HANCHU ESS

Version 01

Installation Guide

CESS-418K-S

Smart Energy,

Sustainable Solutions

Contents

1 Installation of Equipment

Industrial and commercial storage 418kWh outdoor energy storage cabinet (size: 1250*1350*2335mm; weight: 3400kg).

2 Installation Site Selection

Re-siting is recommended when the site cannot be safely spaced to meet the relevant state standards. Site selection should avoid scenarios that are not recommended by industry standards and regulations, including, but not limited to, the following areas, sites and places:

- Strong vibrations, strong noise sources and strong electromagnetic field interference areas;
- Places that generate or have dust, fumes, harmful gases, corrosive gases, etc;
- Sites where corrosive, flammable, or explosive substances are produced or stored, within the blast hazard;
- Places where underground facilities are already in place, densely populated places, high-rise buildings, underground buildings;
- Undesirable geologic conditions such as rubbery and weak soils, ground prone to waterlogging and subsidence;
- Within the boundaries of a mining trap (staggered) area ; areas likely to be flooded after dam or levee breaches;
- Earthquake faults and seismic zones with an intensity of defense higher than nine degrees, with mudslides, landslides, quicksand, caves and other direct hazards;
- Important sanitary protection areas for water supply sources;
- Historic Monuments and Sites Conservation Area;
- The site should be located outdoors, as far as possible away from offices and dense crowds, and with no hazardous chemical warehouses within 20 meters;
- As close as possible to the power distribution room, the furthest distance from the power distribution room should not exceed 100 meters, to facilitate the cable arrangement.
- If there is no more suitable site, it is recommended to install a firewall with a fire resistance of not less than 3h for safety protection, and at the same time to consider the space requirements for transportation, installation and maintenance of the equipment, it is recommended to refer to T/CEC 373-2020: the length and height of the firewall should be beyond the outer contour of the energy storage cabinet by 1 meter each.

3 Equipment and Tools Required for Installation

Table 1 List of Installation Tools for Individual Units

No.	Name(of a thing)	Specification	Quantities	Unit(of a thing)	Note
1	Forklift trucks	5t	1	Unit	
2	Drilling apparatus	14mm and 16mm drill bits	1	Piece	
3	Expansion bolt	M12×80	8	Piece	Keep
4	Tape rule	3 meters	1	Piece	
5	Screwdriver Set	Φ6 and Φ8 crosses should be included	1	Set	Torque 12NM
6	A tube for wrapping	Includes Φ5 to Φ30	1	Set	Torque 12NM
7	Allen key	Need to include 7mm	1	Set	Torque 12NM
8	Multimeter	2000V	1	Unit	
9	.....				

4 Pre-installation Inspection

4.1 Mechanical Installation

- After making sure that there is no abnormality in the product and all accessories are complete, you can refer to the following suggestions for mechanical installation;
- Select the equipment installation location in advance according to the product dimensions, complete positioning and fixing, and the recommended foundation is as shown in Figure 1;

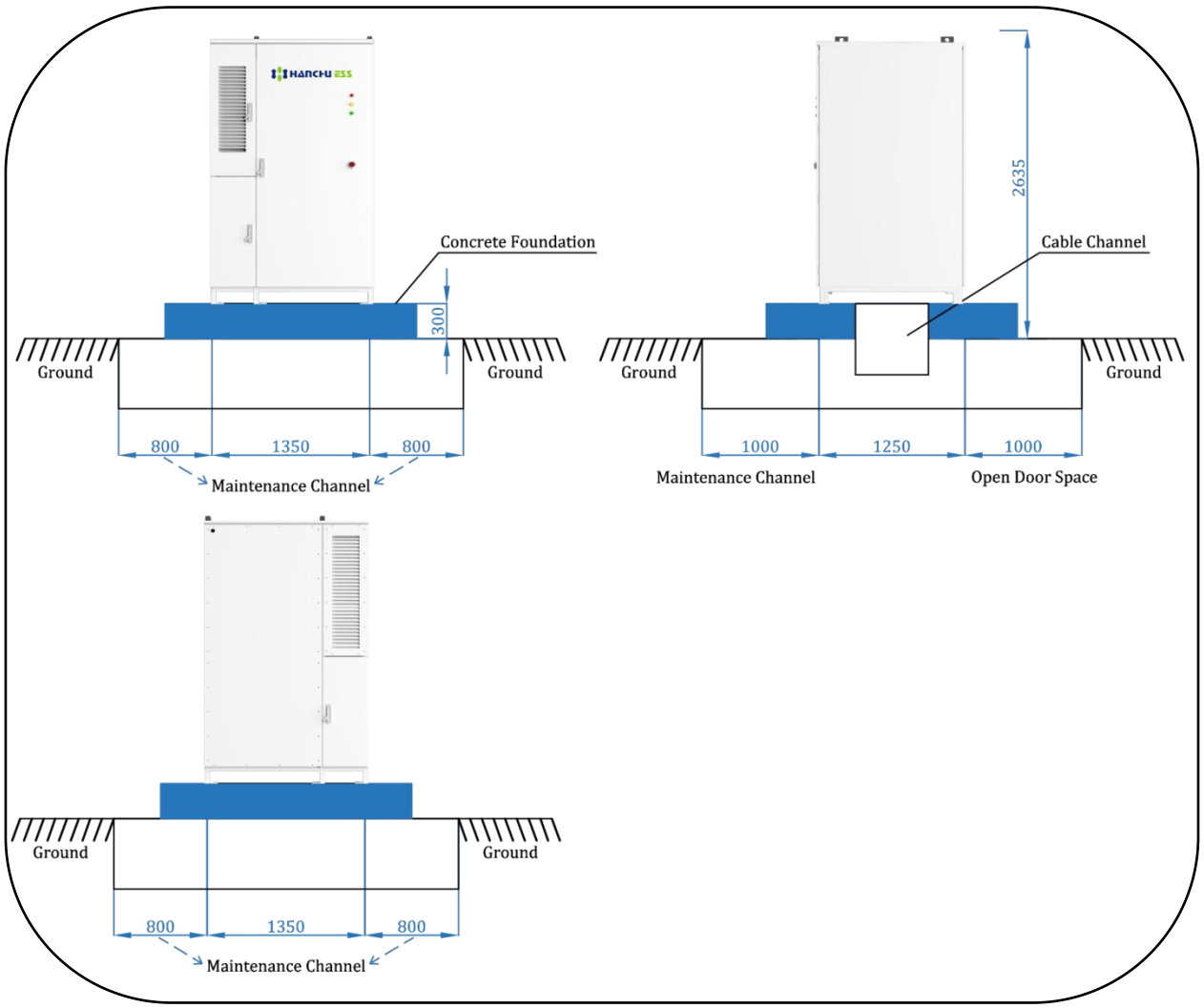

Figure 1 Equipment installation in place

- Depending on the weight of the equipment, the characteristic value of the foundation bearing capacity is not lower than the design value;
- In order to prevent rainwater from entering, it is recommended that the product be installed on top of an elevated concrete platform, the height of which is recommended to be 300-400mm and higher than the local historical highest flood level.
- The ground must be level with no significant elevations or potholes to provide a stable foundation;
- The size of the site should meet the area requirements of the equipment itself, with room for possible future expansion.

4.2 Electrical Safety

- Prior to installation, it is necessary to understand local electrical regulations and circuit controls to ensure that the power conditions meet the equipment's operating requirements;
- The power supply should maintain stability and safety, and the circuit wiring should be correct to avoid short circuit, leakage and other safety hazards;
- The installation of energy storage equipment must be in accordance with the installation instructions or relevant standards for standardized operation to ensure that the quality of the installation meets the standard requirements;
- The installation site should have grounding, lightning protection and anti-static treatment to minimize equipment damage.

5 Installation of Equipment in Place

5.1 Product handling

- When using a forklift to move, ensure that the forklift has sufficient load capacity, and note that the center of gravity of the equipment needs to fall between the feet of the forklift, to prevent personal injury and equipment damage, as shown in the following Schematic Diagram;

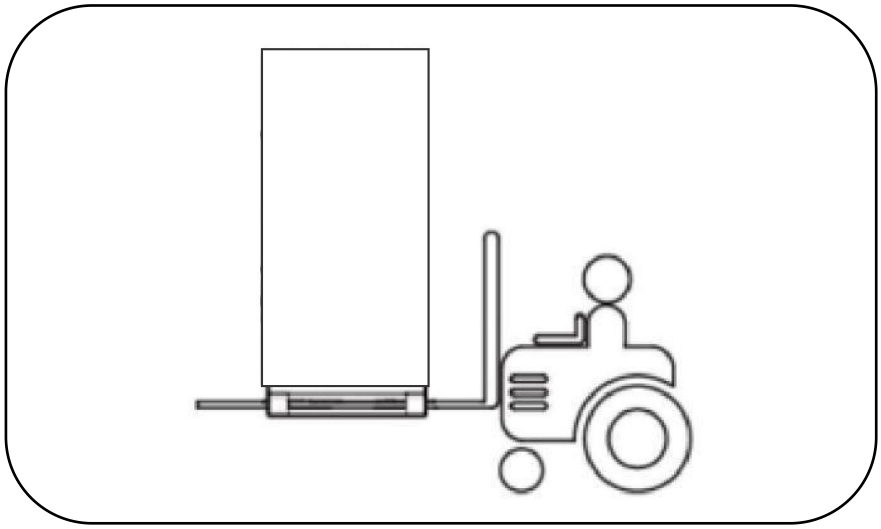

Figure 2 Equipment Handling Schematic

- With battery transfer, forklift truck loading capacity needs to be ⩾4t; without battery transfer, forklift truck loading capacity needs to be ⩾2t;
- Recommended fork knife length ⩾1.5m, width 80cm~160cm, thickness 25cm~70cm;
- Avoid vibration and collision during loading and unloading to protect the equipment intact.

5.2 Cabinet fixing methods

Expansion bolts of M12 × 80 are used on site to fix and install the equipment, and the bolt position dimensions are as follows:

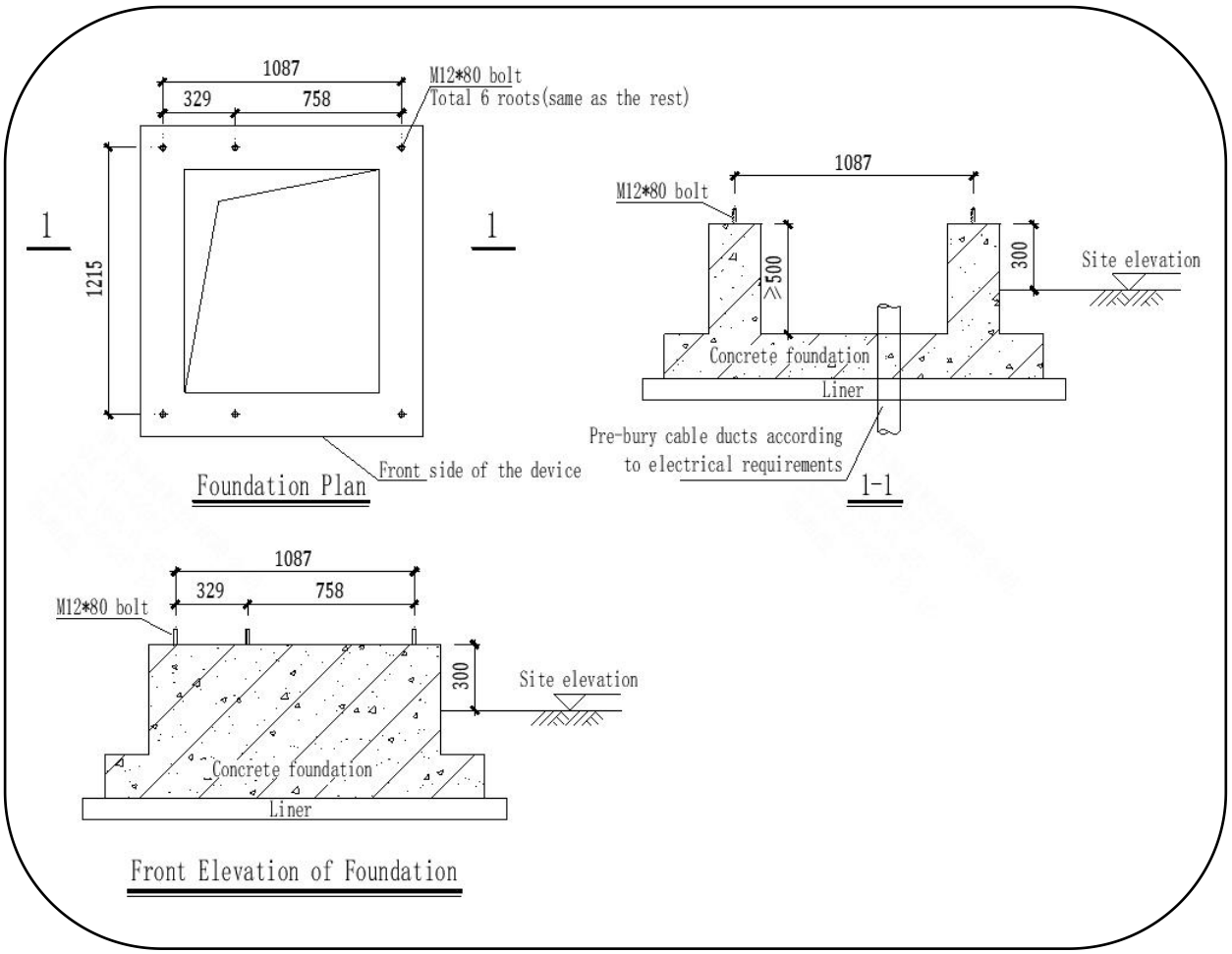

Figure 3 Schematic diagram of equipment mounting holes

6 Equipment Grounding

Grounding requirements: The grounding points shall be reliable, ensuring that each cabinet has two grounding points and the grounding resistance is less than 4Ω;

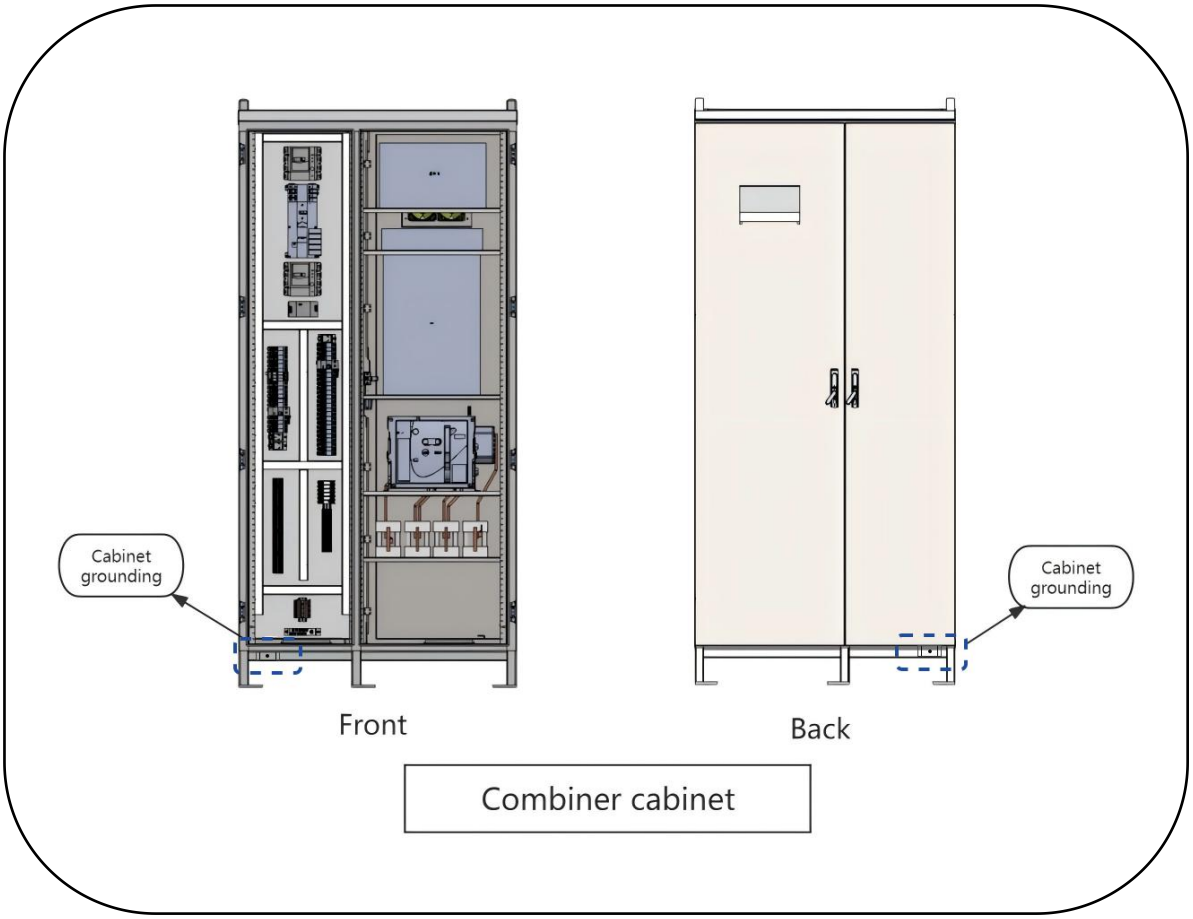

Figure 4 Equipment grounding schematic

7 Inter-cabinet Cable Connections

7.1 Description of Equipment Terminal Blocks

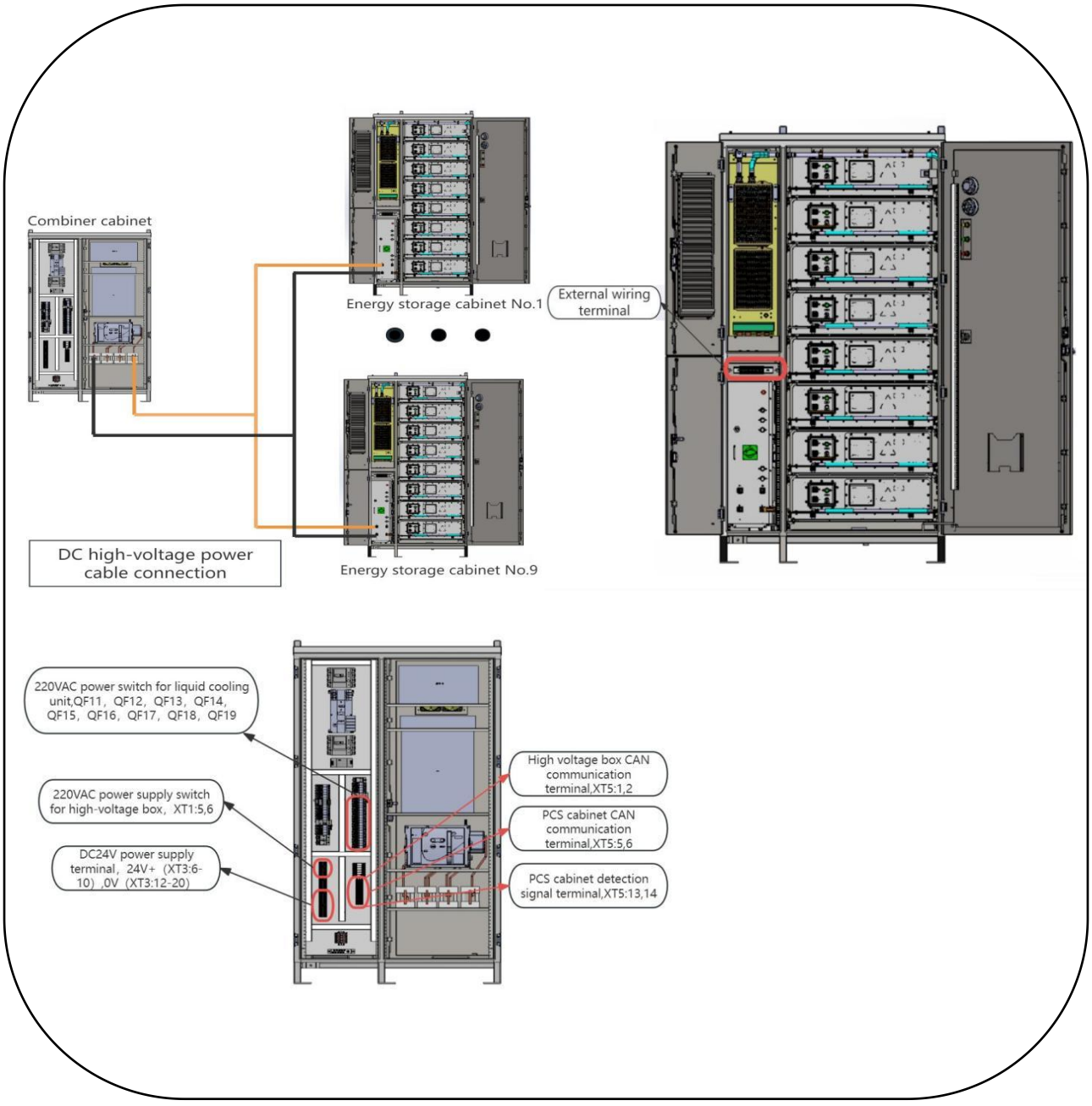

Figure 5 Schematic diagram of device wiring terminals

Table 2 Inter-cabinet cable connection table

Master-Slave Connection Cables

Serial number			5		
Use	Cable Specification	Terminals	Starting Equipment	Terminals	Terminal equipment
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#1 Battery cabinet	Positive copper row	Converging cabinet
		High Pressure Box P-Interface		Negative copper row	
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#2 Battery cabinets	Positive copper row	Converging cabinet
		High Pressure Box P-Interface		Negative copper row	
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#3 Battery cabinets	Positive copper row	Converging cabinet
		High Pressure Box P-Interface		Negative copper row	
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#4 Battery cabinets	Positive copper row	Converging cabinet
		High Pressure Box P-Interface		Negative copper row	
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#5 Battery Cabinet	Positive copper row	Converging cabinet
		High Pressure Box P-Interface		Negative copper row	
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#6 Battery cabinets	Positive copper row	Converging cabinet
		High Pressure Box P-Interface		Negative copper row	
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#7 Battery Cabinet	Positive copper row	Converging cabinet
		High Pressure Box P-Interface		Negative copper row	
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#8 Battery Cabinet	Positive copper row	Converging cabinet

		High Pressure Box P-Interface		Negative copper row	
Primary power line	2 × ES-H15Z-F 70MM² 1500V	High Voltage Box P+ Interface	#9 Battery Cabinet	Positive copper row	Converging cabinet
		High Pressure Box P-Interface		Negative copper row	
Copper nose for wiring			SC-70-8		
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#1 Battery cabinet	QF11:2,4	Converging cabinet
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#2 Battery cabinets	QF11:2,4	Converging cabinet
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#3 Battery cabinets	QF11:2,4	Converging cabinet
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#4 Battery cabinets	QF11:2,4	Converging cabinet
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#5 Battery Cabinet	QF11:2,4	Converging cabinet
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#6 Battery cabinets	QF11:2,4	Converging cabinet
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#7 Battery Cabinet	QF11:2,4	Converging cabinet
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#8 Battery Cabinet	QF11:2,4	Converging cabinet
AC220V cable	zra-bv-0.45/0.75kv-2×6	TB1: 1,2	#9 Battery Cabinet	QF11:2,4	Converging cabinet
copper nose for wiring			SC-6-8		
24V Power Cable	ZRA-BV-0.45/0.75kV-2×1.5	TB2: 1,2	#1 Battery cabinet	24+	Converging cabinet
				24-	
24V Power Cable	ZRA-BV-0.45/0.75kV-2×1.5	TB2: 1,2	#2 Battery cabinets	24+	Converging cabinet
				24-	
24V Power Cable	ZRA-BV-0.45/0.75kV-2×1.5	TB2: 1,2	#3 Battery cabinets	24+	Converging cabinet
				24-	
24V Power	ZRA-BV-0.45/0.	TB2: 1,2	#4 Battery	24+	Converging

Cable	75kV-2×1.5		cabinets	24-	cabinet
24V Power Cable	ZRA-BV-0.45/0.75kV-2×1.5	TB2: 1,2	#5 Battery Cabinet	24+	Converging cabinet
				24-	
24V Power Cable	ZRA-BV-0.45/0.75kV-2×1.5	TB2: 1,2	#6 Battery cabinets	24+	Converging cabinet
				24-	
24V Power Cable	ZRA-BV-0.45/0.75kV-2×1.5	TB2: 1,2	#7 Battery Cabinet	24+	Converging cabinet
				24-	
24V Power Cable	ZRA-BV-0.45/0.75kV-2×1.5	TB2: 1,2	#8 Battery Cabinet	24+	Converging cabinet
				24-	
24V Power Cable	ZRA-BV-0.45/0.75kV-2×1.5	TB2: 1,2	#9 Battery Cabinet	24+	Converging cabinet
				24-	
Wiring terminal			VE1510		
Fire Protection	zr-rvs-2*1.0-kbg 20	Fire Alarm Controller B1,B2	Converging cabinet	TB3:11,14	#1 Battery cabinet
Fire Protection	zr-rvs-2*1.0-kbg 20	TB3:12,15	#1 Battery cabinet	TB3:11,14	#2 Battery cabinets
Fire Protection	zr-rvs-2*1.0-kbg 20	TB3:12,15	#2 Battery cabinets	TB3:11,14	#3 Battery cabinets
Fire Protection	zr-rvs-2*1.0-kbg 20	TB3:12,15	#3 Battery cabinets	TB3:11,14	#4 Battery cabinets
Fire Protection	zr-rvs-2*1.0-kbg 20	TB3:12,15	#4 Battery cabinets	TB3:11,14	#5 Battery Cabinet
Fire Protection	zr-rvs-2*1.0-kbg 20	TB3:12,15	#5 Battery Cabinet	TB3:11,14	#6 Battery cabinets
Fire Protection	zr-rvs-2*1.0-kbg 20	TB3:12,15	#6 Battery cabinets	TB3:11,14	#7 Battery Cabinet
Fire Protection	zr-rvs-2*1.0-kbg 20	TB3:12,15	#7 Battery Cabinet	TB3:11,14	#8 Battery Cabinet
Fire Protection	zr-rvs-2*1.0-kbg 20	TB3:12,15	#8 Battery Cabinet	TB3:11,14	#9 Battery Cabinet

BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	XT5:1,2	Converging cabinet	TB4:5,7	#1 Battery cabinet
BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	TB4:6,8	#1 Battery cabinet	TB4:5,7	#2 Battery cabinets
BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	TB4:6,8	#2 Battery cabinets	TB4:5,7	#3 Battery cabinets
BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	TB4:6,8	#3 Battery cabinets	TB4:5,7	#4 Battery cabinets
BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	TB4:6,8	#4 Battery cabinets	TB4:5,7	#5 Battery Cabinet
BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	TB4:6,8	#5 Battery Cabinet	TB4:5,7	#6 Battery cabinets
BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	TB4:6,8	#6 Battery cabinets	TB4:5,7	#7 Battery Cabinet
BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	TB4:6,8	#7 Battery Cabinet	TB4:5,7	#8 Battery Cabinet
BMS-CAN communication	zr-kvvp2-22-0.45/0.75kv-2*1.5	TB4:6,8	#8 Battery Cabinet	TB4:5,7	#9 Battery Cabinet
BMS-220 Power Supply	ZRA-BV-0.45/0.75kV-2×1.5	XT1:5,6	Converging cabinet	TB1:4,6	#1 Battery cabinet
BMS-220 Power Supply	ZRA-BV-0.45/0.75kV-2×1.5	XT1:5,6	#1 Battery cabinet	TB1:4,6	#2 Battery cabinets
BMS-220 Power Supply	ZRA-BV-0.45/0.75kV-2×1.5	XT1:5,6	#2 Battery cabinets	TB1:4,6	#3 Battery cabinets
BMS-220	ZRA-BV-0.45/0.	XT1:5,6	#3 Battery	TB1:4,6	#4 Battery

Power Supply	75kV-2×1.5		cabinets		cabinets
BMS-220 Power Supply	ZRA-BV-0.45/0.75kV-2×1.5	XT1:5,6	#4 Battery cabinets	TB1:4,6	#5 Battery Cabinet
11BMS-220 Power Supply	ZRA-BV-0.45/0.75kV-2×1.5	XT1:5,6	#5 Battery Cabinet	TB1:4,6	#6 Battery cabinets
BMS-220 Power Supply	ZRA-BV-0.45/0.75kV-2×1.5	XT1:5,6	#6 Battery cabinets	TB1:4,6	#7 Battery Cabinet
BMS-220 Power Supply	ZRA-BV-0.45/0.75kV-2×1.5	XT1:5,6	#7 Battery Cabinet	TB1:4,6	#8 Battery Cabinet
BMS-220 Power Supply	ZRA-BV-0.45/0.75kV-2×1.5	XT1:5,6	#8 Battery Cabinet	TB1:4,6	#9 Battery Cabinet
Wiring terminal			VE7508		

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Jiangsu Hanchu Energy Technology Co., Ltd

No.9, Huicheng Road, Huishan District, Wuxi City, Jiangsu Province, China

Hotline:+86-51088876668/+86-51088865288

Email:service@hanchuess.com

Web:www.hanchuess.com