

P  W E R V A U L T

POWERSVAULT USER MANUAL

The smart way to store
energy in your home or
business

August 2023



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OVERVIEW

This user manual is appropriate for all Powervault P4 and PVCompact models.

Powervault reduces your carbon footprint, reduces your bills and helps you on your journey to net zero.

The Powervault is a smart battery solution that saves you money on yours bills, by storing surplus renewable energy you generate, and enabling arbitrage of time-of-use tariffs such as Economy 7.

The Powervault operates in an easy, hands-off manner. When set to 'normal' mode, Powervault will automatically discharge to your home if there are appliances demanding power and the Powervault will automatically charge when there is excess electricity generated by your solar PV or wind turbine. This helps you maximise the self-consumption of energy that you generate, and minimise your need to pay for imported energy from the grid.

Powervault will only otherwise charge when it is programmed to on the Portal, for example to charge on cheaper off-peak electricity overnight. The Portal enables you to manually set your schedule, or to let our artificial intelligence algorithm SmartSTOR™ automatically optimise your Powervault's schedule for you, based on your personal electricity generation and demand profiles.

Powervault is connected to the Internet, enabling you to view and control its performance remotely through our Portal and comes with a 10-year warranty subject to our terms and conditions.



POWERSVAULT



INCREASE CAPACITY:

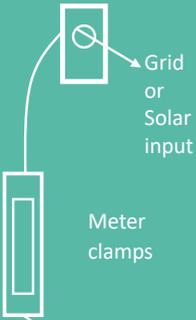
Add batteries to increase the storage (chassis-depending).

MEASURE PERFORMANCE:

Measure energy usage and solar generation using the grid clamp and solar clamp.

ISOLATOR:

Disconnect the power supply to/from the mains.



COMMUNICATIONS:

Connect your unit to the internet. Monitor and control performance through the Portal.



GENERAL INFORMATION

Thank you for choosing Powervault

Remember! The Warranty is only valid if your Powervault is connected to the internet and operates in accordance with the specifications outlined in the Technical Data Sheet and terms advertised in the Warranty.

Warranty

You can download the Warranty here:
www.powervault.co.uk/warranty

Technical Data Sheet

You can download the Technical Data Sheet here:
www.powervault.co.uk/technical/technical-specifications



ELECTRONIC DEVICE: DO NOT THROW AWAY

Proper disposal of device and batteries is required. Please refer to our website for details on how to recycle and replace your batteries.

www.powervault.co.uk/recycling



GET SUPPORT

call: +44 (0)20 3653 1111
email: service@powervault.co.uk
web: www.powervault.co.uk

Powervault Ltd. Unit 9, Garrick Industrial Estate, Hendon, NW9 6AQ

SAFETY INSTRUCTIONS

Read this entire document before using the Powervault system. Failure to follow any of the instructions contained within this manual can result in electrical shock, serious injury, fatality, or damage to the Powervault unit rendering it inoperable and invalidating the warranty.

No user serviceable parts. Environment should be kept dust free. Failure to do so could result in reduced performance and chargeable service visits. All information contained within this document is believed to be correct at time of print. All images provided in this document are for demonstration purposes only.

After installation, please do not:

- ⚠ Attempt to open, repair, or dismantle the Powervault
- ⚠ Disconnect or remove any wiring from Powervault
- ⚠ Insert foreign objects into Powervault parts
- ⚠ Cover Powervault with anything that will reduce air flow
- ⚠ Expose Powervault to flame or water
- ⚠ Take Powervault outside its environmental specifications: 0°C – 35°C
- ⚠ Use solvents to clean Powervault or expose the unit to flammable or corrosive chemicals or vapours.
- ⚠ Paint any part of the Powervault inside or out.
- ⚠ Attempt to use the Powervault if it is defective or appears to be damaged or broken in any way. Contact Powervault if any defect appears after installation.
- ⚠ Push, pull, lean or place any object against or on the Powervault.

In case of emergency, or if there is any threat to health and safety, immediately contact the fire department, or the relevant emergency services. Evacuate the area.

In case of unusual smell or unusual noise, and if it safe to approach the unit:

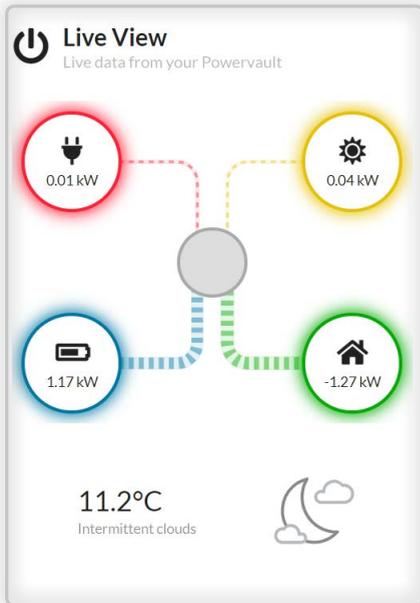
- ✔ Turn the red rotary isolator 90° anti-clockwise to switch the unit off

ONLINE PORTAL

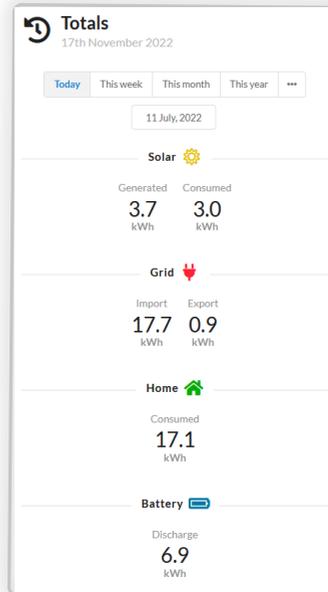
The Powervault online portal allows you to monitor your data remotely from any device. Visit the URL portal3.powervault.co.uk to access the portal and login with your credentials, or sign up. The portal displays data to show all electricity used in the home, including solar generation and consumption, and Powervault charge or discharge.

The panel on the left hand side titled 'Live View' indicates the live data; a positive reading indicates power is being generated from that circle, and a negative reading indicates power is being sent to that circle. If Powervault shows a positive reading it is discharging to supply the home. The solar should only ever show a positive reading. The home should show a total sum of the three generating units. The live weather data is also displayed here in the corner, as well as the serial number of the unit. The panel on the right hand side, 'Totals', shows the daily, weekly, monthly or yearly total supply for each generating unit, or in the case of the home, what energy has been used in the home.

LIVE VIEW



TOTALS



Under the settings panel you can edit the behaviour of Powervault to benefit from cheaper rate electricity on a tariff like Economy 7 or Octopus Agile. Using the tariff controller is explained overleaf.

The 'Charts' section displays a detailed overview of your daily electricity flows.

The top panel shows how much electricity is being consumed throughout the day, and whether this is provided by solar energy, from the battery, from the grid or if it is being used to charge your battery.

The bottom panel shows how much solar energy you have generated over the day, and the various volumes of this that are directly consumed in your home, stored in your Powervault or exported to the grid.

CHARTS - POWER USED



Charts 11th July 2022

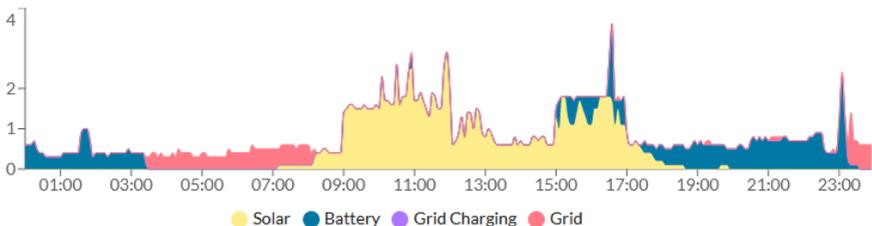
Your Powervault's charts

Today



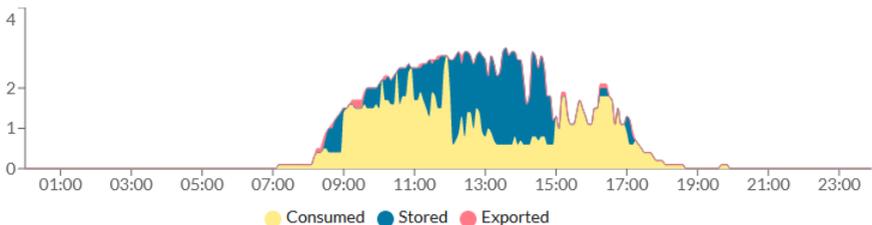
Power Used

Full screen



Power Generated

Full screen



HOW TO MANUALLY SET YOUR SCHEDULE

Powervault is designed to be maintenance free, but the behaviour of the unit can be controlled on the portal to take advantage of time of use tariffs that have a cheaper overnight rate, such as Economy 7.

The schedule can be changed by dragging the tabs to a new position. The timings on the right hand side will adapt accordingly to the new schedule. You can input custom times here manually for a more exact schedule.

Clicking on the mode name (e.g. force charge), or the colour on the controller, will enable you to select a mode of your choice. If no schedule is selected Powervault will default to the 'normal' behaviour, in other words charge from surplus solar generation and discharge to the home to offset demand from the grid. The controller will allow you to set as many modes as you want within the 24 hour window, but it's important to note that these times cannot overlap.

Once set, Powervault will follow the schedule on the controller, unless it is reprogrammed to do otherwise.

Operating Schedule - Thursday

Mon Tue Wed **Thu** Fri Sat Sun

00:00 12:00 23:59

Your Schedule

- 00:30 Force Charge
- 04:30 Dormant
- 07:00 Normal
- 07:05 Normal

+ New Schedule Item

Copy To All Days Clear Day Presets

Set state:

- Normal
- Only Charge
- Only Discharge
- Force Charge
- Force Discharge
- Disabled

At: 07 : 05

Save Changes Discard Changes

SCHEDULE TYPE OPTIONS



Normal

Your Powervault will charge if there is surplus solar generation available and discharge to offset your energy demand from the grid.



Only charge

Your Powervault will charge from solar if the house is net exporting to the grid, but will not discharge to offset demand, therefore retaining energy in store.



Only discharge

Your Powervault will discharge energy to offset your demand from the grid, but will not charge.



Force charge

Your Powervault will charge at maximum power until full, whether or not surplus solar generation is available, and will not discharge. This is useful for overnight charging from the grid.



Force discharge

Your Powervault will discharge at maximum power until empty, with any energy surplus to your consumption being exported to the grid, and will not charge.



Disabled

Your Powervault will remain idle, with the inverter still turned on.

SMARTSTOR™

The Powervault can also take advantage of SmartSTOR™. SmartSTOR™ uses artificial intelligence in Powervault’s internet cloud to work out the best charging profile for your unit each day. SmartSTOR™ takes into account when you typically use energy - and how much. It also makes a prediction about your likely solar generation based on what you usually generate and the weather forecast. It takes this information together with the tariff you pick in the Powervault portal and works out the best charging and discharging profile for your unit each day.

To set up SmartSTOR™, select SmartSTOR™ from your Powervault portal. You can pick from a range of dynamic and static time of use tariffs and also a standard, “Economy 7” style tariff which optimises charging for overnight users.

We do proactively add new tariffs to the SmartSTOR™ but if you cannot find yours please call or email us and we can assist you.

You remain in control and can turn SmartSTOR™ off to use your own charging and discharging profile if you prefer.

When it is first enabled, SmartSTOR™ will take 48 hours to capture enough information about your usage patterns to start scheduling.

smartSTOR™

smartSTOR™ automatically sets the best schedule for your Powervault based on changing tariff prices and your household’s energy usage, including projected solar generation.

Please complete the form below to enable smartSTOR™ on your Powervault.

Select Tariff Type:

Dynamic tariff

Select Import Tariff:

- Octopus Energy - Agile Octopus (Feb 2021) - South Western England
- Octopus Energy - Agile Octopus (Feb 2021) - Eastern England
- Octopus Energy - Agile Octopus (Feb 2021) - East Midlands
- Octopus Energy - Agile Octopus (Feb 2021) - London
- Octopus Energy - Agile Octopus (Feb 2021) - Merseyside and Northern Wales
- Octopus Energy - Agile Octopus (Feb 2021) - West Midlands
- Octopus Energy - Agile Octopus (Feb 2021) - North Eastern England

smartSTOR™

smartSTOR™ automatically sets the best schedule for your Powervault based on changing tariff prices and your household’s energy usage, including projected solar generation.

Please complete the form below to enable smartSTOR™ on your Powervault.

Select Tariff Type:

Time of Use tariff

Select Import Tariff:

- ecotricity - Ecotricity - Time of Use Tariff Trial (Jan 2021)
- ecotricity - Ecotricity - Time of Use Tariff Trial (Jan 2021)
- Generic - Economy 7
- GEUK - TIDE (Jan 2021) - Eastern England
- GEUK - TIDE (Jan 2021) - East Midlands
- GEUK - TIDE (Jan 2021) - London
- GEUK - TIDE (Jan 2021) - North East England



Charts 8th March 2021

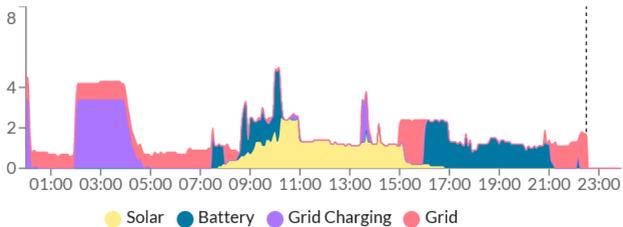
Today



Your Powervault's charts

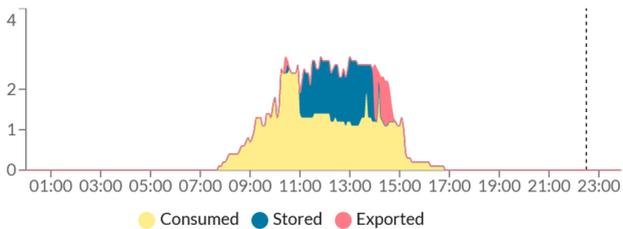
Power Used

Full screen



Power Generated

Full screen



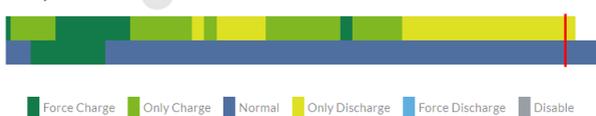
Operating State

Today's Schedule i

Priority Order:

smartSTOR™ →

Your Schedule →



MOBILE POWERVault

The Powervault portal looks great on a mobile phone. You can see the same information that you normally see online but in a mobile friendly format. You can access the portal on your phone either through the portal3.powervault.co.uk web page, or by scanning the QR code that pops up in the desktop version of the portal when you first load it.

You can also add the Powervault portal to your phone's home screen to make it faster and easier to access.

Our portal was previously hosted at p3portal.powervault.co.uk. This old URL now automatically redirects to our new address: portal3.powervault.co.uk

Install the mobile version

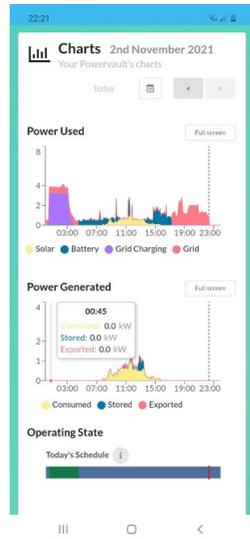
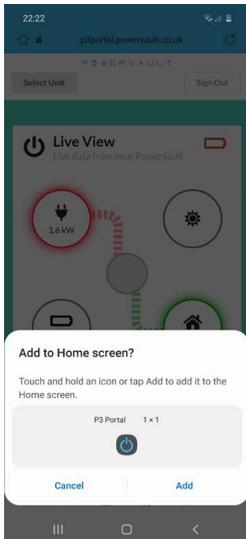
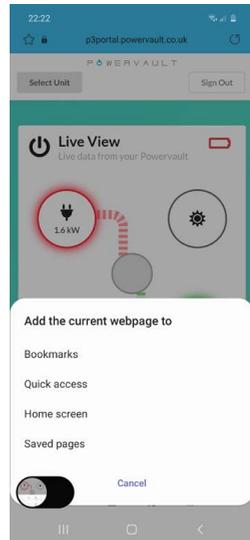
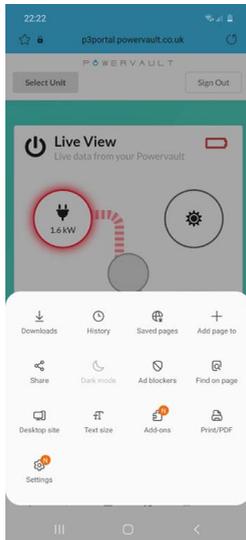
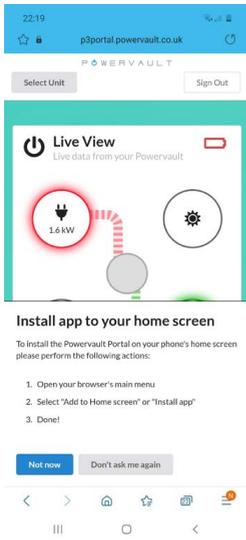
Scan the QR Code below with your phone to add the Powervault Portal to your phone's home screen.



Not now

Don't ask me again

INSTALLING THE POWERVAULT PORTAL ON YOUR MOBILE PHONE



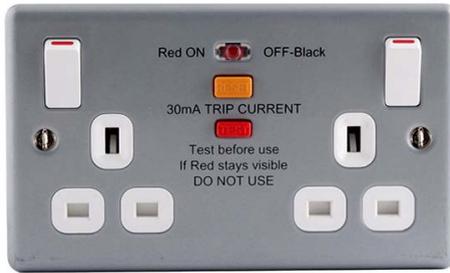
EMERGENCY POWER SOCKETS



EMERGENCY POWER SOCKETS

The Powervault can be purchased with an optional Emergency Power Socket (EPS) feature. If purchased, the two Emergency Power Sockets are usually powered directly from the grid. Should a power cut occur, these sockets are instead powered from your Powervault. This enables you to power appliances during a blackout, as long as there is available charge in your battery. The Emergency Power Sockets can draw up to 13A in total: do not draw more than 13A from the sockets. The sockets will automatically trip off when overloaded.

On the Portal, you can select the Reserve Capacity that your Powervault will always hold, in case of a power outage. For example, if you select 20% your Powervault will never discharge below 20% capacity, and so will reserve this energy in case there is a power cut.



🕒 EPS Schedule - Wednesday

Mon Tue **Wed** Thu Fri Sat Sun

00:00 12:00 23:59

00:00 EPS Disabled

19:00 EPS Enabled ✖

+ New Schedule Item

Set state:

EPS Enabled

Reserved Capacity: 20%

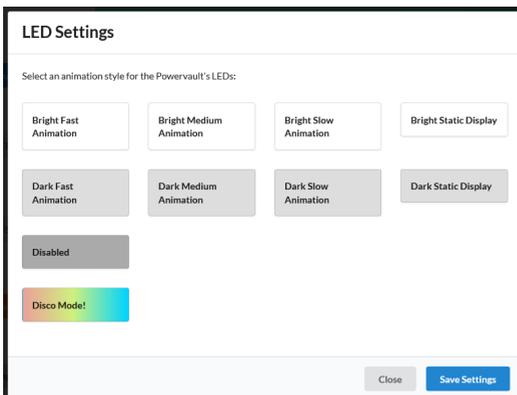
At: 19 : 00

Copy To All Days Clear Day Save Changes Discard Changes

LED status lights

The Powervault comes with a colour LED display that provides information on the unit. The proportion of LEDs active show how charged up the unit is, the brightness of the LEDs shows the charge or discharge current and the colour shows what state the unit is currently in.

-  Green - Charge Mode: indicates that the unit is charging.
-  Cyan - Discharge Mode: indicates that the unit is discharging.
-  Red/Orange - Fault: indicates that the unit is experiencing a fault. In this case, please call customer service.
-  Purple - EPS Discharge Mode: indicates that the unit is discharging in EPS.
-  Chasing Rainbow Cycle - Indicates that the unit is starting or in disco mode.
-  Yellow - Disabled Mode: indicates that the unit batteries are turned off.
-  Blue - Idle Mode: indicates that the unit is in idle.
-  White: on unit startup, shows that the unit is initialising. In any other context, represents a unit fault. If this is the case, please contact customer service.

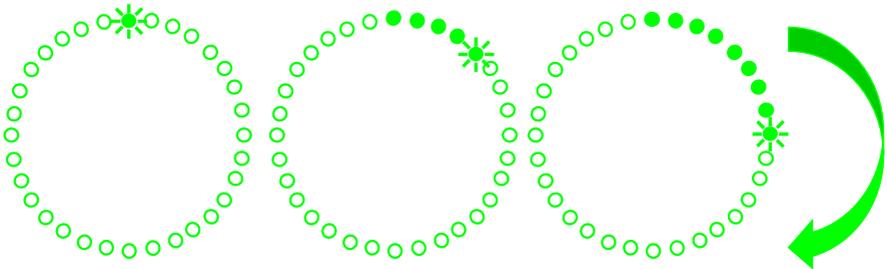


The animation speed and brightness of the LEDs can be adjusted.

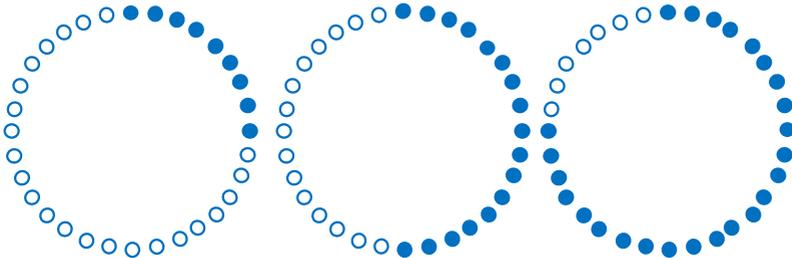
The LEDs can also be disabled.

Disco Mode can also be selected!

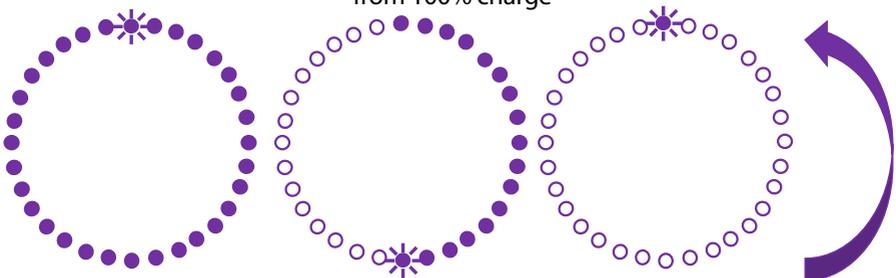
Case 1) Unit is charging at maximum power, as shown by high brightness, and is 25% charged



Case 2) Unit is idle, with (a) 25% charge, (b) 50% charge and (c) 75% charge



Case 3) Unit is discharging through EPS at half power, as shown by low brightness, from 100% charge



TROUBLESHOOTING

If your Powervault appears to be offline please check the following:

- Is the LED display on?

Check to see if the front-facing LED display is running.

- If not, please check your consumer unit (fuse box) for any tripped fuse switches.

These would be in the down position if tripped and can be reset by moving them to the upward position. If you need support with this you can send us a photo during office hours.

- If there are no tripped fuses, please check that the red rotary switch or external breaker on the left side of the unit is in the upward ON position.

If not, move the switch to the upward ON position.

- If the red rotary switch or external breaker is already in the upward ON position, please try resetting the unit.

Reset the unit by moving the red rotary switch or external breaker next to the unit to the OFF position, then back to the ON position. Once this is done, wait 5 - 10 minutes for your Powervault to come online.

If these steps do not resolve the issue, please check the internet connection to the unit:

- Check that your router is on and working.

It can sometimes help to reset the router by switching it off, then on again. Check that other devices in your home have internet access.

- Check the Ethernet cable is connected securely at both ends.

The Ethernet cable should be securely clipped into the Powervault and your router (or wifi / powerline extender).

- If your set-up uses wifi or powerline extenders (such as TP Link), try resetting or re-pairing these devices.

To reset and re-pair TP Link extenders:

- o Hold down each button for 15 seconds to reset the devices.
- o Turn these off, and press the buttons on both devices within two minutes of each other.)
- o The three lights on the front of the TP Link should all be green when there's a good connection.

If you have recently installed any hardware or software on your home network that restricts or limits internet traffic (such as a parental control service or a firewall) please ensure that these do not block your Powervault from reaching the internet.

If all of the steps above do not resolve the issue, please contact customer service.



FREQUENTLY ASKED QUESTIONS

? How will I be able to see if Powervault is working properly?

You can monitor your Powervault performance remotely wherever you are, using our online portal which shows both live and historical data.

? Can I increase my Powervault storage capacity after it has been installed?

It's possible to upgrade some systems if there is space in the chassis. We recommend purchasing the larger configuration case if you envisage upgrading capacity later.

Please contact us to enquire about upgrading your Powervault.

? Does the Powervault always output the same amount of energy?

The energy that you can draw from the battery depends on the power usage in your home. Lower power usage means less efficiency and less energy available. The energy capacity of your powervault is calculated under test conditions.

? How can I test to see if my EPS works properly? When I tried to turn my Powervault off to activate EPS, it didn't work properly?

While the Powervault will automatically operate during a power cut, you may wish to turn the unit off, so the system detects whether there is a real power outage, or whether you have simply turned off the breaker at the wall. So if you do want to simulate a power cut, to see that the EPS is working, you must first disconnect the 'grid clamp' and then turn the isolator off. Conversely, to power the unit down (avoiding the unit going into emergency power mode) you must either ensure that the grid clamp is connected and working, or alternatively set the unit to have the EPS mode disabled in the control panel.

? Does the Powervault always input/output the same power?

As with most batteries, the maximum power input and output of the Powervault depend on how full the battery is. It is normal for the power output to reduce as the battery approaches being either fully or empty. In hot weather, power output may be reduced to prevent the system from overheating.

? **How noisy is Powervault?**

At full discharge or charge power, Powervault measures 35 dB of noise or less. This is equivalent to the background noise in a quiet library.

? **Can I move Powervault to a different location post-installation?**

Your Powervault must only be moved by an Approved Powervault Installer, otherwise the warranty will become invalid. Once Powervault has been installed, we recommend keeping it in its original location. If you do need to move your unit to another location, we can arrange for the system to be moved for an additional charge.





