

Li Time

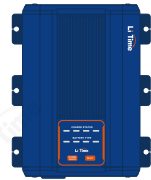
Originate from Ampere Time

LiFeP04

12V 40A

DC-DC

PRODUCT MANUAL



Dual Input Battery Charger

www.litime.com



service@litime.com



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 operating instructions for the DC-DC dual input battery charger.

General

- Wear personal protective equipment including eye protection (that protects eyes from all angles) and gloves.
- Disconnect the product from the battery each time before cleaning or before making changes to the circuit.
- Inadequate ventilation may lead to overheating and inefficient charging.
- Only use the product as intended.
- Make sure all connections going into and from the product are tight.
- There are no user-serviceable parts inside this product. DO NOT disassemble or attempt to repair the charger.

Battery

- Carefully read battery manuals, and operate the battery according to 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.
- 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.
- In very cold weather a discharged battery may freeze. NEVER charge a frozen battery. Gases may form, cracking the case, and spraying out battery acid.
- ALWAYS check the batteries and charging system periodically to ensure no faults occur.

Installation

- DO NOT install this charger near heat sources such as fire or heaters or expose it to flammable chemicals, vapors, corrosive gases, liquids, or materials.
- This product should be firmly fastened to prevent falling down or tipping over.
- Ensure the area around the battery is well-ventilated before and during the charging process.
- NEVER connect the solar panel to the charger without a service battery connection. The service battery must be connected first.
- Connect the service battery and set the correct battery type before connecting the input power (solar panel or starter battery) to avoid damage to the product.
- **Ensure the PV input voltage does not exceed 30VDC to prevent permanent damage. Use the Open Circuit Voltage (VOC) at the lowest temperature to make sure the voltage does not exceed this value when connecting panels together.**

Operation

- DO NOT operate in salty, wet, or damp environments; in the vicinity of corrosive fumes; in the vicinity of combustible material; in areas with risks of explosions.
- Please be aware that parts of this product may still produce voltage even after disconnected or activation of fuse.
- DO NOT disconnect cables while the product is operating.

If you have any questions or need any help, please feel free to contact us (and leave your contact phone number) at service@litime.com, we will offer phone or email support in 12hrs.

PRODUCT OVERVIEW

LiTime 12V 40A DC-DC Dual Input Battery Charger

System Voltage	12V
Rated Charging Current	40A
Max. Alternator Input Power	600W
Max. Solar Input Power/Voltage	600W/30V



ADDITIONAL COMPONENTS

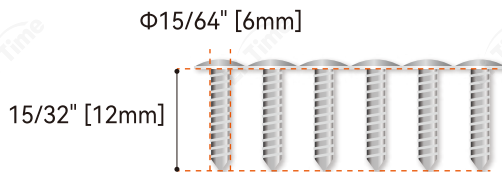
Additional components are included in the package.

50A Anderson Connector*3



Mounting Screws*6

Mounting screws for fixed mounting on wood walls are provided.





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IDENTIFICATION OF PARTS



INSTALLATION

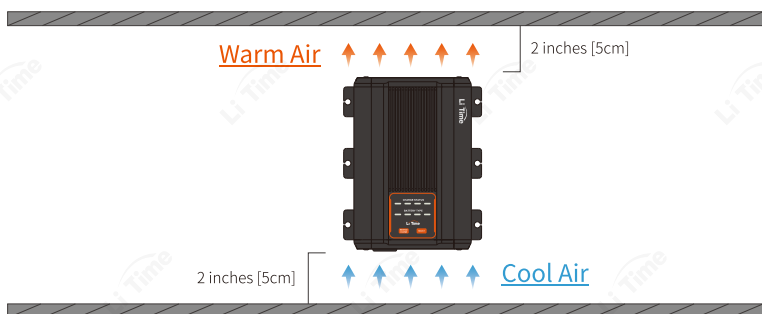
Mounting

Choosing Location

Make sure the installation complies with the following guidelines.

- In a well-ventilated, cool, and dry environment.

The product must be installed in an area protected from direct sunlight, high temperatures, and water. Make sure there is sufficient room for wiring and ventilation clearance above and below the charger. Clearance should be at least 2 inches [5cm].



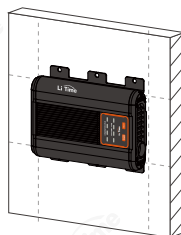
- As close to the battery as possible to the battery you will be charging (service battery).
- Securely placed or mounted.

This product could be stand-alone or wall-mounted both horizontally and vertically. Vertical mounting is preferred for optimum cooling.



VERTICAL

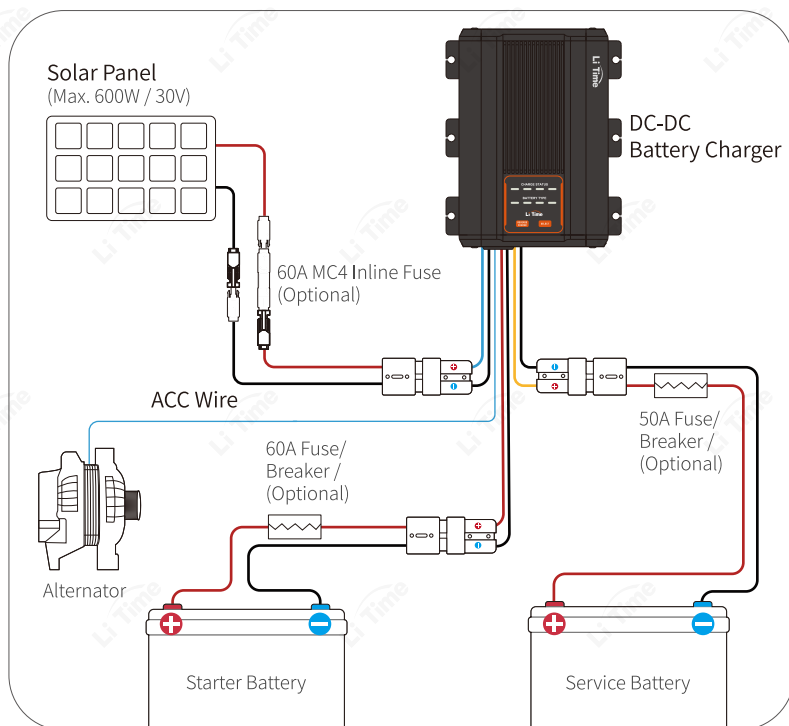
☆ (Recommended)



HORIZONTAL

Wiring & Setup

Reference Wiring Diagram



★ Cable Sizing

Cable Length (ft)	Cable Length (m)	Recommended Cable Size
3-16	1-5	8AWG
16-30	5-9	6AWG

★ Fusing (Rated Charging Current: 40A)

Input (Starter Battery/PV)	Output (Service Battery)
60A	50A

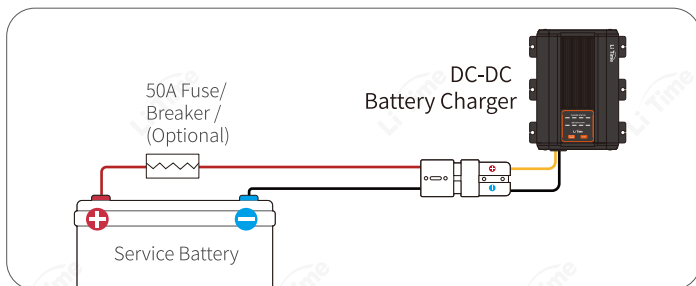
Step 1

Prepare All the Cables for the Connection



Step 2

Connect the Service Battery to the Charger



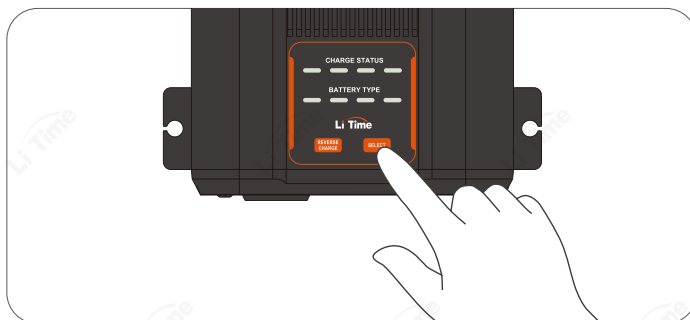
Step 3

Set the Battery Type for the Service Battery

Long Press the **[SELECT]** button to enter the battery type selection.

Short press **[SELECT]** to select the battery type of the service battery.

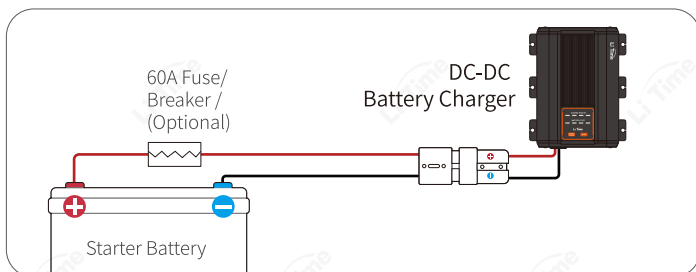
Then long press **[SELECT]** to confirm and exit.



⚠ This product has a power-off memory function and will remain on this battery type until it is changed.

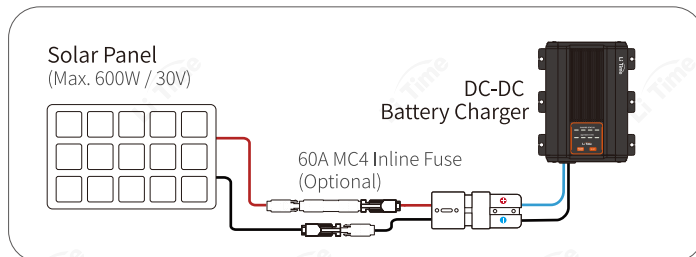
Step
4

Connect the Starter Battery to the Charger



Step
5

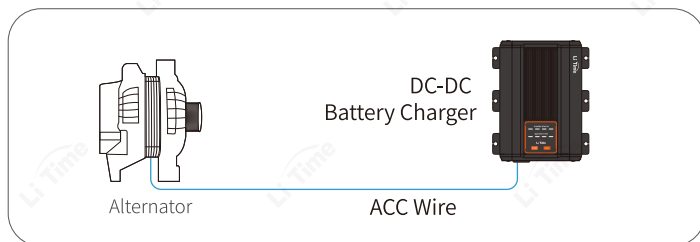
Connect the Solar Panel to the Charger (Optional)



Step
6

Connect the ACC Wire with the Alternator (Optional for Smart Alternator)

For vehicles with a smart alternator^①, you'll need to connect the ACC wire to a switching ignition source on your vehicle, usually, it can be found in the vehicle's fuse box with an available fuse tap.



① [Standard/Traditional Alternator] - has a fixed voltage when charging (Do not connect ACC wire)

[Smart Alternator] - has a controlled charging output based on operating conditions. Variable. (Requires ACC wire)

OPERATION

Key Operation

Key	Operation	Function
REVERSE CHARGE ^①	Long Press	Start/stop reverse charging when: ① Voltage of the main battery is greater than 3V but less than 12V; ② Voltage of the service battery is greater than 12.5V.
	Long Press	Enter the battery type selection mode / Confirm battery type and exit
SELECT	Long Press	Enter the battery type selection mode / Confirm battery type and exit
	Short Press	Select battery type

① It is recommended to exit the reverse charge when the voltage of the main battery is greater than 13V and the charging current is less than 10A, or the voltage of the service battery is less than 11V.

Charging Logic

The charger will automatically choose the alternator input when both the solar and alternator inputs meet the charging condition, and the two inputs will not be performed at the same time.

Alternator (/Starter Battery) Input

Connect the alternator with starting battery and service battery (No solar panel, or nighttime). Start the vehicle (/alternator) to start the charging.

ACC Wire	Voltage of the Starter Battery	Charging Status
Not Connected	$\geq 13V$	Start
	$< 12.7V$	Stop
Connected	$\geq 12V$	Start
	$< 11.3V$	Stop

Solar Panel Input

The charger will shift to solar charge mode when the solar panel is connected.

Voltage of the Solar Panel Output	Charging Status
$\geq 13V$	Start
$< 12V$	Stop

⚠ The charger will keep working even when the vehicle/alternator is switched off.

SPECIFICATIONS

General

System Voltage	12V
Service Battery Voltage Range	7V to 15.4V
Max. Charging Current	40A
Battery Type	SLA, AGM, GEL, CA, LI
Charging Efficiency	Up to 93%
Solar Charging Mode	MPPT
Min. Solar Input Voltage	10V
Max. Solar Input Voltage	30V
Max. Solar Input Power	600W
Alternator (/Starter Battery) Input Voltage	Traditional Alternator: 11.3-24VDC Smart Alternator: 12-24VDC
Max. Alternator Input Power	600W
Standby Self-consumption	<10mA
Operating Temperature Range	-10°C to 45°C / -14°F to 113°F
Storage Temperature Range	-20°C to 65°C / -4°F to 149°F
Humidity Range	0%~90%
Dimensions	5.83*1.89*7.44 inch 148*48*189 mm
Weight	1.1kg / 2.43lbs
Terminal Size	50A Anderson Connector

Charging Voltage Limits

Charging Stage	Lead Acid	GEL/AGM	Calcium	LiFePO4
Maximum Voltage	14.4V	14.7V	15.4V	14.4V
Float Charge	13.8V	13.8V	13.8V	/

TROUBLESHOOTING

Problem	Possible Causes	Solutions
"Power On" indicator flashes once during a three-second interval	Abnormal solar or alternator input. (e.g. Overvoltage)	Reconnect solar panel or alternator input.
"Power On" indicator flashes twice during a two-second interval	The DC-DC charger overheats.	Install the charger in a well-ventilated area.
"Power On" indicator flashes three times during a one-second interval	Self-diagnosis of faults	○ The charger will be locked when this error occurs, and it needs to be cut off power and restarted to resume. ○ If the problem still continues, please contact service@litime.com for help.
"Battery Type" indicator flashes once during a three-second interval	Service battery abnormal connection. (e.g. Overvoltage, overcurrent)	Reconnect the service battery.
"Battery Type" indicator flashes three times during a one-second interval	BMS protection for the lithium battery has been activated.	Ensure the battery is functioning properly.
"Battery Type" indicator flashes twice during a two-second interval	Charging takes too long.	Check whether the battery capacity is too large, or the battery itself is abnormal. Please note that the charger will be locked when this error occurs, and it needs to be cut off power and restarted to resume.



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