User Manual



BATTERY CHARGER

CHARGER 100

V1.0

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1. Safety

1.1 About This Manual

This user manual provides information for the installation, operation, maintenance and troubleshooting of the RUiXU CHARGER100 battery charger.

Read the user manual carefully before installing, operating and maintaining the charger. Follow the instructions during installation and operation. Keep this manual readily accessible for future reference.

Failure to follow these instructions and warnings may damage the unit, equipment malfunction, or cause electric shock, severe injury, or death. RUiXU reserves the right to make changes to the material herein at any time without notice. The most updated version of the manual can be found on the RUiXU website.

1.2 Symbols and Descriptions

Symbol	Description
⚠ *DANGER*	Indicates an imminently hazardous situation that will result in death or serious injury if not avoided.
⚠ *WARNING*	Indicates a hazardous situation that could result in death or serious injury if not avoided.
⚠ *CAUTION*	Indicates a hazardous situation that could result in minor or moderate injury if not avoided.
ⓘ *NOTICE*	Provides important information or operating tips.

1.3 Safety Precautions

⚠ *DANGER*

1. Do not disassemble this device. For servicing or repair, send the unit to a qualified service center. Improper reassembly may result in electric shock or fire hazard.
2. To reduce the risk of electric shock, disconnect the AC supply and DC load before performing any maintenance, inspection, or troubleshooting.

⚠ *WARNING*

1. Exercise extreme caution when connecting this device to the battery. Ensure correct polarity and secure contact. Do not reverse-connect or allow loose connections.
2. Never charge a frozen battery. Never short-circuit the DC input terminals.

3. Exercise extreme caution when using metal tools on or near the battery. Dropped tools may produce sparks, causing a short circuit in the battery or other electrical components, which may result in fire.
4. Follow the procedures in the Installation and Operation sections of this manual when connecting or disconnecting DC terminals and the charger plug.
5. If liquid enters the charger, disconnect the power supply immediately and contact a qualified technician for service. Do not attempt to disassemble the unit.

⚠ *CAUTION*

1. Install the charger in a well-ventilated, dry location away from moisture, open flame, smoke, and corrosive gases. This charger is rated IP20 and is not waterproof. Do not use in damp or wet locations.
2. If the charging cord, connector, or any accessory is worn or damaged, discontinue use immediately and contact technical support for inspection or replacement.

ⓘ *NOTICE*

1. **Read and understand all instructions and warning labels in the equipment, battery, and this manual before using this device.**
2. This charger is designed exclusively for lithium-ion batteries and is intended solely for battery charging. Do not use for any other purpose.
3. Verify that the battery voltage and current ratings match the charger specifications to prevent equipment failure or damage.
4. The power supply shall be protected by a circuit breaker for overcurrent protection. This charger shall be connected to a permanently grounded wiring system. Comply with all applicable local codes and regulations during use.

2. Product Overview

2.1 Description

The RUiXU CHARGER100 is a heavy-duty AC-to-DC converter designed specifically for charging 48 VDC lithium batteries in both grid-tied and off-grid energy storage systems. Operating on 120, 208, or 240 VAC input, the charger offers adjustable DC charging current and delivers up to 100 amps. It establishes closed-loop communication with the battery via a CAN bus. Additionally, the charger provides generator start/stop control, automatically starting or stopping the generator based on user-defined battery voltage or SOC thresholds.

2.2 Datasheet

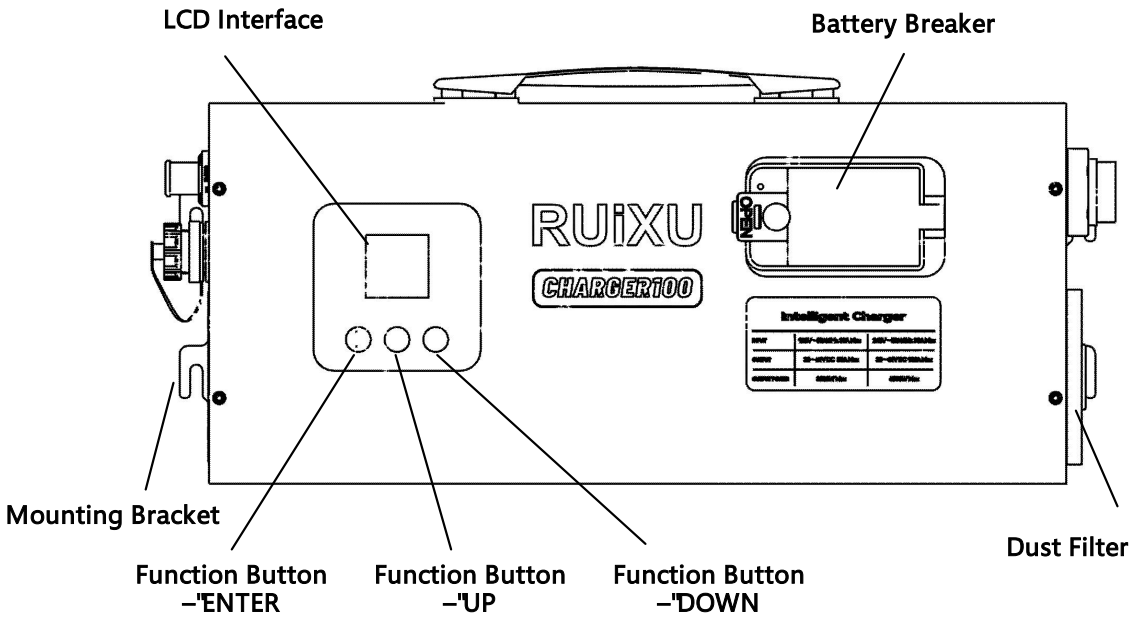
SPECIFICATIONS	VALUE
AC INPUT	
AC Input Voltage Range	90-264VAC
AC Frequency	50-60Hz
Max. Input Current	26A @240VAC, 28A @120VAC
Idle Consumption	–10W
CHARGER OUTPUT	
Battery Voltage	48VDC nominal
Charge Current (adjustable)	2-100A @240VAC, 2-45A @120VAC, 2-50A @208VAC
Charge Voltage (adjustable)	40–60 VDC (default 56.5 VDC)
Max. Output	6000W @ 240 VAC, 3000W @ 120 VAC
Max. Efficiency	94% @240VAC, 92% @120VAC
COMMUNICATION	
Generator Control	Dry Contact(NO, NC, and C)
BMS Communication	CAN (RJ45 Interface)
ENVIRONMENTAL	
Operating Temperature Range	14°F – 131°F (-10°C – 55°C)
Storage Temperature Range	5°F – 140°F (-15°C – 60°C)
Humidity	5% to 95% relative humidity (non-condensing)
Ingress Protection	IP20
Operating Altitude	0–4921 ft. (0–1500m)
GENERAL	
Dimensions H x W x D	7.48 × 17.72 × 4.72 in. (190 × 450 × 120 mm)
Net Weight	13.2 lbs. (6.0 kg)
Warranty	3 years (only when used indoors)

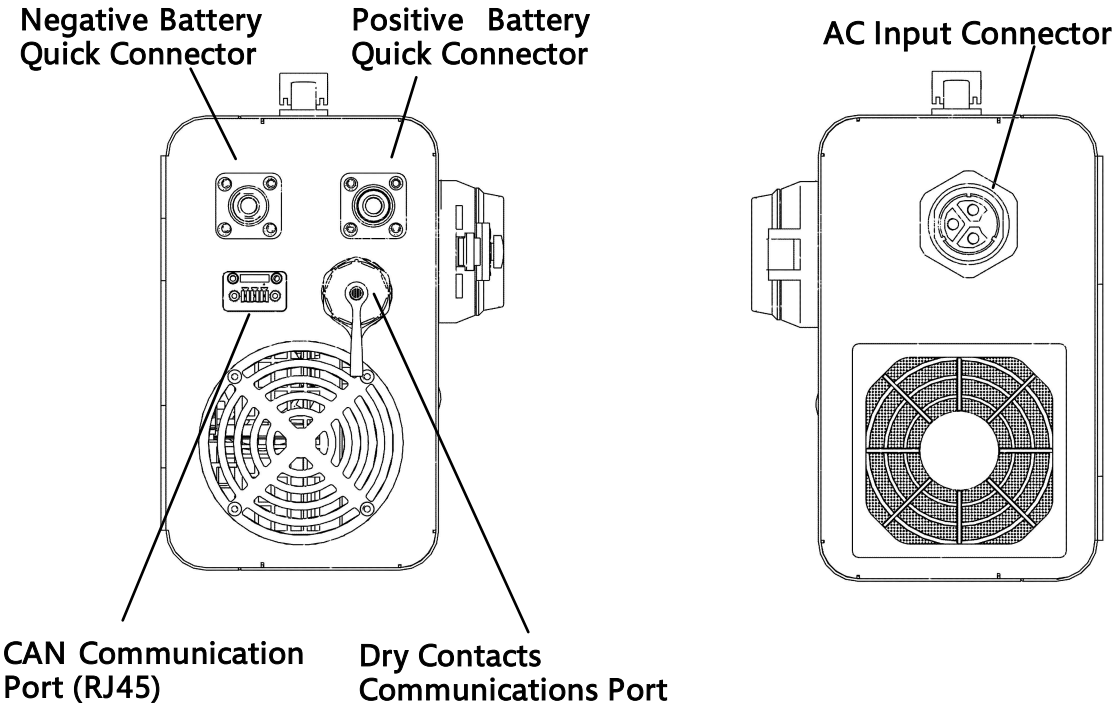
2.3 Features

- Heavy-duty AC-to-DC converter designed for charging 48 VDC lithium batteries
- Operates on 120 or 240 VAC input
- Adjustable charge voltage: 40–60 VDC (default 56.5 VDC)
- Adjustable charge current: 2–100 A
- Maximum efficiency: 94% @ 240 VAC, 92% @ 120 VAC
- IP20 ingress protection rating
- CAN communication port for battery BMS integration
- Dry contacts (NO, NC, C) for generator control
- LCD interface for real-time monitoring and parameter settings
- Suitable for grid-tied and off-grid energy storage systems
- 3-year warranty (indoor use only)

2.4 Product Overview

The CHARGER100 front panel includes the following components:

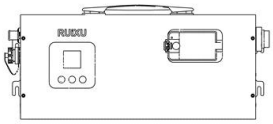
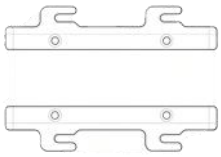
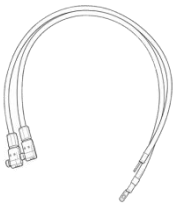
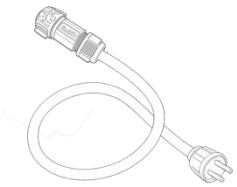
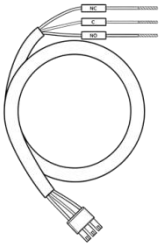




3. Installation

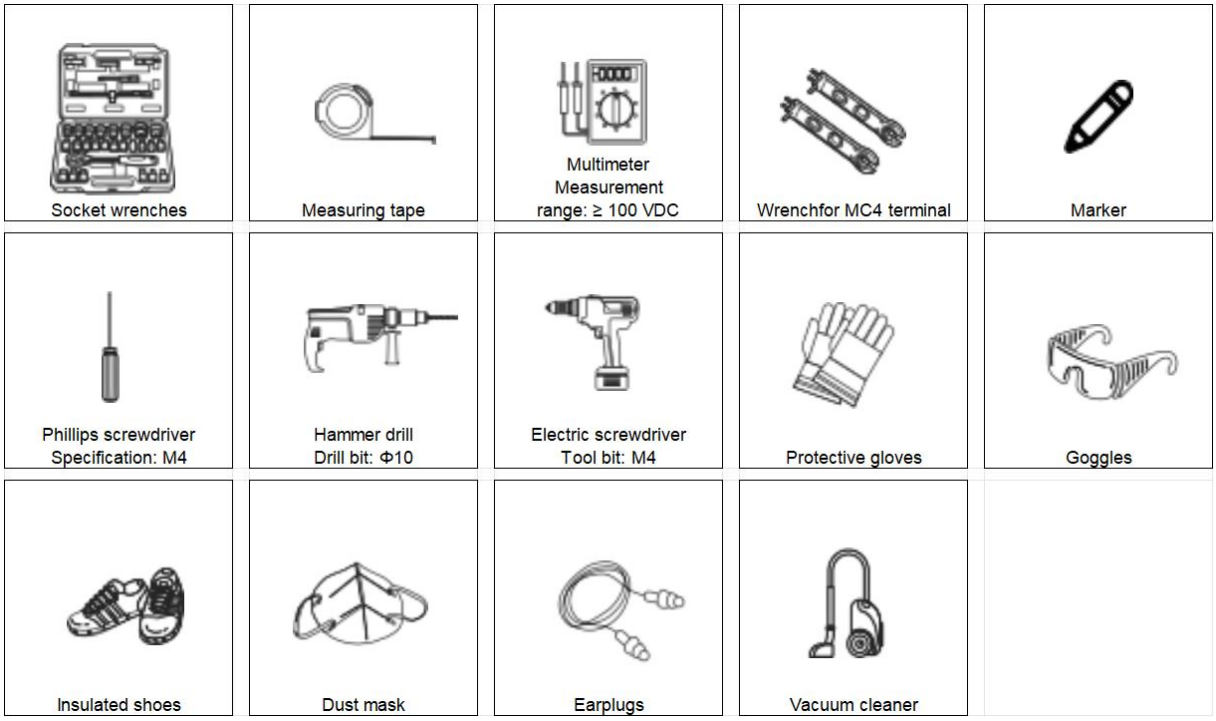
3.1 Packing List

Before installing the charger, inspect the package and the unit for any signs of damage. Verify that all items listed below are included and undamaged. If any item is missing or damaged, contact your dealer or RUiXU customer support before proceeding with the installation.The package should include the following items:

			
Charger x1	Mounting Bracket x1	M4*8mm Anchor Bolt x4	M4*40 Screw x 4 Expansion tube x4
			
Positive (Red) and Negative (Black) 4 AWG Battery Cables x1	Power Supply Cordx1	Dry Contact Cablex1	Network cablex1
			
The warranty card x1	Quality Certificate x1	Manual x1	Inspection report x1

3.2 Installation Tools Preparation

The tool illustrations are provided for reference only. Installation tools include but are not limited to the following recommended ones. Use other auxiliary tools based on site requirements.



3.3 Installation

Consider the following points before selecting where to install the charger:

- Do not mount the charger on flammable construction materials.
- Mount the charger to a vertical, structurally sound wall.
- Suitable for mounting on concrete or other non-combustible surfaces only.
- Install this charger in a location that allows the LCD interface to be easily viewed.
- The ambient temperature should be between 32°F – 131°F (0°C – 55°C) to ensure optimal operation.
- Verify there is sufficient room for heat dissipation and space for wires.

Installation Steps:

Step1:Secure the mounting bracket to the charger as shown in the

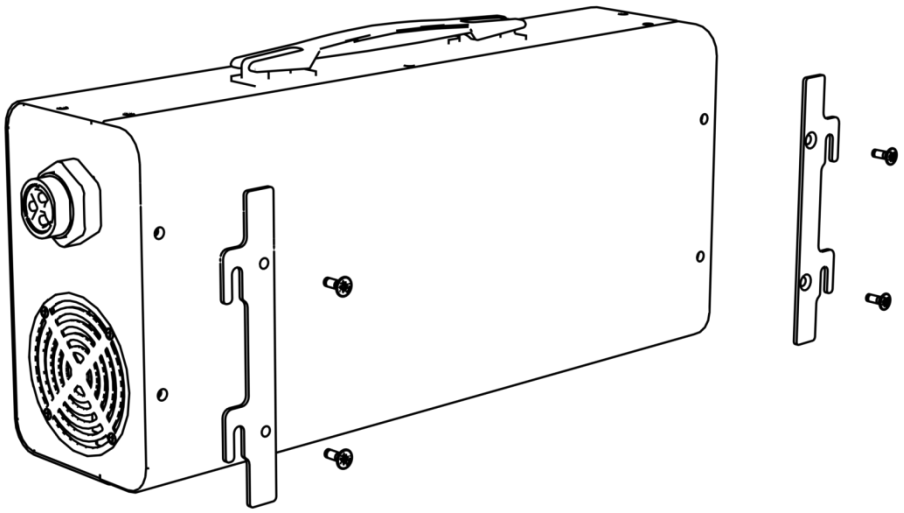
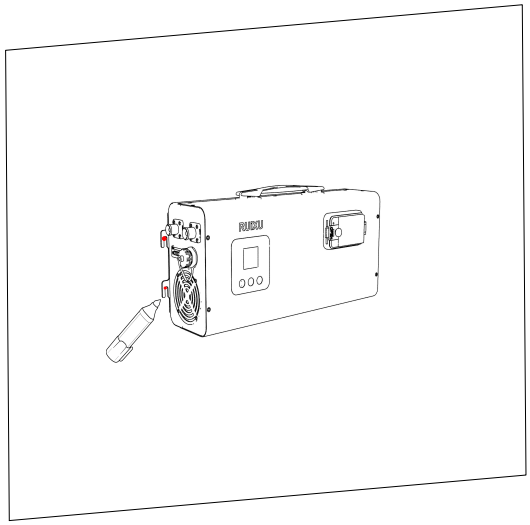
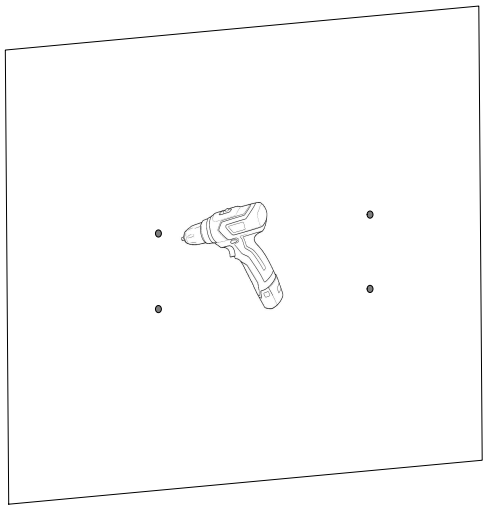


illustration.

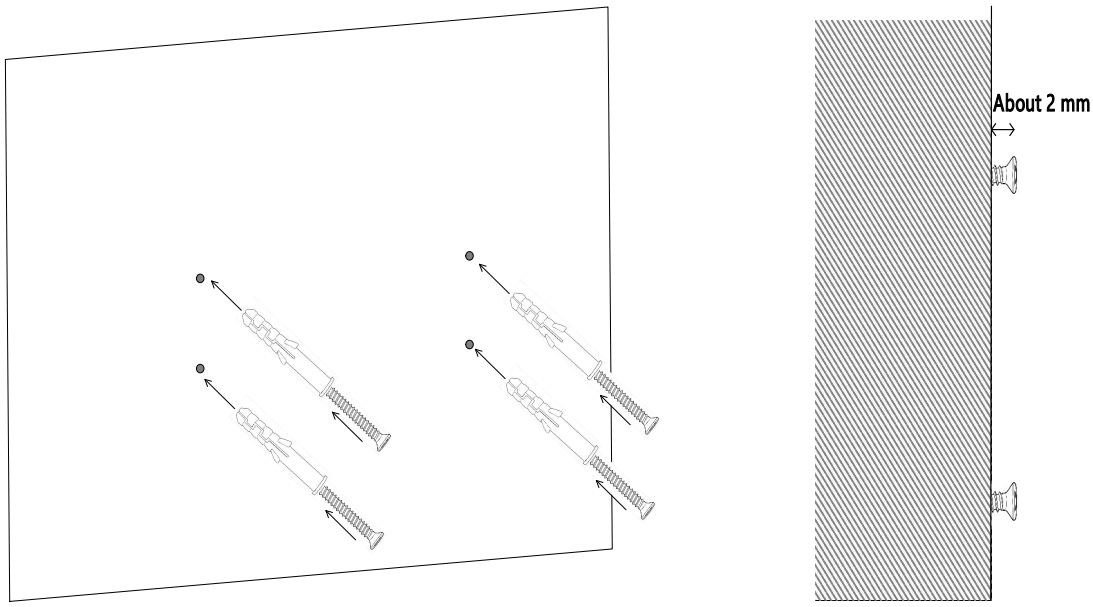
Step2:Position the charger against the intended installation surface, and mark the mounting bracket's fixing points.



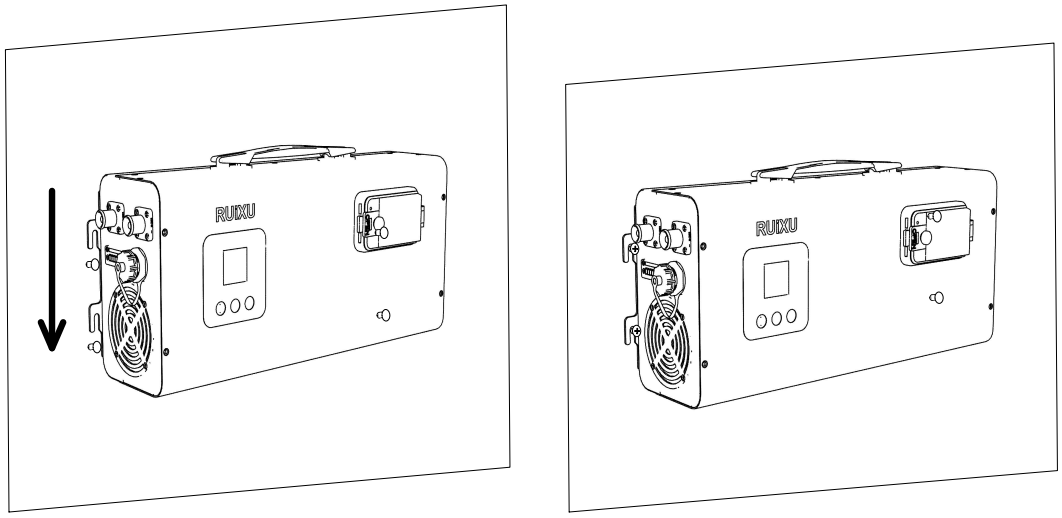


Step3:Use a hand drill to drill appropriate holes at the marked positions (ensure they match the size of the expansion tubes).

Step4:Insert the expansion tubes into the holes and insert the screws. Note: Leave a certain distance between the screw and the wall.



Step5:Hang the charger on the screw, then tighten the screw as needed.



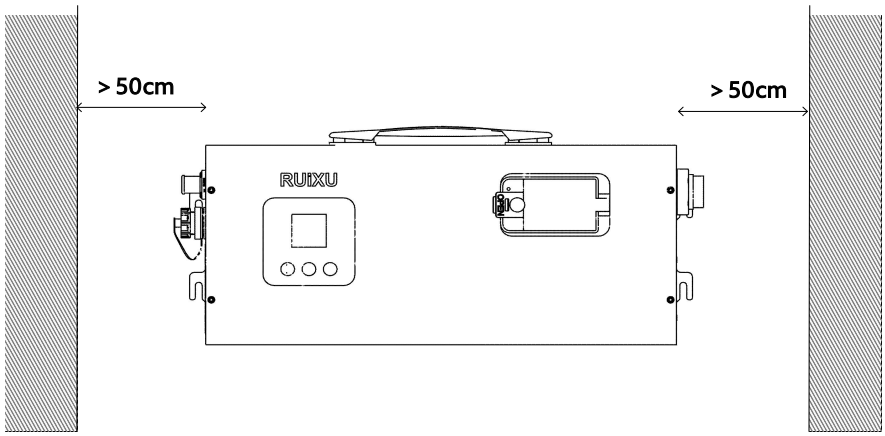
⚠ DANGER

- Do not install the charger near flammable materials.
- Do not install the charger in potentially explosive environments.
- Do not install this unit or any lead-acid batteries in sealed or enclosed areas.

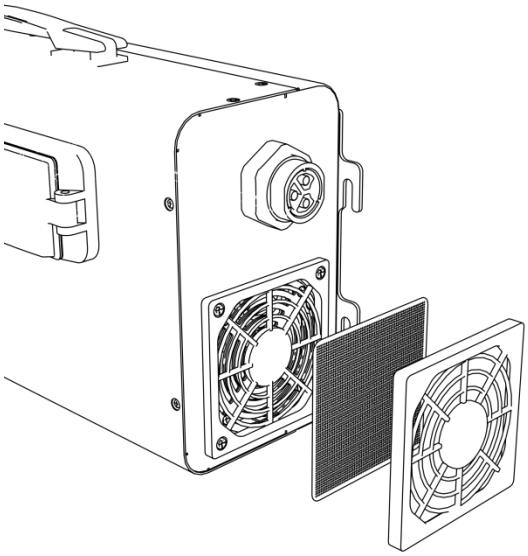
⚠ CAUTION

- Do not install the charger in direct sunlight.
- Do not install or operate the charger in wet or humid locations.
- The Charger100 can produce temperatures of more than 131°F (55°C). It is recommended

to mount this unit on appropriate backing, such as cement board, with sufficient clearance around the unit to allow proper airflow. Do not block the air vents!



- In dusty environments, the dust filter can easily get clogged. Clean it regularly to maintain proper airflow. If not, the charger may overheat, reducing its performance and lifespan.

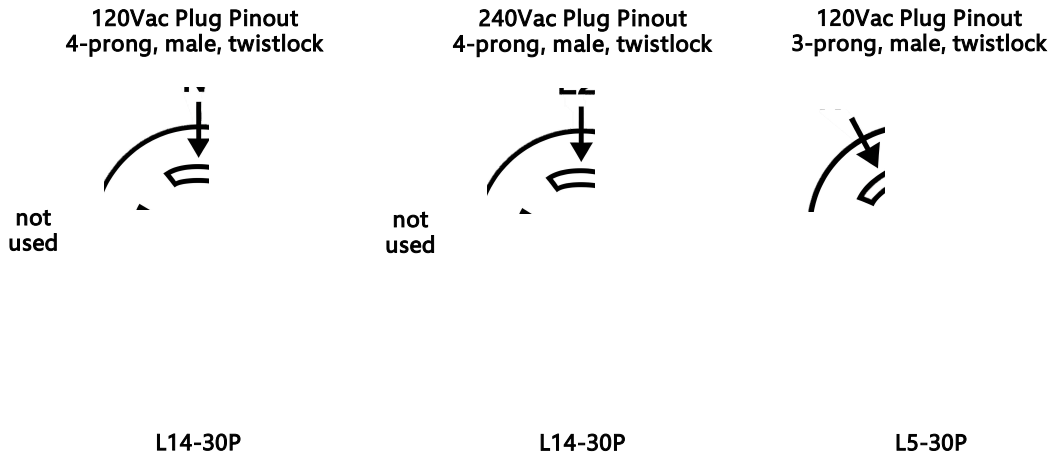


3.4 AC and DC Connections

3.4.1 AC Connections

The **Charger100** comes pre-wired for a 240V/30A circuit with a NEMA L14-30P 4-prong male twist lock plug.

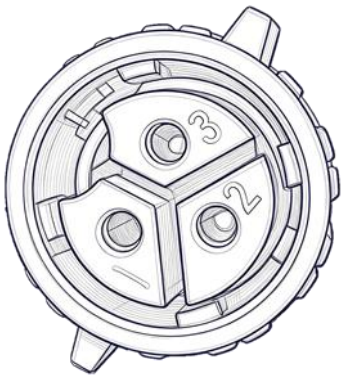
Below are the common plug wiring diagrams and wire sequences. You can replace only the plug as needed.:



Charger AC Wire Color	120V	240V
Black	L1	L1
White	Neutral	L2
Yellow/Green	Ground	Ground

Below is the wire sequence for the AC female quick-connect terminals on the plug cable. You can also replace the entire plug cable as needed.:





Female terminal sequence number	120V	240V
1	L1	L1
3	Neutral	L2
2	Ground	Ground

The charger's maximum output current is dependent on the input AC voltage:

Charger Input AC	Maximum DC Output Current
120VAC/28A	50 Amps
240VAC/26A	100 Amps

For single-phase 230VAC installations, please use the following information to properly wire the appropriate plug to the Charger100.

Charger AC Wire Color	Description
Black	230VAC
White	Neutral
Yellow/Green	Ground

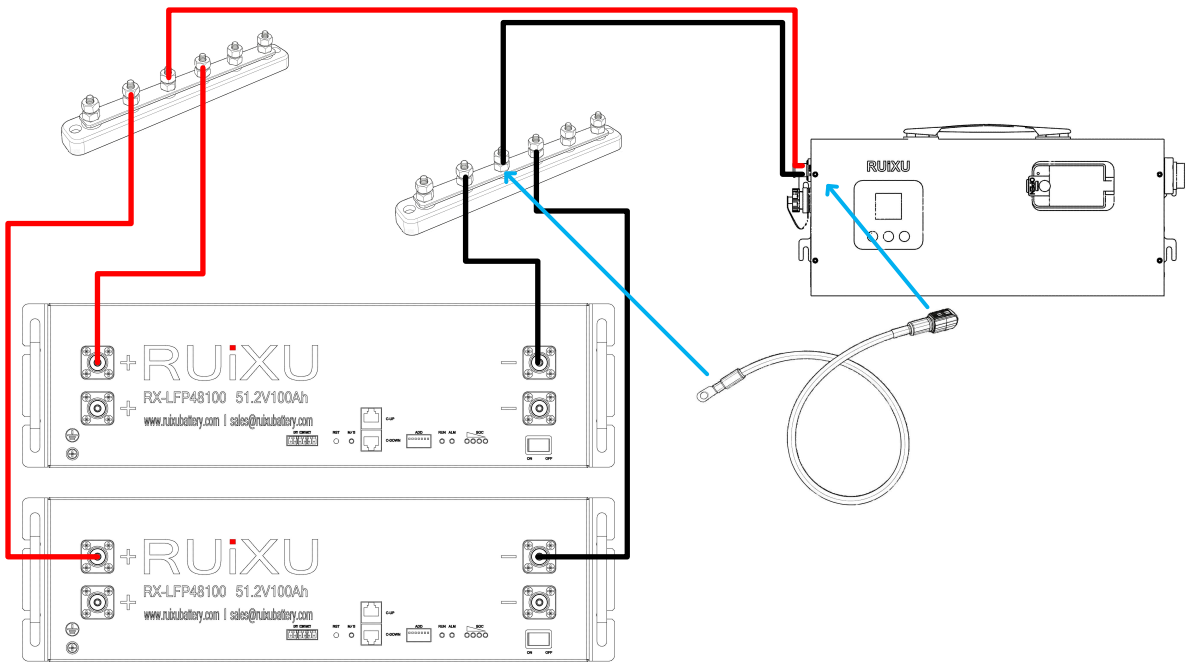
⚠ CAUTION

- Plug pinouts are provided for reference only. Please seek guidance from a qualified professional before making any modifications.

3.4.2 Connecting Batteries

Attach the ring terminal end of the battery cable to the battery terminal or busbar, then plug the quick-connect end into the matching female socket on the charger.

Wiring Diagram between the Charger and Battery:



⚠ CAUTION

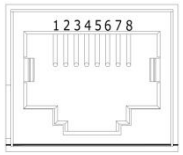
- Before wiring, ensure that the charger (with the DC circuit breaker set to "OFF") and the battery are both in the OFF state.
- Verify that the battery's charging voltage range falls within the charger's specified range.
- Do not reverse the positive and negative cables.

3.5 Communications

3.5.1 Battery Communication

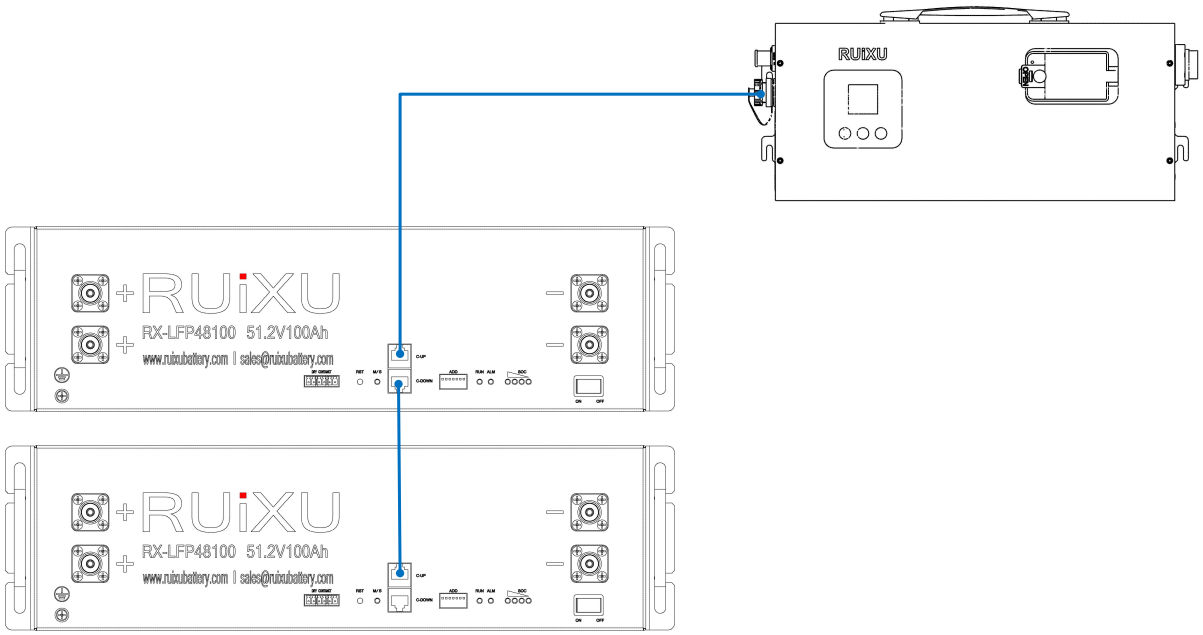
The charger communicates with the battery via CAN. It reads the requested charging current and the end-of-charge voltage directly from the BMS, and charges the battery in combination with the configured settings. Additionally, it can read the SOC value to start or stop generator charging based on preset limits.

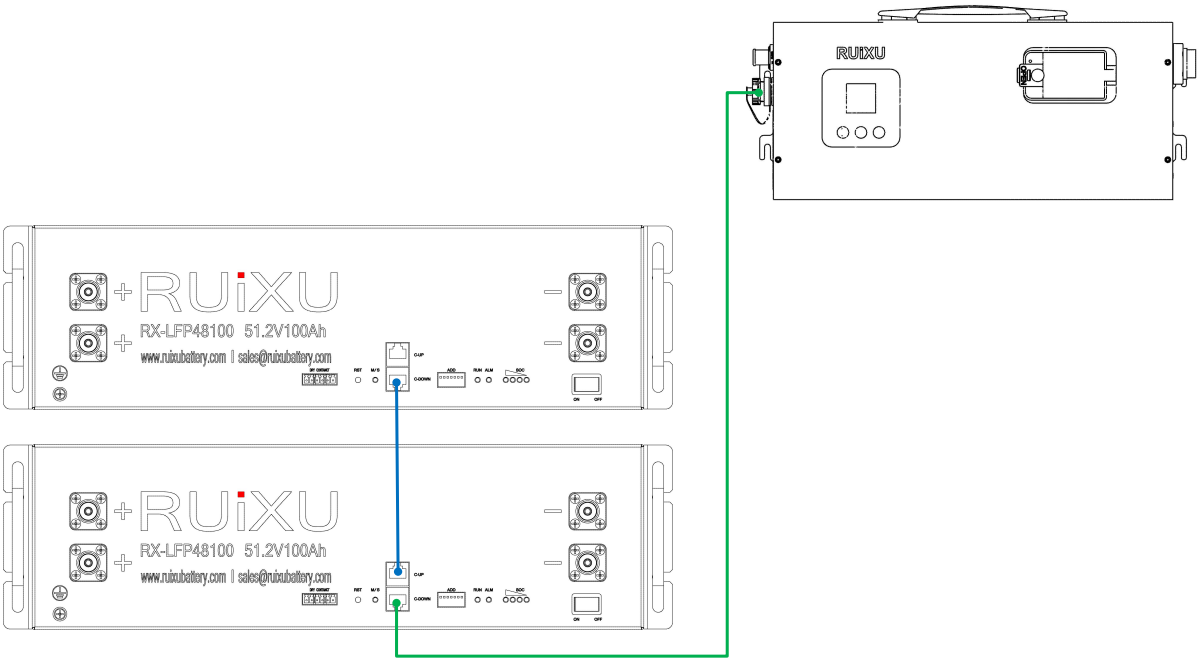
RJ45 Pinout Definition:



RJ45	PIN_1	PIN_2	PIN_3	PIN_4	PIN_5	PIN_6	PIN_7	PIN_8
Note				CAN_H	CAN_L			

The CAN connection uses a parallel topology, so both of the following connection methods are acceptable:



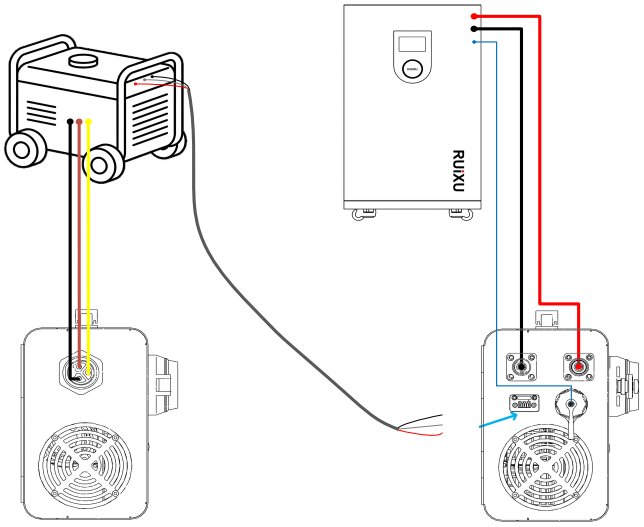


3.5.2 Dry Contact Description

Function	Working Principle	Operating Status	NOTE
C-NO-NC	Controls diesel generator ON/OFF	1. Normal: NC-C closed, NO-C open	NO-C resistive load rating: 125VAC/1A, 240VAC/1A, 30VDC/1A
		2. Battery voltage/SOC Below GEN-start threshold: Relay energized, NO-C closed, NC-C open.	

The charger itself is powered by the battery .The charger's dry contact interface is dedicated to generator control. This dry contact closes or opens based on the user-configured battery SOC (State of Charge) or voltage threshold, starting or stopping the generator accordingly.

The wiring diagram below shows the required interconnections:



4. Operation

4.1 Power ON/OFF

1. Ensure the battery cables are securely connected.

2. Plug the charger into a power outlet that meets the required voltage and current specifications.

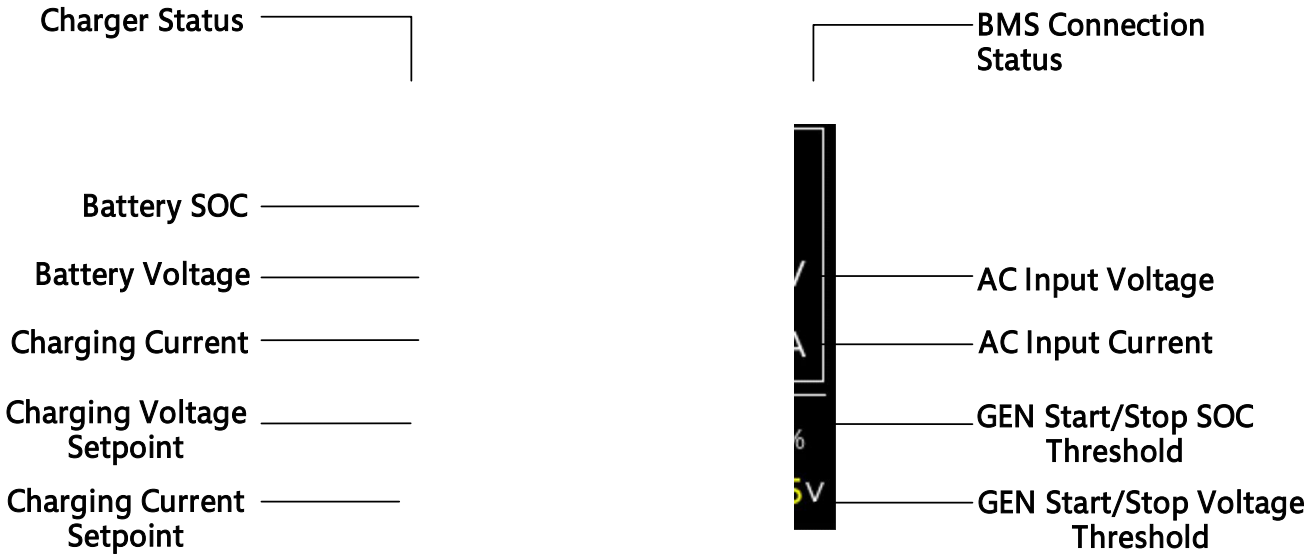
3. Enable the battery circuit breaker and/or battery switch.

4. Set the charging parameters.

5. Operate the charger circuit breaker on the front of the device, and switch it to the "ON" position.

4.2 LCD Display & Function Button

LCD Display:



Function Button Descriptions:

Function Button	Description
ENTER	Press this button to enter parameter setup mode. Press again to cycle through adjustable parameters. The selected parameter will flash, indicating it ' s ready to be modified. Any changes are automatically saved when you switch to the next parameter. The setup mode will exit automatically if no buttons are pressed for 3 seconds.
UP	Press this button to increase the value.
DOWN	Press this button to decrease the value.

4.3 Parameter Setup

Adjustable parameters

Parameter	Detail
Charging Voltage Setpoint	The charger charges at a constant current until reaching this voltage, then transitions to constant voltage
Charging Current Setpoint	The charger applies a constant current at this level until it reaches the charging voltage, then transitions to constant voltage.

GEN Start SOC Threshold	Active only when BMS is ON. If Battery SOC < Start SOC: GEN starts; dry contact NO-C closed, NC-C open.
GEN Stop SOC Threshold	Active only when BMS is ON. If Battery SOC > Stop SOC: GEN stops; dry contact NC-C closed, NO-C open.
GEN Start Voltage Threshold	Active only when BMS is OFF. If Battery Voltage < Start Voltage: GEN starts; dry contact NO-C closed, NC-C open.
GEN Stop Voltage Threshold	Active only when BMS is OFF. If Battery Voltage > Stop Voltage: GEN stops; dry contact NC-C closed, NO-C open.

NOTE:

When a closed-loop communication link is established between the charger and the battery (indicated by a "BMS ON" status), the BMS sends charging voltage and current requests to the charger. In this case, charging does not follow the preset charging voltage, but instead follows the voltage requested by the BMS. For the current, the charger compares its configured charging current setting with the current request from the BMS, and uses the lower of the two values as the actual charging current.

4. Appendix

5.1 Disposal & Recycling

This device should not be disposed of as household waste. A charger that has reached the end of its useful life must be recycled through an approved e-waste recycling facility. Recycling requirements vary by state—please check your local regulations for proper disposal options. For information on recycling locations,contact your local waste management authority.

5.2 Warranty

Check the product warranty conditions and terms on the RUiXU website: http://www.ruixubattery.com

5.3 Contact Support

ZHUHAI RUiXU ELECTRONIC TECHNOLOGY CO., LTD
Address: Factory Bldg. 1, No.6 Chuangye N. Rd, Hongqi Town,Jinwan District, Zhuhai, Guangdong, China, P.C. 519000
Web: https://dealer.ruixubattery.com/
Technical Support & Service:
Tel:+86 15019934220

E-mail:techsupport@ruixubattery.com

5.4 Trademarks

RUiXU is the trademark of ZHUHAI RUiXU ELECTRONIC TECHNOLOGY CO., LTD