



MINI ES Battery Base User Manual

MINIES-B3-R1

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1. Introduction

Dear customer:

Thank you very much for purchasing the MINI energy storage base supplied by BYD Auto Industry Company Limited. We sincerely believe that our products meet your needs. We value your feedback on the product performance, appearance and function and we strive to continually improve our product.

1.1 Brief description

To meet the 3kW/3kWh household energy storage system (MINI ES) capacity expansion demand, BYD integrated years of development and operation experience launched the 3kW/6kWh household energy storage solution: [3kW/3kWh MINI ES] +3kWh battery base system.

The system highlighted the overall technology advantages of intellectualization and integration, set of BYD Iron-Phosphate Battery, PCS, distributed BMS, monitoring system and other advanced technology, realize remote monitoring through the APP (support iOS and Android system). With high reliability, high safety, high efficiency, energy conservation and environmental protection, etc. Small volume, light weight, easy installation and maintenance.



figure1. Installation effect drawing

Note: MINIES 3kWh battery base is used together with MINIES P30B3-AU-R2, it can be extended to 3kW/6kWh MINIES system.

Functions

Functions of the MINI ES battery base are shown as below:

- When MINIES 3kWh battery base is used with 3kW/3kWh MINIES together, it can extend to be 3kW/6kWh MINIES system.
- When grid power is unavailable, battery base will cooperate with MINIES P30B3-AU-R2 supply power to essential loads, such as computer, phone, TV general lighting, etc.

Disoperation predictable

Any operation of the storage system beyond the description of correct operation may be considered as improper use.

The device shall not be operated:

- In rooms smaller than 8m³
- In rooms that contains flammable materials, fire, or in explosive atmospheres
- In insufficient ventilated rooms under 8-25 m³
- In areas with ambient temperature below 0°C above +40°C
- Use the battery not authorized by BYD
- In a damaged house
- With any batteries other than approved by BYD
- With defective cables
- With parts that are clearly defective or damaged

1.2 About this manual

Declaration

This manual is applicable to the MINI ES battery base (MINI ES-B3-R1). Mainly presentation the functions and attentions in transportation, assembling, installation, commissioning and using of product.

This manual is applicable to transportation, assembling, installation and commissioning.

Target Readership

This manual is intended to be used by the accredited installer.

Manual keeping

This manual contains important information. Please read this manual carefully before operating and servicing the MINI ES battery base.

Please strictly follow the manual instructions when operating the system, otherwise it may cause the product to fail or cause personnel casualty or property loss.

This manual shall be stored and safely be accessible on site to the installer and service technician at any time.

Alarm signs

Please keep several types of safety alarm signs in mind. Familiarize yourself with the messages and the importance of the various signals as explained.

Warning instructions identify safety information, which include the following:

- Warning sign
- Instructions to denote the level of risk
- Details of the nature and source of the risk
- Details of the potential risk if the warning instructions are disregarded
- Risk management to prevent the danger or personnel casualty or material damage
- The warning instructions are defined according to the following level of hazards



DANGER!

Denotes an extraordinarily hazardous situation

This warning symbol indicates an immediate danger, which can lead to severe injury or death.



WARNING!

Denotes a very dangerous situation

This warning symbol indicates a potentially dangerous situation, which could lead to severe injury or death.



CAUTION!

Denotes a dangerous situation

This warning symbol indicates a potentially dangerous situation, which could lead to minor injury.



NOTICE!

Denotes a risk of material damage

This warning symbol indicates a situation that could lead to material damage.

1.3 Abbreviations

Abbreviation	Description
PV	Photovoltaic system

APP	Application software
CT	Current transducer
DOD	Depth Of Discharge
SOC	State of Charge

1.4 Specification

NO.	Type	MINIES-B3-R1	Remark
Battery Parameter			
1	Rated Voltage	52Vdc	Voltage Range: 44.8Vdc~57.6Vdc
2	Battery Type	LiFePO ₄	
3	Battery Capacity	3kWh DC side	At +10℃~+30℃, discharge at 0.5C
Protect Function			
4	BMS	Short Circuit Protection	
5		Under-temperature Protection	
6		Over-temperature Protection	
7		Under-voltage Protection	
8		Over-voltage Protection	
9		Over-current Protection	
Other Parameter			
10	Operation Humidity	5%~95%	
11	Altitude	<2000m	
12	Cooling	Air Cooling	
13	Noise	<45dB	
14	Communication Interface	CAN	
15	Operation Temperature	0~40℃	
16	Store Temperature	-10℃~40℃	
17	Size	698mm×477mm×200mm	W×D×H
18	Weight	57kg	
19	Protection Level	IP32	
20	Usage Environment	Indoor(No Condensation, Freeze, Direct Sunlight)	
Design Standard			

NO.	Type	MINIES-B3-R1	Remark
21	Battery Standard	UN38.3, IEC62619	

2. Safety Requirements

2.1 Responsibilities of the installer

The installer must ensure that:

- The safety protection equipment of the system is fully functioning
- Any unclear warning and safety signage on the device shall be replaced immediately
- Make sure there is no flammable items stored near the device
- The device shall not be covered at any time
- The device is required to be placed on a surface that can support the full weight of the unit
- Transportation, assembling, installation and commissioning of the device shall be carried out by authorized personnel only
- Transportation, assembling, installation and commissioning of the device shall be carried out only under the specified conditions
- The authorized installer shall be capable of evaluating the potential risk
- Only authorized and trained electricians can perform installation, commissioning, and change the settings and connect to the Router
- Before installation and operation, any potential hazards shall be identified and the necessary risk management should be applied onsite.
- This manual and safety instructions shall be read and understood by the installer before starting installation
- Changes are not allowed to the software, housing and components of the device without the manufacturer's approval. Otherwise, the liability and warranty may be invalid.
- The unit is not allowed to be opened except by authorized and trained electricians. If the seal is broken due to unauthorized modification of the components, the warranty will be invalid.

All operators of the energy storage system shall follow the user manual, installation and service manuals and quality guarantee. Any damage to equipment caused by ignoring and misreading the user manual, installation and service manuals and quality guarantee will invalidate the product warranty.

2.2 Qualified electrician

Qualification

A qualified electrician is a person who possesses the required knowledge, technical training and experience, to conduct the following:

- Setting up, activating, deactivating, disconnecting, grounding, short-circuiting and repairing electrical circuits and devices.
- Standard maintenance and use of protective devices defined in the safety standards.

- Administering first-aid to injured parties.
- Compliance with local regulations, applicable standards and directives.

Responsibilities

The electrician shall ensure that:

- The general information, step-by-step instructions and the safety instructions regarding assembling and installation are read and followed at all times
- Neither the physical size nor the rated current value of fuses can be changed
- Before any electrical work is performed, suitable measuring equipment shall be used to ensure that the device is in accordance with applicable directives
- The device shall never be opened during operation

2.3 Requirements for the installation location

Always select a suitable location before installation. The installer shall ensure that the installation location meets the following conditions:



NOTICE!

Material damage due to inadequate ventilation

Individual components is not cooling fully as inappropriate or clogged ventilation, will case components aging in advance, this will produce irreversible damage to the device. Ensure full air circulation during the closing operation.

- Sufficiently ventilate the installation room
- Install all components according to the instructions
- Do not stack anything on the device.
- Operate the device only when it is closed

The installation room environmental requirements

- The room must be kept dry and enclosed.
- Protected against penetrating water.
- Remove irrelevant items.
- Always install away from highly flammable (e.g. paper) or explosive materials (e.g. fuel, paint)
- Sufficient ventilation (max humidity of 95%)
- When the system is running, it will produce a trace of noise, recommended do not install in the bedroom and other living areas, better in the garage, storage room, tool room and other areas where do not affect the users.

Room size

- Room no less than 8.00 m³.
- Room from 8 to 25 m³: passive or active ventilation is required (at 8 m³: air exchange rate is 12 m³/h).

- Rooms larger than 25 m³: do not need separate ventilation.

Space required.

- Min. base surface area is 2.00 m²
- Min. height is 2.00 m
- Min. depth is 2.00 m

Ceiling, ground and wall requirements

- Ceiling made from non-flammable material
- Ground capable of supporting the total weight of the device: 153kg (3kW/3kWh system 96kg, 3kWh battery base 57kg.)
- Minimum clearance from the wall is 15 cm

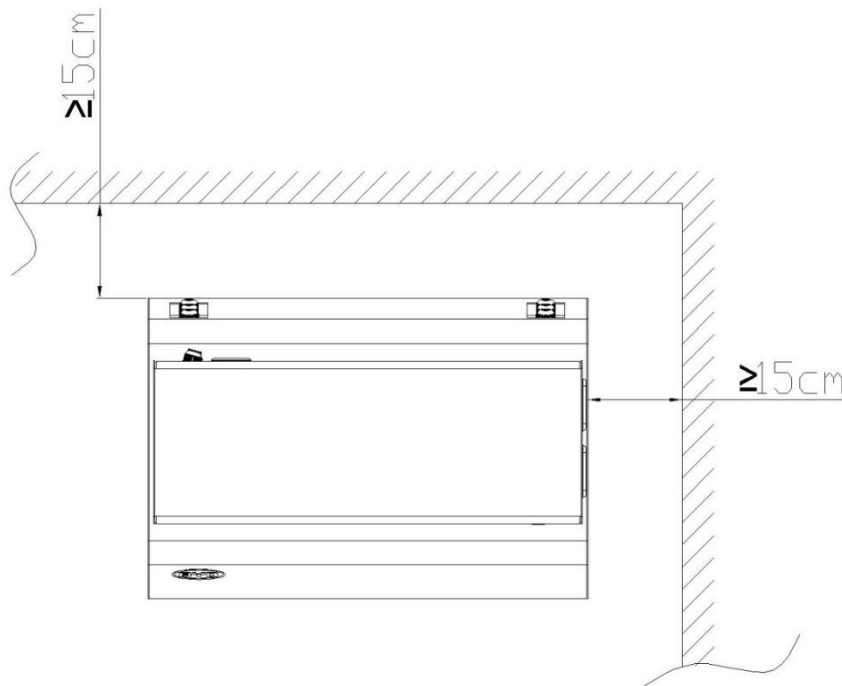


figure2. Schematic diagram of the installation gap

Temperature and humidity requirements.

- Room temperature of 0°C to + 40°C
- Max. humidity of 95%






Access authority

- Children shall be accompanied by an adult if they are in the installation room
- Children shall not operate the storage system

Protection grade

- IP32

2.4 Safety signs on the device

Item	Description
	Be aware of dangerous voltage/ electric shock
	Follow the guidelines of all relevant documents
	Do not dispose the device in the bin
	Point of connection for grounding protection
	Hot surface

2.5 Basic safety information

This chapter contains the basic safety instructions. Failure to follow the safety instructions in this manual can result in accidents which can lead to serious injury and/or death, as well as serious components damage.

Risk of fatal injury: General



DANGER!

Risk of fatal injury due to lack of assistance

In the event of an accident a second person can switch off the power supply and provide assistance.

- Only perform the work if a secondary installer is presented.



DANGER!

Due to disregard of safety instructions

If the safety instructions and/or installation are not followed, the product may be permanently damaged and electrical accidents with serious consequences may occur.

- Follow the safety instructions

Risk of fatal injury: Inverter



DANGER!

Risk of fatal injury due to residual voltages

The inverter capacitors may still discharge even after the device is switched off.

- Ensure external and internal switches are disconnected.
- After switching off the device, always wait 10 minutes before direct contact with the unit.
- Use a certified multimeter to check if the device is still energized in accordance with applicable guidelines

Risk of fatal injury: Battery



DANGER!

Risk of injury due to electric shock

Batteries can generate significant amounts of short-circuit current due to incorrect operation, which can cause electric shock and lead to serious injury and/or death.

- While working with batteries, always remove watches, rings and other metal equipments.
- Only use tools that have insulated handles
- Do not place or store tools or other metal objects on the batteries
- Always disconnect the charging and discharging source first before working on the battery connections
- Reconnect the unit only after comprehensive check of all connections and terminals, ensure the wiring is correct.



DANGER!

Risk of explosion due to using incompatible battery types

If other battery types not approved for the device are used, the existing and unapproved batteries may explode.

- Only use batteries that have been approved by the manufacture
- Check with the manufacturer before installation

Risk of injury General



WARNING!

Risk of injury due to unauthorized installation

Installation and commissioning of this storage system requires BYD authorized training and relevant accreditation.

- Installation, cabling and commissioning must only be carried out by authorized, trained electricians.
- The device operating temperature may reach up to 100°C, do not touch the hot surface.
- After switching off the device, you must wait for 10 minutes before touching any components.



WARNING!

Risk of injury due to heavy weight

The heavy weight of components may cause injury during installation, disassembling, transportation.

- Transportation and installation requires a minimum of two people.
- Transport the device with appropriate lifting equipment.



WARNING!

Risk of injury due to incorrect installation procedure

If the sequence specified in the instructions is not followed during the installation of the components, this can cause injury or material damage.

- Read the installation manual carefully and follow the installation procedure.



WARNING!

Risk of injury due to sharp edges

The components have sharp edges, which can cause injury if they are not handled carefully.

- Wear protective equipment.
- Install the system with a minimum of two people.



WARNING!

Risk of incorrect use of the batteries

Eye and skin injuries can be caused by opening or damaging the batteries.

Never open or damage the batteries

- Do not short-circuit the batteries
- Do not reverse the polarity of the batteries
- Do not overcharge the batteries

2.6 Other safety instructions



WARNING!

- Climbing on the equipment is prohibited. Please do not place accessories on or inside the device.
- Decomposition, reconstruction, repair of equipment without the manufacturer's permission is prohibited.
- Internal electrical maintenance of equipment by any non-professional is prohibited. When maintenance is needed, please contact the authorized service provider.
- Blocking the ventilation of the device is prohibited.
- Do not put any objects inside the equipment.
- Do not touch, pull or cut off the internal cables coming from the device.
- Do not place heat source near the device (such as electric furnace and other heating equipment).
- Do not wipe the device with a damp cloth or chemicals (such as detergent).
- Do not pull the power cord of the device.
- Do not set the device close to any high frequency machines, wireless machines, radio, television or the electrical equipment which will disturb signals.
- Do not apply heavy impact or tilt the device.
- Do not spray any liquid on equipment.
- Do not install the device in areas with electrostatic charge or noise.
- The essential loads will experience a short period blackout (less than 5 seconds) when grid drops off before MINIES supplying power.
- Please do not connect medical equipment to essential loads as MINIES is not a UPS device.
- When the device itself or parts are damaged, do not attempt to repair or move the device, consult a suitably qualified installer.



NOTICE!

- Avoid direct contact with the device during severe weather condition.
- The device is prohibited to use for medical equipment.
- If equipment appears deformed, broken or has abnormal sounds or smells, please contact BYD authorised service provider immediately.
- If equipment malfunctions or cannot run normally, please contact the authorised service provider immediately.
- Keep minimum space requirements for inspection and service.
- If regular maintenance is needed, please contact BYD authorised service provider.
- If the device is not used for a long time, please keep the system fully charged.
- When the device needs to be relocated, please contact BYD authorised service provider.
- This equipment is limited to indoor installation, please do not install outdoors.
- This product is limited to use in Australia, If there is any other special requirements, please contact the manufacture for prior approval.

3. Technical Description

3.1 Scope of supply

After unpacking the MINI ES battery base, you must check the scope of delivery. If components are missing or damaged, contact the manufacturer immediately. The following components are included as standard in the scope of delivery:

Number	Item	Quantity	Description
1	MINI ES battery base	1	
2	User Manual	1	
3	Factory Inspection Report	1	
4	Certificate of Qualification	1	
5	Fittings for Cabinet combination connecting	1	Cables, Cable protective cover

3.2 Nameplate introduction


The Mini ES battery base is fitted with a nameplate on its front left housing. This nameplate is engraved with important parameters related to the system. Please carefully protect it in the process of transport, installation, maintenance and overhaul. Do not damage or remove the nameplate.

MINI ES

Product Type: **MINIES-B3-R1**

Production Time: Mon/Year

Series Number:



Battery Parameter	Nominal Voltage:52V
	Working Voltage Range:44.8V~57.6V
	Battery Capacity: 3KWh
	Battery Type:LiFePO ₄
Condition	Operation Temperature: 0℃~40℃
	Storage Temperature: -10℃~40℃
	Ingress Protection: IP32 (Recommended Indoor)
Size	698mm (W) ×466.5mm (D) ×119.5mm (H)
Weight	57kg
Grid Monitoring	UN38.3
<p>*During operation, don't put system in direct sunshine, condensation / snow environment.</p> <p>*Only can be used to extend the battery capacity of BYD MINI ES product</p> <p>*Warning: Max.fault current 5000 A.</p> <p>* More parameter is in user manual.</p>	

Manufacture: BYD Auto Industry Company Limited

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Website: Http: //www.byd.com










figure3. Nameplate

3.3 System overview

When MINIES 3kWh battery base is used with 3kW/3kWh MINIES together, it can extend to be 3kW/6kWh MINIES system. The battery base bring more flexible capacity choose for working with MINIES - P30B3 - AU - R2 series products.

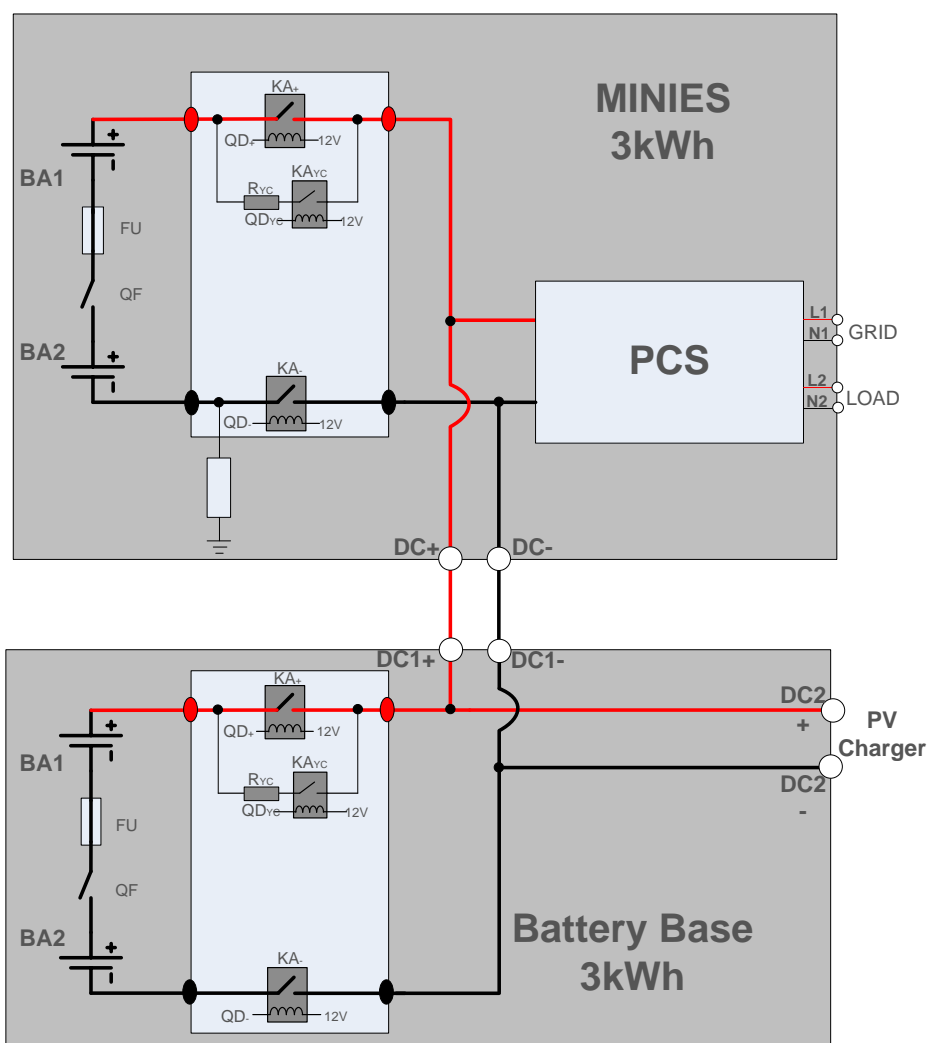


figure4. Wiring diagram

Product Introduction

- Appearance

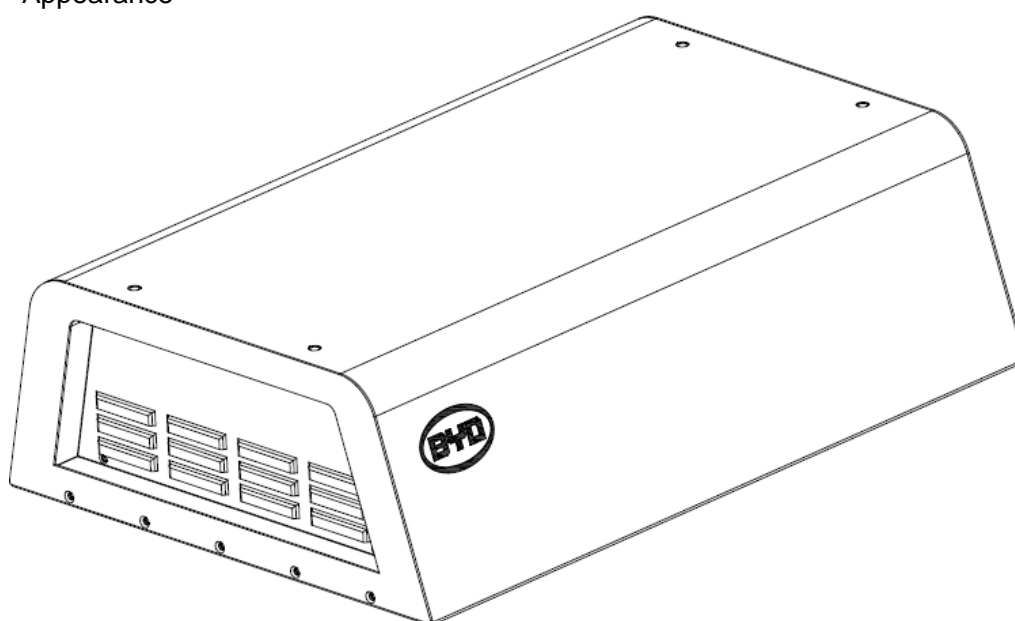


figure5. Front view

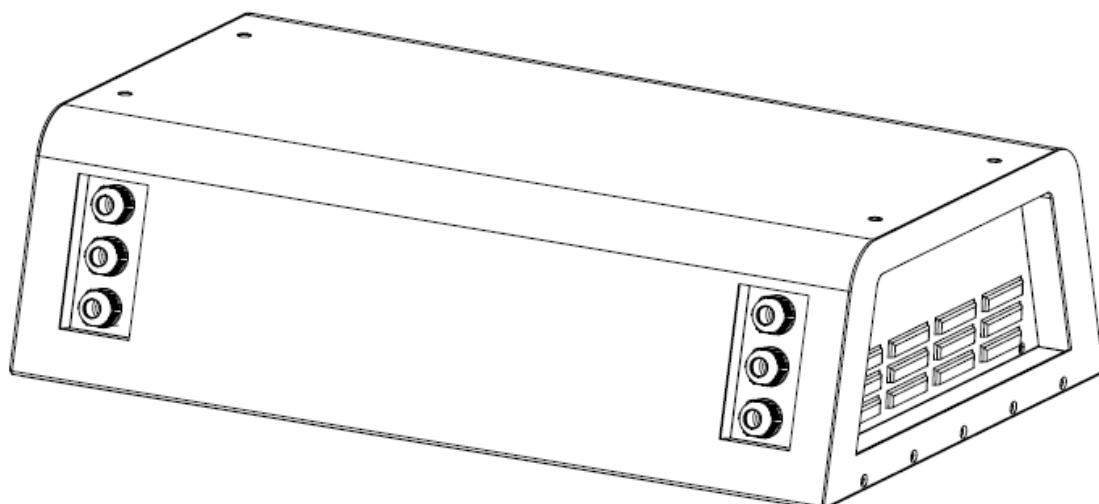


figure6. Back view

- Product dimensions

The Mini ES battery base is 698 mm long, 466.5 mm wide, 199.5mm high, and weighs 57kg.

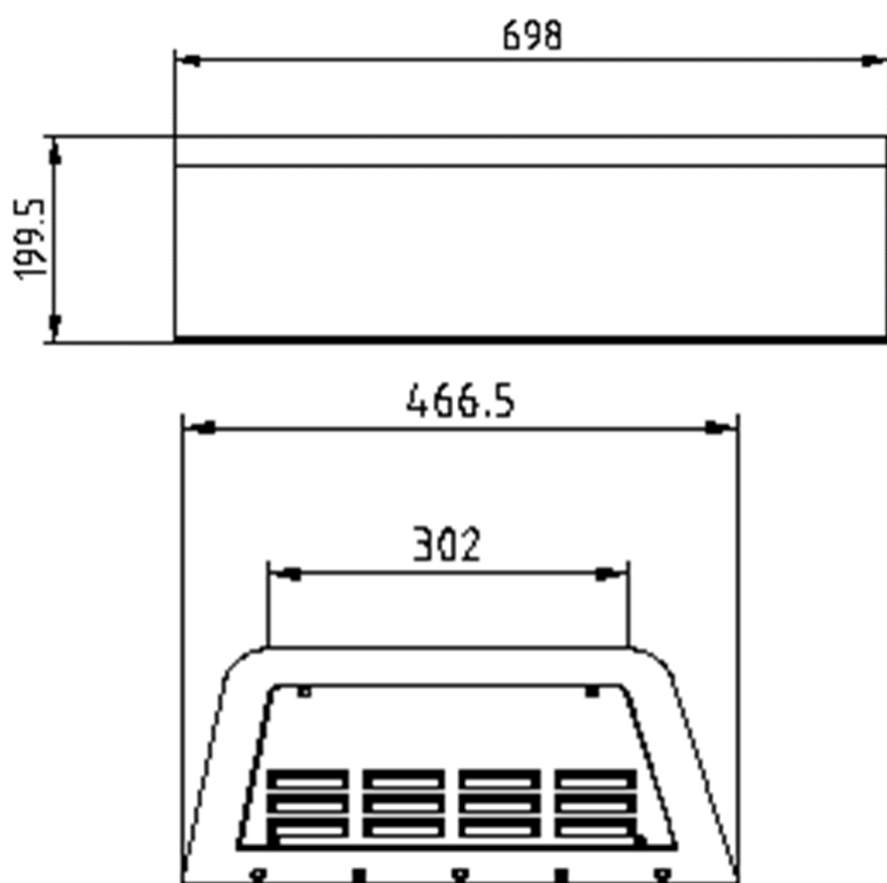


figure7. Dimensional drawing

● Product Interface

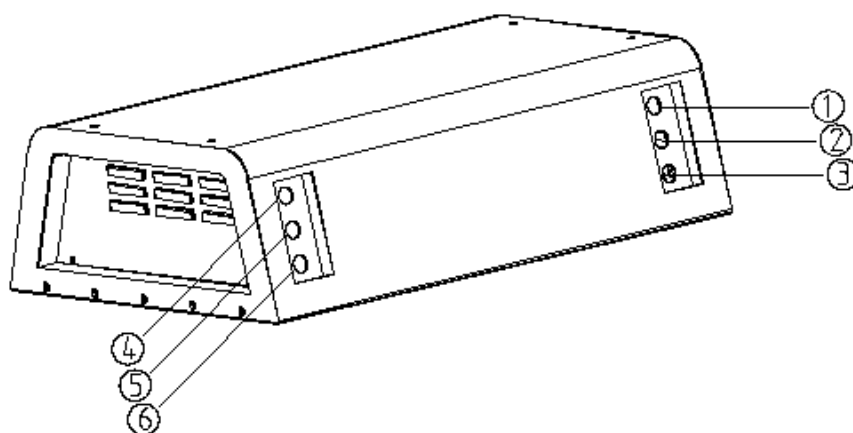


figure8. Bonding hole description

No.	Item	Remark
①	DC1+	MINI ES Battery base positive interface
②	DC1-	MINI ES Battery base negative interface
③	12V POWER &CAN	MINI ES Battery base communication &Power supply interface
④	DC2+	Reserved (BYD authorized products can access)
⑤	DC2-	Reserved (BYD authorized products can access)
⑥	CAN1	Reserved (BYD authorized products can access)



WARNING!

- All these interfaces must be connected by a qualified electrician. Any external device connected to the MINI ES shall be authorised by BYD Company. BYD does not assume liability and warranty for any problem or damage caused by unauthorised external devices.
- Please refer to installation manual for correct method of install.

4. Daily Maintenance Methods

4.1 Common faults

Common faults	Operation methods
MINI ES can't start	Please check the battery circuit breaker closed or not (licensed technician required).
MINI ES has no power output	Please check batteries state of charge via APP, it might be too low.
Essential load can't work normally	<ol style="list-style-type: none"> 1. Please check the important load distribution box circuit breaker. 2. Please check the essential load rating to determine if it exceeds 2kVA or not.

Common faults	Operation methods
	3. Please check the state of charge.
APP can't read data	Please check the product network connections.
The MINI ES sends power to the grid	Please contact your service agent.
Others	If the product is unable to recover, please contact the supplier or local service centre.

4.2 Daily maintenance

1. Do not block the product inlet / outlet. The inlet and outlets should be cleaned every six (6) months.
2. When the product is likely to sit idle, please ensure that the product has sufficient battery power. (Via long press "LOCAL" and "REMOTE" 2 buttons for charging the battery. Once fully charged, the product will automatically shut down. Then turn off the power grid connecting to the MINI ES).



NOTICE!

Beyond the prescribed time limit or not in accordance with the requirements of operation, may cause the risk of battery over-discharge. This kind of damage to battery is beyond the scope of warranty.

- When the product is likely to sit idle, please operate in accordance with the content step2 in "Daily maintenance" . Once fully charged, placement time shall not exceed 6months
- As system do not access to the grid resulting in automatic shutdown, product placement time shall not exceed 1 months.

5. About BYD

For any assistance about BYD product, please contact BYD by:

Electric Power Research Institute

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