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BYD HVS 5.1 Premium HVS 5.1 Battery Storage User Guide

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BYD HVS 5.1 Premium HVS 5.1 Battery Storage



Product Information

Product Name: Xpert.Digital / Xpert.Solar Kontaktperson: Konrad Wolfenstein Email: wolfenstein@xpert.digital

Phone: +49 157 30 44 9 55 Manufacturer: Shenzhen BYD Electronic Co.,LTD Version: V2.5 Model: HVS 5.1, 7.7, 10.2, 12.8 HVM 8.3, 11.0,13.8, 16.6, 19.3, 22.1

Description: Xpert.Digital / Xpert.Solar is a high voltage battery system manufactured by Shenzhen BYD Electronic Co., LTD. It is designed to provide reliable and efficient power storage for various applications.

Product Usage Instructions

- 1. Before using the Xpert.Digital / Xpert.Solar battery system, please ensure that you have read and understood the user manual provided by the manufacturer.
- 2. Connect the battery system to a compatible power source using the provided connectors.
- 3. Ensure that the battery system is properly installed and securely mounted in a suitable location.
- 4. To turn on the battery system, press the power button located on the control panel.
- 5. Use the control panel to monitor the battery status, including the remaining capacity and charging/discharging status.
- 6. When the battery is running low, connect it to a power source to recharge it. Follow the manufacturer's instructions for the recommended charging method.
- 7. Avoid exposing the battery system to extreme temperatures or moisture, as it may affect its performance and lifespan.

8. If you encounter any issues or have questions regarding the usage of the Xpert.Digital / Xpert.Solar battery system, please refer to the manufacturer's contact information provided in the user manual.

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Limited Warranty

You can download the current Limited Warranty from the Internet at websites:

- BYD Global
- Service
- BYD service partner in
- Europe
- BYD service partner in
 - Australia

Address: Shenzhen BYD Electronic Co., LTD, No.1, Yan'an Road Kuichong, Dapeng, Shenzhen, Guangdong Province, 518118, P.R. China

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Limited Warranty

You can download the current Limited Warranty from the Internet at websites:

BYD Global Service, <u>www.bydbatterybox.com</u>,
BYD service partner in Europe, <u>www.eft-systems.de</u>,
BYD service partner in Australia, <u>www.alpspower.com.au</u>.
Shenzhen BYD Electronic Co., LTD
No.1, Yan'an Road Kuichong, Dapeng, Shenzhen, Guangdong Province, 518118, P.R. China

Information on this Document

Validity

This document is valid for the Battery-Box Premium HVS 5.1, 7.7, 10.2, 12.8, and HVM 8.3, 11.0, 13.8, 16.6, 19.3, 22.1 from firmware version BMU 3.16, BMS 3.24.

Target Group

The instructions in this document may only be performed by qualified persons who must have the following skills:

- Knowledge of how batteries work and are operated
- Knowledge of how an inverter works and is operated
- Knowledge of, and adherence to the locally applicable connection requirements, standards, and directives*
- Knowledge of, and adherence to this document and the associated system documentation, including all safety
 instructions
- Training in dealing with the hazards associated with the installation and operation of electrical equipment and batteries
- Training in the installation and commissioning of electrical equipment

Failure to do so will make any manufacturer's warranty, guarantee or liability null, and void unless you can prove that the damage was not due to non-compliance.

Content and Structure of this Document

This document contains safety information and instructions on installing, connecting, and commissioning. Please finish reading this document before taking any actions on the battery system.

The latest version of this document and the manual for installation, commissioning, and operation are to be found in PDF format at our websites.

This document only contains brief information and may deviate from the real system.

Safety

Intended Use

- The battery system is for residential and works with a photovoltaic system. It is a high voltage Li-ion battery storage system, with the control module on itself.
- The system could be connected with the Internet through network cable for maintenance and software updates.
- The system must only be used as stationary equipment.
- The system is suitable for indoor and outdoor use.
- The system must only be operated in connection with a compatible inverter. The list (BYD Battery-Box Premium HVS & HVM Compatible Inverter List) of these inverters could be read at our websites.
- The system is not suitable for supplying life-sustaining medical devices. Please ensure that no personal injury would lead due to the power outage of the system.

- Alterations to the BYD system, e.g., changes or modifications are not allowed unless the written permission of BYD is achieved.
- Please download Be Connect 2.0 from Google Play or App Store to accomplish the commissioning of the system.
- The enclosed document is an integral part of this system. Keep the documentation in a convenient, dry place for future reference and observe all instructions contained therein.
- The type label should always be attached to the system.

IMPORTANT SAFETY INSTRUCTIONS

The system has been designed and tested under international safety requirements. However, to prevent personal injury and property damage and ensure long-term operation of the system, please do read this section carefully and observe all safety information at all times.

Battery module leakage

If the battery modules leak electrolytes, contact with the leaking liquid or gas should be avoided. The electrolyte is corrosive, and the contact may cause skin irritation and chemical burns. If one is exposed to the leaked substance, do these actions:

Inhalation: Evacuate the contaminated area and seek medical help immediately.

Eye contact: Rinse eyes with flowing water for 15 minutes and seek medical help immediately.

Skin contact: Wash the affected area thoroughly with soap and water and seek medical help immediately. **Ingestion:** Induce vomiting and seek medical help immediately.

Firefighting measures

The battery modules may catch fire when it is put into the fire. In case of a fire, please make sure that an ABC or carbon dioxide extinguisher is nearby. Water cannot be used to extinguish the fire. Full protective clothing and self-contained breathing apparatus are required for the firefighters to extinguish the fire.

Battery modules handling and storage guide

- The battery modules and its components should be protected from damage when transporting and handling.
- The weight of the system may cause injury risk. Please take the weight of the system into account while the system is transported and lifted carefully.
- Do not impact, pull, drag, or step on the battery modules.
- Do not insert unrelated objects into any part of the battery modules.
- Do not throw the battery module into a fire.
- Do not soak the battery modules in water or seawater.
- Do not expose to strong oxidizers.
- Do not short circuit the battery modules.
- The battery modules cannot be stored directly under the sun.
- The battery modules cannot be stored in a high humidity environment.
- Use the battery modules only as directed.
- Do not use the battery modules if it is defective, or appears cracked, broken or otherwise damaged, or fails to operate.
- Do not attempt to open, disassemble, repair, tamper with, or modify the battery modules. The battery modules are not user-serviceable.
- Do not use cleaning solvents to clean the battery modules.

• The battery module should be stored in an environment with a temperature range between -10°C +50°C, and charged regularly according to the table below with no more than 0.5 C (A C-rate is a measure of the rate at which a battery is discharged relative to its maximum capacity.) to the SOC of 30% after a long time of storage.

Warning of electric shock

It is a danger to life due to electric shock when live components or DC cables are touched. The DC cables connected to the system may be live. Touching live DC cables results in death or serious injury due to electric shock.

- Disconnect the battery from a voltage source and make sure it can not be reconnected before working on the device.
- Do not touch non-insulated parts or cables.
- Do not remove the terminal block with the connected DC conductors from the slot under load.
- Wear suitable personal protective equipment for all work on the system.

Notice of property damage

If the battery system doesn't start at all, please contact BYD authorized service partner within 48 hours. Otherwise, the battery could be permanently damaged.

When the system is installed, it needs to be able to charge and discharge to avoid a deep discharge condition. After the installation, this needs to be checked once a month. If the battery system is not working normally, please get in contact with your local service partner.

During the storage of the battery system, please mind the maximum storage time.

Surge protection

Overvoltages (e. g. in the event of a flash of lightning) can be further conducted into the building and to other connected devices in the same network via the network cables or other data cables if there is no surge protection. Ensure that the system is integrated into the existing surge protection.

Safety Information of the inverter manufacturer

Please read and observe all safety information of the inverter manufacturer.

Symbols on the Battery System

Symbol	Explanation
	Observe the documents
	Observe all documents supplied with the system.
\bigcirc	Grounding conductor
	This symbol indicates the position for connecting a grounding
	conductor.
	Disposal
	Do not dispose of the system together with household waste, please
X	contact BYD service partner (contact information at the end of this
	document) to dispose of it in accordance with regulations for
	electronic waste and used batteries.
	CE marking
CE	The system complies with the requirements of the applicable EU
	directives.
<u>††</u>	Place it straight up, without inclination or upside down.
I	Handle with care
Ť	Keep it dry
	Keep the battery modules away from open flame or ignition sources.
A	Beware of electrical voltage.
	Beware of a danger zone
	This symbol indicates that the system must be additionally
	grounded if additional grounding or equipotential bonding is
	required at the installation site.
	Keep the battery modules away from children.



RCM (Regulatory Compliance Mark), a brief guide to electrical

equipment approvals in Australia



Do not short circuit.

EU Declaration of Conformity

The battery system described in this document complies with the applicable European directives. The certificate is available in the download area of our websites.

Technical Parameters

-				
	HVS 5.1	HVS7.7	HVS 10.2	HVS 12.8
Battery Module			HVS (2.56 kWh, 102.4	V, 38 kg)
Number of Modules	2	3	4	5
Usable Energy [1]	5.12 kWh	7.68 kWh	10.24 kWh	12.8 kWh
Max Output Current [2]	25 A	25 A	25 A	25 A
Peak Output Current [2]	50 A, 3 s	50 A, 3 s	50 A, 3 s	50 A, 3 s
Nominal Voltage	204.8V	307.2V	409.6V	512V
Operating Voltage	160~240 V	240~360 V	320~480 V	400~600 V
Dimensions (H/W/D)	762x585x298 mm	995x585x298 mm	1228x585x298 mm	1461x585x298 mm
Weight	91 kg	129 kg	167 kg	205 kg
Battery designation		IFpP/21/173	/120/32S/M/-10+50/90)

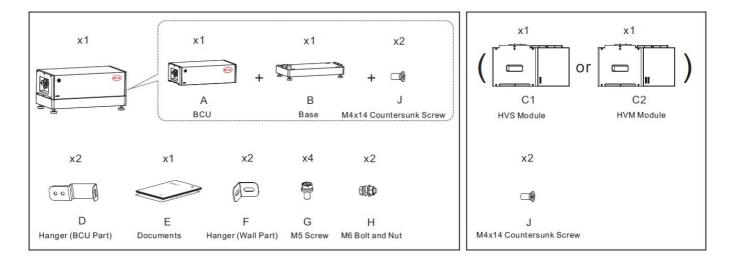
	HVM 8.3	HVM 11.0	HVM 13.8	HVM 16.6	HVM 19.3	HVM 22.1			
Battery Module			HVM (2	76 kWh, 51.2 V, 3	38 kg)				
Number of Modules	3	4	5	6	7	8			
Usable Energy [1]	8.28 kWh	11.04 kWh	13.80 kWh	16.56 kWh	19.32 kWh	22.08 kWh			
Max Output Current [2]	50 A	50 A	50 A	50 A	50 A	50 A			
Peak Output Current [2]	75 A, 3 s	75 A, 3 s	75 A, 3 s	75 A, 3 s	75 A, 3 s	75 A, 3 s			
Nominal Voltage	153.6V	204.8V	256V	307.2V	358.4V	409.6V			
Operating Voltage	120~177 V	160~236 V	200~295 V	240~354 V	280~413 V	320~472 V			
Dimensions (H/W/D)	995x585X 298mm	1228x585X 298mm	1461x585X 298mm	1694x585X 298mm	1927x585X 298mm	2160x585X 298mm			
Weight	129 kg	167 kg	205 kg	243 kg	281 kg	319 kg			
Battery designation			IFpP/47/174/120/16S/M/-10+50/90						
			HVS & HVN	l .					
Operating Te	emperature		-10 °C to	-10 °C to +50°C					
Battery Cell	Fechnology	24 82	Lithium I	Lithium Iron Phosphate (cobalt-free)					
Communication				CAN/RS485					
Enclosure Protection Rating			IP55						
Round-trip E	fficiency		≥96%	≥96%					
Certification				VDE2510-50 / IEC62619 / CEC / CE / UN38.3					
Applications		23 12		ON Grid / ON Grid + Backup / OFF Grid					
Warranty [3]	<u> </u>	•.	10 Years	10 Years					
Compatible I	Inverters	12 12	Refer to	Refer to BYD Battery-Box Premium Inverter Compatible List					

the sec

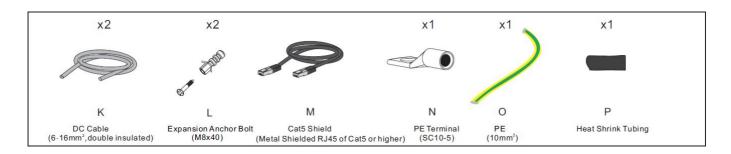
- 1. DC Usable Energy, Test conditions: 100% DOD, 0.2C charge & discharge at +25°C. System Usable Energy may vary with different inverter brands.
- 2. Charge derating will occur when the temperature between -10°C and +5°C.
- 3. Refer to BYD Battery-Box Premium Limited Warranty.

Instructions

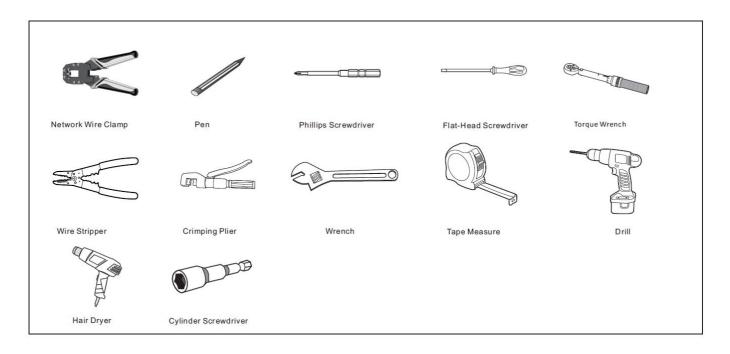
Scope of Deliver



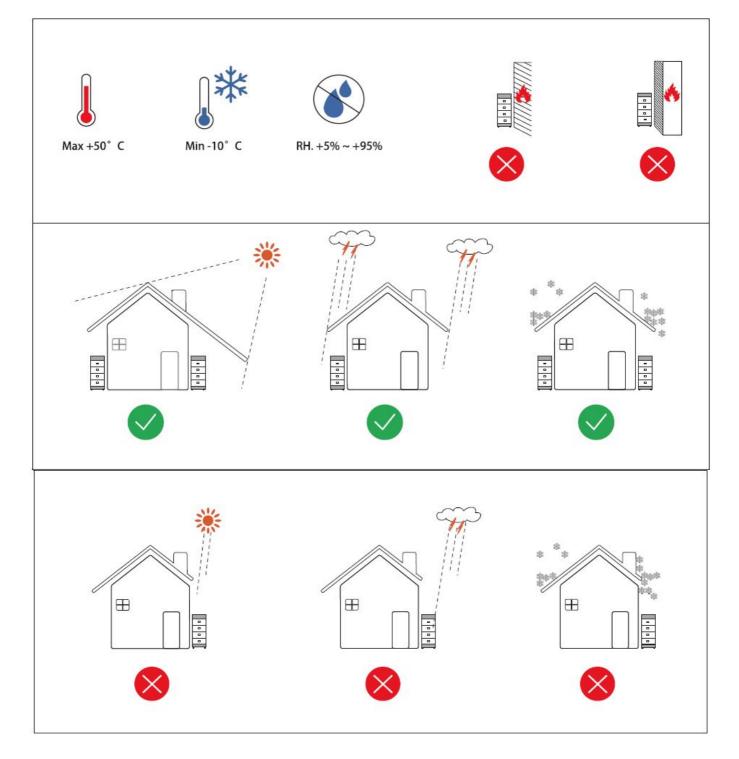
Additionally Required Installation Material



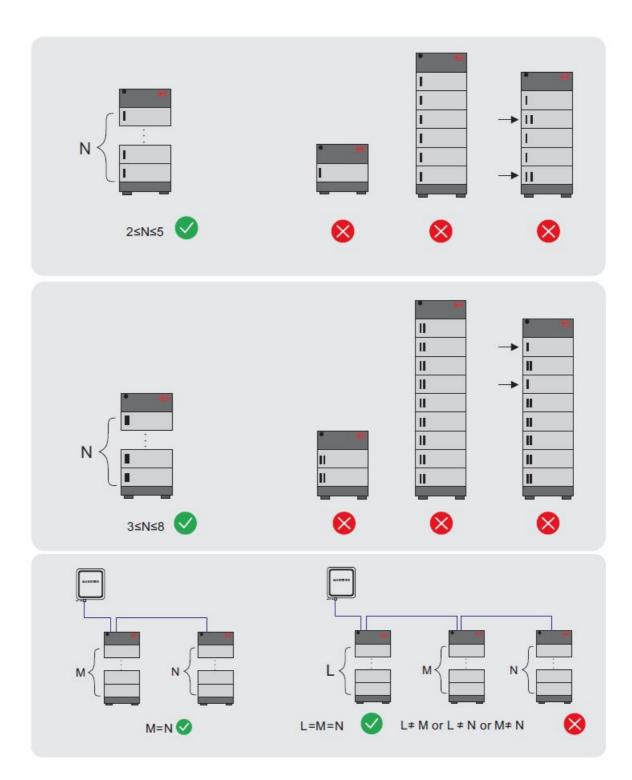
TOOLS

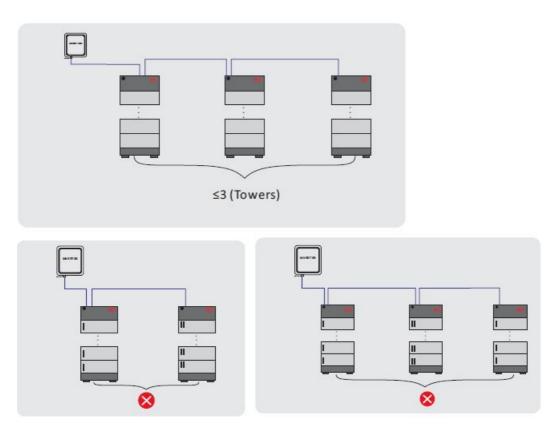


Installation Location

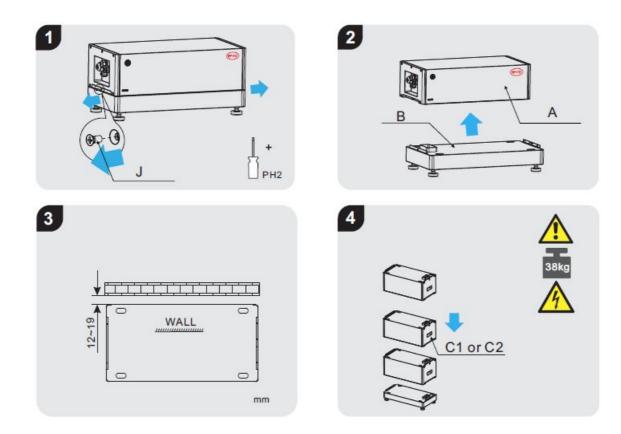


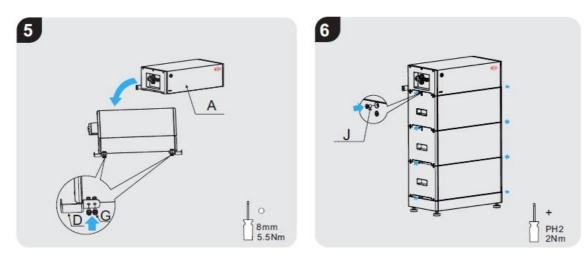
Connection Limitation

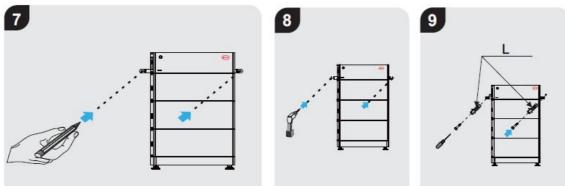


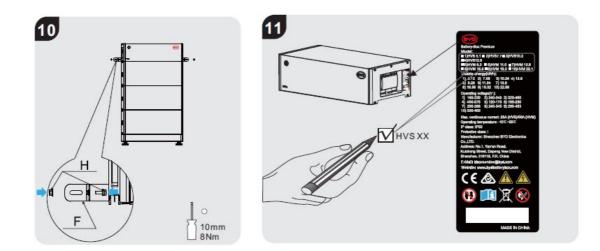


INSTALLATION

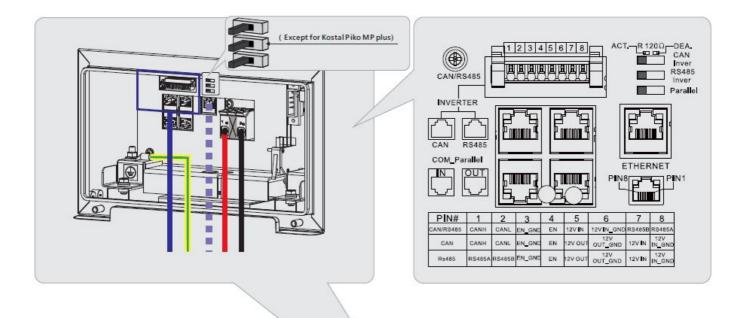


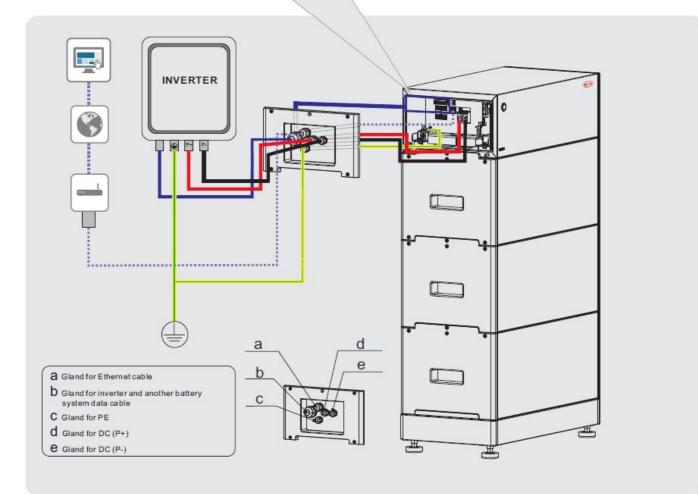




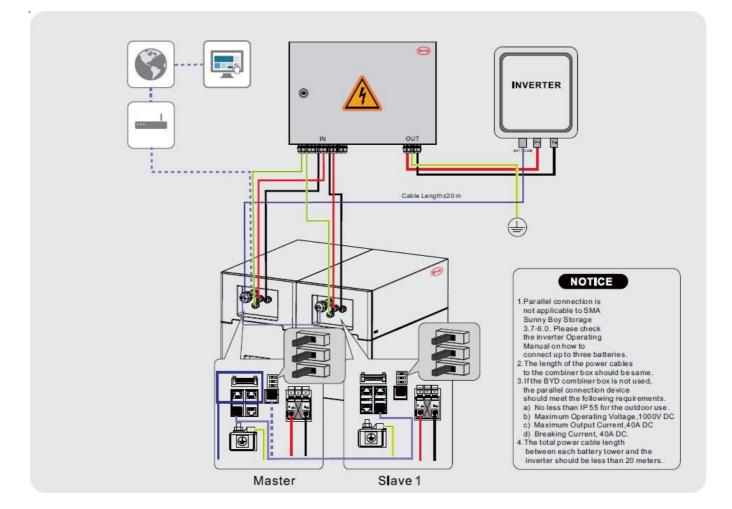


Connection Diagram



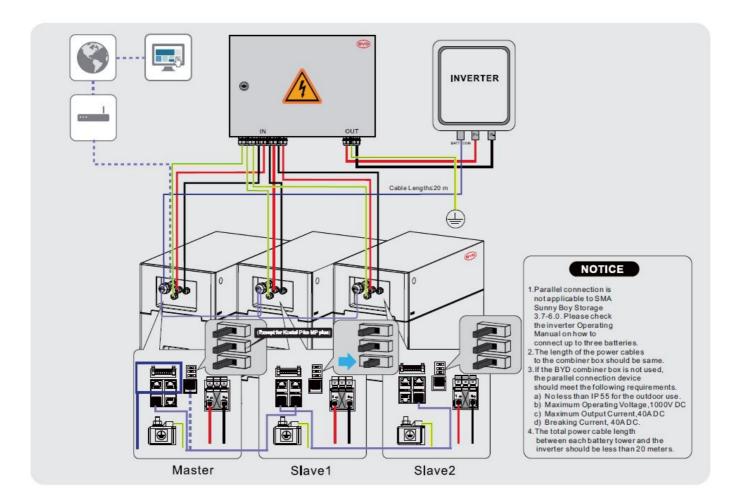


- a. Gland for inverter and another battery system data cable
- b. Gland for PE
- c. Gland for DC (P+)
- d. Gland for DC (P-)
- e. Gland for Ethernet cable



NOTICE

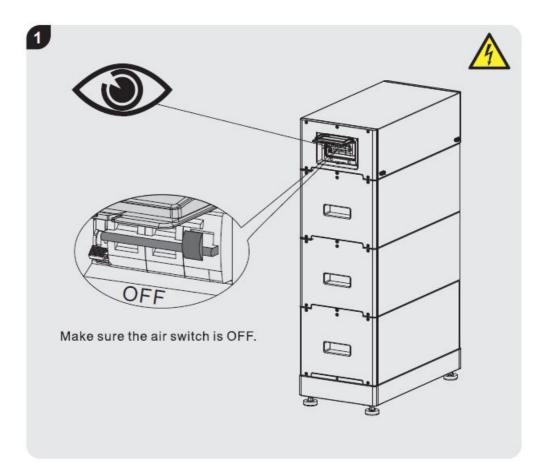
- 1. Parallel connection is not applicable to SMA Sunny Boy Storage 3.7-6.0. Please check the inverter Operating Manual on how to connect up to three batteries.
- 2. The length of the power cables to the combiner box should be same.
- 3. If the BYD combiner box is not used, the parallel connection device should meet the following requirements.
 - a) No less than IP 55 for the outdoor use.
 - b) Maximum Operating Voltage,1000V DC
 - c) Maximum Output Current,40A DC
 - d) Breaking Current, 40A DC.
- 4. The total power cable length between each battery tower and the inverter should be less than 20 meters.

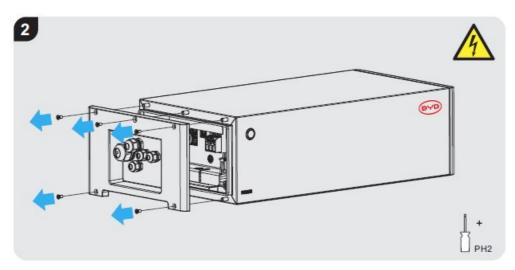


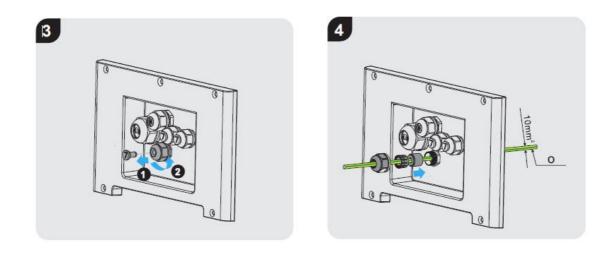
NOTICE

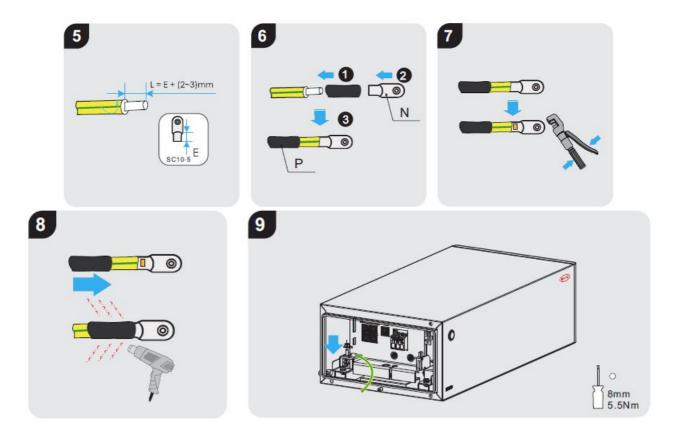
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Connecting the Grounding Conductor





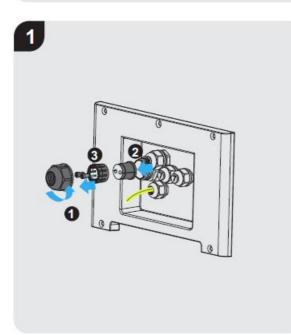


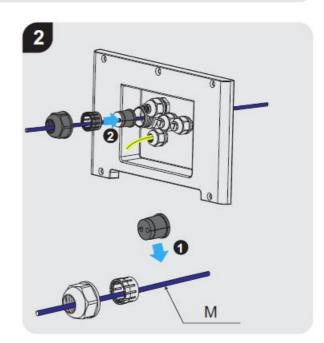


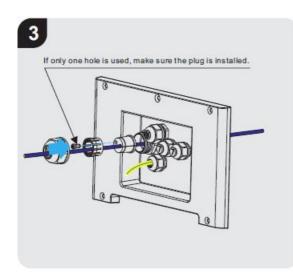
Communication Cable Connection to Inverter

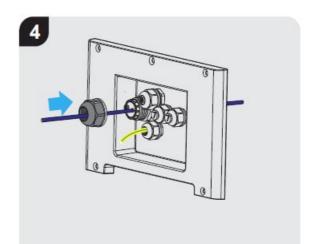
Read the BYD Battery-Box Premium HVS&HVM Compatible Inverter List before connecting the data cable.

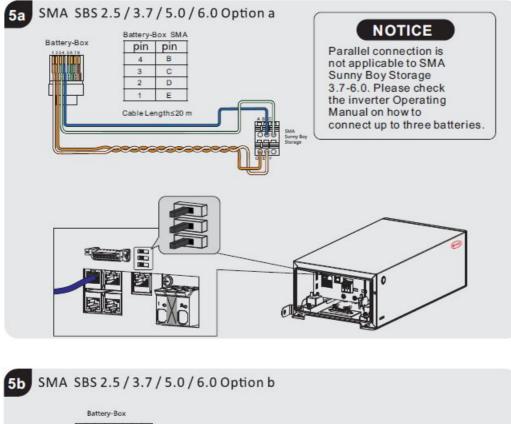
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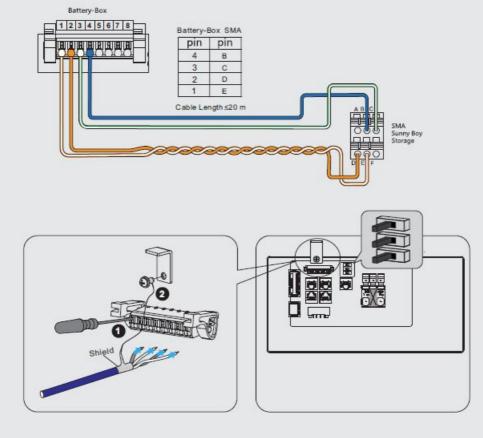


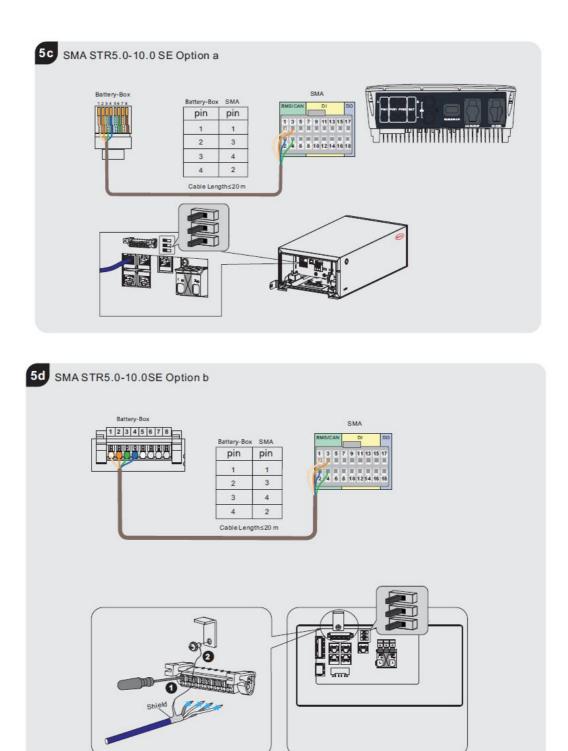


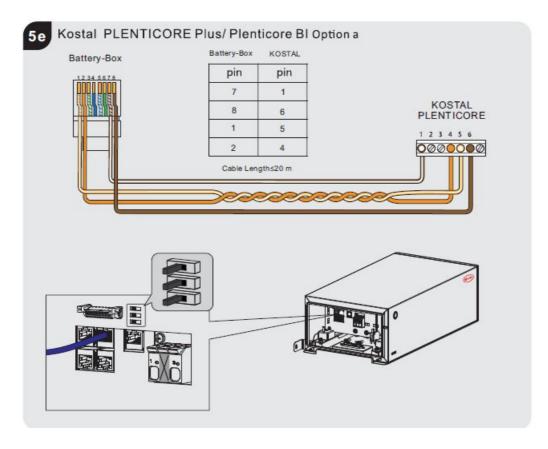


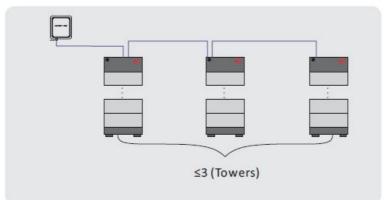




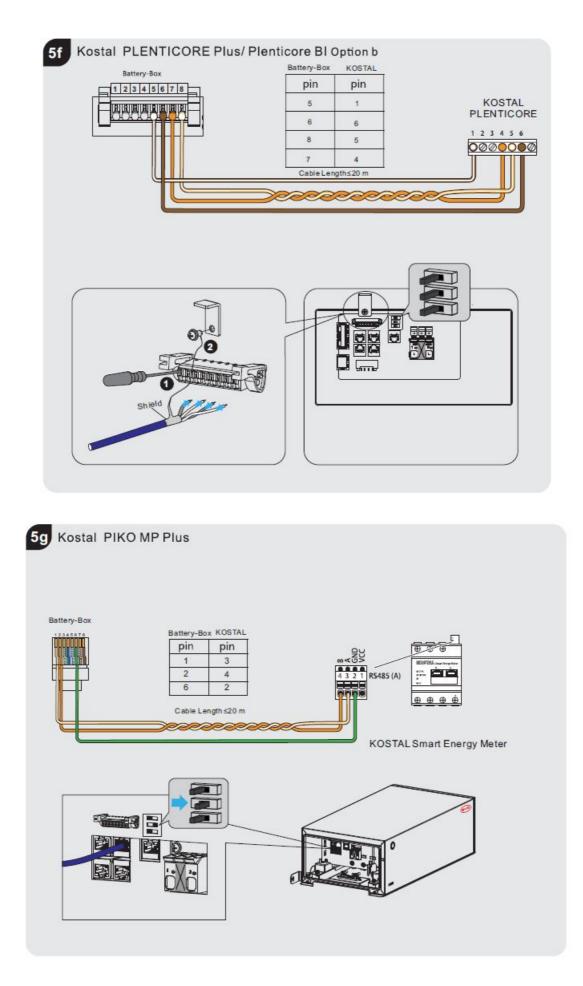


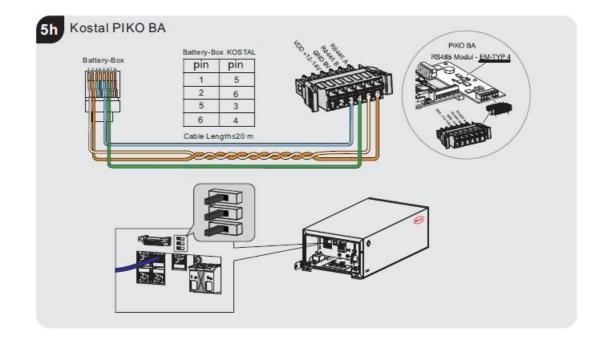


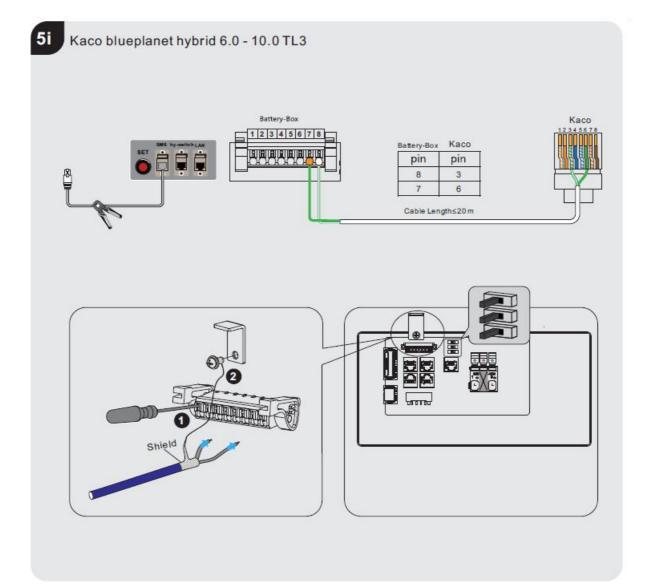


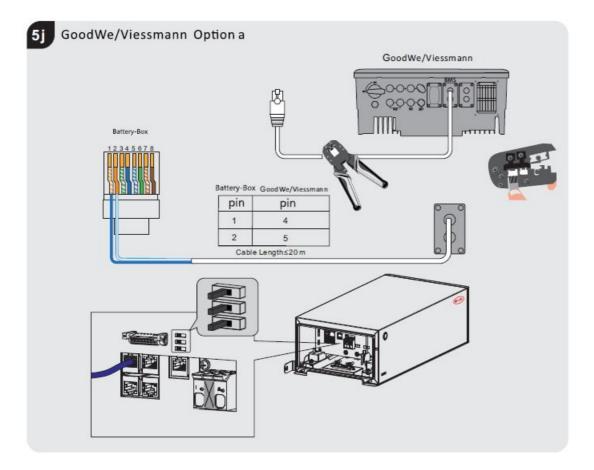


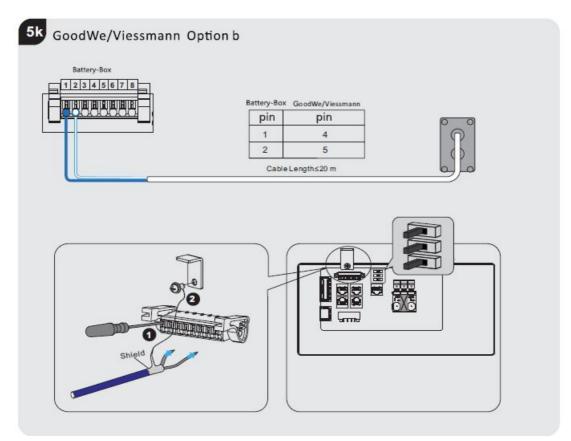
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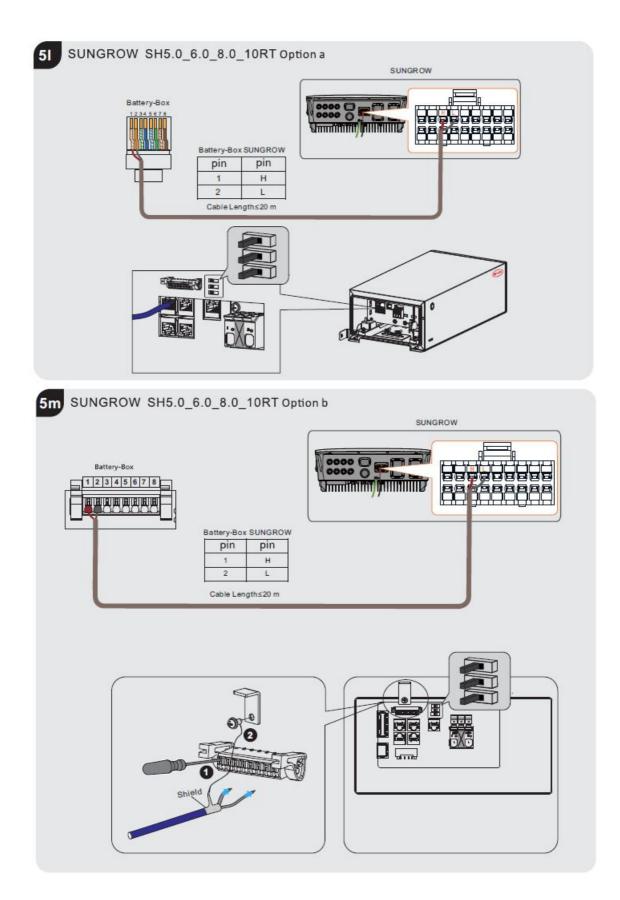


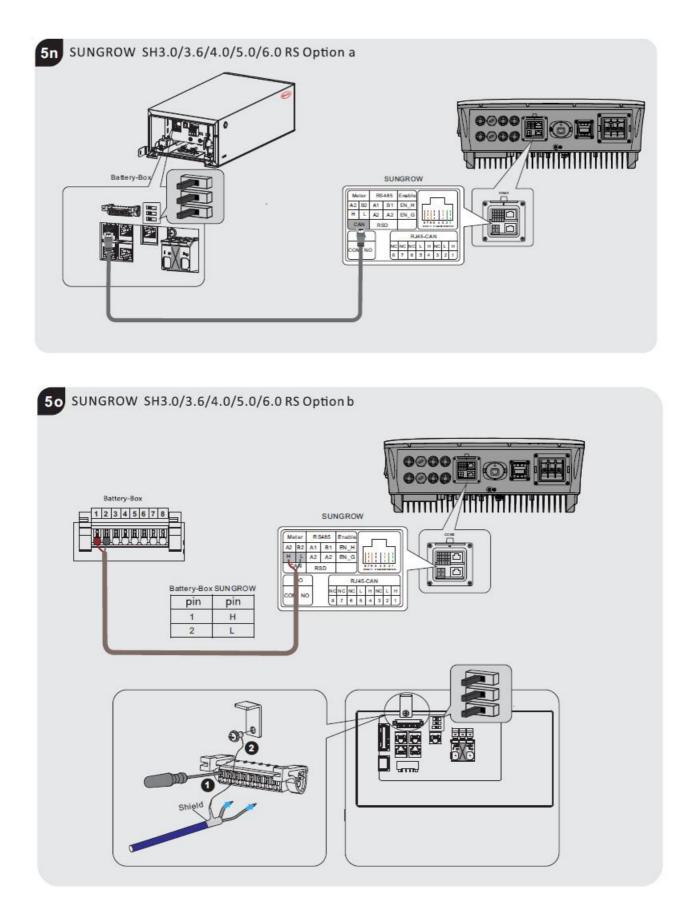


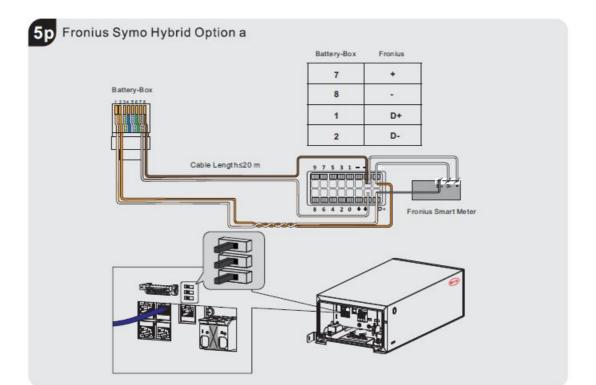


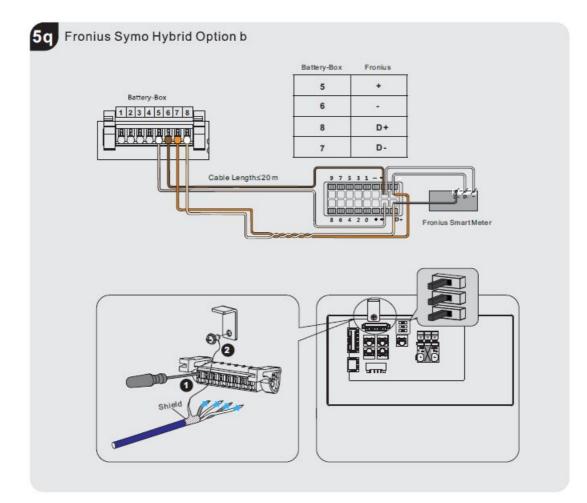


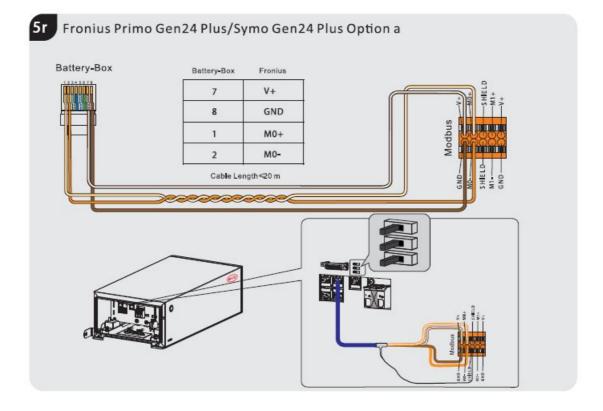


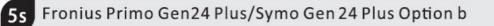


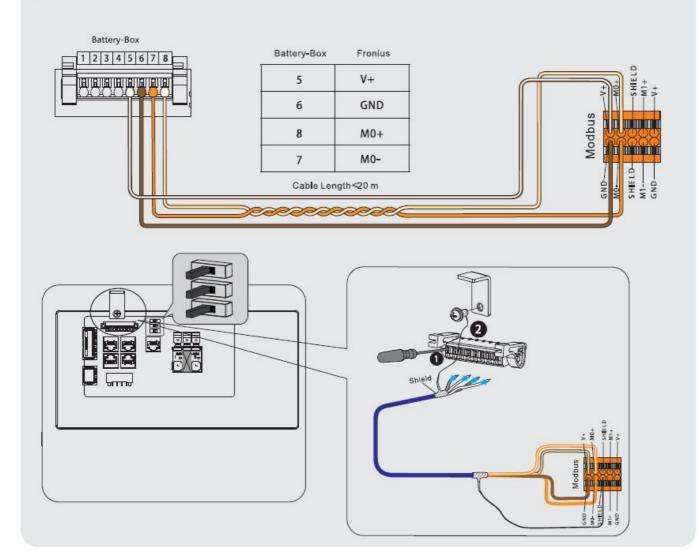


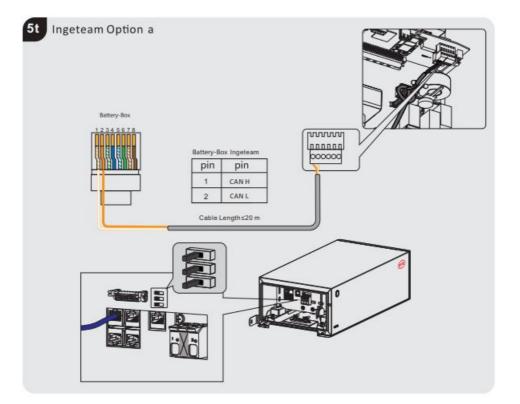


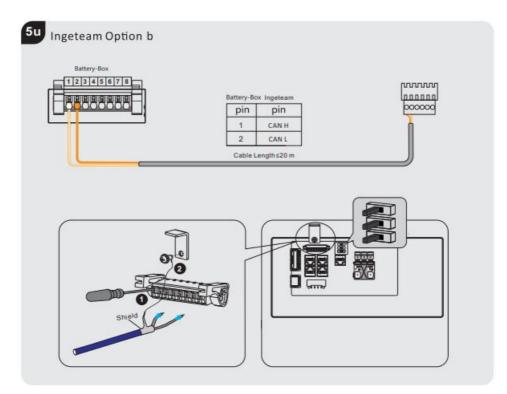


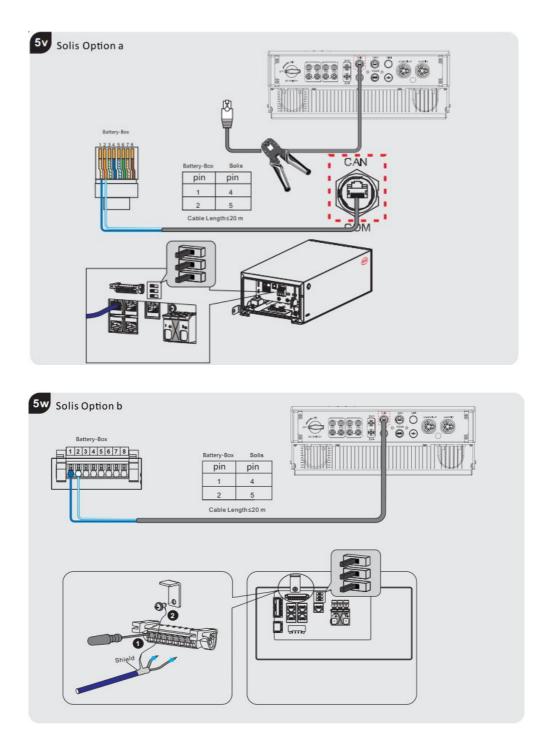








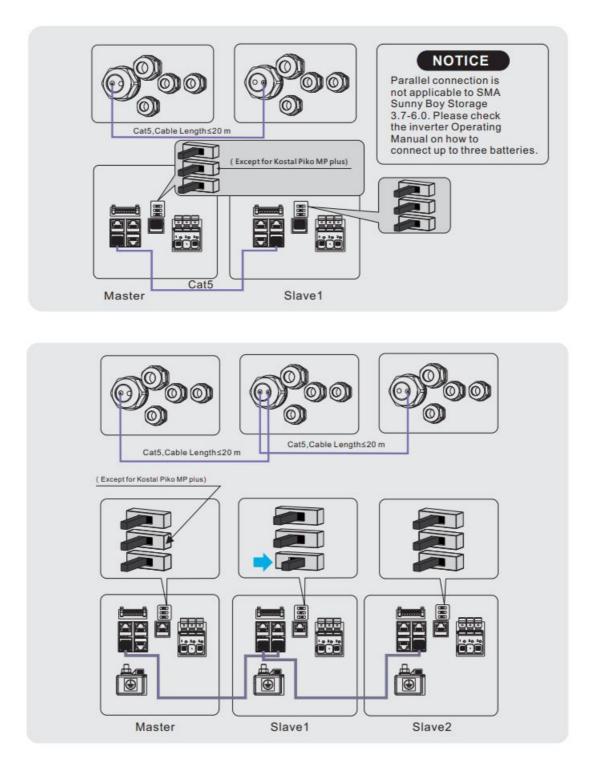




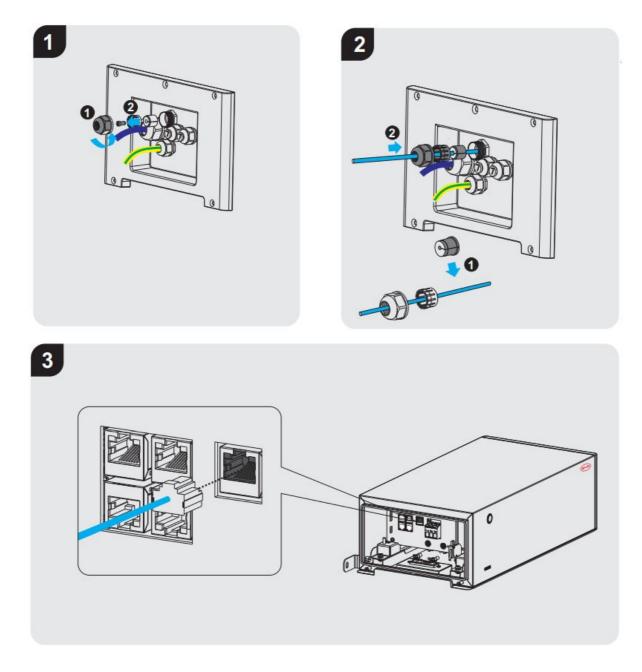
Connecting the Data Cable for the Internal Communication

NOTICE

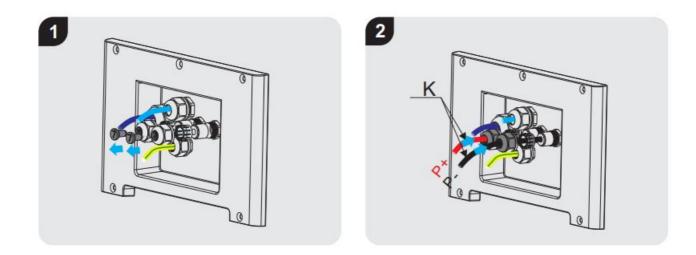
Parallel connection is not applicable to SMA Sunny Boy Storage 3.7-6.0. Please check the inverter Operating Manual on how to connect up to three batteries.

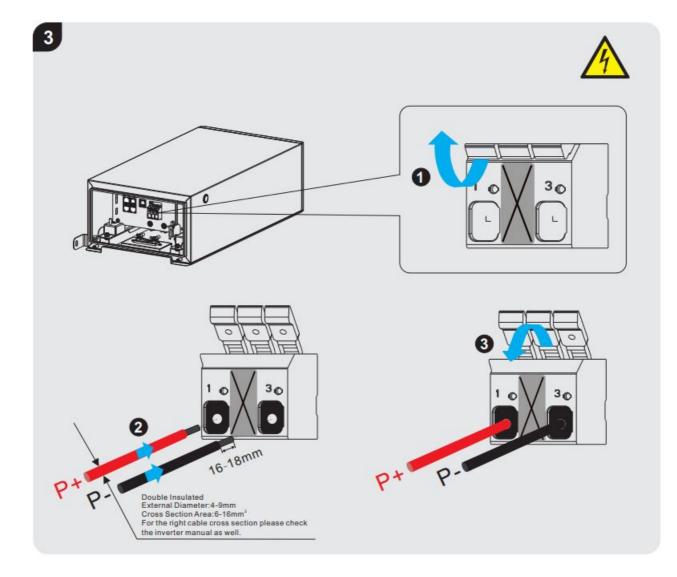


Connecting the Network

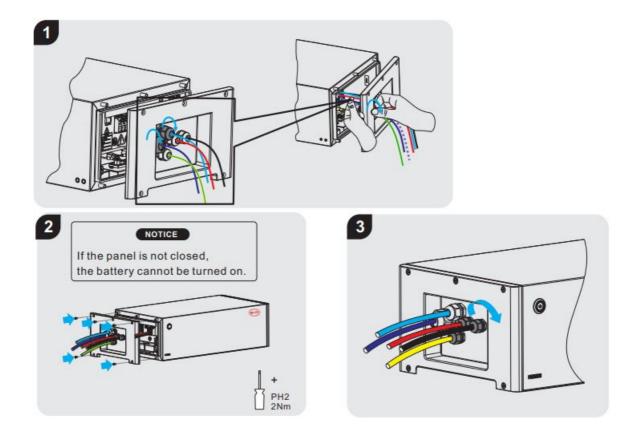


DC Connection

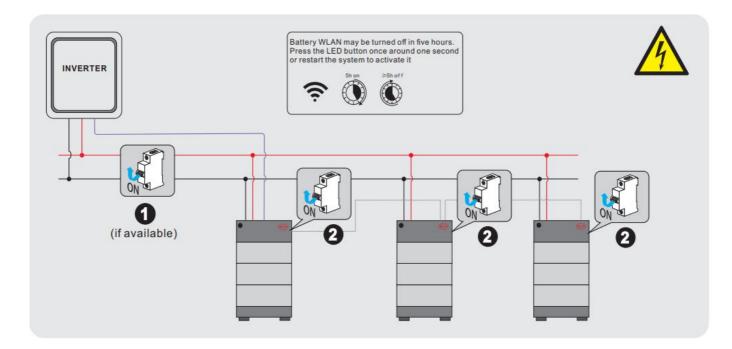




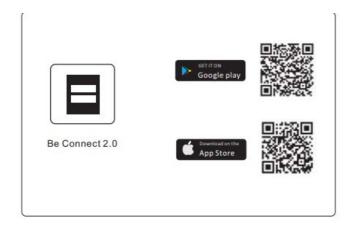
Close Up



Commissioning



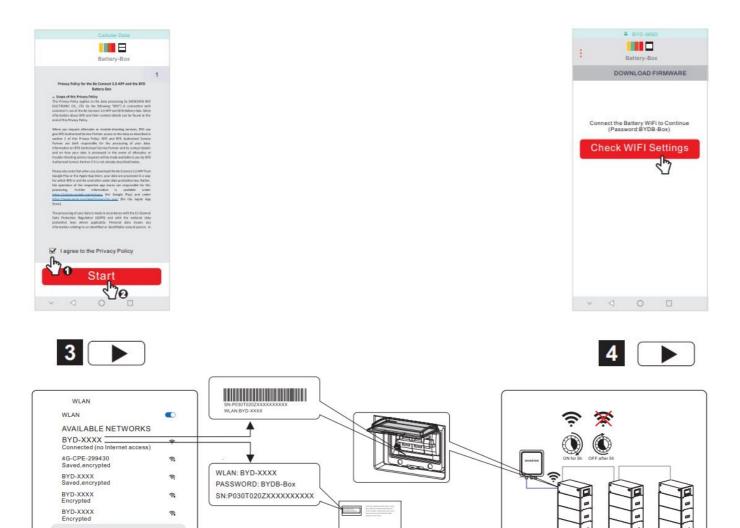
Configuration



1









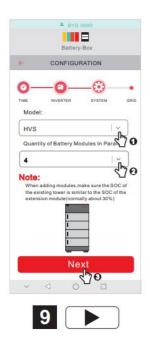
This wian network no internet access. Connect anyway? CANCEL CONNECT



Last page of Quick Start Guide



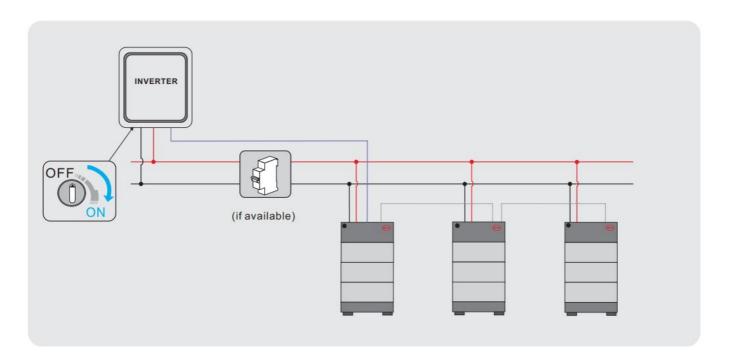




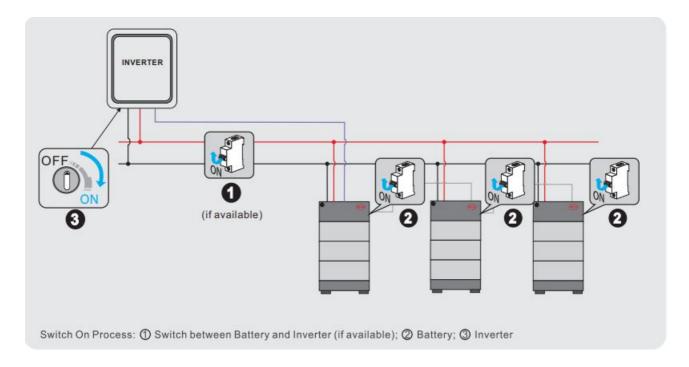




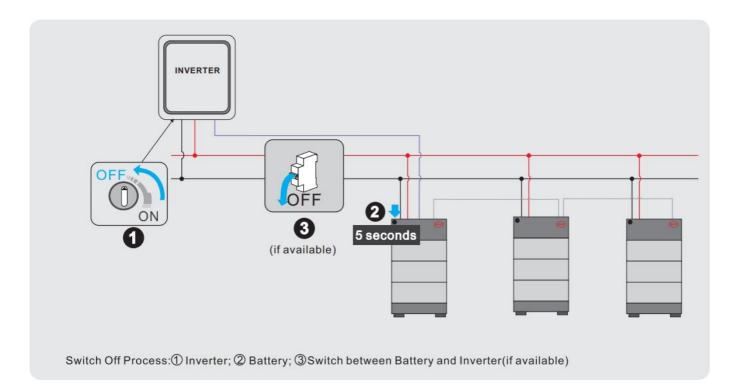
Switch on the Inverte



Operation



Switch off Orde



Extension

New Battery SOC≈30%	Original Battery SOC≈30%	•	
			Be Connect 2.0

LED Status

Flashing white and blue alternatively	White ON OFF Blue ON OFF		The battery system is initiating.
Static white	White ON OFF Blue ON OFF		Idle (the battery system is neither charging nor discharging).
Flashing white slowly	White O ON OFF Blue O ON OFF	28 25 25	- The battery system is charging. -
Flashing white quickly	White ON OFF Blue ON OFF	1S 1S	The battery system is discharging.
Flashing white and glowing blue	White O ON OFF Blue O OFF	The and th	battery system is discharging, ne SOC of Battery-Box is below 15%.
Flashing white and blue	White O ON OFF Blue O ON OFF	18	An event message has occurred (refer to service guideline and checklist for further details)

Contact

WIFI name, password and serial number

Documents / Resources



BYD HVS 5.1 Premium HVS 5.1 Battery Storage [pdf] User Guide HVS 5.1, 7.7, 10.2, 12.8, HVM 8.3, 11.0, 13.8, 16.6, 19.3, 22.1, HVS 5.1 Premium HVS 5.1 Battery Storage, HVS 5.1, Premium HVS 5.1 Battery Storage, Battery Storage, Storage

References

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Manuals+,