Contents [hide]

LiTime M4860N 60A MPPT Controller

Product Usage Instructions

- Connect the power cable to the device and a power source. Press the power button to turn on the device.
- Ensure that the device is compatible with ‘$$3VMFT0QFSBUJPO’. Check the user manual for any specific compatibility instructions.
- To access features such as GPMMPXJOHUXPDPOEJUJPOT and FSGFSFODFBOE, navigate through the menu using the provided controls.

This product manual is provided in three languages: English, Japanese, and German. Choose the preferred language based on the language guide located in the top-right corner.

IMPORTANT SAFETY INSTRUCTIONS

- Please read the following safety instructions carefully and perform installation and connection operations under the guidance of professionals.
- This manual contains important safety, installation, and operational instructions for the MPPT solar charge controller.

GENERAL SAFETY INFORMATION

- Read all cautionary and safety instructions in this manual before installation. If an operation needs to be done, be sure to use insulation tools and keep your hands dry.
- There are no parts inside the controller that require maintenance or repair. DO NOT disassemble and try to repair the controller by yourself.
- Install the controller at a place with good ventilation conditions as the radiator may

reach a very high temperature during operation.
- After installation, check whether all wiring connections are tight and reliable to avoid the danger of heat accumulation caused by loose connections.

BATTERY SAFETY

- Carefully read battery manuals, and operate the battery according to the battery manufacturer’s guidance.
- Be very careful when installing lead-acid batteries. Wear eye protection and have fresh water available in case there is contact with the battery acid.
- Explosive battery gases may be present while charging a lead-acid battery. Make sure there is enough ventilation to release the gases.
- Keep the lead-acid battery away from fire sparks, as it may produce flammable gas.
- Please set the correct battery type for the first use.

CHARGE CONTROLLER SAFETY

- Please completely cover/cap the solar panels during installation to avoid generating current.
- If grounding is required, please make sure to ground the device on the negative.
- Please DO NOT reverse-connect battery wires to the battery ports.

WARNING

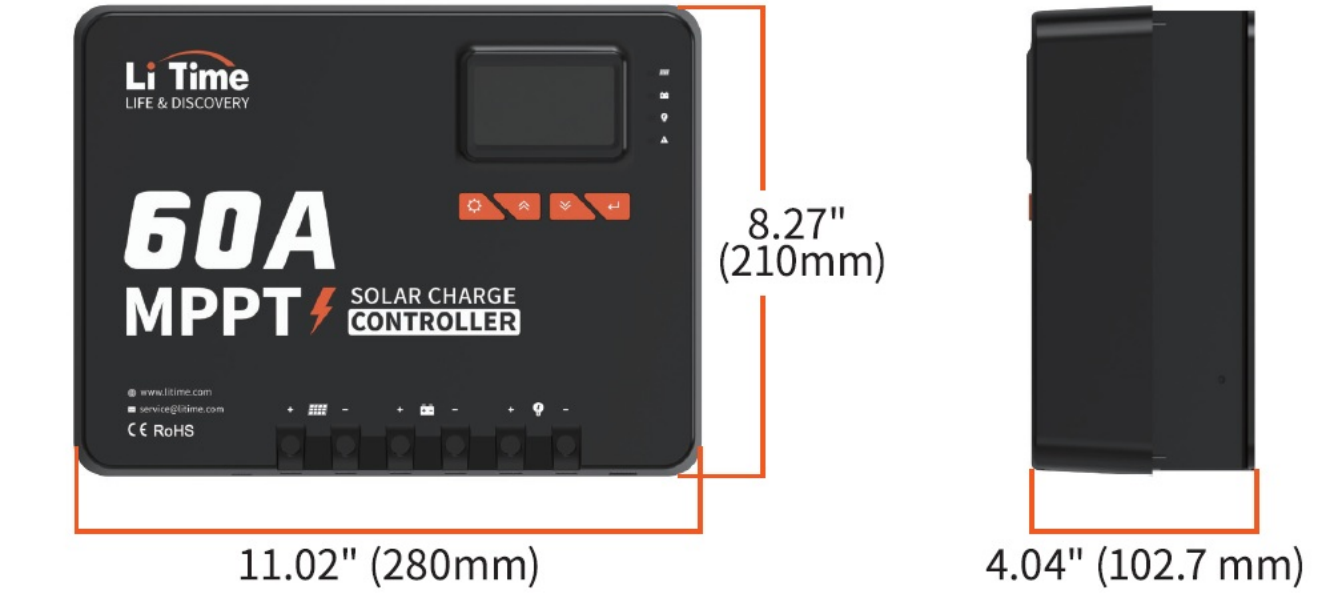
- NEVER connect the solar panel array to the controller without a battery. The battery must be connected first.
- Ensure input voltage does not exceed 150 VDC to prevent permanent damage.

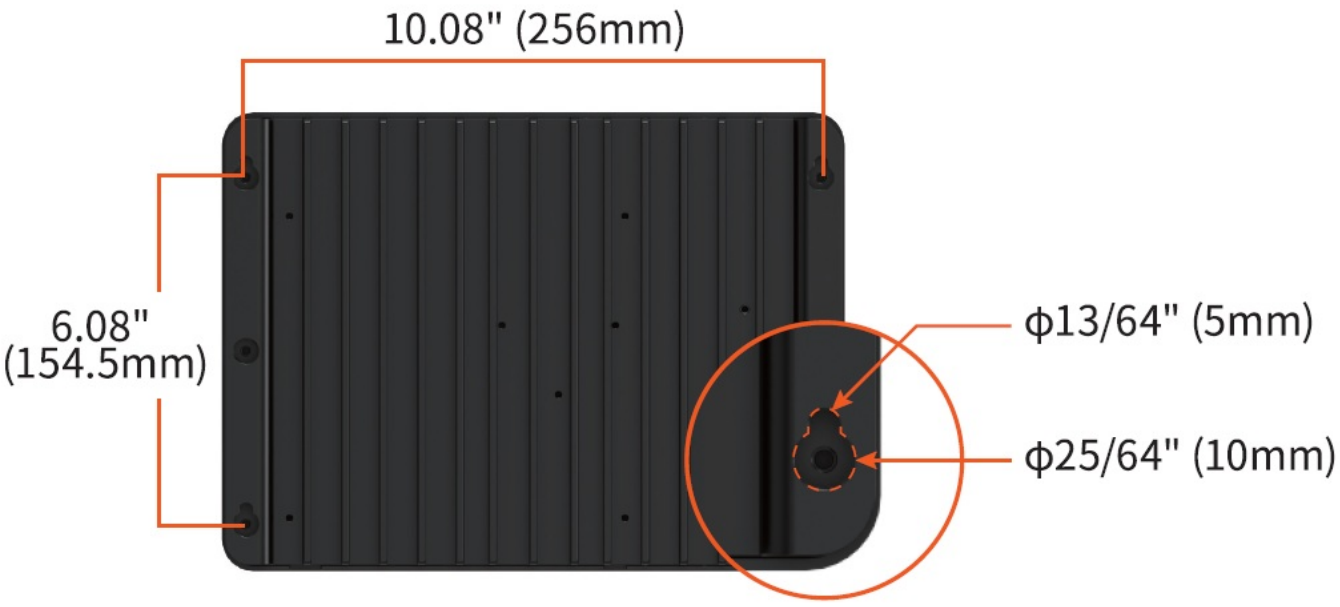
PRODUCT OVERVIEW

12-48V GOA MPPT SOLAR CHARGE CONTROLLER

Default Battery Setting	12V LI (Lithium Iron Phosphate) Battery
System Voltage	12V/24V/36V/48V

Rated Charging Current	60A
Rated Load Current	20A
Max. Solar Panel	900W for 12V / 1800W for 24V /
System Input Power	2600W for 36V / 3200W for 48V



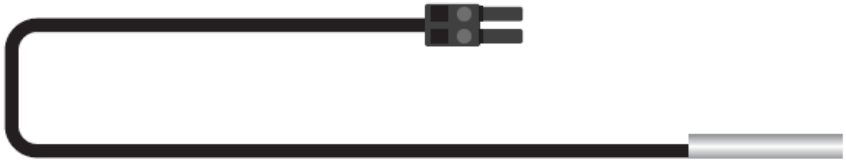


ADDITIONAL COMPONENTS

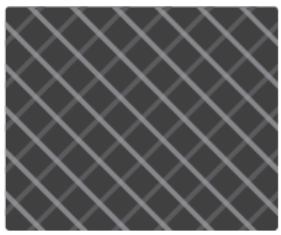
REMOTE TEMPERATURE SENSOR/ MAGIC STICKER

- For lithium batteries, the sensor measures the surrounding temperature for Low Temperature Charging Protection (LTCP).

- For lead-acid batteries, the sensor measures the surrounding temperature for precise temperature compensation.

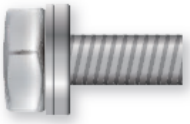
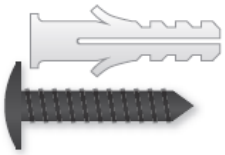
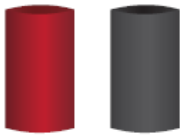


Remote Temperature Sensor



Magic Sticker

ACCESSORIES FOR MOUNTING AND INSTALLATION

	Mounting Brackets	4pcs
	M8 Screws for Fixing Brackets to Controller	4pcs
	Screws for Fixing Brackets to Wood Wall	4pcs
	Screws & Plastic Anchors for Fixing Brackets to Drywall	4pcs for each
	Copper Wire Connectors	6pcs
	Heat Shrink Tubes	6pcs

BLUETOOTH INSTALLATION AND OPERATION

APP DOWNLOAD

- The MPPT controller is equipped with a built-in Bluetooth module that can be

monitored and controlled via the APP available on the Apple APP Store and Google Play.

APP OPERATION

- Scan for Bluetooth APP operating instructions and full version manual.
- Upon registering the account, you can reset the password by tapping the in the top left corner of the APP.
  (Initial password: 0000)
- **Note:** The password is required for adjusting the parameters in the “Parameter Settings” interface.

FCC STATEMENT

(FCC ID: 2BDSV-M4860N)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

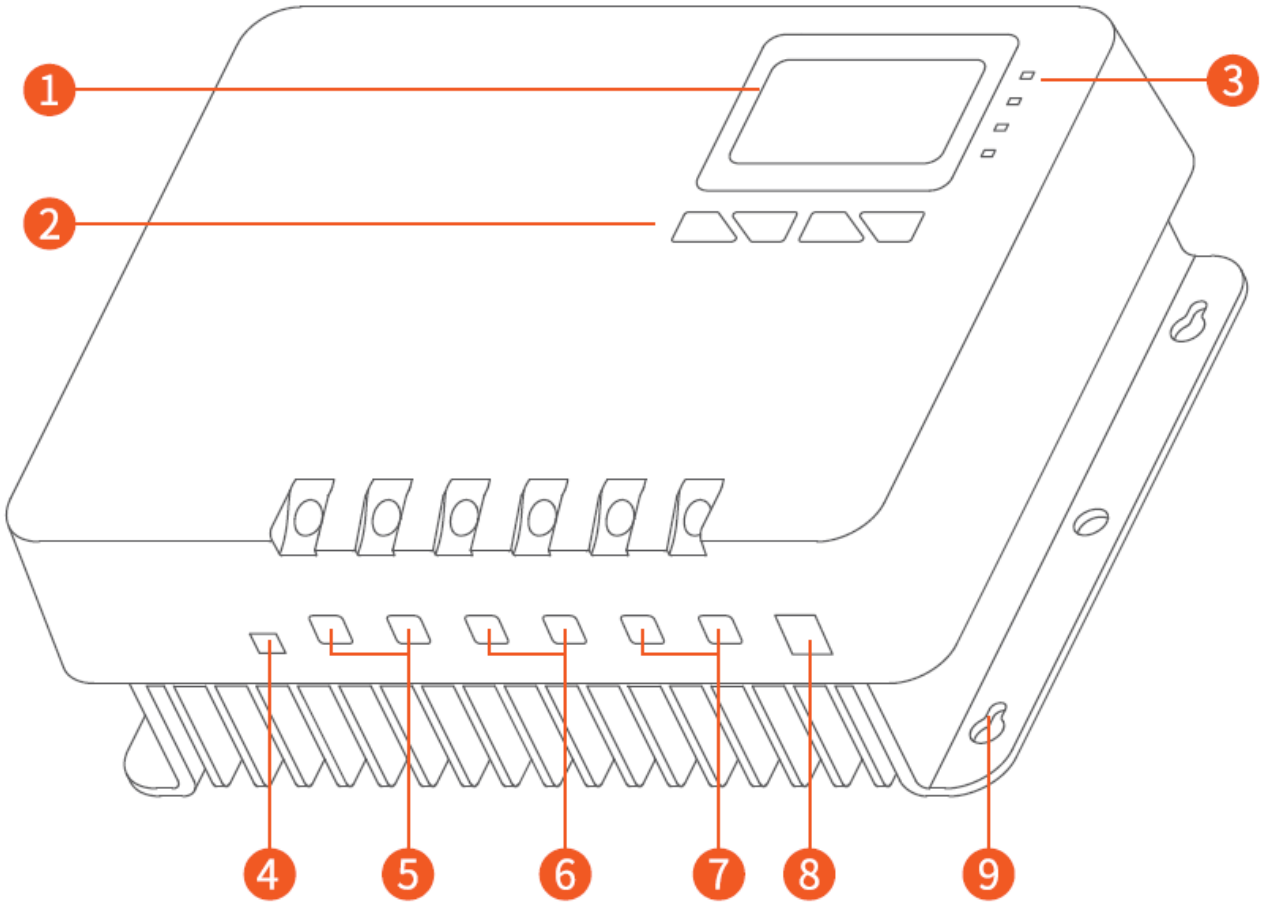
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This device has been tested and found to comply with the limits for a Class B digital device, according to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

IDENTIFICATION OF PARTS



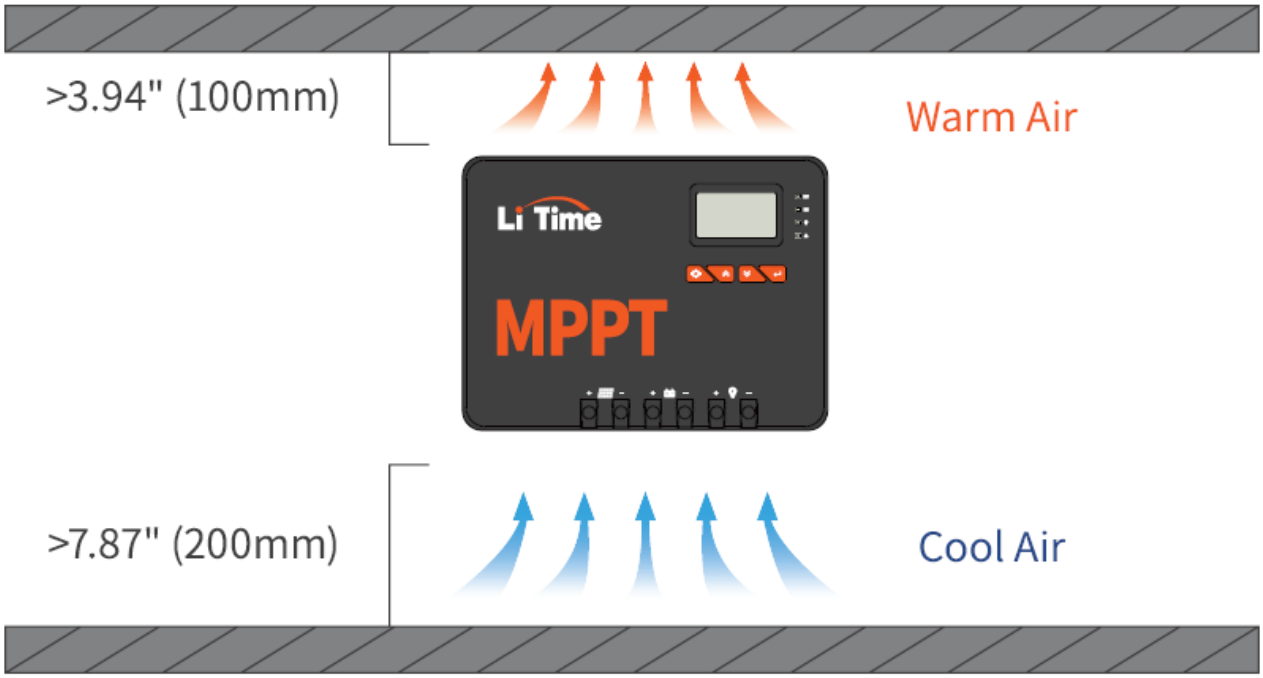
1. LCDScreen
2. Operating Keys
3. LED Indicators (Solar/BAT/DC Load/FAULT)
4. Remote Temperature Sensor Port
5. Solar Panel Terminals
6. Battery Terminals
7. DC Load Terminals
8. RS485 Communication Port (RJ12)
9. Mounting Holes

INSTALLATION

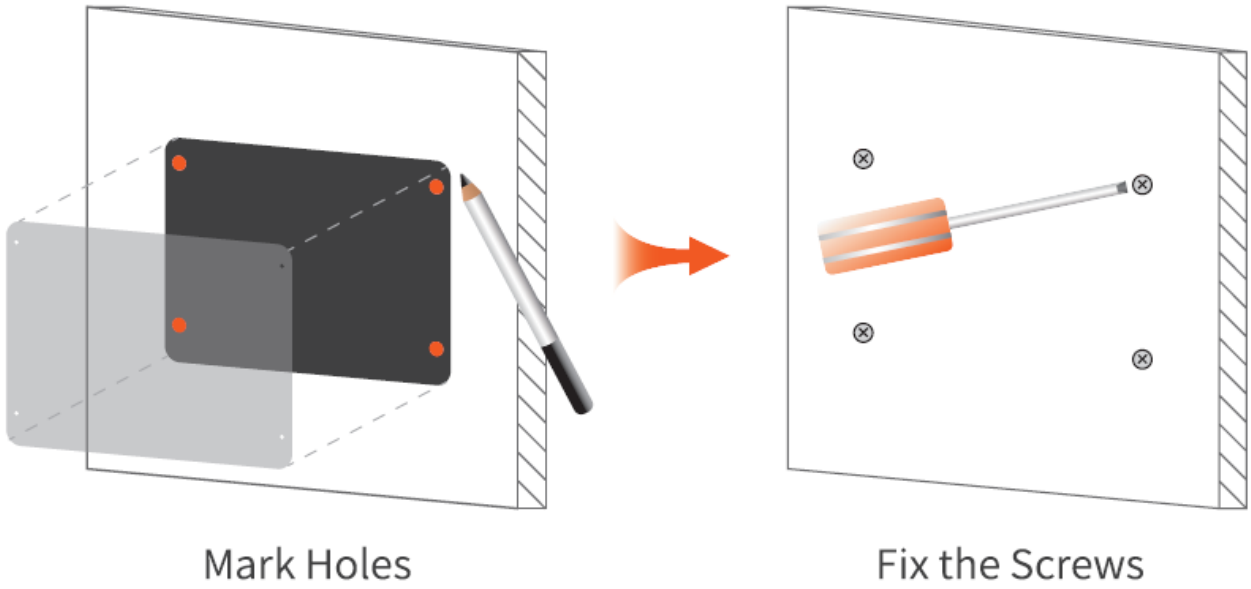
- Never install the controller in a sealed enclosure with flooded batteries. Gas can accumulate and there is a risk of explosion.

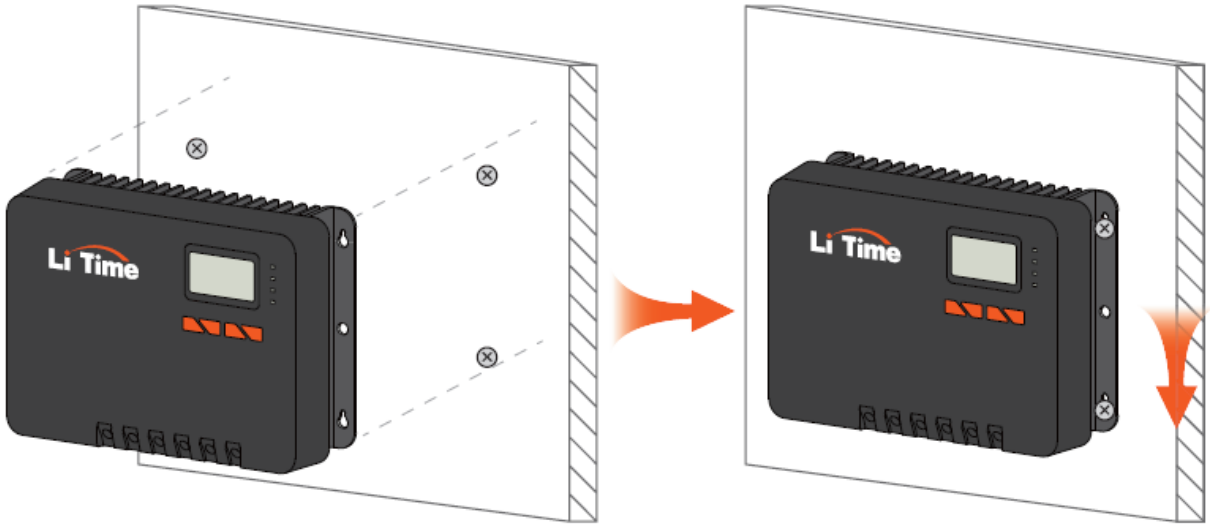
CHOOSE THE MOUNTING LOCATION

- Choose a vertical surface protected from direct sunlight, high temperatures, and water. Make sure there is good ventilation.
- Check the ventilation clearance above the controller for at least 3.94″ (100mm) and below the controller for at least 7.87″(200mm).



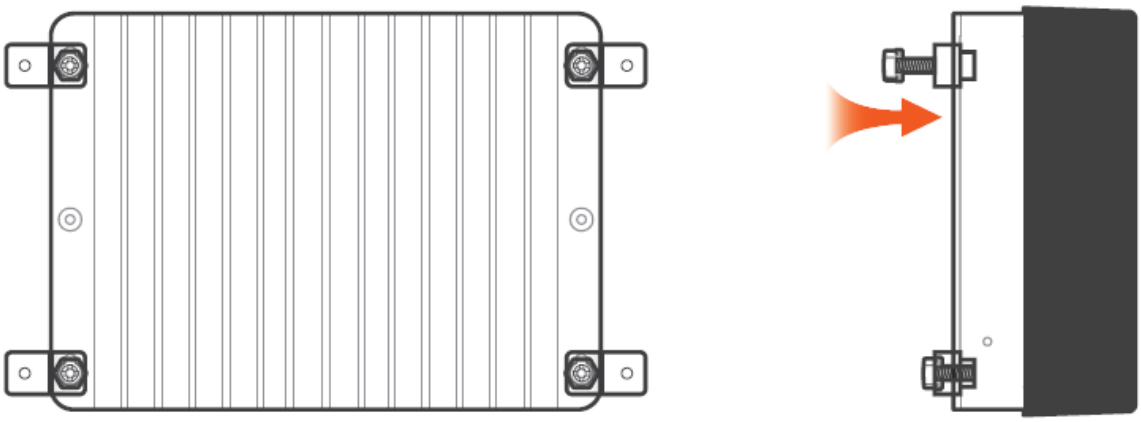
INSTALLATION METHOD (1) USING MOUNTING HOLE



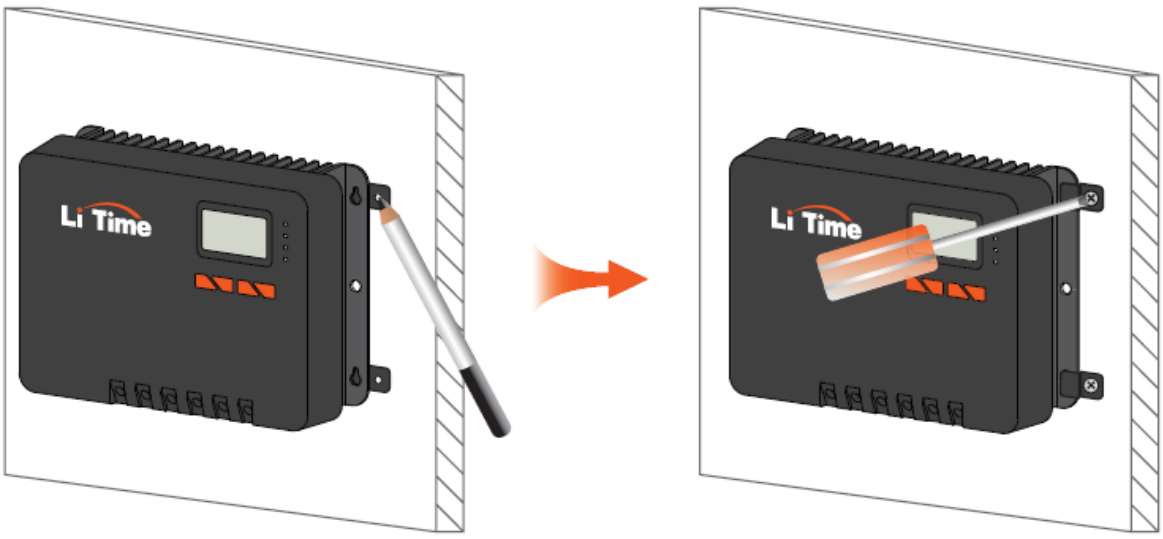


Align and Fix the Controller

INSTALLATION METHOD (2) USING MOUNTING BRACKETS



Install Brackets



Mark Holes

Fix the Screws

WIRING

- We strongly recommend that fuses or breakers be connected at the solar panel array side, load side, and battery side so as to avoid electric shock during wiring operation or faulty operations, and make sure the fuses and breakers are in an open state before wiring.
- DO NOT connect any inverters, AC Loads, or battery chargers to the LOAD Ports of the charge controller.
- Do not over-tighten the screw terminals. This could potentially break the piece that holds the wire to the charge controller.

WIRE GAUGE RECOMMENDATION

Solar Panel/ Battery Load Max. Wire Gauge	6AWG
	lOAWG
	6AWG

FUSE RECOMMENDATION

- (1.2 TO 1.5 TIMES THE MAXIMUM CONTINUOUS CURRENT)

Solar Panel/ Battery	72A to 90A
Load	24A to 30A

WIRING SEQUENCE AND REFERENCf CONNECTION DIAGRAM

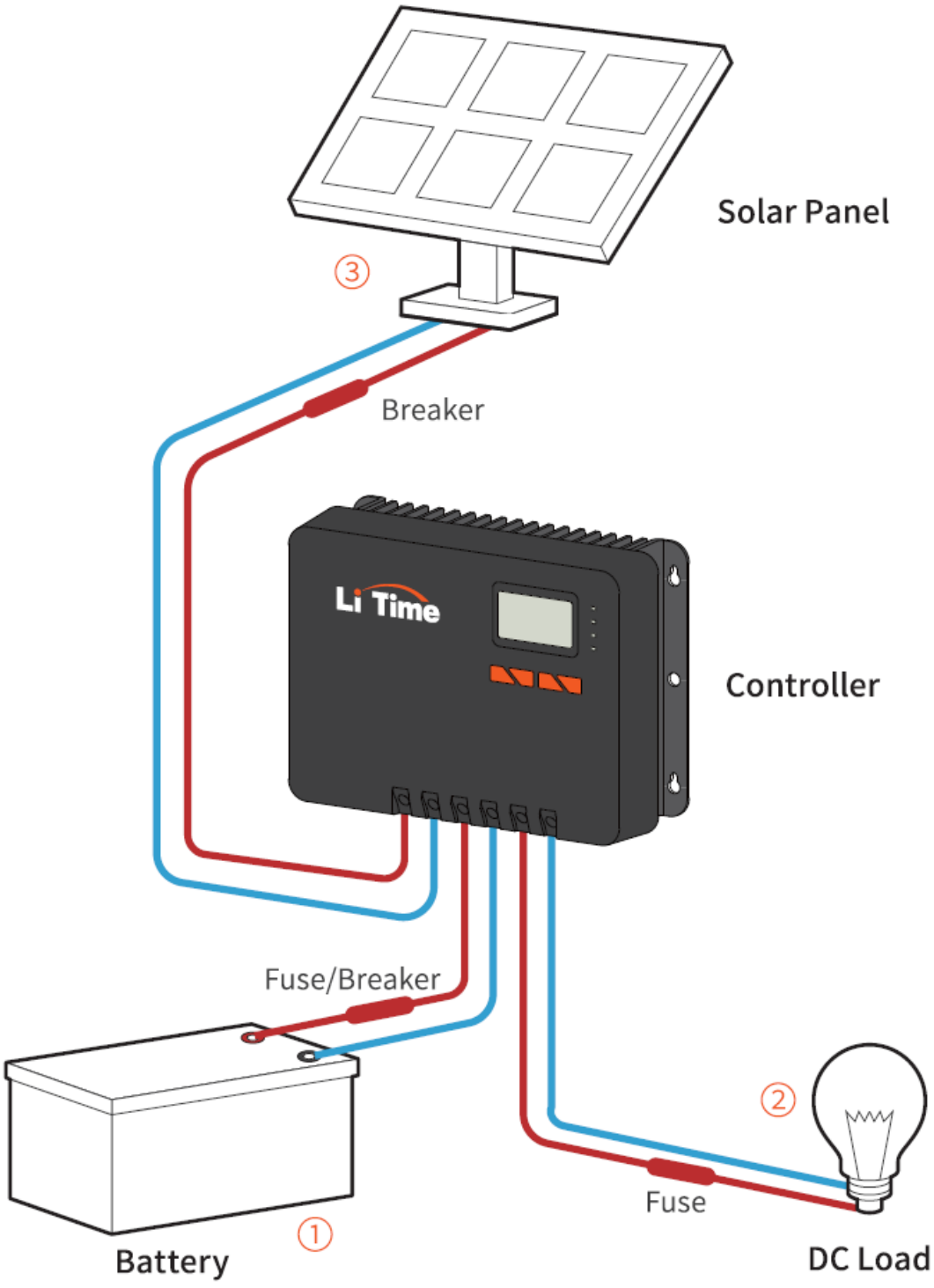
- Wear insulating gloves before the operation to prevent safety accidents.
- Loosen screws and wiring terminals counterclockwise and tighten clockwise. The wire connector needs to be placed on the wiring terminal.
- Connect the devices to the controller ⊕ to ⊕, ⊖ to ⊖.
- Always connect the negative terminal first and then the positive.

Complete the installation according to the following connection sequence.

⛔ to ⛔, ➕ to ➕

1. Battery➡ (2)DC Load (Optional)➡ (3) Solar Panel➡
2. Communication Port (Optional)➡
3. Remote Temp. Sensor (Optional)

REFERENCE CONNECTION DIAGRAM



OPERATION

The controller comes equipped with an LCD screen and 4 buttons to operate the menus.

- Please set the correct battery type for the first use if it is not a 12V lithium battery as the default setting.

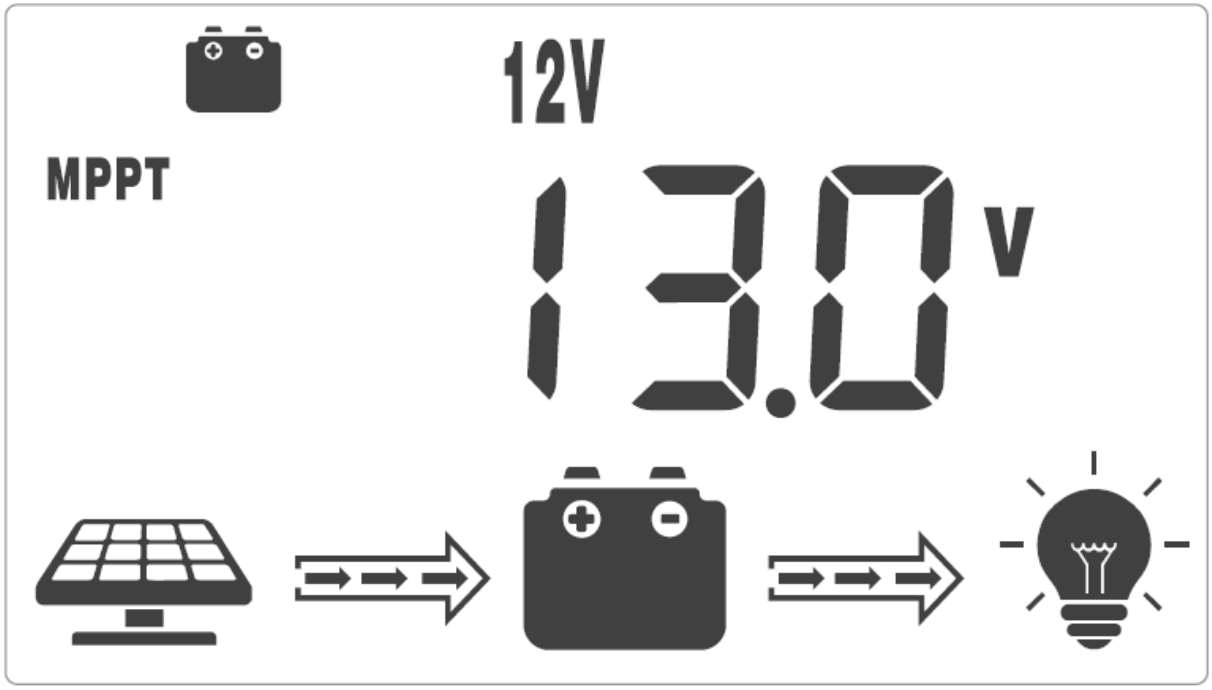
STARTUP INTERFACE

- During startup, the 4 LED indicators will first flash successively, and after self-inspection, the LCD screen starts and displays the main interface.

LCD DISPLAY

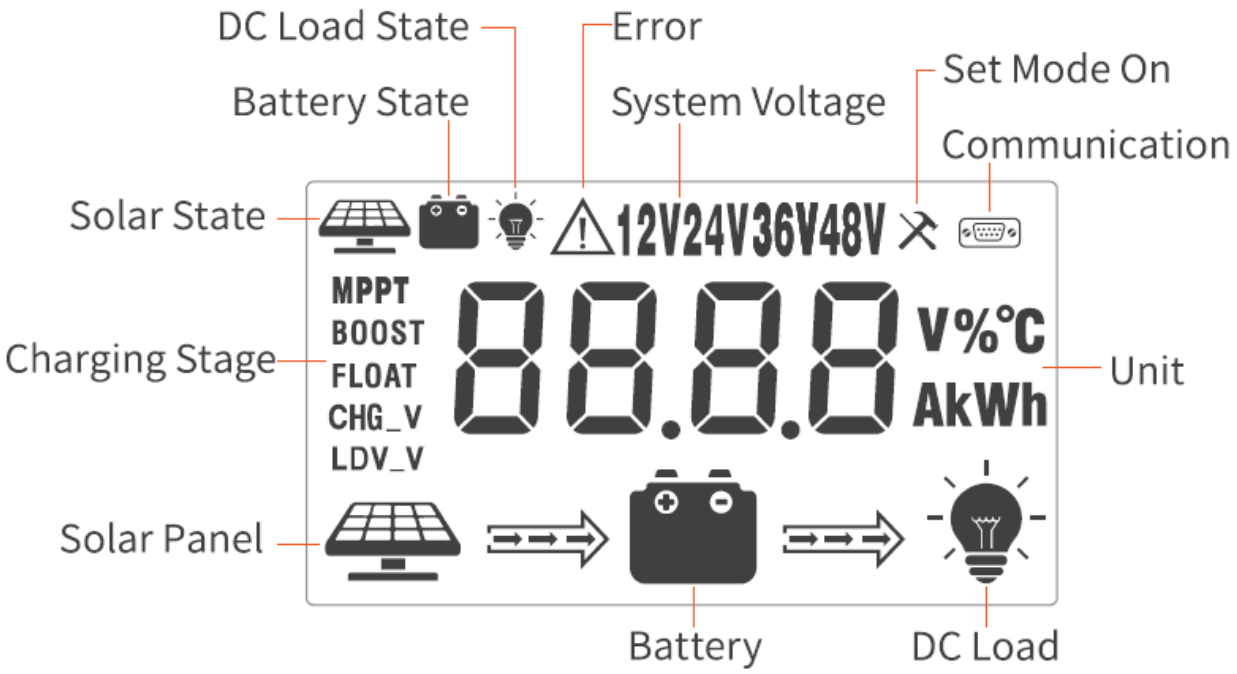
Main Interface

- The main interface displays the battery’s voltage after starting up, and the system is set to 12V LiFeP04 battery mode by default .



- If the connected battery is not a 12V LiFePO4 battery, the control ler will display error code E0l or E02. Changing to the correct system settings will allow the controller to function normally.

LCD INDICATORS



KEV OPERATIONS

In View Mode

Key	Operation	Function
(SET)	Long Press	Enter Set Mode
(UP)	Short Press	View Previous Page
(DOWN)		View Next Page
(RETURN)		DC Load On/OFF (Load Mode 15 Only)

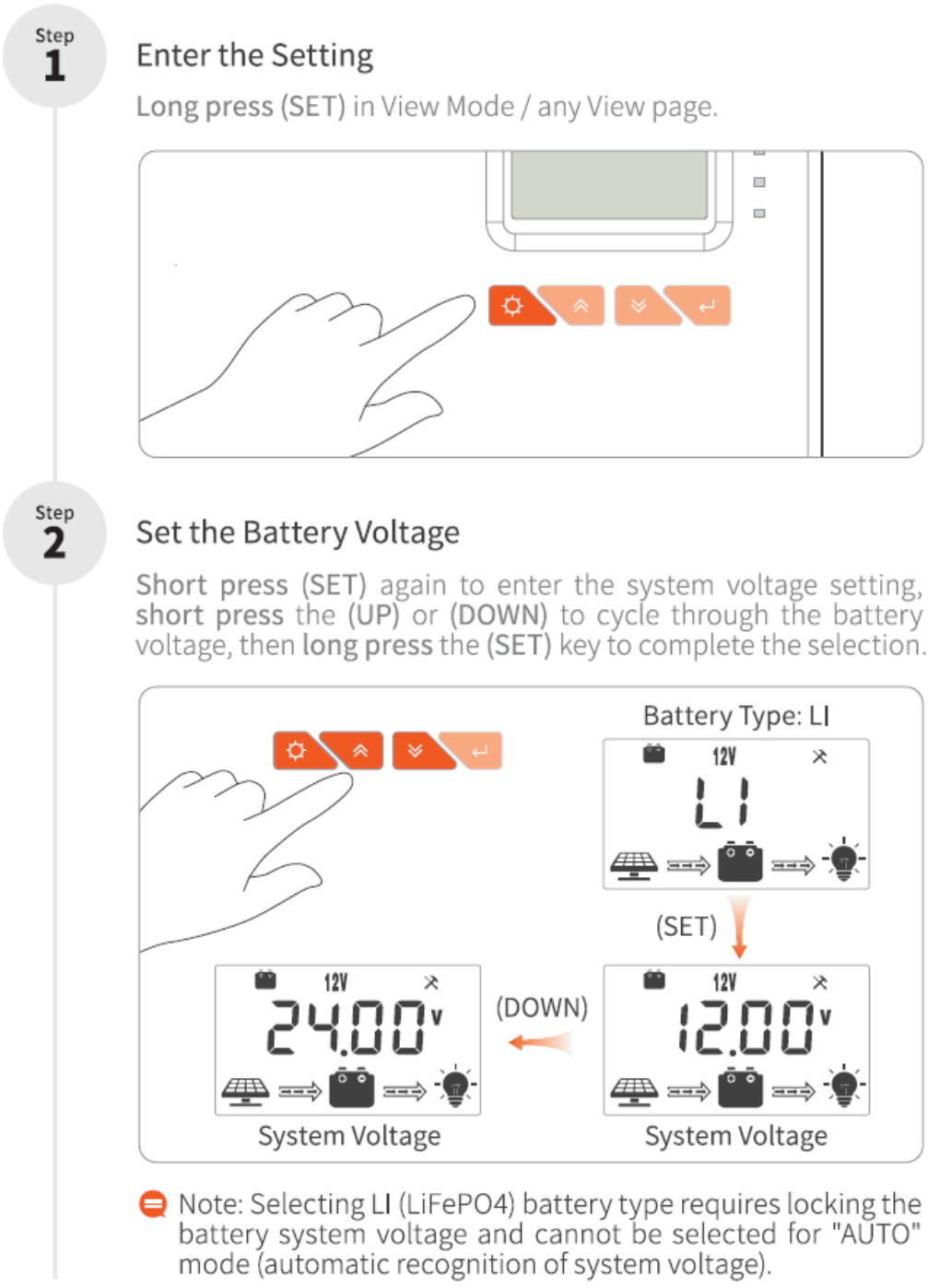
In Set Mode

Key	Operation	Function
(SET)	Long Press	Save Data & Exit Set Mode
	Short Press	Next
(UP)	Short Press	Increase Value
(DOWN)		Decrease Value
(RETURN)		Exit Set Mode without Saving

SWITCHING OF DISPLAYED INFORMATION

- The information displayed on the LCD interface in View Mode can be changed by short-pressing the (UP) or (DOWN) key.

PROGRAMMING SYSTEM VOLTAGE



PROGRAMMING LOAD MODE

- The default load mode is the “Manual Mode” of code (15) (see “Load Modes Introduction” for details). The load mode adjustment method is as follows.

Manual Mode” Operation

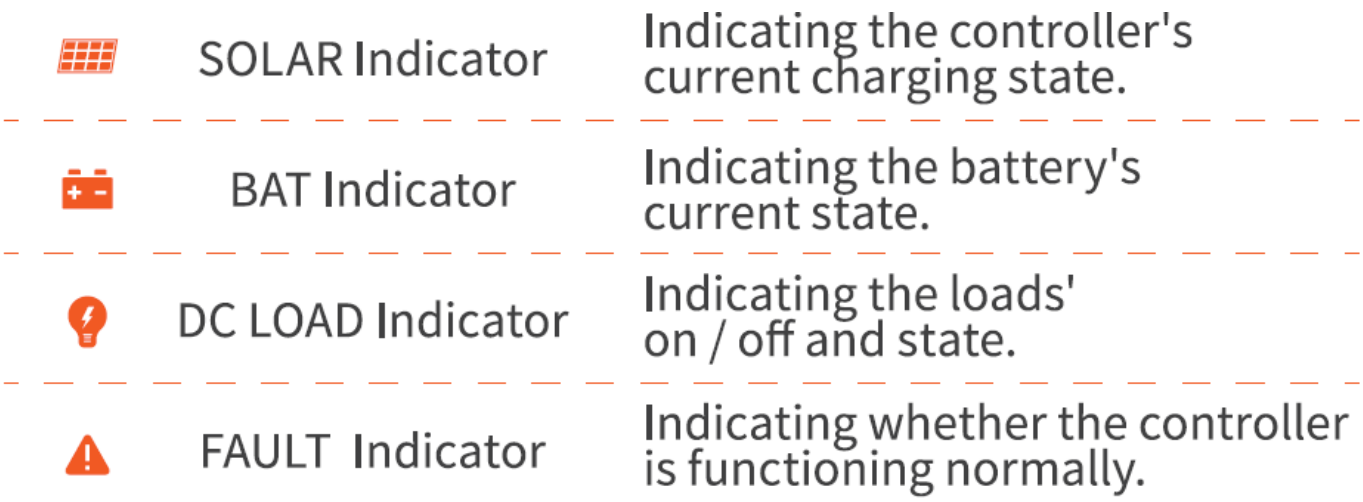
- Only when the load mode is the “Manual Mode” of code (15), the manual operation to turn on or off the load is valid.
- Operation Method: Short press the (RETURN) button in any main interface to turn on or off the load.

Load Modes Introduction

Code	Definition	Description
0	Daylight Auto-Control	DC load turns on when no daylight is detected.
1~14	Daylight On/ Timer Off	DC load turns on when no daylight is detected. DC load turns off according to the timer. 1-14 indicates the Timer setting hours.
15	Manual Mode	DC load can be turned on/off by pressing the [RETURN] button.
16	Testing Mode	DC load turns on and off in quick succession.
17	Always On	DC load will be on for 24 hours a day.

Note: For load modes 1-14, the number means the load lasting time, e.g., “l” means the load would turn off in 1 hour after turning on, and “8” means off in 8 hours. Please note that the detection of sunlight would turn off the load for all load modes 1-14, even if the timer hasn’t run out yet.

LED INDICATORS



LED	Status	Description
SOLAR	Off	No Solar Input *PV LED is generally off during nighttime.
	Double Flash	Solar Input Detected
	Single Flash	Reverse Polarities Detected
	Steady On	Solar Input Steady
	Slow Flash	In Equalize/Boost/Float Charge
	Single Flash	Reverse Polarities Detected
	Fast Flash	Battery Over Voltage
	Slow Flash	Battery Over Discharged
	Steady On	Battery On

BAT	Off	Load Off
	Fast Flash	DC Load Short Circuit/ Overloading
	Steady On	DC Load On
	Off	No Errors
DC LOAD FAULT	Steady On	System Error Detected

SPECIFICATIONS

Parameter	Value
System Voltage	12V / 24V / 36V / 48V / AutoCD
No-Load Loss	12mA at 12V/10mA at 24V/ 6mA at 36V/6mA at 48V

Battery Voltage	9Vto 64V
Max. Solar Input Voltage	150V
Max.. Power Point Voltage Range	Battery Voltage+3V to 120V
Rated Charging Current	60A
Rated Load Current	20A
Max. Solar Panel System Input Power	900W for 12V/1800W for 24V/ 2600W for 36V/3200W for 48V
Conversion Efficiency	97%
MPPT Tracking Efficiency	99.9%
Temperature Compensation Factor	12V: -l0mv/+l°F (-l8mv/+l°C) 24V: -20mv/+1°F (-36mv/+1°C) 36V: -30mv/+1°F (-54mv/+1°C) 48V: -40mv/+1°F (-72mv/+1°C)
Operating Temperature	-31°F to 113°F / -35°C to 45°C
Low Temperature Charging Protection(LTCP) Function@	Yes
Protection Class	IP32
Weight	10.031b / 4.55 kg
Communication Method	RS485(RJ12) / Inbuilt BT
Altitude	3000m

Dimensions	Lll.02*W8.27*H4.04 inch/ L280*W210*Hl02.7 m m

1. Selecting the LI (LiFePO4) battery type requires locking the battery system voltage and cannot be selected for “AUTO” mode (automatic recognition of system voltage).
2. This product supports Low Temperature Charging Protection (LTCP) for lithium batteries, where the controller stops battery charging when the environment temperature falls below 0°C/32°F and resumes charging when the temperature rises above S°C/41 °C F. This function is off by default. Turn it on via the “LiTime Solar” APP or press the Key on the controller to set it. (Make sure the temperature sensor is connected to the controller).

TROUBLESHOOTING

Error Code	Error	Solution
	No Error	The system is working normally.
E00	Battedi Over-ischarged	The battery voltage is too low. DC load wi be turned off until the battery re-charge s to recovery voltage.
E0l	Battery Over-voltage	The battery voltage has exceeded the controller li mit. Check battery bank voltage for compatibility with th e controller.
E02	Load Short Circuit	DC load short circuit. Disconnect the load and check if the rated current of the load is less than 20A.
E04		

E0S	Load Overloading	DC load power draw exceeds the controller’s capa bility. Reduce load size or upgrade to a controller with a higher DC load capacity.
E06	Overheating	The controller exceeds the operating temperature li mit. Ensure the controller is placed in a well-ventilated, cool, dry place.
E07	Environmental Over-ter n perature	The environment temperature detected by the exte rnal temperature probe is too hign.
El0	Solar Over-voltage	Solar array voltage exceeds the controller-rated inp ut voltage. Decrease the voltage of the solar panels connecte d to the controller.
El3	Solar Reverse Polarity	Solar array input wires are connected with reverse polarities. Disconnect and reconnect in the correct polarities.
El4	Battery Reverse Polarit y	Battery wires are connected with reverse polarity. Disconnect and reconnect in the correct polarities.

El5	Under Low Temperature Charging Protection Status	Increase the ambient temperature above 5°C/41°F.

If the problem cannot be resolved or you need any help, please contact us at service@litime.com.

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, under Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used by the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.

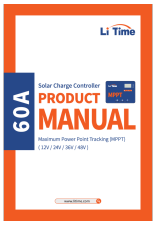
UNITED STATES

- Register Warranty
- www.litime.com
- service@litime.com

FAQ

- **Q: How do I troubleshoot if the device does not power on?**
  - **A:** Check the power connection and ensure the power source is functioning. If the issue persists, contact customer support for further assistance.
- **Q: Can I use this product with other models?**
  - **A:** This product is specifically designed for use with '$$3VMFT0QFSBUJPO'. Compatibility with other models is not guaranteed.

Documents / Resources

	LiTime M4860N 60A MPPT Controller [pdf] Instruction Manual M4860N, 2BDSV-M4860N, 2BDSVM4860N, M4860N 60A MPPT Controller, M4860N, 60A MPPT Controller, MPPT Controller, Controller

References

- User Manual

LiTime

2BDSV-M4860N, 2BDSVM4860N, 60A MPPT Controller, controller, LiTime, M4860N, M4860N 60A MPPT Controller, MPPT Controller

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LiTime L36V100 36V 1000Ah Lithium Phosphate Battery LiFePO4 User Guide
Next Post—
LiTime 60A MPPT Solar Charge Controller User Manual

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