



# Residential Battery storage system BX6.3\_DD

Operation and Installation Manual



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# 1 Safety

## 1.1 Information of the Battery Storage System

### 1.1.1 Disclaimer

Copyright – DELTA ELECTRONICS, INC. - All rights reserved.

This manual accompanies our product for use by the end users. The technical instructions and illustrations contained in this manual are to be treated as confidential and no part may be reproduced without the prior written permission of DELTA ELECTRONICS, INC. Service engineers and end users may not divulge the information contained herein or use this manual for purpose other than those strictly connected with correct use of the product. All information and specifications are subject to change without notice.

DELTA ELECTRONICS, INC. shall have no obligation to both personal injury and property damage hereinafter with respect to any actions -- (a) the product has been installed and repaired improperly; (b) the product has been misuse without following the instructions on this user manual; (c) the product has failed due to incorrect unpacking.

### 1.1.2 Target Group

This user manual of the battery storage system is prepared for a person who is well-trained for installing, commissioning, using, and doing maintenance. The well-trained person must have the following basic and advanced skills:

- The fundamentals of electricity, wiring, electrical components and electrical schematic symbols.
- Knowledge of how a battery storage system works and is operated.
- Training in the installation and commissioning of electrical devices and installations.
- Training in how to deal with the dangers and risks associated with installing and using electrical devices and installations.
- Compliance with this manual and all safety information.

Please read the user manual before working on the product.

## 1.2 General Safety

### IMPORTANT SAFETY INSTRUCTIONS : SAVE THESE INSTRUCTIONS !



- Please read these instructions carefully and keep them for later use.

To prevent any personal injury and any property damage, also ensure long-term operation of the battery storage system, you must read this section carefully and review all the safety instructions at all times before using this battery storage system. This user manual provides important instructions for DELTA BX6.3\_DD Battery storage system. The product is designed, tested, verified, and certified according to international safety requirements, regulations, and standards but precautions must be observed when installing and operating the product.

### 1.2.1 Condition of Use

The DELTA BX6.3\_DD is a battery storage system designed with two battery modules. In order to prolong Lithium-based batteries' life, 100% state of charge (SOC) shown on the device is actually within the range of 95%~100%.

The battery storage system can be charged/discharged from grid, and provides electricity to household loads and electricity supply backup is available.

The DELTA BX6.3\_DD Battery storage system is NOT to be used as a backup for any medical uses or life supporting uses.

Before battery module running one cycle, it may an error at SOC accuracy.

If DELTA BX6.3\_DD has not used for more than six months, please connect to grid and check the SOC value on display, if the SOC value below 30%, please select "Charge first mode" to charge BX6.3\_DD, it should charge to at least 30% SOC.

## 1.2.2 Symbols

This section describes the definition of the symbols in this manual. In order to prevent both personal injury and property damage, and to ensure long-term operation of the product, please read this section carefully and follow all the safety instructions while you use the product.

### DANGER!



- This warning indicates an immediate hazard which will lead to death or serious injury may occur.

### WARNING !



- This warning indicates a possible hazard which may lead to death or serious injury may occur.

### CAUTION !



- This warning indicates a possible hazard which may lead to minor injury may happen.

### ATTENTION



- This warning indicates a possible damage to property and the environment might happen.

### INFORMATION



- Additional information is indicated by an exclamation mark enclosed by double circle. This means the following section contains important information and user should follow the instruction to prevent any hazards.

### DANGER : ELECTRICAL HAZARD!!



- This warning indicates an immediate electrical hazard which will lead to death or serious injury may occur.



- Equipment grounding conductor (PE)
- (PE) Équipement conducteur de terre

## 1.2.3 Safety Instructions

The battery storage system should not be installed in direct sunlight or on flammable surfaces. Please be sure to mount the battery storage system tightly on a solid / smooth surface. The optimal temperature range for the battery storage system to operate is 10 to 30°C . The operating humidity is within the range from 0 to 95%. If the ambient temperature is outside the operating range, the battery storage system stops to protect itself from any unexpected damage.

This battery storage system should be installed by a trained and experienced installer designated by the retailer. Having the product installed by a non-specialized installer is very dangerous and can cause damage or injury. The battery storage system is always installed by 2 or more people. (According to regional regulation, more people may be required.)

Please make sure any breaker is turned off before connecting cables. Be careful of the cable length must be less than 100 meters.

### 1.2.3.1 Handling of Prohibitions

The battery module contains flammable materials such as organic solvents. Mishandling the battery module may cause fire, smoke, or an explosion and the battery module's functionality will be seriously damaged. Protection circuits are designed into the battery storage system via BMSS (PCB part inside the battery cabinet) to protect the battery modules.

Please read and check the following prohibited actions.



**DANGER!**

- This warning indicates an immediate hazard which will lead to death or serious injury may occur.

**(1) Electrical Shock**

Do not touch the terminals of the battery module without protectors.

Be grounded with the specified conditions.

High voltage may occur between the positive and the negative terminals.

Electric shock impairs health or may cause threat to life.

More than 2,000 meters higher, risks of an electric shock will be increased.

**(2) Immersion**

Do not immerse the battery module in liquid such as water, beverages, or other fluids.

Do not expose to corrosive substances such as sea breeze, steam or chemicals.

Do not install in the humid places or places to condensation.

Exposure to liquid may damage the battery module or the circuit board.

This may cause a battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

**(3) High Temperature**

Do not use or place the battery module near an open flame, heater or high temperature. Subjecting the battery module to high temperature may damage the separator and cause internal short circuit.

This may cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

**(4) Charge Conditions**

Only charge the battery module within the specified conditions.

(e.g., temperature range, voltage, current and etc.)

Charging with unspecified conditions (e.g., over charge or abnormal current) may cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

**(5) Reverse Polarity**

Check the positive (+) and the negative (-) terminals.

If the battery module is connected with a reversed polarity, unexpected reactions may occur.

This may cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

(6) Direct Connection

Do not connect the battery module to AC power or unspecified DC power. This may cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

(7) Use in Other Equipment

Do not use the battery module for any other purposes or connecting unspecified equipment.

If the battery module is used with unapproved applications or systems, the battery module may be damaged, leak electrolyte, generate heat, smoke, catch fire, or explode.

(8) Incineration and Heat

Keep the battery module away from heat and fire.

Heating the battery module and may cause it to be damaged, leak electrolyte, generate heat, smoke, catch fire, or explode.

(9) Short-Circuit

Do not connect between the positive (+) and the negative (-) terminals with a conductive material (e.g., wire, a cable, etc.).

Do not carry or store the battery module with metal objects.

If the battery module is shorted, the battery module may be overheated.

This may cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

(10) Disassembly

Do not disassemble or modify the battery module.

Disassembly or modification of the battery module may damage the protection circuit.

This may cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

(11) Charge in High Temperatures

Do not charge the battery module in high temperature environment.

If the battery module is charged with exposing high temperature, the battery module's protection circuit may be activated and stop or fail the charging.

This may cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

**WARNING !**

- This warning indicates a possible hazard which may lead to death or serious injury may occur.

**(1) Magnetism**

Do not place the battery module near strong magnetism. (e.g., electromagnetic cooker, etc. )

This may cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

**(2) Mixed Use**

Do not mix with other batteries.

The battery module should not be used with other batteries having a different capacity, chemistry, manufacturing date or manufacturer.

This could cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode.

**CAUTION !**

- This warning indicates a possible hazard which may lead to minor injury may happen.

**(1) Exposure to Direct Sunlight**

Do not use or leave the battery module in a location exposed to excessive heat, such as in direct sunlight or in a car. It could cause the battery module's damage to leak electrolyte, generate heat, smoke, catch fire, or explode. It may also cause the battery's performance and life to deteriorate.

**(2) Charging Temperature Range**

Only charge the battery module within operating temperature range.

Charging outside of this temperature range could cause the battery module's damage to leak electrolyte, generate heat.

It may also cause the battery module's performance and life to deteriorate.

**(3) Manual**

Please read the system manual before use.

Keep the system manual for future reference.

**(4) Recycling**

When disposing of the battery module, recycle it according to local rules and regulations.

## 2 Introduction

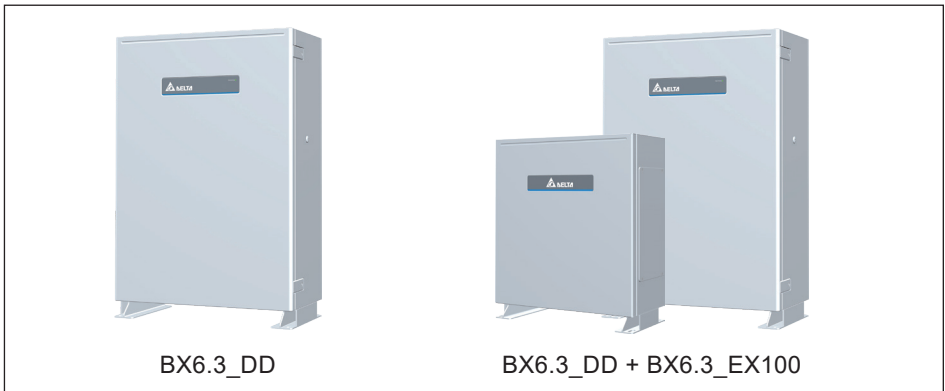
### 2.1 About this Manual

The user manual is valid for the following device types :

- DELTA BX6.3\_DD
- DELTA BX6.3\_DD + BX6.3\_EX100

The DELTA BX6.3\_DD Series have 2 models as shown in **Figure 2-1**.

Delta reserves the right to make modifications to the content and technical data in this user manual without prior notice.



**Figure 2-1 : The DELTA BX6.3\_DD Series have 2 models**

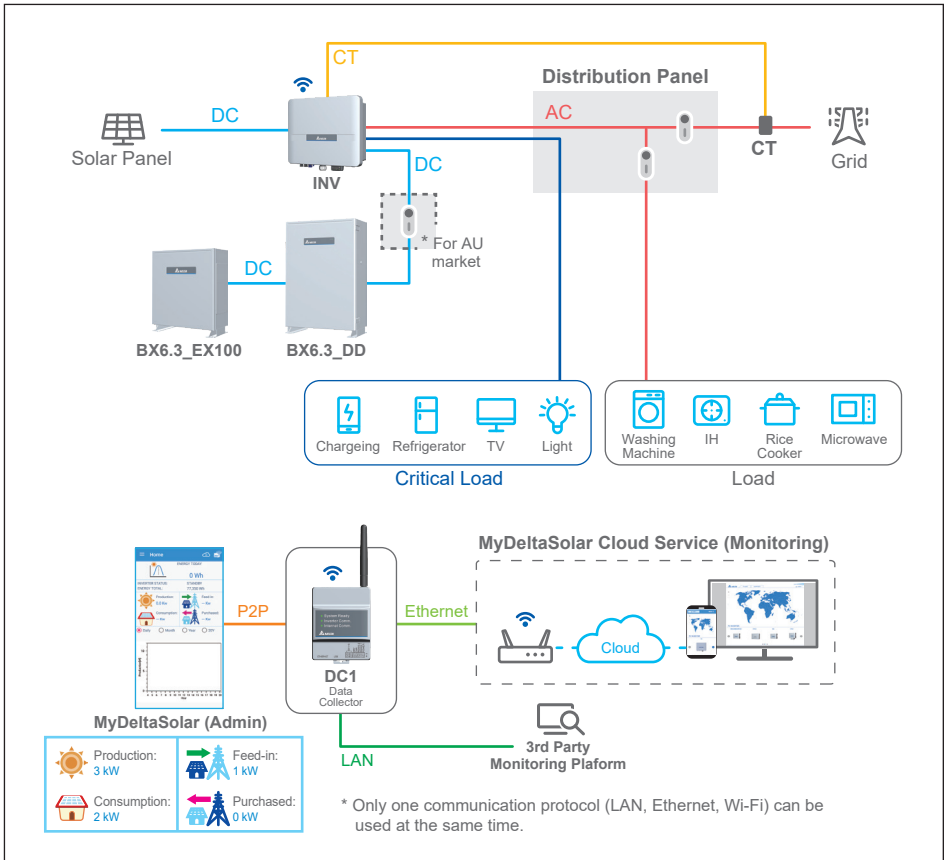
### 2.2 Product Description

This device is battery system with following features:

- Monitoring of battery system functions and performance achieved by inverter monitoring
- Integrated energy management system
- Integrated charger controller
- Transformer-less

The system diagram of BX6.3\_DD is shown as **Figure 2-2**.

Delta's BX6.3/BX6.3\_DD + BX6.3\_EX100 series with high reliability Li-ion battery is a home energy storage solution with 6.3/12.6 kWh capacity. It can be integrated with home PV system and can be scalable up to 12kWh for future expansion. With BX6.3/BX6.3\_DD + BX6.3\_EX100, house owner can maximize the efficiency of home energy management by saving and managing excess solar energy from home PV system. Besides, it can be considered as the backup power during emergency or suffering a power outage.



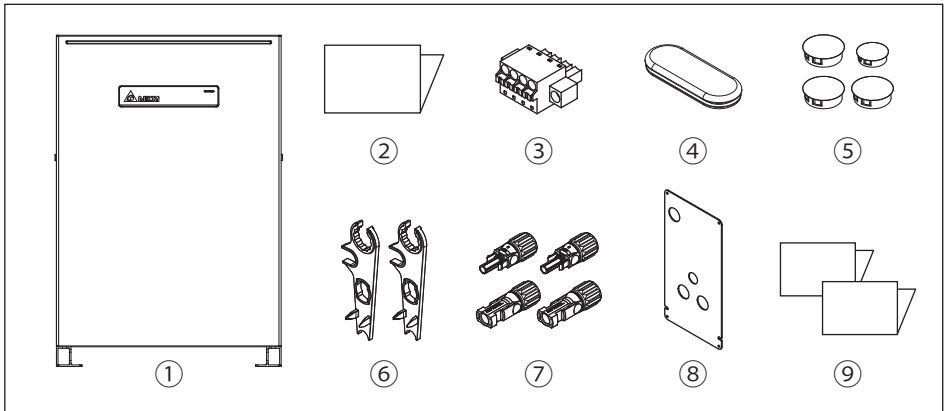
**Figure 2-2 : Storage system operation illustration**

## 2.3 Additional Information

More details or related product information, please visit: <http://www.deltaww.com>

## 2.4 Product Overview

The shipping components of DELTA BX6.3\_DD are shown as **Figure 2-3**.




**Figure 2-3 : Shipping Components**

**Table 2-1 : Packing list**

Object	Qty	Description
1 Delta BX6.3_DD	1	Residential DC ESS
2 Quick Installation Guide (English)	1	The Instruction to provide the information of safety, Installation and specification.
3 Communication connector	1	Connector for inverter communication board
4 Rubber cover	1	Protective cover for non-critical waterproof and dust prevent
5 Plastic cover	4	
6 H4 Wrench	2	To disconnect H4 connector
7 H4 Connector	2 pair	Connector for inverter
8 Wiring Cover	1	Protective cover to prevent users from touching the power cable
9 Japanese Manual *	2	User manual and Quick install guide in Japanese

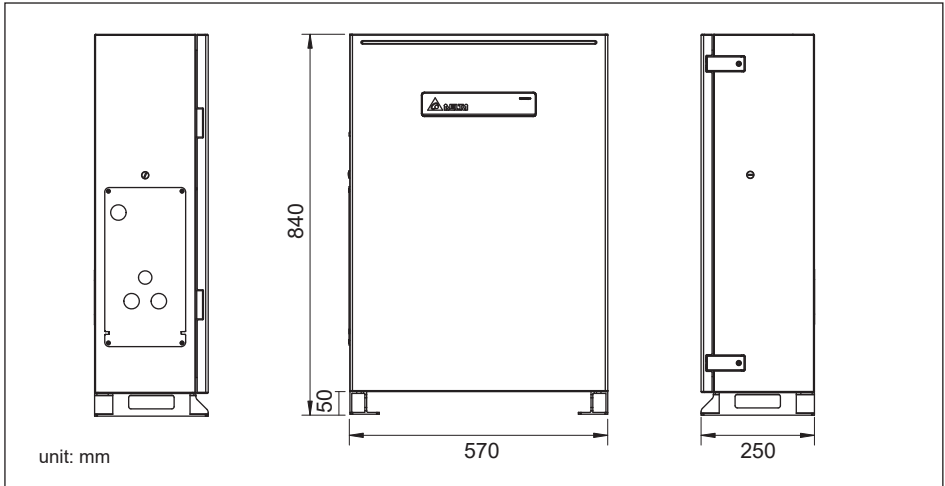
\* Japanese manual is only intended for Japanese market.

**Table 2-2 : Option part of DELTA BX6.3\_DD**

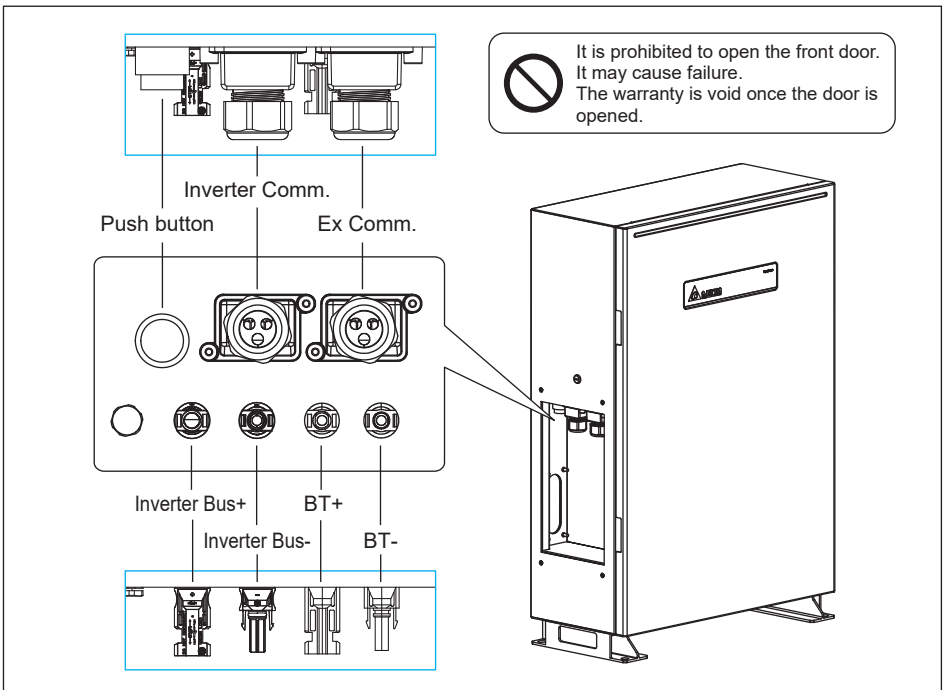
Option part		
Object	Exterior	Description
Handle		Inverter lifting handle

**Figure 2-4** shows the dimensions of DELTA BX6.3\_DD.

**Figure 2-5** shows the details of interface.



**Figure 2-4 : Dimensions**



**Figure 2-5 : Overview of interface**

Please refer to **Figure 2-6** for the location of product label. You can identify the model number and the specifications by the information on the product label. The table (**Table 2-3**) along with these labels explains the definition of the specific mark.

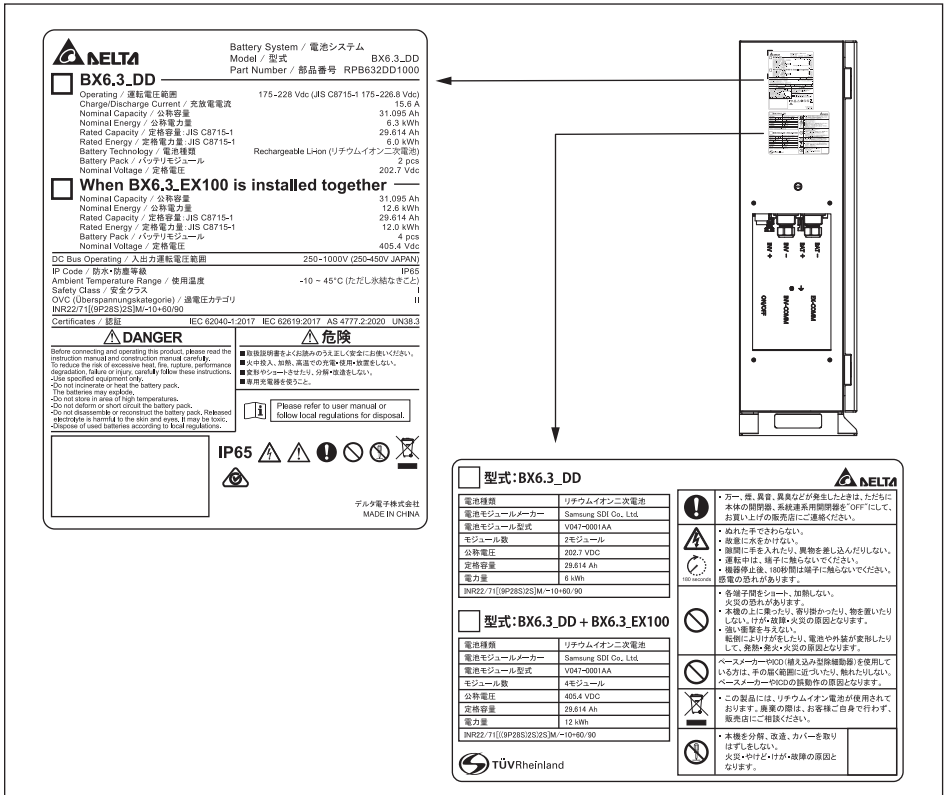


Figure 2-6 : Rating labels

Table 2-3 : Rating label explanation

Symbol	Definition
	Before working with the Battery Pack, you must read the supplied manual and follow the instructions contained therein.
	The housing of the Battery Pack must be grounded if this is required by local regulations.
	<b>WEEE marking</b> The Battery Pack must not be disposed of as standard household waste, but in accordance with the applicable electronic waste disposal regulations of your country or region.



## 2.5 LED Indicators

The DELTA BX6.3\_DD has three different color LED notification on the front cover of the case that signal various system statuses:

**Table 2-4 : LED Indicators**

LED Status	Definition
GREEN FLASH	Standby mode
ORANGE ON	Charge
GREEN ON	Discharge
RED FLASH	Boot up / Shut down
RED ON	BMS error
RED & GREEN FLASH AITERNATELY	Programming



**Figure 2-7 : LED indicators**

## 2.6 Push Button (Start up/Shutdown)

Use Push button to turn ON/OFF the unit, or start-up inverter with system AC supply.

**Table 2-5 : Push Button**

Status	Operation	Action
BX6.3_DD power OFF	Power button push > 20 sec (until grid green LED flash)	Power ON the unit (Cold start-up)
BX6.3_DD power ON already	Power button push >1 sec	Power OFF the unit

\* For Australia, make sure the external isolator has been turned on before starting up the system and has been turned off when shutting down the system.

## 3 Installation

### WARNING !



- Do not install BX6.3\_DD near or on flammable surfaces.
- Please mount BX6.3\_DD tightly on a solid / smooth surface.
- Install BX6.3\_DD in a location that prevents damage from flooding.
- Do not expose BX6.3\_DD to ambient temperatures above 60°C or below -10°C.
- Operating or storing BX6.3\_DD in temperatures outside its specified range might cause damage to BX6.3\_DD.

The chapter contains instructions for (1) Installation environment  
(2) Mechanical installation; (3) Electrical Installation; (4) Communication setup.

### 3.1 Installation Environment

#### CAUTION !



- The optimal temperature range for BX6.3\_DD to operate is -10° to 45°C.
- If the ambient temperature is outside the optimal operating range, BX6.3\_DD will be de-rating.
- The operating humidity is within the range from 0 to 95%.
- BX6.3\_DD may limit charge or discharge power based on battery cell temperature to improve battery lifespan.
- If the ambient temperature is outside the operating range, BX6.3\_DD stops to protect itself from any unexpected damage.

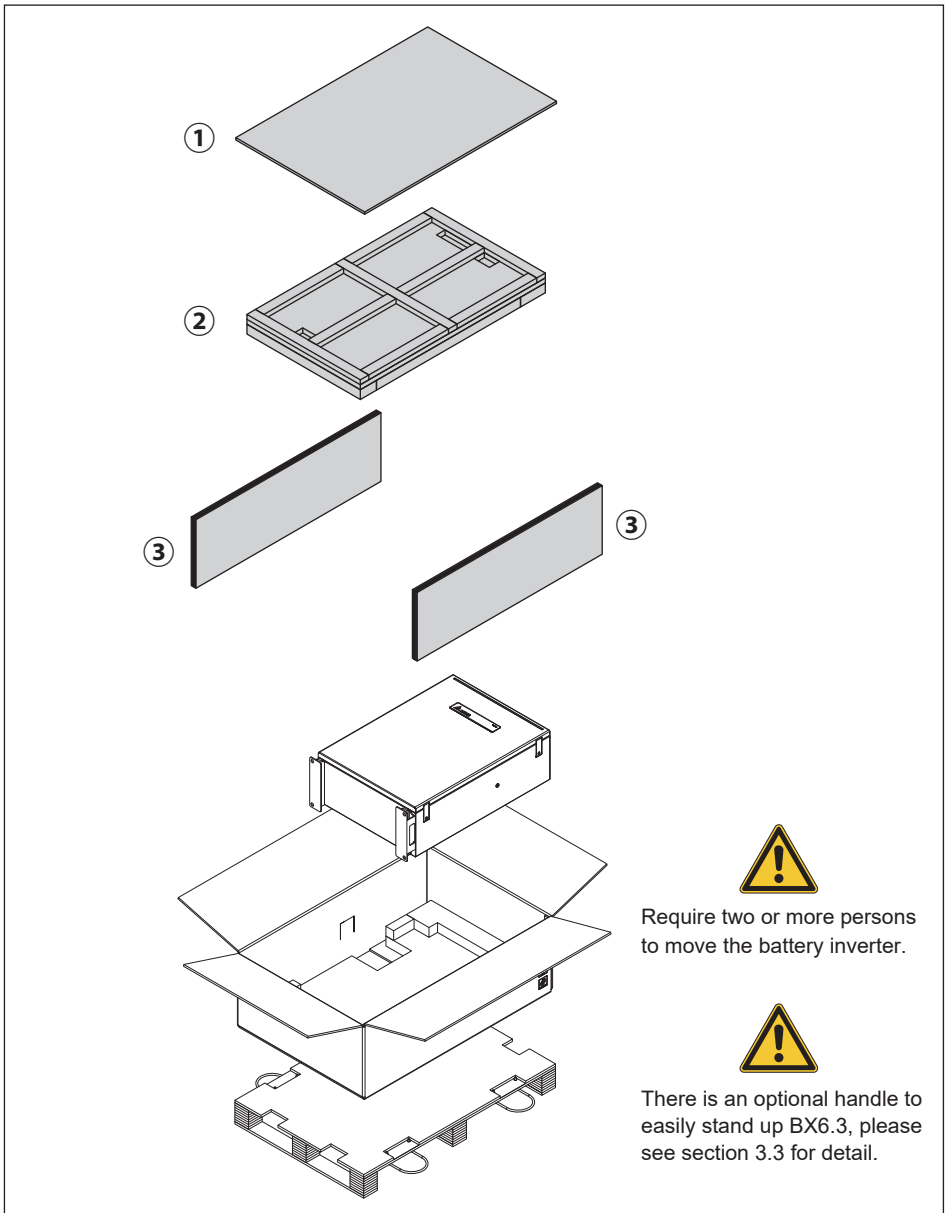
BX6.3\_DD is designed to be waterproof and can be installed both indoors and outdoors. However, please avoid exposure to direct sunlight, high temperature and high humidity if installed outdoors.

Please avoid using in the following condition; otherwise the device may malfunction.

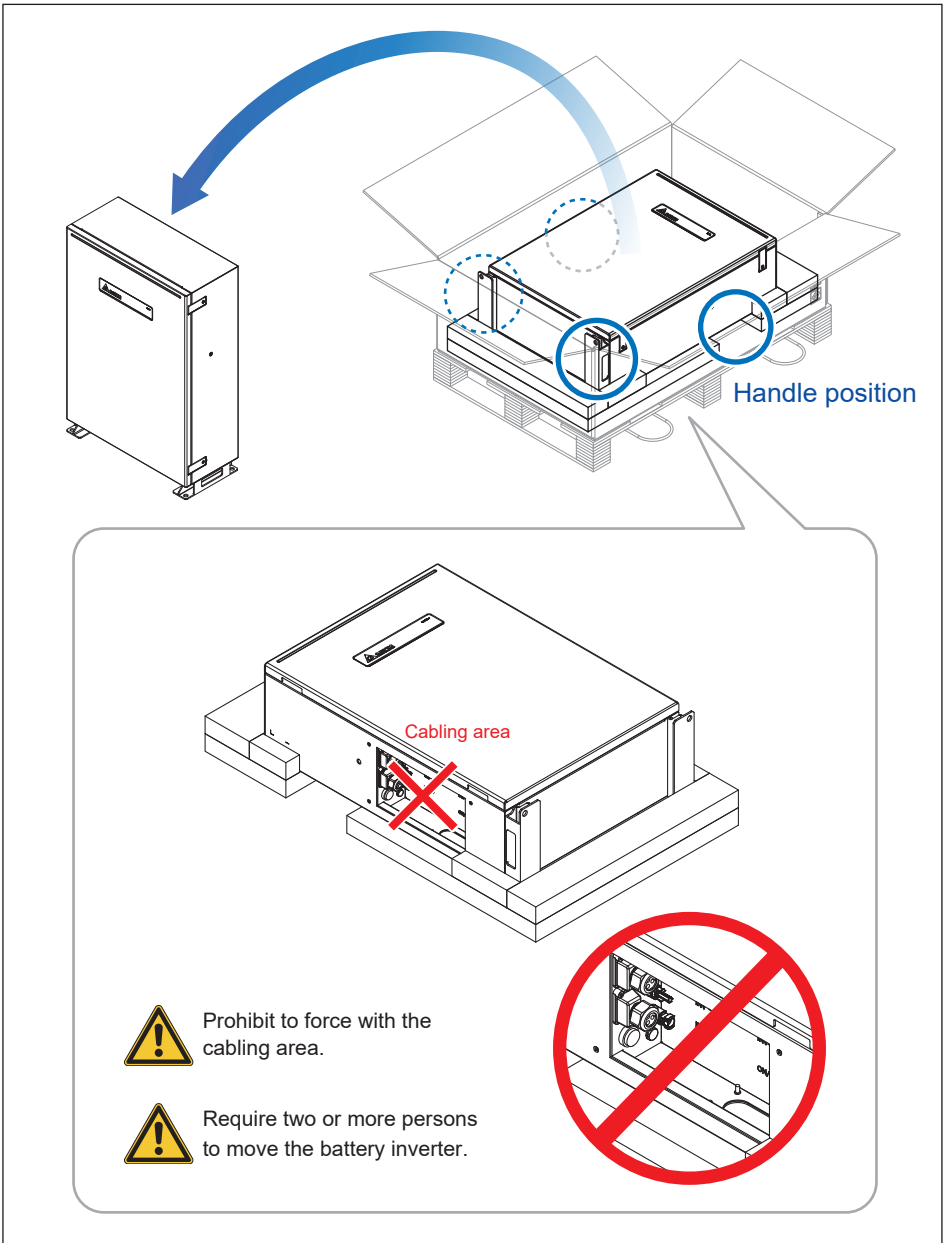
- Locations where IP65 isn't satisfied.
- Locations where temperature changes severely.
- Locations where the device is directly exposed to saltwater, sea breezes and high humidity.
- Locations that are or might be affected by explosive, combustible, corrosive and other poisonous gases.
- Location exposed dust and dirt.
- Location with poor ventilation.
- Locations with other special conditions.
- At altitude above 2000m.

## 3.2 Unboxing and Review

The unpacking procedure of BX6.3\_DD is shown as **Figure 3-1**.



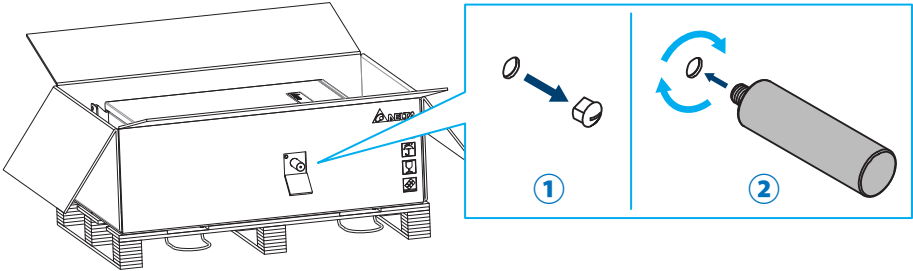
**Figure 3-1 : Unpack**



**Figure 3-2 : General handling method**

### 3.3 Handle (optional)

**Step 1**



**Step 2**

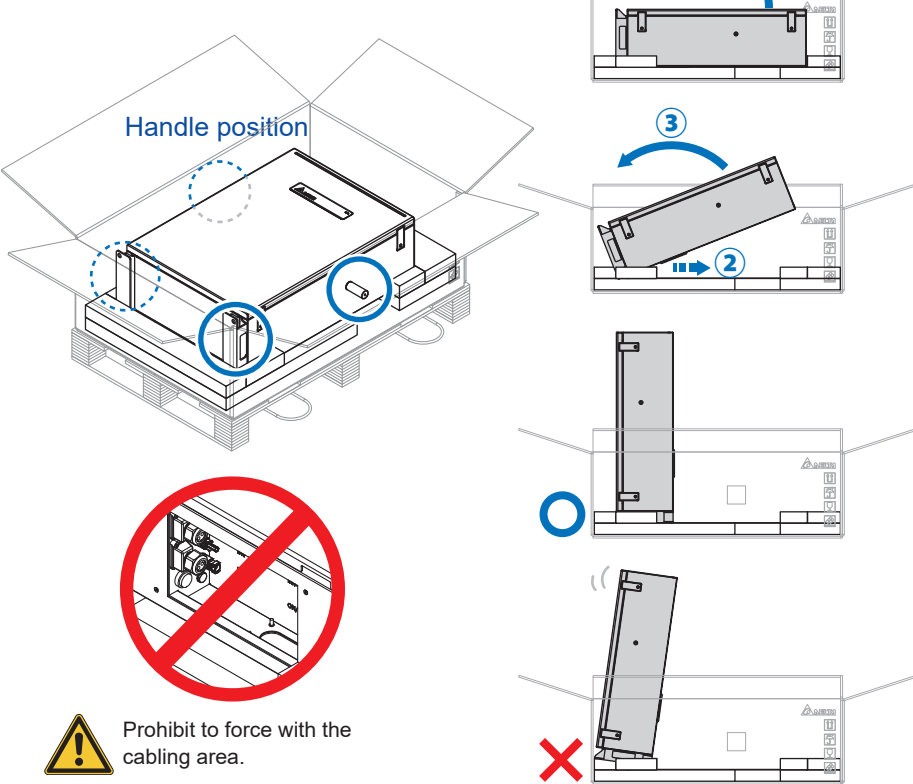


Figure 3-3 : Handling with optional transport handle

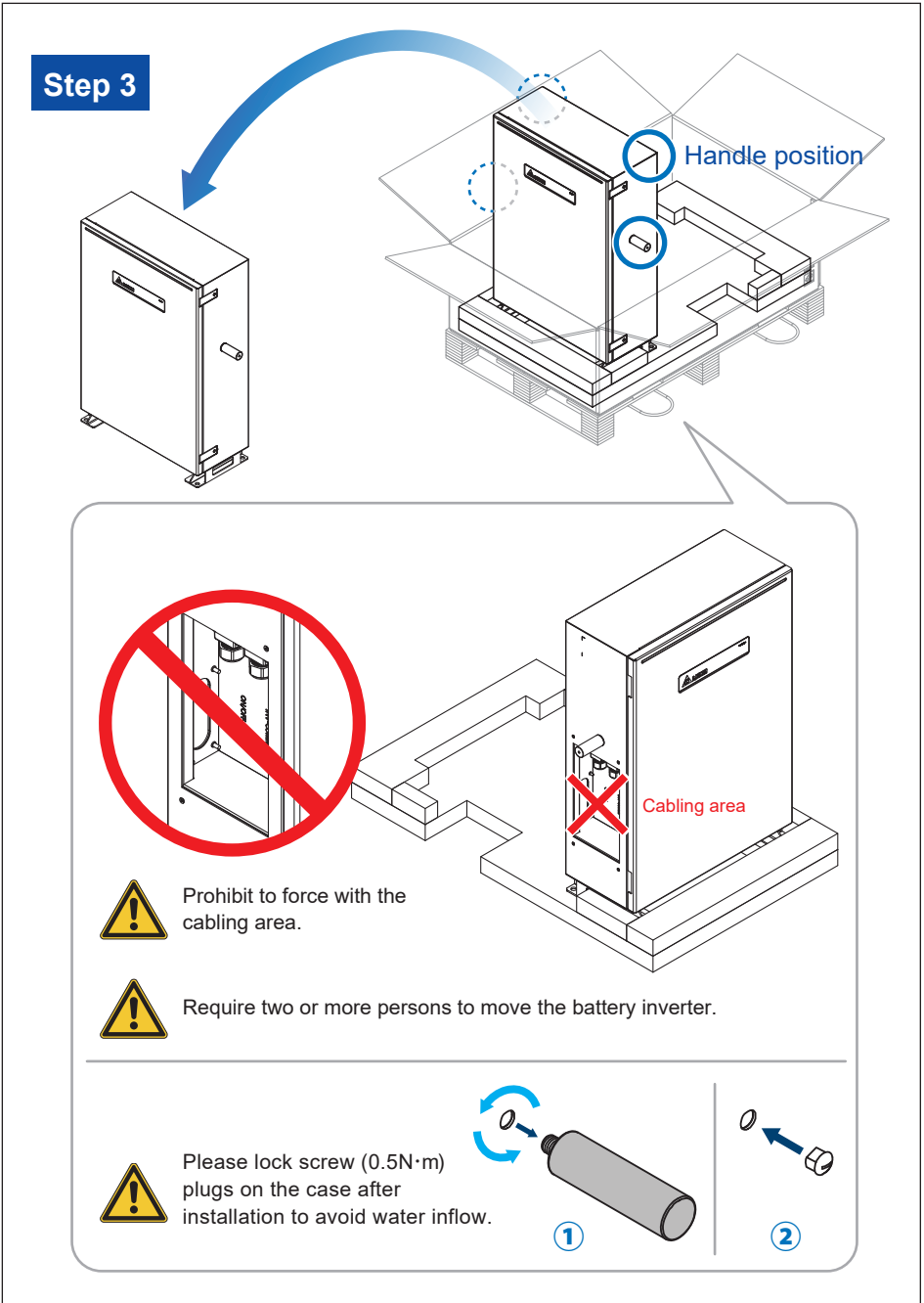


Figure 3-4 : Handling with optional transport handle\_2

## 3.4 Mechanical Installation

### WARNING !



- BX6.3\_DD should be installed by a trained and experienced installer designated by the retailer.
- Having the product installed by a non-specialized installer is very dangerous and can cause damage or injury.

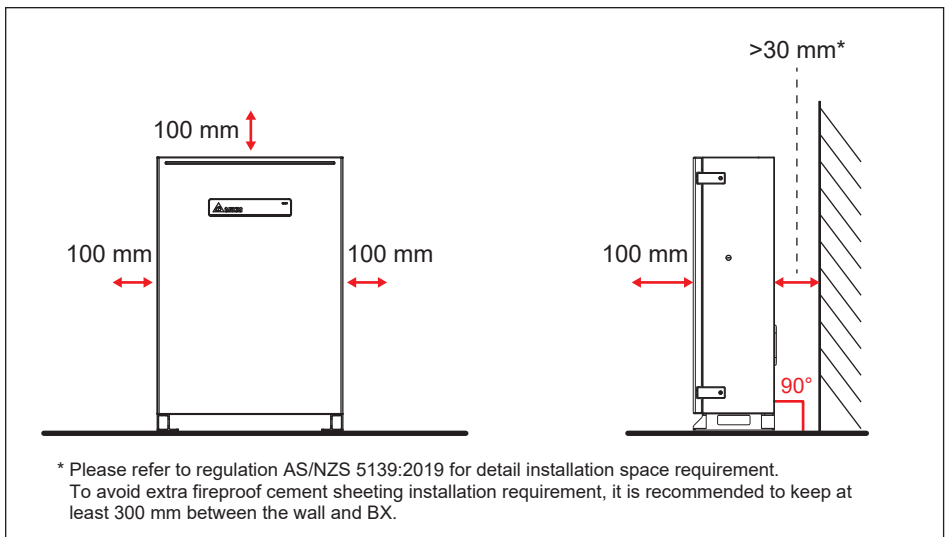
### ATTENTION



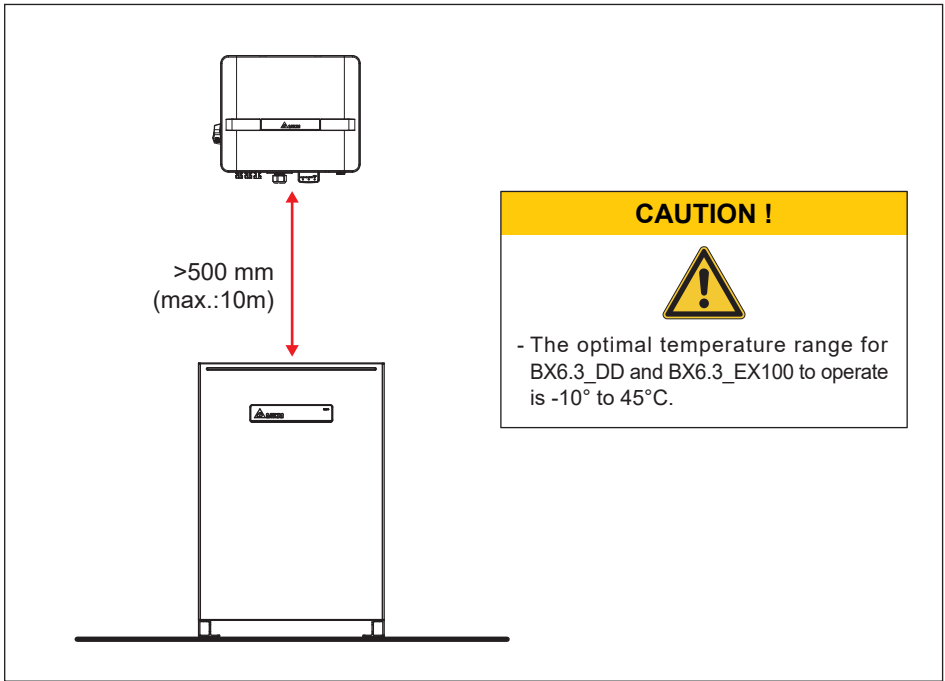
- Please check the space for installation which meets the recommended location.
- Remember that DELTA will in not responsible for damage resulting from - BX6.3\_DD falling due to insufficient mounting strength.

This battery storage system is designed to stand on the floor fixed. Please ensure that the installation is perpendicular to the floor. Please follow the instructions as shown from **Figure 3-5** through **3-8**.

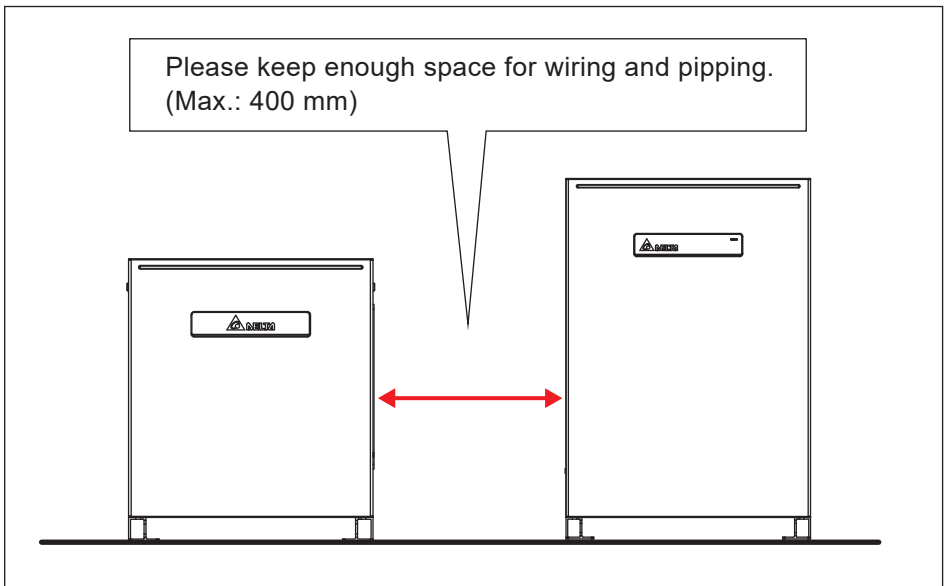
Please make sure there is enough room for the battery storage system, especially in back of the battery storage system (heatsink requirement).



**Figure 3-5 : Recommended installation space**



*Figure 3-6 : Recommended installation space with inverter*

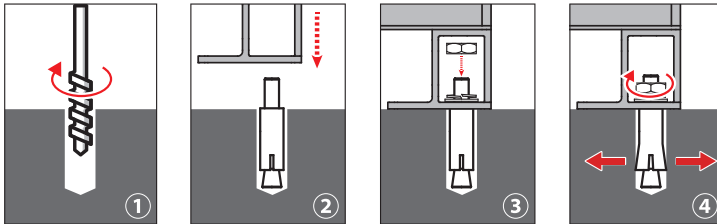


*Figure 3-7 : Recommended installation space of BX6.3\_DD + BX6.3\_EX100*



The recommended spacing to wall is 100mm, please be sure the minimum space should more than 30mm. Be sure to select the flat floor surface for installation and strength can afford storage system weight.

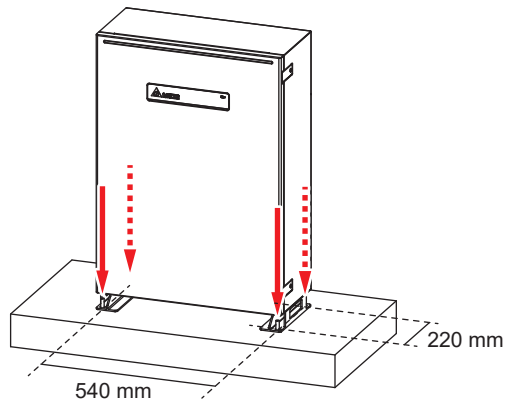
The Power ON/OFF button is located at the left side of BX6.3\_DD, please make sure enough space is reserved to access this button.



1. Drill 4 holes with  $\Phi 16$  mm diameter in dimension 540 mm x 220 mm
2. Insert Rawlplug into these hole
3. Put on and fix BX6.3\_DD firmly

**CAUTION !**

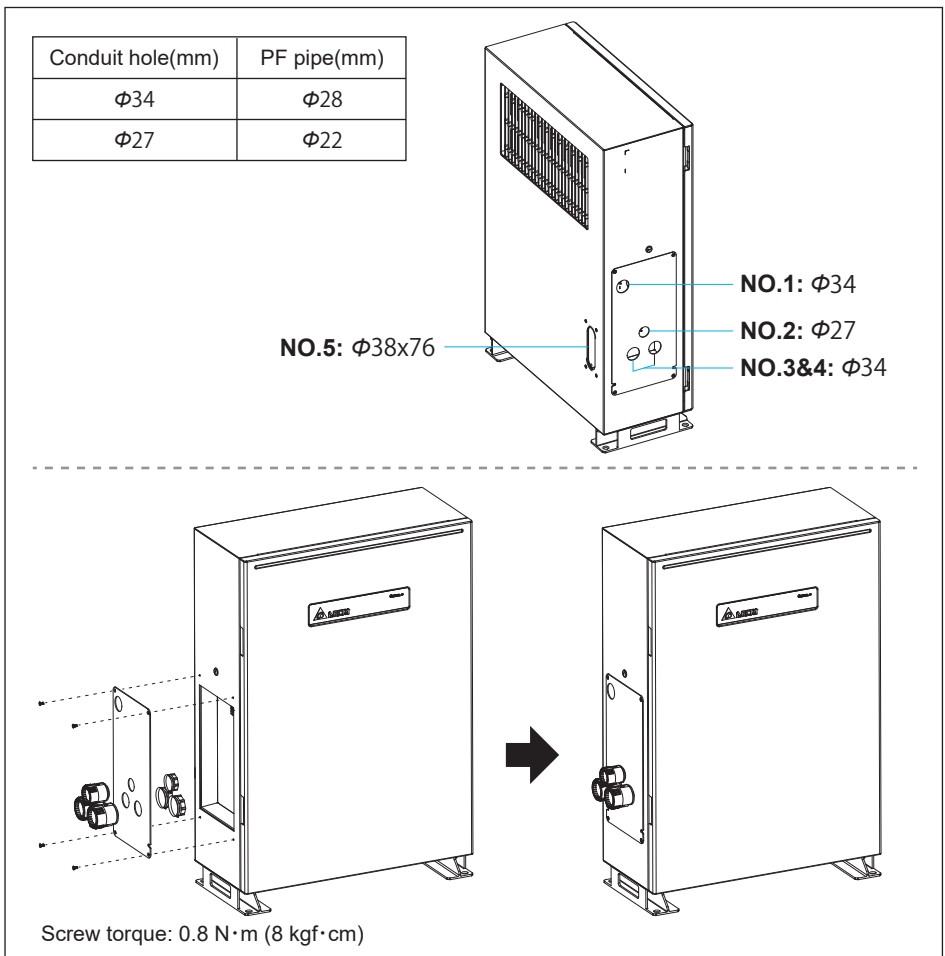
- Please do not install the battery pack on uneven floor surfaces.
- Holes size is 16 mm diameter for attaching the battery pack.



**Figure 3-8 : Insert rawlplug**

It is recommended to install the wiring cover to prevent users from touching the electric cables. There are 5 conduit holes with defined number and the recommended screw torque/ PF pipe type are shown in **Figure 3-9**, please follow the instruction below to install:

- **Conduit hole NO.1:** For the push button operation.
- **Conduit hole NO.2:** For for DC and COMM cables to inverter.
- **Conduit hole NO.3 & NO.4:** For BX6.3\_DD+BX6.3\_EX100 model installation, please remove the plastic cover, then pass the DC and COMM. cables through pipe and attach the pipe to the wiring cover.
- **Conduit hole NO.5:** The  $\Phi 38 \times 76$  backward hole provide user the other choice to wire
- **Please tighten 4 screws after cabling.**



**Figure 3-9 : Install the wiring cover**

## 3.5 Assemble DC connectors

### Prepare for expansion battery pack.

BX series uses Amphenol H4 connectors which provide along with the package of BX6.3\_EX100 are genuine parts that are certified the quality and reliable from DELTA. Please follow the below requirements to choose the DC cable and crimp.

- DC cable must choose the cooper conductor which insulation is above 600V withstands voltage.
- Acceptable cross-section range of the conductor is 4.0mm<sup>2</sup>~6.0mm<sup>2</sup>.
- Recommend crimping is by using Amphenol special tool (H4TC0002)
- If accessories DC connectors are in shortage or have other application issues, please contact DELTA Service Center for help.

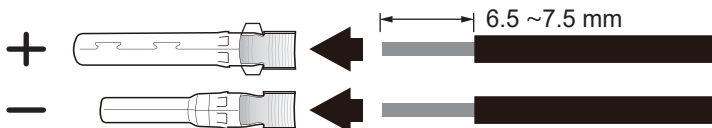
### Assemble Battery connectors:

Please follow step to assemble DC connectors.

- (1) Male connector with Socket Type terminal is for Positive side.  
Female connector with Pin Type terminal is for Negative side.



- (2) Strip off the cable insulation around 6.5 ~ 7.5 mm length, neat the conductor, then put it into its belong terminal hole well.



- (3) Put them into the stopper of the Amphenol crimping tool(H4TC0002), then crimp to fix.



- (4) Connect the terminal and its belonging connector. The terminal will be locked if well assembling. Fasten the cap with 2.6 ~ 2.9 N.m force for the waterproof.



### 3.6 Delta Inverter Connection

BX6.3\_DD must connect with Delta inverters to construct a hybrid energy system. It can be integrated with different inverter model.

**DANGER: ELECTRICAL HARZARD!!**



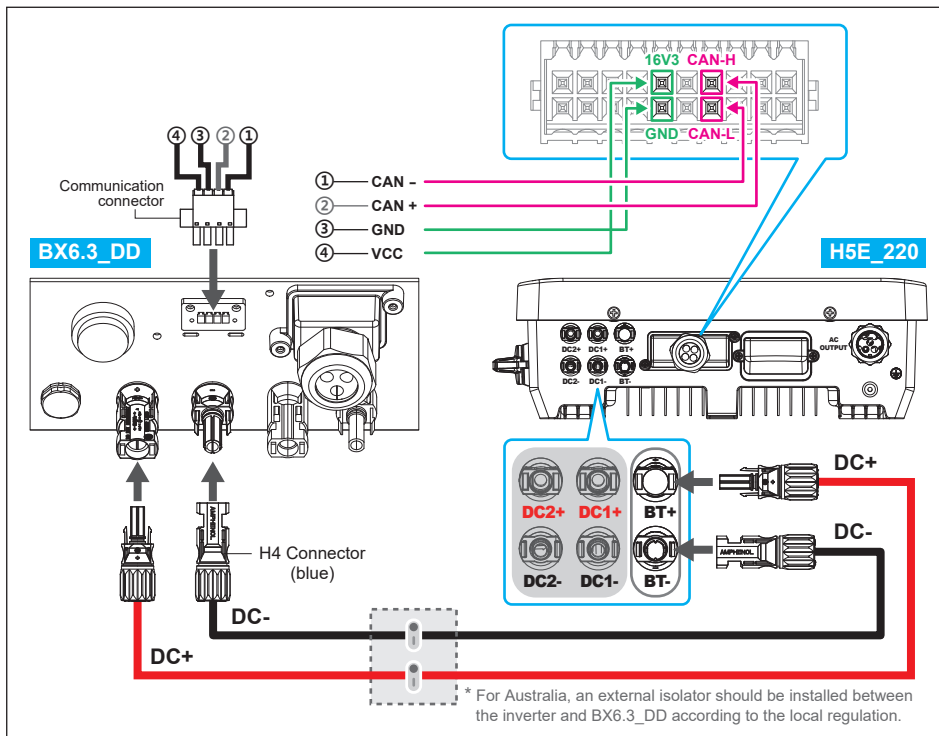
- Do not power up the device before installation is complete.
- All circuit breakers must be in the OFF position before commencing installation.

For H5E\_220 model, the cable connection is shown in **Figure 3-10**.

1. Prepare the cable according to length requirement.
2. Connect Communication cable (4 wires) to H5E\_220
3. Connect the DC cable between BX6.3\_DD and H5E\_220.

An external DC isolator should be installed between the inverter and BX6.3\_DD according to the local standard, recommended specification is shown as follow:

Voltage Rating	Current Rating
600Vdc	25A



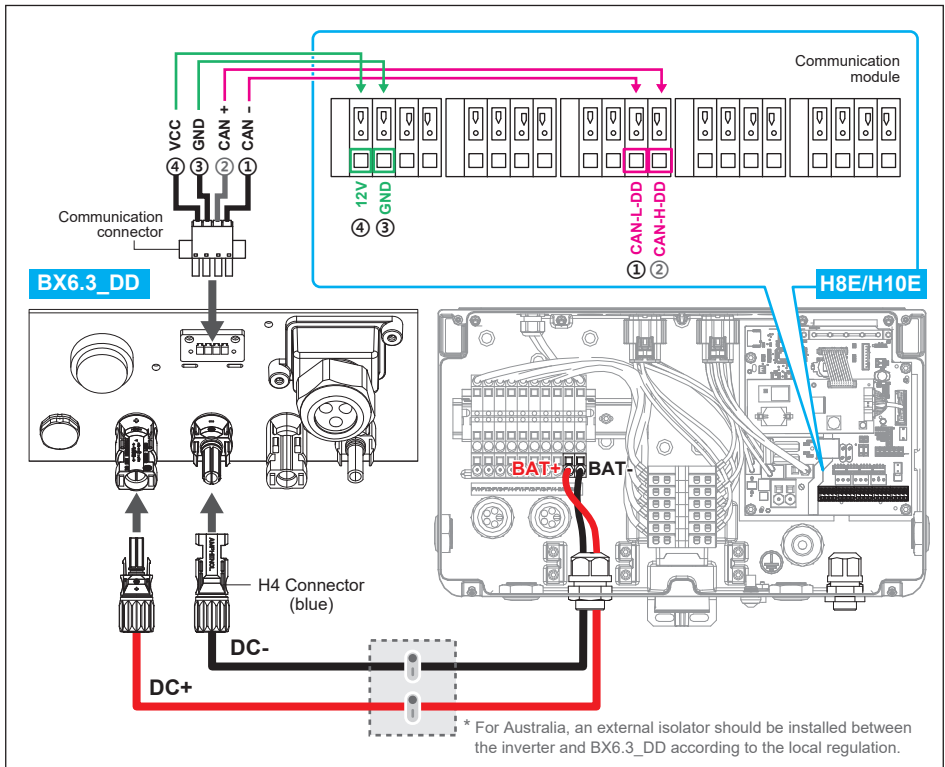
**Figure 3-10 : Inverter Connection (H5E\_220)**

For H8E/H10E model, the cable connection is shown in **Figure 3-11**.

1. Prepare the cable according to length requirement.
2. Connect Communication cable (4 wires) to H8E/H10E.
3. Connect the DC cable between BX6.3\_DD and H8E/H10E.

An external DC isolator should be installed between the inverter and BX6.3\_DD according to the local standard, recommended specification is shown as follow:

Voltage Rating	Current Rating
600Vdc	25A



**Figure 3-11 : Inverter Connection (H8E/H10E)**

### 3.7 Battery Pack Expansion

**DANGER: ELECTRICAL HARZARD!!**



- Before expanding the extra battery pack, please switch the battery pack power off to avoid risk of electrical shock.
- Please check the battery pack regularly. If there are any impaired or loose parts, please contact your installer. Ensure that there are no fallen objects.

DELTA BX6.3\_DD can be added at most one extra battery pack to increase capacity. The battery expansion can be achieved by

1. Connect positive/negative cable to BX6.3\_EX100
2. Connect Communication cable (3 wires) to BX6.3\_EX100
3. Connect grounding cable from BX6.3\_EX100 to BX6.3\_DD.

Recommended cable length (about 1000mm) / 12AWG with ring terminal lug. Please make sure the polarity is connected correctly.

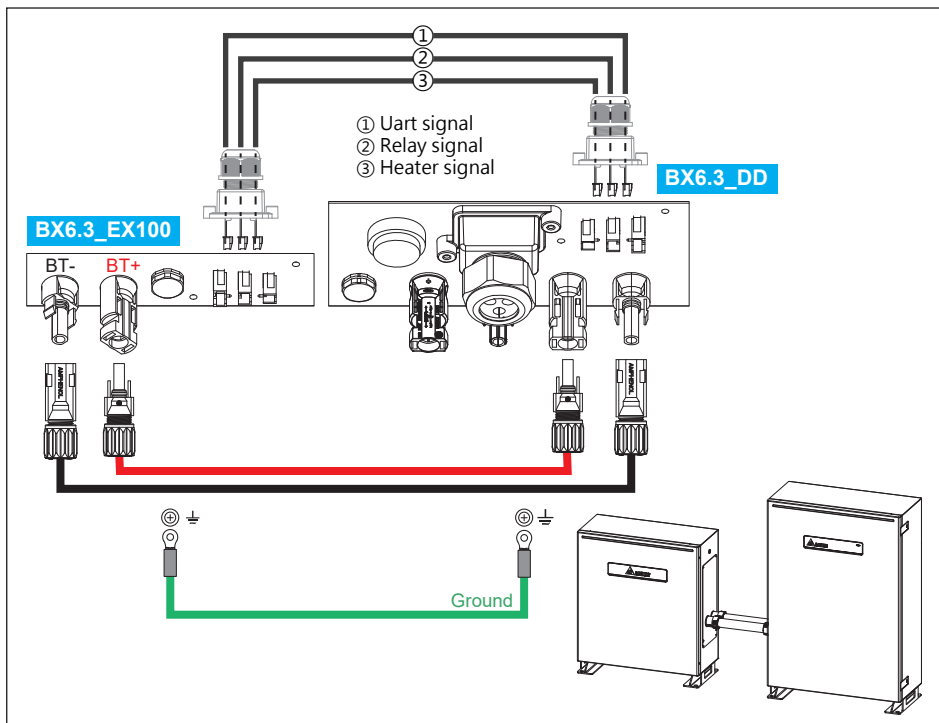


Figure 3-12 : Expanding the Battery Pack with DC(BT+/-) cables

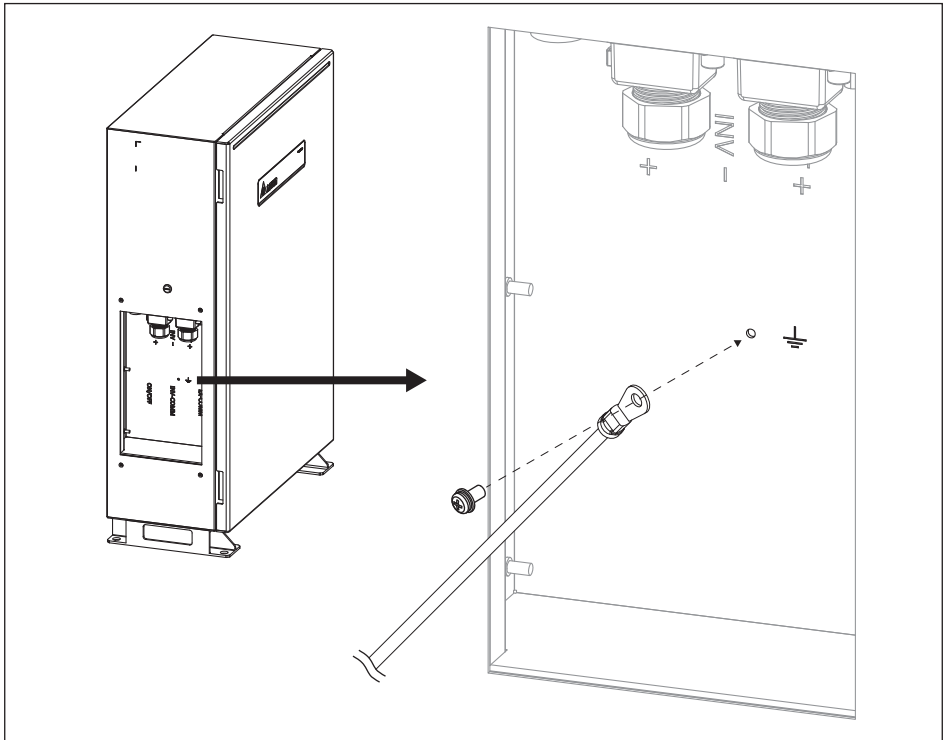
**ATTENTION**



- Please do not remove all the rubber covers on BX6.3\_DD if BX6.3\_EX100 is not installed.

### 3.8 PE Connection

To ground the inverter, please ensure the PE conductor to the grounding point.  
Recommended specifications : 4mm<sup>2</sup> - 6mm<sup>2</sup>



*Figure 3-13 : PE Wiring*

## 4 Maintenance

### **DANGER : ELECTRICAL HAZARD!!**



- Before any maintenance, please make sure you are well insulated to avoid risk of electric shock.

In order to ensure the normal operation of inverter, please check and clean the unit regularly. Once there are any impaired or loose parts, please contact your inverter installer.



## 5 Error message and Trouble Shooting

**Table 5-1 : Error Message**

ERROR			
Code	Message	Cause	Action
E01	AC Freq High	Grid frequency over the limit of electricity regulation.	Check the grid frequency. If grid frequency is not in acceptable range, contact the utility operator to modify it. If grid frequency lies in acceptable range but the error still exist, please contact your inverter supplier.
E02	AC Freq Low	Grid frequency under the limit of electricity regulation.	Check the grid frequency. If grid frequency is not in acceptable range, ask the utility operator to modify it. If grid frequency lies in acceptable range but the error still exist, please contact your inverter supplier.
E07	Grid Quality	Grid harmonic distortion >8.5% and >2.2s	Check AC wiring; keep the wire short and straight. Contact the utility operator to improve the grid quality. If the grid quality is good but the error still exist, please contact your inverter supplier.
E08	AC phase abnormal	Wrong connection at AC plug	Check the AC connection in accordance with the user manual.
E09	No Grid	Grid voltage <20V or voltage half-cycle > 50ms	Check the triggering of upstream circuit breaker. Check the wire connection between inverter side and grid side. Contact the utility operator for the information about power failure.
E10	AC Volt Low	Grid voltage under the limit of electricity regulation.	Check the grid voltage. If grid voltage is not in acceptable range, ask the utility operator to modify it. If grid voltage lies in acceptable range but the error still exist, please contact your inverter supplier.
E11	AC Volt High	Grid voltage over the limit of electricity regulation.	Check the grid voltage. If grid voltage is not in acceptable range, ask the utility operator to modify it. If grid voltage lies in acceptable range but the error still exist, please contact your inverter supplier.

ERROR			
Code	Message	Cause	Action
E12	AC Volt High	Grid voltage over the limit of electricity regulation.	Check the grid voltage. If grid voltage is not in acceptable range, ask the utility operator to modify it. If grid voltage lies in acceptable range but the error still exist, please contact your inverter supplier.
E13	AC Volt High	Grid voltage over the limit of electricity regulation.	Check the grid voltage. If grid voltage is not in acceptable range, ask the utility operator to modify it. If grid voltage lies in acceptable range but the error still exist, please contact your inverter supplier.
E34	Insulation (Insulation Fault)	BT to ground Impedance in either input < 550 kohm	Check the insulation of DC wiring. For Delta cloud registered user, system will send alarm message to your e-mail when this Error code occurred.

**Table 5-2 : Fault Message**

Fault			
Code	Message	Cause	Action
F01	DC Injection	DC component in grid current over the limit	Check the power supply line for direct current. Contact the utility operator to improve the grid quality.
F05	Temp High (Temperature High)	Internal temperature too high to cause power output < 5%	Check the temperature of installation environment. Contact your inverter supplier.
F06	HW NTC1 Fail (Amb Temp Fault)	Internal fault	Contact your inverter supplier.
F07	Temp Low (Temperature Low)	Internal temperature < -25°C	Check the temperature of installation environment. Contact your inverter supplier.
F08	HW NTC2 Fail (Boost Temp Fault)	Internal fault	Contact your inverter supplier.
F09	HW NTC3 Fail (Bidir. Temp Fault)	Internal fault	Contact your inverter supplier.
F10	HW NTC4 Fail (Inverter Temp Fault)	Internal fault	Contact your inverter supplier.
F13	HW RLY (AC RLY Fault)	Internal device fault	Contact your inverter supplier.
F15	HW DSP ADC1 (AC Sensor Fault)	Internal fault	Contact your inverter supplier.
F16	HW DSP ADC2 (Vdc Sensor Fault)	Internal fault	Contact your inverter supplier.
F17	HW DSP ADC3 (Idc Sensor Fault)	Internal fault	Contact your inverter supplier.
F18	HW Red ADC1 (AC Sensor Fault)	Internal fault	Contact your inverter supplier.
F19	HW Red ADC2 (Idc Sensor Fault)	Internal fault	Contact your inverter supplier.

Fault			
Code	Message	Cause	Action
F22	HW COMM2 (Red COMM Fault)	Internal fault	Contact your inverter supplier.
F23	HW COMM1 (DSP COMM Fault)	Internal fault	Contact your inverter supplier.
F24	Ground Cur. (Ground Cur. High)	Residual current over the limit DC > 150mA	Check the insulation of DC wiring.
F27	RCMU Fail (RCMU Fault)	Internal device fault	Contact your inverter supplier.
F28	RLY Short (AC RLY Short)	Internal device fault	Contact your inverter supplier.
F29	RLY Open (AC RLY Open)	Internal device fault	Contact your inverter supplier.
F30	Bus Unbal. (Bus Unbalance)	Internal fault	Contact your inverter supplier.
F31	HW Bus OVR (Bus Voltage High)	Internal fault	Contact your inverter supplier.
F33	HW Bus OVR (Bus Voltage High)	Internal fault	Contact your inverter supplier.
F35	HW Bus OVR (Bus Voltage High)	Internal fault	Contact your inverter supplier.
F36	AC Cur. High (AC Current High)	Grid current >135% rated and keep over 50ms	Contact your inverter supplier.
F37	AC Cur. High (AC Current High)	Grid current >125% rated and keep over 5s	Contact your inverter supplier.
F42	HW CT (AC CT Fault)	Internal device fault	Contact your inverter supplier.
F45	HW AC OCR (AC Current High)	AC current over the limit 20 times within 2s	Check AC and DC wiring for ground faults. Inverter may be struck by the lightning. Check the whole wiring of hybrid system. If this fault occurs often, please contact your inverter supplier.
F48	SA OPP (SA Over Load)	System overload	In standalone mode, PV and BT power is insufficient to supply the home load. Please reduce the load.

Fault			
Code	Message	Cause	Action
F50	HW ZC Fail (ZC Circuit Fault)	Internal fault	Contact your inverter supplier.
F97	BT OVP	Battery system internal fault	Contact your inverter supplier.
F98	BT UVP	Battery system internal fault	Contact your inverter supplier.
F99	BT OTP	Battery system internal fault	Contact your inverter supplier.
F100	BT UTP	Battery system internal fault	Contact your inverter supplier.
F101	BT OCP	Battery system internal fault	Contact your inverter supplier.
F102	BT CVI	Battery system internal fault	Contact your inverter supplier.
F103	BT TF	Battery system internal fault	Contact your inverter supplier.
F104	BT PF	Battery system internal fault	Contact your inverter supplier.
F112	HW COMM BT	Loss communication between inverter and battery over 10 seconds.	Check CAN connection between inverter and battery.
F113	BT EOL	Battery system SOH < 50%	Contact your inverter supplier.

## 6 De-Commissioning

### WARNING !



- To avoid injuries, please follow the procedures to unload the inverter.

If it is necessary to put the device out of operation for maintenance or storage, please follow the procedures below:

At inverter side:

1. Push Power button until BX6.3\_DD shutdown, all LED indicators will show "OFF" status.
2. Switch off AC power line breaker to disconnect from grid.
3. Wait for all LED indicator turning off.
4. Remove the AC and battery wiring.
5. Remove the communication module RS-485 connection from the computer connection.




Now you may unload the inverter.

## 7 Technical Data

**Table 7-1 : Specifications for BX6.3\_DD**

Model	BX6.3_DD	BX6.3_DD + BX6.3_EX100
<b>GENERAL</b>		
Enclosure	Aluminum with powder coating	
Operating temperature	-10°C * ~ 45°C	
Operating Altitude	0 to 2000m (0 to 6666 ft.)	
Relative humidity	0% – 95% non-condensing.	
Environmental category	Indoor / Outdoor	
Protection degree	IP65 (Electronics)	
Pollution degree	PD 2	
Overvoltage category	Other: not connected to mains directly	
Galvanic isolation	NO	
Safety class	Class I metal enclosure with protective earth	
Weight	75kg	75 kg (BX6.3_DD) + 60 kg (BX6.3_EX100)
Dimensions(W*H*D)	570 × 840 × 250 mm	570 × 840 × 250 mm + 520 × 600 × 230 mm
Connectors	Weather resistant connectors	
Audible noise	< 40dB	
<b>BT INPUT</b>		
Type	Li-ion	
Battery Module	Samsung SDI 41J (21700)	
Typical Energy	6.3 kWh	12.6 kWh
Typical Voltage	DC 202.7 V	DC 405.4 V
Voltage Range	DC 175 - 228 V	DC 350 - 456 V
Depth of Discharge (DoD)	98%	
<b>DC BUS INPUT / OUTPUT</b>		
Nominal power	3000 W	6000 W
Maximum power	3000 W	6000 W
Voltage	250V - 1000V	
Maximum input/output current	15.6 A	15.6 A
Maximum fault current	25A	
Tare loss	< 10 W	
Maximum efficiency	99%	
<b>REGULATIONS &amp; DIRECTIVES</b>		
Electrical safety	IEC 62619:2017, IEC 60730-1:2013	

# Model Listing

Model	Inverter	Battery	Wi-Fi
<b>BX6.3_DD</b>		 (BX6.3_DD)	
<b>BX6.3_DD + BX6.3_EX100</b>		 (BX6.3_DD + BX6.3_EX100)	
<b>BX6.3_EX100*</b>		 (BX6.3_EX100)	

\* BX6.3\_EX100 can only be used with the BX6.3\_DD / BX6.3\_AC100.



