IM3187
10/2022
REV01

Global UI

Introduction 1
UI Interface 1
Interface description 1
Main menu 1
Home Menu description 1
GTAW 2
SMAW 5
Gouging 6
Memories 6
Limits & Lockouts 8
Guided Setup 10
System Options 12
Errors codes and troubleshooting 17
TIG Trigger Sequences 19

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Introduction

Global UI is used for communication between the device and the user. It contains 5'' TFT display, two controls with active button and center validation button that allow the user to effectively and quickly control all functions and parameters.

WARNING

According to references some options or features cannot be available.

This interface is or may be widely used in advanced equipment as:

- **INVERTEC TP series**
- **INVERTEC S series**
- **PRESTO series**
- **CITOARC series**
- **PRESTOTIG series**
- **CITOTIG series**

UI Interface

Interface description

Figure 1

1. 5" Display: TFT display shows welding processes parameters.
2. Left Button: Cancel selection. Return to the previous menu.
3. Right Button: Access to various functions.
4. Central Knob Button: Navigate and confirm/validate selection.
5. USB Key: Export welding data and update software.

Main menu

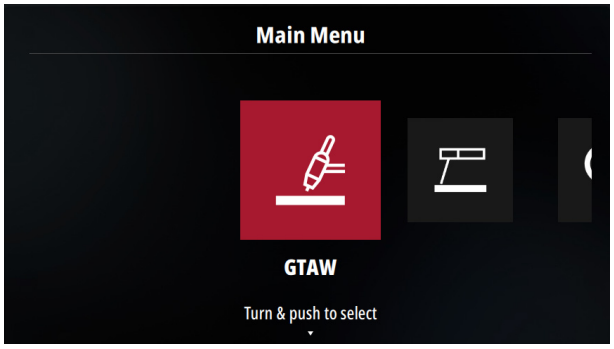


Figure 2

After power source start-up, user has access to process and power source configuration:

- GTAW
- SMAW
- Gouging
- System option

Home Menu description

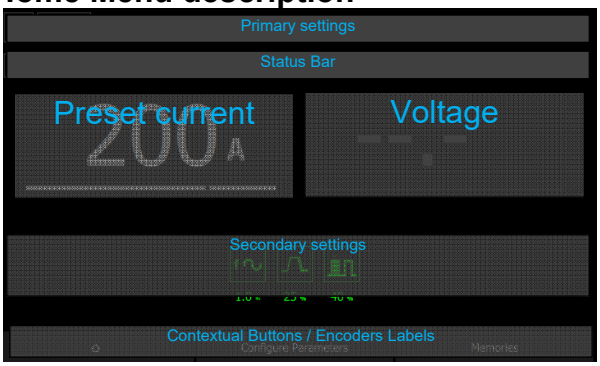


Figure 3

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" gives 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 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.

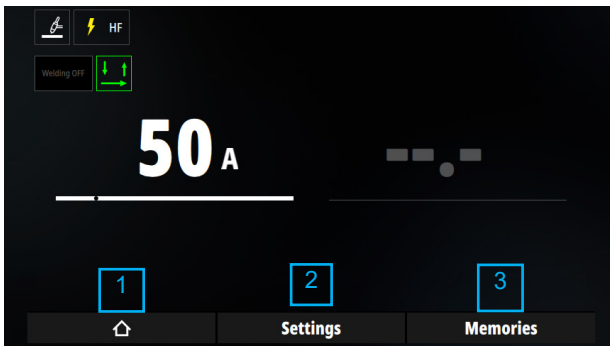


Figure 4

1. “Main Menu” access, push this button to go back in order to change process or go to System Options.

2. Push button to configure all parameters of current process.
   Turn the knob to adjust the welding current value.

3. “Memories” access. See "Memories" subchapter.

GTAW

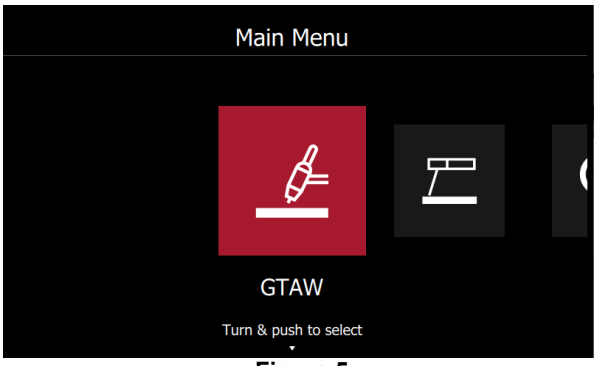


Figure 5

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

Settings pages
In Home menu, push knob to select “Settings”.

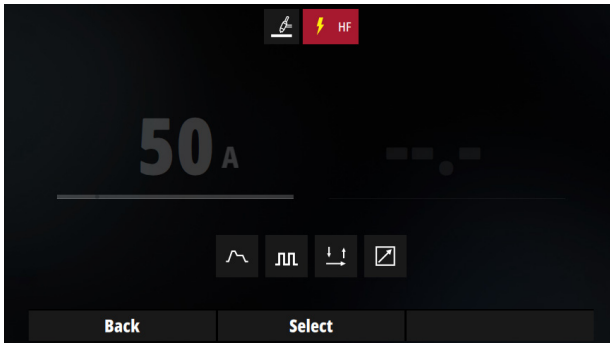


Figure 6

Start Mode selection:

Icon	Description
HF	High Frequency arc striking
TS	Touch Start arc striking

In HF mode, a high voltage will allow arc striking.

In Touch Start, user has to touch welding piece with electrode and lift torch to create arc.

Weld Sequence :

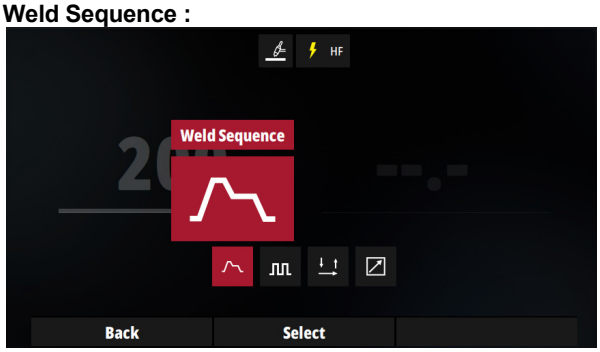


Figure 7

In this section, user will configure all TIG cycle parameters:
- Preflow time
- Start current
- Ramp-up time
- Current value
- Slope-down time
- Finish current
- Postflow time

If pulse mode is activated, additional parameters will be available:
- Frequency
- Duty cycle
- Background current.

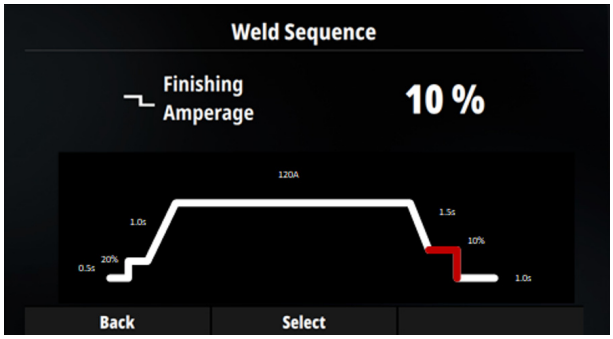


Figure 8

Pulse Mode activation:

Figure 9

When TIG pulse is activated, three new icons appear to configure frequency, duty cycle and background current.

Main Icon	Secondary Icon	Description
		Pulse mode activation or deactivation.
		Pulse **frequency**.
		Configure the **Background current** which is a percentage of Welding current.
		Pulse **duty cycle**.

Trigger Mode:
According to Trigger mode selection, dedicated icon will be displayed in “Status Bar”.

Figure 10

Use knob to go to “Trigger mode” icon and push knob button to enter in “Trigger mode” menu selection.

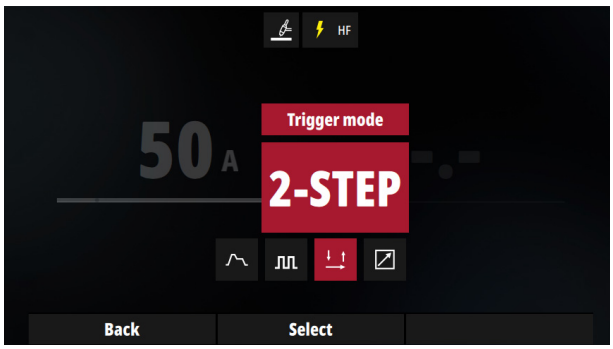


Figure 11

Main Icon	Secondary Icon	Description
		Trigger torch operating mode in **2 Step.**
		Trigger torch operating mode in **4 Step.**
		Trigger torch operating mode in **2 Step with Restart.**
		Trigger torch operating mode in **4 Step with Restart.**
		Trigger torch operating mode in **4 Step Bi-Level.** Secondary icon allows to set the **Background current** value.
		Trigger torch operating mode in **Spot.** Secondary icon allows to set the **Spot time.**
		Trigger torch operating mode in **Tack For Thin**. Secondary icon allows to set the **Tack time.**

For more details about Trigger sequence, see dedicated section in TIG Trigger Sequences chapter.

Remote Control:
When remote control is activated, dedicated icon is displayed in “Status Bar”.

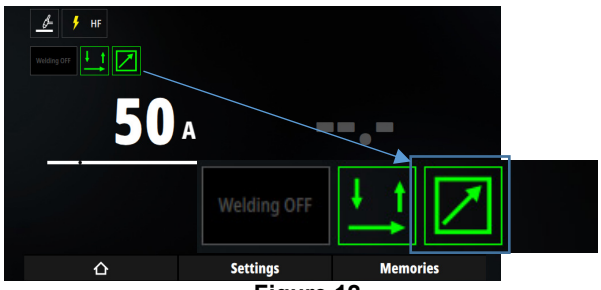


Figure 12

Use knob to go to “Remote Control” icon and push knob button to enter in Remote Control menu selection.

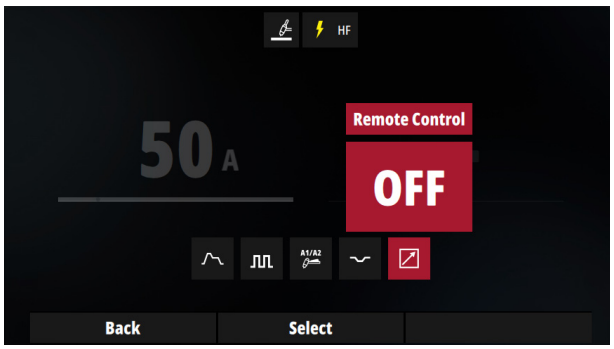


Figure 13

Main Icon	Secondary Icon	Description
		When a remote control is selected (excepted Up & Down). Secondary icon allows to configure current range.

Hand Remote:

- Accessible with Manual remote control and torch with potentiometer.

User configure the current value only with potentiometer. Knob on UI has no effect on welding current configuration.

Current range value is defined in secondary icon. In example below the current range will be from 15A to 270A.

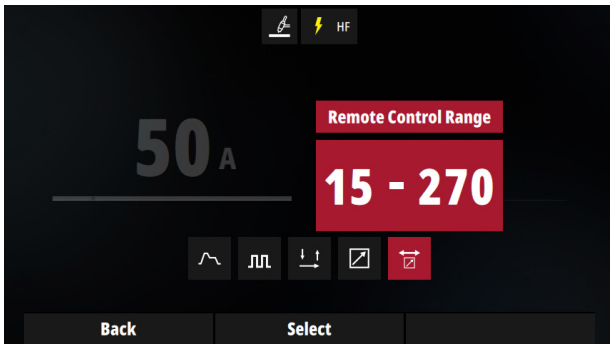
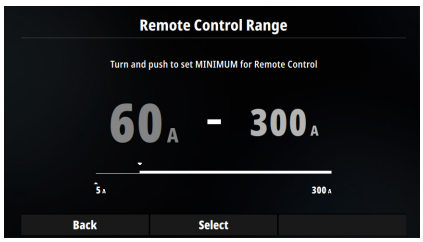


Figure 14

In order to change range value, push knob button and configure lower and upper limits of current range.



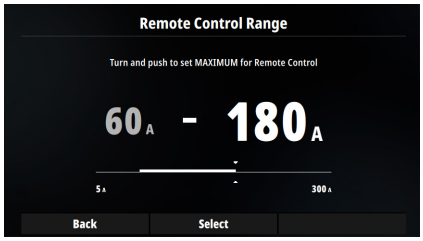


Figure 15

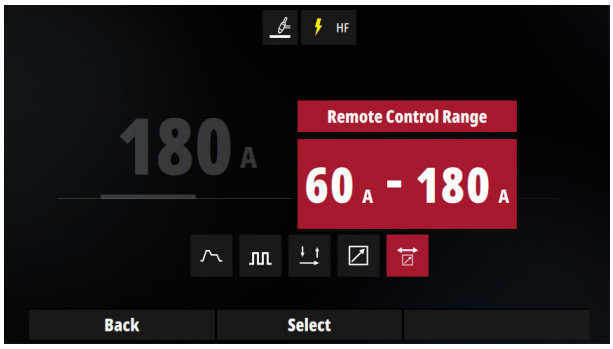


Figure 16

Foot pedal:

- Accessible only with Foot remote control.

User configure the minimum current when pedal is barely press and the maximum current when the pedal is fully pressed.

The current value display on Home menu correspond to current according to pedal position.

Torch potentiometer:

- Accessible only with Torch potentiometer.

Works like Foot remote control but foot effect is done with torch potentiometer.

UP-DOWN torch:

- Usable only with UP&Down torch.

During welding pushing UP button will smoothly increase the current value and pushing DOWN button will smoothly decrease the current value.

SMAW

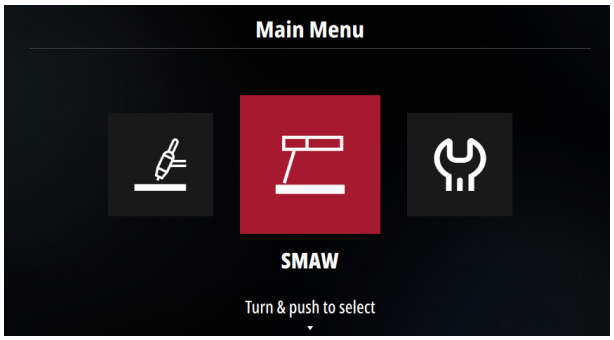


Figure 17

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

Settings pages
In Home menu, push knob to select “Settings”.

Arc characteristics:

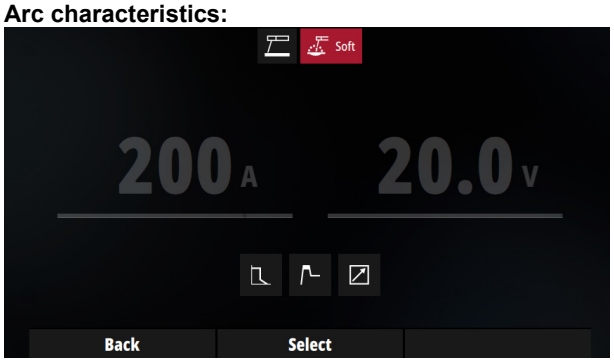


Figure 18

Icon	Description
Soft	Soft arc behaviours. Hot Start and Arc Force cannot be configured.
Crisp	Crisp arc behaviours. Hot Start and Arc Force cannot be configured.
Manual	In manual mode user has full access to Hot Start and Arc Force values.
Pulse	Arc will be pulsed with frequency, duty and background current.

The machine allows the user the use 4 stick modes:

- Soft: For a welding with a low spatter presence.
- Crisp: For an aggressive welding, with an increased Arc stability. This settings is mainly intended to cellulosic electrodes.
- Manual: user has full control of Arc Force and Hot start parameters.
- Pulse: user can define the frequency, duty, and welding current.

WARNING
In Soft and Crisp, Hot Start and Arc Force cannot be modified.

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

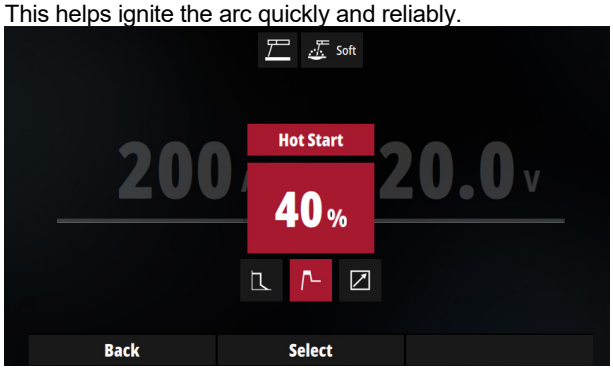


Figure 19

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 140%.

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 contact between the electrode and the weld puddle that occur during normal stick welding.

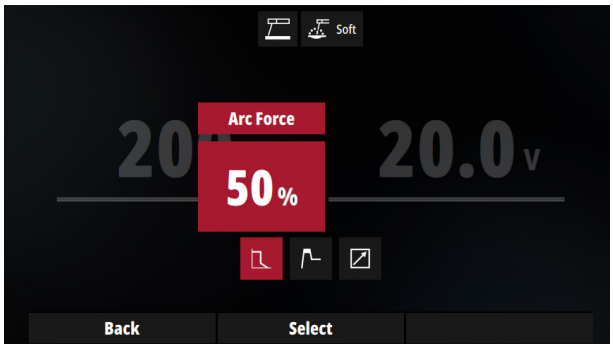


Figure 20

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.

Remote Control

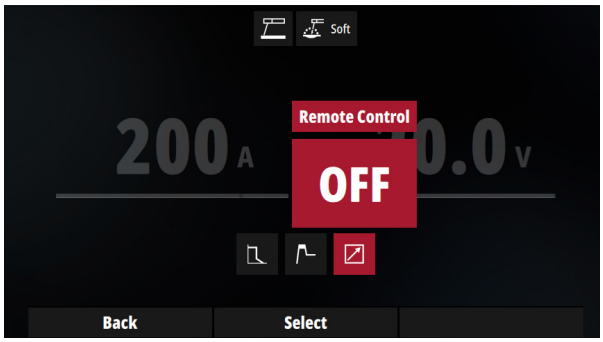


Figure 21

In SMAW mode, two type of remote control can be selected:

- Hand remote control
- Pedal Remote control.

For both, behavior is identical to GTAW. Refer to dedicated section in GTAW chapter.

Gouging

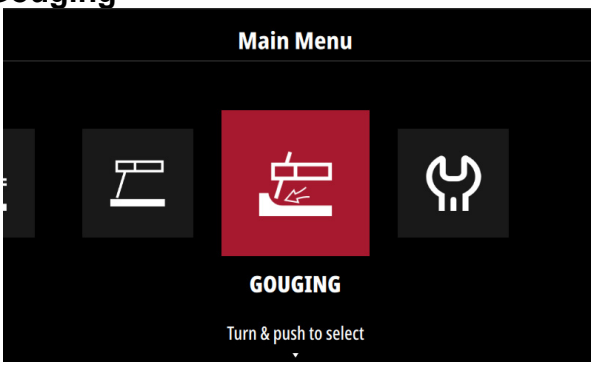


Figure 22

To choose Gouging mode process, select gouging icon and push the knob button.

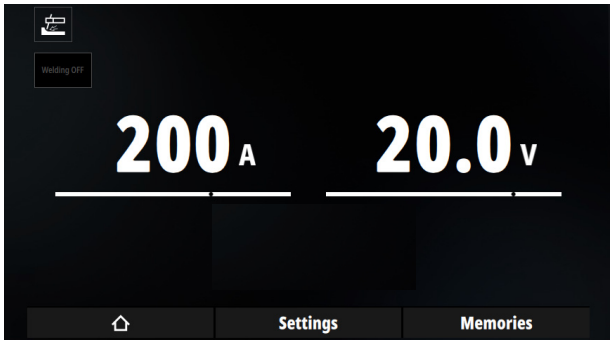


Figure 23

Memories

In Home menu, user can save the current welding setup in dedicated slot by pressing “Memories” button. Welding process and all cycle parameters are saved and can be recalled.

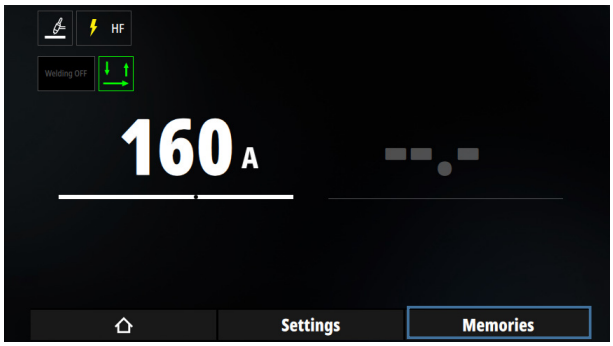


Figure 24

Save Memory

Select a slot and hold “Hold To Replace” to save the current welding. A keyboard will appear allowing user to name the memory.

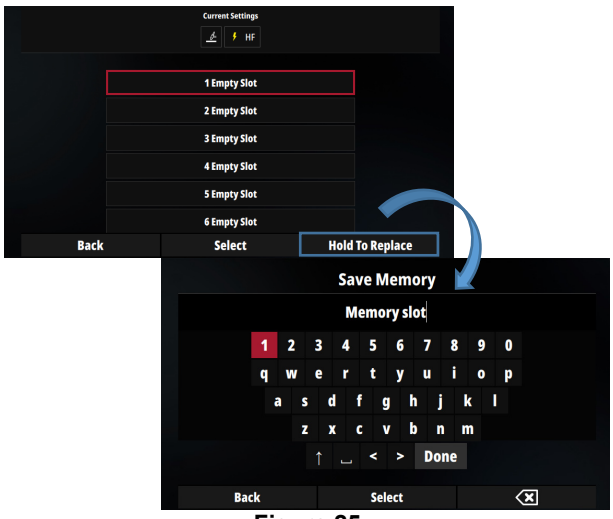


Figure 25

Recall Memory
In Home menu, press Memories button. Navigate with knob to desired memory to load and push Knob button. An icon with slot number will appear on the top right.

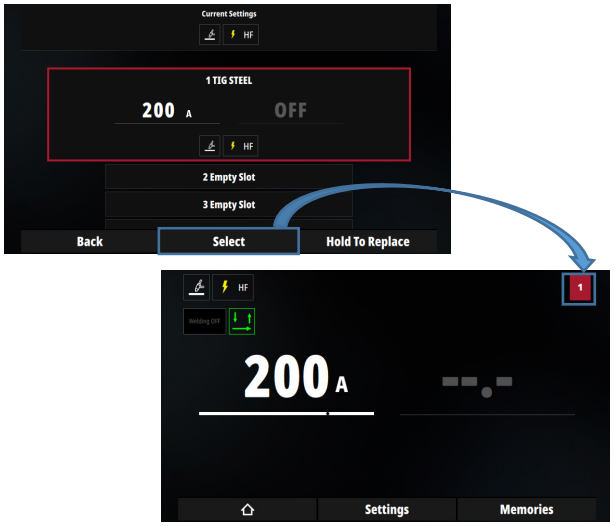


Figure 26

When scrolling through memories slot, border of current memory slot currently selected is displayed in green. Otherwise, border will be red.

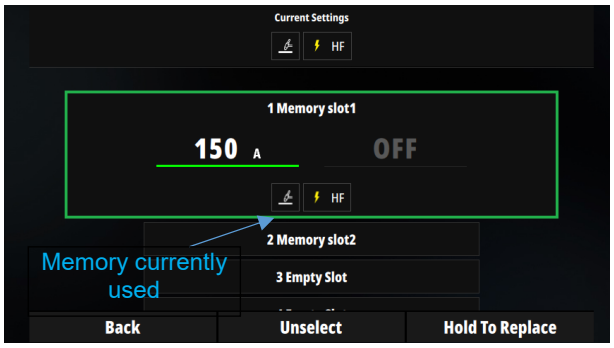


Figure 27

When a memory is used, user can also Unselect memory. This action is necessary when Limit & Lockout are set on memory slot and user needs full control. See Limits & Lockouts section.

Figure 28

Erase Memories
Memories can be erased. Select “System Options”, “Memories management” and finally “Edit memories”.

Select the memories you want to erase and push knob button.

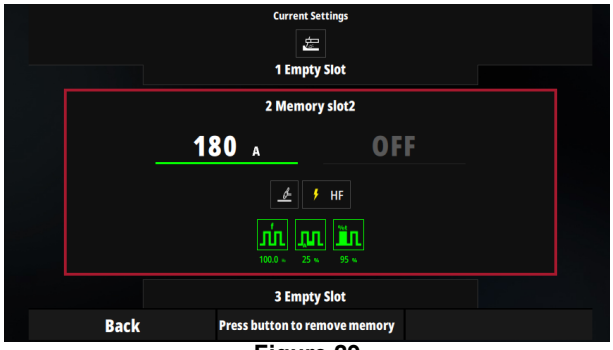


Figure 29

Export / Import memories
To export on USB key memories, plug USB key, then selection USB key in System Options menu. Finally select “Backup all settings & memories”.

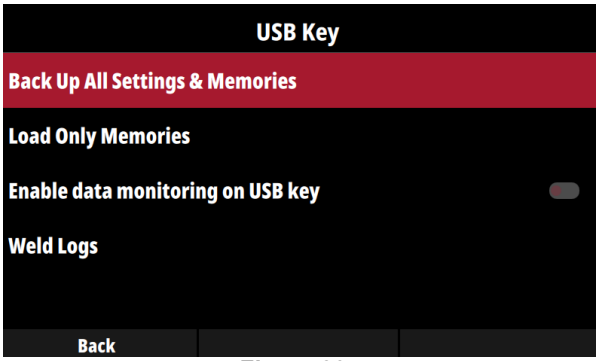


Figure 30

To load from USB key memories previously saved, select Load Only Memories.

Memories and PIN settings
When a supervisor code is created, memories can be locked. See dedicated section Limits & Lockouts.

Limits & Lockouts

Limits & Lockouts allows user to limit or lock some welding parameters like Preflow time, slope up etc…

This feature is closely linked to Memories and PIN settings. Limitations and lockouts can only be defined in a memory slot. User has to load a memory with limited parameters to use limitation features.

To select and set limits and lockouts, select Memories management in System Options menu.

If there is no PIN settings used on machine, Supervisor line cannot be accessed.

A Supervisor (when PIN number is created) can access to all memories locked or not. An Operator can only access to unlocked memories.

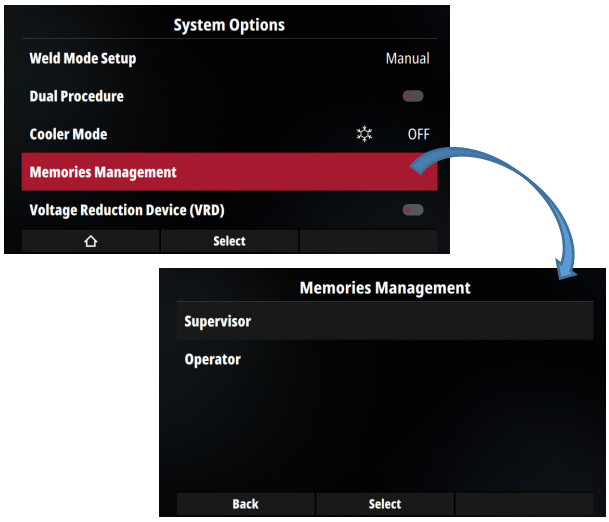


Figure 31

Memory lock

When a supervisor code is created, locking memory forbids any modifications of them. When memory is locked, a lock will be displayed on top-right. To unlock, push Unlock button.

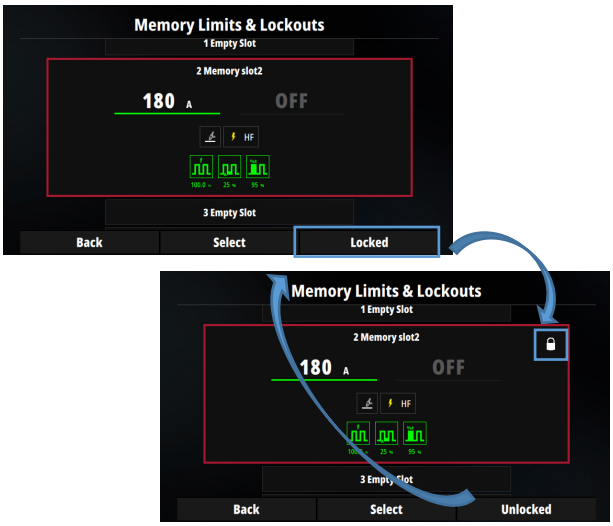


Figure 32

In Home page, memory number is indicated with a lock. Any memory modification by erasing are impossible as long as memory is locked. To replace memory, supervisor must unlock it before.

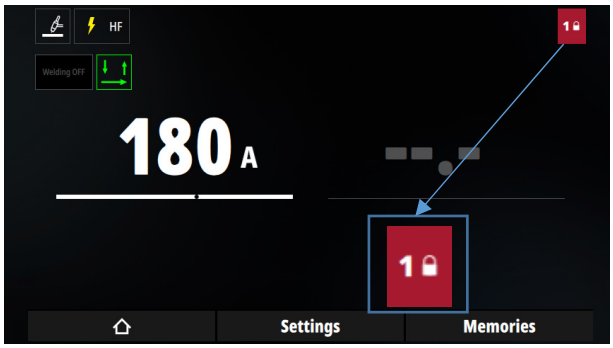


Figure 33

Memory limits and lockouts.

Limits:

In this section, an example will be taken to understand how to limit duty cycle range from 40% to 60% of pulsed TIG. This procedure must be executed for any parameters where restriction are expected.

From Home page, TIG parameters are saved in memory slot n°2 with duty cycle set to 50% (within 40% and 60%).

Figure 34

To define limit, user have to go to “System Options” → “Memories Management” → “Supervisor” or “Operator” → “Limits & Lockouts” et select memory slot n°2.

As there is currently no restriction, range is maximum from 5% to 95%. Push Select button to configure minimum and maximum value.

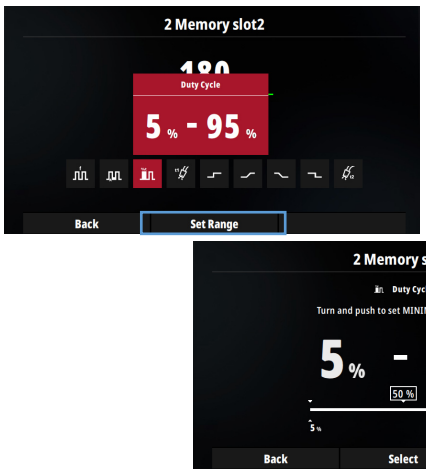


Figure 35

Set low limit to 40% and maximum limit to 60%. Value 50% displayed is the value previously store in memory.

WARNING

Low limit cannot be higher than value store in memory and high limit cannot be lower than value store in memory. Based on this example, if user want to limit duty cycle from 60% to 70%, user has to save configuration in memory with duty value between 60% and 70% for example 65%

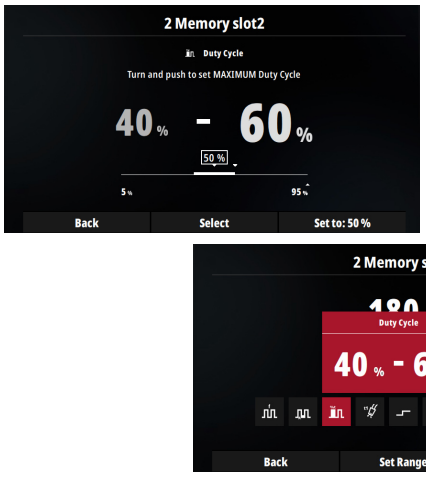


Figure 36

In Home menu, when Duty Cycle is selected, areas in white show inaccessible values.

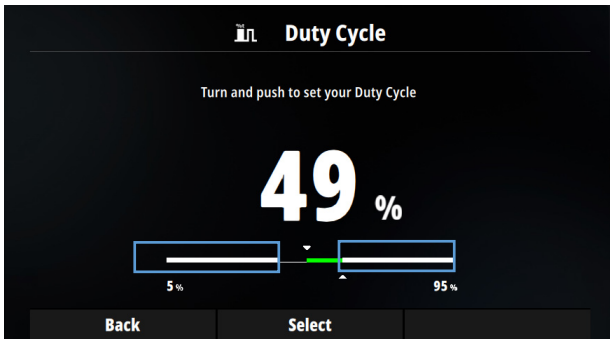


Figure 37

Lockouts:

In order to lock Duty cycle to only one value. Low and High limits must be set to same value.

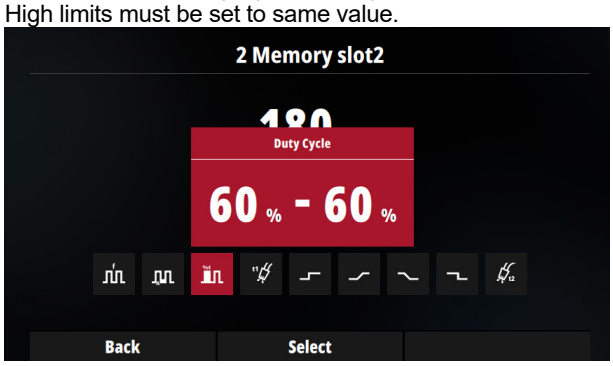


Figure 38

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 parameters for optimum welding quality.

Guide Setup activation

Guided Setup can be activated in System Options then Weld Mode Setup.

In “Manual Mode”, assistance is deactivated. A push on knob button activates it.

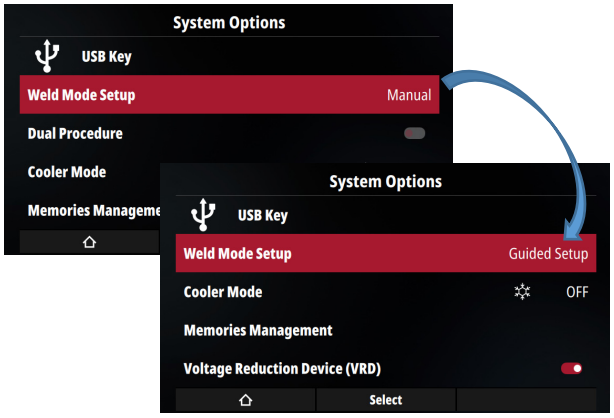


Figure 39

GTAW Guide Setup

When Guided mode is activated, Home page layout is changed by:

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

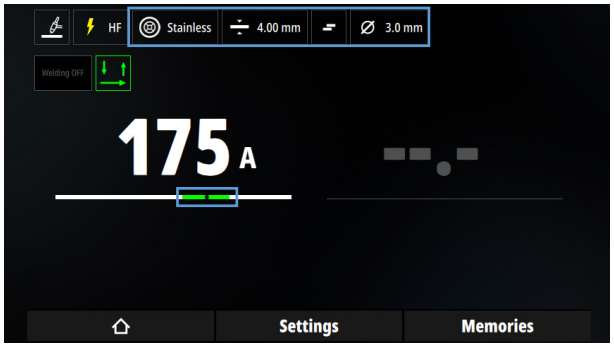


Figure 40

Graphical Guide Setup

Push Guided Setup button to open graphical menu. Step by step, user will set welding parameters:

- Type of material to weld
- Thickness
- Type of joint
- Tungsten electrode diameter.

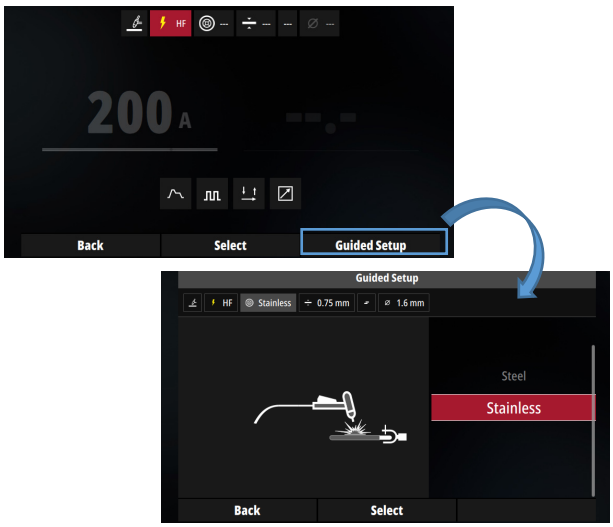


Figure 41

Guide Setup direct access

Global UI offers the possibility to directly change a parameter without recalling the graphical menu. From Home menu, push Settings button and navigate directly to parameter you wish to modify.

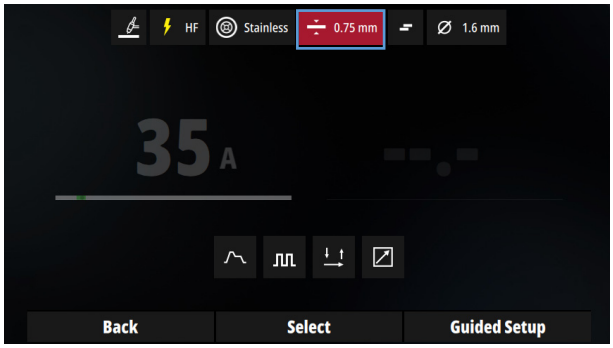


Figure 42

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

Current range

Guided Setup set a current value which fits perfectly with application parameters. However, user keep full control of current value and can modify it.

If current value is not the expected range (green), additional indications (red line and arrow) will appear indicating value is not in appropriate range.

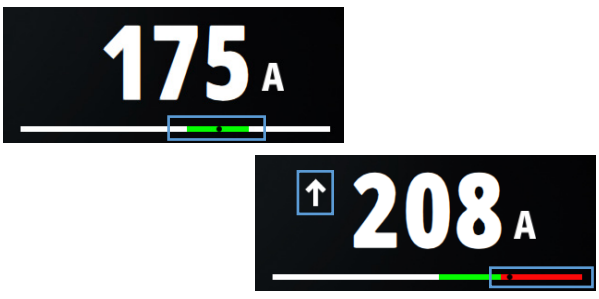


Figure 43

SMAW Guide Setup
In same way than GTAW, SMAW process has also a Guide Setup.

Parameters and inputs data are adjusted for SMAW process.

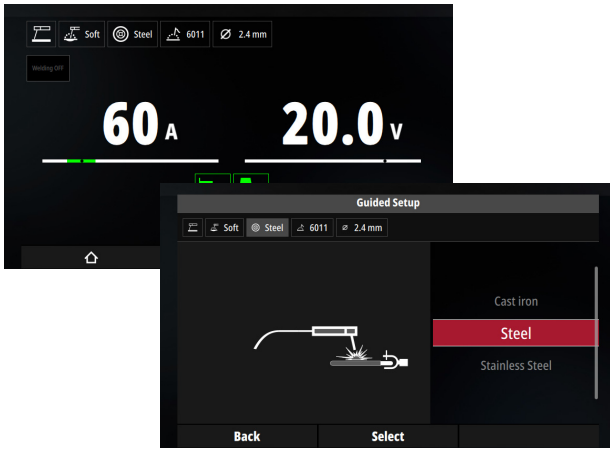


Figure 44

System Options

System Options access is from Main Menu.

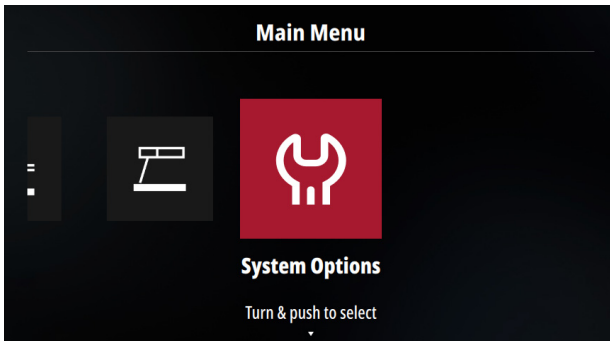
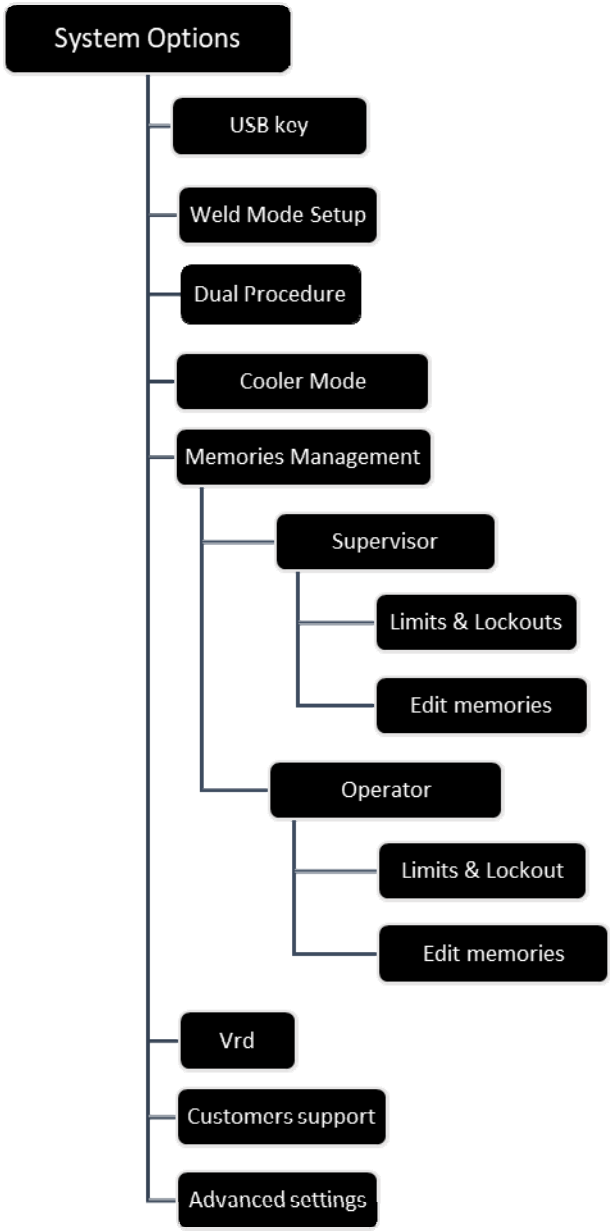


Figure 45:

Here below is the tree menu to configure power source.



USB key

Menu can be accessed only when USB be is plugged and allow user to:

1. Data monitoring

When Data monitoring is activated, characteristics of welding beads are saved on USB key. Following information will be store on USB key:

- Average voltage
- Average current
- Welding bead duration time

WARNING

Data are not saved in the power source. Data monitoring is not possible without USB key plugged.

To activate Data monitoring, plug USB key and toggle Enable data monitoring on USB key switch.

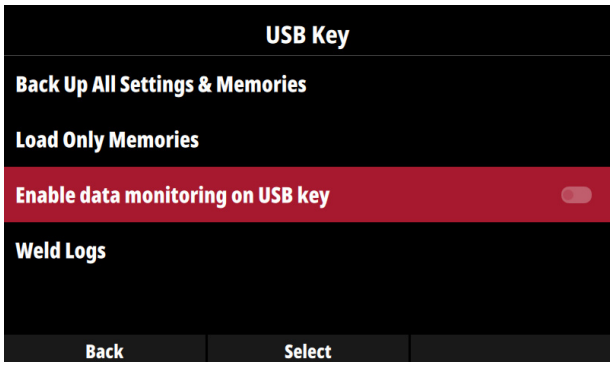


Figure 46

User gets back data in trace.csv file in USB key.

It is also possible to see data stored on USB key on power source UI in Weld Log menu.

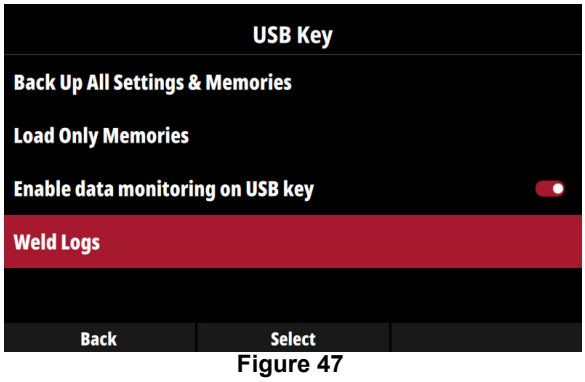


Figure 47

1. Export / Import memories
   See Memories section.

2. Download a new software

When a USB key is inserted in socket, new software is automatically detected. A pop-up windows will ask to confirm software installation.

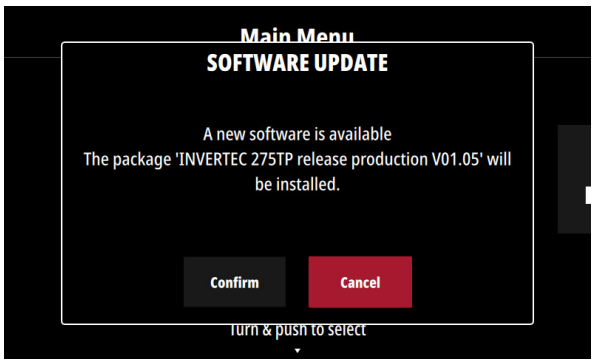


Figure 48

⚠ WARNING

Do not switch power source off during software update.

After software installation and it is requested, power source must be restarted.

Weld Mode Setup

See Guided Setup subchapter.

Dual Procedure

⚠ WARNING

This mode in only available when Weld Mode Setup is in Manual

Dual Procedure allows user to quickly change between two power sources process configurations. Dual Procedure is very similar to Memory recall with quick access.

One configuration is saved in quick memory A and the other configuration is saved in B quick memory B.

In order to activate Dual Procedure.

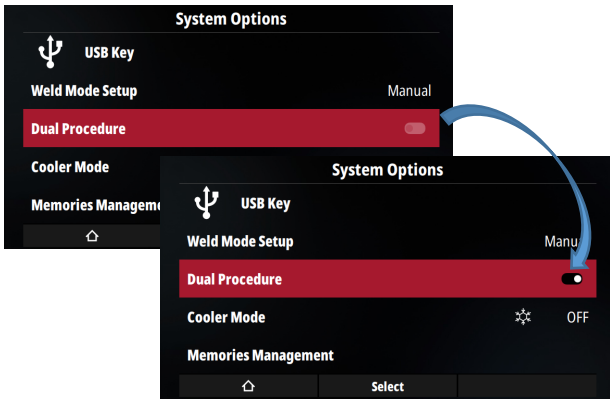


Figure 49

When activated, two new icons will be display in Home Menu according to quick memory A or B selected.

Figure 50

To alternate between A and B, user has to access to new icon in Secondary Settings.

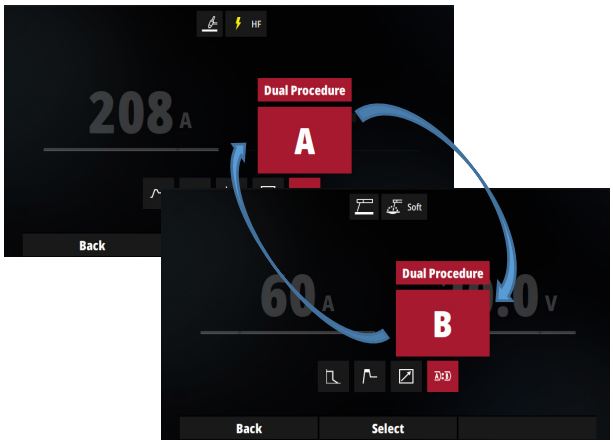


Figure 51

Main Icon	Description
A:B	Push knob button to alternate between A and B procedures.

Cooler Mode

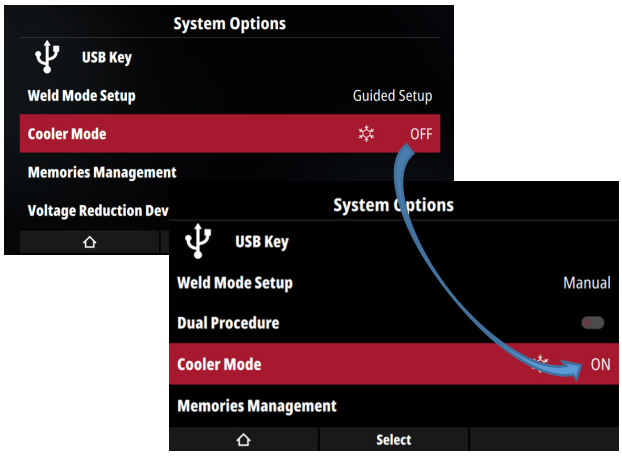


Figure 52

When OFF is selected, cooler is not used.
When ON is selected, cooler will be always activated.
In Automatic mode, cooler will be activated when trigger is pressed and will be shut down few minutes after trigger released.

In ON and Automatic, an icon is displayed on Home menu to indicate Cooler is activated.

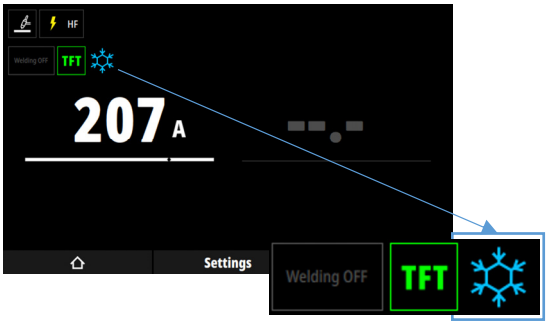


Figure 53

Memories Management
See dedicated sections Memories page 6 and Limits & Lockouts.

VRD
VRD (Voltage Reduction Device) feature is only available when SMAW process is selected.

When VRD is activated, an auxiliary power source with low voltage is used to arc strike.

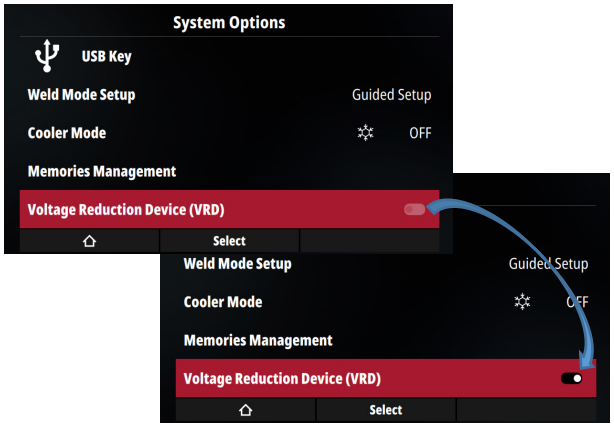


Figure 54

When activated, a new icon on top right will indicate that output voltage is reduced.

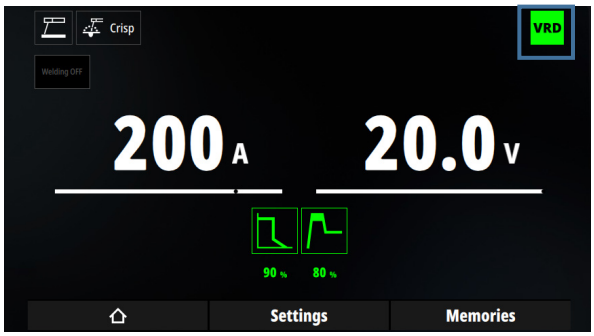


Figure 55

Customers support
In this section, user will find all information of our accessories catalog.

Advanced Settings
Here below is the Advanced Settings tree.

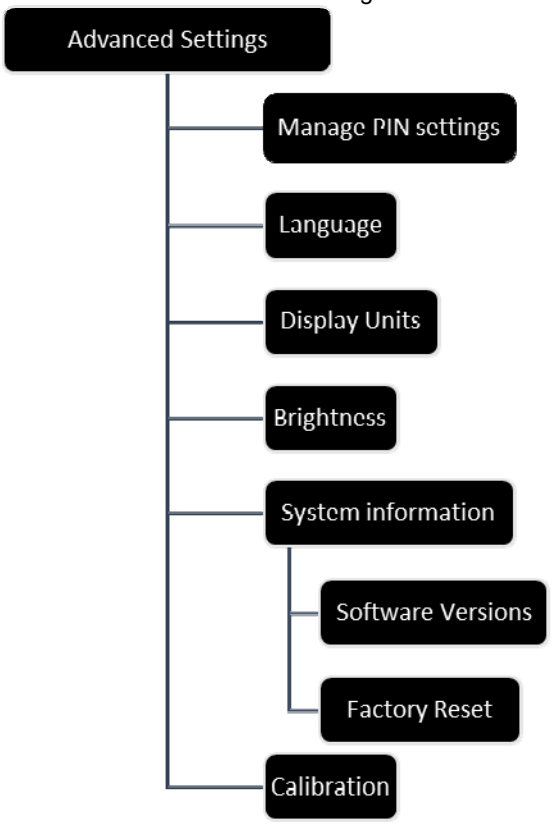


Figure 56

Manage PIN settings
PIN settings allow to create a supervisor code which allows to limit and restrict parameters modification.

Supervisor is defined by a unique PIN code number.

If a supervisor PIN code exists, PIN code will be asked to enter in **Manage PIN Settings** menu.

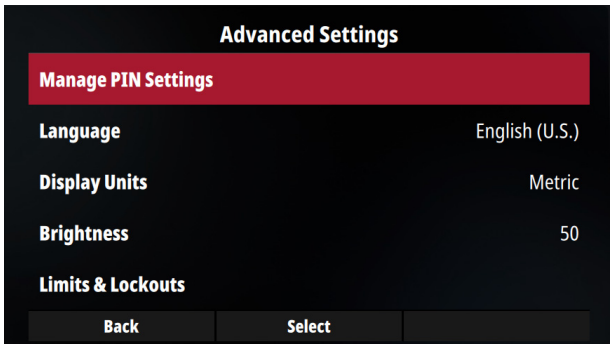


Figure 57

To create a supervisor code (if it does not already exist), select **Create PIN** and enter PIN supervisor code number.

If supervisor PIN code exists **Create PIN** line is not selectable.

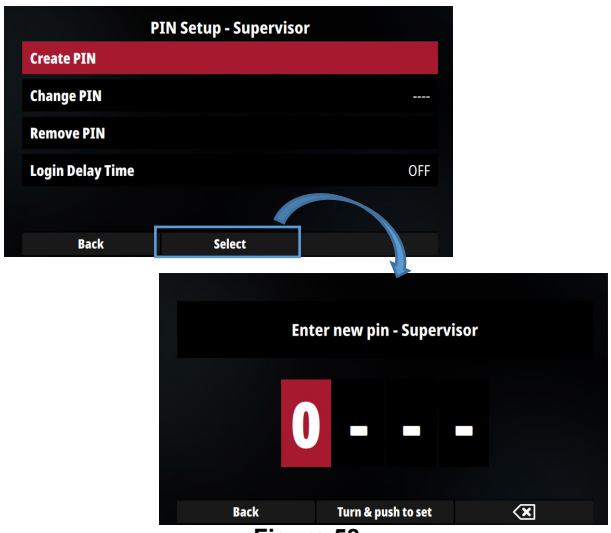


Figure 58

It is possible to change existing supervisor PIN number by selecting **Change PIN.** Before entering new PIN code, current code number will be requested.

If no PIN number is defined, option is not available.

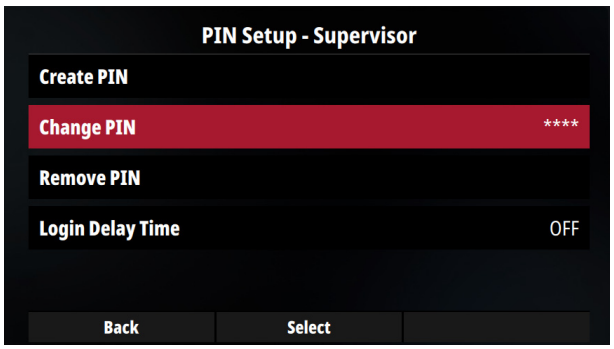


Figure 59

In order to remove supervisor code, select **Remove PIN**. Current PIN code number will be asked to validate supervisor account removal.

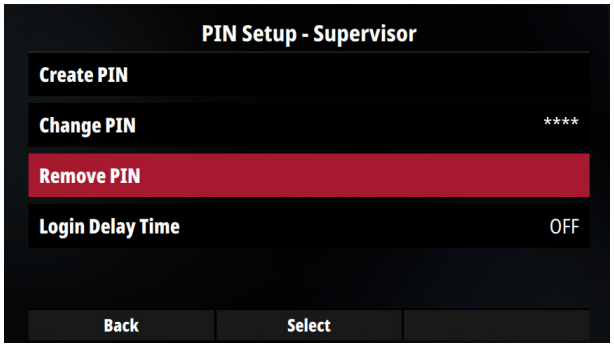


Figure 60

⚠ WARNING

If Supervisor code is lost, a Factory Reset must be done to recover all access to machine.

Login Delay Time

When supervisor code is set on machine, it is possible to avoid entering supervisor code each time it is requested for a definite time. By default, setting is OFF; each time supervisor code is requested, a windows pop-up will ask PIN code.

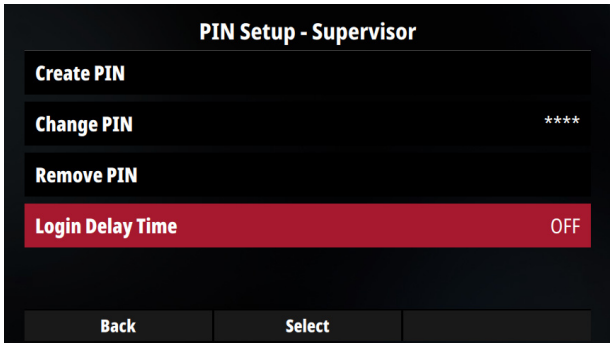


Figure 61

By changing Login Delay Time by a time, supervisor code will not be asked during the time configured.

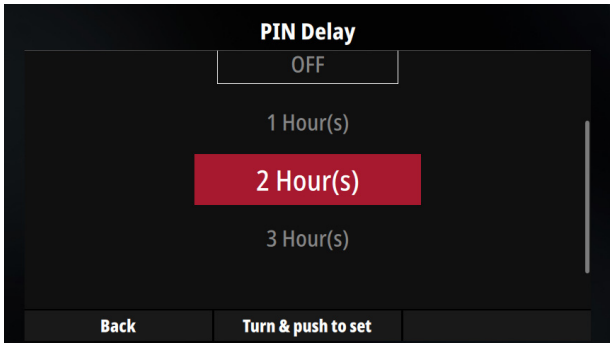


Figure 62

Language

User can change and configure UI language in this section.

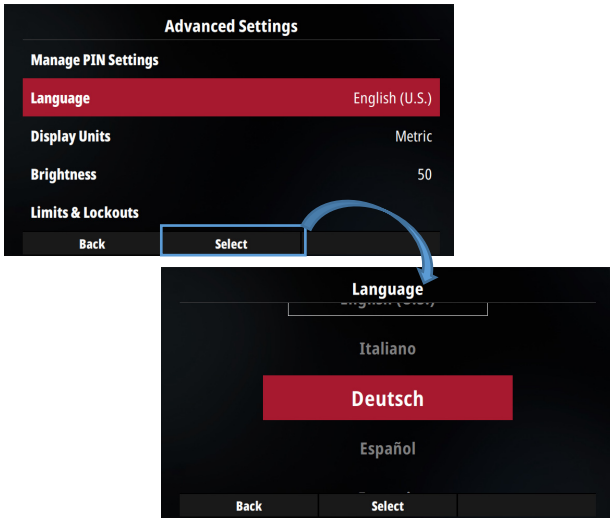


Figure 63

Display Units
In this section, user will be able to select metrics or imperials units.

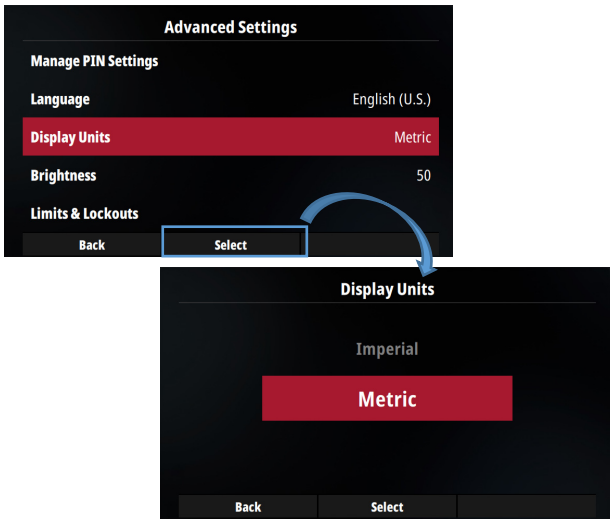


Figure 64

Brightness
User has the possibility to change the brightness of UI.

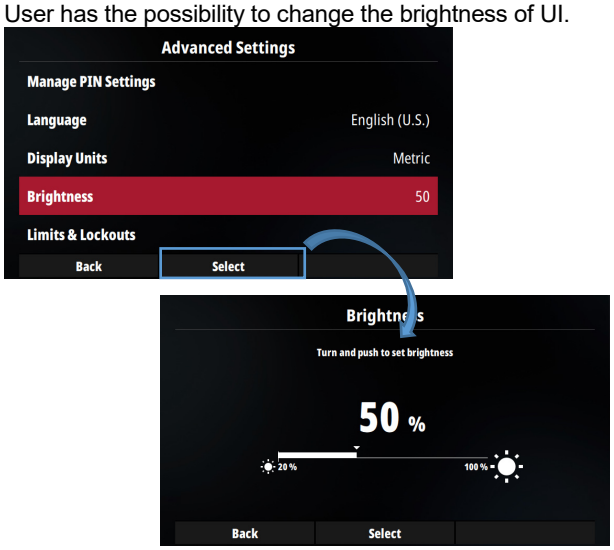


Figure 65

System Information
Software versions are indicated in this section. On the top, v03.XX indicates the package number installed in machine.

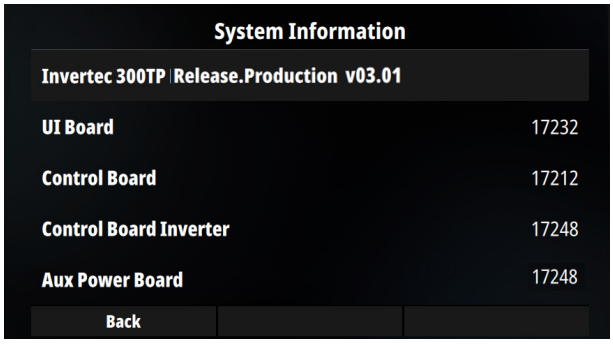


Figure 66

In this section user can restore default **Factory** settings.

WARNING
All memories will be erased. Save them on USB key to reload them after restoration.

Calibration

WARNING
Calibration must be done by skilled technician with proper equipments.

Errors codes and troubleshooting

When the error occurs, the error message is displayed in red.

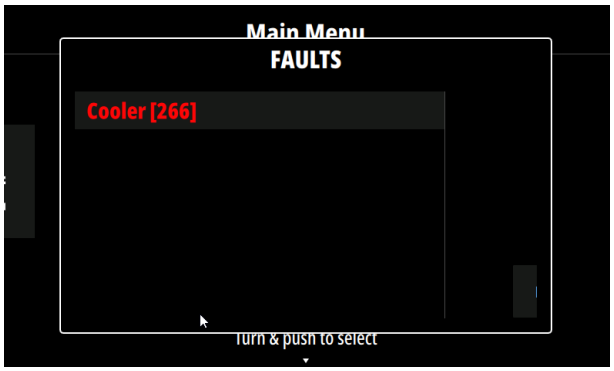


Figure 67

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

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

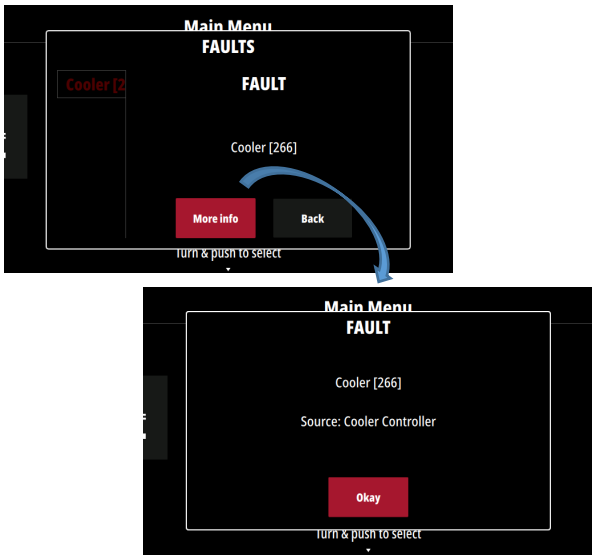


Figure 68

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

Table 1 Error codes shows list of elementary 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 **37**	The machine has shut down because it has overheated.	System detected a temperature level beyond the normal system operating limit.	• Be sure process does not exceed duty cycle limit of the machine. • Check the setup for proper air flow around and through the system. • Check that the system has been properly maintained, including removal of accumulated dust and dirt from the intake and outlet louvers. • User interface show information when machine will be cooled down. To continue welding operation Please press Left Control or start welding operation by the torch trigger.
266	No coolant flow	There is no coolant flow in the cooler after 3 seconds of welding.	• Make sure there is enough coolant in the tank and that auxiliary power is supplied. • Make sure the pump is working. When the trigger is pulled the pump should run. • Check cooling circuit connections.
	Impossible to have full range of configurable parameters	Limit & Lockout features are possibly activated for selected memory.	• Unselect memories • Change Limits value

WARNING

If for any reason you are unable to perform the recommended actions in the event of a fault, contact the nearest authorized Lincoln Electric service facility.

TIG Trigger Sequences

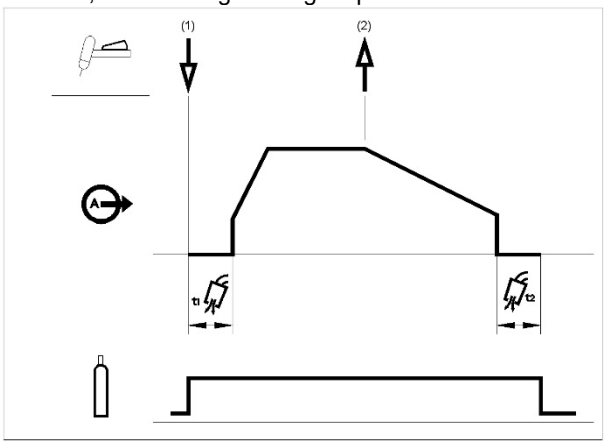
TIG welding can be done in either the 2-step or 4-step mode. The specific sequences of operation for the trigger modes are explained below.

Legend of the symbols used:

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

2-Step Trigger Sequence

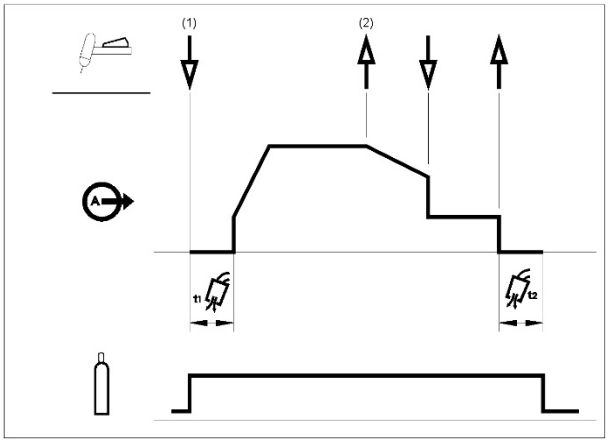
With the 2-step trigger mode and a TIG welding mode selected, the following welding sequence will occur.



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.

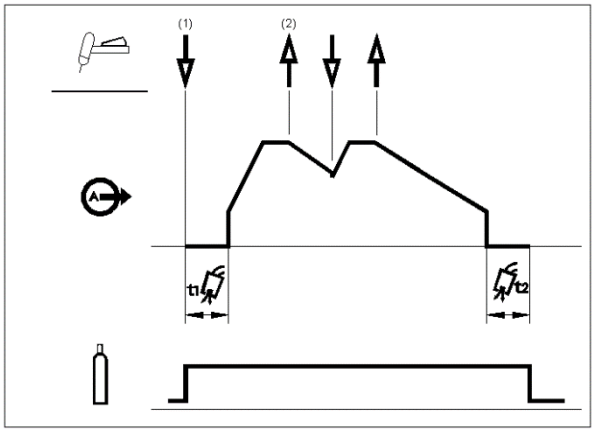
After the arc is turned OFF, the gas valve will remain open to continue the flow of the shielding gas to the hot electrode and work piece.



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

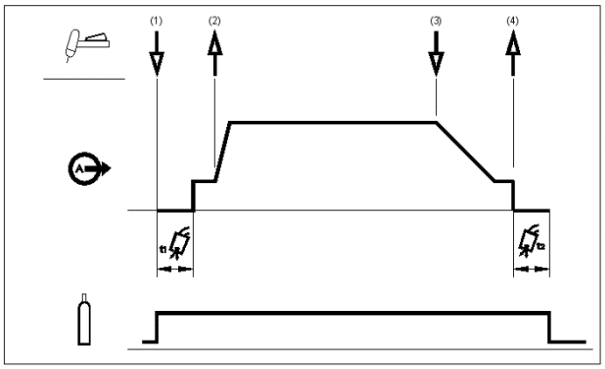
If the 2-step restart option is enabled from the setup menu the following sequence will occur:



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.

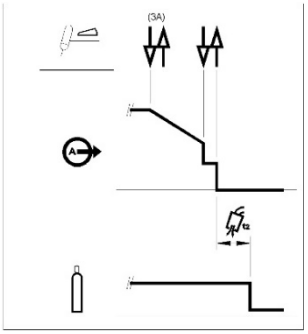
   If the Start current is not necessary, do not hold the TIG torch trigger as described at the beginning of this step. In this condition, the machine will pass from Step 1 to Step 2 when the arc is started.

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.

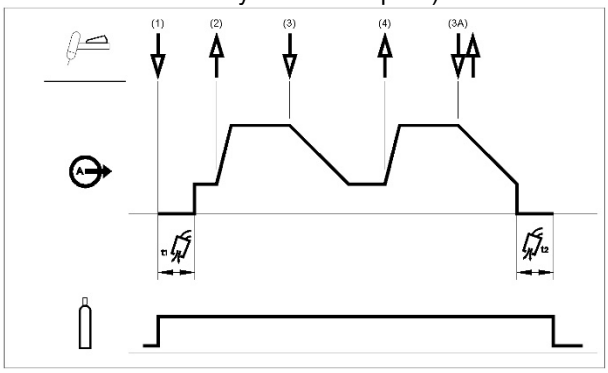
As shown here, after the TIG torch trigger is quickly pressed and released from step 3A, it is possible to press and hold the TIG torch trigger another time to end the downslope time and maintain the output current at the Crater current. When the TIG torch trigger is released the output will turn OFF.



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):

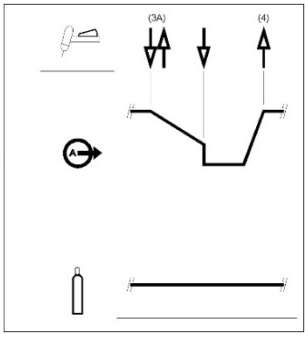


3. Press and hold the TIG torch trigger. The machine will now decrease the output current at a controlled rate, or downslope time, until the Crater current is reached.

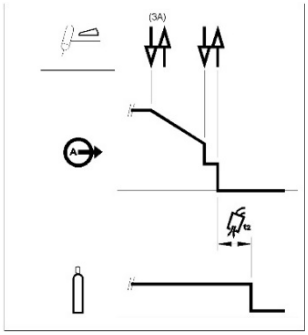
4. Release the TIG torch trigger. The output current will again increase to the Welding current, like in step 2, to continue welding.

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.

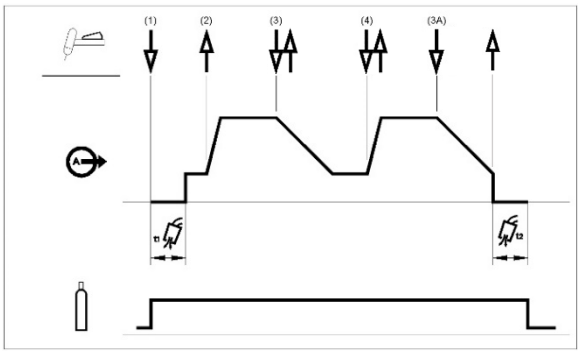


As shown here, after the TIG torch trigger is quickly pressed and released from step 3A, it is possible to press and hold the TIG torch trigger another time to end the downslope time and maintain the output current at the Crater current. When the TIG torch trigger is released the output will again increase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