



RedEarth

ENERGY STORAGE

SunRise 1-phase

Home Battery System

Model: SRS-2xx & SRM-2xx

User Manual






SRS-2xx (Maxi)



SRM-2xx (Mini)

SAFETY

Symbol	Explanation
	Indicates additional information, emphasised contents or tips that may be helpful.
	Caution, risk of electric shock.
	Caution, risk of danger.



In the event of fire evacuate the area and call emergency services. A dry agent fire extinguisher should be readily available and used. DO NOT use water. Evacuate the area and call emergency services. Toxic gas may be produced if the battery catches fire.

Note: MSDS document is provided with the system and can also be found at www.redearth.energy



Do not use a damaged battery. Batteries should only be disposed of at an appropriate recycling centre. Please contact RedEarth for advice.



Working on the inside of the SunRise system is restricted to qualified personnel.

In Australia this is typically qualified electricians with CEC accreditation for Solar and Battery.



Many of the procedures covered in this Installation manual have inherent risks. Whilst the SunRise is designed to be electrically safe, including residual current device and double insulated cables, the voltages connected or generated by the equipment are hazardous and potentially fatal.



The SunRise must only be commissioned by suitably qualified personnel. It is the responsibility of the installer to ensure the operation and all the wiring is carried out according to all safety standards that are applicable to the installation.



If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



In our efforts towards constant product enhancement, this document is subject to change at any time. Please visit www.redearth.energy and download the appropriate and latest version of this manual.



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About your SunRise

Your SunRise Home Battery is an Australian-made all-in-one battery system designed to optimise your electricity usage, reduce your electricity bill and also reduce your carbon footprint.

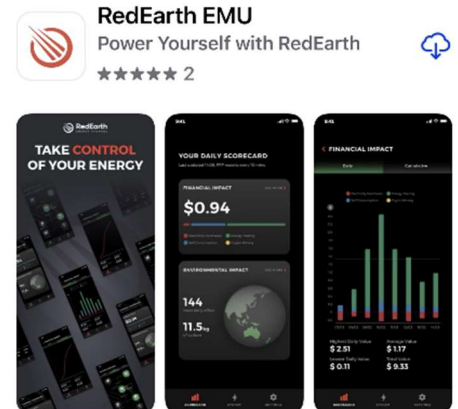
The system, including solar panels, generates and stores electricity for use day & night, and includes a backup capability so that your key loads remain powered during any blackout.

You can monitor the system via RedEarth’s EMU app, available for both Apple and Android phones.

There is also the option to use your electricity in other ways via RedEarth’s PPP (Personal Power Plant), to generate additional income such as through Energy Trading. Contact RedEarth for additional information.

These PPP features, along with ongoing remote monitoring by RedEarth, via their RedPi Edge device, ensure you can earn the best return on their investment. These options come with a small monthly service charge for the customer.

The SunRise system can operate without batteries, however much of the functionality will not be available unless batteries are installed.



- With batteries, PV solar electricity generated during the day will be used by your home, excess electricity will be stored in the battery and then exported to the grid, which reduces your electricity bill. In addition the battery ensures essential household loads (fridges, lights etc) can be powered during a power outage. It is also a requirement for accessing the features of RedEarth’s PPP.
- Without batteries excess PV generated during the day can be exported to the grid, which reduces your electricity bill, however no electricity can be stored for later use. Note that the SunRise is designed so that batteries can easily be added inside it at a later date, as demand grows and budgets allow.
- The SunRise system can also easily be retrofitted to an existing PV solar system that may already be installed at your home.

All batteries added later must be of the same make and model and supplied by RedEarth to maintain your warranty. A maximum of 6 batteries can be added into the SRS-1xx (Maxi) totalling 24.6kWh nominal and a maximum of 3 batteries can be installed into the SRM-1xx (Mini) totaling 12.3kWh nominal..

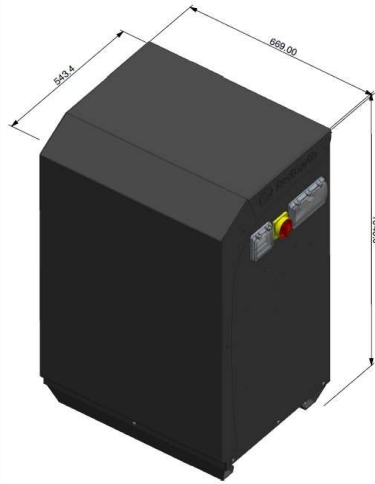
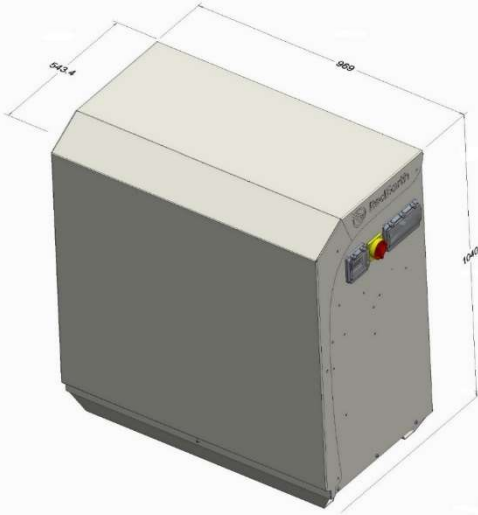
A small battery will limit the amount of self consumption and energy trading possible.

A total of 6.6kW of solar panels can be connected to the SunRise 1ph systems, and be fully claimable via the government solar rebate scheme. Note that an additional PV inverter can also be added to increase the total size of your solar system. In a typical home with 1-phase wiring up to 5kW of additional PV inverters can be added, allowing a maximum of 13.2kW of solar panels to be installed. Contact RedEarth for more information if you are looking for a larger grid-connected system.

PPP Private Power Plant: As mentioned above, RedEarth offers its PPP to generate more value for you from your SunRise system than is normally available from other battery systems who only offer a VPP option (Virtual Power Plant). Contact RedEarth for more details and to see if you qualify for RedEarth’s Private Power Plant.

Finally, SunRise is fully certified to AS4777.2:2020 & IEC62109.1&2 & AS60950.1 and conforms to the Australian Battery Safety Guide.

Dimensions and clearance/positioning information



SunRise Weight, size and IP rating:

SRS-2xx Maxi

- 339kg with 6x TROPPO Lithium batteries (42kg per battery)
- 87kg complete without batteries
- 1040H x 969W x 544D [mm]

SRS-2xx Maxi

- 213kg with 6x TROPPO Lithium batteries (42kg per battery)
- 82kg complete without batteries
- 1040H x 669W x 544D [mm]

IP rating: IP43

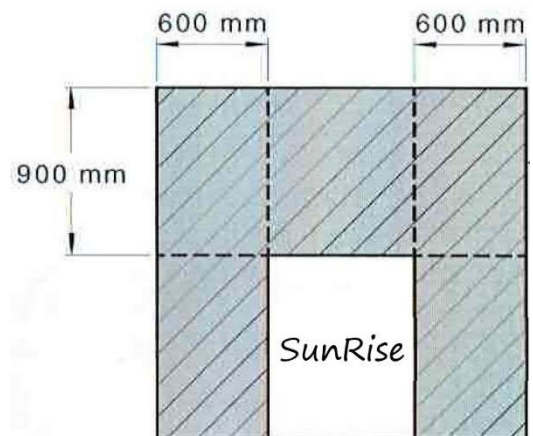
Positioning information summary:

Minimum Clearance around SunRise where no windows doors etc are allowed. According to AS/NZS 5139.

Note: if the system is >300mm off the wall then this does not apply.

The Sunrise is rated for the following Environmental Condition – Rated maximum ambient operating temperature 50degC for outdoor unconditioned without solar effects. According to AS4777.2:2020.

This means the SunRise system must be installed in a shaded area.



Model numbers:

SRS-1xx Maxi model numbers;

- SRS-200 (no batteries)
- SRS-204 (x1 battery = 4.1kWh nominal)
- SRS-208 (x2 battery = 8.2kWh nominal)
- SRS-212 (x3 battery = 12.3kWh nominal)
- SRS-216 (x4 battery = 16.4kWh nominal)
- SRS-220 (x5 battery = 20.5kWh nominal)
- SRS-224 (x6 battery = 24.6kWh nominal)

SRM-1xx Mini model numbers;

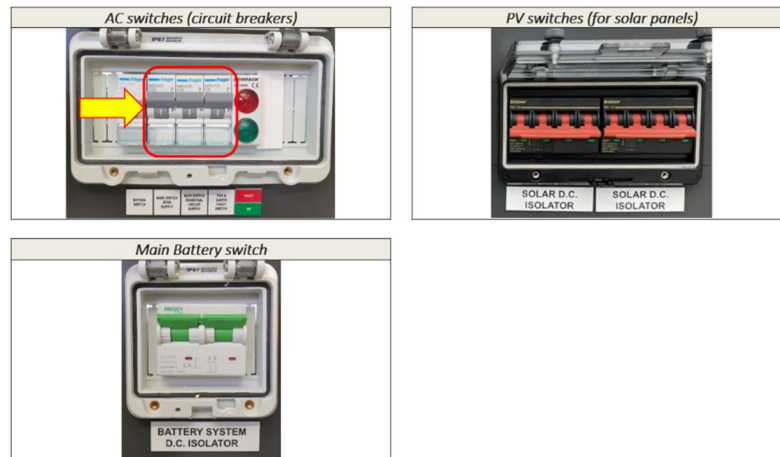
- SRM-200 (no batteries)
- SRM-204 (x1 battery = 4.1kWh nominal)
- SRM-208 (x2 battery = 8.2kWh nominal)
- SRM-212 (x3 battery = 12.3kWh nominal)

Sunrise Overview

The SunRise – overview of operation

RedEarth’s SunRise Home Battery System is designed to be fully autonomous and provide solar and battery power in the most efficient way possible.

The SunRise has all of the switches located on the right-hand side of the unit. These control the flow of power. In normal operation there is no need to operate them. These sets are defined as “AC”, “PV” and “Battery” as shown below.

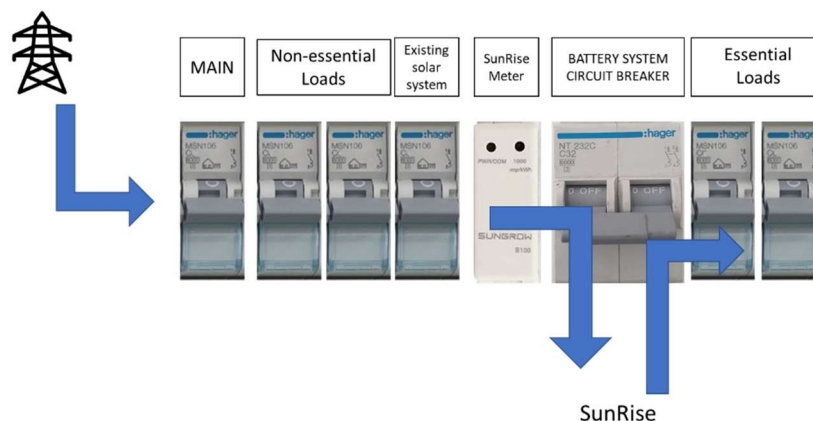


Your House – main switch board

After the installation of your single-phase SunRise System, the Main Switchboard of your property should look something like the following image. The two key components related to your SunRise system are identified below:

1. SunRise Meter: This measures the amount of power imported from, or exported to the grid
2. “BATTERY SYSTEM CIRCUIT BREAKER”: Isolates the SunRise from the Switchboard, which is needed if for example work is to be done on the Switchboard. At all other times this switch remains on.

During a blackout the essential loads are supported by the SunRise system. The non-essential loads will turn off until grid power is restored. Note that if too many loads are on the essential circuit the battery could run flat quite quickly or the backup circuit could become overloaded and turn off temporarily. Also note that the solar panels connected directly to your SunRise System will continue to operate if there is a black-out, meaning that extra power can be available above that stored in the batteries at the time of the black out.



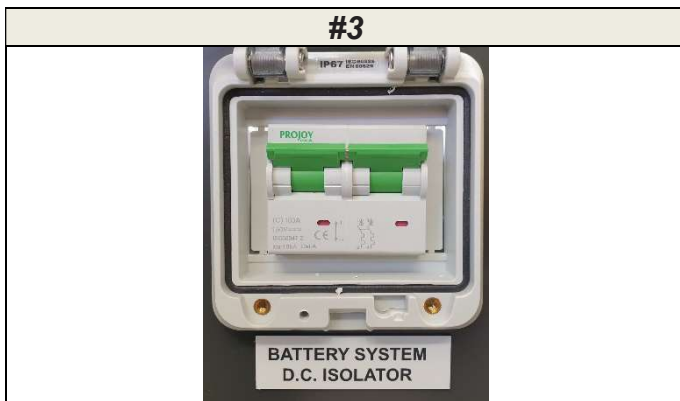
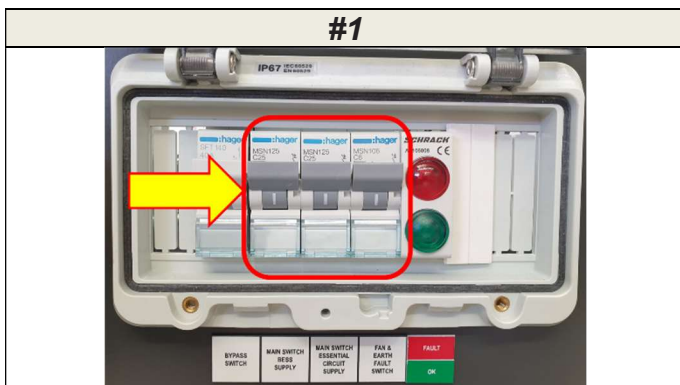
How to Turn ON / Shutdown my SunRise

Turn ON procedure

NOTE: all devices listed below are located on the RHS of the unit and can be also identified by the numbers affixed to the clear covers of the switches. (Numbers 1 to 4)

To **turn ON** the unit you must follow the steps below:

- 1 Switch ON the BATTERY SYSTEM D.C. ISOLATOR (#3);
- 2 Switch ON the two SOLAR D.C. ISOLATORS (#2)
- 3 Turn ON all AC circuit breakers and ensure the BYPASS switch is in NORMAL position (#1);
- 4



Shutdown Procedure

The shutdown procedure is the reverse of the “turn on” procedure and is shown below. This procedure can be found on the RHS of the unit.

- 1 Turn OFF all AC circuit breakers. Leave the BYPASS switch in the NORMAL position (#1);
- 2 Switch OFF the SOLAR D.C. ISOLATOR (#2) – located on the wall next to the SunRise system;
- 3 Switch OFF the BATTERY SYSTEM D.C. ISOLATOR (#3);

SHUTDOWN PROCEDURE

- ① Switch OFF all AC circuit breakers
- ② Switch OFF all SOLAR D.C. ISOLATORS
- ③ Switch OFF the BATTERY SYSTEM D.C. ISOLATOR

WARNING
BATTERY SYSTEM D.C. ISOLATOR DOES NOT DE-ENERGISE THE BATTERY SYSTEM AND BATTERY SYSTEM CABLES

How my SunRise Operates

Normal operation - Grid available:

The SunRise is setup to provide power in the most optimal way to reduce your use of electricity from the grid. The priorities are to power your home from the PV (solar) first, then from the battery and finally from the grid.

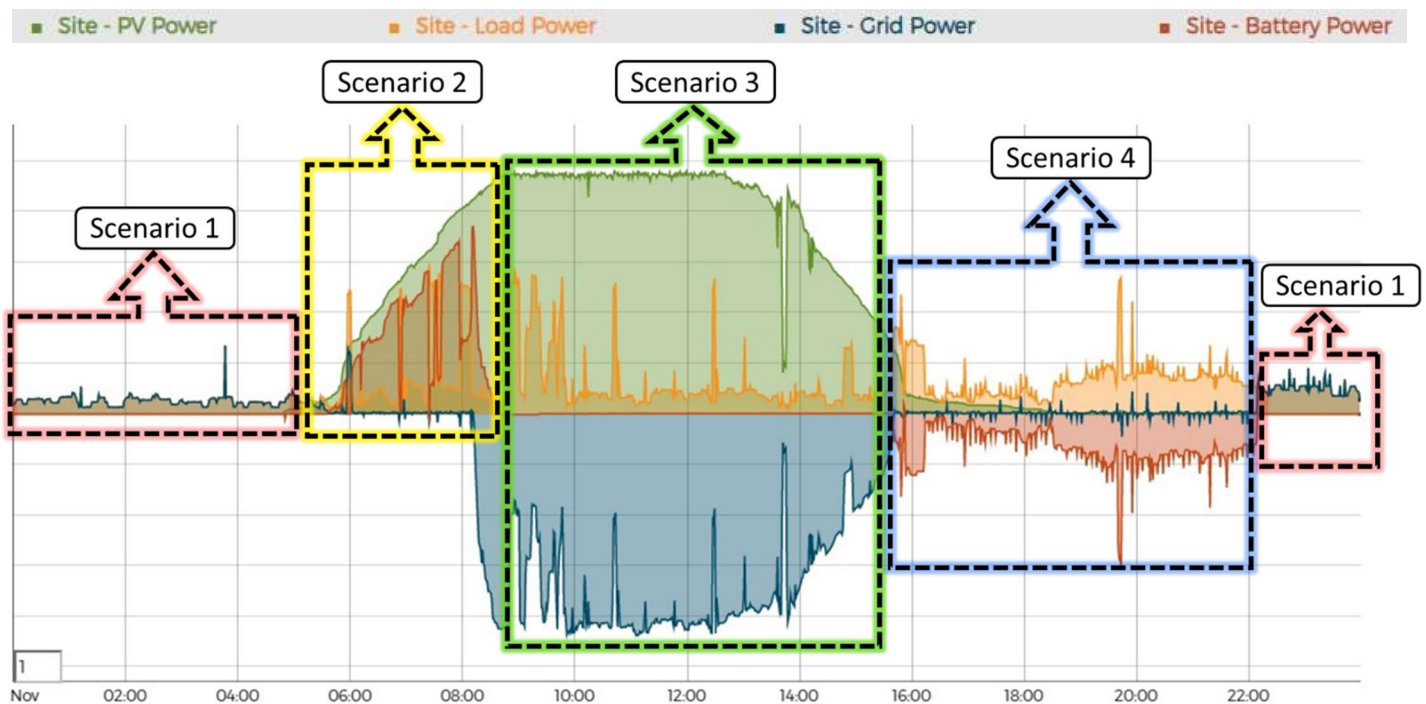
To take full advantage of your solar power, the solar power will go to the loads first and only the excess will be stored in the batteries and used when needed. In the event where the loads are being met by the solar power and the batteries are already full then any excess solar electricity will be exported to the grid.

To understand this better, please review the example from one of our customers below. It covers a full 24-hour day.

The green line (green area) is the Solar Power that was generated (from 6am to 4pm), the orange line area is the home load, the red line is the battery (charging and discharging during the day) and the blue area is the grid (importing and exporting during the day).

In this example there are 4 clear scenarios:

- Scenario 1: It is very early in the morning. There is no solar power, the batteries are “empty”, and the grid is providing power to the loads.
- Scenario 2: From 6am, as the solar power increases, it provides power to the loads and the excess power charges the batteries. Grid power is now neutral.
- Scenario 3: The solar power is at its maximum and is still providing power to the loads. The batteries are full and remain full until they are needed, usually as the sun goes down. The excess solar power is being exported to the grid.
- Scenario 4: As the solar power disappears, the batteries start to “take over” the loads. While the batteries still have energy, the grid will remain neutral, and your loads are being powered from the solar power you stored during the day.



How my SunRise Operates

Operation during Blackouts:

If Grid power is lost, e.g., due to storms damaging powerlines, the SunRise system will turn off momentarily and then after a few seconds (up to a minute) power will be come back on, but only for the essential loads (EPS) that were connected during the installation of your system. This will usually include your fridge, key lights and power circuits.

While in this EPS (backup) operating mode, the Sunrise will use power from the battery and also from your solar panels (during the daytime) Excess solar will charge the batteries. If you are careful with your electricity use during a blackout you can maintain electricity supply to your essential loads for an extended period of time. Note that if the conditions are overcast or it is raining then the solar panels will not generate as much electricity as normal. Monitoring your RedEarth EMU app will show you the % of battery capacity remaining (unless the mobile phone network is also not operating)

Once the batteries are empty, the SunRise will turn off and you will lose power on the EPS loads.

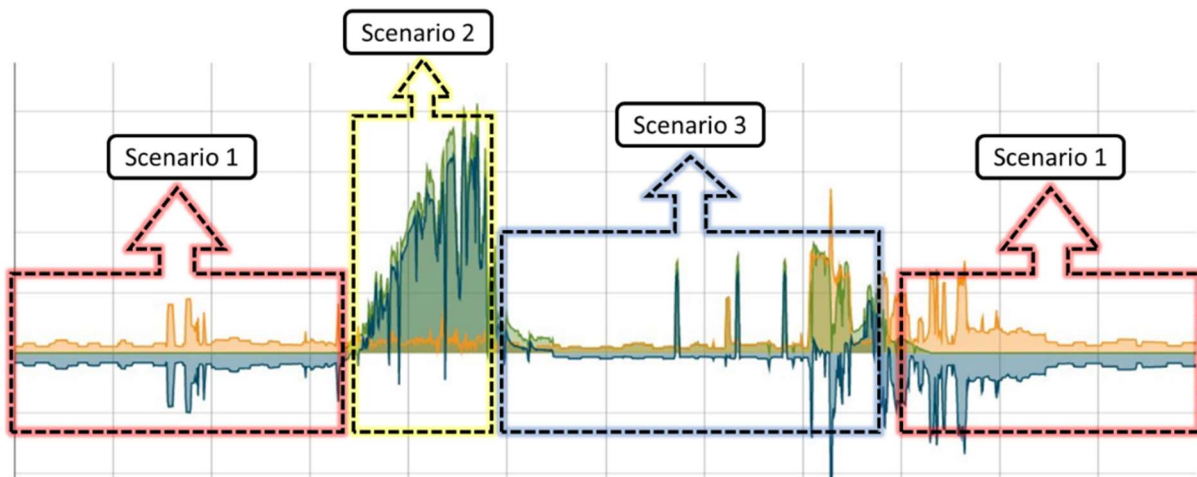
There are two ways that the SunRise will turn on again. Please see FAQ #1 at the end of this manual to learn how this happens.

To better understand operation of your SunRise during a blackout review the real-life example below.

The green area is the Solar Power, the orange line are the house loads, and the blue line is the battery. Note that in this example the grid in not present, which is what happens during a blackout.

In this example there are 3 clear scenarios:

- Scenario 1: It is early morning. There is no solar power or grid, the batteries are providing power to the loads.
- Scenario 2: From 6am, as the solar power increases, it provides power to the loads and the excess power charges the batteries.
- Scenario 3: Here the batteries are now full and the solar generation is reduced to match the house loads as there is nowhere



Note: If the SunRise is overloaded during EPS operation mode, the inverter will turn off (loss of power on essential loads). It will attempt to turn on again, but for this to be successful some loads must be turned off otherwise it will trip again.

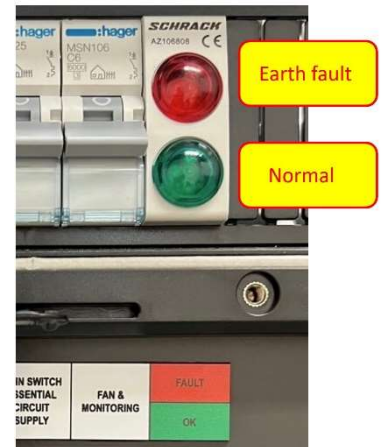
How my SunRise System Operates

Your SunRise system or PV array develops a fault

If your SunRise system develops a fault, then the whole system can be bypassed.

Follow the Shutdown Procedure and then switch the system to Bypass Mode, as explained below.

If your PV system (solar panels) develops an electrical leak (earth fault), the SunRise will illuminate the red light in the AC Breakers window. If this happens, follow the Shutdown Procedure (explained in this manual) and operate the system in Bypass mode (as explained below) and contact your installer. If they are not available, contact RedEarth.



BYPASS OPERATION

In the By-Pass operation mode the SunRise battery will be completely bypassed and the grid will provide power directly to all house loads, including the EPS (backup) loads. Note that in by-pass mode there is no back-up protection available for the EPS loads.

To activate By-pass mode, follow the shutdown procedure during which all AC breakers, PV isolators and battery isolators are turned off, THEN switch the By-pass Switch into the downwards position (II)

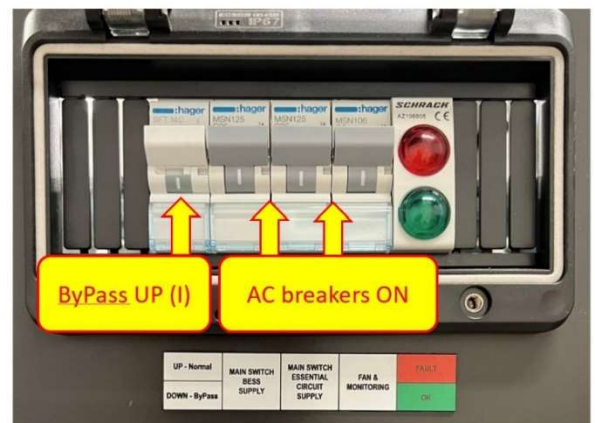
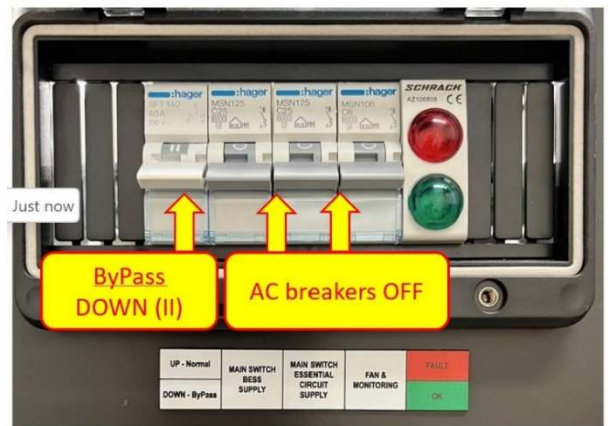
The system will immediately provide all power from the electricity grid. You should now contact your installer to begin rectification work. If they are not available, contact RedEarth

NORMAL OPERATION:

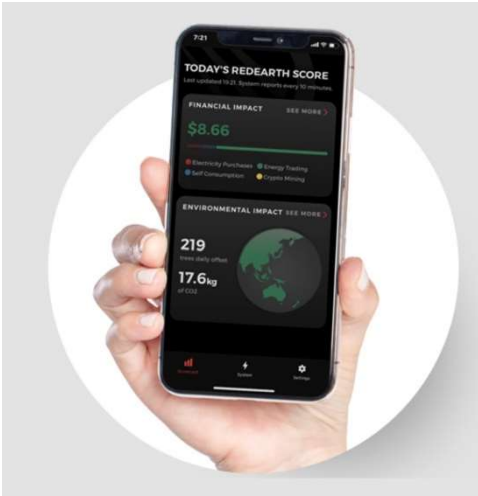
Once rectification work has been completed the SunRise system will be taken out of By-pass operating mode.

This is done by switching the By-pass switch into the up position (I). Then the TURN ON procedure is followed, as described earlier in this manual.

NOTE: The BYPASS switch has a middle position that is “OFF”. However, this will disconnect the essential loads and is not used in normal operation.



Monitoring your system



Monitoring your system is done via RedEarth’s EMU app.

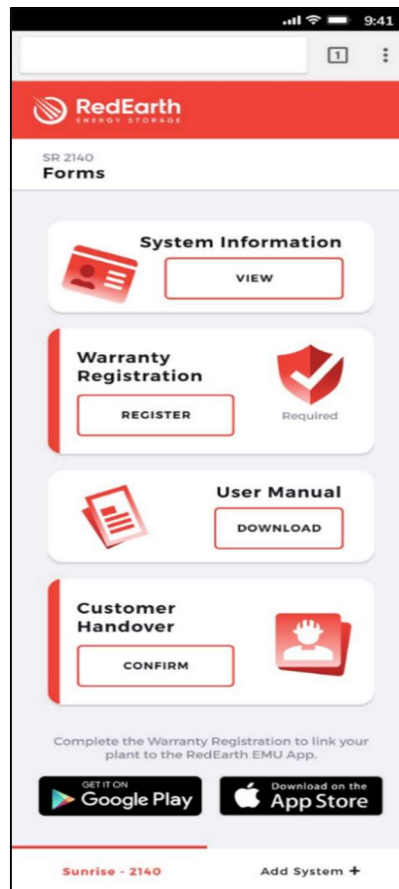
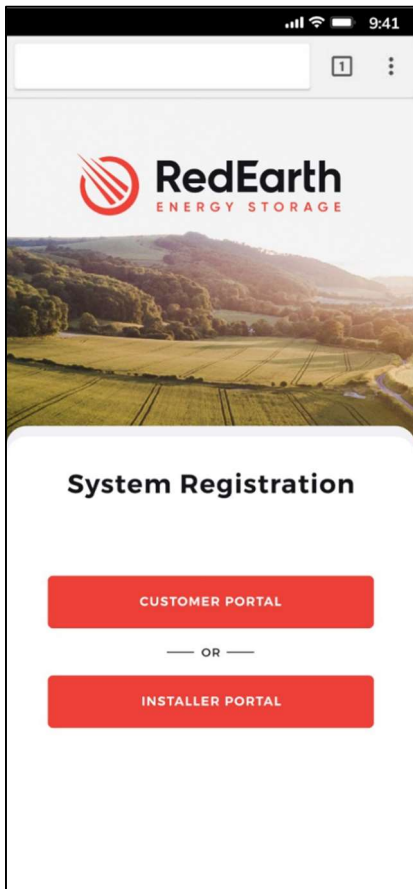
To setup monitoring follow the steps below.



Scan the QR code sticker attached on the outside of your system. It looks like this:

Scanning the code will take you to the RedEarth customer portal.

Entering the information requested will help you to get the most from your investment in RedEarth’s PPP.



After completing the warranty registration, you can easily create an account on the RedEarth EMU app with the same email and start viewing your system straight away. If you have any issues email support@redearth.energy.

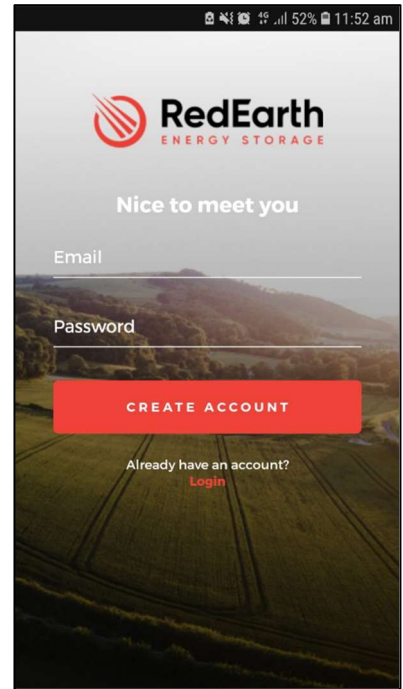
Click on the Google Play or App Store icons to download the RedEarth EMU app.

Create your account and RedEarth will immediately send a confirmation email to your email account.

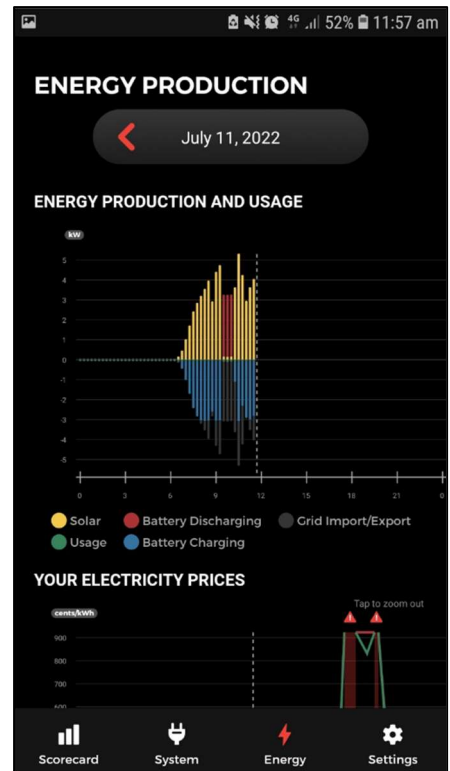
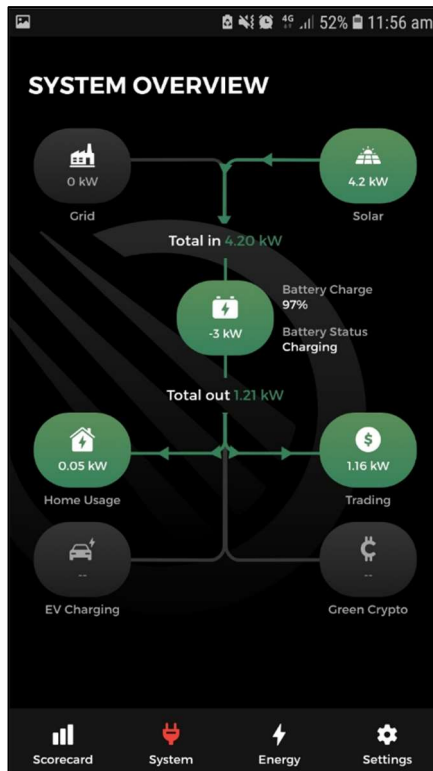
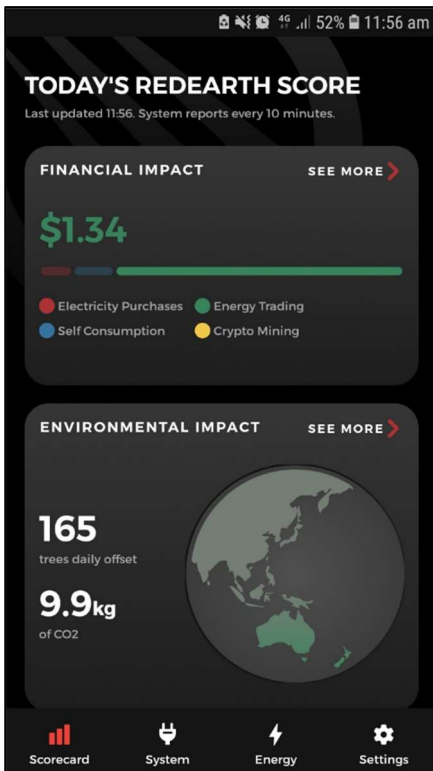
Click on the confirmation email and enter your electricity tariff,

- Wholesale (e.g., Amber)
- Single/flat rate
- TOU (time of use)

... you can complete this later



Now you are good to go!



FAQ's

Q: “I lost power!” What should I do?

A: If you have just lost power on the non-essential loads, this means that the grid has failed, and the power to non-essential loads will remain off until the grid power is restored by the electricity utility. Your essential loads will still have power. They also lose power for up to a minute as the SunRise sets itself up to operate in Backup mode. Once it has done this your essential loads will come back on (e.g., fridge and key lights etc that were connected during initial installation)

Once the SunRise is in Backup Mode (no Grid available) it is important to understand that you now have a limited electricity supply. If you run too many loads and the battery goes flat, then the essential loads will also turn off.

You can just wait for the grid supply to be restored and the SunRise will restart as will all your loads.

Otherwise, if you do not want to wait that long, you can restore supply to the essential loads by waiting until the sun is shining then turn OFF the ac breakers on the SunRise. Next, turn the PV (Solar) Isolators OFF and then ON again. This will start the battery charging process. Once the battery is at a safe level (approximately 40% which may take a couple of hours), you can turn the AC breakers back on and supply will resume to your essential loads.

Note: If the battery is left in low state of charge for a long period of time, the battery will go into a self-protection mode and will require a certified electrician to restart the system.

Q: Something went wrong, and I do not have power on my essential loads.

A: If your essential loads do not have power but your non-essential loads do have power then you have a problem with the SunRise system. Turn the BYPASS switch on the RHS of the SunRise into the “Down” position as explained above in ‘How my SunRise system operates’. Your essential loads should now have power. Contact RedEarth’s technical support on 1800 733 637

Maintenance and End of Life

Maintenance Schedule

Weekly

- Check the RedEarth EMU app to note the operation of your SunRise system
- Check the PV earth fault lamp (RED lamp) is not illuminated on the side of the SunRise

Monthly

- Clear any vegetation or overgrowth around the SunRise system
- Ensure safety labels/instructions remain visible
- Ensure airflow around the unit is not blocked, including for air entering the base of the unit.
- Review any emails from RedEarth to remain up to date on relevant opportunities

Annually

- Visually inspect for loose or damaged cables or connections near inverter
- Inspect conditions of solar panels, cables, array frame for damage or corrosion
- Test the EPS (Back-up) functionality of the SunRise by switching off the main breaker to the house. After a minute the selected backup loads should come on (e.g., fridge etc.). Switch the main breaker to the house back on to resume normal operation.

End of Life Recycling

Please contact RedEarth Energy Storage to arrange recycling of your battery.



Working on the inside of the SunRise system is restricted to qualified personnel.

RedEarth recommend installation by licensed electricians only.

Note that government rebates for solar panels are only available if solar panels are installed by a certified installer

Services and options available for your SunRise

As a RedEarth SunRise system owner you have the choice of joining our customer community. You just need to register your contact details with RedEarth.

You can receive regular relevant communications from RedEarth.

Other benefits include

- Access to our PPP (Private Power Plant) stream of financial benefits to you
- Remote monitoring service if required. Includes recommendation for system upgrades.
- Additional batteries for system expansion
- Extended warranty option

In addition to the SunRise system RedEarth offers other systems for both on-grid and off-grid applications. Contact RedEarth for more information.

