

# Pure Sine Wave Inverter & Charger

Renogy 12V 2000W/3000W



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## Important Safety Instructions



Please save these instructions.

This manual contains important safety, installation, and operating instructions for the inverter. The following symbols are used throughout the manual:

**WARNING**

Indicates a potentially dangerous condition. Use extreme caution when performing this task.

**CAUTION**

Indicates a critical procedure for safe and proper operation of the inverter.

**NOTE**

Indicates a procedure or function that is important to the safe and proper operation of the inverter.

### ■ General Safety Information

- Installation and wiring must comply with the Local and National Electric Codes (NEC) and must be done by a certified technician.
- Read all of the instructions and cautions in the manual before beginning the installation.
- There are no serviceable parts for this inverter. Do NOT disassemble or attempt to repair the inverter.
- Make sure all connections going into and from the inverter are tight. There may be sparks when making connections, therefore, make sure there are not flammable materials or gases near installation.

### ■ Inverter Safety

- The inverters are suitable for 12V Battery Banks ONLY.
- ALWAYS make sure inverter is in OFF position and disconnect all AC and DC connecting when working on any circuit associated with the inverter.
- NEVER connect the AC output of the unit directly to an Electrical Breaker Panel/ Load Centre which is also fed from the utility power / generator.
- When connecting battery terminals, ensure the polarity of the battery connections is correct. Incorrect polarity may cause permanent damage to the unit.
- Be careful when touching bare terminals of capacitors as they may retain high lethal voltages even after power is removed.

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## ■ Battery Safety

- Do NOT let the positive (+) and negative (-) terminals of the battery touch each other.
- Use sealed Lead-Acid, Flooded, Gel, AGM, Lithium or Calcium batteries which must be deep cycle.
- Explosive battery gases may be present while charging. Be certain there is enough ventilation to release the gases.
- Be careful when working with large lead acid batteries. Wear eye protection and have fresh water available in case there is contact with the battery acid.
- 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.

## ■ Installation Safety

- The unit should be installed in a well-ventilated, cool, and dry environment. Make sure the fans of the unit and the ventilation holes are not blocked.
- Do not expose the unit to rain, moisture, snow, or liquids of any type.

# GENERAL INFORMATION

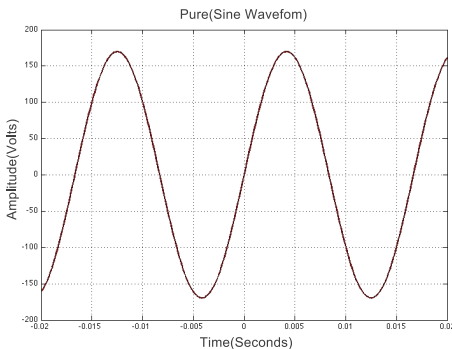
The Renogy Pure Sine Wave Power Inverter Charger delivers superior performance for remote off-grid applications. The inverter is of pure sine wave capable of producing cleaner, smoother, and more reliable electricity for a user's electronic needs. The inverter is also able to charge the battery bank when AC power is connected to the inverter.

## ■ Key Features

- Robust and sleek design
- LCD and LED display used to view inverter status and programming features
- Offers high quality waveform with little harmonic distortion
- 4-Stage battery charger with configurable charging current
- 8 Pre-Set battery voltages including Lithium; User-defined option available
- Automatic generator start option
- Peak efficiency >90%
- Multiple electronic protections

## ■ Pure Sine Wave

The Renogy Power Inverters output a pure sine wave similar to the waveform of the grid power. In a pure sine wave, the voltage rises and falls in a smooth fashion with very low harmonic distortion and cleaner utility-like power.



This gives users stable enough power to operate tools, fans, lights, computers, and other electronics without any interference. Pure sine wave inverters are in many cases more efficient, allowing users to use less energy and allow for more device capability. The main advantage to pure sine wave inverters is that they are used to operate sensitive electronic devices that require a high quality waveform with little harmonic

distortion. Almost any electronic device could be powered using a pure sine wave inverter.

## INCLUDED COMPONENTS

### ■ Battery Temperature Sensor (BTS)

Renogy inverter chargers come equipped with a battery temperature sensor that will help prolong the battery life. The temperature sensor allows the inverter charger to continuously adjust the charging voltage based on the battery temperature. Taking 25 °C as the standard temperature, the inverter charger will compensate the charging voltage with a factor of -0.5mV/°C within the temperature range of -40 °C-80 °C. The battery temperature sensor should be installed on all battery banks as it ensures that the battery receives the proper voltage. The sensor mounts on the side of the battery.



CAUTION

The battery temperature sensor must be installed for proper voltage.



Wired remote control

# INSTALLATION

## ■ AC Wiring

### WARNING

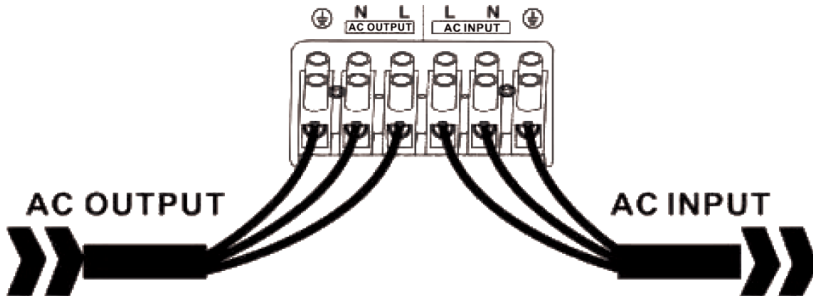
AC Output should NEVER be connected to public power or a generator.

### CAUTION

When connecting to an AC source we recommend using 6-10AWG wire and wiring just like the picture below. (120V Single Phase Wiring Only). Consult a qualified electrician about specific wire gauge in terms of material and inverter power.

AC Input: Ground-Hot Line-Neutral

AC Output: Neutral-Hot Line-Ground



Automatic Neutral-to-Ground Connection

### CAUTION

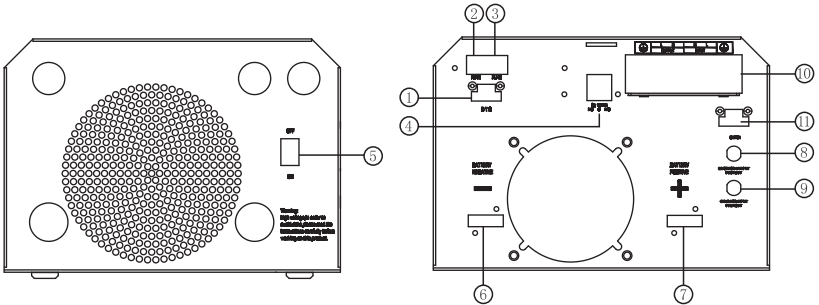
Be careful of the positive and negative poles. Reversing the poles might cause permanent damage to the inverter. It will surely blow the internal fuse.

# PRODUCT OVERVIEW

## Top view



## Side view Model 3K



- 1.BTS
- 2.RJ11
- 3.RJ45

- 4.Dry contact
- 5.On/Off
- 6.Battery negative

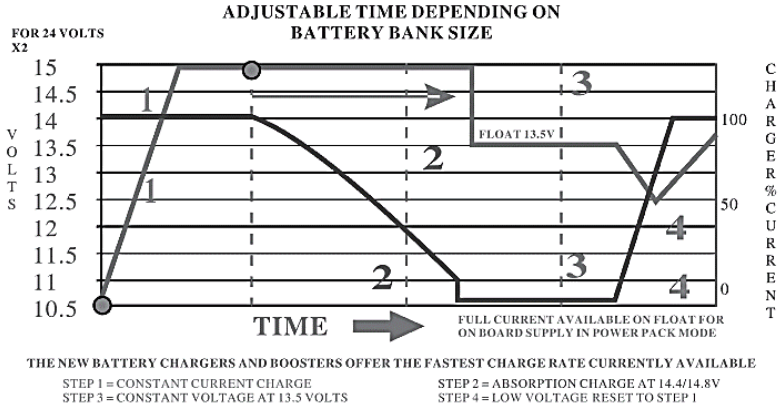
- 7.Battery positive
- 8.Inverter output protect
- 9.Charger input protect

- 10. AC Input/Output
- 11. On/Off Contact



# OPERATION

## Battery Charging Stages



**Bulk Stage:** The charger will supply constant current until the battery voltage reaches the boost voltage. The software will calculate the time charging began up until the battery voltage reaches 0.3V below the boost voltage. It uses this time to as  $T_0$  and  $T_0 \times 10 = T_1$ .

**Boost Stage:** The charger will supply constant voltage and reduce the current slowly through this stage. The charger will stay in this stage until  $T_1$  has run out. After this time the charger will enter the float stage. This stage will last between 1 hour and 12 hours depending on  $T_1$ .

**Float Stage:** During this stage the charger will supply a constant voltage which is determined by the battery selected and will keep current at a minimum. This stage acts as a trickle charger.

**Equalization:** This stage is only available if the battery selector is switched to position 8. During this stage the batteries are charged at a higher voltage than normal and for most batteries this could cause damage. Please refer to the batteries owner's manual or contact the manufacturer to see if this stage is needed.

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## ■ UTILITY PRIORITY & BATTERY PRIORITY

The inverter charger comes equipped with two working modes that can be changed using setting 01.

### Utility Priority

The default setting is Utility Priority (Ut1). Under this setting, once the inverter charger is connected to the utility, it will power the loads using the electricity from shore supply. The inverter charger will start charging the battery bank using the AC source, if necessary. In case of power outage, the system automatically switches to battery-powered mode.

### Battery Priority

The second setting is Battery Priority (SbU). Under this setting the inverter charger will provide power using the connected battery bank even when it detects an AC source. When the battery voltage reaches the low voltage set point, the inverter charger will power the loads using the connected AC source but will not charge the battery bank.

The following steps need to be taken to properly set the inverter charger to Battery Priority (SbU)

1. Press and hold the Enter key to enter the setting screen.
2. Press the down arrow key until setting 01 is shown.
3. Press and hold the Enter key until the setting starts flashing, press the up or down arrow key to select SbU. Press and hold the Enter key to save the setting.
4. Disconnect the inverter charger from the AC source/shore power.
5. Turn off the inverter charger, wait 10 seconds then turn it back on.

Taking these steps will set the inverter charger to Battery Priority (SbU)

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## ■ Audible Alarm

|   |  |
|---|--|
| Inverter Charger Failure (Low-voltage Shutdown, High-voltage Shutdown, Overheating Protection, Overload Protection) | The buzzer will keep beeping             |
| Pressing Function Keys  | The buzzer will beep for 0.5s            |
| Working Mode Transfer   | The buzzer will beep for 0.5s            |
| Overheating/Overload Alarm  | The buzzer will beep for 0.3s every 1s   |
| Low-voltage/High-voltage Alarm  | The buzzer will beep for 0.2s every 0.5s |

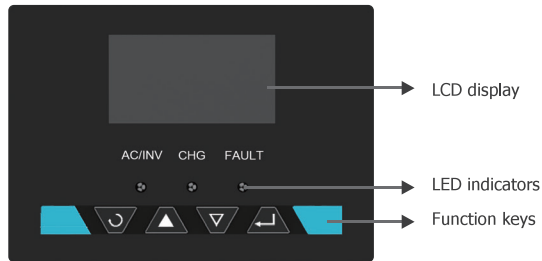
## ■ FAN Operation

The fan will work for 1 minute every 30 minutes. The operation of the fan is controlled by the following logic.

| Condition                      | Turn on Condition       | Turn off Condition   |
|--------------------------------|-------------------------|----------------------|
| Inverter Charger Uptime        | Uptime $\leq$ 1 minute  | Uptime $>$ 1 minute  |
| Inverter Mode Load Percentage  | Load $\geq$ 35%         | Load $<$ 35%         |
| DC Input Current               | Current $\geq$ 10A      | Current $<$ 6A       |
| Inverter Heat Sink Temperature | Temperature $\geq$ 50 C | Temperature $<$ 45 C |

## ■ Display Panel

The operation and display panel, shown in below chart, is on the front panel of the inverter. It includes three indicators, four function keys and a LCD display, indicating the operating status and input/output power information.



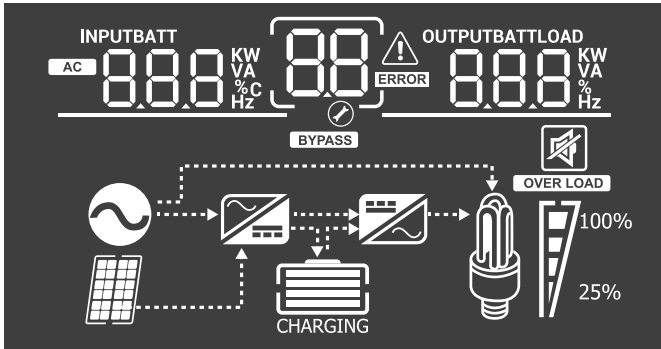
### LED Indicator

| LED Indicator |       | Messages |   |
|---------------|-------|----------|---|
| AC/INV        | Green | Solid On | Output is powered by utility in Line mode.          |
|               |       | Flashing | Output is powered by battery or PV in battery mode. |
| CHG           | Green | Solid On | Battery is fully charged.                           |
|               |       | Flashing | Battery is charging.                                |
| FAULT         | Red   | Solid On | Fault occurs in the inverter.                       |
|               |       | Flashing | Warning condition occurs in the inverter.           |

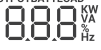

### Function Keys

| Function Key | Description  |
|--------------|--|
| ⏻            | To exit setting mode   |
| ▲            | To go to previous selection                                    |
| ▼            | To go to next selection  |
| ↵            | To confirm the selection in setting mode or enter setting mode |

## LED Display Icons



| Icon   | Function description  |
|--|---|
| <b>Input Source Information</b>                    |   |
|  | Indicates the AC input.   |
|  | Indicate input voltage, input frequency, battery voltage and charger current. |
| <b>Configuration Program and Fault Information</b> |   |
|  | Indicates the setting programs.   |
|  | Indicates the warning and fault codes.  |
|  | Warning:  flashing with warning code.   |
|  | Fault:  lighting with fault code  |

| Output Information  |  |  |
|---|--|--|
| OUTPUTBATTLOAD<br> | Indicate output voltage, output frequency, load percent, load in VA, load in Watt and discharging current.     |  |
| Battery Information   |  |  |
|                    | Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% in battery mode and charging status in line mode. |  |
| In AC mode, it will present battery charging status.  |  |  |
| Status  | Battery voltage  | LCD Display  |
| Constant<br>Current mode /<br>Constant<br>Voltage mode  | <12.0V   | 4 bars will flash in turns.  |
|   | 12.0.V-12.5V   | Bottom bar will be on and the other three bars will flash in turns.    |
|   | 12.5V-13.0V  | Bottom two bars will be on and the other two bars will flash in turns. |
|   | >13.0V   | Bottom three bars will be on and the top bar will flash.               |
| Floating mode. Batteries are fully charged.   |  | 4 bars will be on.   |

| In battery mode, it will present battery capacity. |  |             |         |          |
|--|--|-------------|---------|----------|
| Load Percentage                                    | Battery Voltage  | LCD Display |         |          |
| Load >50%  | <10.3V   |             |         |          |
|  | 10.3V ~ 10.8V  |             |         |          |
|  | 10.8V~11.3V  |             |         |          |
|  | >11.3V   |             |         |          |
| 50%> Load > 20%                                    | <10.9V   |             |         |          |
|  | 10.9V ~ 11.4V  |             |         |          |
|  | 10.9V~11.9V  |             |         |          |
|  | >11.9V   |             |         |          |
| Load < 20%   | <11.2V   |             |         |          |
|  | 11.2V ~ 11.7V  |             |         |          |
|  | 11.7V~12.2V  |             |         |          |
|  | >12.2V   |             |         |          |
| Load Information                                   |  |             |         |          |
|  | Indicates overload.  |             |         |          |
|  | Indicates the load level by 0-24%, 25-49%, 50-74% and 75-100%. |             |         |          |
|  | 0%-24%   | 25%-49%     | 50%-74% | 75%-100% |
|  |  |             |         |          |
| Mode Operation Information                         |  |             |         |          |
|  | Indicates unit is connected to shore power                     |             |         |          |
|  | Indicates load is supplied by utility power.                   |             |         |          |
|  | Indicates the utility charger circuit is working.              |             |         |          |
|  | Indicates the DC/AC inverter circuit is working.               |             |         |          |
| Mute Operation                                     |  |             |         |          |
|  | Indicates unit alarm is disabled.                              |             |         |          |

## LCD Setting

After pressing and holding ENTER button for 3 seconds, the unit will enter setting mode. Press "UP" or "DOWN" button to select setting programs. Then, press "ENTER" button to confirm the selection or ESC button to exit.

After setting out the output frequency, the output voltage, the charge current and the AC input voltage range, it is necessary to turn off the electricity and restart the inverter.






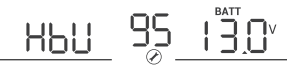



### Setting Programs:


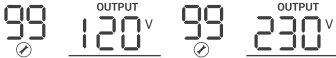
| Program | Description  | Selectable option  |  |                   |
|---------|--|--|--|-------------------|
| 00      | Exit setting mode  | Escape<br>00 ESC   |  |                   |
| 01      | Output source priority:<br>To configure load power source priority                     | Utility first (default)<br>01 UT1  | Utility will provide power to the loads as first priority. Battery will provide power to the loads only when utility power is not available.   |                   |
|         |  | Battery priority<br>01 SBU   | Battery provides power to the loads as first priority. Utility provides power to the loads only when battery voltage drops to either low-level warning voltage or the setting point in program 12. |                   |
| 03      | Input voltage range  | Wide<br>Utility effective range:<br>Nominal output voltage: -23%to+15%<br>03 APL           |  |                   |
|         |  | Narrow(default)<br>Utility effective range:<br>Nominal output voltage:-15%to+15%<br>03 UPS |  |                   |
| 04      | Power saving mode enable/disable   | Saving mode disable (default)<br>04 SdS  | If disabled, inverter output will be available at all times.   |                   |
|         |  | Saving mode enable<br>04 SEN   | If enabled, output of the inverter will be off until a load greater than 50 watts is detected.   |                   |
| 05      | Battery type<br><br>For Charging to be accurate, Temperature Sensor must be connected. | Type of battery<br>Gel 1<br>05 b-1   | Fast V<br>14.0   | Floting V<br>13.7 |
|         |  | A.G.M.1<br>05 b-2  | 14.1   | 13.4              |









|    |  |   |   |      |
|----|--|---|---|------|
|    |  | A.G.M.2<br>05 <u>6-3</u><br>⊗   | 14.6  | 13.7 |
|    |  | Sealed lead acid<br>05 <u>6-4</u><br>⊗  | 14.4  | 13.6 |
|    |  | Gel 2<br>05 <u>6-5</u><br>⊗   | 14.4  | 13.8 |
|    |  | Open lead acid Flooded<br>05 <u>6-6</u><br>⊗  | 14.8  | 13.8 |
|    |  | Calcium<br>05 <u>6-7</u><br>⊗   | 15.1  | 13.6 |
|    |  | De-sulphation<br>05 <u>6-8</u><br>⊗   | 15.5 for 4 hrs  |      |
|    |  | Li<br>05 <u>6-L</u><br>⊗  | When battery voltage reaches 14.7V charging will stop. When battery voltage drops below 12.5V charging will resume. |      |
|    |  | User-defined<br>(default fast V 14.3.<br>Floating V 13.7)<br>05 <u>6-0</u><br>⊗   | If User-Defined is selected ,user can set the battery type in program 94  |      |
| 07 | Auto restart when over temperature occurs        | Restart disabled<br>(default)<br>07 <u>Ltd</u><br>⊗   | Restart enabled<br>07 <u>LFE</u><br>⊗   |      |
| 09 | Output frequency                                 | 50Hz<br>09 <u>50</u> Hz<br>⊗  | 60Hz (default)<br>09 <u>60</u> Hz<br>⊗  |      |
| 11 | Maximum utility charging current                 | The default is the maximum value (65A-2KW, 75A-3KW), with a 5A minimum.<br>11 <u>5A</u><br>⊗  |   |      |
| 12 | Low battery voltage inverter transfer to Utility | The default is low battery voltage alarm set point. The range is from 10.5V to 12.5V,if the voltage set by user is below default point ,the default is low battery voltage alarm point.<br>Increment of each click is 0.1V for 12V<br>12 <u>11.5</u> <sup>BATT</sup><br>⊗ |   |      |








|    |  |  |  |
|----|--|--|--|
| 13 | Over-voltage battery recovery  | Over-voltage battery recovery can be set between 13.0V to 15.5V, otherwise it is output of bypass setting range is from 13.0V to 15.5V for 12V, if the voltage set by user<br>Increment of each click is 0.1V for 12V<br><br>13 <sup>BATT</sup> 13.5 V |  |
| 18 | Alarm control  | Alarm on (default)<br>18 60N   | Alarm off<br>18 60F  |
| 19 | Auto return to default display screen  | Return to default display screen (default)<br>19 ESP   | If selected display screen will return to default screen (Input voltage/ Output voltage) after 1 minute of inactivity. |
|    |  | Stay at latest screen<br>19 FEP  | Display screen will stay on current screen until user changes it.  |
| 20 | LCD Screen Control   | LCD screen will stay on indefinitely.(default)<br>20 LON   | LCD screen will turn off after inactivity.<br>20 LOF   |
| 22 | Beeps while primary source is interrupted  | Alarm on (default)<br>22 AON   | Alarm off<br>22 AOF  |
| 25 | Record Fault code  | Record enable<br>25 FEN  | Record disable (default)<br>25 FDS   |
| 26 | Bulk charging voltage(C.V voltage)<br>EV   | If User-defined is selected in program 94, this program can be set up. Setting range is from program 94<br>EV 26 <sup>BATT</sup> 13.0 V  |  |
|    | Maximum charging voltage for Lithium battery. When the voltage reaches the set voltage, charging will stop.<br>EVC | If User-defined is selected in program 94, this program can be set the maximum charging voltage. Setting range is from 13.0V-15.5V<br>EVC 26 <sup>BATT</sup> 13.0 V  |  |
| 27 | Floating charging voltage<br>FLV   | If User-defined is selected in program 94, this program can be set up. Setting range is from 13.0V to 15.0V for 12V<br>FLV 27 <sup>BATT</sup> 13.0 V   |  |
|    | Battery low voltage open charging(for lithium battery)<br>FLC  | If User-defined is selected in program 94, this program can be set up. Setting range is from 13.0V to 14.0V for 12V<br>FLC 27 <sup>BATT</sup> 12.0 V   |  |

|    |                           |   |   |
|----|---------------------------|---|---|
| 29 | Low DC cut-off voltage    | <p>The default setting is 10.0V. Setting range is from 10.0V to 12.0V with increments of 0.1V. This setting must be at least 0.5V lower than setting #98 Low Battery Alarm.</p> <p style="text-align: center;">  </p>  |   |
| 93 | Frequency Range           | <p>Special 40-70HZ </p> <p>General 50HZ 45-55HZ / 60HZ 55-65HZ </p>   |   |
| 94 | Selection of battery type | <p>Lithium battery<br/></p>  | <p>If selected, battery charge voltage and battery low open charging can be set up in program 26,27</p> |
|    |                           | <p>Other battery<br/></p>  | <p>If selected, battery charge voltage can be set up in program 26,27</p>                               |
| 95 | Battery high voltage trip | <p>When dry contact switch from NC to NO, battery voltage arrive to setting voltage, dry contact point switch to NC. This setting can not be than fast charge voltage.higher setting range is from 13.0V to 15.5V for 12V Increment of each click is 0.1V for 12V</p> <p style="text-align: center;">  </p>  |   |
| 96 | Battery low voltage trip  | <p>When battery voltage arrive to Setting point, the dry contact switch from NC to NO. This setting can not be lower than low battery voltage cut off point. setting range is from 10.5V to 12.5Vfor 12V Increment of each click is 0.1V for 12V</p> <p style="text-align: center;">  </p>   |   |
| 97 | Dry contact control       | <p>If inverter is set in dcd, dry contact function is disable, 95,96 can not be set up in program.</p> <p style="text-align: center;">  </p> <p>If inverter is set in dce, dry contact function is enable and 95,96 can be set up in program.</p> <p style="text-align: center;">  </p> |   |

|    |                           |  |
|----|---------------------------|--|
| 98 | Low voltage battery alarm | <p>The default is 10.5V. The setting range is 10.5V-12.5V with increments of 0.1V. This setting will be at least 0.5V greater than setting #29</p>  |
| 99 | AC output voltage         | <p>The default is 120V, can be set between 100V-120V with increments of 5V</p>    |

## ■ Fault Reference Code

| Warning Code | Warning Event              | Icon On   |
|--------------|----------------------------|---|
| 03           | Battery over voltage       |  |
| 04           | Battery low voltage        |  |
| 05           | Inverter over temperature  |  |
| 07           | Inverter overload          |  |
| 88           | Transformer phase reversal |  |
| 89           | Frequency is out of range  |  |

| Fault Code | Fault Event                   | Icon on   |
|------------|-------------------------------|---|
| 02         | Heat sink over temperature    |  |
| 03         | Battery voltage is too high   |  |
| 04         | Battery voltage is too low    |  |
| 05         | Output short circuit          |  |
| 06         | Output is too high or too low |  |
| 07         | Overload                      |  |
| 99         | Inverter fail to slow start   |  |

# SPECIFICATIONS

| Model                          | R-INVT-PCL1-20111S  | R-INVT-PCL1-20123S | R-INVT-PCL1-30111S | R-INVT-PCL1-30123S |
|--------------------------------|---|--------------------|--------------------|--------------------|
| <b>Inverter Specifications</b> |   |                    |                    |                    |
| Rated Output Power             | 2000W   |                    | 3000W              |                    |
| Surge Power (1 second)         | 6000W   |                    | 9000W              |                    |
| Surge Power (3 seconds)        | 3000W   |                    | 4500W              |                    |
| Surge Power (10 seconds)       | 2400W   |                    | 3600W              |                    |
| Nominal output Voltage RMS     | 120/230VAC ( 100 ~ 120VAC, 5V intervals ; 200 ~ 240VAC 10V intervals )  |                    |                    |                    |
| Output Frequency               | 50HZ $\pm$ 0.3HZ or 60HZ $\pm$ 0.3HZ  |                    |                    |                    |
| Output Wave Form               | Pure Sine Wave  |                    |                    |                    |
| Output Overload                | 105% < Load < 120% $\pm$ 10% : Fault ( Turn off output after 10 seconds)<br>120% < Load < 150% $\pm$ 10% : Fault ( Turn off output after 3 seconds)<br>150% < Load $\pm$ 10% : Fault ( Turn off output after 1 seconds) |                    |                    |                    |
| Nominal Input Voltage          | 12 VDC  |                    |                    |                    |
| Input Voltage Range            | 10~ 16 VDC $\pm$ 0.3 VDC  |                    |                    |                    |
| Low DC Warning Voltage         | 10.5 VDC $\pm$ 0.3 VDC  |                    |                    |                    |
| Low DC Cut-off Voltage         | 10 VDC $\pm$ 0.3 VDC  |                    |                    |                    |
| Short Circuit Protection       | Software Protection   |                    |                    |                    |
| Nominal Efficiency             | > 90% Peak  |                    |                    |                    |
| No load power Consumption      | Normal:<20W   |                    | Normal:<30W        |                    |
|                                | Power Saving:<15W   |                    | Power Saving:<15W  |                    |

| <b>Charger Specifications</b>   |   |  |       |  |
|---------------------------------|---|--|-------|--|
| Nominal Input Voltage           | 120/230 VAC   |  |       |  |
| Input Voltage Range             | 90-138 / 155-275 VAC  |  |       |  |
| Input Frequency Range           | 40Hz - 70Hz   |  |       |  |
| Input Wave Form                 | Sine Wave ( Utility or Generator )  |  |       |  |
| Power Factor                    | 0.9 - 1   |  |       |  |
| Optimal Efficiency              | >85%  |  |       |  |
| Output Current                  | 5-65A   |  | 5-75A |  |
|                                 | Configurable, 5A intervals  |  |       |  |
| Short Circuit Protection        | Circuit Breaker   |  |       |  |
| Output Overload                 | 120% < Load < 150% $\pm$ 10% : Fault ( Turn off output after 60 seconds)<br>150% < Load $\pm$ 10% : Fault ( Turn off output after 1 second) |  |       |  |
| Over Charge Protection Shutdown | 16.0V for 12VDC   |  |       |  |

| <b>Transfer Switch Specifications</b> |                            |
|---------------------------------------|----------------------------|
| Transfer Time                         | ~ 10ms                     |
| Transfer Relay Rating                 | 3 Legs @ 40A each (277VAC) |
| Line Mode Efficiency                  | > 95%                      |

| Model                         | R-INVT-PCL1-20111S  | R-INVT-PCL1-20123S | R-INVT-PCL1-30111S | R-INVT-PCL1-30123S |
|-------------------------------|---|--------------------|--------------------|--------------------|
| <b>General Specifications</b> |   |                    |                    |                    |
| Battery Types                 | GEL, AGM, SLA, FLD, CAL, LI, USER   |                    |                    |                    |
| Operating Temperature Range   | 0~40°C/0~104°F  |                    |                    |                    |
| Storage Temperature           | -30~70°C/-22~158°F  |                    |                    |                    |
| Humidity                      | 0% ~ 95%  |                    |                    |                    |
| Noise                         | <50dB   |                    |                    |                    |
| Dimensions                    | 510 x 248 x 193 mm / 20.1 x 9.7 x 7.6 in  |                    |                    |                    |
| Weight                        | 51.1 lbs / 23.2 Kg  |                    | 63.5 lbs / 28.8 Kg |                    |
| Certifications                | ETL listed to CSA Standard C22.2 No. 107.1 and UL458 with marine supplement<br>FCC part 15 Class B , CE |                    |                    |                    |

\*Product specifications are subject to change without further notice

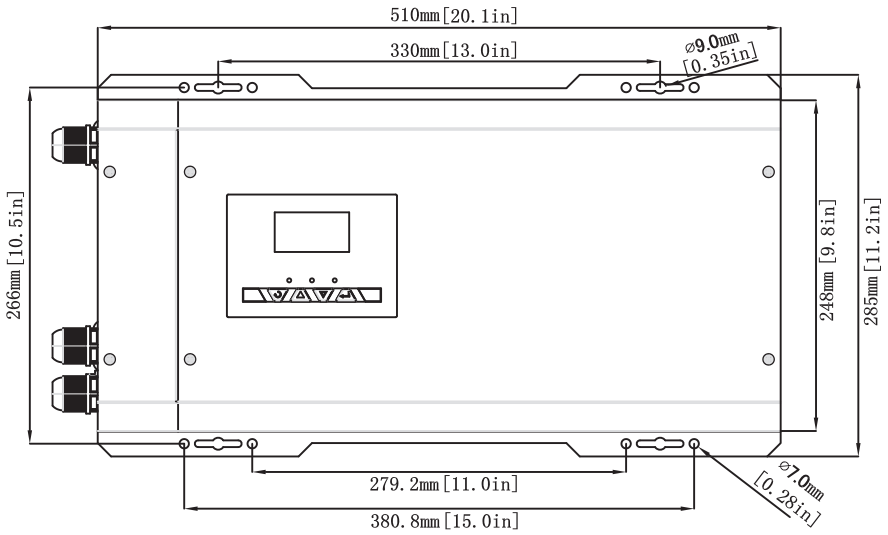
This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate 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:

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

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.

# DIMENSIONS

## ■ 2000W / 3000W





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Renogy reserves the right to change the contents of this manual without notice.