JASIC®

EVO2.0

Operating Manual

EM-200CT TFT-LCD Screen Option

To be used in conjunction with the EM-200CT & EM-250CT Operating Manual

Your new product

Jasic.co.uk

Thank you for selecting this Jasic EVO 2.0 product.

This product manual has been designed to ensure that you get the most from your new product. Please ensure that you are fully conversant with the information provided paying particular attention to the safety precautions. The information will help protect yourself and others against the potential hazards that you may come across.

Please ensure that you carry out daily and periodic maintenance checks to ensure years of reliable and trouble free operation.

Please call your Jasic distributor in the unlikely event of a problem occurring.
Please record below the details from your product as these will be required for warranty purposes and to ensure you get the correct information should you require assistance or spare parts.

Date purchased _____

From where _____

Serial number _____

(The serial number is normally located on the top or underside of the machine and will begin with AA)

For further information on your Jasic product warranty registration please visit:
www.jasic-warranty.co.uk

Disclaimer
Whilst every effort has been made to ensure that the information contained within this manual is complete and accurate, no liability can be accepted for any errors or omissions.

Please Note:
Products are subject to continual development and may be subject to change without notice.
Regularly check our product pages at www.jasic.co.uk for revision updated operating manuals.

CONTENTS

SAFETY INSTRUCTIONS

These general safety norms cover both arc welding machines and plasma cutting machines unless otherwise noted. The user is responsible for installing and operating the equipment in accordance with the enclosed instructions.
It is important that users of this equipment protect themselves and others from harm, or even death. The equipment must only be used for the purpose it was designed for. Using it in any other way could result in damage or injury and in breach of the safety rules.
Only suitably trained and competent persons should operate the equipment.
Pacemaker wearers should consult their doctor prior to using this equipment.
PPE and workplace safety equipment must be compatible for the application of the work involved.

Always carry out a risk assessment before carrying out any welding or cutting activity.

General electrical safety

The equipment should be installed by a qualified person and in accordance with current standards in operation.
It is the users responsibility to ensure that the equipment is connected to a suitable power supply. Consult your utility supplier if required.
Do not use the equipment with the covers removed. Do not touch live electrical parts or parts which are electrically charged. Turn off all equipment when not in use.
In the case of abnormal behaviour of the equipment, the equipment should be checked by a suitably qualified service engineer.
If earth bonding of the work piece is required, bond it directly with a separate cable with a current carrying capacity capable of carrying the maximum capacity of the machine current.
Cables (both primary supply and welding) should be regularly checked for damage and overheating.
Never use worn, damaged, under sized or poorly jointed cables.
Insulate yourself from work and earth using dry insulating mats or covers big enough to prevent any physical contact.
Never touch the electrode if you are in contact with the work piece return.
Do not wrap cables over your body.
Ensure that you take additional safety precautions when you are welding in electrically hazardous conditions such as damp environments, wearing wet clothing and metal structures.
Try to avoid welding in cramped or restricted positions.
Ensure that the equipment is well maintained. Repair or replace damaged or defective parts immediately.
Carry out any regular maintenance in accordance with the manufacturers instructions.
The EMC classification of this product is class A in accordance with electromagnetic compatibility standards CISPR 11 and IEC 60974-10 and therefore the product is designed to be used in industrial environments only.
WARNING: This class A equipment is not intended for use in residential locations where the electrical power is provided by a public low-voltage supply system. In those locations it may be difficult to ensure the electromagnetic compatibility due to conducted and radiated disturbances.

General operating safety

Never carry the equipment or suspend it by the carrying strap or handles during welding.
Never pull or lift the machine by the welding torch or other cables.
Always use the correct lift points or handles. Always use the transport under gear as recommended by the manufacturer.
Never lift a machine with the gas cylinder mounted on it.
If the operating environment is classified as dangerous, only use S-marked welding equipment with a safe idle voltage level. Such environments may be for example: humid, hot or restricted accessibility spaces.

SAFETY INSTRUCTION

Use of Personal Protective Equipment (PPE)

Welding arc rays from all welding and cutting processes can produce intense, visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin.

- Wear an approved welding helmet fitted with an appropriate shade of filter lens to protect your face and eyes when welding, cutting or watching.
- Wear approved safety glasses with side shields under your helmet.
- Never use any equipment that is damaged, broken or faulty.
- Always ensure there are adequate protective screens or barriers to protect others from flash, glare and sparks from the welding and cutting area.
- Ensure that there are adequate warnings that welding or cutting is taking place.
- Wear suitable protective flame resistant clothing, gloves and footwear.
- Ensure adequate extraction and ventilation is in place prior to welding and cutting to protect users and all workers nearby.
- Check and be sure the area is safe and clear of flammable material before carrying out any welding or cutting.

Some welding and cutting operations may produce noise. Wear safety ear protection to protect your hearing if the ambient noise level exceeds the local allowable limit (e.g: 85 dB).

Welding and Cutting Lens Shade Selector Guide

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SAFETY INSTRUCTION

Safety against fumes and welding gases

The HSE have identified welders as being an 'at risk' group for occupational diseases arising from exposure to dusts, gases, vapours and welding fumes. The main identified health effects are pneumonia, asthma, chronic obstructive pulmonary disease (COPD), lung and kidney cancer, metal fume fever (MFF) and lung function changes.
During welding and hot cutting 'hot work' operations, fumes are produced which are collectively known as welding fume. Depending upon the type of welding process being performed, the resultant fume generated is a complex and highly variable mixture of gases and particulates.
Regardless of the length of welding being carried out, all welding fume, including mild steel welding requires suitable engineering controls to be in place which is usually Local Exhaust Ventilation (LEV) extraction to reduce the exposure to welding fume indoors and where LEV does not adequately control exposure it should also be enhanced by using suitable respiratory protective equipment (RPE) to assist with protecting against residual fume.
When welding outdoors appropriate RPE should be used.


An example of personal fume protection

Prior to undertaking any welding tasks an appropriate risk assessment should be carried out to ensure expected control measures are in place.

Locate the equipment in a well-ventilated position and keep your head out of the welding fume.
Do not breathe in the welding fume.
Ensure the welding zone is well-ventilated and provision should be made for suitable local fume extraction system to be in place.
If ventilation is poor, wear an approved airfed welding helmet or respirator.
Read and understand the Material Safety Data Sheets (MSDS's) and the manufacturer's instructions for metals, consumable, coatings, cleaners and de-greasers.
Do not weld in locations near any de-greasing, cleaning or spraying operations.
Be aware that heat and rays of the arc can react with vapours to form highly toxic and irritating gases.

<u>For further information please refer to the HSE website www.hse.gov.uk for related documentation.</u>

Precautions against fire and explosion

Avoid causing fires due to sparks and hot waste or molten metal.
Ensure that appropriate fire safety devices are available near the welding and cutting area.
Remove all flammable and combustible materials from the welding, cutting and surrounding areas.
Do not weld or cut fuel and lubricant containers, even if empty. These must be carefully cleaned before they can be welded or cut.
Always allow the welded or cut material to cool before touching it or placing it in contact with combustible or flammable material.
Do not work in atmospheres with high concentrations of combustible fumes, flammable gases and dust.
Always check the work area half an hour after cutting to make sure that no fires have begun.
Take care to avoid accidental contact of the torch electrode to metal objects, as this could cause arcs, explosion, overheating or fire.

<u>Know and understand your fire extinguishers</u>

SAFETY INSTRUCTION

The working environment

Ensure the machine is mounted in a safe and stable position allowing for cooling air circulation.
Do not operate equipment in an environment outside the laid down operating parameters.
The welding power source is not suitable for use in rain or snow.
Always store the machine in a clean, dry space.
Ensure the equipment is kept clean from dust build up.
Always use the machine in an upright position.

Protection from moving parts

When the machine is in operation keep away from moving parts such as motors and fans.
Moving parts, such as the fan, may cut fingers and hands and snag garments.
Protections and coverings may be removed for maintenance and managed only by qualified personnel after first disconnecting the power supply cable.
Replace the coverings and protections and close all doors when the intervention is finished and before starting the equipment.
Take care to avoid getting fingers trapped when loading and feeding wire during set up and operation.
When feeding wire be careful to avoid pointing it at other people or towards your body.
Always ensure machine covers and protective devices are in operation.

Risks due to magnetic fields

The magnetic fields created by high currents may affect the operation of pacemakers or electronically controlled medical equipment.
Wearers of vital electronic equipment should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.
Do not go near welding equipment with any sensitive electronic equipment as the magnetic fields may cause damage.
Keep the torch cable and work return cable as close to each other as possible throughout their length.
This can help minimise your exposure to harmful magnetic fields.
Do not wrap the cables around the body.

Handling of compressed gas cylinders and regulators

Mishandling gas cylinders can lead to rupture and the release of high pressure gas.
Always check the gas cylinder is the correct type for the welding to be carried out.
Always store and use cylinders in an upright and secure position.
All cylinders and pressure regulators used in welding operations should be handled with care.
Never allow the electrode, electrode holder or any other electrically “hot” parts to touch a cylinder.
Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
Always secure the cylinder safely and never move with regulator and hoses connected.
Use a suitable trolley for moving cylinders.
Regularly check all connections and joints for leaks.
Full and empty cylinders should be stored separately.

Never deface or alter any cylinder

SAFETY INSTRUCTIONS

Fire awareness

The cutting and welding process can cause serious risks of fire or explosion.
Cutting or welding sealed containers, tanks, drums or pipes can cause explosions.
Sparks from the welding or cutting process can cause fires and burns.
Check and risk assess the area is safe before doing any cutting or welding.
Ventilate all flammable or explosive vapour from the workplace.
Remove any and all flammable materials away from the working area. If necessary, cover flammable materials or containers with approved covers (following manufacturers instructions) if unable to remove from the immediate area.
Do not cut or weld where the atmosphere may contain flammable dust, gas or liquid vapour.
Always have the appropriate fire extinguisher nearby and know how to use it.

Hot parts

Always be aware that material being cut or welded will get very hot and hold that heat for a considerably long time which will cause severe burns if the appropriate PPE is not worn.
Do not touch hot material or parts with bare hands.
Always allow for a cooling down period before working on material recently cut or welded.
Use the appropriate insulated welding gloves and clothing to handle hot parts to prevent burns.

Noise awareness

The cutting and welding process can generate noise that can cause permanent damage to your hearing. Noise from cutting and welding equipment can damage hearing.
Always protect your ears from noise and wear approved and appropriate ear protection if noise levels are high.
Consult with your local specialist if you are unsure how to test for noise levels.

RF Declaration

Equipment that complies with directive 2014/30/EU concerning electromagnetic compatibility (EMC) and the technical requirements of EN60974-10 is designed for use in industrial buildings and not for domestic use where electricity is provided via the low voltage public distribution system.
Difficulties may arise in assuring class A electromagnetic compatibility for systems installed in domestic locations due to conducted and radiated emissions.
In the case of electromagnetic problems, it is the responsibility of the user to resolve the situation.
It may be necessary to shield the equipment and fit suitable filters on the mains supply.

LF Declaration

Consult the data plate on the equipment for the power supply requirements.
Due to the elevated absorbance of the primary current from the power supply network, high power systems affect the quality of power provided by the network. Consequently, connection restrictions or maximum impedance requirements permitted by the network at the public network connection point must be applied to these systems.
In this case, the installer or the user is responsible for ensuring the equipment can be connected, consulting the electricity provider if necessary.

SAFETY INSTRUCTION

Materials and their disposal

Welding equipment is manufactured with BSI published standards meeting CE requirements for materials which do not contain any toxic or poisonous materials dangerous to the operator.
Do not dispose of the equipment with normal waste.

The European Directive 2012/19/EU on Waste Electrical and Electronic Equipment states that electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility for disposal.

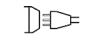
For more detailed information please refer to the HSE website www.hse.gov.uk

DESCRIPTION OF SYMBOLS


Read this operation manual carefully before use.


Warning in operation.


Single-phase static frequency converter-transformer rectifier.



Symbol of single-phase AC power supply and rated frequency.


Can be used in the environment which has high risk of electric shock.

IP Degree of protection, such as IP23S.

U_1 Rated AC input voltage (with tolerance ±15%).

I_{1max} Rated maximum input current.

I_{1eff} Maximum effective input current.

X Duty cycle, The ratio of given duration time/the full-cycle time.

U_0 No-load voltage, Open circuit voltage of secondary winding.

U_2 Load voltage.

H Insulation class.


Do not dispose of electric waste with other ordinary waste.


Electric shock risk warning.


Current unit "A"


Overheat protection indicator.


Overcurrent protection indicator.


VRD function indicator.


MMA mode.


LIFT TIG mode.

Selection of welding electrode diameter for MMA.


MMA current.


Hot start current of MMA.


Arc force of MMA.


Welding mode switching.


Other function switching.


Wireless indication.


Remote control.


Pairing of wireless remote controller.

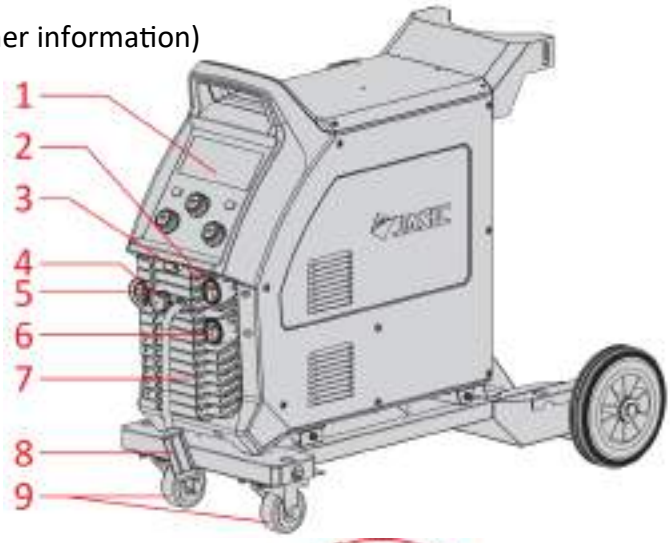
DESCRIPTION OF SYMBOLS

Read this operation manual carefully before use.

Steel Ar80% CO_2 20%	Mixed gas welding (80% argon + 20% CO2) of carbon steel
Steel FluxCored Ar80% CO_2 20%	Mixed gas welding (80% argon + 20% CO2) of flux-cored carbon steel
Steel FCW-SS	Self-shielded welding of carbon steel
AlMg Ar100%	100% argon shielding of aluminum magnesium alloy
CrNi Ar98% CO_2 2%	Mixed gas welding (98% argon + 2% CO2) of stainless steel
	Welding type selection: welding base metal and gas
ϕ 0.6 ϕ 0.8 ϕ 1.0 ϕ 1.2	Welding wire diameter
	MIG/Lift TIG 2T operation
	MIG/Lift TIG 4T operation
	MIG torch
	MIG spool torch
	MIG synergic function
	Inching wire feeding function
	Gas check function

DESCRIPTION OF CONTROLS - JASIC MIG EM-200CT TFT-LCD

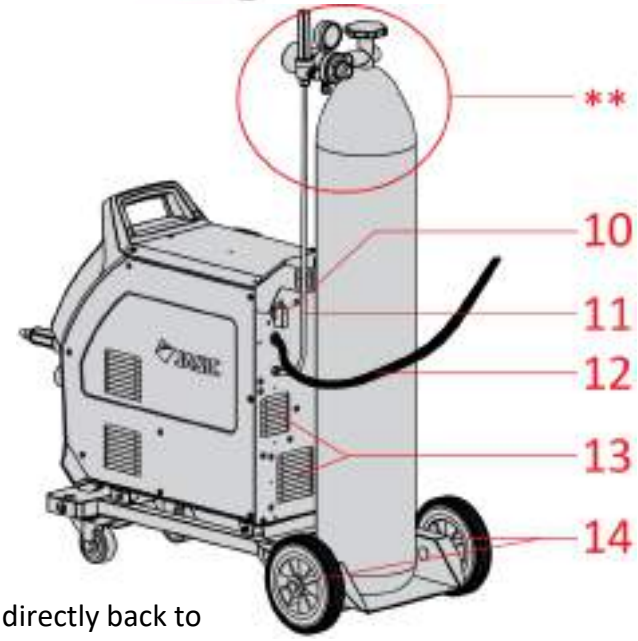
Front and Rear view Jasic MIG EM-200CT



1. Digital user control panel (see lower down for further information)
2. "+" Output terminal*, The connection for the torch in MIG mode
3. Wireless remote control (optional)
4. Wired remote control 9 pin socket
5. MIG torch outlet, The connection used to connect the euro style MIG torch
6. "-" Output terminal*, The connection for the work return lead in MIG mode
7. Front cooling grill
8. Euro outlet trailing cable plug, this plug is used to determine the polarity of the torch euro outlet connector
9. Carriage front wheels (lockable)

* Panel socket size is 35/50mm

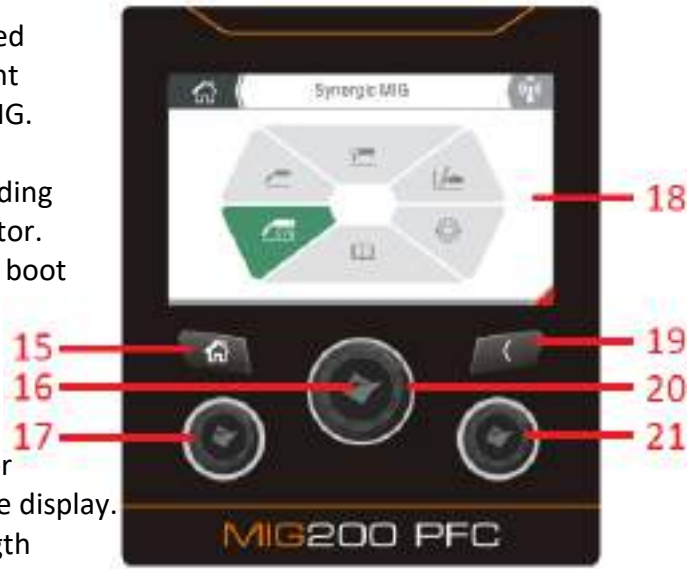
Rear view Jasic MIG EM-200CT



10. ON/OFF power switch
11. Shielding gas inlet hose
12. Machine mains power cable
13. Rear panel with integrated cooling vents
14. Rear support wheels

** Gas cylinder, gas regulator and gas flow meter

Front control panel view Jasic MIG EM-200CT



15. Home Button: Pressing the home button will take you directly back to the home screen (as shown in the display area image on page 13)
16. The parameter control dial is also a control button which when pressed ‘confirms’ entry to another screen option or the chosen parameter being set.
17. Parameter adjustment dial A: The current/wire feed speed dial and is used to adjust the welding current in Synergic MIG or wire feed speed in Standard MIG.
18. LCD screen: The 5” colour display area shows the various welding mode options, the associated welding parameter, error codes, user manual to the operator. Upon turning the machine on and during machine boot up the screen will show the Jasic logo.
19. Return button: Pressing the return button takes the user back to the previous screen or option.
20. Parameter adjustment control dial: By rotating this control dial allows the user to scroll through or to make parameter changes that are shown via the display.
21. Parameter adjustment dial B: The voltage/arc length dial and is will be used to adjust the welding voltage or arc length in Synergic MIG or standard MIG.

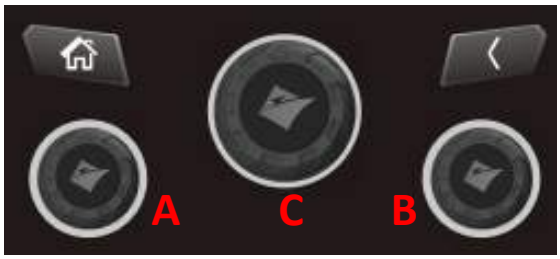
DESCRIPTION OF ‘LCD’ CONTROL PANEL (EM-200CT TFT-LCD)

Display screen

The display screen offers the operator a wealth of information including operation modes including, MIG, MMA and Lift TIG and the associated parameters. The home screen is shown right and using the central adjustment dial allows you to navigate through the machines options and the following pages will explain in greater details these features.

Home Button

Pressing the home button at any time will take directly back to the home screen which is shown in the display screen image below.



Return Button

The return button will take you back to the previous screen and the ‘upper’ level of the function you were within.

Parameter adjustment knob (C)

Central rotating the control dial clockwise or anti-clockwise allows the operator to scroll though the functions of the machine, increases or decreases parameter values including welding current and when these parameters are adjusted the values are shown in the display screen.

Parameter adjustment knob (A)

Parameter adjustment dial A: The current/wire feed speed dial and is used to adjust the welding current in Synergic MIG or wire feed speed in Standard MIG.

Parameter adjustment knob (B)

Parameter adjustment dial B: The voltage/arc length dial, will be used to adjust the welding voltage or arc length in Synergic MIG or standard MIG.

Display screen options

Home Screen

Upon pressing the home screen button (as shown above) you will enter the home screen page and the home screen icon will now show in the top left hand corner.

Wireless Connection Options

The wireless icon shown left (top right of screen) indicates that no wireless connection is made and no wireless device is connected to the machine.

The wireless icon shown left (top right of screen) indicates that a wireless remote device is connected and is ready to be used.

DESCRIPTION OF 'LCD' CONTROL PANEL (EM-200CT TFT-LCD)

Display screen options

Home Screen

Upon pressing the Home button you will be taken to the home screen (as shown below). The default setting screen for this selection is Synergic MIG, from here you can rotate the central control dial to highlight the option you require and to select, simply press the control dial to access: welding mode, settings or operating information.

Selecting Welding Modes and Options

Before commencing any welding, press the Home button to return to the home page then you can rotate the central control dial to select the following option of MIG Synergic, MIG Standard, MMA, Lift TIG, Settings and User manual, then press the central control dial button to select the required welding mode.

Text on the top of the page indicates the option section currently selected by the user.

Synergic MIG Welding Mode

Standard MIG Welding Mode

MMA Welding Mode

MMA Welding Mode

Settings

User Manual

Each screen page function has an icon in the top left corner that identifies the current page, which offer easy page identify for the operator. Details are shown in the following table:

 Home section

Synergic MIG welding mode section

 Standard MIG welding mode section

 MMA welding mode section

 Lift-TIG welding mode section

 User settings section

 User instructions section

LCD SCREEN ICON FUNCTION DESCRIPTIONS

The below control panel images are examples of screen modes you will come across during normal use of the Jasic EM-200CT TFT-LCD machine and the below and following pages offer a brief explanation for the icons used.

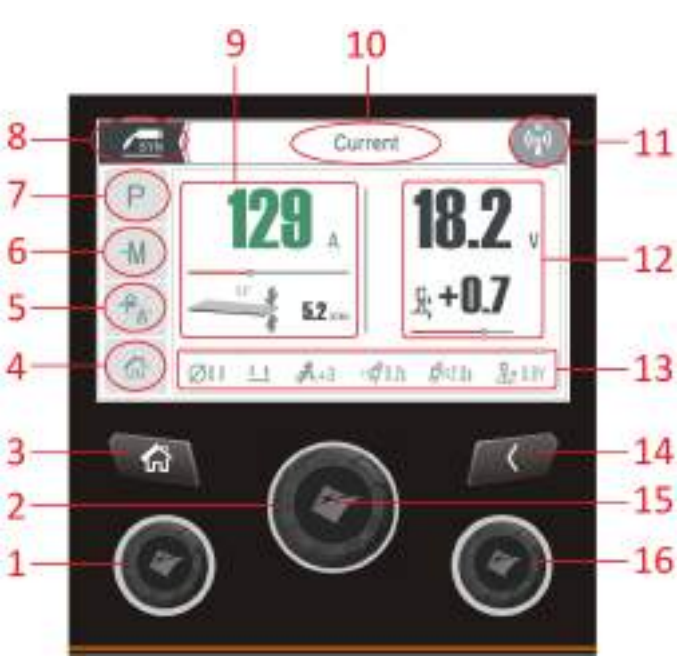


Image A

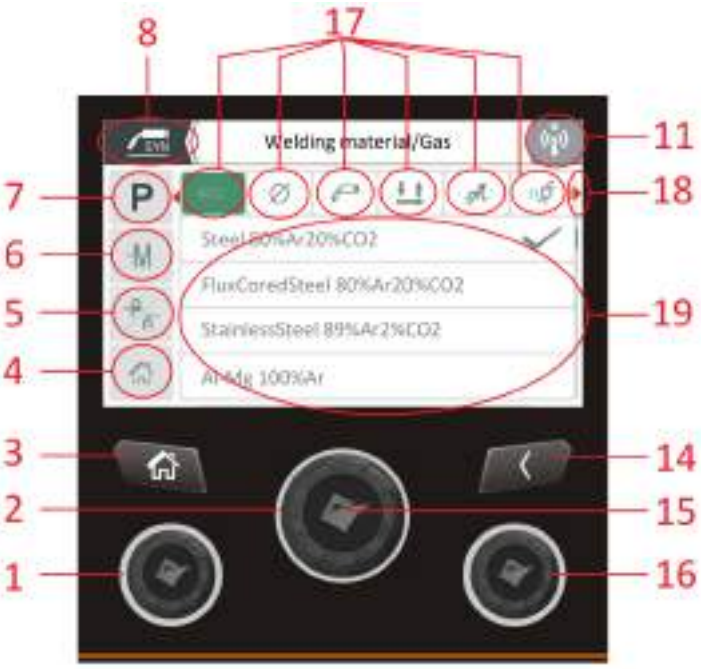


Image B

Item No	Icon	Icon Name	Description
1		Lower Left Rotary Encoder	Rotating the left lower control dial clockwise or anti-clockwise allows the user to increase or decrease current in Synergic MIG mode or wire feed speed in standard MIG mode, see item 9.
2		Central Rotary Encoder	Rotating the central control dial clockwise or anti-clockwise allows the user to navigate around the screen options, adjust welding current or the various welding parameters that are available in all welding modes and user/setting options.
3		Home button	Pressing the ‘Home’ button will return you to the main menu "Home" screen (as shown on page 14) and following pressing the button the AC TIG option will be highlighted by default.
4		Home icon	When rotating the control dial (item 2) for parameter or mode selection you will note on passing a selected icon (or the home icon) it will highlight green, if you then press the control dial button (item 12) in this case the home icon, you will be taken to the home screen. The highlighted icon detail will also be stated in the text area (item 10) top center of the screen.

LCD SCREEN ICON FUNCTION DESCRIPTIONS

The control panel images (on page 15) are examples of screen modes you will come across during normal use of the Jasic EM-200CT TFT-LCD machine and the below and following pages offer a brief explanation for the icons used.

Item No	Icon	Icon Name	Description
5		Gas check and Wire Inch Feed Functions	When in MIG/Lift TIG welding mode, rotate the control dial (item 2)until the gas check symbol lights up green, then press the control dial button to enter and activate either gas purge which after 20s, the system will automatically exit the gas check function or wire feed inch which activates the feed motor to allow the welding wire to be fed through the MIG torch. Press the return control button to return to the previous screen menu.
6		Memory function	When in either TIG or MMA mode the machine can store 4 memory channels for each welding mode (machine total being 16). Rotate the control dial until the -M symbol lights up and press the control button. You will note that the header shows 4 channel slots with the header stating the Channel number with the relevant parameters displayed. From here you can Save, Load and Delete.
7		Function settings	When in any of the welding modes, P (function settings) is a secondary menu where additional functions can be adjusted and set. For example: Material thickness, wire size, Pre/post gas, trigger mode, MMA and Lift TIG settings etc. Please also refer to section 17 on page 18 for further detail on the parameter available .
8		Screen Mode Section	English by default. This area displays which home mode option that is currently selected, i.e. Synergic MIG, Standard MIG, MMA, Lift TIG, Settings and User Guide.
9	- -	Current and material thickness data area	When in Synergic MIG welding mode, using the left rotary dial will increase or decrease the welding current and due to the characteristics of synergic, the material thickness will increase or decrease accordingly, this will also be noted with the progress bar as this will adjust proportionally with the current preset value. See also item 1.
	- -	Parameter Setting	When numbers or values are highlighted in green, rotating the central control dial clockwise or anti-clockwise allows the user to increase or decrease the value of selected parameter or in the case of the image A on page 15, welding current is highlighted shown as 129amps. In image B, highlighted green is the Material & Gas Selection icon and when the central control dial is rotated you will proceed to scroll through the other secondary parameters located on that top icon bar.

LCD SCREEN ICON FUNCTION DESCRIPTIONS

The control panel images (on page 15) are examples of screen modes you will come across during normal use of the Jasic EM-200CT TFT-LCD machine and the below and following pages offer a brief explanation for the icons used.

Item No	Icon	Icon Name	Description
10	- -	Function Description	English by default. This area displays and explains the current selected operation which is normally highlighted in green.
11		No Wireless Connection	This wireless icon is displayed when no wireless remote control device is connected to the machine.
		Wireless Connection Icon	The "Pairing successful" icon will be displayed when a wireless remote control device has been connected to the machine.
12	- -	Welding voltage and arc length data area	When in Synergic MIG welding mode, using the right rotary dial will increase or decrease the welding voltage and due to the characteristics of synergic, the arc length will increase or decrease accordingly, this will also be noted with the progress bar as this will adjust proportionally with the voltage preset value. See also item 16.
13	- -	Bottom Icon Bar	This multiple icon bar shows the operator a quick view of the 'background' set parameters, as per example shown on page 15 for Synergic MIG (from left to right) parameters are set as follows: Welding wire size, 2T trigger mode, welding inductance value, pre gas time, post gas time and burn back voltage. The icons shown will change depending on which welding mode is selected and the parameter choice settings.
14		Back Button	Pressing the back button will take you to the previous screen or previous menu.
15		Control Button	The control button function is activated by pressing the front face of the central control dial which 'enters' or acknowledges the selected function on the screen.
16		Lower Right Rotary Encoder	Rotating the left lower control dial clockwise or anti-clockwise allows the user to increase or decrease welding voltage and stick out in Synergic MIG mode and welding voltage in standard MIG mode, see item 12.
17	- -	Top Icon Bar Function settings	This multiple icon bar will show various secondary icon/options when you select and enter Parameter Settings (P) options. This option parameter area will show in any of the welding modes when 'P' secondary parameters options is selected, where the user can adjusted and set. Example of available parameter are : Material thickness, wire size, pre/post gas, trigger mode, MMA and Lift TIG settings etc. Please also refer to section 7 on page 16 for further detail on the parameter available. ** See following page for full list **

LCD SCREEN ICON FUNCTION DESCRIPTIONS

The control panel images (on page 15) are examples of screen modes you will come across during normal use of the Jasic EM-200CT TFT-LCD machine and the below and following pages offer a brief explanation for the icons used.

Item No	Icon	Icon Name	Description
17		Function settings	When in either of the MIG, MMA or TIG modes, P (function settings) is a secondary menu where additional functions can be adjusted and set. Full list For example: Trigger mode, HF or Lift TIG, Waveform, air/water cooled setting.
		2T	This icon represents 2T torch trigger mode, when this trigger option is selected it indicates the machine is in 2T mode.
		4T	This icon represents 4T torch trigger mode, when this trigger option is selected it indicates the machine is in 2T (latch) mode.
		Current Downslope Time	Downslope time icon, indicates the time set for the initial current to reach the peak current, the adjustment range is 0 ~ 10 seconds.
		Pre Gas Time	Pre-flow time icon, indicates the gas pre-flow time which can be adjusted between 0 ~ 2 seconds for MIG and 0 ~ 5 seconds for TIG.
		Post Gas Time	Post-flow time icon, indicates the gas post-flow time which can be adjusted between 0 ~ 5 seconds for MIG and 0 ~ 10 seconds for TIG.
		Material Type & Gas Choice	Material Type and gas choice icon, this offer the user a selection of material and gas combinations
		Inductance	Inductance control that allows when in MIG mode the user to adjust the inductance setting between -10 ~ +10
		Hot Start Current	Hot start control in MMA that allows the user to increase the current at the start of the weld to improve arc ignition. The adjustment range is 0 ~ 60 amps.
		Arc Force Current	Arc Force Control in MMA that increases the welding current that helps to prevent the electrode sticking when welding. The adjustment range is 0 ~ 100 amps.
		Wire Diameter Size	Welding wire diameter size icon that allows the user to select wire size when in Synergic MIG mode and wire sizes of 0.6mm, 0.8mm and 1.0mm can be selected.
		Burn Back	Burn back voltage adjustment that allows the user adjust the wire stick out on finishing the weld. The adjustment range is - 3.0 ~ + 7.0 Volts
		MIG Torch	Standard MIG torch selection icon
		Push Pull Torch	Push Pull type torch selection icon
		Spool On Torch	Spool on gun selection icon

LCD SCREEN ICON FUNCTION DESCRIPTIONS

The control panel images (on page 15) are examples of screen modes you will come across during normal use of the Jasic EM-200CT TFT-LCD machine and the below and following pages offer a brief explanation for the icons used.

Item No	Icon	Icon Name	Description
18		Indicator icon	This icon indicates that there are more parameters or options available but are located off screen, continuing to rotate the central control dial will allow access to these additional parameter or options as noted in image B on page 15.
		Indicator icon	This icon indicates which menu structure option you in when selecting secondary parameters or options as noted in image B on page 15.
19	- -	Display area	Screen area that displays various data for each of the welding processes and will also display various secondary parameter values or data depending on what has been selected.

LCD SCREEN ICON FUNCTION DESCRIPTIONS

Selection and adjustment of welding parameters

The central 'master' encoder can switch and adjust all parameters. When and if a box, number or options on the LCD screen is highlighted green, it indicates the parameter can be adjusted with the master encoder sand they display in a grey colour this indicates that the parameter cannot be adjusted.

1. Adjustment of main welding parameters:
   In the welding working page, the current, wire feed speed and voltage can be adjusted by rotating three knobs, respectively.
   In MIG mode, the lower left control dial (item 1 page 15) can adjust the welding current or wire feed speed and the lower right control dial (item 16 page 15) will adjust the welding voltage or arc length, where as rotating and pressing the central master encoder will adjust, set and scroll through all the available parameters.
   In MMA or Lift TIG mode, the current can only be adjusted by the master encoder.
2. Adjustment of other welding parameters:
   Except for current and voltage, all other parameters can only be adjusted in "Parameter Settings", which are detailed in the following table.

Welding mode	Parameter Name	Option or Range
Synergic MIG Parameters	Material & gas	Steel Ar80% $CO_2$20% Steel FluxCored Ar80% $CO_2$20% Steel FCW-SS CrNi Ar98% $CO_2$2% AlMg Ar100%
	Welding wire diameter	0.6mm, 0.8mm and θ1.0mm
	Welding torch selection	Push torch, push-pull torch
	Operation method	2T & 4T
	Pre-flow time	0 ~ 2.0 Seconds
	Post-flow time	0 ~ 5.0 Seconds
	Inductance	-10 ~ +10
	Burn back voltage	-3.0 ~ 7.0 Volts
Separated MIG parameters	Material & gas	N/A
	Welding wire diameter	N/A
	Welding torch selection	Push torch, push-pull torch, spool torch
	Operation method	2T & 4T
	Pre-flow time	0 ~ 2.0 Seconds
	Post-flow time	0 ~ 5.0 Seconds
	Inductance	-10 ~ +10
	Burn back voltage	10.0 ~ 20.0 Volts
MMA parameters	Arc force current	0 ~ 100 Amps
	Hot start current	0 ~ 60 Amps
Lift TIG parameters	Pre-flow time	0 ~ 5.0 Seconds
	Post-flow time	0 ~ 10.0 Seconds
	Current downslope time	0 ~ 5.0 Seconds

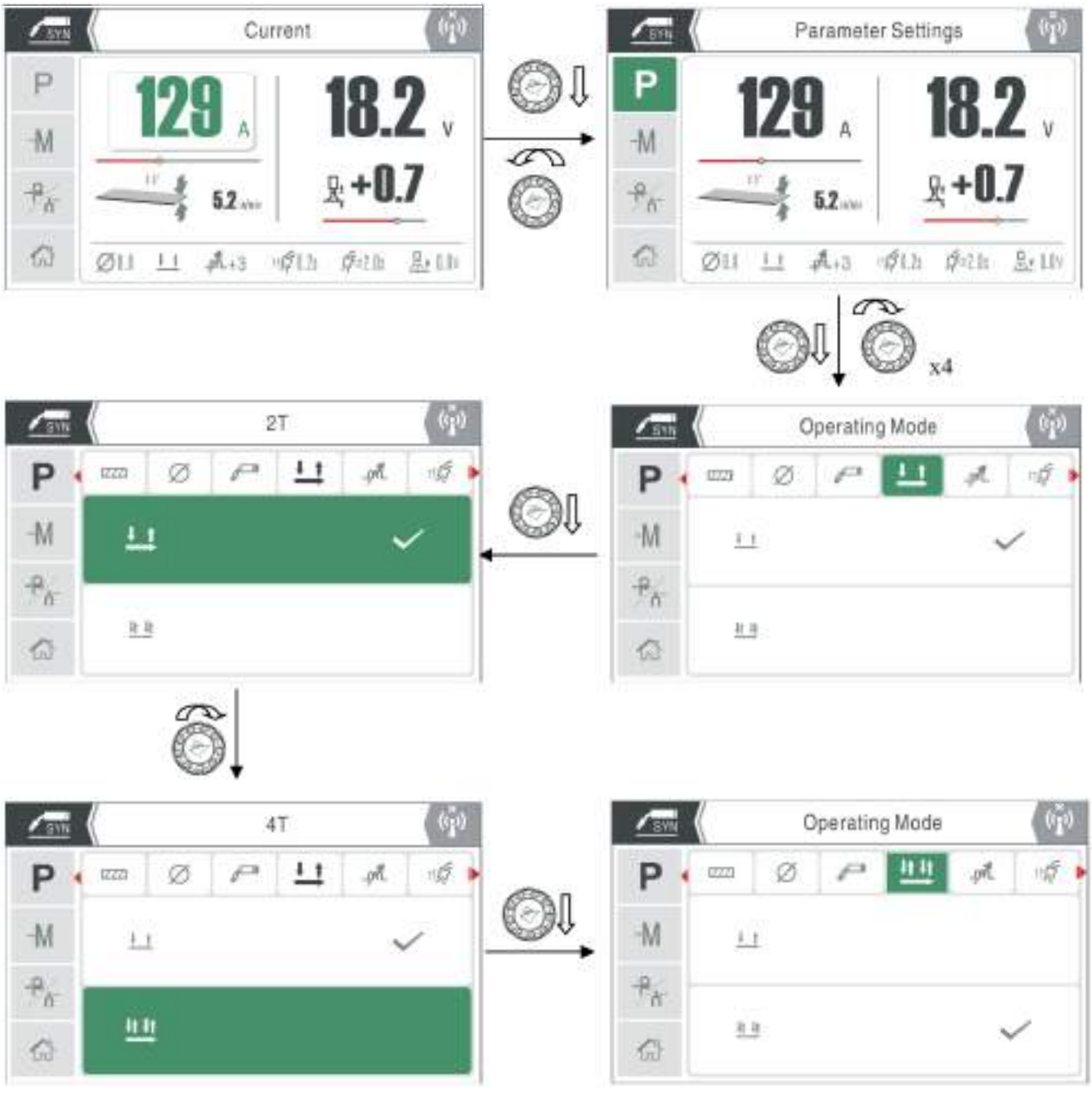
NAVIGATING THE ‘LCD’ CONTROL PANEL

Selection and adjustment of welding parameters

When selecting the required parameters, the operator may first need to press the central encoder button to highlight the welding current setting, once highlighted as shown below this then allows the operator to rotate the central encoder to then select ‘Parameter Settings’ (P) and then on pressing encoder button you will then enter the "Parameter Settings" screen page and so on.

As an example of the procedure needed to set torch trigger to 4T mode, please see the following steps:

If the user wants to adjust the operating mode in Synergic MIG, rotate the central encoder to select and enter ‘Parameter Settings’ (P) screen, then rotate the encoder to select highlight and select ‘Operating Mode’ You will now see your option choices of either 2T and 4T.
The selected operating mode will change from gray to green. If selected, press the master encoder and a ’ √ ’ will appear alongside the chosen option, indicating that the option is valid.
After the above operation, the user can rotate the master encoder to select other parameters or options, or press "Back" to return to the upper-level menu. If no operation or button is performed or pressed within 3 seconds, the welder will automatically return to the Synergic MIG home page.



NAVIGATING THE 'LCD' CONTROL PANEL

System Setting - Selection and Adjusting

As per previous pages, to access and adjust System Settings from the home screen, just navigate to the System Settings icon which will be highlighted green (as shown right).
Then press the control dial button to enter this option screen.

Settings Screen

Once entering the system settings screen, you will note a row of setting options to the left of the panel screen as follows:

- User background Settings
- Imperial/Metric Settings
- Language
- System Information
- Home

Rotating the control dial clockwise or anticlockwise will allow you to scroll through system icon options.

User Background Settings

As per previous page, to access and adjust user background settings from the home screen, navigate to the background settings icon which will be highlighted green (as shown right).
Then press the control dial button to enter this option screen

Settings Screen Options

Once entering the user background settings screen, you will note a row of setting options as shown below:

- Sleep Time Adjustment
- Overvoltage / Undervoltage Protection Switch
- Slow Wire Feeding Speed Adjustment
- Remote Control Mode (Local/Remote)
- Wireless Remote Control Pairing
- Welding Parameter Reset
- Factory Reset

Rotating the control dial clockwise or anticlockwise will allow you to scroll through system icon options.

The following pages cover this section in more detail.

NAVIGATING THE 'LCD' CONTROL PANEL

System Setting - Selection and Adjusting

Sleep Time Adjustment Option

Standby time is a function that when there is no operator activity with the Jasic TIG machine, then after a pre-determined time (Factory time: 5 minutes) the machine will go into standby (sleep) mode.
To enter the standby sleep timer mode function screen, rotate the control dial to select the said icon (as shown directly below) and press control dial button to access the control.
Here you can select the standby sleep time by rotating the control dial which will scroll through the standby sleep time options of 0, 5, 10 and 15 minutes.
(The Factory default setting is 5 minutes and 0 means the standby time function is switched off).

Pressing the control dial button will confirm and save your choice and return you to the previous screen.
The standby sleep time function is only active in MIG and TIG mode (if activated).
If the machine is not used within the preset period of time (5 minutes for example), the machine will then enter a standby state where the unit powers down and the screen will show just the Jasic logo only.
The machine will wake up immediately and the screen show the previous data when either the torch trigger, remote device or if one of the control panel buttons are pressed.

Overvoltage & Undervoltage Protection Switch

To enter the input voltage protection switch control function screen, rotate the control dial to select the said icon (as shown directly above) and press control dial button to access the control.
Here you can select either OFF or ON for input voltage protection by rotating the control dial and then pressing the control dial button to confirm your choice.
This option is factory set to ON, please speak with Jasic technical before interfering with this setting.

Pressing the control dial button will confirm and save your choice and return you to the previous screen
otherwise press the return button to go back to the previous screen.

NAVIGATING THE ‘LCD’ CONTROL PANEL

System Setting - Selection and Adjusting

Slow Wire Feeding Speed Adjustment

To assist with the initial arcing of soft wires such as aluminium, you can introduce a slow start to the feed wire speed, which will ’slope’ in the wire speed. Increasing or decreasing the initial wire feed start changes the weld start characteristics.
Setting the ‘initial’ wire feed speed rate of MIG wire which can be set to either "0", "1", "2" or "3".

- "0" indicates that the slow wire feed function is disabled.
- "1" indicates that the slow wire feed speed is 1/3 of the current set speed, respectively.
- "2" indicates that the slow wire feed speed is 1/2 of the current set speed, respectively.
- "3" indicate that the slow wire feed speed is 2/3 of the current set speed, respectively.

Remote Control Selection

The EVO machine range of machines allow the user to use either wired or wireless technology for remote control purposes that offers the user to use wired or wireless hand or foot controls when using the machine in MMA, LIG TIG or MIG welding modes.

The remote selection control allows the user to select current control from either the front panel or to be controlled remotely either via the 9 pin control socket or via the optional wireless control for MMA and TIG remote control devices.

To enter the remote control mode function screen, rotate the control dial to select the control mode icon (as shown right) and press control dial button to access this function.

Here you can select the remote control ON or OFF option by rotating the control dial which will scroll through either Wireless remote, Wired remote or Local options.

Pressing the control dial button will confirm and save your choice and return you to the previous screen.

NAVIGATING THE ‘LCD’ CONTROL PANEL

System Setting - Selection and Adjusting

Wireless Remote Control Option

As stated above the EVO range can also allow the user to use wireless technology for remote control purposes that offers the user to use wireless hand or foot controls when using the machine in MMA, Lift TIG or MIG welding modes.

Wireless Remote Control Pairing Procedure

To use a remote control wireless device, first you need to ensure that you have a fitted the wireless receiver to your machine, see the wireless section of the EM-200CT / EM-250CT operating manual for further details.

As per previous pages, to access wireless pairing from the home screen, navigate and enter into System Settings and then enter User Background settings and then scroll down to turn on wireless pairing which will be highlighted green (as shown right).

Then press the control dial button to enter the wireless pairing option screen.

- At this point, ensure your remote wireless device is charged and turned on
- On accessing the pairing screen, the machine will automatically start to scan for a wireless device
- This is confirmed by the screen showing “Pairing, please wait”
- Ensure that your remote device is in pairing mode (see remote control instructions supplied with your device)

Once wireless pairing is successful the screen will display connection confirmation by stating "Pairing successful !" and the wireless connection indicator icon display the wireless icon without a ‘x’ above it.
You will also note that the highlighted green bar has changed from turn ‘on’ to turn ‘off’ wireless.

Once this task is completed either press the ‘back’ button or press the ‘home’ button to continue to use the machine.

Disconnecting the wireless connection:

After a wireless remote control device was successfully paired, disconnecting is similar to above.
There is 2 ways to disconnect the wireless device:

- Press and hold the remote control device pairing key or
- Access the machines wireless remote control pairing option screen and press the control dial button on the highlighted green “turn off wireless remote control pairing” tab.

Once the wireless device is disconnected the screen will show the wireless ‘disconnected’ icon and the highlighted green tab will change to turn ‘on’ (as shown right).

Once this task is completed either press the ‘back’ button or press the ‘home’ button to continue to use the machine.

NAVIGATING THE ‘LCD’ CONTROL PANEL

System Setting - Selection and Adjusting

Parameter and Factory reset function

Accessing the parameter and factory reset function, is straight forward, press the ‘home’ button and from the home screen menu, navigate and enter into ‘system settings’ and then enter ‘user background’ settings and then scroll down to either the parameter reset or the factory reset function which the later is shown and highlighted green below.

The operational function process is the same for parameter reset as it is for factory reset.

Factory reset function

1. Select the Factory Reset option by pressing the control dial button
2. Rotate the control dial to select and confirm your required option of either "Sure” or “Cancel" as shown below.

3. Once you have pressed the control dial on the highlighted green “sure” tab a new pop up green box will be displayed indicating "Waiting for factory reset", after approximately 10 seconds the system will complete the machine has been reset to factory settings and the screen will return to the home page.

Parameter reset function

1. Select the Parameter Reset option by pressing the control dial button
2. Rotate the control dial to select the required option of either "Sure” or “Cancel".
3. Once you have pressed the control dial on the highlighted green “sure” tab a new pop up green box will be displayed indicating "Waiting for parameter reset", after approximately 10 seconds the system will complete the process and any saved parameter settings have been reset and the screen will go back to the previous menu rather than returning to the home page.

NAVIGATING THE 'LCD' CONTROL PANEL

System Setting - Selection and Adjusting

Restored Parameter Settings

The factory parameter settings for the EM-200CT machine are as shown in the table below.

Parameter	Unit	MMA	Lift TIG	Standard MIG	Synergic MIG
Pre-flow time	Seconds	-	0.5	0.5	0.5
Peak current	Amps	-	100	100	100
Down-slope time	Amps	-	0.5	0.5	0.5
Post-flow time	Seconds	-	2	2	2
Welding current	Amps	100	-	-	-
Burn Back Voltage	Volts	-	-	13	13
Hot start current	Amps	30	-	-	-
Arc-force current	Amps	30	-	-	-
Standby Time	Seconds	10	10	10	10
Voltage Protection	-	Off	Off	Off	Off
Slow Wire Feed Speed	-	3	3	3	3
Remote Control Mode	-	Wireless	Wireless	Wireless	Wireless

Unit System Setting

On entering this option, there are two unit system options: 'Metric System' and 'Imperial System'. Parameters related to the unit system conversion with the EVO MIG range include:

- Wire feed speed: Metric: m/min, Imperial: inches/min.
- Welding wire diameter: Metric: mm, Imperial: inches.
- Plate thickness: Metric: mm, Imperial: inches.

Language Selection

To enter the system information screen, rotate the control dial to select the language icon (as shown right) and press control dial button to access the language choice screen.
Rotating the control dial clockwise or anticlockwise will scroll you through the language choice options.
Once set on your required language choice, pressing the control dial button will save your chosen setting.
Press the return button to go back to the previous screen.

NAVIGATING THE 'LCD' CONTROL PANEL

System Setting - Selection and Adjusting

System Information

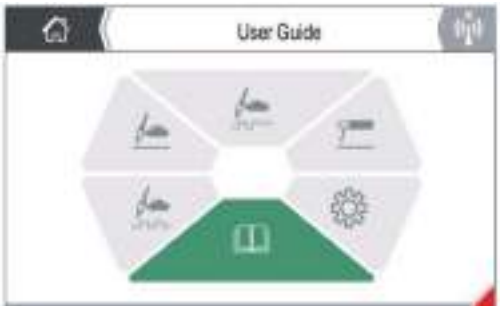
To enter the system information screen, rotate the control dial to select the 'Ver' icon (as shown right) and press control dial button to access the system information page which reveals the machine information, which is displayed in order from: Rated Current, Software Version No, LCD Version No and Machine Serial No.
Press the return button to go back to the previous screen.

User Manual

Accessing the User Manual is straight forward, press the 'home' button and from this home screen menu, navigate to the notebook icon and press the control dial button to enter the user guide (as shown below).

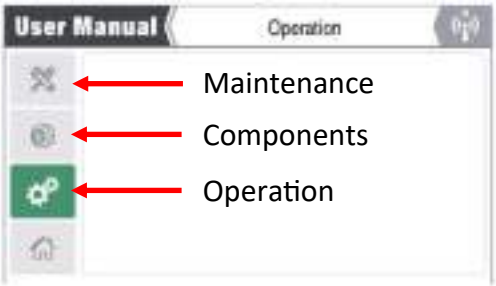
From here you can navigate through various sections and pages of the operating manual.

Please Note: For the latest and more in-depth version of the Jasic EVO EM-200CT operating manual, please visit www.jasic.co.uk and look the product page up and click on documents.

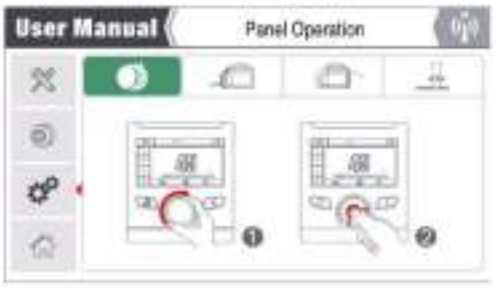


When In the User Manual screen, you can rotate the control dial to select the section tabs on the left of the screen which are:

- Operation
- Components (Spare Parts)
- Maintenance



When you select for example select and enter the operation tab, you will then open up the operation page which also offers a secondary top row of page tabs with further user operational data. Rotating the control dial will scroll you thorough these pages which will be highlighted green.



- The operation tab also includes further information on panel operation, front panel connection, rear panel operation and welding guide.
- The components (spare parts) tab also includes further information on welding torch, consumables, earth cable and other parts.
- The maintenance tab also includes further information on alarms codes, solutions, repair parts and troubleshooting.

When you access or open pages of the operating manual the page maybe larger that the screen, if you then press the control dial button you will enlarge the page, image or chart and will be able to scroll through the page data by rotating the control dial, pressing the control dial button will return you to the previous page.

NAVIGATING THE 'LCD' CONTROL PANEL

System Setting - Selection and Adjusting

VRD Function

Voltage Reduction Device (VRD) is a hazard reducing circuitry inbuilt into welding power sources which is used in the MMA/Stick welding process which reduces the open circuit voltage (OCV) when the voltage output of the machine is ON but not welding to a safe voltage (normally under 20V). VRD has no effect on arc starting.

The factory setting for VRD is ON and The VRD symbol will be on show when the machine is in MMA mode and the output voltage is limited to 12V when the machine is idle (as shown right).

Please Note:

- **The VRD icon will go off when the welding arc is established.**
- **VRD can be disabled although this requires a technician to carry out this task, please contact your supplier for further details.**

Alarm function

The Evo range of machines have inbuilt protection devices and in the unfortunate case of a malfunction, an error code is indicated along with the corresponding error description appears on the LCD display as the example right shows. As long as an error code is shown, welding operation is generally not possible.

There are seven alarm conditions that the machine can experience as follows:

Overcurrent Protection (E10), Undervoltage Protection (E31), Overvoltage Protection (E32), Data error alarm (E55), Overheat Protection (E60), Overheat protection (E61), Water Cooler Alarm (E71)

See the trouble shooting section of the EM-200CT / EM-250CT PFC operating manual for further details on error codes and troubleshooting them.

Screen (Saver) Protection Mode

When the machine is switched on but has not been operated or used for a set period of time (standby time, see page 23 for further details), the unit will enter into standby (idle) mode and the machine will enter sleep mode although the screen display will only show the protection image which is the Jasic logo (as shown right).

The machine will wake up immediately and the screen will show the previous data if either the torch trigger, remote device or one of the control panel buttons are pressed.

NAVIGATING THE ‘LCD’ CONTROL PANEL

System Setting - Selection and Adjusting

Memory (Channel) Storage, Recall or Delete

When in either Synergic MIG, Standard MIG MMA or Lift TIG welding mode and prior to welding you can select a saved welding job or save a welding job to and from the Memory function page.

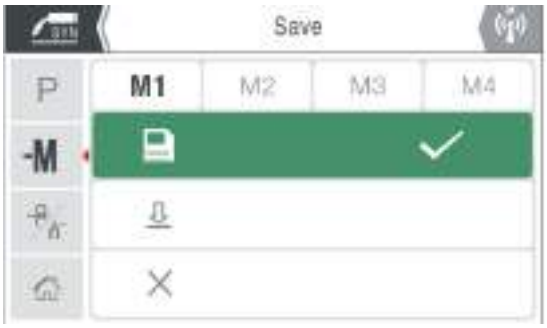
Once in the memory page, you will note there are 4 memory slots to Select "M1", "M2", "M3" and "M4" and if a welding job was saved to any of the 4 welding slots you will also note that the previous saved welding parameters are displayed when you view the selected memory slot.

Rotating and pressing the control dial on the desired memory slot will then take you to the specific memory slot option page where you have three options of: “Save", “Load” or “Delete”.

“Save"

“Load”

“Delete”

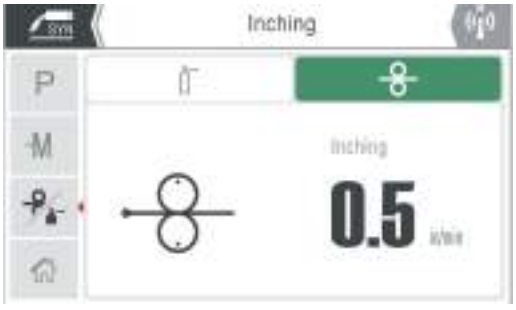


Selecting your desired option is carried out by rotating the control dial and (for example) pressing the “Load” option recall the saved welding parameters and load said program.

Pressing the back button will take you to the recalled welding screen where you can then commence your welding procedure.

Gas Purge/Check and Wire Inch function

When in either Synergic MIG or Standard MIG mode, the user can select the option on the operation page to enter the "Inching" or "Gas Check" function. Gas check is also available in Lift TIG mode.
To use "Wire Inch" or "Gas Check" function needs to be selected by rotating and pressing the central control dial. When starting wire inch or gas check, the LCD screen will display the inching & feed speed and the gas check animation, as shown in the images below.



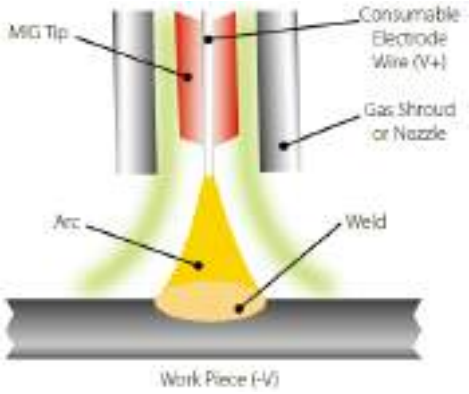
To use the "Gas Check/Purge" function, press the central control dial and release and gas purging will start, press it again to stop the gas flow. Gas purge will automatically stop after 20 seconds.
To use the "Inch" function, the central control dial is pressed and hold, if the dial is released, the wire feed motor will stop.

OPERATION - STANDARD MIG

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

MIG/MAG Standard Welding Mode

MIG - Metal Inert Gas Welding, MAG - Metal Active Gas Welding, GMAW - Gas Metal Arc Welding



MIG welding was developed to help meet production demands of the war and post war economy which is an arc welding process in which a continuous solid wire electrode is fed through a MIG welding gun and into the weld pool, joining the two base materials together.

A shielding gas is also sent through the MIG welding gun and protects the weld pool from contamination which also enhances the arc.

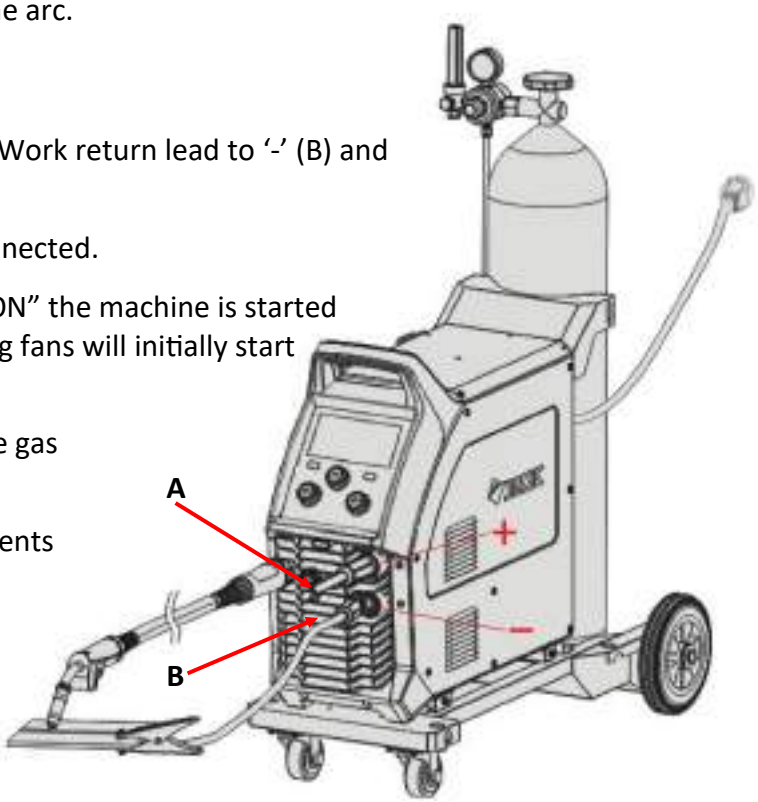
Connect the MIG torch leads as detailed below. Work return lead to '-' (B) and the torch trailing lead to '+' (A).

Ensure that a suitable shielding gas supply is connected.

Switch the power switch on the back panel to "ON" the machine is started with the control panel lighting up and the cooling fans will initially start running.

Open the gas valve of the cylinder and adjust the gas regulator to obtain the desired flow rate.

Depending on your exact MIG welding requirements you can follow the instructions below to obtain your optimum setup.



Standard Welding Mode:

Once the machine has been setup for MIG (consult with the EM-200CT / EM-250CT operating manual for further details) you will be in a position to setup the control panel for your MIG welding task.

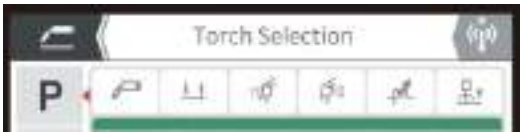
The control panel image left is an example of the machine being set up to standard MIG mode which was selected from the home screen (as below or see page 14) and the following page will explain the setup steps of MIG operation.

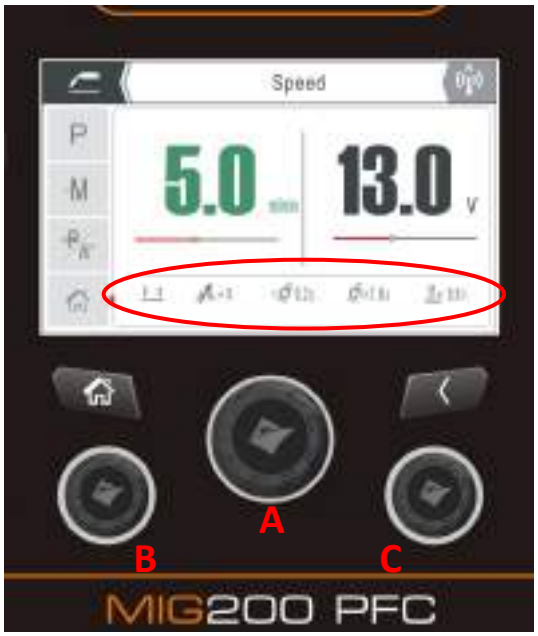
OPERATION - STANDARD MIG

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

MIG/MAG standard welding mode

When in standard MIG mode, you can also adjust various MIG parameters (which are displayed via the lower section of the screen as circled in red in the image right) such as trigger mode, Inductance, pre gas flow and post gas flow time and burn back and these can be accessed and adjusted via the Parameter 'P' option screen.
To access these 'P' back end parameters, press and then rotate the central control dial (A) until the 'P' icon is highlighted, pressing the control dial again will take you to these MIG parameters where you can scroll through (as shown below) to adjust and set as required.





Standard MIG Torch, Spool or Push Pull Gun selection:

The Jasic EM-200CT can be used with a standard Euro style MIG torch, spool or push pull gun which will connect to the machine via the Euro outlet connector.
To select torch type, rotate the central control dial (A) until the torch icon is highlighted green then press the central dial button to adjust which torch type is connected in the display window.

Torch trigger mode selection:
To select torch trigger options setting, rotate the central control dial until trigger mode icon is highlighted green then press the central dial button to select trigger mode.
This icon shown in the above screen image represents 2T torch trigger mode, when this trigger option is selected it indicates the machine is in 2T mode, 4T torch mode can also be selected.

MIG pre-gas selection and adjustment:
To select pre flow gas time setting, rotate the central control dial until preflow icon is highlighted green then press the central dial button to adjust pre flow time shown in the display window.
The pre flow adjustment range is 0 ~ 2 seconds and the factory setting is 0.1 seconds.

MIG post-gas selection and adjustment:
To select post flow gas time setting, rotate the central control dial until preflow icon is highlighted green then press the central dial button to adjust pre flow time shown in the display window.
The pre flow adjustment range is 0 ~ 5 seconds and the factory setting is 0.5 seconds.

Inductance selection and adjustment:
To select inductance setting, rotate the central control dial until inductance icon is highlighted green then press the central dial button to adjust the inductance setting as shown in the display window.
The inductance adjustment range is –10 ~ +10 and the factory setting is 0.

Burn Back selection and adjustment:
To select burn back setting, rotate the central control dial until burn back icon is highlighted green then press the central dial button to adjust the burn back setting as shown in the display window.
The burn back adjustment range is 10 ~ 13 volts and the factory setting is 13V.

OPERATION - STANDARD MIG

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

MIG/MAG standard welding mode

Wire feed speed control

Control dial (B) is a rotary encoder and when rotated in standard MIG mode gives the operator the ability to control wire feed speed.
Rotating the control dial clockwise increases wire feed speed (increasing welding current) while rotating the dial anticlockwise will decrease the wire feed speed ultimately reducing welding current and the wire feed rate is precisely shown in the display area (as shown right).
(The wire feed speed range is 2 ~ 16 m/min).

MIG voltage control

Control dial (C) is a rotary encoder and when rotated in standard MIG mode gives the operator the ability to control the welding voltage.
Rotating the control dial clockwise increases welding voltage while rotating the dial anticlockwise will decrease the welding voltage and welding voltage is precisely shown in the display area (as shown right).
(The welding voltage range is 11 ~ 28 volts).

Channel (memory) Storage, Recall or Delete

To select memory save or recall options settings, rotate the central control dial (A) until the –M icon is highlighted green then press the central dial button to select memory option mode where the operator can select a saved welding job or save a welding job to and from the Memory function screen.

Once in the memory page, you will note there are 4 memory slots to Select "M1", "M2", "M3" and "M4" and if a welding job was saved to any of the 4 welding slots you will also note that the previous saved welding parameters are displayed when you view the selected memory slot.

Rotating and pressing the control dial on the desired memory slot will then take you to the specific memory slot option page where you have three options of: “Save", “Load” or “Delete”.

Selecting your desired option is carried out by rotating the control dial and (for example) pressing the “Load” option recall the saved welding parameters and load said program.
Pressing the back button will take you to the recalled welding screen where you can then commence your welding procedure. (See page 30 for further details).

Gas Purge/Check and Wire Inch function

To select the inch and gas purge screen, rotate the central control dial (A) until icon is highlighted green then press the central dial button to select inch or gas check mode function screen.
To access "Wire Inch" or "Gas Check" function rotate and press the central control dial (A). When starting wire inch or gas check, the LCD screen will display the inching & feed speed and the gas check animation.
To use the "Gas check/purge" function, press the central control dial and release and gas purging will start, press it again to stop the gas flow.
To use the "Inch" function, the central control dial is pressed and hold, if the dial is released, the wire feed motor will stop.

OPERATION - SYNERGIC MIG

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

MIG/MAG Synergic Welding Mode

Once the machine has been setup for MIG (as per page 31 of this manual) you will be in a position to setup the control panel for your MIG welding task.

From the home screen (as shown left) selecting MIG Synergic will take you to the main synergic MIG mode screen as shown below.

Once in the main synergic mode screen, you are presented with various status data that informs the operator of the preset welding characteristics currently set.

Both the left control dial (B) and the central control dial (A) can be used to adjust the welding current.
When the current setting is adjusted, wire feed speed and plate thickness also proportional change with it.
Rotating dial (B) clockwise will increase the current settings and rotating the dial anti clockwise will decrease the current setting along with the plate thickness and wire feed speed settings.

Welding voltage is controlled and adjusted via the right control dial (C). When welding voltage is adjusted, arc length also changes proportionally with it.
Rotating dial (C) clockwise will increase the welding voltage settings and rotating the dial anti clockwise will decrease the welding voltage along with the arc length.

Further welding setting can be accessed and adjusted within the parameter options as shown right and described below.

These parameters (which are displayed via the lower section of the screen as circled in red in the image left) such as wire size, trigger mode, Inductance, pre gas flow and post gas flow time and burn back can be accessed and adjusted via the Parameter ‘P’ option noted in the left hand column of the screen.

To access these back end welding parameters, press and then rotate the central control dial (A) until the ‘P’ icon (2) is highlighted, pressing the control dial again will option will open the MIG parameters screen (as shown below) where you can scroll through the full list of adjustable parameters [(3) and any hidden parameters as (4) shown above] to either select, adjust and set as per your welding requirements (as shown above).

The following pages describe each adjustable parameter option available in MIG synergic welding mode

OPERATION - SYNERGIC MIG

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

MIG/MAG Synergic Welding Mode

Material Type & Gas Choice
To select material type and gas choice rotate the central control dial until the material type and gas icon is highlighted green then press the central dial button to select material type and gas combination choice screen, from here you will be able to select your required material and gas combination.

Wire Diameter Size:
To select your required welding wire diameter size, rotate the central control dial until the wire size icon is highlighted green and then press the central dial button to select the wire size you have fitted.
From here you can select wire size when in Synergic MIG mode with wire sizes of 0.6mm, 0.8mm and 1.0mm can be selected.

Standard MIG Torch, Spool or Push Pull Gun selection:
The Jasic EM-200CT can be used with a standard Euro style MIG torch, spool or push pull gun which will connect to the machine via the Euro outlet connector.
To select torch type, rotate the central control dial (A) until the torch icon is highlighted green then press the central dial button to adjust which torch type is connected in the display window.

Torch trigger mode selection:
To select torch trigger options setting, rotate the central control dial until trigger mode icon is highlighted green then press the central dial button to select trigger mode.
This icon shown in the above screen image represents 2T torch trigger mode, when this trigger option is selected it indicates the machine is in 2T mode, 4T torch mode can also be selected.

MIG pre-gas selection and adjustment:
To select pre flow gas time setting, rotate the central control dial until preflow icon is highlighted green then press the central dial button to adjust pre flow time shown in the display window.
The pre flow adjustment range is 0 ~ 2 seconds and the factory setting is 0.1 seconds.

MIG post-gas selection and adjustment:
To select post flow gas time setting, rotate the central control dial until preflow icon is highlighted green then press the central dial button to adjust pre flow time shown in the display window.
The pre flow adjustment range is 0 ~ 5 seconds and the factory setting is 0.5 seconds.

Inductance selection and adjustment:
To select inductance setting, rotate the central control dial until inductance icon is highlighted green then press the central dial button to adjust the inductance setting as shown in the display window.
The inductance adjustment range is –10 ~ +10 and the factory setting is 0.

Burn Back selection and adjustment:
To select burn back setting, rotate the central control dial until burn back icon is highlighted green then press the central dial button to adjust the burn back setting as shown in the display window.
The burn back adjustment range is 10 ~ 13 volts and the factory setting is 13V.

OPERATION - SYNERGIC MIG

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

MIG/MAG Synergic Welding Mode

Channel (memory) Storage, Recall or Delete

To select memory save or recall options settings, rotate the central control dial (A) until the –M icon is highlighted green then press the central dial button to select memory option mode where the operator can select a saved welding job or save a welding job to and from the Memory function screen.

Once in the memory page, you will note there are 4 memory slots to Select "M1", "M2", "M3" and "M4" and if a welding job was saved to any of the 4 welding slots you will also note that the previous saved welding parameters are displayed when you view the selected memory slot.

Rotating and pressing the control dial on the desired memory slot will then take you to the specific memory slot option page where you have three options of: “Save", “Load” or “Delete”.

Selecting your desired option is carried out by rotating the control dial and (for example) pressing the “Load” option recall the saved welding parameters and load said program.
Pressing the back button will take you to the recalled welding screen where you can then commence your welding procedure. (See page 30 for further details).

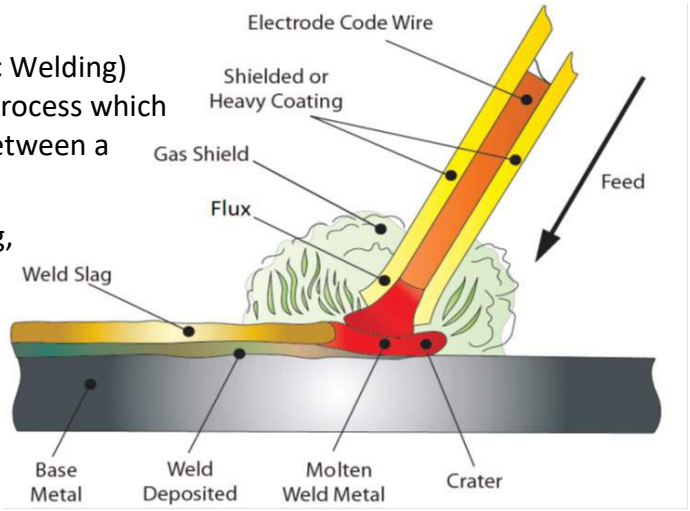
Gas Purge/Check and Wire Inch function

To select the inch and gas purge screen, rotate the central control dial (A) until icon is highlighted green then press the central dial button to select inch or gas check mode function screen.
To access "Wire Inch" or "Gas Check" function rotate and press the central control dial (A). When starting wire inch or gas check, the LCD screen will display the inching & feed speed and the gas check animation.
To use the "Gas check/purge" function, press the central control dial and release and gas purging will start, press it again to stop the gas flow.
To use the "Inch" function, the central control dial is pressed and hold, if the dial is released, the wire feed motor will stop.

OPERATION - MMA

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

MMA welding



MMA (Manual Metal Arc), SMAW (Shielded Metal Arc Welding) or just Stick Welding. Stick welding is an arc welding process which melts and joins metals by heating them with an arc between a covered metal electrode and the work.

Shielding is obtained from the electrode outer coating, often called flux. Filler metal is primarily obtained from the electrode core.

The electrodes outer coating called flux assists in creating the arc and provides a shielding gas and on cooling forms a slag covering to protect the weld from contamination.

When the electrode is moved along the work piece at the correct speed the metal core deposits a uniformed layer called the weld bead.

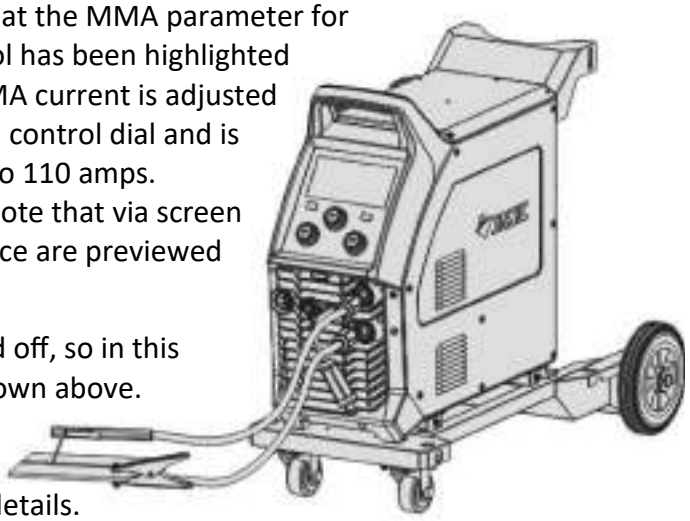
After connecting the welding leads as detailed above, plug your machine into the mains supply and turn ‘ON’ the machine, the power switch is located at the rear panel of the machine, place it to the "ON" position, the panel indicator will then light up, the fan may start to rotate as the welding machine powers up and the control panel will also light up to indicate that the machine is ready to use as shown below.

PLEASE NOTE:
Caution, when in MMA mode there is welding voltage at both output terminals.

Some welding models are equipped with the smart fan function. When the power supply is turned on after a period before welding starts, the fan will automatically stop running.
The fan will then run automatically when welding begins.

Now you can connect the welding leads as shown in the image below, ensure you check that you have the electrode polarity correct to match the welding rod being used.

In the image left, you will note that MMA has been selected (in red) and that the MMA parameter for current control has been highlighted green and MMA current is adjusted via the central control dial and is currently set to 110 amps.
You will also note that via screen lower bar further parameters of Hot Start and Arc Force are previewed and there settings are also displayed.



Please Note, the remote control option maybe turned off, so in this case current control is via the control panel dial as shown above.
If remote control is required by the operator for use with an EVO remote control accessory, consult the EM-200CT / EM-250CT operating manual for further details.

OPERATION - MMA

Before starting any welding activity ensure that you have suitable eye protection and protective clothing as, welding rays, spatter, smoke and high temperatures produced in the process may cause injury to personnel.
Also take the necessary steps to protect any persons within the welding area that may cause injury to.

MMA welding

Select MMA welding mode by selecting the MMA mode when in the home screen and this is acknowledged by going into the MMA screen and noting the MMA symbol is shown in the top left hand corner of the screen (circled red) in the image top right.
When in MMA mode you can select and adjust welding current as well as hot start current and arc force parameters (which are displayed via the lower section of the screen in the image right) respectively as described below.

MMA Welding Current Adjustment

MMA welding current can now be adjusted via the central control adjustment dial and rotating this dial either clockwise or anticlockwise which will increase or decrease the welding amperage shown on the screen (shown in image top right).

Please Note: Welding current can be adjusted out during welding.

When in MMA mode, you can also adjust various MMA parameters such as hot start and arc force and these can be adjusted via the parameter 'P' mode.
By pressing and then rotating the central control dial you can scroll to the parameter function to set back-end MMA parameter values.

Hot Start Current Adjustment

To select MMA hot start, rotate the central control dial until the hot start icon is highlighted green then press the central dial button, this will open the hot start adjustment display window.
The hot start adjustment range is 0 ~ 60 amps and the factory setting is 30 amps.

Arc Force Current Adjustment

To select MMA arc force, rotate the central control dial until the arc force icon is highlighted green then press the central dial button, this will open the arc force adjustment display window.
The arc force adjustment range is 0 ~ 100 amps and the factory setting is 40 amps.

VRD indicator

By default the screen will display and show the MMA voltage (see image top right). In MMA mode, the VRD LED will be lit to indicate that VRD is active and the machine output voltage is under 12V.

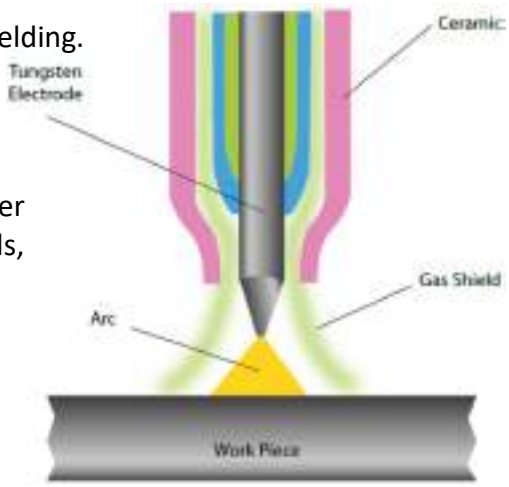
PLEASE NOTE:

- The operator should set the parameters that meet the welding requirements.
- If the selections are incorrect this may lead to problems such as an unstable arc, spatter or sticking of the welding electrode to the work piece.
- If the secondary cables (welding cable and earth cable) are long, select welding cable with a larger cross-section to reduce the voltage drop.

LIFT TIG SETUP

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

LIFT TIG welding mode

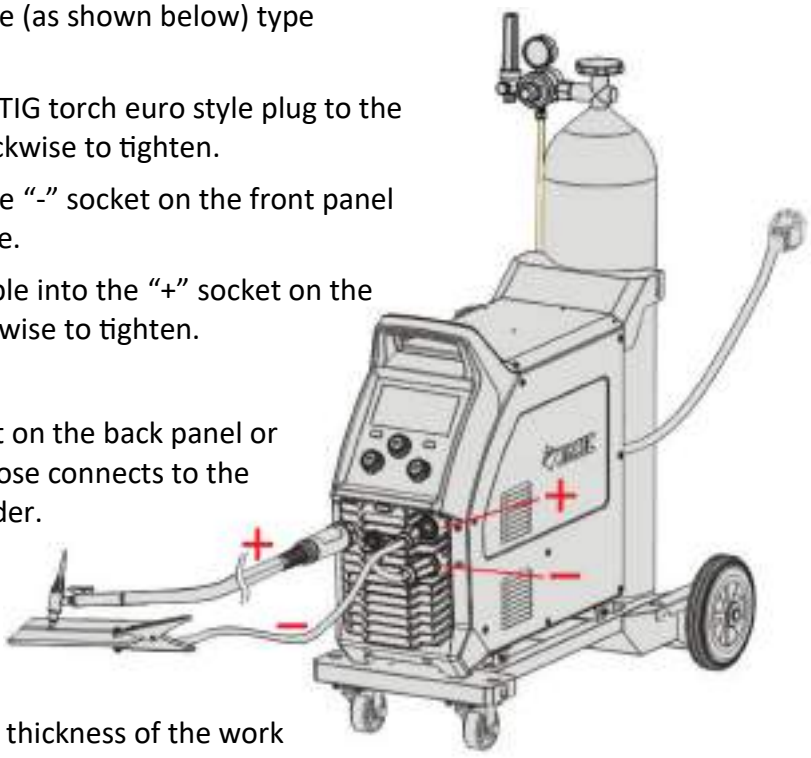


Terms used: TIG – Tungsten Inert Gas, GTAW – Gas Tungsten Arc Welding.

TIG welding is an arc welding process that uses a non-consumable tungsten electrode to produce the heat for welding.
The weld area is protected from atmospheric contamination by a shielding gas (usually an inert gas such as argon or helium) and a filler rod matching the base material is normally used, though some welds, known as autogenous welds, are carried out without the need for filler wire.

The LIFT TIG welding process with the EM-200CT and EM-250CT machines is in the DC process (Direct Current) for welding steel and stainless steel etc.

With the EVO range of machines a euro style (as shown below) type TIG torch can be used.



Using the euro style TIG torch, connect the TIG torch euro style plug to the (MIG) Euro connector outlet and rotate clockwise to tighten.

Ensure the trailing lead is connected into the "-" socket on the front panel of the machine and fully tightened clockwise.

Insert the dinse plug on the work return cable into the "+" socket on the front panel of the machine and rotate clockwise to tighten.

Attach the work clamp to the work piece.

Connect the supply gas hose to the gas inlet on the back panel or the machine. The other end of the supply hose connects to the gas regulator or flowmeter on the gas cylinder.

Press the gas purge button on the control panel to activate the gas solenoid to allow gas to flow, this will allow you to set the gas flow level.

Adjust the welding current according to the thickness of the work piece to be welded (for a guide to TIG welding parameters, please refer to the table below).

Allow the TIG torch tungsten to touch the work piece and then press the torch trigger.
Gas will then start to flow, output voltage will also activate and then lift the TIG torch 2 ~ 4mm away from the work piece and the arc will initiate and the welding will commence and be maintained at the preset welding, welding can be carried out.

Releasing the torch trigger will stop the welding arc although the shielding gas will continue flowing for the preset post flow time, welding then ends.

The amperage guide for TIG welding tungsten sizes can vary depending on material, work piece thickness, welding position and joint form.

Tungsten Size	DC – Electrode Negative
1.0mm	15 – 80A
1.6mm	70 – 150A
2.4mm	150 – 250A
3.2mm	250A – 400A

OPERATION - LIFT TIG

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

Lift TIG operation steps

Please see the full EM-200CT/EM-250CT operating manual for the Lift Tig setup process.

Upon selecting the Lift TIG option from the home screen you will be presented the Lift TIG operating screen as shown right for the EM-200CT TFT-LCD model only.

Lift TIG Welding Current Adjustment
TIG welding current adjustment can now be carried out via the panel central control dial and this can be achieved by rotating this encoder either clockwise or anticlockwise which will increase or decrease the welding amperage shown on the display highlighted in green.
The welding current adjustment range is 10 ~ 160 amps (110v mode) or 10 ~ 200 amps (230v mode).

Note: Welding current adjustment can be carried out during welding.

When in Lift TIG mode, you can also adjust various TIG parameters (which are displayed via the lower section of the screen as circled in red in the image right) such as trigger mode, pre gas flow, current downslope time and post gas flow and these can be adjusted via the Parameter 'P' mode,

By pressing and then rotating the central control dial you can scroll to the parameter function to set the back-end parameter values or change functions.

- **Lift TIG pre-gas selection and adjusting:**
  To select pre flow gas time setting, rotate the central control dial until preflow is highlighted green then press the central dial button to adjust pre flow time shown in the display window.
  The pre flow adjustment range is 0 ~ 5 seconds and the factory setting is 0.5 seconds.

- **Torch Trigger Mode**
  To select torch trigger options setting, rotate the central control dial until trigger mode icon is highlighted green then press the central dial button to select trigger mode.
  This icon shown in the above screen image represents 2T torch trigger mode, when this trigger option is selected it indicates the machine is in 2T mode, pressing the torch switch will activate the machine and releasing the switch will stop the machine.

- **Lift TIG downslope time selection and adjustment:**
  To select and adjust downslope time, rotate the central control dial until the downslope icon is highlighted green and the press the central dial button to select and enter the downslope adjustment screen. Rotating the central dial will increase or decrease the downslope time range between 0 ~ 5 seconds with the factory setting being 0.5 seconds.

- **Lift TIG post-gas selection and adjustment:**
  To select post flow gas time setting, rotate the central control dial until preflow is highlighted green then press the central dial button to adjust pre flow time shown in the display window.
  The pre flow adjustment range is 0 ~ 5 seconds and the factory setting is 0.5 seconds.

Pressing the back button will exit this screen option and take you back to the previous screen.

NOTES

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