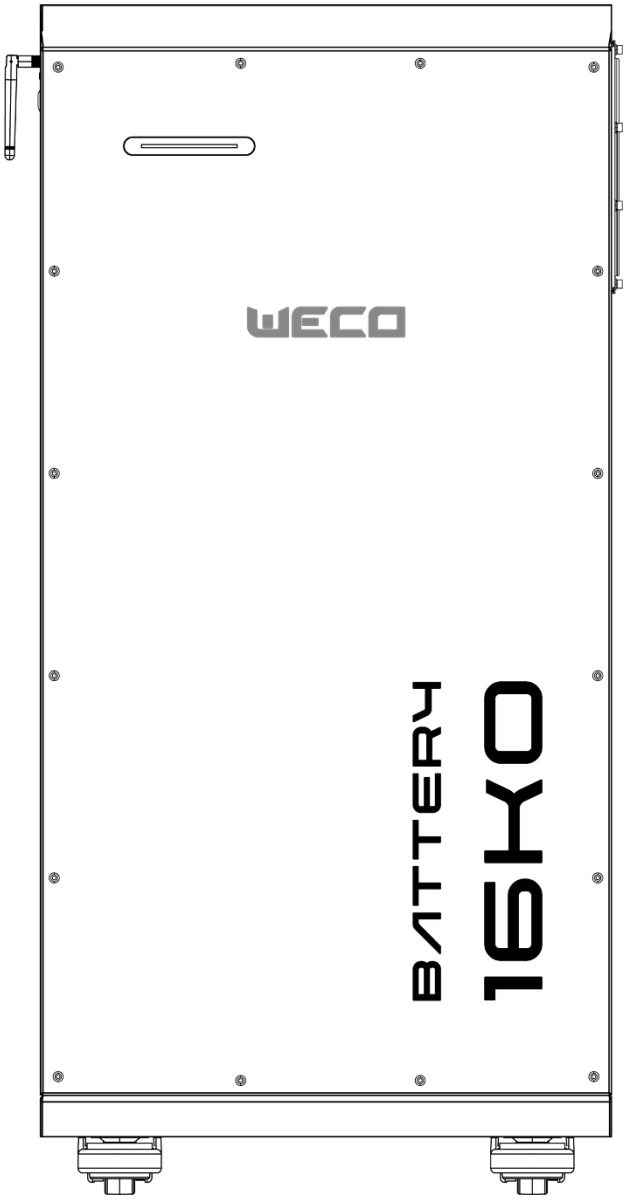


16K0-LV Installation & User Manual

V1.5

Low Voltage Use

Preface and Disclaimer

Thank you for choosing our product. Our goal is to offer you a high-quality product and reliable after-sales service.
Before purchasing, installing, operating, or maintaining the **16K0LV Battery Module**, please read this manual carefully to prevent accidents and protect the product, operators, and users from damage.
This manual contains detailed information on the operation, maintenance, troubleshooting, and safety rules of the product.

Disclaimer

WECO shall not be liable for any damage, malfunction, or injury resulting from installation, use, or maintenance not in accordance with the instructions contained in this manual, including but not limited to the following:

- Installation or use in environments that do not comply with local regulations.
- Installing, using, or maintaining the battery under conditions inconsistent with those described in the manual.
- Disassembly of the product or modification of software code without permission from WECO.
- Failure to follow the safety instructions in this manual.
- Use of unauthorized or unqualified parts or modules for the system.
- Damage caused by abnormal natural conditions (force majeure, such as lightning, earthquakes, fires, storms, etc.).
- Damage caused by the transport of the product if the shipment has been arranged by the customer, including unloading by the customer.
- Damage due to storage conditions that do not comply with the requirements of the product documentation.
- Hardware damage resulting from customer misuse.

Capacity and performance notes

The rated capacity of the battery module is **16.076 kWh** with 100% to 0% SOC discharge under the control of the BMS, measured when new and within three (3) months from the date of manufacture, provided that the storage conditions are in accordance with the provisions of this manual.
The capacity is not constant for each cycle and can vary depending on several factors.
The degradation of battery energy is typical of any accumulator and is irreversible, in addition the degradation of a battery is not linear in time and/or cycles and is strongly affected by factors such as temperature, C-Rate and Depth of Discharge (DoD) and frequency of charge and discharge.
Residential models are designed to perform about 1 maximum two cycles per day and the charging and discharging process must normally be spaced out by about 30-40 minutes of waiting in order to allow proper temperature dissipation and limit thermal degradation
The **Limited Performance Warranty document** defines the parameters to get the best performance out of the battery.

Intellectual Property Rights Notice

All trademarks mentioned in this manual are the property of their respective owners. Any third-party trademarks, product names, trade names, company names, and company names mentioned are trademarks or registered trademarks of other companies, used solely for descriptive purposes and in the interest of the present manual and interactions with it, without any intent to violate copyright laws.

The following are strictly prohibited:

- Reverse engineering or decompiling the battery software.
- Removing or replacing the BMS
- Turn around BMS protection functions to achieve performance or to bypass safety actions or BMS lock
- Deletion of historical data and BMS alarms
- Repairs not authorized by WeCo
- Fraudulently obtaining the source code or functions of the software software to change its battery thresholds and/or limits
  Product specifications may be changed without notice

ATTENTION



THIS MANUAL MUST BE READ IN ITS ENTIRETY.

WARNING: The battery may explode and/or catch fire if subjected to strong impacts or punctures and/or if used outside of operating conditions.
WARNING: Use suitable lifting systems to install the battery, as it weighs over 50 kg. The use of mechanical systems is required.





RNING: The battery may explode or catch fire if exposed to flames, sparks, and/or heat. The technical room must be suitable for the type of battery and t be equipped with appropriate safety systems.



ATTENZIONE: Verificare che la tensione sui terminali Basso Voltaggio sia 0Vdc prima di operare sui terminali.
ATTENZIONE: I terminali Alto Voltaggio (Connettori fast WECO 150A) non hanno interruzione di circuito.



CAUTION: The battery may accumulate stray currents. After switching off, always wait at least 5 minutes before working on the terminals.
Ensure that the voltage on the low voltage terminals is always 0Vdc.



CAUTION: Always use mandatory PPE when working on the battery.



At the end of its life, this battery must be recycled in accordance with current regulations.
Contact your nearest COBAT center to arrange delivery of your end-of-life product. The product must be delivered by a company that meets the legal requirements, and the customer is always responsible for the cost of return delivery.



Do not open the battery cover for any reason.
Opening the battery is prohibited and potentially dangerous.
Do not short-circuit the battery terminals as this may cause fire or explosion.
Do not use charging devices, cables, connectors, fuses, or switches that are not approved by WeCo.
The battery and its connections, such as cables, switches, fuses, bars, etc., must be inspected, cleaned, and tightened every three months or when necessary, taking into account the environmental conditions and/or stress of use of the system.
Cables and insulators may experience an early reduction in their insulation coefficient if exposed to excessive environmental conditions and stress during use. Therefore, it is necessary to verify the safety of the system through regular checks, which must be defined by the designer during the design phase.
WeCo declines all responsibility for illegal or unauthorized actions on the battery.

IMPORTANT SAFETY NOTICE

System Lock Condition
The battery is equipped with an automatic protection function that stops operation in case of out-of-specification parameters.
In this condition, the system opens the power circuit (technical block).

- The status LED and LED bar will show alternating red light with other operating statuses.
- In this condition, the battery cannot be used and must be isolated from the rest of the system.
- Restoration of operation may only be carried out by qualified personnel and after verification of the operating parameters.
- An unauthorized or unverified restart attempt on the BMS and inverter may cause risk to people and property, as well as void the warranty.

Safety disclaimer — Abuse / out-of-spec use
If a 16K0LV battery has been abused, over-discharged, over-charged, damaged, tampered with, or operated outside the limits in this manual, **stop using it immediately**. Isolate it on a non-combustible surface in a ventilated area, keep people away, and **contact an authorized installer** to handle, inspect, and—if necessary—dispose of it under local regulations. **Do not attempt to charge or "revive"** any pack or cell at extreme under-voltage; recharging LFP from deep low voltage can cause irreversible damage, venting, or fire. **Do not reuse, repair, or harvest parts** from a damaged pack. Use contrary to these instructions **voids the warranty** and releases the manufacturer from liability.

Prohibitions

Do not attempt reuse, repair, reconditioning, or recycling of cells/parts from a battery that has been abused, damaged, or driven into extreme under-voltage, do not remove change BMS or exchange and or reuse parts or an out od spec used battery.

Do not attempt "forced charging" or jump-starting of a battery whose pack voltage or any cell voltage is below the minimum allowable limits specified for the product.
Recharging a lithium-iron-phosphate (LFP) battery from an extreme low-voltage state can cause irreversible internal damage and presents serious safety risks (internal shorting, gas generation, thermal runaway, smoke/fire).

Do not open, disassemble, or bypass the BMS. No user-serviceable parts inside.
Do not transport a damaged/abused battery except if conducted by a qualified professional and in compliance with dangerous-goods rules.



CAUTION CRITICAL RELEASE FIRMWARE INSTALLATION REQUIREMENT
MANDATORY FIRMWARE UPDATES (CONDITION OF SALE)

By purchasing, installing, commissioning, or using this product, you acknowledge and agree that ongoing firmware updates released by WeCo are required to maintain safety, regulatory compliance, interoperability, and performance.
"Critical Update" means any firmware that WeCo designates as addressing safety, compliance, battery protection, reliability, or material performance improvements.
You must install or delegate others to install on your behalf any Critical Update within 60 (sixty) calendar days of WeCo's notice; failure to do so may void warranty coverage for related faults and constitutes misuse/non-compliant operation under the Limited Warranty.
The batteries include integrated Bluetooth® and Wi-Fi hardware; firmware can be updated directly from a phone via the Bluetooth app without the need of a local Wi-Fi network, just a mobile phone is needed.
If you are unable to complete an update, you must promptly contact WeCo for support. During the transitional period before a required Critical Update is applied, it is advisable to switch the battery OFF and keep it out of service in accordance with site safety and lock-out/tag-out procedures.
The installation or use of unauthorized or modified firmware is prohibited and voids the warranty.
This update requirement forms part of the product's operating conditions and the condition of sale and use.
Nothing in this disclaimer limits any non-excludable rights you may have under applicable consumer law. For full details, including consequences of non-installation, refer to the Limited Warranty.
To benefit from the 10-year performance warranty, the battery must remain continuously online via the WeCo app throughout the warranty period. Offline cumulative allowance is allowed for up to 60 days per year.
If a claim occurs while the unit is offline and the required telemetry/logs are not available on either the cloud or the BMS, WeCo may reject the claim for lack of evidence, according to the Limited Warranty.
Make sure your battery is constantly online, this will ensure you get the latest FW update, remote control and full coverage for the extended performance warranty



WARNING

This battery module complies with IP66 standards and can be installed outdoors. However, the battery does not have active temperature control, so it is recommended that the battery be installed in well-ventilated, temperature-controlled environments with limited temperature fluctuations.
Lithium is a material that is very sensitive to temperature, and performance, durability, and safety can decline dramatically at excessively high or low temperatures.
Battery modules should be stored and then installed indoors in a clean, dry, cool place in a restricted area.

DO NOT OPEN THE BATTERY COVERS. DO NOT REPAIR OR DISASSEMBLE ANY PART OF THE BATTERY.
DO NOT OPEN THE BATTERY COVER AND/OR REMOVE THE WARRANTY SEALS.

Declaration

The information and guidance in this manual refers to the WECO battery model 16K0LV.

In the event of product updates or other reasons, this document will be adjusted accordingly without prior notice or publicity, it will be made available on the WECO website in the download section.
Unless otherwise agreed, this document is to be used as a guide only and never supersedes the Laws of your State. All statements, information and advice in the documentation do not constitute any express or implied action that contradicts local regulations or standards.
For further information or clarification, please contact us before installing the product.
Official information and the latest data sheet can be found on www.wecobatteries.com.
It is essential that the battery module is equipped with the latest firmware version available. New batteries are always shipped with the latest firmware version available at the time.
From time to time, the firmware will be updated to improve the functionality and performance of the battery.
Firmware is always available on the www.wecobatteries.com/download-area website. Check the website or monitor the APP, in case of critical update will be sent to WeCo customers by e-mail.
The latest firmware version is always available for free and can be updated by your local installer. You can always contact service@wecobatteries.com for more information on the upgrade process.

Information requirements, document delivery, and maintenance

1) User training and information (mandatory)
The installer must train and inform the end user before leaving the site. Training must include, at a minimum:

safety, commissioning/shutdown, normal use, alarms/faults, operating limits, scheduled maintenance, and service contacts.

2) Delivery of documents and settings
Before leaving the site, the installer must deliver to the user and explain:

- current user and maintenance manual,
- quick guide/safety data sheets,
- system configurations and settings actually applied (reports or screen prints),
- relevant certifications/reports (tests, inspections, LOTO, PE measurements),
- scheduled maintenance plan (frequency, activities, responsibilities).

Delivery and training must be confirmed by a report signed by the user. In the absence of such a report, the system is considered not delivered and the installer must not leave the site and/or must render the system inoperable if, due to unforeseen circumstances, they must leave the site.

3) Scheduled maintenance and after-sales service
It is the installer's responsibility to inform the customer in writing of the need to carry out scheduled maintenance (safety, integrity of connections/bus bars, firmware, cleaning, periodic checks) and to propose an after-sales contract for the management of these activities (SLA, spare parts, reporting).

4) Customer rejection and assumption of risk
If the customer refuses the maintenance contract or fails to carry out the prescribed activities, he/she assumes full responsibility for any malfunctions and possible damage to persons and/or property resulting from failure to perform maintenance or improper maintenance. In such cases:

- The installer shall not be held liable for any malfunctions, deterioration, or system downtime attributable to lack of maintenance.
- Any warranties may be void, to the extent permitted by law and the manufacturer's warranty terms.

All products must undergo periodic inspections and must be checked in accordance with the instructions in this manual.
Ten years after the date of manufacture, the customer must initiate the battery disposal procedure in accordance with the regulations of their country.

5) Traceability and evidence
The installer must keep a copy of the delivery/training report, the maintenance plan provided, the settings applied, and the measurements/tests performed (with date, time, signature, names).

Delivery checklist (to be completed/signed)

- ☐ User manual and maintenance manual delivered and explained to the user of the equipment
- ☐ MSDS safety data sheets delivered
- ☐ System settings explained to the customer
- ☐ Scheduled maintenance plan explained and proposed
- ☐ Support contacts and escalation procedures provided
- ☐ Training provided on: safety, start-up/shutdown, alarms, usage limits
- ☐ Report signed by the customer

"Acknowledgment and acceptance of the end user" module

Compilation by the installer

I, the undersigned _____, as user/legal representative and therefore owner of the system, declare that I have received and understood manuals, system settings, maintenance plan and training on the safe use of the system. I undertake to respect the scheduled maintenance plan.
I was offered an after-sales contract for a fee by the installation company
Accepted [__]
Rejected [__]
In the event of refusal or omission of maintenance activities, I assume the risk of malfunctions and possible damage to persons and/or property, without prejudice to the provisions of the law.
Plant address:_____

Installed serial reference:

S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____
S/N_____	S/N_____	S/N_____

Reference to current standards and laws
Training, document delivery, commissioning and maintenance activities must be carried out in accordance with the laws, regulations and technical standards in force in the country of installation, including (but not limited to) the standards on low voltage electrical systems (IEC/EN 60364 and national transpositions), safety of batteries and storage systems (IEC/EN 62619), requirements of the competent authority and the network distributor, as well as any applicable local directives/regulations.
In the event of a discrepancy, local law shall prevail; The installer is required to adapt the design, execution and documentation and to demonstrate compliance.
The electrical conformity of the system must be renewed within the term provided for by law and with it the regulatory compliance of the systems that are part of the system including batteries, Inverter etc. must be verified.

Print the following page and create two originals, one to be kept by the installer and one by the customer

Place:_____

Data _____// Client signature _____

Date _____// Installer Signature _____

Premise:

Thank you for choosing our product. We will provide you with a high-quality product and reliable after-sales service.
To avoid injury to personnel and damage to the product, please read this manual carefully.
This manual provides detailed information on the operation, maintenance, and troubleshooting of the product, as well as health and safety recommendations.
Some users may not find all the information in this manual sufficient or unclear, therefore, before installing or purchasing WeCo products, they may request a dedicated training course in person or via remote connection.
The Lithium battery installation and maintenance guide is an integral part of the manual and is located on the https://wecobatteries.com/download-area/ website and should be read before installing the batteries.
The general terms and conditions of sale are available on the website wecobatteires.com download area, they must be read before purchasing.

Declaration

The manufacturer reserves the right of final explanation of any contents of this manual.
These batteries cannot be used to power life-saving devices or for UPS or Back-up use to power or support life-saving medical devices.
The battery capacity is intended to be 16.076kWh in the 100-0% range of the BMS.
Capacity is not constant with each cycle and can vary based on many factors, energy degradation is not constant over time or cycles, and is strongly influenced by temperature, C-Rate, and DoD (Depth of Discharge).
The first 500 cycles are typically affected by a greater decrease in capacity than subsequent cycles.
Before purchasing this product please read the warranty terms available on our website.
Always check the latest technical data on our website as it may be changed.
If this manual is not clear to you, do not purchase or install the battery, ask for a technical meeting by writing to service@wecobatteries.com.
Limited Performance Warranty Documents set parameters to get the best performance out of the battery based on the standard test condition used by WeCo.
Any additional details about this battery, its BMS and compatibility with inverters can be requested by writing to service@wecobatteries.com.
This battery and its accessories are intended to be installed, maintained, and supervised only by experienced and qualified installers.
All trademarks in this manual belong to their legitimate owners; Third party trademarks, product names, trade names, company names and companies mentioned may be trademarks owned by their respective owners or registered trademarks of other companies and are used for explanatory purposes only and for the benefit of the owner, without any purpose of infringing applicable copyright.
The evaluation of the product is an important and necessary phase and must precede the purchase, it is advisable to evaluate the latest technical data sheets made available on the www.wecobatteries.com website or request a copy directly from sales@wecobatteries.com.
Our products and manuals are mainly dedicated to installers and technicians who are experts in the sector with specific qualifications for electrical systems.
The manual, the system certification and the "first start-up" test certificate or system conformity, of the entire system carried out according to the national standards of your country, must be given to the end user after adequate training on the use and maintenance of the battery and the system in general.
These batteries are intended to be marketed for integration into more complex systems installed only by professional operators.
After reading the manual in full, we hope you can purchase our products.
Before purchasing, please carefully evaluate the technical characteristics with the data provided on our website or by requesting the updated version of the battery model currently in production.
Pay attention to the distinction between BMS temperatures and the operating temperatures of the battery as a lithium accumulator, i.e. the temperatures to which the BMS can be exposed without being damaged, malfunctioning or being affected in the reading of data such as temperatures voltage current (an incorrect reading of the data for exposure to out-of-range temperatures could affect the control and safety logic).
The lithium battery, on the other hand, should not be exposed to temperatures that are too low or too low, while the temperature excursions of the environment in which they will be installed should remain as constant as possible. Below you will find correct instructions on the use of the battery and the permissible and recommended temperatures.
The technical data sheets may be subject to change due to market or industrial needs, therefore, the technical data sheets present on third-party websites or in any case distributed in the past may not be updated and in any case correct. Get the latest official releases from sales@wecobatteries.com.
The pre-purchase evaluation is an important phase and for this reason it must be conducted carefully and perhaps with the help of qualified and experienced technicians if your knowledge on the subject is not sufficient.
WeCo batteries are developed for domestic and industrial applications and can only be installed and maintained by experienced and qualified personnel, they are not produced for direct sale to private individuals.

ESS (Energy Storage Systems) batteries for domestic applications are designed to maximize the self-consumption of energy from renewable sources. Use for backup systems, or for UPS systems, is possible within the charge/discharge current limits of the ESS.
This manual provides detailed information on the operation, maintenance, and troubleshooting of the product, as well as health and safety advice; the information contained in this manual may not be sufficient to cover specific applications, so, if your specific case is not mentioned, please do not purchase our batteries until every technical and safety aspect of your specific application has been clarified. You can request technical support from service@wecobatteries.com.
End of life, end of use and disposal
The Product (battery) is designed for a maximum service life of the first of:
a) 10 (ten) years from the Production Date indicated on the label
b) 7,000 equivalent charge/discharge cycles (DoD 90% at 25°C and C-rate 0.5C)
Upon reaching the first of the aforementioned limits, the User is required to cease using the battery.
Within a reasonable period of time from reaching the limit (point 1), the User must start the end-of-life management according to the applicable legislation in the country of installation, delivering the battery to the collection systems indicated by the manufacturer or to operators authorised to transport, treat, recycle and/or recover. The instructions and delivery channels are shown on the label/manual and in the official references of the manufacturer. Abandonment or improper disposal is prohibited.
Any overhaul/regeneration of the battery after the limit specified in point 1 has been reached may only be carried out by a qualified and legally authorised third-party company. This company assumes all responsibility for compliance, safety and post-intervention performance. The original manufacturer does not warrant or assume responsibility for products that are used beyond limits or remanufactured/tampered with without its written permission.
L'uso della batteria oltre il limite di cui al punto 1 o in difformità dalle istruzioni comporta la decadenza da ogni garanzia convenzionale e avviene a esclusivo rischio dell'Utente.
Determining Limit Reach
The achievement of the useful life limits is determined by means of BMS logs and/or other objective technical evidence (diagnostic reports, cycle counters, maintenance logs).
WeCo offers two types of warranty on its products, the warranty on manufacturing defects also known as the European warranty and in addition the warranty on performance, this subject to compliance with installation requirements well defined in the warranty document. More information can be found in this manual and on the specific warranty document available for each battery model.

SYSTEM DESIGN BY EXPERIENCED TECHNICIANS

Systems Design is the process of defining the architecture, components, modules, interfaces, and load data for a system by the customer in order to meet the specified requirements
For a solar system these components are the PV modules, the inverter/charge controller and the batteries, as well as the different interfaces of these components.
These systems must be integrated with each other following the respective technical rules and must be compatible with each other.
The design must take into account functional guarantees and performance guarantees in order to guarantee the end customer full satisfaction of the product he will use.
For safety reasons, if the battery is not operating at the temperatures, currents and DODs specified in the performance warranty requirements, it should be inspected frequently according to the conditions of use applied.
WeCo bases warranty and safety on the standard conditions of use described above; Heavier uses and at suboptimal temperatures will have direct effects on premature battery aging and intrinsic safety.
With System Design, the designer, based on the prescriptions of this manual and on his own experience, must guarantee some important steps:
System longevity: Establishing an appropriate frequency for maintenance and inspections can extend the useful life of the system, preventing premature failures and ensuring that the system operates at optimal levels for as long as possible.
Safety: Regular maintenance and inspections help identify and fix potential safety issues before they can cause accidents or malfunctions.
Operational efficiency: A well-maintained system tends to operate more efficiently, with fewer interruptions due to failures or malfunctions, thus ensuring better performance and reliability.
Cost Consideration: While regular maintenance incurs additional costs, it can actually help reduce overall costs in the long run, preventing costly failures and extending the life of the system.
Breakdowns and rapid intervention: in the event of a battery failure and/or alarm, it is mandatory to immediately disconnect the battery from the inverter and keep it off until the technician arrives.
To ensure that these maintenance practices are followed correctly, it is essential that they are well documented and passed on to the end customer or maintenance person. This includes the preparation of a detailed maintenance plan, which specifichi la frequenza delle diverse attività di manutenzione e ispezione, basata sulle caratteristiche specifiche del sito e dell'applicazione in cui il sistema è installato.

BATTERY OPERATION

There are several factors that affect the operation of the battery in terms of its ability to provide capacity and life expectancy.
If you respect the battery, it will work safely and efficiently for many years.

Storage

The battery module should be stored in its original packaging, in a clean, level, dry, cool place and indoors.
The recommended storage temperature is 25°C +/-5 (case b.), but different storage ranges are acceptable:
14°F to +32°F / -10°C to +0°C range: Inspection and recharge required every three months, SOC required at 40-60%
32°F to +86°F range / +0°C to +30°C: Inspection and recharging every six months required. SOC required at such ranges 40-70%
86°F to +113°F / +30°C to +45°C range: Inspection and refilling every three months required. SOC required at such ranges 25-30%
NOTE: Maximum charge is 0.2C at an ambient temperature below 11°C and maximum 0.5C in the range of 12°C to 35°C.
The maximum SoC for maritime transport is regulated by the UN directives or by the transport companies, so it may vary over time.
Inspection parameters: Identify the state of charge, search for alarms and act accordingly, look for physical damage to the battery module.
For trickle charging, charging at between 0.1C and 0.2C up to 50%-70% SOC is suggested and then discharging to the SOC limit allowed by local regulations.
SOC suggested 30%~50% if stored in stock.
Do not recharge below +10°C
If shipped by sea, you must refer to the UN38.3 standard; for road, rail or air handling, refer to the local ADR codes or similar.

Operating Temperature and Thresholds (even outside the thresholds allowed by the performance warranty)

Many chemical reactions are affected by temperature and this is also true for the reaction that occurs in a WeCo storage battery.
The chemical reaction of a lithium ion is slowed down by the lowering of the temperature of the electrolyte contained in the battery, which results in a lower capacity and a higher long-term performance decay index in direct proportion to the departure from the optimal temperature prescribed by WeCo.
A new battery that provides 100% of the rated capacity at 25°C will only provide about 75% of the rated capacity when deployed at 10°C.
At 0°C charging is not normally allowed by the BMS, except for the emergency condition managed by the BMS.
At temperatures below -7°C the BMS will only allow 0.03C of charging current for emergency situations; at temperatures below -10°C, charging is prohibited.
Although it is possible to discharge the battery down to -20°C, it will then be impossible to recharge it as the charging phase is prohibited at 0°C.
These thresholds do not mean that the battery warranty applies even under such conditions, even if allowed by the BMS as extreme values.
The logic of the BMS does not coincide with the thresholds to be respected in order to benefit from the performance warranty, as compliance or non-compliance with the latter is up to the end customer, while the limitations inherent in the battery safety thresholds are set by the BMS as factory data.
The warranty conditions (Functional and Performance) are well described in the "Limited Warranty" document and should be read before purchasing the product.
For the performance warranty, WeCo requires that the batteries are installed in a closed environment that allows the maintenance of a temperature in the range of +11°C and +35°C, (thermoregulated) that does not allow condensation or humidity formation above 80%, ventilated and healthy.
For example, the functional guarantee (pursuant to European Regulations) prescribes that the installation of batteries with IP20 must be indoors, i.e. indoors, with controlled humidity and temperatures, while the performance warranty prescribes that charging and discharging must be carried out between 11°C and 35°C at 0.5C and DoD 80%; any use outside these requirements is not covered by the performance warranty.
For the warranty against manufacturing defects, higher temperatures are allowed, i.e. +0°C + 40°C, always indoors, ventilated room and without condensation formation in order not to lose the right to the warranty for manufacturing defects (European warranty).
Most battery capacity/life issues can be traced back to improper charging. Incorrect charging settings can lead to overcharging or undercharging conditions, any incorrect charging process will affect the battery life or its ability to retain power.
The lower the C-Rate of the charge/discharge process, the more the battery will benefit from long-term performance.

Depth of Discharge (DoD %)

The depth of discharge is a function that is implemented through the setting of the hybrid inverter, compatible with WeCo.
The deeper the discharge, (e.g. DoD 100% means completely discharging the battery), the shorter the battery life over its estimated useful life.
The number of cycles and the DoD specification will affect the expected life in years that the battery/battery system will provide prior to replacement.
To maximize the remaining capacity over the battery's useful life, set the inverter's DoD to 20%, this will help maintain health (SoH) for longer.
The functional warranty indicates the maximum DoD at 100% because both the logic and the hardware of the battery have been verified and tested to achieve it, while the performance guarantee establishes that the maximum value of the DoD % (to be set in the inverter) must not exceed the value of 90% at 25°C 0.5C, without prejudice to the previous requirements.
For safety reasons, if the battery is not operating at the temperatures, currents and DODs specified in the performance warranty requirements, it should be inspected frequently according to the conditions of use applied.
WeCo bases warranty and safety on the standard conditions of use described above, heavier use and at suboptimal temperatures will have direct effects on the premature aging of the battery and with it intrinsic safety.

C-Rate

The value of the current used to charge and discharge the battery is expressed in C (0,5C = 157A, 0.1C = 15.7A in the case of the 16K0LV 314Ah battery).

Charge/Discharge

Most battery capacity/life issues can be traced back to improper charging also due to improper location. Improper charging settings can

lead to an overcharge or over-discharge condition or out-of-range current for the temperature condition and SOC%.
WeCo only guarantees batteries connected via CAN/BMS line to the compatible inverter (see compatibility list on the www.wecobatteries.com website) and used according to the warranty instructions published on the website.
CAN/BMS communication is essential both for active and passive safety reasons and in order to be able to conduct all active control interactions with the inverter. The BMS has dynamic algorithms that vary according to current or previous conditions stored during the charge-discharge or stand-by phases.
Modern inverters/charge controllers are equipped with a CAN/BMS interface and no special settings are required to charge and discharge the battery, except for the setting of the charge/discharge power and the DoD% (if the customer wants to comply with the STC requirements, he must read and comply with the warranty conditions defined as STC and set them on the inverter).
Maintenance at optimal temperature, on the other hand, must be guaranteed by the technical room and the air conditioning equipment installed in it, the inverter is not able to interact with the settings with reference to the temperature of the environment in which it is installed, also because the inverter and battery could be exposed to different environmental factors in different environments.

Warranty (Functional Warranty Against Manufacturing Defects) and Performance Warranty
Although the battery BMS allows a wide range of use both in terms of temperature and charging currents, this should not be interpreted as an implicit authorization to use the battery at these levels with reference to the performance warranty.
For the purposes of the performance warranty, it is mandatory that the battery is used within the range of temperature and charge/discharge current and depth of discharge indicated in the warranty itself and also reported in these paragraphs.
Any other use, even if permitted by the BMS thresholds, is not covered by the performance guarantee.

Firmware Updates

In the event of BMS firmware updates as a result of improvements, corrections, or other reasons, this manual and warranties may be updated accordingly. Check the release notes for critical firmware on the site www.wecobatteries.com at your distributors. **Critical Release Firmware must be installed as per warranty requirements.**
To obtain support if your system is not equipped with a WiFi module, please contact service@wecobatteries.com.
All WeCo batteries produced since the beginning of 2019 can be equipped with a WiFi system for connection to the WeCo Cloud, this solution ensures that you are always updated to the latest FW version notified in the APP, the Upgrade function must still be piloted by the user as during the update the battery will have to turn off for safety reasons and it is therefore necessary to plan this action in such a way that no inconvenience is created for the users of the system.
The FW update can also be carried out locally via Bluetooth App, even in the absence of WiFi; you must have a 4G connection and keep the Bluetooth App open until the App displays: ''NEW FIRMWARE AVAILABLE'' after which you can reach the battery in an area not covered by data signal and/or Wi-Fi and perform the FW update via the BT connection.
The customer has the right to subscribe to the newsletter to obtain information regarding the firmware release and any other communication regarding the products and their use.
Any security enhancement update is released as critical and must be installed by the customer or their designee within the deadline
Sign up for the WeCo newsletter to receive emails with your battery's technical updates and critical FW update

ERRORS
In the event of a permanent error with red LED on **the LED bar, do not restart or reset the battery and contact the after-sales service**, incorrect manoeuvres could cause damage to people or property, isolate the battery from the inverter immediately if such errors are detected.

BMS
acronym for Battery Management System, which is a combination of sensors and processors assembled in PCBs in order to monitor and control cells under various aspects such as: Temperature, Current, Voltage.
The logical part, on the other hand, has the multiple function of processing all this data and controlling the battery to stay within defined thresholds.
Il BMS svolge anche la funzione di interfaccia di comunicazione esterna con l'inverter o il controller del caricabatterie per impostare attivamente il parametro operativo che la batteria può sopportare in quel particolare momento.
The BMS logic part is also responsible for calculating the SOH SOC and storing real-time battery data, warnings, alarms, operating time and various other useful parameters

SOC

The soc is not measured, it is a calculation derived from quantities such as voltage, current and temperature.
State of charge (SOC) calculation in lithium batteries is a method used to estimate the percentage of charge remaining in a battery.
The calculation is based on voltage, current, and temperature, and can also be used with algorithms to account for age and battery usage history.
The SOC value is an estimate and is not accurate as many factors may affect the daily calculation, for this reason it is important to reset the SOC calculation by fully charging a battery to the maximum, **to reach 100%, at least once a month**, the user is responsible for charging the battery at least once a month to 100%, Reaching 99% is not enough.
This will reach the upper limit of the battery and the SOC can be reset to a known point.

SOH
SOH is an estimate expressed as a percentage, which indicates the current capacity of a battery compared to its initial condition when it was new.

It reflects the battery's ability to store and provide energy during aging, SOH is not a reliable value and has no contractual value, it serves as a statistical approximation of battery use.
It is an indicative and statistical figure with no contractual value
Optimal chemical reactions: Chemical reactions within the battery occur efficiently within the cell temperature of +15 °C +30 °C, providing a balance between performance, longevity and safety
Optimal temperatures: For any lithium-ion battery the best operating cell temperature is between 20 °C and +30 °C, which means staying within an ambient temperature of +15 °C + 25 °C
Optimal temperatures for improved safety and performance: Optimal capacity, charging speed, and cycle time are guaranteed within the temperature ranges stated above. Installing batteries in air-conditioned environments such as cabinets or technical rooms is always the best solution for their safety and longevity.
Reduced capacity: caused by the temporary effect of temperature on chemical reactions but it is also an irreversible effect caused by the three factors: Use/current ratio – Temperature of use -Aging
Slower charging: This is typically a reaction of the BMS to impose a slow current due to low temperature, this leads to an irreversible effect in addition to the reduced capacity effects explained above. Slow charging is also a good practice when the battery is at its optimal temperature, in fact using the battery at 0.2/0.5C will ensure greater capacity/safety/longevity
Plating effect: In low-temperature operations, so charging and discharging at very low temperatures, lithium deposits on the anode can lead to internal battery damage, early loss of capacity, and reduced safety.
Higher capacity and conductivity: High cell temperatures (above 30-35°C) can increase the relative capacity and conductivity of the battery. Giving a false effect of 'better performance''. This is a short-term benefit as battery degradation accelerates to high temperatures.
Accelerated aging/degradation: Exposure to high temperatures leads to accelerated aging of the battery. It can cause electrolyte degradation, separator damage, and increased internal resistance, especially under low voltage and persistent low temperature conditions. **Thermal runaway**: The cell exposed to high temperatures can overheat and potentially lead to a cell valve vent and/or fire due to electrolyte gasification.
Thermal runaway due to plating and dendrites: a "sneaky" consequence due to misuse of a lithium battery, e.g. exposure to low or high temperatures, excess discharge, excess exposure to low voltage in a cold environment, thermal runaway, cell venting due to an internal short circuit, and increased resistance that will cause persistent short circuit and cell deformation.

The galvanic effect is also a consequence of extreme undervoltage and subsequent reuse of the battery and in the long term could cause cell malfunction and possible short circuits, which is why a lithium battery found in extreme undervoltage conditions must never be reused and must be disposed of at a center authorized by a qualified company.

Temperature Management Systems:

The fact that the battery 16K0LV is equipped with a heating system should not be understood as an implicit authorization to install the product in cold and/or unhealthy places, the heating system serves as an aid in the event that the temperature of the room falls below the permissible value for recharging.

ATTENTION

External protection switches between inverters and batteries

External protection switches. Switches and external protections **must be sized, selected and installed according to the indication of the system designer** according to the wiring diagram, the available short-circuit currents, the installation environment and the safety requirements of the site.

These devices (e.g. switches-disconnectors, MCB/MCCB, RCD/RCCB, SPD, DC/AC disconnectors, emergency stops) **must guarantee visible disconnection, adequate breaking capacity, selectivity and coordination** with the internal protections of the inverter and batteries. Additional **safety systems** (e.g., fire, barriers, ventilation/extraction, monitoring) may be required depending on site characteristics and applicable regulations. Compliance with local standards and regulations remains **the responsibility of the designer/installer**.

Legal Information

Unless otherwise agreed, this document is intended to be used only as a guide to the installation, maintenance and management of the product, all statements, information and advice contained in the documentation do not constitute any express action or implied statement in contradiction with local regulations or standards.

For more information, please contact us.

Official information and the latest data sheet are available on www.wecobatteries.com; however, they can be requested in real time at service@wecobatteires.com. Hyperlinks, third-party links, digital datasheets published on web social media or even printed in print media may not be updated to the current version of the product. Before purchasing the product, check the website for technical data and warranties updated to the current date.

It is essential that the battery unit is equipped with the latest firmware version available on the www.wecobatteries.com site or WeCo APPs.

From time to time, WeCo will release a new firmware to improve the functionality of the battery, if your battery is equipped with WiFi (paid accessory) and you are registered on our APP, the new firmware will be visible in the APP and can be updated with a simple click from your phone.

The latest firmware version is always available for free; the battery firmware can be updated by the local installer via RS232/USB and Windows PC (reserved for installation technicians) or via APP for batteries equipped with WiFi dongles.

You can also write an email to service@wecobatteries.com to understand and be supported in the upgrade process.

To benefit from the guarantee, **the request must be received within 10 days of the event**, by sending a request via email to service@wecobatteires.com or by filling out the RMA ticket.



The 16K0LV battery module is designed to be used only in sheltered and restricted access environments.
The IP rating **should not be understood as implicit authorization for outdoor installation.**
In any case, installation must be provided in protected and sheltered environments from the weather
The place must be ventilated and dry, sheltered from extreme temperatures, which are harmful to the life and safety of the battery.
Use in an outdoor environment or not compliant with the IP degree is prohibited and potentially dangerous to the health of people and/or property.

Production guarantee

Although the battery BMS allows for a wide range of use, both in terms of temperature and charging currents and DOD, this should not be interpreted as an implied authorization to use the battery at these levels.
For purposes of the Performance Warranty, it is mandatory that the battery be used in the range of temperature and charge/discharge current and depth of discharge indicated in the Performance Warranty.

The capacity is understood to be of the new product, within 3 months of production and stored as prescribed, the capacity test must be carried out at a base temperature of 25°C with saturation charge of the cells and then discharge test at 0.2C as prescribed by the warranty conditions. Write to service@wecobatteires.com for more information.
See the Limited Warranty Document for more details

Performance guarantees

This is an additional warranty and applies to the performance warranty expressed in cycles, provided that the battery has been used in accordance with the performance warranty usage criteria and only to batteries connected via a BMS line to an approved inverter. The battery's operating parameters must remain within the performance warranty terms throughout its useful life, otherwise the performance warranty will not apply.
Any other use, even if permitted by the BMS ranges such as limits exceeding the values indicated by the performance warranty, is not covered by the performance warranty, but the legal warranties remain valid.
See the limited warranty document available on the website www.wecobatteries.com in the download and warranty area.



Important Battery Safety Information

Knowing a lithium battery is important for good and optimal storage. An additional information guide to the manual is available and you can request it from WeCo by writing to service@wecobatteries.com

MISUSE

It is not allowed to use a battery that has been affected by:
-Overvoltage
-Under voltage (excess discharge beyond the safe limit)
-Overtemperature
-Under temperature
-Overcurrent.
It is forbidden to use a battery that exceeds the operating limits of the BMS and the storage and use limits indicated in this manual
Nor is it prohibited, as it is absolutely dangerous, the battery must be disposed of in an authorized landfill
The use of batteries that have been used outside the operating parameters is dangerous and must be avoided at all costs.
It is absolutely forbidden to remove the BMS and replace it in order to continue using the battery.
Do not attempt to restart or re-operate the battery after such events by acting on the BMS or changing the functions of the BMS

Scheduled Maintenance and Inspection Procedure – WeCo 16K0LV

Maintenance and Inspection Procedure – WeCo 16K0LV

1. Purpose and Responsibility

This procedure defines **activities, frequencies, acceptance criteria** and **records** for the routine maintenance of the 16K0LV (low voltage) system.
The execution is **reserved for qualified and authorized personnel**. The **designer/installer/operator** is responsible for compliance with applicable standards and for maintaining the required environmental conditions.

2. Preliminary safety (mandatory)
PPE: Insulated gloves, goggles/visor, anti-static shoes; DPI arc-flash when appropriate.
LOTO: Apply **Lock-Out/Tag-Out** on all sources (AC network, PV/DC, groups).
No voltage: Check with a CAT III/IV multimeter that the terminals are **≈ 0 V** before operating.
Work area: forbidden to non-professionals; ensure adequate ventilation and lighting.
Prohibitions: no DC hot-plugs, no live parts, no use of non-approved spare parts.

3. Conditions and tools
Environment: site **sheltered** from precipitation/splash/dust; no persistent condensation.
Minimum tools: calibrated multimeter, torque wrenches with certificate, suitable anti-oxidation protective spray, non-conductive cleaning kit, smartphone with **WeCo APP**.
Tightening torques: only follow the official table in the 16K0LV manual.

4. Frequencies
Monthly (30 days): 100% SOC verification via APP; alarm/log check, the system must be 100% calibrated with a forced charge if necessary
Quarterly (3 months): general cleaning/inspection; electrical checks; APP/SOC-SOH verification.
Six-monthly (6 months): in-depth **checks**, breakers, contactors, RJ45; tightening and mechanical status recheck.

5. Activities and acceptance criteria

5.1 Monthly verification (30 days)
Activity
Check via **WeCo APP**: SOC, SOH, voltages/currents, temperatures, events/alarms.
Confirm **SOC achievement = 100%** at least 1 time/month (full equalization cycle, if expected).

Acceptance criteria
No active/pending alarm; SOC 100% achieved; deviations readings consistent with specifications.
Corrective
In case of repeated alarms or failure to reach 100% SOC for 2 consecutive cycles: open tickets to **WeCo Service**, register Case ID and follow instructions.

5.2 Quarterly Audit (3 months)
Activity
Cleaning/visual inspection: remove dust and foreign bodies; check **for oxidation/rust on** terminals, BUS BARS, connectors, body.
Electrical connections: check **tightness** (see torque table in the manual); check the integrity of the DC/AC cable insulation and correct installation (no crushing/radius < minimum).
APP & monitoring: analyze SOC/SOH **graphs**; check **V/I consistency** between modules.
Acceptance criteria
Dry and clean surfaces; no visible oxidation; tightening within tolerance; no sheath damage; regular SOC/SOH trends; Differences in module voltages within manual limits.
Corrective
Cleaning with a suitable product; restoration of rubber/silicone protections; restoration of tightening; replacement of damaged components/kits only with **WeCo spare parts**.

5.3 Semester Verification (6 months)

Activity
RJ45/CAN: check cables free of crushing/cuts; inspect plugs/ports for absence of oxide/corrosion; check firm hooks and correct **120 Ω termination** where provided.
Mechanical checks: recheck **tightening** with a torque wrench; check brackets, screws and anchors.
Advanced cleaning: remove any deposits, use **anti-oxidation spray** where necessary.

Acceptance Criteria
Breakers/contactors with smooth functionality (no gluing/delays); stable CAN continuity (no errors/CRC in log); undamaged fast-plugs; RJ45 oxide-free; compliant couples; no cracking, no foreign body.

Corrective Action
Replacement of faulty/worn components; gasket restoration; oxidation restoration; firmware update when requested by WeCo.

6. Records and traceability (mandatory)
Fill in **maintenance checklists** with **date, time, operator, serial numbers** and **results**.
Store APP **logs/screenshots** (SOC/SOH/ALARMS) and tightening reports (applied values).
Open **tickets** to WeCo in case of anomalies and write the case ID on the checklist.
Keep records for at least **5 years** (or period required by local law/contract).

7. Non-conformity and warranty
Failure to carry out the planned activities, the use of non-approved spare parts or environmental non-compliance may result in **warranty limitations/exclusions** within the limits of the law and the **WeCo Warranty Terms**.
Any non-conformity must be **removed before** recommissioning; commissioning with open defects on safety/insulation/tightening is prohibited.

8. Operational annexes

Maintenance checklist (monthly/quarterly/half-yearly) with signature fields and notes.
Tightening torque report (official manual table 16K0LV)
Intervention report form and attachments with "before/after" photos.

Maintenance Checklist

Operator Name Surname		Data	
Company		Site/Plant	
Verification Type	□ Monthly (30 days) □ Quarterly (3 months) □ Half-yearly (6 months)	APP saved logs	□ Yes □ No
SERIAL BATTERIES	HV BOX SERIES (Not needed for 16k0LV)	INVERTER MODEL	SERIAL INVERTER

Activity	Outcome (□ OK / □ N.C.)	Note
APP – 100% SOC Achievement Verification (at least 1x/month)	□ OK □ N.C.	
APP – No Alarms/Warnings and SOC/SOH Reading Consistency	□ OK □ N.C.	
Cleaning – No dust/deposits/moisture	□ OK □ N.C.	
Visual inspection – No oxidation/rust on the body, clamps, connectors	□ OK □ N.C.	
Electrical connections – Tightening according to WeCo manual table	□ OK □ N.C.	
DC/AC Cables – Integrity, Insulation and Proper Routing	□ OK □ N.C.	
Fast Plug – Mechanical integrity (no play/wear/deformation)	□ OK □ N.C.	
Fast Plug – Tenuta acqua: guarnizioni integre e sedi pulite	□ OK □ N.C.	
RJ45 – Cables without abnormal crushing/cuts/bends	□ OK □ N.C.	
RJ45 – Oxide/Corrosion Free Plugs and Interior Doors	□ OK □ N.C.	
RJ45 – Firm hooks, no false contacts	□ OK □ N.C.	
Mechanical Fixings – Brackets and screws intact, no cracks	□ OK □ N.C.	
Advanced Cleaning – Contacts treated with anti-oxide protective (if necessary)	□ OK □ N.C.	
Notes/Anomalies found	□ OK □ N.C.	

Operator Declaration:
The activities listed above have been carried out according to procedure and in compliance with safety regulations.

- THERE ARE NO DISCREPANCIES □
- DISCREPANCIES FOUND, THE SYSTEM IS ISOLATED AND MADE SAFE □

Operator signature		Time and data

Revision history

Change logs describe each update made to the document. The latest version includes all updates from previous versions. Once a new version is published, the previous version will no longer be valid. To always get the updated version, please consult the official WECO website. WECO accepts no responsibility for any loss or damage resulting from the use of obsolete documents or manuals.

If BMS firmware versions are released as a result of international industry regulations, the customer must endeavor to install them within 60 days of their release by WeCo.

These FWs may change the basic functions of the battery or require different intervention or interaction than those supplied at the time of purchase. For such events, WeCo cannot be held responsible for the changed conditions of use.

Summary

16K0-LV Installation & User Manual **1**
Premise: **9**
Declaration **9**
1. About this document **21**
1.1 Validity and acquisition of information 21
1.2 Subject matter 21
1.3 Contents of the manual 21
1.4 Firmware and software 21
1.5 Symbolic conventions 21
1.6 Acronyms of this manual 22
2. Safety Instructions **23**
2.1 Intended Use 23
2.2 Important Safety Instructions 23
2.3 Installation Environment Requirements 23
2.4 Personnel requirements 23
2.5 Battery Handling and Moving 24
2.6 Hazardous material 24
2.7 Battery Storage 25
2.8 Battery Disposal 25
3. Battery Module Overview **26**
3.1 Product Introduction 26
3.2 Battery module Introduction 26
4. Installation **29**
4.1 Pre-Installation Package List Checking 29
4.1.1 Packing List 29
4.2 General Preparation 30
4.1.2 Installation Location 30
4.1.3 Installation Tools 31
4.3 Install the Battery Module 32
5. System Commissioning & Decommissioning **44**
5.1 Check Before commission 44
5.2 System Commission 44
5.2.1 System Configuration 44
5.3 System Decommission 47
6. WECO WIFI App Operation **48**
6.1 App Introduction 48
6.3.1 Copyright Notice 48
6.3.2 Manual Contents 48
6.3.3 Manual Instructions 48
6.3.4 Usage Requirements 48
6.3.5 Registering a WECO WIFI APP Account 48
6.2 Log in and Disconnect the APP 49
6.2.1 Log in to the APP 49
6.2.2 Logout from the APP 50
6.3 Add the first device 50
6.3.1 Add another device 51
6.3.2 Display Device 52
6.3.3 Display the main parameters of the device 52
6.3.4 Viewing Trend Charts 53
6.3.5 Display Detailed Device Parameters 53
6.4 Frequently Asked Questions 54
6.4.1 How to reset your password by email if you have forgotten it? 54
6.4.2 Resetting the user's password 54
6.4.3 When the user logs in to the app, asks how to fix the network anomaly? 54
6.4.4 Device Not Displayed After Adding 54
6.4.5 Network Changes: How to Reconfigure Device Network 54
7. WECO Bluetooth App Operation **55**
7.1 App Introduction 55
7.1.1 Copyright Notice 55

7.1.2 Manual Content 55
7.1.3 Manual Instructions 55
7.1.4 Usage Requirement 55
7.2 Log in and log out the APP 56
7.2.1 Log in to the APP 56
7.2.2 Exit the APP 57
7.3 View Device and Setup 57
7.3.1 Display the main parameters of the device 57
7.3.2 Set the Battery Protocol 58
7.3.3 Always update the firmware to the latest version 59
8. Storage 60
8.1 Storage - Transport - Removal / Transfer of batteries 60
9. Maintenance and Replacement 61
10. Battery Module Disposal 62
10.1 Remove the Battery 62
10.2 Packing the Batteries 62
10.3 Dispose Batteries 62
Appendix A Technical Parameters 63
Appendix B Device Label 64

1. About this document

1.1 Validity and acquisition of information

This manual applies to the WECO 16K0LV battery module. Only qualified personnel authorized under the laws of their country may install, troubleshoot, and maintain battery modules.

In the event of a product revision, this manual will be modified accordingly. Unless otherwise agreed, this document is intended solely as a guide, and all statements and information contained in the documentation must not contain any express contradiction with local regulations or standards.

For further information, please do not hesitate to contact us.

Official information and the latest technical data sheet are available at *www.wecobatteries.com.*

1.2 Subject matter

The instructions contained in this document may only be carried out by qualified persons within the meaning of applicable laws:

- Installation and maintenance person (authorized supplier or installer)
- Owner or User trained and informed by the installer

Failure to do so shall result in any warranty or liability of the manufacturer being disclaimed.

1.3 Contents of the manual

This manual contains information and instructions on safety, battery module overview, installation, electrical connection, maintenance and storage, battery module disposal, technical parameters. Please finish reading this manual carefully before performing any operation on the battery module.

1.4 Firmware and software

It is essential that the battery module is equipped with the latest firmware version available. The new batteries are equipped with the latest firmware version, however before commissioning please check via Bluetooth or WiFi APP for the latest available FW version or search for it on *https://wecobatteries.com/download-area/.*

From time to time, the firmware will be updated to improve the features and capabilities of the battery.

The latest firmware version is always available for free and can be updated by your local installer. You can always contact *service@wecobatteries.com* for more information about the upgrade process.

In the case of a critical update release, the user must install the firmware within 60 days of release.

To stay up to date on firmware releases, please register for the newsletter, check the APP for new firmware notifications and/or check the weco website download area for your battery model.

1.5 Symbolic conventions

Warning symbol

Etichetta	Detail
 Warning	WARNING provides information that should be noticed and taken care of.tag.
 ATTENTION!	CAUTION represents situations that may cause property damage if not avoided.
 Danger	DANGER represents hazardous situations that can cause injury if not avoided.
 Information	Used to highlight important/critical information, best practices, tips, etc. "Instructions" are not safety information and do not include information about people, equipment, and environmental injuries.
 Electric Shock Warning	This label indicates that there is high voltage inside the product and touching it may cause an electric shock.

 Class 9 Miscellaneous Hazardous Substances and Objects	Substances and objects which, during transport, present a hazard that is not included in any of the other classes are classified in class 9.
 The battery must be recycled.	The battery must be recycled
 No fire symbol	Fire is strictly forbidden within 40mt
 Dangerous goods	This label indicates that there is a hazardous risk of explosion that could be induced by the product
 Limit temperature mark	This label indicates that there is a temperature limit of the product.
 Keep dry	This label indicates that the product is capable of continuing to do so.
 Caution: may generate flames	This label indicates to avoid fire to the product.
 UN Mark 3480	Follow the UN regulations in place to ensure the safety of those transporting for lithium battery products.

Description of the certification mark

Icon	Name	Meaning
	Follow current UN regulations to ensure the safety of those transporting products with lithium batteries	This product meets CE certification standards
	EU WEEE logo	EU WEEE logoLogo RAEE dell'UE
	RoHS Mark	This product is RoHS compliant.
	Recycle Mark	The battery is recyclable

The battery is recyclable and must be recycled by a specialized company in accordance with the directives of your municipality or country of residence.

1.6 Acronyms of this manual

No.	Term	EEVOlanation
1	SoC	State of charge
2	DoD	Depth of Discharge
3	Charge	Charged energy
4	Discharge	Discharged energy
5	BMS	Battery Management System
6	Firmware	BMS Logic Control Software

2. Safety Instructions

2.1 Intended Use

16K0LV is a lithium iron phosphate battery module that can be used only in Low Voltage parallel configuration with a closed loop communication with an approved inverter.

 **WARNING!**

For low-voltage use, the extreme working voltage range is 44.8~56.8VDC; F

Make sure you use the correct inverter type or charging parameters before connecting it to the battery. Ensure that the battery configuration is compatible with the inverter's operating range.

Use only WeCo-approved inverters.

 **WARNING:** The battery module should only be used in combination with a compatible inverter. Make sure the make and model of the inverter are within the compatible list of the 16K0LV battery module. Make sure you use the correct inverter charging parameters before connecting it to the battery.

Be sure to select the corresponding inverter protocol in the 16K0LV battery configuration

2.2 Important Safety Instructions

In order to prevent personal injury and property damage and to ensure long-term safe operation of the battery module, please read this section carefully and always pay attention to all safety information.

2.3 Installation Environment Requirements

For high-voltage installation, it must be installed in a location that complies with IP66. For low-voltage installation, it must be installed in a location that complies with IP20. The battery should be installed in a well-ventilated environment to ensure good heat dissipation. Do not expose the battery to direct sunlight, rain, and snow.

 **Warning**

Installations in locations that do not comply with the requirements may result in failure and/or damage to the product, in which case the product warranty will be void.

2.4 Personnel requirements

All electrical connections on the WeCo 16K0LV Battery Module should only be made by qualified personnel.

 **PERSONNEL REQUIREMENTS**

Subjecting the battery to an unsuitable operating environment or damage, misuse, or abuse may result in health and safety hazards such as overheating or the potential for electrolytic smoke. All personnel must comply with safety precautions and observe all warnings as detailed in this document.

If any of the safety precautions or procedures described in this manual are not fully understood by the reader, the reader should not perform any operations on the battery until it has contacted the WeCo Technical Service Representative for clarification and confirmation of understanding of the correct procedure.

 **WARNING**

Installation personnel should not wear metal objects, such as watches, jewelry, and other metal objects when performing installations.

Do not store uninsulated tools in tool pockets or belt while working near the battery to avoid short circuits and personal injury.

 **WARNING!**

The safety guidelines included in this document may not include or consider all regulations in the area of installation/operation.

When installing and operating this product, the installer must review and consider applicable state and local laws and regulations in accordance with the product's industry standards.

Never install the battery within 40 m from gas pipes, fuels, flammables materials and near to the fire escape routes.
Always follow the safety inspector instruction for the design and safety precautions.

2.5 Battery Handling and Moving

The weight of a single WeCo 16K0LV battery module is 55 kg. Use the original packaging and follow all safety instructions if the battery module needs to be moved, to avoid damage to the product and personal injury.

• It is not recommended to move a battery to another system as aging and differences in usage may affect the safety of the system when connected. Always use new batteries, expansion of existing systems is allowed within 300 cycles or 1 year.

• The battery module and its accessories must be protected from damage before and during transport and handling.

• Do not pull, drag, or impact the battery module.

• Before handling and moving the battery module, measure the voltage at the point of the terminal before coming into contact with any terminal surface, to verify that there is no risk of electric shock.

• Non influenzare i terminali durante lo spostamento dei moduli batteria ed è severamente vietato sollevare i moduli batteria attraverso i bulloni laterali.

2.6 Hazardous material

The materials contained in this product may pose a hazard only if the integrity of the cell or battery is compromised, physically, thermally, or electrically abused.

The following are the expected risks in such conditions:Causes skin irritation. It causes severe eye irritation. It can cause an allergic skin reaction. It causes damage to organs (bones, teeth) in the event of prolonged or repeated exposure. Very toxic to aquatic life. Harmful to aquatic life with long-lasting effects.

Protection

Do not eat, drink, or smoke when using this product.
Wear gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling it.
Work clothes contaminated during processing should be cleaned before the next use.
Do not disperse any washing residue and/or the battery itself into the environment, read the safety data sheet of the model 16K0LV before installation.
This product is a "hazardous chemical" as defined by the OSHA hazard communication standard, in any case it is classified as DG9 and UN 3480, so precautions are necessary in its processing, storage, transport and disposal, Read the regulations in force in your country.
Additional information is provided in the MSDS SDS Safety Data Sheet and UN 38.3 Report

 **WARNING**

Additional notes: Do not open or disassemble the battery. Do not dispose of in fire, mix with other types of batteries, charge beyond the specified speed, improperly connect, or short circuit, which may cause overheating, explosion, or loss of cell contents. Do not open or disassemble. Keep away from heat sources/sparks/open flames/hot surfaces.

Do not wear metal ornaments. Always use personal protective equipment and personal protection against electric shock, shock, and ejection.

Action in case of exposure

Under normal conditions of processing and use, exposure to the chemical constituents of this product is unlikely but not impossible.

The chemicals are contained in a sealed aluminum housing, while the cells are fixed in a steel casing. The risk of exposure occurs only if the battery is used mechanically, thermally or electrically abnormally or as a result of an accident.

 **INFORMATION**

If battery modules leak electrolytes, exposure to the leaking chemicals should be avoided. Contact may cause skin irritation and chemical burns. If someone is exposed to the spilled chemicals, follow these steps:

Inhalation or ingestion: Induce vomiting if swallowed, evacuate the contaminated area, and seek immediate medical attention.

Skin contact: Wash thoroughly with water. If irritation or rash occurs, seek medical attention. Remove contaminated clothing and wash it before using it again.

Eye contact: Rinse thoroughly with water for several minutes and seek medical attention immediately.

Provide the SDS/MSDS document of the batteries to the clinicians

2.7 Battery Storage

Store as instructed in the Storage section of this manual, do not exceed six months without an inspection via Bluetooth debugging APP or via PC software to monitor the charging status. The storage temperature affects the SOC retention, if the storage temperature is not between 15 and 30 degrees, the self-discharge may be 1-2% faster per month. Consider these factors in your storage strategies.

- Do not expose to strong oxidants.
- Do not short-circuit the battery module.
- The battery module cannot be stored in a high humidity environment.
- The battery module cannot be stored at high temperatures
- The battery module cannot be stored directly under the sun.
- Do not open or damage the battery. Leaked electrolyte is harmful, so contact should be avoided.
- Batteries should be stored separately in the package. Do not store batteries in the open air and stack them too high.
- Damaged batteries should be monitored during storage to avoid signs of smoke, flame, electrolyte leakage, or heat.

2.8 Battery Disposal

Dispose of the contents/container in accordance with local/regional/national/international regulations.

Always contact a professional company to disassemble and dispose of the battery.

Transport to an affiliated batteire collection center must be carried out by and at the expense of the customer, by means of qualified companies by and at the expense of the owner of the good.

3. Battery Module Overview

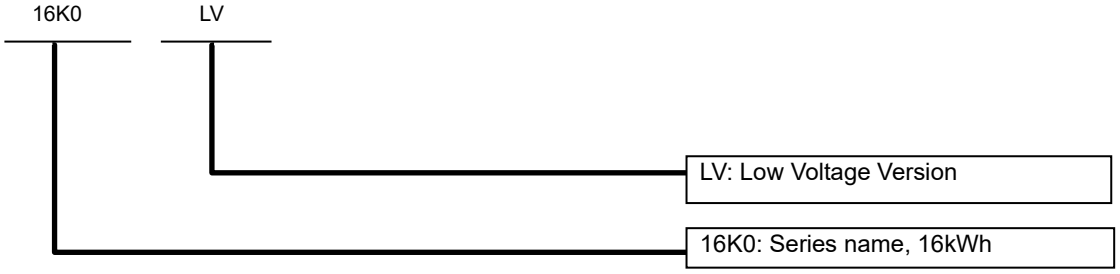
3.1 Product Introduction

FUNCTION

The WECO 16K0-LV is a 16kWh capacity battery module used in a Low Voltage configuration.
It is a lithium iron phosphate(LFP) battery storage system, with the control module on itself. It could be operated in on-grid, backup and off-grid modes with compatible inverters.
Several battery modules can be paralleled together to form a cluster, it supports at most 8 modules to be parallel.
The 16K0-LV battery module has bottom wheels which makes movement and installation to be conducted easily. Also the battery module is IP66 standard which has good waterproof capability. The battery can be monitored and configured via Phone App through the WiFi module and network.

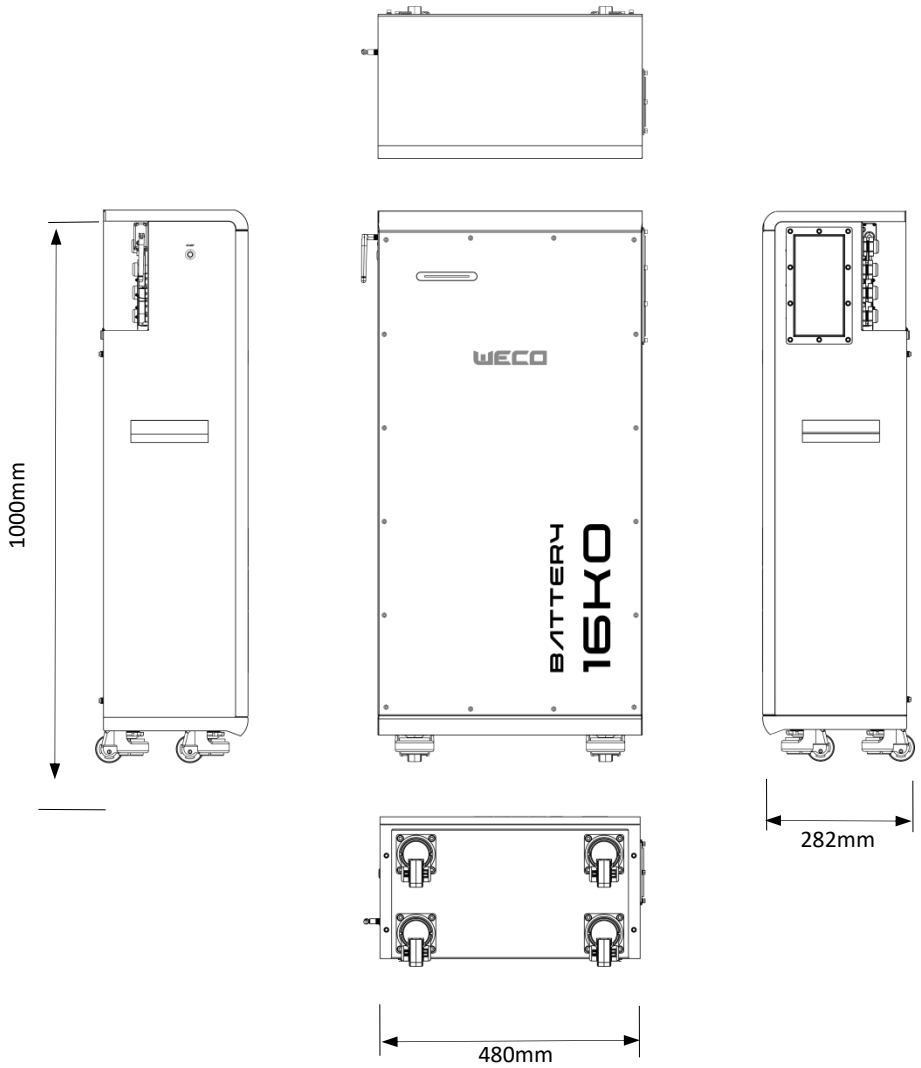
MODEL NAME RULES

Model description: 16K0-LV

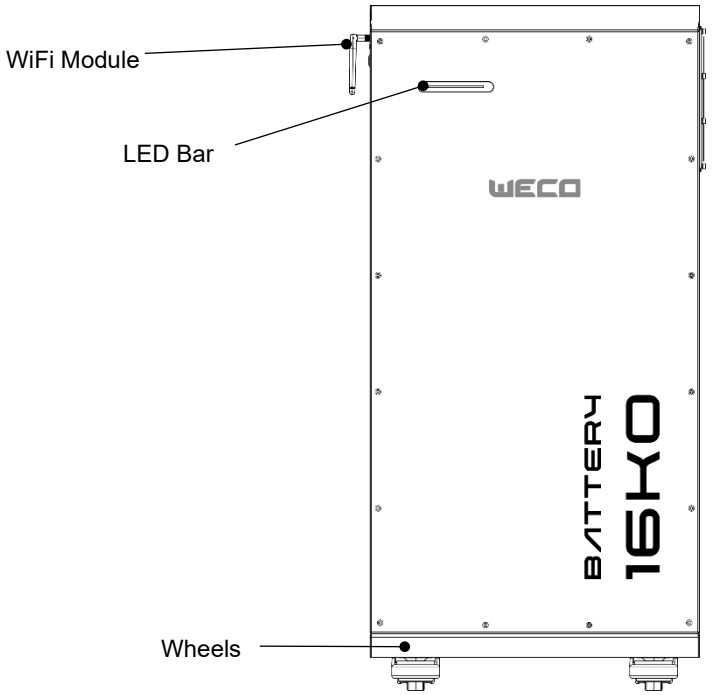


3.2 Battery module Introduction

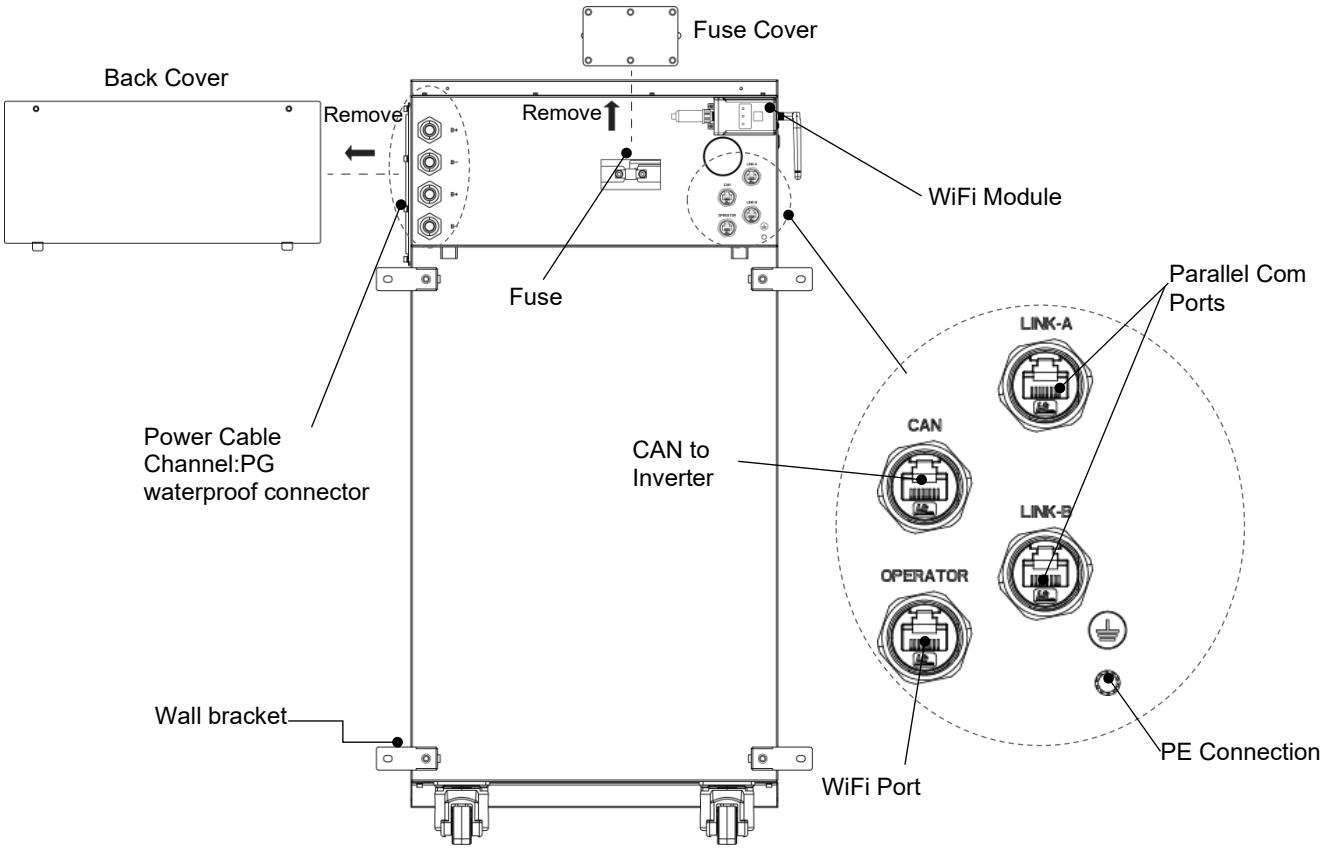
MODULE OVERVIEW



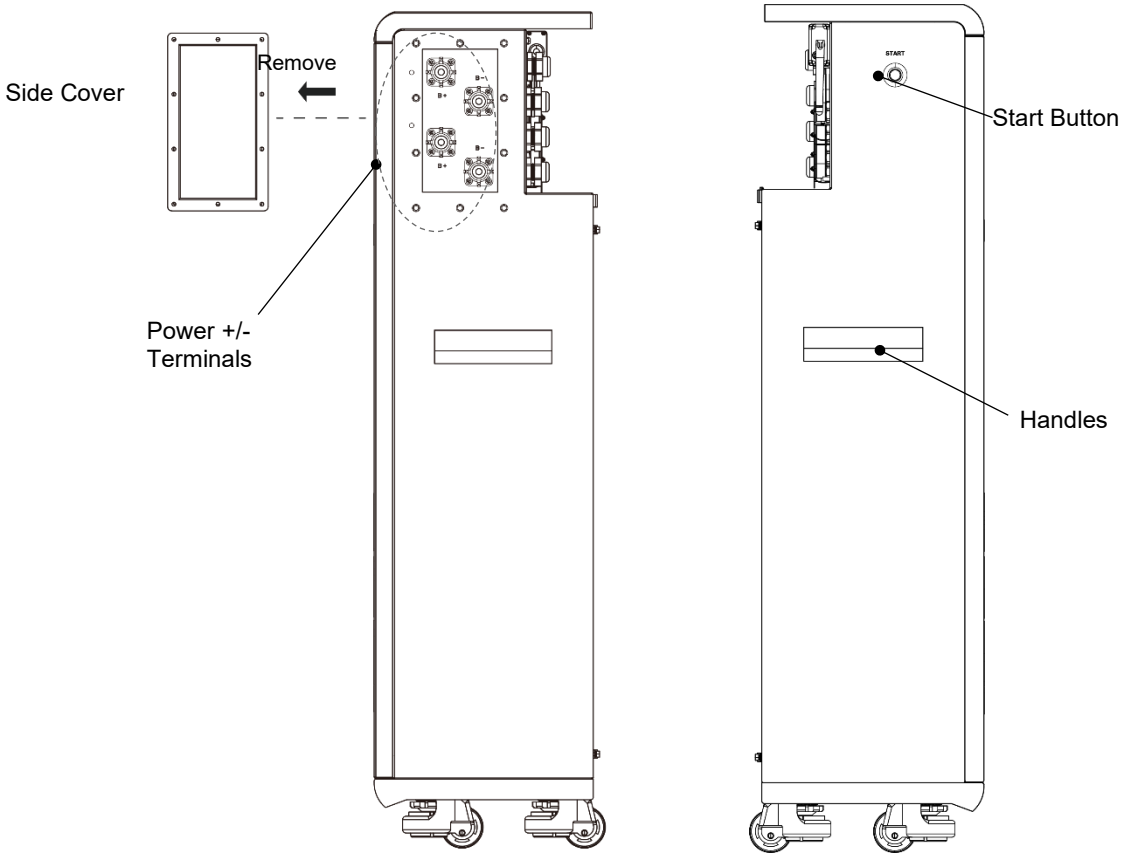
Front View



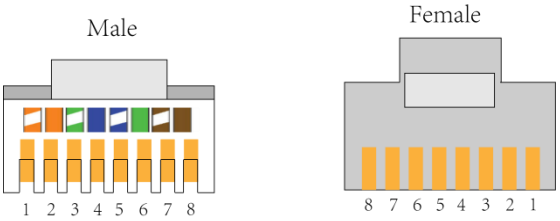
Back View



Side Views



Terminals Definition



PIN	8	7	6	5	4	3	2	1
OPERATOR (232)	/	/	/	/	VCC	GND	Rx	Tx
CAN (CAN port)	/	/	/	/	/	/	CAN_L	CAN_H
LINK A (RS485)	WIN-	WIN+	/	/	/	/	485_B	485_A
LINK B (RS485)	WDO-	WDO+	/	/	/	/	485_B	485_A

4. Installation

4.1 Pre-Installation Package List Checking

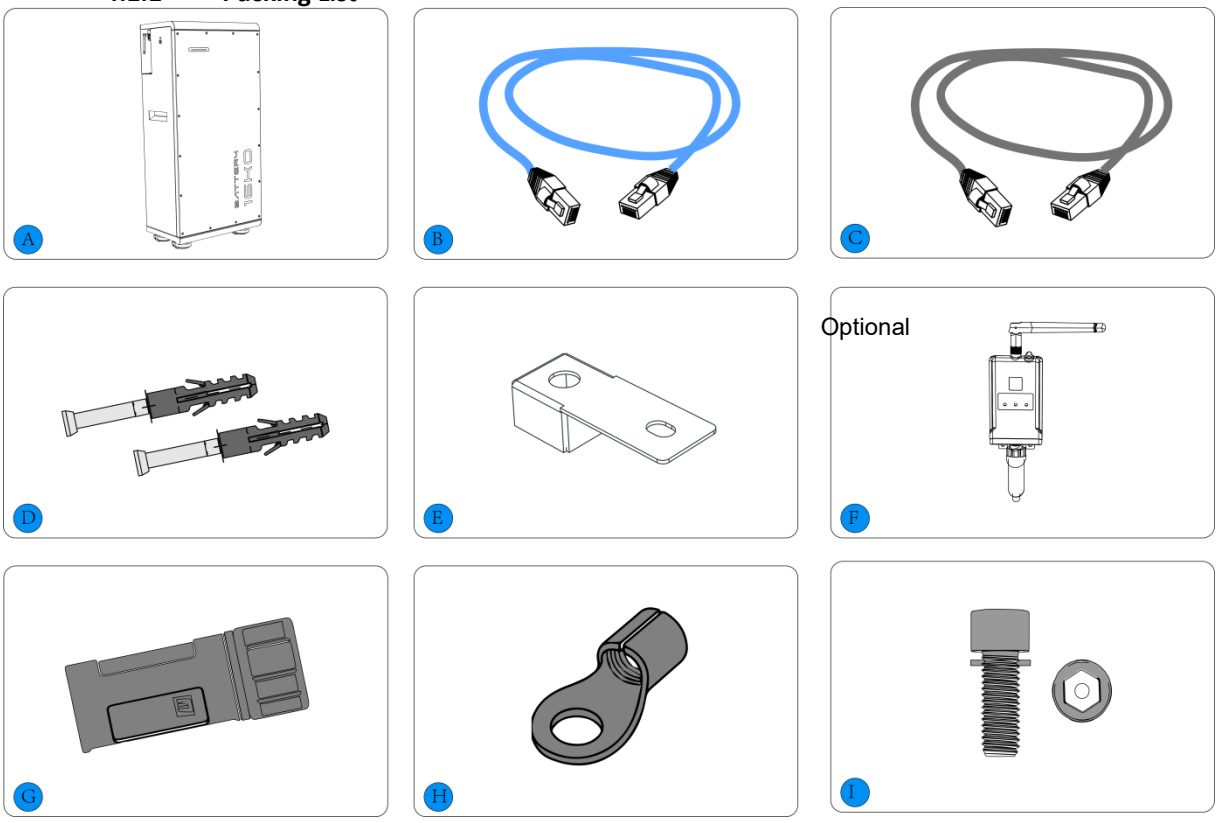
The battery Module is packed in cartons with accessories.
Upon receipt, review the packing list carefully to make sure that the battery module and accessories are received in the correct quantities and type and visually inspect to ensure that they are free from damage.
If battery is damaged and/ or components missing, contact your local WECO representative.

ATTENTION!

Improper Use: Any use of this product not in accordance with the instructions provided in this document will void the warranty.
Unauthorized Modification: Substitution, removal, or replacement of any components within this battery module will void the warranty.
Non-Approved Accessories: Use of components, accessories, or devices not supplied with this product or not expressly recommended

For the exact number and type of deliverables included with this product, please refer to the Packing List enclosed inside the box.
The following packing list is provided for reference only. Actual delivery contents are based solely on the official Packing List included with the shipment.
If you have any questions or discrepancies regarding the delivered items, please contact your authorized dealer immediately.

4.1.1 Packing List

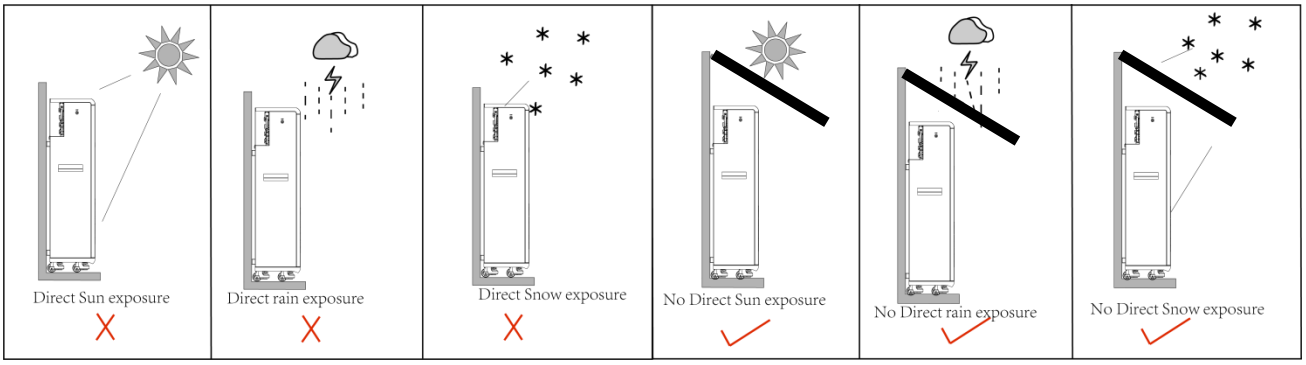


Item	Name	Function &Description	QTY
A	16K0-LV battery module	Battery module body	1
B	Parallel commnunication cable	Battery parallel communication connection	1
C	CAN cable	BMS Communication Cable to Inverter	1
D	Expansion screw assemblyr	Install the wall bracket	4
E	Wall bracket	Fix the battery module to Wall	4
F	WiFi Module (Optional accessory)	Installed on battery for net work communication	1
G	Network cable waterproof connector	RJ45 Wire connector	2
H	OT terminal	OT terminal for power cable to inverter	4
I	Screws	M4*10 Spec + M8*16 spec hexagon screws	4+4

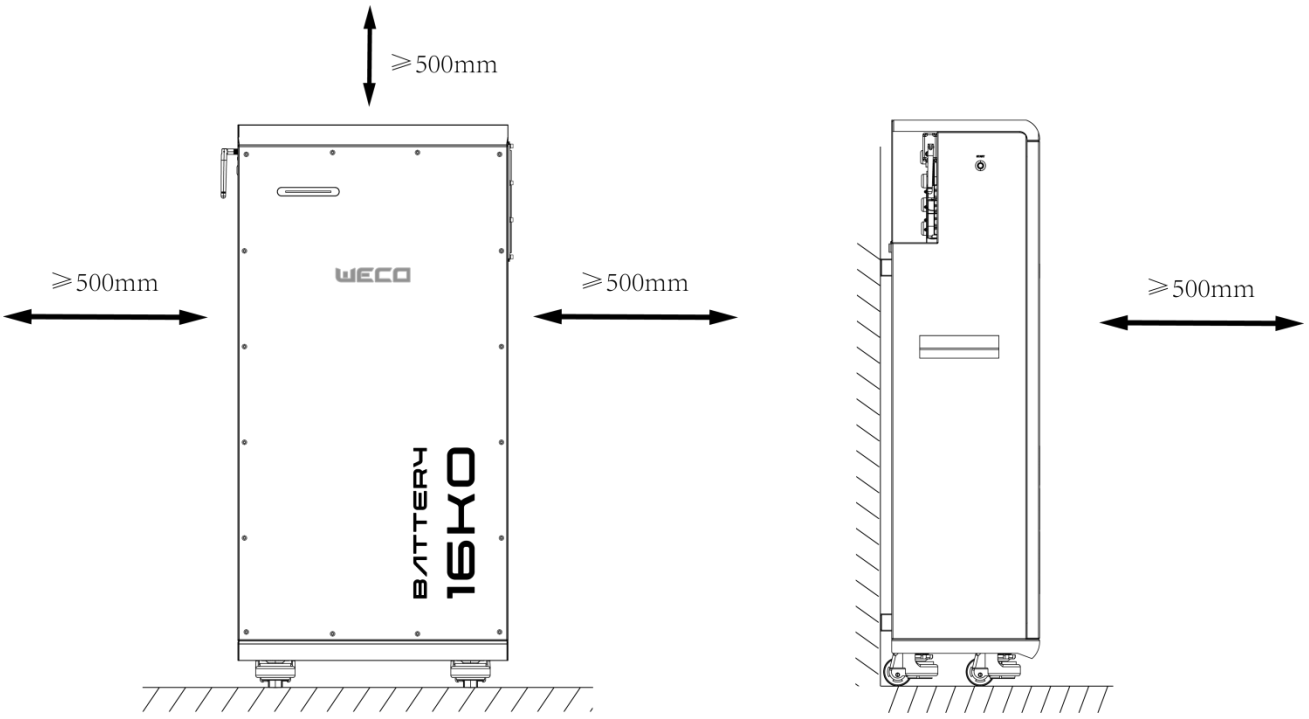
4.2 General Preparation

4.1.2 Installation Location

Battery module shall be installed in a proper place in accordance with IP66 level. The installation and operating environment need to comply with local codes as well as relevant international, national and regional standards for lithium-ion battery.
Keep away from direct sunlight, rain exposure, snow accumulation during installation and operation. It is recommended to choose a sheltered installation site and install under a sunshade roof.
Installing the battery outdoor even if shaded by sun or precipitation might expose the battery to high or cold temperatures, the correct and suggested temperature range is +15 +30 Celsius, be aware, different temperature will lead to early degradation of the chemistry. IP66 ingress protection do not intend to be weather or temperature proof.
Please refer installation location on below figure.



The distance between the system and surrounding objects should meet the following conditions: left and right distance ≥ 500mm; Upper distance ≥500mm; Lower distance ≥ 500mm; The distance ahead should be ≥ 500mm to ensure sufficient installation and heat dissipation space.



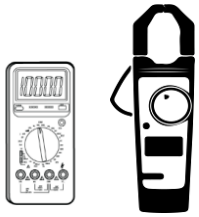
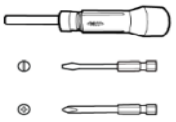
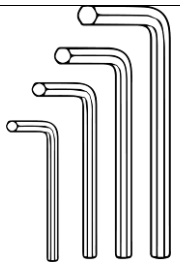
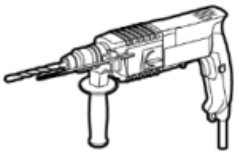
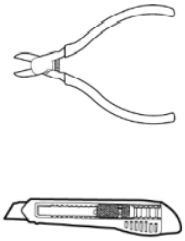
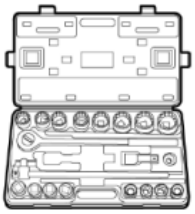
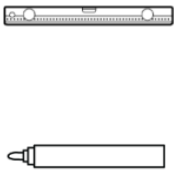
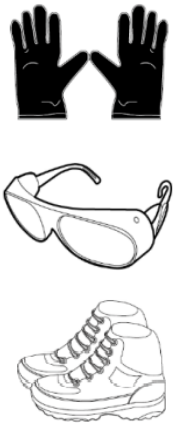
Warning!

Ensure that all the modules are turned OFF. Ensure a clean environment, keep away from water sources such as taps, sewers, sprinklers, etc. to avoid water infiltration.
Ensure the enclosure is free from damages dents or any deformations caused by impacts.
Battery installation location should be away from sources of heat, protected from any source of fire, free flames and any other sources of extreme temperature.
Battery connecting cables shall be as short as possible to prevent excessive voltage drops.
Battery installation must be away from any gas, fuel or any inflammable gas or liquid.

The internal electronic devices can cause internal sparks during the normal usage.
Before connecting the battery, the battery positive and negative poles shall be checked to ensure correct installation.
The installation location must be suitable for the weight and dimensions of the battery system.

4.1.3 Installation Tools

According to different installation methods, installing this battery system will require the use of all or part of the following tools:

 Multimeter + Current clamp	 Insulated Screwdriver Set	 Insulated Allen Key Set from 2 mm to 8 mm	 Drill + Hammer
 Electrician Scissors & Kinfe	 Insulated Torque Wrench Set	 Horizontal ruler + mark pens	 Safety personnel equipments

Torque requirements

When using screw (bolt) tightening, all connecting fasteners must meet the tightening torque or tightening force and must not undergo any plastic deformation, cracks or breakage.

Screw torque recommendation table

Screw type	M3	M4	M5	M6	M8	M10	M12	M16
(N*m)	0.7-1	1.8-2.4	4-4.8	7-8	17-20	34-40	60-70	119-140

4.3 Install the Battery Module



ATTENTION!

> ⚠ **Risk of Injury Due to Battery Weight**
> The battery module is heavy. Incorrect lifting, handling, or dropping of the unit during transport or installation may cause serious personal injury or equipment damage.
>
> - Always lift, carry, and install the battery module with care.
> - Use appropriate lifting equipment or sufficient manpower to prevent accidents.
> - Wear suitable **Personal Protective Equipment (PPE)** (e.g., safety gloves, safety shoes, protective clothing) when handling the battery module.
> - Installation and related operations must be performed **only by qualified personnel**, in accordance with applicable national and local laws and regulations.

The battery module is delivered ready for **floor-standing or wall-mounted installation**. The installer must complete a few simple steps to secure the unit safely.

Installation Phases

1. **Site Preparation**
   Select a flat, stable surface with adequate load-bearing capacity.
   Ensure sufficient clearance for ventilation, cabling, and maintenance.
2. **Positioning the Module**
   Place the battery module in the designated location.
   For wall-mounting, ensure the wall surface is suitable for supporting the full weight of the module.
3. **Fixing**
   Use the supplied brackets and anchors to secure the module to the floor and/or wall.
   Confirm that all fixings are tightened to the specified torque values.
4. **Electrical Connections**
   Connect power, communication, and grounding cables as described in the following sections of this manual.
5. **Final Checks**
   Verify mechanical stability.
   Ensure that no cables are pinched, under tension, or improperly routed.



ATTENTION!

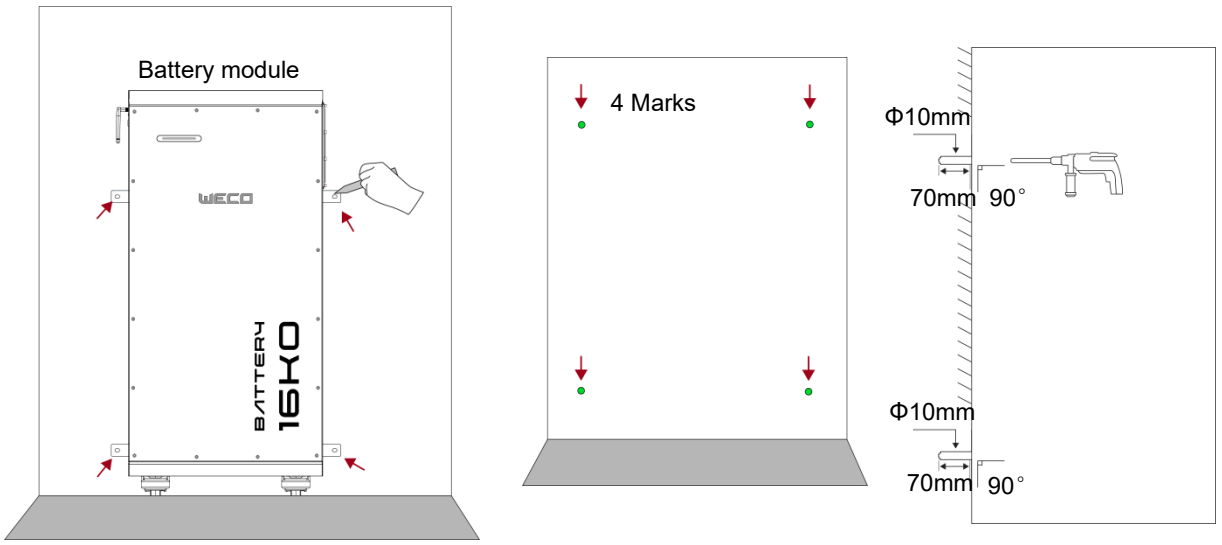
> **Two-Person Handling Required**
> The battery module is heavy and must always be moved by **two people** to prevent risk of injury or damage.
>
> **Positioning Before Operation**
> Before starting any electrical or commissioning operation, ensure that:
>
> 1. All modules are positioned in their **final installation location**.
> 2. The supporting surface has been **verified for structural strength and stability**.
> 3. All modules making up the system are **securely fixed** to the floor and/or wall according to installation instructions.

Procedure:

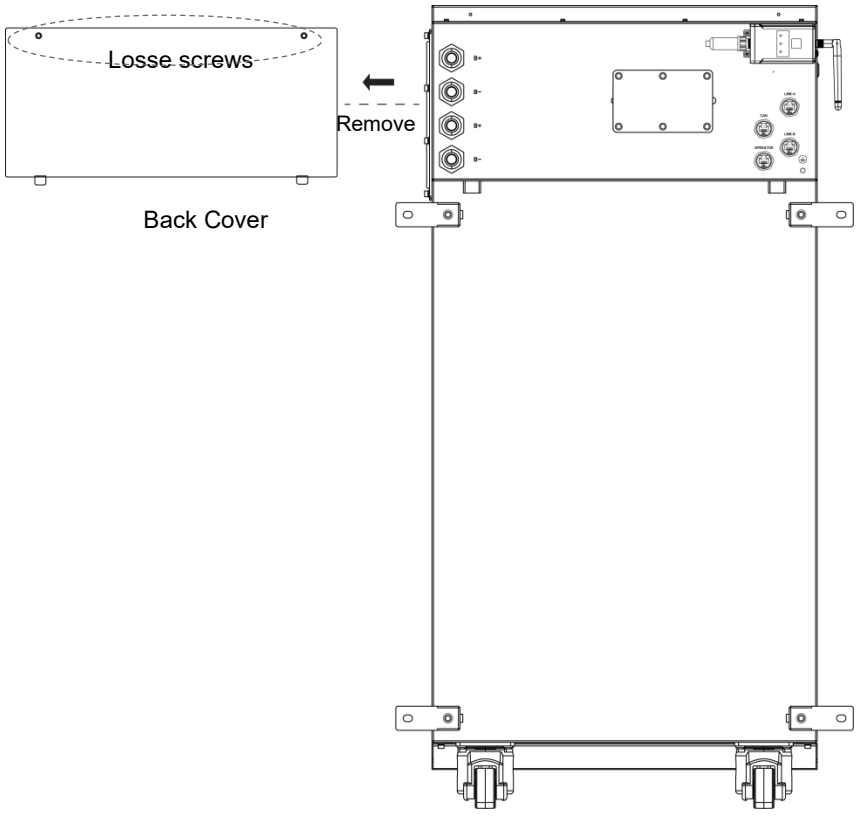
Step 1: Use the level gauge to make sure the ground is level for installation place the battery module against the wall and mark it with a marker pen. Then drill the holes.

1. Place the battery module against the wall and mark it with a marker pen.

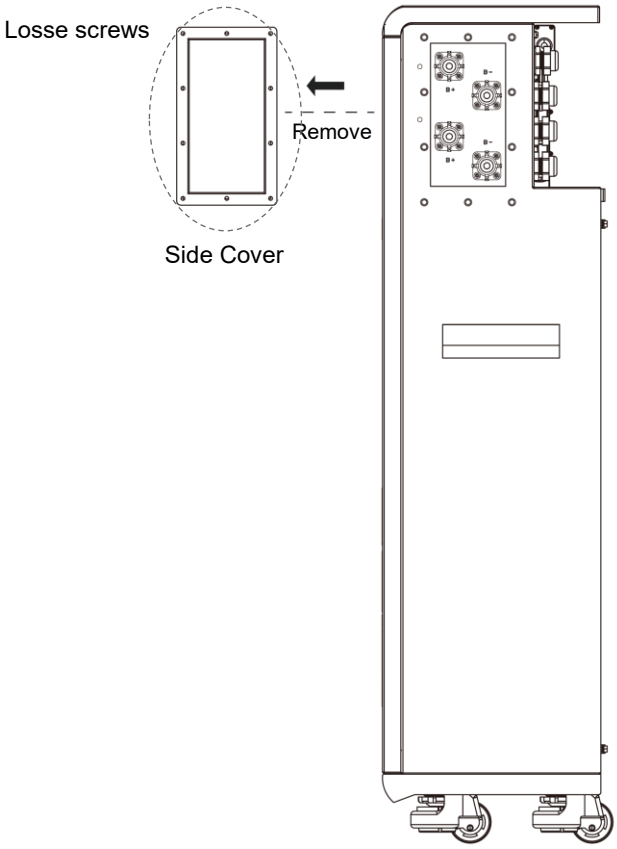
2. Drill the holes accordingly.



Step 2: Loose the screws and then remove the back covers..

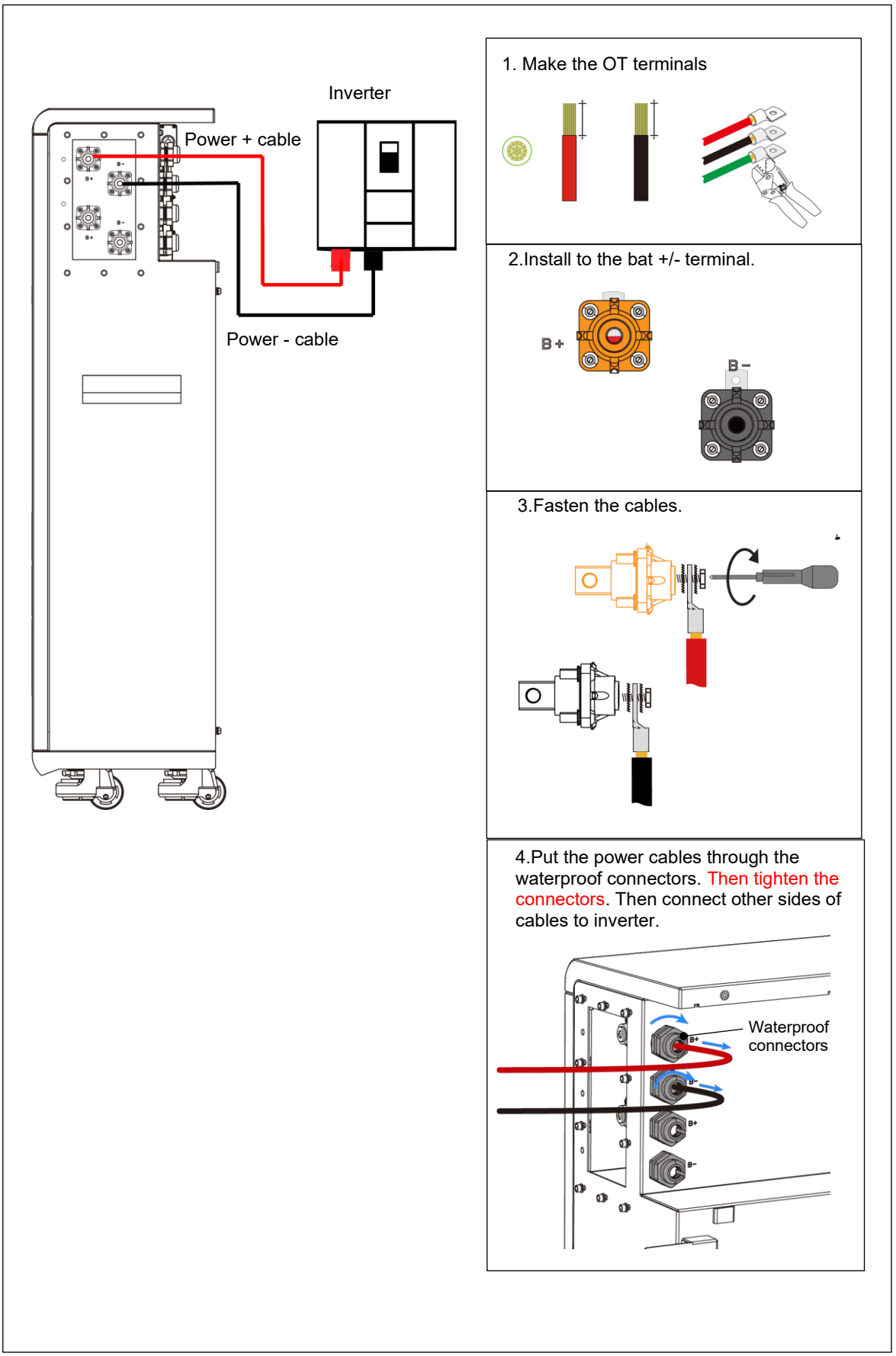


Step 3: Loose the screws and then remove the the side covers..



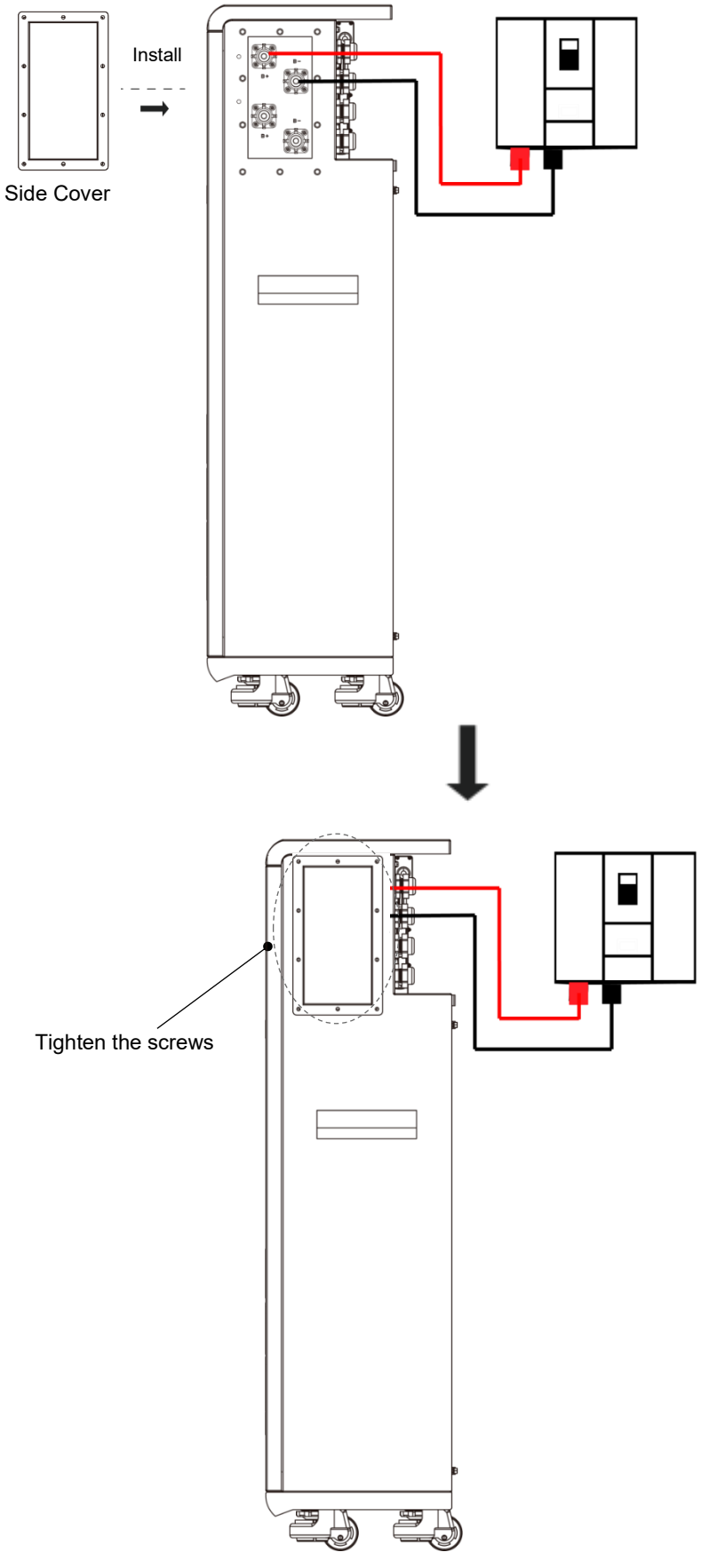
Step 4: POWER CABLES

Connect the **Power + (positive)** and **Power – (negative)** cables from the battery module to the compatible inverter.
All power cables must be **sized, selected, and installed by a qualified engineer**, in accordance with local electrical standards and the inverter manufacturer's specifications.
Ensure correct polarity before tightening connections.
Torque all terminals to the specified values and verify that cables are securely fixed with appropriate strain relief.



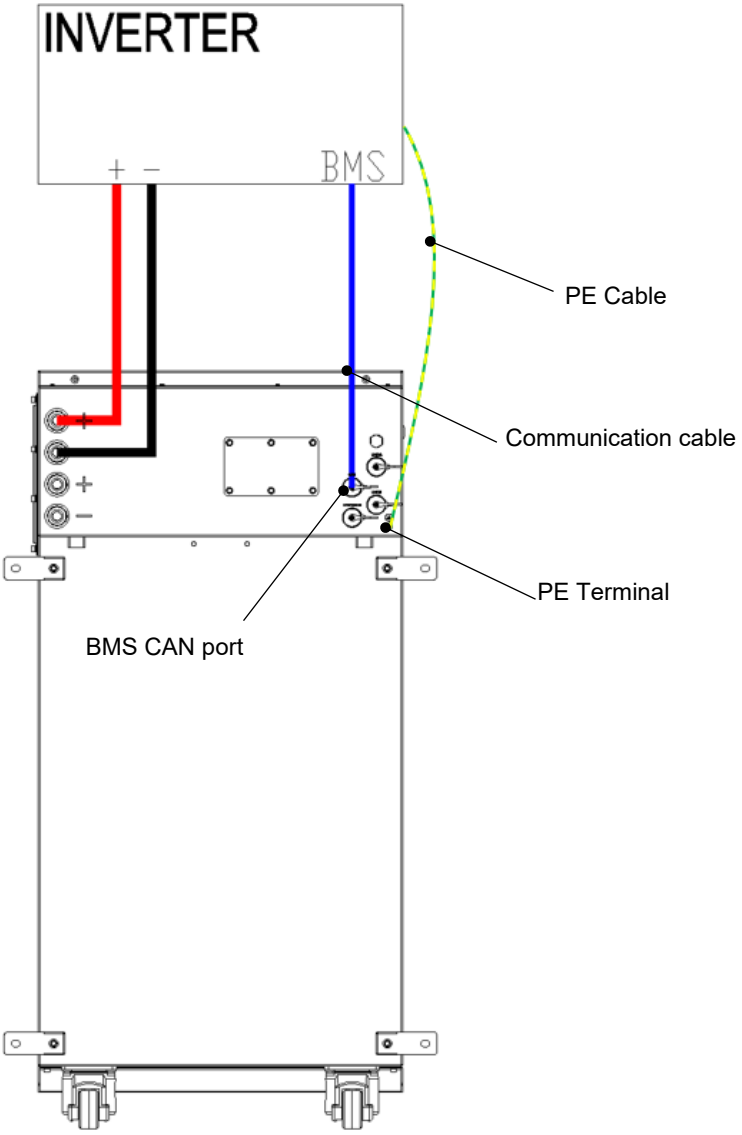
Step 5: Install the Side Cover

- Place the **side cover** back over the power terminal hub after completing all cable connections.
- Ensure that no cables are pinched or under mechanical stress.
- Tighten all fixing screws/bolts **according to the specified ISO torque standard**.
- Visually confirm that the cover is properly seated and securely fastened before proceeding.

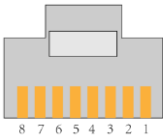


Step 6: Connect the PE cable and communication to the compatible inverter.

- Connect the **PE (Protective Earth) cable** from the battery to the grounding point, ensuring a secure and reliable earth connection.
- Connect the **communication cable** (CAN/RS485, depending on model) from the battery to the compatible inverter.
- Verify that the communication port pinout matches the inverter specifications to avoid wiring errors.
- Fix cables with proper strain relief to prevent loose or stressed connections.



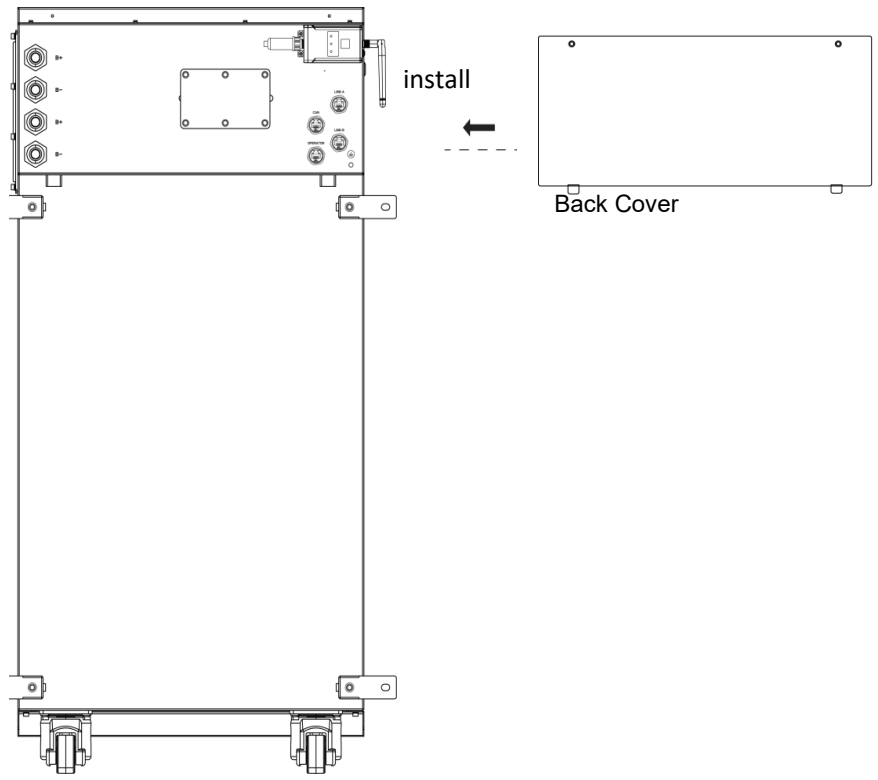
Attention: The BMS CAN interface is an RJ45 port with the definition of the CAN Bus pins as shown below

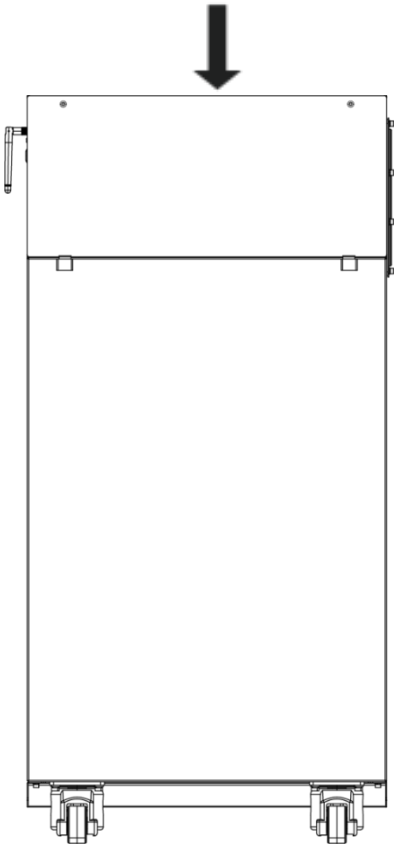


PIN	8	7	6	5	4	3	2	1
Definition							CAN_L	CAN_H

Step 7: Install the back cover back to the battery.

- After completing all electrical and communication connections, carefully place the back cover onto the battery.
- Ensure that no cables are pinched or pressed between the cover and the housing.
- Tighten all screws/bolts to the specified torque values.
- Visually confirm that the cover is fully seated and secure before proceeding.





Tighten the screws

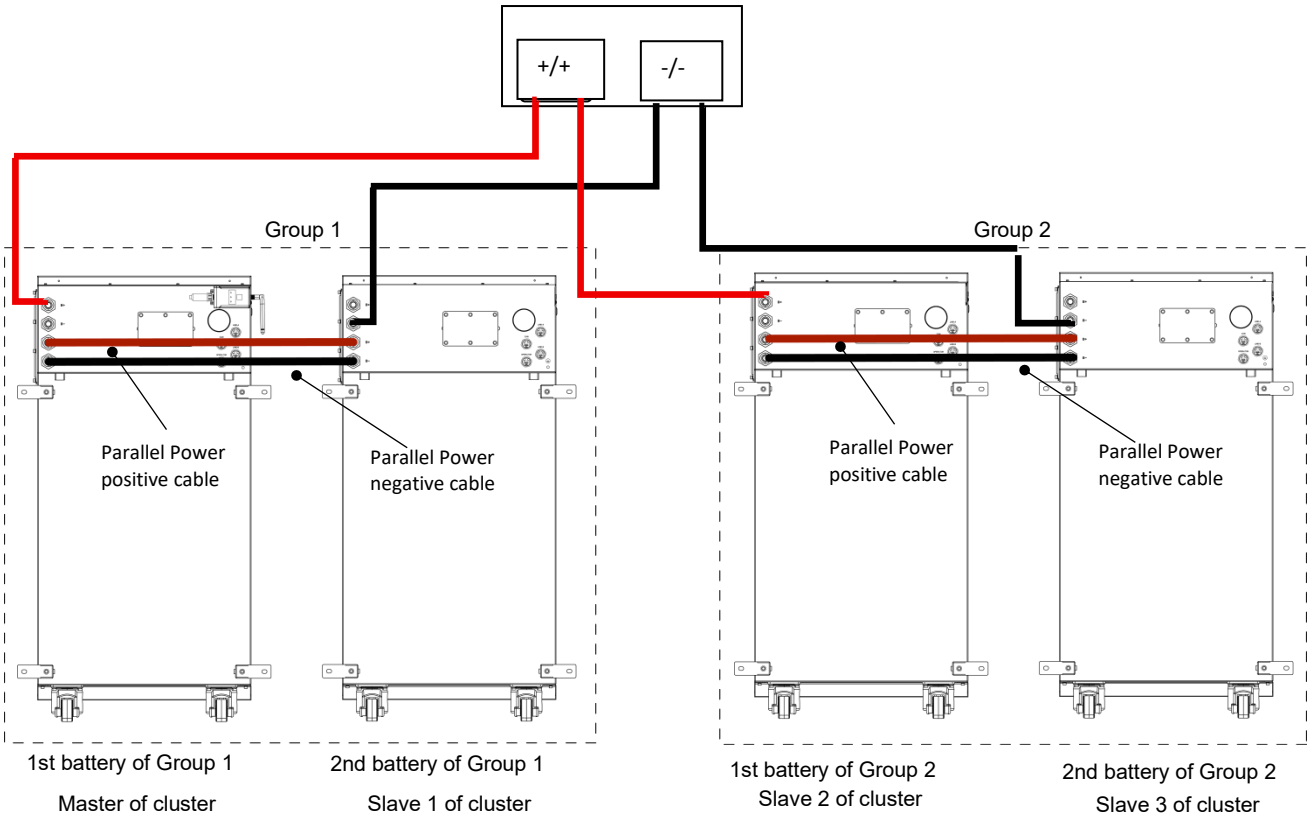
Step 8 (if Parallel required) Parallel multi-batteries connection configuration.

Purpose

To ensure safe and reliable operation, batteries must be grouped into clusters before connecting them in parallel. This reduces current stress, balances load sharing, and improves system safety.

Procedure

1. **Divide into Groups**
   Split all batteries that need to be connected in parallel into **two groups**.
   Within each group, connect the **positive terminals together** and the **negative terminals together**.
2. **Example with 4 Batteries**
   Form **2 batteries as one group** and **2 batteries as another group**.
3. **Example with 5 Batteries**
   Form **3 batteries as one group** and **2 batteries as another group**.
4. **Connect to Main Bus**
   From each group, run **one positive and one negative cable** to the main busbar.
   Ensure all group cables are of **equal length and cross-section** for balanced current sharing.



Clustered (J-Loop) Method and steps
Purpose: Safely connect multiple LV batteries in parallel by splitting them into clusters (J-loops) instead of one long pass-through. This limits cable current, balances sharing, and simplifies isolation.

Step-by-Step

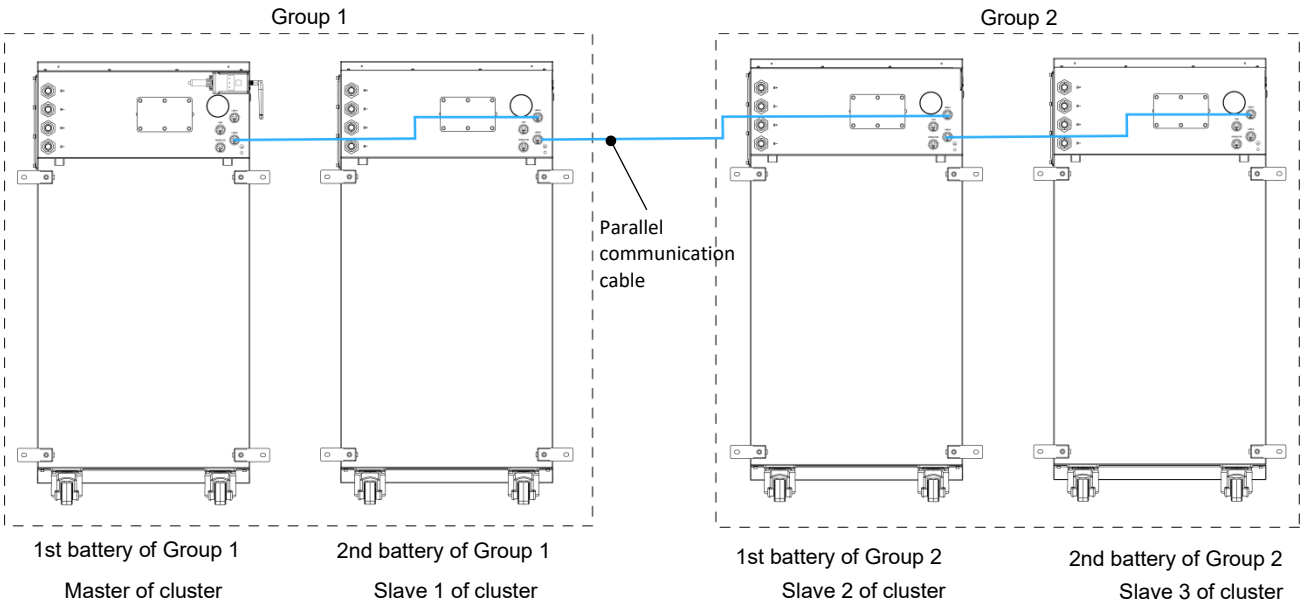
1. **Isolate**
   Power down, lock-out/tag-out.
   Check cables, lugs, and terminals are the correct gauge and undamaged.
2. **Sort & Check Batteries**
   Ensure all units are the same model/chemistry.
   Measure open-circuit voltage (OCV). Keep units within **≤1V** of each other (balance/charge if needed).
3. **Divide into Groups (Clusters)**
   Split the total into **two groups** (or more if required by current/cable limits).
   Example (4 batteries): 2 + 2
   Example (5 batteries): 3 + 2
4. **Wire Within Each Group (Parallel)**
   Connect positives together on a local group positive bar/cable.
   Connect negatives together on a local group negative bar/cable.
   Keep all **intra-group cables the same length and cross-section**.
5. **Protect Each Group**
   Install a **DC fuse or breaker** on the **positive** of each group, sized per group max current and product spec.
   Add a **group disconnect** (preferred) for safe isolation.
6. **Make the J-Loop to the Main Bus**
   From each group, run **one positive and one negative "home-run"** to the main DC busbars.
   Keep **each group's positive and negative leads equal length**; route symmetrically.
7. **Tighten & Torque**
   Clean contact surfaces; assemble lugs correctly.
   Torque all terminals/busbar bolts to **manufacturer spec**; mark with torque paint.
8. **Label & Document**
   Label Group A, Group B, fuses/breakers, and polarity.
   Record OCV per battery, fuse ratings, and torque values.
9. **Pre-Power Checks**
   Verify polarity at every point.
   Confirm no voltage drop across open group breakers/fuses.
   Ensure BMS comms cabling is connected per manual (no cross-wiring).
10. **Energize by Group**
    Close one group breaker
    Close the next group
    Turn on the master, wait all slave to start up and connect automatically
    Verify the total connected module matches the real installed modules. (if not recheck the installation and try again)
    Observe initial current sharing; investigate any abnormal imbalance.
    Turn on
11. **Commissioning Acceptance**
    Cable/bus temps steady after 15–30 min under load.
    No connector hotspots; currents per group within expected range.
    BMS reports all modules present and healthy.

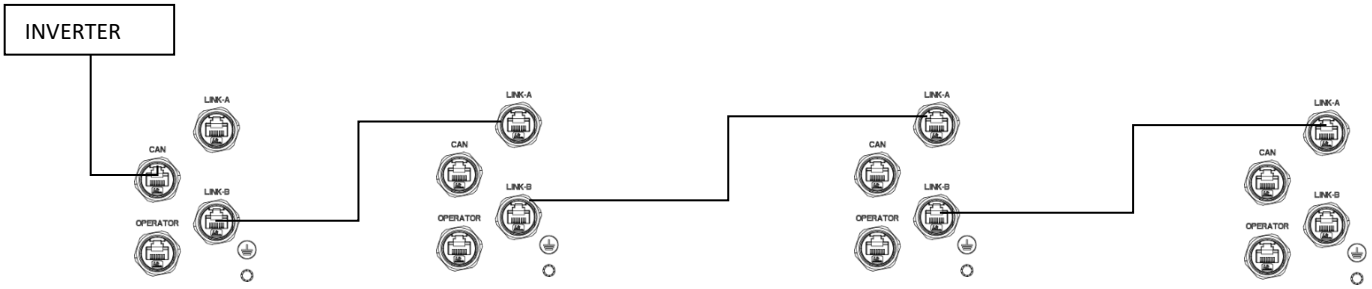
Quick rules

- **DO** Use clusters with **home-runs** (J-loops) to the bus.
- **DO** Keep cable **lengths and sizes equal** within and from each group.
- **DO** Fuse/break **each group** individually, suggested expacially in off grif or frequent black out installation
- **DON'T** Daisy-chain all batteries on one pass-through cable..
- **DON'T** Omit group isolation and Grounding

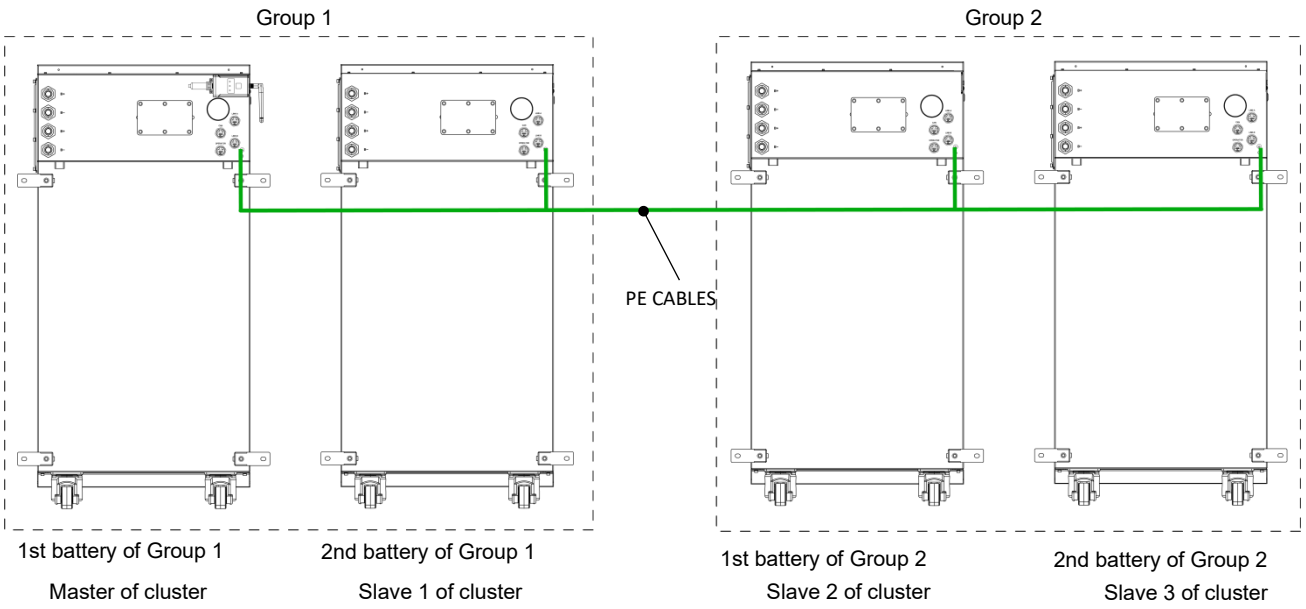
Connect the parallel communication cables

Connect the **parallel communication cables** between the **master battery** and all **slave batteries** in sequence.
Follow the connection order carefully:
Connect **Link B terminal of the Master battery → Link A terminal of Slave 1 battery**.
Connect **Link B terminal of Slave 1 battery → Link A terminal of Slave 2 battery**.
Connect **Link B terminal of Slave 2 battery → Link A terminal of Slave 3 battery**.
Continue in the same manner until all slave batteries are connected.
Ensure all communication cables are **firmly inserted, properly latched, and strain-relieved**.
Maintain cable routing that avoids sharp bends, mechanical stress, or contact with power cables.



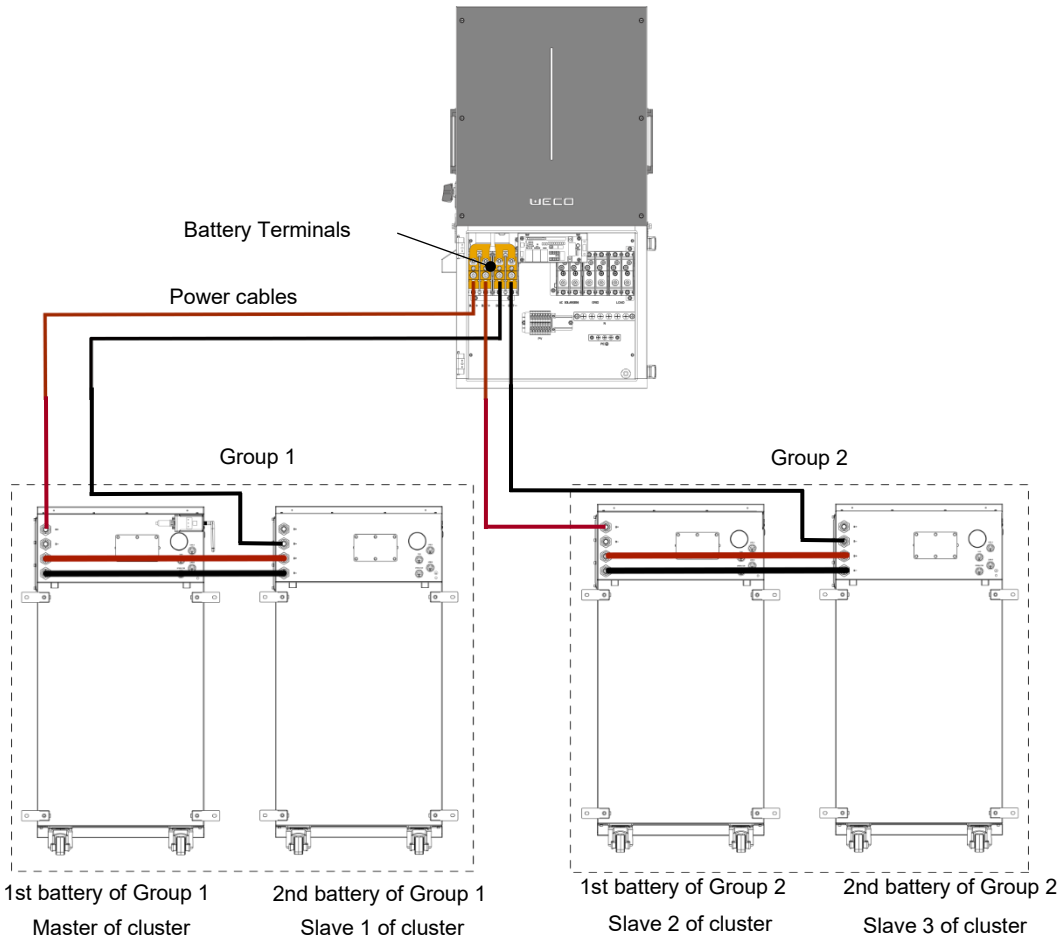


1. Connect the PE cables between the master battery and slave batteries by PE terminals of the batteries.

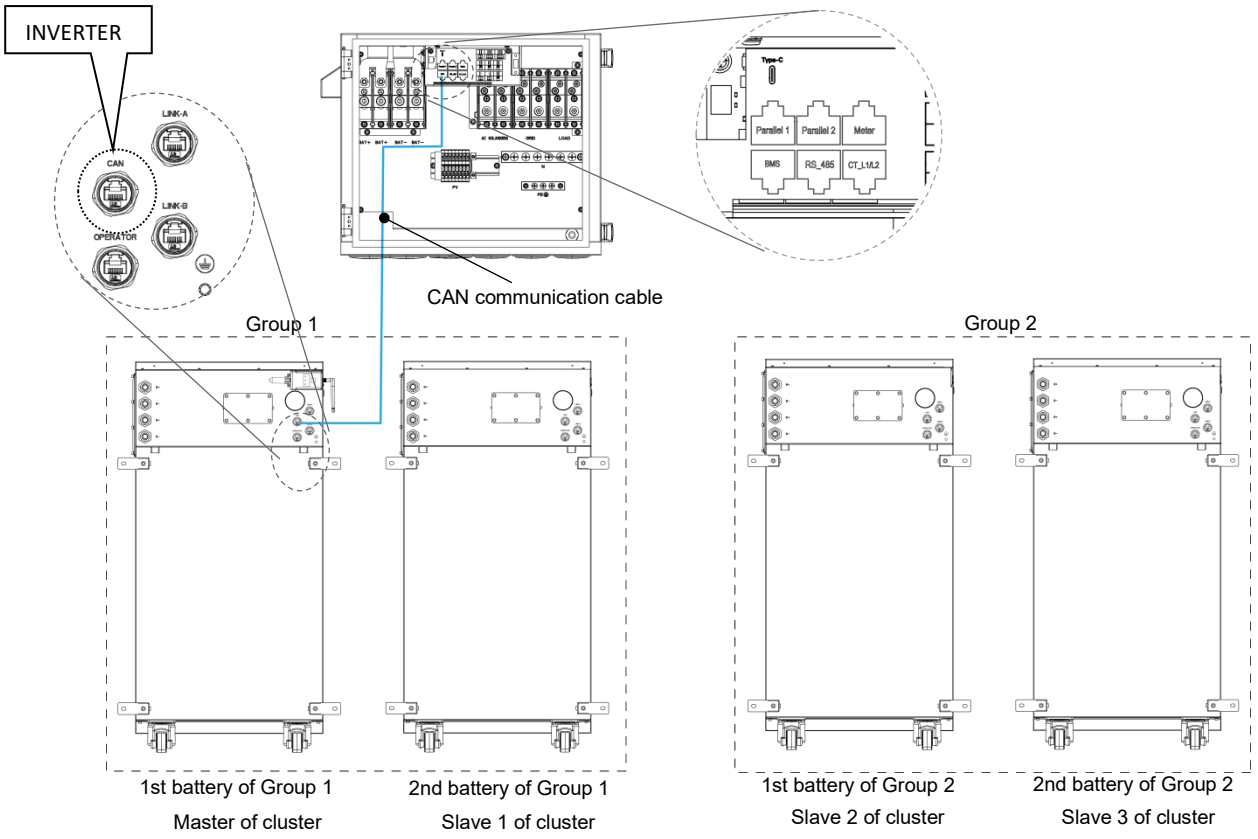


2. Connect the positive and negative power cables between B+/B- Terminals of the first battery of each group and BAT+/BAT- Terminals of the inverter.

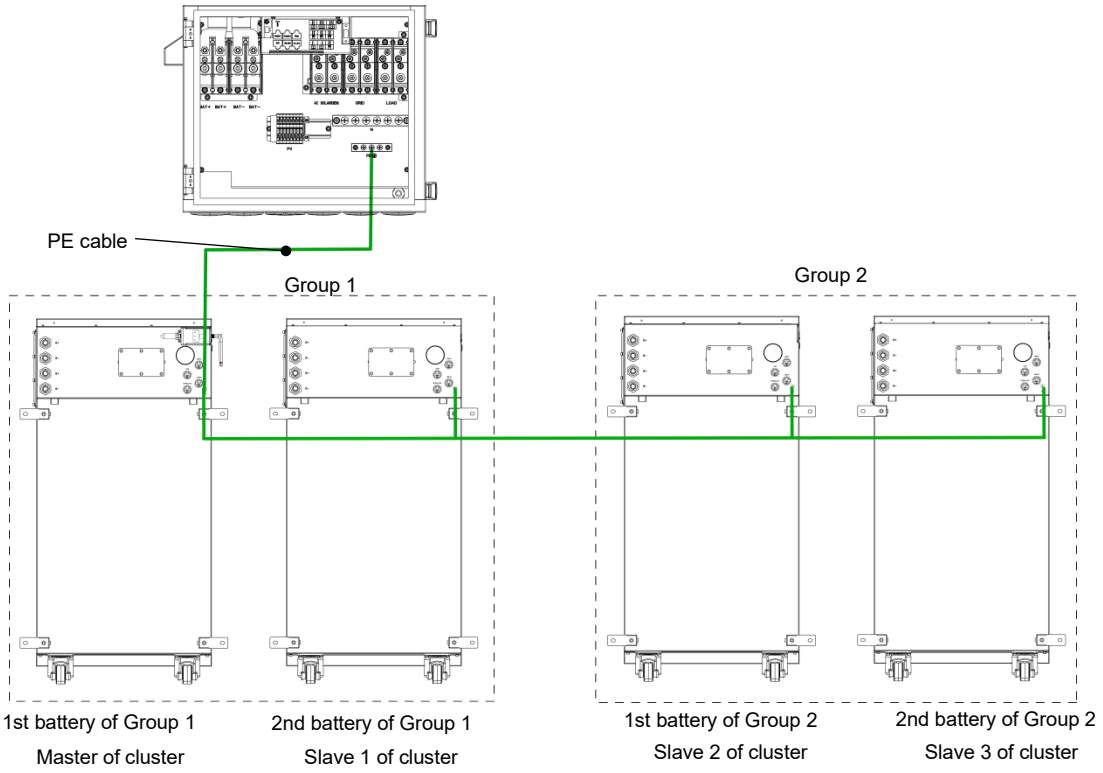
Example below refers to Inverter model is WECO XT 12-16KW series inverter.



3. Connect the communication cable between CAN Terminal of master battery and the BMS Terminal of the inverter.



4. Connect the PE cable between the PE Terminal of master battery and the PE Terminal of the inverter.



5. Install back the side covers and back covers for all the batteries.

5. System Commissioning & Decommissioning

5.1 Check Before commission

Serial number	Check the item	Acceptance criteria
1	The inverter used to connect to the battery module is installed in place	The inverter is installed correctly and is robust and reliable.
2	The WiFi antenna is in place	WiFi antennas are installed correctly and are robust and reliable.
3	The cables are well arranged	The cable arrangement is reasonable to meet the user's requirements.
4	Cable ties are beautiful to lash	The cable tie should be even, and no sharp corners should be left at the shear.
5	Reliable grounding	The ground wire connection is correct and reliable.
6	Disconnect the switch	The "Power switch" of the control moduleand all switches connected to the battery modules are in the "OFF" state.
7	Cable connections into place	DC power cables, DC output cables, communication cables and are connected correctly and securely and reliably.
8	Seal unused terminals and connectors	Unused terminals and connections are covered with waterproof covers.
9	The installation environment meets the requirements	The installation space is reasonable, the environment is clean and tidy, and there are no construction residues.

5.2 System Commission

5.2.1 System Configuration

After the batteries are installed and the inverter is installed correctly, and the electrical connection are finished correctly:

STEP 1: S**ystem Activation and Initial Configuration**

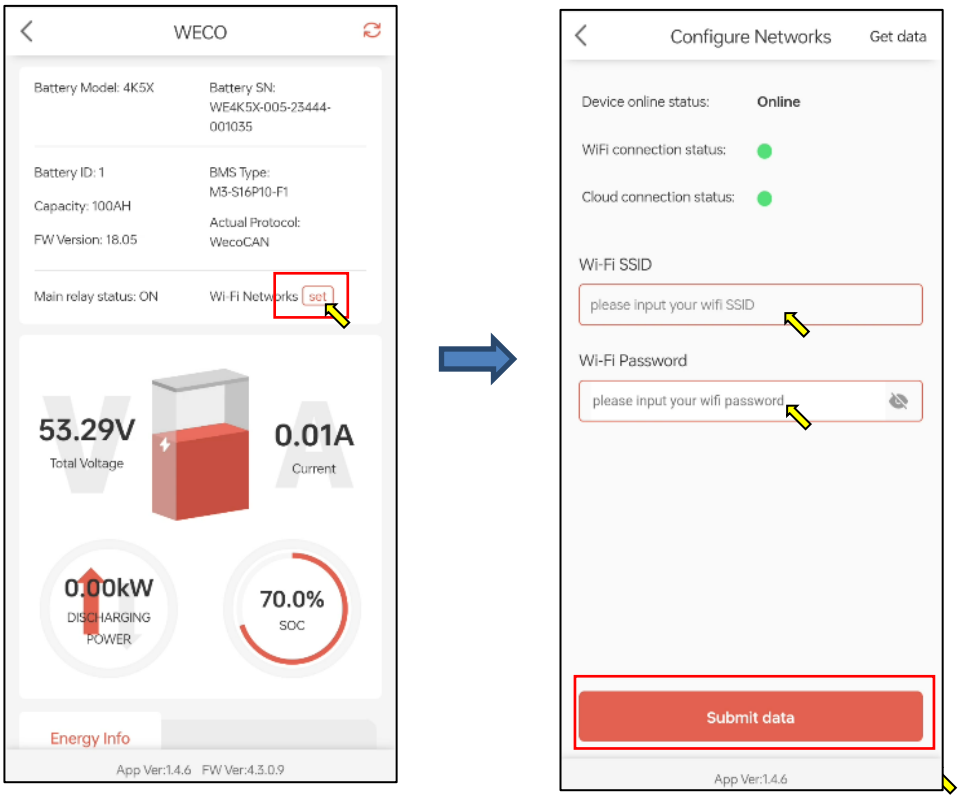
1. **Power On**
   Switch on the **cluster control module breaker** (if an expansion stacking tower is installed).
   Press the **RUN** button on the Master Control Module.
   Verify that the system powers up and the **display panel lights up**.
2. **Check Wi-Fi Modules**
   Wait until all Wi-Fi module LEDs are steady. This indicates stable communication.
3. **Connect via Mobile App**
   Open the **WECO Bluetooth App** on your mobile device.
   ⚠️ Note:
   - The **WECO Wi-Fi App** can also be used, but it does not support protocol setting.
   - The **PC software** may also be used, but it requires an **RS232 cable** for configuration.
   - For **first-time configuration**, the **WECO Bluetooth App** is strongly recommended as the most convenient method.
   - NOOR WeCo APP is also compatible with the 16K0 model and it is recommended to use it following the specifications in the NOOR manual

4. **Proceed with Configuration**
   - Follow the instructions in **Chapter 7** for detailed configuration steps.

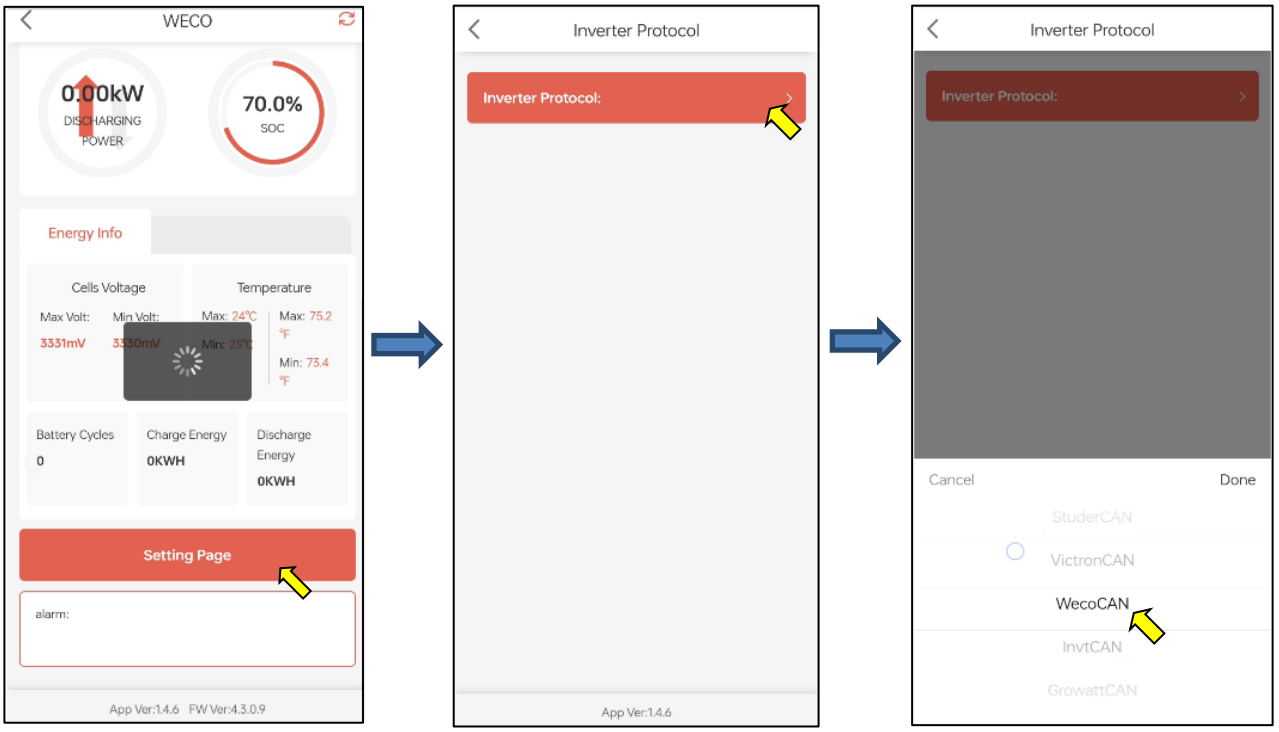


STEP 2: Aft
Please mal

WECO Bluethooth APP



STEP 3: Set the protocol according to the inverter brand used for connecting with the 16K0-LV (Refer to *Appendix C* for reference of compatible inverters and selection of protocol) as follows:



STEP 4: After finish configuring the batteries, configure the inverter according to the inverter manufacturer's instruction.

Warning

Before starting operation, confirm the following:

1. The inverter to be connected is **compatible with the 16K0-LV battery module**.
2. The **DC voltage of the 16K0-LV battery** is within the allowable input range of the inverter.
3. The **communication protocol settings** of both inverter and battery are selected correctly.
4. The **battery firmware (FW)** is updated to the latest version.

After the battery and inverter are installed and configurations for both batteries and inverter are setup correctly
System starts up in this order: Battery→ Switch on the breaker of the master control module → Inverter;
System shuts down in this order: Inverter → Battery→ Switch off the breaker of the master control module;

5.3 System Decommission



Warning

Risk of Injury Due to Heavy Battery Modules

- Battery modules and stack tower assemblies are heavy. Improper lifting or handling may cause serious personal injury or equipment damage.
- Always assign **at least two qualified operators** when handling the modules.
- Use appropriate **lifting equipment or a lifting machine** when moving or positioning stack tower modules.
- Ensure lifting operations follow local safety standards and regulations.

Procedures:

Battery Module Shutdown and Removal Procedure

Follow the steps below to safely shut down, disconnect, and remove the battery modules:
Step 1: Shut down the inverter according to the **inverter manufacturer's instructions**.
Step 2: Shut down all **battery modules**.
Step 3: Switch off the **DC switch box** or breaker (if installed) located between the inverter and the battery modules.
Step 4: Disconnect the **DC power cables** between the inverter and the batteries, as well as all **communication cables**.
Step 5: Remove the battery modules from the **top of the stack tower**, one by one.
Step 6: If the battery modules are to be **stored**, refer to **Chapter 8** for storage instructions.
Step 7: If the battery modules are to be **disposed of**, refer to **Chapter 10** for disposal instructions.

6. WECO WIFI App Operation

6.1 App Introduction

6.3.1 Copyright Notice

The copyright in this manual belongs to WeCo and any unauthorized copying and extraction, transmission in any form and other infringement must not be made without the knowledge or permission of the Company. WeCo will pursue the violation to the end. WeCo reserves the right of final interpretation of this manual and if the functions/pages of the WeCo WiFi App are changed, the latest company information will prevail.

6.3.2 Manual Contents

This manual introduces the introduction of the functions and operation process of the WeCo WiFi app, to facilitate users to use and manage the WeCo WiFi app and meet the needs of users.

6.3.3 Manual Instructions

Dear users, thank you very much for using WECO's smart monitoring APP, we sincerely hope this product meets your needs. The purpose of this manual is to provide users with detailed product information and operating instructions.

6.3.4 Usage Requirements

Download method: Google Play, App Store app market search for "WeCo WiFi".

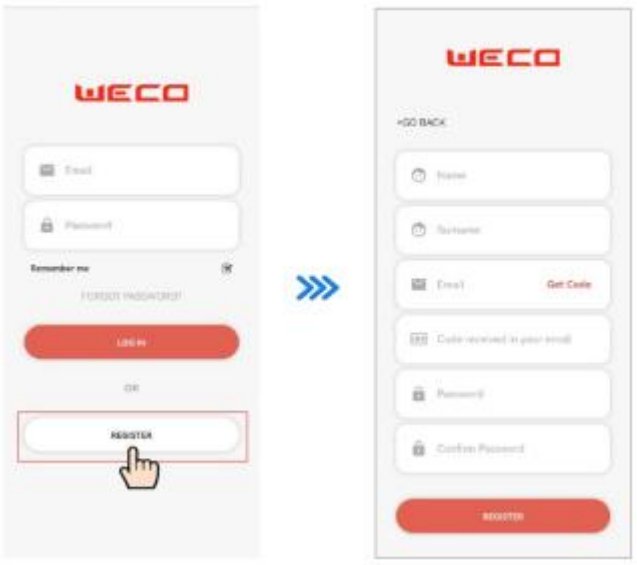
Apple wifi Android wifi

Download the WECO WIFI app and install it on your mobile phone.



6.3.5 Registering a WECO WIFI APP Account

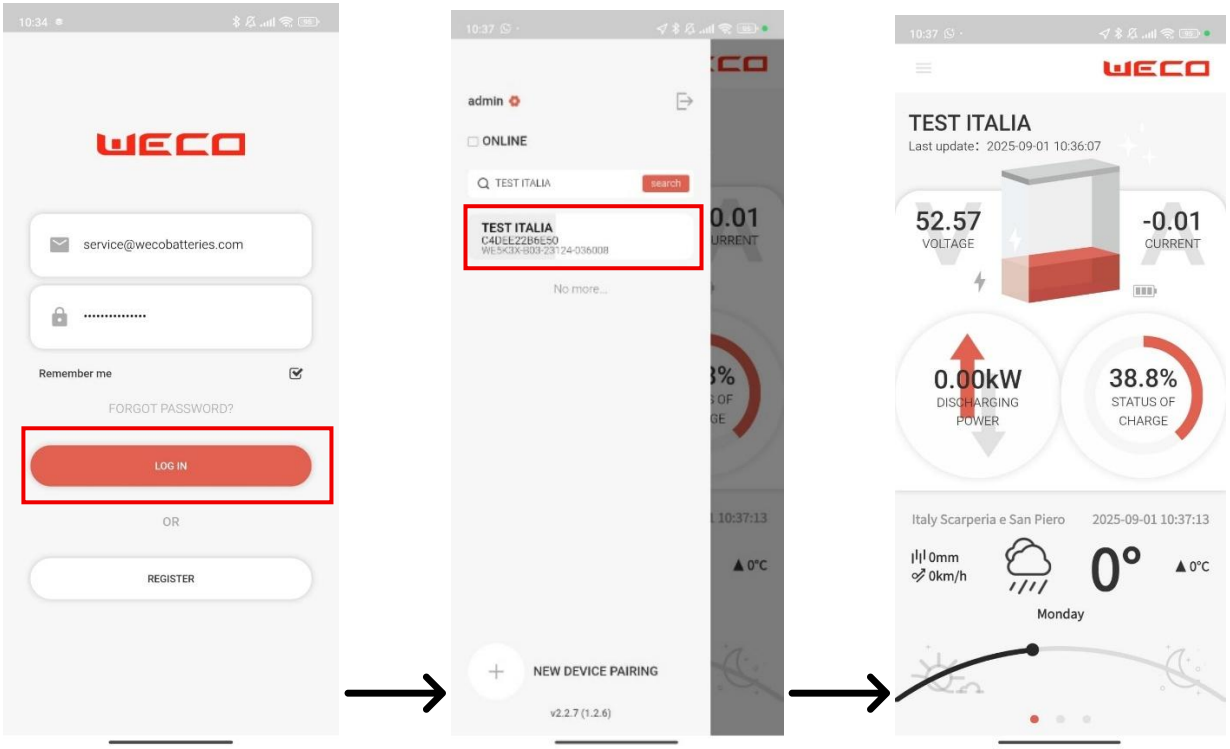
If you don't have a WeCo Wi-Fi app user account, follow the steps below to sign up.
Procedure:
1.On the WeCo Wi-Fi App login page, click "REGISTER".
2.Follow the instructions on the page to complete the user account registration.
3.After the account is successfully registered, the user can log in to the WeCo Wi-Fi app with the registered account and password.



6.2 Log in and Disconnect the APP

6.2.1 Log in to the APP

After the app is successfully installed on your phone, log in to the app to use it.
Method:
1.On the desktop of the mobile client, click the WeCo WiFi App icon to enter the login page.
2.On the app login page, enter your account number and password, then click "Login".

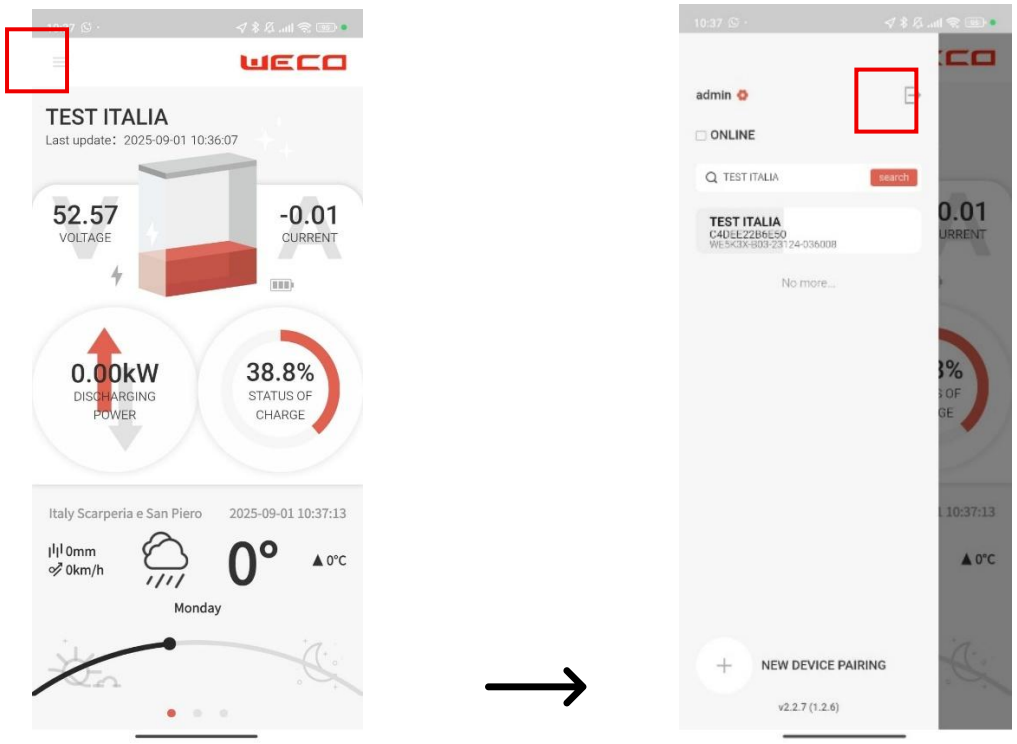


6.2.2 Logout from the APP

Procedure:

1.On the top left area of the homepage, click the " " icon to bring up the page on the left.

2. Click on " " and you will log out the app.



6.3 Add the first device

Procedure:

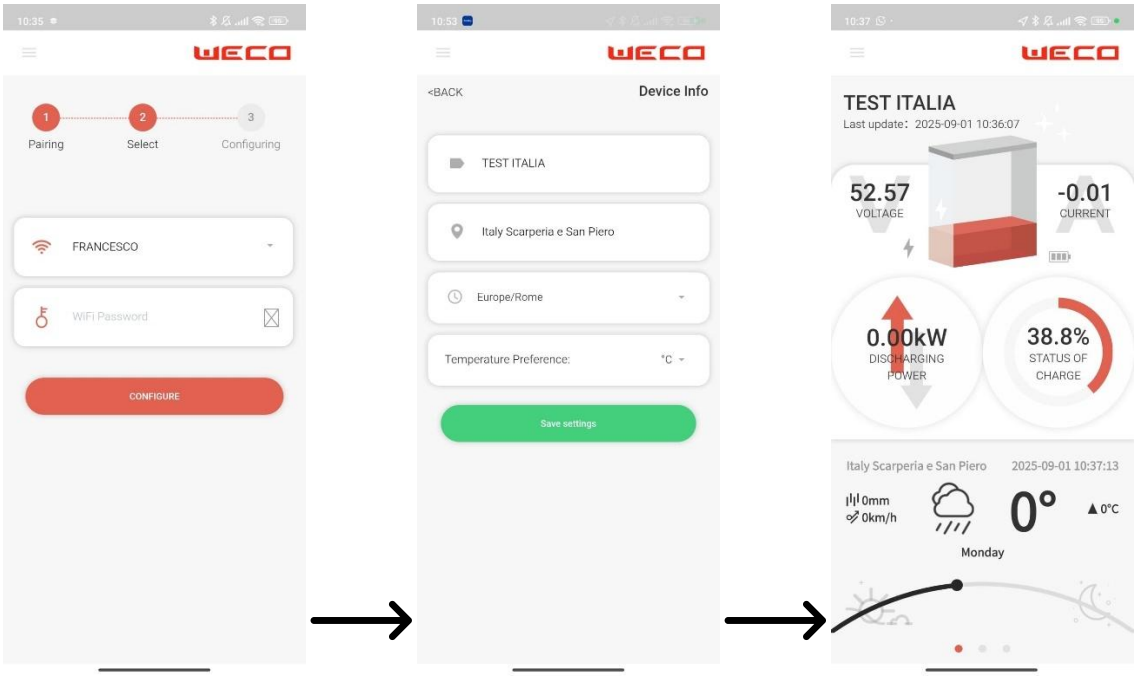
1.After logging in to the APP, click "ADD NEW DEVICE".

2.Go to the add device page, here you can click "SCAN" to scan the QR code on the device, or click "DEVICE LIST" to select the device for Bluetooth connection.

3.Enter the "Configure Wi-Fi" window, select 2.4G WiFi, enter the password, and click "CONFIGURE" to configure the network.

4.After successfully configuring the network, enter the "Device Info" page, enter the information according to the prompts on the page, click "Save settings" to save the information, and automatically return to the home page.



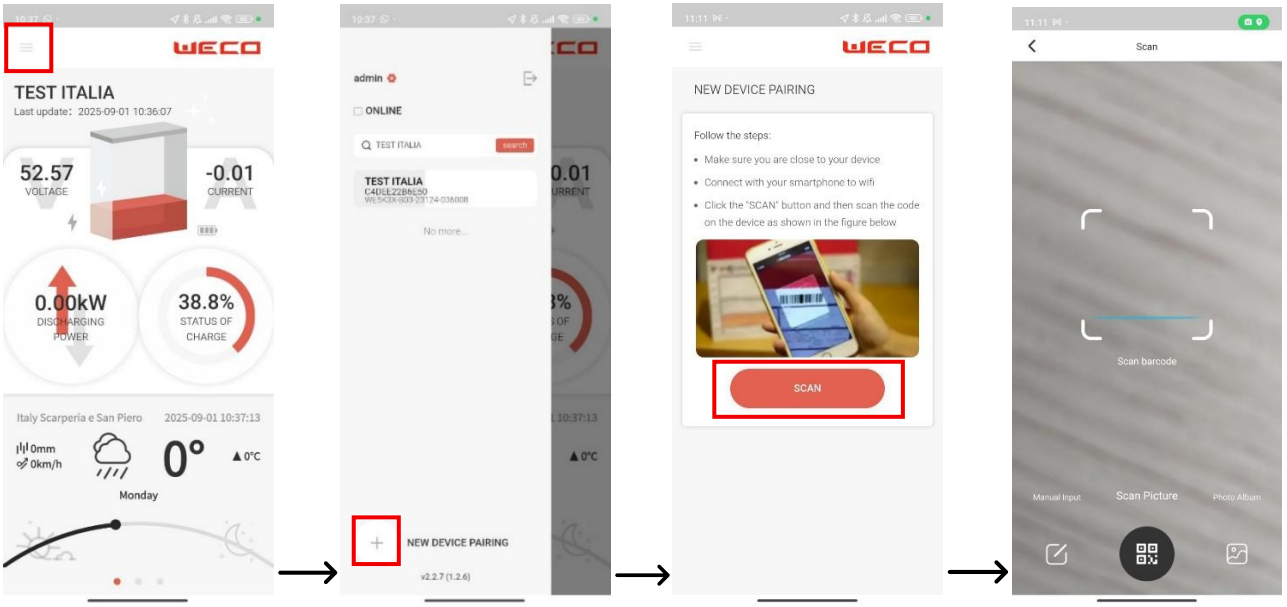


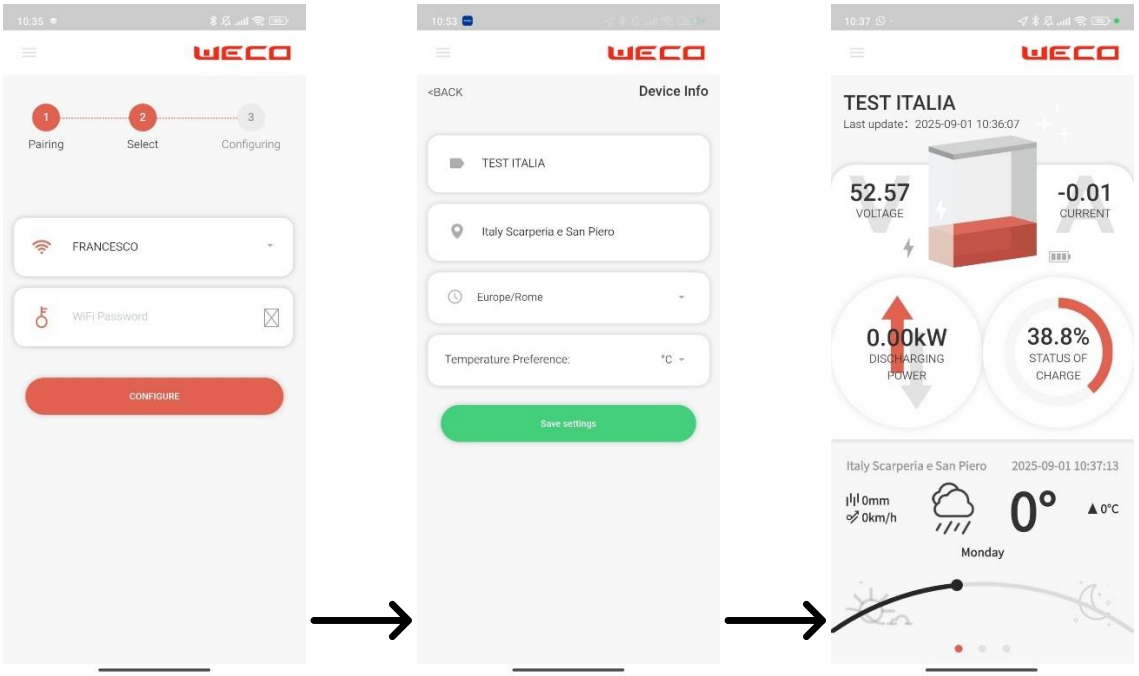
6.3.1 Add another device

Procedure:

1.In the upper left area of the home page, click the " " icon to bring up the page on the left.

2.Click " " to go to the Add Device page.
3.Go to the Add Device page, Here you can click "SCAN" to scan the QR code on the device, or click "DEVICE LIST" to select the device for Bluetooth connection.
4.Enter the "Configure Wi-Fi" window, select the 2.4G WiFi, enter the password, and click "CONFIGURE" to configure the network.
5.After successfully configuring the network, enter the "Device Info" page, Fill in the information according to the instructions on the page, click "Save settings" to save the information, and automatically return to the home page.





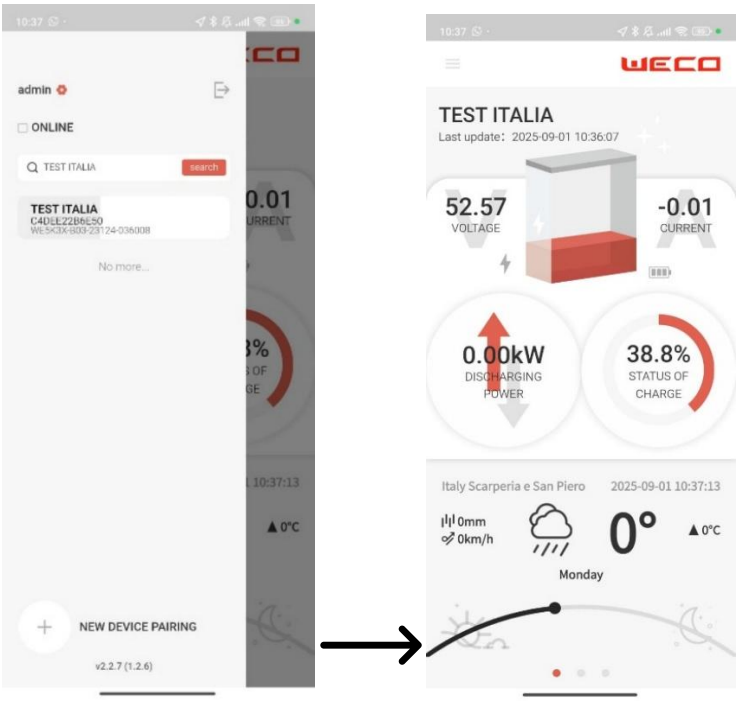
6.3.2 Display Device

After logging in to the app, you can select the device you want to view on the pop-up on the left.

6.3.3 Display the main parameters of the device

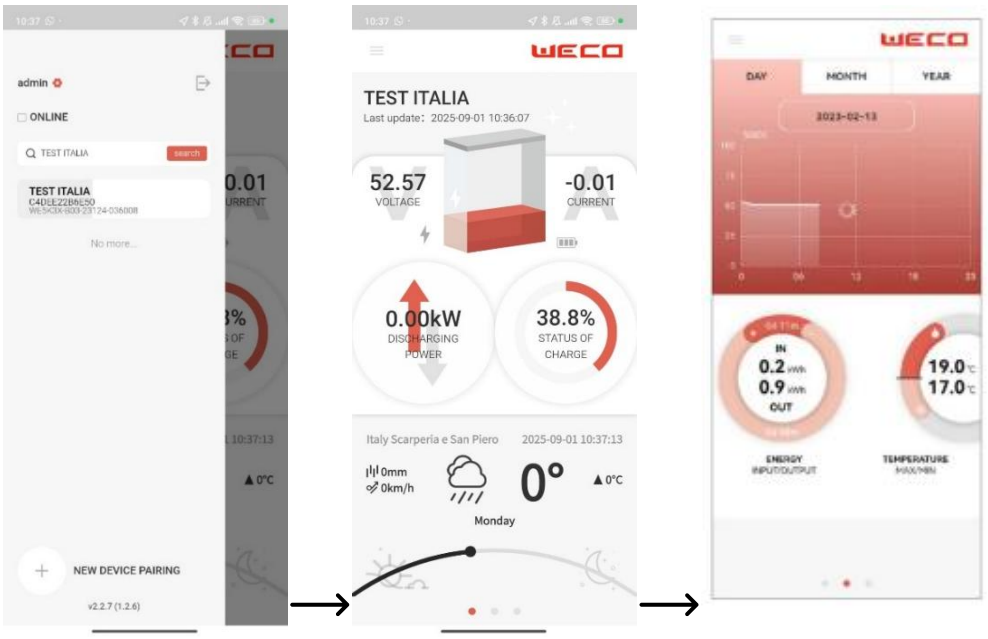
Procedure:

1.After logging into the app, select the device you want to view on the left.



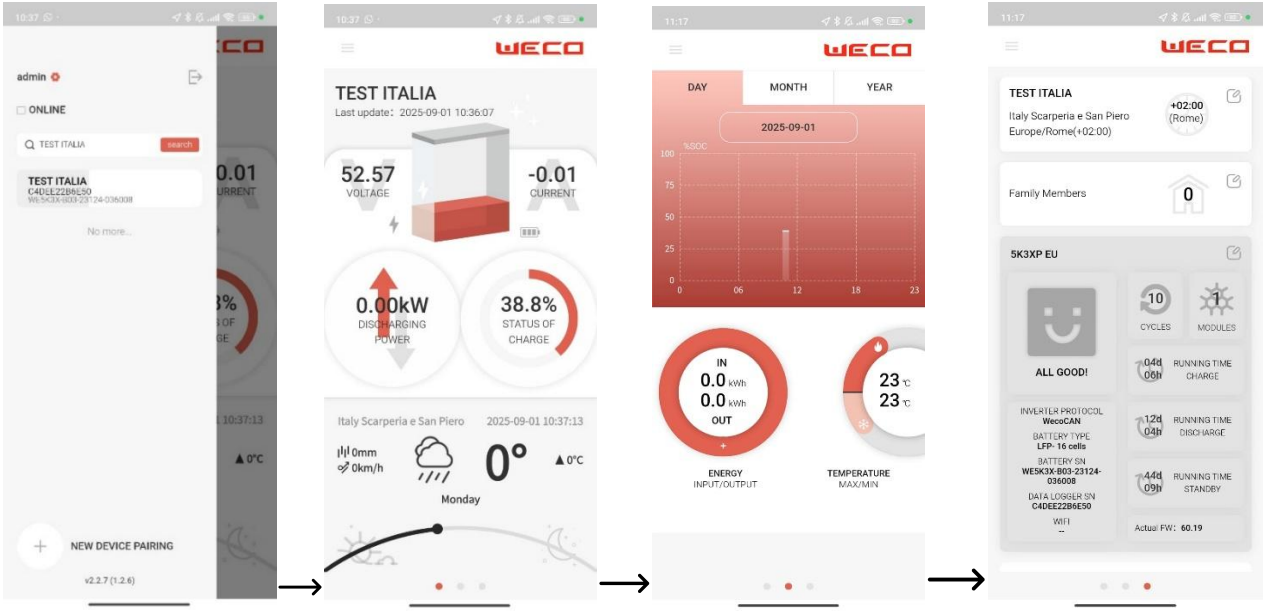
6.3.4 Viewing Trend Charts

Procedure:
1.After logging into the app, select the device you want to view on the left.
2.After entering the main parameters page, "swipe left" to enter the trend chart page.



6.3.5 Display Detailed Device Parameters

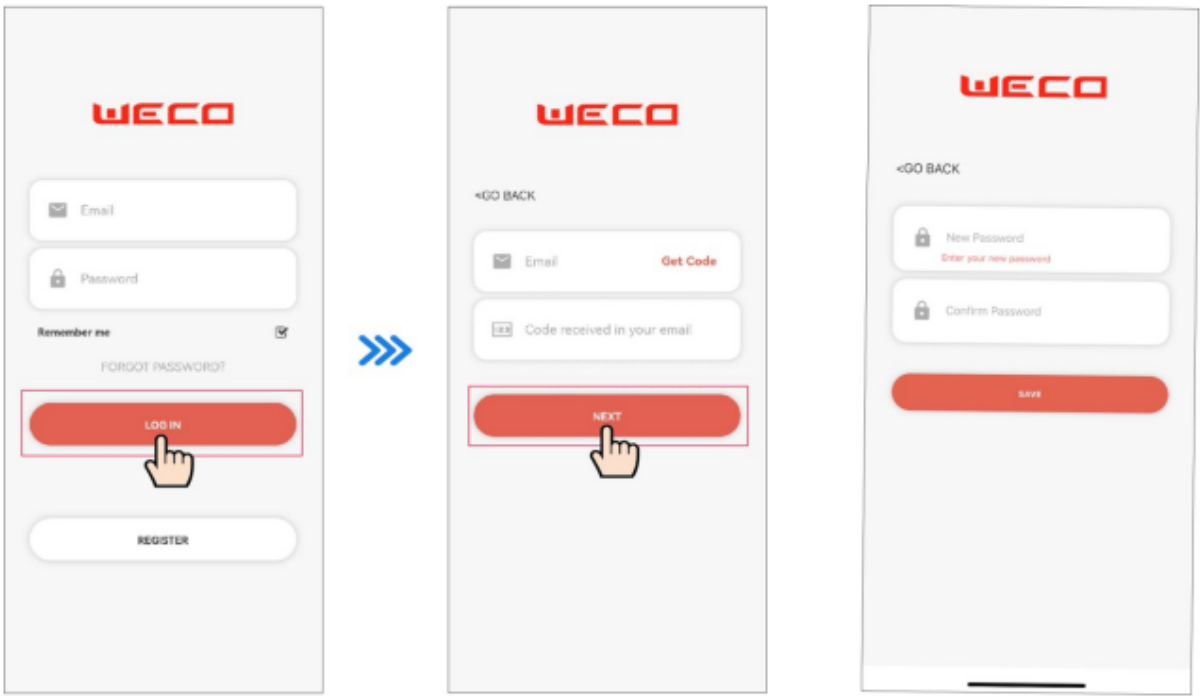
Procedure:
1.After logging into the app, select the device you want to view on the left.
2.After entering the main parameters page, "swipe left" to enter the trend chart page.
3.Swipe left again to enter the device details page.



6.4 Frequently Asked Questions

6.4.1 How to reset your password by email if you have forgotten it?

Prerequisite: The user's email address can receive the verification code.
Procedure:
1.On the app login page, click on "Forgot your password?" "Go to the Forgot Password page.
2.Enter your email account.
3.Click "Get verification code" and enter the verification code to verify the email account.
4.When prompted to enter a new password and re-enter the new password, click "Confirm".



6.4.2 Resetting the user's password

When the user is unable to reset the forgotten password, they can authorize their administrator to reset it.

6.4.3 When the user logs in to the app, asks how to fix the network anomaly?

Work around:
● Check if the Wi-Fi or mobile network connection is working.
● Check if network permission is enabled for the app.

6.4.4 Device Not Displayed After Adding

After the device is added, it does not appear in the device list.
Workaround:
● Please check whether the device communication or network connection is normal, if it is normal, please wait for a few minutes.
● If there is an abnormality in the control, please contact the service provider.

6.4.5 Network Changes: How to Reconfigure Device Network

Prerequisite: The user's email address can receive the verification code.
Procedure:
1.On the Device Details page, click the parameters icon.
2.After entering the WiFi Settings page, click "Change WiFi" to enter the Configure WiFi page.
3.Select the 2.4G WiFi according to the instructions on the page, enter the password and click "CONFIGURE" to configure the network.

7. WECO Bluetooth App Operation

7.1 App Introduction

7.1.1 Copyright Notice

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7.1.2 Manual Content

This manual introduces the introduction of the functions and operation process of the WeCo Bluetooth app , to facilitate users to use and manage the WeCo Bluetooth app and meet the needs of users.

7.1.3 Manual Instructions

Dear users, thank you for using WECO's smart monitoring APP, we sincerely hope this product meets your needs. The purpose of this manual is to provide users with detailed product information and operating instructions.

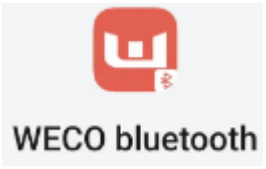
7.1.4 Usage Requirement

Download method: Google play, App Store app market search "WeCo Bluetooth".



Apple wifi Android wifi

Download the WECO Bluetooth app and install it on your mobile phone.



Information

Download the WECO NOOR app and install it on your mobile phoneThe WECO app has a similar function to the WECO WIFI app.
The WECO Bluetooth APP is intended for use when the battery module is near a mobile phone used to run the WECO Bluetooth APP. And it is recommended in case rather than using the WECO WIFI APP. The following WECO Bluetooth operations are for reference, the battery example could be another WECO model.

7.2 Log in and log out the APP

7.2.1 Log in to the APP

After the appis successfully installed on your phone, log in to the app to use it.

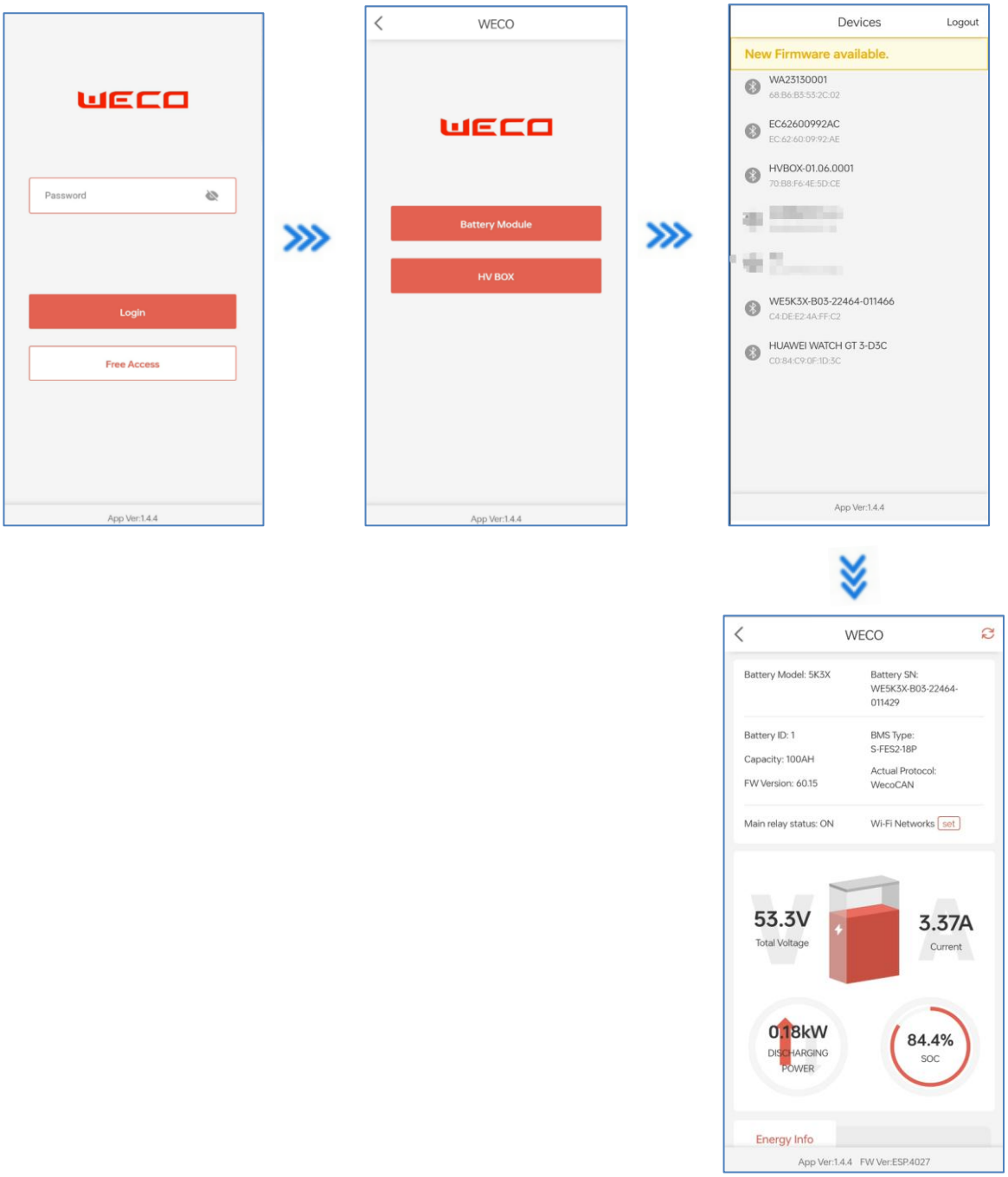
Procedure:

1.On the mobile client desktop, click the WeCo Bluetooth App application icon to enter the login page.

2.On the app login page, enter your password and click "Login".

3. On the pop-up page, click "BATTERY MODULE" for single battery connection.

4. On the Devices page, select the related device and click on it to enter the home page.



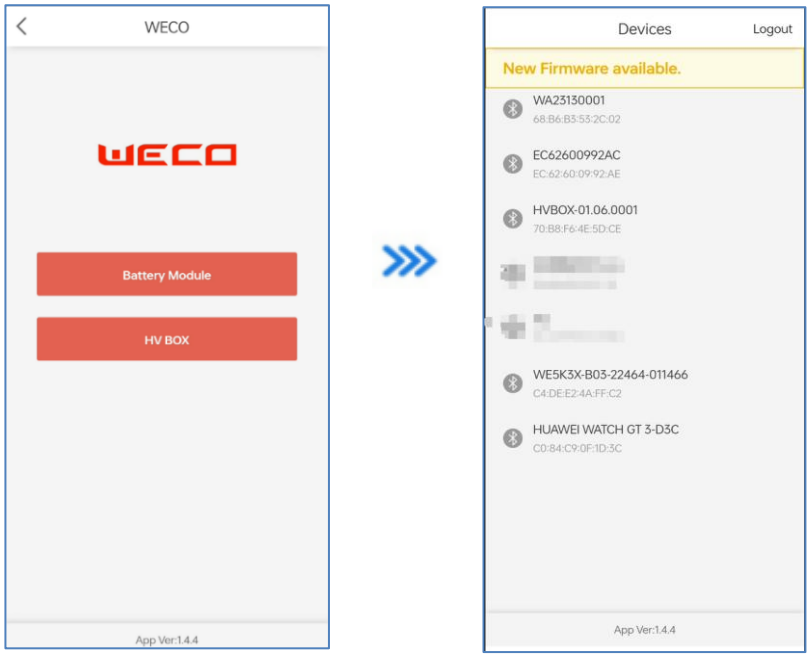
Information

Contact your WECO company to acquire your password. It can be accessed by clicking "Free Access", but the setting function will not be available, "Free Access" Login is only for Device Status Check.

7.2.2 Exit the APP

Procedura:

1. In the upper-left area of the homepage, click “ ” icon to bring up the page on the left.
2. Click "Sign Out" and you will log out of the app.

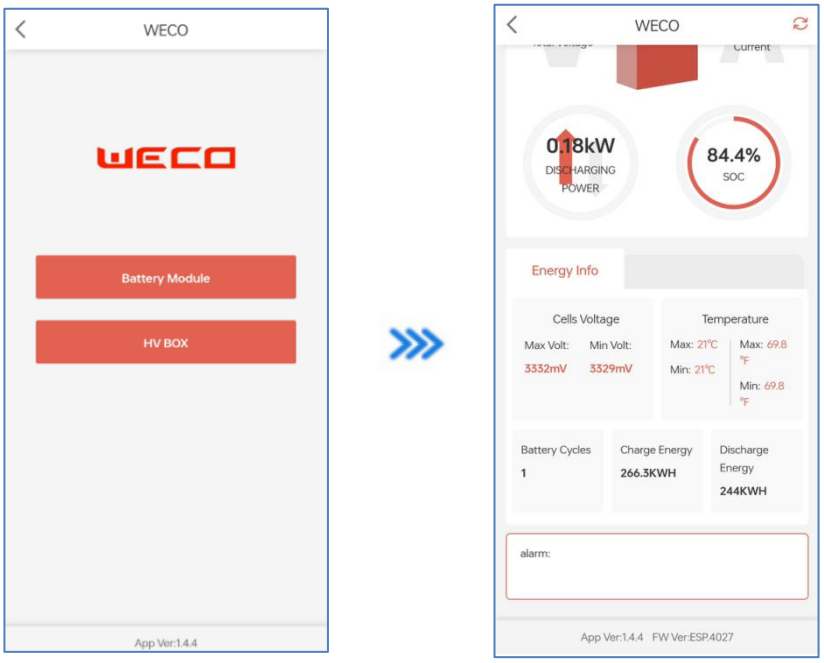


7.3 View Device and Setup

7.3.1 Display the main parameters of the device

Procedure:

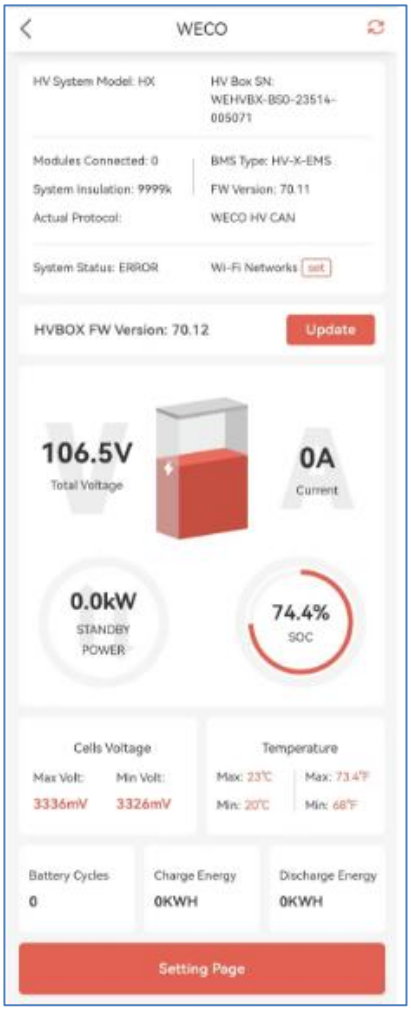
1.After logging in to the app, the home page will be displayed directly, you can directly view the main parameters of the battery.



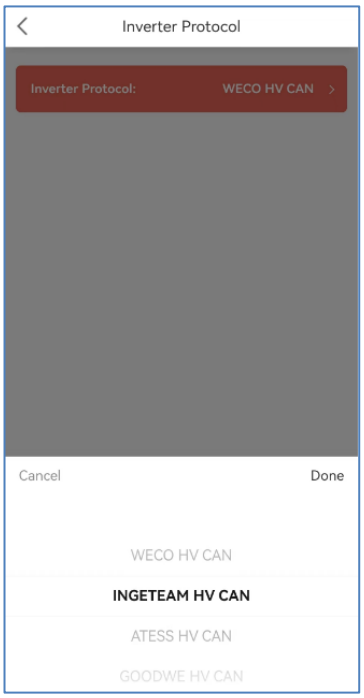
7.3.2 Set the Battery Protocol

Procedure:

1. Click " Setting Page" at the bottom of the home page.
2. After entering the pop-up page, click the inverter protocol to select the correct protocol for the inverter connected to the battery.



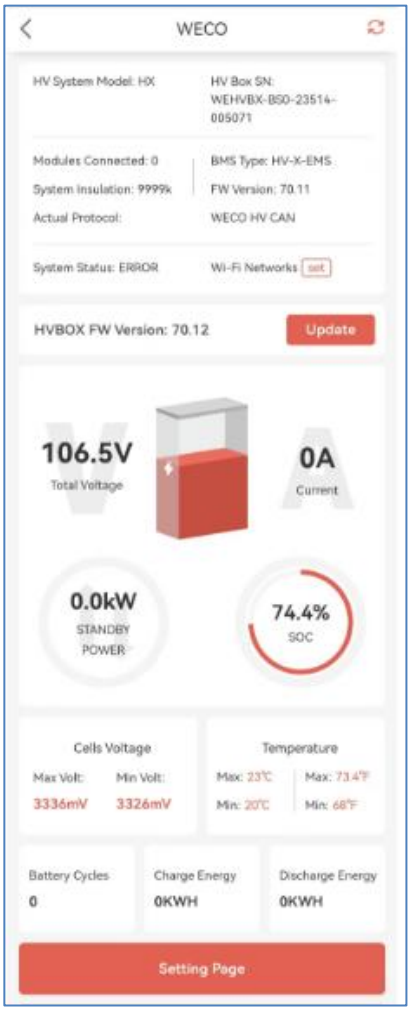




7.3.3 Always update the firmware to the latest version

Procedure:

1. Click "Update" in the middle of the home page.
2. Then the inverter will start updating to the indicated version.



8. Storage

8.1 Storage - Transport - Removal / Transfer of batteries

This battery is considered a DANGEROUS GOOD by the United Nations and should be treated accordingly.
Each box leaves the factory with the following labels:





This battery can only be transported and stored with the original approved cardboard box, certified according to UN CLASS 9 Y80.
This battery should be stored in its original cardboard box in a dry and cool place. The box of

Carton is marked as below:



The Transport and Storage State of Charge (SoC) must not exceed 50%.

The storage period without recharging is 6 months and therefore requires fast charging up to 50% DoD. Charge to
0. 1C and not more than 50% SOC. In the case of shipping by sea, reference must be made to the UN38.3 standard. If you are traveling by road, please refer to local regulations.
To preserve performance and shelf life, this battery should be optimally stored at 77°F /25°F and @70% humidity.
The acceptable storage temperature range of the battery is +59°F to +95°F /+15°C to +35°C
Self-discharge in the range of +59°F to +119°F /+15°C to +35°C is approximately 1% per month. Anything outside of this range could exceed 10% per month.

Do not store batteries near sources of heat, steam, gas, fuels, sparks, or anything that may cause a fire or explosion.
Store indoors and protect from water and moisture.
The transport of new and used or damaged modules must comply with UN 38. 3 and federal, state, and local regulations.

If one or more working battery modules need to be removed or replaced, they must be marked as USED BATTERY (follow local rules).

If one or more battery modules need to be replaced due to damage, they must be marked as DAMAGED USED BATTERY and follow all applicable procedures and all federal, state, and local regulations.

9. Maintenance and Replacement

Please follow the following instructions for battery maintenance and replacement:

• Maintenance of the battery module must be carried out by operators who are well trained and authorized by the company à WECO.
• The battery module must be turned off before servicing and follow the safety instructions in this manual and other relevant documents.
• Do not restart the battery unless all faults have been resolved.
• After maintenance is complete, check that there are no parts left in the battery module.
• Do not disassemble without permission from WECO as there is a risk of electric shock. Any damage due to the above reason is not covered by the warranty.
• When not using the battery for a long time, store and charge the battery according to the instructions in this manual.

10. Battery Module Disposal

10.1 Remove the Battery

Procedure
Step 1: Perform the system shutdown operation
Step 2: Disconnect all electrical connections to the battery modules.
Step 3: Remove the battery module.



Attention

Please note that, for any reason, personnel or installer will not disassemble the battery module without WECO's authorization, otherwise the device will no longer be under warranty.

10.2 Packing the Batteries

Please put it inside the original packaging and seal the package tightly with tape

10.3 Dispose Batteries

Disposal of the battery module must comply with local regulations associated with the regulations on the disposal of electronic waste and used batteries.

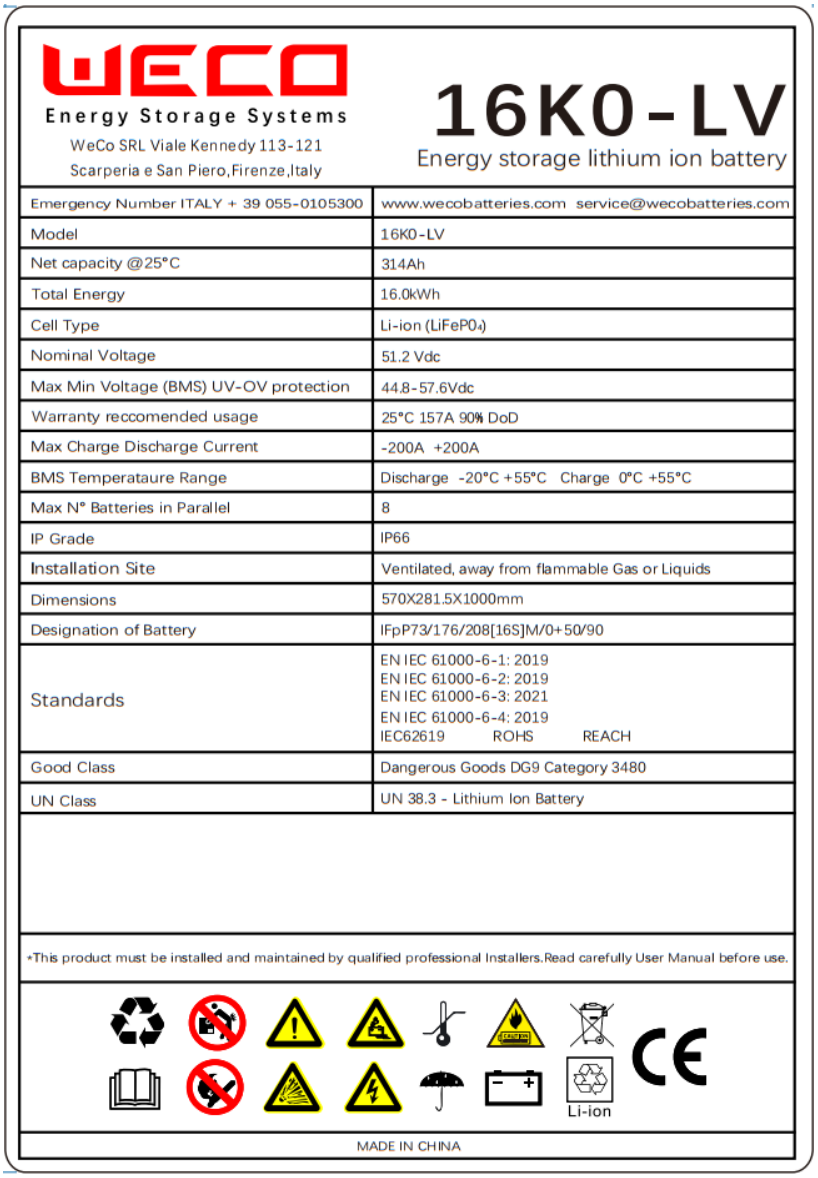
Appendix A Technical Parameters

Technical Performance	
System Model	16K0-LV
Rated Voltage	51.2V
Cell module	1P16S(1P8S*2=A+B MODULE)
Cell Quantity	16
Voltage Range	44.8-57.6V
Rated AH	314Ah
Rated Capacity	16kWh
Cell Type	LFP 3.2V/314Ah Li-ion LiFeP4
(70% SOH,25℃,0.5C/0.5C) Cycle Times	8000
Standard Continues Charge Current	157A
Standard Continues Discharge Current	157A
Max.Continues Charge Current	200A
Max.Continues Discharge Current	200A
Max. Number in Parallel	8
Charge Temperature Range	0-55°C
Discharge Temperature Range	-20-55°C
Fuse	100Vdc，350A
Operating Humidity	0~95%
Operating Altitude	＜3000m
IP Class	IP66
Corrosion-Proof grade	C3
Battery Dimension: W×H×D	480*1000*262mm
Weight	150kg
Original SOC	70%
Self Consumption in storage	≤3% monthly (New battery within 20 months, 70% SOC, 25±2°C condition)
Service Life	10 Years or 8000 cycles, subject to whichever condiction is met first.

Appendix B Device Label

The nameplate label describes the product parameters and is attached to the product.
For details, please refer to the nameplate label of the product. For safety reasons, the installer must have a thorough understanding of the contents of this manual before installing the product.
The label data may be different from the manual, always refer to the label of the product you have purchased.

WeCo BATTERY MODULE – PRODUCT LABEL



WECO
Energy Storage Systems
WeCo SRL Viale Kennedy 113-121
Scarperia e San Piero,Firenze,Italy

16K0-LV
Energy storage lithium ion battery

Emergency Number ITALY + 39 055-0105300	www.wecobatteries.com service@wecobatteries.com
Model	16K0-LV
Net capacity @25°C	314Ah
Total Energy	16.0kWh
Cell Type	Li-ion ($LiFePO_4$)
Nominal Voltage	51.2 Vdc
Max Min Voltage (BMS) UV-OV protection	44.8-57.6Vdc
Warranty reccomended usage	25°C 157A 90% DoD
Max Charge Discharge Current	-200A +200A
BMS Temperataure Range	Discharge -20°C +55°C Charge 0°C +55°C
Max N° Batteries in Parallel	8
IP Grade	IP66
Installation Site	Ventilated, away from flammable Gas or Liquids
Dimensions	570X281.5X1000mm
Designation of Battery	IFpP73/176/208[16S]M/0+50/90
Standards	EN IEC 61000-6-1: 2019 EN IEC 61000-6-2: 2019 EN IEC 61000-6-3: 2021 EN IEC 61000-6-4: 2019 IEC62619 ROHS REACH
Good Class	Dangerous Goods DG9 Category 3480
UN Class	UN 38.3 - Lithium Ion Battery

*This product must be installed and maintained by qualified professional Installers.Read carefully User Manual before use.

Li-ion

MADE IN CHINA



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