



**PSCEPMBB280 PSCEPMBB400**  
Centurion Pro Modular Battery Banks

USER MANUAL



## 1 WARNING

Before energizing the Battery Bank, please take the time to read and understand.

- all of the safety information
- all of the warnings
- all of the operating instructions.

It is highly recommended to have this Battery Bank commissioned by a PowerShield Service Partner. This equipment should only be serviced and maintained by qualified PowerShield Service Partners. Failure to use a qualified service partner may impact your warranty. All electrical work must be undertaken by qualified electricians.

## 2 DISCLAIMER

We assume no responsibility or liability for loss or damages, whether direct, indirect, consequential, or incidental, which might arise out of the use of this manual. Information in this manual is subject to change without notice. If you find information in this manual that is incorrect, misleading, or incomplete, we would appreciate your comments and suggestions.

## 3 SAFETY INSTRUCTIONS

All safety instructions in this document must be read, understood, and followed.

### 3.1 Transportation and storage

- Please transport the BATTERY BANK system only in the original packaging to protect against shock and damage.
- The BATTERY BANK must be stored in a facility where the temperature is well regulated. Ambient temperatures should be between 0–40°C and relative humidity shall be 0–95% non-condensing.

Any storage of greater than 30 days refer to Section 8.3 STORAGE AND MAINTENANCE

### 3.2 Preparation

- Condensation may form if the BATTERY BANK system is moved immediately from cold to warm environment. The BATTERY BANK system must be dry before being installed. Please allow at least two hours for the BATTERY BANK system to acclimatise to the environment prior to energisation.
- If the BATTERY BANK might be exposed to temperatures over 40°C, please contact PowerShield for further advise.
- Do not install the BATTERY BANK where the relative humidity exceeds 95%, and it must also be noncondensing.
- Do not install the BATTERY BANK near bodies of water or salt water. (Conformal coating may be required to protect your BATTERY BANK)

### 3 SAFETY INSTRUCTIONS continued

- v. Do not install the BATTERY BANK in high dust, conductive dust environments (conformal coating may be required to protect your BATTERY BANK)
- vi. Do not install the BATTERY BANK system where it would be exposed to direct sunlight or nearby heat source.
- vii. Do not block ventilation holes on the BATTERY BANK housing.
- viii. Ensure the floor has sufficient structural integrity and is fire resistant.

### 4 INSTALLATION INFORMATION

#### **WARNING:**

- i. The BATTERY BANK requires 50cm front and rear access for maintenance and airflow.
- ii. The BATTERY BANK and any supplied battery cabinets come with an earth connection. Please ensure all earth connections are installed and tested in accordance with AS/NZS 3000 and or local regulations.
- iii. All electrical work shall be undertaken by a qualified electrician (in your local jurisdiction)
- iv. All commissioning / start-up shall be undertaken by either PowerShield or a locally trained service technician.
- v. All ongoing maintenance shall be undertaken by qualified personal. PowerShield recommends that all maintenance work is undertaken by a PowerShield trained service technician, to ensure that the vendor warranty is maintained.
- vi. All cabling, breakers, isolators and the like shall be sized and installed in accordance with this manual and AS/NZS 3000 (suite of standards) or local equivalent, to protect both Battery Bank and BATTERY BANK upstream of this BATTERY BANK.
- vii. All cabling prior to energisation shall be tested in accordance with AS/NZS 3000 or local equivalent, the test result shall be made available to PowerShield or PowerShield service agent upon request.
- viii. Secure the grounding/earthing wire before connecting to any live wire terminal.

### 5 CONNECTION WARNINGS

- i. Use of this equipment in medical instrument of any life-sustaining equipment where failure of this equipment can reasonably be expected to cause the failure of the life-sustaining equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable mixture with air, oxygen or nitrous oxide.
- ii. Connect grounding terminal of BATTERY BANK to a grounding electrode conductor. The ground conduct should be tested prior to energisation of the BATTERY BANK.
- iii. The BATTERY BANK system features its own, current source (batteries). The BATTERY BANK output terminal blocks may be electrically live even if the BATTERY BANK system is not connected to the UPS.

- iv. In order to fully disconnect the BATTERY BANK system, isolate all batteries and then disconnect the electrical cabling.
- v. Ensure that no foreign objects can enter the BATTERY BANK.
- vi. The BATTERY BANK should only be operated by individuals that are familiar with operating BATTERY BANK(s).

## 6 INSTALLATION

### 6.1 Unpacking

Unpack the box and check the package contents. The shipping package should contain:

- One Battery Bank cabinet.
- For the BB280 up to 280 x 12V 9Ah batteries.
- For the BB400 up to 400 x 12V 9Ah batteries
- One user manual

### 6.2 Initial Inspection

NOTE: Before the installation, please inspect the unit. Confirm that there is no physical damage to the unit. Unfortunately, from time-to-time damages occur in transit. If the unit is damaged, please do not install and energize the unit. Please contact PowerShield immediately.

Please keep the original packaging for future use. It is recommended to keep each UPS and battery set in their original packaging because they have been designed to provide maximum protection during transportation and storage.

### 6.3 Installation Clearances:

1. The following instructions of clearances are required:
  - a. Keep a clearance of 500mm from the rear.
  - b. Keep a clearance of 500mm from the front.

## 7 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.

Do not try to repair the unit yourself, contact your local supplier or your warranty will be void.

To eliminate any overheating of the battery box, keep all ventilation openings free from obstruction and do not place any foreign objects on top of the battery bank. Keep the battery box 20 cm away from the wall.

Make sure the battery box is installed within the proper environment as specified. (0–40°C and 30–90% non-condensing humidity)

Do not install the battery box under direct sunlight. Your warranty will be void if the batteries fail due to overheating.

This battery box is not designed for use in dusty, corrosive and salty environment.

The warranty for this battery bank will be void if water or other liquid is spilt or poured directly onto the battery box. Similarly we do not warrant any damage to the battery box if foreign objects are deliberately or accidentally inserted into the battery box enclosure.

The battery will discharge naturally if the system is unused for a period of time.

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.

Servicing of batteries should be performed or supervised by trained personnel with knowledge of batteries and the required precautions.

When replacing batteries, it is necessary to replace ALL batteries with the same quantity, type & capacity.

**CAUTION** – Do not dispose of battery or batteries in a fire. The battery may explode.

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

**CAUTION** – Risk of Electric Shock –Hazardous voltage may exist between battery terminals and ground. Test before touching with bare hands.

**CAUTION** – A battery can present a risk of electrical shock and high short circuit current. The following precaution should be observed when working on batteries:

Remove watches, rings, or other metal objects.

Use tools with insulated handles.

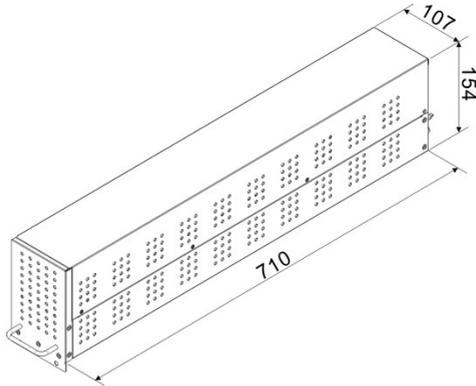
Wear rubber gloves and boots.

Do not lay tools or metal parts on top of batteries.

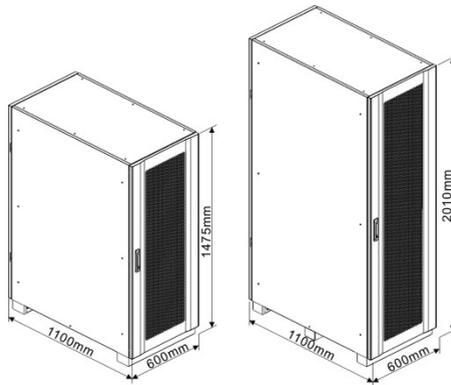
Disconnect charging source prior to connecting or disconnecting battery terminals.

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

### 8.1 Battery Module



### 8.2 Battery Rack



### 8.3 Installation and Setup with BATTERY BANK

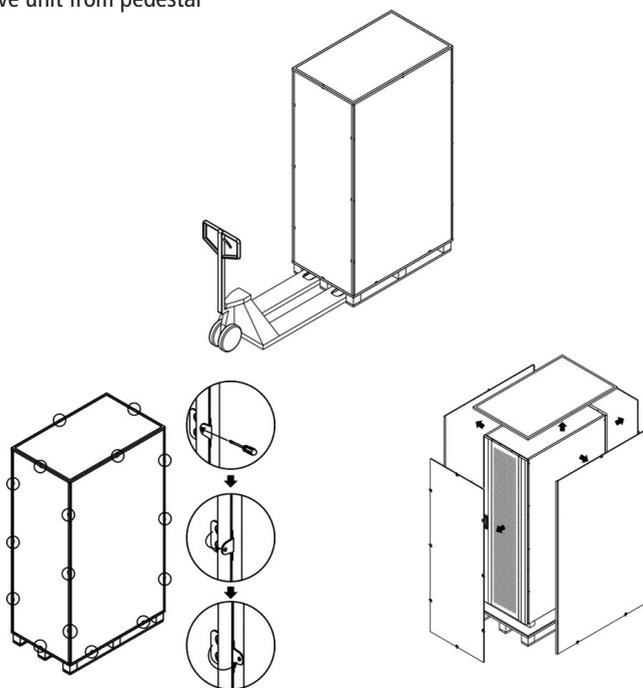
#### Unpacking & Inspection

1. Remove the battery bank from the packing.

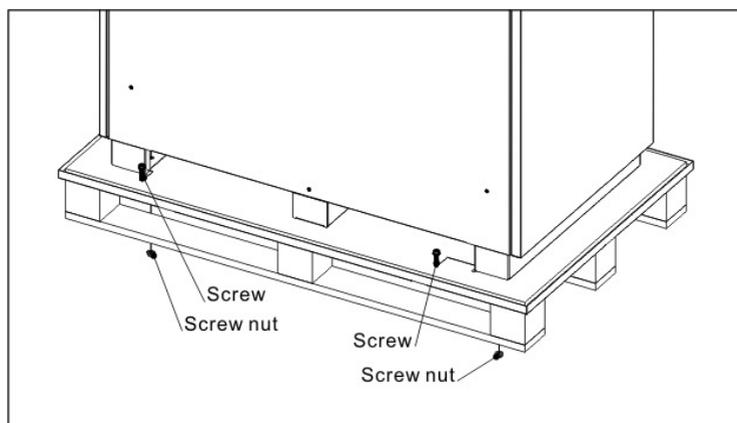
Note: The battery bank is very heavy, be cautious when unpacking and lifting the unit to avoid injury.

- (1) Use a forklift to move the product to installed area. Refer to Figure 2-1. Please make sure the bearing capacity of forklift is sufficient.
- (2) Please remove wooden case and foam according to order figure 2-2.

Remove unit from pedestal



(3) The four sides of the battery cabinet feet are fixed with screws and nuts. Loosen the screws and nuts to remove the fixing on the cabinet and pallet. Refer to Figure 2-4.



(4) Use a crane or other tool to remove the cabinet from the pallet and place the battery cabinet.

## 9 BATTERY MODULE INSTALLATION

### WARNING

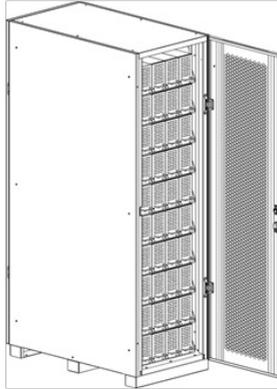
Battery modules exceed 25kg, it is recommended a two person lift

Battery Banks exceed 1000kg, use appropriate lifting device

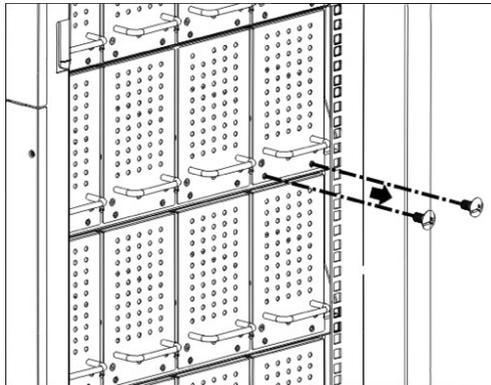
Before installing battery modules ensure DC breaker is OFF

### 9.1 Installing a Battery Module

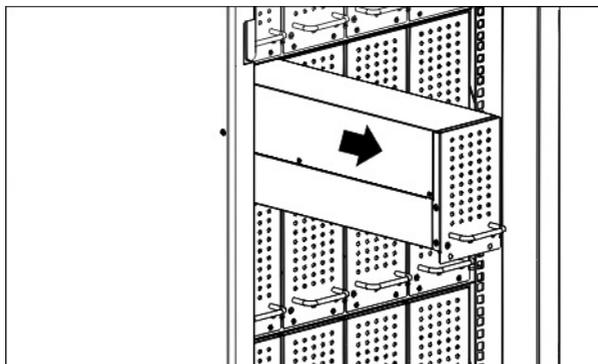
1. Remove the battery bank from the packing.



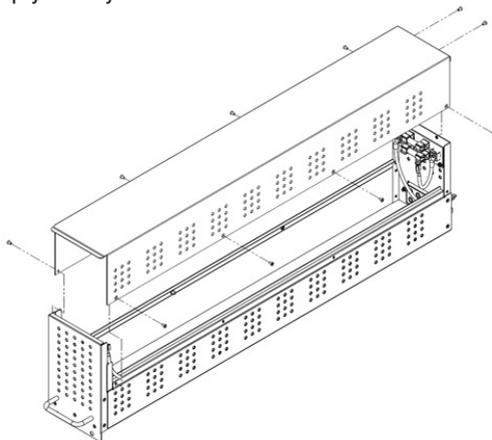
2. Remove the screw from the battery module.



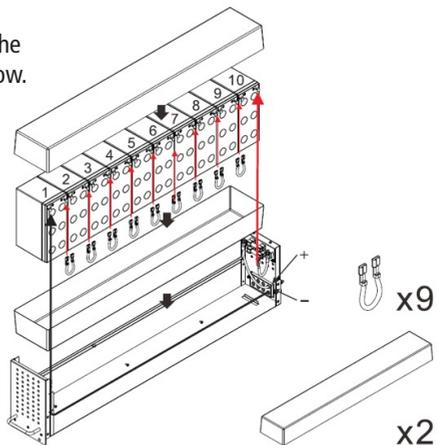
3. Remove the empty battery module.



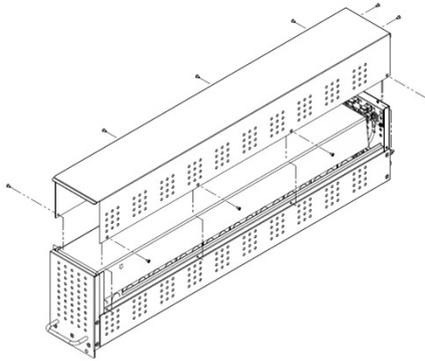
4. Remove the empty battery module cover.



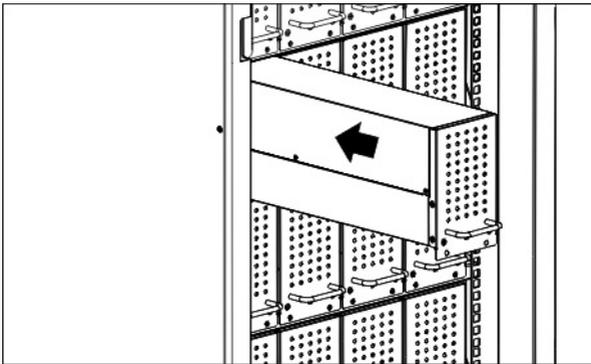
5. Assemble the 9AH 12V battery into the empty battery module, as shown below.



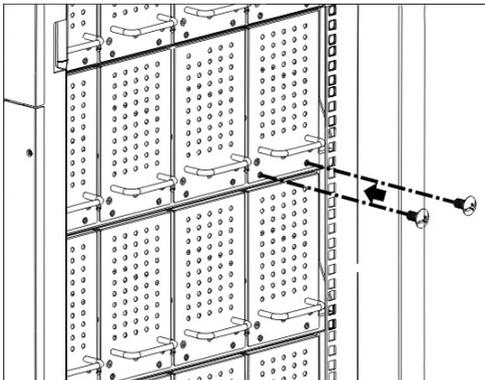
6. Assemble the top cover and lock the screws in sequence.



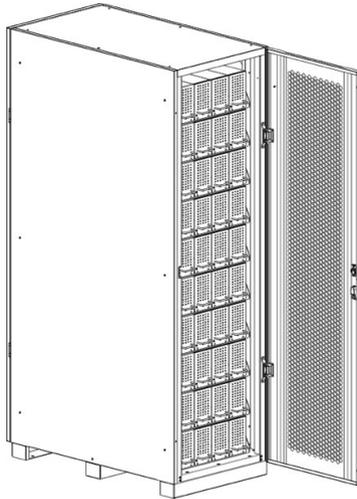
7. Insert the battery module back into the battery cabinet.



8. Screw the battery module lock.



9. All battery modules in accordance with the order of assembly, ordered by the bottom of the battery cabinet assembly.



## 10 STORAGE AND MAINTENANCE

### 10.1 Storage

Before storing, charge the UPS at least 7 hours. Store the UPS covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

**Table 34: Battery Recharging**

Storage Temperature	Recharge Frequency	Charging Duration
-25°C – 40°C	Every 3 months	1-2 hours
40°C – 45°C	Every 2 months	1-2 hours

### 10.1 Maintenance

To maximize the longevity of the Battery Bank(s), PowerShield highly recommends ongoing preventative maintenance. Failure to maintain your assets may lead to the equipment not performing as expected. Expected battery service life is three to five years when operated at 25°C. It is recommended to inspect and test batteries yearly, and planned replacement in year four of operation.

## 11 SPECIFICATIONS

Item	Specification	Remark			
BB280	±20	7 shelves of ±20 in parallel totaling 280 batteries			
BB400	±20	10 shelves of ±20 in parallel totaling 400 batteries			
<b>OUTPUT</b>					
Output Voltage	(13.65*20)V ± 1%	273V ± 1%			
<b>PHYSICAL</b>					
	With batteries	With batteries	Without batteries	Without batteries	D x W x H
BB280	N: 1016kg	G: 1036kg	N: 316kg	G: 336kg	1100 x 600 x 1476 mm
BB400	N: 1432kg	G: 1452kg	N: 432kg	G: 452kg	1100 x 600 x 2007 mm



For more information, please visit [www.powershield.com.au](http://www.powershield.com.au) or phone 1300 305 393