

USER MANUAL

# External battery module For RT G2 5-10 kVA UL



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# 1 Important safety instructions

## 1.1 Save these instructions



THIS CHAPTER CONTAINS IMPORTANT SAFETY INSTRUCTIONS. READ IT CAREFULLY BEFORE DISASSEMBLING THE UNIT.



THIS MANUAL CONTAINS IMPORTANT INSTRUCTIONS THAT SHOULD BE FOLLOWED DURING THE INSTALLATION AND MAINTENANCE OF THE EBM.  
THE EBM MODELS THAT ARE COVERED IN THIS MANUAL ARE INTENDED FOR INSTALLATION IN ENVIRONMENTS WHERE TEMPERATURES ARE WITHIN **0 TO 40 °C** AND ARE FREE OF CONDUCTIVE CONTAMINANTS.

## 1.2 Safety symbols and warnings

Follow all operating and user instructions.



THIS SYMBOL IN CONJUNCTION WITH THE SIGNAL WORD “**DANGER**” INDICATES AN IMMINENT ELECTRICAL HAZARD.  
FAILURE TO OBSERVE THE RELATED SAFETY NOTE MAY CAUSE INJURY, DEATH OR EQUIPMENT DAMAGE.



THIS SYMBOL IN CONJUNCTION WITH THE SIGNAL WORD “**WARNING**” INDICATES A POTENTIALLY DANGEROUS SITUATION.  
FAILURE TO OBSERVE MAY CAUSE INJURY, DEATH OR EQUIPMENT DAMAGE.



THIS SYMBOL INDICATES A SAFETY NOTE: “ATTENTION! HAZARDOUS VOLTAGE!”  
INSTALLATION BY A CERTIFIED SERVICE ENGINEER ONLY.”



THIS SYMBOL IN CONJUNCTION WITH THE SIGNAL WORD “**NOTE**” INDICATES OPERATOR TIPS OR PARTICULARLY USEFUL OR IMPORTANT INFORMATION FOR THE USE OF THE PRODUCT.  
THIS SYMBOL AND WORDING DO NOT INDICATE A DANGEROUS SITUATION.














THIS SYMBOL INDICATES THAT READING THE INSTRUCTION MANUAL/ BOOKLET BEFORE STARTING WORK OR BEFORE OPERATING EQUIPMENT OR MACHINERY IS COMPULSORY.



DO NOT DISPOSE OF WITH ORDINARY TRASH.

## 1.3 Important Safety Warnings

Please comply with all warnings and operating instructions in this manual strictly. Save this manual properly and read carefully the following instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.

 <b>DANGER</b>	This battery bank is connected to an UPS. There will be voltage at the output terminals if the UPS is turned on even if the input AC Mains is not available.
 <b>WARNING</b>	Do not try to repair the unit yourself, contact your local supplier or your warranty will be void.
 <b>NOTE</b>	To eliminate any overheating of the battery bank, keep all ventilation openings free from obstruction and do not place any foreign objects on top of the battery bank. Keep the battery bank 20 cm away from the wall.
 <b>NOTE</b>	Make sure the battery bank is installed within the proper environment as specified. (0-40°C/32°F – 104°F and 5-95% non-condensing humidity)
 <b>NOTE</b>	Do not install the battery bank under direct sunlight. Your warranty will be void if the batteries fail due to overheating.
 <b>NOTE</b>	This battery bank is designed for indoor use only.
 <b>NOTE</b>	This battery bank is not designed for use in dusty, corrosive and salty environment.
 <b>NOTE</b>	The warranty for this battery bank will be void if water or other liquid is spilt or poured directly onto the battery bank. Similarly we do not warrant any damage to the battery bank if foreign objects are deliberately or accidentally inserted into the battery bank enclosure.
 <b>NOTE</b>	The battery will discharge naturally if the system is unused for a period of time.
 <b>NOTE</b>	It should be recharged every 2-3 months if unused. If this is not done, then the warranty will be null and void. During normal operation, the batteries will be automatically remained in charged condition.
 <b>NOTE</b>	Servicing of Batteries Should be Performed or Supervised by Trained Personnel with Knowledge of Batteries and the Required Precautions



When replacing batteries, replace with the same quantity, type & capacity.



Do not dispose of battery or batteries in an open fire. The battery may explode.



Do not open or mutilate the batteries. The electrolyte from the batteries is toxic and harmful to the skin and eyes.



Risk of Electric Shock – Battery circuit is not isolated from AC, hazardous Voltage may exist between battery terminals and ground. Test before touching with bare hands.



A Battery can present a risk of electrical shock and high short circuit current.

The following precaution should be observed when working on batteries:

1. Remove watches, rings, or other metal objects.
2. Use tools with insulated handles.
3. Wear rubber gloves and boots.
4. Do not lay tools or metal parts on top of batteries.
5. Disconnect charging source prior to connecting or disconnecting battery terminals.



Do not plug or unplug the battery connector if UPS works in DC (discharging) mode.

## 1.4 UPS disposal and recycling

### 1.4.1 For professional users in the European Union



THE CROSSED WHEELED BIN SYMBOL ON THE PRODUCT(S) AND / OR ACCOMPANYING DOCUMENTS MEANS THAT USED ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) SHOULD NOT BE MIXED WITH GENERAL HOUSEHOLD WASTE.

IF YOU WISH TO DISPOSE OF ELECTRICAL AND ELECTRONIC EQUIPMENT (EEE), PLEASE CONTACT YOUR DEALER OR SUPPLIER FOR FURTHER INFORMATION.

CORRECT WASTE DISPOSAL OF THIS PRODUCT WILL HELP SAVE VALUABLE RESOURCES AND PREVENT ANY POTENTIAL NEGATIVE EFFECTS ON HUMAN HEALTH AND THE ENVIRONMENT, WHICH COULD OTHERWISE ARISE FROM INAPPROPRIATE WASTE HANDLING

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## 1.4.2 For disposal in countries outside of the European Union



THE CROSSED WHEELED BIN SYMBOL IS ONLY VALID IN THE EUROPEAN UNION (EU) MEANING THAT USED ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) SHOULD NOT BE MIXED WITH GENERAL HOUSEHOLDWASTE.

IF YOU WISH TO DISPOSE OF THIS PRODUCT PLEASE CONTACT YOUR LOCAL AUTHORITIES OR DEALER AND ASK FOR THE CORRECT METHOD OF DISPOSAL.

CORRECT WASTE DISPOSAL OF THIS PRODUCT WILL HELP SAVE VALUABLE RESOURCES AND PREVENT ANY POTENTIAL NEGATIVE EFFECTS ON HUMAN HEALTH AND THE ENVIRONMENT, WHICH COULD OTHERWISE ARISE FROM INAPPROPRIATE WASTE HANDLING

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## 1.5 Certification standards

- Safety: UL 1778, CSA 107.3.
- IEC 61000-4-2 (ESD): level 3.
- Radiated: FCC CFR 47 Part 15 Class A.
- Conducted: FCC CFR 47 Part 15 Class A.
- IEC 61000-4-4 (EFT): level 3.
- IEC 61000-4-5 (Surge): level 2 (Line-Line), level 3(Line-Earth).
- IEC 61000-4-6 (CS): level 3.
- IEC 61000-4-8 (Power Frequency Magnetic Field Immunity): level 4.
- IEC 61000-2-2 (Low Frequency Signals)
- IEC 61000-4-3 (RS): level 3

## 2 Introduction

The module can extend the running time of UPS. Each EBM is dedicated to its corresponding UPS and setup is very easily. Up to four EBMs can be extended for one UPS.



WE RECOMMEND YOU TAKE THE TIME TO READ THIS MANUAL TO TAKE FULL ADVANTAGE OF THE MANY FEATURES OF YOUR EBM.

### 2.1 Environmental protection

- Our products are developed using the eco-design approach.


#### 2.1.1 Substances

This product does not contain CFCs, HCFCs, or asbestos.

#### 2.1.2 Packing

To improve waste treatment and facilitate recycling, separate the various packing components.

- The cardboard we use comprises over 50% recycled cardboard.
- Sacks and bags are made of polyethylene.
- Packing materials are recyclable and bear the appropriate identification symbol

Materials	Abbreviations	Number in the symbols	
Polyethylene terephthalate	PET	01	
High-density polyethylene	HDPE	02	
Polyvinyl chloride	PVC	03	
Low-density polyethylene	LDPE	04	
Polypropylene	PP	05	
Polystyrene	PS	06	



FOLLOW ALL LOCAL REGULATIONS FOR THE DISPOSAL OF PACKING MATERIALS

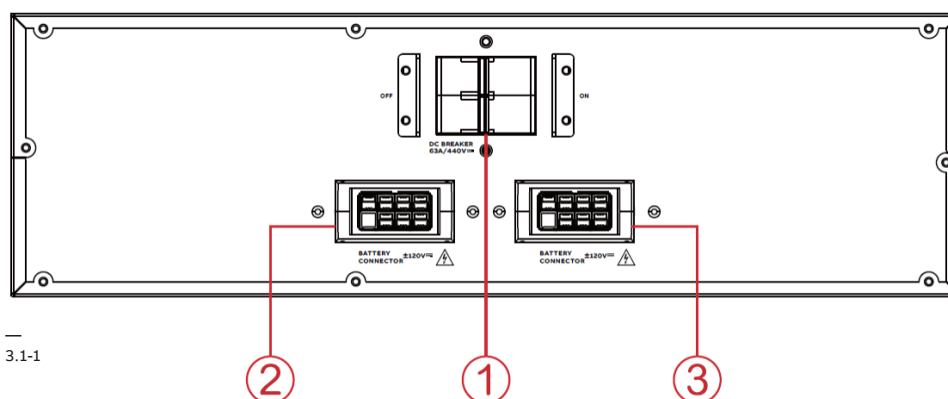
### 3 General characteristics



BEFORE INSTALLATION, PLEASE INSPECT THE UNIT. ENSURE NOTHING IS DAMAGED INSIDE THE PACKAGE. PLEASE KEEP THE ORIGINAL PACKAGE IN A SAFE PLACE FOR FUTURE USE.

#### 3.1 Rear Panel View

3.1-1  
Rear Panel View



3.1-1

No	Item
1.	EBM Breaker
2.	Downstream EBM connector(output)
3.	Upstream EBM connector(input)

## 4 Installation



THE SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE SAFETY REGULATIONS



INSTALLATION AND COMMISSIONING SHALL BE IN COMPLIANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL SAFETY REGULATIONS AND MUST BE CARRIED OUT BY SUITABLY QUALIFIED PERSONS AS PER NATIONAL, STATE, AND LOCAL REQUIREMENTS.

### 4.1 Inspecting the equipment



**WARNING**

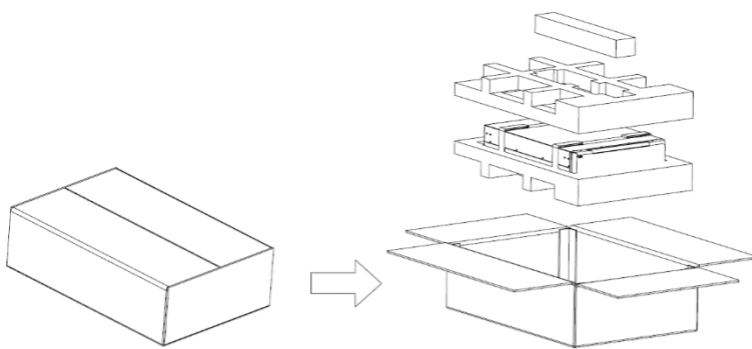
RISK OF FALLING: DISMANTLING THE UPS REQUIRES WORKING AT HEIGHT. TAKE THE NECESSARY PRECAUTIONS.

### 4.2 Unpacking the Unit



**DANGER**

UNPACKING THE UNIT IN A LOW-TEMPERATURE ENVIRONMENT MAY CAUSE CONDENSATION TO FORM BOTH INSIDE AND ON THE CABINET. DO NOT INSTALL THE UNIT UNTIL THE INSIDE AND OUTSIDE OF THE UNIT ARE DRY (RISK OF ELECTRIC SHOCK).



IF ANY EQUIPMENT HAS BEEN DAMAGED DURING SHIPMENT, KEEP THE SHIPPING CARTONS AND PACKING MATERIALS FOR THE CARRIER OR PLACE OF PURCHASE AND FILE A CLAIM FOR SHIPPING DAMAGE. IF YOU DISCOVER THE DAMAGE AFTER ACCEPTANCE, FILE A CLAIM FOR CONCEALED DAMAGE



DISCARD OR RECYCLE THE PACKAGING IN A RESPONSIBLE MANNER OR STORE IT FOR FUTURE USE.

PACKING MATERIALS MUST BE DISPOSED OF IN COMPLIANCE WITH ALL LOCAL REGULATIONS CONCERNING WASTE. RECYCLING SYMBOLS ARE PRINTED ON THE PACKING MATERIALS TO FACILITATE SORTING.

## 4.3 Check the inside package

4.3-1  
Battery connection cable

4.3-2  
Rail slide

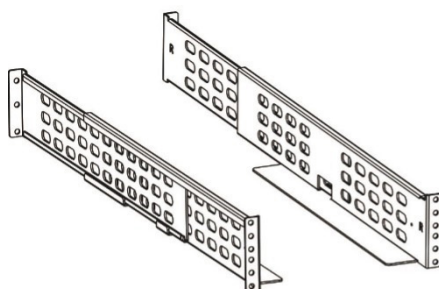
Unpack the package and check the package contents. The shipping package contains

- EBM module x1
- User manual x1
- Battery connection cable x 1



4.3-1

- Mounting ear (left) x 1
- Mounting ear (right) x 1
- Mounting ear screw(M4) x 8
- Screw(M6) x 14
- Nut(M6) x 4
- Foot extend(long) x 4
- Foot extend(short) x 4
- Rail slide (left) x 1
- Rail slide (Right) x 1



4.3-2

## 4.4 Installing the EBM

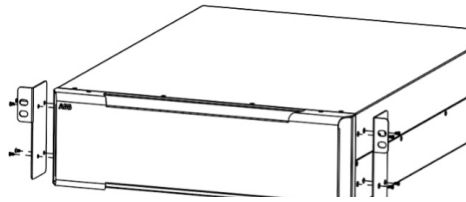
It is necessary to select a proper environment to install the unit, in order to minimize the possibility of damage to the battery bank and extend the life of the batteries. Please follow the instructions below:

1. Keep at least 20cm (8 inches) clearance from the rear panel of the unit from the wall or other obstructions.
2. Do not block the airflow to the ventilation openings of the unit.
3. Please ensure the installation site's environmental conditions are in accordance with the unit's working specifications to avoid overheating and excessive moisture.
4. Do not place the unit in a dusty or corrosive environment or near any flammable objects.
5. This unit is not designed for outdoor use.

## 4.4.1 Install in the rack position

4.4.1-1  
Step 1

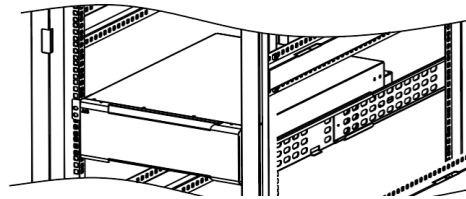
Step 1: Install mounting ears to the side mounting holes of the EBM using the screws provided, mounting ears should face forward. Please refer to the below diagram.



4.4.1-1

4.4.1-2  
Step 2

Step 2: Lift the EBM and slide it into the rack enclosure. Install the EBM to the rack with screws, nuts through its mounting ears and into the rack rails. Please refer to the below diagram

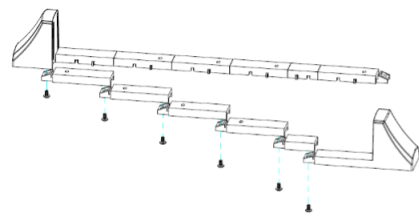


4.4.1-2

## 4.4.2 Install in the tower position

4.4.2-1  
Step 1

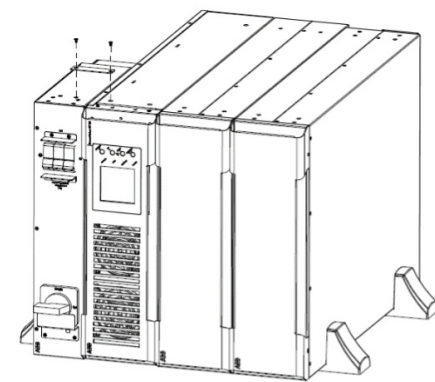
Step 1: Prepare the tower feet (UPS accessory) and extension feet, the extension feet depend on your system configuration. (Tower feet=2U, long extension=2U, short extension=1U). Please refer to the below diagram.



4.4.2-1

4.4.2-2  
Step 2

Step 2: Place EMBS (optional), UPS, EBM, and ISO TX (optional) on tower feet assembly. Please refer to the below diagram.



4.4.2-2

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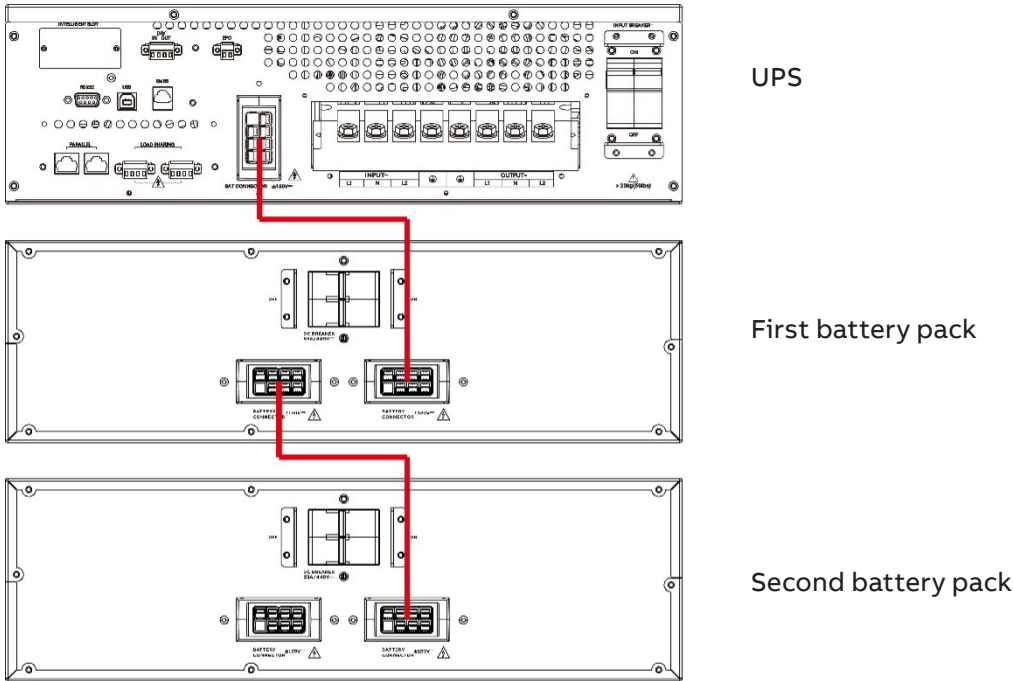
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4.4.3 Connecting with UPS and Other Battery Pack

4.4.3-1  
Connecting with UPS  
and Battery Pack

Follow the below installation diagram to connect the UPS with other battery pack(s)  
(Second battery pack) by cable.

**i**  
**NOTE**  
REMOVE THE BATTERY CONNECTOR COVER BEFORE CONNECTING WITH  
UPS AND OTHER BATTERY PACK.



4.4.3-1

## 5 Battery Installation

—  
5-1  
Step 1  
—  
5-2  
Step 2

If your battery pack is not installed with batteries, please follow the proper procedure to put batteries inside of the unit.



MAKE SURE THAT THE BATTERY PACK IS DISCONNECTED FROM THE UPS BEFORE PERFORMING THE FOLLOWING SEQUENCE OF OPERATIONS.

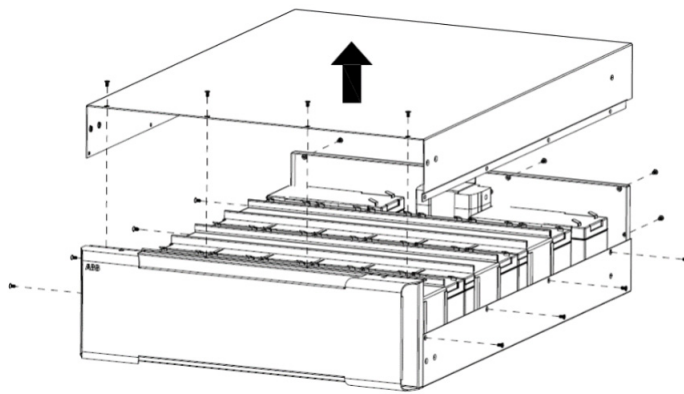


- THE EQUIPMENT SHOULD BE INSTALLED BY SERVICE PERSONNEL
- WHEN INSTALLING THE BATTERIES, USE THE SAME NUMBER AND TYPE OF BATTERIES SHOWN IN THE BATTERY LABEL
- DO NOT OPEN OR MUTILATE THE BATTERY OR BATTERIES, RELEASED ELECTROLYTE IS HARMFUL TO THE SKIN AND EYES
- A BATTERY CAN PRESENT A RISK OF ELECTRIC SHOCK AND HIGH SHORT CIRCUIT CURRENT. THE FOLLOWING PRECAUTION SHOULD BE OBSERVED WHEN WORKING ON BATTERIES

A) Remove watches, rings or other metal objects.

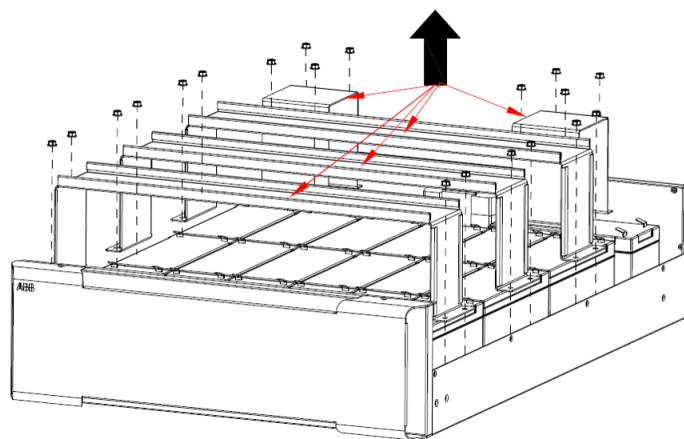
B) Use tools with insulated handles

Step 1: Remove the topcover as below diagram.



5-1

Step 2: Remove the battery fixing plates from the bottom case as below diagram.



5-2

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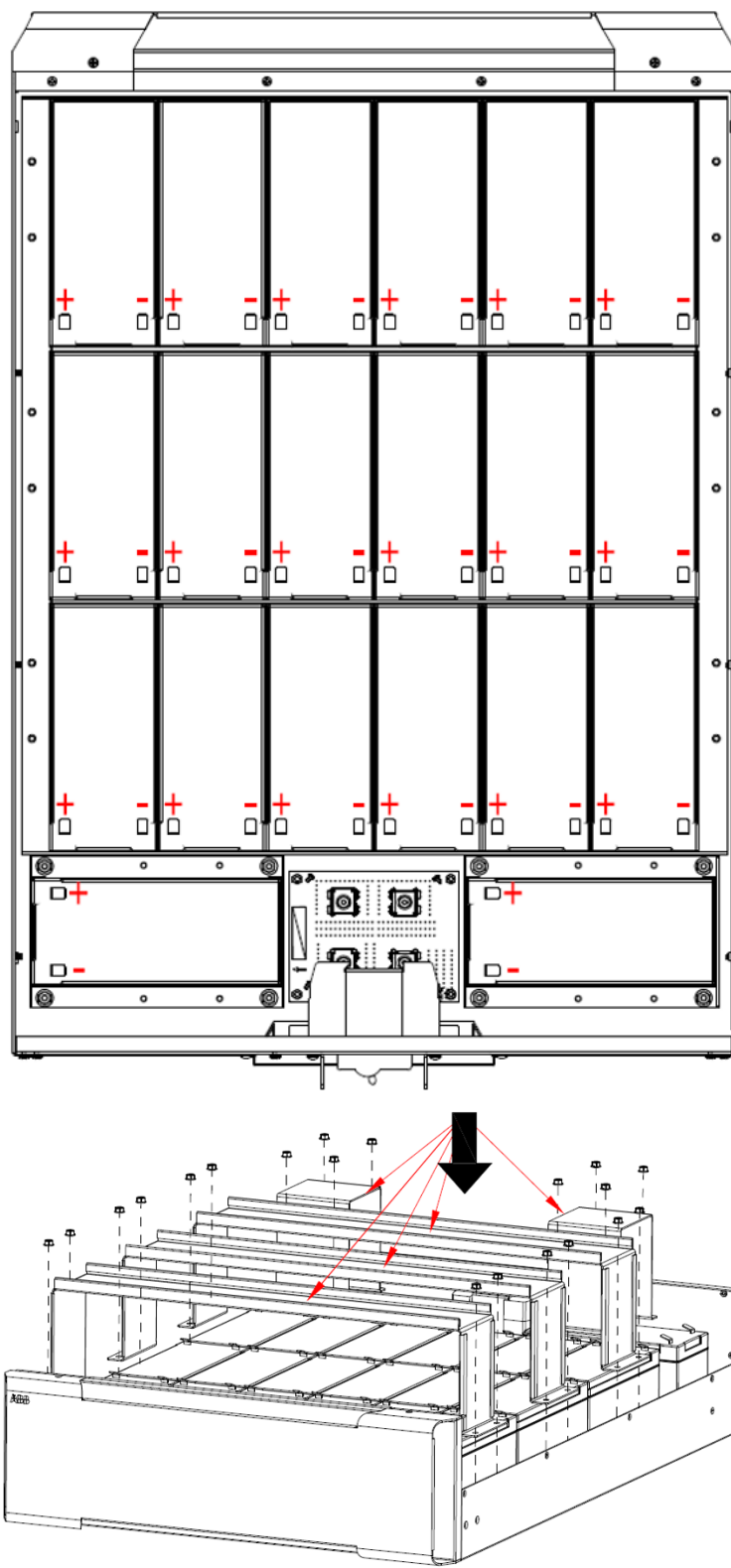
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5-3  
Step 3

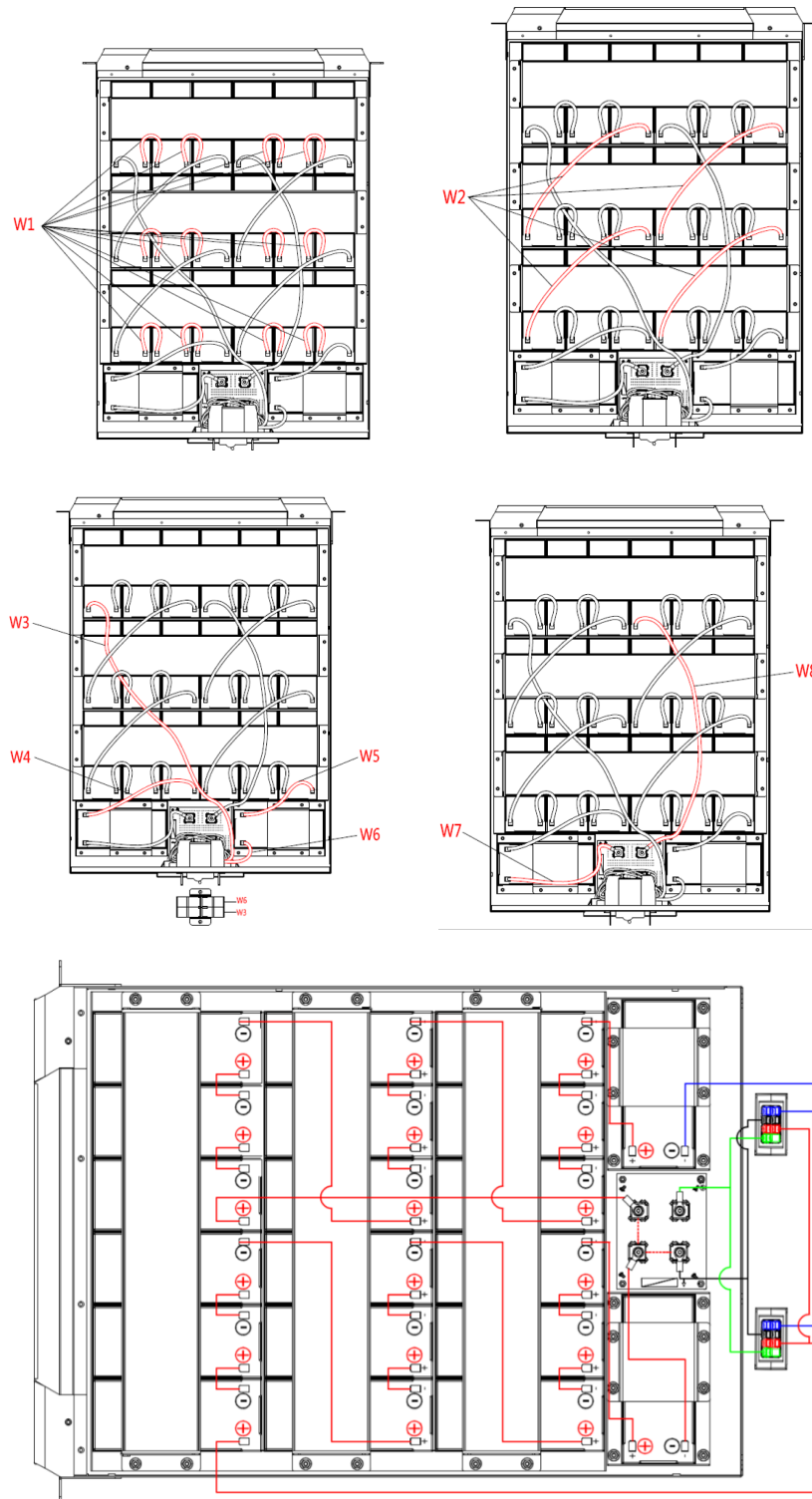
Step 3: Place the battery into the bottom case and then, assemble the battery fixing plates with screws back on bottom case as below diagram.



—  
5-3

—  
5-4  
Step 4

Step 4: Connect the battery wire as below diagram.



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5-4

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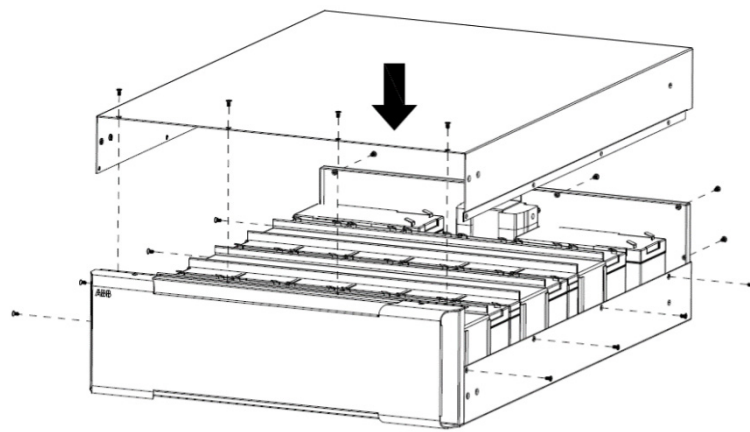
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—  
5-5  
Step 5

Step 5: Assemble the topcover with screws as below diagram.



—  
5-5

Battery wire list:

Model	Number of the Wire	Quantity	Wire Specification	Wire Length (mm)	Wire Length (inches)
Ext batt case Ext batt module	W1	12pcs	AWG10 BLK	75mm	3 inches
	W2	4pcs	AWG10 BLK	380mm	15 inches
	W3	1pcs	AWG10 RED	620mm	24.5 inches
	W4	1pcs	AWG10 BLK	260mm	10.25 inches
	W5	1pcs	AWG10 BLK	200mm	8 inches
	W6	1pcs	AWG10 BLK	200mm	8 inches
	W7	1pcs	AWG10 BLK	250mm	10 inches
	W8	1pcs	AWG10 RED	530mm	21 inches

## 6 Specification

### 6.1 EBM Configuration

Battery type	CSB 12580 or equivalent	
Battery Capacity	12V/10AH	
Battery Qty	20pcs	
Voltage Nominal	+/-120V DC	
Battery Cable	BAT +: 10AWG*2*1M	39.5 inches
	BAT N: 10AWG*2*1M	39.5 inches
	BAT -: 10AWG*2*1M	39.5 inches
	PE: 10AWG*1*1M	39.5 inches
DC Breaker Rating	63A 440Vdc (ABB S202M-K63UC 2P 63A)	

### 6.2 Physical Parameter

Dimension, D x H x W	632 x 131 x 438mm/24.84 x 5.16 x 17.28 inches	
Net Weight	72kgs/ 158.7 lbs (with battery)	16kgs/ 35.2 lbs (without battery)
Package Dimension, D x H x W	870 x 250 x 580mm/34.2 x 9.84 x 22.8 inches	
Gross Weight	82kgs/ 180.8 lbs (with battery)	26kgs/ 57.3 lbs (without battery)

### 6.3 Certifications

ESD	IEC 61000-4-2 Level 3
Low Frequency Signals	IEC 61000-2-2
RS	IEC 61000-4-3 Level 3
EFT	IEC 61000-4-4 Level 3
Surge	IEC 61000-4-5 Level 2(Line-line) IEC 61000-4-5 Level 3(Line-Earth)
CS	IEC 61000-4-6 Level 3
Power Frequency Magnetic Field Immunity	IEC 61000-4-8 Level 4
Conducted	FCC CFR 47 Part 15 Class A
Radiated	FCC CFR 47 Part 15 Class A
Safety	UL 1778, CSA 107.3
Transportation	IEC 60068-2-31
	IEC 60068-2-64
	IEC 60068-2-27

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## 6.4 Environmental

Humidity	5% to 95% Relative Humidity (Non-condensing)
Operating Temperature	0 °C to 40 °C/ 32 °F-104 °F
Storage Temperature	-15 °C to 40 °C/ 5 °F-104 °F
Altitude	<1000m (3281ft) for Nominal power, Over 1000m (3281ft) the power de-rating is 1% every 100m (328ft) 4000M (13123ft) max
Acoustic Noise	50 dB max
Minimum Clearances from other cabinet	25cm (1inch) for front and rear side 0cm for left and right side
IP grade	IP20

## 7 Storage & Maintenance

The unit contains no user-serviceable parts. If the battery service life (3~5 years at 25°C ambient temperature) has been exceeded, the batteries must be replaced. In this case, please contact your dealer.



Be sure to deliver the spent battery to a recycling facility or ship it to your dealer in the replacement battery packing material.

### 7.1 Storage

Before storing, charge the unit 5 hours. Store the unit covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

Recharge Frequency	Every 3 months (-15°C - 40°C/5°F – 104°F) Every 2 months (40°C - 45°C/104°F-113°F)
Charging Duration	1-2 hours



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