

# INVERTEC 275TP

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## OPERATOR'S MANUAL



ENGLISH



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**THANK YOU!** For choosing the **QUALITY** of the Lincoln Electric products.

- Please check packaging and equipment for damage. Claims for material damaged in shipment must be notified immediately to the dealer.
- For ease of use, please enter your product identification data in the table below. Model Name, Code & Serial Number can be found on the machine rating plate.

Model Name:	
.....	
Code & Serial number:	
.....	.....
Date & Where Purchased:	
.....	.....

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# Technical Specifications

NAME		INDEX		
INVERTEC 275TP		K14243-1		
INPUT				
INVERTEC 275TP	Input Voltage $U_1$		EMC Class	
	400V +/- 15% 3 phases		A	
	$I_{1eff}$		$I_{1max}$	
	9.8A		13.8A	
RATED OUTPUT				
GTAW	Duty Cycle 40°C (based on a 10 min. period)		Output Current $I_2$	
	100%		200A	
	60%		230A	
SMAW	40%		270A	
	100%		180A	
	60%		230A	
	35%		250A	
OUTPUT RANGE				
GTAW	Welding Current Range		Peak Open Circuit Voltage $U_0$	
	5 - 270A		72V	
SMAW	5 - 250A			
DIMENSIONS AND WEIGHT				
INVERTEC 275TP	Weight	Height	Width	Length
	16 kg	360 mm	230 mm	498 mm
INVERTEC 275TP	Protection Rating		Maximum Gas Pressure	
	IP23		0,5 MPa (5 bar)	
	Operating Temperature		Storage Temperature	
from -10°C to +40°C		from -25°C to +55°C		
RECOMMENDED INPUT CABLE AND FUSE SIZES				
Fuse Type gR or Circuit Breaker Type Z			Power Lead	
16A, 400V AC			4 Conductors, 1,5mm <sup>2</sup>	

# ECO design information

The equipment has been designed in order to be compliant with the Directive 2009/125/EC and the Regulation 2019/1784/EU.

Efficiency and idle power consumption:

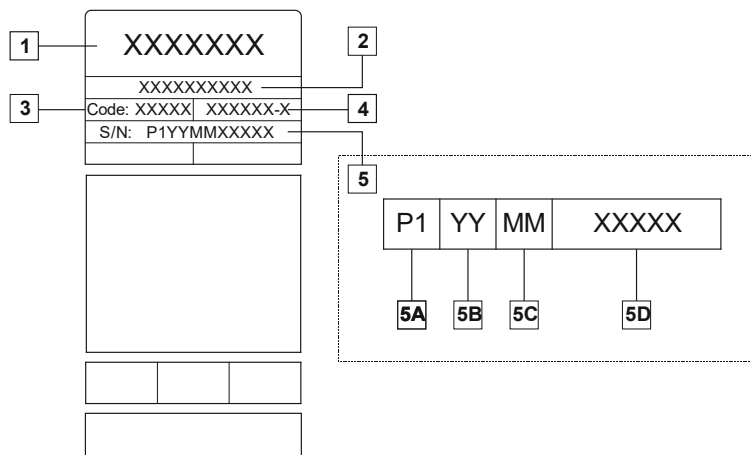
Index	Name	Efficiency when max power consumption / Idle power consumption	Equivalent model
K14243-1	INVERTEC 275TP	85% / 19W	No equivalent model

Idle state occurs under the condition specified in below table

IDLE STATE	
Condition	Presence
MIG mode	
TIG mode	X
STICK mode	
After 30 minutes of non-working	X
Fan off	X

The value of efficiency and consumption in idle state have been measured by method and conditions defined in the product standard EN 60974-1:20XX.

Manufacturer's name, product name, code number, product number, serial number and date of production can be read from rating plate.



Where:

- 1- Manufacturer name and address
- 2- Product name
- 3- Code number
- 4- Product number
- 5- Serial number
  - 5A- country of production
  - 5B- year of production
  - 5C- month of production
  - 5D- progressive number different for each machine

### **Tig Process:**

In TIG welding process, gas usage depends on cross-sectional area of the nozzle. For commonly used torches:

Helium: 14-24 l/min

Argon: 7-16 l/min

**Notice:** Excessive flow rates causes turbulence in the gas stream which may aspirate atmospheric contamination into the welding pool.

**Notice:** A cross wind or draft moving can disrupt the shielding gas coverage, in the interest of saving of protective gas use screen to block air flow.



### **End of life**

At end of life of product, it has to be disposal for recycling in accordance with Directive 2012/19/EU (WEEE), information about the dismantling of product and Critical Raw Material (CRM) present in the product, can be found at <https://www.lincolnelectric.com/en-gb/support/Pages/operator-manuals-eu.aspx>

# Electromagnetic Compatibility (EMC)

01/11

This machine has been designed in accordance with all relevant directives and standards. However, it may still generate electromagnetic disturbances that can affect other systems like telecommunications (telephone, radio, and television) or other safety systems. These disturbances can cause safety problems in the affected systems. Read and understand this section to eliminate or reduce the amount of electromagnetic disturbance generated by this machine.



This machine has been designed to operate in an industrial area. To operate in a domestic area it is necessary to observe particular precautions to eliminate possible electromagnetic disturbances. The operator must install and operate this equipment as described in this manual. If any electromagnetic disturbances are detected the operator must put in place corrective actions to eliminate these disturbances, if necessary with assistance from

Lincoln Electric.

## **WARNING**

Provided that the public low voltage system impedance at the point of common coupling is lower than:

- 64,8mΩ for the **INVERTEC 275TP**

This equipment is compliant with IEC 61000-3-11 and IEC 61000-3-12 and can be connected to public low voltage systems. 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 system impedance complies with the impedance restrictions.

Before installing the machine, the operator must check the work area for any devices that may malfunction because of electromagnetic disturbances. Consider the following.

- Input and output cables, control cables, and telephone cables that are in or adjacent to the work area and the machine.
- Radio and/or television transmitters and receivers. Computers or computer controlled equipment.
- Safety and control equipment for industrial processes. Equipment for calibration and measurement.
- Personal medical devices like pacemakers and hearing aids.
- Check the electromagnetic immunity for equipment operating in or near the work area. The operator must be sure that all equipment in the area is compatible. This may require additional protection measures.
- The dimensions of the work area to consider will depend on the construction of the area and other activities that are taking place.

Consider the following guidelines to reduce electromagnetic emissions from the machine.

- Connect the machine to the input supply according to this manual. If disturbances occur it may be necessary to take additional precautions such as filtering the input supply.
- The output cables should be as short as possible and positioned together as close as possible to each other. If possible connect the work piece to ground in order to reduce the electromagnetic emissions. The operator must check that connecting the work piece to ground does not cause problems or unsafe operating conditions for personnel and equipment.
- Shielding of cables in the work area can reduce electromagnetic emissions. This may be necessary for special applications.

## **WARNING**

EMC classification of this product is class A in accordance with electromagnetic compatibility standard EN 60974-10 which means that the product is designed to be used in an industrial environment only.

## **WARNING**






The Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There may be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radiated disturbances.



## WARNING

This equipment have to be used by qualified personnel. Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified person. Read and understand this manual before operating this equipment. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or equipment damage. Read and understand the following explanations of the warning symbols. Lincoln Electric is not responsible for damages caused by improper installation, improper care or abnormal operation.

	<p><b>WARNING:</b> This symbol indicates that instructions must be followed to avoid serious personal injury, loss of life, or equipment damage. Protect yourself and others from possible serious injury or death.</p>
	<p><b>READ AND UNDERSTAND INSTRUCTIONS:</b> Read and understand this manual before operating this equipment. Arc welding can be hazardous. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or equipment damage.</p>
	<p><b>ELECTRIC SHOCK CAN KILL:</b> Welding equipment generates high voltages. Do not touch the electrode, work clamp, or connected work pieces when this equipment is turned on. Insulate yourself from the electrode, work clamp, and connected work pieces.</p>
	<p><b>ELECTRICALLY POWERED EQUIPMENT:</b> Turn off the input power using the disconnect switch at the fuse box before working on this equipment. Ground this equipment in accordance with local electrical regulations.</p>
	<p><b>ELECTRICALLY POWERED EQUIPMENT:</b> Regularly inspect the input, electrode, and work clamp cables. If any insulation damage exists replace the cable immediately. Do not place the electrode holder directly on the welding table or any other surface in contact with the work clamp to avoid the risk of accidental arc ignition.</p>
	<p><b>ELECTROMAGNETIC FIELD MAY BE DANGEROUS:</b> Electric current flowing through any conductor creates electromagnetic field (EMF). EMF fields may interfere with some pacemakers, and welders having a pacemaker shall consult their physician before operating this equipment.</p>
	<p><b>CE COMPLIANCE:</b> This equipment complies with the European Community Directives.</p>
 <p style="font-size: small;">Optical radiation emission Category 2 (EN 12185)</p>	<p><b>ARTIFICIAL OPTICAL RADIATION:</b> According with the requirements in 2006/25/EC Directive and EN 12198 Standard, the equipment is a category 2. It makes mandatory the adoption of Personal Protective Equipment (PPE) having filter with a protection degree up to a maximum of 15, as required by EN169 Standard.</p>
	<p><b>FUMES AND GASES CAN BE DANGEROUS:</b> Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. To avoid these dangers the operator must use enough ventilation or exhaust to keep fumes and gases away from the breathing zone.</p>
	<p><b>ARC RAYS CAN BURN:</b> Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing. To protect the skin, use suitable clothing made of durable, fireproof material. Protect other nearby personnel with suitable, non-flammable screening and warn them not to watch the arc nor expose themselves to the arc.</p>

	<p><b>WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION:</b> Remove fire hazards from the welding area and have a fire extinguisher easily accessible. Welding sparks and hot materials from the welding process can easily go through small cracks and openings to adjacent areas. Do not weld on any tanks, drums, containers, or material until the proper steps have been taken to insure that no flammable or toxic vapors will be present. Never use this equipment when flammable gases, vapors or flammable liquids are present.</p>
	<p><b>WELDED MATERIALS CAN BURN:</b> Welding generates a large amount of heat. Hot surfaces and materials in work area can cause serious burns. Use gloves and pliers when touching or moving materials in the work area.</p>
	<p><b>CYLINDER MAY EXPLODE IF DAMAGED:</b> Use only certificate, compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. Always keep cylinders in an upright position securely chained to a fixed support. Do not move or transport gas cylinders with the protection cap removed. Do not allow the electrode, electrode holder, work clamp or any other electrically live part to touch a gas cylinder. Gas cylinders must be located away from areas where they may be subjected to physical damage or the welding process including sparks and heat sources.</p>
	<p><b>MOVING PARTS ARE DANGEROUS:</b> There are moving mechanical parts in this machine, which can cause serious injury. Keep your hands, body and clothing away from those parts during machine starting, operating and servicing.</p>
<p><b>HF</b></p>	<p><b>CAUTION:</b> The high frequency used for contact-free ignition with TIG (GTAW) welding, can interfere with the operation of insufficiently shielded computer equipment, EDP centers and industrial robots, even causing complete system breakdown. TIG (GTAW) welding may interfere with electronic telephone networks and with radio and TV reception.</p>
	<p><b>SAFETY MARK:</b> This equipment is suitable for supplying power for welding operations carried out in an environment with increased risk of electric shock.</p>

The manufacturer reserves the right to make changes and/or improvements in design without upgrade at the same time the operator's manual.



# Introduction

**INVERTEC 275TP** is a GTAW and SMAW power source

The complete package contains:

- Power source
- USB with operator's manual
- Label Lincoln
- Gas Hose

Recommended equipment, which can be bought by user, was mentioned in the "Accessories" chapter.

# Installation and Operator Instructions

Read this entire section before installation or operating the machine.

## Exploitation conditions

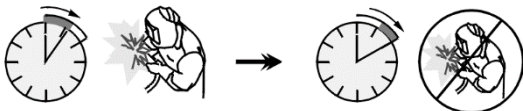
This machine can operate in harsh environments. However, it is important to use the following simple preventive measures that will ensure its long life and reliable operation:

- Do not place or operate this machine on a surface with an incline higher than 15° from horizontal.
- Do not use this machine for pipe thawing.
- This machine must be located where there is free circulation of clean air without restrictions for air movement. Do not cover the machine with paper, cloth or rags when switched on.
- Dirt and dust that can be drawn into the machine should be kept to a minimum.
- This machine has a protection rating of IP23. Keep it dry when possible and do not place it on wet ground or in puddles.
- Locate the machine away from radio controlled machinery. Normal operation may adversely affect the operation of nearby radio controlled machinery, which may result in injury or equipment damage. Read the section on electromagnetic compatibility in this manual.
- Do not operate in areas with an ambient temperature greater than 40°C.

## Duty cycle and Overheating

The duty cycle of a welding machine is the percentage of time in a 10 minute cycle at which the welder can operate the machine at rated welding current.

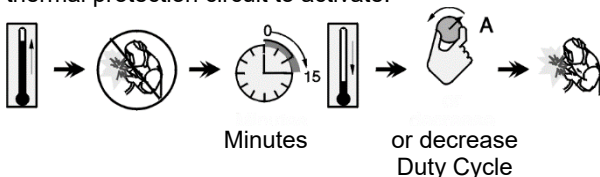
Example: 60% duty cycle:



Welding for 6 minutes.

Break for 4 minutes.

Excessive extension of the duty cycle will cause the thermal protection circuit to activate.



## Input Supply Connection

### **WARNING**

Only a qualified electrician can connect the welding machine to the supply network. Installation had to be made in accordance with the appropriate National Electrical Code and local regulations.

Check the input voltage, phase and frequency supplied to this machine before turning it on. Verify the connection of ground wires from the machine to the input source. The welding machine **INVERTEC 275TP** must be connected to a correctly installed plug-in socket with an earth pin.

Input voltage is 400 Vac 50/60Hz. For more information about input supply refer to the technical specification section of this manual and to the rating plate of the machine.

Make sure that the amount of mains power available from the input supply is adequate for normal operation of the machine. The necessary delayed fuse or circuit breaker and cable sizes are indicated in the technical specification section of this manual.

### **WARNING**

The welding machine can be supplied from a power generator of output power at least 30% larger than input power of the welding machine.

### **WARNING**

When powering the machine from a generator be sure to turn off welder first, before generator is shut down, in order to prevent damage to welder!

## Controls and Operational Features

Front panel INVERTEC 275TP




Figure 1

1. Output negative socket for the welding circuit
2. Output positive socket for the welding circuit: Socket where TIG torch must be connected
3. C5B torch socket
4. Gas quick coupling socket. For connecting the torch gas pipe
5. Remote Control Connector Plug For connecting a Remote Control Kit
6. User Interface: See „User Interface” section.
7. USB connector

Back panel INVERTEC 275TP



Figure 2

1. Gas quick coupling socket: For connecting a gas pipe. 
2. Power switch:

### WARNING

The machine allows the use all suitable shielding gases with a maximum pressure of 5 bar.

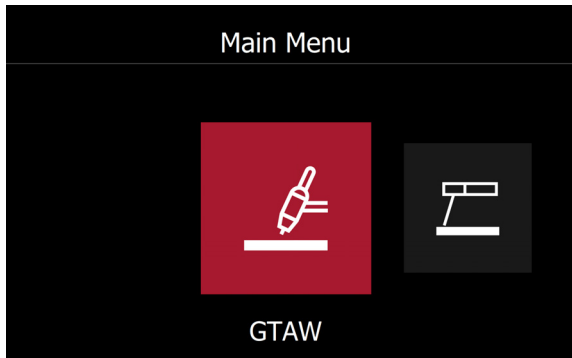
## User Interface



Figure 3

1. Display: 5” TFT display shows welding processes parameters.
2. Left button: Home & Back
3. Central Knob: Parameter access and validation by pushing knob
4. Right Button: Access to specific parameter of the current selected page.

## Main Menu



**Figure 4**

In Main Menu, 3 selections are possible

- GTAW: allow to enter in TIG Home Menu
- SMAW: allow to enter in MMA Home Menu
- Information: Entering in this section allow to the user to configure various parameters of the power source.

## Home Menu description



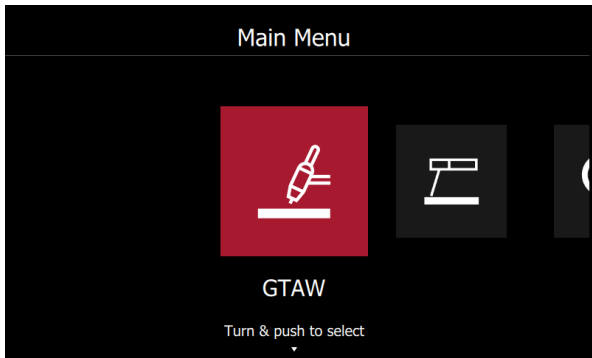
**Figure 5**

1. In "Primary Settings" area, the type of process and corresponding information will be indicated like type of arc striking for TIG and type of MMA mode (Soft, Crisp etc ...)

If "Guided Setup Mode" is selected, all inputs will be displayed in the section.

2. "Status Bar" give additional information like Trigger Interlock selection, remote control status.
3. "Preset Current" indicates the current value configured by welder and, during welding, welding current value.
4. "Voltage": Indication of voltage welding voltage.
5. "Secondary Settings" allow to user to see the current values of weld sequence parameters.
6. "Contextual Buttons / Encoders Labels", informs the user of features associated to the knob and buttons

## Welding GTAW process



To select, TIG mode process, select the GTAW icon and push the knob button.

### Home menu

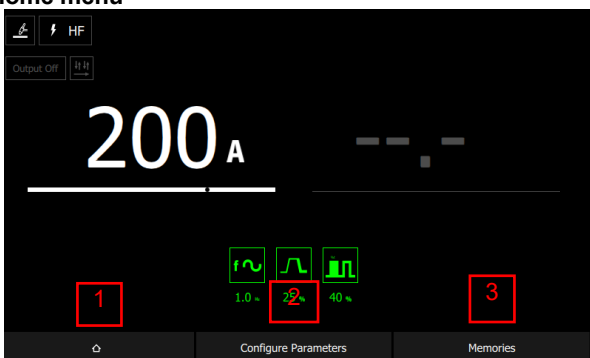


Figure 6

1. "Main Menu" access, push this button to go back.
2. Push button to configure all parameter of current process. Turn the knob to adjust the welding current value.
3. "Memories" access. See dedicated Section.

### Configure Parameters

#### Arc Strike

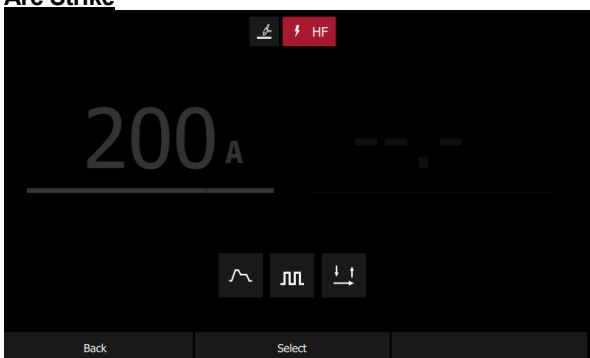


Figure 7

To select the type of arc striking: HF or Touch Start, select the corresponding menu and push the Knob.

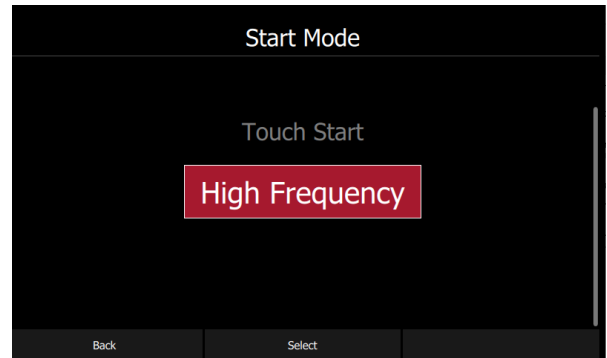


Figure 8

Select the arc strike type desired.

### Weld sequence configuration

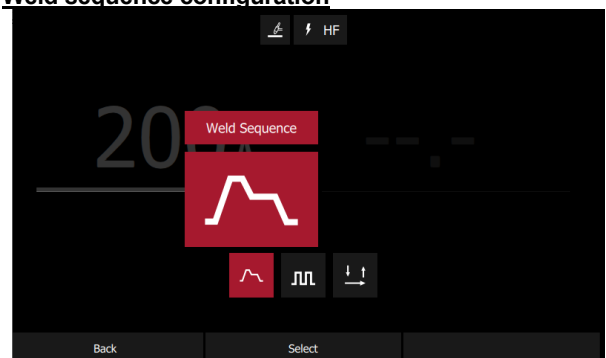


Figure 9

Select "Weld Sequence" menu to configure the following parameters:

- Pre-Gas time
- Start current
- Ramp-up time
- Welding current
- Ramp-down time
- End current
- Post-gas

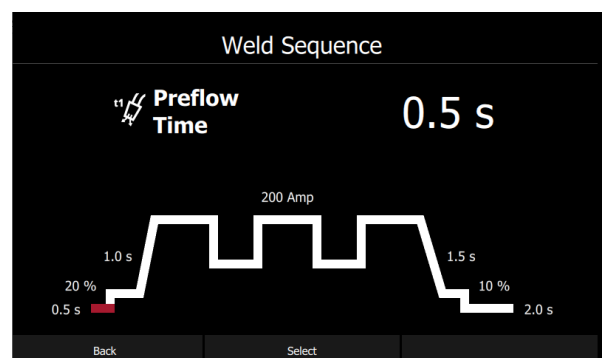


Figure 10

For each parameters, use the knob to reach corresponding part of the weld sequence and push knob button.

## Pulse Mode

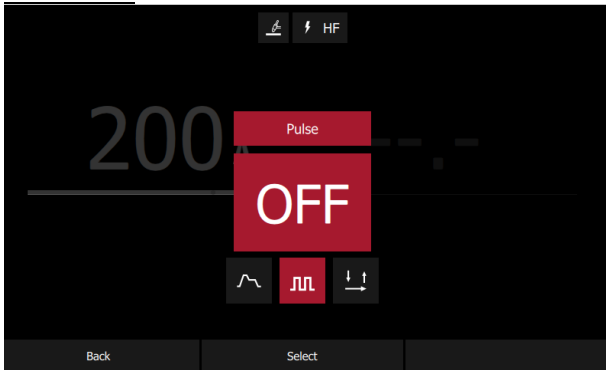


Figure 11

Select “Pulse” menu to activate/deactivate the pulse mode.

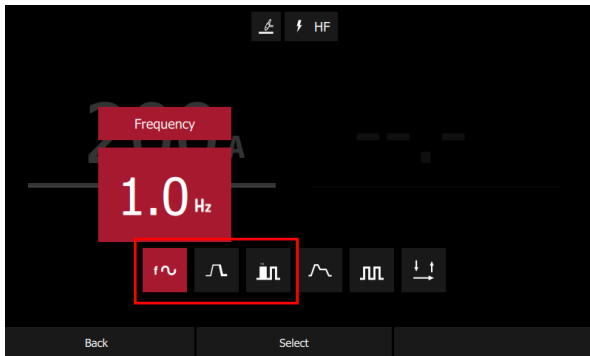
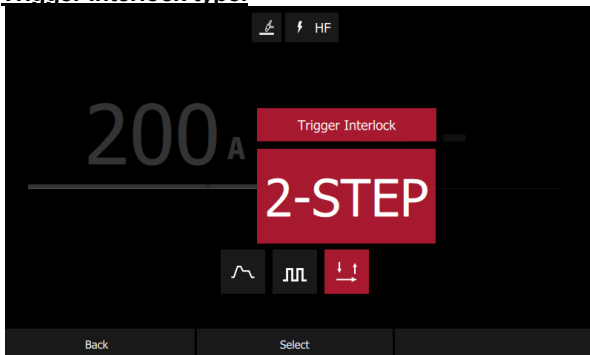


Figure 12

When activated some additional icons will appear in the left side:

- Pulse frequency
- Background current (percentage of Welding current)
- Duty cycle.

## Trigger Interlock type.



Select “trigger Interlock” Menu to change the way that trigger switch on torch is managed. Push knob button to select the desired one:

- 2-STEP
- 4-STEP
- 2-STEP RESTART
- 4-STEP RESTART
- 4 STEP-Bi Level
- SPOT
- TFT

See dedicated section for additional description.

## TIG Trigger Sequences

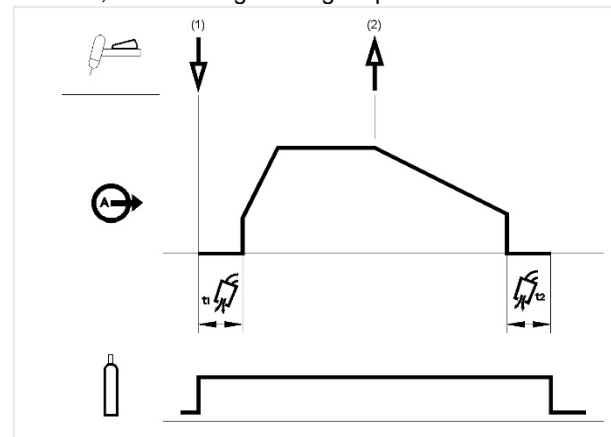
TIG welding can be done in either the 2-step or 4-step mode. The specific sequences of operation for the trigger modes are explained below.

### Legend of the symbols used:

	Torch Pushbutton
	Output Current
	Gas Pre-flow
	Gas
	Gas Post-flow

### 2-Step Trigger Sequence

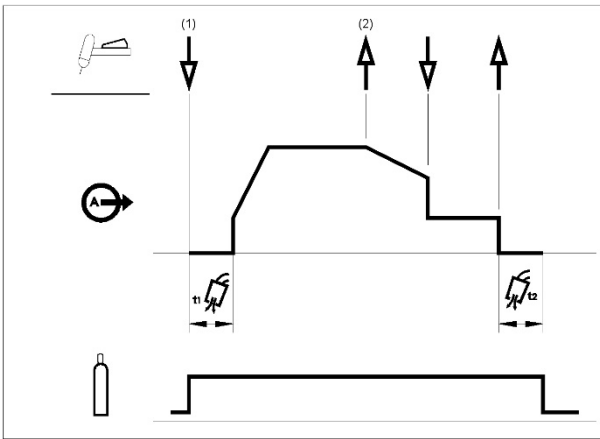
With the 2-step trigger mode and a TIG welding mode selected, the following welding sequence will occur.



1. Press and hold the TIG torch trigger to start the sequence. The machine will open the gas valve to start the flow of the shielding gas. After the preflow time, to purge air from the torch hose, the output of the machine is turned ON. At this time the arc is started according to the selected welding mode. After the arc is started the output current will be increased at a controlled rate, or upslope time, until the Welding current is reached.

If the torch trigger is released during the upslope time the arc will stop immediately and the output of the machine is turned OFF. Release the TIG torch trigger to stop welding. The machine will now decrease the output current at a controlled rate, or downslope time, until the Crater current is reached and the output of the machine is turned OFF.

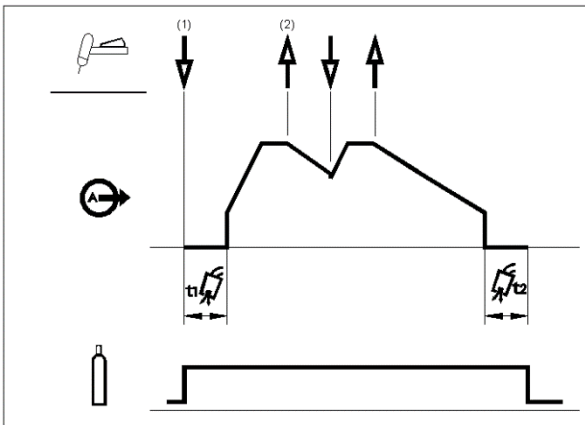
After the arc is turned OFF, the gas valve will remain open to continue the flow of the shielding gas to the hot electrode and work piece.



As shown above, it is possible to press and hold the TIG torch trigger a second time during downslope to end the downslope function and maintain the output current at the Crater current. When the TIG torch trigger is released the output will turn OFF and the post flow time will start. This operation sequence, 2-step with restart disabled, is the default setting from the factory.

### 2-Step Trigger Sequence with Restart Option

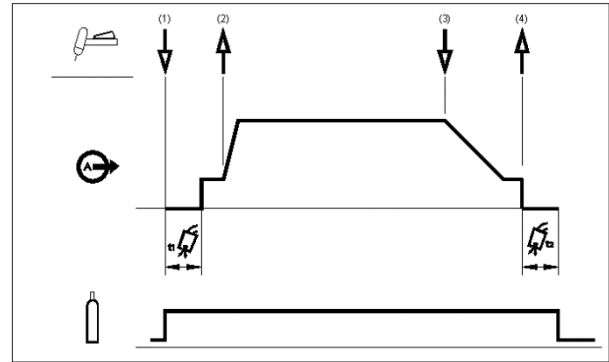
If the 2-step restart option is enabled from the setup menu the following sequence will occur:



1. Press and hold the TIG torch trigger to start the sequence as described above.
2. Release the TIG torch trigger to start the downslope. During this time press and hold the TIG torch trigger to restart welding. The output current will increase again at a controlled rate until the Welding current is reached. This sequence can be repeated as many times as necessary. When the welding is complete release the TIG torch trigger. When the Crater current is reached the output of the machine is turned OFF.

### 4-Step Trigger Sequence

With the 4-step trigger mode and a TIG welding mode selected, the following welding sequence will occur.

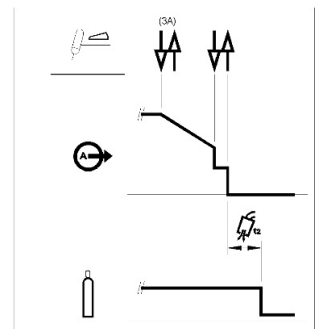


1. Press and hold the TIG torch trigger to start the sequence. The machine will open the gas valve to start the flow of the shielding gas. After the pre-flow time, to purge air from the torch hose, the output of the machine is turned ON. At this time the arc is started according to the selected welding mode. After the arc is started the output current will be at the Start current. This condition can be maintained as long as necessary.

If the Start current is not necessary, do not hold the TIG torch trigger as described at the beginning of this step. In this condition, the machine will pass from Step 1 to Step 2 when the arc is started.

2. Releasing the TIG torch trigger starts the upslope function. The output current will be increased at a controlled rate, or upslope time, until the Welding current is reached. If the torch trigger is pushed during the upslope time the arc will stop immediately and the output of the machine is turned OFF.
3. Press and hold the TIG torch trigger when the main part of the weld is complete. The machine will now decrease the output current at a controlled rate, or downslope time, until the Crater current is reached.
4. This Crater current can be maintained as long as necessary. When the TIG torch trigger is released the output of the machine is turned OFF and the post flow time will start.

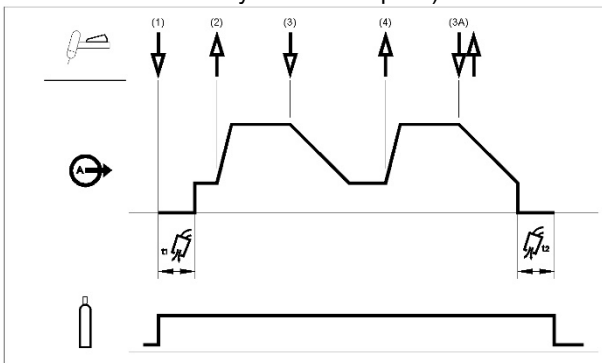
As shown here, after the TIG torch trigger is quickly pressed and released from step 3A, it is possible to press and hold the TIG torch trigger another time to end the downslope time and maintain the output current at the Crater current. When the TIG torch trigger is released the output will turn OFF.



This sequence operation, 4-step with restart disabled, is the default setting from the factory.

#### 4-Step Trigger Sequence with Restart Option

If 4-step restart is enabled from the setup menu the following sequence will occur for steps 3 and 4 (steps 1 and 2 are not altered by the restart option):

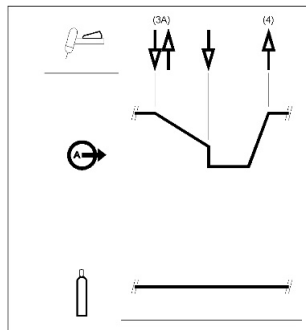


3. Press and hold the TIG torch trigger. The machine will now decrease the output current at a controlled rate, or downslope time, until the Crater current is reached.
4. Release the TIG torch trigger. The output current will again increase to the Welding current, like in step 2, to continue welding.

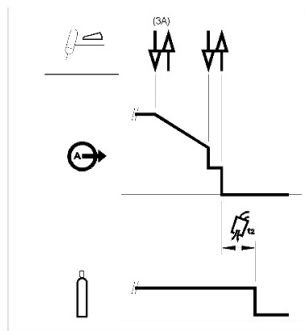
If the weld is completely finished, use the following sequence instead of step 3 described above.

3A. Quickly press and release the TIG torch trigger. The machine will now decrease the output current at a controlled rate, or downslope time, until the Crater current is reached and the output of the machine is turned OFF. After the arc is turned OFF the post flow time will start.

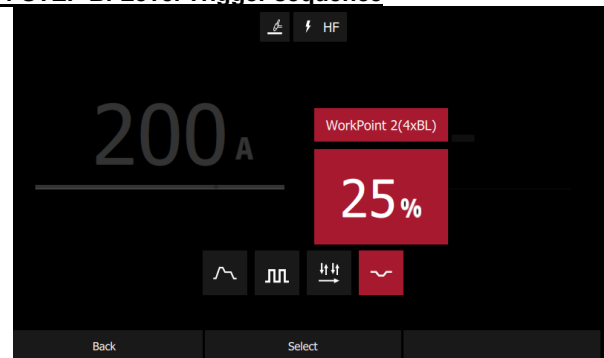
As shown here, after the TIG torch trigger is quickly pressed and released from step 3A, it is possible to press and hold the TIG torch trigger another time to end the downslope time and maintain the output current at the Crater current. When the TIG torch trigger is released the output will again increase to the Welding current, like in step 4, to continue welding. When the main part of the weld is complete go to step 3.



As shown here, again after the TIG torch trigger is quickly pressed and released from step 3A, it is possible to quickly press and release the TIG torch trigger a second time to end the downslope time and stop welding.



#### 4-STEP Bi-Level Trigger sequence



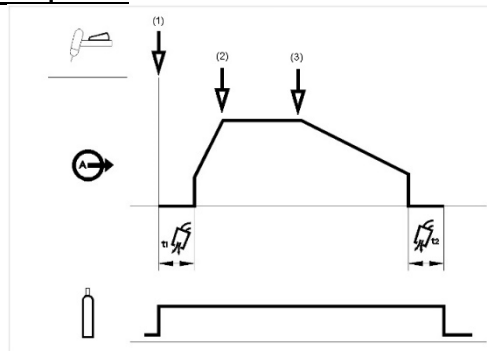
When this sequence is selected, a new icon appears on the right allowing to configure the second level current value. In this example, the background current level will be 25% of welding current value.

With this sequence the arc is started as in the 4S sequence, this means that steps 1 and 2 are the same.

3. Quickly press and release the TIG torch trigger. The machine will switch the current level from A1 to A2 (background current). Each time this trigger action is repeated the current level will switch between the two levels.
- 3A. Press and hold the TIG torch trigger when the main part of the weld is complete. The machine will now decrease the output current at a controlled rate, or downslope time, until the Crater current is reached. This Crater current can be maintained as long as necessary.

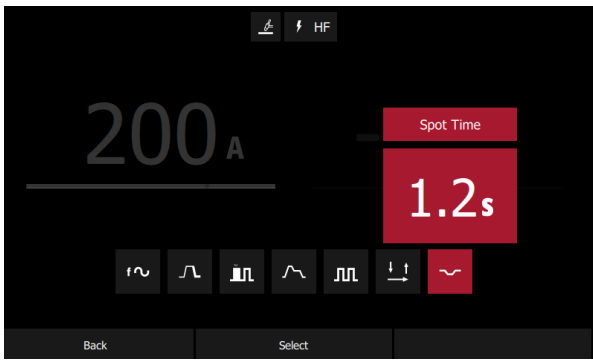
**NOTE:** The Restart option and the Pulse function are not available for Bi-Level Trigger sequence.

#### Spot sequence.



In Spot sequence, the trigger (step 1) starts the welding sequence. Unlike other parameters, the end of cycle does not depend of trigger action: a time set on UI will initiate automatically the slope down phase.

The time configuration is between (2) and (3) arrows.



When Spot is selected, a new icon will be present for time configuration.

**Tack For Thin sequence**

Tack for Thin sequence is very identical to Spot sequence but ramp-up and ramp-down phases of weld sequence are not present. Current directly reaches the welding current.



## Welding SMAW process

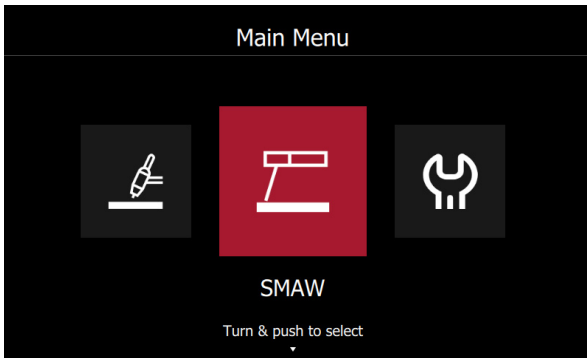


Figure 13

To select, stick mode process, select the SMAW icon and push the knob button.

### Home menu

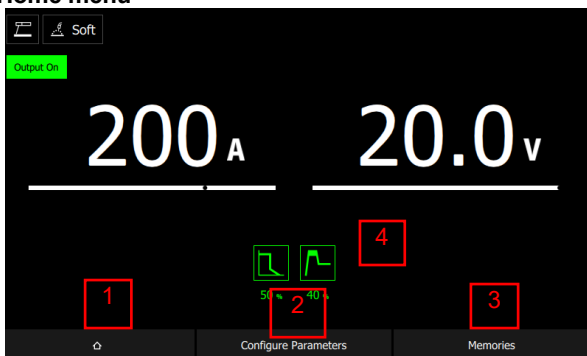


Figure 14

1. "Main Menu" access, push this button to go back to "Main Menu".
2. Push button to configure all parameter of current process.  
Turn the knob to adjust the welding current value.
3. "Memories" access. See dedicated section.
4. "Secondary settings" User can see directly on "Home page" the current parameter values.

### Configure Parameters

#### Stick modes

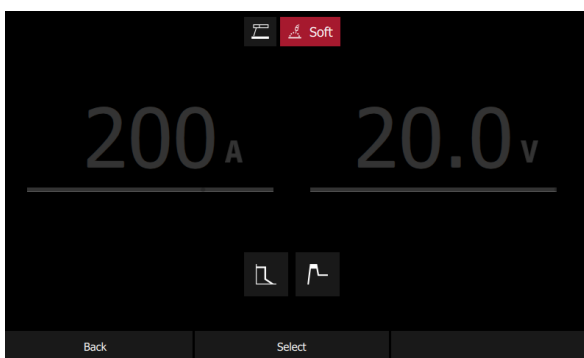


Figure 15

To change the Stick modes, select the corresponding menu and push the Knob button.

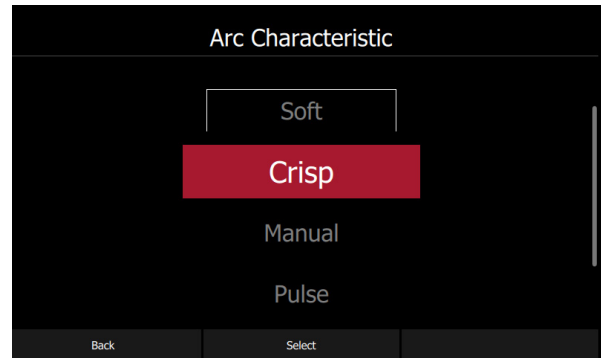


Figure 16

The machine allow the user the use 4 stick mode:

- Soft: For a welding with a low spatter presence. Hot Start and Arc Force are pre-defined and can not be modified
- Crisp: For an aggressive welding, with an increased Arc stability
- Manual: user has full control of Arc Force and Hot start parameters.
- Pulse: user can define the frequency, duty, and welding current.

### Hot Start

This is a temporary increase in the initial welding current. This helps ignite the arc quickly and reliably.

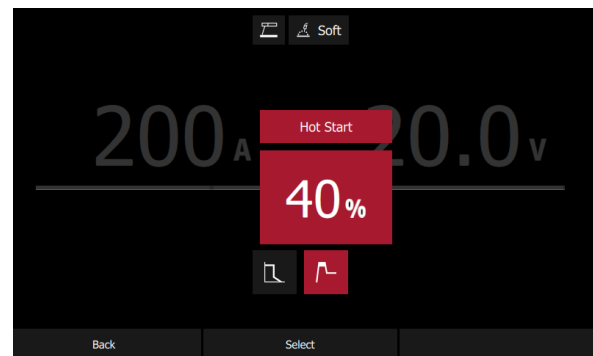


Figure 17

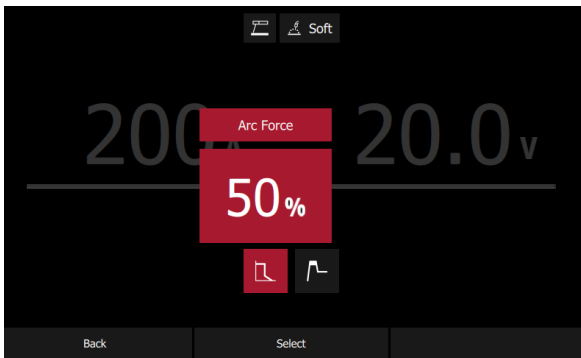
Select the "Hot Start", push the knob button, change the value and push again to validate.

Unit is in percentage. In this example the Initial current will be equal the welding current with 40% of welding current added.

Example: if welding current is 100A, the Hot Start current will be 40%

### **Arc Force**

This is a temporary increase in the output current during normal stick welding. This temporary increase in output current is used to clear intermittent connections between the electrode and the weld puddle that occur during normal stick welding.



**Figure 18**

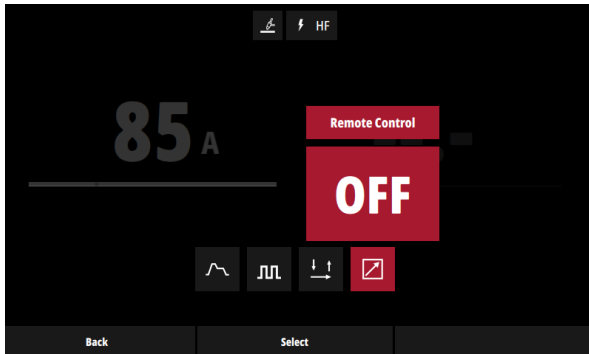
### **Anti-Sticking**

This feature cannot be modified by user.

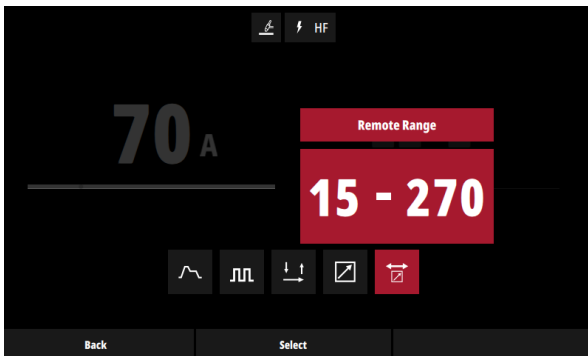
This is a function that decreases the output current of the machine to a low level when the operator makes an error and sticks the electrode to the work piece. This decrease in current allows the operator to remove the electrode from the electrode holder without creating large sparks that can damage the electrode holder.

## Accessories

Accessories and torches configuration can be accessed from the Home Menu by pushing knob button and selected "Remote Control" icon and push knob again.



When activated, a new icon appears on the right of "Remote Control" icon named "Remote range".



### Hand Remote

Usable for GTAW and SMAW process.

The current displayed correspond to the position of the remote control potentiometer from minimum to maximum current.

Minimum and maximum can be defined in the "Remote Range". In above example, the minimum current is 5A and the maximum is 270A for GTAW and 250A for SMAW

### Foot Pedal

Usable in GTAW only.

When selected, the maximum current is the one set on "Home" page by the knob. The minimum current is, like "Hand Remote", the one set on Remote Range section.

As much the pedal is pushed, as much the current will decrease.

### Potentiometer Torch

Usable in GTAW and SMAW

"Potentiometer torch" has the same behavior than "Foot Pedal"

### Amperage UP-DOWN Torch

Usable in GTAW only.

Three operating modes, corresponding to different states of the machine, are identified:

- Before welding: pressing the UP or DOWN key causes a change of value of the Set current
- While welding: pressing the UP or DOWN key causes a change of value of the Set current during all phases of welding process except during the start functions, where the UP/DOWN function is masked.
- Pre/post Flow: pressing the UP or DOWN key causes a change of value of the Set current.

The change will be realized in two ways depending on pressed button time:

- Step function  
Pressing the UP/DOWN button for a minimum time of 200ms and releasing it, causes the set current raises/falls of 1A.
- Ramp function  
Pressing the UP/DOWN button for a time greater than 1 sec., the set current start to increase/decrease with a (5A/s) ramp. If press for more than 5 sec increase/decrease with a ramp of (10A/s).

The current ramp will end when the UP/DOWN button previously pressed is released.

## Memories

Welding process and all parameters which belongs to cycle can be saved in a memory slot in order to be recalled after.

If button is released before the end of saving process, slot will not be erased

“Memories” menu is accessible for both process TIG and Stick process from “Home menu”.

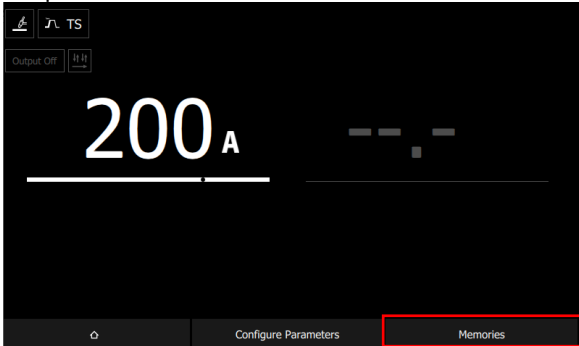


Figure 19

Push the right button to access to memories menu.

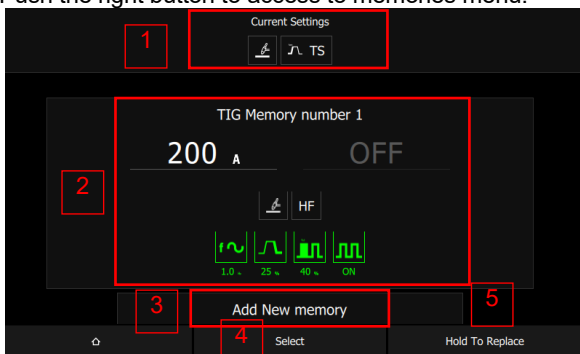


Figure 20

1. On the top of memory page, the current settings which are going to be saved are displayed.
2. With the knob it is possible to scroll up or down to select an empty or used slot memory. If the slot is already used, the parameters associated to the backup are displayed.
3. Select “Add New memory” to use an empty slot.
4. Push the knob button to recall the process and corresponding parameters stored in the selected slot.
5. In order to save the current setting in memory, push the right button and keep it hold until the end of saving.

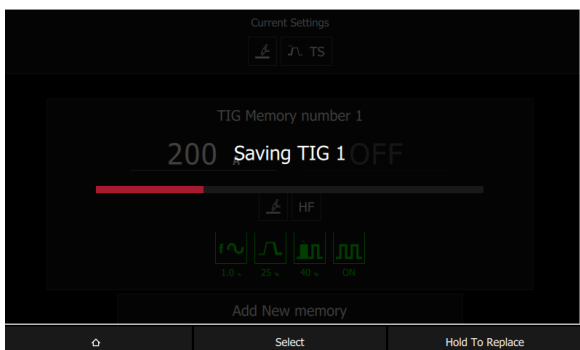


Figure 21

## Guided Setup

Guide Setup is a feature which configures automatically the power source according to a set of input data:

- Type of metal sheet
- Thickness
- Type of joint
- Tungsten diameter

Based on this data, the power source will be automatically configured to get the most suitable parameter for the configuration.

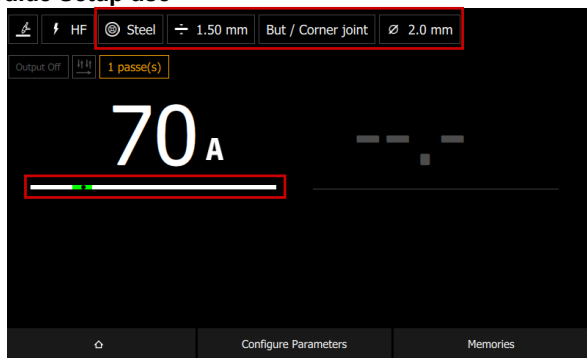
### Guide Setup activation

Guided Setup can be activated in "System Option" then "Weld Mode Setup".

In "Manual Mode", assistance is deactivated. A push on knob button will allow to activate it



### Guide Setup use

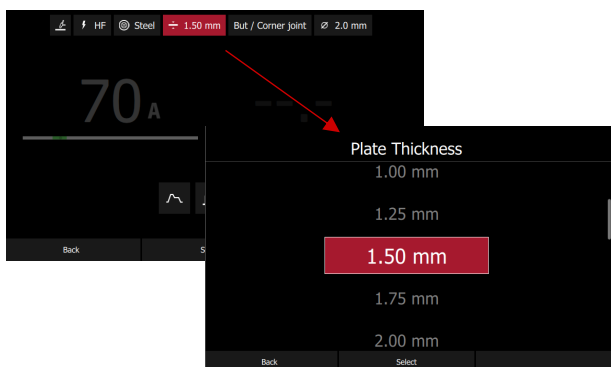


When Guided mode is activated, Home page will be adjusted by:

- Adding list of all inputs data in "Primary Settings" section.
- Preset a defined current value.
- Modifying current range ribbon

### Primary settings:

To change and configure input parameters press the knob button and navigate to parameter desired. Then push knob button to validate.



Once parameters are modified, the output welding current will be automatically adjust to fit with the application.

### Current range ribbon

The machine automatically configures the best current value. It is also possible to adjust the current around this value. As soon as the current remains in proper welding current range for the application,



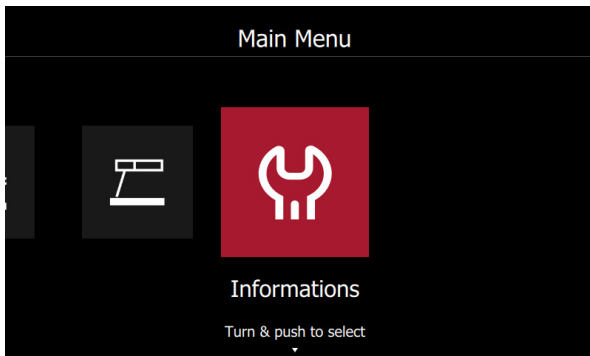
If the current exceed the proposer welding range, the ribbon turned into red indicating to the user the current selectin is not the best one.



## System menu

### Parameters

To configure Power Source parameters, select “Information” icon.



After clicking on “Information”, three lines will be available:

- Weld Mode Setup
- Advanced Settings
- System Information

### Weld Mode Setup

See “Guided Setup” section

### Advanced Setting.

In this section:

- Voltage reduction device (Vrd) can be activated/deactivated
- Configuration of Cooler.

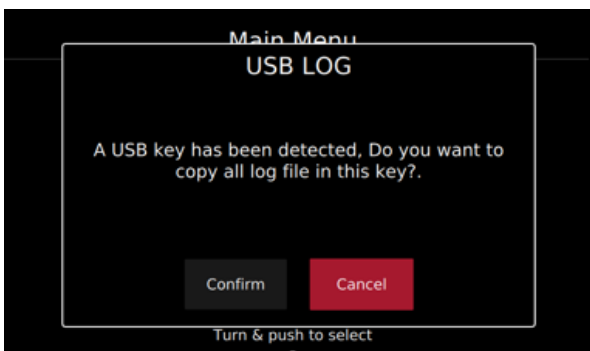
### System Information.

The software revision will be displayed in this section.

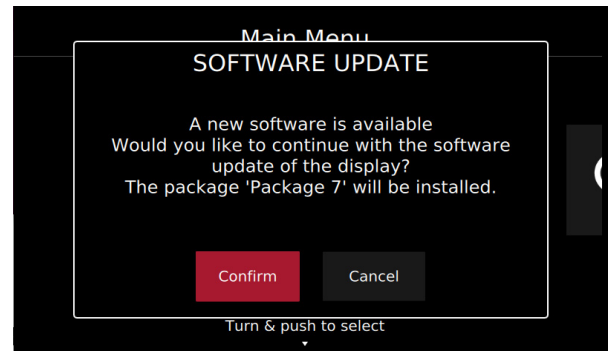
### Software upgrade.

Software will be released during the life time of power source and bring new features.

In order to upgrade software, insert USB key formatted in FAT32 with new software package at the root of USB key.



A first window pop-up will appear. Cancel it.



A second window will ask you to accept the installation of new software. Push “Confirm” button to start installation workflow.

## Gas Connection



### WARNING

- CYLINDER may explode if damaged.
- Always fix the gas cylinder securely in an upright position, against a cylinder wall rack or purpose-made cylinder cart.
- Keep cylinder away from areas where it may be damaged, heated or electrical circuits to prevent possible explosion or fire.
- Keep cylinder away from welding or other live electrical circuits.
- Never lift welder with cylinder attached.
- Never allow welding electrode to touch cylinder.
- Build up of shielding gas may harm health or kill. Use in a well-ventilated area to avoid gas accumulation.
- Close the gas cylinder valves thoroughly when not in use to avoid leaks.

### WARNING

Welding machine supports all suitable shielding gases at a maximum pressure of 5,0 bar.

### WARNING

Before use, make sure that the gas cylinder contains gas suitable for the intended purpose.

- Turn off input power at the welding power source.
- Install a proper gas flow regulator to the gas cylinder.
- Connect the gas hose to the regulator using the hose clamp.
- The other end of gas hose connect to the gas connector on the power source rear panel or directly to the quick connector located on the rear panel of the power source.
- Connect by dedicated interconnection cable (see "Accessories" chapter) wire feeder and power source.
- Turn on input power at the welding power source.
- Open the gas cylinder valve.
- Adjust the shielding gas flow of the gas regulator.
- Check gas flow with Gas Purge function .

## Transport and Lifting



### WARNING

Falling equipment can cause injury and damage to unit.

During transportation and lifting with a crane, adhere to the following rules:

- The device contains elements adapted for transport.
- For lifting a suitable lifting equipment capacity.

### WARNING

In any way the power source cannot be lifted

## Maintenance

### WARNING

For any repair operations, modifications or maintenances, it is recommended to contact the nearest Technical Service Center or Lincoln Electric. Repairs and modifications performed by unauthorized service or personnel will cause, that the manufacturer's warranty will be lost.

Any noticeable damage should be reported immediately and repaired.

### Routine maintenance (everyday)

- Check condition of insulation and connections of the work leads and insulation of power lead. If any insulation damage exists replace the lead immediately.
- Remove the spatters from the welding gun nozzle. Spatters could interfere with the shielding gas flow to the arc.
- Check the welding gun condition: replace it, if necessary.
- Check condition and operation of the cooling fan. Keep clean its airflow slots.

### Periodic maintenance (every 200 working hours but at least once a year)

Perform the routine maintenance and, in addition:

- Keep the machine clean. Using a dry (and low pressure) airflow, remove the dust from the external case and from the cabinet inside.
- If it is required, clean and tighten all weld terminals.

The frequency of the maintenance operations may vary in accordance with the working environment where the machine is placed.

### WARNING

Do not touch electrically live parts.

### WARNING

Before removed case, machine has to be turned off and the power lead has to be disconnected from mains socket.

### WARNING

Mains supply network must be disconnected from the machine before each maintenance and service. After each repair, perform proper tests to ensure safety.

## **Customer Assistance Policy**

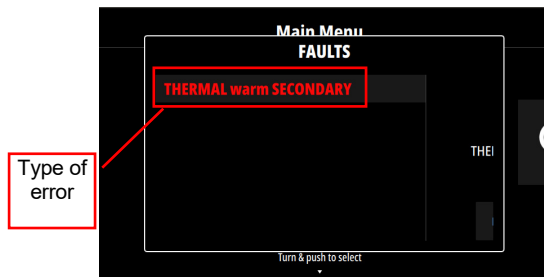
The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products. Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to [www.lincolnelectric.com](http://www.lincolnelectric.com) for any updated information.



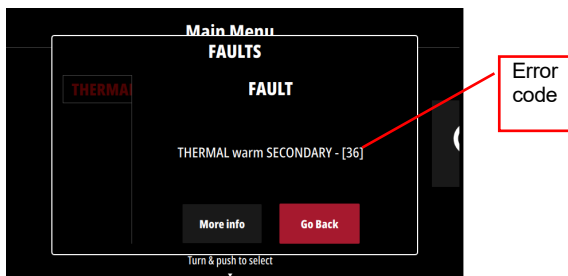
## Error Codes and troubleshooting

When the error occurs and remains, the Error messages is displayed in Red.



By pushing the knob button, the Error code number is displayed.

During error, new welding sequence is blocked until the reason of error remains.



When the error vanished, it is now possible to acknowledge the error by pushing the knob. The background error message becomes white

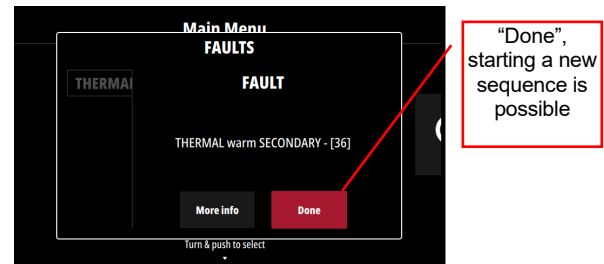


Table 2 shows list of basic errors that can appear. To get full list of error codes, please contact Lincoln Electric service.

**Table 1 Error codes**

Error code	Symptoms	Cause	Recommended Course of Action
36	The machine has shut down because it has overheated.	System detected a temperature level beyond the normal system operating limit.	<ul style="list-style-type: none"> <li>Be sure process does not exceed duty cycle limit of the machine.</li> <li>Check the setup for proper air flow around and through the system.</li> <li>Check that the system has been properly maintained, including removal of accumulated dust and dirt from the intake and outlet louvers.</li> <li>User interface show information when machine will be cooled down. To continue welding operation Please press left knob or start welding operation by the torch trigger</li> </ul>
37	The machine has shut down because it has overheated.	System detected a temperature level beyond the normal system operating limit.	<ul style="list-style-type: none"> <li>Be sure process does not exceed duty cycle limit of the machine.</li> <li>Check the setup for proper air flow around and through the system.</li> <li>Check that the system has been properly maintained, including removal of accumulated dust and dirt from the intake and outlet louvers.</li> </ul>
266	Torch is too warm.	No liquid flows in water torch	<ul style="list-style-type: none"> <li>Check the cooling liquid level, and fill liquid if the level is too low.</li> <li>Check proper connection of cooling</li> </ul>

### **WARNING**

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your Local Lincoln Authorized Field Service Facility for technical troubleshooting assistance before you proceed.

## WEEE

07/06



Do not dispose of electrical equipment together with normal waste!

In observance of European Directive 2012/19/EC on Waste Electrical and Electronic Equipment (WEEE) and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative.

By applying this European Directive you will protect the environment and human health!

## Spare Parts

12/05

### Part List reading instructions

- Do not use this part list for a machine if its code number is not listed. Contact the Lincoln Electric Service Department for any code number not listed.
- Use the illustration of assembly page and the table below to determine where the part is located for your particular code machine.
- Use only the parts marked "X" in the column under the heading number called for in the assembly page (# indicate a change in this printing).

First, read the Part List reading instructions above, then refer to the "Spare Part" manual supplied with the machine that contains a picture-descriptive part number cross-reference.

## REACH

11/19

### Communication in accordance with Article 33.1 of Regulation (EC) No 1907/2006 – REACH.

Some parts inside this product contain:

Bisphénol A, BPA,	EC 201-245-8, CAS 80-05-7
Cadmium,	EC 231-152-8, CAS 7440-43-9
Lead,	EC 231-100-4, CAS 7439-92-1
Phenol, 4-nonyl-, branched,	EC 284-325-5, CAS 84852-15-3

in more than 0,1% w/w in homogeneous material. These substances are included in the "Candidate List of Substances of Very High Concern for Authorization" of REACH.

Your particular product may contain one or more of the listed substances.

Instructions for safe use:

- use according to Manufacturer instructions, wash hands after use;
- keep out of reach of children, do not put in mouth,
- dispose in accordance with local regulations.

## Authorized Service Shops Location

09/16

- The purchaser must contact a Lincoln Authorized Service Facility (LASF) about any defect claimed under Lincoln's warranty period.
- Contact your local Lincoln Sales Representative for assistance in locating a LASF or go to [www.lincolnelectric.com/en-gb/Support/Locator](http://www.lincolnelectric.com/en-gb/Support/Locator).

## Electrical Schematic

Refer to the "Spare Part" manual supplied with the machine.

## Accessories

<b>TIG PREMIUM TORCHES AIR</b>	5mt	8mt
PROTIG IIIS 10 RL	W000382715-2	W000382716-2
PROTIG IIIS 20 RL	W000382717-2	W000382718-2
PROTIG IIIS 30 RL	W000382719-2	W000382720-2
PROTIG IIIS 40 RL	W000382721-2	W000382722-2
PROTIG NGS 10 EB	W000278394-2	W000278395-2
PROTIG NGS 20 EB	W000278396-2	W000278397-2
PROTIG NGS 30 EB	W000278398-2	W000278399-2
PROTIG NGS 40 EB	W000278400-2	W000278401-2
<b>TIG PREMIUM TORCHES WATER</b>	5mt	8mt
PROTIG IIIS 35W RL	W000382725-2	W000382726-2
PROTIG IIIS 40W RL	W000382727-2	
PROTIG NGS 35W EB	W000278404-2	000278405-2
PROTIG NGS 40W EB	W000278406-2	W000278407-2
<b>TIG TORCHES AIR</b>	4mt	8mt
WTT2 9 RL	W000278879	W000278922
WTT2 9 EB	W000278875	
WTT2 17 RL	W000278884	W000278917
WTT2 17 EB	W000278882	W000278919
WTT2 26 RL	W000278890	W000278913
WTT2 26 EB	W000278887	W000278915
<b>TIG TORCHES WATER</b>	4mt	8mt
WTT2 18W RL	W000278898	W000278899
WTT2 18W EB	W000278896	W000278901
WTT2 20W RL	W000278894	W000278905
WTT2 20W EB	W000278892	W000278909
<b>TORCHES ACCESSORIES</b>		
Horizontal potentiometer	WP10529-3	
Vertical potentiometer	WP10529-4	
Up and Down buttons	WP10529-2	
<b>REMOTE CONTROLS</b>		
Manual remote control	K10095-1-15M	
Foot remote control	K870	
<b>OPTIONS</b>		
Coolarc 27	K14334-1	
Freezcool ( 9.6L cooling liquid)	W000010167	
Cart 24	W000355730	
Extension Cord 15m (*)	K14148-1	

Warning: Increasing the length of torch or return cables more than manufacturer maximum specified length will increase the risk of electric shock.

(\*) Only 2 Extension Cord for a maximum total length of 45m can be used