset to its factory settings		
	- Cancel reset	no	
	- Reset the parameters for the set welding process to the factory settings	YES	
	- Reset the parameters for all welding processes to the factory settings	ALL	
	 Confirm resetting of the selected value to the factory setting by pressing the selection dial!		
	Setup menu 2nd level For setting general parameters For details see "Setup Menu 2nd Level" section		

Setup Menu 2nd Level

Setup Menu 2nd Level Parameters

Parameter	Description	Range	Unit
50F	<p>Software version</p> <p>The complete version number of the current software is divided across several displays and can be viewed by turning the selection dial</p>		
t5d	<p>Automatic shutdown (time Shut down)</p> <p>If the device is not used or operated within a set period of time, it automatically switches into Standby mode</p> <p>Pressing a button on the control panel switches off Standby mode - the device is now ready for welding</p> <p>Factory setting: OFF</p>	5 - 60 OFF	Minutes
FUS	<p>Fuse</p> <p>To display/set the fuse being used</p> <p>Factory setting:</p> <ul style="list-style-type: none"> - For grid voltage 230 V = 16 A - For grid voltage 120 V = 20 A <p>If a fuse is set on the power source, the power source will limit the current drawn from the grid, which prevents an immediate tripping of the power circuit breaker</p>	At 230 V 10 / 13 / 16 / OFF At 120 V: 15 / 16 / 20 / OFF	Ampere

Relationship between set fuse and pre-heating current:			
Grid voltage	Set fuse	Pre-heating current	Duty cycle
230 V	10 A	180 A	35%
	13 A	180 A	35%
	16 A	180 A	35%
	OFF	180 A	35%
120 V	15 A	140 A	35%
	16 A	140 A	35%
	20 A	170 A	35%
	OFF	170 A	35%

Parameter	Description	Range	Unit
	<p>Operating duration (System on time)</p> <p>For displaying the operating duration (count begins as soon as the device is switched on)</p> <p>The complete operating duration is divided across several displays and can be accessed by turning the selection dial</p>		Hours, minutes, seconds
	<p>Pre-heating duration (System Active time)</p> <p>For displaying the pre-heating duration (shows only the time during which the power source has been pre-heating the wire electrode)</p> <p>The complete pre-heating duration is divided across several displays and can be viewed by turning the selection dial</p>		Hours, minutes, seconds

Service, maintenance and disposal

Safety

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 - ▶ Read and understand this document in full.
 - ▶ Read and understand all safety rules and user documentation for this equipment and all system components.
-

WARNING!

Danger from electrical current.

This can result in serious personal injury and damage to property.

- ▶ Before starting work, switch off all devices and components involved, and disconnect them from the grid.
 - ▶ Secure all devices and components involved so they cannot be switched back on.
 - ▶ After opening the device, use a suitable measuring instrument to check that electrically charged components (such as capacitors) have been discharged.
-

WARNING!

Danger due to insufficient ground conductor connection.

This can result in serious personal injury and damage to property.

- ▶ The housing screws provide a suitable ground conductor connection for grounding the housing.
 - ▶ The housing screws must not under any circumstances be replaced by other screws without a reliable ground conductor connection.
-

General

The device only requires a minimum of service and maintenance under normal operating conditions. However, several points must be observed in order for the device to remain operational for years to come.

During Each Start-up

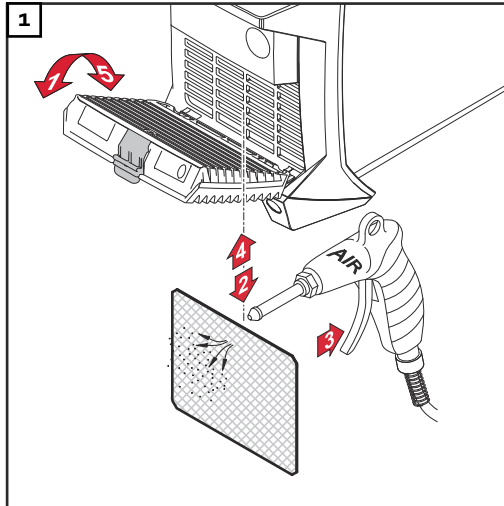
- Ensure that the mains plug and mains cable, as well as the positive cable and grounding cable, are undamaged. Replace damaged components
- Ensure a proper grounding connection to the component
- Ensure that the all-round clearance of the device is 0.5 m (1 ft. 8 in.) so that cooling air can circulate unimpeded

NOTE!

Air intake and exhaust openings must not be blocked or even partially covered.

Every Two Months

Clean air filter:



Disposal

Disposal must only be carried out in accordance with the section of the same name in the "Safety rules" chapter.

Fault Correction

Safety

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-

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Danger due to insufficient ground conductor connection.

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 - ▶ The housing screws must not under any circumstances be replaced by other screws without a reliable ground conductor connection.
-

Displayed Faults

High temperature

Temperature indication lights up, and "hot" is shown on the display



Cause: Operating temperature is too high

Remedy: Leave the device to cool (Do not switch off the device - the fan will cool the device)

High temperature

Error indication lights up, and "FUS" is shown on the display



Cause: The power limiter on the power source has triggered

Remedy: Leave the device to cool (Do not switch off the device - the fan will cool the device)

Service messages

If "E" and a two-digit error code (e.g., "E02") appears on the display and the fault indication lights up, this is an internal service code for the power source.

Example:



There can be multiple error codes. These appear by turning the adjustment wheel.



Take note of all displayed error codes as well as the serial number and configuration of the power source, and then contact the service center with a detailed error description.

E01 - E03 / E11 / E15 / E21 / E33 - E35 / E37 - E40 / E42 - E44 / E46 - E52

Cause: Power module error
Remedy: Inform service team

E04

Cause: Open circuit voltage has not been reached:
Electrode is in contact with the component/hardware defect
Remedy: Remove the electrode support from the component. If the service code continues to be displayed, contact service team

E05 / E06 / E12

Cause: System start failure
Remedy: Turn device off and on again. If this happens multiple times, inform service team

E10

Cause: Overvoltage at the current socket ($> 113 V_{DC}$)
Remedy: Inform service team

E16 / E17

Cause: Memory error
Remedy: Inform service team / press selection dial to acknowledge service message

E19

Cause: Overtemperature or undertemperature
Remedy: Operate device at permitted ambient temperature. For more information about environmental conditions see "Environmental Conditions" in the "Safety Rules" section

E20

Cause: Improper use of the device
Remedy: Only use the device in accordance with the intended purpose

E22

Cause: Amperage is set too high
Remedy: Ensure that the power source is being operated at the correct grid voltage; ensure the correct fuse is set; set a lower amperage

E37

Cause: Grid voltage exceeds admissible limits

Remedy: Immediately pull out the mains plug and ensure that the power source is being operated at the correct grid voltage

E36 E41 E45

Cause: Grid voltage is outside of the tolerance or grid output is insufficient for the connected device(s)

Remedy: Ensure that the power source is being operated at the correct grid voltage; ensure the correct fuse is set;

E65 - E75

Cause: Error in communicating with the display

Remedy: Turn device off and on again / inform service team if this happens multiple times

No Function

Device cannot be switched on

Cause: Defective power switch

Remedy: Inform service team

No current for pre-heating the wire electrode

The power source is switched on

Cause: Power cable connection has been interrupted

Remedy: Properly connect power cable

Cause: Poor or no ground earth connection

Remedy: Establish a connection with the workpiece

No current for pre-heating the wire electrode

The device is switched on, overtemperature indication lights up

Cause: Duty cycle exceeded - device overloaded - fan running

Remedy: Observe duty cycle

Cause: Thermal automatic circuit breaker has shut down the device

Remedy: Wait for device to cool down (do not switch off the device - the fan will cool the device); the power source will switch on again automatically after a short time

Cause: Fan in the power source is faulty

Remedy: Inform service team

Cause: Cooling air supply is insufficient

Remedy: Ensure there is a sufficient air supply

Cause: Air filter is dirty

Remedy: Clean air filter

Cause: Power module error

Remedy: Switch the device off and then on again
If this error persists, inform service team

Average consumption values during welding

Average wire electrode consumption during MIG/MAG welding

Average wire electrode consumption at a wire speed of 5 m/min			
	1.0 mm wire electrode diameter	1.2 mm wire electrode diameter	1.6 mm wire electrode diameter
Steel wire electrode	1.8 kg/h	2.7 kg/h	4.7 kg/h
Aluminum wire electrode	0.6 kg/h	0.9 kg/h	1.6 kg/h
CrNi wire electrode	1.9 kg/h	2.8 kg/h	4.8 kg/h

Average wire electrode consumption at a wire speed of 10 m/min			
	1.0 mm wire electrode diameter	1.2 mm wire electrode diameter	1.6 mm wire electrode diameter
Steel wire electrode	3.7 kg/h	5.3 kg/h	9.5 kg/h
Aluminum wire electrode	1.3 kg/h	1.8 kg/h	3.2 kg/h
CrNi wire electrode	3.8 kg/h	5.4 kg/h	9.6 kg/h

Average shielding gas consumption during MIG/MAG welding

Wire electrode diameter	1.0 mm	1.2 mm	1.6 mm	2.0 mm	2 x 1.2 mm (TWIN)
Average consumption	10 l/min	12 l/min	16 l/min	20 l/min	24 l/min

Average shielding gas consumption during TIG welding

Gas nozzle size	4	5	6	7	8	10
Average consumption	6 l/min	8 l/min	10 l/min	12 l/min	12 l/min	15 l/min

Technical data

Explanation of the term duty cycle

The duty cycle (ED) is the period of a ten minute cycle in which the device may be operated at the stated power without overheating.

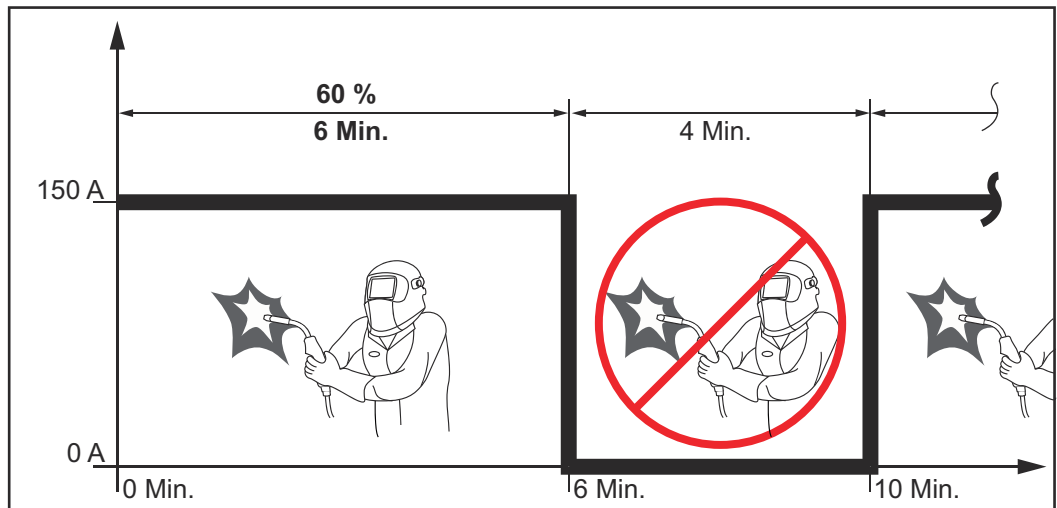
NOTE!

The ED values cited on the rating plate relate to an ambient temperature of 40 °C.

If the ambient temperature is higher, the ED or power must be lowered accordingly.

Example: Welding with 150 A at 60% ED

- Welding phase = 60% of 10 mins = 6 mins
- Cool-down phase = rest time = 4 mins
- Following the cool-down phase, the cycle begins again.



To use the device without interruptions:

- 1 Search for a 100% ED value in the technical data, which corresponds to the existing ambient temperature.
- 2 Reduce the power or amperage value correspondingly so that the device can operate without a cool-down phase.

Technical Data

Grid voltage (U_1)	1 x 240 V		
Max. effective primary current ($I_{1\text{eff}}$)	5 A		
Max. primary current ($I_{1\text{max}}$)	7 A		
Mains fuse	16 A time-delay fuse		
Grid voltage (U_1)	1 x 120 V		
Max. effective primary current ($I_{1\text{eff}}$)	9 A		
Max. primary current ($I_{1\text{max}}$)	13 A		
Mains fuse	15 A time-delay fuse		
Grid voltage tolerance	-20%/+ 15%		
Grid frequency	50/60 Hz		
Cos phi	0.99		
Recommended residual current circuit breaker	Type B		
Pre-heating current range (I_2)	10 – 180 A		
Pre-heating current 10 min/40 °C (104 °F)	35%	60%	100%
U_1 (240 V)	180 A	155 A	125 A
U_1 (120 V)	170 A	155 A	125 A
Output voltage	6 V		
Open circuit voltage (U_o peak)	35 V		
Degree of protection	IP 23		
Type of cooling	AF		
Overvoltage category	III		
Degree of pollution according to standard IEC 60664	3		
EMC device class	A		
Safety symbols	S, CE		
Dimensions L x W x H	435 x 160 x 310 mm 17.1 x 6.3 x 12.2 in.		
Weight	8.9 kg 19.6 lb.		
Idle state power consumption at 230 V	15 W		

Overview with critical raw materials, year of production of the device

Overview with critical raw materials:

An overview of which critical raw materials are contained in this device can be found at the following Internet address.

www.fronius.com/en/about-fronius/sustainability.

To calculate the year of production of the device:

- Each device is provided with a serial number
- The serial number consists of 8 digits - for example 28020099
- The first two digits give the number from which the year of production of the device can be calculated
- This figure minus 11 gives the year of production
 - For example: Serial number = **28**020065, calculation of the year of production = **28** - 11 = 17, year of production = 2017



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