

Installation Manual

Redback 1-Phase HV Hybrid System

RED-H4-S05HV
RED-H4-S06HV
RED-H4-S08HV
RED-H4-S10HV
RED-P2-BE9HV
RED-P2-BE18HV
RED-P2-BE27HV
RED-P2-BE36HV
RED-P2-BE45HV
RED-P2-BE54HV

V0.3 11Sep26



START HERE

This manual is for Installers. It describes the installation and commissioning of a Redback RED-H4-SxxHV 1-Phase Hybrid Inverter; RED-P2-BEXXHV batteries. This manual contains all the information needed for most installations.

Redback provides redback app for users and installers.

Redback app is used to install and configure Redback systems whilst on-site. Available for Android and iOS.

Redback app is used by owners to monitor their system, with limited control options. Installer interaction with this app is usually limited to an introductory session with new owners. Available for Android and iOS.

After the Redback app is opened, users and installers will see different interfaces based on their different account identities.

Redbacktech.com: This is the public-facing website.

BEFORE YOU GO TO SITE

1. **Read this manual.**
2. **Book a support call**

If you think you will require assistance, book Redback Technical Support two days before going to site. This ensures that technical support is reserved for you if you are on-site. The Redback Customer Support team is in Brisbane, Australia and is available 8am-4pm (Brisbane time) Monday to Friday. Book support via:

- Web: redback.link/support
- SMS: +61 417 632 065
- Call from Australia: 1300 240 182
- Call from New Zealand: +61 7 3180 2325

3. **Register the installation**

Early registration makes it possible to do a functional, testable installation even if some information is not available e.g., installation in a spec home where the owner's information is not available. You can also pre-assign the installation inspector. Register the installation at redback.link/register select "+Add device".

NEED SOMETHING ELSE?

- The latest version of this manual in pdf format. Download from redback.link/shvim
- The latest version of the Owner's Manual. Download from redback.link/shvom
- Other document? Visit the Redback Document Library- Installer and Owner documentation is available for our current products. Go to redback.link/docs
- Contact the Redback Customer Support Team (Monday to Friday, 8am-4pm AEST)
 - In Australia: 1300 240 182
 - In New Zealand: +61 7 3180 2325
 - Email: customersupport@redbacktech.com

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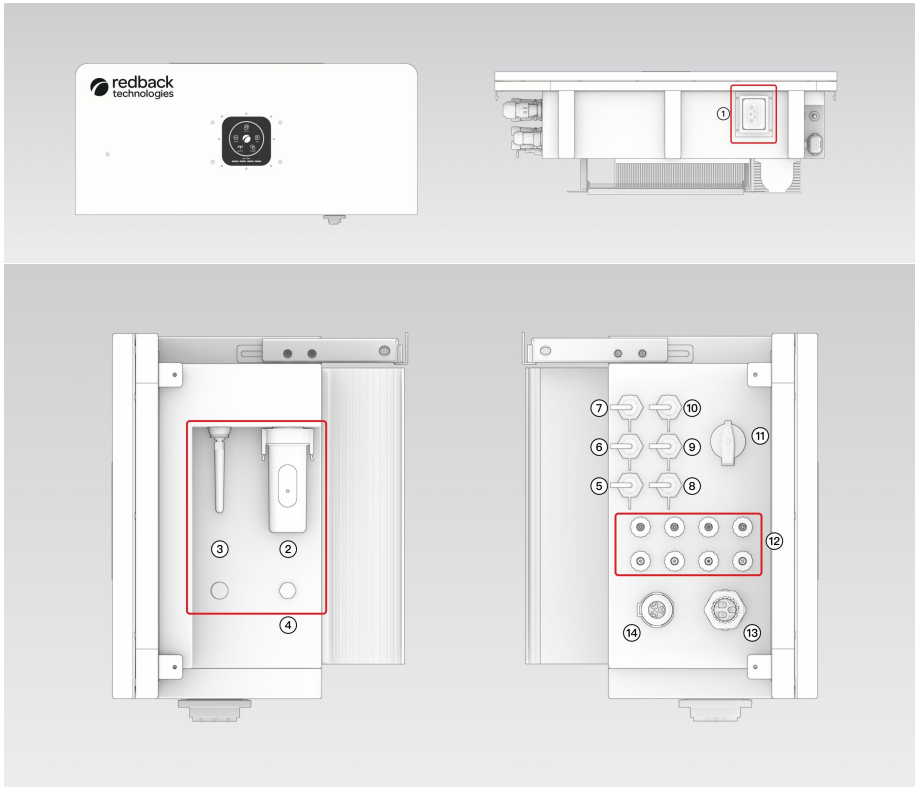
 11.2. AC-Coupled installation 77

1. Know your product

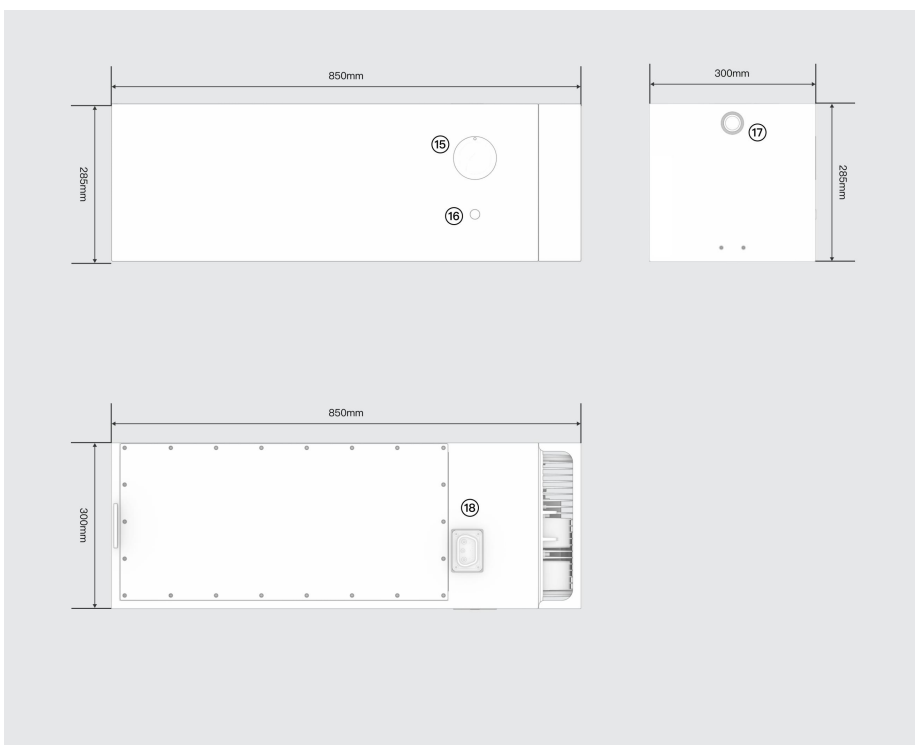
1.1. Major components or features

Due to continuous product improvement, the actual product may vary slightly from the illustrations in this document.

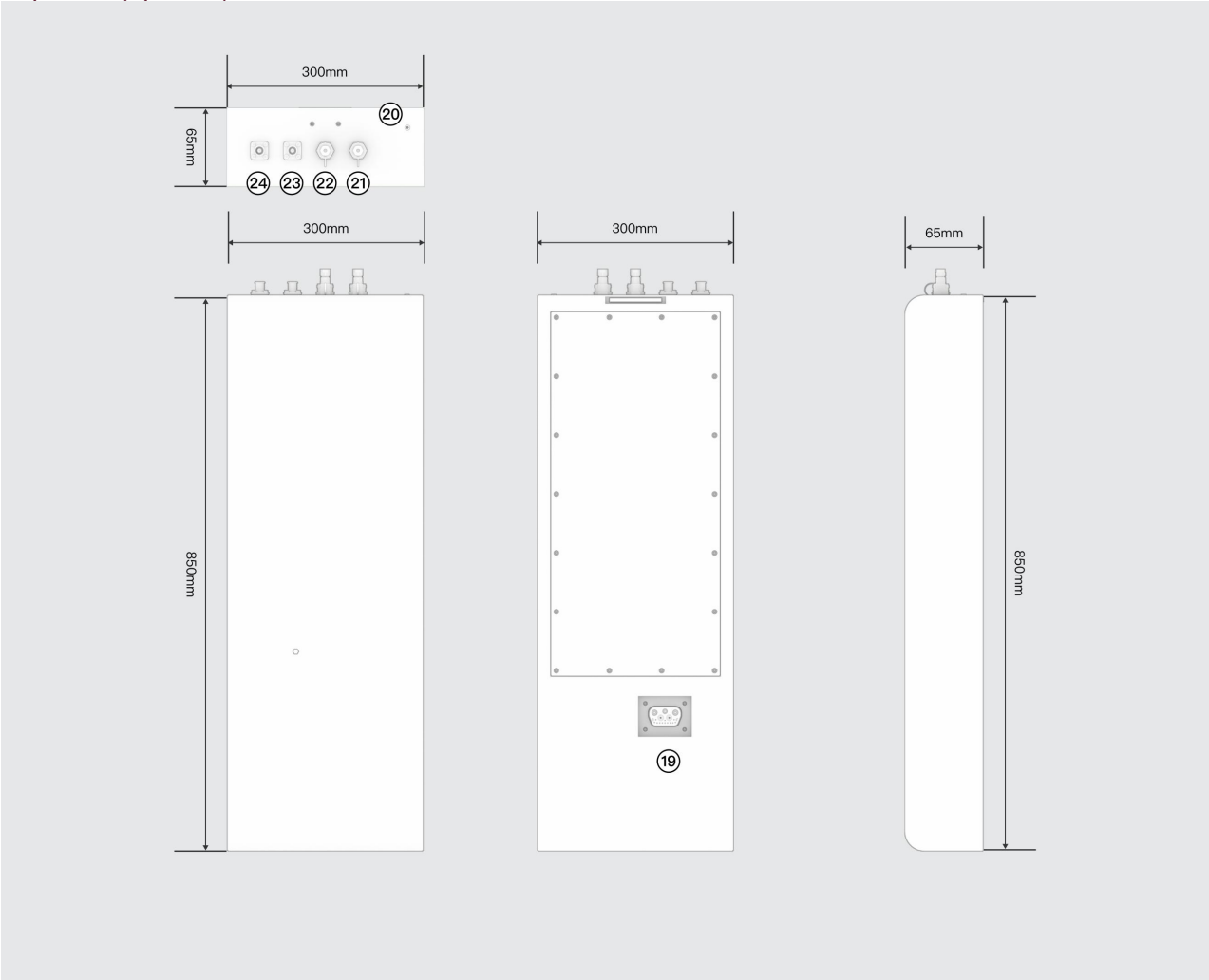
Inverter



BATTERY

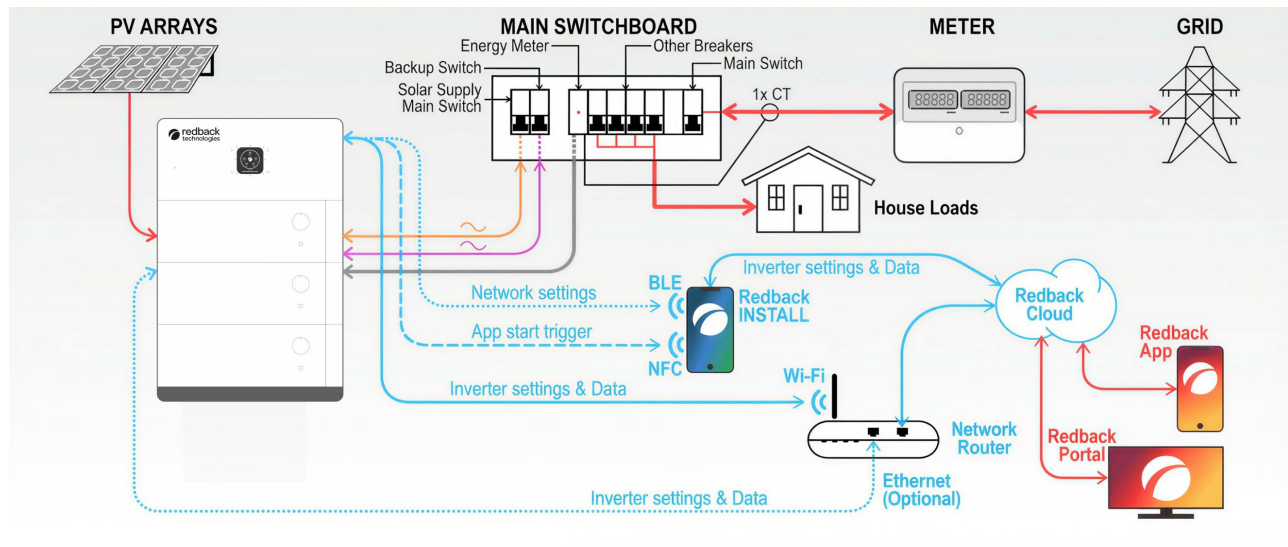


Top cover(optional)



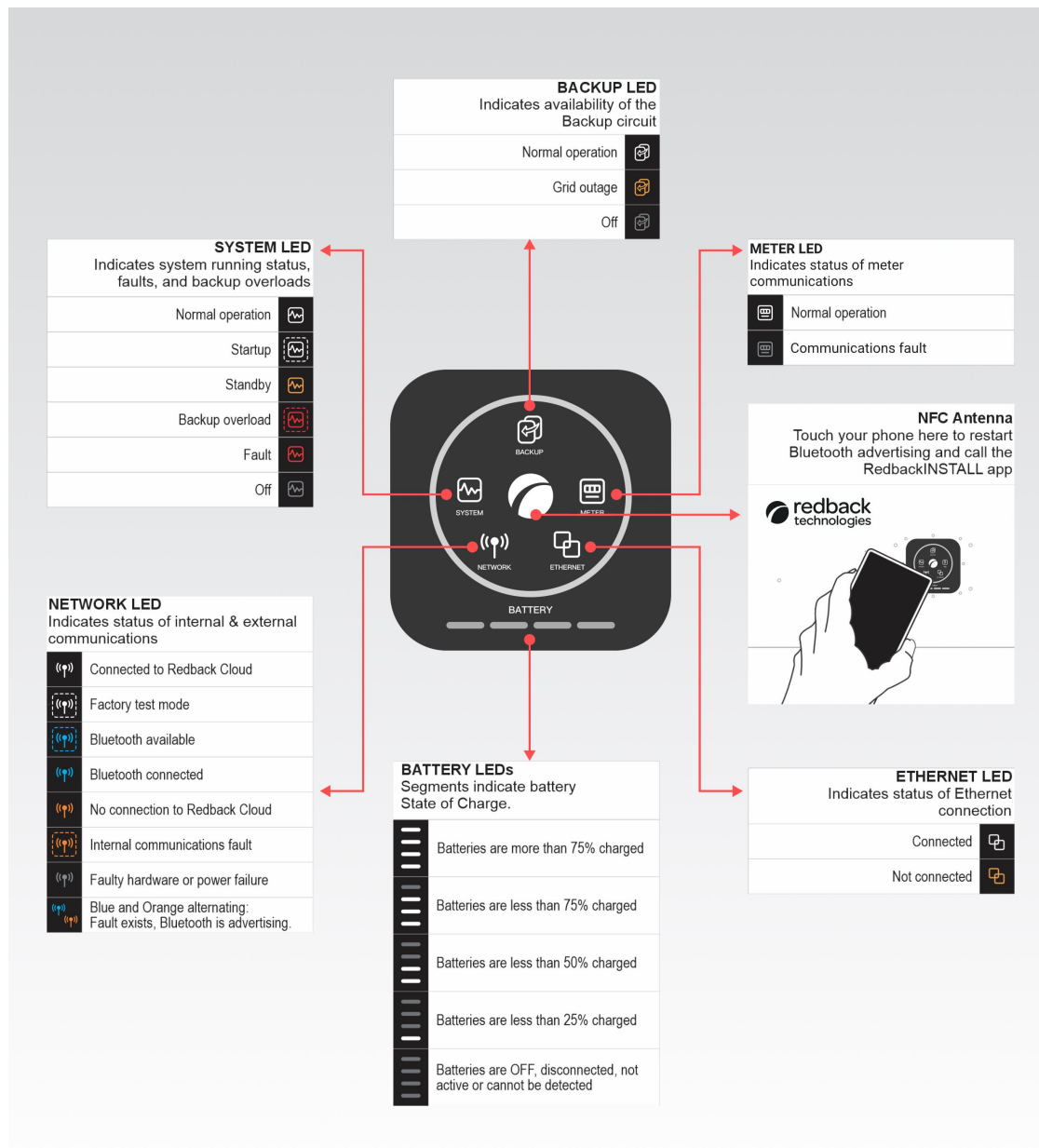
#	PART NAME	
1	BATTERY port	15 BATTERY isolator switch
2	4G port	16 BATTERY switch
3	WIFI port	17 BATTERY explosion-proof valve
4	Breather vavle	18 BATTERY battery port
5	DRM0 port	19 Top cover battery port
6	METER port	20 Top cover grounding port
7	Par1 port	21 Top cover COM port
8	Ethernet port	22 Top cover BMS port
9	DI/DO port	23 Top cover B- port
10	Par2 port	24 Top cover B+ port
11	DC switch	
12	DC output interface	
13	Grid interface	
14	Backup interface	

1.2. System functional overview



1.3. System status panel (LEDs)

The Redback inverter has an LED array to show system status and aid diagnosis. The table below lists LED indications. Section 5.2 lists possible solutions to LED indicated problems.



The display panel primarily features:

1. Battery Status (BATTERY): Four indicator lights show the battery level. As the battery discharges, the number of lit lights decreases; conversely, it increases.
2. Inverter System Status (SYSTEM): Displays white, orange, or red to indicate normal operation, startup, standby, offline overload, or fault.
3. METER Status (METER): The white indicator lights up when the meter connects to the inverter system; otherwise, it remains off.
4. Wired Network Status (ETHERNET): The white indicator lights up when connected; otherwise, it stays off.
5. Wireless Network Status (NETWORK): Displays white, blue, or orange to indicate cloud connectivity, Bluetooth connection, or connection failure.
6. Grid Backup Status (BACKUP): The white indicator lights up for grid-connected devices and orange for offline devices.
7. Power Status: The central REDBACK indicator remains white.
8. Status: A green ring indicates normal operation, while an orange ring indicates malfunction.

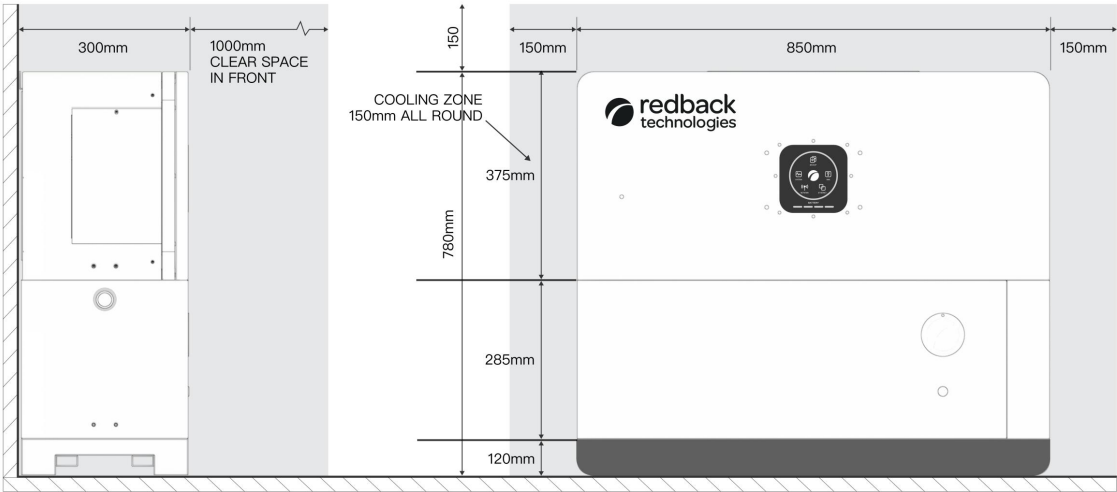
1.4. Dimensions and weights

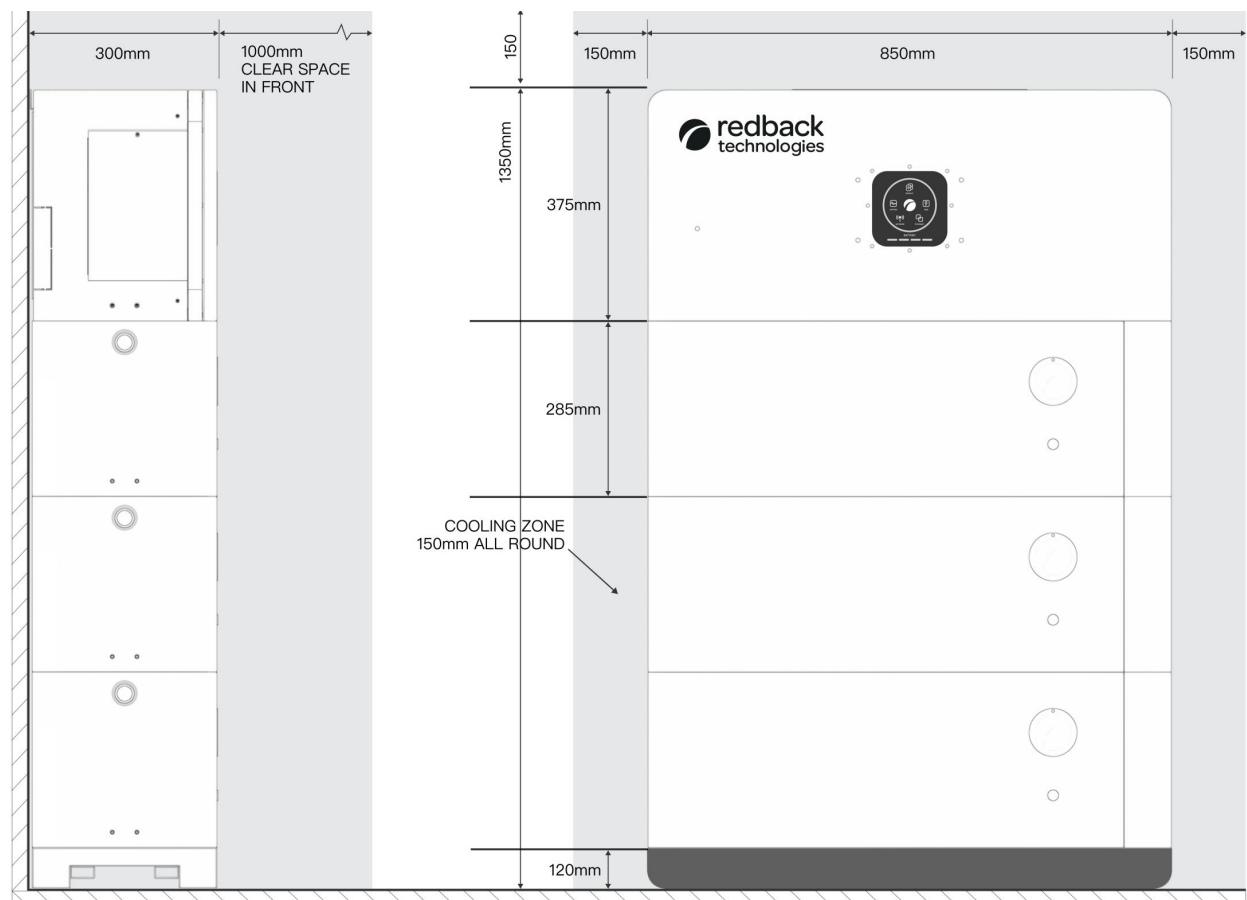
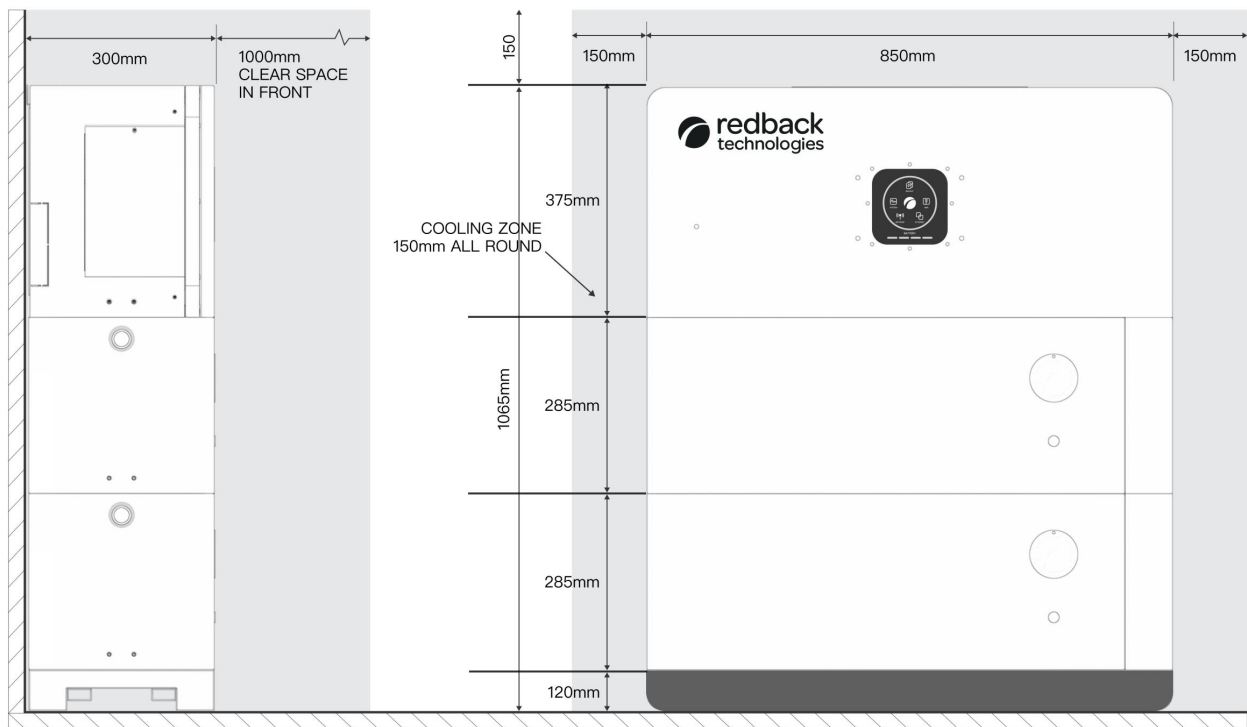
ITEM	CAPACITY (NOMINAL)	WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)	SHIPPING MASS (KG)	COMPONENT MASS (KG)
Inverter	na	850	375	300	29.9	27.9
Battery: RED-P2-9000HV	9kWh	850	285	300	90	83
Base	na	850	120	300	14.6	12.6
Top cover	na	850	65	300	11.4	9.4
INSTALLATION(WITH INVERTER)					INSTALLED WEIGHT	
With BE9HV (1x 9000HV)	9kWh	850	780	300	\	123.5
With BE18HV (2x 9000HV)	18kWh	850	1065	300	\	206.5
With BE27HV (3x 9000HV)	27kWh	850	1350	300	\	289.5
With BE36HV (4x 9000HV)	36kWh	850	1635	300	\	372.5
With BE45HV (5x 9000HV)	45kWh	850	1920	300	\	455.5
With BE54HV (6x 9000HV)	54kWh	850	2205	300	\	538.5
INSTALLATION(WITH TOP COVER)						
With BE9HV (1x 9000HV)	9kWh	850	470	300	\	105
With BE18HV (2x 9000HV)	18kWh	850	755	300	\	188
With BE27HV (3x 9000HV)	27kWh	850	1040	300	\	271
With BE36HV (4x 9000HV)	36kWh	850	1325	300	\	354
With BE45HV (5x 9000HV)	45kWh	850	1610	300	\	437
With BE54HV (6x 9000HV)	54kWh	850	1895	300	\	520

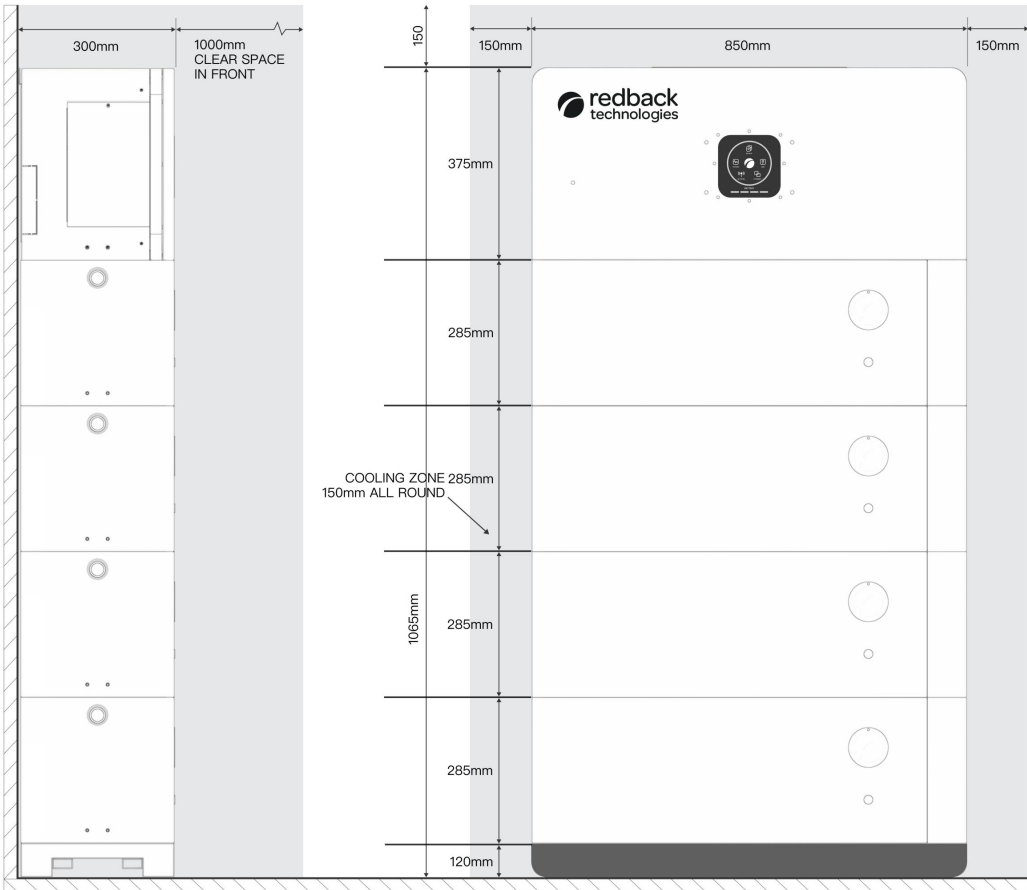
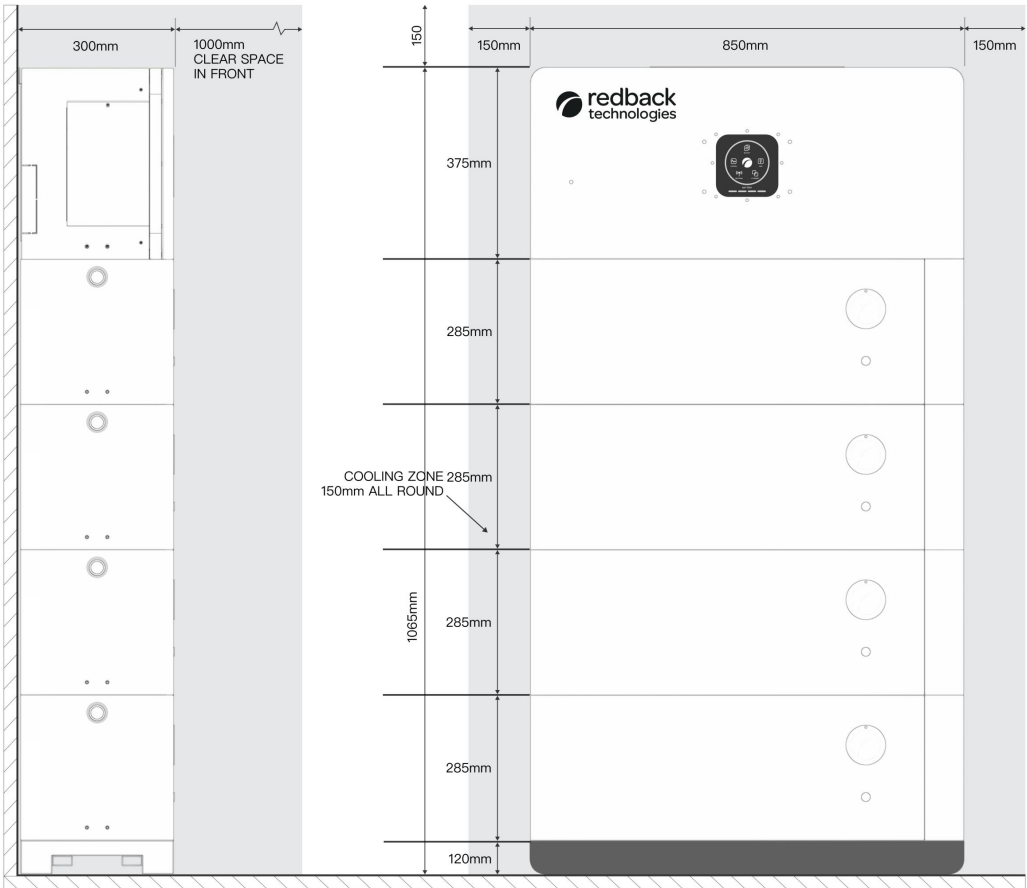
Excluding BMS module, batteries and cables. Excludes Wi-Fi antenna. Includes all other fixed protrusions. Minimum. Installed height varies slightly and accounts for internal overlap.

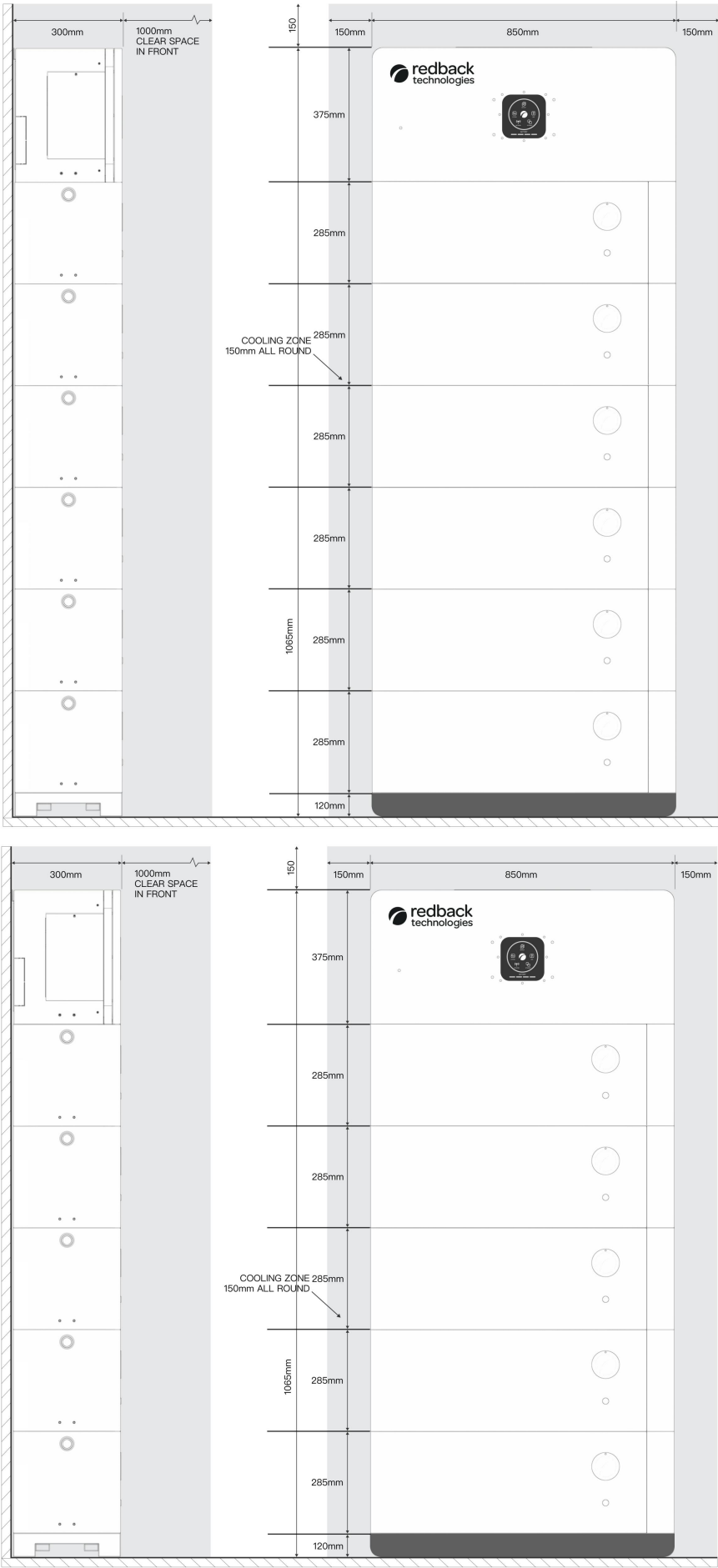
1.5. Installation space

With Inverter(1-6 Batteries)

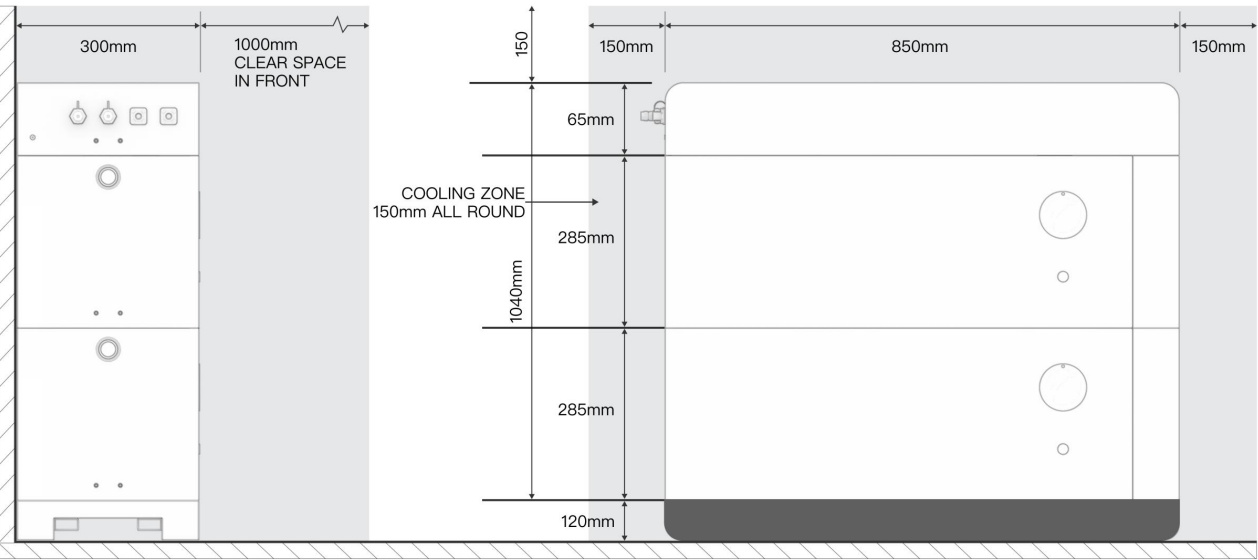
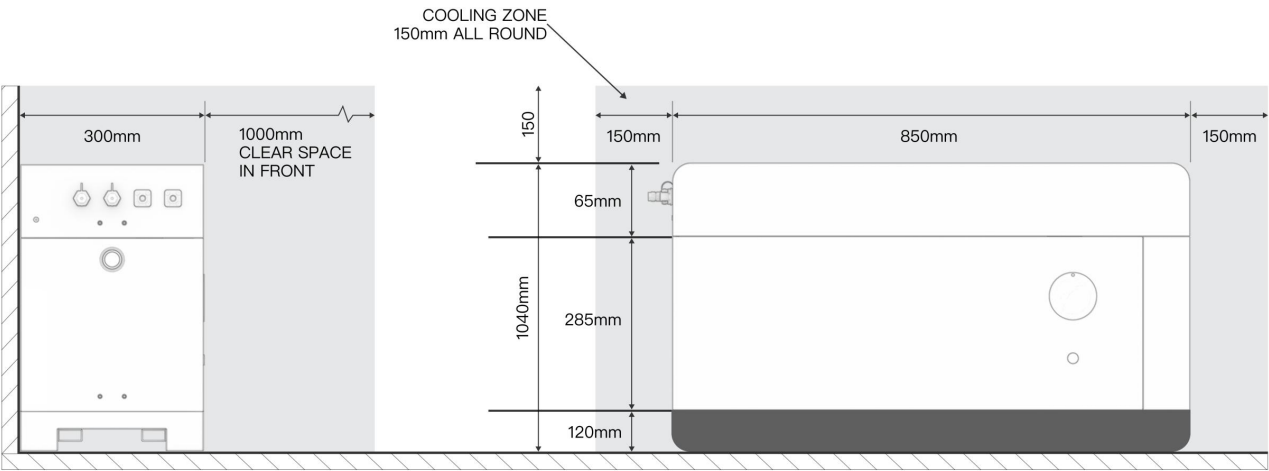


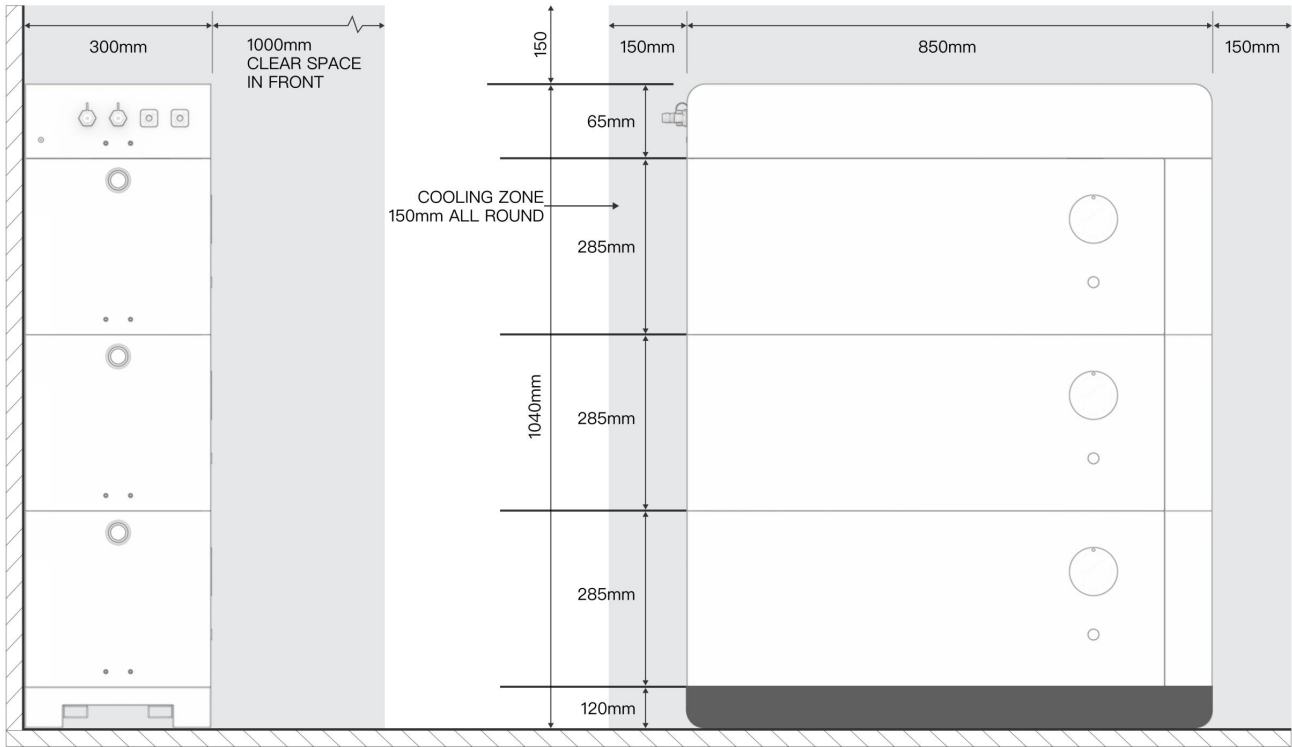
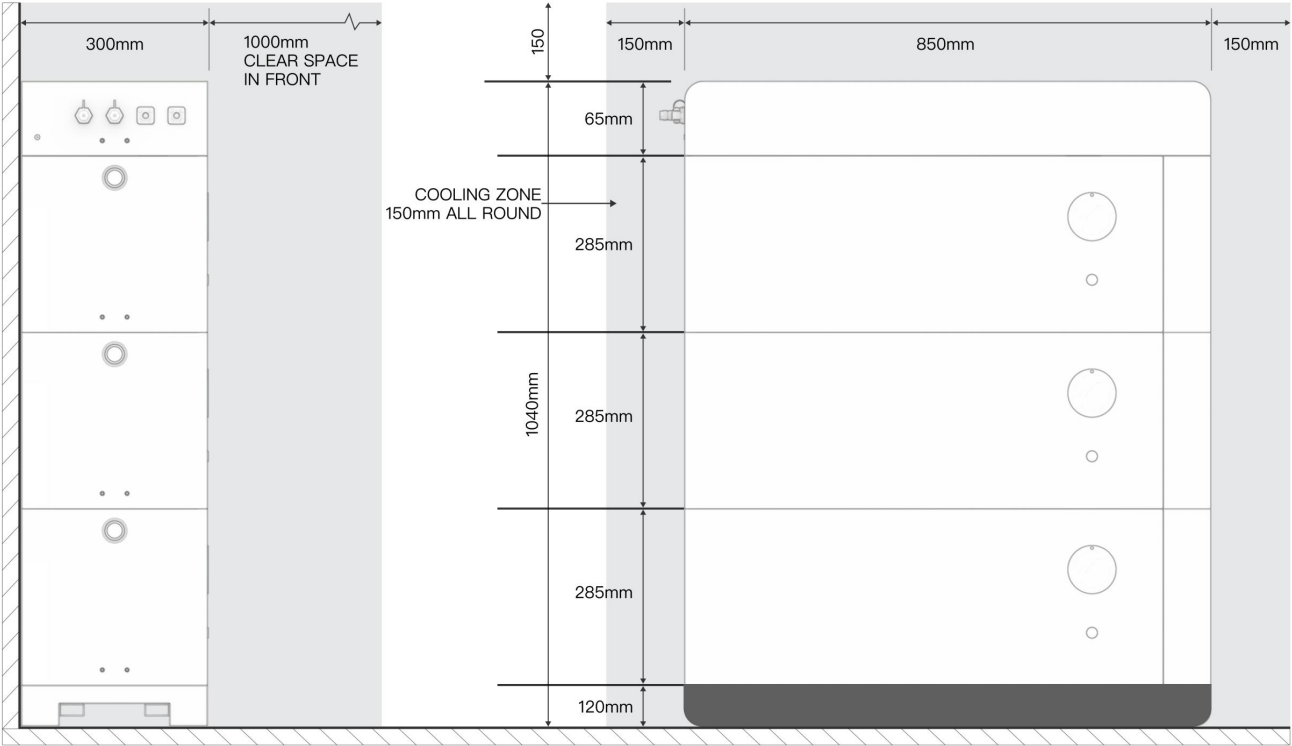


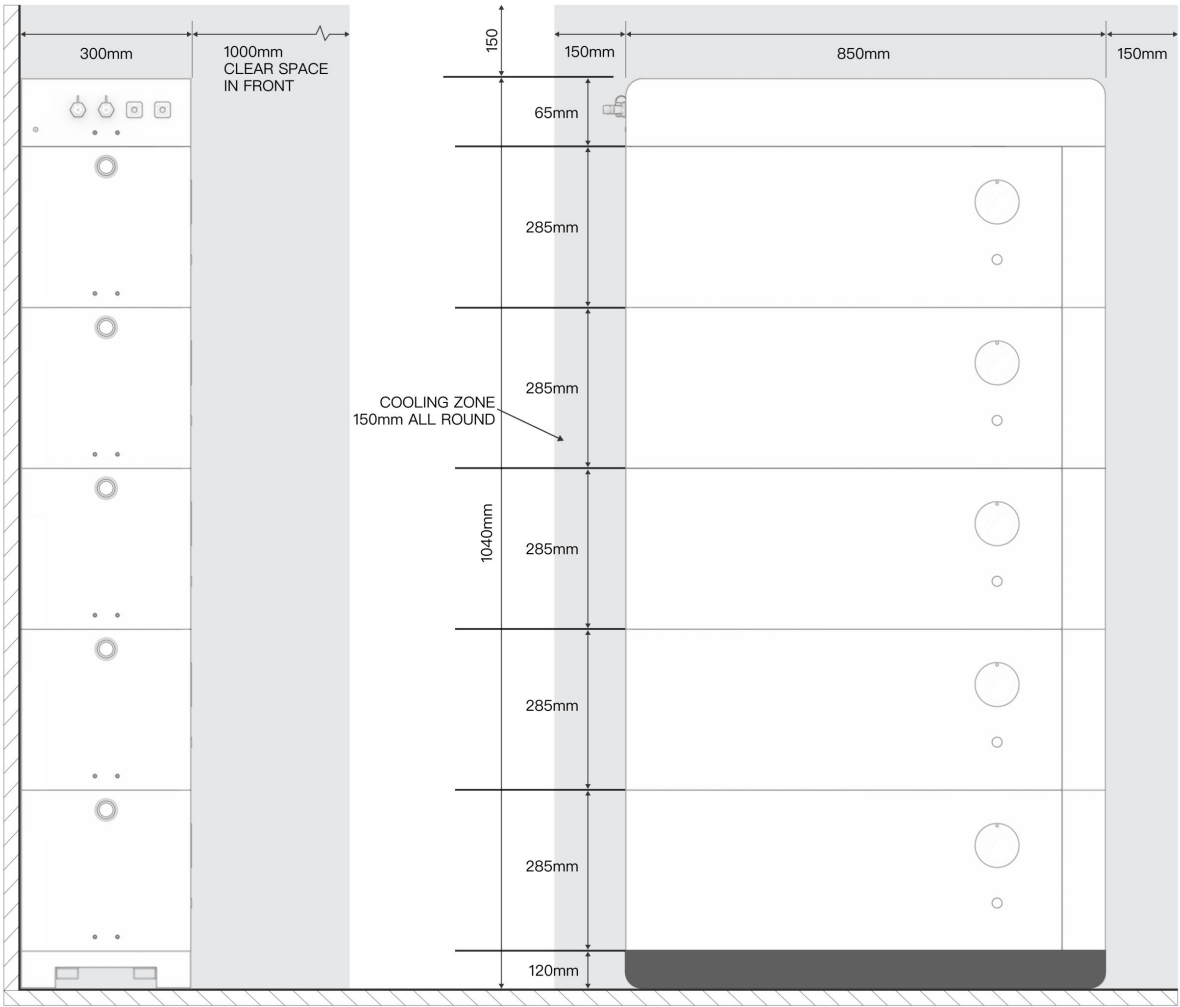
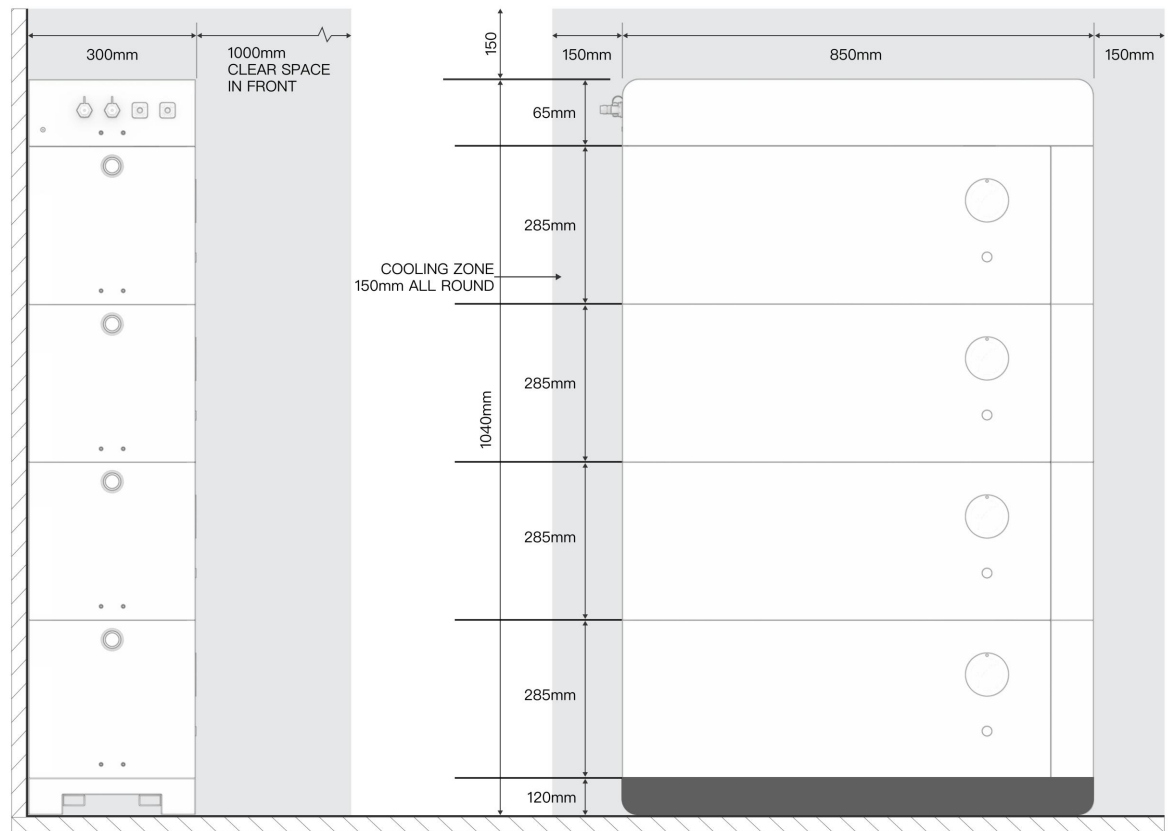


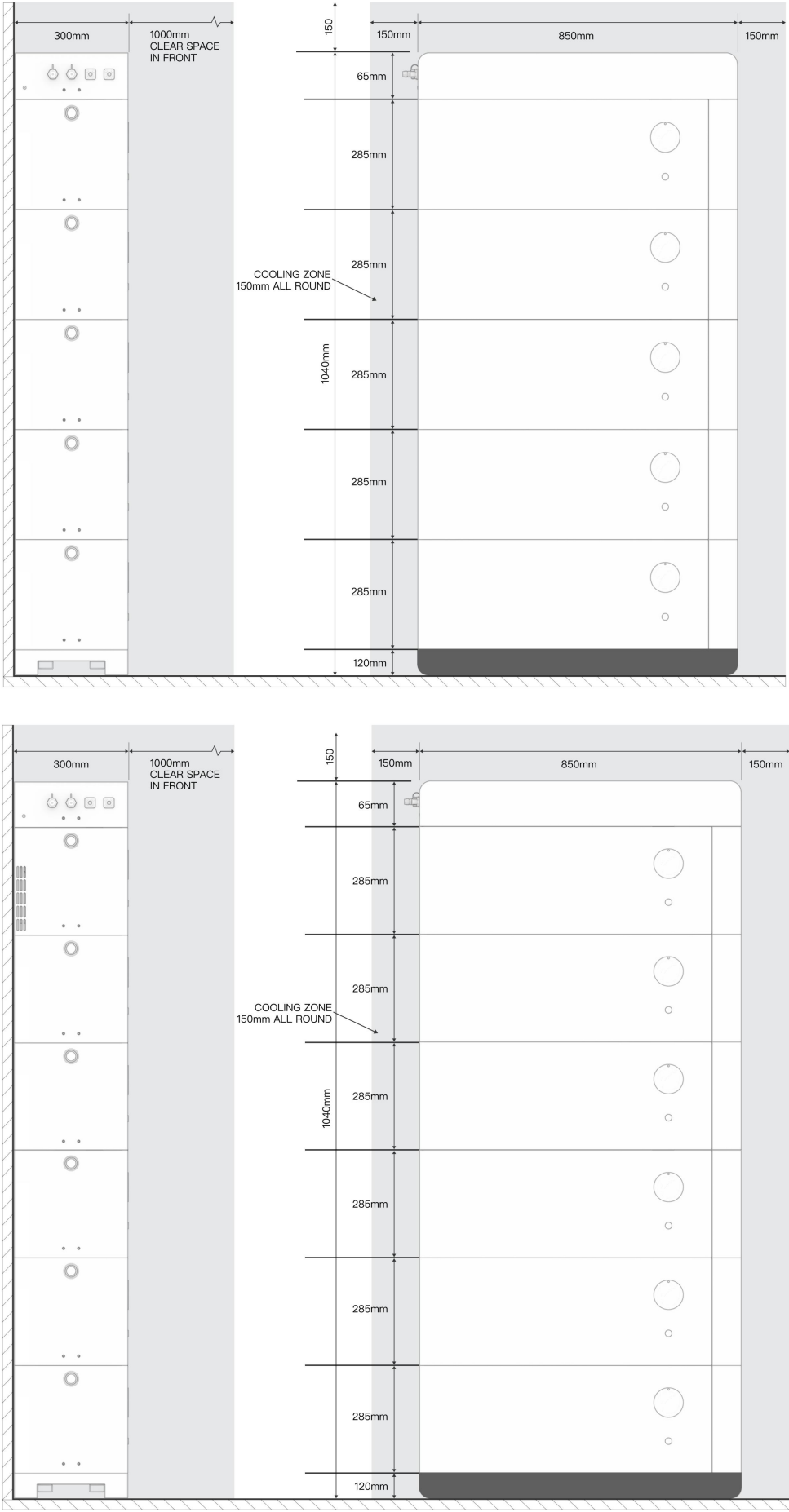


With Top cover(1-6 Batteries)









1.6. Compatibility and limitations

The Redback SxxHV is a transformer-less Inverter; all other components of the PV system must be compatible with this Inverter architecture.

AC-coupled installations are possible, enabling an existing grid-tied inverter's output to charge a Redback controlled battery.

The Redback SxxHV Inverter is not suitable for:

- Batteries other than Redback RED-P2-BEXXHV.
- Off-Grid installations, where there is not normally a grid connection.
- Locations without internet access. Installation cannot be completed without an internet connection. The owner must maintain a stable connection to the Redback Cloud otherwise warranty support will be affected.
- Installation in full-sun locations: the inverter may overheat resulting in reduced efficiency and or automatic shutdown.
- Exposed locations where wind-driven rain may penetrate the enclosure.
- Use with generators.
- Use with 5Ghz Wi-Fi networks.



WARNING. This equipment is NOT intended for use with life support equipment or other medical equipment or devices.



Note: This product supports Redback RED-P2-9000HV batteries only. Other batteries do not work in this product.



WARNING. Installation in violation of these limitations may void the warranty (refer to the Warranty document).

1.7. Backup circuit design notes

The SxxHV inverter includes one backup output activated during a grid outage and powered by the system batteries and or available PV. Loads on the backup circuit must be selected to extend the backup power availability and avoid overloading, noting:

- Continuous battery-only power delivery up to the values shown at right.
- Peak power delivery of up to the values shown at right, for up to three seconds (for high starting currents).
- System self-protects and shuts down if power limits are exceeded.
- Output is reduced above 45°C ambient temperature.
- System shuts down if 60°C ambient is exceeded.

The backup circuits are suitable for low power or intermittent use devices such as refrigerators; freezers; LED or florescent lights; small kitchen appliances; computers; radios; televisions.

High starting-current or high operating-current loads must not be connected to the Backup circuit e.g., hot water systems; air conditioners; ovens or cooktops; spas or saunas or pool pumps.



WARNING. Batteries must be fitted if a backup circuit has been connected to the inverter. PV-only power is not satisfactory for backup circuits—backup load and PV power are variable and unpredictable—when backup load exceeds PV power the Inverter will automatically shut down and restart.

Model	Max. Continuous Battery-only power (VA)	Peak On-grid Power (VA, for 60s)
S05HV	4999	6000
S06HV	6000	7200
S08HV	8000	9600
S10HV	9999	12000

Backup circuit	New circuit needed?	Yes	No
		Acceptable	Not Acceptable
		Refrigerators and freezers	Critical medical devices
		Fans	Air conditioners & heaters
		Small, occasional use, plug-in appliances e.g., microwaves, kettles	Ovens and cooktops
		TVs, radios, telephones	Home theatres & projectors
		Computers, tablets, routers	Hot water systems
		Mobile phone or small device chargers	Spas, saunas, pool pumps
		Soft-start household water pumps	Battery chargers & corded power tools
		Low energy LED or CCFL lights	Incandescent or high-power lighting
	Backup circuit inclusions		

2. System Installation

IMPORTANT SAFETY INSTRUCTIONS – PLEASE READ

This document has important safety instructions for Redback Technologies products.

Read all the instructions and cautionary markings on the product and any accessories or other equipment included in the installation.

Failure to follow instructions or operate equipment correctly may result in death, injury, equipment damage or failure, or a warranty claim being denied. Use caution to prevent accidents.

AUDIENCE

Installation, maintenance, and connection of inverters must be performed by qualified personnel, in compliance with local electrical standards, wiring rules and the requirements of local power authorities and/or companies (e.g., AS4777 and AS/NZS 3000 in Australia). The Redback system strictly conforms to all related safety rules in design and test.

Safety regulations relevant to the location should be followed during installation, operation, and maintenance. These instructions are for personnel who:

- Meet all local and governmental code requirements for licensing and training for the installation of electrical power systems with AC and DC voltage up to the Maximum Input Voltage (Vmax) as listed in the product specifications.
- Have appropriate accreditation for installing grid-connected PV systems and energy storage systems.
- Have knowledge of the functional principles and operation of grid-connected systems and knowledge of the installation of electrical devices
- Understand the risk associated with installing and using electrical devices and can implement appropriate risk management strategies.
- During the preceding 12 months, completed Redback installation training for the Redback SXXHV Inverter and Battery Enclosure.

SYMBOLS USED IN THIS MANUAL

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	LETHAL DANGER! Risk of electrocution.		CAUTION! Hazard to equipment
	DANGER! Risk of electrical shock.		CAUTION! Explosion hazard
	WARNING! Hazard to human life		CAUTION! Lightning strike hazard.
	WARNING! Burn hazard		CAUTION! Sharps hazard.
	TIPPING HAZARD. Do not leave unattended.		CAUTION! Fire hazard.
	HEAVY LIFT. Seek help.		Inspect all parts. Contact Redback if any part is damaged or missing.
	PPE REQUIRED. . Use personal protective equipment.		WAIT for the specified period to elapse.
	Information. The information provided is important for the correct installation, operation and or maintenance of the equipment. Failure to follow the recommendations may result in death, personal injury, equipment damage or failure, or a warranty claim being denied.		

SYMBOLS USED ELSEWHERE

SYMBOL	DEFINITION	SYMBOL	DEFINITION	SYMBOL	DEFINITION
	HEAVY! Bend knees to lift.		FRAGILE. Handle with care. Do not tip. Do not sling.		DELAY. Wait specified time.
	HEAVY! Two-person lift needed.		This product has recyclable parts. Dispose of correctly.		REFER TO DOCUMENTS.
	PACKAGE MASS. In kilograms.		STACKING LIMIT. E.g., stack packages six high or less.		Do not dispose as household waste.
	THIS SIDE UP. Transport, handle and store the package with the arrows pointing up.		KEEP DRY. Protect the product from excessive humidity. Store under cover.		

GENERAL SAFETY

SYMBOL DEFINITION

**WARNING: Limitations on use**

This equipment is NOT intended for use with life support equipment or other medical equipment or devices.

**CAUTION: Equipment damage.**

Only use components or accessories recommended or sold by Redback Technologies or its authorised agents.



IMPORTANT. Do not install this equipment if it appears be damaged in any way. Contact Redback Technologies for assistance. Do not return goods without authorisation.

PERSONAL SAFETY

SYMBOL DEFINITION

**WARNING: PERSONAL INJURY**

- Use safe lifting techniques when handling this equipment. For guidance visit safeworkaustralia.gov.au or contact your local WHS authority.
- Use standard safety equipment when working on this equipment such as safety glasses, ear protection, steel-toed safety boots, safety hard hats, etc
- Use standard safety practices when working with electrical equipment e.g., remove all jewellery, use insulated tools, wear cotton clothing etc.
- Never work alone when installing or servicing this equipment. Have an assistant to help if necessary.
- Do not touch the inverter during operation. The temperature of some parts may exceed 60°C during operation. After shutdown, allow the inverter to cool for at least 5 minutes before touching.
- Ensure that children, pets, and other animals are kept away from the inverter, solar arrays, batteries and utility grid components.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

BATTERY SAFETY

SYMBOL DEFINITION

**IMPORTANT**

- Use the battery types recommended by Redback Technologies. Follow the battery manufacturer's recommendations for installation and maintenance.
- Insulate batteries against freezing temperatures. Note: batteries freeze more easily when discharged.
- Remote or automatic generator control systems: disable the starting circuit and/or disconnect the generator from its starting battery while performing maintenance.

EQUIPMENT SAFETY

SYMBOL DEFINITION



WARNING: IMPROPER USAGE The protection provided by the equipment may be impaired if not installed and used in a manner not specified by the manufacturer.

**WARNING: LETHAL VOLTAGE**

- Identify all sources of energy. Ensure ALL sources of power are disconnected before performing any installation or maintenance on this equipment. Confirm that the terminals are de-energised using a validated voltmeter (rated for a minimum 1000 VAC and 1000 VDC).
- Do not perform any servicing other than that specified in the installation instructions unless qualified to do so or have been instructed to do so by Redback Technologies technical support personnel.
- Solar arrays may be energised even in low ambient light. Install a high voltage DC rated disconnect, breaker, or accessible fuse box to ensure a safe disconnect from the system (depending on local code requirements).
- To avoid electric shock, disconnect the DC input and AC input of the inverter at least 5 minutes before performing any installation or maintenance.
- Completely disconnect all sources of power before continuing with any maintenance. Do not open the upper inverter compartment of the system.
- Do not tighten the AC and DC terminals or pull on the AC and DC wiring when the inverter is running.

**WARNING: BURN HAZARD**

- External and internal parts may be hot. Do not remove any cover during operation or touch any internal parts. Allow time for internal parts to cool down before attempting to perform any maintenance.

**WARNING: FIRE HAZARD**

- Do not keep combustible or flammable materials in the same room as the equipment. The Redback system contains relays and switches which are not ignition protected.
- Ensure AC, DC and ground cable sizes conform to local codes and are fit for purpose. Ensure all conductors are in good condition. Do not operate the unit with damaged or substandard cabling.

**CAUTION: EQUIPMENT DAMAGE**

- When connecting cables from the inverter to the battery terminals, ensure the proper polarity is observed. Connecting the cables incorrectly can damage or destroy the equipment and void the product warranty.
- Thoroughly inspect the equipment prior to energising. Ensure no tools or equipment have been left behind.
- Ensure clearance requirements are strictly enforced. Keep all vents clear of obstructions that can prevent proper air flow around, or through, the unit.
- Do not open the upper front cover of the inverter. Apart from performing work at the wiring terminals (as instructed in this manual), touching or changing components without authorisation may result in death, injury, equipment damage or failure, or a warranty claim being denied.
- Static electricity may damage electronic components. Take appropriate steps to prevent such damage to the inverter; otherwise, the warranty may be annulled.
- Ensure the output voltage of the proposed solar array is lower than the maximum rated input voltage of the inverter; otherwise, the inverter may be damaged, and the warranty annulled.
- Solar modules should have an IEC61730 Class A rating.



CAUTION: LIGHTNING PROTECTION. PV arrays in the system should be protected by a Lightning Protection System as described in AS/NZS5033:2021.

2.1. Installation overview

Installation by non-approved installers may void the product warranty.

You are approved to install Redback products if you:

- Are a Redback registered and qualified installer, and
- Hold the required qualifications for installing grid-connected inverters, and
- Have completed Redback approved installation training for this product, and
- Have a Redback Installer login.



Not sure?

Contact Redback on 1300 240 182 if you are unsure of your approval status

2.1.1. BEFORE YOU GO TO SITE

2.1.1.1. Simple preparations will help the installation run smoothly.

1. Is there internet at site? Installation cannot be completed without an internet connection. Longer term, the owner must maintain a stable* connection to the Redback Cloud otherwise warranty support will be affected.
2. If you think you will require installation assistance, book a support call at redback.link/support
3. Register the installation at redback.link/register (+Add device)
4. Gather the required tools
 - a. Standard hand and power tools
 - b. DC voltage and current testing equipment (multi-meter)
 - c. Tape measure and spirit level.
 - d. Normal electrician's PPE
 - e. Internet connected device with Redback app.

Gather the following information for use during registration, installation, onboarding, and commissioning.

Inverter serial number:

Battery Enclosure serial number:

Your Redback Installer Login (apply at redback.link/apply)

INSTALLATION DETAILS

Owner's details (required)

Full name:

Installation address:

Email:

Mobile:

Owner's Wi-Fi details

Wi Fi Name:

Wi Fi Password:

INSTALLATION CONFIGURATION

Regional Safety Zone	Australia A	Australia B	Australia C	New Zealand
Soft Export Limit				
Hard Export Limit				
Soft Generation Limit				
Hard Generation Limit				
Compliance Inspector				
Relay usage (optional)	Timer scheduled			
	Smart scheduled			
	Relay not used			

2.1.2. AT SITE

Conduct a risk assessment.

Redback recommends that installers complete a risk assessment of the proposed works, to the standard required by relevant authorities.

Ensure a stable internet connection is available.

If using Wi-Fi, measure the signal strength at the proposed installation site. Review installation plan if Wi-Fi signal is less than -70dBm, otherwise ongoing connection problems may occur.

Wi-Fi Strength ¹ :	None ²	Weak (< -70dBm) ³	Good (approx. -70dBm)	Strong (> -70dBm)
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¹Test inverter location before installation; ²Installation cannot be completed without internet: Use Ethernet, improve Wi-Fi signal strength, or find a better location; ³Find an installation site with Good or better Wi-Fi strength.

Review the proposed system location.

The inverter must be floor mounted and attached vertically to a wall using installer selected fasteners, The system is IP66 rated. It is suitable for indoor or outdoor installation.

- Is the location out of direct sunlight? Reduce heat load by shading or installing out of full sun: ideally, the installation will be against a south facing external wall, and under eaves.
- Does the battery enclosure location meet the requirements of AS/NZS5139? See section 2.2 of this manual.
- Is there 150mm minimum clearance all around (for cooling) ?
- Different system capacities have varying height requirements(see Section 1.4 for height specifications).
- Is the floor surface flat? Are packers needed to level the product?
- Is the wall flat (to prevent product distortion) and structurally sound (to prevent product toppling)? Are spacers needed?
- How will cables be routed to the inverter?

2.1.3. INSTALLATION PROCESS SUMMARY

Hardware (in-the-box)

- Install Base.
- Install Battery.
- Install Inverter.
- Install Top cover(optional)
- Connect all external cables.

Electrical

- Run and connect DC cables and conduits from PV to the Inverter.
- Run and connect Grid and Backup AC cables and conduits from the main or sub-board to the Inverter.
- Install any non-standard accessories e.g., relays or new backup circuit.
- Install an Energy Meter. Run ethernet from inverter to meter, using the supplied cable, if long enough.
- Run ethernet from the owner's network router to Inverter (Recommended. Installer to fabricate cable).
- Complete connections from Inverter to Battery Enclosure.

Commissioning

- Test the electrical installation.
- Start batteries.
- Power ON the inverter.
- Commission the system using Redback app.
- Fit all covers.
- Clean worksite.
- Document the installation, and handover to owner.

2.2. Guide to AS5139 installation requirements for BExxHV

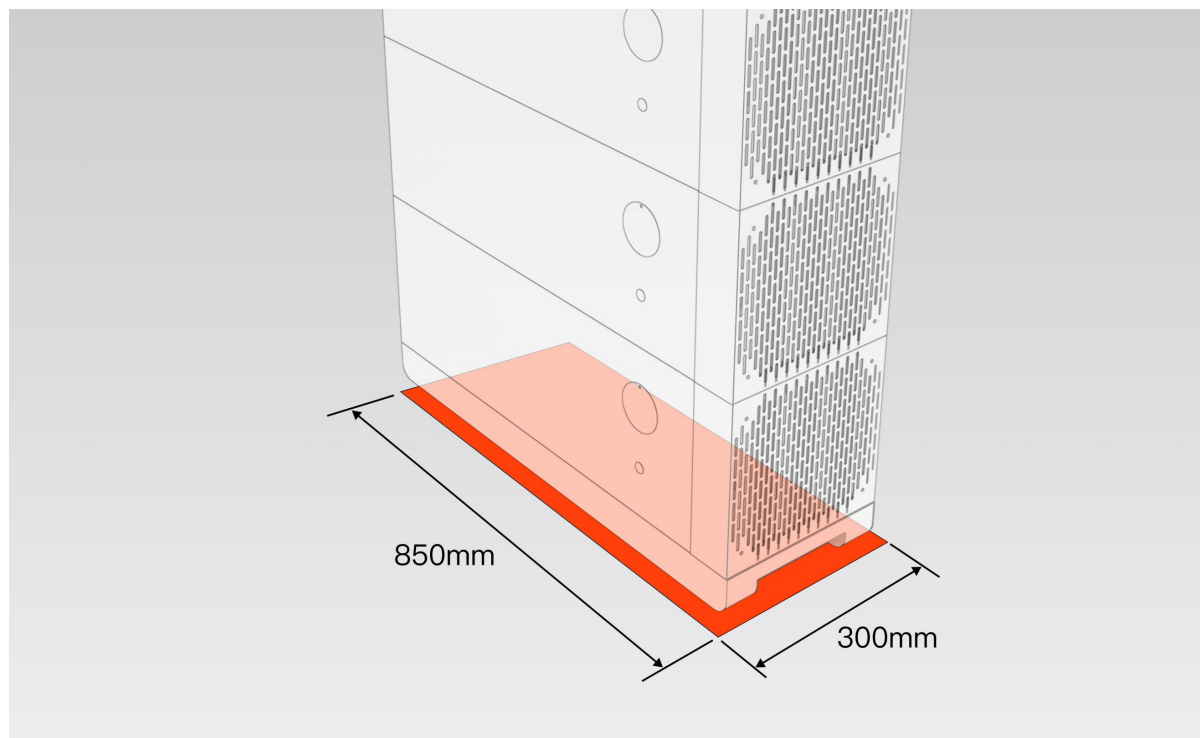
For AS5139:2019 compliance, the BExxHV is defined as a pre-assembled battery system. AS5139 prescribes allowable battery system locations and fire-proofing requirements. AS5139 is referenced in AS4777.1, AS3000 and the BCA, and all new or modified battery system installations must comply.

The installer is responsible for completing installation in accordance with all relevant standards and regulations. The key AS5139 requirements for BExxHV installation are:

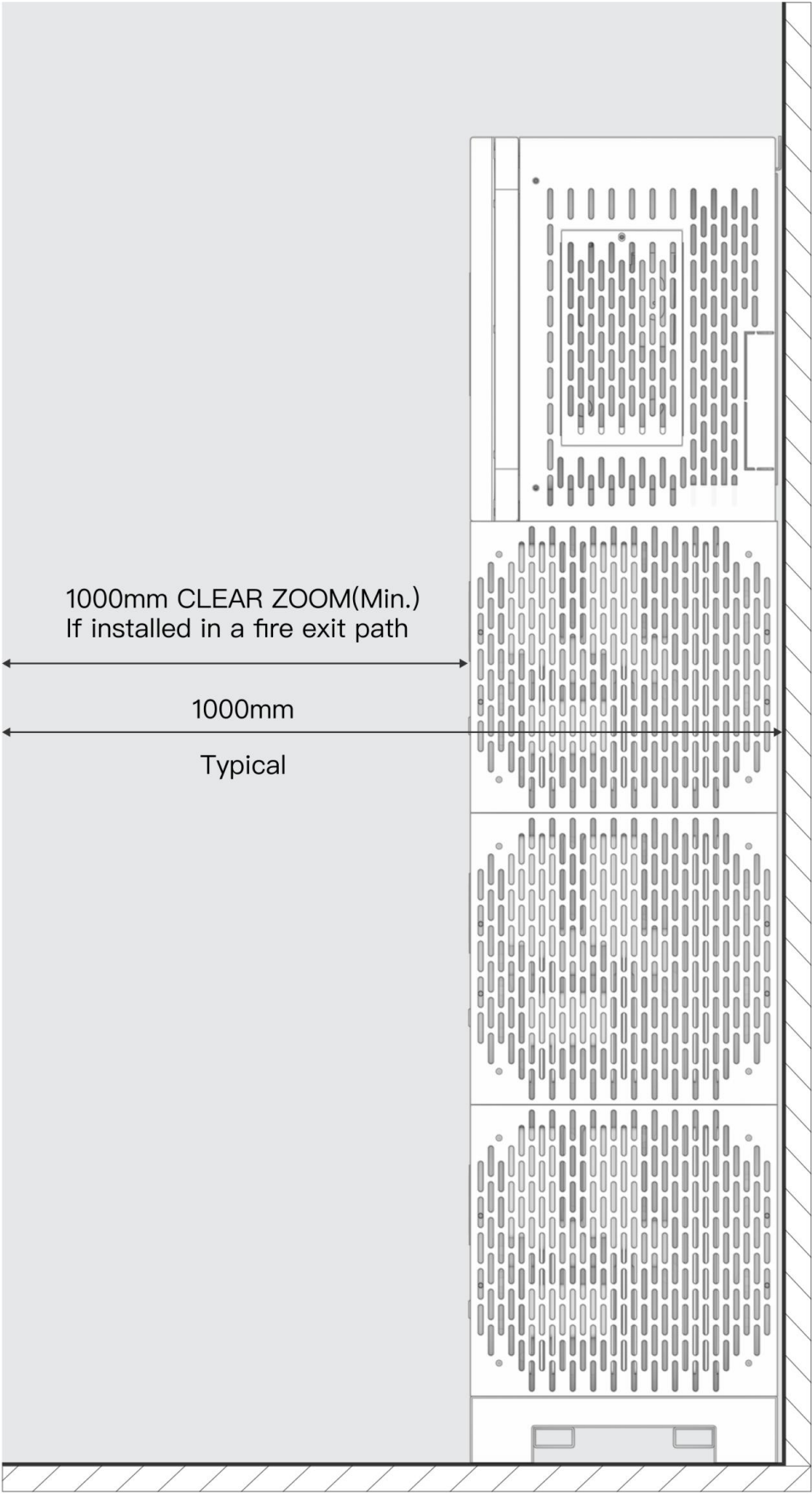
- Install the BExxHV against a wall in a clear-zone having no windows, doors, exits, vents, or appliances not related to the BExxHV. The clear-zone extends 600mm from the sides and 900mm above the BExxHV.
- Fireproof any combustable wall in the clear zone if a habitable room exists on the opposite side of that wall. Fireproofing materials must comply with AS1530.1.
- Fireproof any structure e.g., ceiling or eave less than 900mm above the BExxHV to the full width of the clear zone and the lesser of 963mm from the wall or to the edge of the structure.
- Use fire retardant sealant to seal all penetrations through the wall that exceed 5mm diameter.
- Ensure 1m clearance in front of the BExxHV if it is located on a fire exit path e.g., corridor, hallway or lobby.
- Protect the BExxHV from vehicle impact if this is a likely occurrence: use a bollard or similar device.

The most likely installation scenarios are illustrated below: any clear zone may need to be fireproofed.

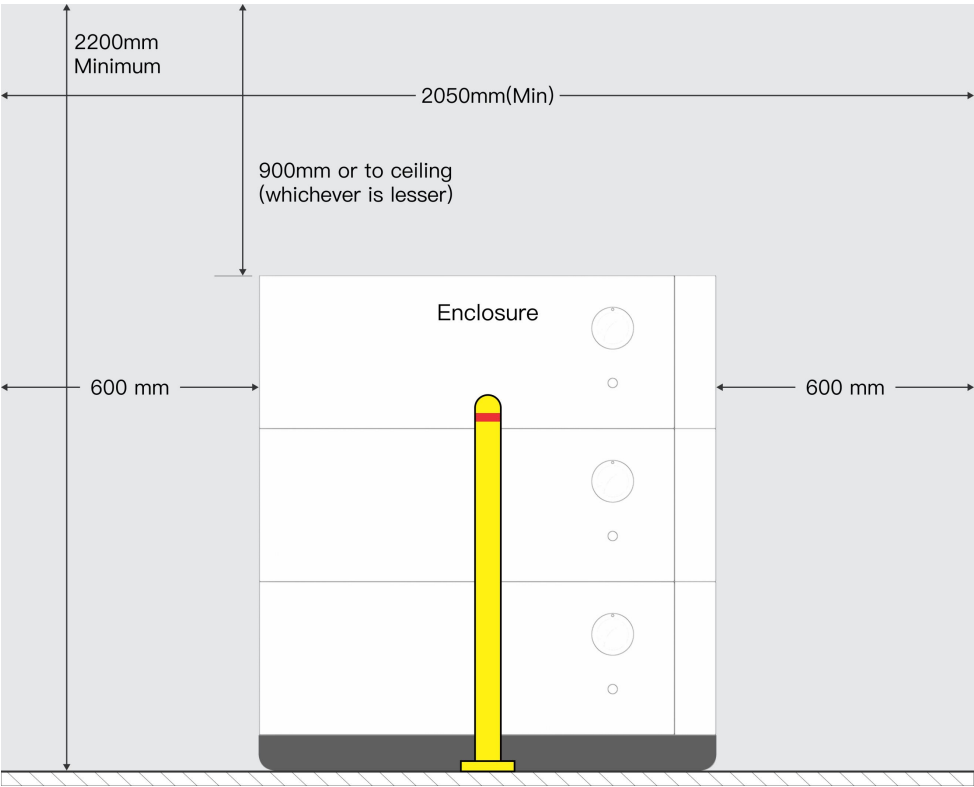
2.2.1. EXTENT OF BOTTOM OF SYSTEM



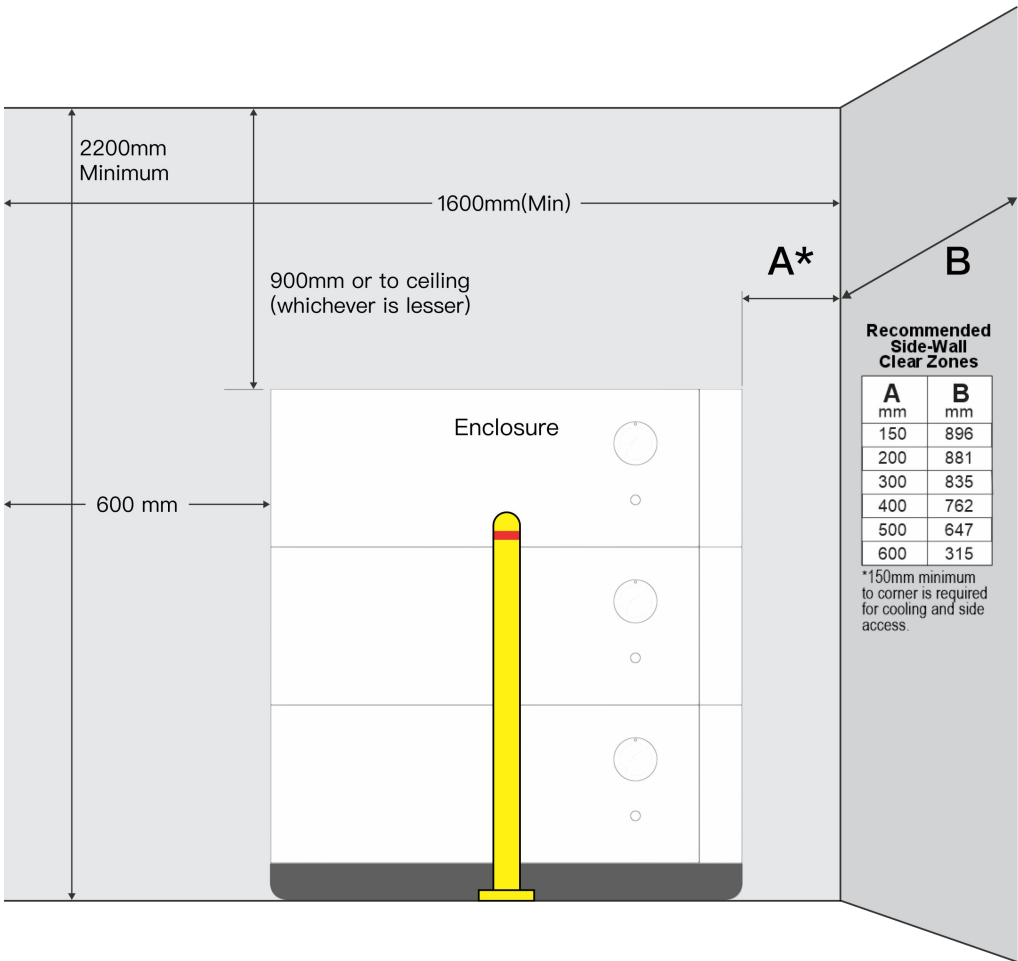
2.2.2.INSTALLATION ON AN EXIT PATH



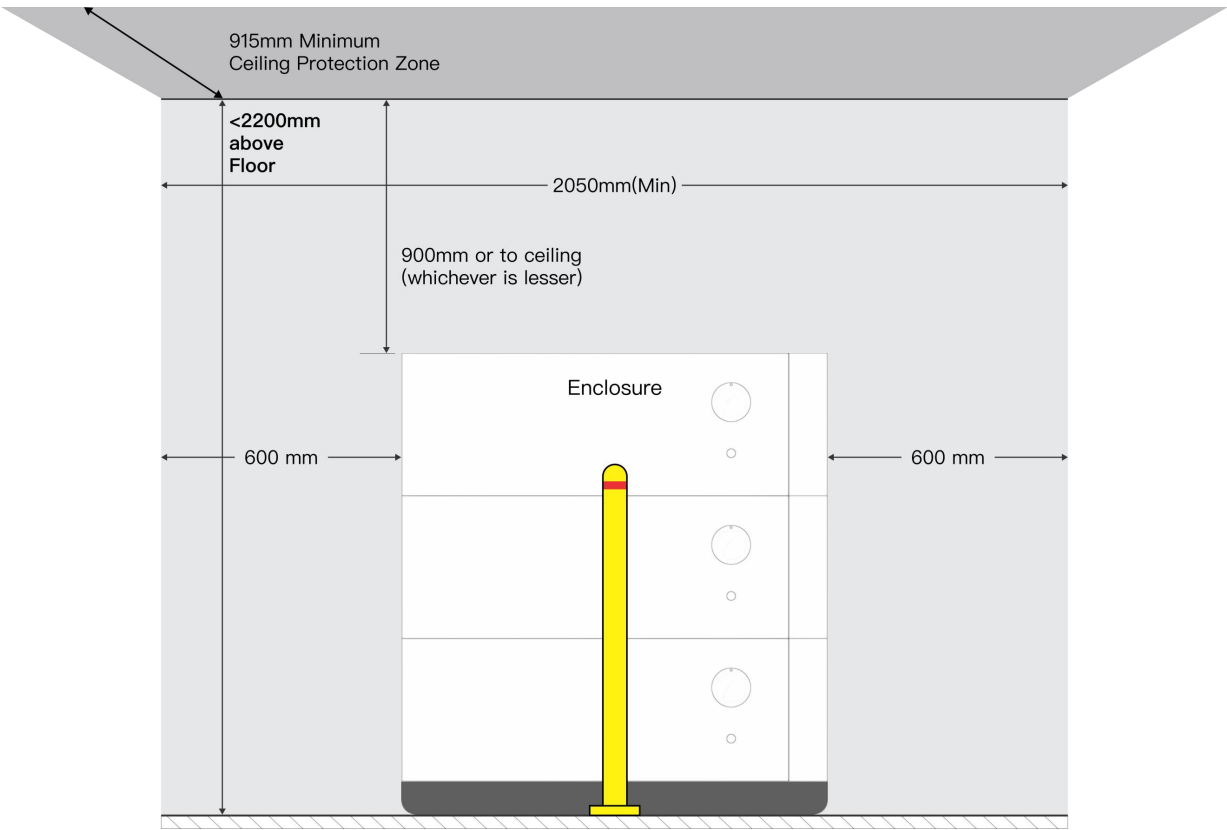
2.2.3.INSTALLATION ON A BLANK WALL



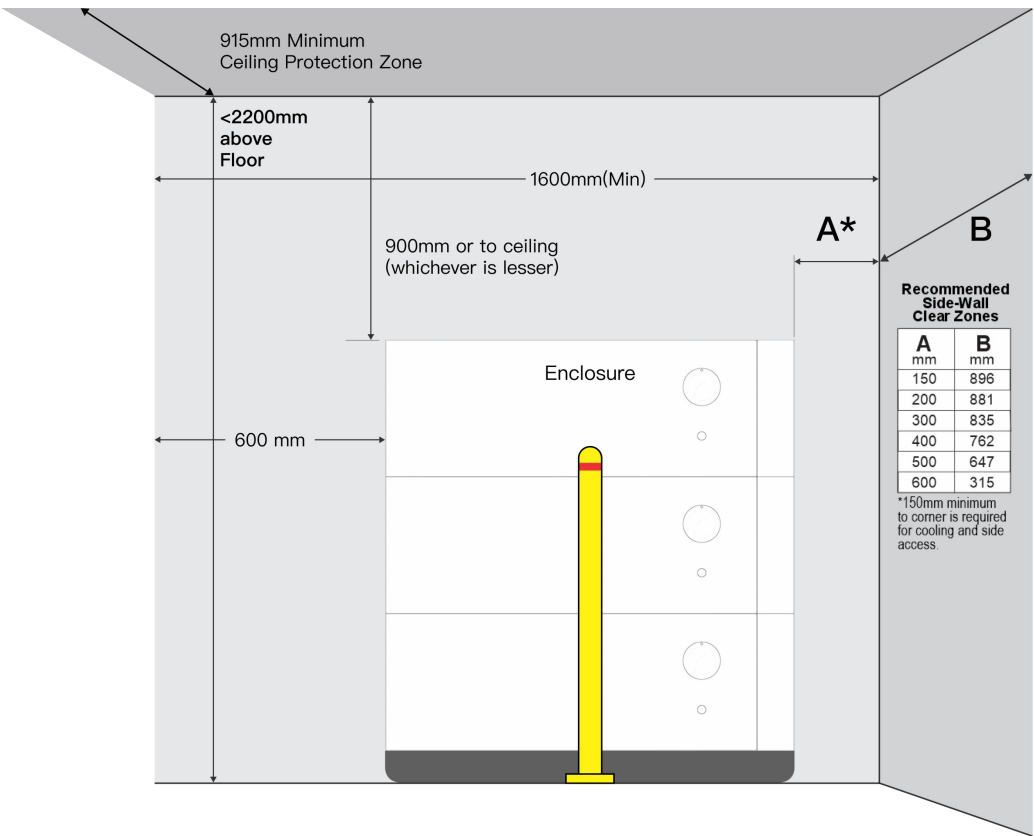
2.2.4.INSTALLATION NEAR A CORNER



2.2.5. INSTALLATION WITH A LOW CEILING



2.2.6. INSTALLATION NEAR A CORNER, WITH LOW CEILING



2.3. Preliminary electrical installation

2.3.1.OVERVIEW

This product adopts a stacked design and consists of two parts: the inverter module on the top and 1 to 6 battery modules. The battery pack is installed in a floor-mounted manner and is mounted on a base. When installing the base, it can be placed directly if the ground is flat; if the ground is uneven, the base can be fixed to the ground with bolts. The batteries are fixed to the base with bolts, and multiple batteries are fixed to each other with bolts. The inverter is fixed on the battery cabinet. After aligning the battery interfaces, the inverter and the battery are fixed with screws.

ENSURE THAT THE CABLE TAILS HAVE GENEROUS BEND RADII, ARE LONG ENOUGH TO REACH THE INVERTER AND FORM EFFECTIVE DRIP LOOPS.

2.3.2.RUNNING CABLES TO THE INVERTER

Run external cables through to the enclosure before the inverter is installed.

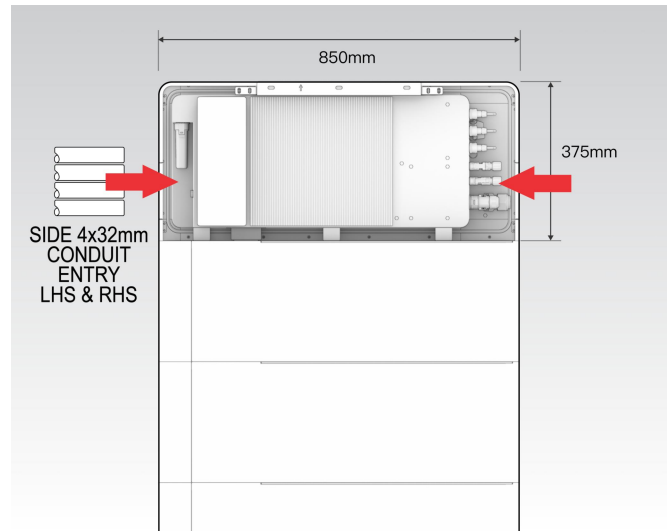
- 230V AC Grid Supply connection to main switchboard (MSB) or sub-board, using L/N/E (Orange Circular AC cable preferred)
- Cable from Backup Circuit isolator (L/N/E).
- DC PV cables from the PV arrays.
- Cat 5 cable to Redback Energy Meter and DRED controller (usually at the MSB. A 10m terminated cable is supplied).
- Cat 5 cable to the local ethernet network (optional).

All cables must be run into the enclosure from:

- Left or right side, using up to 32mm rigid or flexible conduit.

The inverter's side cover has a knock-out hole. After removing it, the wiring harness can be routed through the left or right side of the inverter.

Plugs are connected after the inverter is installed. External connections are concealed by side panels attached to the inverter.



2.4. Install the Base and Battery

2.4.1.OVERVIEW

The BExxHV Battery is designed for Redback SxxHV inverters. Other battery enclosures are not suitable for the SxxHV inverter.

The battery adopts a stacked modular design, with each module using 9 pieces of 314 battery cells, providing a total capacity of 9 kWh. The system supports a maximum of 6 modules. Each module is equipped with an independent Battery Management System (BMS), an independent fire protection system, and independent electrical protection.

The installation process is:

- Unpack enclosure from the shipping carton.
- Locate the accessories box.
- Verify all parts have been supplied.
- Position and secure the base to the ground
- Position and mount the battery on the base

2.4.2.INSTALL THE BASE AND BATTERY

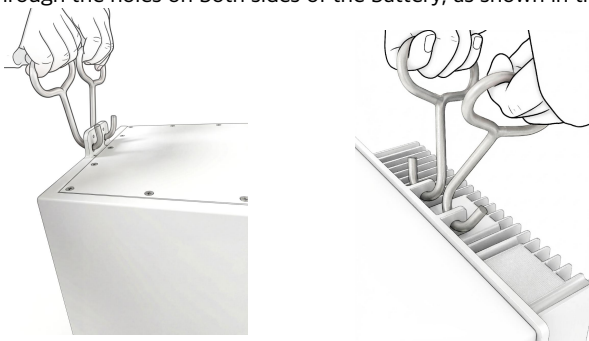
- 1.Open the carton: locate and set aside the Packing List.
- 2.Remove the base and battery from the shipping carton. Place the base on a flat and level ground.
- 3.Install the base: If the ground is flat, the base can be placed directly on it; If the ground is uneven, install the four screw bases and level them.
- 4.Install the battery: Align the battery port,stack the battery on the base and secure it through the screw holes on the side. When stacking additional batteries, fasten each battery to the adjacent one with screws through the screw holes in the same manner.
- 5.Open the accessory box. Check that the contents match the packing list and confirm that all components are provided. If any component is missing or damaged, please contact Redback.

2.4.3.INSTALL THE TOP COVER (OPTIONAL)

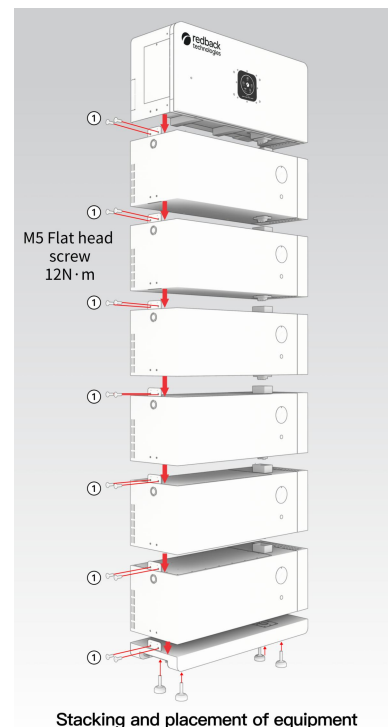
- 1.If you have other Redback inverter products, you can install the top cover to connect the RED-P2-BExxHV battery to other Redback inverter products.
- 2.Open the carton: locate and set aside the Packing List.
- 3.Remove the Top cover from the shipping carton. Place the base on a flat and level ground.
- 4.Install the Top cover:Align the battery port,stack the Top cover on the top battery and secure it through the screw holes on the side.
- 5.Open the accessory box. Check that the contents match the packing list and confirm that all components are provided. If any component is missing or damaged, please contact Redback.

2.4.4.HOW TO LIFT BATTERY

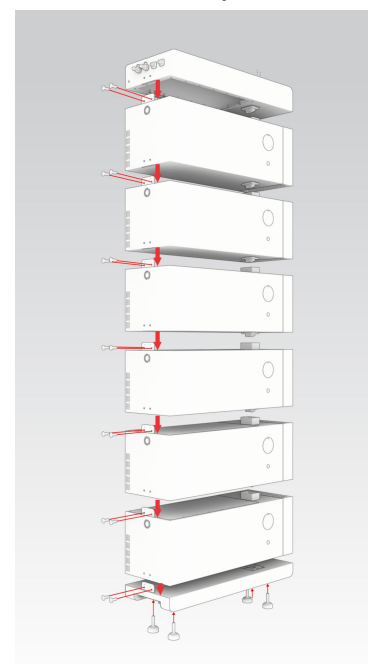
The battery is heavy: 2-person lift needed.To lift the battery, use two hooks to pass through the holes on both sides of the battery, as shown in the figure below.



	WARNING TIPPING HAZARD. Keep children and animals out of the worksite. Do not leave the enclosure unattended during installation. Fasten enclosure to the wall as soon as practical.
	WARNING: HEAVY LIFT- 83kg. The battery is heavy: 2-person lift needed.
	Inspect all parts. Contact Redback if any part is damaged or missing.



Stacking and placement of equipment



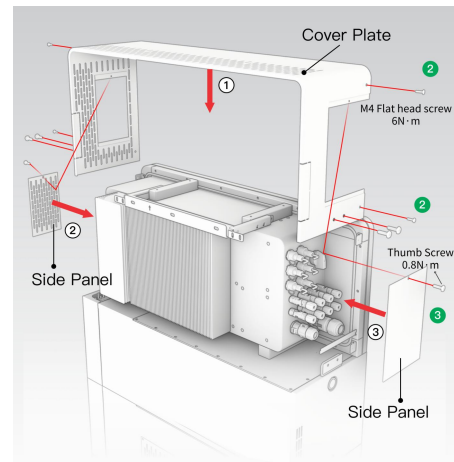
Stacking and placement of equipment

2.5. Prepare the SxxHV inverter for installation

The inverter has a dedicated packaging box, which can ensure that the inverter is protected from damage such as vibration and falling during transportation. Due to the heavy weight of the inverter, two people need to cooperate when the inverter is transported from the car to the ground or installed on the wall. If the inverter is severely damaged during transportation, please contact Redback for replacement.

Preliminary steps to inverter installation:

1. Open the inverter shipping carton.
2. Locate the Packing List and set aside.
3. Remove and inspect:
 - a. Accessories Box
 - b. Documents
 - c. Meter Cable
 - d. Connector Cover
 - e. Inverter
4. Retrieve the Packing List and verify all parts are supplied. Contact Redback if any parts are missing or damaged.
5. Remove the inverter from the carton and lie on a stable surface.
6. Remove the cover plate from the box, install it on the inverter and secure it with M4 flat head screws. There is a connector cover on each side of the cover plate, which is fixed with thumb screws.



Inverter installation process



WARNING: HEAVY LIFT- 27.9kg. The inverter is heavy: 2-person lift needed.



Inspect all parts. Contact Redback if any part is damaged or missing.

NUMBER	TYPE OF SCREW	TORQUE(N·M)
1	M5 FLAT HEAD SCREW	12
2	M4 FLAT HEAD SCREW	6
3	THUMB SCREW	0.8

2.6. Install the inverter

Installation notes

- Install the Wall Mounting Frame correctly.
- The inverter is convection cooled: provide 150mm clearance to top and sides to ensure airflow.
- Fix in position, using suitable fasteners.
- Choose fastener locations that will spread loads to the structural part of the wall. If necessary, drill new holes through the Wall Mounting Frame.
- Installer to select and supply suitable fasteners.



WARNING: HEAVY LIFT- 27.9kg.

The inverter is heavy: 2-person lift needed.

Steps to inverter installation:

1. Confirm that the installation wall can bear weight, and mark the installation position of the hanging board (the height of the hanging board can be adjusted according to the size of the equipment).
2. Attach the Wall Mounting Frame to the marked area on the wall. Use the screws to pass through the holes of the Wall Mounting Frame and tighten them one by one to fix it.
3. With an assistant, lift the inverter onto the top battery, locate the bracket structure at inverter's back, and align the slot of the Wall Mounting Frame with the protruding part of the hanging board on the wall.
4. After aligning the inverter with the Wall Mounting Frame, secure the inverter to the Wall Mounting Frame using screws.
5. Ensure the inverter is aligned and positioned with the battery.
6. Install and tighten the two M5 flat head screws between the battery and inverter.

2.7. Antennas

2.7.1. WI-FI ANTENNA

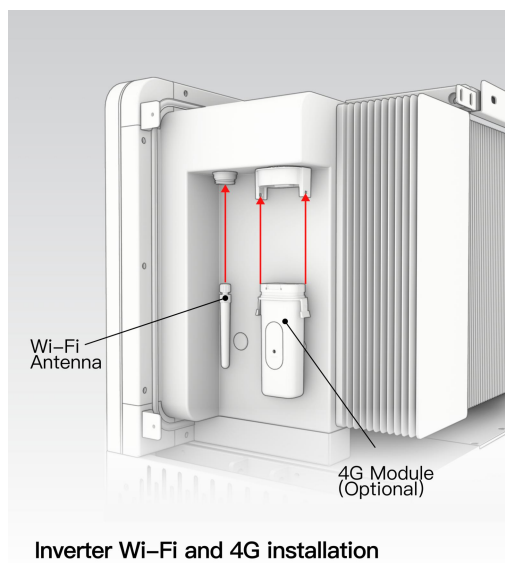
1. Remove the dust cap. Screw in the supplied antenna at the location shown. Final antenna position should be pointing vertically upward.

2.7.2. 4G MODULE

4G network connection requires the optional 4G module.

To install the 4G module:

1. Identify the 4G socket cover at the left rear of the inverter. Squeeze the levers to disengage the hidden clips and remove the cover.
2. Align the 4G module to the socket with the logo and LED facing outward (toward you).
3. Firmly push the module into the socket until the clips engage. There should be no gap between the module and the socket. Ensure the module cannot be removed without releasing the clips.



Inverter Wi-Fi and 4G installation

2.8. Terminate and connect 230V AC Cables

 Danger to persons and equipment. Ensure correct plugs are fitted to the Grid and Backup connection cables otherwise the system will be unexpectedly energized.	 Electrocution Hazard. Lethal voltages may be present. Isolate all sources of power and test before starting work.	 Minimum Cable Size. Installer to select cables according to AS3008.
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Notes:

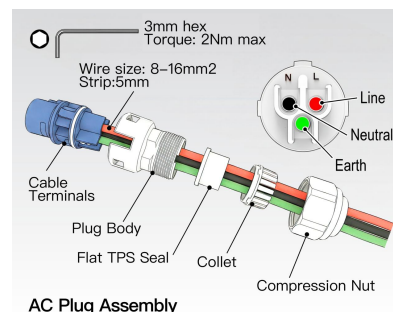
- The Grid plug and Backup plug both include three wire harnesses: L, N, and PE. The PE wire is connected inside the casing to ensure that the inverter enclosure is grounded.

2.8.1. THE GRID PLUG

Terminate and connect the Grid AC cable as shown down, using the supplied plug

Notes:

- Installer to select cable sizes to suit the installation—following applicable wiring rules—and accounting for voltage drop.
- Permitted cable size is 8-16mm² (6-8AWG).

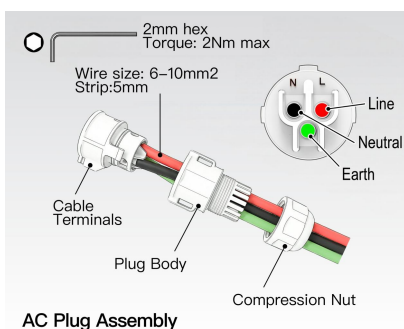


2.8.2. THE BACKUP PLUG

Terminate and connect the backup AC cable as shown down, using the supplied plug

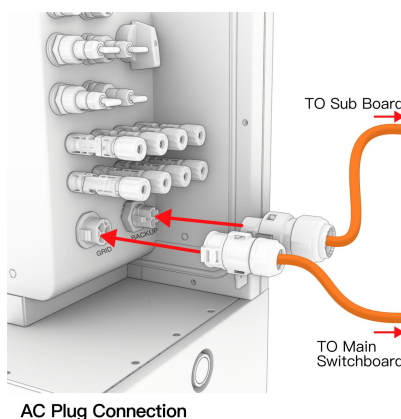
Notes:

- Installer to select cable sizes to suit the installation—following applicable wiring rules—and accounting for voltage drop.
- Permitted cable size is 6-10mm² (8-10AWG).



2.8.3. CONNECT AC CABLES TO THE INVERTER

At the AC-side, connect the AC cables to the inverter as shown right, noting that the plugs are not interchangeable.

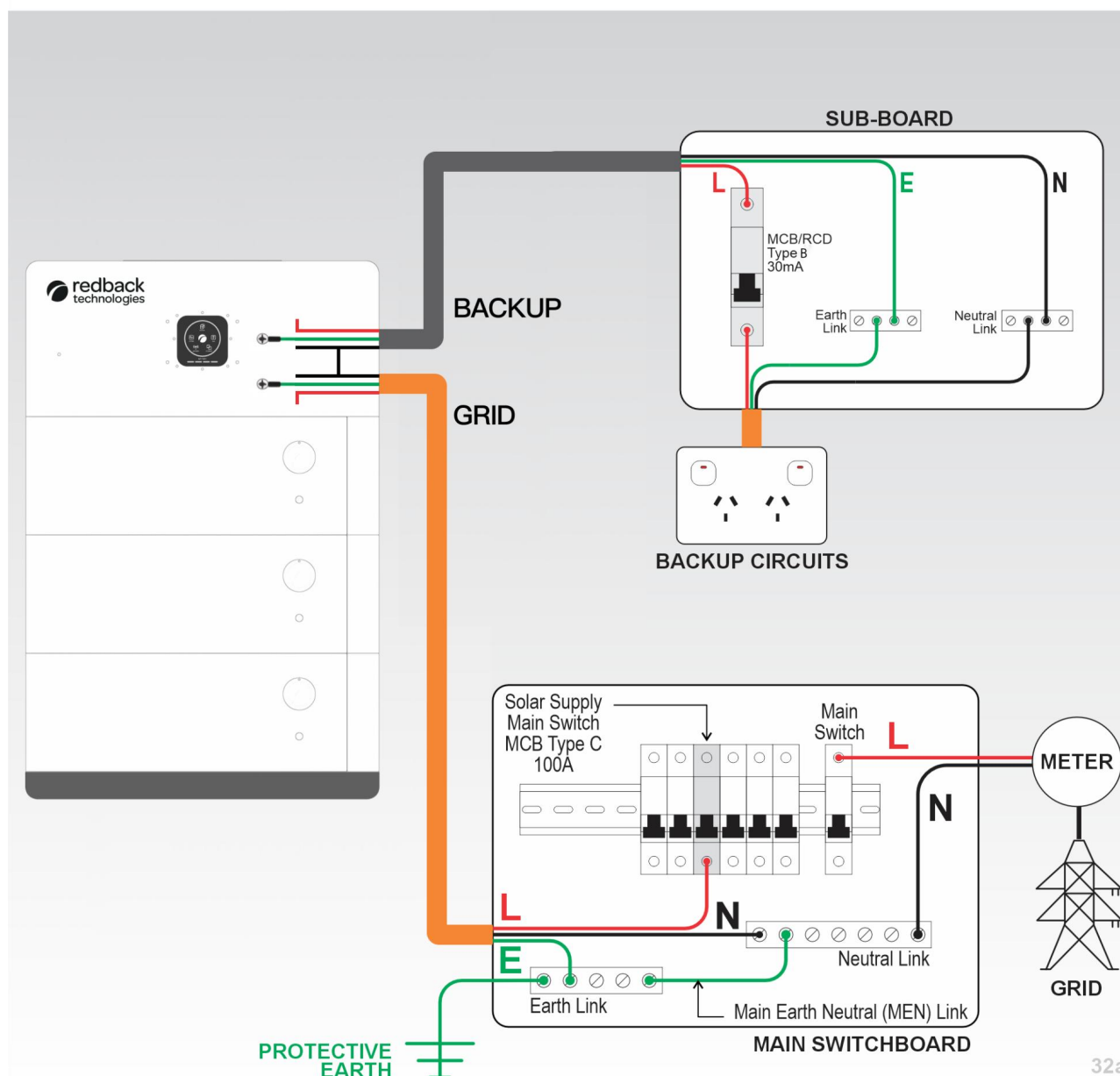


2.8.4. AT THE MAIN SWITCHBOARD AND OR BACKUP SUB-BOARD

Connect the Grid Supply and Backup cables as shown below, noting:

- Installer to select cable sizes to suit the installation—following applicable wiring rules—and accounting for voltage drop.
- Internal connections are shown for information only. Installers do not usually access inside the Inverter.
- The Auxiliary earth connection is for use when the AC Grid cable has a too-small conductor. Installer to decide.
- Inside the inverter, N and PE are not connected together. The N line of the Grid port and the N line of the Backup port are directly connected together.
- There is an RCD detection device inside the inverter, which can realize the detection function of the Grid port. The Backup port needs to install a Type B 30mA RCD device. The RCD parameters have been noted in the Manual.
- The battery's ground wire is connected through its connector.

 Installer to select cables according to AS3008	 Do not bond neutral to earth as earth bonding is achieved via the MEN link in the main switchboard	 *Neutral continuity for the backup circuit is achieved by inverter internal connection. Grounded connector bonding to protective earth is provided in the main switchboard via the MEN link.
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2.9. PV cables

	ONLY USE THE SUPPLIED DEVALAN VP-D4B CONNECTORS. AS/NZS5033:2021 prohibits mixing of PV connector types and brands. TEST POLARITY BEFORE CRIMPING PINS TO CABLE The crimping operation is not reversible. A mistake requires new connectors.	WARNING: ELECTRICAL DAMAGE RISK. Solar arrays must be electrically isolated from each other: • Do not bridge arrays. • Do not bridge MPPTs • Do not connect in parallel or serial. • Do not share isolator switches. • Do not connect or disconnect PV while the inverter is ON.
	WARNING: PV ARRAY GROUNDING. The Redback system is a transformer-less design. PV arrays connected to this system must be grounded.	
	WARNING: SHOCK HAZARD. Solar arrays generate energy even in low light. Handle cables and connectors carefully to avoid shock or arcing.	
	CAUTION: LIGHTNING PROTECTION. PV arrays in the system should be protected by a Lightning Protection System as described in AS/NZS5033:2021.	

2.9.1. AT THE INVERTER

The SxxHV inverter accepts power from up to four PV strings, with one string per MPPT.

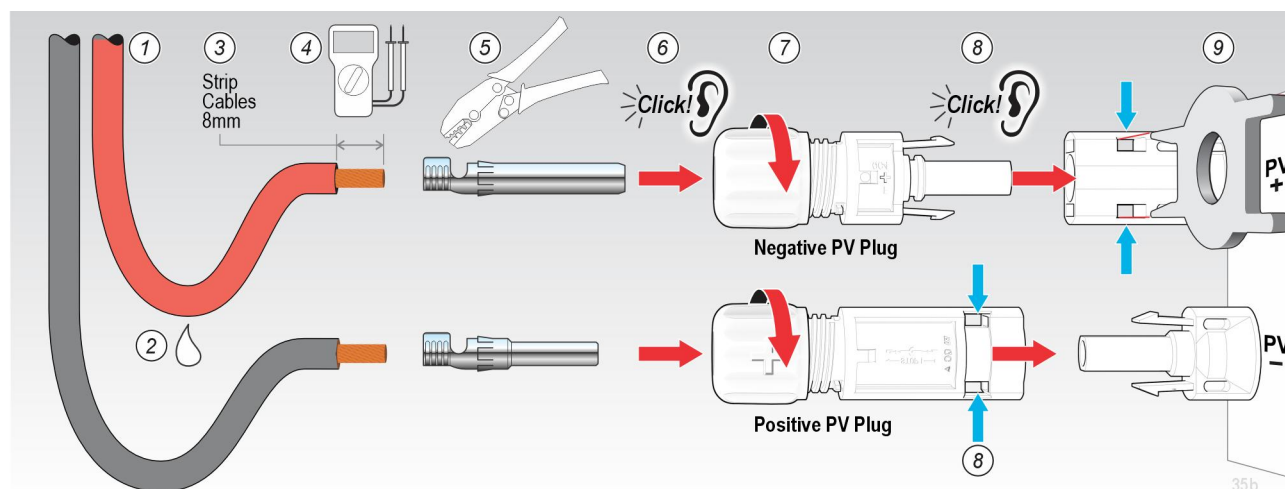
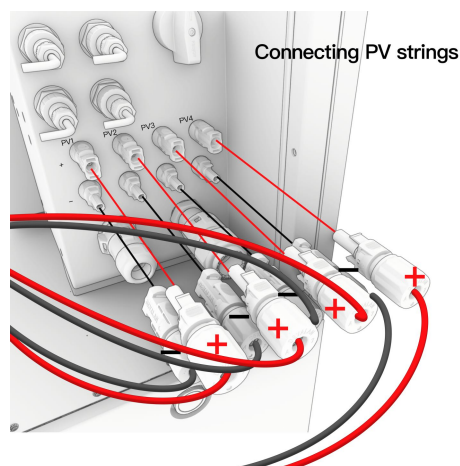
Devalan VP-D4B-PTSM4 connectors are supplied for connecting PV to the inverter. These must be used. Contact Redback if additional plugs or pins are required.

For all PV cables:

1. Run the DC cables from the PV arrays to the inverter DC side (left side)
2. Ensure sufficient cable is available to form drip loops.

For each PV cable:

1. Strip cable to bare 8mm of conductor.
2. Check polarity and identify its paired cable.
3. Crimp to secure cable to pin. Note: Longer pins are the positive terminations.
4. Push pin into plug assembly until a "Click!" is heard or felt.
5. Tighten the Sealing Nut
6. Push the entire plug assembly onto its matching socket until a "Click!" is heard or felt. Ensure the plugs are secure, and cables remain paired.
7. To release a plug, simultaneously pull on the plug and push the Release Tool into the slots indicated by the blue arrows.



Assemble and connect PV cables

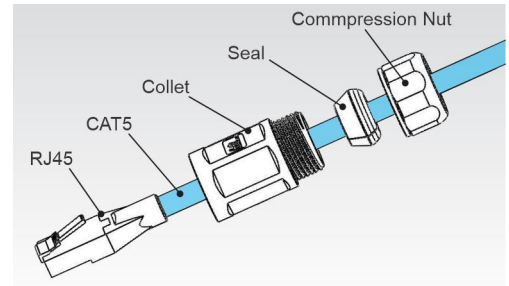
2.10. Communications ports

2.10.1. OVERVIEW

The SXXHV inverter needs to communicate with the following devices or services:

- Local area network (LAN) (Ethernet recommended).
- Energy Meter (required).
- DRM0
- DI/DO
- PAR1,PAR2

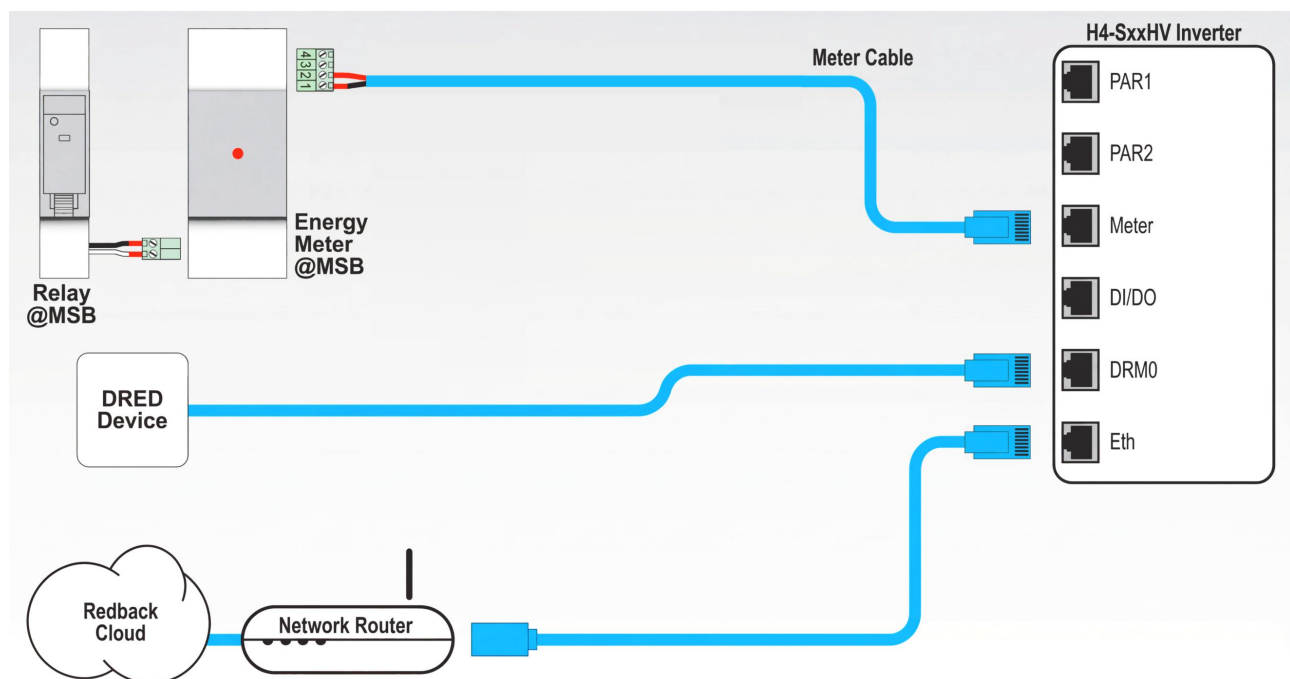
Six waterproof RJ45 connections are provided on the left side of the inverter. DW112F0800421 plugs are required. All cables are Cat 5, and any extension or replacement cable must be Cat 5 and configured as straight-through.



RJ45 Waterproof Connector Assembly

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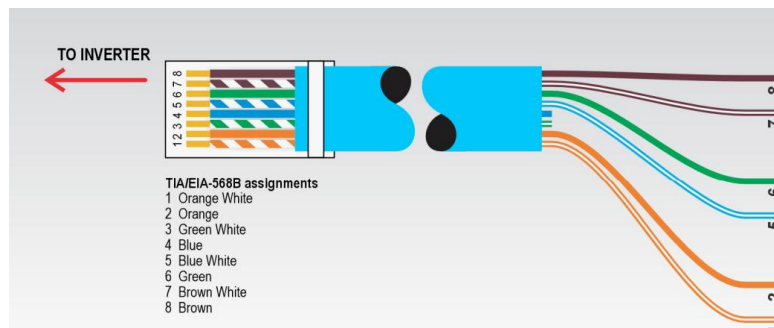
The overall communications scheme is shown below.



SxxHV Communications Overview

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Extension or replacement cables must be CAT 5, configured straight-through. If required, longer, splitter-free, direct-to-energy-meter cables require cable assignments as shown below.



MODE	RJ45 SOCKET ASSERT		FUNCTION
DRM 0	5 (REF GEN--Blue/White wire)	6 (DRM0 COM--Green wire)	Operate the disconnection device
Meter 485	1 (485A--Orange/White wire)	2 (485B--Orange wire)	Meter communication

2.10.2. ETHERNET (RECOMMENDED)

The Ethernet port is used if the inverter is to be connected to the owner's network using ethernet cable (not Wi-Fi).

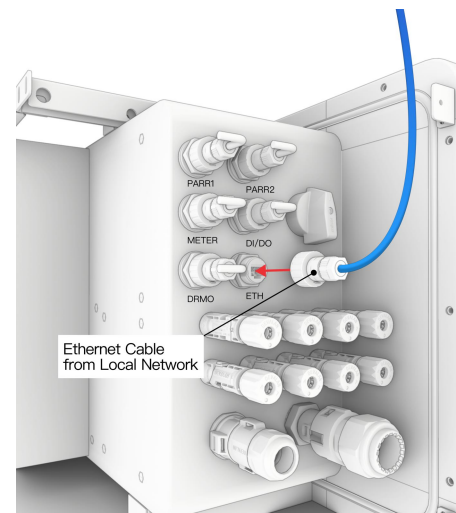
Ethernet is preferred as it is more reliable than Wi-Fi, and some Redback features such as [Site Manager](#) require ethernet connected inverters.

Procedure

1. Run the ethernet cable to the inverter directly from the home's network router or a connected LAN port.
2. Terminate the LAN/Router end as RJ45 straight-through. Plug into the LAN or Router port.

At the inverter

3. Terminate at the inverter end using the supplied HDC-1i8m1 waterproof connector.
4. Configure the cable as RJ45, straight-through.
5. Connect to the ETHERNET port and tighten the waterproof cap.



Install Ethernet Cable

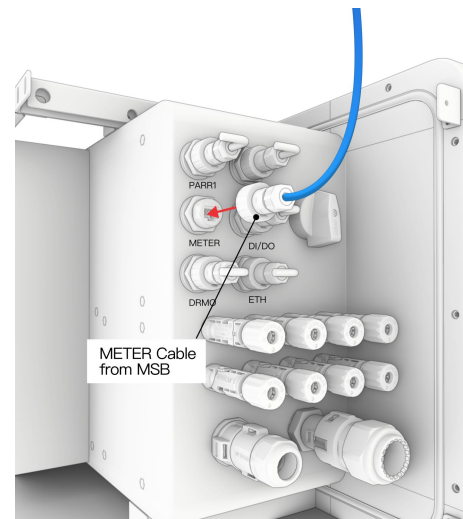
2.10.3. ENERGY METER

For cable runs less than 10m

1. Run the pre-finished 10m cable from the inverter to the main switchboard.
2. Run the tails to meter, or ancillary device, as needed.
3. Connect the meter to power and CT, as needed.

For cable runs longer than 10m

1. Run the necessary cable
2. At each end, terminate with HDC-1i8m1 plugs.
3. Configure the cable as straight-through.
4. Connect to the METER port and tighten the waterproof cap.
5. Run the tails to meter, or ancillary device, as needed.
6. Connect the meter to power and CT, as needed.



Install METER Cable

2.10.4. DI/DO

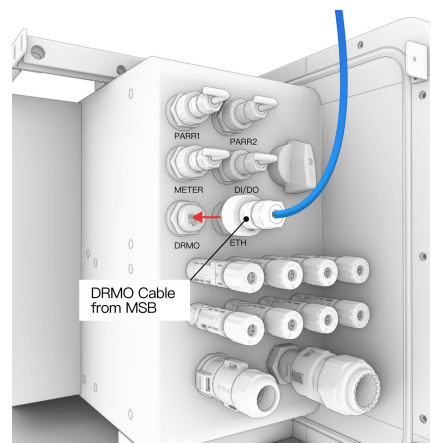
Common digital input/digital output (DI/DO) interface used in control systems, suitable for connecting peripherals such as heat pumps. (If this function is required, please contact Redback.)

2.10.5. PAR1, PAR2

Parallel interface for connecting multiple units in parallel. (If this function is required, please contact Redback.)

2.11. DRMO

The redback inverter only supports DRMO functionality. Simply connect the DRED device to the inverter using an RJ45 network cable. Method for asserting DRM



Install DRMO Cable

2.12. Install the Energy Meter & CTs

2.12.1. OVERVIEW

The inverter includes one Redback Energy Meter (hereafter called the Energy Meter or the REM) to measure the instantaneous voltage, current, power and energy of a single-phase grid supply. The power data is transmitted to the Redback inverter where it is used to self-manage grid inputs from solar or battery power sources, and to control external devices such as relays.

The meter uses a non-intrusive, clip-on, “split core” type current transformer (CT).



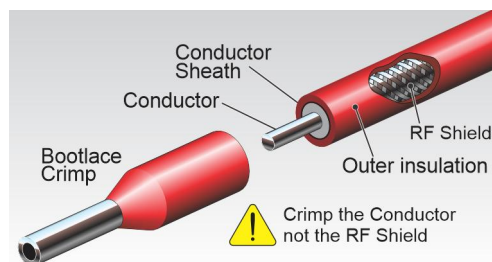
WARNING. Connect the Energy Meter as shown in the following sections. If installing in a 3-phase environment, ensure that Current Transformers (CTs) and corresponding supply cables are connected to the same phase. Incorrect connection will cause incorrect data and may damage the meter.

The installation process is:

1. At the main switchboard, trace each phase to a circuit that can have a load added. Note the associated isolators.
2. Run the communication cable from inverter site or communications gateway to the main switchboard.
3. Install the REM in the meter box or suitable enclosure.
4. Connect the REM as shown on next pages.
5. Coil any excess cable neatly, and store.
6. Use Redback app check CT orientation.

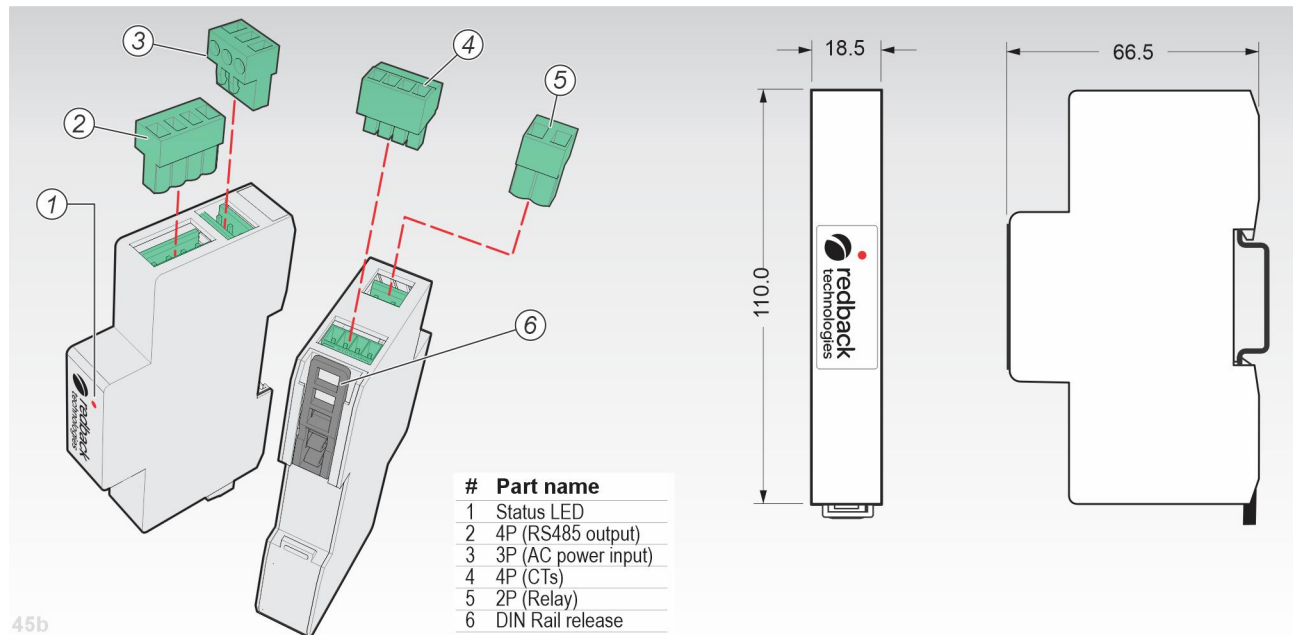
2.12.2. ENERGY METER INSTALLATION NOTES

- The REM is not waterproof and must be mounted in a weatherproof location, preferably inside a meter box or dedicated enclosure.
- To ensure correct readings, ensure CTs are clipped onto the cables identified at step 1, above.
- The REM is DIN rail mounted, occupying 1x MCB space (18.5mm or 1-pole or 1-DIN slot).
- Install the REM such that all terminals are protected from accidental contact.
- All required plugs are supplied and are non-interchangeable Phoenix style connectors.
- Plug terminal screw torques: 0.2Nm maximum.
- The REM and CTs are a factory-calibrated assembly. Do not swap the CT with other products.
- The CTs have 1m cables that may be shortened or coiled as necessary.
- Bootlace crimping is recommended. When re-crimping, ensure only the conductor is crimped otherwise errors will occur. Ensure shortened cables are reconnected to the same positions on the plug.

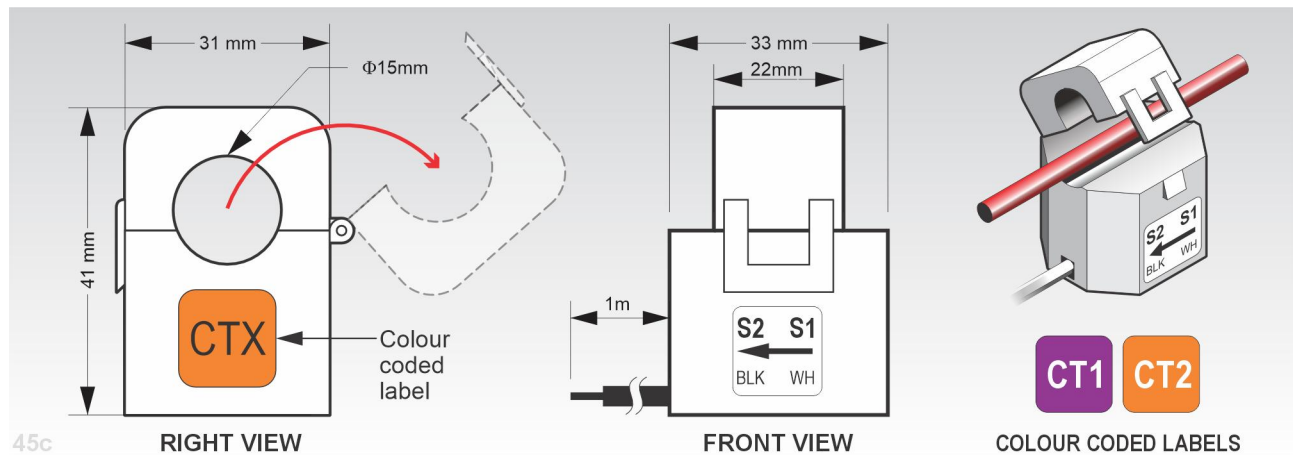


2.12.3. EENERGY METER PRODUCT INFORMATION

2.12.3.1. Parts and dimensions



2.12.3.2. 16mm/100A Current Transformers (CTs)

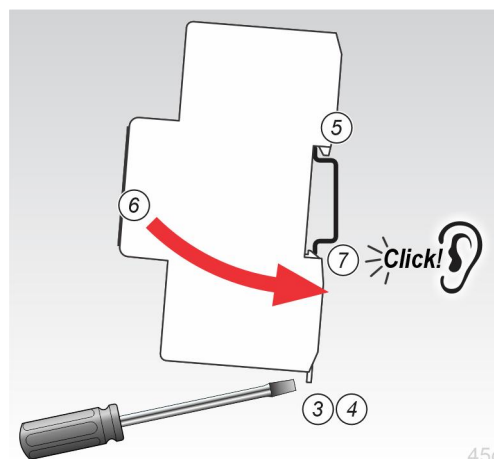


2.12.4. INSTALLATION PROCESS- ENERGY METER

1. Inspect the installation location. Identify a mounting point for the meter, supply power take-off points, and CT attachment points.
2. Mount the meter to an available DIN Rail location. The energy meter may be mounted adjacent to other devices.

To mount the meter on a DIN rail:

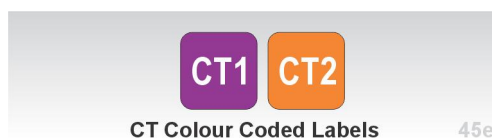
1. Press the unlock lever.
2. Release the clip.
3. Hook the meter onto DIN rail
4. Rotate so that the meter body is flush against the rail.
5. Push clip up until there is a "Click!".



45d

2.12.5. INSTALLATION PROCESS- CTS

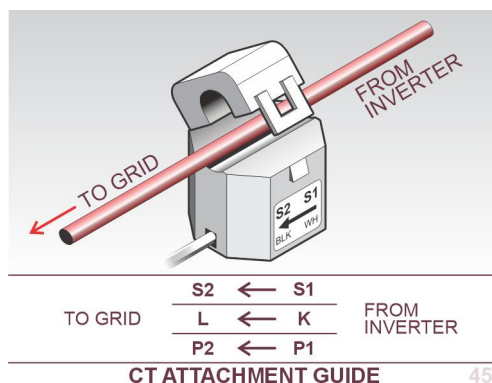
1. Connect the CTs to the energy meter as shown in the following section. Terminal screw torque is 0.2N.m maximum.
2. Attach the CTs to 3-Phase wires as shown in the following section. To ensure correct readings, ensure CTs are clipped on as specified in the following Standalone or AC-coupled configuration diagrams. Note the colour coding.



45e

CT connection notes

- Only use the supplied CTs.
- Ensure the CTs are rated for your application.
- Connect wires to the meter before attaching CTs. Conversely, detach CTs before releasing wires from the meter. This protects against accidental shock from an excited CT.
- Attach CTs in the directions shown at right. The current direction must follow Y → X marked on CTs: this is often embossed in the cable channel.
- CTs are fragile: Handle with care especially if working in a confined space.



45f

2.12.8. SMART LOAD CONTROL

Smart Load Control requires:

- A compatible Redback inverter (hardware and firmware).
- A compatible Redback Power installed in the main switch board (a meter is supplied with the inverter).
- A relay or contactor rated to switch the desired load (supplied by installer).

Download the complete Smart Load Control Installation Guide at redback.link/rbslc

Overview

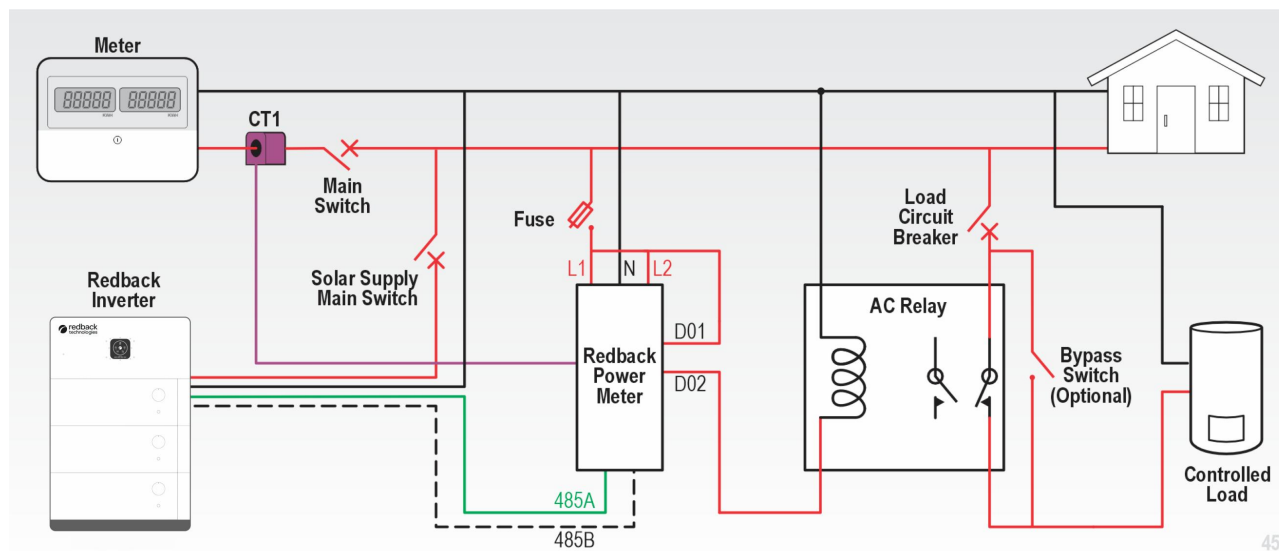
Redback's Smart Load Control feature enables owners to make the most of their generated energy by only operating their large loads (such as a hot water system) when there is excess solar energy available.

Smart Load Control aims to:

- Run the load using only excess PV energy.
- Avoid switching the load excessively (e.g., when a cloud passes in front of the sun temporarily reducing PV output).
- Optionally, the system will ensure that the load runs for a nominated number of hours each day. This is useful for equipment like pool pumps which require a minimum daily run-time.

The Smart Load Control feature is available on all SxxHV inverters. The Redback Power Meter uses an internal dry contact to activate the relay, which controls the load. The inverter controls the meter using RS485.

A typical connection scheme is shown below.

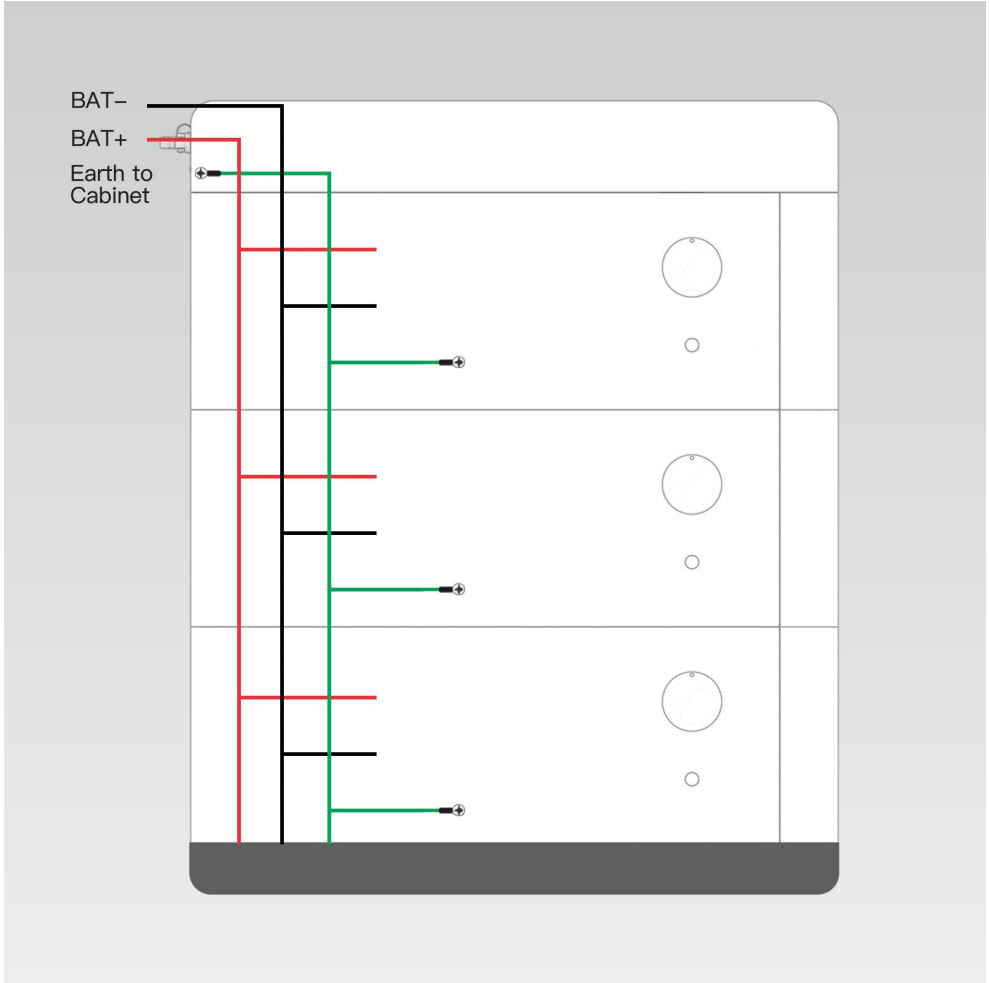
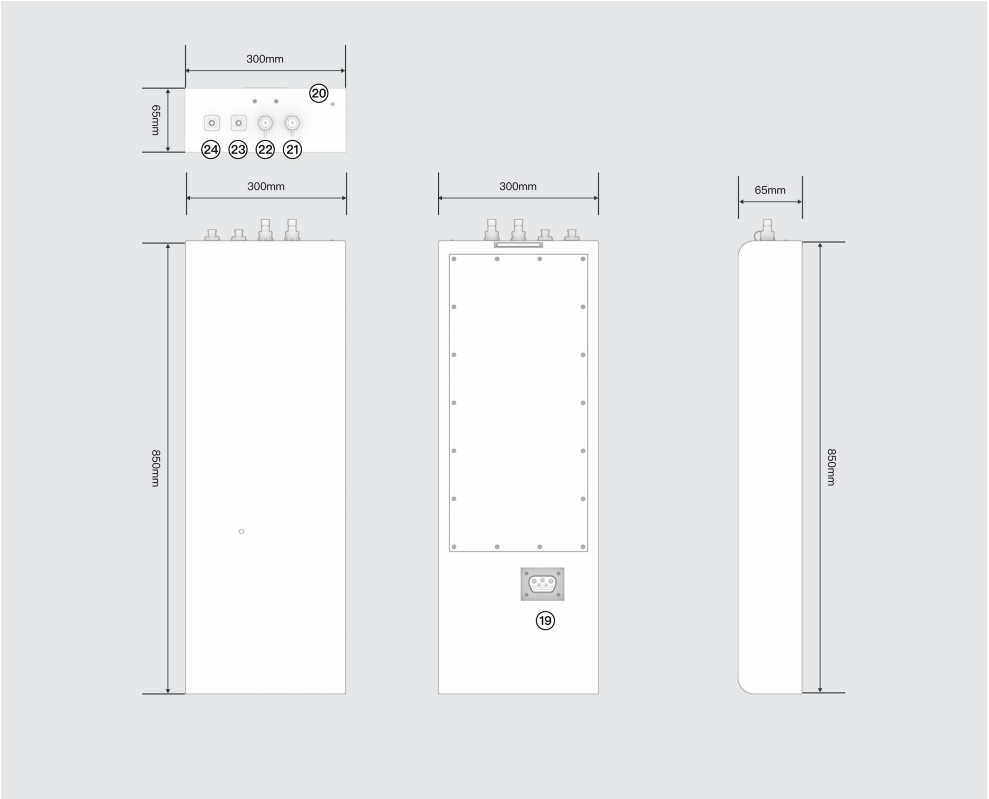


2.13. Top cover(optional)

If you have other Redback inverter products, you can install the top cover to connect the RED-P2-BExxHV battery to other Redback inverter products.

The top cover is directly stacked on the battery and connected to it through the battery port shown in the picture. The top cover contains a B+ port, a B- port, a COM port, and a BMS port. B+ and B- port. The B+ and B- ports connect to positive and negative cables respectively, while the COM port is used for communication lines and the BMS port for the BMS system.

19	Top cover battery port
20	Top cover grounding port
21	Top cover COM port
22	Top cover BMS port
23	Top cover B- port
24	Top cover B+ port



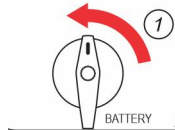
3. Commissioning

3.1. Overview

The system commissioning process is:

- Register the installation on the Redback Portal at redback.link/register (+Add device).
- Start the batteries.
- Start the inverter.
- Onboard the inverter and initialise settings.

3.2. Commission batteries

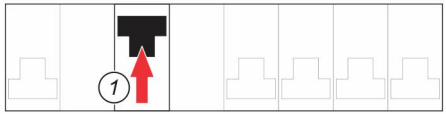
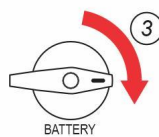
STEP	PROCEDURE	ILLUSTRATION
1	Confirm each BATTERY DC isolator is in the OFF position.	
2	Press and hold any one of the power buttons until the light stays on steadily.	

3.3. Inverter start-up

3.3.1. INVERTER START-UP NOTES

- The inverter requires about 1 minute to boot-up and start advertising Bluetooth (NETWORK LED is Blue, flashing).
- Ethernet connected systems will automatically connect to the internet, if available, indicated by the ETHERNET LED being continuously ON.
- Do not turn power OFF during start-up. This will delay start-up or may crash the system.

3.3.2. INVERTER START-UP PROCEDURE

STEP	PROCEDURE	ILLUSTRATION
1	At the main switchboard, turn the Solar Supply Main Switch ON (Up)	 At Main Switchboard 110a
2	Turn the PV ARRAY DC isolator ON (clockwise to 3 o'clock)	
3	Turn each BATTERY DC isolator ON (clockwise to 3 o'clock)	
4	At the AC side switch, turn Grid Switch ON	
5	At the AC side switch, turn Backup Switch ON	

3.4. Onboard the inverter

Onboarding is the process of setting up the inverter's permanent connection to the internet, using the owner's network. Permanent connection to the network is by Ethernet cable or Wi-Fi.

Onboarding is automatic when an ethernet cable is used.

When connection to the network is by Wi-Fi, complete onboarding using the Redback app and a Bluetooth connection to the inverter.

Before attempting onboarding, ensure all cables are correctly installed.



Installation cannot be completed without an internet connection.

The owner must maintain a stable* connection to the Redback Cloud otherwise warranty support will be affected.

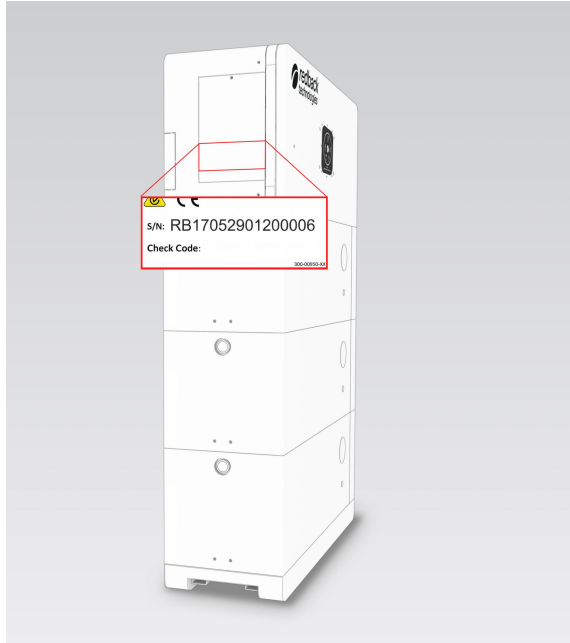
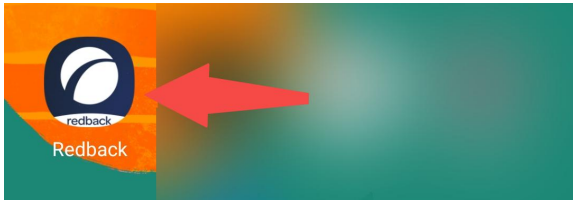
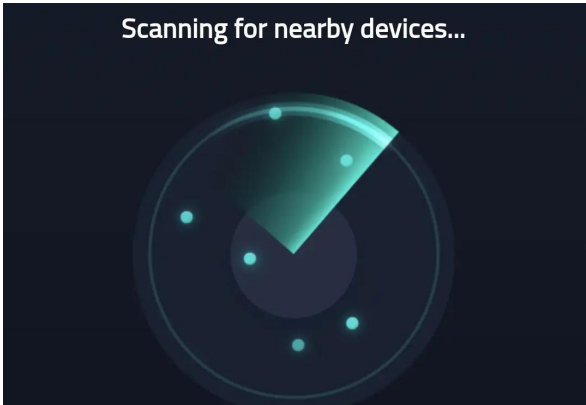
* Excluding internet or power outages beyond the owner's control. Ethernet LAN connection and connection of internet hardware to a backup circuit is recommended.

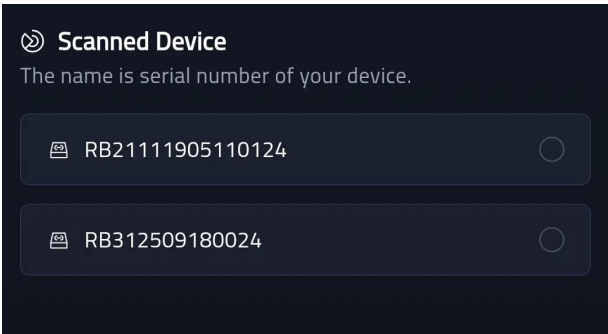
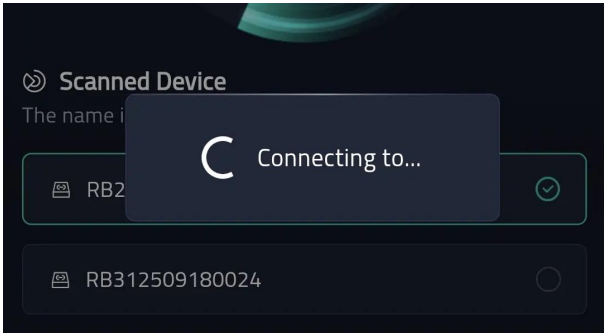
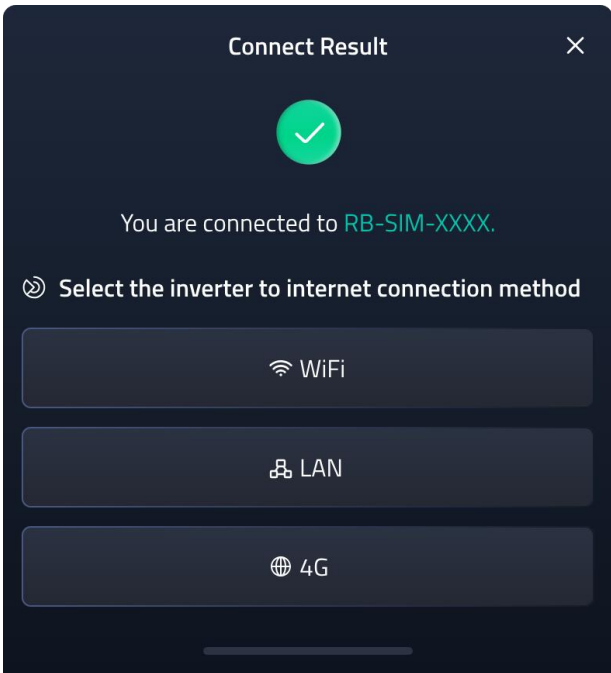
3.4.1. CONNECTION NOTES (TO OWNER'S INVERTER)

METHOD	COMMENT	LED INDICATIONS	REDBACKI APP IMPACT
Ethernet	Preferred and automatic if LAN is detected	 ETHERNET + NETWORK ETHERNET is White, ON continuously, and NETWORK is White, ON continuously: Inverter is onboarded and connected to the Redback Cloud.	The app will request confirmation that LAN is the preferred connection method.
		 ETHERNET + NETWORK ETHERNET White, ON continuously, and NETWORK Orange, ON continuously: Connected to owner's network using ethernet but Redback Cloud not found. See 5.2 Troubleshooting.	
		 ETHERNET + NETWORK ETHERNET White, ON continuously, and NETWORK Blue, Flashing: Ethernet connected to owner's network, and inverter is advertising Bluetooth.	
		 ETHERNET ETHERNET LED OFF: Ethernet is not connected to owner's network. Onboarding required.	The app requires selection of the connection method.
Wi-Fi	Onboard using Bluetooth and Wi-Fi	 NETWORK The NETWORK LED must be Blue and flashing, indicating Bluetooth is advertising.	Connection to owner's network is needed, including password.
		 NETWORK Time is of the essence! Bluetooth onboarding must start within 30 minutes.	If necessary, the Bluetooth advertising can be restarted by cycling the inverter off and on (see section 5.3).
		 NETWORK Unable to connect message	Ensure Password is correct, and that connection is to a 2.4Ghz network (5Ghz is not supported).
None	Use "none" only if a permanent internet connection is not available immediately after commissioning. Warranty support may be affected if the system is not provided with a stable internet connection.		Commission using your phone, tablet or laptop's Wi-Fi hotspot. Set method to None after commissioning is complete.

3.4.2. CONNECT REDBACK TO THE INVERTER

The Redback app requires little guidance, and there is in-app information.

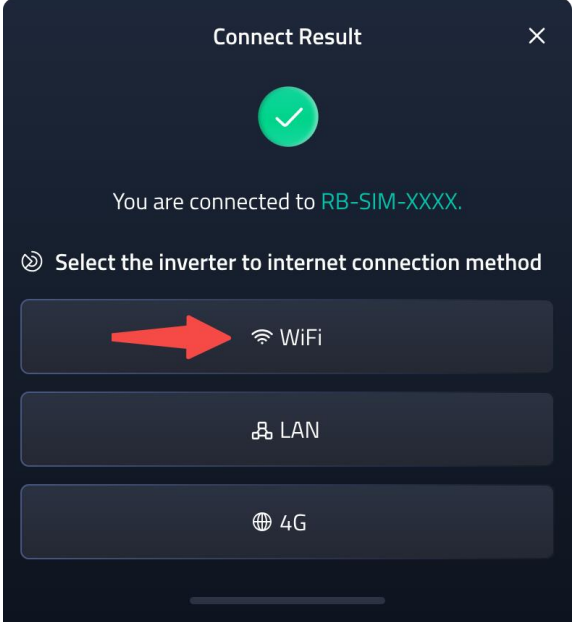
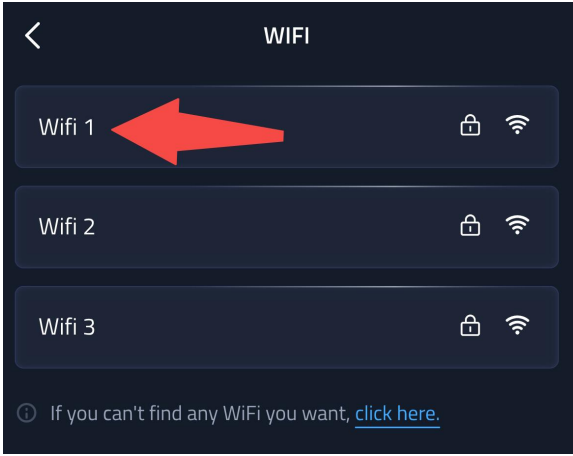
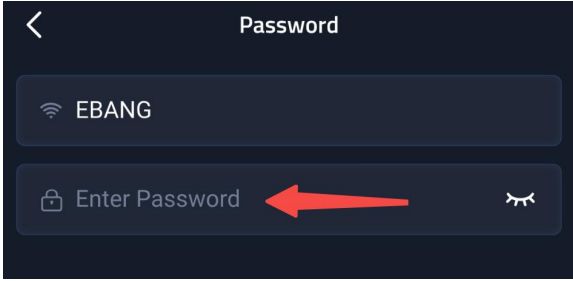
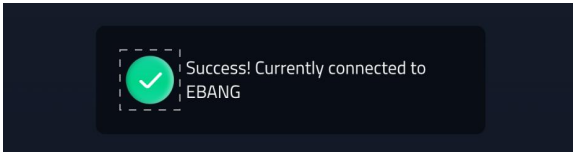
STEP	PROCEDURE	ILLUSTRATION
1	identify the inverter serial number. the serial number is found at the bottom of the specifications label located on the right side of the inverter.	
2	ensure the network led is blue, flashing, indicating that bluetooth is available. if not flashing, restart the inverter (see section 4.2).	
3	open redback and login. click the button in the upper right corner of the homepage, and then click the "add device" button.	
4	after input information of owner, redback will scan for products advertising bluetooth. wait up to five minutes.	

STEP	PROCEDURE	ILLUSTRATION
5	a list of nearby bluetooth advertising redback inverters will appear. tap the required rbxxxxxxxxxx number to continue. for easiest onboarding, turn all other non-onboarded systems off. the app will then display a list containing only one serial number.	 Scanned Device The name is serial number of your device. RB21111905110124 RB312509180024
6	wait up to two minutes for the bluetooth connection to complete.	 Scanned Device The name is Connecting to... RB2 RB312509180024
7	a success message will appear showing the inverter serial number of the inverter. confirm the serial number matches that on the inverter specifications label on the left side of the inverter.	 Connect Result You are connected to RB-SIM-XXXX. Select the inverter to internet connection method WiFi LAN 4G

3.4.3.ONBOARDING (CONNECT TO THE LOCAL NETWORK)

Redback will advance to this stage after establishing a Bluetooth connection to the Inverter.

Note: if a local network is not available it is possible to temporarily connect the Inverter to a Wi-Fi hotspot, such as your phone. This is useful for configuration but is not an acceptable long-term solution.

STEP	PROCEDURE	ILLUSTRATION
1	Select the preferred method to connect to the local network and internet. Options are: LAN (must be hardwired, will connect automatically) Wi-Fi (usually requires network name and password) 4G (will connect automatically)	
2	Select the required network or swipe down to refresh the list.	
3	Enter the password. Tap Connect to continue.	
4	A Success message will appear. Will go to the Inverter Configuration page automatically.	

3.5. Notes on Regional Safety Settings

Regional Safety Setting is a mandatory choice when configuring the system—the system will not operate if it is not selected.

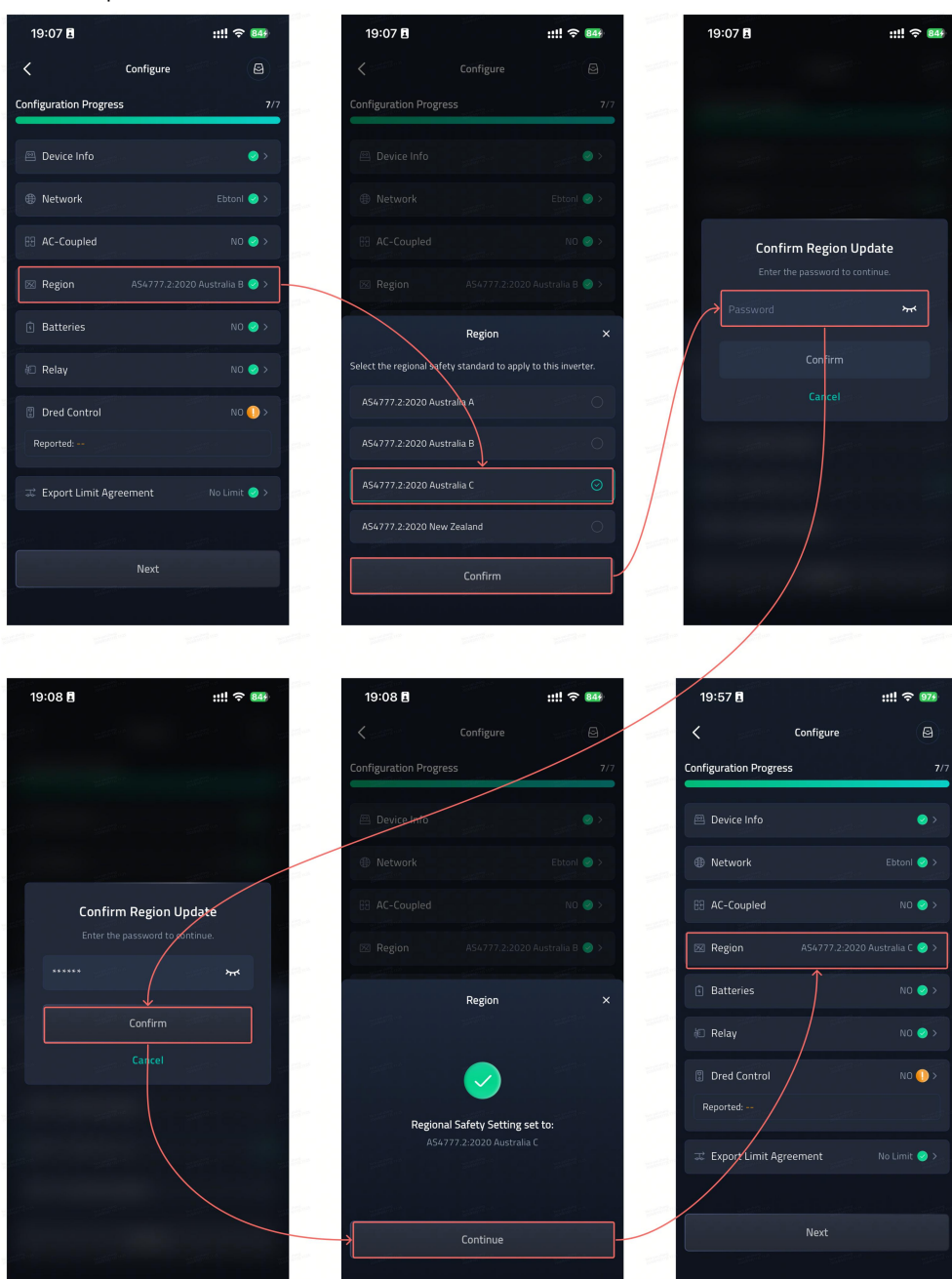
You may be prompted to update the inverter software. Do this if asked.

For convenience the Regional Safety Settings are set by selecting the Region from the list provided in the Redback app. The list is maintained with the latest settings required by AS4777.2:2020. Selection of a region automatically selects Power Quality Response Mode settings, including:

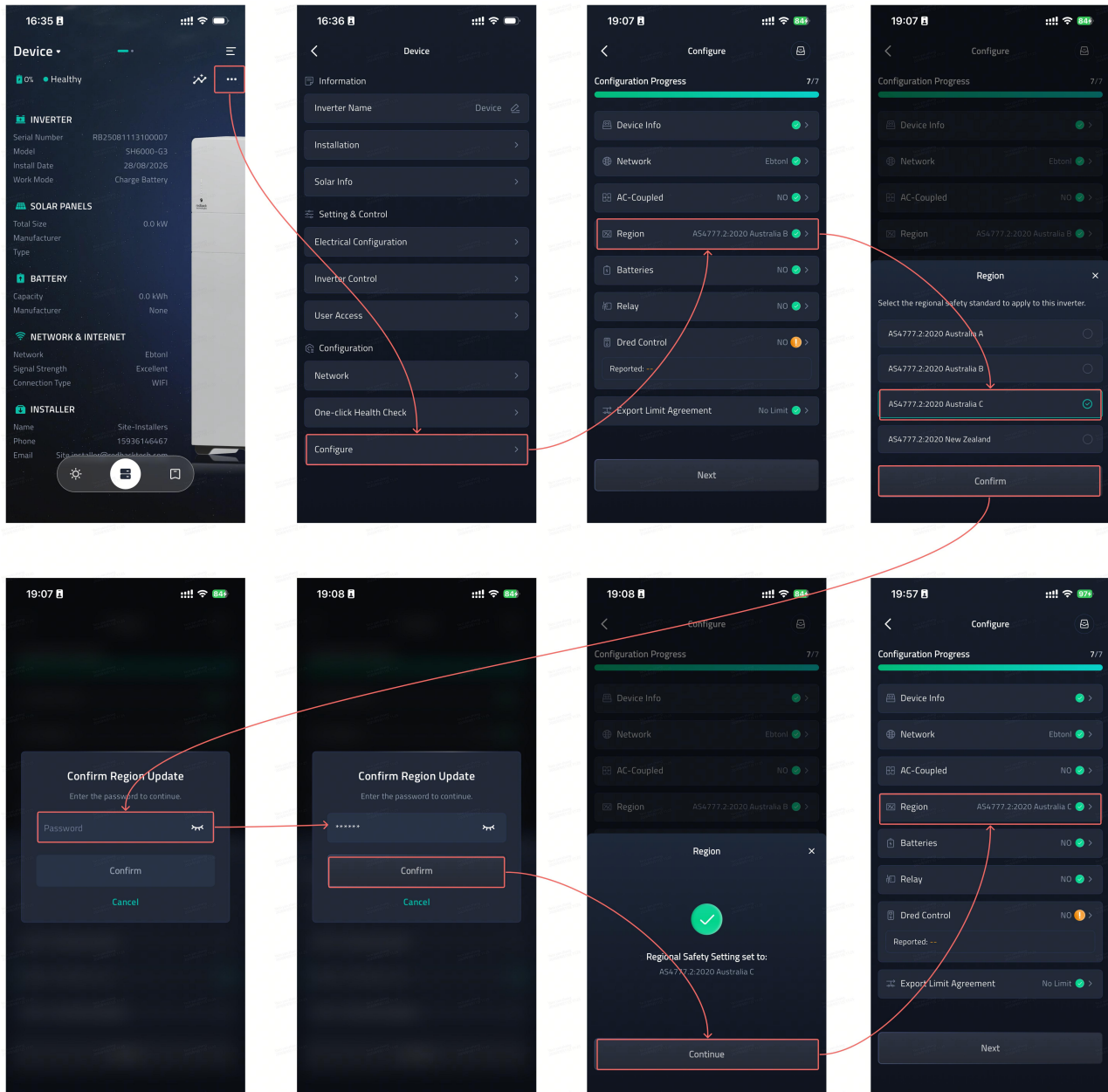
- Voltage balance mode (where available)
- Voltage and frequency limits
- Sustained operation for frequency variations.
- Voltage Disturbance Withstand
- Grid Protection
- Power Rate Limits
- Frequency Response Limits
- Volt-Var response
- Volt-Watt response
- Fixed Power Factor Mode
- Reactive Power mode

Region selection: you can choose the Regional settings through the steps shown in the following pictures. During the setup process, a password is required.

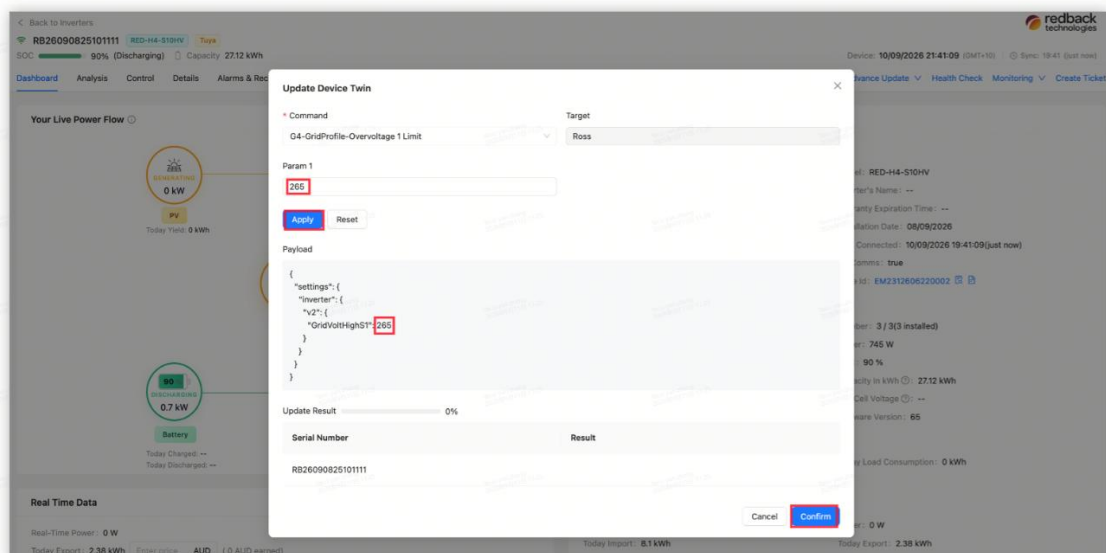
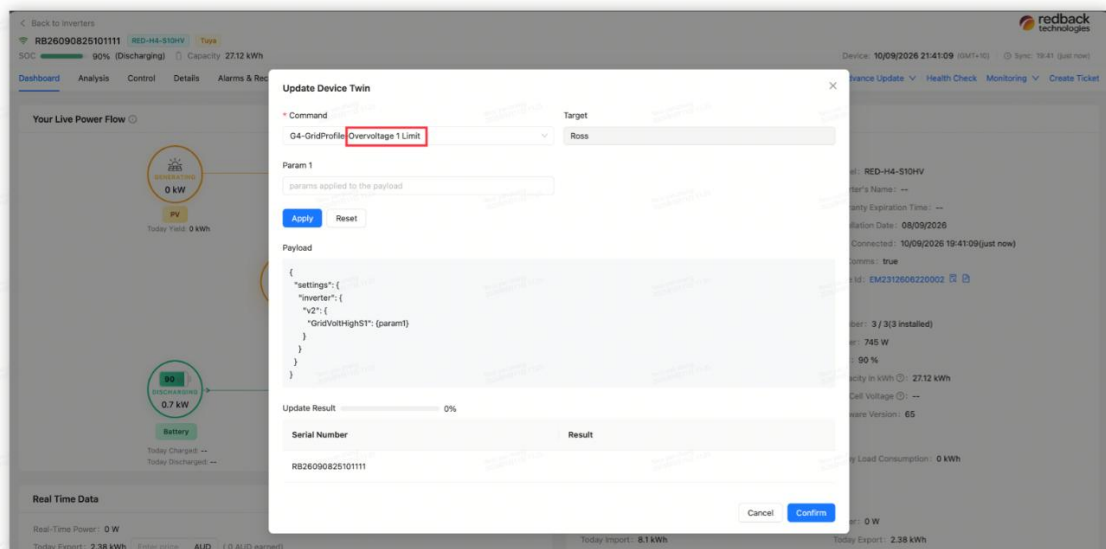
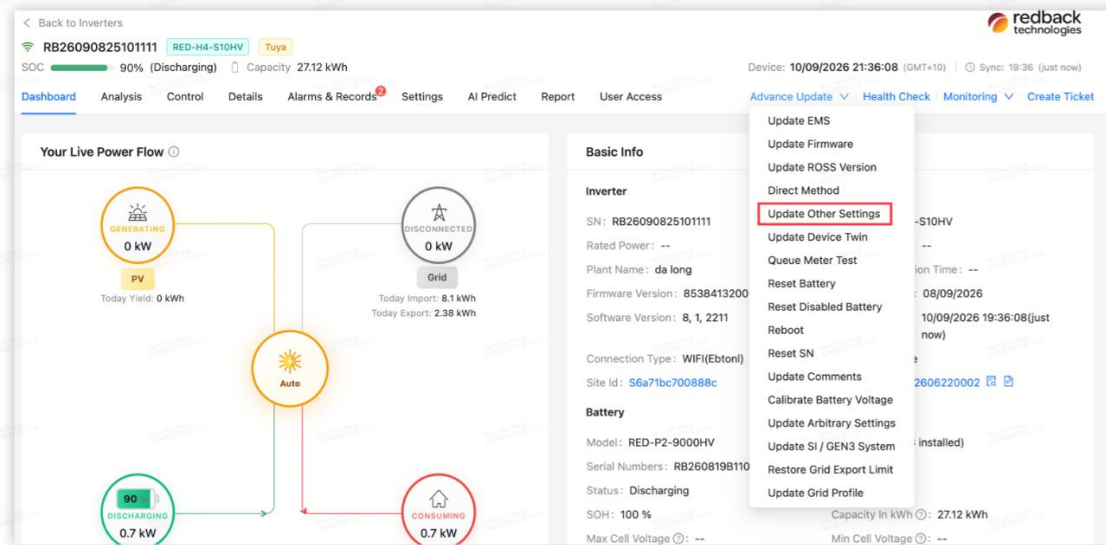
INFORMATION. The local grid operator may request a non-standard safety setting for an installation. To adjust power quality response mode setpoints from default values please contact Redback Technical Support.

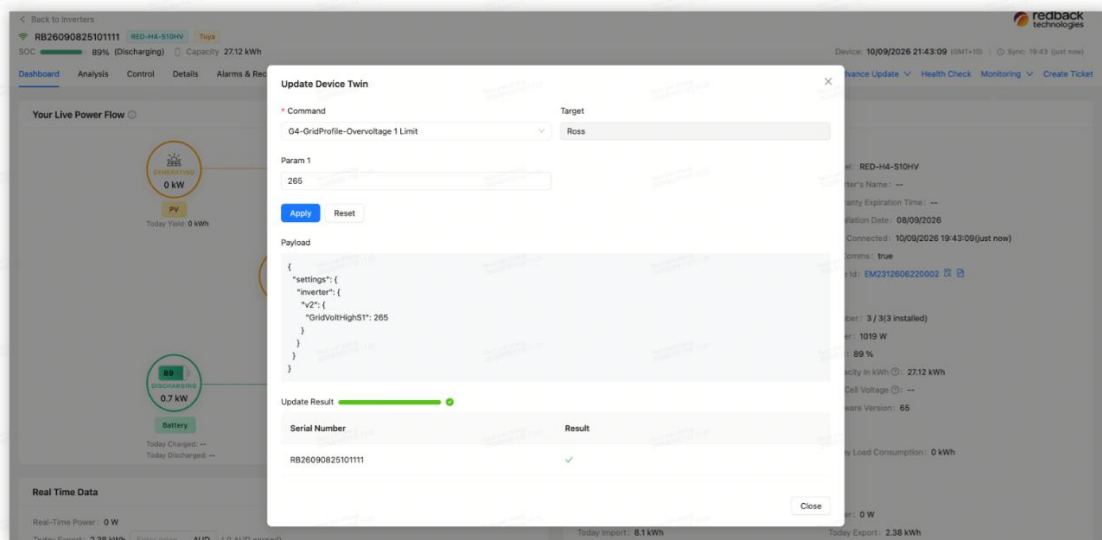
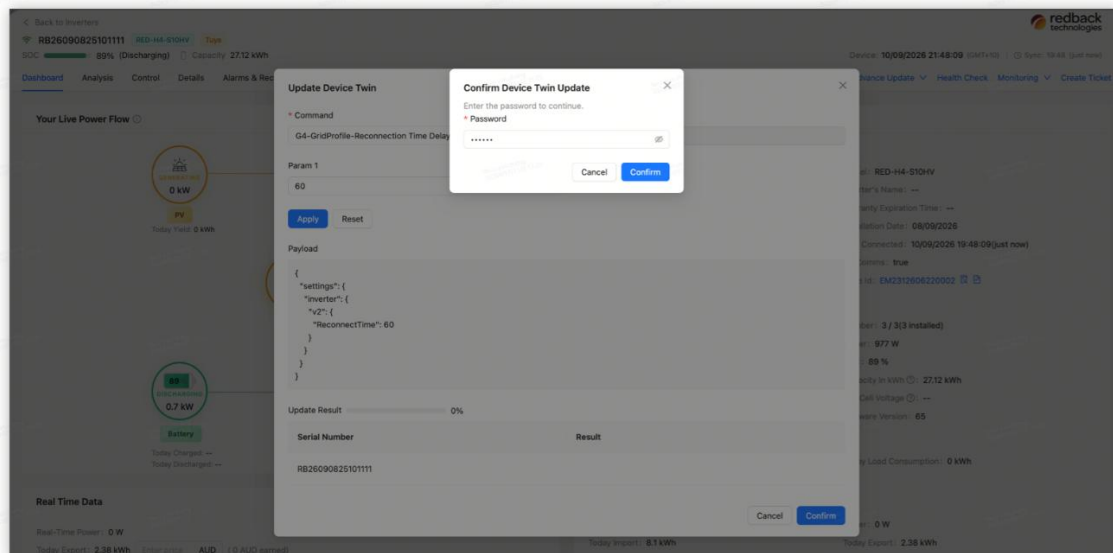
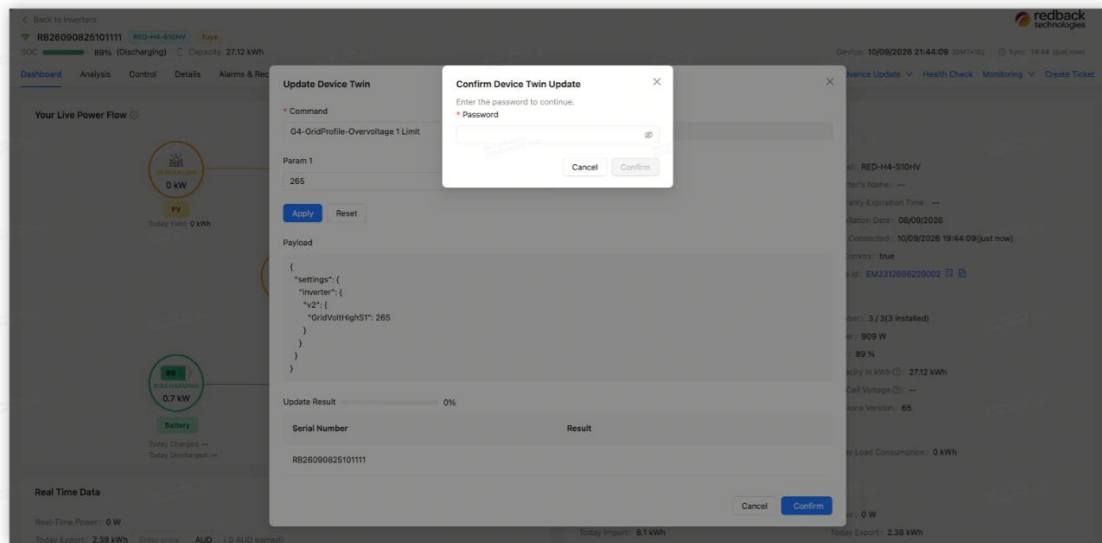


Region selection: you can choose the Regional settings through the steps shown in the following pictures. During the setup process, a password is required.



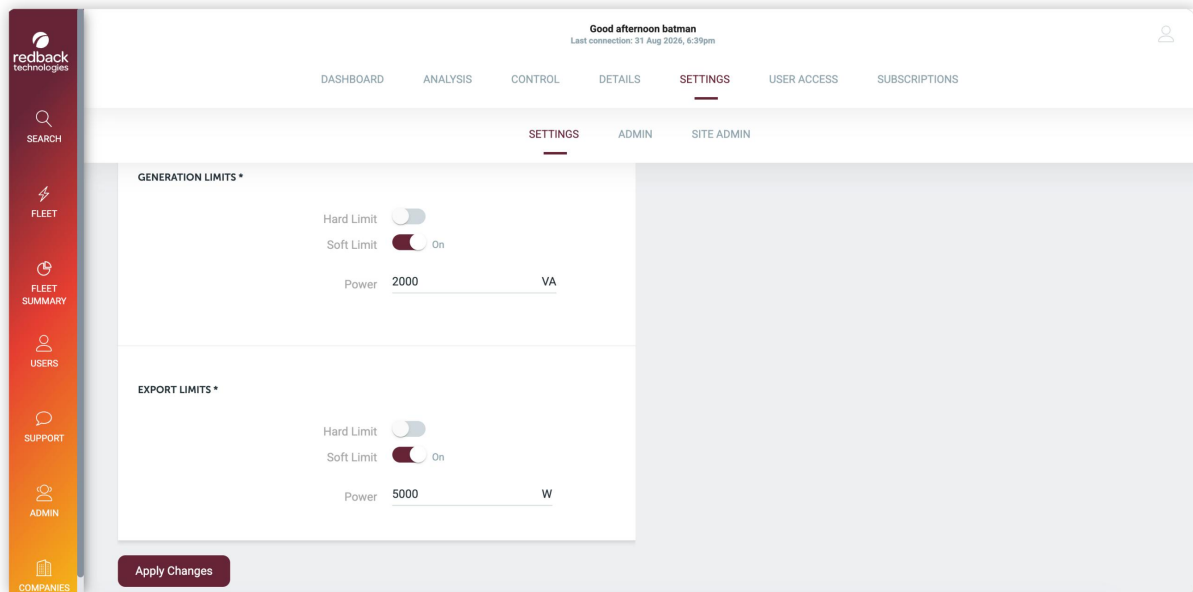
Through the REDBACK PORTAL webpage, you can adjust grid protection settings and power quality response mode setpoints. For example, you can adjust the value of overvoltage level 1 through the steps shown in the following pictures. During the setup process, a password is required.





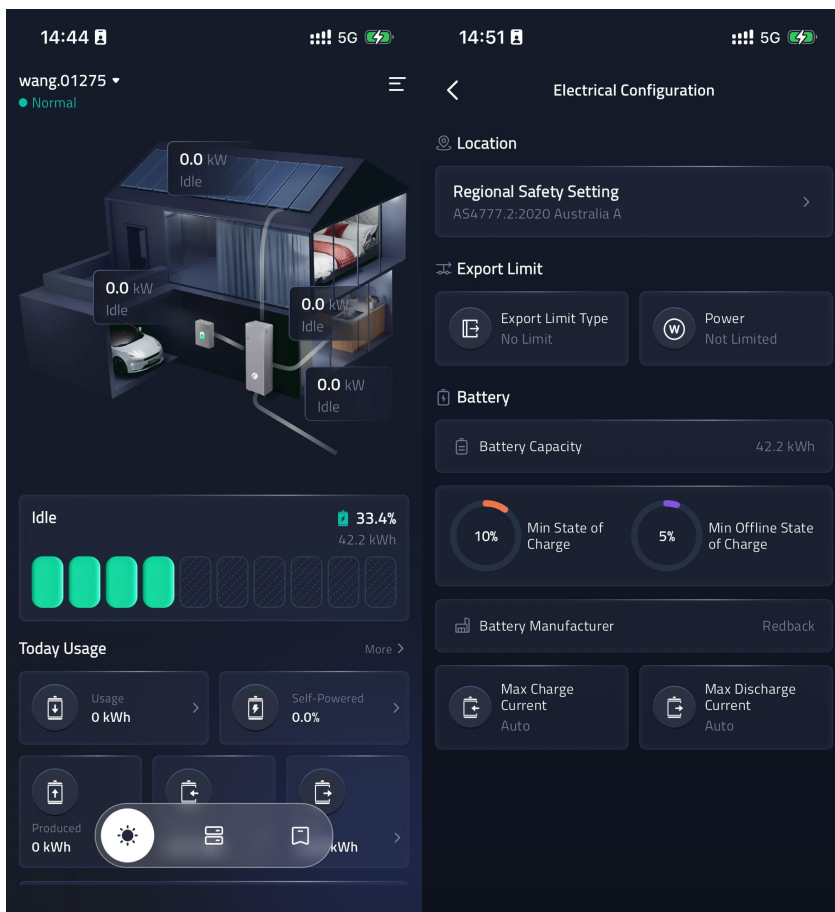
3.6. Notes on Export and Generation Limits

The inverter complies to the requirements of AS4777.2:2020 Clause 6. Generation Limits (hard and soft) and Export Limits (hard and soft) may be directly controlled. Through the REDBACK PORTAL webpage, you can activate/ disable generation/export control and set the control setpoints.



3.7. Battery management

The Redback App serves as a visual control terminal for the household photovoltaic, energy storage, and charging integrated energy management system, enabling real-time monitoring of household energy flow and configuration of core parameters. The main interface functions are as follows:

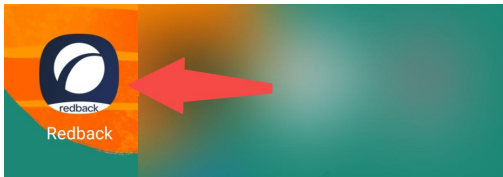
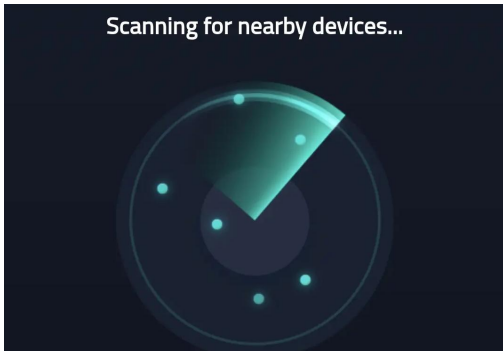
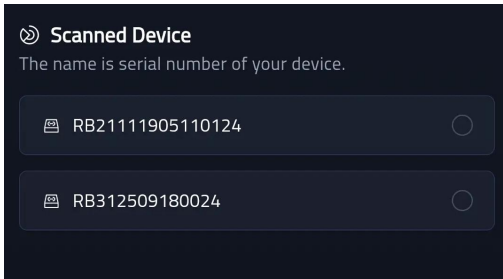
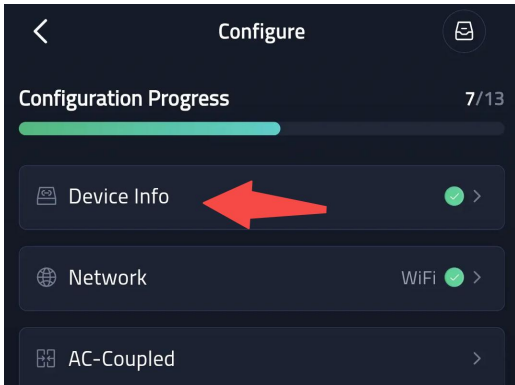


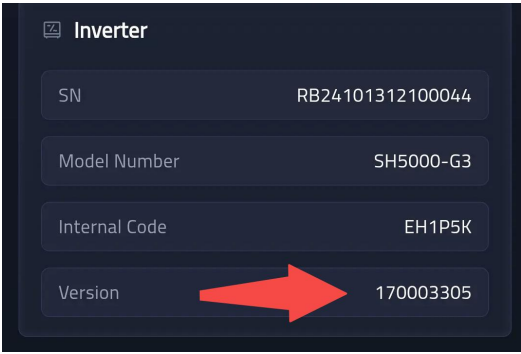
3.8. Redback firmware version*

Redback Hybrid inverter firmware version is 8.1.838.

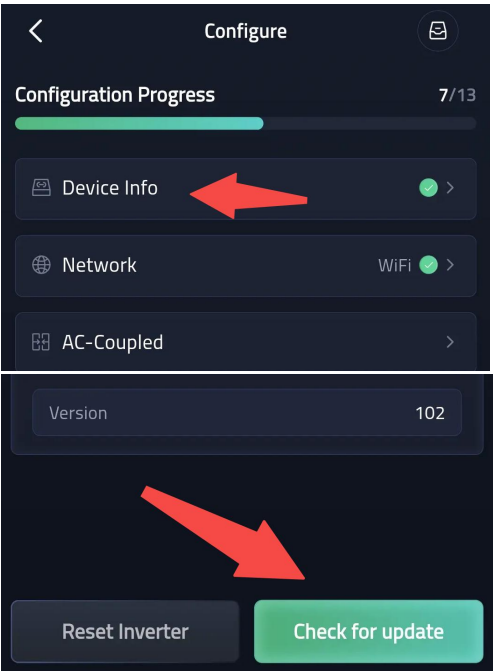
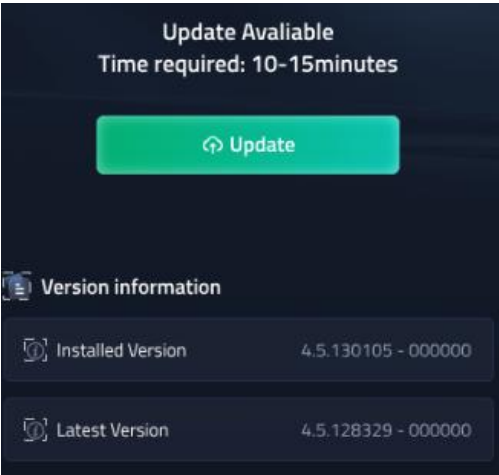
*Due to continuous improvement, the firmware number is subject to change without notice.

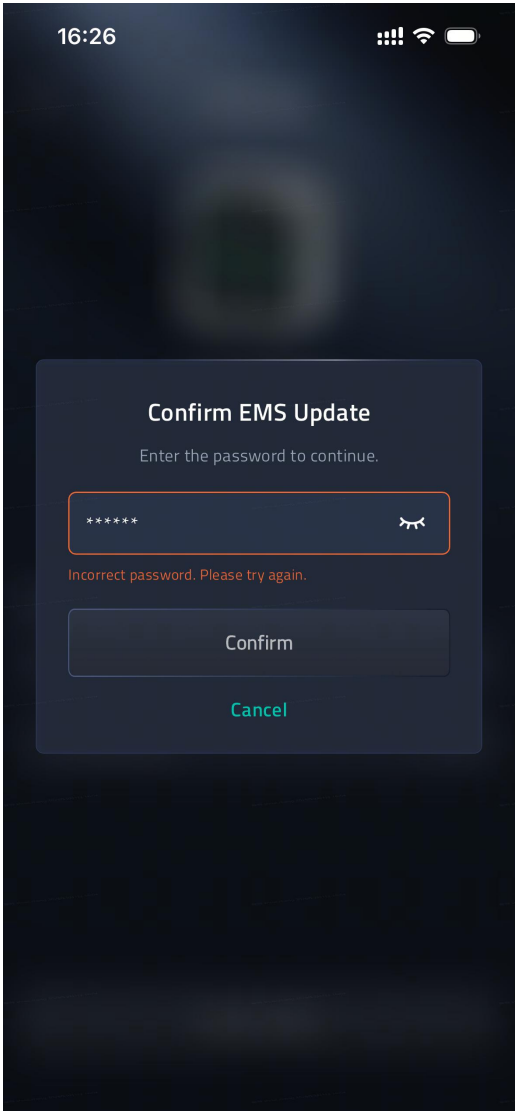
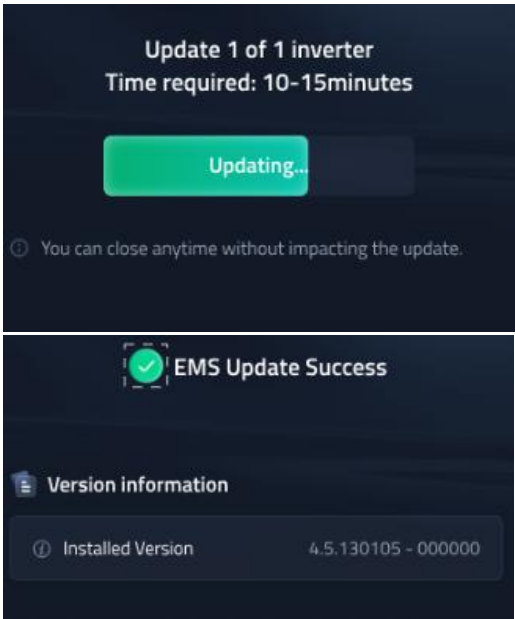
3.8.1. IDENTIFY FIRMWARE VERSION USING REDBACK

STEP	PROCEDURE	ILLUSTRATION
1	Ensure the NETWORK LED is Blue, flashing, indicating that Bluetooth is available. If the LED is not flashing, restart the system and thus Bluetooth advertising (see section 5.3).	 The illustration shows a blue dashed-line icon of a network card with the word "NETWORK" below it. The number "135a" is visible in the bottom right corner.
2	Wait for the NETWORK LED to begin flashing Blue.	
3	If not already open, start Redback and sign in. Click the button in the upper right corner of the homepage, and then click the "Add Device" button.	 The illustration shows the Redback app homepage. A red arrow points to a button in the upper right corner.
4	After input information of owner, Redback will scan for products advertising Bluetooth. Wait up to five minutes.	 The illustration shows the "Scanning for nearby devices..." screen. It features a circular radar-like graphic with several blue dots representing detected devices.
5	The app will display a list of nearby Redback products that are advertising Bluetooth. Select the required Redback product from the list. Settings page will open.	 The illustration shows the "Scanned Device" screen. It lists two devices: "RB21111905110124" and "RB312509180024". Each device has a selection circle to its right.
6	Touch DEVICE INFORMATION to view the firmware version.	 The illustration shows the "Configure" screen. A red arrow points to the "Device Info" option, which is highlighted. The screen also shows a "Configuration Progress" bar at 7/13 and other settings like "Network" (WiFi) and "AC-Coupled".

		
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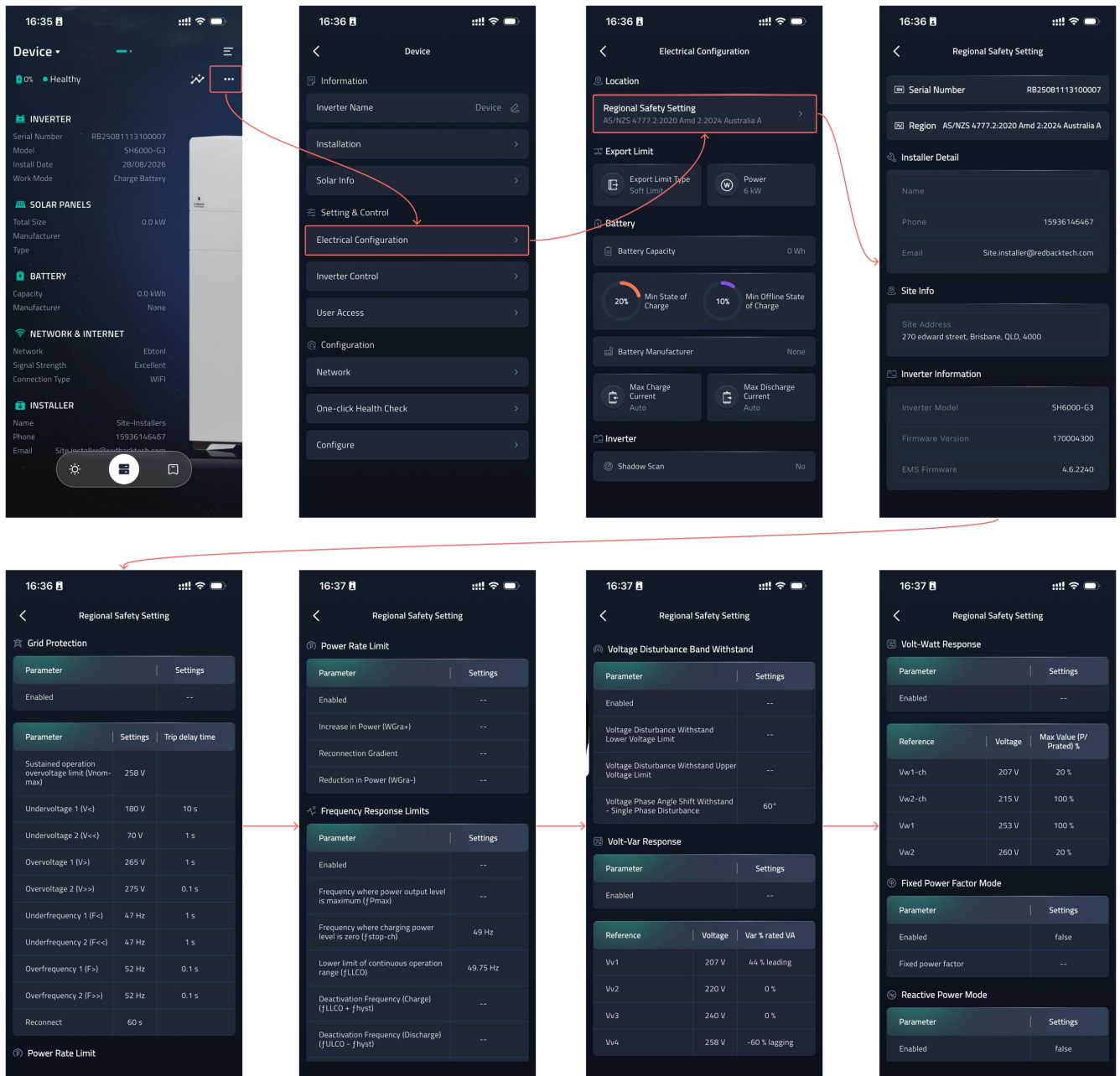
3.8.2.UPDATE FIRMWARE USING REDBACK

STEP	PROCEDURE	ILLUSTRATION
1	Open the Redback app and connect to the inverter using Bluetooth. If necessary, restart the system and thus Bluetooth advertising (see section 5.3).	
2	In Redback open the SYSTEM INFORMATION panel. Touch CHECK FOR UPDATES.	
3	The app will check if a newer firmware version is available and advise current and latest version numbers.	
4	Touch UPDATE FIRMWARE to begin the firmware update process. Updating firmware usually takes 2 to 5 minutes.	

5	Enter the password and confirm to enter the update process.	
6	The app will confirm when the Firmware has been updated. Touch Continue to return to SYSTEM INFORMATION.	

3.9. Confirm Regional Safety Settings

Users can view completed Regional Safety Settings by following these steps.

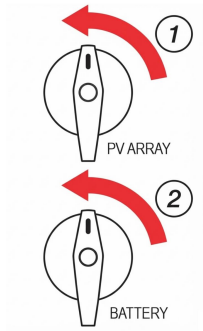
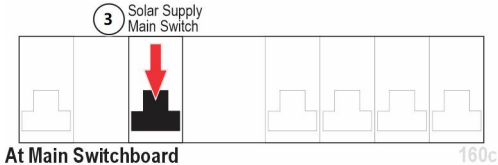


4. Inverter operation

The SxxHV has physical controls available at the inverter Control Panel. All sophisticated functions are managed using Redback app.

4.1. Shutdown procedure

Occasionally, it may be necessary to shut down the inverter interrupting all inverter functions, noting that PV, battery, and grid supplies remain energised to the isolators.

STEP	PROCEDURE	ILLUSTRATION
1	Turn all the PV ARRAY DC isolator OFF (anticlockwise).	
2	Turn the BATTERY DC isolator OFF (anticlockwise).	
3	At the main switchboard, switch the Solar Supply Main Switch OFF (Down). The inverter is now OFF: all software and communications are stopped, and no energy is being imported or exported from the inverter.  WARNING: PV and battery supplies remain energised to the isolators.	
4	At the AC side switch,turn Backup Switch and Grid Switch ON	
5	At the inverter, check that all Status Panel LEDs are OFF.	

4.2. Inverter restart

Occasionally, it may be necessary to cold boot the inverter, to restart all software. A restart briefly interrupts all inverter functions, including backup, noting that PV, battery, and grid supplies remain energised to the isolators.

STEP		PROCEDURE	ILLUSTRATION
Shutdown the system, if running:			
1		Switch the BATTERY SYSTEM DC isolators OFF (down).	
2		Turn the PV ARRAY DC isolator OFF (anticlockwise to 12 o'clock).	
3		At the AC side switch, turn Backup Switch and Grid Switch OFF	
4		At the MSB or sub-board, switch the Solar Supply Main Switch OFF. Wait 10 seconds.	
To restart the system:			
1		Switch the BATTERY SYSTEM DC isolators ON.	
2		Turn the PV ARRAY DC isolator ON (anticlockwise to 3 o'clock).	
3		At the AC side switch, turn Backup Switch and Grid Switch ON	
4		At the MSB or sub-board, switch the Solar Supply Main Switch ON.	
5		The inverter will resume normal operation in about 2 minutes, indicated by Inverter Status LEDs:	
	ETHERNET	White; ON if Ethernet connection exists	
	NETWORK	Blue; Flashing (indicating Bluetooth)	
	EMS	White; ON	
	SYSTEM	White; ON	
	BACKUP	White; ON	
	BATTERY SOC	Varies with battery SOC	

4.3. Inverter operating modes

The inverter operating modes are summarised below. Select modes using the Redback app or portal.

4.3.1. AUTO MODE

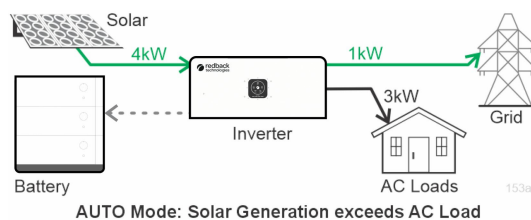
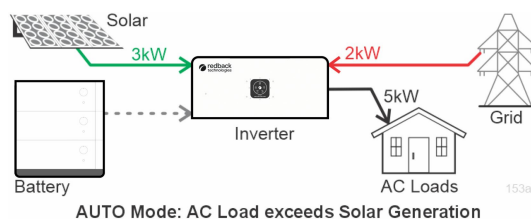
AUTO is the default operating mode, maximizing consumption of self-generated and stored energy. If the inverter mode has been changed, AUTO can be reselected from the portal.

If AC loads (House) exceeds solar generation, energy sources are prioritised as follows:

1. Solar
2. Battery
3. Grid

If solar production exceeds AC loads, destinations for self-generated energy are prioritised as follows:

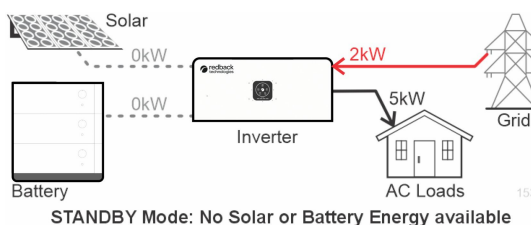
1. AC Loads
2. Battery (storage)
3. Grid (if enabled)



4.3.2. STANDBY MODE

STANDBY mode is invoked automatically when no solar or battery energy is available. The SXXHV directs grid power directly to the AC Loads thereby minimising energy losses in the inverter e.g., heat. The SXXHV automatically reverts to the previous mode of operation when solar or battery energy is available.

The backup circuit is RCD protected when installed according to 2.8.4. This is not optional.

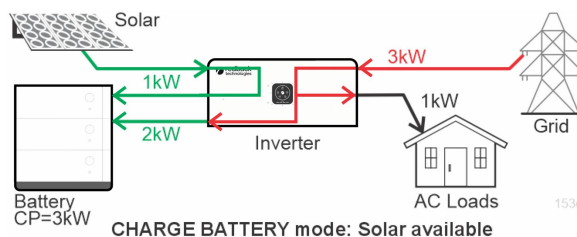


4.3.3. CHARGE BATTERY MODE

CHARGE mode may be used to prepare for a severe weather event, and prioritises charging the battery at the nominated rate, from the grid.

Any available solar will supplement the grid charging up to a maximum charge rate as specified in section 9.

AC Loads are fulfilled by the grid.



4.3.4. DISCHARGE BATTERY MODE

DISCHARGE mode is user selectable on the portal.

DISCHARGE mode prioritises battery discharge to the following:

1. AC loads
2. Grid

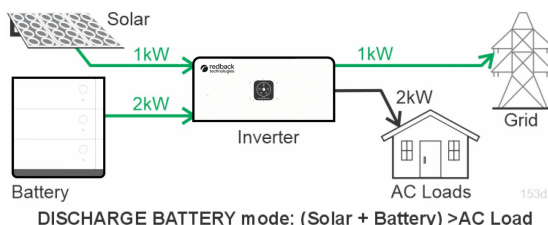
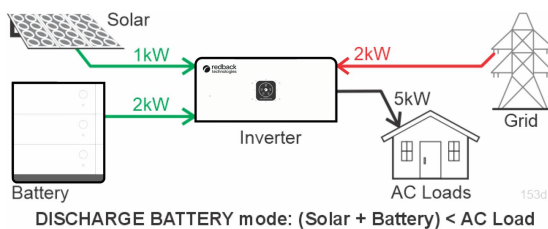
Battery discharge is at the nominated Discharge Power, supplemented by solar.

If AC Loads exceed (Battery + Solar), energy is imported from the grid.

If (Battery + Solar) exceed AC Loads, excess energy may be exported to the grid.

If (Battery + Solar) exceeds (AC Loads + LEP*) the battery discharge is prioritised, at the maximum possible rate, up to the nominated Discharge Power.

*LEP= Export Power Limit.



4.3.5. BACKUP MODE

BACKUP mode starts automatically when the grid supply is interrupted (default setting).

In BACKUP mode, the SXXHV supplies energy to the AC backup circuit only. Energy consumption from solar is prioritised and excess solar charges the batteries.

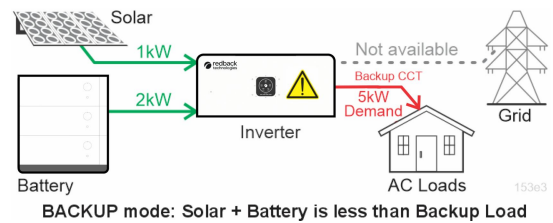
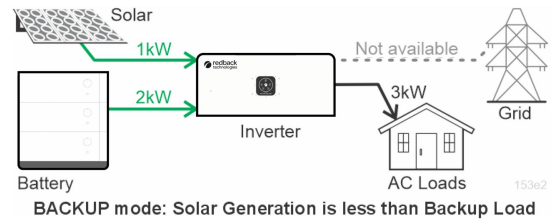
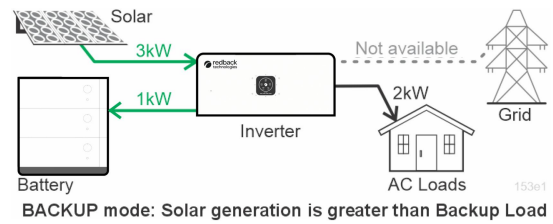
To maximise the effectiveness of the AC backup circuit, the circuit should only support essential appliances such as refrigerators, or low energy devices such as fans, computers, tablets, or phones.

BACKUP mode is invoked within 0.05 seconds of a grid interruption. BACKUP mode reverts to the previous mode when the inverter detects grid supply has been restored for over one minute.

BACKUP mode may also be known as "Stand-alone Mode".

Notes:

- If available battery and solar power is less than the detected backup load the inverter will consider this an overload and will automatically shut down.
- The inverter will restart after approximately one minute. If overload persists, the cycle will repeat.
- The backup circuit is RCD protected when installed
- according to 2.8.4. This is not optional.



5. Troubleshooting

5.1. Earth fault alarm

If the Redback system detects an earth fault:

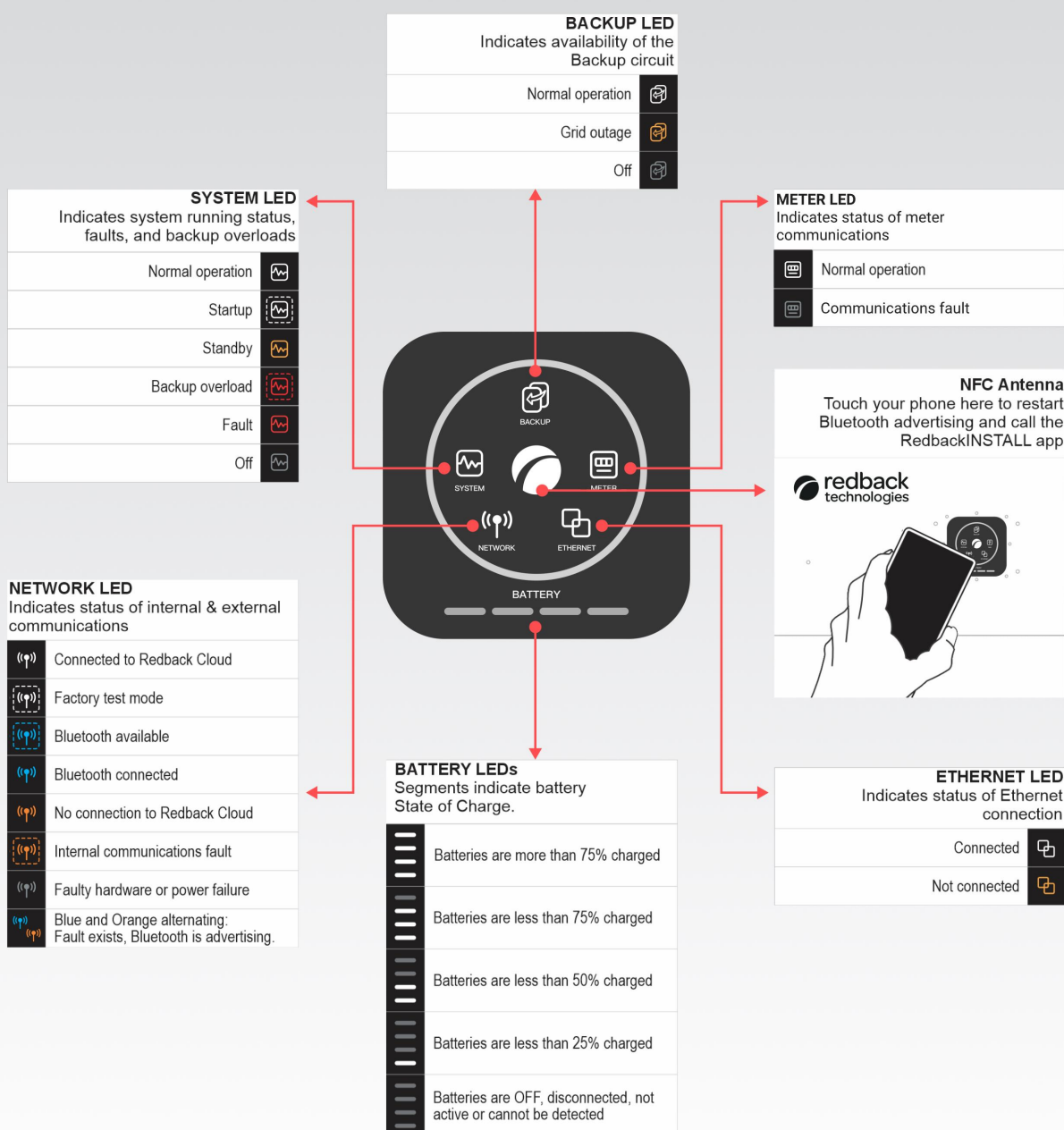
1. The System Error LED will be solid (see next page).
2. An email will be sent to Redback customer service, the installer, and the system owner.

An email is also sent when the alarm is cleared.

5.2. Inverter Status LEDs

The Redback SxxHV inverter has an LED array to show system status and aid diagnosis. The table below lists LED indications of errors or alerts, probable cause, and rectification steps. If the problem is not solved contact Redback Technologies for help.

Note: White, continuously-on LEDs (not flashing) indicate normal operation and are not listed below.



The display panel primarily features:

1. Battery Status (BATTERY): Four indicator lights show the battery level. As the battery discharges, the number of lit lights decreases; conversely, it increases.
2. Inverter System Status (SYSTEM): Displays white, orange, or red to indicate normal operation, startup, standby, offline overload, or fault.
3. METER Status (METER): The white indicator lights up when the meter connects to the inverter system; otherwise, it remains off.
4. Wired Network Status (ETHERNET): The white indicator lights up when connected; otherwise, it stays off.
5. Wireless Network Status (NETWORK): Displays white, blue, or orange to indicate cloud connectivity, Bluetooth connection, or connection failure.
6. Grid Backup Status (BACKUP): The white indicator lights up for grid-connected devices and orange for offline devices.
7. Power Status: The central REDBACK indicator remains white.
8. Status: A green ring indicates normal operation, while an orange ring indicates malfunction.

5.3. Energy Meter diagnostics

5.3.1. ENERGY METER FEATURES

The meter detects the grid energy of one phase and provides this information to the inverter EMS module.

The front LED indicates if the meter has power. In normal operation, the meter LED flashes five times per second, indicating data transmission is occurring.

The meter can control one external relay.

5.3.2. ENERGY METER/CT TROUBLESHOOTING

LED	INDICATION	CAUSE	REMEDY
	 Flashing rapidly	Meter communicating	No action required. This is the normal operating mode.
	 ON continuous	Fault	Replace meter
	 LED OFF.	No power to meter	Check all connections. Check switchboard Main Switch is ON. On the meter, check voltage exists between N and L1.
		Meter faulty	Replace meter
Power flow direction is not as expected.		CT installed incorrectly (reversed)	Reverse polarity of CT by reversing direction of K->L relative to cable.
Batteries charging at night when inverter is in Auto mode.		CT installed incorrectly (reversed)	Reverse polarity of CT by reversing direction of K->L relative to cable.

5.4. System Lockout

The individual parts of the system can be electrically locked out at the Control Panel.

PV Array and Battery DC isolators

With the isolator in the OFF position, the red plunger can be depressed and a lockout device (e.g., small padlock) attached to prevent operation.

5.5. Internet connection problems

The owner must maintain a stable* connection to the Redback Cloud otherwise warranty support will be affected.

* Excluding internet or power outages beyond the owner's

control. Ethernet LAN connection and connection of internet hardware to a backup circuit is recommended.

An internet connection enables the inverter to send data to the Redback cloud, where you can use the Redback app or portal to view performance and fine tune the system.

Occasionally, the inverter may lose internet connection and be reported as "offline". Ethernet connected systems usually self-repair when a system restarts. Wi-Fi problems usually require that the installation details be updated.

The most common causes of "offline" reports are:



INDICATION	CONNECTION AFFECTED		REMEDY
	ETHERNET	WI-FI	
Change of Internet Service Provider e.g., Telstra, Optus, TPG, Dodo etc			Ethernet: Restart the system. Wi-Fi: Restart and re-onboard
New router or modem			
Change of Network name or SSID			
Change settings in ADSL modem			Wi-Fi: Restart and re-onboard
Changed Wi Fi or Network password			
Too many users or devices on the Wi-Fi network			Limit users or devices or upgrade Wi-Fi router or connect using ethernet.
Wi-Fi signal is weak or variable due to obstructions or distance between the inverter and your Wi-Fi router's antenna.			Experiment with Wi-Fi router locations or use a Wi Fi extender or connect using ethernet.
Attempting connection to a 5Ghz Wi-Fi network.			This equipment is not compatible with 5Ghz Wi-Fi networks. Use a 2.4Ghz network or ethernet.

5.6. Inverter unexpected shutdown

The inverter may shut down or isolate itself from the grid if it detects conditions that may cause damage to the inverter or batteries; or create an unsafe situation. Incident causes can be diagnosed by examining the data available on the portal. Unexpected shutdowns may occur in the following circumstances:

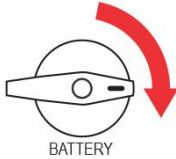
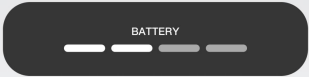
CAUSE	RELEVANT CHARTS FOR DIAGNOSIS (IN COMMENT PORTAL)*	COMMENT
Continuous backup circuit load exceeds permitted load.	Backup Load- Power	May occur when too many devices are active on the backup circuit.
Backup circuit load too high for over 60 seconds:	Backup Load- Power	May occur when too many high current appliances are used simultaneously, or when a large load starts up, such as a pump.
S05HV 6000VA		
S06HV 7200VA		
S08HV 9600VA		
S10HV 12000VA		
Backup load exceeds available Battery + Solar power.	Backup Load- Power Battery- Power PV- Power	
If internal temperature is greater than 60°C.	Inverter- Temperature Battery Cabinet- Temp.	Output is reduced above 45°C.
Grid supply did not comply with local or DNSP requirements.	Grid- Voltage Grid- Frequency Grid- Status	Check Region setting is correct. Check voltage-drop calculations. Tap setting on transformer may be incorrect. Contact DNSP. The EMS and backup circuit will operate if power is available from PV or batteries.
DNSP has control of the inverter and has initiated a shutdown or disconnection from the grid.	Grid- Status Inverter- Inverter Mode	Check the terms of the owner's energy contract. This may be agreed and therefore normal activity.

* Charts offer comprehensive detail about the system's status and performance. There may be a significant delay when retrieving stored data. For owners, by default, charts are hidden.

5.7. Reset batteries

Occasionally, it may be necessary to reset the batteries. This should only be done if instructed by Redback Technical Support.

 **INFORMATION.** For more information about battery features refer to the OEM documentation available at redback.link/docs

STEP	PROCEDURE	ILLUSTRATION
1	Switch all the BATTERY DC isolator OFF .	
2	Press and hold the BMS Power switch for three seconds. The indicator LED will change to OFF.	
3	Wait 10 seconds for the BMS to de-energize.	
4	Restart the Battery Stack as per section 3.2.	
5	At the Inverter Control Panel, turn each BATTERY DC isolator ON .	
6	Observe the Inverter Status LEDs. After 30 seconds one or more BATTERY LEDs should illuminate indicating successful connection and existing battery SoC.	

6. Maintenance

The Redback SxxHV is a low maintenance product. Annual maintenance is needed.

Do not remove covers or access any areas not mentioned below.

Note: Vents and heatsink fins may require more frequent cleaning in dusty conditions. Shut down the device before maintenance.



WARNING: ELECTROCUTION

HAZARD. Lethal voltages may be present. Isolate all sources of power and test before removing covers.

STEP	PROCEDURE	ILLUSTRATION
1	Turn all the PV ARRAY DC isolator OFF (anticlockwise).	
2	Turn the BATTERY DC isolator OFF (anticlockwise).	
3	At the main switchboard, switch the Solar Supply Main Switch OFF (Down). The inverter is now OFF: all software and communications are stopped, and no energy is being imported or exported from the inverter.  WARNING: PV and battery supplies remain energised to the isolators.	
4	At the inverter, check that all Status Panel LEDs are OFF.	

Inverter maintenance

ITEM	NAME	REASON	PROCEDURE	BY SERVICE PERSON	BY OWNER
1	Cabinet	Cabinet may become soiled.	Wipe down outside of cabinet with a just-damp cloth. Immediately wipe dry with a microfibre cloth. Do not use cleaning agents as they may damage the finish.		
2	Inverter side and top vents	Airflow is reduced when dust or debris accumulates on the vents.	Brush and vacuum the vents.		
	Items 3-6 are to be completed by an approved person. In all cases, the system must be fully shut down and all sources of power isolated before commencing work.				
	3 Fasteners	Screws are used to ensure the structural integrity of the system assembly and fitment.	Check all cover retainer screws. Tighten as necessary.		
	4 Inverter heatsink fins	Cooling efficiency reduces when dust, dirt or debris accumulate on the heatsink.	Shutdown the system. Remove the Inverter Top and Cover to access the heatsink. Clean the heatsink fins using a small brush, cloth, or compressed air. Replace covers and restart the system.		
	5 Cable seals	Cable seals prevent water and insects entering the Inverter or Battery Enclosure.	Remove Inverter Side Covers and Connector Covers Tighten all cable glands and waterproof caps.		

6	4G port	Water entering the port or module may affect communications.	Ensure the 4G port cover or module (whichever is fitted) is fully inserted into the port and the retainer latches are engaged.		
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Battery maintenance

Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions.

	LIKE-FOR-LIKE REPLACEMENT: When replacing batteries, replace with the same type and number of batteries or battery packs, except where the manufacturer has advised otherwise.
	CAUTION: Do not dispose of batteries in a fire. The batteries may explode.
	CAUTION: Do not open or damage batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
	CAUTION: A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries: - Remove watches, rings, or other metal objects. - Use tools with insulated handles. - Wear rubber gloves and boots. - Do not lay tools or metal parts on top of batteries. - Disconnect charging source prior to connecting or disconnecting battery terminals. - Determine if battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).
	CAUTION: Batteries are heavy! Seek assistance when lifting or handling batteries.

7. Specifications

INVERTER MODEL (PREFIX: RED-H4-)	S05HV	S06HV	S08HV	S10HV
System rating	5kW	6kW	8kW	10kW
PV PORT				
Number of MPPTs	4			
Strings per MPPT Input	1/1/1/1			
MPPT Operating Voltage (range)	DC 90 – 550V			
Startup Voltage	DC 100V			
MPPT Full Load (Range)(DC V)	100-550	110-550	140-550	175-550
Maximum Input Voltage (Vmax)	DC 600V			
Maximum Current (Imp)	DC 16/16/16/16A			
Short Circuit Current (Isc) ¹	DC 24/24/24/24A			
Maximum PV Input Power (Wp) ²	10000	12000	16000	20000
Maximum Back Feed Current	0A			
Decisive Voltage Class (DVC)	DVC-C			
¹ Manufacturer's declared and tested Max Short Circuit Current (Isc Max) ² Over-panelling benefits vary by location				
GRID INTERACTIVE PORT	S05HV	S06HV	S08HV	S10HV
Nominal Output Voltage	AC 220/230/240V			
Nominal Output Frequency	50Hz			
Rated Output Current (AC A)	21.7	26.1	34.8	43.5
Max. Output Current (AC A)	21.7	28.7	38.3	43.5
Rated Output Active Power (AC W)	4999	6000	8000	9999
Rated Output Apparent Power (VA)	4999	6600	8800	9999
Max Output Apparent Power (VA)	4999	6600	8800	9999
Max Input Current (AC A)	43.5	52.2	69.6	69.6
Max Input Apparent Power (VA)	10000	12000	16000	16000
Power Factor (range)	0.8 lagging to 0.8 leading			
Output Current THD	<3%			
Inrush Current (A)	150			
Maximum Output Fault Current (A)	120			
Maximum Output Overcurrent Protection (A)	63	75	100	100
Decisive Voltage Class (DVC)	DVC-C			
BACKUP PORT	S05HV	S06HV	S08HV	S10HV
Nominal Output Voltage	AC 220/230/240V			
Nominal Output Frequency	50 Hz			
Rated Current AC (A)	21.7	26.1	34.8	43.5
Rated Active Power (AC W) ¹	4999	6000	8000	9999
Nominal Apparent Power (VA)	4999	6000	8000	9999
Rated Apparent Power (VA)	4999	6000	8000	9999
Peak Apparent Power (VA, 60 seconds)	6000	7200	9600	12000
Power Factor (range)	0.8 lagging to 0.8 leading			
Output Voltage THD	<3%			
Inrush Current (A)	150			
Maximum Output Fault Current (A)	120			
Maximum Output Overcurrent Protection (A)	63	75	100	100
Decisive Voltage Class (DVC)	DVC-C			
BATTERY PORT	S05HV	S06HV	S08HV	S10HV
Voltage (nominal)	DC 350-550V			
Max. Current (charge)	DC 28.6A			
Max. Power (charge) (DC W)	4999	6000	8000	9999
Max. Current (discharge) (DC A)	DC 28.6A			
Max. Power (discharge) (DC W)	4999	6000	8000	9999
Battery Type	LiFePO4			
Battery Depth of Discharge	95%			

Short Circuit Current	400A
Decisive Voltage Class (DVC)	DVC-C

GENERAL INFORMATION

Operating Temperature	-40°C to 60°C
Operating Temperature Derated Output	Above 45°C
Operating Relative Humidity	0 - 100%
Operating Altitude	0-4000m (derated above 3000m)
Protective Class	I
Ingress Protection Rating	IP66
AC Overvoltage Category	OVC III
DC Overvoltage Category	OVC II
Active Anti-islanding Method	Active Frequency Shifting
Moisture Location Category	4K4H
External Environment Pollution Degree	Grade 1, 2 and 3
Inverter Topology	Non-isolated
Country of Origin	China
Demand Response Modes	DRM 0
Standby Self-Consumption (Night)	40W
Noise Emissions (Inverter only)	<35 dBm ¹
Warranty	10 years

¹ Measured in Redback laboratory at 1m in front of Inverter.

EFFICIENCY

Maximum Efficiency	97.6%
European Efficiency	97%

INVERTER PHYSICAL DATA

Dimensions (W x D x H mm)	850x300x375
Weight (installed)	27.9 kg
Materials	Aluminium; Stainless steel fittings
Finish	Powdercoat and internal sealant

BATTERY SYSTEM DATA

Battery System Model	RED-P2-BE9HV	RED-P2-BE18HV	RED-P2-BE27HV	RED-P2-BE36HV	RED-P2-BE45HV	RED-P2-BE54HV
Battery System Name	High Voltage P2 Series Battery System					
Battery Model	RED-P2-9000HV					
Number of Battery Units (N)	1	2	3	4	5	6
Storage Capacity	9kWh	18kWh	27kWh	36kWh	45kWh	54kWh
Maximum Capacity	9kWh	18kWh	27kWh	36kWh	45kWh	54kWh
Nominal Voltage	DC 800V	DC 800V	DC 800V	DC 800V	DC 800V	DC 800V
Rated Current	DC 12.9A	DC 25.7A	DC 38.6A	DC 45A	DC 45A	DC 45A
Protective Class	I					
Ingress Protection Rating	IP66					
Noise emissions	<35dBA					
Dimensions (W x D x H mm)	850x300x470	850x300x755	850x300x1040	850x300x1325	850x300x1610	850x300x1895
Installed weight (kg)	105 kg	188 kg	271 kg	354kg	437 kg	520 kg
Material	Galvanized Steel enclosure and side cover					
Finish	Powdercoat and internal sealants; Stainless fittings.					

COMPETE SYSTEM PHYSICAL DATA (INSTALLED)

Installation(with inverter)	Dimensions (W x D x H mm)	Installed weight
With BE9HV (1 batteries)	850x300x780	123.5kg
With BE18HV (2 batteries)	850x300x1065	206.5kg
With BE27HV (3 batteries)	850x300x1350	289.5kg
With BE36HV (4 batteries)	850x300x1635	372.5kg
With BE45HV (5 batteries)	850x300x1920	455.5kg
With BE54HV (6 batteries)	850x300x2205	538.5g

ISOLATORS		PV PORT		BATTERY PORT	
Manufacturer Part Number		PROJOY		PROJOY	
		PEDS150R-HM32R-8		PEDS150H-HM63R-2R	
Rated Insulation Voltage		1500V		1500V	
Rated Impulse Withstand Voltage		8000V		8000V	
Rated Operational Current		32A		32A	
Rated Short-time Withstand Current		780A		780A	
Rated Short-circuit Making Capacity		1200A		1200A	
Rated Breaking Capacity (Isc)		-		-	
COMMUNICATIONS PORTS AND PROTOCOLS					
Ethernet		RJ45; Straight-through; for LAN connection.			
Meter		RJ45 ; RS485 MODBUS			
DRED		RJ45 ; DRMO			
DI/DO		RJ45;DI/DO			
PART1		parallel operation			
PART2		parallel operation			
Wi-Fi		802.11b/g/n/ac; 2.4GHz; For LAN connection if Ethernet not used; External antenna required			
4G		Optional; External 4G module required			
Bluetooth (on EMS)		BLE, for inverter configuration using Installer app			
NFC (on EMS)		For starting Redback app			
Relay		Controllable via connection to Redback power meter			
Interlock		Not supported			
USER INTERFACE					
Front Panel Display		Coded, coloured LEDs			
Communications		Bluetooth for commissioning; Wi-Fi, ethernet or 4G for remote access			
Remote Access		Web Portal; Redback app			
Remote Firmware Updates		Supported			
Power/Energy Monitoring		Includes 1 x utility grade Power Meter (class 1)			
CERTIFICATIONS AND APPROVALS					
AS/NZS 4777.2:2020		IEC 62116:2014		RCM	
IEC 62109-1:2010		IEC 62040-1:2017		CE Mark (LVD, EMC, RoHS directives)	
IEC62109-2:2011		IEC 62477-1:2012			
DESIGNED WITH INSTALLATION STANDARDS CONSIDERED					
AS/NZS 3000:2018		AS/NZS 5139:2019		AS/NZS 5033:2021	

8. Related links and documents

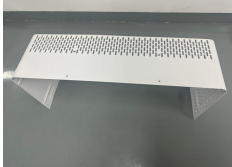
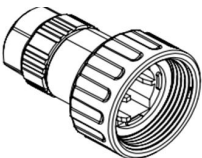
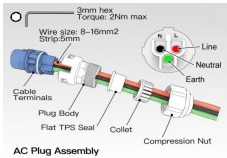
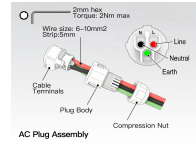
DOCUMENT	COMMENT	LINK
RED-H4-SxxHV Installation Manual1	Latest version of this document in PDF	redback.link/shvim
RED-H4-SxxHV Single Line Diagram1	For Independent and AC-coupled installations.	redback.link/shvsld
KB86 Smart Load Control1	Smart Load relay configuration and control	redback.link/rbslc
KB87 Site Manager1	Coordinating multiple Redbacks at one site	redback.link/rbsm
Application form	Apply for Redback Authorised Installer Status	redback.link/apply
Redback Document Library	Password required	redback.link/docs
SafeWork Australia	Safe work procedures	safeworkaustralia.gov.au

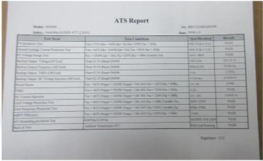
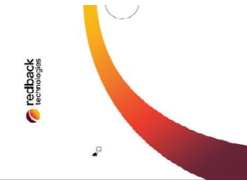
1. The latest versions available from the Redback Portal may differ from printed documents included in the box, but they are backward compatible, unless otherwise stated. The latest versions contain corrections, improvements and information not available at the time of printing.

9. Packing List

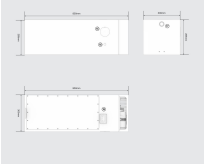
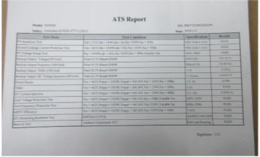
Check all parts. Contact Redback Customer Support if any items are damaged or missing. Due to continuous improvement, actual parts may vary slightly from the images below.

9.1. RED-H4-SxxHV Packing List

QTY	DESCRIPTION	IMAGE	QTY	DESCRIPTION	IMAGE
1	RED-H4-SxxHV Inverter		1	RED-H4-SxxHV Top Cover	
1	PA120 Energy Meter		1	Antennas	
6	Waterproof Connector		1	Inverter AC Connector Plug Kit	
4	Bootlace crimps Red		1	Backup AC Connector Plug Kit	
1	Bootlace crimp Blue		4	PV MC4 Male connector 30A	
8	M4 flat head screw		4	PV MC4 Female connector 30A	
1	Installation Manual 1x A4 Booklet 64p; 4C		1	Fuse holder	
				500mA fuse	

13	Test reportm6*60 expansion screw		1	Redback Product Warranty G4 1x A4; 4C; 2-sided	
1	Document slipcover 4C; A4+		1	Packing List 1x A4;4C; 2-sided	

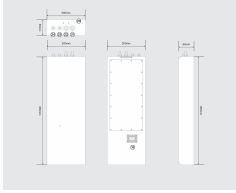
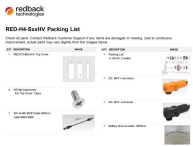
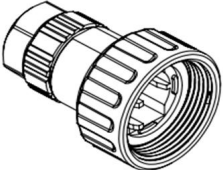
9.2. RED-P2-BExxHV Packing List

QTY	DESCRIPTION	IMAGE	QTY	DESCRIPTION	IMAGE
1	RED-P2-BExxHV Battery		1	Packing List	
2	M5 flat head screw		1	Test report	

9.3. RED-P2-BExxHV Base Packing List

QTY	DESCRIPTION	IMAGE	QTY	DESCRIPTION	IMAGE
1	Base		1	Packing List	
1	Installation Manual		1	Redback Product Warranty	
2	M5 flat head screw		4	Hook	
4	Screw base				

9.4. RED-H4-SxxHV Top Cover Packing List

QTY	DESCRIPTION	IMAGE	QTY	DESCRIPTION	IMAGE
1	RED-P2-BExxHV Top Cover		1	Packing List 1x A4; 4C; 2-sided	
2	Top cover bracket		1	DC BAT+ connector	
2	Waterproof Connector		1	DC BAT- connector	

1	M5*14 Pan head screw		4	M5*10 hex socket screw	
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10. Close-up and handover

10.1. Close-up

After the Inverter is commissioned:

ITEM	PROCEDURE	COMPLETED
1	Replace all covers. Inverter Top Panel (4x M4x12 screws. Torque to 4 N.m)	
2	Clean worksite and dispose of rubbish appropriately.	

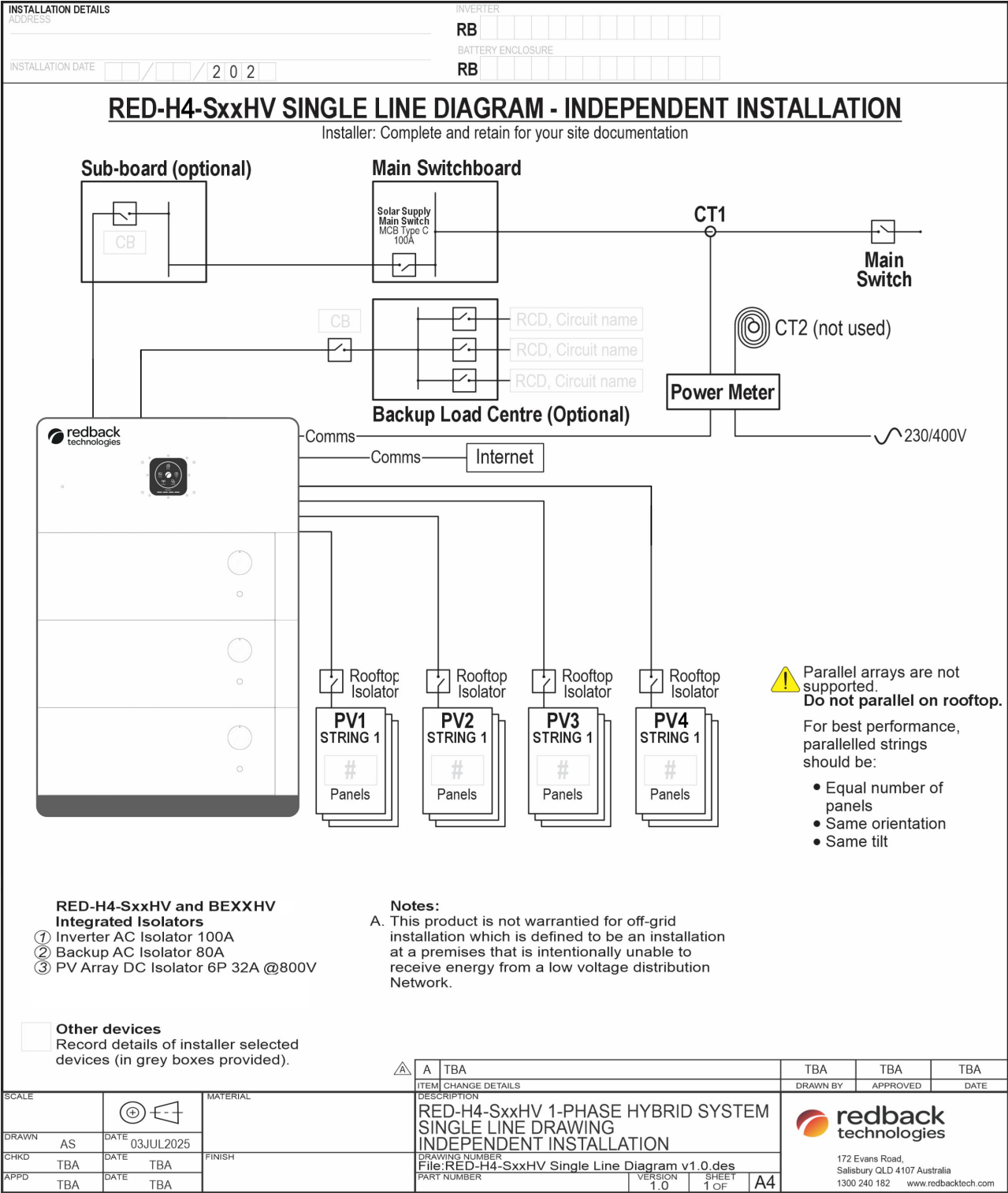
10.2. Handover to owner

With the owner:

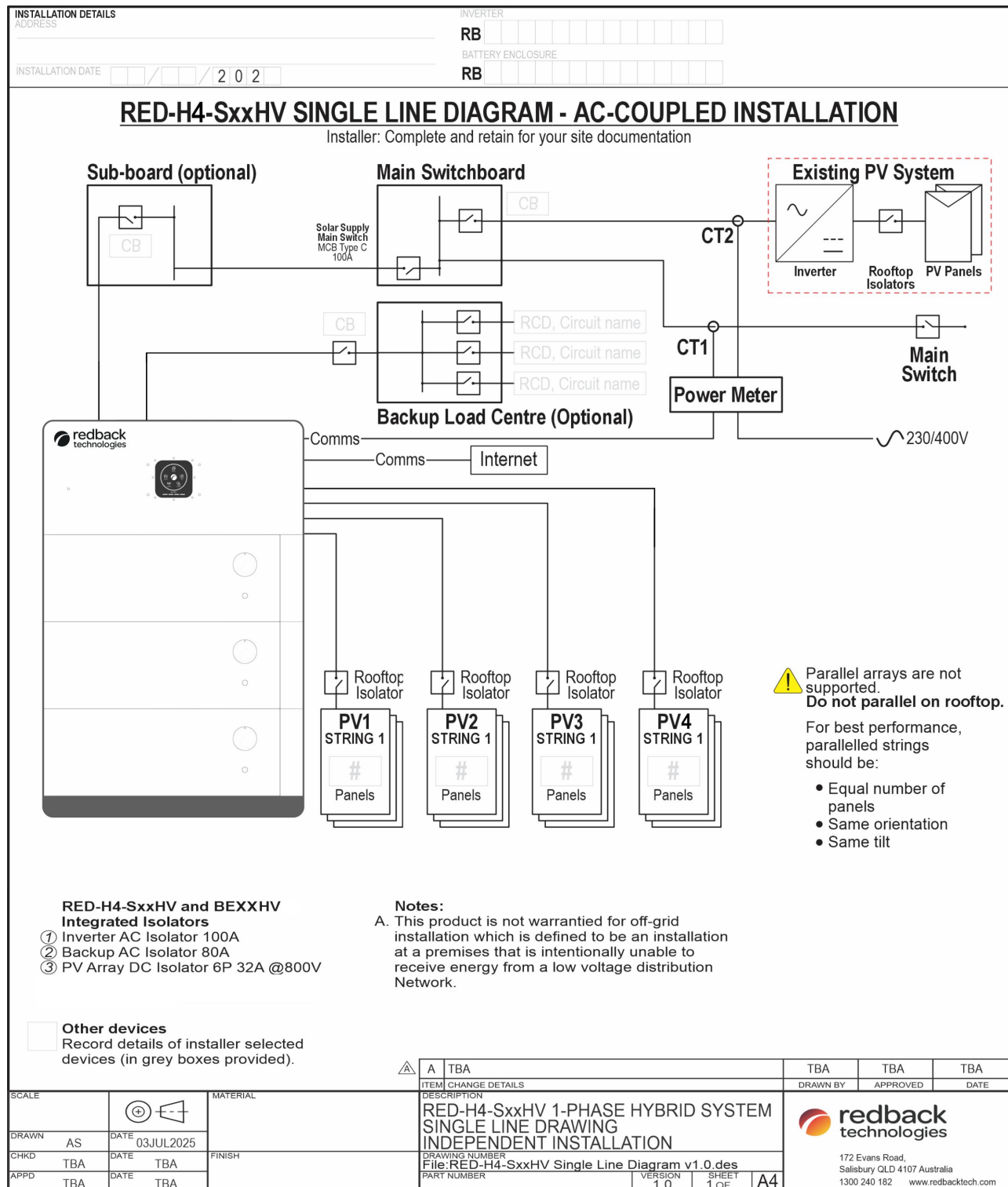
ITEM	PROCEDURE	COMPLETED
1	Walk through the installation, ensuring the owner understands what has been installed (and where), including any backup circuits.	
2	Explain the limitations of the system, including the possibility of overloading the backup circuit by using too many devices simultaneously, even when the grid is connected.	
3	Demonstrate how to recover after a BACKUP circuit overload.	
4	Help the owner to complete their Redback account setup, if not already done.	
5	Help the owner to download the app, demonstrate features, and answer questions.	
6	Help the owner to log on to portal and demonstrate, including how to: - Review performance - Setup battery charge/discharge schedules - Setup relay schedules - Raise an on-line support request	
7	Handover to the owner, including: - Owner's Manual - Warranty Booklet - Installation Manuals (optional)	

11. Single Line diagram

11.1. Independent installations



11.2. AC-Coupled installation



Notes

End of Manual

