LiTime L12V40A-DC

LiTime 12V 40A DC-DC Battery Charger with MPPT Instruction Manual

Model: L12V40A-DC

1. Product Overview

The LiTime 12V 40A DC-DC Battery Charger with MPPT is designed to efficiently charge various 12V battery types from your vehicle's alternator or solar panels. It supports LiFePO4, Lead-acid, SLA, GEL, AGM, and Calcium batteries, making it suitable for a wide range of applications such as campers, boats, and yachts. This charger features a 3-stage charging process to optimize battery health and longevity.

Image: The LiTime 12V 40A DC-DC charger is compatible with various 12V battery types, including LiFePO4, Lead-acid, GEL/AGM, and Calcium batteries.

2. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your DC-DC charger. Please follow these guidelines carefully.

2.1 Mounting the Charger

The charger can be mounted either vertically or horizontally. Vertical mounting is generally recommended for optimal heat dissipation.

Image: Recommended mounting orientations for the charger, showing both vertical (recommended) and horizontal placements with dimensions (189mm H x 148mm W x 48mm D).

2.2 Wiring Connections

Connect the charger to your main (starter) battery, auxiliary (sub) battery, and optional solar panels using appropriate wiring and fuses. Ensure all connections are secure and correctly polarized.

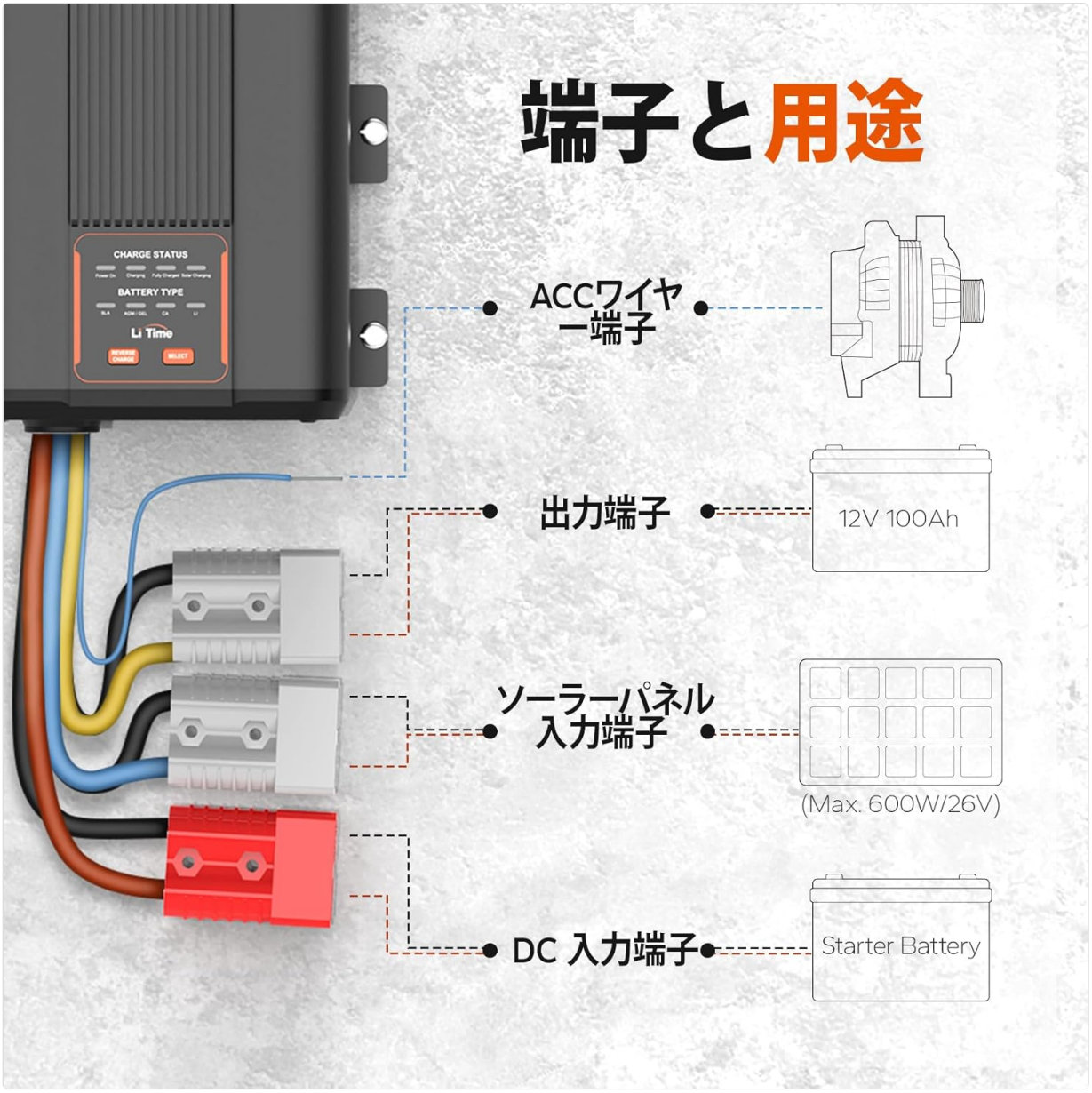

Image: Detailed diagram illustrating the terminal connections for the ACC wire, output to the auxiliary battery, solar panel input, and DC input from the starter battery.

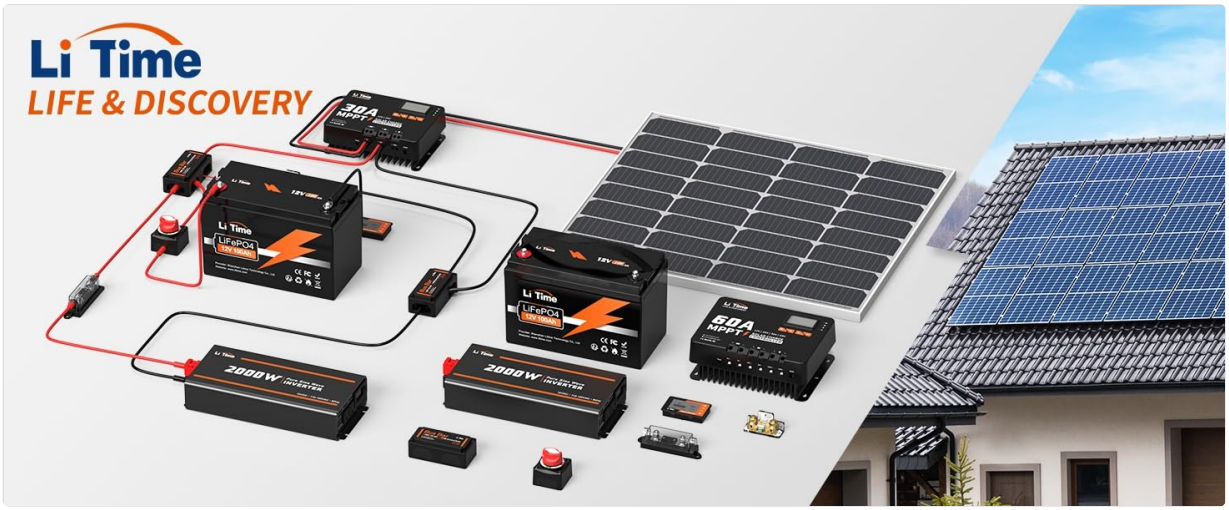

Image: An example connection diagram showing the DC-DC charger integrated into a camper van system, utilizing both alternator and solar charging.

2.3 Recommended Cables and Fuses

Use the following recommendations for cable sizes and fuse ratings to ensure safe and efficient operation:

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

For a rated charging current of 40A, the recommended fuse sizes are:

- Input (Main Battery): 60A
- Output (Sub Battery): 50A

Image: Visual representation of recommended cable gauges and fuse ratings for the charger's input and output connections.

3. Operating Instructions

The LiTime DC-DC charger is designed for simple operation with LED indicators and a control button.

3.1 Battery Type Selection

To begin charging, simply select the appropriate battery type using the operation button. The charger will then automatically manage the charging process. The device retains the last selected battery type setting even after power is disconnected.

Image: The LED indicators display the charge status (Power On, Charging, Fully Charged, Solar Charging) and the selected battery type (SLA, AGM/GEL, CA, LI). The 'SELECT' button allows you to cycle through battery types.

3.2 Charging Voltage Settings

The charger automatically adjusts the charging voltage based on the selected battery type. Ensure the correct battery type is selected for optimal charging.

Battery Type	Max. Voltage	Float Charge
LiFePO4	14.4V	/
Lead Acid	14.4V	13.8V
GEL/AGM	14.7V	13.8V
Calcium	15.4V	13.8V

Table: Charging voltage parameters for different battery types. Please ensure correct settings before charging.

3.3 Reverse Charge Function

The charger includes a reverse charge function, allowing the auxiliary battery to supply power back to the

main battery if needed. This can be useful in situations where the main battery requires a boost.

4. Safety and Protection Features

The LiTime DC-DC charger is equipped with multiple intelligent protection functions to ensure safe operation and protect your batteries and vehicle's electrical system.

- **Overvoltage Input Protection:** Prevents damage from excessive input voltage.
- **Output Reverse Connection Protection:** Protects against incorrect polarity connections at the output.
- **Battery Overvoltage Protection:** Safeguards batteries from being charged beyond their safe voltage limits.
- **Overheat Protection:** Automatically reduces output or shuts down if the unit's temperature exceeds safe limits.
- **Overcharge Protection:** Prevents batteries from being overcharged, extending their lifespan.
- **BMS Protection (for LiFePO4 Batteries):** Integrates with the Battery Management System of LiFePO4 batteries for enhanced safety.
- **Reverse Polarity Protection Circuit Protection:** Protects against damage from incorrect polarity connections.
- **Charge Timeout Protection:** Prevents prolonged charging cycles that could harm batteries.

Image: Visual representation of the comprehensive protection features integrated into the DC-DC charger.

5. Maintenance

The LiTime DC-DC charger is designed for minimal maintenance. To ensure optimal performance and longevity:

- Regularly inspect all cable connections for tightness and corrosion.
- Keep the charger clean and free from dust and debris.
- Ensure adequate ventilation around the unit to prevent overheating.
- Avoid exposing the charger to extreme temperatures or moisture.

6. Troubleshooting

If you encounter issues with your LiTime DC-DC charger, refer to the following common troubleshooting steps:

6.1 Charger Not Charging

- **Check Connections:** Ensure all connectors are securely attached and free from corrosion.

Sometimes, simply disconnecting and reconnecting all cables can resolve the issue.

- **Verify Battery Type:** Confirm that the correct battery type is selected on the charger's interface. An incorrect setting can prevent proper charging.
- **Check Input Voltage:** Ensure the main battery (starter battery) is providing sufficient voltage for the charger to operate.
- **Inspect Fuses:** Check all inline fuses for continuity. Replace any blown fuses with the correct rating.
- **Battery State:** If the auxiliary battery is severely discharged (over-discharged), the charger may not initiate charging. In such cases, an external charger might be needed to bring the battery voltage up to a detectable level.

6.2 Intermittent Charging

- **Loose Connections:** Intermittent charging can often be caused by loose or corroded connections. Re-check all wiring.
- **Engine Idling/Running:** Ensure the engine is running or the alternator is active to provide consistent input power. Some chargers may stop or delay charging if the engine is off or idling too low.
- **Overheating:** If the charger is overheating, it may temporarily stop charging to protect itself. Ensure adequate ventilation.

If problems persist after following these steps, please contact customer support.

7. Specifications

Specification	Value
Brand	LiTime
Model Number	L12V40A-DC
Product Dimensions (D x W x H)	4.8 x 18.9 x 14.8 cm
Product Weight	1.1 kg
Output Voltage	12 Volts
Rated Current	40 Amperes
Number of Ports	1
Specification Compliance	CE, FCC
GTIN (Global Trade Identification Number)	00702571562269
UPC	702571562269
Country of Origin	China

8. Warranty and Support

The LiTime 12V 40A DC-DC Charger comes with a**2-year manufacturer's warranty**.
For any inquiries or technical assistance, please contact LiTime customer service. We offer customer support in English, typically responding within 24 hours.
For more information, visit the official LiTime website:LiTime Store