

# LYCAN 5000 Power Box

## RPB4835OA-48LFPA12S

VERSION A1



#### Applicability

The User Manual applies to the following product:

• LYCAN 5000 Power Box (RPB4835OA-48LFPA12S)

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#### **Date and Revision**

March 2022, Revision A1

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## **Important Safety Information**

Symbols Used General Safety Information

The User Manual provides important installation, operation, and maintenance instructions for LYCAN 5000 Power Box. Please read the User Manual carefully before installation and operation and save it for future reference. Failure to observe the instructions or precautions in the User Manual can result in electrical shock, serious injury, or death, or can damage LYCAN, potentially rendering it inoperable. The installation and service of LYCAN might require knowledge of high voltage electricity and is recommended to be carried out by qualified personnel.

#### Symbols Used

The following symbols are used throughout the User Manual to highlight important information:

	Indicates a potentially dangerous condition which could result in injury or death.
	Indicates a critical procedure for safe and proper installation and operation.
1 NOTE	Indicates an important step or tip for optimal performance.
	Indicates that more information is available in other documents relating to the subject.

#### **General Safety Information**

## WARNING

- DO NOT puncture, drop, crush, penetrate, shake, strike, or step on LYCAN.
- DO NOT open, dismantle, repair, tamper with, or modify the components in LYCAN.
- DO NOT touch the connector contacts and electrical outlets on LYCAN.
- DO NOT insert foreign objects into LYCAN.
- Please remove all connections and turn LYCAN off before maintenance or cleaning.
- Please install LYCAN in accordance with the regulations at the site of installation.
- DO NOT expose LYCAN to direct flame.
- Please keep LYCAN away from heating equipment.
- Please adhere to the requirements of cable size, outlet rating, and device rating in the User Manual.
- DO NOT touch the exposed electrolyte or powder if the batteries inside LYCAN are damaged.
- DO NOT use LYCAN with life support equipment or other medical equipment.
- DO NOT connect the AC output of LYCAN to the grid.

## **Important Safety Information**

Symbols Used

**General Safety Information** 

- Please keep LYCAN out of the reach of young children.
- Please use insulated tools when working on or around LYCAN.
- DO NOT wear jewelry or other metal objects when working on or around LYCAN.
- Please wear proper protective equipment when working on or around LYCAN.
- DO NOT dispose of LYCAN as household waste. Please use recycling channels in accordance with local, state, and federal regulations.

### CAUTION

- Please use suitable handling equipment for safe transportation of LYCAN.
- DO NOT expose LYCAN to flammable or harsh chemicals or vapors.
- Ensure that no water sources are above or near LYCAN, including downspouts, sprinklers, or faucets.
- Ensure that snow does not accumulate around LYCAN.
- DO NOT lean on, stack anything on top of, or hang anything from LYCAN or from cables leading to LYCAN.

## Introduction

Introduction

**Key Features** 

#### Introduction

LYCAN 5000 Power Box is an all-in-one energy storage system specially designed to supply power during emergencies, power outages, or to provide power for off-grid homes. With a 4.8KWh capacity and a 3500W pure sine wave AC output, the LYCAN can deliver reliable power to most home appliances. It has a 4400W solar input capability and an intelligent maximum power point tracking (MPPT) algorithm, allowing maximized solar energy generation at any time of the day and full charge in as short as 2.5 hours. Fast AC charging, means that the LYCAN fully charges with AC power from a wall outlet or a generator in as short as 3 hours. Simultaneously connecting the LYCAN to both solar panels and AC outlets can further shorten the charging time to 1 hour from 0% to 80%. The pass-through function allows the LYCAN to bypass AC power to run home appliances while keeping its batteries topped off. Thanks to the pre-wired design and plug-n-play connectors, the LYCAN can be easily integrated into existing electric power systems, greatly reducing installation time and labor cost. The built-in circuit breakers protect the LYCAN from damage caused by unexpected system faults. Equipped with a Bluetooth module, the LYCAN provides access to real-time monitoring on the Renogy DC Home app. It can also be easily expanded to up to 19.2KWh with Renogy 48V 50Ah Smart Lithium Iron Phosphate Batteries, covering any applications from short term blackout protection to long term off-grid living. The LYCAN features a rain cap, rubber seals, and rugged enclosure, protecting against harsh outdoor environments. Built with easily-replaceable components, the LYCAN makes simple repair and maintenance possible.

#### **Key Features**

#### Massive Capacity

Delivers long lasting power to home appliances with the 4.8KWh battery capacity.

#### Reliable Battery

Brings incredible safety and an exceptional life span of more than 4,500 cycles with state-of-the-art lithium iron phosphate batteries.

#### Powerful Output

Runs most heavy-duty appliances with the 3500W pure sine wave AC output.

#### Record-Breaking Charging Speed

Full charge in 2.5 hours with solar panels, in 3 hours with AC outlets, and in 1.3 hours with both solar and AC.

#### • Pass-Through Charging

Bypasses AC power to home appliances while keeping the battery fully charged and ready for power outages.

#### • Born For Integration

Integrates to existing electric power systems easily with the pre-wired design and plug-n-play connectors.

## Introduction

Introduction

Key Features

#### Built-In Protection

Provides reliable protections and quick disconnect.

#### • Seamless Expansion

Expansion capability of up to 19.2KWh capacity.

#### • Bluetooth Embedded

Comes with Bluetooth module for real-time operation status monitoring via the Renogy DC Home App.

#### • Designed For Outdoor

Can withstand harsh outdoor environments with rain cap, rubber seals, and rugged enclosure.

#### • Excellent Serviceability

Makes repair and maintenance simple with replaceable components.

# Package Contents









# **Product Overview**



No.	Part	No.	Part	
1	Solar Inverter Charger Display (Including Indicators and Buttons)	8	Viewing Window	
2	Solar Input Circuit Breaker 1	9	Bluetooth Module	
3	Solar Input Circuit Breaker 2	10	AC Output Circuit Breaker (20A)	
4	Battery Circuit Breaker	11	AC Output Circuit Breaker (30A)	
5	Surge Protection Device	12	AC Input Circuit Breaker (20A)	
6	Front Door Locks	13	AC Outlet (30A)	
7	AC Inlet (20A)	14	AC Outlet (20A)	

# **Product Overview**



No.	Part	No.	Part
15	Solar Connector 1	20	Grounding Hole
16	Solar Connector 2	21 Gray Anderson 120 Connector (Including Dust Cover)	
17	Handle Bar (Pre-Installed)	22 RJ45 Jack (Including Waterproof Housing)	
18	Back Door Locks	23	Vent Cover
19	Handle Bar (Installation Required)	24	Swivel Casters

# Wiring Diagram



Preparation

Installation

#### Preparation



1. Inspect LYCAN for any visible damages including cracks, dents, deformation, and other visible abnormalities before installation. The connector contacts and electrical outlets shall be dry, clean, and free of any dirt and corrosion.



#### WARNING

DO NOT use LYCAN if it appears damaged.



2. Find the Keys zip tied to the Handle Bar.



3. Open the Back Door Locks with the included Keys and rotate the wing knobs counterclockwise by 90° to open the back door.

Preparation

Installation



4. Inspect the batteries inside LYCAN for any visible damages including cracks, dents, deformation, and other visible abnormalities before installation.

## 

- DO NOT use LYCAN if the batteries inside appear damaged.
- Please close the back door, rotate the wing knobs clockwise by 90°, and lock the Back Door Lock after inspecting the batteries inside LYCAN.

#### Installation

#### **Required Tools and Accessories**

Phillips Screwdriver (#2)	Wrench (10mm)	Wrench (12mm)	Grounding Cable
	10mm	12mm	



1. Find the Handle Bar and the Handle Bar Screws under LYCAN.

Preparation

Installation



2. Install the Handle Bar on the left side of LYCAN with the Handle Bar Screws. Make sure that the Screws are firmly tightened with the Philips Screwdriver.



 Loosen the screws to remove the fixing brackets from LYCAN. Keep the upper screws properly for subsequent grounding cable connection.



4. Lift LYCAN from the skid with two people.

### WARNING

- Lycan is heavy and can cause injury if not handled properly.
- Please ensure that the Handle Bar is installed firmly on LYCAN before lifting.

Preparation

Installation



5. Release the Pedal Brakes on Swivel Casters. Move LYCAN to a proper installation location.



If transporting the Swivel Casters over wet surfaces, ensure water is not deeper than 2 inches (50.8mm).



6. Engage the Pedal Brakes on Swivel Casters to prevent LYCAN from moving.



 Connect the ring terminal of a grounding cable (not included) to the grounding hole of LYCAN with the screws removed from the fixing bracket.

Preparatio

Installation



8. Connect the bare wire end of the grounding cable to a grounding rod (not included).

### CAUTION

- Please secure the grounding cable connections to the proper specification.
- Please use 4AWG or larger grounding cable.

### **Environment Requirements**

LYCAN shall be installed at ground level on a flat surface. Ensure that the installation environment Is clean, cool, ventilated, and away from oil, dirt, and direct sunlight. Allow at least 1 foot (0.3 m) of space behind the Vent Cover for efficient heat dissipation. Safe operation requires ambient temperatures between 14°F (-10°C) and 122°F (50°C).

## 

- Operating LYCAN at temperatures outside its specified range might cause irreversible damage to LYCAN.
- If LYCAN is installed in a garage, please keep it out of the driving path.



#### NOTE

 The maximum input/output power might decline if LYCAN operates at high temperatures above 104°F (40°C).

# **Turning On**

LYCAN is off when it leaves the factory. Turn LYCAN on before charging it or using it to power appliances.



1. Open the Front Door Locks with the included Keys and rotate the wing knobs counterclockwise by 90° to open the front door.



2. Push the switch up to close the Battery Circuit Breaker.



3. Rock the switch on the bottom of the solar inverter charger to the ON position (I) to turn on the solar inverter charger.



4. Open the Back Door Locks with the included Keys and rotate the wing knobs counterclockwise by 90° to open the back door.

# **Turning On**



 5. Press and hold the power button on the top of either of the batteries for 1 second to turn on the batteries.

6. The indicators on the top of the batteries flash green. The POWER indicator of the Bluetooth module lights up green. The buzzer of the solar inverter charger beeps briefly, and the Solar Inverter Charger Display turns on.

## 

 Please close the front door and back door, rotate the wing knobs clockwise by 90°, and lock the Front Door Lock and Back Door Lock after turning LYCAN on.

## Charging AC Charging Solar Charging

LYCAN supports both AC charging and solar charging, which can be combined for a faster charging speed.

### AC Charging



 Connect LYCAN to a wall outlet or a generator (not included) with the included Power Cable.

## CAUTION

- The wall outlet or the outlet on the generator MUST be rated at 20A.
- If the 20A outlet is not available, please plug the Power Cable to a 15A outlet with a NEMA 5-20R to NEMA 5-15P plug adapter (not included) and adjust the maximum AC input current of the solar inverter charger to 15A. Refer to the Parameter Settings section for more information.



2. Loosen the captive screws to open the Viewing Window.

3. Push the switch up to close the AC Input Circuit Breaker.



# Charging

AC Charging

Solar Charging



4. The Solar Inverter Charger Display shows that the battery is being charged by AC, and the Solar Inverter Charger CHARGE Indicator flashes green.

## I NOTE

Please close the Viewing Window and tighten the captive screws after LYCAN starts charging.



 Connect the solar panels (sold separately) in series and/or parallel to form solar arrays. Connect the solar arrays to the Solar Connectors of LYCAN. LYCAN can accept up to 2 solar arrays.

## WARNING

- Each solar string needs to be protected with an appropriately sized fuse or circuit breaker.
- Please install the solar panels in accordance with the regulations at the site of installation. Additional protection devices including DC ground fault circuit interrupters, DC arc fault circuit interrupters, and rapid shutdown devices (not included) may be required.

## CAUTION

- The operating voltage of the solar array shall exceed 60VDC, the open circuit voltage shall NOT exceed 150VDC, and the short circuit current shall NOT exceed 20A.
- Please make sure that the 2 solar arrays have the same operating voltage and are not partially shaded. Operating voltage mismatches or partial shading can cause current backflow and damage solar arrays.

## Charging AC Charging Solar Charging

 The solar branch connectors, solar branch adapter cables, or combiner boxes (not included) might be required to connect multiple solar strings in parallel.



2. Loosen the captive screws to open the Viewing Window.

Solar Input Circuit Breaker 1



3. Push the switch up to close the corresponding Solar Input Circuit Breaker.



4. The Solar Inverter Charger Display shows that the battery is being charged by solar, and the Solar Inverter Charger CHARGE Indicator flashes green.

## ) NOTE

Please close the Viewing Window and tighten the captive screws after LYCAN starts charging.

LYCAN can power appliances at temporary sites, in permanent off-grid homes, and during emergencies with Power Strips, AC Load Centers, and Transfer Switches respectively. Please refer to the corresponding instructions based on actual applications.

## CAUTION

Please fully charge LYCAN prior to first use.

#### **Temporary Power Supply**

#### **Recommended Accessories**



### CAUTION

- If the appliances are powered by LYCAN through the 20A AC Outlet, the continuous loads shall not exceed 16A, and the noncontinuous loads shall not exceed 20A.
- If the appliances are powered by LYCAN through the 30A AC Outlet, the continuous loads shall not exceed 24A, and the noncontinuous loads shall not exceed 30A.
- If the appliances are powered by bypass AC from a 20A outlet, the continuous loads shall not exceed 16A, and the noncontinuous loads shall not exceed 20A, no matter which AC outlet on LYCAN is used.
- If the appliances are powered by bypass AC from a 15A outlet, the continuous loads shall not exceed 12A, and the noncontinuous loads shall not exceed 15A, no matter which AC outlet on LYCAN is used.

Temporary Power Supply

Off-Grid Living

Emergency Backup



2. Loosen the captive screws to open the Viewing Window.

3. Push the switch up to close the corresponding AC Output Circuit Breaker.



30A AC Output Circuit Breaker



Temporary Power Supply

Off-Grid Living

Emergency Backup



 The Solar Inverter Charger AC/INV Indicator lights up yellow when the appliances are powered by bypass AC.
The Solar Inverter Charger AC/INV Indicator flashes yellow when the appliances are powered by LYCAN.



 Please close the Viewing Window and tighten the captive screws after LYCAN starts powering appliances.

#### **Off-Grid Living**

#### **Recommended Accessories**





#### WARNING

- For a safe and reliable installation, it is recommended that the installation be carried out by a trained and licensed electrician.
- Please read the user manual of the AC Load Center carefully before installation.

**Temporary Power Supply** 

Off-Grid Living

Emergency Backup



 Remove the cover of the AC Load Center (not included). Connect the 2 live terminals with a copper busbar (not included).

- 2. Connect the bare wire end of the Actincluded) to the AC Load Center. The to either of the live terminals (L), the goes to the neutral busbar (N), and goes to the grounding busbar (PE).
- Connect the bare wire end of the Adapter Cable (not included) to the AC Load Center. The black live wire goes to either of the live terminals (L), the white neutral wire goes to the neutral busbar (N), and the green ground wire

 Size AC Circuit Breakers (not included) based on the current ratings and types of the appliances. Install the AC circuit Breakers in the AC Load Center. Connect the appliances to the AC Load Center. The black live wires go to AC Circuit Breakers, the white neutral wires go to the neutral busbar (N), and the green ground wires go to the grounding busbar (PE).



Temporary Power Supply

Emergency Backup



• The AC Circuit Breakers and the appliances MUST be rated at 120VAC.

**Off-Grid Living** 

- If the appliances are powered by LYCAN, the continuous loads shall not exceed 24A, and the noncontinuous loads shall not exceed 30A.
- If the appliances are powered by bypass AC from a 20A outlet, the continuous loads shall not exceed 16A, and the noncontinuous loads shall not exceed 20A.
- If the appliances are powered by bypass AC from a 15A outlet, the continuous loads shall not exceed 12A, and the noncontinuous loads shall not exceed 15A.



 Connect the plug end of the Adapter Cable to the 30A AC Outlet of LYCAN.

- 5. Replace the cover to the AC Load Center. Push the switches toward the center of the AC Load Center to close all the AC Circuit Breakers.



6. Loosen the captive screws to open the Viewing Window.

Temporary Power Supply

Off-Grid Living

Emergency Backup

AC OUTPUT 20A AC OUTPUT 30A AC INPUT

AC/INV CHARGE FAULT

AC/INV CHARGE FAULT

UP

UP

DOMN

OUTPUT

12.0 \*

()

ENT

DOWN

ENT

Powered by Bypass AC

SET

Powered by LYCAN

ℙ⊻ ¦|||||V

INPUT

SET

7. Push the switch up to close the 30A AC Output Circuit Breaker.

8. The Solar Inverter Charger AC/INV Indicator lights up yellow when the appliances are powered by bypass AC. The Solar Inverter Charger AC/INV Indicator flashes yellow when the appliances are powered by LYCAN.

- NOTE
- Please close the Viewing Window and tighten the captive screws after LYCAN starts powering appliances.

Temporary Power Supply

Off-Grid Living

Emergency Backup

#### **Emergency Backup**

#### **Recommended Accessories**



### WARNING

- For a safe and reliable installation, it is recommended that the installation be carried out by a trained and licensed electrician.
- Please read the user manual of the Transfer Switch carefully before installation.



1. Push the switches toward the sides of the AC load center to open all the AC circuit breakers. Remove the cover of the AC load center.



 Connect the bare wires from the Transfer Switch (sold separately) to the AC load center. The white neutral wire goes to the neutral busbar (N), and the green ground wire goes to the grounding busbar (PE).

Temporary Power Supply

**Off-Grid Living** 

Emergency Backup



3. Determine the 120VAC circuits that need to be used during an emergency. Disconnect the black live wires from the corresponding AC branch circuit breakers.



4. Find the red and black wires from the Transfer Switch that are marked C, D, E, and F. Connect the red wires to the selected AC branch circuit breakers. Insert the black wires marked the same letter and the black live wires disconnected from the AC branch circuit breakers into wire connectors (not included). Twist the wire connectors tightly.

### CAUTION

- ONLY connect the Transfer Switch to 120VAC circuits in the AC load center.
- The current ratings of the AC circuit breakers in the Transfer Switch shall not exceed the current ratings of the corresponding AC branch circuit breakers in the AC load center.
- With a pre-installed double-pole AC branch circuit breaker, the circuits A and B of the Transfer Switch shall not be connected to the 120VAC circuits of the AC load center. If more 120VAC circuits are needed during an emergency, please replace the double-pole AC branch circuit breaker on the circuits A and B with 2 single-pole AC branch circuit breakers and remove the handle tie from the corresponding circuit selector switches. Refer to the user manual of the Transfer Switch for more instructions.
- The continuous loads shall not exceed 24A, and the noncontinuous loads shall not exceed 30A.

Temporary Power Supply

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5. Remove the cover and the power inlet filler plate of the Transfer Switch.

6. Connect the green ground wire (included in the Transfer Switch) to the grounding terminal of the Transfer Switch.

- 7. Replace the cover to the Transfer Switch. Run the bare wires inside the Transfer Switch through the power inlet mounting hole. Connect the bare wires to the power inlet (included in the Transfer Switch). The green ground wire goes to the G terminal, the white neutral wire goes to the W terminal, the black and red live wires go to the X and Y terminals. Tighten the terminal screws on the side of the power inlet.
- 8. Mount the power inlet onto the Transfer Switch.



Temporary Power Supply

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Emergency Backup





- 9. Replace the cover to the AC load center. Push the switches up to close all the AC circuit breakers in the Transfer Switch. Push the switches toward the center of the AC load center to close all the AC circuit breakers in the AC load center.
- 10. Connect the 30A AC Outlet of LYCAN to the power inlet of the Transfer Switch with the Adapter Cable (sold separately).



11. Twist the receptacle end of the Adapter Cable clockwise to lock it into place.

- LYCAN CONTRACTOR
- 12. Loosen the captive screws to open the Viewing Window.

Temporary Power Supply



13. Push the switch up to close the 30A AC Output Circuit Breaker.

**Emergency Backup** 

14. Move all the circuit selector switches on the Transfer Switch to the LINE position.

- 15. During an emergency, determine the circuits to be powered by LYCAN, and move the corresponding circuit selector switches on the Transfer Switch to the GEN position.



16. The Solar Inverter Charger Display shows that the appliances are powered by LYCAN, and the Solar Inverter Charger AC/INV Indicator flashes yellow.

Temporary Power Supply

Emergency Backup



## NOTE

- The Manual Transfer Switch requires the selected circuits to be manually switched from grid to LYCAN during an emergency. If LYCAN is to be operated as an uninterruptible power supply (UPS), please use an automatic transfer switch instead.
- Please leave LYCAN plugged into a wall outlet at all times to keep it topped off and ready to power appliances during an emergency.
- Please close the Viewing Window and tighten the captive screws after LYCAN starts powering appliances.

## **Bluetooth Pairing**



## NOTE

 Please scan the QR code on the last page of the User Manual to download the DC Home app.



1. Open the Back Door Locks with the included Keys and rotate the wing knobs counterclockwise by 90° to open the back door.



2. Locate the communication hub.



3. Unplug either of the Ethernet cables connected to the secondary communication ports of the communication hub.

## **Bluetooth Pairing**



4. Open the DC Home app, Click "+" to search for new devices. Wait for a few minutes until a new device is found. Click "Confirm" to add the newly found device to the device list.

5. Plug the Ethernet cable back into the secondary communication port of the communication hub. Unplug the other Ethernet cable.





6. Open the DC Home app, Click "+" to search for new devices. Wait for a few minutes until a new device is found. Click "Confirm" to add the newly found device to the device list.

7. Plug the Ethernet cable back into the secondary communication port of the communication hub.


# **Bluetooth Pairing**



8. Swipe down to refresh the device list.

9. The LINK indicator of the Bluetooth Module flashes blue.



Checking Solar Inverter Charger Operation Status

**Checking Battery Operation Status** 

#### Checking Solar Inverter Charger Operation Status

#### Operations



1. Loosen the captive screws to open the Viewing Window.

- AC/INV CHARGE FAULT
- 2. The Solar Inverter Charger Display and Indicators indicate the operation status of the solar inverter charger.



3. Press the Solar Inverter Charger UP and DOWN Buttons to turn the page and view detailed operation information.

Checking Solar Inverter Charger Operation Status

**Checking Battery Operation Status** 

## **Display Symbols**

Symbol	Description		
	Indicates that the solar inverter charger is connected to the AC Outlet		
	Indicates that the solar inverter charger is in the wide voltage AC input mode		
	Indicates that the solar inverter charger is connected to the solar arrays		
	Indicates the battery level of LYCAN		
	<b>Li</b> 0%-24%		
	<b>25%-49%</b>		
	<b>Li</b> 50%-74%		
	75%-100%		
CHARGING	Indicates that LYCAN is being charged		
	Indicates that the charger circuit of the solar inverter charger is active		
	Indicates that the inverter circuit of the solar inverter charger is active		
<u></u>	Indicates that the solar inverter charger is supplying AC voltage		

Checking Solar Inverter Charger Operation Status

**Checking Battery Operation Status** 

Symbol	Description		
	Indicates the load level of LYCAN		
	0%-24%		
100%	25% 25%-49%		
25%	50%-74%		
6	100% 75%-100% 25%		
OVER LOAD	Indicates that solar inverter charger is overloaded		
BYPASS	Indicates that the loads are powered by bypass AC		
	Indicates that the buzzer of the solar inverter charger is disabled		
<u>_</u>	Indicates that the solar inverter charger is in warning mode		
ERROR	Indicates that the solar inverter charger is in fault mode		
	Indicates that the solar inverter charger is in parameter setting mode		
90	Indicates the error code when the solar inverter charger is not in parameter setting mode		
	Indicates the currently set parameter number when the solar inverter charger is in parameter setting mode		
ECO	Indicates that the solar inverter charger is in power saving mode		
AC	Indicates the AC charger circuit		

Checking Solar Inverter Charger Operation Status

**Checking Battery Operation Status** 

Symbol	Description
PV	Indicates the solar charger circuit
	Indicates the inverter circuit
	Indicates the battery voltage, battery charge current, battery charge power, solar charger temperature, solar input voltage, AC input frequency, AC input voltage, AC input current, AC charger/ inverter temperature, input bus voltage, application version, model battery voltage rating, and model solar input voltage rating
OUTPUTBATTLOAD	Indicates the battery discharge current, battery discharge power, solar output current, solar output power, AC input apparent power, AC output voltage, AC output frequency, AC output current, AC output power, AC output apparent power, bootloader version, model AC output power rating, model solar output current rating

## **Display Menu**

Display	/ Menu		
Page	Left Information	Middle Information	Right Information
1	Battery Voltage		AC Output Voltage
2	Solar Charger Temperature		Solar Output Power
3	Solar Input Voltage		Solar Output Current
4	Battery Charge Current		Battery Discharge Current
5	Battery Charge Power		Battery Discharge Power
6	AC Input Frequency		AC Output Frequency
7	AC Input Voltage	-	AC Output Current
8	AC Input Current	Error Code	AC Input Apparent Power
9	Input Bus Voltage		AC Output Apparent Power
10	AC Charger/Inverter Temperature		AC Output Power
11	Application Version		Bootloader Version
12	Model Battery Voltage		Model AC Output Power Rating
13	Model Solar Input Voltage Rating		Model Solar Output Current Rating

Checking Solar Inverter Charger Operation Status

**Checking Battery Operation Status** 

## Error Code

Error Code	Error Name	
1	Battery Undervoltage Warning	
2	Battery Overcurrent Software Protection	
3	Battery Not Detected Warning	
4	Battery Undervoltage Protection	
5	Battery Overcurrent Hardware Protection	
6	Battery Overvoltage Protection	
7	Battery Boost Circuit Overvoltage Hardware Protection	
8	Battery Boost Circuit Overvoltage Software Protection	
9	Solar Input Overvoltage Protection	
10	Solar Buck Circuit Overcurrent Software Protection	
11	Solar Buck Circuit Overcurrent Hardware Protection	
12	Grid Power Loss Warning	
13	Bypass Overload Protection	
14	Inverter Overload Protection	
15	Inverter Overcurrent Hardware Protection	
17	Inverter Short Circuit Protection	
18	Bypass Overcurrent Software Protection	
19	Solar Buck Circuit High Temperature Protection	
20	Inverter High Temperature Protection	
21	Fan Failure	
22	EEPROM Failure	
23	Model Setting Error	
26	Bypass Short Circuit Protection	
29	Battery Boost Circuit Failure	

Checking Solar Inverter Charger Operation Status

**Checking Battery Operation Status** 

#### **Indicator Description**

Indicator	Color	Pattern	Description	
AC/INV	Yellow	Solid	Indicates that the loads are powered by bypass AC	
AC/INV	reliow	Flash	Indicates that the loads are powered by LYCAN or solar	
CHARGE	Green	Flash	lash Indicates that LYCAN is being charged	
FAULT	Red	Solid/Flash	Solid/Flash Indicates that the solar inverter charger is in warning/ fault mode	



#### NOTE

• Please close the Viewing Window and tighten the captive screws after checking the operation status of the solar inverter charger.



• LYCAN might not be operating properly and needs troubleshooting if the Solar Inverter Charger Display does not turn on, or the Solar Inverter Charger FAULT Indicator lights up/ flashes red. Please refer to the user manual of the solar inverter charger at renogy.com for troubleshooting instructions.

#### **Checking Battery Operation Status**

#### **Operations**



1. Open the Back Door Locks with the included Keys and rotate the wing knobs counterclockwise by 90° to open the back door.



2. The indicators on the top of the batteries indicate the operation status of the batteries.

Checking Solar Inverter Charger Operation Status

**Checking Battery Operation Status** 

#### **Indicator Description**

Color	Pattern	Description
	Slow Flash	Indicates that the battery is idle
Green	Fast Flash	Indicates that the battery is discharging
	Solid	Indicates that the battery is being charged or fully charged
Yellow	Flash	Indicates that the battery is in warning mode due to battery undervoltage or battery cell undervoltage
renow	Solid	Indicates that the battery is in warning mode due to charge overcurrent or discharge overcurrent
	Flash	Indicates that the battery is in protection mode due to battery undervoltage, battery cell undervoltage, or battery overvoltage
Red	Solid	Indicates that the battery is in protection mode due to charge overcurrent, discharge overcurrent, high temperature, low temperature, or short circuit

## WARNING

 Please close the back door, rotate the wing knobs clockwise by 90°, and lock the Back Door Lock after checking the operation status of the batteries.

## 

• LYCAN might not be operating properly and needs troubleshooting if the indicators of the batteries do not light up or light up/flash red. Please refer to the user manual of the battery at renogy.com for troubleshooting instructions.

Operations

Setting Menu

The solar inverter charger is preset to operate with the batteries. While no additional programming is required, some parameters can be modified for specific applications.

### Operations



1. Loosen the captive screws to open the Viewing Window.

- AC/INV CHARGE FAULT
- 2. Press the Solar Inverter Charger SET Button to enter the parameter setting mode.

- AC/INV CHARGE FAULT
- 3. Press the Solar Inverter Charger UP and DOWN Buttons to select the parameters.

Operations

Setting Menu



39

AC/INV CHARGE FAULT

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(11)

UP

SET

15 ^

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DOWN

ENT

4. Press the Solar Inverter Charger ENT Button to confirm the selection.

5. Press the Solar Inverter Charger UP and DOWN Buttons to set the parameter.



6. Press the Solar Inverter Charger ENT Button to confirm the setting.

7. Press the Solar Inverter Charger SET Button to exit the parameter setting mode.



Operations

Setting Menu

Setting Menu			
Parameter Code	Parameter Name	Default Setting	Setting Range
00	Exit	ESC	ESC
01	Load Operating Mode	Utl	SOL/Utl/SBU
02	AC Output Frequency	60Hz	Modification Not Allowed
03	AC Input Voltage Range	UPS	Modification Not Allowed
04	Battery to Utility Setpoint	45.2V	42V-47.6V
05	Utility to Battery Setpoint	54.8V	48V-54.8V
06	Battery Charging Mode	SnU	Cso/Cub/SnU/oSo
07	Maximum Charging Current	100A	0A-100A
08	Battery Type	L15	Modification Not Allowed
09	Boost Charge Voltage	54V	Modification Not Allowed
12	Battery Undervoltage Load Disconnect	44.8V	Modification Not Allowed
13	Battery Undervoltage Load Disconnect Delay Time	30	Modification Not Allowed
14	Battery Undervoltage Alarm	45.6V	Modification Not Allowed
15	Battery Discharge Limit	42.8V	Modification Not Allowed
22	Power Saving Mode	dIS	Dis/EnA
23	Overload Auto Restart	EnA	Dis/EnA
24	Overtemperature Auto Restart	EnA	Dis/EnA
25	Buzzer Alarm	EnA	Dis/EnA
26	Input Source Change Alarm	EnA	Dis/EnA
27	Overload Bypass	EnA	Dis/EnA
28	Maximum AC Charging Current	40A	0A-40A
29	Split Phase	dIS	Modification Not Allowed
35	Battery Undervoltage Disconnect Recover	50.4V	Modification Not Allowed
36	Maximum Solar Charging Current	80A	0A-80A

Operations

Setting Menu

Parameter Code	Parameter Name	Default Setting	Setting Range
37	Battery Boost Return Setpoint	50.8V	Modification Not Allowed
-38	AC Output Voltage	120V	Modification Not Allowed
39	Maximum AC Input Current	20A	5A-20A

## CAUTION

 Modifying the parameters outside the specified range can lead to irreversible damage to LYCAN and voids the warranty.

## 

• Please refer to the user manual of the solar inverter charger for detailed explanation of the parameters.

# **Turning Off**

If LYCAN is not going to be used for a long time, and neither solar nor AC power are available to keep LYCAN topped off, turn LYCAN off to prevent it from overdischarging.



1. Disconnect all the cables from LYCAN.



2. Open the Front Door Locks with the included Keys and rotate the wing knobs counterclockwise by 90° to open the front door.



 Rock the switch on the bottom of the solar inverter charger to the OFF position (O) to turn off the solar inverter charger. The Solar Inverter Charger Display turns off, and the Solar Inverter Charger Indicator goes out after a short delay.



4. Push the switches down to open all the circuit breakers.

# Turning Off



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35~55

5. Open the Back Door Locks with the included Keys and rotate the wing knobs counterclockwise by 90° to open the back door.

6. Press and hold the power button on the top of the upper battery for 3-5 seconds to turn off the batteries.

7. The indicators of the battery and the Bluetooth module go out.



- Please close the front door and back door, rotate the wing knobs clockwise by 90°, and lock the Front Door Lock and Back Door Lock after turning LYCAN off.

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# **Capacity Expansion**

If necessary, additional batteries can be connected to the Anderson Connector of LYCAN for capacity expansion.

#### **Required Accessories**



## CAUTION

- ONLY connect Renogy 48V 50Ah Smart Lithium Iron Phosphate Batteries to LYCAN for capacity expansion. Connecting other brands or models of batteries to LYCAN can damage LYCAN and/or the Batteries.
- Please read the user manual of 48V 50Ah Smart Lithium Iron Phosphate Battery on renogy.com carefully before connecting additional Batteries to LYCAN.
- DO NOT connect more than 6 Batteries to LYCAN.
- DO NOT short the terminals the Batteries. Short Circuit can damage the Batteries.
- The Anderson Connectors are color coded. DO NOT mate the Anderson Connectors with different colors together.



1. Connect the Batteries (sold separately) in parallel with the Battery Cables (sold separately).

# **Capacity Expansion**



## CAUTION

- Please use 4AWG or larger Battery Cables.
- Please ensure equal length of the Battery Cables to make the batteries operate equally together.



 Connect the UP communication ports of the latter Batteries to the LINK communication ports of the former one with the Ethernet Cables (not included).

## CAUTION

Please use CAT5 or above Ethernet Cables.



3. Remove the Dust Cover of the Anderson Connector.

- 4. Contraction and of the LYC. Cable
- 4. Connect the positive and negative terminals of the first Battery to LYCAN with the Adapter Cable (not included).

# **Capacity Expansion**



## CAUTION

- Please verify the polarity before the connection. Reversed polarity can damage LYCAN and/or the Batteries.
- Please use 4AWG or larger Adapter Cable.



 Install the included RJ45 Plug Waterproof Housing on one end of the Ethernet Cable.

## CAUTION

• Please use CAT5 or above Ethernet Cables.



 Connect the UP communication port of the first Battery to the RJ45 Jack of LYCAN with the Ethernet Cable.

7. Screw the RJ45 Plug Waterproof Housing into the Waterproof Housing of the RJ45 Jack.



- NOTE
- Please repeat the Bluetooth Pairing procedures to pair the newly connected Batteries with the DC Home app.

# **Temperature Conditioning**

**Cooling Fan** 

**Built-In Heater** 

The fans are located at the bottom of LYCAN. They start operating when the temperature of the air vent rises above  $131^{\circ}F$  (55°C) and stop operating when the temperature of the air vent drops below  $113^{\circ}F$  (45°C).

The thermostat is located next to the fan and displays the temperature of the air vent.

## 

- The parameters of thermostat have been preset. No additional parameter setting is required.
- DO NOT modify the parameters of thermostat. Modifying the parameters can lead to irreversible damage to LYCAN and voids the warranty.

**Cooling Fan** 

## **Built-In Heater**

The batteries are equipped with built-in heaters. The built-in heaters start operating when the battery temperature drops below  $5^{\circ}C$  ( $41^{\circ}F$ ) and the charge current is greater than 6A. The built-in heater stops operating when the battery temperature rises above  $10^{\circ}C$  ( $50^{\circ}F$ ) or the charge current is less than 6A.

Maintenance

Inspection

Cleaning Storage

#### Inspection

Please perform regular inspections following the steps below.

- Examine the external appearance of LYCAN. The enclosure and connector contacts of LYCAN shall be clean, dry, and free of corrosion.
- Check the external cables and connections. Replace any damaged cables and tighten any loose connections.



## NOTE

 In some applications, corrosion can form around the contacts internal to the Anderson Connector. The corrosion can cause loosening of spring retention force and increase of mated contact resistance, leading to premature failure of the connection. Please apply dielectric grease onto each connector contact at regular intervals. Dielectric grease can repel moisture and protect the connector contact against corrosion.

#### Cleaning

Please clean LYCAN at regular intervals following the steps below.

- Disconnect all the cables from LYCAN.
- Turn LYCAN off.
- Clear the leaves, debris, and dust from the fans of LYCAN.
- Clean the enclosure and connector contacts of LYCAN with a soft, lint-free cloth. The cloth can be dampened with water or mild soap and water if LYCAN is extremely dirty.
- Dry LYCAN with a soft, lint-free cloth.
- Keep the area around LYCAN clean.
- Turn LYCAN back on.
- Reconnect the cables to LYCAN.

#### Storage

Please follow the tips below to ensure that LYCAN emerges from storage in a good condition.

- Charge LYCAN to 30%-50% and turn it off before storage.
- Ensure that the front door and back door are locked, and the Viewing Window is closed.
- Store the battery in an open, well ventilated, dry, clean area with temperatures between 32°F~104°F (0°C~40°C).
- Engage the Pedal Brakes on Swivel Casters to prevent LYCAN from moving.
- Handle LYCAN carefully to avoid sharp impacts or extreme pressure on the enclosure.
- Charge LYCAN at least once every 3 months to prevent it from overdischarging.
- Fully charge LYCAN when it is taken out of storage.
- Keep the Keys properly.

# Maintenance

Inspection

Cleaning Storage

## 

- DO NOT expose LYCAN to extreme temperatures above 140°F (60°C).
- DO NOT expose LYCAN to heat sources or direct sunlight.

## I NOTE

• If the Keys are lost, please contact us for help.

Fire Flooding Usual Smell Usual Noise

In the event of any threat to health or safety, always begin with the steps below before addressing other suggestions.

- Immediately contact the fire department or other relevant emergency response team.
- Notify all people who might be affected and ensure that they can evacuate the area.

### WARNING

• ONLY perform the suggested actions below if it is safe to do so.

#### Fire

- 1. Disconnect all the cables from LYCAN.
- 2. Turn LYCAN off.
- 3. Put out the fire with a fire extinguisher. Acceptable fire extinguishers include water,  $CO_2$ , and ABC.

## WARNING

• DO NOT use type D (flammable metal) fire extinguishers.

#### Flooding

- 1. Stay out of the water if any part of LYCAN, transfer switch, AC load center, or cable is submerged.
- 2. Disconnect all the cables from LYCAN.
- 3. Turn LYCAN off.
- 4. If possible, protect LYCAN by finding and stopping the source of the water and pumping water away.

#### **Usual Smell**

- 1. Disconnect all the cables from LYCAN.
- 2. Turn LYCAN off.
- 3. Ensure that nothing is in contact with LYCAN.
- 4. Ventilate the room.

#### **Usual Noise**

- 1. Disconnect all the cables from LYCAN.
- 2. Turn LYCAN off.
- 3. Ensure that nothing is in the vent or in the fans.

# **Technical Support**

For additional support, contact the Renogy technical support team through renogy.com/ contact-us. Have the following information available when contacting Renogy.

- Owner name
- Contact information
- Order number
- Purchase channel
- Serial number
- Brief description of the issue

# **Technical Specifications**

	General
Dimension	32.9 x 20.0 x 28.5 inch / 835 x 508 x 724 mm
Weight	264.6 lbs. / 120 kg
Operating Temperature Range	14°F~122°F / -10°C~50°C
Operating Relative Humidity Range	5%~95%
Storage Temperature Range	32°F~104°F / 0°C~40°C
Expansion Connector	Anderson 120 Connector, RJ45 Female Connecto
Expansion Capability	19.2KWh
Bluetooth Range	82 ft. / 25 m
Self Consumption	25W (Power Saving Mode)
Enclosure Security	Keyed Cam Lock
Installation Environment	Indoor/Outdoor
Protection Rating	IP55
Cooling Method	Fan
	Battery
Battery Type	Lithium Iron Phosphate
Nominal Battery Voltage	48VDC
Rated Battery Capacity	100Ah
Rated Battery Energy	4.8KWh
Cycle Life	4500 Cycles (80% DOD, 80% EOL, 0.2C, 25°C)
	Input
Rated AC Input Voltage	110VAC/120VAC
Rated AC Input Frequency	50Hz/60Hz
Maximum AC Bypass Current	20A
Maximum Battery Charge Current (AC)	40A
Solar Input Voltage Range	60VDC~145VDC
Solar MPPT Voltage Range	60VDC~115VDC
Maximum Solar Input Power	4400W

# **Technical Support**

Maximum Battery Charge Current (Solar)	80A
Maximum Battery Charge Current (Total)	100A
	Output
Rated AC Output Voltage	120VAC
Rated AC Output Frequency	50Hz/60Hz (Adjustable)
Rated Output Power	3500W
Peak AC Output Power	7000W

# Dimensions



# **Product Schematic**



# Serviceable Parts

Part Number	Description
RIV4835CSH1S	48V 3500W Solar Inverter Charger
RBT50LFP48S	48V 50Ah Smart Lithium Iron Phosphate Battery
RCM-BT2	BT-2 Bluetooth Module
RCM-HUB	Communication Hub
2.16.0032	125A 1P Battery Circuit Breaker
2.16.0036	32A 1P Solar Input Circuit Breaker
2.16.0037	20A 2P AC Input/Output Circuit Breaker
2.16.0038	30A 2P AC Output Circuit Breaker
2.16.0039	40KA 2P Surge Protection Device
2.16.0051	DIN Rail End Clip
2.16.0052	4AWG 550mm Battery Interconnect Power Cable (Red)
2.16.0053	4AWG 550mm Battery Interconnect Power Cable (Black)
2.16.0056	4AWG 360mm Battery to Battery Circuit Breaker Cable (Red)
2.16.0057	4AWG 620mm Battery Circuit Breaker to Solar Inverter Charger Cable (Red)
2.16.0058	4AWG 850mm Battery to Solar Inverter Charger Cable (Black)
2.16.0059	10AWG 850mm Solar Connector 1 to Solar Input Circuit Breaker 1 Cable (Red)
2.16.0063	10AWG 400mm Solar Input Circuit Breaker 1 to Positive Busbar Cable (Red)
2.16.0060	10AWG 500mm Solar Connector 1 to Negative Busbar Cable (Black)
2.16.0061	10AWG 850mm Solar Connector 2 to Solar Input Circuit Breaker 2 Cable (Red)
2.16.0064	10AWG 400mm Solar Input Circuit Breaker 2 to Positive Busbar Cable (Red)
2.16.0062	10AWG 500mm Solar Connector 2 to Negative Busbar Cable (Black)
2.16.0065	10AWG 360mm Positive Busbar to Solar Inverter Charger Cable (Red)
2.16.0066	10AWG 480mm Positive Busbar to Solar Inverter Charger Cable (Black)
2.16.0067	4AWG 480mm Positive Busbar to Surge Protection Device Cable (Red)
2.16.0068	4AWG 480mm Negative Busbar to Surge Protection Device Cable (Black)
2.16.0069	4AWG 330mm Surge Protection Device to Grounding Busbar Cable (Yellow Green)
2.16.0070	10AWG 860mm Solar Inverter Charger to AC Output Circuit Breaker Branch Cable (Red)
2.16.0071	10AWG 880mm Solar Inverter Charger to AC Output Circuit Breaker Branch Cable (Black)
2.16.0083	10AWG 440mm Solar Inverter Charger to Grounding Busbar Cable (Yellow Green)
2.16.0072	10AWG 570mm 20A AC Output Circuit Breaker to 20A AC Outlet Cable (Red)
2.16.0073	10AWG 610mm 20A AC Output Circuit Breaker to 20A AC Outlet Cable (Black)
2.16.0074	10AWG 390mm 20A AC Outlet to Grounding Busbar Cable (Yellow Green)
2.16.0075	10AWG 480mm 30A AC Outlet Circuit Breaker to 30A AC Outlet Cable (Red)
2.16.0076	10AWG 440mm 30A AC Outlet Circuit Breaker to 30A AC Outlet Cable (Black)
2.16.0077	10AWG 270mm 30A AC Outlet to Grounding Busbar Cable (Yellow Green)
2.16.0078	10AWG 300mm 20A AC Input Circuit Breaker to 20A AC Inlet Cable (Red)
2.16.0079	10AWG 300mm 20AAC Input Circuit Breaker to 20AAC Inlet Cable (Black)
2.16.0080	10AWG 1060mm 20A AC Inlet to Grounding Busbar Cable (Yellow Green)

# **Product Schematic**

Part Number	Description
2.16.0081	10AWG 760mm 20A AC Input Circuit Breaker to Solar Inverter Charger Cable (Red)
2.16.0082	10AWG 760mm 20A AC Input Circuit Breaker to Solar Inverter Charger Cable (Black)
2.16.0054	4AWG Battery to Anderson 120 Connector Cables
	500mm Battery Interconnect Communication Cable
RSR28COMC-RLO5B	500mm Battery to Communication Hub Cable
	1200mm Solar Inverter Charger to Communication Hub Cable
	500mm Battery to RJ45 Jack Communication Cable
RSR20AO-RLO5B	20A AC Outlet
RSR20AOC-RLO5B	20A AC Outlet Cover
RSR30AO-RLO5B	30A AC Outlet
RSR30AOC-RLO5B	30A AC Outlet Cover
RSR20AI-RLO5B	20A AC Inlet
RSR20AIC-RLO5B	20A AC Inlet Cover
RSR00FD-RLO5B	Front Door
RSR00BD-RLO5B	Back Door
RSR00DL-RLO5B	Door Lock
RSR00HB-RLO5B	Handle Bar
RSR00KEYRLO5B	Кеу
RSR00RJ-RLO5B	RJ45 Jack
	RJ45 Plug Waterproof Housing
RSR00DR-RLO5B	DIN Rail
RSR00BUS-RLO5B	Positive Busbar
	Negative Busbar
	Grounding Busbar
RSR00SC-RLO5B	Swivel Casters
RSR48FAN-RLO5B	Thermostat Controlled Fans
RSR12IENMC-RLO5B	12AWG 12ft IEC C19 to NEMA 5-20P Power Cable



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Your voice matters! Scan the QR code to submit your feedback on the product.





Welcome to join Renogy Power **PLUS** Community by scanning the QR code to install DC Home app. Find your e-warranty here, and more.