MCT-416

MULTI-PROCESS WELDER

USE MANUAL
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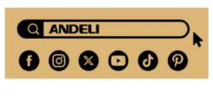

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SAFETY

THANK YOU FOR SELECTING A QUALITY PRODUCT BY ANDELI.

PLEASE EXAMINE THE PACKING BOX AND EQUIPMENT FOR DAMAGE IMMEDIATELY

When this equipment is shipped, the title passes to the purchaser upon receipt by the carrier.Consequently, claims for material damaged in shipment must be filed by the purchaser against the transportation company when the shipment is received.

SAFETY DEPENDS ON YOU

ANDELI arc welding and cutting equipment are designed and built with safety. However, your overall safety can be increased by proper installation and thoughtful operation on your part. **DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT.** And most importantly, think before you act and be careful.

WARNING

This statement appears where the information must be followed to avoid serious personal injury or loss of life.

CAUTION

This statement appears where the information must be followed to avoid minor personal injury or damage to this equipment.

KEEP YOUR HEAD OUT OF THE FUMES.

DON'T get too close to the arc. Use corrective lenses if necessary to stay a reasonable distance from the arc.

READ and obey the Safety Data Sheet (SDS) and the warning label on all welding materials containers.

USE ENOUGH VENTILATION or exhaust at the arc, or both, to keep the fumes and gases from your breathing zone and the general area.

IN A LARGE ROOM OR OUTDOORS, natural ventilation may be adequate if you keep your head out of the fumes. (See ANSI Z49.1).

USE NATURAL DRAFTS or fans to keep the fumes away from your face.

If you develop unusual symptoms, see your supervisor. Perhaps the welding atmosphere and ventilation system should be checked.

WEAR CORRECT EYE, EAR & BODY PROTECTION

PROTECT your eyes and face with welding helmet properly fitted and with proper grade of filter plates (See ANSI Z49.1).

PROTECT your body from welding spatter and arc flash with protective clothing including woolen clothing, flame-proof apron and gloves, leather leggings, and high boots.

PROTECT others from spatter, flash, and glare with protective screens or barriers.

IN SOME AREAS, protection from noise may be appropriate.

BE SURE protective equipment is in good condition. Also, wear safety glasses in work area

AT ALL TIMES.

SPECIAL SITUATIONS

DO NOT WELD OR CUT containers or materials which previously had been in contact with hazardous substances unless they are properly cleaned.

DO NOT WELD OR CUT painted or plated parts unless special precautions with ventilation have been taken. They can release highly toxic fumes or gases.

Additional precautionary measures:

PROTECT compressed gas cylinders from excessive heat, mechanical shocks, and arcs; fasten cylinders so they cannot fall. BE SURE cylinders are never grounded or part of an electrical circuit.

REMOVE all potential fire hazards from welding area.

ALWAYS HAVE FIRE FIGHTING EQUIPMENT READY FOR IMMEDIATE USE AND KNOW HOW TO USE IT.

SAFETY

WARNINGS

CALIFORNIA PROPOSITION 65 WARNINGS

WARNING: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects, or other reproductive harm.

Always start and operate the engine in a well-ventilated area.

If in an exposed area, vent the exhaust to the outside.

Do not modify or tamper with the exhaust system.

Do not idle the engine except as necessary.

For more information go to **www.P65warnings.ca.gov/diesel**

WARNING:This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code § 25249.5 et seq.)

WARNING: Cancer and Reproductive Harm www.P65warnings.ca.gov

ARC WELDING CAN BE HAZARDOUS. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.

Read and understand the following safety highlights. For additional safety information, it is strongly recommended you download free PDF of Standard ANSI Z49.1 from the American Welding Society.
https://www.aws.org/library/doc8vWS-Z49-2021.pdf

BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.

FOR ENGINE POWERED EQUIPMENT.

1.a. Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.

1.b. Operate engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.

1.c. Do not add the fuel near an open flame welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.

1.d. Keep all equipment safety guards, covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

1.e. In some cases it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.

1.f. Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.

1.g. To prevent accidentally starting gasoline engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.

1.h. To avoid scalding, do not remove the radiator pressure cap when the engine is hot.

ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS

2.a. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines

2.b. EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.

2.c. Exposure to EMF fields in welding may have other health effects which are now not known.

2.d. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

2.d.1. Route the electrode and work cables together - Secure them with tape when possible.

2.d.2. Never coil the electrode lead around your body.

SAFETY

2.d.3. Do not place your body between the electrode and workcables. If the electrode cable is on your right side, the work cable should also be on your right side.

2.d.4. Connect the work cable to the workpiece as close as possible to the area being welded.

2.d.5. Do not work next to welding power source.

ELECTRIC SHOCK CAN KILL.

3.a. The electrode and work (or ground) circuits are electrically "hot" when the welder is on. Do not touch these "hot" parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.

3.b. Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (in damp locations or while wearing wet clothing; on metal structures such as floors, gratings or scaffolds, when in cramped positions such as sitting, kneeling or lying, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:

- Semiautomatic DC Constant Voltage (Wire) Welder.
- DC Manual (Stick) Welder.
- AC Welder with Reduced Voltage Control.

3.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically "hot".

3.d. Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.

3.e. Ground the work or metal to be welded to a good electrical (earth) ground.

3.f. Maintain the electrode stinger, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.

3.g. Never dip the electrode in water for cooling.

3.h. Never simultaneously touch electrically "hot" parts of electrode stingers connected to two welders because voltage between the two can be the total of the open circuit voltage of both welders.

3.i. When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.

3.j. Also see items 6.c. and 8.

ARC RAYS CAN BURN.

4.a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Welding shield and filter lens should conform to ANSI Z87. Islandards.

4.b. Use suitable clothing made from durable flameresistant material to protect your skin and that of your helpers from the arc rays.

4.c. Protect other nearby personnel with suitable , non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.

FUMES AND GASES CAN BE DANGEROUS.

5.a. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding,

keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. When welding hardfacing (see instructions on container or SDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and within applicable OSHA PEL and ACGIH TLV limits using local exhaust or mechanical ventilation unless exposure assessments indicate otherwise. In confined spaces or in some circumstances, outdoors, a respirator may also be required. Additional precautions are also required when welding on galvanized steel.

5.b. The type and quantity of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

5.d. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.

5.e. Read and understand the manufacturer's instructions for this equipment and the consumables to be used, including the Safety Data Sheet (SDS) and follow your employer's safety practices. SDS forms are available from your welding distributor or from the manufacturer.

5.f. Also see item 1.b.

SAFETY

WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION.

6.a. Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.

6.b. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to "Safety in Welding and Cutting" (ANSI Standard Z49.1) and the operating information for the equipment being used.

6.c. When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.

6.d. Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned". For information, purchase "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances", AWS F4.1 from the American Welding Society (see address above).

6.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.

6.f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.

6.g. Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains

or cables until they fail. 6.h. Also see item 1.c.

6.i. Read and follow NFPA 51B "Standard for Fire Prevention During Welding, Cutting and Other Hot Work", available from NFPA, 1 Batterymarch Park, PO box 9101, Quincy, MA 02269-9101.

6.j. Do not use a welding power source for pipe thawing.

SAFETY

CYLINDER MAY EXPLODE IF DAMAGED.

7.a. Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.

7.b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.

7.c. Cylinders should be located:

- Away from areas where they may be struck or subjected to physical damage.
- A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.

7.d. Never allow the electrode, electrode stinger or any other electrically "hot" parts to touch a cylinder.

7.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

7.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

7.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-1, "Precautions for Safe Handling of Compressed Gases in Cylinders," available from the Compressed Gas Association, 14501 George Carter Way Chantilly, VA 20151.

FOR ELECTRICALLY POWERED EQUIPMENT.

8.a. Turn off the power using the disconnect switch at the fuse box before working on the equipment.

8.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.

8.c. Ground the equipment following the U.S. National Electrical Code and the manufacturer'srecommendations.

SYMBOL EXPLANATION

	Cautions		Power ON
	Items need special instruction		Power OFF
	E-waste must never be discarded with regular trash		Ground connection
	Full digital screen		Voltage fine adjustment
	Identify the input voltage	A	Current
	Fast wire feed	V	Voltage
	MIG	in/min	Wire feed speed
	Pulse MIG		Parameter selection
	Stick		2T/4T or Spot
	HF CUT		Wire diameter selection
	HF TIG		Gas and material selection

PRODUCT OVERVIEW

ANDELI MCT-416 Multi-Functional Welder combines high-frequency TIG, MIG (gas/flux core), stick welding, and plasma cutting into one versatile 110V/220V dual-voltage machine, ideal for professionals and DIY enthusiast working with aluminum, magnesium, steel, and stainless steel. Its 5-inch LED display simplifies setup by allowing quick selection of welding modes, materials, and parameters, while the auto-memory function saves settings for repeatable precision. With up to 160A welding and 40A cutting currents, plus 2T/4T modes, it ensures efficiency and adaptability for tasks ranging from thin sheet metal fabrication to heavy-duty repairs.

FUNCTION OVERVIEW

1) **Multiprocess Welder:** HF-TIG, HF-Plasma cutting with outer air, Synergy MIG, Manual MIG, Pulse MIG.

2) **5-inches LED Screen:** Real-time display of welding current, easy to choose welding parameters.

3) **HF Arc Start (TIG):** Built-in pressurized arc ignition circuit; support HF pilot TIG arc ignition.

4) **HF Pilot Arc Start (CUT):** Support HF pilot arc ignition during plasma cutting.

5) **110V/220V Dual Voltage:** Meet various welding process demands with up to 160A welding current and up to 40A cutting current and 2T/4T modes.

6) **AutoSave and AutoRecover:** Automatic saving parameter to safeguard against sudden power outages and seamlessly restore the last active welding parameters.

7) **VRD:** Ensure the operator's safety while in idle mode.

8) **Adjustable Hot Start:** Enhance arc ignition and ensures stable starts on challenging materials.

9) **Adjustable Arc Force Current:** Optimize welding performance by stabilizing the arc during voltage fluctuations.

10) **Parameter Fine-Tuning:** Slow wire feeding time, reburn time, pre-gas time, and after-gas time.

11) **Intelligent Fan:** Automatic fan activation based on real-time temperature monitoring, ensuring precise cooling and prolonged fan durability.

12) **Compatible Outer Compressor:** Ensure consistent airflow for precise, high-quality plasma cutting, optimizing arc stability and cutting efficiency.

PERFORMANCE CHARACTERISTICS

IGBT inverter technology

- The adoption of 42 kHz inverting frequency and strong shock resistance IGBT for the main loop contributes to smaller welder size and lighter weight, and higher reliability.
- A great reduction in copper and core loss greatly enhances welding efficiency and saves energy.
- Switching frequency is beyond audio frequency, which almost eliminates noise pollution.

Cutting-edge control technique

- Advanced control scheme crafters for various welding process requirements and greatly enhances welder performances.
- New control technology contributes to smaller voltage spike which is caused by second inversion, thus higher reliability and effi- ciency as well as smaller size.
- The adoption of MCU intelligent digital control technology and software digital controlled core welding functions brings upgraded performances when compared with traditional welders.
- Applicable to various acid and basic electrodes.

Nice shape and structure design

- Streamline design for the front and rear panels to achieve a better integral shape.
- Panels made of high-intensity engineering plastics guarantee high work efficiencyin case of strong impact and drop or other harsh conditions.
- Excellent insulating property.
- Fine anti-static and anti-corrosion performance.

Optimized auto protection

- The machine has an optimized auto protection function. When there is large-scale voltage fluctuation, the welder will shut off auto-matically and display the failure information; the welder will restart when the network voltage is stable. The welder will shut off in case of over-heat, or other abnormalities, and display the according failure information. Multi protections largely prolong the welder's lifespan.

Excellent consistency and performance

- This product adopts intelligent digital control technology which is not sensitive to component parameters'change; certain compo- nents'changes won't affect the welder's performance. It's also insensitive to temperature and humidity. All the above contribute tobetter consistency and performance when compared with traditional welders.

Friendly interaction interface

- This welder adopts an international diagram form display, which is easy to understand and convenient to achieve accurate opera- tion for different types of users.

Capable of high quality Stick welding

- The adoption of an excellent control algorithm largely improves Stick welding performance, bringing easy arc start, stable current, minimum spatter, no sticking, good shaping, and self-adaption to different cable lengths and cross-sections.

Capable of highly demanding argon arc welding

- Optimized digital CC adjustment technology guarantees low noise and stable arc; meanwhile, accurate control technology pro-vides convenient operation for welding current. This welder is capable of 2T/4T to meet various welding process demands.

Non-volatile Memory

- The welding parameters will be automatically memorized when power off. And the latest welding parameter could be restored when power on.

INSTALLATION

TECHNICAL SPECIFICATIONS: MCT-416

INPUT-SINGLE PHASE ONLY			
Standard Voltage/ Frequency		Input Current	
Single Phase 99-242V, 50/60Hz		110V:11 max=43.6A, I1 eff=32A 220V:11 max=30.9A, I1 eff=22.5A	
RATED OUTPUT-DC ONLY			
Voltage	Mode	Duty Cycle	Current	Volts at Rated Current
220V	MIG	60%	160A	22V
	CUT	60%	45A	96V
	TIG	60%	160A	16.4V
	STICK	60%	160A	26.4V
110V	MIG	60%	120A	20V
	CUT	60%	30A	92V
	TIG	60%	120A	14.8V
	STICK	60%	120A	24.8V
OUTPUTRANGE				
Voltage	Mode	Open Circuit Voltage	Welding Current Range	Welding Voltage Range
220V	MIG	62V	30~160A	15.5~22V
	TIG	62V	15~160A	10.6~16.4V
	STICK	62V	25~160A	21~26.4V
	CUT	312V	20~40A	84.8~98V
110V	MIG	62V	30~120A	15.5~20V
	TIG	62V	15~120A	10.6~14.8V
	STICK	62V	25~120A	21~24.8V
	CUT	250V	20~30A	88~92V
OTHER PARAMETERS				
Machine	Power Factor	Efficiency	Protection Class	Insulation Class
MCT-416	0.7	≥80%	IP23S	F
PACKING DIMENSIONS				
Machine	Length	Width	Height	Weight
MCT-416	460MM 18.11INCH	170MM 6.70INCH	290MM 11.41INCH	9.7KG 21.4LB
TEMPERATURE RANGE				
Operating Temperature Range		Storage Temperature Range		
-20℃ ~ +50℃(-4℉~122℉)		-20℃ ~ +50℃(-4℉~122℉)		

Read the entire installation section before you start the installation.

INSTALLATION

WARNING

ELECTRIC SHOCK can kill.

- **Only qualified personnel should perform this installation.**
- **Only personnel reading and understanding the MCT-416 user manual should install and operate this equipment.**
- **The machine must be plugged into a grounded receptacle per national, local, or other applicable electrical codes.**
- **The MCT-416 power switch should be in the OFF("O") posi- tion when installing the work cable and gun and connect- ing the power cord to input power.**

SELECT SUITABLE LOCATION

Locate the **MCT-416** in a dry place with free clean air circulation to minimize the chance of dirt accumulation that can block air passages and cause overheating.

STACKING

MCT-416 can not be stacked.

TILTING

The machine should be placed on a secure, level surface or a recommended cart. The equipment may topple over if this requirement is not followed.

ACCESSORIES

1. MCT-416 Welder
2. User Manual
3. Air Filter Regulator
4. Ground Clamp
5. Electrode Holder
6. TIG Accessories Kit (Ceramic Gas Nozzles*3, Torch Collet*3,Connector*1, Stubby Gas Lens*1, Tip*2, Electrode*2,Cutting Shield Cup*2, Diffuser*2, Contact tip *2, Mig Shield Cup*2, Threaded Tube*2, Quick Connector*2, Hose Clamp*2)
7. U-Grooved Drive Roll(0.035"/0.045")
8. 110v~220V Adapter Cable
9. Graphene Liner
10. Gas Connector
11. PU Gas Hose
12. WP-17 TIG Torch
13. PT-31 Plasma Cutting Torch
14. 15AK MIG Torch

DESCRIPTION

1. Function Selection
2. 2T/4T Selecction
3. Voltage Control Knob
4. Welding Modes Selection
5. MIG Torch Socket
6. Control Switch Socket
7. Positive(+) Socket
8. Negative(-) Socket
9. Cutting Ground Clamp Socket
10. CUT/HF TIG Torch Connector
11. Current Control Knob
12. Welding Material Selection
13. Wire Diameter Selection
14. Power Switch
15. Cooling Fan
16. MIG Gas Connector
17. CUT /TIG Gas Connector
18. Nameplate
19. Ground Pin
20. Power Cable
21. Air Filter Regulator Installation Place

PANEL DESCRIPTION

Professional parameter adjustment; it can control the inductance, slow wire feeding time, reburn time, pre-gas time, and after-gas time

Easy to use: Wire diameter/ plate material /gas/ 2T/4T/spot welding function can be selected

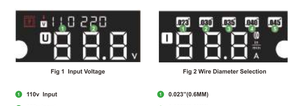


Fig 1 Input Voltage

Fig 2 Wire Diameter Selection

1. 110v Input
2. 220v Input

4. 0.023"(0.6MM)
5. 0.030"(0.8MM)
6. 0.035"(0.9MM)
7. 0.040"(1.0MM)
8. 0.045"(1.2MM)

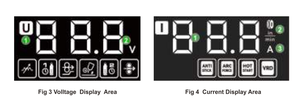


Fig 3 Voltage Display Area

Fig 4 Current Display Area

1. Voltage Indication Area
2. Value

1. Value
2. Wire Feeding Speed(In/Min)
3. Current LED Indicator

PANEL FUNCTION DESCRIPTION

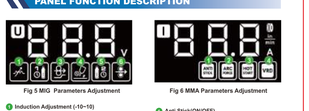


Fig 5 MIG Parameters Adjustment

Fig 6 MMA Parameters Adjustment

1. Induction Adjustment (-10~10)
2. Pre-gas Time (0~2S)
3. Slow Wire Feed Speed Adjustment (0~10)
4. Reburning Adjust (0~10)
5. Post -gas Time (0~2S)
6. Fast Wire Feed Speed (400INCH/MIN)

1. Anti Stick(ON/OFF)
2. Air Force Adjustment(0~10)
3. Hot-Arc (0~10)
4. VRD(ON/OFF)

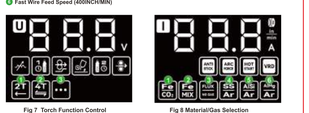


Fig 7 Torch Function Control

Fig 8 Material/Gas Selection

1. 2T
2. 4T
3. Spot Welding

1. FE(CO2)
2. FE(MIX)
3. FLUX(NO GAS)
4. SS(AR)
5. ALSI(50%FLAR)
6. ALMG(100%LAR)

Fig 9 Welding Modes Selection

1. Synergic MIG
2. Manual MIG
3. Pulse(ALSI/ALMG)
4. MMA
5. HF CUT
6. HF TIG

DESCRIPTION

Keys Operation Instructions

A: Welding Parameters Adjustment Button

Press the button to adjust inductance, pre-gas, slow wire feed, burnback, post-gas, and wire check under MIG mode. Press and hold for 3 seconds to initiate automatic wire feeding.

Press the button to adjust anti-stick electrode, arc force, hot start, and VRD under MMA mode.

B: Wire Diameter Selection Button

Press the button to cycle through operating modes: Non-Locking 2T, Locking 4T, and Spot Welding.

2T Mode: Press and hold the welding torch trigger to start welding and release the trigger to stop immediately.

4T Mode: Press the trigger once to start welding (arc initiates and continues automatically) and press the trigger again to stop welding.

Spot Welding: Press and hold the trigger to feed wire and create an arc. The welder automatically stops after a pre-set time (adjustable wire feed duration). Release the trigger once the cycle completes.

DESCRIPTION

Mode No.	Operation	Torch Trigger Operation and Current Curve
1	**Standard 2T mode:** 1. Push the torch trigger: arc is ignited and current rises gradually. 2. Release the torch trigger: current drops gradually, and arc stops.If push the torch trigger again before arc stops, the current will gradually rise again, and then turn to 1.	
2	**Standard 4T mode:** 1. Push the torch trigger: arc is ignited and current reaches the initial value. 2. Release it: current rises gradually to the set amperage/voltage. 3. Push it again: current drops to pilot arc current value. 4. Release it: arc stops.	

Note: When using the fast spot welding function, the continuous spot welding will be carried out by using the pre- set time value, which makes the operation more convenient

D: Wire Types and Gas Types Selection Button

Fe
Capable Gas: CO2; Compatible Wire: Carbon Steel welding wire; Capatible Welding Materials: Fe;

Fe Mix
Capable Gas: MIX; Compatible Wire: Carbon Steel welding wire; Capatible Welding Materials: Fe;

—
Capatible Gas: Non-gas; Compatible Wire: Flux welding wire; Capatible Welding Materials: Fe, Stainless Steel, and etc.;

SS Ar
Capable Gas: Ar; Compatible Wire: Stainless steel welding wire; Capatible Welding Materials: Stainless Steel;

Al Ar
Capatible Gas: Ar; Compatible Wire: ER4043 Silicon Aluminum welding wire; Capatible Welding Materials: Aluminum;

Al Mg Ar
Capatible Gas: Ar; Compatible Wire: ER5356 Magnesium Aluminum welding wire; Capatible Welding Materials: Aluminum and Magnesium;

E: Voltage Adjustment Knob

Rotate the knob to adjust voltage under MANUAL mode and Senergy mode.

F: Current Adjustment Knob

Rotate the knob to adjust current.

G: Welding Modes Button

Press the button to choose welding modes：SYN MIG/ MANU MIG/ PULSE AISI ：AlMg/ MMA/CUT/TIG.

DESCRIPTION

Welding Parameters Setting

Press rotary encoder potentiometer to adjust welding parameters based on actual demands. The parameters' setting can be done during no load or in the middle of welding without affecting welding.

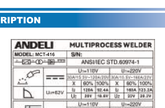
Welding Mode	Torch Mode	Inductance	Pre-flow	Slow wire feed	Burnback	Post gas	Anti Stick	Arc Force	Hot Start	VRD
Stick	NO	×	×	×	×	×	●	●	●	●
SYNC MIG	2T	●	●	●	●	●	×	×	×	×
	4T	●	●	●	●	●	×	×	×	×
	SPOT	●	●	●	●	●	×	×	×	×
MANU MIG	2T	●	●	●	●	●	×	×	×	×
	4T	●	●	●	●	●	×	×	×	×
	SPOT	●	●	●	●	●	×	×	×	×
PULSE MIG	2T	●	●	●	●	●	×	×	×	×
	4T	●	●	●	●	●	×	×	×	×
TIG	2T	×	×	×	×	×	×	×	×	×
	4T	×	×	×	×	×	×	×	×	×
CUT	2T	×	×	×	×	×	×	×	×	×
	4T	×	×	×	×	×	×	×	×	×
Adjusting Direction										

Note:
● × means not applicable

Performance Data Plate And Duty Cycle

On the machine,there is a plate that includes all the operating specifications for your new unit. The duty cycle rating of a welder de- fineshow long the operator can weld and how long the welder must rest and be cooled. Duty cycle is expressed as a percentage of 1 O minutes and represents the maximum welding time allowed. The balance of the 1 0-minute cycle is required for cooling For ex- ample, a welder has a duty cycle rating of 30% at the rated output of 90A. With that machine, you can weld at 90 A output for three (3) minutes out of every 10 min with the remaining seven (7) minutes required for cooling The duty cycle of your new welder can be found on the data platesfixed to the machine. The picture below shows that the "X" row lists duty cycle percentages while the "I2" row lists the amp draw corresponding to the duty cycle. Various duty cycles at other amperage are listed on your data plate.

DESCRIPTION



Note:
● × means not applicable

Internal Thermal Protection

If you exceed the welder's duty cycle, the thermal protection system will engage, shutting ofall welder output. After cooling, the ther- mal protector will automatically reset, and the welding functions can resume. The user needs to know if is the expected behavior of this machine. However, it would be best if you waited at least ten minutes after the thermal protector engages for fore resuming welding. You must do this even if the thermal protector resets itself before the ten minutes is up, or you may experience less than specified duty cycle performance.

Welding/Cutting Preparation

The key to making a good weld is preparation. It includes studying the process and equipment and practicing welding before ak- tempting to weld the finished product. An organized, safe, ergonomic, comfortable, and well-lit work area should be prepared for the operator. The work area should be free of all flammables, with a fire extinguisher and a bucket of sand available to smother potential possible fires.

To properly prepare for welding with your new welder, it is necessary to:

- Read the safety precautions at the front of this manual.
- Prepare an organized, well-lit work area.
- Protect the eyes and skin of the operator and bystanders.
- Attach the work clamp to the bare metal to be welded, ensuring good contact.
- When for TIG Welding, ensure opening the gas cylinder valve for 100% Argon and adjust the gas pressure regulator to the correct flow rate.
- When for Cutting, ensure installing the air compressor filter regulator correctly.
- Plug the machine into a suitable power outlet, and recommend NEMA6-50.

EXPOSURE TO WELDING ARC IS EXTREMELY HARMFUL TO THE EYES AND SKIN. PROLONGED EXPOSURE TO A WELDING ARC CAN CAUSE BLINDNESS AND BURNS. NEVER STRIKE AN ARC OR BEGIN WELDING UNLESS YOU ARE ADEQUATELY PROTECTED. WEAR FIRE RESISTANT WELDING GLOVES, HEAVY LONG SLEEVED SHIRT, CUFFLESS PANTS; HIGH TOPPED SHOES AND A WELDING HELMET.

SET UP FOR MIG/MAG WELDING(GMAW)

The polarity adapter is located inside the machine, please wire it as shown above in MIG/ MAG GAS mode

Setup Guide:

1.MIG Gun Connection
Attach the MIG gun to the **Euro Torch Socket** on the welding machine.

2.Polarity Setup
- Secure the **Polarity Lead** to the **Positive (+)**.
- Connect the **Ground Clamp** to the **Negative** (-), ensuring direct contact with **clean, bare metal** on the workpiece (avoid painted or rusted surfaces).

3.Load Welding Wire
- Install the wire spool into the cabinet.
- Feed the wire through the feeder and into the MIG torch (refer to "Installing the Welding Wire" for guidance).

4.Gas System Connection
- Attach the gas regulator to the gas cylinder.
- Connect the gas line to the regulator.

5.Prime the Wire
Press the **torch trigger** or hold the **Value Adjustment Knob** to feed the wire through the torch.

6.Gas Flow Setup
- Open the gas cylinder valve.
- Pull the trigger to verify gas flow and adjust the regulator to **20~30 CFH** (cubic feet per hour).

7.Power On & Process Selection
- Turn on the machine.
- Select **MIG/MAG Welding Process** from the **Home Menu**.
- Navigate to the **MIG/MAG Parameter Settings** page.

8.Parameter Setup
- **Wire Type:** Choose from Steel, Stainless Steel, AL4043 (AlSi), or AL5356 (AlMg).
- **Gas Type:** Select 100% CO_2, Mixed Gas (90% Ar / 10% CO_2), or 100%