



314Ah Outdoor Liquid Cooling Rack Product Specifications

ProductName: BSM125-471

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Acronyms and Abbreviations	
ACAN	CAN between BMU and HCU
BMU	Battery Management Unit
BMS	Battery Management System
BOL	Begin of Life
CAN	ControllerArea Network
CCAN	CAN between BMU and CSC
CSC	Cell Supervision Circuit
CSU	CSU
DCAN	CAN for calibration
EOL	End of Life
ETH	Ethernet Module
MSD	Manual Switch Disconnecter
SBMU	Slave Battery Management Unit
SCAN	CAN between BMU and CSU
SOC	State of Charge
SOE	State Of Energy
SOH	State of Health
SOP	State Of Power

Table 1 Acronyms and Abbreviations

1 .Product Description

Battery rack consists of 8 battery modules and one control box, chiller, fire protection, etc. Battery cell is the most basic battery unit. BMS is composed of CSC and SBMU. BMS gathers status data from cell, module and rack, and exchange information with other components.

Battery module consists of 1P13S Battery Cell and one CSC. Control Box responses for controlling the main power line.



Figure 1 battery rack

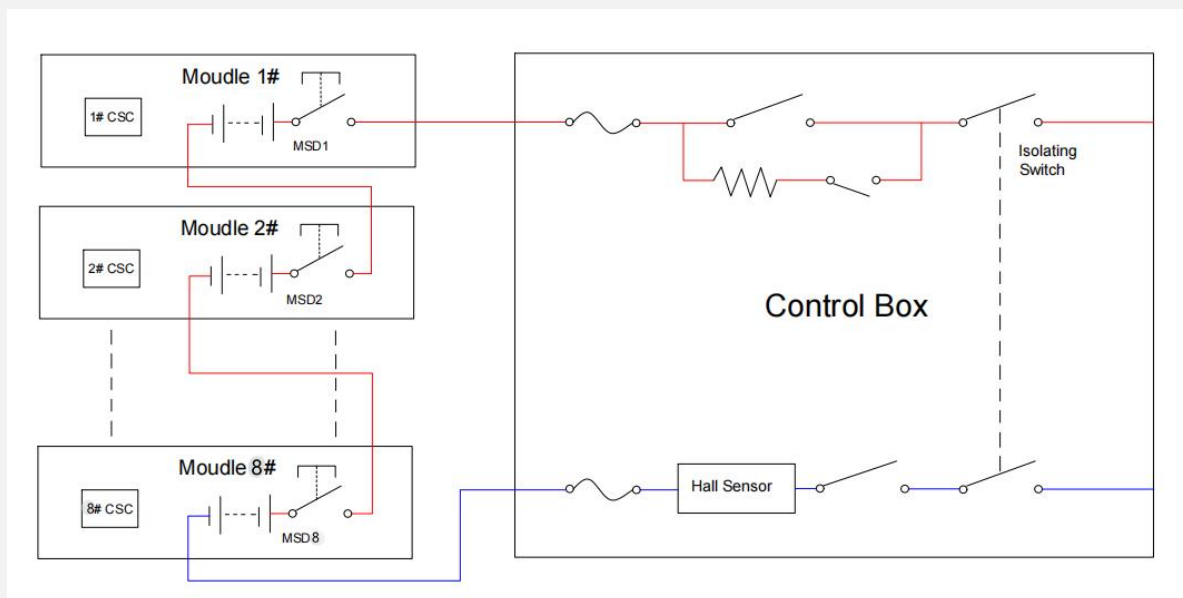


Figure 2 Battery rack system

1.1 Constituent Parts

Components	Number	Remark
Rack Frame	1	1700mm(L)*1320mm(W)*2371mm(H)
Battery Modules	8	With CSC
Control Box	1	1500V 350A
Chiller	1	5KW
Fire protection	1	Including smoke detector, heat detector and aerosol

Table 2 Components of Battery Rack

1.2 Appearance

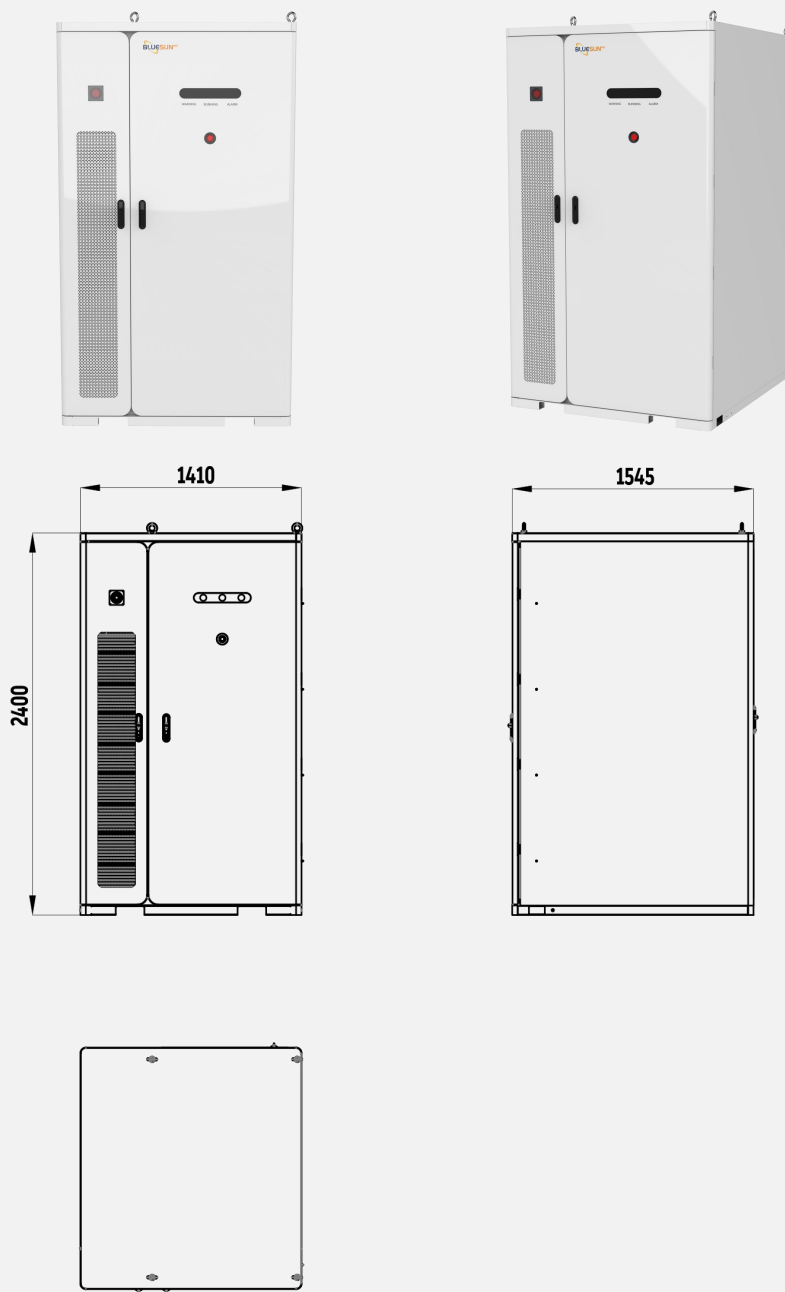


Table 2 Size of Battery Rack

2 .Product Specification

Battery Rack			
NO	Item		Specification
1	Configuration		1P8S
2	Rated Energy		417.9kWh
3	Rated Voltage		1331.2VDC
4	Voltage Range		1164.8~1497.6VDC
5	Charging Current	Rated	150A
		Maximum	300A
6	Discharging Current	Rated	150A
		Maximum	300A
7	Operating Ambient Temperature	Charge	0~50℃
		Discharge	-10~50℃
8	General Parameters	Size	1410mm(L)*1545mm(W) *2400mm(H)
		Weight	3.2T
		IP Level	IP66
		Cooling mode	Liquid Cooling
		Communication agreement	CAN
		Power connection	Fast Plug
		Communication connection	Fast Plug
		AUX Power connection	Fast Plug
		Coolant	50% Ethylene glycol aqueous solution
9	Standard requirement	cell	UN38.3/CE
		rack	IEC61000-6-3

Table 3 Battery Rack Characteristics

3 .Electrical Interface

3.1 Control Box Interface

The panel diagram of control box is shown as figure 3:



Figure 3 Control box panel

NO	Connector	Definition	Connector information
1	COM1	TO INVERTER	IES-WPC-06110SA000
2	COM2	TO Battery	IES-WPC-06110SA000
3	COM3		IES-WPC-06110SA000
4	B+	Positive Input	C-ES-FTB-IP20-120\BK
5	B-	Negative Input	C-ES-FTB-IP20-120\OG
6	P+	Positive Output	C-ES-FTB-IP20-120\BK
7	P-	Negative Output	C-ES-FTB-IP20-120\OG

8	QS	To connect and cut off the power supply of control system	NDM3Z-320VZ/3300 320A CS1-A
9	ON/OFF	To cut off the output of battery system	Nonstick button\Φ16 mm

Table4 Information of the control box

3.2 Battery Interface

The panel diagram of battery is shown as figure 4:

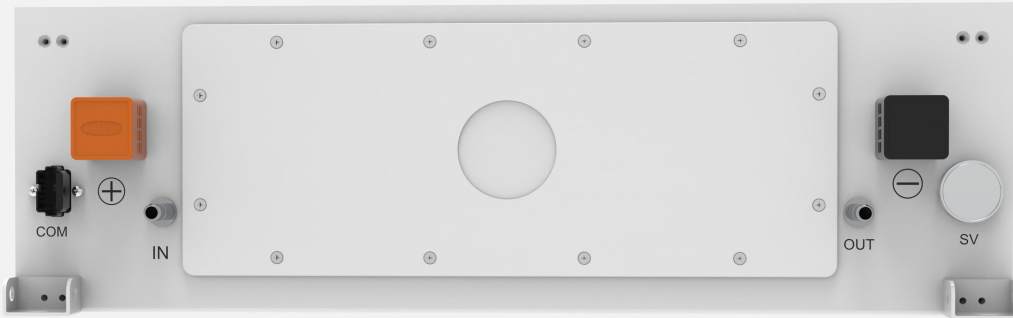


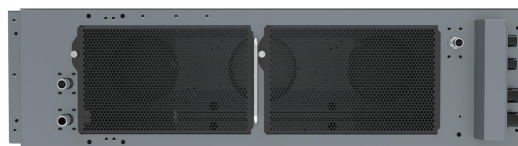
Figure 4 Battery panel

NO	Connector	Definition	Connector information
1	B+	Positive Output	Magic-β
2	B-	Negative Output	Magic-β
3	SV	Safety Valve	VE-P708-00-KS1
4	COM	Communication between battery cells	AT04-12PA-PM05

Table5 Information of the battery

地址：安徽省合肥市蜀山区小庙工业园区 address: XiaoMiao Industrial Park, ShuShan District, 230031 Hefei, China

3.3 Chiller



Specification		5KW
Environmental protection & performance		
1	Work temperature range(°C)	-30~+55
2	Storage environment range(°C)	-40~+70
3	Noise grade(dBA)	75
Cooling/heating capacity		
4	Refrigerating capacity@L35/W18	8.0
5	Heating capacity@Tu=10(°C)	2.0
6	outlet water temperature(°C)	18
Data setting		
7	Liquid temperature setting range(°C)	10~35
8	Default cooling setting temperature	18
9	Default heating setting temperature	15
10	Communication protocol	RS485/CAN
Consumed power		
11	Refrigeration input power@L35/W18(KW)	4.3
12	Heating input power@Tu=10°C(KW)	2.7
13	Self-circulating model (single pump operation) power	0.5
14	Maximum power consumption	5.0

3.4 EMS

3.4.1 Function parameter



Bluesun G700 EMS is an innovative energy management product that integrates energy storage BMS and EMS system for energy storage scenarios developed by Udan Technology.

The module uses an 800MHz CPU, 512MB DDR3 memory on board, and 4GB eMMC storage. With rich functional interfaces,

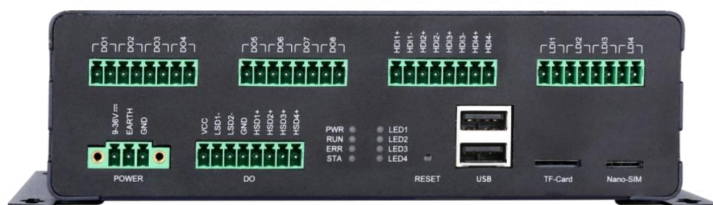
With battery stack management, energy management, equipment management, data management and other functions, can meet the real-time monitoring of energy storage power station, diagnosis and early warning, panoramic points Analysis, advanced control and other needs to ensure the safe, reliable and stable operation of the power station.

Function parameter

Item	Main parameter	
Work temperature	650~950 (3W+N+PE)	
Work humidity	680~950 (3W+N+PE)	
Work voltage	1	
Rated power	203	
Processor	800MHZ Main frequency processor	
Internal storage	DDR3 412MB	
Storage	eMMC 4GB	
Watch dog	Onboard independent hardware watchdog	
Hardware interface	Quantity	Remark
Ethernet	2	10/100Mbps
USB	2	Host
CAN-bus	3	Isolation
RS485	4	Isolation

RS232	1	Testing port
TF card	1	Standard TF
LVDS	1	DVI
ADC	4	0-20mA, 0-10V, accuracy 1%,sample rate 40SPS
DI	8	Opto-isolator
DO	8	Relay isolation
DOH	4	Isolated high side drive 2.5A
DOL	2	Isolated low side drive 2.5A
Super-capacitor	1	Power off endurance 5s
LED director	8	4 ways to edit

3.4.2 Interface definition



NO	Port	Terminal socket	Specification
1	Power	Power terminal socket	3.81-03P
2	DO	High and low side drive interface	3.5-8P
3	LED	Indicator light	Power/run/fault/STA
4	RESET	Touch button	Reset
5	USB1/USB2	USB double-deck socket	USB2.0*2
6	TF-Card	TF card socket	Standard
7	Nano-SIM	SIM card socket	Nano-SIM
8	DO(Mechanical relay/passive)	Isolated DO interface	3.5-08P
9	DO(Solid state relay/Passive)	Isolated DO interface	3.5-08P
10	DI(High level detection/passive)	Isolated DI interface	3.5-08P
11	DI(low level detection/active)	Isolated DI interface	3.5-08P



NO	Port	Terminal socket	Specification
1	ANT	Antenna	SMA
2	COM	Debugging serial port	DB9
3	LVDS	LVDS screen port	DVI
4	NET1	100 megabit network port	RJ45
5	NET2	100 megabit network port	RJ45
6	ADC	Isolated ADC interface	3.5-08P
7	RS485	Isolated RS485 interface	3.81-12P
8	CAN-BUS	Isolated CAN-BUS interface	3.81-12P

3.4.3 EMS platform introduction

3.4.3.1 Log in

Input platform - the browser address: <https://www.iesscloud.com/#!/> can enter the login page (it is recommended to use chrome), enter the corresponding user name and password to log in.

Testing account: BS@test.com

Password: 123456

To create a new account, the platform administrator needs to add it in [System Management] -- [Account Settings]

智慧储能云平台

Intelligent Energy Storage Cloud Platform

Login

English

Please enter your login email and password

* Account

BS@test.com

* Password

☒ Remember the password

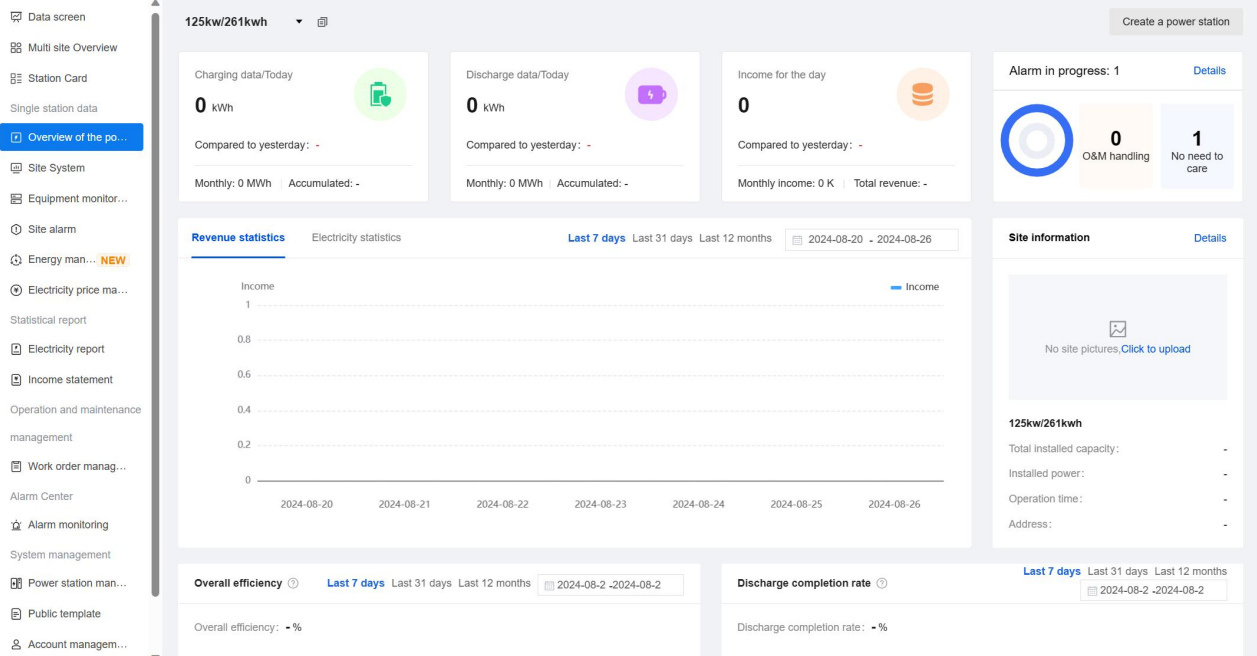
☒ I have read and agree to the [Privacy Agreement](#)

Login

3.4.3.2 Multi-station overview

EMS Cloud Platform

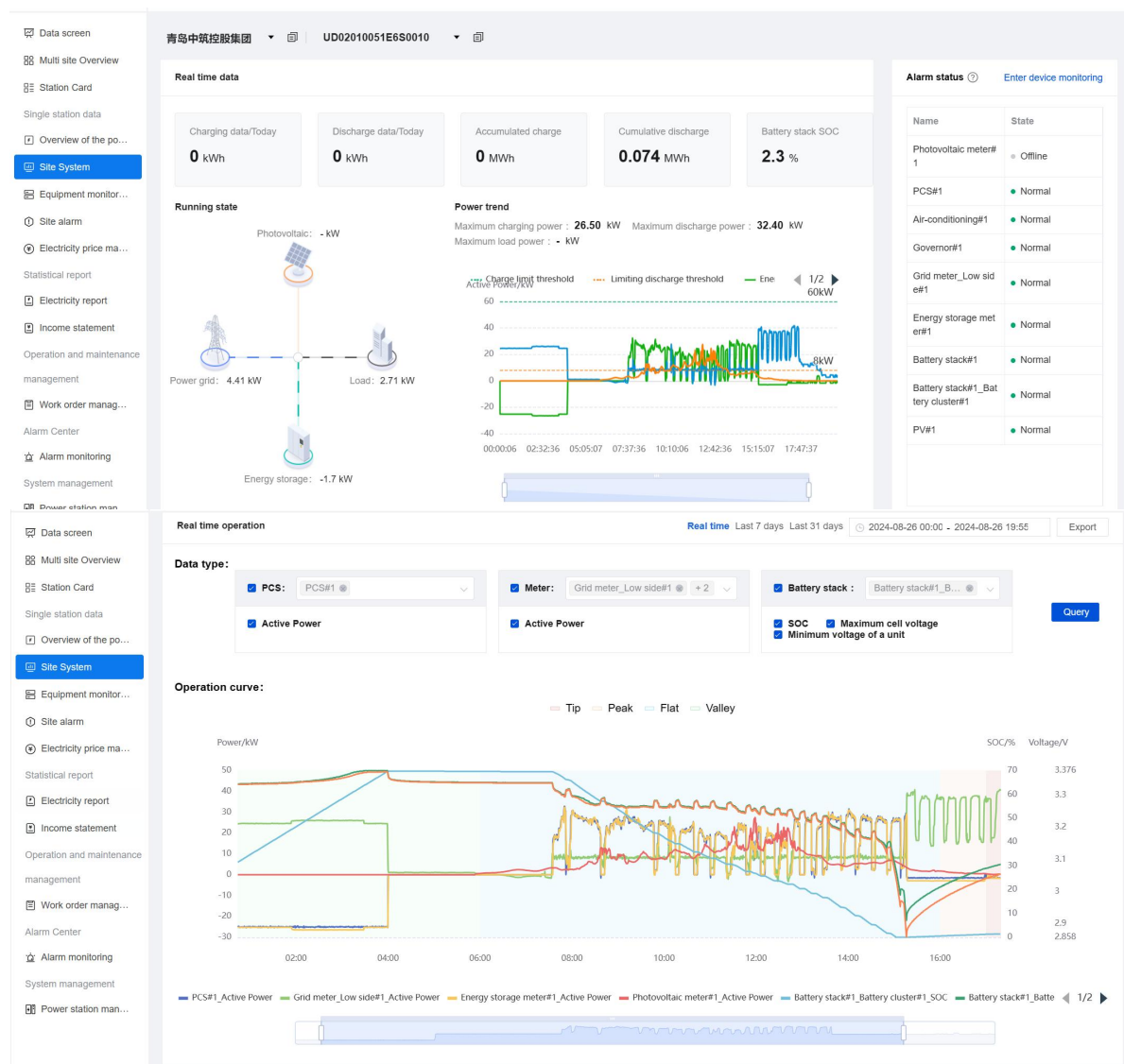
English 戴家伟



3.4.3.3 Site system

The site system displays the real-time data overview, energy flow chart, power data trend, alarm status, real-time device running trend, and real-time power income of the system in the cloud platform in card mode.

- Support to switch sites and systems on the current page.
- Support "Energy management" operations for individual systems on the current page.
- Real-time electricity revenue update revenue data on an hourly basis.
- Live Run - The data type filters the items displayed in the Run Curve according to the option.



3	SV	Safety Valve	VE-P708-00-KS1
4	COM	Communication between battery cells	AT04-12PA-PM05

Table5 Information of the battery

3.5 Communication Protocol

Adopt BlueSun standard communication protocol.

BMS information can be referenced in BMS specification.

4 .Fire protection system

4.1 Structural design

The fire protection system consists of rack-type temperature sensing automatic fire extinguishing device, combustible gas composite detector, flame retardant pipe, nozzle, selection valve, etc , Composition, rack-mounted temperature sensing automatic fire extinguishing device is pre-set according to preset conditions such as perfluorohexanone storage containers and spray componentsCount, assemble a complete set of self-starting fire extinguishing devices with linkage control function, and store 3 kg of perfluorohexanone in a container to extinguish the fire Dose.

Each battery module is equipped with a combustible gas composite detector and nozzle, which is connected to the rack-type temperature sensing automatic fire extinguishing device through a flame retardant pipe, and the characteristic changes of the battery in different stages of thermal runaway are analyzed and logically judged through the composite algorithm, so as to realize the monitoring of the early state of the battery thermal runaway, and carry out complete immersion release for the thermal runaway battery pack, rapid cooling and local suffocation, block the further reaction of the thermal runaway battery, and achieve the "inerting" effect, so that the inside of the battery, The reaction between the batteries is quickly relieved, so as to effectively extinguish the fire and solve the problem of thermal propagation of the battery.

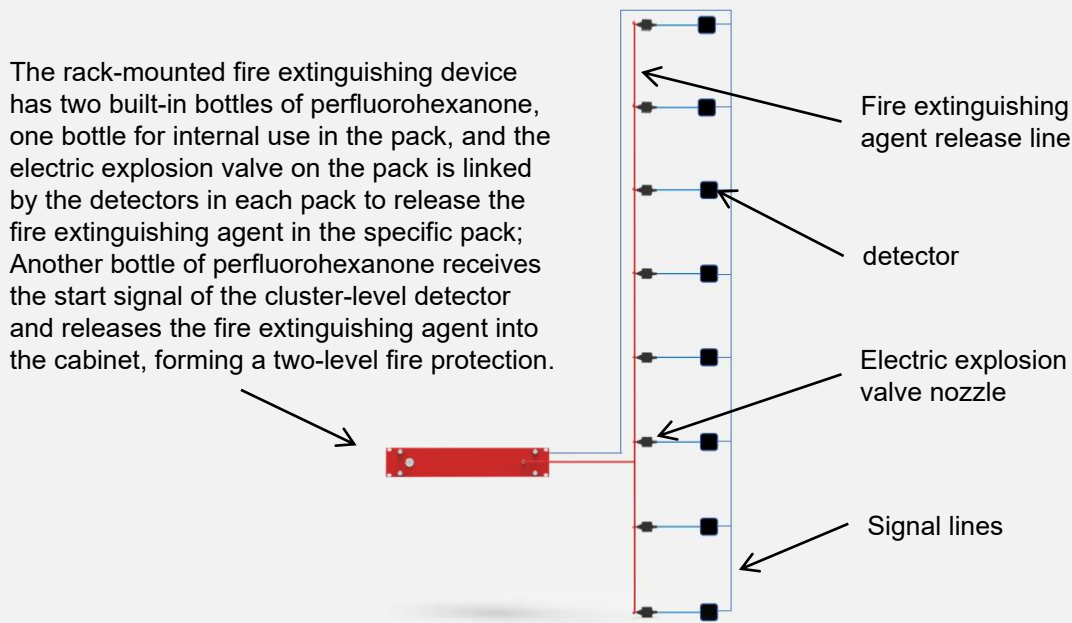


Figure 4 Fire protection system layout

4.2 Technology comparison

Among them, the WZ-1230-3/1.6-2U rack-type temperature sensing automatic fire extinguishing device used in this device is a self-starting fire extinguishing device with linkage control function that is pre-designed, assembled and equipped with perfluorohexanone storage containers and spray components according to preset conditions, the device adopts a patented non-pressure storage design, there is no pressure inside the device during normal operation, and after receiving the alarm start signal, the driving device is instantly started to generate pressure and drive the release of fire extinguishing agent.

This non-storage pressure extinguishing device offers the following advantages:

Project comparison	Non-storage technology	Pressure storage technology products
security	High safety margin with no possibility of explosion	The safety margin is low, and it is easy to overpressure at high temperatures
Storability	Non-storage pressure, no leakage	Nitrile rubber ring is used, which is easy to age and leak.
Maintainability	Truly 8 years maintenance-free	Daily inspection and frequent maintenance
Responsiveness	Respond within 1s and start spraying	Fast response

The rack-type temperature sensing automatic fire extinguishing device is installed on the upper side of the energy storage battery cabinet, and each battery pack is connected through a flame retardant pipe, and any battery pack is abnormal, and the fire extinguishing concentration is reached in the battery pack after the fire extinguishing agent is released, which can effectively suppress the fire.

