

# REGO

MPPT Solar Charge Controller

12V | 60A

VERSION A0



## USER MANUAL

## Applicability

The User Manual applies to the following product:

- REGO 12V 60A MPPT Solar Charge Controller

## Disclaimer

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## Date and Revision

January 2022, Revision A0

# Important Safety Information

The User Manual provides important installation, operation, and maintenance instructions for REGO 12V 60A MPPT Solar Charge Controller. 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 Charge Controller, potentially rendering it inoperable. The installation and service of Charge Controller 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:



### WARNING

Indicates a potentially dangerous condition which could result in injury or death.



### CAUTION

Indicates a critical procedure for safe and proper installation and operation.



### NOTE

Indicates an important step or tip for optimal performance.



### INFO

Indicates that more information is available in other documents relating to the subject.

## General Safety Information



### WARNING

- As the applicable voltage of this controller exceeds the safety voltage of human body, please read all instructions and precautions in the manual before installation.
- Do not Pierce, fall, squeeze, penetrate, shake, strike or damage the controller.
- Do not open, remove, repair, tamper with, or modify any component in the controller.
- Install the controller indoors to prevent components from exposure to direct sunlight and prevent water from entering the controller.
- Keep the controller away from heating equipment to prevent high temperature and ensure good ventilation.

# Important Safety Information



## CAUTION

- Do not expose the controller to flammable or irritating chemicals or vapors.
- Make sure there is no water above or near the controller, including downspouts, sprinklers or faucets.
- Make sure the battery is properly connected before installation.

# Introduction

## Introduction

The REGO series is the culmination of RENOGY's ten years of industry experience by modeling "Lego" energy building blocks for power solutions. The REGO 12V 60A MPPT Solar Charge Controller has achieved several firsts as a key member of the entire REGO Collection. Focusing on rapid plug and play and safety, the REGO 60A MPPT reduces installation time and integrates a high BPU (Battery Protect Unit) technology achieving the highest protection against battery cells damage and battery failure, especially Lithium. The compact and robust nature of the controller not only has a sense of technology and fashion, but also saves on installation space relative to the competition. The REGO 12V 60A MPPT Solar Charge Controller is easily one of the most reliable controllers on the market yet.

## Key Features

**【Rapid Plug & Play】** The quick plug port design reduces installation to a simple "click" when connecting your battery bank and solar panels. Uncomplicate programming issues by simply turning the battery selector knob to your battery type and quickly provide accurate charging services for different battery types

**【Smart Chat, Perfect sync】** Let software do all the work by using the embedded bluetooth technology or daisy chaining ddevices for software communication. Software will adjust the charging current based on smart chat experience between energy devices. The entire REGO system will actively respond to the needs of the battery, and provide more accurate charging services.

**【MPPT: Ultra Fast Maximum Power Point Tracking】** Built-in maximum power tracking algorithm with advanced dual-wave or multi-wave tracking technology can significantly improve the utilization efficiency of solar power generation by about 15%-20% higher than the traditional PWM charging efficiency. The ultra fast technology can still accurately trace the maximum power point to obtain the maximum power generation efficiency if panels are shaded with a charge conversion efficiency greater than 95%

**【Smart Battery Manager】** REGO 12V 60A MPPT Solar Charge Controller adopts a three-four-stage charging design for Lead Acid Batteries and two-stage charging for Lithium batteries: 1 - high-current boost (bulk) \ 2 - constant voltage charging (boost) \ 3 - floating stage (float) \ 4 - equalization stage (EQU), corresponding to the different power situations of the battery. When the battery level is very low, the controller will provide high-current charging at this time that allows the battery to recover quickly. The REGO 12V 60A MPPT Solar Charge Controlle offers a range of functions for different battery types, from charging to maintenance, and is a smart battery manager

**【Protection】** Full high-temperature protection at the solar input and battery output terminals. Input terminal protection also includes solar reverse polarity, solar overvoltage, solar short circuit, solar night back-flow protection. Output terminal protection also includes battery overcharge, battery overdischarge, and battery reverse polarity. The REGO 60A 12V MPPT Solar Charge controller BPU protection embedds protection into the controller rather than separate protection component safeguarding your system

**【Quality Assurance】** REGO 12V 60A MPPT Solar Charge Controller features a 5-year warranty and is multi-icertified to UL1741, CAN/CSA-C22.2 No. 107.1/CB+IEC 62109/EMC,EN61000-3-1/-3; EN301489-1/17; RF,EN300328; and FCC, 47 CFR 15B.

# Introduction

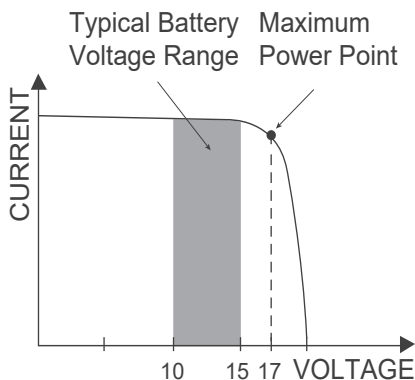
## MPPT技术

In many cases, the MPPT charge controller will "boost" up the current in the solar system. The current does not come out of thin air. Instead, the power generated in the solar panels is the same power that is transmitted into the battery bank. Power is the product of Voltage (V) x Amperage (A). Therefore, assuming 100% efficiency:

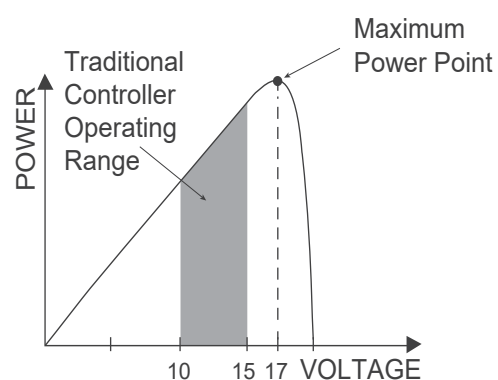
$$\text{Power In} = \text{Power Out}$$
$$\text{Volts In} * \text{Amps In} = \text{Volts out} * \text{Amps out}$$

Although MPPT controllers are not 100% efficient, they are very close at about 92-95% efficient. Therefore, when the user has a solar system whose  $V_{mp}$  is greater than the battery bank voltage, then that potential difference is proportional to the current boost. The voltage generated at the solar module needs to be stepped down to a rate that could charge the battery in a stable fashion by which the amperage is boosted accordingly to the drop. It is entirely possible to have a solar module generate 8 amps going into the charge controller and likewise have the charge controller send 10 amps to the battery bank. This is the essence of the MPPT charge controllers and their advantage over traditional charge controllers. In traditional charge controllers, that stepped down voltage amount is wasted because the controller algorithm can only dissipate it as heat. The following demonstrates a graphical point regarding the output of MPPT technology.

Current vs. Voltage (12V System)



Output Power (12V System)



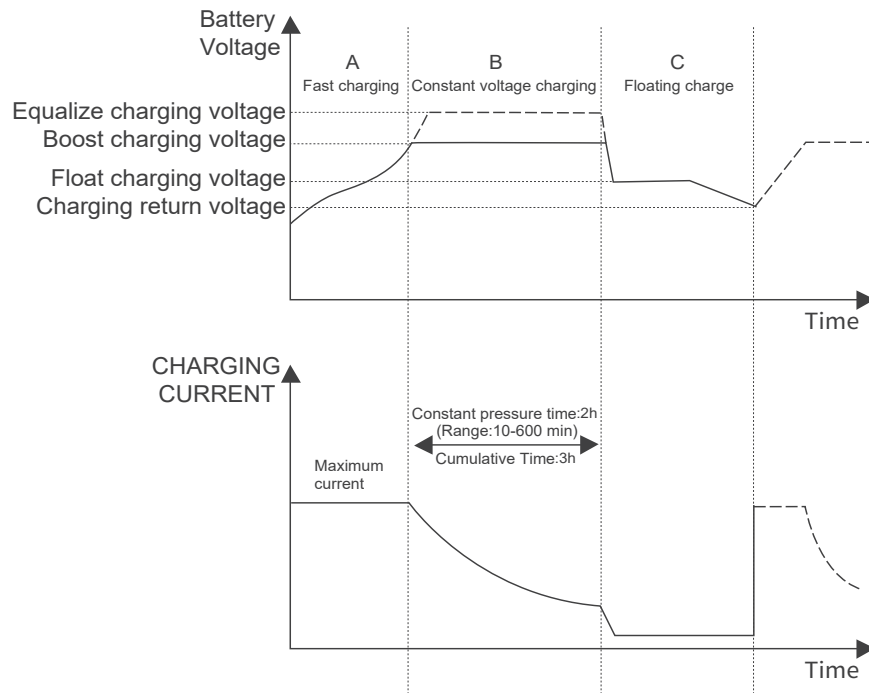
### ■ Limiting Effectiveness

Temperature is a huge enemy of solar modules. As the environmental temperature increases, the operating voltage ( $V_{mp}$ ) is reduced and limits the power generation of the solar module. Despite the effectiveness of MPPT technology, the charging algorithm will possibly not have much to work with and therefore there is an inevitable decrease in performance. In this scenario, it would be preferred to have modules with higher nominal voltage, so that despite the drop in performance of the panel, the battery is still receiving a current boost because of the proportional drop in module voltage.

# Introduction

## Four Charging Stages

REGO 12V 60A MPPT Solar Charge Controller has a 4-stage battery charging algorithm for a rapid, efficient, and safe battery charging. They include: Bulk Charge, Boost Charge, Float Charge, and Equalization.



### ■ Bulk Charge:

This algorithm is used for day to day charging. It uses 100% of available solar power to recharge the battery and is equivalent to constant current. In this stage the battery voltage has not yet reached constant voltage (Equalize or Boost), the controller operates in constant current mode, delivering its maximum current to the batteries (MPPT Charging) .

### ■ Constant Charging:

When the battery reaches the constant voltage set point, the controller will start to operate in constant charging mode, where it is no longer MPPT charging. The current will drop gradually. This has two stages, equalize and boost and they are not carried out constantly in a full charge process to avoid too much gas precipitation or overheating of the battery.

**Boost Charge:** Boost stage maintains a charge for 2 hours by default. The user can adjust the constant time and preset value of boost per their demand.

### ■ Float Charge:

After the constant voltage stage, the controller will reduce the battery voltage to a float voltage set point. Once the battery is fully charged, there will be no more chemical reactions and all the charge current would turn into heat or gas. Because of this, the charge controller will reduce the voltage charge to smaller quantity, while lightly charging the battery. The purpose for this is to offset the power consumption while maintaining a full battery storage capacity. In the event that a load drawn from the battery exceeds the charge current, the controller will no longer be able to maintain the battery to a Float set point and the controller will end the float charge stage and refer back to bulk charging.

# Introduction

## ■ Equalization:

Equalization is carried out every 28 days of the month. It is intentional overcharging of the battery for a controlled period of time. Certain types of batteries benefit from periodic equalizing charge, which can stir the electrolyte, balance battery voltage and complete chemical reaction. Equalizing charge increases the battery voltage, higher than the standard complement voltage, which gasifies the battery electrolyte.



### **CAUTION**

- Equalization is carried out only for non-sealed / vented/ flooded / wet cell lead acid batteries.
- DO NOT equalize VRLA type AGM / Gel / Lithium cell batteries UNLESS permitted by battery manufacturer.



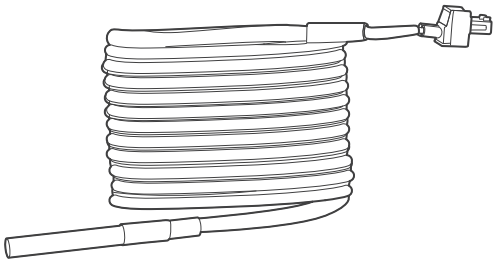
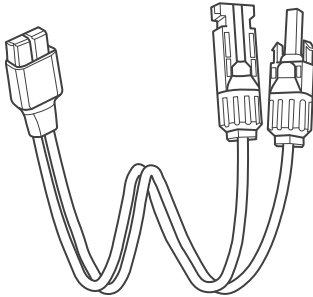
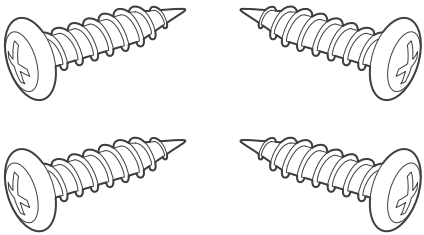


### **WARNING**

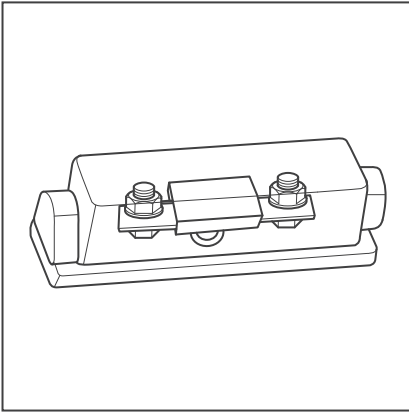
- Once equalization is active in the battery charging, it will not exit this stage unless there is adequate charging current from the solar panel. There should be NO load on the batteries when in equalization charging stage.
- Over-charging and excessive gas precipitation may damage the battery plates and activate material shedding on them. Too high of an equalizing charge or too long of one may cause damage. Please carefully review the specific requirements of the battery used in the system.
- Equalization may increase battery voltage to a level damaging to sensitive DC loads. Ensure that all load allowable input voltages are greater than the equalizing charging set point voltage.



# Package Contents

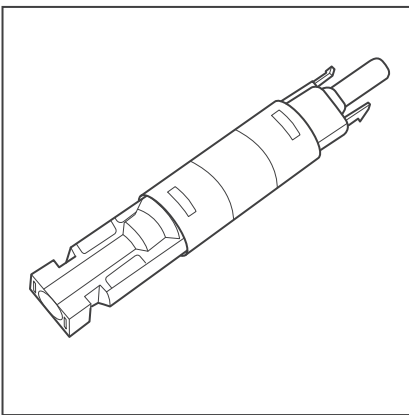
<p>REGO 12V 60A MPPT Solar Charge Controller × 1</p>	<p>Quick Guide × 1</p>
	
<p>Renogy Temperature Sensor × 1 (Model: RTSCC)</p>	<p>Solar Adapter Cable ( Anderson PP75 to MC4 Adapter Cable )</p>
	
<p>Mounting Screws × 4</p>	
<p>ST6.3x1.8x13mm</p> 	

# Optional Accessories



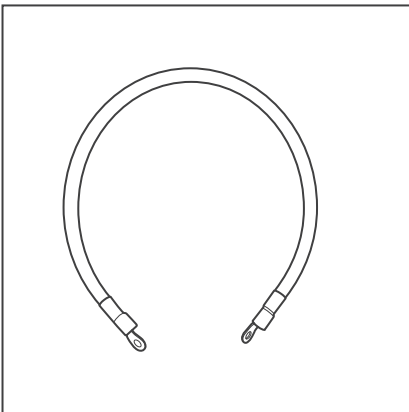
## Battery Fuse:

The battery fuse will protect the charge controller, wire and battery from overcurrent.



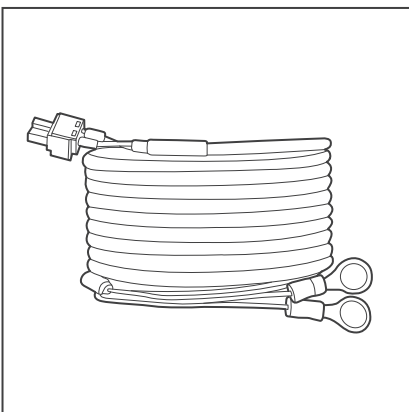
## Solar Panel Fuses:

Provide complete single circuit protection for solar panels. It can prevent the high current from damaging the solar panels. It can prevent the high current from damaging the solar panels.



## Battery fuse cable

The wire adopts two sections of copper ring design, so as to realize the controller external fuse function.

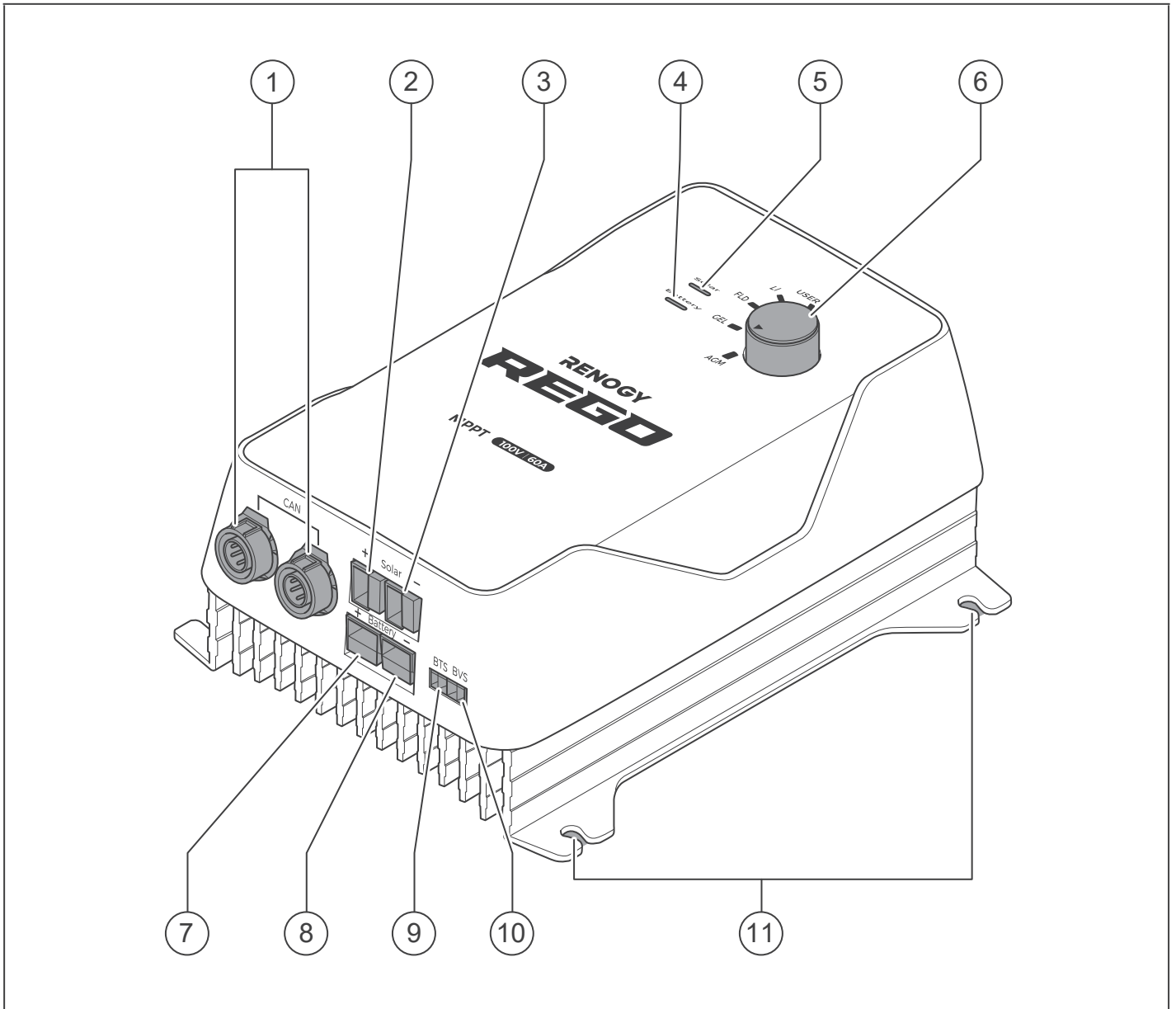


## Voltage sensor

The charging voltage of the controller is affected by the length and specification of the wire, and the voltage is transmitted.

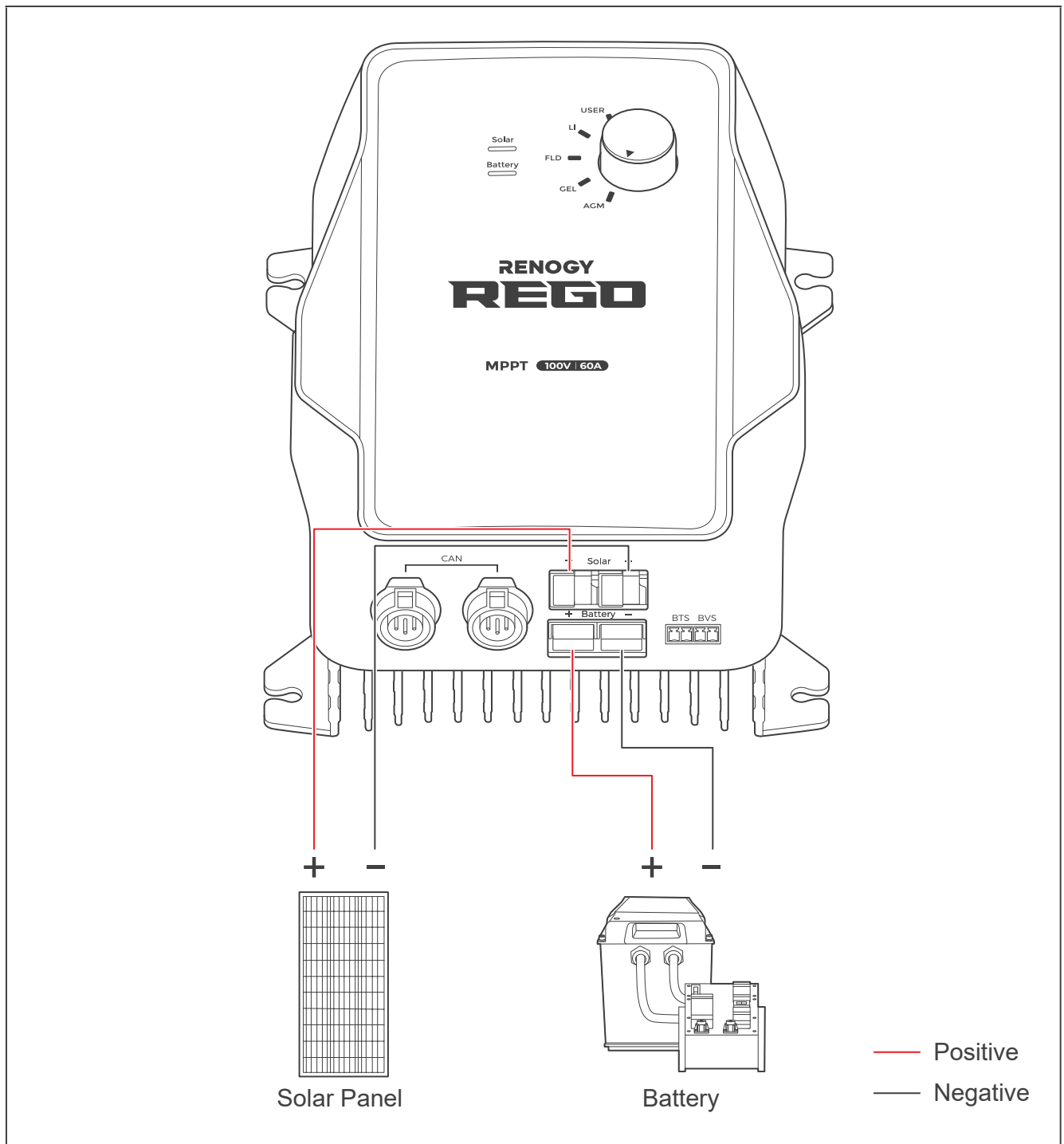
Sensors calibrate charging voltage errors caused by wires to ensure the controller is properly charging the battery.

# Product Overview



No.	Part	No.	Part
1	CAN Communication Ports	7	Positive Battery Terminal
2	Positive Solar Terminal	8	Negative Battery Terminal
3	Negative Solar Terminal	9	Battery Temperature Sensor Port
4	Battery Status Indicator	10	Battery Voltage Sensor Port
5	Solar Status Indicator	11	Mounting Holes
6	Battery Type Setting Knob		

# Wiring Diagram



# Installation Preparation



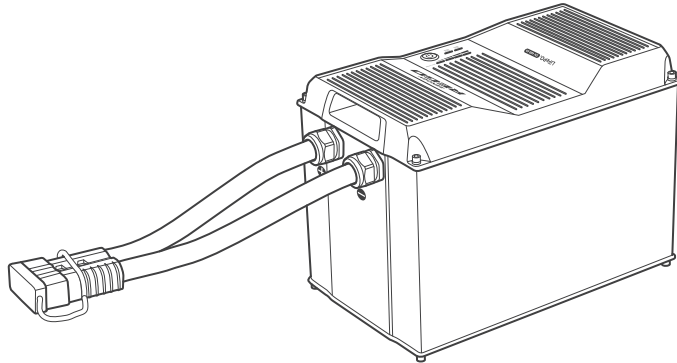
## CAUTION

- The adapters used in this manual can be made by yourself or purchased from the website under the name Recommended Components.

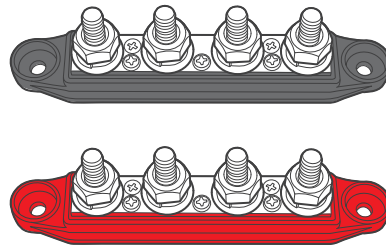
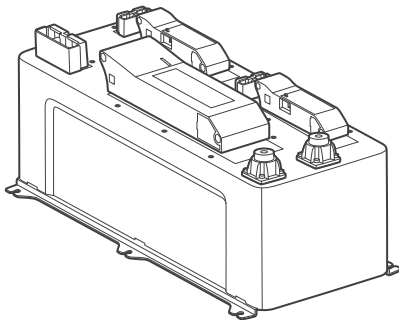
### Recommended Components

#### Battery Scenario A: REGO Battery Kit

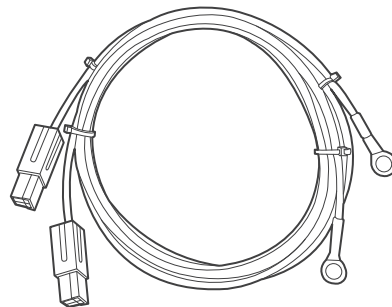
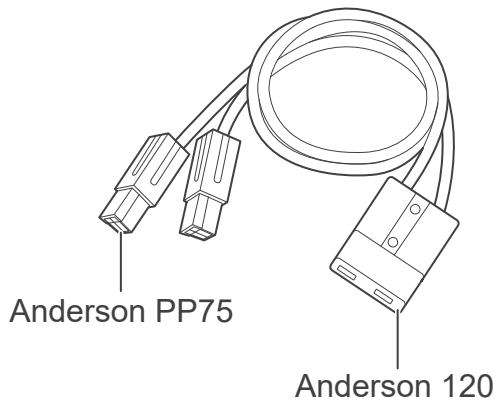
##### Renogy REGO Lithium Battery



##### Renogy REGO System Combiner Box or Positive/Negative Busbars

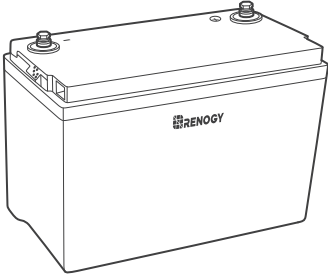
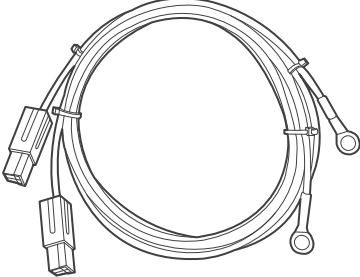


Battery Adapter Cable ( Anderson PP75 to Anderson 120 Adapter Cable )  
or  
Battery Adapter Cables ( Anderson PP75 to Ring Terminal Adapter Cable )

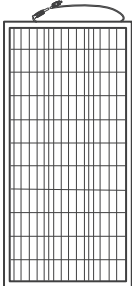
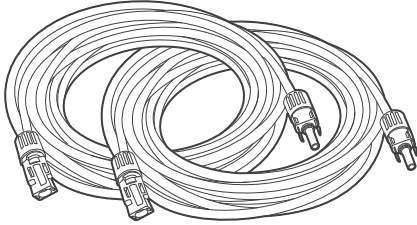


# Installation Preparation

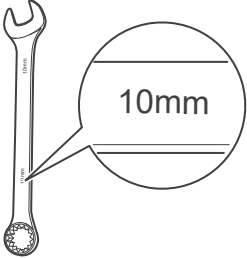
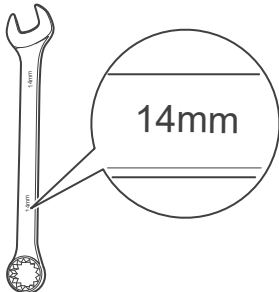
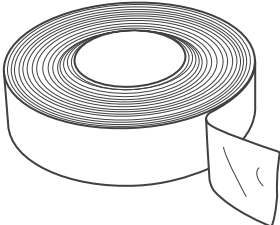
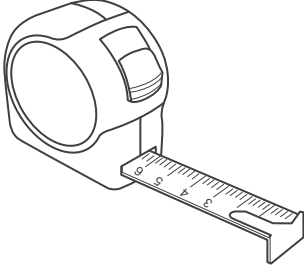
## Battery Scenario B: Normal Battery Kit

Normal Battery with +/- Bolts	Battery Adapter Cables ( Anderson PP75 to Ring Terminal Adapter Cable )
	

## Solar Panel Kit

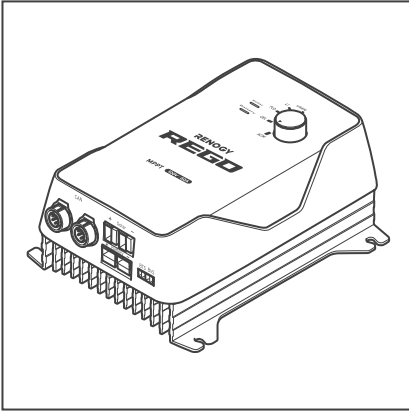
Solar Panel	Solar Panel Extension Cables
	

## Required Tools

Wrench (10mm)	Wrench (14mm)
	
Insulation Tape	高精度钢卷尺子
	

# Installation Preparation

## Checking the Controller

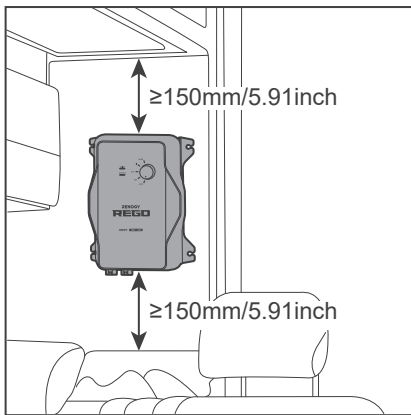


1. Check the controller for any visible damage, including cracks, dents, distortions, and other visible anomalies. All connector contacts shall be clean, free of dirt and corrosion, and dry.



### WARNING

- 若控制器看起来已损坏，请不要使用。



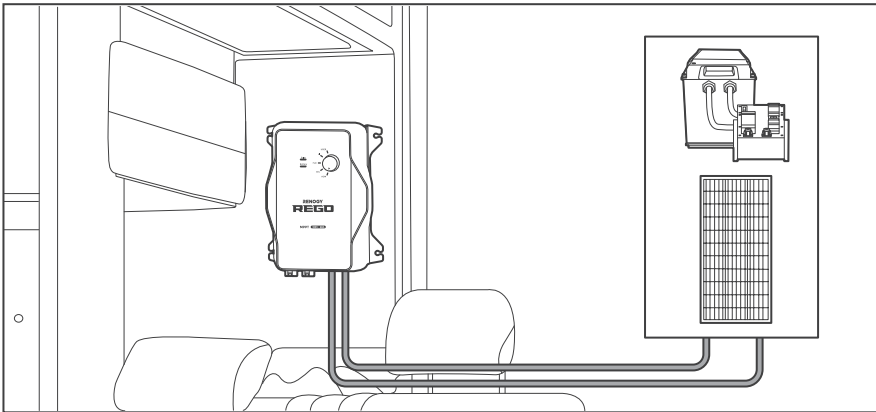
2. Confirm the installation location.



### WARNING

- Risk of explosion! Never install Rover in a sealed enclosure with flooded batteries! Do not install in a confined area where battery gases can accumulate.
- Place Rover on a vertical surface protected from direct sunlight, high temperatures, and water. Make sure there is good ventilation.
- Rover requires at least 6 inches (150mm) of clearance above and below for proper air flow. Ventilation is highly recommended if mounted in an enclosure.

# Installation Preparation



3. Measure the length of the cables connecting to the battery and solar panel so they can be connected to the charge controller.



## CAUTION

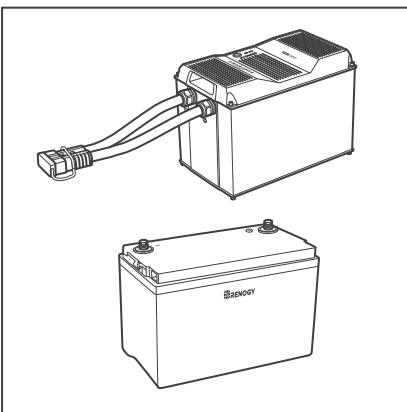
- If the adapter cable is not long enough, you can use an extension cable or reselect the position where the battery charger needs to be secured.



## WARNING

- Please refer to the "Recommendations of Wire Diameters and Fuses" in this manual, and select the satisfied cables according to the usage.

### Cable Check



1. Please inspect the auxiliary battery for any visible damage including cracks, dents, deformation, and other visible abnormalities. All connector contacts shall be clean, free of dirt and corrosion, and dry.



## CAUTION

- The battery charger can only be applied to a deep-cycle sealed lead-acid battery, a flooded battery, a gel battery or a lithium iron phosphate battery.
- When being charged, the battery may give off explosive gas. Make sure there is good ventilation.
- Take care to use a high-capacity lead-acid battery. Be sure to wear protective goggles. If carelessly getting electrolyte in your eyes, please flush the eyes with clean water from a cup or other container immediately.
- If you replace your battery with a new one, please dispose of the used battery through the specified recycling channel according to the local, state, and federal laws and regulations.



## WARNING

- Do not use the battery if it has any visible damage.
- Do not touch the exposed electrolyte or powder if the battery housing is damaged.



# Installation Preparation

System voltage	
Battery / Battery pack system voltage = System voltage U	
Batterys in Series	Batterys in Parallel
System voltage U: $U_1+U_2+U_3$	System voltage U: $U_1=U_2=U_3$

2. The batteries can be combined in parallel or in series as needed. This battery charger supports a maximum system voltage of 12V. Please refer to the User's Manual for battery voltage parameters, and calculate the battery/battery pack system voltage according to the formula to ensure that it does not exceed 12V.

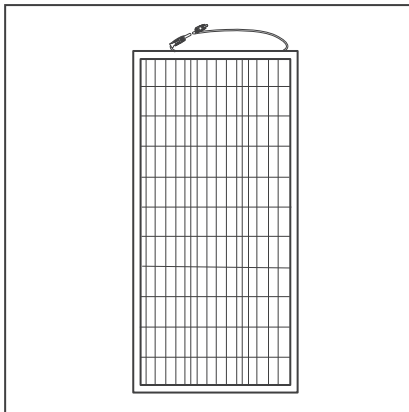
## CAUTION

- In the formula, U represents the battery voltage, and 1, 2 or 3 represents the battery number, respectively.

## WARNING

- Do not use the battery charger if the battery/battery pack system voltage exceeds 12V. Doing so will cause damage to the battery charger.

### Solar Panel Check (Optional)



1. Please inspect the solar panel for any visible damage including cracks, dents, deformation, and other visible abnormalities. All connector contacts shall be clean, free of dirt and corrosion, and dry.

## CAUTION

- The solar panels can be combined in parallel or in series as needed.

## WARNING

- Do not use the solar panel if it has visible damage.
- Shade the illuminated face of the solar panel before the solar panel is connected to the battery charger.

# Installation Preparation



## CAUTION

- The solar panels can be combined in parallel or in series as needed.



## WARNING

- Do not use the solar panel if it has visible damage.
- Shade the illuminated face of the solar panel before the solar panel is connected to the battery charger.

Working voltage	
Working voltage of solar module / solar module array = working voltage U	
Solar Panels in Series	Solar Panels in Parallel
working voltage U: $U_1+U_2+U_3$	working voltage U: $U_1=U_2=U_3$

2. Please refer to the User's Manual to obtain the solar panel working voltage parameters, and calculate the working voltage of the solar panel/solar panel array according to the formula.



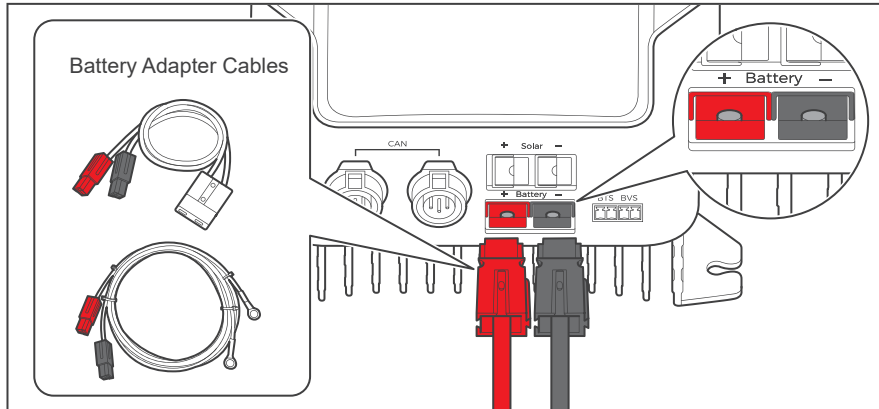
## CAUTION

- In the formula, U represents the working voltage of the solar panel, and 1, 2 or 3 represents the solar panel number, respectively.

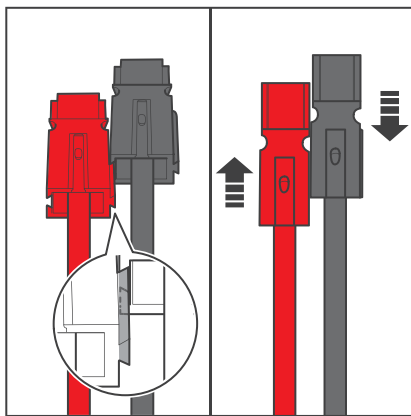
# Charge Controller Wiring

## WARNING

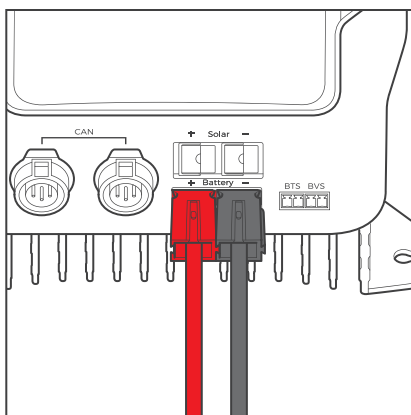
- 请确保安德森连接器安装紧密结合。



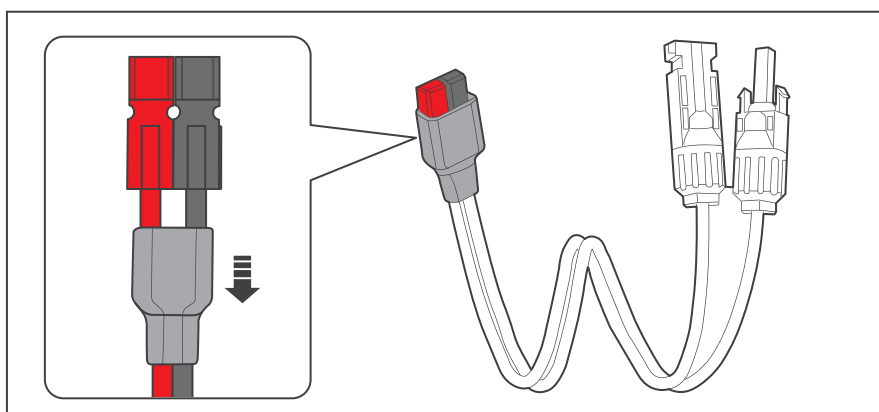
1. For the Battery terminal, align the Battery Adapter Cable's Anderson PP75 connectors to the correct orientation and polarity.



2. Bind the Anderson connectors by sliding the side grooves.

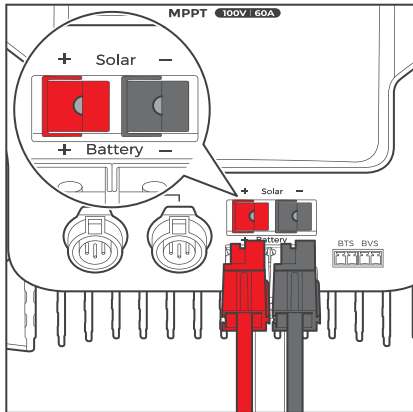


3. Insert the Anderson connectors into the Battery terminal.

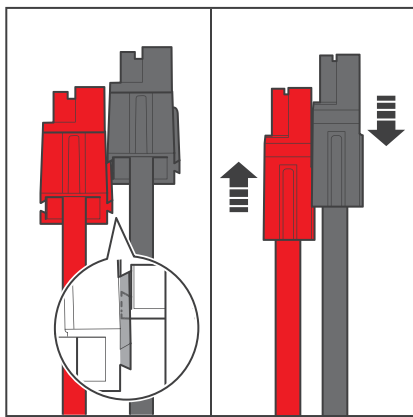


4. Remove the protective cover of the Solar Adapter Cable by sliding it downwards.

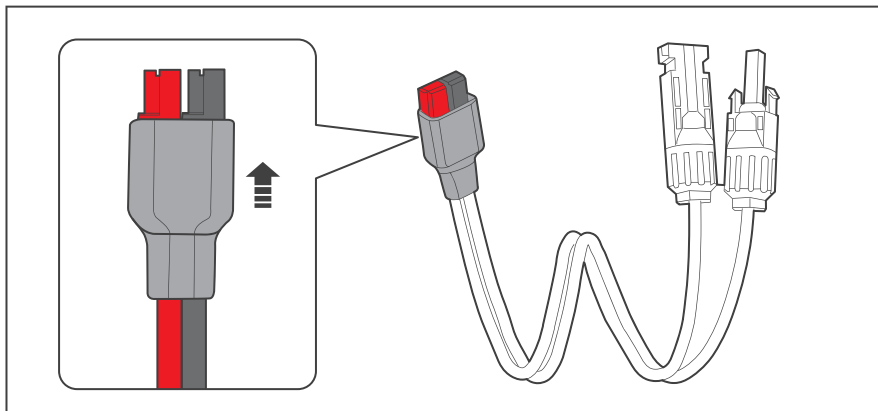
# Charge Controller Wiring



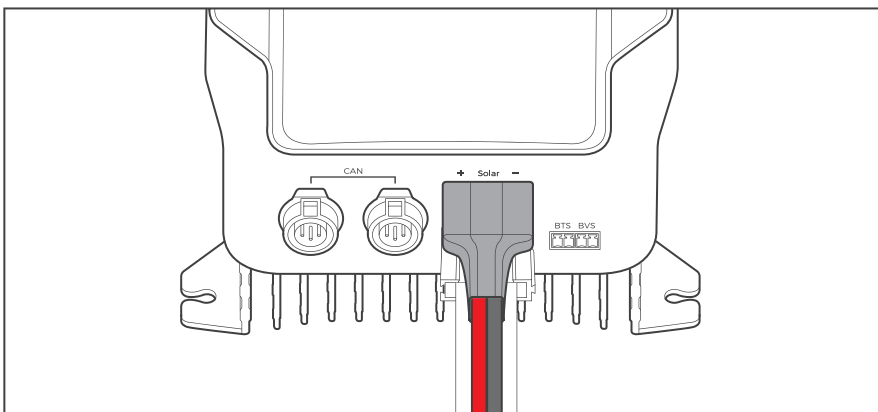
5. For the Solar terminal, align the Solar Adapter Cable's Anderson PP75 connectors to the correct orientation and polarity.



6. Bind the Anderson connectors by sliding the side grooves.



7. Push the protective cover upwards.



8. Insert the Anderson connectors into the Solar terminal.

# Battery Wiring

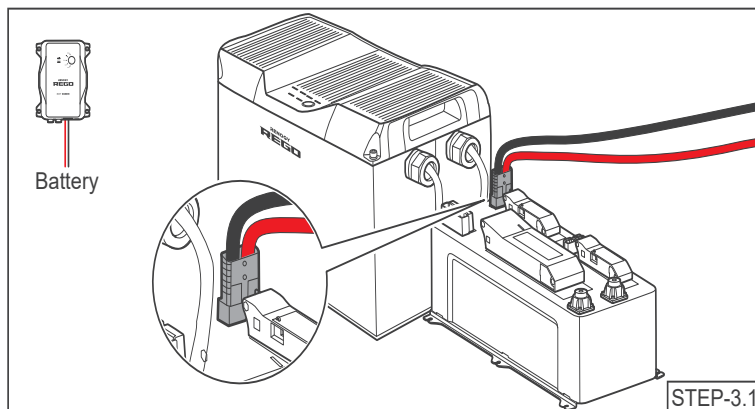


- Please read the user manual of the battery (12V) carefully before installation.
- Identify the polarity (positive and negative) on the cables used for the batteries. A reverse polarity contact may damage the unit.
- Select a suitable wrench or other tool when tightening the battery bolts to their rated specification.
- Please ensure that the Anderson Connectors are fully seated and/or the ring terminals are securely connected.

## Battery Scenario A: REGO Battery Kit



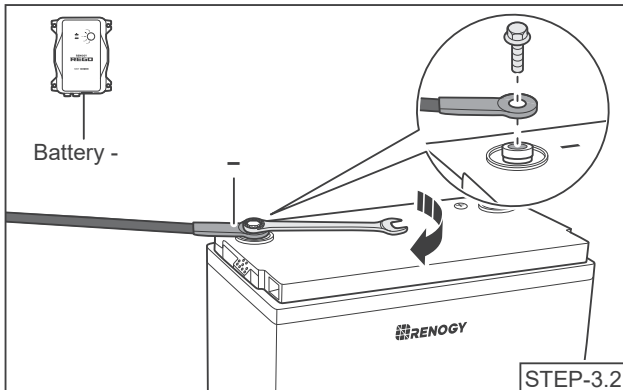
- Please read the user manual of System Combiner Box carefully before wiring.
- If the devices are connected to the Anderson connectors of the System Combiner Box, please install a 160A NH fuse in the top NH fuse disconnect switch.
- If the Anderson PP75 to Ring Terminal Adapter Cable is used to connect with the System Combiner Box, please refer to the user manual of REGO MPPT Solar Charge Controller at [renogy.com](http://renogy.com) for more detailed instructions.
- If positive/negative busbars are used to connect with the Renogy REGO Lithium Battery, please refer to the user manual of REGO MPPT Solar Charge Controller at [renogy.com](http://renogy.com) for more detailed instructions.



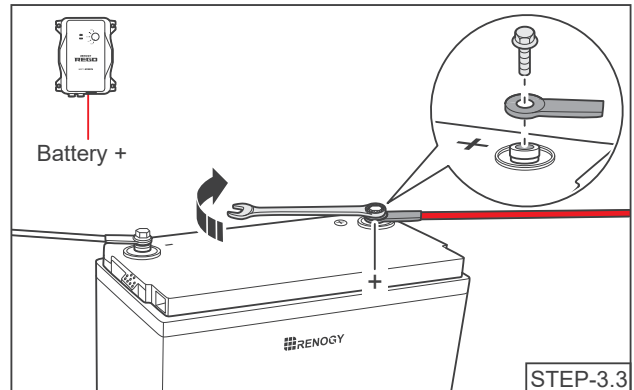
Insert the Anderson 120 connector of the Battery Adapter Cable to the System Combiner Box.

# Battery Wiring

## Battery Scenario B: Ordinary Battery Kit



Attach the ring terminal of the negative Battery Adapter Cable to the negative battery bolt and tighten with a wrench.

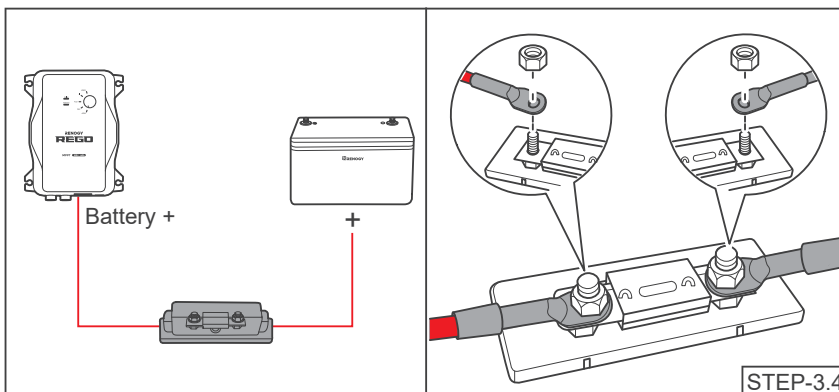


Attach the ring terminal of the positive Battery Adapter Cable to the positive battery bolt and tighten with a wrench.

For your safety, it is recommended to use a battery fuse.

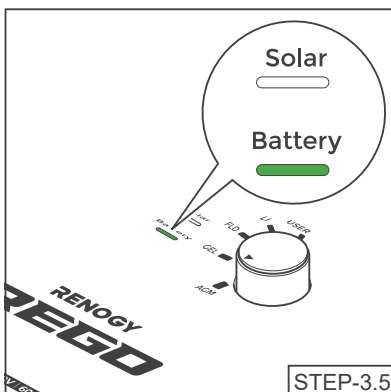


- Please refer to the user manual of the charge controller at [renogy.com](http://renogy.com) for the recommended fuse.



Connect the positive Battery Adapter Cable to one end of the battery fuse, and then connect the other end to the positive bolt of the battery.

## Battery Indicator



Once the battery wiring is completed correctly and the battery is turned on, the charger controller's Battery indicator lights up green.

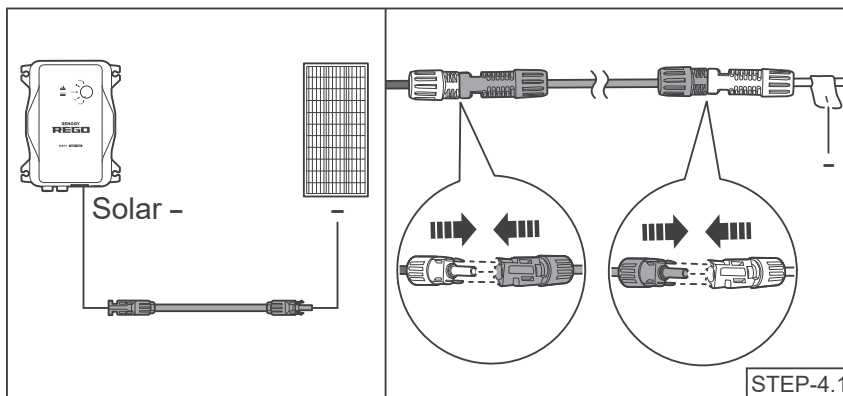
If the Battery indicator does not light up, please refer to the user manual of the charge controller at [renogy.com](http://renogy.com) for troubleshooting instructions.

# Solar Panel Wiring

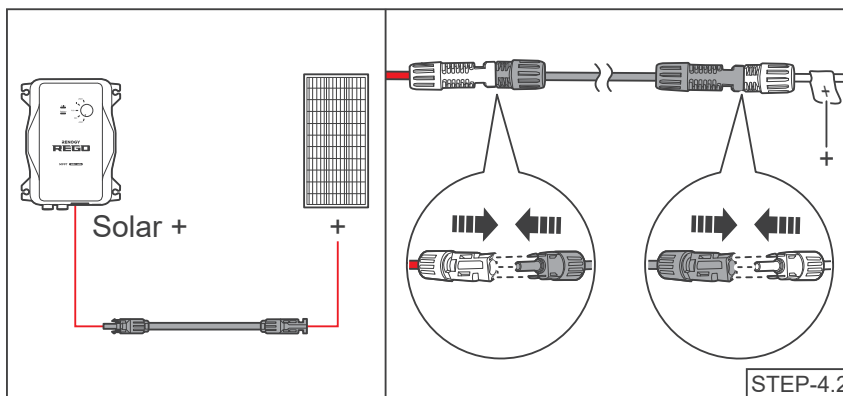
## Solar Panel Wiring



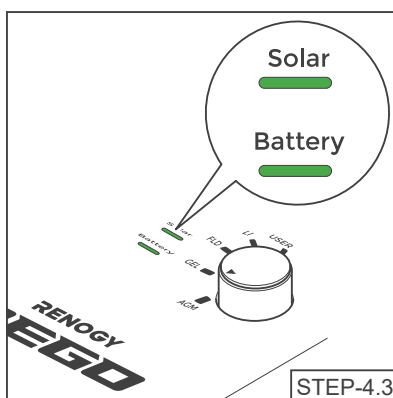
- Please read the user manual of the solar panel carefully before installation.
- Cover the solar panels or have them face down before connecting them to the charge controller.
- Identify the polarity (positive and negative) on the cables used for solar panels. A reverse polarity contact may damage the unit.
- Make sure all connections are tight and secure.



Connect the negative Solar Adapter Cable to the Solar Panel Extension Cable, and then connect the Extension Cable to the negative terminal of the solar panel.



Connect the positive Solar Adapter Cable to the Solar Panel Extension Cable, and then connect the Extension Cable to the positive terminal of the solar panel.



Once the solar panel wiring is completed correctly, the charger controller's Solar indicator lights up green.

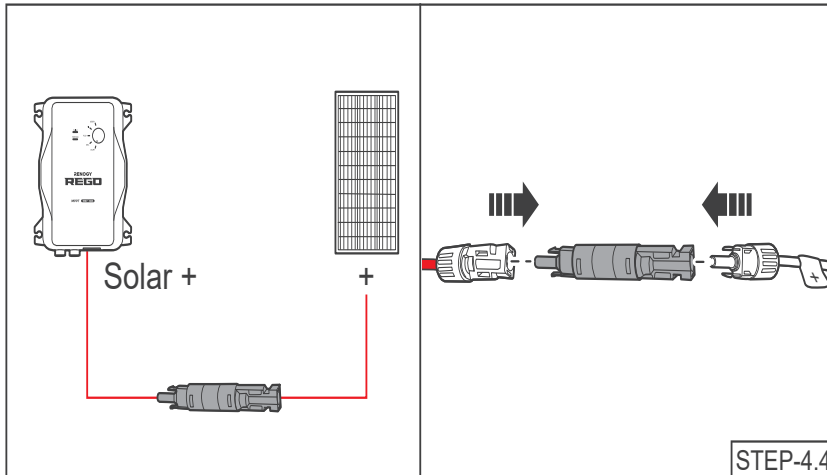
If the Solar indicator does not light up, please refer to the user manual of the charge controller at [renogy.com](http://renogy.com) for troubleshooting instructions.

# Solar Panel Wiring

For your safety, it is recommended to use a solar panel in-line fuse.



- Please refer to the user manual of the charge controller at [renogy.com](http://renogy.com) for the recommended fuse.



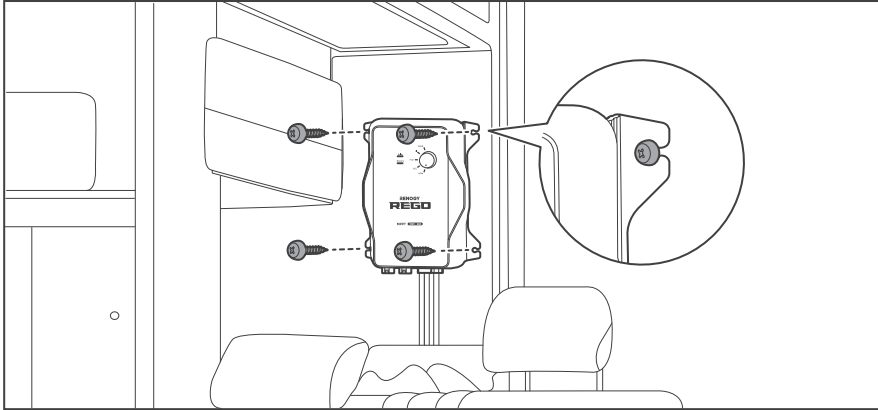
Insert the Solar Panel In-line Fuse between the Solar Adapter Cable and the solar panel's positive cable.



# Mounting

## WARNING

- Please make sure that the charge controller is installed firmly to prevent it from falling off.

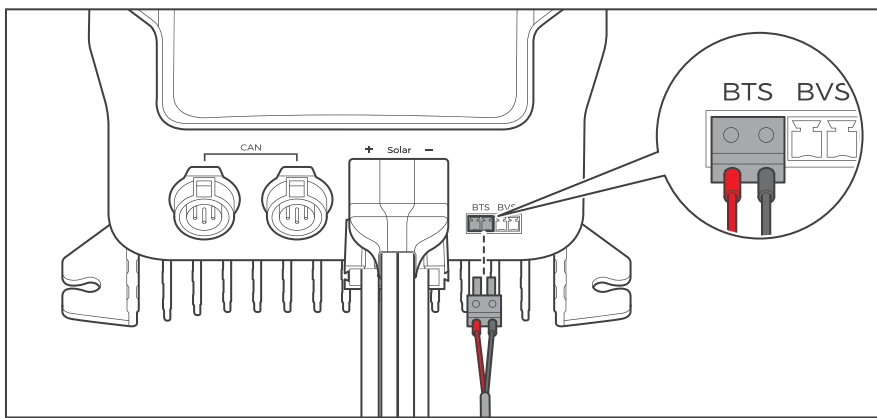


Place the charge controller against a flat surface and secure it with included screws.

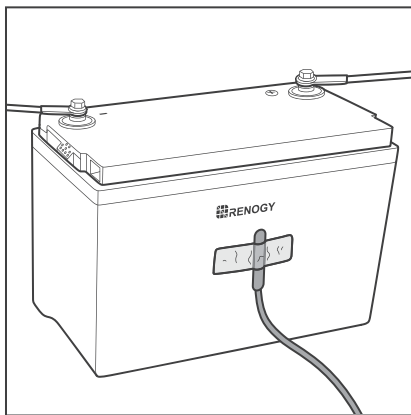
# Temperature Sensor

## WARNING

- The temperature sensor can detect the battery's temperature and update it to the charge controller for charging voltage calibration. This ensures the charger controller (with operating temperature range from  $-20^{\circ}\text{C}$  to  $60^{\circ}\text{C}$  or  $-4^{\circ}\text{F}$  to  $140^{\circ}\text{F}$ ) can charge the battery normally.
- Do not use the temperature sensor on a LiFePO4 (LFP) battery which comes with a battery management system (BMS).
- Please refer to the user manual of the charge controller at [renogy.com](http://renogy.com) for more matters needing attention.



1. Insert the temperature sensor terminal block into the BTS port of the charge controller.

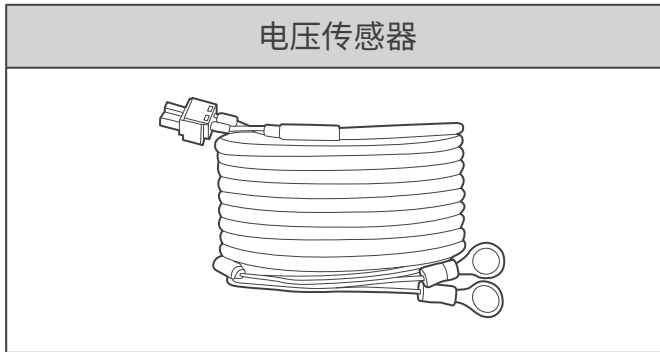


2. Adhere the sensor on the top or side of the battery with insulation tape.

# \*Voltage Sensor (Optional)

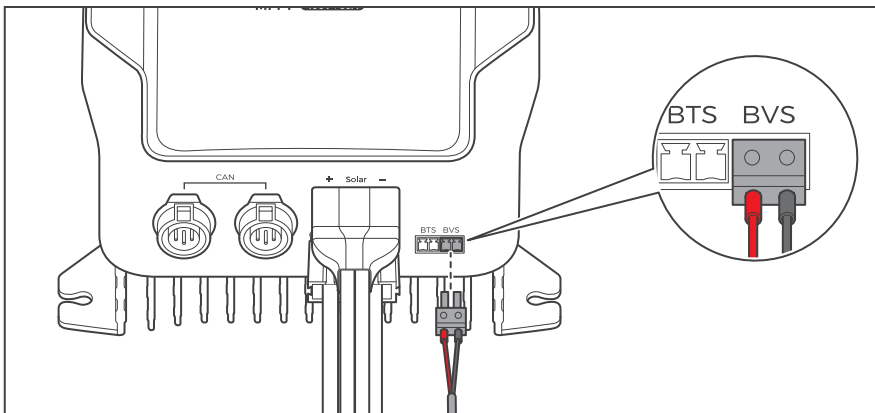
The Battery Voltage Sensor is the perfect solution by providing an accurate battery voltage to the charge controller and allowing it to adjust the charging stage precisely resulting in overall extension of your battery life.

## \*Optional Accessories



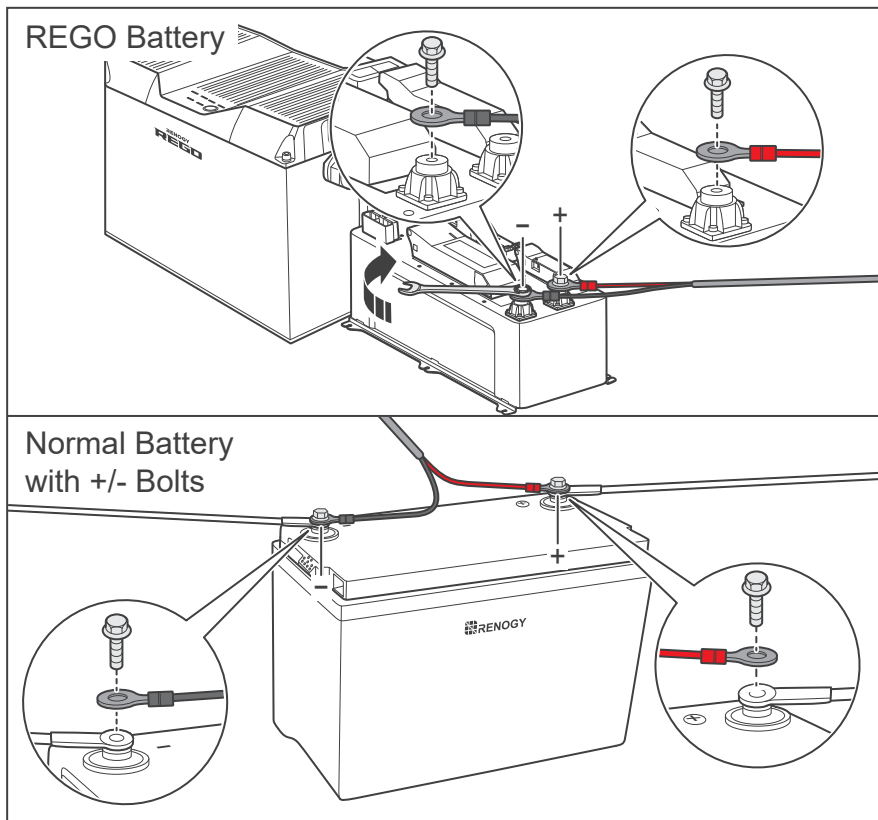
### WARNING

- Identify the polarity (positive and negative) on the cables used for the batteries. A reverse polarity contact may damage the unit.
- The voltage sensor ring terminal is M8 (Approx. 5/16"). If the battery bolt size is small, please use a gasket to fix it to prevent it from falling off.



1. Insert the voltage sensor terminal block to the BVS port.

# \*Voltage Sensor (Optional)



2. Connect the voltage sensor ring terminal to the positive/negative pole of the battery system.

# Communication

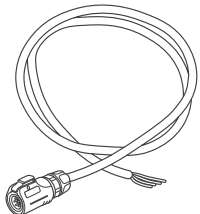
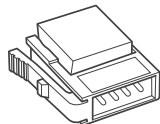
The communication connection is optional. The communication between REGO products allows safe operation, smart control, and close monitoring.

Depending on the installation condition, the communication connection needs to be established with backbone or daisy chain topology.

## Backbone Topology

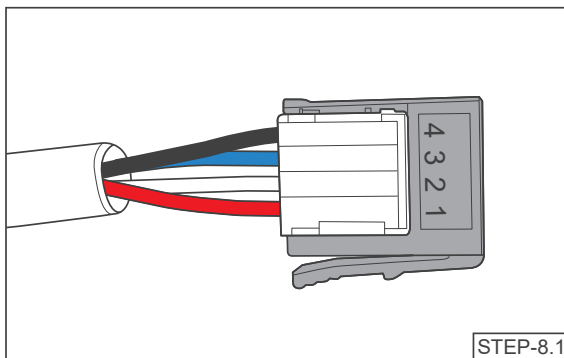
If an RV-C bus is pre-installed in the RV, please follow the backbone topology for the communication connection.

### Recommended Accessories

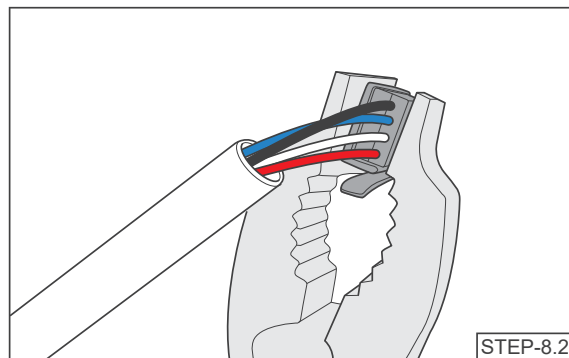
LP16 Plug (7-Pin) to Bare Wires Drop Cable	Drop Plug
	



- Different drop sockets are used on the RV-C bus by different RV manufacturers. Please select the Drop Plug that matches the drop socket for the communication connection. If unsure about the Drop Plug selection, please check with the RV manufacturer. This Quick Guide takes the Mini-Clamp II plug (4-pin) as an example.
- The length of the Drop Cable shall not exceed 19.6 feet, and the total length shall not exceed 98.4 feet.
- Different Drop Plugs follow different pinouts. Please crimp the Drop Plug to the Drop Cable following the correct pinout. If unsure about the Drop Plug pinout, please check with the RV manufacturer. This Quick Guide takes the pinout of the Mini-Clamp II plug (4-Pin) as an example.

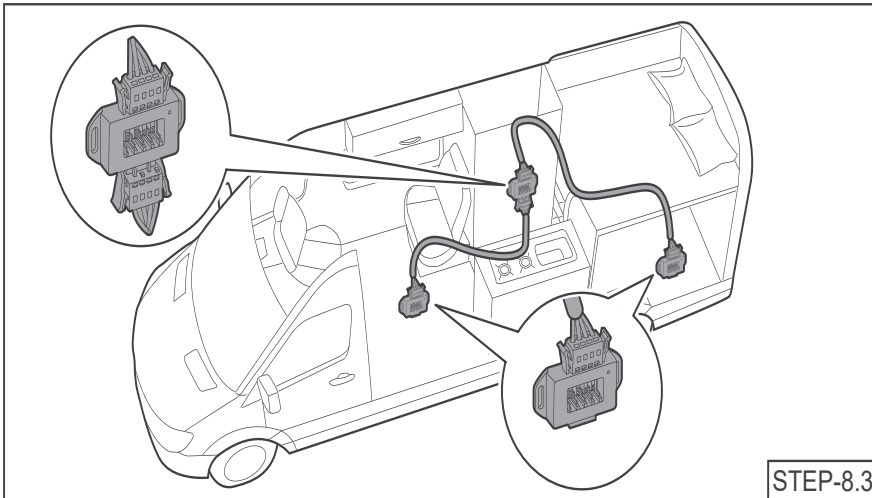


Insert the bare wires of the Drop Cable (sold separately) all the way into the wire ports of the Drop Plug (not included) following the Drop Plug pinout. The red PS+ wire goes to pin 1, the white CAN\_H wire goes to pin 2, the blue CAN\_L wire goes to pin 3, and the black PS- wire goes to pin 4.

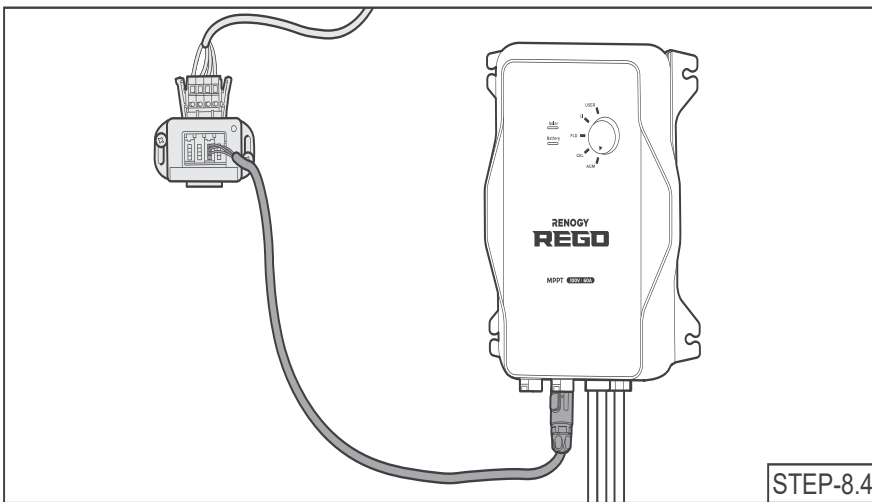


Squeeze the crimp area of the Drop Plug with a pair of split joint pliers.

# Communication



Locate the drop tap (not included) on the RV-C bus (not included) that is the closest to the charge controller installation location. The drop taps are usually located above the entry door, in the bathroom, or under the bed in the RV.



Connect either of the CAN Communication Ports of the charge controller to the drop socket on the drop tap with the Drop Cable.



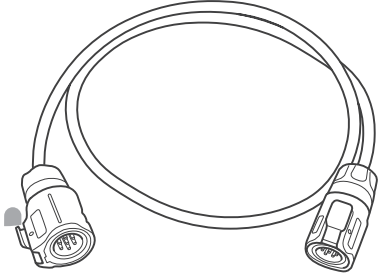
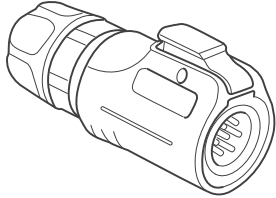
- Different drop taps are used on the RV-C bus by different RV manufacturers. This Quick Guide takes the 4-socket drop tap as an example.
- If unable to locate the drop taps, please contact the RV manufacturer for help.
- Please ensure termination at both ends of the RV-C bus with 120Ω resistors (not included).

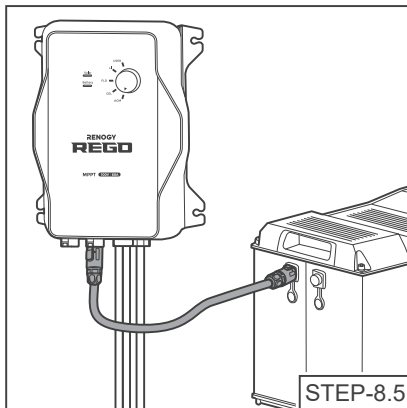
# Communication

## Daisy Chain Topology

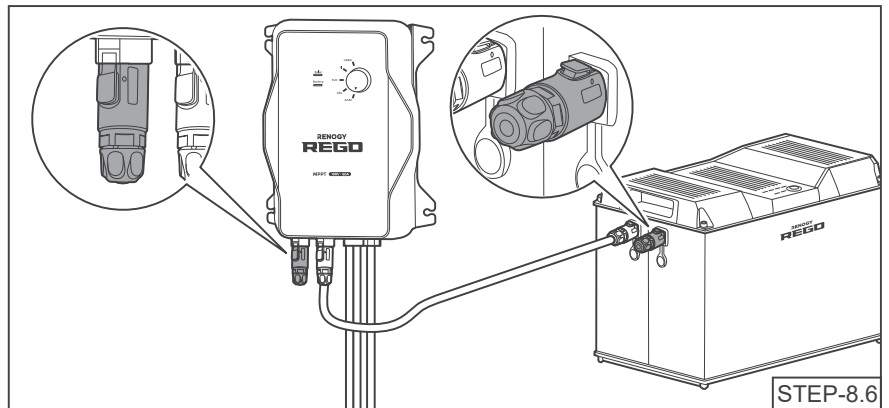
If the RV-C bus is not available, please follow the daisy chain topology for the communication connection.

### Recommended Accessories

LP16 Plug (7-Pin) Communication Cable	LP16 Terminator Plug (7-Pin)
	



Connect REGO devices in series through either of the CAN Communication Ports with the Communication Cables (sold separately).

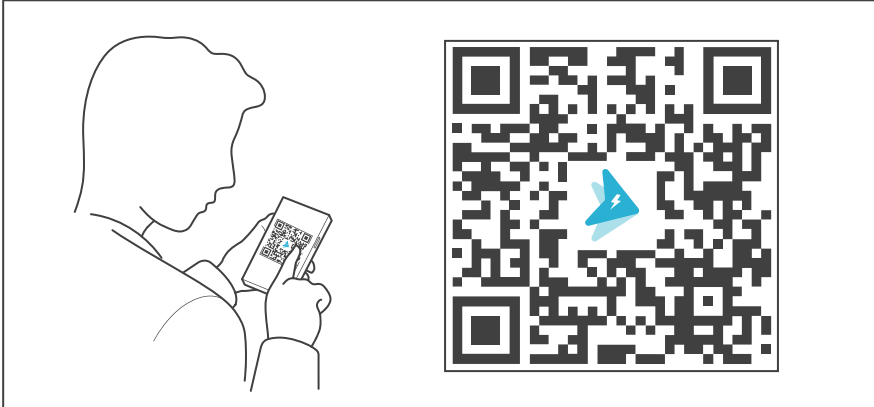


Plug the Terminator Plug (sold separately) into the free CAN Communication Ports on the first and last REGO devices.

# Communication

## System Monitoring

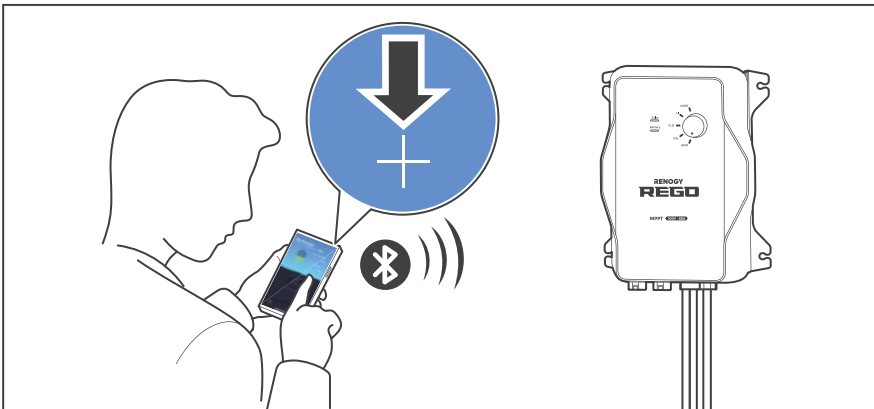
According to the actual situation, you can monitor the charge controller or even the whole system through DC Home app or Renogy Super Panel.



Please scan the QR Code on the last page of the Quick Guide to download the DC Home app.

## Bluetooth

The charge controller supports Bluetooth connection. You can check its status and data on the DC Home app once connected.



1. After the charger controller is installed and powered on, open the DC Home app, and click "+" to search and add the charge controller into the app.



# Communication

## FCC STATEMENT

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

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment 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 equipment 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 equipment 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:

- (1) Orient or relocate the receiving antenna.
- (2) Increase the separation between the equipment and receiver.
- (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- (4) Consult the dealer or an experienced radio/TV technician for help.

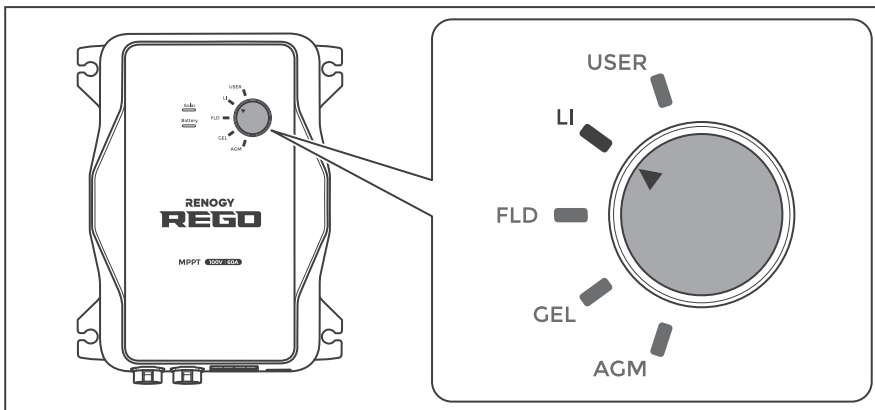
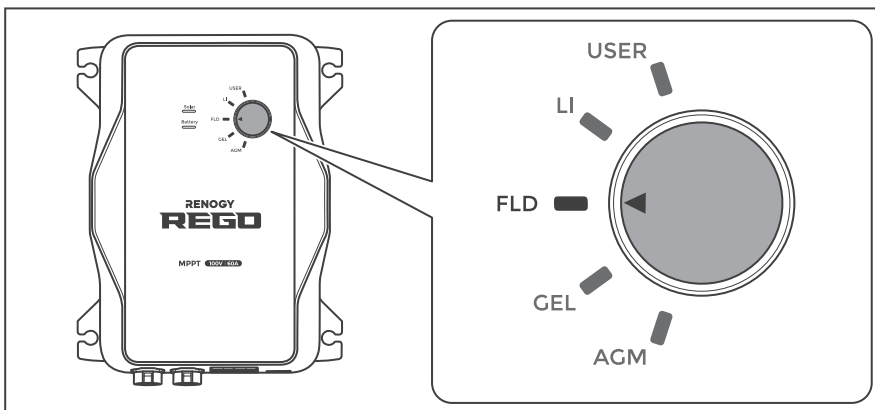
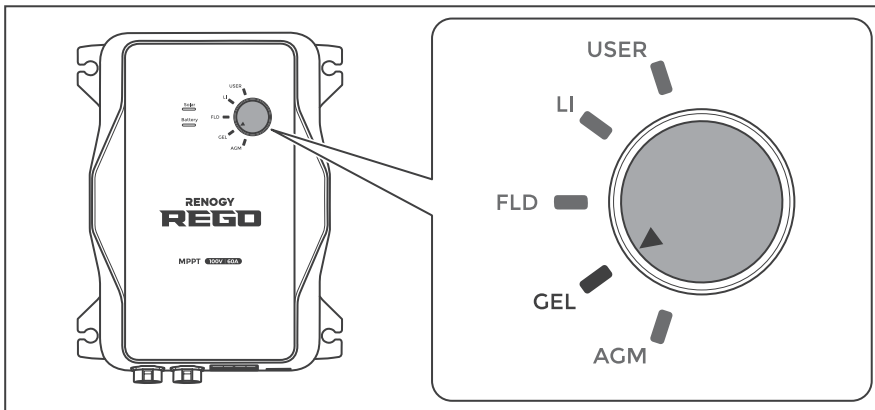
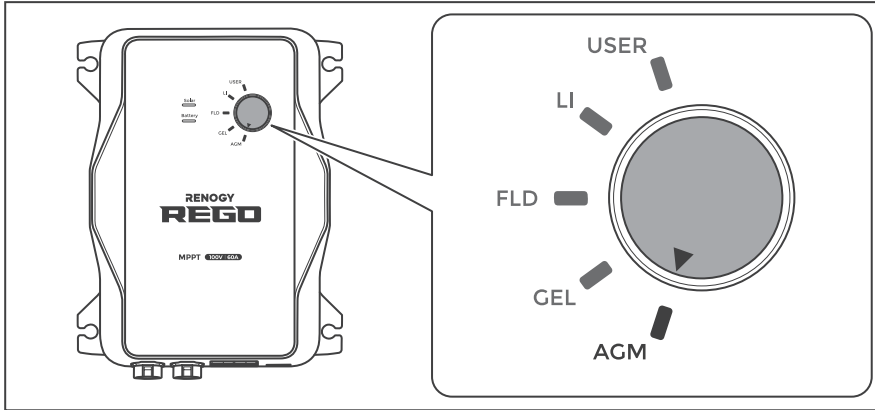
## FCC RADIATION EXPOSURE STATEMENT

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

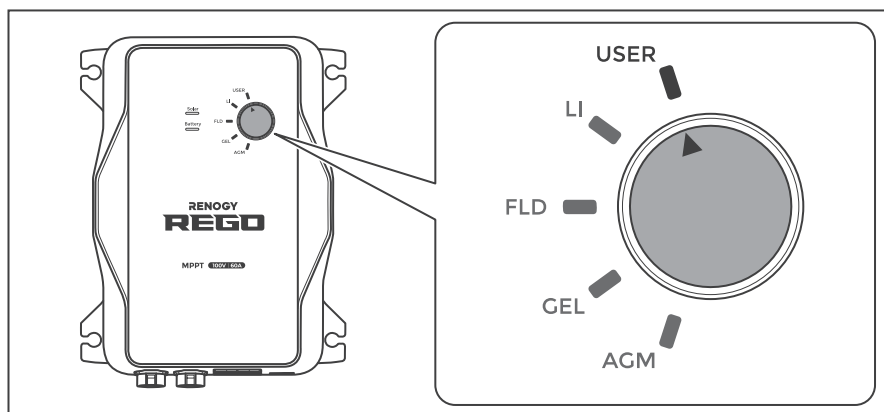
# Operation

## Battery Type

The charge controller is simple and easy to use. The plug & play design makes the installation easier, and the knob with 5 gears makes the selection of battery type more convenient.



# Operation



- User Mode requires the addition of the Renogy DC Home app to customize charge parameters. Please scan the QR Code on the last page of the Quick Guide to download the app.

## User Mode

<b>Equalization Voltage</b>	<ol style="list-style-type: none"> <li>For lead-acid batteries, please consult the battery manufacturer to obtain the voltage value, and then set the balance voltage according to the provided value.</li> <li>Please consult the battery manufacturer and check whether the equalization voltage needs to be set.</li> <li>If equalization charging is not required, please set the voltage to boost voltage.</li> </ol>
<b>Boost Voltage</b>	Please consult the battery manufacturer and check if this voltage value needs to be set.
<b>Float Voltage</b>	
<b>Undervoltage alarm voltage</b>	Please consult the battery manufacturer if it is necessary to set this parameter value.
<b>Equalization Interval</b>	
<b>Equalization Duration</b>	

# Parameters

Parameter	Value
Model	RCC60REGO
System Voltage	12V
Rated Battery Current	60A
Solar Input Power	800W
Self-consumption	≤0.5W
Battery Voltage Range	8-16V
Battery Type	SLD/AGM;FLD;GEL;USER;LI
Operating Temperature Range	-20°C - 60°C / -4 °F - 140°F
Storage Temperature Range	-25°C - 65°C / -13°F - 149°F
Charging Efficiency	Up to 97%
Humidity Range	0%-95% (NC)
Temp. Compensation Coefficient	-3mV/°C/2V
Communication	Modbus/RV-C
Dimensions	239.41 x 108.80 x 187mm

# Parameters



## WARNING

- Before modifying battery parameters, please check the table below first. Incorrect parameter setting will damage the device and void the warranty.

Battery Type Parameters	AGM/SLD	GEL	FLOODED	LI (LFP)	USER	User setting Range
OverVolts Shutdown	16.0V	16.0V	16.0V	16.0V	[16.0V]	—
OverVolts Limit	15.5V	15.5V	15.5V	14.8V	[15.5V]	—
Equalization Voltage	—	—	14.8V	—	14.6V	9.0-17.0V
Boost Voltage	14.6V	14.2V	14.6V	14.4V	14.2V	9.0-17.0V
Float Voltage	13.8V	13.8V	13.8V	—	13.8V	9.0-17.0V
Boost Return Voltage	13.2V	13.2V	13.2V	13.6V	13.2V	9.0-17.0V
LowVolts Reconnect	12.6V	12.6V	12.6V	12.8V	[12.6V]	—
UnderVolts Recover	12.2V	12.2V	12.2V	12.2V	[12.2V]	—
UnderVolts Warning	12.0V	12.0V	12.0V	12V	12.0V	9.0-17.0V
LowVolts Shutdown	11.1V	11.1V	11.1V	11.4V	[11.1V]	—
Boost Duration	120 min	120 min	120 min	—	120 min	0-600 min
Equalization Duration	—	120 min	—	—	120 min	0-600 min
Equalization Interval	0 days**	0 days**	30 days	—	30 days	0-250 days
Temperature Compensation	-3 mV/°C/2V	-3 mV/°C/2V	-3 mV/°C/2V	—	-3 mV/°C/2V	—



## CAUTION

- \* It means that if the backup battery type is lead-acid battery and the charging current is less than 3A, it will automatically switch to float charging after 30 seconds.
- 0 days\*\* means no Equalize Charging.
- Parameters with gray letters indicate that they cannot be set, and other color parameters can be set.
- [ ] The parameters in brackets are automatically adjusted according to the relevant settings, and cannot be set directly.

# Maintenance

## Inspection

For optimum performance, it is recommended to perform these tasks regularly.

- Check the appearance of the battery charger to make sure it is clean and dry.
- Ensure the battery charger is installed in a clean, dry and ventilated area.
- Ensure there is no damage or wear on the cables.
- Ensure the firmness of the Anderson connectors and check if there are any loose, damaged or burnt connections.
- Ensure that the Battery indicator and Fault indicator are in normal state.
- Ensure there is no any corrosion, insulation damage, or discoloration marks of overheating or burning.



### NOTE

- In some applications, corrosion may exist around the contacts inside the Anderson connector.  
Corrosion can loosen springs and increase resistance, leading to premature connection failure. Please apply dielectric grease to each connector contact periodically. Dielectric grease repels moisture and protects the connector contacts from corrosion.



### WARNING

- Risk of electric shock! Make sure that all power is turned off before touching the terminals on the battery charger.

## Cleaning

Please follow the steps below to clean the charger regularly.

- Disconnect all Anderson connectors that are connected to the battery charger.
- Wipe the charger housing and connector contacts with a damp cloth or non-metallic brush. If it is not clean after wiping, use a household cleaner.
- Dry the battery charger with a clean cloth and keep the area around the charger clean and dry.
- Make sure the charger is completely dry before reconnecting the Anderson connector to the charger.
- When reconnecting, the auxiliary battery must be connected first, then the starter battery or alternator.

## Storage

Please follow the tips below to ensure that the battery charger is stored well.

- Disconnect all Anderson connectors that are connected to the battery charger.
- By applying dielectric grease to each connector contact, the dielectric grease repels moisture and protects the connector contacts from corrosion.

# Emergency Responses

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 cables connected to the charger.
2. Put out the fire with a fire extinguisher. Acceptable fire extinguishers include water, CO<sub>2</sub>, and ABC.



## WARNING

- Do not use type D (flammable metal) fire extinguishers.

### Flooding

1. If the charger is submerged in water, stay away from the water.
2. Disconnect all cables connected to the charger.

### Usual Smell

1. Disconnect all cables connected to the charger.
2. Make sure nothing is in contact with the battery charger.
3. Ventilate the room.

### Usual Noise

1. Disconnect all cables connected to the battery charger.
2. Make sure no foreign objects are stuck in the controller Anderson connector.



## CAUTION

- The normal noise value is  $\leq 60$ dB when the battery charger is working.

# Technical Support

For additional support, contact the Renogy technical support team through [renogy.com/contact-us](https://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



Visit [renogy.com](https://renogy.com) to find relevant documentation or get more support via "[Contact Us](#)".  
Renogy reserves the right to change the contents of this manual without notice.

Manufacturer: RENOGY New Energy Co.,Ltd  
Address: No.66, East Ningbo Road Room 624-625  
Taicang German Overseas Students Pioneer Park  
JiangSu 215000 CN



eVatmaster Consulting GmbH  
Battinastr.30  
60325 Frankfurt am Main, Germany  
contact@evatmaster.com

Manufacturer: RENOGY New Energy Co.,Ltd  
Address: No.66, East Ningbo Road Room 624-625  
Taicang German Overseas Students Pioneer Park  
JiangSu 215000 CN



EVATOST CONSULTING LTD  
Suite 11, First Floor, Moy Road Business  
Centre, Taffs Well, Cardiff, Wales, CF15 7QR  
contact@evatmaster.com

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



Join the Renogy Power Plus Community  
by downloading the DC Home App.  
Find your e-warranty here, and more.

