This unit is heavy and easy to tip

This unit tips the scales at a whopping 140KG and is slightly top heavy when in transit. Before setting it up, make sure children and furry friends are not nearby.
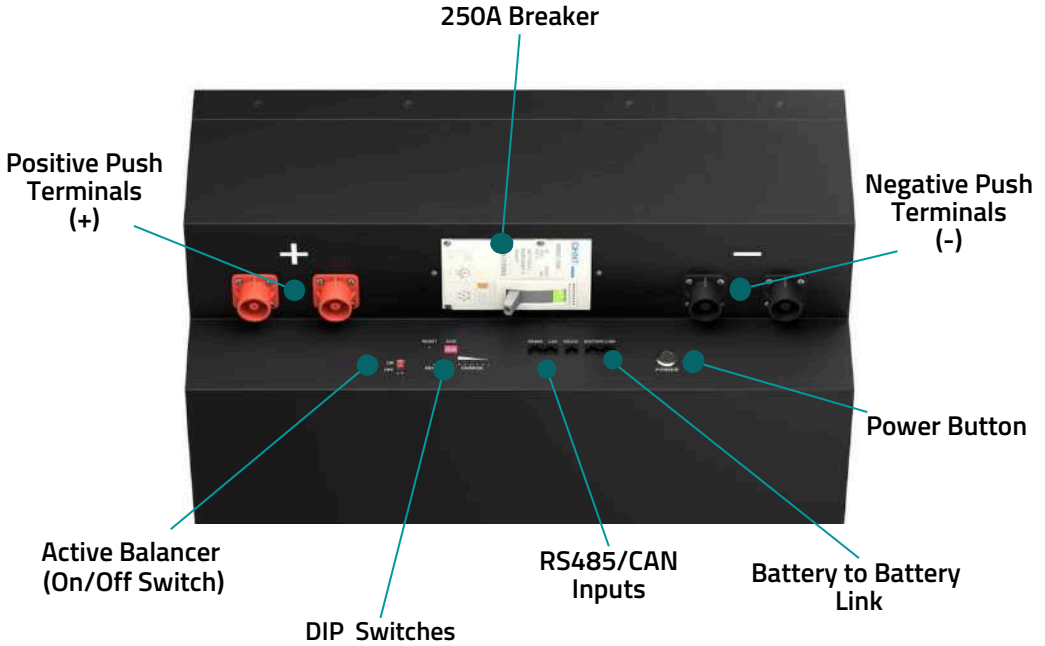

FE51.2V 15.5KWH LIFEPO4 BATTERY

OUR PRODUCTS ARE ALWAYS EVOLVING, SO THE UNIT DEPICTED ABOVE MAY DIFFER SLIGHTLY FROM THE UNIT YOU RECEIVE.

⚠️

This unit is heavy and easy to tip

This unit tips the scales at a whopping 140KG and is slightly top heavy when in being manoeuvred. Before setting it up, make sure children and furry friends are not nearby.

- Wear proper safety gear such as gloves and eye protection
- These batteries are HEAVY (140kg) - always get help to lift them
- Ground your cabinets before you insert your rack battery
- Do not reverse polarity
- Do not connect with any batteries in series
- Ensure the system is properly grounded
- Always use insulated tools
- Do not work on battery with it turned on or with the grid turned on
- Do not connect battery to solar wiring directly
- Make sure all fasteners are properly torqued
- Ensure your chargers/inverters are appropriately programmed
- Use only on 48v nominal systems, do not connect with other batteries (such as 15s)
- Ensure the installation follows applicable local, national and all legal electric stipulations
- Installation should be done by a qualified and knowledgeable person
- Make sure proper cable sizes and overcurrent protection are utilised
- Ensure the system is installed in a location suitable for electronics
- Keep the battery within safe operational temperatures
- Do not put the battery in a hazardous, hot or flammable environment
- Install your equipment in a location where children and pets are not present
- Do not paint, or spray paint the battery
- If there are any electrical smells or excessive heat, use your breaker switch and contact your local fire station
- Only clean the battery with a dry cloth - do not use any liquids, spray cleaners, aerosols or any type of solvents.

UN38.3 RoHS COMPLIANT CE

250A Breaker

Positive Push Terminals (+)

Negative Push Terminals (-)

Power Button

Active Balancer (On/Off Switch)

RS485/CAN Inputs

Battery to Battery Link

DIP Switches

PACE

The PACE Battery Management System (BMS) seamlessly integrates with a wide range of popular inverters, including Victron, Pylontech, Growatt, Sofar, Solis, and Goodwe. Changing the inverter protocol doesn't involve any complex software downloads, you can change it simply by navigating the LCD Touchscreen.

PACE BMS Data	48V 200A
Maximum Discharge	200A
Max Charging Current	200A
Temperate Protection	YES
OverCurrent Protection	YES
OverDischarge Protection	YES

FE51.2V 15.5Kwh

Specifications	
Rated Voltage	51.2v
Charge Limited Voltage	57.6v
BMS	PACE 200A
LiFePO4 Cells	EVE LF304K
Nominal Capacity	304Ah
Minimum Capacity	304Ah
Maximum Charge Current	200A
Rated Energy	15.5Kwh
Maximum Discharge	200A
Discharge Cut-off Voltage	43.2V
Discharge Temperature	-20°c to 60°c
Charging Temperature	-20°c to 45°c (heater enabled)
Storage Temperature	1 Month: -20°c ~ 60°c 3 Months: -10°c ~ 40°c 1 Year: -5°c ~ 20°c
Relative Humidity	45% ~ 85% RH
Cell Configuration	16S1P
Cycle life	3500 Cycles @ 80% DOD
Communication Port	CAN, RS485, RS232
Design life	15 years
Weight	140Kg
Preloaded inverter Protocols	Victron, Pylontech, Growatt, Solis, Goodwe.

Delivery and Access

- The item arrives in a plywood container. You may need to disassemble the panels for easier access.
- To simplify moving the upright container to ground level, consider creating a temporary ramp from one of the panels.

Safety Precautions

- Due to its significant weight (140 Kg), it's crucial to have at least six people assist with lifting, adhering to safety regulations.
- When manoeuvring the unit on wheels, exercise caution to prevent tipping. Ensure stability during movement and utilize the levelling pads, not the wheels themselves, to support the weight.

Wall Mounting

- For wall mounting, employ suitable fixings specifically designed for the wall material.
- Understand if it's drywall, concrete, brick, or wood stud. This determines the appropriate types and sizes of anchors/fasteners.
- Ensure the wall itself can support the combined weight of the battery and mounting bracket. Doubling up studs or adding reinforcement might be necessary.
- You can remove the wheels for wall mounting. Remember to reinstall the bolts afterward to prevent dust and insect entry.
- 140kg is a very significant weight. Wall mounting might not be suitable for all wall types and locations. It's crucial to assess the wall's structural integrity.
- It's highly recommended to consult with a structural engineer or a qualified contractor to determine the best mounting method and ensure safety.

Setting Up Your Battery

This guide outlines the basic steps for installing your Fogstar battery and connecting it to your inverter.

Estimated Time
The process should take roughly 20 minutes for one-battery system.

 Please make sure that the battery is OFF and the BREAKER on the battery is in the OFF (DOWN) position before progressing.

Connecting the RS485 link cables

This diagram shows the RS485 Battery Link ports.

1. The left port (A) connects to the next battery (sending communication).
2. The right port (B) receives the connection from the previous battery (receiving communication).

The first battery (at the top of the pack) should only have one RS485 linking cable in the right port.

Your last battery should only have one RS485 in the left port. All middle batteries should have cables connected to both.

BATTERY LINK
A   B
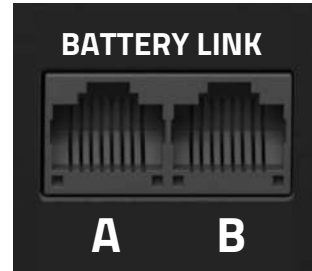
DIP Switches

Now your batteries can communicate with each other, we need to tell them where they are in the order of things (at the moment they all think they are battery number 1).

We can do this by adjusting the DIP switches. These are the red and white 'ADD' switches located on the front of the battery.

Battery 1   **Battery 4**

Battery 2   **Battery 5**
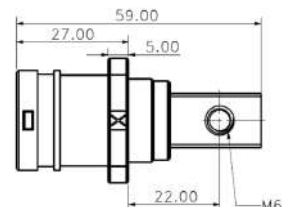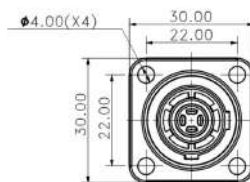
Battery 3   **Battery 6**

Connecting to your Inverter

We provide 1.5m cables with push terminals that connect directly to the battery. The latter end of the cable contains M8 terminal rings, enabling you to connect your battery either directly to the inverter, or to an external busbar. We recommend connecting all negative leads first.

Most inverters fit succinctly with the cables/push terminals supplied. In some instances, you may need to connect the cables to a busbar first, and use the inverter cables supplied by your inverter manufacturer.

A schematic of the push terminals can be found opposite, this is useful should you need to create your own cables/connections.

Updating the Inverter Protocol via the Touchscreen

You can update your Inverter protocol via the Touchscreen on the battery, this negates the need for downloading the Pbms Tools BMS Software.

1. Hit the 'Settings' button in the top right hand corner
2. Select CAN or RS485 communication type
3. Select the correct protocol
4. Click 'Confirm' and use the back arrow to navigate back to the main screen.

All of our units are configured to CAN > Pylon when shipped - in most instances, you won't even need to change the protocol.

Connecting battery to PC and using the Pbms Tools software

For this, you will require a USB to RS232 cable - if you need one sent out, please get in touch with a member of our team. This requires a Windows PC (this process has been tested on Windows 7 and above).

1. On the initial connection to the USB port, Windows will automatically download drivers for the USB to RS232.
2. Download the PBMS BMS monitoring program from our website (you'll find this here> https://www.fogstar.co.uk/pages/specification-sheets).
3. You may be asked to install or update Microsoft .Net Framework, please proceed with this.
4. Open the PBMS Monitoring Tool.
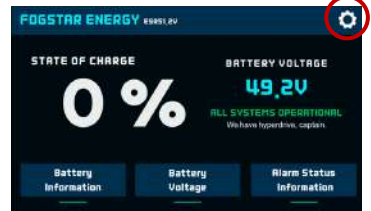
*Changing the inverter protocol via the screen.*

Changing inverter protocol via BMS software

PbmsTools has plenty of powerful features, however we are just focusing on changing the inverter protocol for now.

1. Open the Realtime Monitoring Tab and select click 'OPEN' under the Serial Port section.
2. Select the System Config Tab. Under the Inverter Protocol section, click READ. This will read all inverter protocols currently on the BMS.
3. You can now change CAN and RS485 inverter protocols by selecting which one you require, and then pressing WRITE.
4. The password for writing your chosen inverter is Pz#168178. The password needs to be inputted in the box next to the 密码 symbol   . The box will turn green when the correct password is inputted.
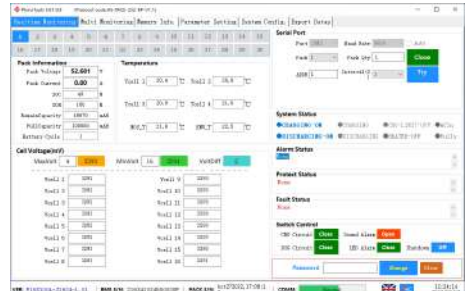
Open the Realtime Monitoring Tab and select click 'OPEN' under the Serial Port section.
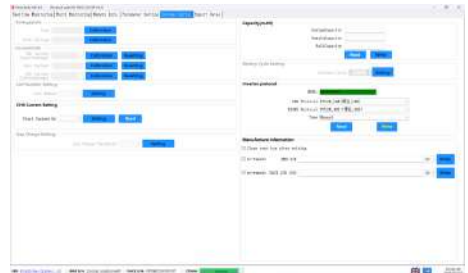
The password for writing your chosen inverter is Pz#168178.

ℹ️ **You can now turn ON all your batteries with the POWER button, however your DC BREAKER should remain in the OFF (DOWN) position until you have changed your inverter protocol.**

Pin Outs

PACE has provided us with Pin Out information, allowing you to create your own communication cables if/when required.

You may also find it useful to refer to the PACE BMS manual over at our website.

RJ45 PIN	DEFINITION	RJ45 PIN	DEFINITION
1, 8	RS485-B1	9, 10, 11, 14, 16	NC
2, 7	RS485-A1	12	CANL
3, 6	GND	13	CANH
4, 5	NC	15	GND
RS485 & CAN INTERFACE			
RS485 - WITH 8 P8C VERTICAL RJ45 SOCKET		RS485 - WITH 8 P8C VERTICAL RJ45 SOCKET	
RJ45 PIN	DEFINITION	RJ45 PIN	DEFINITION
1, 8	RS485-B	9, 16	RS485-B
2, 7	RS485-A	10, 15	RS485-A
3, 6	GND	11, 14	GND
4, 5	NC	12, 13	NC
PARALLEL COMMS PORT			

Warranty Coverage

This warranty applies to the 15.5kWh Fogstar Solar Battery purchased from an authorised Fogstar dealer. The warranty is valid for eight (8) years from the date of shipment.

What is Covered

The warranty covers defects in materials and workmanship that prevent the battery from functioning as specified. This includes, but is not limited to:

- Battery Management System (BMS) failure
- Cell failure
- Faulty temperature sensors
- Failure to charge or discharge properly
- Internal corrosion.

What is Not Covered

Damage caused by:

- Improper installation or use
- Abuse, neglect, or accidents
- Modification or alteration
- Modification of battery parameters without prior written approval from Fogstar
- Natural disasters or acts of God
- Connecting the battery to an incompatible charging system

Warranty Repair or Replacement

Contact Fogstar customer support upon suspecting a fault (customerservice@fogstar.co.uk). Fogstar will guide you through troubleshooting. If unsuccessful, they will arrange for collection and return of the battery for further evaluation.

Upon receiving the battery, Fogstar will determine if the issue falls under warranty. Fogstar will repair or replace the battery at their discretion:

- Repair: free of charge.
- Replace: with a new or refurbished battery of equal or greater value.

Early intervention is encouraged for faster resolution.
Fogstar will cover shipping costs for approved warranty returns.

Reporting an Issue

Should you encounter a problem with your Fogstar unit it is important you contact our Customer Services team first and foremost. This gives us an opportunity to help you resolve the issue before any problems arise. By coming directly to us, before posting on forums or groups, we can help you resolve any issues or concerns quickly and efficiently. Please send any images or screenshots, along with a description of your issue to customerservice@fogstar.co.uk. If your issue is urgent and you need to talk with a member of the tech team immediately, please call 01527 757980.

How many batteries can I connect together?
You can connect up to 15 units in parallel.

What protocols does your PACE BMS come loaded with?
The BMS has several pre-loaded inverter protocols with 'out of the box' support for Victron, Pylontech, Growatt, Sofar, Solis and Goodwe. It is crucial to note however, that inverter integration is not required for our server rack batteries to function.

How does the battery communicate with a Victron?
Victron communication via a Victron Cerbo GX which will need to be purchased separately.

The batteries connect to a Cerbo GX BMS-CAN port from the CAN port on your main battery. The Cerbo GX then connects to your inverter via a VE.BUS cable. You'll require a type B Victron battery BMS to to BMS CAN cable for this.

What are the dimensions of the 15.5kWh Battery?
500 (w) x 230 (l) x 830 (h)

These dimensions are without the wheels (which can be removed), the wheels add an additional 100mm to the height.

Can I connect my 15kWh battery to other makes/models of Batteries?

The Fogstar systems are not compatible with other types or models of battery on the market, this may be due to discrepancies in power/size of the unit, BMS or overall system compatibility.

Please do not attempt to connect your Fogstar Rack Battery to any other make or model of Battery on the market.

Why are you not on the approved list for my chosen Inverter?
We may not be on the approved list for your chosen inverter because we believe that these lists are anti-competitive and limit consumer choice.

Numerous battery approvals lists exist, particularly for popular inverters in the market. At Fogstar, we firmly believe that these lists serve only to restrict the market and reduce consumer options. Our mission is to make lithium batteries affordable and accessible to everyone, and we view approvals lists as a hindrance to progress and innovation across the industry.

Does self-installation void my warranty?
We understand that many people who purchase these batteries will be installing them themselves in preparation for system 'sign-off'. This does not affect the warranty at all.

How does the heating work?
Our batteries automatically activate their heating function when temperatures drop below 5°C, ensuring optimal performance even in frigid environments of -20°C.

Which way do i switch the breaker to turn it on/off?

RED - ON   GREEN - OFF

Can my battery be mounted on the side?
Yes, you can mount the batteries on their side as part of your installation. However, this approach may make it a bit awkward when reading the battery vitals on the touchscreen, also, the weight of battery can cause some issues in this instance.

What are the charging parameters of the battery?
Bulk: 57.6
Float: 55.2
Low DC cut off: 43.2

How does the Active Balancer work?
The Fogstar Energy 15.5kWh unit contains a JK Active balancer, with a switch, enabling you to turn the function on and off. As all of our batteries contain matched and balanced cells, you shouldn't have to use this function often, if at all. If you notice any significant disparity between the cells, we recommend putting the Active Balancing on, for two (2) to three (3) cycles.

It's worth noting that leaving your active balancer on indefinitely will result in a self-consumption of >1Ah per day on average.

Which Inverter Cables do I use?
Your Fogstar Energy unit will come with 1.5m inverter cables included. These contain push terminals to connect to your battery and an M8 terminal ring on the alternate end.

What fixtures and fittings do I use to mount the unit to the wall?

Whilst we provide a robust mount for your unit if required, we have left the mounting fixtures firmly in your hands. It goes without saying that different wall types require different fixtures.

- Type of Wall: Understand if it's drywall, concrete, brick, or wood stud. This determines the appropriate types and sizes of anchors/screws/fasteners.
- Strength of Wall: Ensure the wall itself can support the combined weight of the battery and mounting bracket. Doubling up studs or adding reinforcement might be necessary.
- If you are unsure about the fixing requirement for your unit, please contact a structural engineer who will be able to advise on the best solution for mounting your battery.

Had a great experience with Fogstar Energy?

We would love to hear your feedback on our Fogstar Energy Rack Battery.

Follow us on Instagram (@FogstarUK), drop us a Google review, get in touch via our customer service team (customerservice@fogstar.co.uk), or leave a product review at our website.

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