REDODO®

PRODUCT MANUAL

30A/40A (12V/24V)

Solar Charge Controller

Maximum Power Point Tracking (MPPT)

www.redodopower.com

UNITED STATES

Register Warranty

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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 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 100 VDC** to prevent permanent damage.

PRODUCT OVERVIEW

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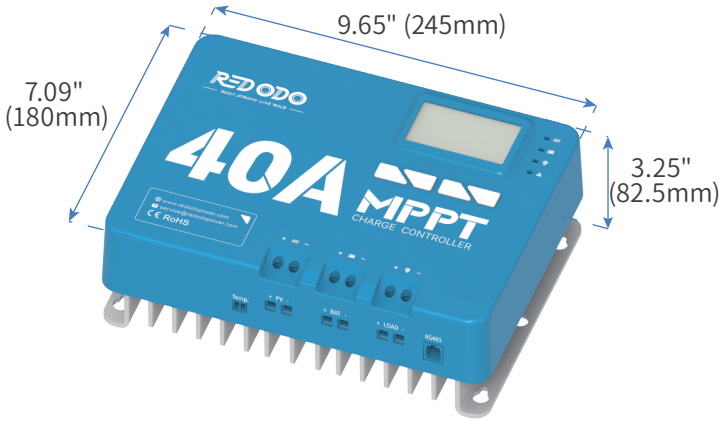
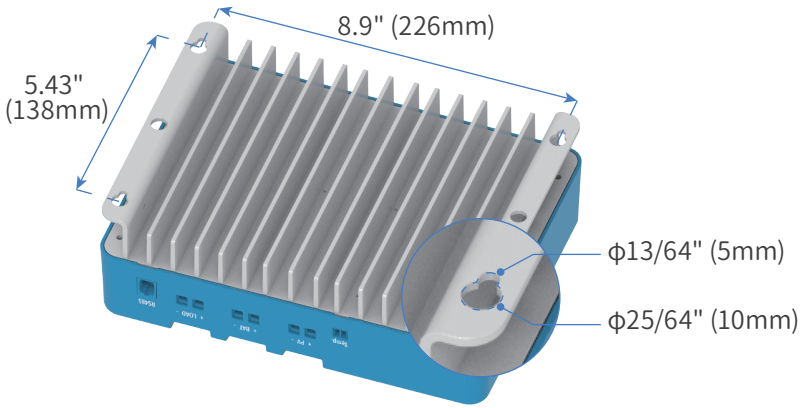
12V/24V 30A/40A MPPT SOLAR CHARGE CONTROLLER

Default Battery Setting	12V LI (Lithium Iron Phosphate) Battery	
System Voltage	12V/24V	
Rated Charging Current	30A	40A
Rated Load Current	20A	
Max. Solar Panel System Input Power	450W for 12V / 900W for 24V	600W for 12V / 1200W for 24V





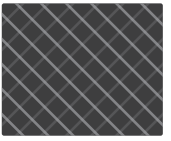
ADDITIONAL COMPONENTS

REMOTE TEMPERATURE SENSOR / MAGIC STICKER

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

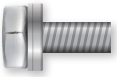
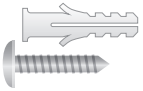
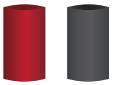
For lead-acid batteries, the sensor measures the surrounding temperature for precise temperature compensation.

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

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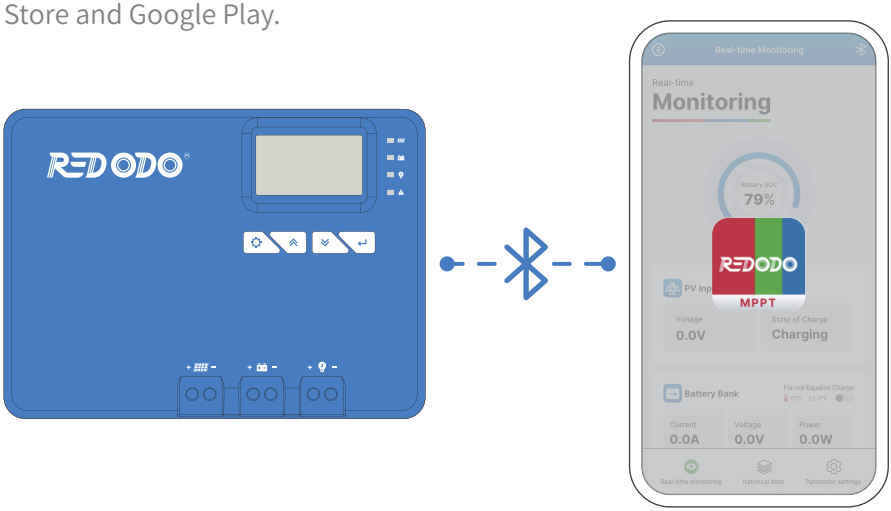
APP DOWNLOAD

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.

Bluetooth APP
& 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：2BE5H-M2440N)

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

- This device may not cause harmful interference.
- 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, pursuant 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 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.
- 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 b ody: Use only the supplied antenna.

CONTENTS

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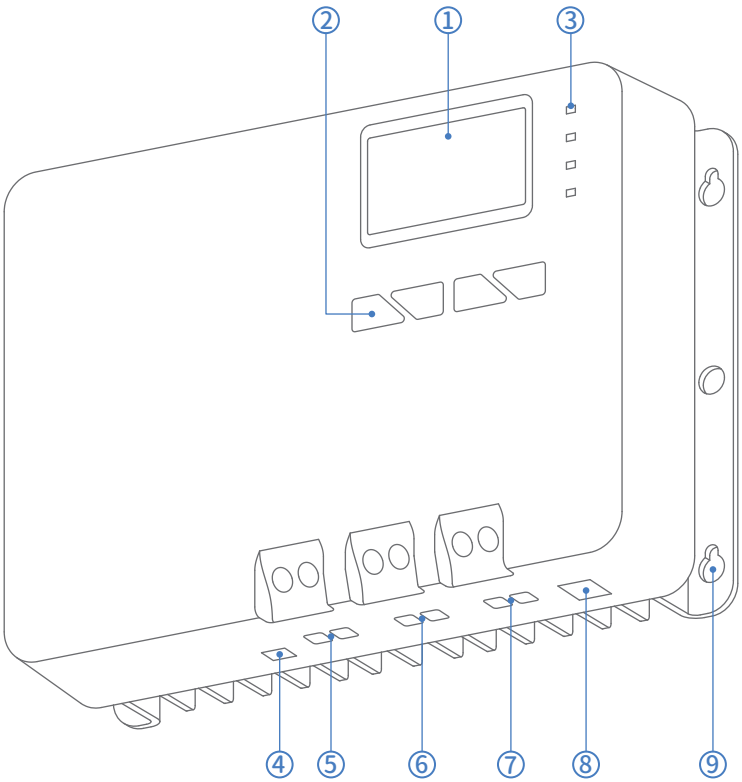
IDENTIFICATION OF PARTS



① LCD Screen

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

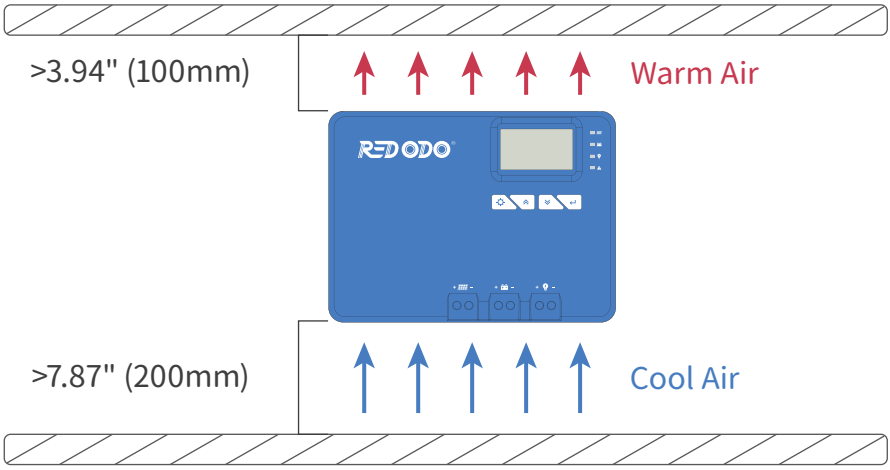
INSTALLATION

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

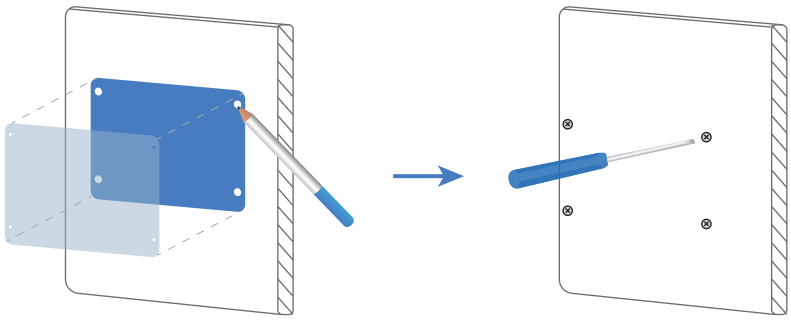
CHOOSE THE MOUNTING LOCATION

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).

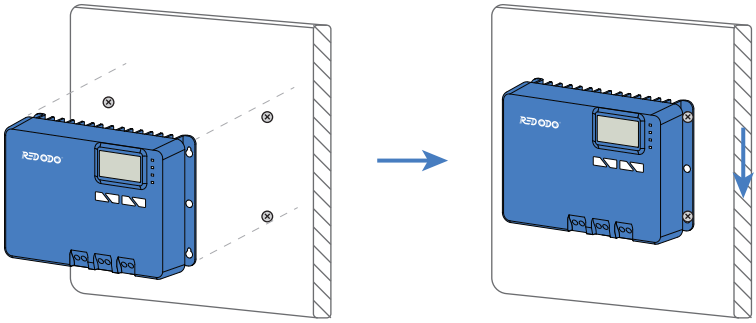


INSTALLATION METHOD ① USING MOUNTING HOLE



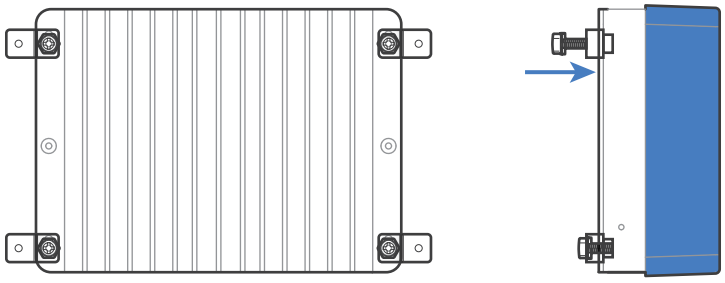
Mark Holes

Fix the Screws

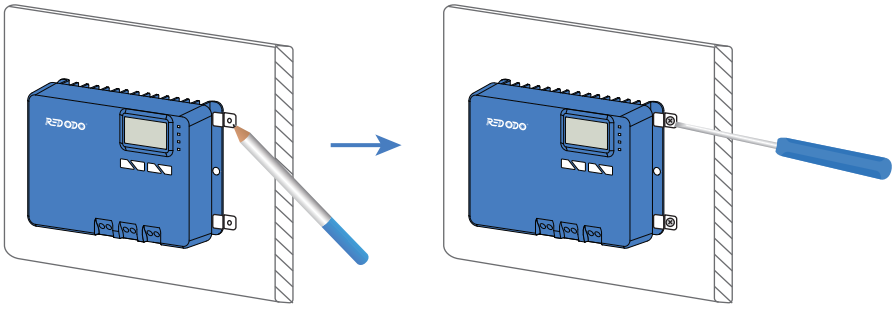


Align and Fix the Controller

INSTALLATION METHOD②
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

Model	30A	40A
Solar Panel / Battery	8 AWG	7 AWG
Load	10 AWG	
Max. Wire Gauge	8 AWG	7 AWG

Fuse Recommendation

(1.2 to 1.5 times the maximum continuous current)

Model	30A	40A
Solar Panel / Battery	36A to 45A	48A to 60A
Load	24A to 30A	

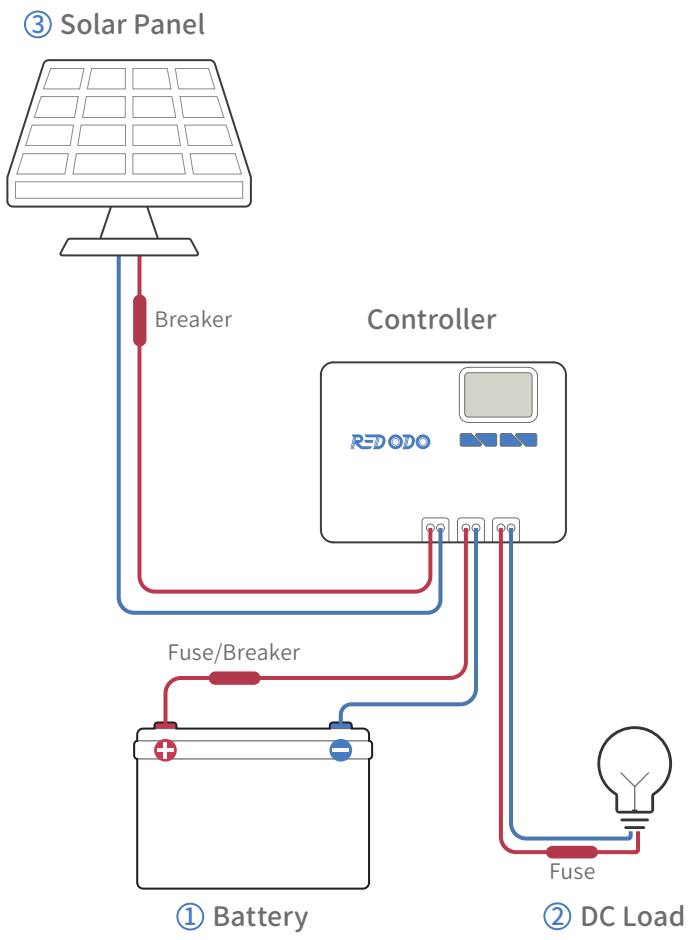
WIRING SEQUENCE AND REFERENCE CONNECTION DIAGRAM

- **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, ⊖ to ⊖, ⊕ to ⊕.

① Battery ➡ ② DC Load (Optional) ➡ ③ Solar Panel ➡
④ Communication Port (Optional) ➡
⑤ 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.

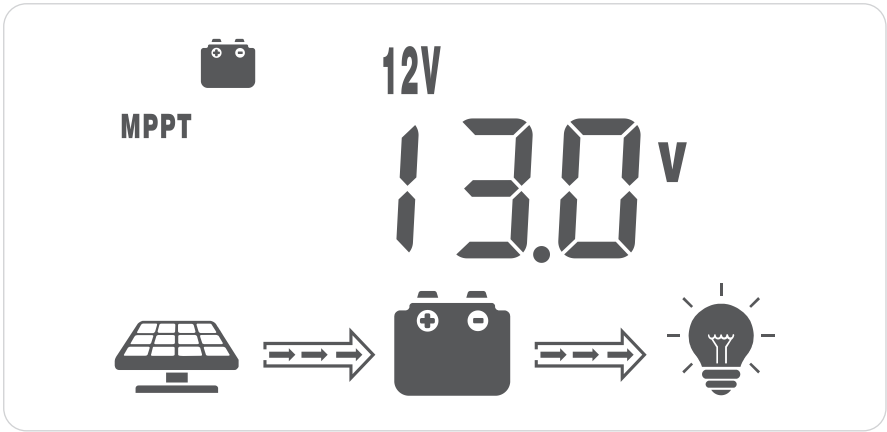
STARTUP INTERFACE

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

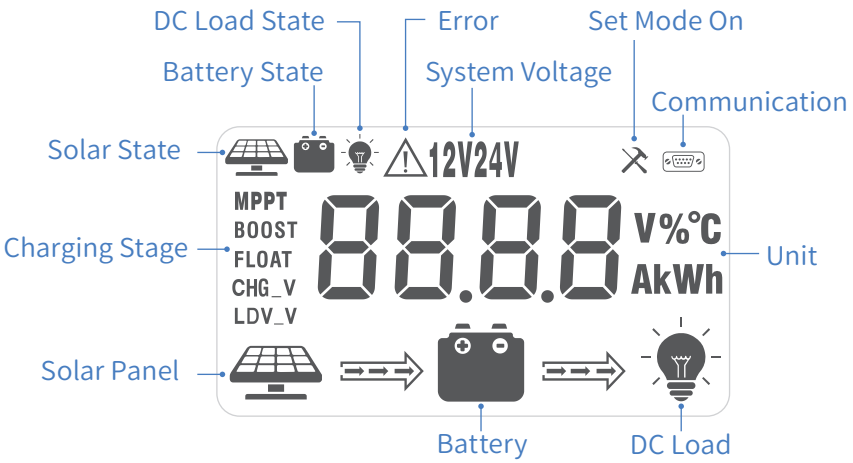
Main Interface

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



If the connected battery is not a 12V LiFePO4 battery, the controller will display error code E01 or E02. Changing to the correct system settings will allow the controller to function normally.

LCD Indicators



KEY 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

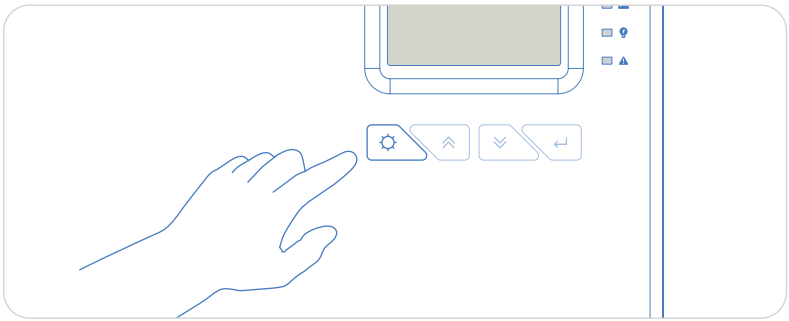
The information displayed on the LCD interface in View Mode can be changed by short pressing the **(UP)** or **(DOWN)** key.

PROGRAMMING SYSTEM VOLTAGE

Step **1**

Enter the Setting

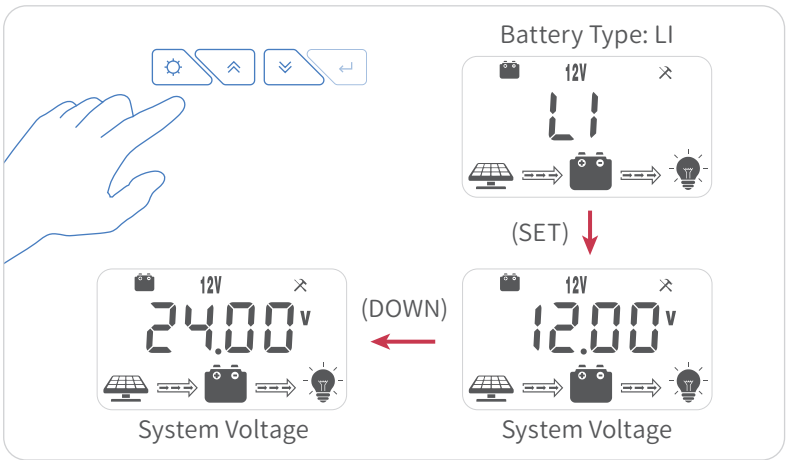
Long press (SET) in View Mode / any View page.



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 **long press** the (SET) key to complete the selection.



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 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 timer. 1-14 indicates 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 a 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., "1" means the load would turn off in 1 hour after turning on, and "8" means off in 8 hours. Please notice 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

	SOLAR Indicator	Indicating the controller's current charging state.
	BAT Indicator	Indicating the battery's current state.
	DC LOAD Indicator	Indicating the loads' on / off and state.
	FAULT Indicator	Indicating whether the controller is functioning normally.

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
BAT	Single Flash	Reverse Polarities Detected
	Fast Flash	Battery Over Voltage
	Slow Flash	Battery Over Discharged
	Steady On	Battery On
DC LOAD	Off	Load Off
	Fast Flash	DC Load Short Circuit / Overloading
	Steady On	DC Load On
FAULT	Off	No Errors
	Steady On	System Error Detected

SPECIFICATIONS

Parameter	Value	
System Voltage	12V / 24V / Auto①	
No-Load Loss	12mA at 12V/ 10mA at 24V	
Battery Voltage	9V to 32V	
Max. Solar Input Voltage	100V	
Max. Power Point Voltage Range	Battery Voltage+3V to 76V	
Rated Charging Current	30A	40A
Rated Load Current	20A	
Max. Solar Panel System Input Power	450W for 12V / 900W for 24V	600W for 12V / 1200W for 24V
Conversion Efficiency	≤97%	
MPPT Tracking Efficiency	99.9%	
Temperature Compensation Factor	12V: -10mv/+1°F (-18mv/+1°C) 24V: -20mv/+1°F (-36mv/+1°C)	
Operating Temperature	-31°F to 113°F / -35°C to 45°C	
Low Temperature Charging Protection(LTCP) Function②	Yes	
Protection Class	IP32	
Weight	4.41lb / 2kg	
Communication Method	RS485(RJ12) / Inbuilt BT	
Altitude	≤ 3000m	
Dimensions	L9.65*W7.07*H3.25 inch / L245*W180*H82.5 mm	

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 "Redodo MPPT" 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
E00	No Error	System is working normally.
E01	Battery Over-discharged	The battery voltage is too low. DC load will be turned off until the battery re-charges to recovery voltage.
E02	Battery Over-voltage	The battery voltage has exceeded the controller limit. Check battery bank voltage for compatibility with the controller.
E04	Load Short Circuit	DC load short circuit. Disconnect the load and check if the rated current of the load is less than 20A.
E05	Load Overloading	DC load power draw exceeds controller capability. Reduce load size or upgrade to a controller with higher DC load capacity.
E06	Overheating	The controller exceeds the operating temperature limit. Ensure the controller is placed in a well-ventilated, cool, dry place.
E07	Environmental Over-temperature	The environment temperature detected by the external temperature probe is too high.
E10	Solar Over-voltage	Solar array voltage exceeds controller-rated input voltage. Decrease the voltage of solar panels connected to the controller.
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 correct polarities.
E15	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@redodopower.com.

Shenzhen Maicheng Technology Innovation Co., Ltd.

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