

100A

Solar Charge Controller

PRODUCT MANUAL



Maximum Power Point Tracking (MPPT)
(12V / 24V / 36V / 48V)



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 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 indoors to avoid potentially hazardous exposure and to prevent water from entering the controller.
- 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.
- To prevent the battery from being short-circuited, **NO** metal objects shall be placed near the battery, and **AVOID** touching the positive (+) and negative (-) terminals with bare hands.
- 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**. It is preferable to install a **DC circuit breaker** between solar panels and an MPPT controller for safety reasons.
- 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 100A MPPT SOLAR CHARGE CONTROLLER

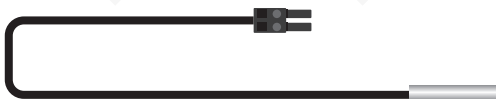
Default Battery Setting	12V LI (Lithium Iron Phosphate) Battery
System Voltage	12V/24V/36V/48V
Rated Charging Current	100A
Max. Solar Panel System Input Power	1500W for 12V / 3000W for 24V / 4500W for 36V / 6000W for 48V



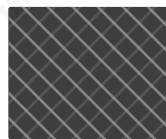
ADDITIONAL COMPONENTS

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.

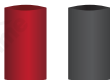


Remote Temperature Sensor



Magic Sticker

ACCESSORIES FOR MOUNTING AND INSTALLATION

	Screws for Mounting on Wood Wall/ Drywall	4pcs
	Plastic Anchors for Mounting on Drywall	4pcs
	Copper Wire Connectors	4pcs
	Heat Shrink Tubes	4pcs

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-M48100B)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to 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 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 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 into 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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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.

RF Exposure Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.



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IDENTIFICATION OF PARTS



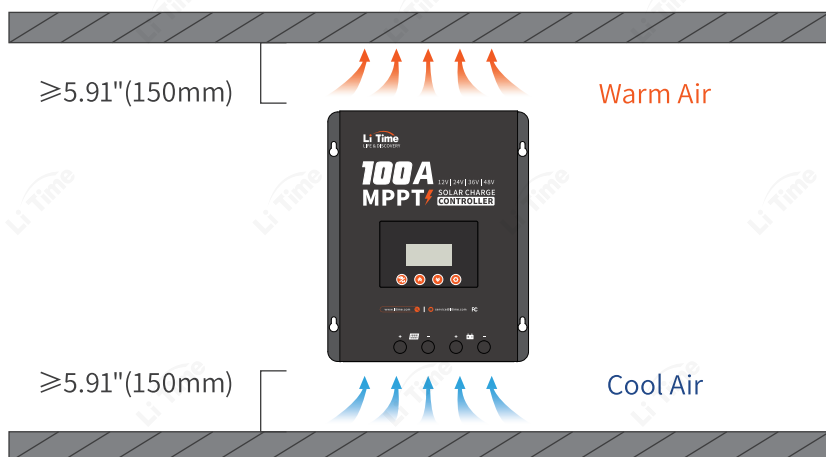
- 1 LCD Screen
- 2 Operating Keys
- 3 RS485 Communication Port
- 4 Remote Temperature Sensor Port
- 5 Solar Panel Terminals
- 6 Battery Terminals
- 7 Grounding Wire Terminal
- 8 Mounting Holes

INSTALLATION

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

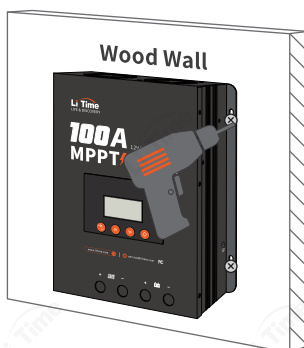
CHOOSE THE MOUNTING LOCATION

Check the ventilation clearance above & below the controller for at least 5.91" (150mm).



INSTALLATION METHODS

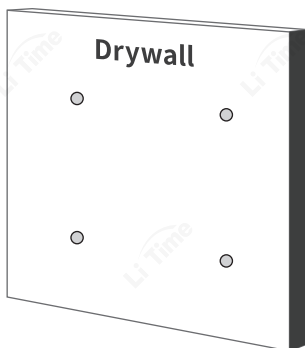
On the Wood Wall (Optional)



Align and Fix the Controller

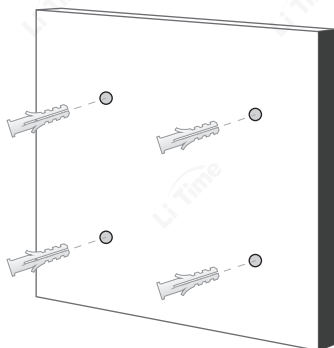
On the Drywall (Optional)

Step
1



Drill the Holes

Step
2



Fix the Plastic Anchors

Step
3



Align and Fix the Screws

WIRING

- We strongly recommend that **fuses or breakers be connected at the solar panel array 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 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	4 AWG
Max. Wire Gauge	4 AWG

FUSE RECOMMENDATION

(1.2 TO 1.5 TIMES THE MAXIMUM CONTINUOUS CURRENT)

Solar Panel / Battery	120A to 150A
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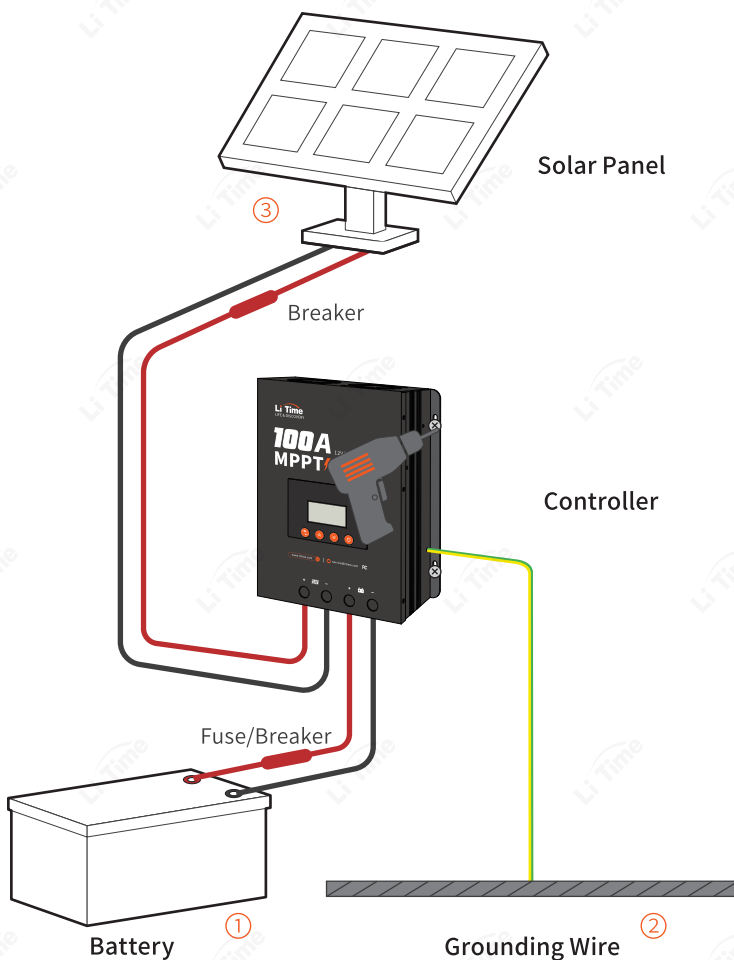
WIRING SEQUENCE AND REFERENCE CONNECTION DIAGRAM

- 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, $\ominus$ to $\ominus$, $\oplus$ to $\oplus$.

- ① Battery $\Rightarrow$ ② Grounding Wire $\Rightarrow$ ③ Solar Panel $\Rightarrow$
- ④ Communication Port (Optional) $\Rightarrow$
- ⑤ Remote Temp. Sensor (Optional)

REFERENCE CONNECTION DIAGRAM



OPERATION

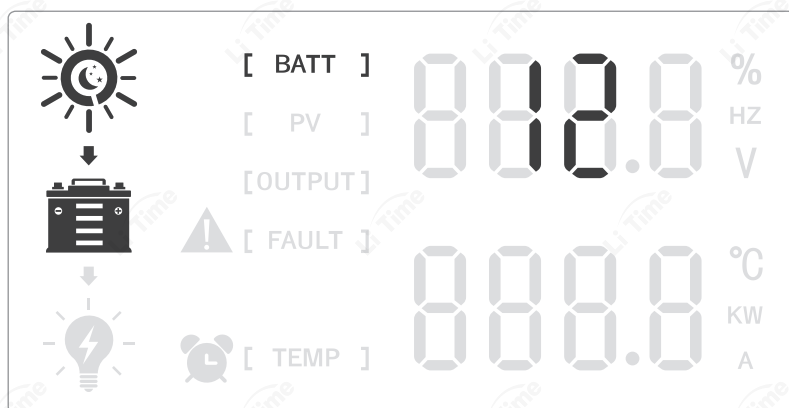
The controller comes equipped with an LCD screen and 4 buttons to operate the menus.

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

LCD DISPLAY

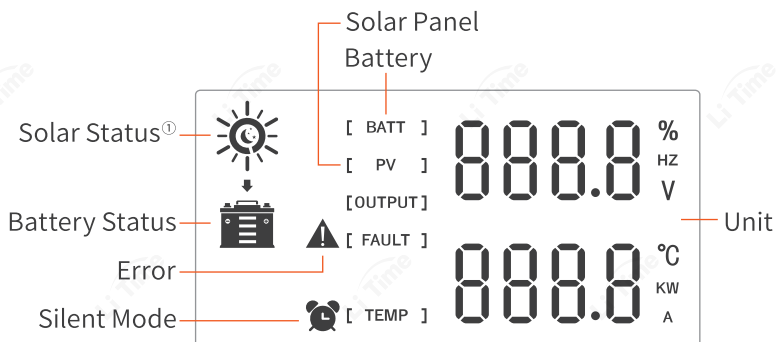
Main Interface

The main interface displays the battery's voltage after starting up, and the system is set to **12V LiFePO4 battery mode by default**.



- Note: If the voltage or battery type of the battery connected to the controller does not match the default system settings, the controller LCD screen will display ERROR CODE E01 or E08 after startup. The controller will work normally after changing to the correct system settings (refer to the operations on page 08 to change the relevant settings).

LCD INDICATORS



①The controller identifies daytime ☀ and nighttime 🌙 based on the solar input voltage. It indicates daytime when the solar input voltage is > 6V (12V system), > 12V (24V system), > 18V (36V system), > 24V (48V system).

KEY OPERATIONS

In View Mode

Key	Operation	Function
☀ [SET]	Press and Hold	Enter Set Mode
⏮ [UP]	Short Press	View Previous Page
⏭ [DOWN]	Short Press	View Next Page
⏮ [RETURN]	Press and Hold	Set Silent Mode(qU)

In Set Mode

Key	Operation	Function
☀ [SET]	Press and Hold	Save Data & Exit Set Mode
	Short Press	Next
⏮ [UP]	Short Press	Previous Choice / Increase Value
⏭ [DOWN]		Next Choice / 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

Step
1

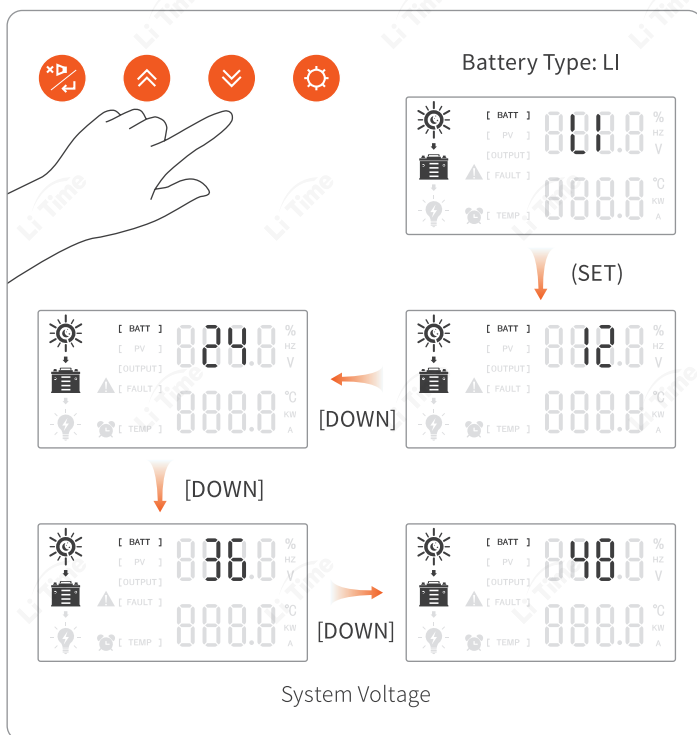
Enter the Setting

Press and hold [SET] in View Mode / any View page.

Step
2

Set the Battery Voltage

Short press [SET] again to enter the system voltage setting, short press the [UP] or [DOWN] to cycle through the battery voltage, then press and hold the [SET] key to save settings.



- ⚠ Note: Selecting LI (LiFePO4) battery type requires locking the battery system voltage and cannot be selected for "AUTO" mode (automatic recognition of system voltage).

PROGRAMMING LCD DISPLAY BACKLIGHT

Step 1

Enter the Setting

Press and hold [SET] in View Mode / any View page.

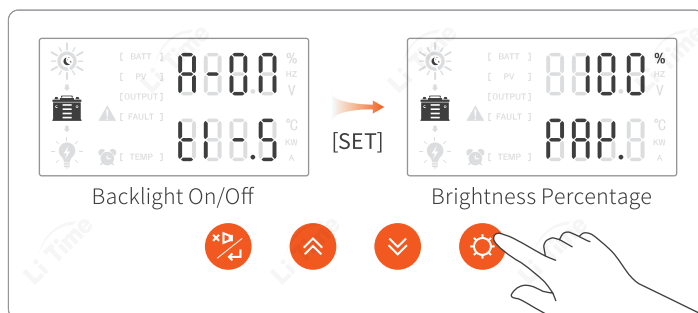
Step 2

Set the LCD Display Backlight or Brightness Percentage

Short press [SET] to choose the corresponding setting page (7 times ➡ Backlight On/Off, 8 times ➡ Brightness Percentage).

Short press the [UP] or [DOWN] to cycle through the choice.

Short press the [SET] key to enter the next setting page or press and hold the [SET] key to save all settings.



Backlight On/Off--Brightness Percentage

Setting	Choices	Description
Backlight On /Off	On	The backlight remains always on.
	Off	The backlight remains always off (Not recommended).
	5~245s	Adjustable automatic backlight off time when no operation is detected, set in 5-second increments (Default: 100 seconds).
Brightness Percentage	0~100%	It is not recommended to set too low (Default: 100%).

PROGRAMMING SILENT MODE

Step 1

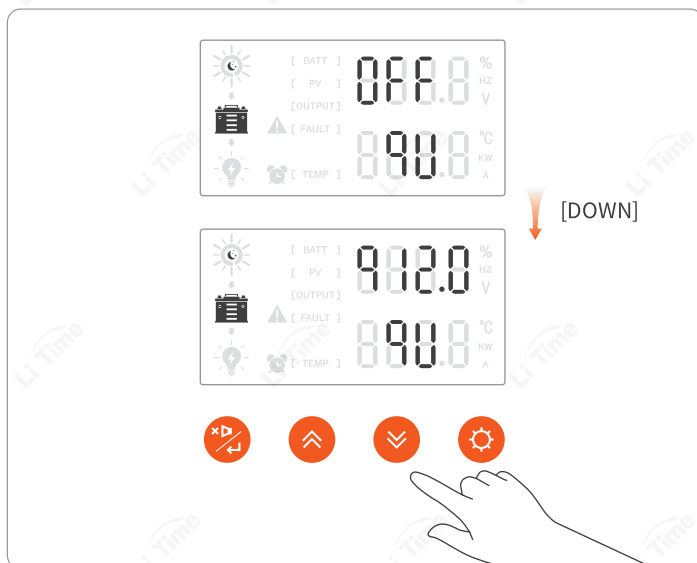
Enter the Silent Mode Setting

Press and hold [RETURN] in View Mode / any View page.

Step 2

Set the Silent Mode

Short press the [UP] or [DOWN] to cycle through the choice, then press and hold the [SET] key to save settings.



Choices	Description
Off	The fan operates in normal mode (Default: Off).
0.5~12.0	Allows the fan to automatically stop in a specified duration, set in 0.5-hour increments. When enabled, a clock icon appears in the lower-left corner of the View Mode.

SPECIFICATIONS

Parameter	Value
System Voltage	12V / 24V / 36V / 48V / Auto ^①
No-Load Loss	12V<10mA / 24V<6mA / 36V<5mA / 48V<4mA
Battery Voltage	9V to 64V
Max. Solar Input Voltage	150V
Max. Power Point Voltage Range	Battery Voltage+3V to 120V
Rated Charging Current	100A
Max. Solar Panel System Input Power	1500W for 12V / 3000W for 24V / 4500W for 36V / 6000W for 48V
Max. Conversion Efficiency	98%
MPPT Tracking Efficiency	>99.9%
Temperature Compensation Factor	12V: -10mv/+1°F (-18mv/+1°C) 24V: -20mv/+1°F (-36mv/+1°C) 36V: -30mv/+1°F (-54mv/+1°C) 48V: -40mv/+1°F (-72mv/+1°C)
Operating Temperature	-4°F to 131°F / -20°C to 55°C
Low Temperature Charging Protection(LTCP) Function ^②	Yes
Protection Class	IP21
Weight	Appr. 5.49lbs / 2.49 kg
Communication Method	RS485 / Inbuilt BT
Altitude	≤ 3000m
Dimensions	L7.91*W9.92*H3.16 inch / L201*W252*H80.3mm

① Selecting 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 5°C/41°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
E01	Battery Over-voltage	The battery voltage has exceeded the controller limit. Check battery bank voltage for compatibility with the controller.
E02	Solar Over-voltage	Solar array voltage exceeds controller-rated input voltage. Decrease the voltage of solar panels connected to the controller.
E08	Battery Over-discharged	The battery voltage is too low. DC load will be turned off until the battery re-charges to recovery voltage.
E13	Solar Reverse Polarity	Solar array input wires connected with reverse polarities. Disconnect and re-connect in the correct polarities.
E14	Battery Reverse Polarity	Battery wires connected with reverse polarities. Disconnect and re-connect in the correct polarities.
E20	Overheating	The controller exceeds the operating temperature limit. Ensure the controller is placed in a well-ventilated, cool, dry place.
E21	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.



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www.litime.com



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