User Manual
BushChook

- On-grid and off-grid homes
- 1-phase and 3-phase homes
- Whole home backup option

RedEarth's BushChook is the premium Australian-made battery solution.

It provides an excellent and enduring investment in your home. **Available in both single and three-phase configurations**, the BushChook provides a range of power outputs and scalable battery size tailored to suit your specific needs.

It also opens up the world of RedEarth's Private Power Plant (PPP), which turns your purchase of a battery system into a genuine investment that increases the value of your home.

RedEarth

How BushChook can help you control your power and future-proof your home by **Unlocking your own Private Power Plant**

RedEarth

RedEarth Optimum membership is the gateway to your **Private Power Plant** (**PPP**)

Don't understand energy trading?

RedEarth's patented algorithm will **trade your power for you**. Getting you the best price and letting you know when to buy and sell.

Sick of power companies ripping you off?

Unlock access to **wholesale prices** the power companies don't want you to see.

Want to get paid to charge your car?

You've got an EV, why not get paid to use it? Use our app charge your vehicle with **automated, intelligent EV charging** (plus, you can use your vehicle to charge the grid).

Want to share your power?

Now that you are able to make so much power, why not send some over to grandma? It's easy with our **peer-to-peer trading.**

What the hell are MPPTs/ inverters/ kWs?

Don't stress, we've got you! You don't need to be an engineer to use your RedEarth system. Get access to 10 years of **personalised monitoring and support** specific to your system and home.

Natural disaster coming for your home?

BushChook has your back. Your system can switch to ***Disaster Protection Mode*** and go off-grid. Or, you can simply choose to go off-grid whenever you want to.

How smart is your home?

Joining with us means ongoing upgrades and features to your **smart switchboard**. Oh, and you can choose to manually control your battery and appliances through our app too!

Did we mention saving the world?

Stop using dirty, coal power and start using **clean, green energy.** And why not get paid for your service while you're at it? It's easy being green with RedEarth. Switch to renewable energy today.

"The reality is that the world is racing ahead, electrifying everything at an incredible pace, and we're leading the charge here at RedEarth.

Aussies want a world that's not just sustainable but also easy on the pocket. Renewable energy is no longer just a fancy lifestyle choice; it's our pledge to this beautiful land we call home, and a real pathway for making lasting change.

Now, think about your own home. Grabbing a RedEarth system isn't just about future-proofing with cutting-edge tech or looking out for the next generation (although, that's pretty major stuff!). It's about giving your home an instant boost, putting serious value into your biggest asset.

Picture living in a smart house that not only pays its own way but also lines your wallet. Who wouldn't want a home that's not just clever and sustainable but also a savvy financial move?"

Find out more

Power yourself.

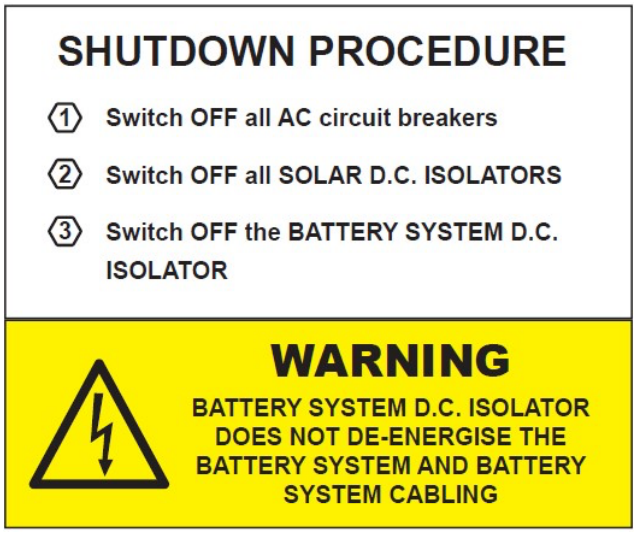
Safety instructions

The Shutdown Procedure: This turns OFF the BushChook system. The procedure can also be found on the traffolyte label on the RHS of the unit. To turn ON the BushChook reverse these steps.

1 Turn OFF all AC circuit breakers (#1). (Note: It is not necessary to turn off the inverter via the push button on the left side of the inverter.)

2 Switch OFF the SOLAR D.C. ISOLATORS (#2). (Note: It is not necessary to turn off the PV Isolator on the side of the Inverter.)

3 Switch OFF the BATTERY SYSTEM D.C. ISOLATOR (#3). (Note: It Is not necessary to turn off the individual battery breakers on each battery unless the system will be off for over three months.



⚠ **WARNING:** Working on the inside of the BushChook system is restricted to qualified personnel. RedEarth recommend installation by licensed electricians only.

⚠ The BushChook must only be installed by suitably qualified personnel who have read and are familiar with its operation and hazards.

⚠ The battery provided with this system must only be charged by the Deye inverter or the V2G (vehicle to grid) charger supplied by RedEarth. Do not attempt to charge the batteries with any other charging device or connect any devices directly to the DC battery bus unless approved by RedEarth.

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

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 manual.

Fire

The BushChook uses RedEarth's Troppo battery. This is a lithium-iron-phosphate based battery (LFP). It is the safest lithium chemistry. However, in the case of a fire the following steps should be taken. 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:** The SDS document for the Troppo Battery can be found at www.redearth.energy

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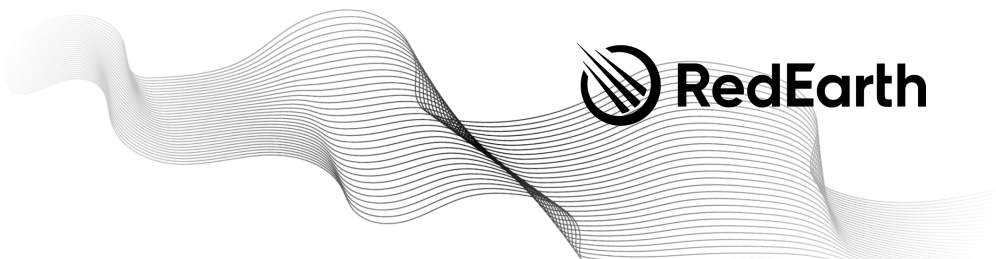


RedEarth

Customer support

Your Installer:

Your installer should give their contact details to you during installation of the RedEarth BushChook. If they are not available, the contact RedEarth Customer Support.

Please ensure your installer goes through the five handover steps listed in this manual.

RedEarth Customer Support:

To reach our customer service and technical support team contact;

- RedEarth office:
  Dial 1800 733 637 and press Option 2.
  If our support team are currently engaged in other calls or on-site visits, kindly leave a short message to ensure a prompt call back by the most appropriate staff member.

- Additionally, you can email support@redearth.energy. You will receive a ticket number, ensuring your place in the queue. These emails are addressed within one business day.

Overview

Congratulations on making your home more valuable, and the world a greener, cleaner place!

Your BushChook can be used for both on-grid and off-grid homes, with sizes available for both single-phase houses (5kW & 8kW) and three-phase houses (12kW) homes. It is designed with scalable battery capacity of up to 32.8kWh, **enough to take the typical Australian home completely off grid, or to EnergyTrade or share your power if you are on-grid.**

As an Australian-made product built in Brisbane, it is optimised for local conditions. With a climate prone to extreme heat, floods, cyclones, bushfires, and heavy storms, being prepared is essential. The BushChook comes equipped with *PowerRanger* in our RedEarth app, assisting you and your family in times when the grid fails.

We've got you covered in an unexpected blackout too. The BushChook system, including solar panels, generates and stores electricity for use day and night, and includes a whole-home backup capability so your loads remain powered during any blackout (load dependent). Plus, for off-grid customers, the BushChook is ready to connect your backup generator.
An optional feature of your BushChook is the ability to use V2G (Vehicle-to-grid), which allows you to use the battery in your EV to support the battery in your BushChook, giving you a much larger battery in case of a blackout, or allowing you to trade more on the electricity grid. Note that this is dependent on the type of EV that you have. Contact RedEarth for details

Easy to install:

- The BushChook system can easily be retrofitted to an existing PV solar system that may already be installed at your home.
- Solar panels: Up to 18kW of panels can be connected to the 12kW 3-phase BushChook and 12kW of panels to the 8kW 1-phase BushChook. This is usually enough to meet the needs of a typical home as well as charge an electric vehicle using only electricity generated at your home. Up to 7.5kW of solar panels can be connected to the 5kW BushChook, suitable for houses that use less electricity.

Scalable

- The BushChook is designed so that additional batteries can easily be added in the future. Up to **eight batteries** with a total of 32.8kWh can be added. You only need to purchase what is suitable for your needs now, and as your requirements change, and your demand for power grows (e.g., an electric vehicle is purchase), you have the option to add more batteries.

Want to see BushChook in action? You are welcome to visit our Brisbane facility to see your new system in production.

Finally, RedEarth won't leave you high and dry once you have purchased from us—we're with you for the long haul. RedEarth provides world-class, ongoing support and advice using our local engineers and technicians, to make sure you continue to get the most out of your BushChook system.

Your BushChook battery system is monitored and controlled via RedEarth's EMU app, available for both Apple and Android phones.

You've bought a BushChook. Now why don't you use it to make extra money while making your home smarter?

As the owner of a BushChook, RedEarth also provides you the option to join the RedEarth Customer Community and benefit from our **Optimum membership** and our proprietary **PPP (Private Power Plant)** programs which magnify the benefits and value of your BushChook over time; and well beyond what a typical budget home battery system can offer you.

Becoming an Optimum member, via RedEarth's EMU app, unlocks access to your very own Private Power Plant (PPP), increases the value of your home and magnifies the benefits of your BushChook system, well above what a typical budget battery system can offer.

When you initially purchase your BushChook battery system you automatically receive three-months free Optimum membership. During that time RedEarth can monitor your system and provide feedback on what PPP options would be suitable for you to sign up to. For example, if you are off-grid you will not be able to EnergyTrade.

RedEarth Optimum membership

RedEarth's Optimum program provides several specific, individualised benefits to you based on your system size and unique needs—with more modules being added all the time by our clever team of in-house engineers and developers.

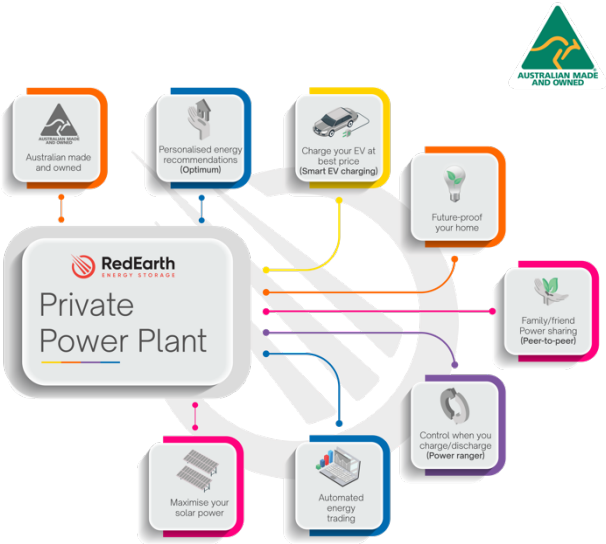
1. Priority support is provided to our Optimum members. (on-grid and off-grid members).
2. Review of your current electricity bill and recommendations for better offers currently in the market. Our customers have saved $150-$200 per year on average (if you are on-grid).
3. Access to RedEarth's 4G monitoring service if no local internet is available (on-grid or off-grid members - requires mobile coverage).
4. Remote monitoring service by RedEarth's trained technicians and engineers, providing peace of mind that someone is watching your system (on-grid and off-grid members).
5. Access to RedEarth's PPP (Private Power Plant) and its stream of financial benefits available to you, including energy trading (if suitable for your circumstances) Peer-to-peer trading, smart EV charging etc. These services are managed from your RedEarth EMU app.
6. Support in purchasing additional Troppo batteries, compatible EV chargers and other hardware. This can help if you purchase an electric vehicle or wish to begin energy trading.
7. Regular communications about relevant government offers and other items of interest as you use your BushChook (e.g., information on how your home can be ready for the transition to electric vehicles)

RedEarth PPP (Private Power Plant)

Being an Optimum member is the gateway to access your Private Power Plant benefits.

Transforming your home into a more valuable and lucrative investment is easily achievable through the integration of RedEarth's BushChook and our proprietary Private Power Plant (PPP) benefits.

As we move into a more electrified future, homes need to be ready. By harnessing the untapped potential of your rooftop, you can generate up to three times the amount of solar energy needed to power your residence or business. The result? Your property becomes your very own Private Power Plant, RedEarth's ground-breaking innovation that offers a myriad of advantages.



With your BushChook installed, you not only gain access to a continuous source of renewable energy but also create an additional value stream by feeding surplus energy back into the grid or sharing it with your family. This not only offsets your energy costs but could even turn a profit.

Additionally, you contribute to a sustainable future by significantly reducing energy waste and, over time, effectively eliminate power bills. The decision to "RedEarth-ify" your home is not just an investment in the present but a forward-thinking step towards financial security, eco-friendliness, and long-term value enhancement for your property.

PPP modules currently available include:

1. **Access to wholesale electricity pricing**—cut out the middleman.
2. **Energy Trading**—sell your excess electricity at a profit (requires sufficient BushChook system size)
3. **Peer-to-peer electricity trading**—e.g., give your excess electricity to help out your grandparents.
4. **Smartest EV charging**—RedEarth's algorithm determines the best time to charge AND discharge your EV (RedEarth has a V2G option for suitable vehicles). V2G can be especially valuable when you are off grid, either voluntarily or when storms bring down power lines, as it provides direct access to the large battery in your EV.
5. **PowerRanger**—you choose when you charge or discharge your battery and what level of reserve battery capacity you want to maintain. Be ready for planned grid outages.
6. (Coming soon) **Disaster Protection Mode** and **Go off-grid**—take your home off grid temporarily, for example when utilities want to turn off your PV when there is too much solar being generated during the middle of the day. It also provides information on the time you have left until the battery depletes.

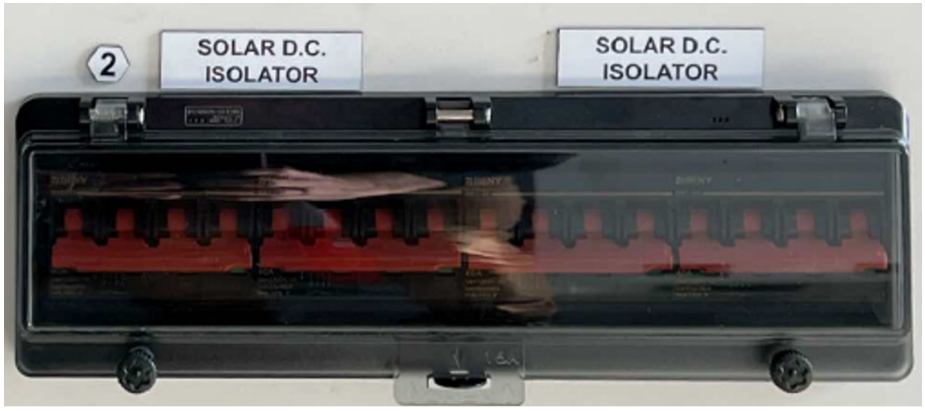
Your BushChook: How to Turn ON and Shut it down

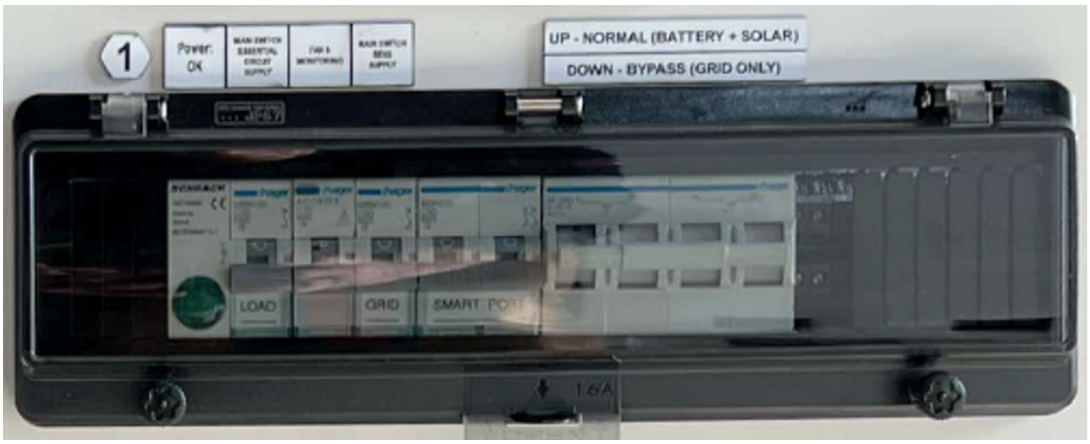
Turn ON Procedure

Note: All devices listed below are located on the right side of the BushChook and can be also identified by the number affixed to the clear covers of the switches. (Numbers 1 to 3)

To **turn ON** the BushChook follow the steps below:

1. **Switch ON the BATTERY SYSTEM D.C. ISOLATOR (#3);**
   The on/off push button on the left side of the inverter should already be ON. This can only be accessed by a qualified person.
2. **Switch ON the two SOLAR D.C. ISOLATORs (#2)**
   The PV Isolator on the left side of the Inverter should already be ON. This can only be accessed by a qualified person.
3. **Turn ON all AC circuit breakers and ensure the BYPASS switch is in NORMAL position (#1);**
   The individual battery breakers on each Troppo battery should already be ON. This can only be accessed by a qualified person.





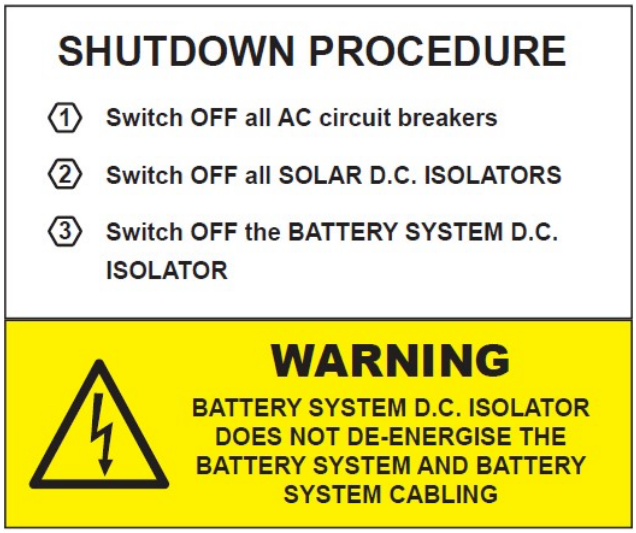
Shutdown Procedure

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 (#1).**
   It is not necessary to turn off the inverter via the push button on the left side of the inverter.

2. **Switch OFF the SOLAR D.C. ISOLATORS (#2).**
   It is not necessary to turn off the PV Isolator on the side of the Inverter.

3. Switch OFF the BATTERY SYSTEM D.C. ISOLATOR (#3).
   It Is not necessary to turn off the individual battery breakers on each battery unless the system will be off for over three months.



How your BushChook works:

Your BushChook is setup to provide power in the most optimal way to optimise your use of electricity from your solar panels and the grid, or your generator if you are off-grid.

The priorities are to power the home loads from the PV (solar) first, then use the battery and finally the grid, or generator if you are off-grid. The solar power will go to the loads first and only the excess will be stored in the batteries for later use.

If the house load is being met by the solar power alone and the batteries are already full, then excess solar electricity can be exported to the grid. In off-grid installations the solar power will automatically be reduced to match the available loads.

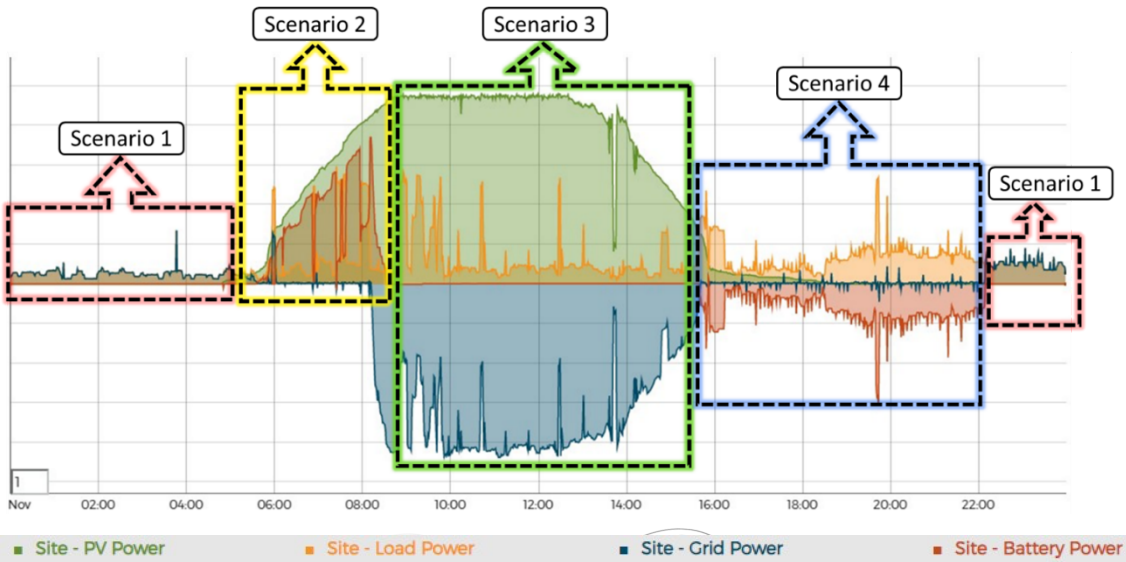
Normal operation (on-grid)

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

The green area is the **solar power** that was generated (from 6am to 4pm).
The orange area is the **home load.**
The red area is the **battery** (charging and discharging during the day).
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 reduces in the evening, 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.



Operation during blackouts (or if you are off-grid):

If grid power is lost, e.g., due to storms damaging powerlines, the BushChook system will power the backed-up loads that were connected during the installation of your system. This will usually include as a minimum your fridge, key lights and power circuits. Note that this is also the normal operating mode of the BushChook if It has been installed as an off-grid only system.

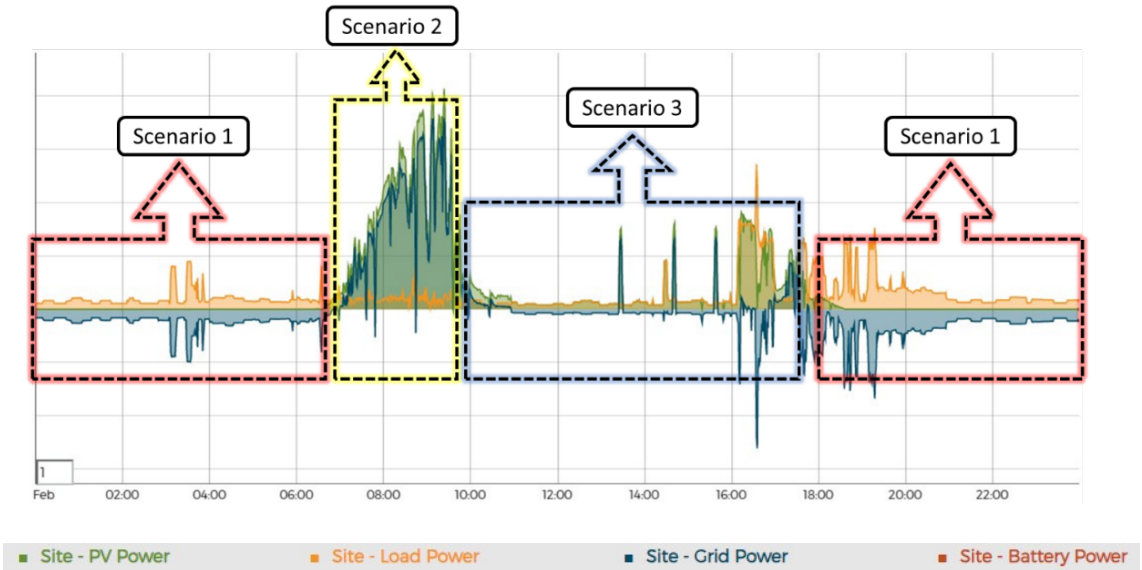
While in this back-up operating mode, the BushChook will use power from the battery and from the solar panels connected directly to it (during the daytime). Excess solar will charge the batteries.

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 remaining capacity of your battery (unless the mobile phone network is also not operating).

Once the batteries are empty, the BushChook will turn off and you will lose power on the backed-up loads as well. It will restart when the solar panels start generating power again, or if a generator is connected. Note that it will only start inverting once the batteries have absorbed some charge.

To better understand the operation of your BushChook 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 three 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 automatically reduced to match the house loads as there is nowhere else for excess solar energy to go.



Handover of your BushChook—to be completed with your installer:

Checklist for you and your installer 🤝

During the installation of your BushChook your installer should hand over to you by completing the following steps with you, which are explained in more detail following this list:

1. **Provided you the documentation** that came with your BushChook, including the safety data sheet (MSDS) for the Troppo battery, which should be left in the switchboard for the fire brigade.
2. **Provided you an overview of your BushChook installation** including explaining to you the switches on your BushChook itself and the related switches in your switchboard.
3. **Demonstrated to you what happens during a grid outage** by turning off the Main grid breaker to the house and observing the Backup operation. Confirm that the correct circuits continue to operate. If your system is an off-grid installation, then the operation of the back-up generator should be demonstrated.
4. **Demonstrate to you the operation and effect of the by-pass switch,** which isolates the battery from your home. All circuits in your home should continue to operate.
5. **Have helped you scan the QR code to register your system**. It is on the right side of your BushChook. This allows you to monitor your system once you have downloaded the RedEarth EMU app. It also registers your warranty. Finally, it is also a prerequisite for joining RedEarth's Optimum and the PPP. If this is not possible at the time of installation, you can contact RedEarth directly to complete onboarding later. (see contact details near the front of this manual)

These tasks are explained in more detail below.

1. Documentation

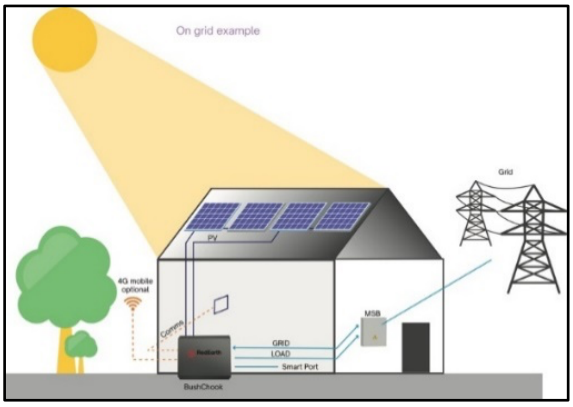
The BushChook is supplied with documentation and a parts kit box.
Documentation included is:

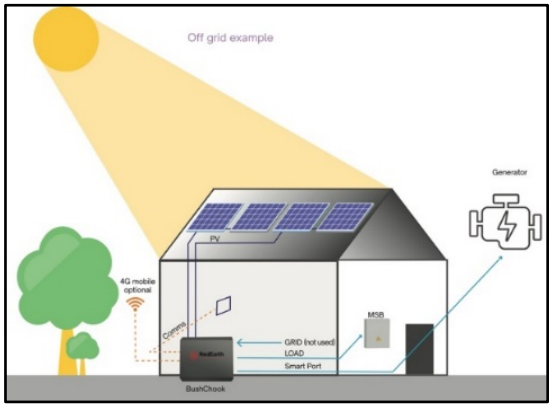
- BushChook Installation Manual
- BushChook User Manual (this document)
- BushChook Identification Sheet (serial #s etc)
- Inverter manual – from Deye
- MSDS – Troppo Battery (Material Safety Data Sheet)

2. Overview of your BushChook installation

There are two locations to interact with your BushChook, aside from using your EMU app. These are with the switches built into the BushChook itself and the switches installed at the switchboard of your home, that your BushChook is connected to.

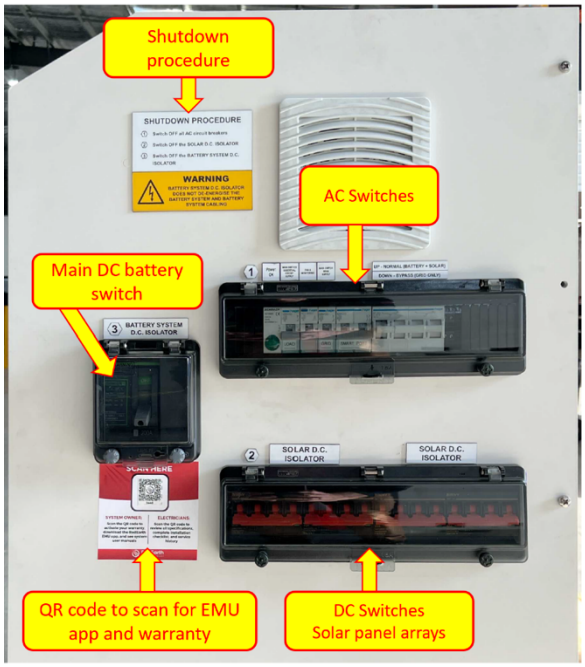
Note that there are some differences between an on-grid installation and an off-grid installation.





1. On your BushChook

The BushChook has all its 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. The switches are separated into AC switches, a main battery switch and DC switches for the solar panel arrays as shown below.



2. At your switchboard (MSB):

The BushChook has been connected to your switchboard during installation.
The images below show how this switchboard typically should look for a 1-phase or 3-phase house. The two key components related to your BushChook system are identified below:

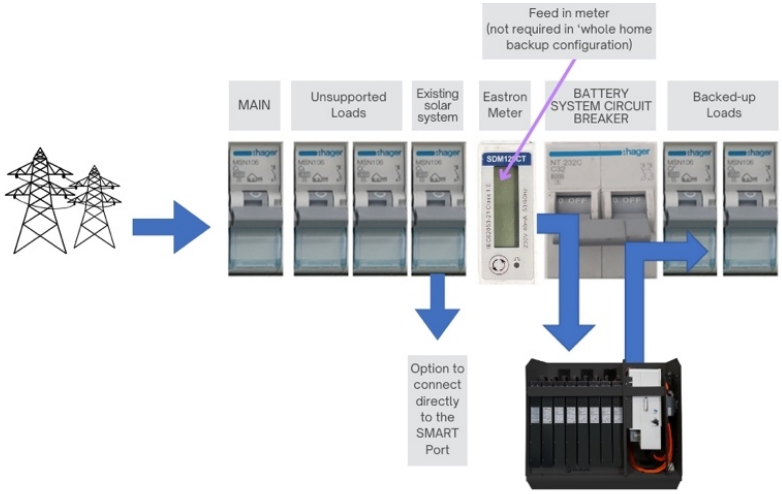
1. **BATTERY SYSTEM CIRCUIT BREAKER:** This isolates the BushChook from the switchboard, which may be required if, for example, work is to be done inside the switchboard. At all other times this switch remains on.

2. **EASTRON METER (Optional):** This measures the amount of power imported from or exported to the grid. This may not be present if your installation is a whole-house backup installation or if your BushChook is installed as an off-grid only system.

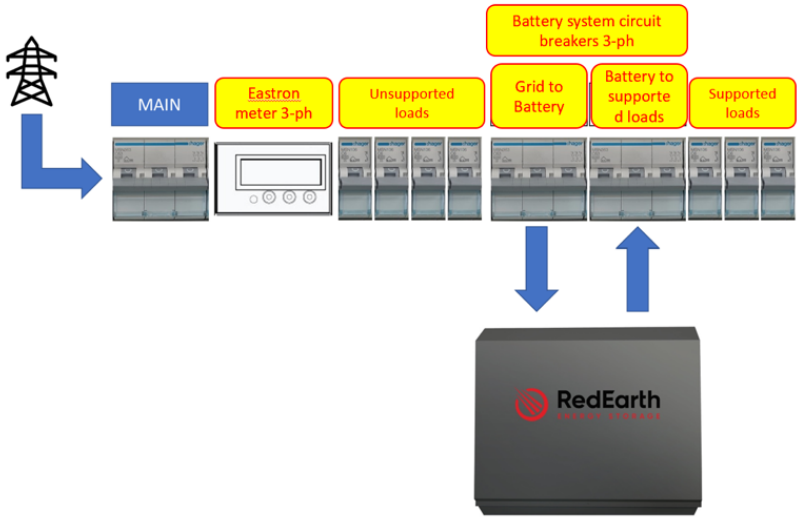
During a blackout the backed-up loads are supported by the BushChook system. The unsupported loads will turn off until grid power is restored. Note that if too many loads are on the backed-up circuit the battery could run flat quite quickly or the backup circuit could become overloaded and turn off temporarily.

Note: the solar panels connected directly to your BushChook system will continue to operate during a black-out, extending the time that your battery will last.

- **Example of the BATTERY SYSTEM CIRCUIT BREAKER and EASTRON METER in a 1-phase switchboard:**



- **Example of the BATTERY SYSTEM CIRCUIT BREAKER and EASTRON METER in a 3-phase switchboard:**



- **The SMART Port**

Your BushChook includes a SMART port that can be configured for three different modes of operation. This will have been configured during installation, based on your specific situation. The three modes are:

1. **SMART Port configured as a Generator Input.** This Is the typical configuration when the BushChook is in an off-grid installation.
2. **SMART Port configured as an input for a 3rd-party Solar Inverter.** This could be an existing Solar system that was already present before your BushChook was installed. By redirecting the output of this system Into the SMART Port it also becomes available during a grid outage. In an off-grid Installation additional solar can be connected this way.
3. **SMART Port configured as a controlled load output.** This could be used to power a pool pump or other non-critical load. When the battery state-of-charge (SOC) drops below a pre-configured level this load turns off to preserve battery capacity for more critical loads.

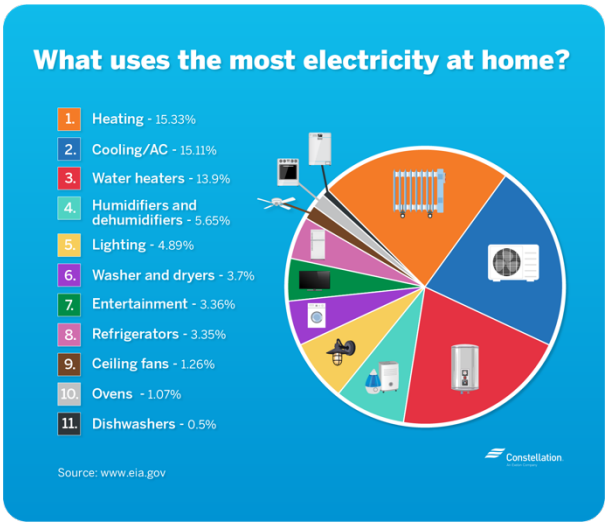
3. Grid outage, what to expect and confirm which of your loads are supported

When there is a grid outage then then the BushChook will seamlessly take over the loads that are connected to the output of the BushChook.

If your BushChook is large enough it may have been installed to take over all the loads in your home, in which case all your loads will continue to operate. If not, some of your loads will not work until the grid returns. Typically, your installer will have wired up at least your essential loads to continue to operate during an outage. This includes refrigeration, key lighting, your roller door, and key power points.

To ensure your battery lasts as long as possible you should restrict the use of air-conditioning and home heating, pool pumps, and other large loads that are less important during a grid outage.

The image right provides an indication of the amount of electricity different loads in a typical house use. If you reduce use of the loads with the largest slices of the pie your battery will last longer. Note that the solar panels will continue to support your loads and charge your batteries during the day even if the grid is not available. **Monitoring your system via the EMU app will show you the amount of electricity that your house is using currently.**



For off-grid installations you will normally size the BushChook so that all your loads can run only off the installed solar and battery capacity. A generator is usually included for prolonged periods of overcast weather which limits the amount of electricity the solar panels can generate.

4. By-pass operation

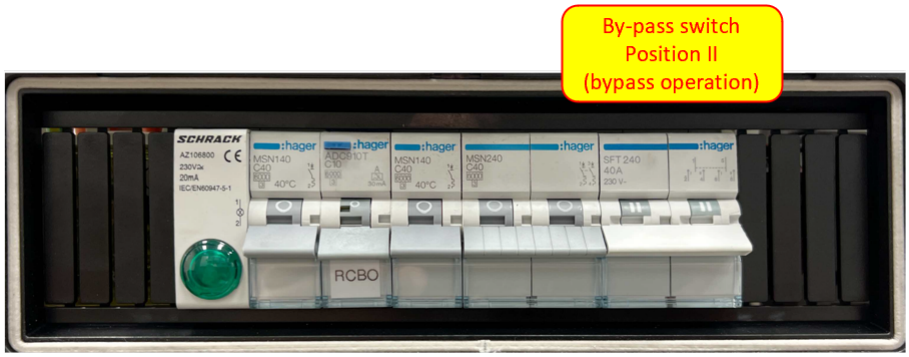
If your BushChook system develops a fault, then the whole system can be bypassed.

An example of a fault could be if your PV system (solar panels) develops an electrical leak (earth fault), the BushChook will begin emitting a beeping sound. 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.

Follow the Shutdown Procedure and then switch the system to Bypass Mode, as explained below. The images show the switches for a single-phase BushChook. The three-phase BushChook operates similarly.

By-pass Operation

In the by-pass operation mode, the BushChook battery, and the connected solar panels, will be completely bypassed, and the grid will provide power directly to all house loads, including the backup loads. **Note that in by-pass mode there is no back-up protection available.**

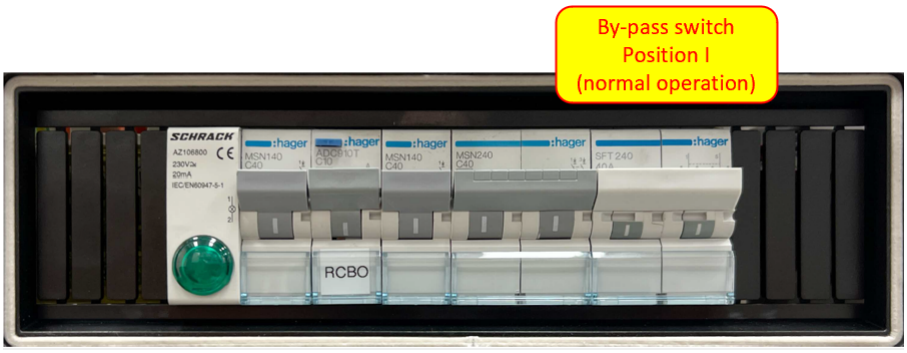


To activate by-pass mode, follow the shutdown procedure during which all AC breakers, PV isolators and battery isolators are turned off, THEN switch the by-pass switch into the downwards position (II).

The system will immediately provide all power directly 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 BushChook system can be taken out of by-pass operating mode.
This is done by switching the by-pass switch into the up position (I). Then follow the TURN ON procedure as described earlier in this manual.

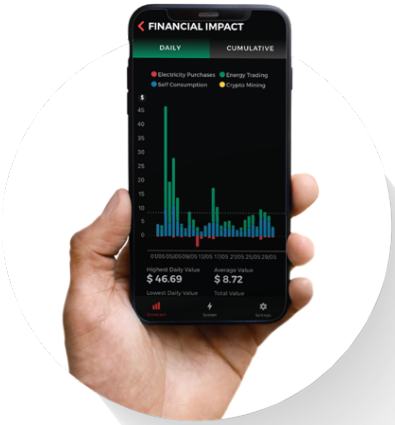


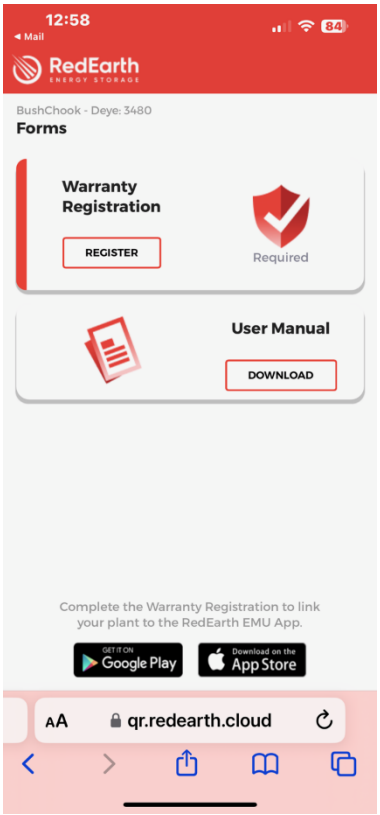
5. Scan the QR code to register your BushChook and activate remote monitoring using the EMU app.

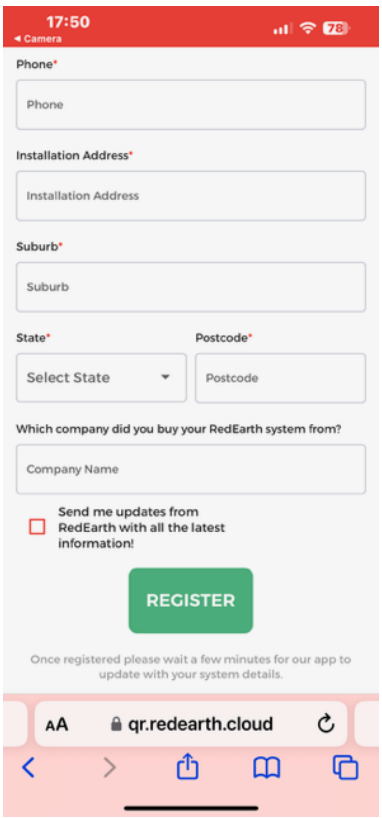
Monitoring your system is done via RedEarth's EMU app.

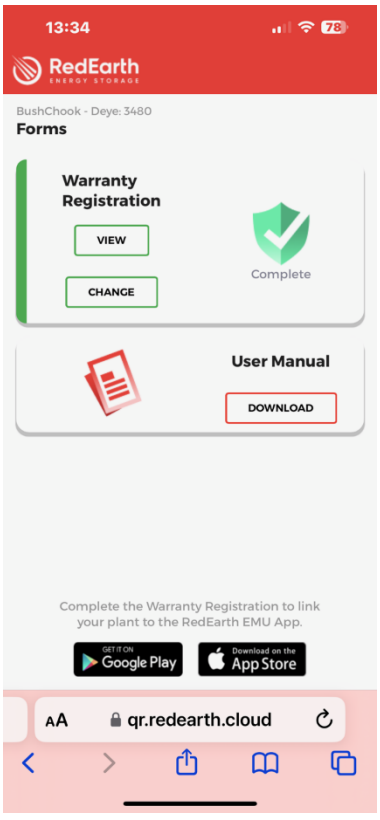
To setup monitoring follow the steps below.

Scan the QR code sticker attached on the right side of your BushChook with your mobile phone. It looks like this:



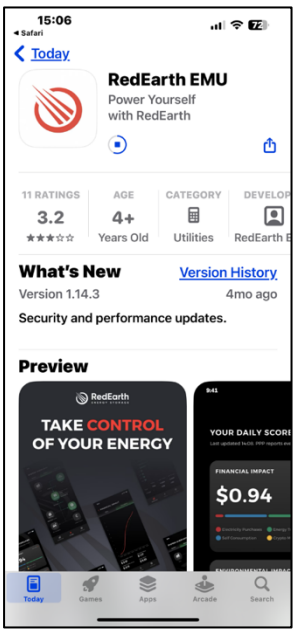


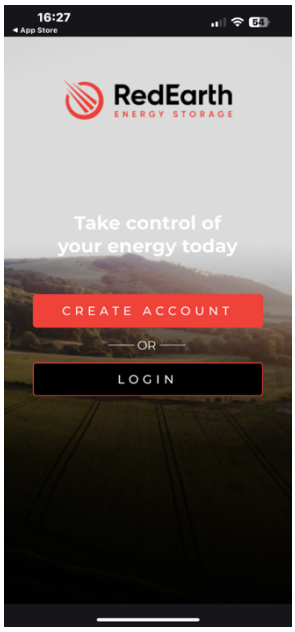


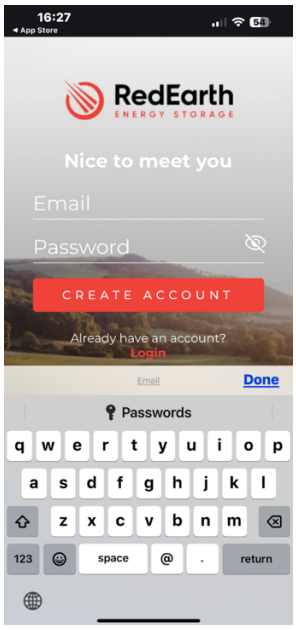


- Scanning the QR code will take you to the RedEarth customer portal.
- Click on the warranty registration button and it will take you to the page where you enter your contact information. This will register your system for remote monitoring as well as registering your warranty.
- Next click REGISTER. You will be taken back to the first page.
- You can review the details you entered by pressing the VIEW button. You can also download the BushChook Warranty document.

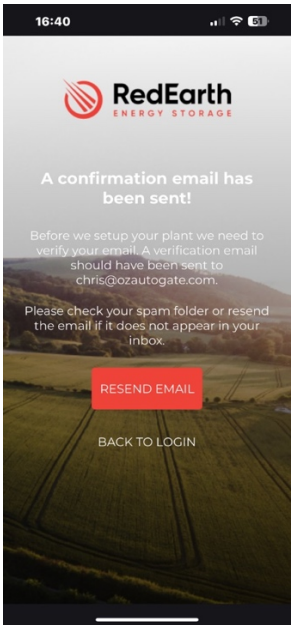
- The next step is to download the RedEarth EMU app by clicking on either the 'Google Play' or 'App Store' button, depending on your phone type.

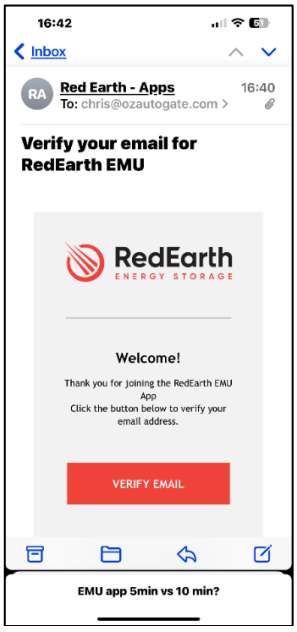


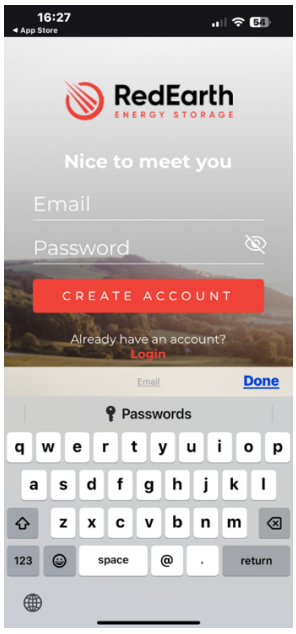




- Next download the EMU app.
- Then open the EMU app and you will be taken to the login page of the app.
- Now you need to click on the CREATE ACCOUNT button.
- You will be taken to the next page where you enter your email and your chosen password. It Is best to use the same email as you used to register your warranty.



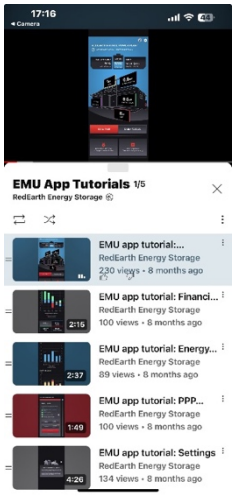




- you will receive a confirmation email.
- open the email and click on VERIFY EMAIL
- Log Into your account on your EMU app and you can instantly see your system.

How to use your EMU app

Scanning the QR code below will take you to several videos explaining how your EMU app works.



What is Optimum membership

As mentioned in the introduction, Optimum is an optional service provided by RedEarth to customers who own a RedEarth battery system. **Optimum increases the return on your RedEarth battery system above the standard features of storing your self-generated solar electricity and providing black-out protection.**

Optimum membership offers the following 7 specific additional benefits to you with more on the way.

1. Priority support is provided to our Optimum members. (on-grid and off-grid members)
2. Review of your current electricity bill and recommendations about better offers available in the market. Our customers have saved $150-$200 per year on average. (if you are on-grid)
3. Access to RedEarth's 4G monitoring service if no local internet is available (on-grid or off-grid members - requires mobile coverage)
4. Remote monitoring service by RedEarth's trained technicians and engineers, providing peace of mind that someone is watching your system. (on-grid and off-grid members)
5. Support in purchasing additional Troppo batteries for system expansion as required, for example if you purchase an electric vehicle or wish to begin energy trading.

6. Regular communications about relevant government offers and other items of interest as you use your BushChook (e.g., information on how your home can be ready for the transition to electric vehicles)
7. Access to RedEarth's PPP (Private Power Plant) and its stream of financial benefits available to you, including energy trading (if suitable for your circumstances) Peer-to-peer trading, smart EV charging etc. These services are managed from your RedEarth EMU app.

RedEarth Optimum membership journey

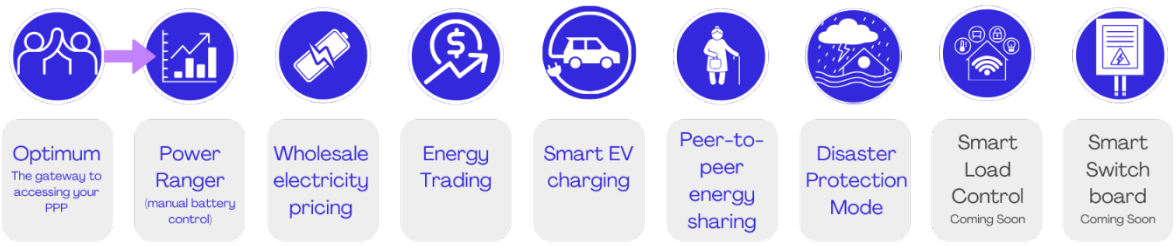
PPP (Private Power Plant)

How your Private Power Plant makes your RedEarth battery system more valuable.

RedEarth is committed to being with you for the long haul. Our unique, proprietary Private Power Plant offers you long-term benefits, including:

- **Increasing the value of your home.** A home with a RedEarth system connected to your own Private Power Plant is a home from the future, fully equipped to meet the needs of an electrified future.
- **Made to benefit end-users (you!).** RedEarth's Private Power Plant is unlike typical virtual power plants (VPPs) which are usually focused on benefitting utility companies and electricity retailers, our PPP is made to benefit **you,** give **you** control and make **you** money.
- **Ongoing personalised support and new product development.** Currently there are several PPP modules available with more in development. Each of these provides a benefit to you, depending on whether you are on-grid or off-grid, and how large your BushChook system is.

Below is an overview of the PPP modules available now. Contact RedEarth if you want to join any of these.



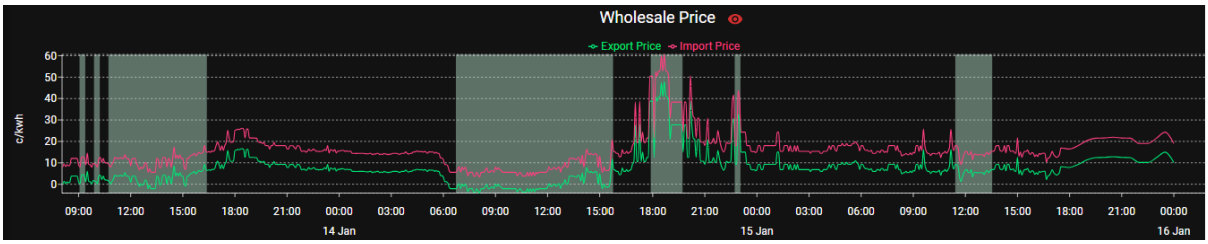
Your power in your hands.

Wholesale electricity pricing:

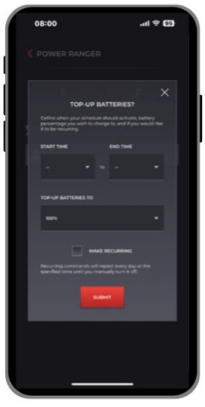
Sick of power companies ripping you off? RedEarth can assist you in moving from a standard electricity offer to the wholesale electricity price.

Electricity retailers purchase electricity and on-sell it to end-customers with a profit margin built in. By moving to the wholesale price your average cost will be lower, and your BushChook can be used when the prices are high. This is only suitable for on-grid customers with a sufficiently large battery capacity for their typical usage.

If you join Optimum, RedEarth can provide advice on whether this is suitable for your situation.



Power Ranger: Use your app like a remote!



The Power Ranger module gives you the ability to manually (or on an automated schedule) force charge or discharge your battery.

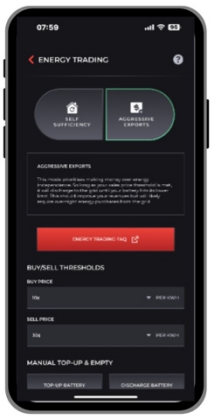
This means you have the power to:

- Choose to charge your batteries before a scheduled blackout.
- Manually trade your electricity
- Charge your batteries on a schedule if you don't have enough solar panels on your roof.
- Manually charge on a one-off cloudy day

Eligibility Criteria*

1. BushChook systems qualify.
2. Connected to the electricity grid.
3. EMU app being used, and you have communication to the BushChook.

Energy Trading: Get paid for your power!



Don't understand energy trading? No problem. RedEarth's proprietary algorithm will **automatically trade your power for you**. Getting you the best price and letting you know when to buy and sell to maximise your financial return.

Eligibility Criteria*

1. Confirmation from RedEarth that your system is suitable.
2. BushChook systems qualify.
3. Any existing PV inverter needs to be set correctly.
4. You need to be on **wholesale pricing (LocalVolts or Amber)**

Smartest EV charging: Charge your car at the lowest price.

With RedEarth's PPP app you can charge your electric vehicle at the best time and cost.

- Choose when to charge your EV from anywhere, through RedEarth's EMU app.
- Charge your EV from excess solar power.
- View your EV charging in real time through the RedEarth EMU app, together with your BushChook monitoring.
- Charge your EV on a set schedule (coming soon)
- Charge your EV below a certain price point (manually available, app coming soon)
- Optional V2G (vehicle-to-grid) charging is available depending on the type of EV you own. Contact RedEarth for details.

Eligibility Criteria*

1. Compatible EV charger (e.g. Zappi EV charger)
2. BushChook system is compatible (incl V2G)
4. EMU app being used, and you have communication to the BushChook.

***Note:** Eligibility criteria changes over time as the product is developed

Peer-to-Peer energy trading: Send your spare power to Grandma!

Now that you can make so much power, why not send some over to grandma? It's easy with our peer-to-peer trading.
Alternatively, you can trade it with other people at a price you agree on. This can include yourself, if for example you have second property, such as a rental property.

- Share/sell your electricity with others or send it to your other properties.
- Combine with Power Ranger to 'share' at a specific time.
- RedEarth's team need to assist you in setting this up.

Eligibility Criteria

1. On-grid customers only

2. Confirmation from RedEarth that your system is suitable.
3. You and the people you are sharing/trading your power with need to have a **LocalVolts account.**

Disaster Protection Mode (Go off-grid)
(coming soon)

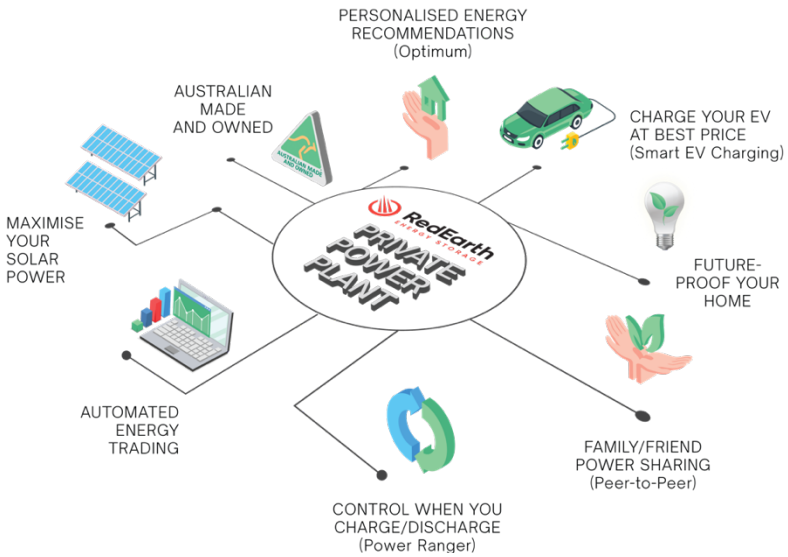
This mode allows you to take you to prepare for an anticipated power outage by keeping your battery at full charge. It then provides you detailed information on the number of hours of battery you have left at your current rate of usage. Reduce your usage and see the remaining hours increase.
Note: this is an automatic feature for all off-grid customers, as this is how they live all the time.
This feature can be valuable after natural disasters, where the electricity grid can be unavailable for more than a week.
It can also be useful if the electricity utility changes the rules so that it can choose to shut off your solar system if there is too much solar energy being produced in the whole electricity grid at any particular time. You can choose to go off-grid and continue using your own electricity.
Finally, if you have an EV and RedEarth's V2G (vehicle-to-grid) system installed then this can add to your available battery capacity.

Smart Load control
(coming soon)

This feature will allow you to remotely manage some of your larger loads, which optimises your electricity usage. An example is to remotely control your pool pump or air-conditioning system to take advantage of low prices in the market. Note that this can also be automated.

Smart Switch Board
(coming soon)

This is the next generation in switch boards for your home. It is connected to the internet and becomes the nerve centre of your home. This is especially effective in new-built homes where the wiring and electrical features can be optimised while the house is being built.



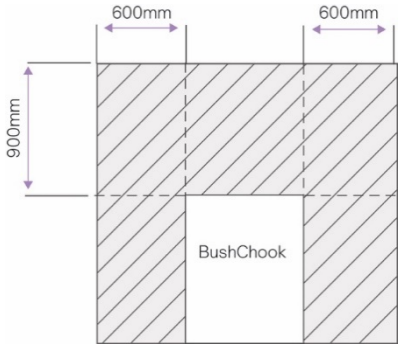
BushChook positioning information, dimensions and model range

Deciding where to physically locate your BushChook is influenced by a number of factors including proximity to your main switch board. However, there are also rules (AS5139) about where a home battery can be positioned to minimise fire risk.

Batteries are not allowed:

- in habitable rooms (bathrooms, laundries, pantries, hallways are not habitable rooms)
- in ceiling spaces or wall cavities
- under stairways or access walkways
- in an evacuation route or escape route
- near combustible materials.

This makes the most likely locations to be against an external wall or in a garage.

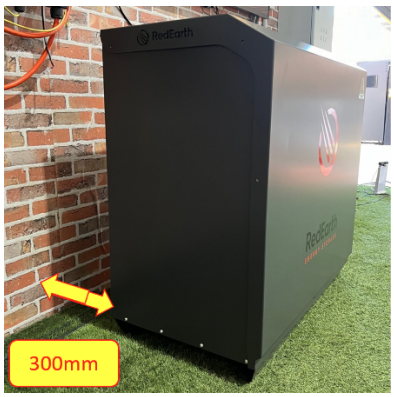


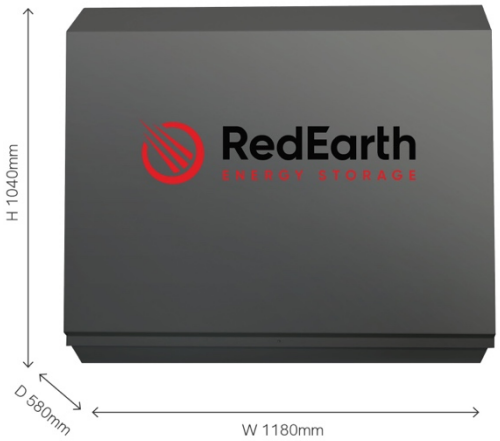
Australian standards require clear space between the battery and any windows, doors and appliances such as hot water units and air conditioners. This clear space must extend at least 600 mm to either side and 900 mm above the battery (see diagram).

If the battery is wall-mounted with a habitable room on the other side, the wall must have a non-combustible barrier extending the same dimensions as the clear space noted above. Most likely the installer will add a thick cement sheet unless the wall is already made of cement sheet, brick or concrete.

A battery installed in a garage may need a bollard to protect it from cars.

These rules can make it more difficult to find a suitable location however the BushChook provides another option. As it is designed as a free-standing, scalable battery system, if it is placed more than 300mm away from the wall then the 600mm and 900mm clearance restrictions above don't apply. This option is not available to the Tesla battery for example, which must be screwed to a wall. See comparison image showing a Tesla battery system attached to a flammable wall with the required cement sheet installed. Next to it is an image of a BushChook positioned 300mm off a wall, freestanding and without the visual disruption of a large cement sheet to your exterior walls.





BushChook size and weight:

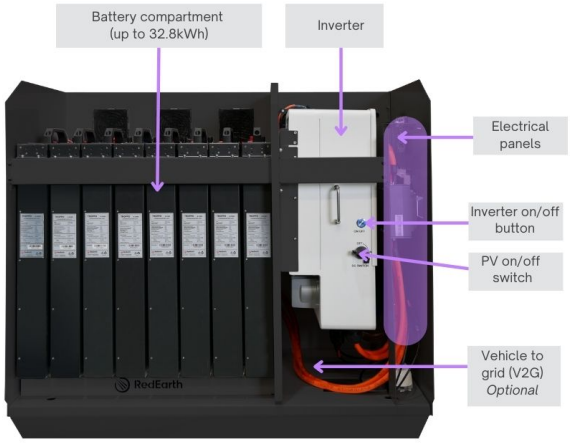
- 125kg complete without batteries.
- 465kg with 8 x TROPPO Lithium batteries (42.5kg per battery)
- 1040H x 1180W x 580D [mm]

BushChook models:

Single-Phase 5KW system BC-5-1xx model numbers:	Single-Phase 8KW system BC-8-1xx model numbers:	Three-Phase 12kW system BC-12-3xx model numbers:
BC-5-108 (x2 battery = 8.2kWh nominal)	**BC-8-112** (x3 battery = 12.3kWh nominal)	**BC-12-316** (x4 battery = 16.4kWh nominal)
BC-5-112 (x3 battery = 12.3kWh nominal)	**BC-8-116** (x4 battery = 16.4kWh nominal)	**BC-12-320** (x5 battery = 20.5kWh nominal)
BC-5-116 (x4 battery = 16.4kWh nominal)	**BC-8-120** (x5 battery = 20.5kWh nominal)	**BC-12-324** (x6 battery = 24.6kWh nominal)
BC-5-120 (x5 battery = 20.5kWh nominal)	**BC-8-124** (x6 battery = 24.6kWh nominal)	**BC-12-328** (x7 battery = 28.7kWh nominal)
BC-5-120 (x5 battery = 20.5kWh nominal)	**BC-8-128** (x7 battery = 28.7kWh nominal)	**BC-12-332** (x8 battery = 32.8kWh nominal)
BC-5-124 (x6 battery = 24.6kWh nominal)	**BC-8-132** (x8 battery = 32.8kWh nominal)	
BC-5-128 x7 battery = 28.7kWh nominal)		
BC-5-132 (x8 battery = 32.8kWh nominal)		

What is inside your BushChook

Inside Layout

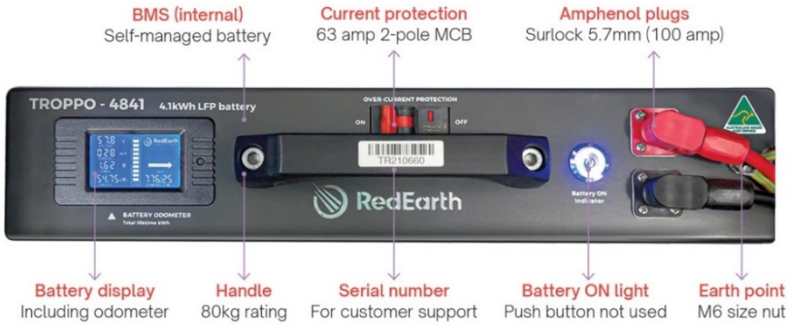


The BushChook is divided into three main areas. On the Lefthand side (LHS) are the batteries, in the middle Is the Inverter and on the Righthand Side (RHS) are the switches, electrical components and cable connection points for installation. Prior to leaving the factory the system is tested. It leaves the factory with the inverter cabling fully connected and ready-to-run. The batteries are removed for transportation.

Battery compartment

Up to 8 x RedEarth Troppo-4841 Lithium batteries can be installed in the BushChook providing up to 32.8kWh nominal battery capacity.

All eight sets of battery cables are pre-wired into the system. This makes it very easy to add additional batteries in the future.



Inverter area

Here you will find the Deye Inverter (5KW, 8KW or 12KW) used in the BushChook. RedEarth has a strong technical relationship with Deye, which optimises the integration of the inverter into RedEarth's Private Power Plant (PPP).
https://www.deyeinverter.com/news/company-news/deye-and-redearth-announce-strategic-partnership-in-the-south-pacific.html

Electrical switch gear area

This area contains all the switches that are used to manage the BushChook. Note that in normal operation there is no need to operate these switches.

Maintenance and End of Life

Maintenance schedule

Weekly

- ❑ Check the RedEarth EMU app to note the operation of your BushChook system and confirm that your internet connection is functioning (if in use)
- ❑ Confirm the Earth fault alarm Is not beeping.

Monthly

- ❑ Clear any vegetation or overgrowth around the BushChook system
- ❑ 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
- ❑ Ensure safety labels/instructions remain visible.
- ❑ Inspect conditions of solar panels, cables, array frame for damage or corrosion. The solar panels may need cleaning to continue to generate full power.
- ❑ Test the back-up functionality of the BushChook by switching off the main breaker to the house. Confirm that the selected backup loads remain on (e.g., fridge etc.). Switch the main breaker to the house back on to resume normal operation.
- ❑ Clear any branches that may have begun to shade the solar panels. This Is especially Important In winter when the sun Is lower on the horizon. Even a small amount of shading can have a significant effect on the amount of electricity produced.

End of life recycling

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

FAQs

Q: “I lost power!” What should I do?

A: If you have just lost power on the non-backed up 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.

Once the BushChook 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.

The system will come on again once the sun is shining on the solar panels again.

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 BushChook system. Turn the BYPASS switch on the RHS of the BushChook into the “Down” position as explained previously. Your essential loads should now have power. Contact RedEarth’s technical support on 1800 733 637.

Options and Services available for your BushChook

Hardware Options for your BushChook

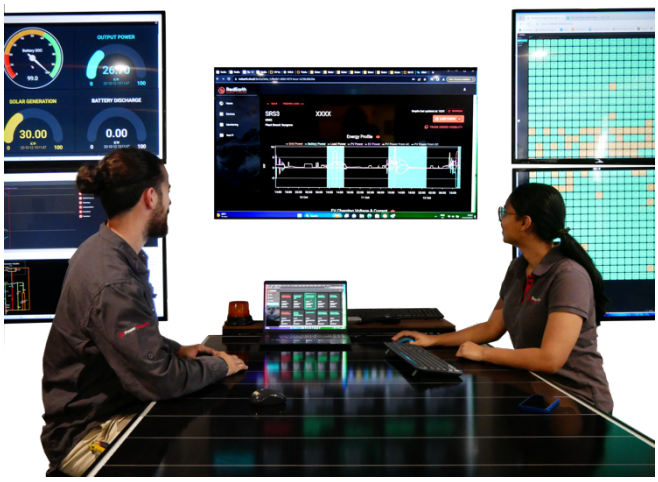
RedEarth can provide several options for the BushChook system.

- Additional Troppo batteries–up to a maximum of eight for the BushChook (32.8kWh nominal)
- V2G charger (Vehicle to Grid) –from your EV to your BushChook system to the grid (EV requires a 10Amp GPO)
- Remote display for your kitchen bench top (in development)
- Other hardware
- EV charger–that can be monitored on your EMU app (both 1-phase and 3-phase)
- Cell phone booster
- Starlink satellite internet connection

Services for your BushChook:

As a BushChook system owner you have the choice of joining our RedEarth customer community and benefiting from our proprietary Optimum and PPP programs which magnify the value of your BushChook over time; and well beyond what a typical budget home battery system can offer.

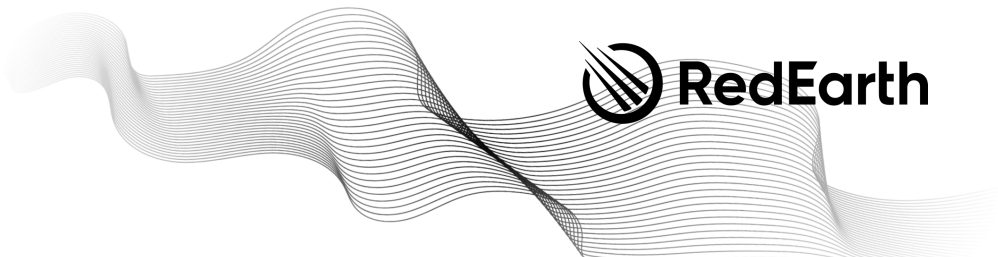
You just need to sign up to our **Optimum** Program via the EMU app that you currently use to monitor your BushChook.
See the section in this manual related to Optimum membership and PPP benefits.



BushChook Technical specifications

BushChook Model	**5kW 1-phase** BC-5-1xx	**8kW 1-phase** BC-8-1xx	**12kW 3-phase** BC-12-3xx
Battery capacity of BushChook system (Troppos)	2 to 8	3 to 8	4 to 8
Battery capacity of BushChook system (kWh nominal)	8.2 to 32.8	12.3 to 32.8	16.4 to 32.8
Inverter model	5K-SG04LP1-AU	8K-SG05LP1-AU	12K-SG04LP3-AU
Battery data			
Battery type	Troppo 4841 LFP self-managed lithium		
Battery capacity (nominal)	4.1kWh per Troppo battery		
Battery operating voltage range (V)	48-57.6V		
Max. charging current (A)	120A	190A	240A
Max. discharging current (A)	120A	190A	240A
PV string input data			
Max. DC input power (W)	7500W	12,000W	18,000W
Maximum PV input voltage (V)	500V	500V	800V
MPPT range (V)	150 to 425V	150 to 425V	200V to 650V
Start-up voltage (V)	125V	125V	160V
PV input current (A)	13A+13A	26A+26A	26A+13A
Max. PV Isc (A)	19.5A+19.5A	39A+39A	39A+19.5A
No. of MPPT trackers	2		
No. of strings per MPPT tracker	1+1	2+2	2+1
AC output data			
Rated AC output and UPS power (W)	5,000	8,000	12,000
Max. AC output power (W)	5,000	8,000	12,000
Peak power (off-grid)	2 times of rated power, 10 S		
Rated AC output current (A)	21.7A	34.8A	17.4A
Max. AC output current (A)	21.7A	34.8A	17.4A
Max. three-phase unbalanced output current (A)	N/A	N/A	26.1A
Max. continuous AC passthrough (A) * When installed in the BushChook system AC passthrough is current limited to 40A	35A*	50A*	45A*
Power factor	0.8 leading to 0.8 lagging		
Output frequency and voltage	50Hz; 230V/400V, 240/415V	50Hz; 230V/400V, 240/415V	50Hz; 230V/400V, 240/415V
Grid connection type	Single phase L/N/E	Single phase L/N/E	Three phase 3L/N/E
Protection			
Integrated	Anti-islanding Protection, Surge protection, Output Shorted Protection, PV String Input Reverse Polarity Protection, Output Over Current Protection, Insulation Resistor Detection, Residual Current Monitoring Unit,		
Over voltage category	DC Type II / AC Type III		
Certifications and standards			
Grid regulation	AS/NZS 4777.2		
EMC / Safety regulation	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2		
General data			
Operating temperature range (°C)	-40~60°C, 45°C derating		
Cooling	Smart cooling with temperature-controlled fans		
Weight of BushChook system (excl batteries) (kg)	106	115	125
Size of BushChook system (mm)	1180W x 1040H x 580D		
Protection degree of BushChook system	IP43		
RedEarth Warranty	10 years (AU & NZ and South Pacific region)		

* The BushChook system is designed to only use the RedEarth Troppo-4841 lithium-ion battery (LFP).



** The Nominal Energy Capacity depends on the number of Troppo-4841 batteries installed in the BushChook system. The model numbers reflect the total battery capacity installed in the system.

Power yourself.