

Knowledge Base

KB87 Site Manager Installation Guide

Version 1.2 Date: 10/04/2024

Introduction

Redback's Site Manager enables multiple, eligible Redback SB, SH and ST systems at a single site (behind the same meter) to operate as a single system, to get the best out of your batteries. When configured correctly, charge and discharge of batteries is balanced across all systems on site, ensuring the equal utilization of every system. Site Manager requires that one of the systems is the "Master," which controls the other recruited systems on the site, called "Workers."

Site Manager makes use of the site's local area network (LAN) for communications between systems. This means that it is often possible to enable Site Manager on sites which already have systems installed. The installer can apply settings remotely via Redback's portal; however, a site visit may be required to disconnect the energy meter from some Workers.

Audience

This document is for use by Redback installers or Redback technical staff. It is not for use by owners or non-qualified personnel.

Quick Start Guide

Follow the below steps to configure the Site Manager feature:

1. Ethernet-connect all systems to the same LAN (Local Area Network).
2. Complete the commissioning of all systems on the site using the RedbackINSTALL app.
3. Nominate one system to be the site "Master".
4. On all "Worker" SB systems, disconnect or uninstall the Energy Meter, if fitted. SH and ST Workers function correctly with or without the meter, so existing installations can be left as-is.
5. Open the portal page of the Master system. Select the Details tab. Set the site NMI.
6. Select the Site Admin tab.
7. Recruit "Worker" systems to the Site Admin table. Press Save.

The enrolled systems now have a Master/Worker relationship: the Master controls Workers using the ethernet-connected local area network (LAN).

Requirements

This feature has the following requirements:

- Systems eligible to take part in battery management will be:
 - ST10000 with firmware ROSS 2.17 or newer installed, or
 - SH5000 or SH4600 with firmware ROSS 2.18 or newer installed, or
 - SB7200, SB9600 or SB14200 with firmware ROSS 2.19 or newer installed. Note: the energy meter should NOT be connected on any “worker” system.
- Any other Redback system may be recruited to Site Manager and will be assigned the role of “Incompatible” or “Grid Tie”: they are included in total PV and Load calculations but not included in battery management.
- Energy Meters
 - The Master system must have its Redback supplied energy meter installed in the main switch board. This may be Redback PA120, SM3000, or Acrel, in older systems.
 - SB Worker systems must not have an energy meter installed or connected. Meters are optional for SH or ST workers.
- All systems must be Ethernet-connected to the same network switch. It is recommended that an industrial-grade networking switch is used to ensure long-term system reliability.
- All battery sizes are supported.
- Site Manager works if 3rd party PV systems are present on-site, noting:
 - If the 3rd party system is AC-coupled to a Redback inverter, Site Manager battery management will work correctly, and the power calculations shown on the Redback Portal will be correct.
 - If the 3rd party system is not AC-coupled, Site Manager battery management will work correctly, *but the power calculations shown on the Portal may be incorrect.*

Limitations

Redback branded battery systems recruited as Site Manager workers will be included in balanced battery utilization as listed below, noting that some combinations display incorrect data on the Sites dashboard, even though they are operating correctly. The matrix below shows viable Master/Worker combinations, and if data displays correctly.

Site Manager Compatibility Matrix

MASTER	WORKER					WORKER					WORKER				
	1-Phase Device on 1-Phase site					1-Phase Device on 3-Phase Site					3-Phase Devices				
	SH5000	SB series	ST10000	SI series	SH Gen3	SH5000	SB series	ST10000	SI series	SH Gen3	SH5000	SB series	ST10000	SI series	SH Gen3
SH5000	✓	✓	NA	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
SB series	✓	✓	NA	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
ST10000	NA	NA	NA	NA	NA	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗
SI series	NA	NA	NA	✓	NA	NA	NA	NA	⊗	NA	NA	NA	NA	NA	NA
SH Gen3	✓	✓	NA	✓	✓	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗
Notes:	A combination of only two inverters total per Site supported, including Master.					Only one inverter per phase supported. Each inverter needs to be assigned a phase (A, B or C) in the database for calculations to work.					Up to three inverters supported per site.				

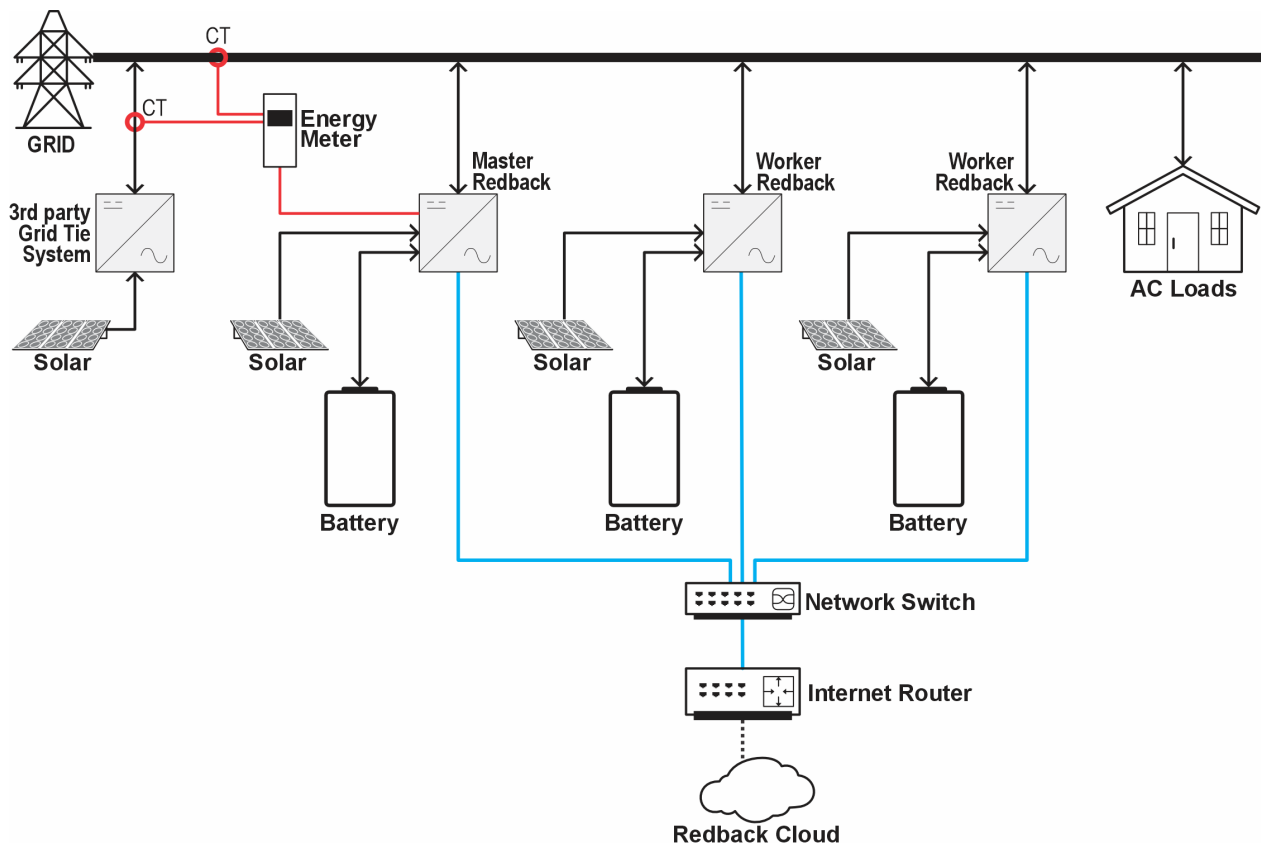
Legend: ✓ Supported ✗ Not supported ⊗ Known issue N/A Not a valid configuration

Networking Diagram

Ethernet-connect all systems to the LAN as shown in the diagram below. The blue lines represent the ethernet connections to the same network switch.

Notes:

- A separate network switch and router is shown below, but these are often combined into a single device.
- An industrial grade networking switch should be used to ensure long-term system reliability.
- Energy Meters must not be installed on SB Worker systems. SH or ST workers function with or without energy meters.



Installation Process

Install each Redback system per the relevant installation manual, except that SB workers must not have an Energy Meter connected.

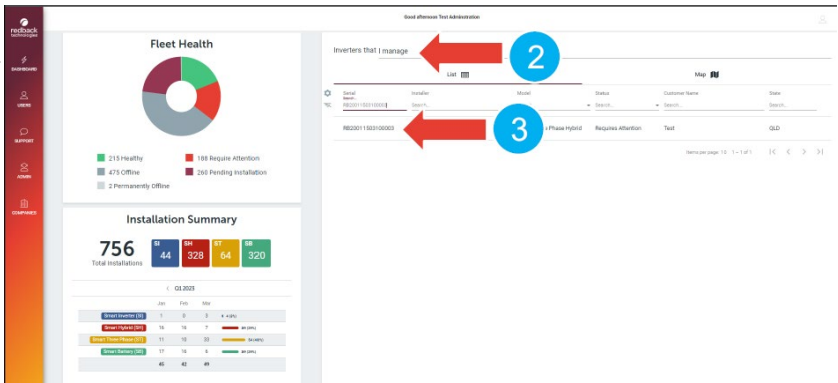
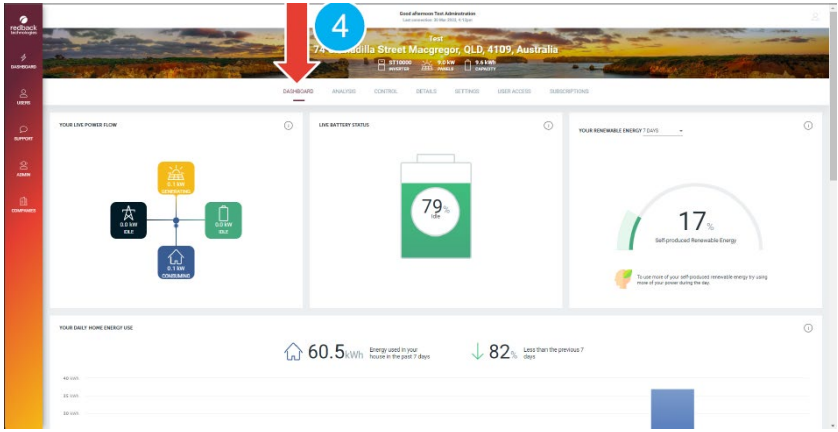
Each system must be commissioned using the RedbackINSTALL app. Only the Master system requires a successful meter test.

After the final system is commissioned, turn all systems ON.

Follow the steps below to link the systems to a single site and enable Redback Site Manager.

⚠ Ethernet-connect all systems per the previous page.

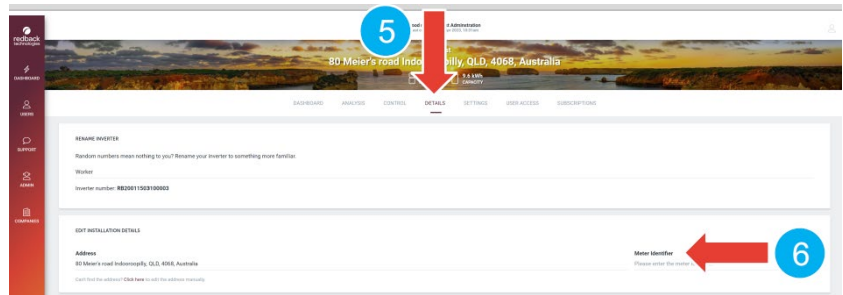
⚠ During commissioning, turn all other systems OFF to prevent interference with the system under test.

STEP	PROCEDURE	IMAGE/COMMENT
1	Gather information, including: - Site NMI - Serial numbers of all inverters to be enrolled on the site. Choose one inverter to be MASTER. Note: The Master must have the correct site export limit set, and a meter connected to monitor the grid connection to the site.	
2	Go to Inverters that I manage on the Redback Fleet Manager Inverters tab.	
3	Search for the Master inverter.	
4	Select the inverter: The inverter dashboard will appear.	
5	Select the DETAILS tab.	

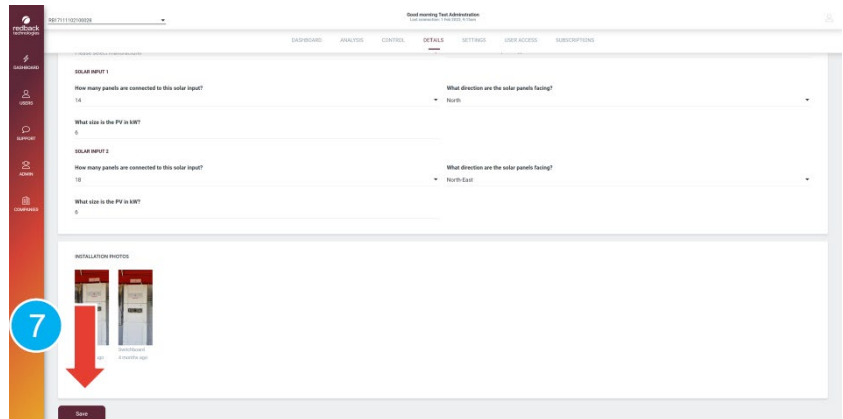
STEP PROCEDURE

IMAGE/COMMENT

- 6 Inspect the **Meter Identifier** field. If empty, enter the **NMI** into the field.



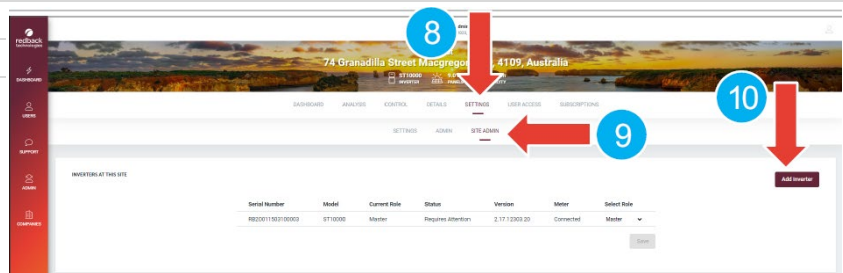
- 7 At the bottom of the DETAILS page, press **Save**.
The inverter is now nominated as the "Master."



- 8 Select the **SETTINGS** tab.

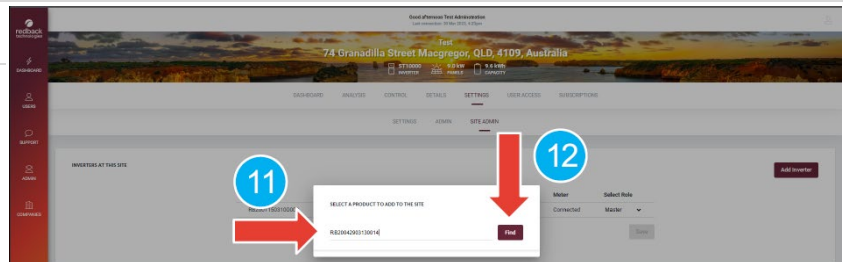
- 9 Select **SITE ADMIN**.

- 10 Select **Add Inverter**.

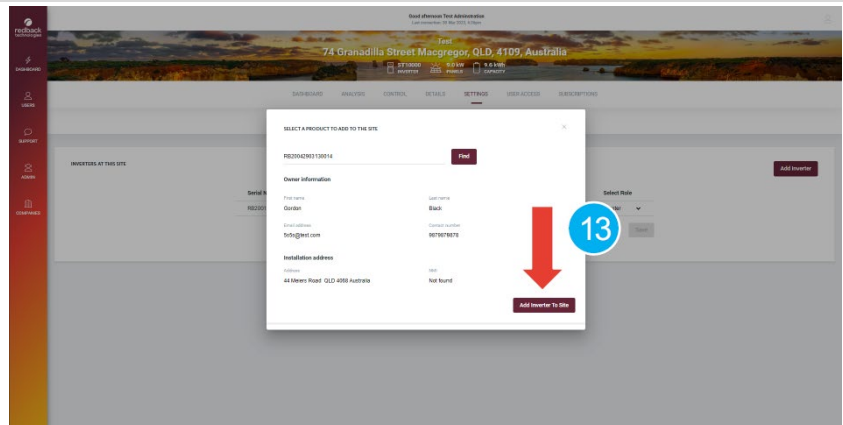


- 11 Enter the **serial number** of a Worker inverter you wish to add to the site.

- 12 Select **Find**.



- 13 Confirm the details are correct and select **Add Inverter To Site**.



14 Repeat steps 11 – 14 to add more inverters to the site as needed

15 In the **Select Role** column, confirm the role of each inverter is correct.

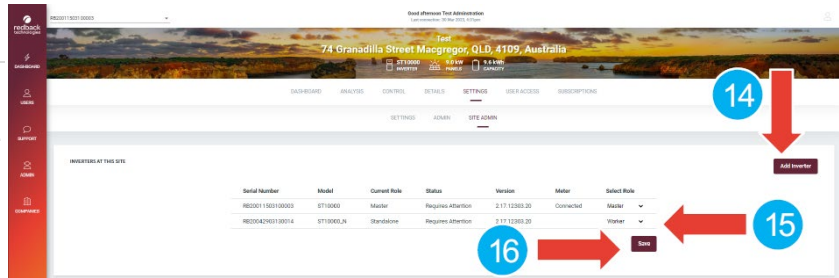
- **Master:** Controls all Workers on site
- **Worker:** Responds to commands from the Master
- **Incompatible:** The inverter cannot participate as a Worker or Master, usually due to older firmware. Identify the inverter firmware version, and update if required.
- **Grid Tie:** The system is a Redback Smart Inverter. It cannot take part as a Master or Worker.

16 Press **Save** to configure all inverters on the site

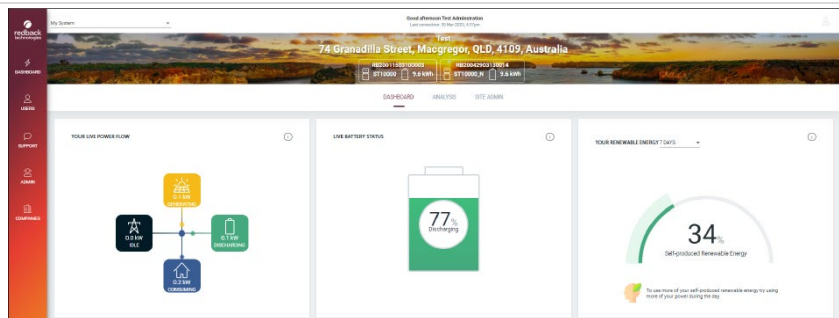
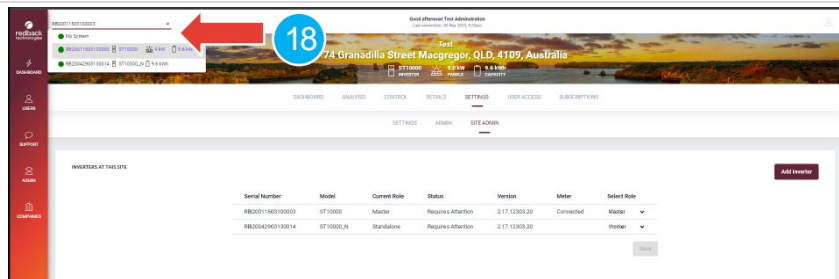
17 Note: After pressing Save, all inverters will be configured and will reboot. This should take less than 60 seconds

18 All recruited inverters will now become linked to the Site. Use the dropdown menu in the top left corner and select **My System**. The dashboard will now show a summary of all recruited systems on the site.

19 Review the information shown on the site dashboard.
Note: The battery icon on the live power flow widget will show "Disconnected" while systems reboot. Please wait for a couple of minutes for them to reconnect.



Note: Incompatible and Grid Tie systems are included in site calculation (total PV and Load).



Setting the Site Export Limit via the Portal

The Master system will control all Workers on the site to ensure the site export power limit is not exceeded. Therefore, it is important that the site export limit is set on the Master. This should have been completed during commissioning via the RedbackINSTALL app.

If needed, check and set the export limit using the Redback.

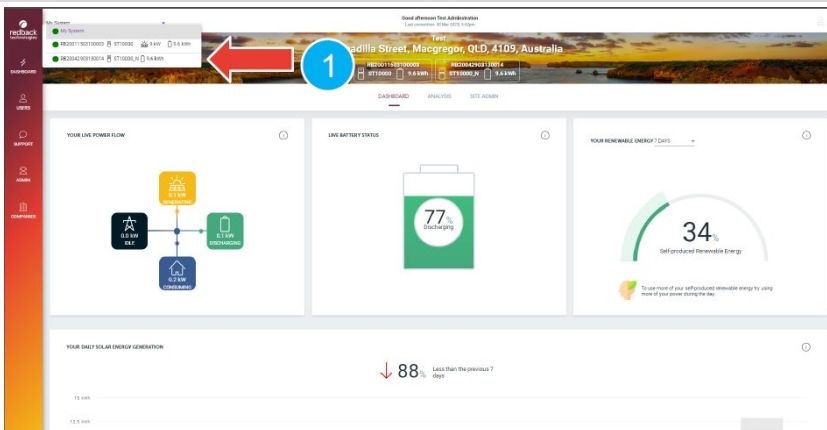
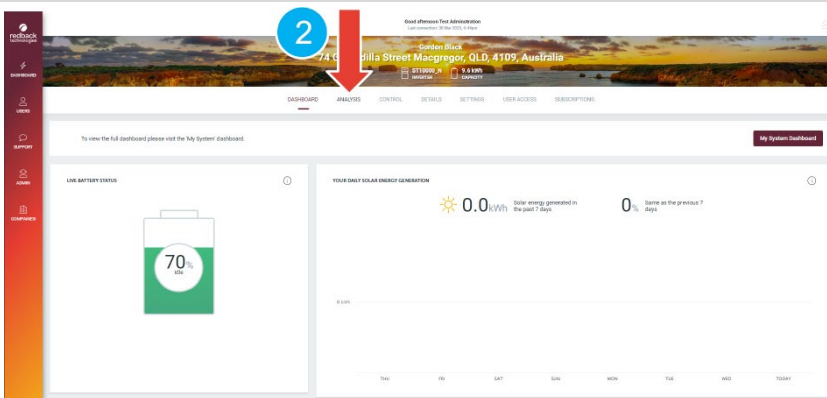
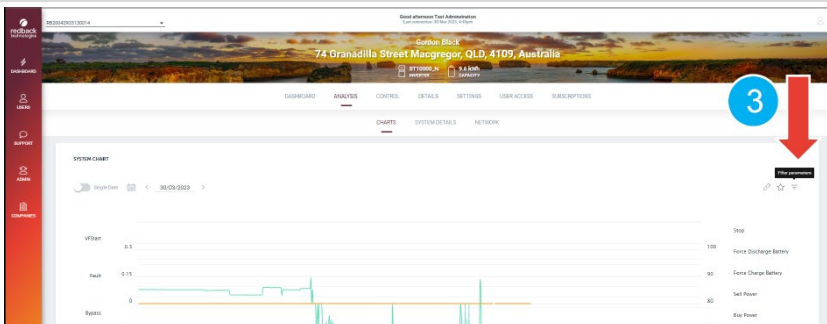
STEP	PROCEDURE	IMAGE/COMMENT
1	Select the SETTINGS tab from the portal page	
2	Select the SETTINGS page	
3	Scroll to the bottom of the page and select Soft Limit beneath the Export Limit section	
4	Enter the Site Export Limit in the Power field.	
5	Select Apply Changes .	

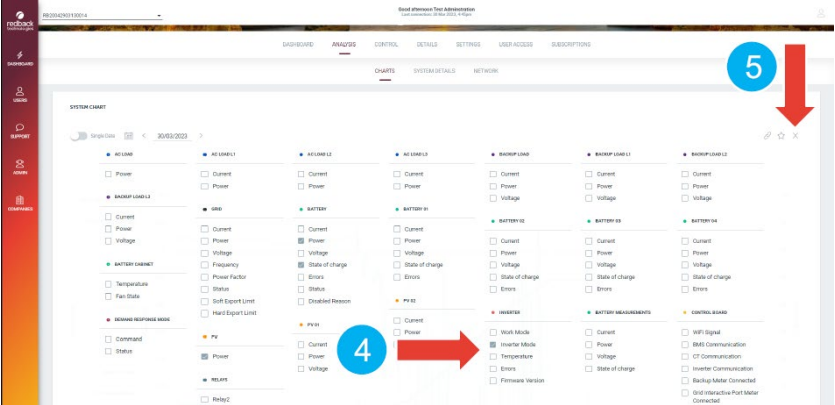
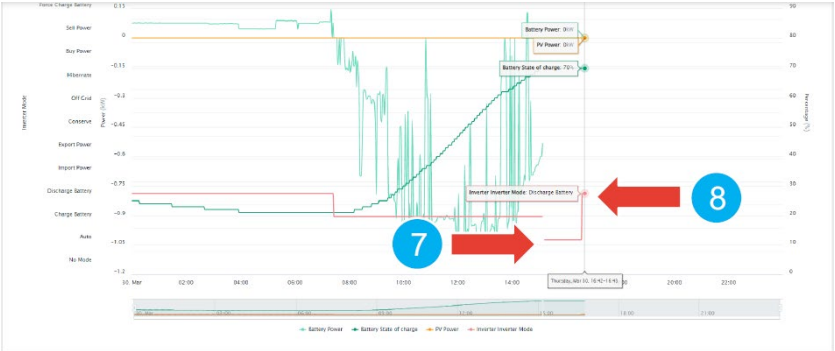
Confirm Successful Operation

If Site Manager has been correctly enabled for a site, the Master system will control the Worker systems. The following will occur:

- The Master system will remain in Auto mode as per normal operation.
- The Worker system will remain in Charge or Discharge mode.
- The generation limit of each worker will be set to avoid exceeding the export limit of the site.

This is validated by viewing the analysis charts of each Worker system using the following procedure:

STEP	PROCEDURE	IMAGE/COMMENT
1	From the site dashboard, use the My System drop-down selector to select a Worker system.	
2	Select the ANALYSIS tab	
3	The analysis chart will be displayed. Select the Filter parameters icon 	

STEP PROCEDURE	IMAGE/COMMENT
4 Select Inverter Mode from the Inverter group. 5 Select X to close the Filter parameters window.	
6,7,8 Examine the chart. Note that: • The Inverter Work Mode was Auto. • The Inverter Work Mode has changed to Discharge Battery or Charge Battery.	

Networking Troubleshooting

It is critically important to have all systems Ethernet-connected to a reliable site network switch.

- If the networking fails, the Workers:
 - Will continue to charge the batteries from PV, but
 - Will not provide power to the grid or any backup circuit or any site load.
- Wireless bridge devices are not reliable. Redback does not recommend these devices.
- If a firewall is installed, it must allow local communication between the devices on TCP port 502.
- The network router must allow for DNS (dynamic name service) on the local network.

Further assistance

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 while on-site. Redback support is in Brisbane, Australia and is available 8am-4pm (Brisbane time) Monday to Friday. There are three ways to book a support call:

Web: redback.link/support

SMS: 0417 632 065

Tel: 1300 240 182

Revisions

VERSION	DETAIL	AUTHOR	DATE
1	First published version	Simon Willis	11Apr2023
1.1	Includes SI SH ST inverters	Adam Shipway	13Jun2023
1.2	Added SB systems.	Simon Willis, Adam Shipway	10Apr2024
Document owner	Simon Willis		
Version	1.2		
Contributors	Paul Hillman, Jarrod Geise, Adam Shipway		
Approved by	Adrian Knack		
Filename	KB87 Site Manager Installation Guide v1.2 WIP		
Issue date	10/04/2024		