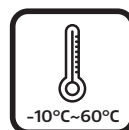


Lk-power

Battery Powered Welder User Manual



LK-160SF
LK-180TF
LK-180MF



Lk-power

INTRODUCTION

Thank you for choosing our product. Please read the user manual thoroughly before using our product for optimal and secure usage. Please carefully inspect the product and compare all items to the packing list upon unpacking.

Design standards of the product: GB15579.1 EN60974-1
Certification standards: PSE CE UN38.3 ROHS

The relevant design schemes and manufacturing technology used in this product are protected by patents. The copyright of this manual is owned by Suzhou LK Power Electronics Technology Co.,Ltd. Its contents are subject to change without notice.

CONTENTS

1. Safety Tips And Precautions.....	4
2. Product Introduction.....	6
2.1 Appearance.....	6
2.2 Control Panel.....	7
2.3 LCD Screen Display.....	8
2.4 Technical Details.....	10
3. Instructions For Use.....	12
3.1 Turn On/Off Welder.....	12
3.2 Light Function.....	12
3.3 Charging Methods.....	12
3.4 MMA Mode.....	12
3.4.1 MMA.....	13
3.4.2 SPOT MMA.....	13
3.4.3 VRD MMA.....	13
3.5 TIG Mode.....	14
3.6 ESD Mode.....	15
3.6.1 SINGLE_ESD.....	15
3.6.2 TIMES_ESD.....	15
3.7 MIG Mode.....	16
3.8 Set Up.....	17
3.9 Protection Status.....	18
4. Maintenance, Storage, And Disposal.....	19
4.1 Maintenance.....	19
4.2 Storage.....	19
4.3 Disposal.....	19
5. After-sale Service.....	19
6. Packing List	19

This manual will explain how to use the unit safely and effectively. Please read and follow these instructions and precautions carefully.

SAFETY TIPS AND PRECAUTIONS

Please keep this User Manual and read it carefully before use.
This user manual describes how to use the equipment safely and efficiently.
Be sure to follow the instructions during its use.



1.1 LFP4 Battery Warning

- This welder uses LFP4 type batteries. All LFP4 batteries have the potential to overheat when used improperly.
- Overheating may lead to fire, property damage, personal injury or death.
- Please read and adhere to the following safety instructions.



1.2 Beware Of Electric Shock

- Install the grounding device correctly according to the application standard.
- Wear dry and hole-free protective clothing and protective gloves to keep your hands insulated. When in contact with live parts, do not expose any part of your skin or wear wet gloves or clothes.
- Please use the product in a clean and dry environment to ensure the work site is safe.
- Insulate yourself from the workpiece and the ground.
- Ensure the workpiece is properly connected to the ground lead.



1.3 Beware Of Fire

- Remove all flammable or explosive materials from the worksite.
- This welder should be used in an upright position.
- The welding position should be isolated from surrounding objects.
- Avoid welding at hydraulic lines. Place the fire extinguisher in an easy-to-access location.
- When not in use, disconnect the welding leads from the workpiece.
- When welding, splashing sparks and hot metal fragments may cause clothing to catch fire. Be sure to wear protective equipment and appropriate clothing.
- Do not heat, cut or weld fuel tanks, drums, or other containers which may contain flammable or toxic substances.
- The built-in battery of the welder should be used within the environmental conditions specified in this manual.



1.4 Beware Of Smoke Damage

- Harmful fumes and gases may be generated during the welding process. Direct inhalation should be avoided.
- Keep the working environment well-ventilated.



1.5 Beware Of Arc Flash

- Strong arc flash will be generated during welding. Therefore, a welding helmet with a qualified filter and cover should be used to prevent the eyes from being hurt by sparks or arcs when welding or observing the arc.
- Wear durable protective clothing and protective gloves made from flame retardant material to protect the skin from arc flash.
- Instruct personnel around the workplace not to look directly at the arc and when necessary, install protective barriers to shield against arc flash.



1.6 Beware Of Electromagnetic Radiation

- When the welder is working, there may be electromagnetic radiation around the welding cable and the welder.
- Operators with a cardiac pacemaker should consult their doctor before welding.
- When welding, maintain a safe distance from the welder.
- Wrapping the welding cable around your body is strictly prohibited.



1.7 Beware Of Burns

- Several parts of the welding process may present the risk of high temperature burns before, during, and after use of the welder.
- Do not touch the hot workpieces with bare hands.
- Wear protective clothing to avoid being burnt by welding sparks.
- The temperature of the electrode holder is high after use and it takes a long time to dissipate its heat.
- Warn surrounding personnel to avoid burns.



1.8 Other Safety Tips

- Avoid violent vibration and collision since the welder contains a LFP4 battery. Do not store the welder with other items.
- Do not place heavy objects on top of the welder.
- Do not disassemble the welder by yourself in case of failure.
- Keep away from high-temperature heat sources.
- Keep moisture off of the welder.



1.9 Beware Of Noise

- Wear a hearing protective device to protect ears from noise.
- Warn bystanders to avoid potential damage caused by noise.

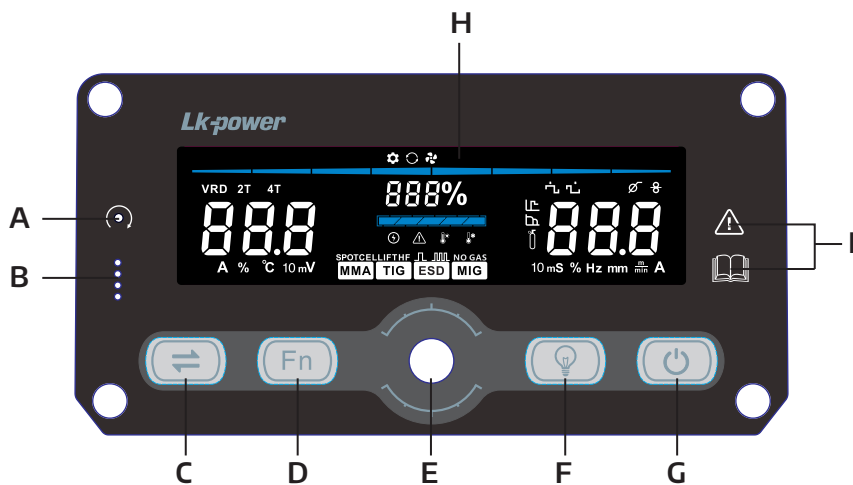
PRODUCT INTRODUCTION

2.1 Appearance



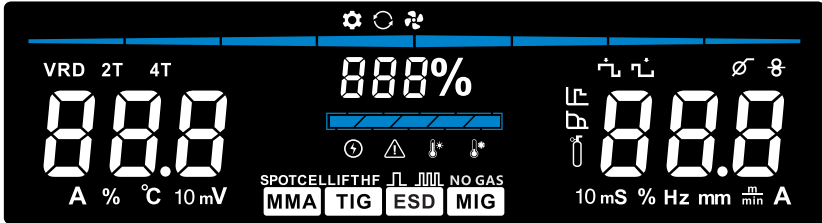
SN.	Name	Description
1	Panel Cover	Operational Panel Protection
2	Control Panel	See Control Panel for Details on its Functions
3	Light	Light Source
4	DC -	Connect to Negative Welding Cable
5	DC +	Connect to Positive Welding Cable
6	Signal Port	Connect to MIG & TIG Welding Torch
7	Gas Outlet	Connect to TIG Welding Torch
8	Air Outlet	Cooling Air Outlet, Do Not cover
9	Charging Interface	Connect to AC Charging Cable
10	Charging Interface	Connect to PV/Car/Truck Cable
11	Gas Input Port	Connect the Argon Gas Cylinder by Using PU8*5 Plug Tube
12	Air Inlet	Cooling Air Inlet, Do Not Cover

2.2 Control Panel















SN.	Name	Description
A	Reset Icon	Reset the Product When the Product Crashes
B	Upgrade Port	Upgrade Firmware Version
C	Mode Switch Button	Switch MMA/TIG/ESD/MIG Mode *Long-press for 10 seconds to restore all modes to factory settings and power off the machine.
D	Function Switch Button	Function Selection *Long-press for 5 seconds to restore the current mode to default settings.
E	Adjustment Knob	Press and Turn to Adjust Parameter
F	Lighting Switch Button	Turn On / Off the Light *Long-press for 5 seconds to enter the setup mode.
G	Power Switch Button	Turn On / Off the Welder *Long-press for 1 seconds to turn on/off the welder. (When the ac power is connected, a short press can turn on/off the welding power.) *When entering the shutdown state, please wait for 10 seconds before turning on the welder again.
H	LCD Screen Display	Display for Function Details
I	Note Icon	Important Note Alert

2.3 LCD Screen Display



Pic	Icon means
	Set up Icon
	Initialization Icon
	Fan Icon
	Charging Icon
	Alarm Icon
	High Temperature Icon
	Low Temperature Icon
2T	2T Mode Icon
4T	4T Mode Icon
VRD	VRD Mode Icon <small>*When enabled, no-load voltage output between 18~20V</small>
A	Current Icon
V	Voltage Icon
10 mV	Voltage Icon
°C	Temperature Icon
S	Time Icon

10 mS	Time Icon
Hz	Frequency Icon
%	Percent Icon
⊗	Wire Feeding Icon
$\frac{m}{min}$	Wire Feeding Speed Icon
∅	Diameter Icon
mm	Length Icon
	Gas Cylinder Icon
	Batter Capacity Icon
	Hot/Soft Start Icon
	Arc Force Icon
	In TIG function, Icon represents setting pulse width status In ESD function, Icon represents setting spot welding time status
	In TIG function, Icon represents setting pulse base status In ESD function, Icon represents setting idle time status
	MMA Mode Icon
SPOT	Spot MMA Icon
	TIG Mode Icon
LIFT	Lift TIG Icon
HF	High Frequency TIG Icon
	ESD MODE Icon
	In TIG function, Icon represents enabling pulse function status In ESD function, Icon represents single spot welding mode
	Times Spot Welding Mode Icon
	MIG Mode Icon
NO GAS	Gas Empty Mode Icon

2.4 Technical Details

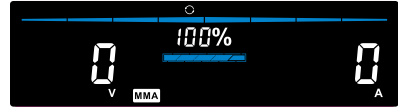
Technical Specification	
Model	LK-160SF, LK-180TF, LK-180MF
Battery Capacity	623.7 Wh
Battery Type	LiFePO4
AC Charging Input	100 ~ 240 V AC, 50/60Hz, 1 Phase
AC Charging Time	1.2 hrs
Solar Charging Input <small>* Optional</small>	11 ~50 V DC (Max 400 W)
Car Charging Input <small>* Optional</small>	12/24 V DC (Max 10.5 A)
Charging Temperature	0°C - 50°C
Discharging Temperature	-10°C - 60°C
Protection Class	IP23
Weight	17.2 Kg
Product Dimension (LxWxH mm)	437x211x374 mm


MMA Parameters	
Weld Current	20A~160A
No-load Voltage	40V~53V
Reduced No-Load Voltage	18V
Duty Cycle	78% @160A 89% @140A 100% @120A
Hot Start	1~1.5 * Set Current (Max:180A)
Soft Start	0.5~1.0 * Set Current (Max:160A)
Arc Force	1~1.5 * Set Current (Max:180A)
Support	VRD, Spot Welding, Anti-Stick
Welding Capacity	E4303- ϕ 4.0-400mm * 4-5 PCS E4303- ϕ 3.2-350mm * 7-8 PCS E4303- ϕ 2.5-350mm * 17-18 PCS
TIG Parameter (LK-180TF, LK-180MF)	
Weld Current	30A~180A
Welding Wire	ϕ 1.0mm~ ϕ 3.0 mm
Arcing Way	LIFT (2T/4T) & HF(2T/4T)
Welding Mode	TIG-DC, TIG-Pulse
ESD Parameter (LK-180TF, LK-180MF)	
Weld Current	50A~180 A
Welding Wire	ϕ 1.0mm~ ϕ 3.0 mm
Welding Mode	Single Spot & Continuous Spot
Welding Frequency	0 Hz~20 Hz
MIG Parameter (LK-180MF)	
Weld Current	50A~180A
Welding Wire	ϕ 0.8mm~ ϕ 1.0 mm
Wire Feeding Speed	3~10 m/min
Wire Feeder	Handheld
Welding Wire	Flux-Cored Wire

INSTRUCTIONS FOR USE

3.1 Turn On/Off Welder

Press the power switch button (G) for 1 seconds to turn on/off the welder.






Note:  The lights flashed once the switch was turned on, indicating that the welder was waiting to be initialized.

3.2 Light Function

To activate the light source, press the light switch button (F) briefly after powering it on.



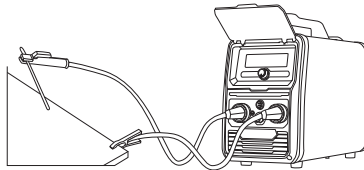
3.3 Charging Methods

- ① Plug the AC power cord into the charging interface (9),  will light up and battery capacity indicator starts to flash, indicating that unit is charging.
- ② Connect the solar panel to the XT-60 and MC4 and plug it into the charging interface (10),  will light up and battery capacity indicator starts to flash, indicating that unit is charging.
- ③ Connect car charging cable (option) to the XT-60 and MC4 and plug it into the charging interface (10),  will light up and battery capacity indicator starts to flash, indicating that unit is charging.

Note:

Please note that you can use both the charging interface (9 & 10) simultaneously, and the maximum input power it can support is 945W. For optimum performance, ensure that the output voltage of the solar panel falls between 18V and 50V, and the maximum output current does not exceed 10.5A.

3.4 MMA Mode



To activate MMA mode, press the mode switch button (C) briefly. Then, follow these steps to set up the ground cable:

1. Insert the cable into the - current port (4).
2. Rotate the cable clockwise to secure it.
3. Connect the other end of the cable to the workpiece.
4. Insert the welding clamp into the + current port (5).
5. Rotate the clamp clockwise to secure it.

After completing these steps, you can insert the welding rod into the clamp and begin your welding project.

Use button D to switch between functions in MMA mode quickly. Press it briefly to cycle through options and adjust settings or access features.

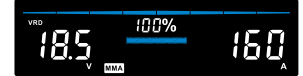
MMA function



SPOT MMA function



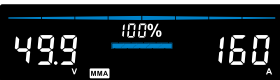
VRD MMA function



3.4.1 MMA

Press the E knob briefly to change settings and make necessary adjustments.

Welding current
(Range 20A - 160A)



Hot/Soft start current percent
(Range 50%-150%)



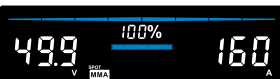
Arc force current percent
(Range 100%-150%)



3.4.2 SPOT MMA

The SPOT MMA function allows you to toggle the following parameters sequentially by short-pressing the adjustment knob (E):

Spot welding current
(Range 20A - 160A)



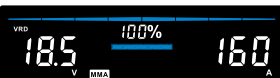
10ms Spot welding time
(Range 200ms- 2000ms)



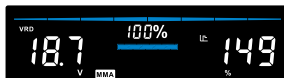
3.4.3 VRD MMA

To toggle through parameters in the VRD MMA function, simply give the adjustment knob a short press. This will allow you to cycle through the parameters in sequence.

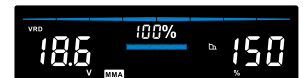
VRD welding current
(Range 20A - 160A)



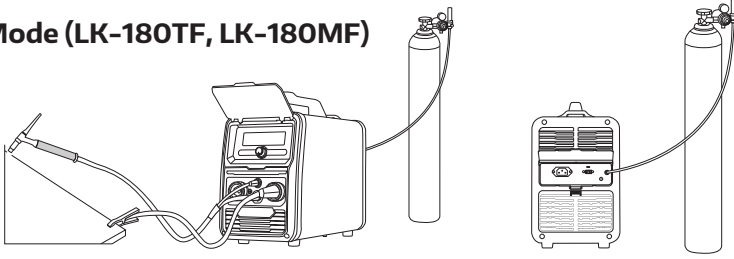
Hot/Soft start current percent
(Range 50%-150%)



Arc force current percent
(Range 100%-150%)



3.5 TIG Mode (LK-180TF, LK-180MF)



To switch to TIG mode, simply press the mode switch button (C) briefly. For safe and proper gas flow during welding, connect the argon gas cylinder to the **gas input port (11)** using a PU8*5 plug tube, ensuring a tight connection and checking for leaks. To secure the TIG welding torch, insert it into the Gas outlet port (7) and the signal port (6), and then rotate it clockwise. For the ground cable, insert it into the + current port (5), and then rotate it clockwise to secure it. Finally, connect the other end of the ground cable to the workpiece.

Toggle through TIG mode functions with a short press on button D. Select desired functions sequentially.

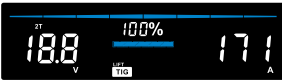
2T_HF_TIG function



4T_HF_TIG function



2T_LIFT_TIG function



4T_LIFT_TIG function



Adjust your TIG functions by turning the adjustment knob (E) to cycle through parameters and make necessary changes for optimal performance.

TIG welding current
(Range 30A - 180A)



Forward gas time
(Range 0.1s - 3.0s)



End gas time
(Range 1.0s - 5.0s)



Hz Pulse frequency
(Range 0 - 200)



Pulse current base value
(Range 10% - 50%)



Pulse current width
(range 10% - 50%)



3.6 ESD Mode (LK-180TF, LK-180MF)

To switch to MIG mode, briefly press the mode switch button (C). If you're currently in ESD mode, you can quickly switch between different functions by briefly pressing the function switch button (D). This will allow you to easily access the necessary features and complete your job efficiently.

SINGLE_ESD function



TIMES_ESD function



3.6.1 SINGLE_ESD

To achieve optimal performance in the SINGLE_ESD function, simply press knob E briefly to toggle through the different parameters.

SINGLE_ESD welding current
(Range 50A - 180A)



Forward gas time
(Range 0s - 3.0s)



End gas time
(Range 0s - 9.9s)



Spot welding time
(Range 20ms-100s)



3.6.2 TIMES_ESD

To achieve optimal performance in the TIMES_ESD function, simply press knob E briefly to toggle through the different parameters.

Forward gas time
(Range 0s - 3.0s)



End gas time
(Range 0s - 9.9s)



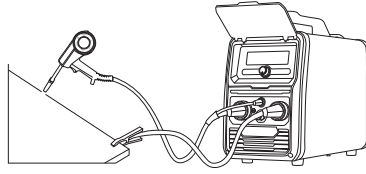
Spot welding time
(Range 20ms-100s)



Spot welding idle time
(Range (3-100)*10ms)



3.7 MIG Mode (LK-180MF)



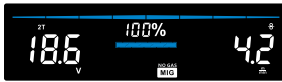
To start using MIG mode, press the mode switch button (C) quickly. Then, insert the MIG welding torch into the current port (4) and signal port (6), and turn it to secure it in place. Place the ground cable into the positive current port (5) and turn it to secure it. Finally, connect the other end of the ground cable to the workpiece.

When using the MIG mode, the function switch button (D) can be used to toggle through the following functions with short presses:

4T_MIG function



2T_MIG function



Press the adjustment knob (E) to cycle through different parameters swiftly. This allows you to switch between available settings quickly.

⊕ Wire feeding speed
(Range 3.0m/min-10.0m/min)



% Voltage fine-tuning
(Range 50%-150%)



⌀ Wire diameter
(Range 0.8mm-1.0mm)






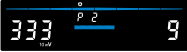


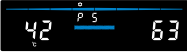
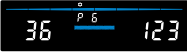


Note:

When using a wire diameter of 0.8/0.9mm, adjust the wire feed speed between 3.0m/min and 10.0m/min.

For a wire diameter of 1.0mm, the wire feed speed can only be adjusted between 3.0m/min and 6.0m/min.













3.8 Set Up

Press the lighting switch button (F) for 5 seconds, the  will light up. To flip through the pages one by one, simply turn the adjustment knob (E).

Page No.	Pic	Description	
		Left Side	Right Side
P0		Battery Cycle Times <small>*Range: 0-999999.</small>	
P1		Battery Pack Voltage	Battery Pack Current
P2		Maximum Cell Voltage	Maximum Voltage Cell Index
P3		Minimum Cell Voltage	Minimum Voltage Cell Index
P4		Maximum Cell Temperature	Minimum Cell Temperature
P5		Charger PCB Temperature	Welding PCB Temperature
P6		Mainboard Firmware Version	BMS Firmware Version
P7		Code: Std	Standby Time <small>*Range: 10-100 minutes, 30 default.</small>
P8		Code: SOC	Charging Stop SOC <small>*Range: 0-100%, 100 default.</small>

To exit the set up process, press the light switch button (F) briefly.

3.9 Protection Status

Code	Icon Status	Description	Solution
	 Flash	Low Battery Protection	Charge the product for reuse or storage
PLo	 Flash		
CLo	 Flash		
	 Flash	Battery Discharge High Temperature Protection	Move the machine to a cool place and wait for the battery to cool down
	 Flash	Battery Discharge Low Temperature Protection	Move the machine to a warm place and wait for the battery to warm up
	 Light	Battery Charge High Temperature Protection	Move the machine to a cool place and wait for the battery to cool down
	 Light	Battery Charge Low Temperature Protection	Move the machine to a warm place and wait for the battery to warm up
	 Flash	System High Temperature Protection	Keep powered on and wait for the machine to cool down
	 Flash	Charging Fault Protection	Shutdown, try to restart after 10 minutes. If still invalid, please contact service
	 Flash	Temperature Sensor Failure	Shutdown, try to restart after 10 minutes. If still invalid, please contact service
	 Flash	System Initialize	If it keeps flashing, please contact service
EXX	 Flash	BMS Fault Protection	Shutdown, try to restart after 10 minutes. If still invalid, please contact service

MAINTENANCE, STORAGE, AND DISPOSAL

4.1 Maintenance

- After use, remove the charging cable and welding leads before performing maintenance.
- Use a piece of dry cloth to remove the dust and oil stains on the clamps, wires, and casing.
- Please refrain from disassembling the equipment as there are no user-repairable parts.
- Qualified maintenance personnel should be contacted for any repair services needed.
- It is recommended to fully charge the product after each use.

4.2 Storage

- Charge the welder fully before storing long-term.
- For long-term storage, it is recommended to keep the ambient environment dry, ventilated, and at a temperature of approximately 77°F (25°C).
- To prevent excessive discharge, it is important to charge your device at least once every three months, even if it is not used regularly.

4.3 Disposal

To properly dispose of this product, kindly refer to your state and local regulations regarding the disposal and recycling of FP4 batteries.

AFTER-SALE SERVICE

Kindly keep the warranty card in a secure location. This product has a one-year warranty that starts from the purchase date. Please be aware that this warranty does not cover damages due to regular usage or abuse. If you need more details about the warranty policy or have any warranty-related inquiries, feel free to contact us.

PACKING LIST

Name	Quantity
Welder	1pc
AC Power Cord	1pc
Ground Clamp	1pc
Welding Clamp	1pc
MIG Welding Torch (LK-180MF)	1pc
TIG Welding Torch (LK-180TF, LK-180MF)	1pc
Strap	1pc
Manual	1pc

