moixa

Smart Battery Unit

2 & 3kWh units

User Manual


moixa

Welcome to your new **Moixa® Smart Battery.** This is your user manual.

Moixa leads the world in smart battery technology, with our all-in-one battery and inverter system, suitable for any home. Now you can have one fitted to help take back control of your energy use, protect you from price rises and power cuts, and save £100s off your electricity bill.

Our Smart Battery is British invented and manufactured. We offer full sales and technical support locally in the UK. We're the partner of choice for leading installers, housing associations and utility companies.

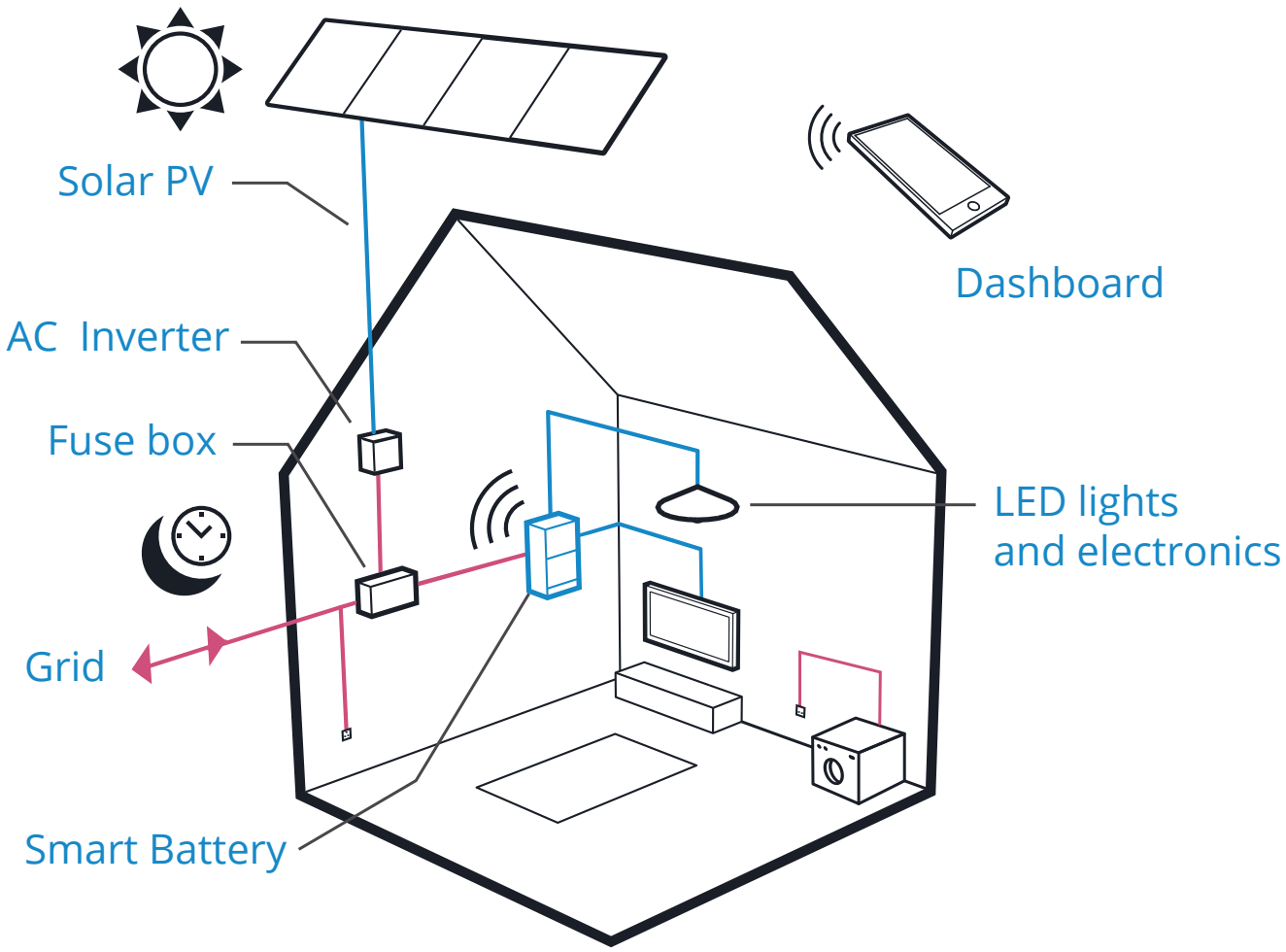
For technical support relating to your Smart Battery, please contact Moixa:

0207 734 1511
support@moixa.com
www.moixa.com

Correspondence should be addressed to:
Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY,
United Kingdom

How the Moixa Smart Battery fits in your home

The Moixa Smart Battery is installed near your consumer unit (fuse box) and measures the energy coming from your solar panels, and being used in your home. This enables it to know when to store energy and when to provide it.

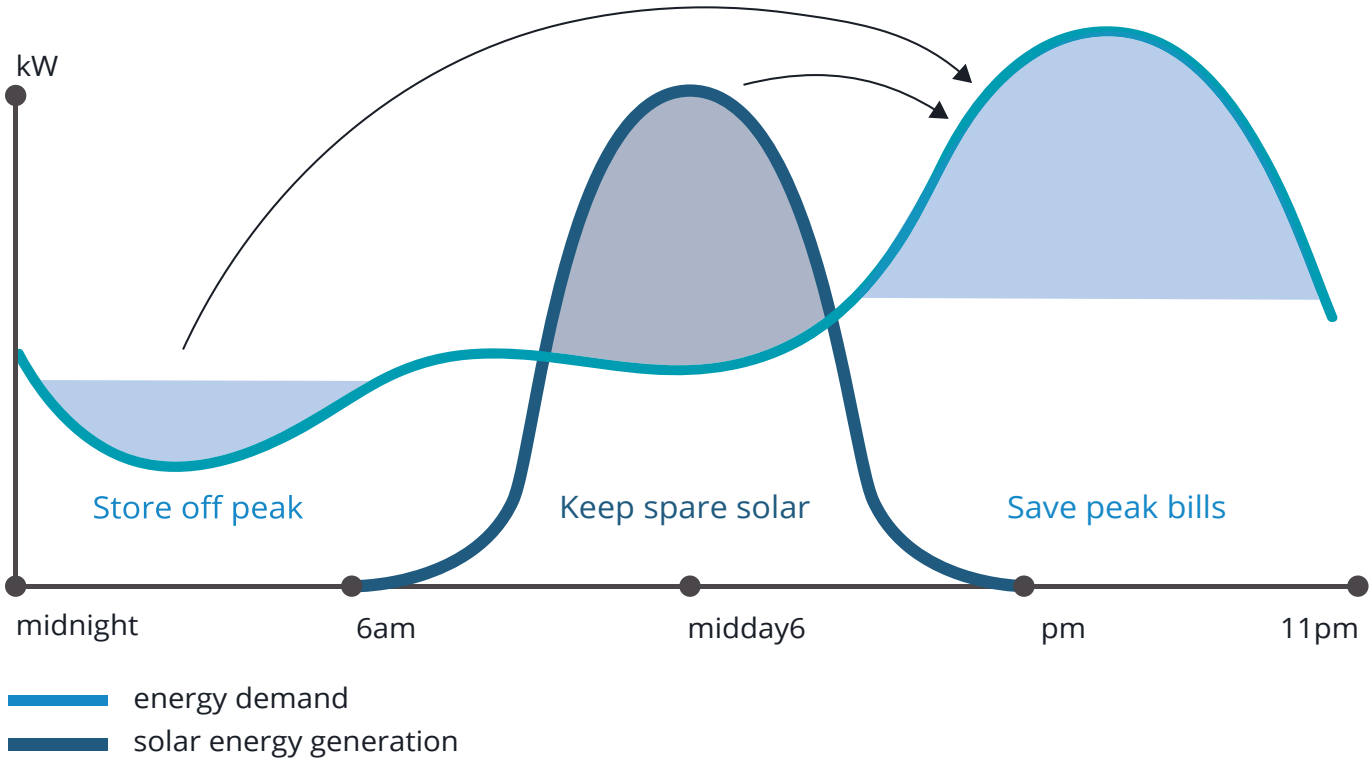


info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

Storing solar & off-peak energy

When there is excess energy from the solar panels that is not being used in the home, the Moixa Smart Battery stores that energy in the battery for use later. The unit can also store off-peak low cost energy in the middle of the night for use next day.



info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

Contents

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

1.0 Information in this manual

1.1 About this manual

This is the user manual for the Moixa Smart Battery Control Unit (MCU) V3/2kWh and V3/3kWh. Users of this device must refer to the user manual.

1.2 This manual applies to

This user's manual applies to both Moixa's 2kWh and 3kWh Smart Battery units.

1.3 Additional information

The user manual can be downloaded from the product download section at **www.moixa.com/downloads**. The specification of the product can be changed without any notice to customers in order to improve the system. Software can be updated without any notice to customers via the internet.

2.0 Safety

2.1 Intended usage

There are no user serviceable parts in the Moixa Smart Battery V3/2kWh or V3/3kWh units. The purpose of this device is to manage and utilise the energy stored in the Moixa Battery's lithium iron phosphate (LiFePO4) batteries. It is recommended not to use this device in a manner other than that described in this manual. Other usage of this device and use of components other than sold or recommended by Moixa Technology will not be covered by the product warranty. For inquiries about the proper use of this device, please raise a ticket at the Moixa support desk or contact the Moixa helpline.

2.2 Identifying the product

At the top of the Moixa Smart Battery you will find the 'type' label. This label describes the product and basic specifications. The user should be familiar with the contents of the label.

TYPE LABEL

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

The table below shows a type label example

The 'unit ID' label is as shown below (this label is to the left side, as viewed from the front, of the MCU case):

WI-FI — OLDER VERSION

WI-FI — NEWER VERSION

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

The ‘inverter ID’ label is as shown below

- For Units post Oct 2016 a separate label shows the serial number for the MCU
- The model/SKU number corresponds to the version of the Moixa Battery.
- The inverter serial numbers correspond to the serial numbers of the internal inverters.
- You may be asked to provide these details if you contact customer support.

2.3 In the Event of Power-cut / Mains Failure

If you have an install that includes a DC lighting circuit, the Moixa Smart Battery V3/2kWh is designed to continue to provide direct current (DC) power to this connected lighting circuit in the event of a mains power failure.

The Moixa Smart Battery will continue to provide power until the minimum capacity for the unit to recover is remaining in the battery, after which the unit will switch off power to the lights.

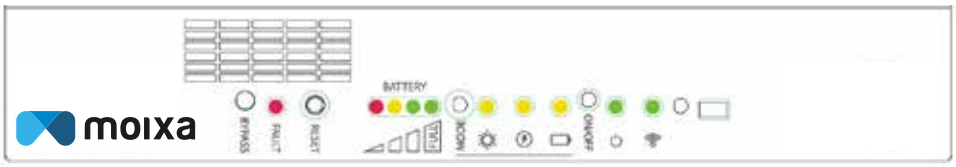
If the mains is still off 6 hours after this happens please let us know by raising a ticket at the Moixa support desk or contacting the Moixa helpline. Your unit may need to be shut down to prevent the battery running down too low

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

2.4 2 & 3kWh Moixa Smart Battery datasheets sku: MASMCU0112 & 0113

Moixa integrated smart battery and power delivery system

Battery	2 or 3 kWh LiFePO4 battery unit
Dimensions	Height: 49.0 cm Width: 30.8 cm Depth: 19.0 cm fro 2kWh, 23.0 cm for 3kWh model Weight: 28.6 kg (2kWh system) , 36.8kg (3kWh system)
Power Inputs	Mains AC . Fused input (3A) between 85 - 263V AC / 120 - 373V DC.
	PV panel inputs, standard MC4 PV connections, up to 15A, max VOC 35V rated panel
Power Outputs	3 x DC outputs, 23-32V combined maximum 14A load 1 x internal connector to micro-inverter, rated at 20A DC 1 x AC output (micro-inverter version), rated at Max 430W
Battery	2x non-user replaceable battery 40Ah (2kWh) or 60Ah (3kWh) modules. Typical life > 10,000 full charge cycles @ <80% DOD (20 years projected) Batteries are rated at max 20A charge / discharge rate. Fully charged 28.8V, discharge to 23V
Protection & Compliance	All connections between power sources are protected with logic controlled fault detection circuitry that disconnects all power when activated. Protection is for over current (>17A), over voltage (>36V), and under voltage (<20V) conditions. Earth fault protection is provided through comparator analysis in software, disconnects all power outputs when activated. All DC outputs are additionally protected with thermal fuses, typically rated at 8A, but matched on install to network load. Designed to comply with FCC/EMC, ROHS (EN301-489-1 & -17), FCC (part 15B) and Canada (ICES003), EN 60950-1 (tested by UL and others). Microinverter to G83/2. CE marked and fully compliant for sale in the EU.
Status Panel	
Communications	As standard with WiFi (external antenna). Ethernet port (internal) for direct wiring or powerline (TPlink) comms.
Notices	Available for orders UK FOB 5 Year Warranty for Maslow base unit: Extended warranty and battery replacement/upgrade service available. Specifications subject to change without notice. Patented and patents pending including (GB2476213, US201000076615, GB1221819.4)

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

3.0 Product Overview

- The Moixa Smart Battery is a compact wall or cupboard mounted unit, providing 2 or 3kWh of home energy storage.
- It can store energy from off-peak mains energy.
- It can store energy from grid connected solar panels enabling greater self-consumption of locally generated power.
- It does this by charging the battery from the mains according to a plan dependent on the time of day or measuring the solar power being produced.
- If the Moixa Smart Battery has DC solar panels directly connected to it, it will store energy from them automatically for later use.
- The Moixa Smart Battery has a micro inverter panel so it can also export power to the house AC circuit according to a time plan or by measuring home electricity load.
- The Moixa Smart Battery can provide a low voltage DC power network. Subject to survey, some existing lighting circuits could be re-used (without re-wiring) and converted to DC LED lighting by checking and changing to DC LED downlights and pendant fittings .
- Moixa Smart Battery will continue to power connected low voltage DC power circuits during a power cut provided there is capacity remaining in the battery.

Moixa Smart Battery's DC power network is intended to be compatible with future standards for the powering of DC devices.

Moixa Smart Battery's storage is intended to be made available as an aggregate resource for networks to use to address issues and improve overall reliability. This creates income opportunities from future grid demand side programmes that are shared with Moixa customers.

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

4.0 Operating the System

The system is designed to work without any user intervention, it is programmed to optimise your energy savings automatically. The section below describes some of the saftey features of the system.

4.1 Resetting the System

If the red FAULT light is on it indicates that the Moixa Smart Battery has detected a fault, such as a short circuit.Please call technical support before performing any action.

ONLY if the problem is resolved via consultation with a Moixa technician – This can be reset by pushing the RESET button.

4.2 Bypass Mode

If the Moixa Smart Battery is in fault (not providing power) then it can be temporarily placed in bypass mode. Please contact technical support before performing this action.

Push the bypass button once (it will click in), press again to stop bypass.

You will see the battery level lights scroll continuously to confirm the unit is in bypass mode, and your lights should come on providing the unit has mains power.

4.3 Shutting down the Unit

Hold the Mode button down for 10 to 15 seconds, after which the unit will transmit a short series of audible bleeps. After a further period (up to 1 minute) the unit will start to bleep continuously.

Only then should you switch the Power ON / OFF.

Toggle to OFF disconnects the Battery, DC power and Mains input/output.

The Moixa Smart Battery's connection to the on-line interface will be lost whilst the unit is shut down.

The toggle switch should be left in the ON position at all times. Please do not shut down the unit unless a fault occurs, and you are instructed to by technical support.

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

4.4 Resetting the Wi-Fi Password

Before a Moixa Smart Battery can communicate with the Moixa servers a connection to the Internet must be established. For a Moixa Smart Battery equipped with WiFi this is done using a set-up mode called Access Point (AP) mode when the Moixa Smart Battery creates its own wi-fi network. Any wi-fi enabled device with a web browser (e.g. laptop, smart phone) can then be used to connect to the Moixa Smart Battery and tell it the wi-fi settings of your home's network name (also called SSID) and password.

Go to **www.moixa.com/FAQ** and click on 'troubleshooting' to download a step-by-step guide with images:
'Re-connecting the unit's WiFi'

N.B. Please connect to the 2.4GHz WiFi network if this is available, rather than a 5GHz network - most modern routers have both options - 2.4GHz has a longer range, a stronger, more reliable signal that will provide a better connection for your Moixa Smart Battery.

1. Using a device with wi-fi capability look for the unit announcing itself as a wi-fi network. The SSID will be broadcast as **Maslow-b827eb******** where b827eb****** is the unit's serial number (where ****** are 6 alpha-numeric figures that are unique to your unit. If you see the unit then skip step 3.

2. If you cannot see the unit then it is not in AP mode. To set it into AP mode do the following:
A. Press the switch marked BYPASS. The unit will go into bypass mode as indicated by a scrolling pattern on the battery lights.
B. Press the MODE switch for one second.
C. Disengage bypass mode by pressing the BYPASS switch again. The battery lights will return to their normal display pattern.

3. Select the Moixa Smart Battery wi-fi network from your Wi-Fi network manager. When prompted for a password enter **"MaslowPass"**.

4. Once your device has connected to the Moixa Smart Battery open a web browser and navigate to the following page: **http://10.74.8.254/**

5. In the page that is displayed enter the SSID (name) and password of the wi-fi network that you wish the Moixa Smart Battery to connect to then click Enter.

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

A confirmatory message will be displayed and your device will be disconnected from the Moixa Smart Battery. Note it is important to type in the name and password exactly as they appear on your router (they are usually printed on the label) or if these have been reset, to exactly as they are currently set. Both SSID and password are case-sensitive

6. If possible, check that the Moixa Smart Battery has successfully registered onto the wi-fi network. Many routers will display a list of connected devices on the 'admin' webpage.

7. The green light above the fan symbol will light solid when the Moixa Smart Battery has connected successfully. It may take several minutes to establish a connection when the unit is turned on or restarted.

Troubleshooting: If you are unable to set the Moixa Smart Battery into AP mode please reboot your unit and then wait five minutes before trying again. If the unit will still not enter AP mode please raise a support ticket by sending an email to our support address: support@moixa.com) with subject "wi-fi configuration: <your name or unit serial number>"

If you have set the SSID and password and received the confirmatory message but your Moixa Smart Battery has not connected to your network after five minutes then please repeat the procedure from Step 1 as it is possible that the SSID and/or password has been entered incorrectly.

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

5.0 Web Portal

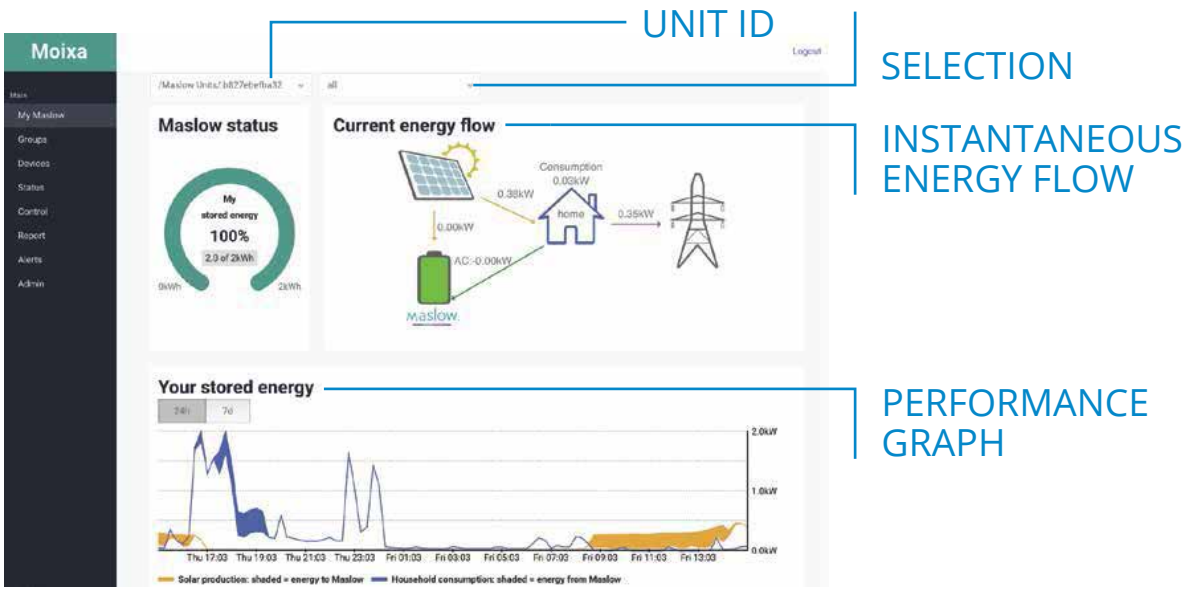
5.1 Overview

Please refer to section 6 for how to register your membership and initialise your web portal. This allows you to log in and see the status and performance of your system.

The graph on your system's dashboard is a visual representation of the performance of the system over a 24-hour period.

5.2 Homepage

The customer purchasing this device can use a web browser or smart phone to check the status and various operational information about the system.
https://maslow.moixa-data.com/



5.3 System Performance Graph

The plan for the unit (battery charge/discharge profile) can be seen from the graph shown on the homepage.

The graph shows monitored household consumption (blue line) and monitored (AC) solar production (both in KW). Moixa Smart Battery powering activity is shown by the shaded ares of the graph. The energy stored in the Moixa Smart Battery (from solar) is shown shaded in orange; the energy returned from the battery to support the household's energy demand is shown shaded in blue.

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

6.0 Service Terms - Data

This service is provided only when the device is connected to the Internet. Section 6.5 gives details of the warranty and its limitations.

6.1 Membership

To use the service, you must register through the portal maslow.moixa-data.com During registration, member's information such as ID, password, name and the address are collected. Further data can also be collected for providing additional statistical analysis.

Data collection and security for Moixa Smart Battery Energy Storage clients.

Our promises to you about your data:

1. We will keep the data that we collect secure and protected.
2. We will not sell your data or pass it on to a third party without your permission
3. You can have access to your data at any time by using the download facility on the Moixa portal
5. If your system has been provided by a project then your data may be shared with project partners. Any publications that make use of the data from the project, such as academic papers will only use anonymised data – meaning that nothing will link you or your address to the published data.

Your commitment - for systems provided in a project:

1. You agree to have the Moixa Smart Battery energy storage system installed in your home.
2. You agree not to do anything to damage or otherwise interfere with the Moixa Smart Battery system.
3. You agree that you endeavour not to interrupt the internet connection to the Moixa Smart Battery, and to inform us if you are planning to do something that might affect your connection (e.g. changing your internet provider).

N.B. if you are changing your internet provider you will need to input your new network details into the Moixa Smart Battery (password and SSID) to enable the system to deliver maximum value to you.
See section 4.4 of this document for instructions on how to do this.
N.B. User maintenance of the Moixa Smart Battery unit's internet connection is also a condition of use for participation in Moixa's Gridshare offer.

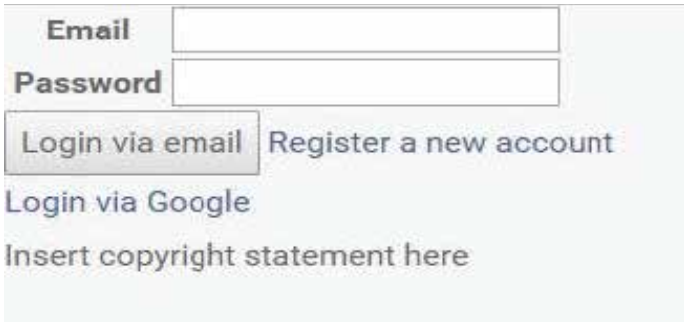
info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

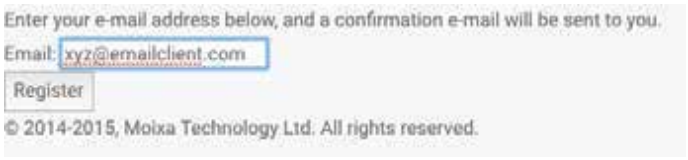
6.2 Password Initialization

To be able to access live data from your Moixa Smart Battery unit you need to set up an account on our server. You can do this by following these instructions.

1. Proceed to the following web address and follow the instructions:
https://maslow.moixa-data.com/



2. Click on “Register a new account” and you should see the following screen.



3. Enter your email and click “register”, you will receive an email to your account. Click on the activation link and you will see the following.

4. Please enter your name and password and click “create account”.

Once this has been done your unit can be assigned to you by our support staff

Please notify us that you have registered by sending an email to our support address: **support@moixa.com**
With “new account: <your name and unit serial number>” in the subject header.
Or alternatively call the technical support number (0207 734 1511).

Troubleshooting: Until your Moixa Smart Battery has been assigned to your account by our support staff whenever you log in you will receive a “no associated device” error message. It can take up to two working days for the unit to be assigned. If after 24 hours you still do not see your Moixa Smart Battery then please raise a support ticket by sending an email to our support address shown below.

Further help: To raise a support ticket send an email with subject: “server registration problem: <your name or unit serial number>” to our support address: **support@moixa.com**

6.3 Log-in

Log-in to the homepage using the ID and the password you created when you registered.
Log in at the following address (once authorised) and you will be presented with live data as reported by your Moixa Smart Battery to our servers:
https://maslow.moixa-data.com

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

6.4 Warranty Terms & Conditions (the 'Manufacturer's Warranty')

Moixa Technology Ltd ('Moixa') has developed a reliable energy storage product (the 'Product'), designed to withstand normal operating conditions, which is supplied with a warranty against material or manufacturing faults for the duration of the warranty period (the 'Warranty Period'), subject to the following terms and conditions:

a) This Manufacturer's Warranty applies to Products purchased and installed in the United Kingdom of Great Britain and Northern Ireland, the Republic of Ireland, the Isle of Man or the Channel Islands (separate warranty conditions apply outside these territories).

b) The Product must be purchased by the Customer (not part of a pilot scheme) and installed after 1 July 2016 to be covered by this Manufacturer's Warranty.

c) The Product must be correctly installed by a certified Moixa Accredited Installer.

d) The Product must be used at all times in accordance with the Moixa User Manual provided with the Product and also available at www.moixa.com.

e) The Product contains a battery supplied by a third party which is covered under this Manufacturer's Warranty, specifically that the battery retains 80% Depth of Discharge of its initially rated capacity for the Warranty Period, provided that the accumulated discharge of energy should not be more than 300 times the initially rated capacity in any 12 month period.

f) The Product must only be used in a domestic or light commercial environment, (light commercial is defined as a semi domestic/commercial environment, including a home office).

g) The Product must be registered via the internet at www.moixa.com within 30 days of installation.

h) The Warranty Period will commence from the date of installation, unless the installation is made more than six months from the date on which the Product was dispatched by Moixa to the Maslow Accredited Installer, in which case the Warranty Period will commence six months from the date of manufacture as confirmed by the Product's serial number.

i) The Warranty Period of the Product is 5 Years, extensions may be available under managed service agreements and warranty renewals shall be offered to the Customer, subject to applicable terms and conditions.

j) Once installed, the Product must not be moved from its installed position unless Moixa has provided written authorisation to do so.

k) During the Warranty Period any product or component which is proved to be faulty or defective in manufacture, will be repaired off-site or replaced free of material and labour charges, provided that Moixa has provided written authorisation for the repair or replacement to be carried out and has approved the total cost of the work.

l) Moixa does not accept or reimburse the costs of any unauthorised third party that undertakes work on the Product or fits parts (including engineer call-out charges), unless Moixa has approved such work and the associated cost in advance.

m) The Customer must follow the procedure set out in the Moixa Smart Battery User Manual for

reporting faults, which includes technical support via telephone and the booking of a service visit as a last resort.

n) A fee shall apply for service visits, which shall be reimbursed to the Customer if the fault falls within the scope of the Manufacturer's Warranty.
o) The Warranty Period will not be extended after any repair or replacement of the Product or part of the Product.

p) During the Warranty Period, the Manufacturer's Warranty is transferrable to a different owner provided that the Product remains in the originally installed location and Moixa is notified of the change of owner in writing.

q) Any claim made under the terms and conditions of this Manufacturer's Warranty must be made within the Warranty Period.

r) The Manufacturer's Warranty does not apply to:
i. any other installation carried out at the same time as the installation of the Product including the installation of solar panels and external wiring;

ii. damage caused by faulty installation, theft, tampering, neglect, misuse, accident, fire, flood, explosion, lightning, storms, frost or other bad weather conditions;

iii. damage caused by the non-observance of the Moixa User Manual; and

iv. any unauthorised adjustments made to the Product by a third party and any self-maintenance tasks carried out by the user not authorised by Moixa.

The Manufacturer's Warranty is the sole and exclusive warranty given by Moixa and where permitted by law, is made expressly in lieu of all other warranties, express or implied, statutory or otherwise, including without limitation, warranties of title, quality, merchantability, fitness for a particular purpose or non-infringement or warranties as to the accuracy, sufficiency or suitability of any technical or other information provided in manuals or other documentation. In no event will Moixa be liable for any special, direct, indirect, incidental or consequential damages, losses, costs or expenses however arising, whether in contract or tort, including without limitation any economic losses of any kind, any loss or damage to property, or any personal injury.

Telephoning Moixa

Moixa provides a technical support helpline: 0207 734 1511 (open 9.30am–6pm Mon-Fri). Telephone calls may be monitored or recorded for quality assurance and training purposes.

Data Protection

Customer details will be held and used by Moixa to administer the Manufacturer's Warranty and to conduct repairs. Moixa may disclose a Customer's information to its service providers and agents for these purposes. Moixa may also use a Customer's data for training and testing purposes.
If a Customer has given Moixa permission, the Customer's data may be used by Moixa or third parties for other marketing purposes. Moixa and the third parties (if applicable) may contact the Customer by post, telephone or email (the Customer may opt out via www.moixa.com).

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

6.5 Remote Access, and Data Terms and Conditions

Moixa retains a right to monitor system performance remotely and electronically, for system maintenance, performance, and for software release upgrades or changes. This will typically be performed via a wifi connection, over customers broadband network, or over a separate 3G/GPRS connection where configured, and paid for as part of a Pilot activity, or by a separate user services agreement for data services and features.

The Product may be supplied as part of a pilot or other programme, sometimes in conjunction to a discount on price, or other agreement for pilot activities, which may include, i) including battery capacity and uptime monitoring of unit, and network or export power state, within a geographic region, ii) analysis of data and use as part of aggregate profiling and improvement of software decision making, iii) use of data in an anonymized format as part of research papers, reports or presentations to third parties as per Supplier business or obligations by funding providers or Pilots.

Moixa will use such data internally for system monitoring and analysis activities, and will use reasonable endeavours to preserve security and confidentiality of this data and of its communication networks and databases.

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY

6.6 Contact

For technical problems or inquiries regarding Moixa Smart Battery usage please contact your installation company in the first instance.

Further correspondence should be addressed to:

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY
United Kingdom

Company Site: www.moixa.com

Support / FAQs: http://www.moixa.com/contact/

To receive customer support, the following information is required:

Product type
Serial Number
Connected PV details
Inverter serial numbers (where fitted)

Technical Support: 0207 734 1511

Email: support@moixa.com

Moixa Technology Limited (reg number: 05631091) is a subsidiary company of Moixa Energy Holdings; a company registered in the UK, Number 04941671, registered office, Russel Square House, 10–12 Russel Square, London, WC1B5LF.

info@moixa.com
www.moixa.com

Moixa Technology Ltd,
One Fellmongers Path,
London SE1 3LY