

RV-C or Renogy devices supporting CAN communication

## Communication with Renogy Power Supply and Monitoring Devices

The RENOGY REGO Series 12.8V 104Ah Super Slim Solid State Lithium Battery can communicate with other Renogy power supply devices supporting CAN communication and monitoring devices through CAN (common area network) bus, also known as RV-C, enabling safe operation, smart control, remote monitoring, and programmable settings.

You can connect the battery to other Renogy devices supporting CAN communication for real-time inter-device data communication through either of the CAN Communication Ports. 7-Pin CAN Communication Terminal Plugs and 7-Pin CAN Communication Terminal Plug adapter cables are required for the wiring.

The wiring details vary depending on the wiring schemes. This user manual elaborates on inter-device wiring in two schemes: backbone and daisy chain networks.

**i** For technical support from Renogy, please contact us through [renogy.com/contact-us/](http://renogy.com/contact-us/).

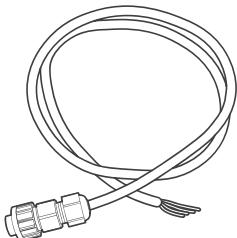
### Backbone Network

Ensure  $120\Omega$  terminating resistors are installed at both ends of the RV-C bus for successful communication with Renogy devices supporting CAN communication. If the RV user manual does not determine if the RV-C bus has a built-in  $120\Omega$  termination resistor, call the RV manufacturer to confirm.

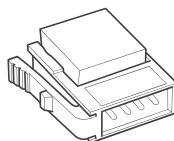
**i** If the RV-C bus does not have a built-in  $120\Omega$  termination resistor, the battery will not communicate properly with other Renogy devices supporting CAN communication. Please use the Daisy Chain Network for communication connections.

Connect devices to the battery according to the wiring diagram provided by the RV manufacturer. Choose proper communication cables according to your specific demands.

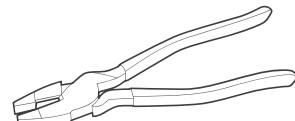
### Recommended Tools & Accessories



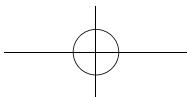
\*7-Pin CAN Communication Terminal Plug to Bare Drop Cable(s)



Drop Plugs



Split Joint Pliers



- i** Accessories marked with "\*" are available on [renogy.com](https://renogy.com).
- i** The 7-Pin CAN Communication Terminal Plug to Bare Drop Cable is only for use with the battery. Please refer to the user manual of other devices for the communication cable types they require.
- i** The drop cable shall not exceed 19.6 feet (6 m), and the RV-C bus shall not exceed 98.4 feet (30 m).
- i** Choose the appropriate drop plugs that are compatible with the drop sockets used on the RV-C bus. Different RV manufacturers may use different types of drop sockets for inter-device communication connections. If you are unsure about the correct drop plug selection, consult with the RV manufacturer. In this manual, the Mini-Clamp II plug (4-pin) is used as an example.
- i** Different Drop Plugs follow different pinouts. Crimp the Drop Plugs on the Drop Cables following the correct pinout. If you are not sure about the Drop Plug pinout, check with the RV manufacturer.

**Step 1:** Install the Drop Plugs on the bare end of the 7-Pin CAN Communication Terminal Plug to Bare Drop Cable. The white CAN\_H wire goes to pin 2, the blue CAN\_L wire goes to pin 3. Leave pin 1 and pin 4 empty.

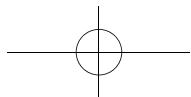
**Step 2:** Squeeze the crimp areas of the Drop Plugs with the Split Joint Pliers.

**Step 3:** Locate the drop tap (not included) on the RV-C bus that is the closest to the installation site of the battery. The drop taps are usually located above the entry door, in the bathroom, or under the bed in the RV.

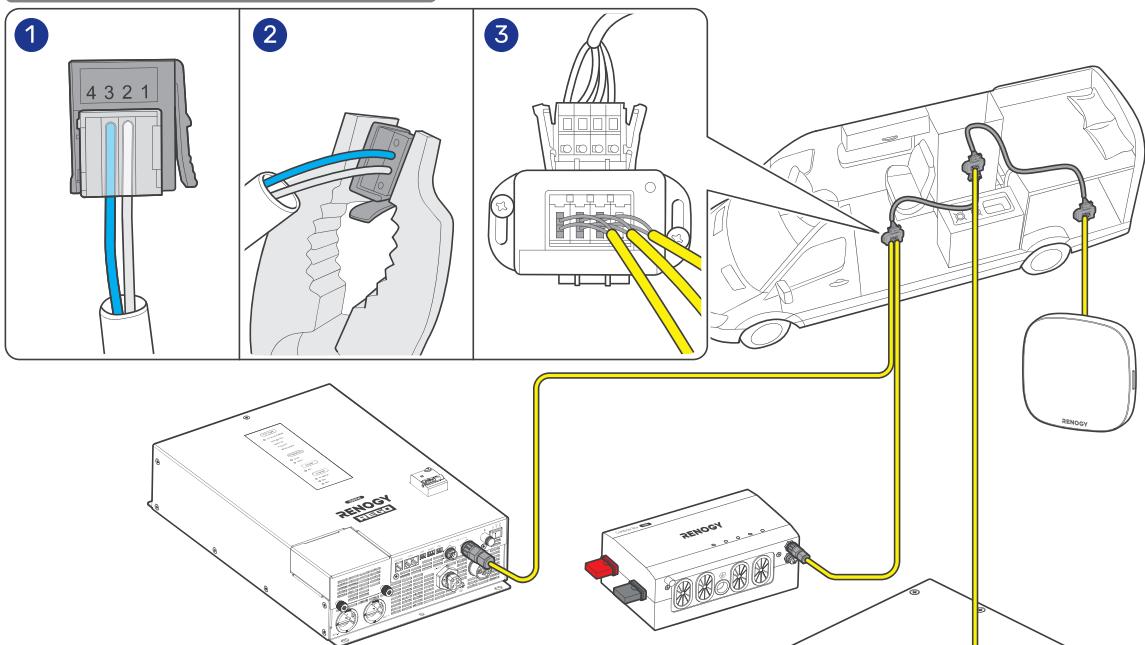
**Step 4:** Connect the Drop Plugs on the drop cables and other Renogy devices supporting CAN communication to the drop sockets on the drop tap.

**Step 5:** Insert the 7-Pin CAN Communication Terminal Plug into any of the CAN Communication Port (UP) of the battery.

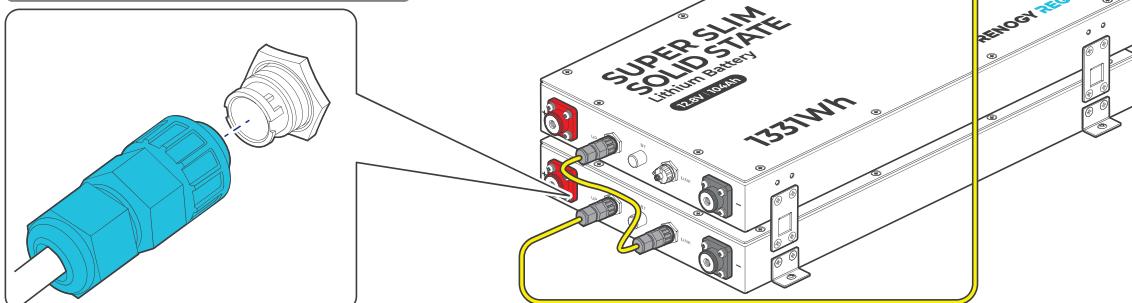
- i** If you fail to locate the drop taps, please contact the RV manufacturer for help.
- i** Different drop taps are used on the RV-C bus by different RV manufacturers. This user manual takes the 4-socket drop tap as an example.



### STEP-1 Install Cables on the RV-C bus



### STEP-2 Install Cable on the Battery



## Daisy Chain Network

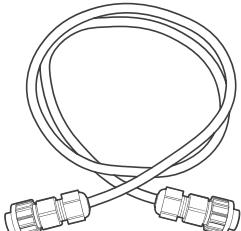
The daisy chain network applies to RVs that are not integrated with RV-C buses.

Please select the appropriate adapter cable based on the type of the CAN Communication Port specific to the device. For example:

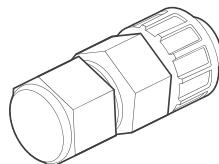
- Battery to Renogy Combiner Box: 7-Pin CAN Communication Cable
- Battery to Renogy ONE Core: 7-Pin CAN Communication Terminal Plug to RJ45 Port Adapter Cable and RJ45 Ethernet Cable (CAT5 or above)
- Battery to REGO DC-DC Battery Charger: 7-Pin CAN Communication Terminal Plug to RJ45 Port Adapter Cable and LP16 Plug (7-Pin) to RJ45 Communication Cable

**i** This section is based on a 7-Pin CAN Communication Cable.

## Recommended Accessories



\*7-Pin CAN Communication Cable(s)



\*7-Pin CAN Communication Terminal Plug(s)

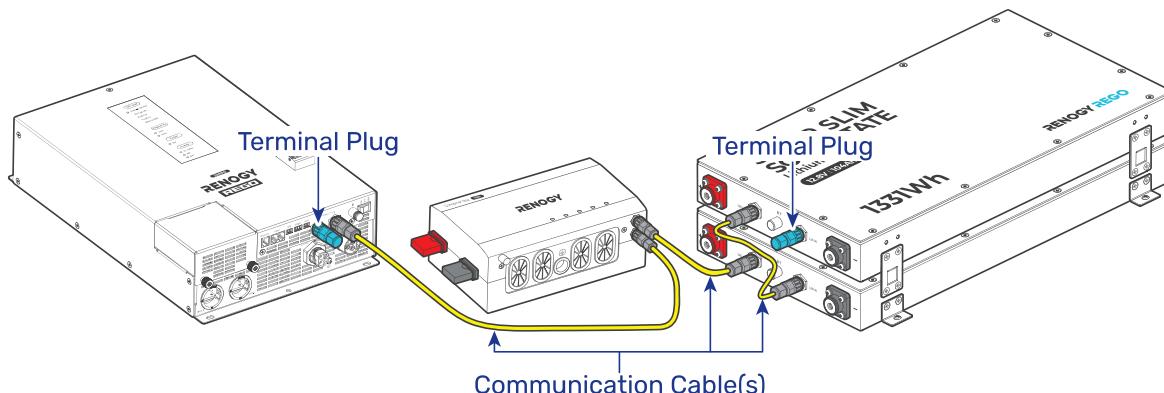
- Accessories marked with “\*” are available on [renogy.com](http://renogy.com).
- The communication cable should be less than 19.6 feet (6 m).
- Choose proper terminal plugs based on the specific CAN ports.

The quantity of communication cables and plugs varies based on the position of the battery in the daisy chain network. When the battery is positioned at either the first or the last device in the daisy chain network, one 7-Pin CAN Communication Terminal Plug and one communication cable are required. In scenarios where the battery is located in the middle of the daisy chain network, two communication cables are needed.

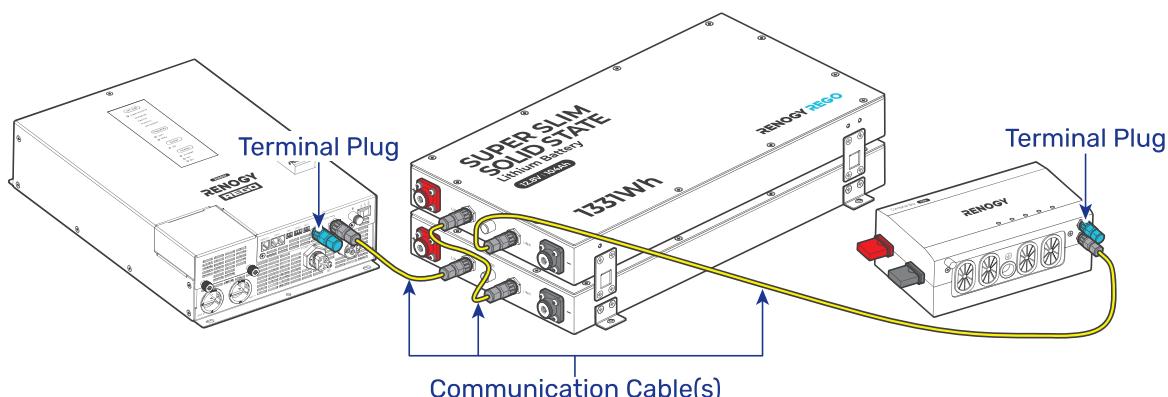
**Step 1:** Connect devices in series with the battery through either of the CAN Communication Ports with the Communication Cable(s) (sold separately).

**Step 2:** Plug the Terminator Plugs (sold separately) into the vacant CAN Communication Ports on the first and last devices.

### Battery is Positioned at the First or Last in the Daisy Chain Network



### Battery is in the Middle of the Daisy Chain Network



## How to Connect Batteries in Series or Parallel

### Recommended Accessories



\*2P Busbar

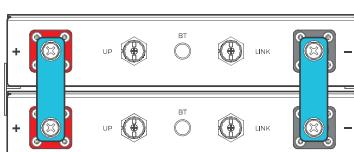


\*3P Busbar

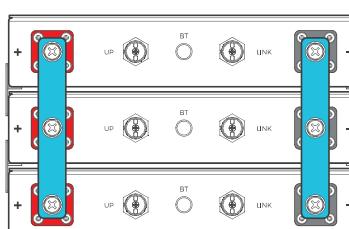


\*4P Busbar

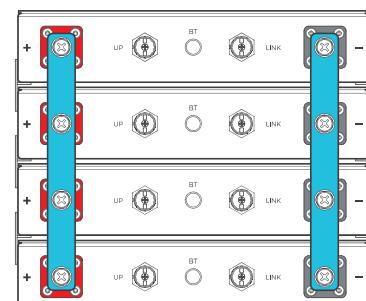
- i** Accessories marked with “\*” are available on [renogy.com](http://renogy.com).
- i** Alternatively, you can use battery adapter cables to complete series and parallel connections. Verify the positive and negative cables prior to installation.
- i** When securing multiple cable lugs on a single battery terminal, use the included Long Terminal Bolts (M8 \* 1.25 \* 16 mm).



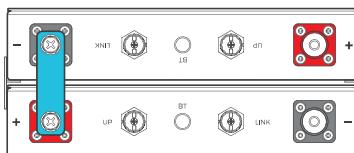
2 Parallel



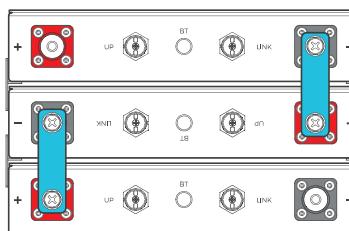
3 Parallel



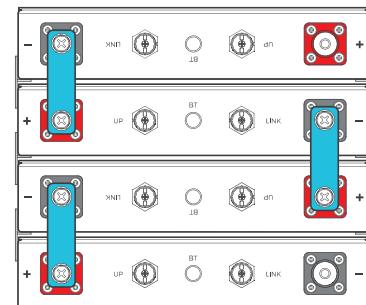
4 Parallel



2 Series



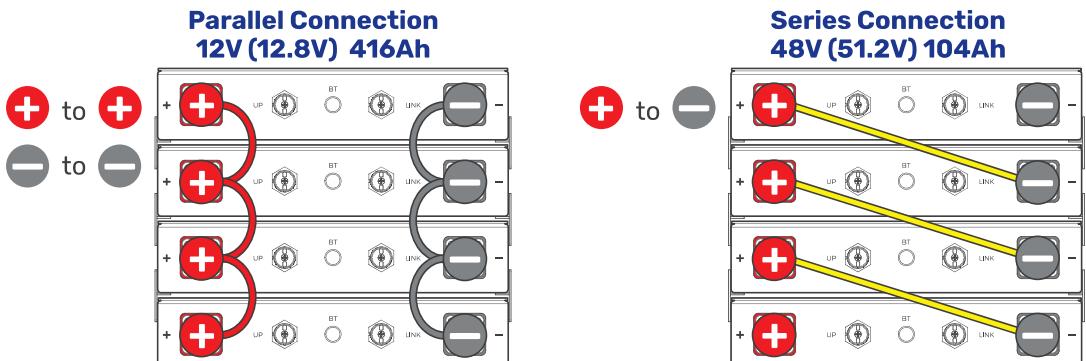
3 Series



4 Series

## Calculate Battery Voltage and Current in Series and Parallel Connections

The cables between each connected battery should be of equal length to ensure that all batteries can work equally together. You can connect up to 4 batteries in parallel or 4 batteries in series.



System Voltage	System current
12.8V	Sum of the individual battery currents

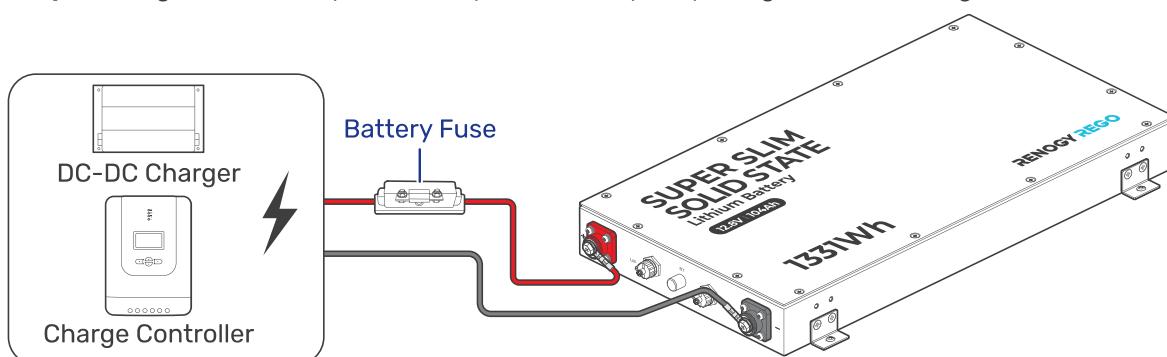
System Voltage	System current
Sum of the individual battery voltages	104A

- i Long terminal bolts (M8 \* 1.25 \* 16 mm) should be used to secure the battery adapter cables. The recommended torque is 70.8 in-lbs (8 N·m).
- ⚠ Do not connect batteries with different chemistries, rated capacities, nominal voltages, brands, or models in parallel or in series. This can result in potential damage to the batteries and the connected devices, and can also pose safety risks.
- ⚠ Avoid connecting batteries that have been purchased for more than half a year. Over time, batteries can degrade and their performance may decrease, which can affect their ability to deliver reliable power and may lead to safety hazards.

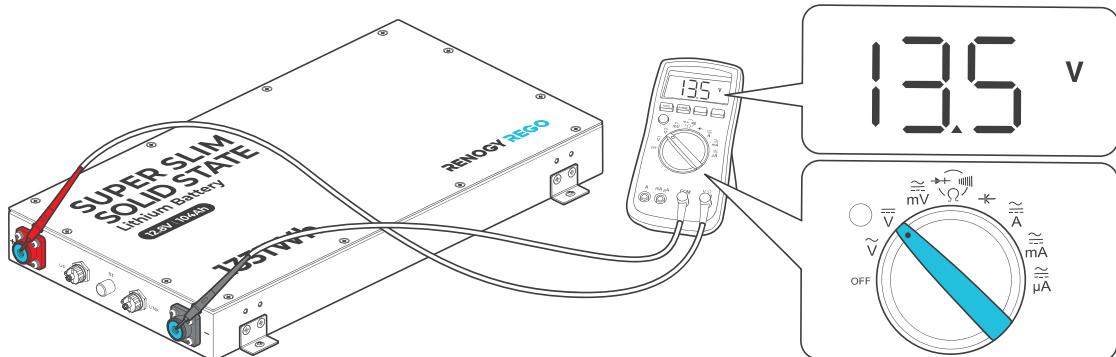
## Balance Batteries Prior to Connection

Before connecting batteries in series or parallel, it is important to balance them to reduce voltage differences and optimize their performance. Follow these three steps:

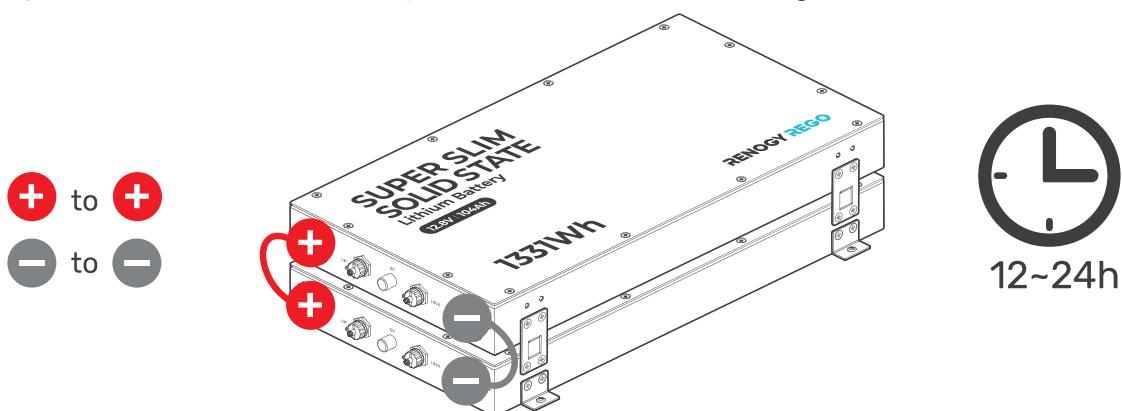
**Step 1:** Charge each battery individually to its full capacity using a suitable charger.



**Step 2:** Use a voltmeter to measure the voltage of each battery. It is best to keep the voltage difference of each battery less than 0.1V.



**Step 3:** Connect all the batteries in parallel and allow them to rest together for 12 to 24 hours.



**i** It is recommended to periodically rebalance the battery voltages every six months when connecting multiple batteries as a battery system. Slight voltage differences can occur among batteries over time due to factors like battery chemistry, capacity, temperature, and usage patterns.