User Manual

RX SERIES ALL IN ONE

RX-2505PW


Redx

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About This Manual

This manual mainly describes the product information, installation, operation, and maintenance guidelines of the Redx energy storage system. Please read this manual carefully before using this product and store the manual in a safe place. Redx will not notify the user of any changes to this manual.

This manual applies to the RX-2505PW all in one energy storage integrated system. The system must be installed by a qualified / licensed technician. The battery chemistry in the all-in-one energy storage system is lithium iron phosphate. We strongly recommend that installers read this manual carefully. The manual includes the guidance on product installation, troubleshooting, communication and other aspects.

Contents

• 1 Safety

• 1.1 Important Safety Instructions

The energy storage system has been designed and tested strictly according to international safety regulations. Read all safety instructions carefully prior to any work and always observe them when working with the energy storage system.

Incorrect Operation or Work may cause:

- Injury or death to the operator or third party.
- Damage to the inverter and other property or third party.

Safety Instructions

(1) Do not open the case as risk of electric shock is present.
(2) Maintenance should be carried out by a professional licensed technician.
(3) Read this manual before operating the system. Redx is not responsible for failure or loss arising out of improper operation.
(4) All wiring, installation, commissioning, and other work should be done by a professional licensed technician.
(5) Ensure that the storage unit is not installed or used in the following locations:

1. Poorly ventilated room.
2. Places with inflammable gases or corrosive materials and large amounts of dust.
3. High or low environment temperature (above 50°C or below 0°C), or high humidity (greater than 90%).
4. In direct sunlight or near heating equipment.
5. Outdoors (indoor installation only)
6. Do not use anything to cover the inlet and exhaust of the module.

In case of fire, use dry powder fire extinguishers instead of liquid fire extinguishers.

All electrical connections are subject to the local grid safety regulations and the storage system should be reconnected to the grid under conditions of approval.

Table 1-1 - Warnings

	**Danger!** Removal of any protection, incorrect use, incorrect installation, or incorrect operation may result in death / serious personal injury or device damage. Transportation, loading and unloading, installation, start-up and maintenance must be carried out by qualified or trained engineer/technician.
	**Danger!** Before maintenance or touching any parts, or installation, make sure that the energy storage unit is disconnected and wait 5 minutes to ensure that the internal capacitor is discharged
	**Danger!** Do not connect the N of grid to the N of EPS output, Do not connect the grid cable to the UPS output, otherwise it may cause serious damage to the system and load.
	**Warning!** Installation must be in full compliance with national and local laws and regulations.
	**Warning!** Ensure that the system is positioned correctly and is not allowed to roll sideways or upside down.
	**Warning!** Do not change the internal circuit of the machine without permission.
	**Warning!** Before connecting to the grid, system frame must be connected to the protective earth ground. Follow the instructions. Improper operation may cause serious damage.
	**Notice!** There is a 4G / WIFI device inside the system, do not place the system in an environment where there is no 4G / WIFI signal.

	Warning! The product is not tested to section 5 of AS/NZS 4777.2:2020 and is not to be used in multiple inverter combinations without additional considerations by the system designer.
	Warning! The load capacity of the output of the inverter is as follows: Inductive load (such as air conditioning, washing machine, motor, etc.): Single maximum power 1.5kVA, total inductive load maximum power 2.5kVA (with grid power). Capacitive load (e.g. computer, switching power supply, etc.) : The maximum power of the total capacitive load is 1.5kVA (without grid power), The maximum power of the total capacitive load is 2.5KVA(with grid power).

2 Product Introduction

2.1 System Diagram

The RX-2505PW system uses the grid and battery to ensure the continuous power supply to important loads. The system allows users to store the energy from grid into the battery, and send the stored energy to the grid when needed. It can also provide backup power during a power outage.

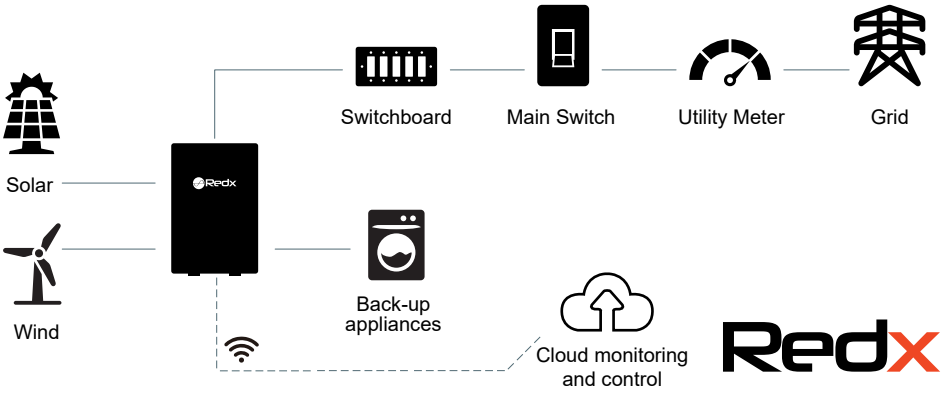


Figure 2-1 – System block diagram

Figure 2-1 shows the application of the RX-2505PW all-in-one energy storage system. RX-2505PW contains the inverter and battery storage modules. It is important to keep the installation environment well ventilated and take necessary measures to control the ambient temperature to avoid the risk of explosion caused by excessive battery temperature.

- **2.2 Production Introduction**
- **2.2.1 Appearance and Dimensions**

Figure 2-2 – Battery system components

Table 2-1 – Battery components details

Items	Name
1	Main power Switch
2	Battery air circuit-breaker
3	DC1 port
4	DC2 port
5	Battery status indicator
6	DRM0 RJ45 Terminal
7	RS485(USB)
8	CT / Meter Terminal
9	AC Terminal
10	EPS Terminal
11	Mounting bracke
12	Rear cover bracket

- **2.3 Dimension and Weight**

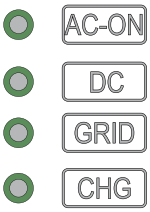
Figure 2-3 – Battery system dimensions

Table 2-2 – Battery systems dimensions details

A（mm）	B（mm）	C（mm）	Weight
145	600	900	75Kg

• 2.4 LED Indicator Panel and Switches

Table 2-3 – Battery interface details

Items	Name	Function	
 AC ON - OFF	Switch button	Turn on / off the system	
	Operating status	AC-ON	Run – Green
			Fault – Red
		DC	NO DC – Led off
			DC1>100W - Green（Flash）
			DC2>100W - Blue（Flash）
			DC1 & DC2 >100W - Yellow（Flash）
		GRID	Grid connected – Green
			Grid disconnected – Blue
		CHG	Charging – Green
			Discharging – Blue
	SOC	Battery status	
	Battery circuit-breaker	Air circuit-breaker between battery and inverter	

• 2.5 Name Plate Labelling

RX-2505PW label contains the following information.

Table 2 - 4 – Battery label specifications

Battery Storage System

Redx

RX-2505PW

Model Name	RX - 2505PW
AC Output / Input Data	
Rated Input / Output Power	2500W
Rated Output Apparent Power	2500VA
Nominal Voltage	230Vac
Rated Input / Output Current	10.8A
Nominal Frequency	50Hz
Power Factor Range	0.8Leading - 0.8Lagging
EPS Output Data	
Nominal AC Output Power	2500VA
Nominal AC Output Voltage	230Vac
Nominal AC Output Frequency	50Hz
Rated Output Current	10.8A
Power Factor Range	> 0.9
DC1 / DC2 Input Data	
Input Rated Current（Max continous）	25A / 25A
Nominal Voltage	48V
Others	
Battery Capacity	4800Wh
Protective Class	Class I
Ingress Protection	IP32
Inverter Topology	Isolated
Operation Ambient Temperature	Charge: 0˚C～50˚C Discharge: -20˚C～50˚C
Software Version	V3.10.00

002XOJF130001B

Redx Technology Australia Pty Ltd
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Made In China

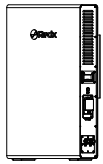
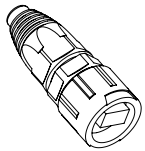
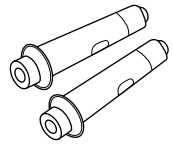
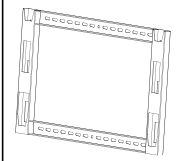
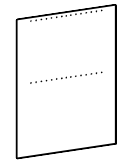
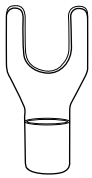
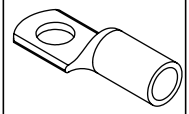
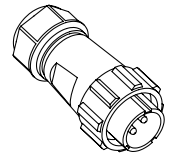
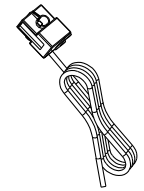
2.5.1 Product Benefits

a. Backup power supply, peak shaving, asset management
b. Integrated design, save installation time and costs
c. Smart management, different operating modes
d. Battery safety management system
e. Remote scheduling, intelligent management
f. Multiple protection

2.6 Scope of Delivery

Please check the condition of the packing before unpacking. If any parts are damaged or missing, contact your local supplier for help.

Table 2-5 – Parts in the box

				
RX-2505PW	RJ45	M6 bolts	Bracket	Hole template
1PCS	1PCS	8PCS	1PCS	1PCS
				
M4	Document	M5 lugs	4 Pin CT connector	CT
10PCS	1PCS	1PCS	1PCS	1PCS

2.7 Storage

Store the unit properly when the unit is not installed immediately

- Store the unit in the original packaging box.
- Storage temperature should be always between 0°C and 50°C+.
- Package dimensions 1025x755x330(mm), weight 101.5kg.
- Maximum stacking 6 pallets.

Storage temperature	-20℃~45℃	Less than ① month
	15℃~35℃	Less than ⑥ months

Table 2-6 – Storage temperature

Figure 2-4 - Packaging

3 Installation

3.1 Installation Preparation

a. Indoor installation only, IP32.
b. Vertically mount only.
c. Install in a ventilated location. There must be enough clearance to ensure that the module operates in the optimal heat dissipation state.
d. Install at suitable distance from any restricted areas, please review Standard ASNZS5139.
e. Install on a sturdy supported surface.
f. The location must support the weight and size of the module.
g. The environmental temperature must be between 0 °C and +50 °C, and the relative humidity between 0% and 90% (without condensation).
h. Check the fans in the unit regularly.
i. Location shall be dry with adequate air flow (pollution level < 2) and without excessive dust
j. Wiring terminals require protective covers.
k. Installation is prohibited in any of the following environments:

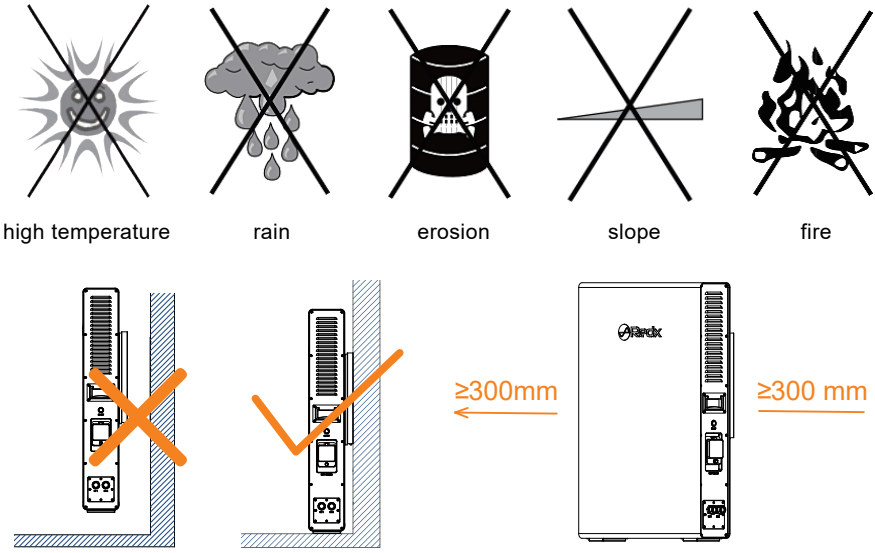


Figure 3-1 – Installation locations

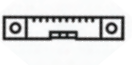
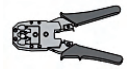
The minimum clearance on the sides must be maintained at least 300mm

a. Installation location of the system should be easy for operator to turn off at any time.
b. Do not install the system near signal transmitters.
c. Do not install the system in the living area.
d. Do not install the system at location where children can easily access.

- **3.2 Installation Tools**

  Prepare the following tools before installation

Table 3-1 – Installation tools

Type	Tool			
General tools	 Packaging tape	 Marker	 Measuring tape	 Level
	 Utility knife	 Multimeter Measurement range: ≥ 1100Vdc	 Protective clothing	 Wrist strap
	 Protective gloves	 Dust mask	 Earplugs	 Goggles
	 Insulated shoes	 Vacuum cleaner		
Installation tools	 Hammer drill bit	 Rubber mallet	 Slotted screwdriver	 Phillips screwdriver Specification: M4, M6
	 Wire stripper	 Hydraulic clamp	 Crimping pliers	 Wire nippers
	 Crystal head crimping pliers	 Percussion drill		

• 4 Installation Guide

• 4.1 System Wiring Diagram

Figure 4-1 shows the wiring topology (dashed boxes indicate optional components) of the RX-2505PW all-in-one energy storage system. The RX-2505PW can be connected to a maximum of two wired CTs, please note that the CT cable length should not exceed 10m.

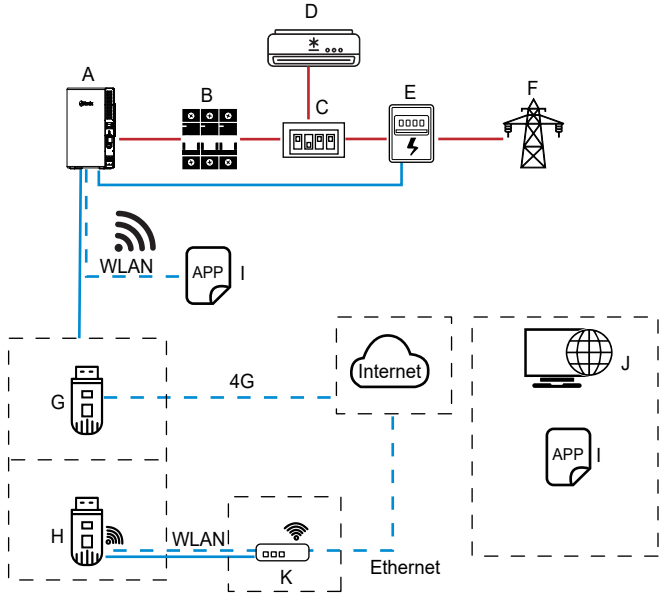


Figure 4-1 – Battery system connections topology

Red indicates a power cable, Blue indicates a signal cable , Green indicates wireless communication The explanation is as follows:

Table 4-1 – Battery connection details

Number	Name
A	RX-2505PW
B	AC switch
C	Switchboard
D	Load
E	Smartmeter / CT
F	Grid
G	Optional 4G Module
H	Auxiliary WLAN-FE Module
I	Redx Power APP
J	Management system

- **4.2 Installation Procedure**

1. Align the hole template (locating plate) with the ground and place it flat on the wall.
2. Align the hole template on the installation surface and drill holes with a diameter of 8mm and a depth of 40mm on the wall.
3. Install the m6x60 expansion screws into the previously drilled holes.
4. Secure the fixing bracket to the wall using a socket wrench and tighten the expansion bolts.
5. Align the unit with the fixing bracket on the wall and lift the unit on to the bracket by lowering it into the holes.
6. Prepare the unit for installation of cabling.

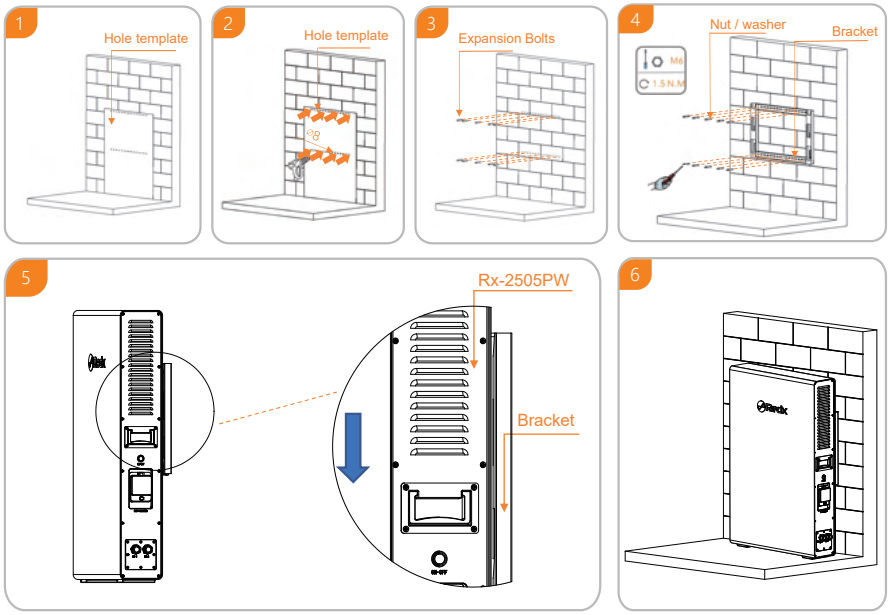


Figure 4-2 – Battery unit mounting steps

- **4.3 Earth Connection**

A secondary protection grounding terminal is added for the system. Ensure that the grounding resistance is less than 10 Ω and the grounding cable diameter is not greater than 10mm. [2]

• 5 Cable Connection

• 5.1 Connect Cables to the AC Grid Side and off - Grid Side

RX-2505PW has terminals for on and off-grid. As shown in Figure 5-1, the left terminal is the off-grid terminal (EPS) and the right terminal is the on-grid terminal. An independent AC circuit breaker must be configured for each circuit to safely disconnect then system. When selecting the external cable, consider the hole in the cable gland.The table below is a recommendation for cable selection. Engineers should refer to local standards to select cables. Cable length is generally 2 to 10 meters, long cable will lead to voltage drop from the rated value, consequently requiring an increase of the cross-sectional area.

Recommended specifications of AC circuit breaker:

Table 5-1 – Circuit breaker sizing

Model	AC circuit breaker Suggestion
RX-2505PW	25A

Table 5-2 – Cable sizing

The following table lists the recommended specifications of AC cables

Model	Cross-sectional area (mm^2)		Cable outer diameter(mm^2)	
	Range	Best	Range	Best
RX-2505PW	4-6	4	10-14	14

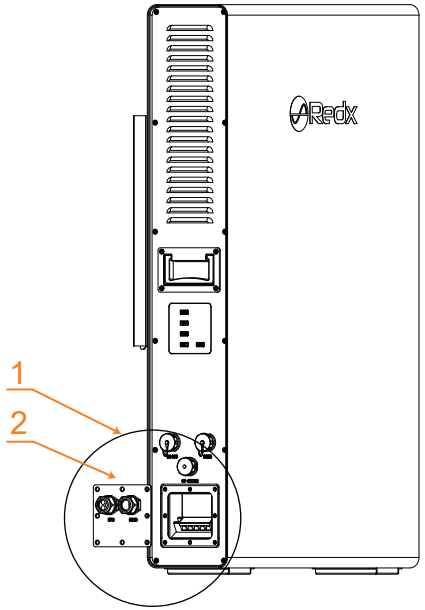


Figure 5-1 – Battery 240V terminals and covers

Table 5-3 – Battery 240V terminal cover details

1	2
RX-2505PW AC terminals	GRID/EPS wiring cover

Requirements

1.Install an AC circuit breaker between the inverter and the grid before connecting the system to the grid.

2.Grid voltage and grid frequency should be within the allowable range of inverter operation.

Steps

1. First, prepare the required connecting wires according to the following. It is recommended that the live wire be red, the ground wire be black, and the safety earth wire be yellow and green.

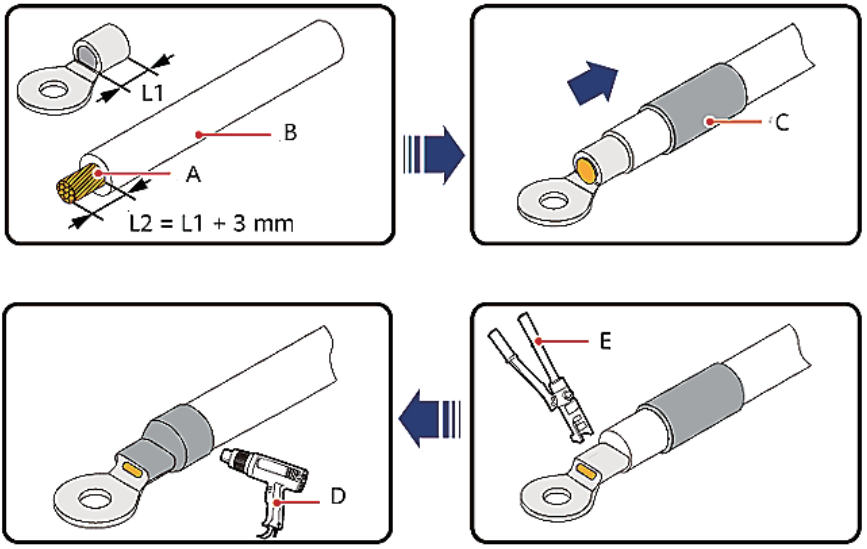


Figure 5-2 – Cable crimping instructions

（A） Core wire （B） Insulation layer （C） Heat shrink tubing
（D） Heat gun （E） Hydraulic pliers

2. Remove the cover of the terminal

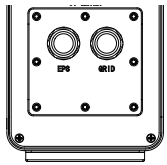


Figure 5-3 - Terminal cover

3. Note the wiring terminals

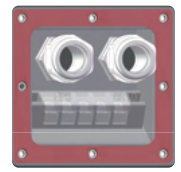


Figure 5-4 - Wiring terminals

4.Connect the cable to the corresponding terminal according to the marking and tighten the screws:

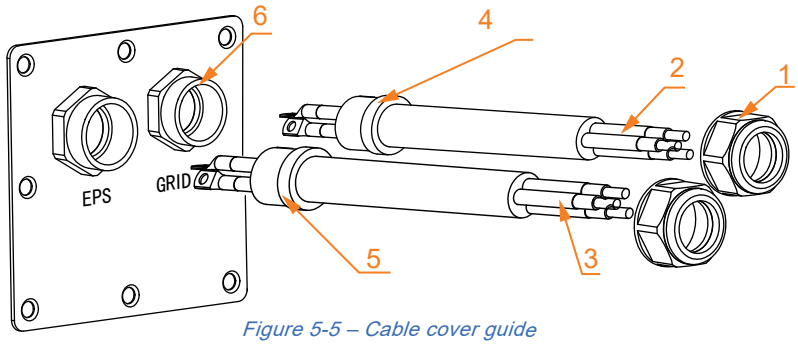


Figure 5-5 – Cable cover guide

Table 5-4 – Cable and cover details

1	2	3	4	5	6
Nuts	GRID 3 core cable	EPS 3 core cable	Rubber seal	Rubber seal	Cover

5. Follow similar steps to connect the off-grid side, ensure that all wires are securely connected and reinstall the cover plate.

5.2 Connect Cables to DC1 and DC2

1.Connect the cable to the corresponding terminal according to the mark, and tighten the screws;

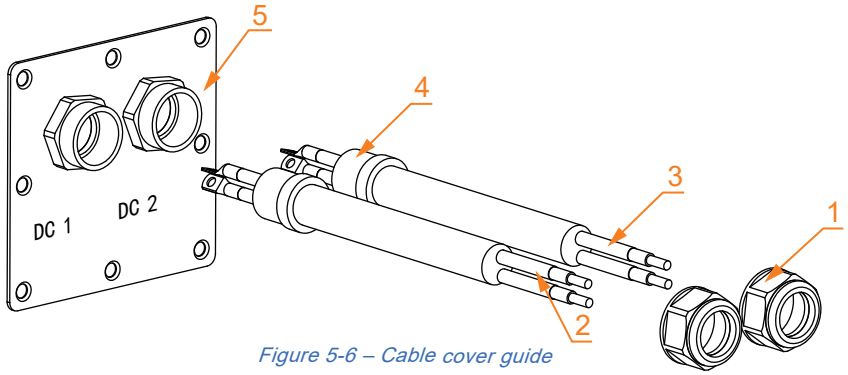


Figure 5-6 – Cable cover guide

Table 5-5 – Cable and cover details

1	2	3	4	5
Nut	DC+	DC-	Rubber seal	Cover

2. The following table lists the parameters of DC1 / DC2 cables.

Table 5-6 – DC Cable specifications

	Nominal voltage	Input Current
DC1 / DC2	48V	25A/25A

The recommended connection is as follows:

This diagram is an example for an installation where Neutral connects to PE in the switchboard. Example countries that have this regulation: Australia, New Zealand. Please follow local wiring regulations!

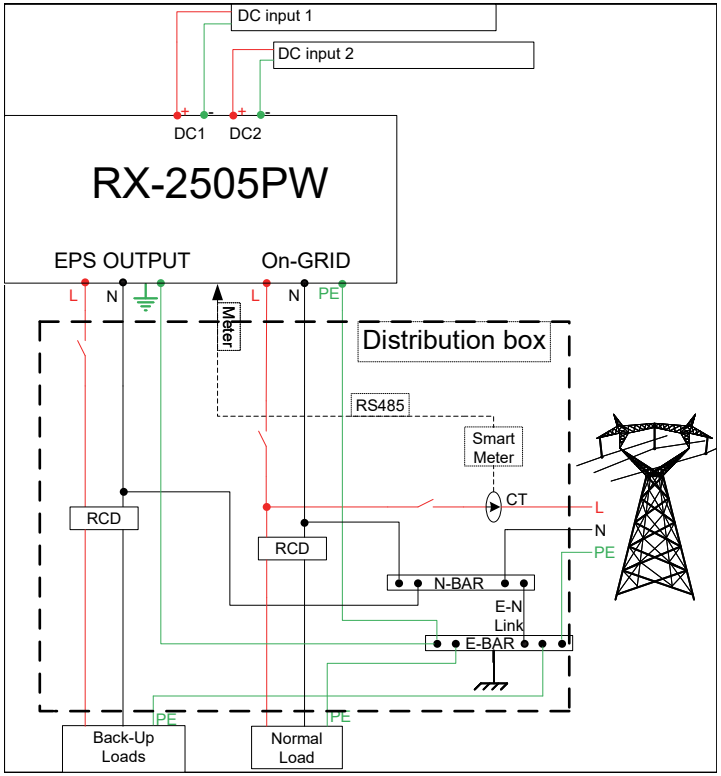


Figure 5-7 – 240V connection and DC1/2 diagram On-grid with EPS

Note:
The battery inverter does not have an internal RCD as it is isolated. If an external RCD breaker is mandatory in the country of installation, it must be a type A RCD with the rating residual current not more than 30mA.

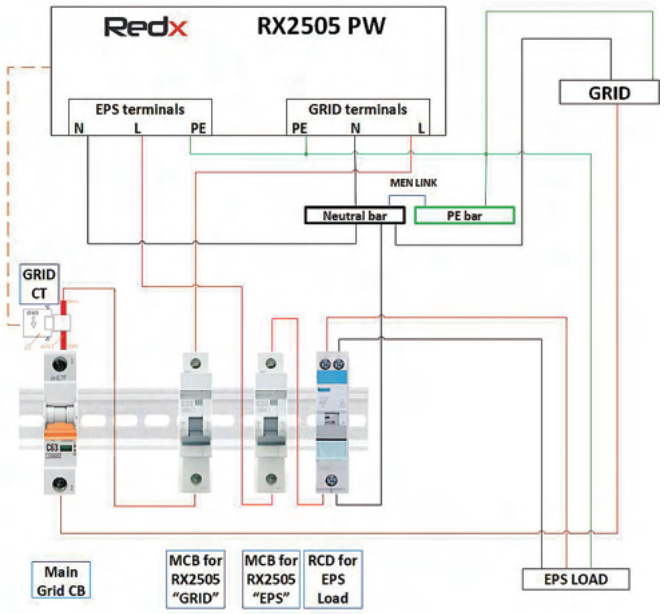


Figure 5-8 - Example switchboard installation NEUTRALS SEPARATE

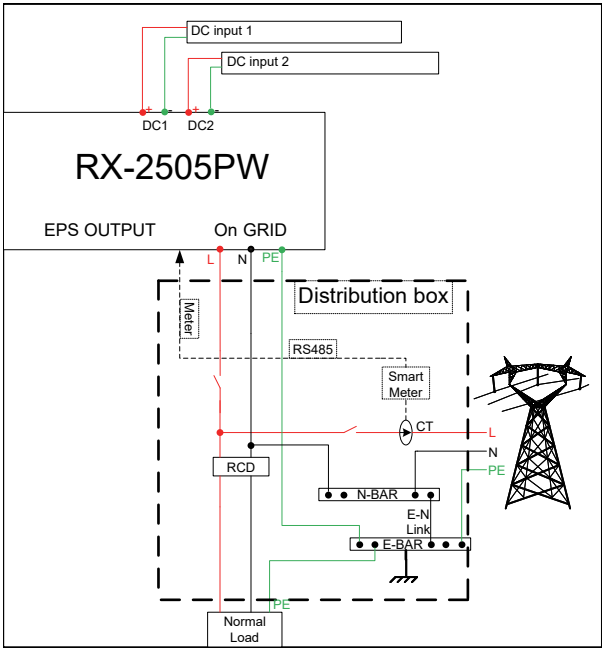


Figure 5-9 – 240V connection diagram On-grid only

"If you only use the grid-connection function, connect the grid AC feed to the Grid terminals as shown..."

Notice

1. "If you only use the grid-connection function, connect the grid AC feed to the Grid terminals as shown..."
2. If you need to use both the grid connection and backup power supply functions, refer to Figure 5-7 to connect cables.
3. The grid terminal and EPS terminal cannot be directly connected together, otherwise the system will be damaged.
4. The EPS terminal cannot be connected to the grid, otherwise the system will be damaged.
5. The battery needs to be activated by the grid when the system starts for the first time.
6. If you need to connect DC input to the RX-2505PW, refer to Figure 5 - 6 and Figure 5 - 7 to connect cables. The DC input must have earth fault protection function.
7. Note: the maximum current of DC1 and DC2 is 25A and 25A, it is recommended that the output voltage of DC input device be set to 52V.

5.3 CT / METER Connection

The CT / METER is required to monitor the energy usage.
The steps of CT / METER connection are as follows:

1. Unscrew the rubber nut on the water - proof cover of the CT / METER.
2. Connect aviation plug (CT / METER) to the RX-2505PW (CT / METER) port as shown in Figure 5-10.
3. Tighten the aviation plug as shown in Figure 5 -11.

Note: The CT can also be replaced with smart meter according to customer requirements. Users can choose to use either CT or a smart meter.

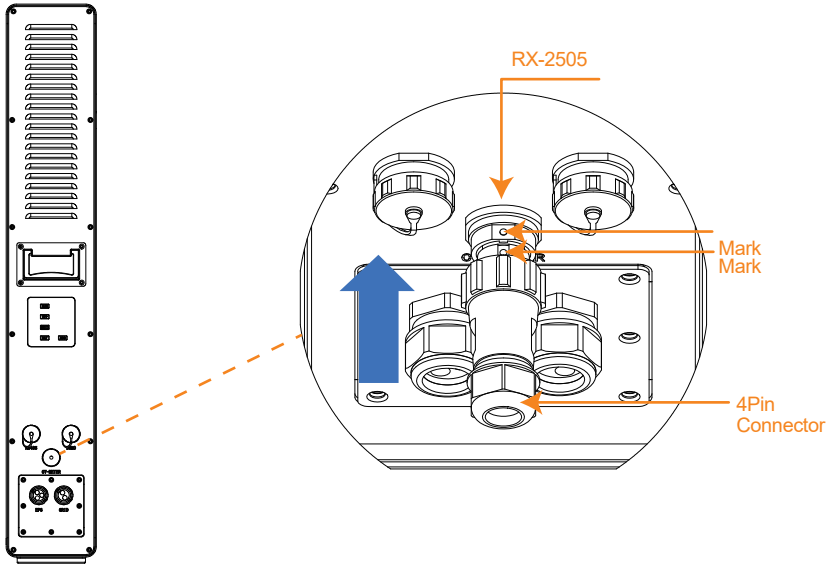


Figure 5-10 – CT connector insertion with white guide marks

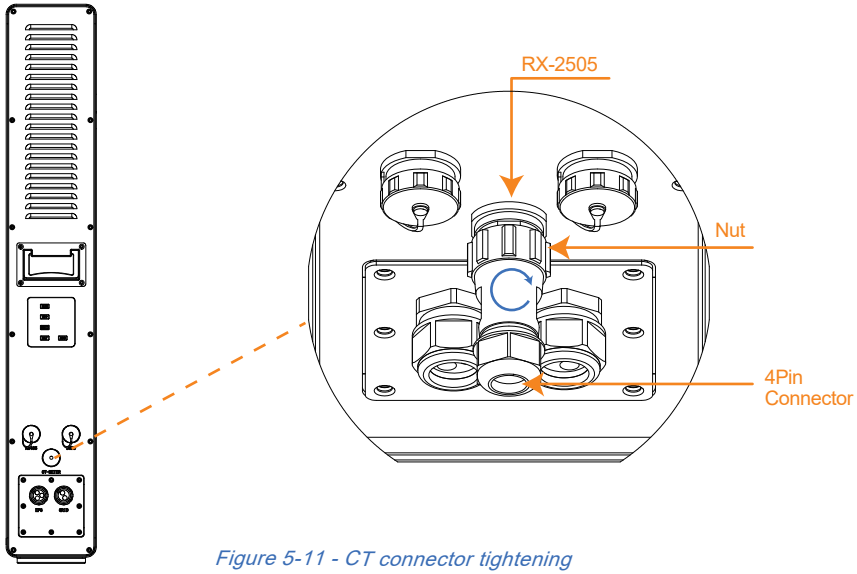


Figure 5-11 - CT connector tightening

CT cable (length: 5m) specifications: if the cable is not long enough, add an extension cable (max 10m), contact the local supplier in advance.
The direction of CT installation as shown in Figure 5-11:

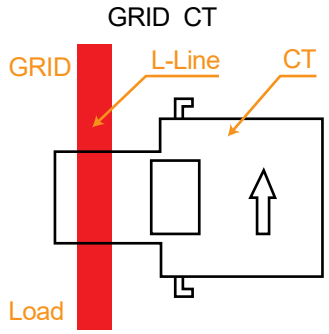


Figure 5-12 – CT polarity

As shown in figure 5-12, an arrow indicates the direction of the CT, pass the cable through the hole of the CT, then close and lock the CT.
Note: On the “Grid” CT the orientation of the arrow (L to G) must be pointing from switchboard to grid. The CTs must be installed in the power distribution box.

• 5.4 External RS 485 Connection

RX-2505PW has a USB RS 485 port allowing customers to connect their own devices.

1. Unscrew the rubber nut on the water-proof cover of the system (RS485);
2. The detail of the USB RS 485 as shown in Figure 5-13;

Note: The RX-2505PW has a WiFi module inside. If customers use another WiFi module or other communication module, they need use the default USB RS 485 port.

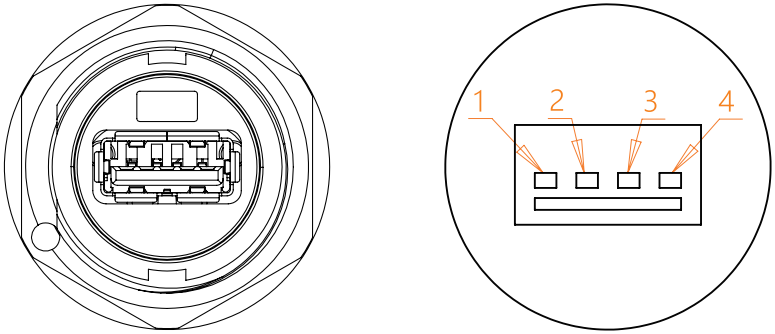


Figure 5-13 RS485 pins

Table 5-7 – RS485 pins details

1	2	3	4
+5V	485_A	485_B	GND

• 5.5 Connection of DRM0 Terminal (Australia Only)

When RX-2505PW is installed in some states in Australia, the DRM terminal needs to be connected. The connection method is as follows:

1. Unscrew the rubber nut on the water-proof cover of the RX-2505PW (DRM0);
2. Make the RJ45 terminal with tools according to the identification in figure 5-14;
3. Tighten the aviation plug as shown in figure 5-14.

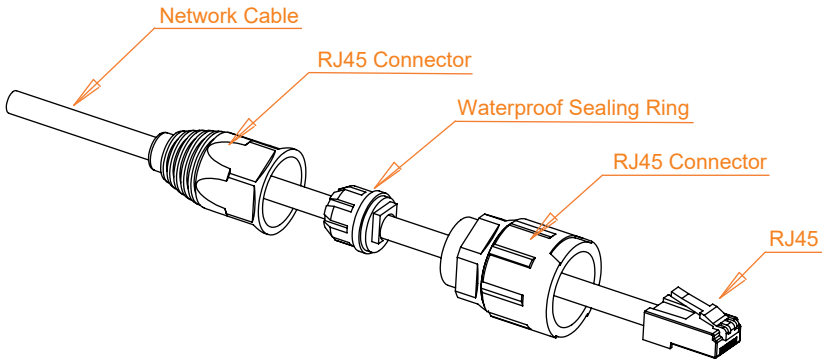


Figure 5-14 - DRM cable assembly

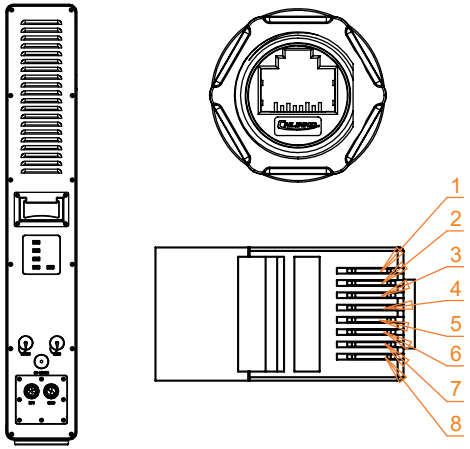


Figure 5-15 - DRM RJ45 pins

Table 5-8 - DRM pins detail

1	DRMO_1
2	DRMO_2
3	N/A
4	N/A
5	N/A
6	N/A
7	N/A
8	N/A

6 Operation

6.1 Checklist before operation

1. Check whether the system is firmly installed, and the installation position is easy for operation and maintenance.
2. All cables are correctly connected, properly distributed, and well protected, and no mechanical damage is caused.
3. The selection of AC circuit breakers is correct.
4. The wiring terminals are securely installed, and the vacant terminals are sealed.
5. All safety signs and warning labels on the system are firmly and clearly visible
6. The installer must select the correct regional settings for the inverter. The installer will be able to select the correct regional settings in the app during commissioning. Selecting the customer's relevant Grid Operator will automatically allocate the relevant Regional settings. Alternatively the installer can login to www.redxpower.com with their installer credentials. Then they must navigate to Devices page, find their device by typing in the device serial number in the search field, then click on the device serial number and select the correct region in the Deploy section. The installer can also edit the Generation and Export Limit Control Settings on the Deploy page.

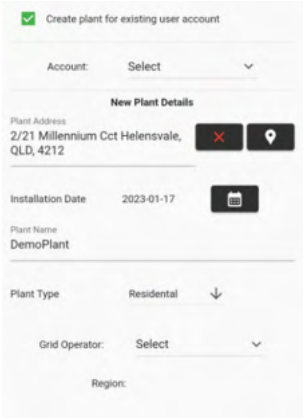


Figure 6-2- Region selector in the Redx Power App

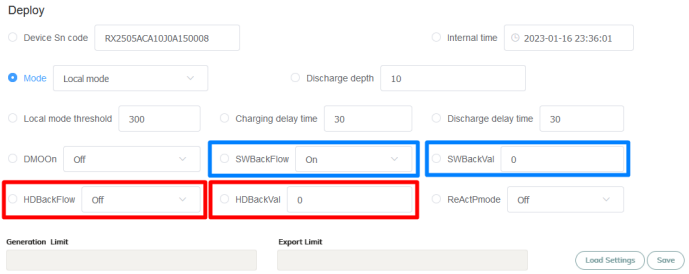


Figure 6-1 - Export Soft and Hard Limit settings on Deploy page

Turning **SWBackFlow** and **HDBackflow** settings to "**On**" sets the soft export limit to the value of **SWBackVal**, and the hard export limit to the value of **HDBackVal** respectively**.** Turning both **SWBackFlow** and **HDBackFlow** parameters to "**On**" enables generation limit control to these values.

• 6.2 Operation checks

1. Confirm that the above checklist meets the guideline.
2. Turn on the AC circuit breaker.
3. After the AC circuit breaker is turned on and the LED on the system is on, perform the following tasks:
   a. If the blue power LED does not light up, check if voltage is present on grid input terminals. If there is voltage on the grid terminals, but unit is still not illuminating the power button - please contact local Redx dealer.
   b. Install the Redx Power APP or open the web page according to the attached instructions, and then configure the WIFI connection.
   c. Turn on the battery circuit breaker on the side of the system.
   d. Press the power button on the side of the system, then the system is in passthrough state and EPS port has power output.
   e. Set the needed parameters through the web or APP. The battery LED indicator on the panel lights up and the other LED indicators will light up according to the actual working status.
   d. If the operation fails, troubleshoot fault by referring to Chapter 9 in this manual

Note: Use the grid power and the APP to activate the battery for the first-time operation.

• 6.3 Operation Modes

• 6.3.1 Operating Modes

The unit has 3 main modes: Auto, VPP or Timed mode. The default is VPP mode, most units should be configured as Auto mode.The Auto mode includes on-grid and off-grid functions. By default the Anti-backflow function is enabled.

A. On Grid Functionality

1. Anti-backflow function enabled:

In Auto Mode – the unit can provide power from the Grid and EPS terminals to any loads (max 2500W). When anti-backflow is enabled, the unit will not send power back to the grid. In VPP mode: RX-2505PW works as per the commands sent from the cloud platform. The unit can be fully customised with charging times and discharging times and set power levels in Timed mode.

2. Anti-backflow function disabled:

In Auto Mode – the unit can provide power from the Grid and EPS terminals to any loads (max 2500W).When the system detects that there is excess power available from solar and not being used by the loads and the battery is full, then power can be sent to the grid. In VPP mode: RX-2505PW works as per the commands sent from the cloud platform. The unit can be fully customised with charging times and discharging times and set power levels in Timed mode.

B. Off - Grid Functionality

When the power grid is cut off, the system will automatically switch to off-grid mode. The system will supply power to the load from the battery via the EPS terminals. Note: in off-grid mode, the maximum system output power is 2500W, meaning the load power of the EPS circuit should not exceed 2500W;

When the system detects a low battery status, the battery will stop discharging automatically and will be charged if there is solar or other power supplied.

• 6.3.2 Fault State

The RX-2505PW has a smart control system that continuously monitors and regulates system status. When there is a system fault or equipment fault, fault information will be displayed on the web page/APP, and the LED light will also be on in fault mode.

Notes:

(1) For details about fault information, see Chapter 9.

(2) The fault details inform users of internal faults' possible reasons and rectifications.

• 6.3.3 Firmware Update

When the system is upgrading firmware, do not power off the unit. When the upgrade is complete, the system will automatically revert to normal working mode.

• 6.3.4 Self - Check Status

Before entering normal operation mode, RX - 2505PW will enter self - check mode. If all checks pass succesfully, the system will return to normal working mode; otherwise, the system goes into the fault state.

• 6.3.5 Standby Status

When the system does not fault, but certain operating conditions are not met, the system will go into standby mode.

• 6.3.6 Protection Mode

Connecting an over size load to the EPS terminal will trip the unit and trigger protection mode. The unit will try to restart 3 times, if the load is still present, the unit will revert to protection mode. Remove the over size load and restart the unit. If any circuit breakers have tripped – contact your installation partner.

• 6.3.7 Shutdown Status

Disconnect power supply and the system will automatically convert to standby mode. To shut down the unit, follow the specific steps below:

1. Turn off the power button.
2. Turn off the battery switch.
3. Disconnect the grid supply, the LED light and the battery power display LED light will be turned off.

Note: After all the above steps are completed, wait at least 5 minutes before performing other operations

• 6.4 Communication

The system has an external USB interface, which contains 5V power supply and RS485 communication. The Redx unit has a built-in data collector. Users can choose to connect their own data collector (WIFI / 4G function) according to their requirements, and use the computer or mobile phone APP (Redx Power) to monitor the machine. The default built-in datalogger in the device uses Wi-Fi to connect to the customer's Wi-Fi router to establish an Internet connection. The installer will connect the datalogger to the local Wi-Fi router during the installation process.

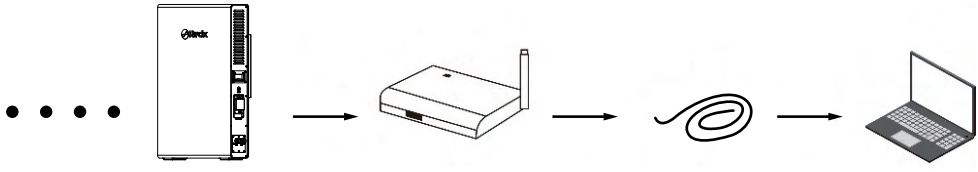


Figure 6-3 - Network diagram

• 7 RX - 2505PW System Turn on and Turn off

• 7.1 Turn on RX - 2505PW System

You can perform the following steps to start the RX - 2505PW:

(1) Connect to the grid.
(2) Turn on the battery circuit breaker.
(3) Turn on the inverter power button.
(4) When the LED display is normal, the system starts normally.

• 7.2 Turn off RX - 2505PW system

(1) Turn off the inverter power button.
(2) Turn off the battery circuit breaker.
(3) Turn off the AC circuit breaker.
(4) When the LED display is off, the system is completely off.

• 8 Troubleshooting & Maintenance

• 8.1 Troubleshooting

Once a fault occurs in the storage unit, the fault information will be displayed on the APP/web interface.

Common Fault and Information below:

Table 8-1 – Fault information table 1

Fault information	Fault reason	Suggestion
The battery connection error	No battery is detected	If the battery is connected 1. Check whether the battery cable is securely connected and whether the battery voltage is normal. 2. If the error message remains, contact installation partner.
Battery under voltage or over voltage	If the battery voltage is abnormal, the internal circuit protection is triggered	1. Check whether the battery is correctly connected and whether the battery voltage is normal. 2. Make sure the battery is in good condition and restart the module. 3. If the error message remains, contact installation partner.
No grid	No grid is detected	If the grid is connected 1. Check whether the grid terminal is firmly connected and the grid voltage is normal; 2. If the error message remains, contact installation partner.
DC Bus under-voltage	The input is suddenly disconnected	1. When the fault is recovered, the inverter will automatically return to normal working state; 2. If the external environment does not change and the alarm remains after the system is restar ted, contact installation partner.
DC Bus over-voltage	The rapid change of power grid voltage may cause high energy input to the inverter. Internal dc-dc converter or charging electronics may have a fault.	1. After the fault error is recovered, the inverter automatically restores to the normal working state. 2. If the fault remains, contact installation partner.
Inverter overvoltage	The output voltage of the inverter is out of the range.	1. Check whether the external load exceeds the specification range of the inverter. After the fault is recovered, the inverter automatically recovers to the normal working state. 2. If the alarm is repeated, contact installation partner.
Inverter undervoltage		

Islanding protection	Islanding protection check	1. Check whether the AC circuit breaker of the grid is disconnected and whether the connecting cables are securely connected. 2. Check whether the grid has power. 3. If all conditions are correct and the fault still occurs, contact installation partner.
Grid overvoltage	When the grid detects an error, the inverter automatically switches to the off-grid mode. When the error disappears, the inverter automatically resumes to the grid mode	1. Check the grid voltage or frequency; If the power grid voltage or frequency exceeds the allowable range of converter protection parameters, please report to the power grid company. 2. If the power grid voltage or frequency is within the permissible range, contact the installation partner.
Grid under voltage		
Grid over frequency		
Grid under frequency		
Battery over current	The charge and discharge current of the battery is too high	1. Check whether the battery voltage and capacity exceed the allowable range of the inverter. 2. If the alarm is repeated, contact installation partner.
Relay fault	Detect the fault of relay	1. Wait for the inverter to recover automatically. 2. If the alarm is repeated, contact installation partner.
Bus soft start failed	Bus voltage setup timeout	1. Wait for the inverter to recover automatically. 2. If the alarm is repeated, contact installation partner.
The inverter soft start failed	Inverter output setup timeout	
Inverter phase lock failure	Inverter phase lock fault	1. Wait for the inverter to recover automatically. 2. If the alarm is repeated, contact installation partner.
EEPROM read failure	EEPROM read fault	1. Disconnect power and restart the system; 2. If the error remains, contact installation partner.
Fan fault	The fan is faulty	1. Check whether the fan runs properly. Power off to restart the module; 2. If the error message still exists, contact installation partner.
The grid is connected to the EPS terminals	The AC input and load output cables are incorrectly connected	1. Shut down the inverter and turn off all circuit breakers. 2. Check whether the AC input cable（power grid cable）is connected to the load（EPS）output terminal.If the connection is incorrect, reconnect the cable. 3. If the error message persists, contact installation partner.

Table 8-3 – Fault information table 3

Output overload	Overloaded outputs	1. Remove some loads. Ensure that the load is smaller than the maximum output power of the inverter. 2. Restart the inverter.
Radiator over temperature	1. The inverter installation location is not ventilated. 2. The ambient temperature is too high. 3. The fan is faulty.	1. Check whether the operating environment exceeds the operating temperature range of the inverter. If yes, improve the operating environment. 2. Check whether the fan is in good condition.
The communication between the host computer is error	1.The address and baud rate are incorrectly set. 2.The communication cable is loose.	1. Check the communication address and baud rate Settings (please change the baud rate to 2400). 2. Check whether the communication cable is loose. 3. Contact installation partner.
DSP communication error		
Grid Short Circuit	The AC input is short circuit.	1. Check whether the AC input cable of the inverter is short-circuited. 2. If the error message persists, contact installation partner.
Load short circuit	Output short circuit.	1. Remove load. 2. Restart system.

• 8.2 Maintenance

Table 8-4 – Maintenance warnings

	**Danger!** RX-2505PW has lithium battery inside. Please pay attention to the following instructions ● Do not place RX-2505PW near fire, there may be risk of explosion. ● Do not open RX-2505PW, without permission. ● The battery has the hazard of electric shock or short circuit current. ● Battery maintenance is to be performed by service personnel only.
	**Danger!** Please read carefully the following items before installation: 1. Remove watches, rings or other metallic objects. 2. Use tools with insulated handles. 3. Wear rubber gloves and insulated shoes.

• 8.3 Routine Maintenance

Table 8-5 – Maintenance list

Item	Method	Period
System Clean	Check the temperature and dust of the Storage Unit. Clean the unit enclosure if necessary.	Six Months to a year
Cable Entry	Check whether the cable entry is insufficiently sealed or the gap is excessively large; and reseal the entry when necessary.	Once a year
Electrical Connection	Check whether all cables are firmly in place. Check whether a cable is damaged (rodents. Physical damage, weather etc).	Once a year

• 9 Redx Power APP

The Redx Power APP can establish communication connection to the energy storage unit via WIFI and or 4G (optional) network. Users can use the APP to view basic information, alarms, events, set parameters or download logs etc. The APP manual can be found on redxenergy.com.au/ downloads

Note: Install the APP or open web page according to the attached instructions, and then configure the WIFI connection. The last page of the manual has a QR code to install the App.

• 10 Quality Assurance

When a product faults during the warranty period REDX will repair or provide a replacement product.

Evidence

During the warranty period, the customer must keep and provide the product purchase invoice and date. The user must provide proof of fault – pictures or videos with timestamps if requested by Redx.

From the date of purchase by the user from Redx (hereinafter referred to as the manufacturer), the user will enjoy the following after-sales warranty service:

1. A 7-year warranty commences from the date of shipment, during the warranty period the company provides free repair or replacement of product.
2. Any paid service (extended warranty) is available from the date of shipment from manufacturer.
3. Disclaimer: Product faults caused by the following reasons are not within the scope of the manufacturer's 7 years warranty commitment:
   a. The user does not perform the correct installation or operation according to the procedures listed in the product specification.
   b. Repairing the product without communicating with the manufacturer or changes the product without permission, resulting in product failure.
   c. Users not following the standards.
   d. The fault of the module caused by unsuitable environment.
   e. Fault due to earthquake, fire, natural disaster, lightning strike, war, solar flare, abnormal voltage rise, ionising radiation or other natural disasters caused by external factors.
   f. Outdoor installation of the unit will be considered a breach of the manufacturer's warranty.
4. Under the following circumstances, the manufacturer has the right not to provide warranty service:
   a. Brand, trademark, serial number, nameplate or other markings applied by the manufacturer in the product are damaged or cannot be identified.
   b. The customer fails to pay off the products according to the Purchase and Sales Contract signed by both parties.
   c. The user intentionally conceals the improper use of the product during installation, wiring,operation, maintenance or other processes to the after - sales service provider of the manufacturer.
5. Redx reserves the right to change the contents of this specification and product performance without informing users.

11 Appendix

11.1 Product Specification

Table 11-1 – Product specifications table 1

Model	RX - 2505PW
Battery Capacity	4.8kWh
Nominal voltage	48Vdc
Voltage range	42Vdc - 54Vdc
Battery type	LFP
Max charging power	1500W
Max charging current	30A
Max discharging current	70 A
DOD（%）	90%
Grid	
Nominal grid voltage	230Vac
Grid voltage range	180Vac - 260Vac
Rated grid frequency	50 Hz
Grid frequency range	50 ± 5 Hz
Rated grid connection current	10.8A
Rated apparent power	2500VA
Max grid input current	22A
Power factor	0.8leading ~ 0.8 lagging
Total THD	＜3%

Table 11- 2 – Product specifications table 2

Phase type	Single Phase
Current (inrush)	<1A
Maximum output fault current	55Apeak/0.1ms
Maximum output overcurrent protection	20A
Off - Grid (EPS)	
Rated apparent power	2500VA
Nominal output power voltage	230 Vac
Nominal output power current	10.8A
Nominal output power frequency	50 Hz
Power factor range	>0.9
DC1 / DC2	
Voltage Range	48-52V
Input Current Max	25A / 25A
Efficiency	
Max charging efficiency	94%
Max discharging efficiency	96%
System	
IP Rating	IP32
Operating temperature range (charging) / (discharging)	0˚C~50˚C / −20˚C~50˚C
Environment temperature range	−20˚C~ 50˚C
Relative humidity	10%~100%
Cooling	Air cooling
Acoustic Noise	40dB
Max Altitude	2000m
Inverter topology	Isolated
Overvoltage category	AC: III. DC: II
Active anti-islanding method	Reactive disturbance
The decisive voltage class	AC: DVC C; Other ports: DVC A
DC/DC topology	High frequency transformer
Communication	Modbus-RTU/Modbus-TCP, CAN2.0B, TCPIP, WIFI
Communication medium	RS485 / CAN / WIFI / 4G
Weight	75Kg
Dimension (L/W/H)	900mm*600mm*140mm
Warranty	7 Years
Certificates and approvals	AS4777.2, IEC-62040-1, IEC62109-1&2

Table 11- 3 – Product protections

Islanding protection	YES
Anti - backflow	YES
DC reverse connection protection	YES
AC output short circuit protection	YES
Over-frequency and under-frequency protectio	YES
Overvoltage or undervoltage protection	YES
DC fuse (battery side)	YES
Overcurrent protection (including battery overcurrent)	YES
over - temperature protection	YES

Table 11- 4 - DC Ratings

Rated insulation voltage	1000V
Rated impulse withstand voltage	6000V
Suitability for isolation	YES
Rated operational current	100A
Rated short-time withstand current (Icw)	7.5KA
Rated short-circuit making capacity (Icm)	10KA
Rated breaking capacity	10KA

- **11.2 Optional Accessories**

  The following table lists the optional accessories of the system, contact the manufacturer or distributor for further information

Table 11-5 - Accessories details

Name	**Notes / Purpose**
Data Collector	Data Collector (Wi-Fi)
Raspberry Pi	Bespoke VPP control
CT	Current Transformer
Smart Meter	Single phase smart meter

Note:
The anti-backflow function requires a smartmeter or a CT.

· 12 Contact

If you have any questions about our products, please contact our service hotline or dealers. please provide the following information when inquiring:

1. System serial number.
2. System model.
3. Fault code/Name.
4. Briefly describe the fault symptom.

For more information,please scan QR code above or log in directly
www.redxenergy.com.au

Download the Redx App with the above QR Code

REDX

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