



◎ SAFE

- ★ Top quality lithium iron phosphate battery cells.
- ★ Voltage and temperature are collected for each battery cell for more detailed management.
- ★ 2-stage BMS design for modules and battery clusters, with multiple status monitoring and hierarchical linkage.

◎ INTELLIGENT

- ★ Intelligent air-cooled design for long system life and smooth operation.
- ★ In the event of a power outage, the energy storage system switches to an off-grid system within 20ms and continues to supply power to the loads.
- ★ Integrated energy billing components, anti-reverse flow components, dynamic real-time monitoring, data summarization.
- ★ Cloud platform online operation and maintenance, convenient function parameter settings, remote monitoring and maintenance, intelligent and worry-free.

◎ CONVENIENCE

- ★ Modular design for easy maintenance and installation
- ★ All-in-one design for rapid deployment and on-the-go use

◎ EFFICIENT

- ★ 20kW PCS + 100kWh battery, efficient charging and discharging.
- ★ Covering an area of 0.96 square meters, small size, installation more space-saving.
- ★ Split design, pcs in a separate compartment, low power consumption, more balanced heat dissipation.
- ★ Three-level control technology for high efficiency and power quality.



20kW-107.52kWh
OUTDOOR AIR-COOLED LITHIUM
BATTERY ENERGY STORAGE SYSTEM



20kW-107.52kWh

SUMMARIZE

The energy storage system adopts integrated box design, integrating lithium battery storage system, PCS system, EMS, air conditioning system and fire protection system. Professional temperature control design ensures safe, stable and long-term operation of the product.

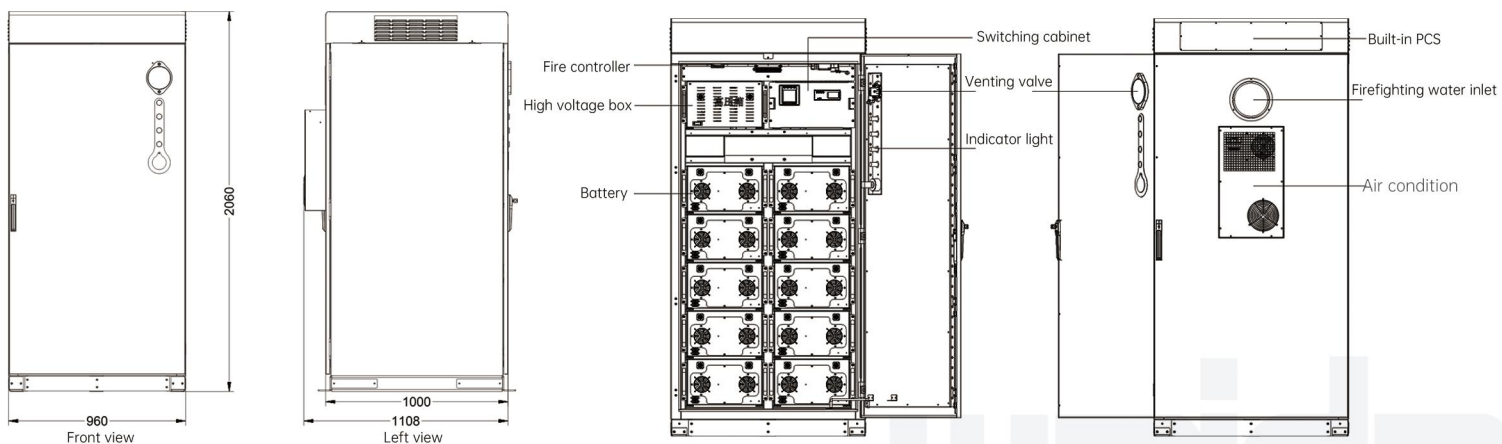
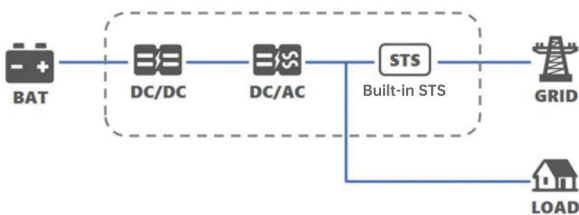
The product has IP54 protection level, mobility, easy lifting and transportation, shorter disassembly cycle, applied to industrial and commercial energy storage, integrated design, intelligent control, whole system monitoring, historical status record and other functions.

CONFIGURATION LIST

Item	Specification	Quantity
Cabinet	960*1000*2060mm (W*D*H) (excluding air-conditioner protruding size) 960*1108*2060mm (W*D*H) (including air-conditioner protruding size)	1
Lithium battery storage system	107.52kWh (384V280Ah)	1
Battery management system	BMS	1
Energy management system	EMS	1
Bidirectional variable flow control system	PCMZ20	1
Air condition	600W	1
Fire-fighting	Perfluorohexanone	1
Billing components	Billing meters + current transformers	1
Anti-backflow components	Anti-reverse current meter + current transformer	1
Auxiliary distribution system		1



SYSTEM TOPOLOGY



*For reference only, subject to actual deliverables

PCS parameters

PCS parameters

PCS parameters		
Battery interface parameters	Voltage range	180 ~ 530Vdc
	Maximum current	70A
	Full load range	300 ~ 530Vdc
Built-in bypass parameters	Input line system	3W+N+PE
	Rating	30kW (Meets 10kW charging while carrying 20kW)
	Allowable Voltage	380 (-20% ~ 10%) Vac
	Rated current	45.5A
PCS AC grid parameters	Tracking frequency	50 (-4.5 ~ 4.5) Hz
	Output line system	3W+N+PE
	Power (output)	20kW
	Allowable voltage	380 (-25% ~ 20%) Vac
	Rated current	30.3A
	Permissible frequency	50 (-2 ~ 2) Hz
AC off-grid parameters	Output harmonics	≤3% (Rated power)
	Output line system	3W+N+PE
	Power (output)	DC300V ~ DC530V Full load 20kW; DC180V ~ DC300V Plan the configuration in advance according to the maximum of 70A on the battery side.
	Rated voltage	Rated voltage 380Vac
	Rated frequency	50Hz
	Rated current	30.3A
	Voltage accuracy	1% (Balanced load test)
	Frequency accuracy	±0.2Hz
Environment	Output voltage harmonics	≤3% Linear full load
	Overload capacity	≤105%: Long-term operation; (105,110] : Running time ≥10min
	Operating temperature	-20°C ~ 75°C (Derating above 55°C)
	Storage temperature	-40°C ~ 70°C
	Relative humidity	0%RH ~ 95%RH, Non-condensing
Communications and management	Working altitude	45°C, 2000m; 2000m ~ 4000m Derated use
	Static (in a signal)	< 70dB
Communications and management	Communications interface	CAN and RS485
	Communication protocols	CAN2.0 / ModBus RTU
	IO interface	Feedback Signal from Service Bypass Circuit Breaker: Normally Closed Contacts EPO:Normally closed contact
	Monitor display interface	Commissioning reserved for
	Query and upgrade interface	Commissioning reserved for

Energy storage parameters

Model grade	20kW/107.52kWh	
Energy storage parameters		
Basic parameters	Energy storage capacity	107.52kWh
	Energy storage configuration	1 x 384V 280AH Lithium battery storage system
	System voltage	384V
	Operating voltage range	DC336V ~ DC438V (2.8V ~ 3.65V)
	Battery type	LFP
	Number of cycles	> 6000 times (100%DOD, 70% Remaining, 0.5C)
	Remaining power at end of year 10	> 75kWh (70%)
Cycle life	Total equipment life cycle	10 years (based on 2 charges and 2 releases per day (300 days per year))
Others	Communication method	CAN/RS485
	Isolation method	Null
	Protection class	IP54
	Cooling method	Air condition
	Fire-fighting	Perfluorohexanone fire extinguishers
	Weight	1450kg
Size	Size	960*1000*2060mm (W*D*H, excluding air-conditioner protruding size) 960*1108*2060mm (W*D*H, including air-conditioner protruding size)

Electric Cells

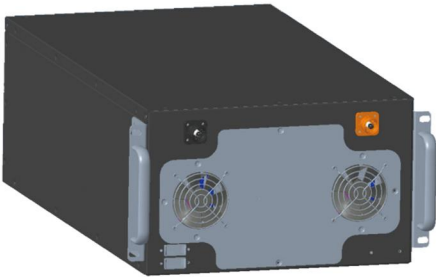
Adopting 3.2V 280Ah single cell, the cells are designed with square aluminum shells, which avoids the possibility of the surface of the cells being damaged by machinery and resulting in the internal damage of the cells, and improves the safety performance of the product. A film-shaped explosion-proof valve is installed on all the battery cells, which also ensures that under any extreme conditions (such as internal short circuit, battery overcharge and overdischarge, etc.), a large amount of gases rapidly gathered inside the battery cells can be discharged through the riot valve, which can ensure that the battery cells will not explode, so the selection and design of the battery cells have been made with full consideration of the safety of the battery cells and the system.

Item	Parameters	Prerequisite
Cell type	Lithium iron phosphate cells	N.A.
Cell model	LFP71173207/280Ah	N.A.
Overall dimensions	71.65*174.7*207.11mm	
Cell weight	5.43±0.20kg	Protective film (covering sth. with a blue layer)
Factory internal resistance(1kHz)	0.18±0.05mΩ	27%SOC, Based on in-line test data
Rated (nominal) capacity	280Ah	(25±2)°C, Standard charge/discharge
Nominal voltage	3.2V	(25±2)°C, Standard charge/discharge
Rated energy	896Wh	(25±2)°C, Standard charge/discharge
Operating voltage	2.5~3.65V 2.0~3.65V	Temperature T > 0°C Temperature T ≤ 0°C
Shipment voltage range	3.28~3.30V	(25±2)°C, 27%SOC Core open circuit voltage
Energy density	≥160Wh/kg	(25±2)°C, Standard charge/discharge
Recommended SOC usage window	10%~90%	N.A.
Monthly self-discharge	≤3.0%	Three months after shipment, standard charge to 27% SOC, 25±2°C storage
Charging power	0.5P	
Discharge power	0.5P	
Discharge temperature range	-30~60°C	N.A.
Charging temperature range	0~60°C	N.A.
Guaranteed operating conditions for the life of the product	(25±5)°C	N.A.
Number of cycles	6000 times; 25±2°C, standard charging and discharging test until the capacity decreases to 70% of the nominal capacity cutoff	
Energy efficiency	> 90%	



Battery Module

Adopting 12 3.2V280Ah single lithium iron phosphate cells, 12 series and 1 parallel (12S1P) to form a 38.4V280Ah battery module.



Battery module parameters

Cell type	Energy cell
Component	12Cells, BMU
Combinatorial approach	12S1P
Nominal capacity	280Ah
Nominal voltage	38.4V
Weight (kg)	87kg
Working voltage	33.6V ~ 43.8V
Maximum continuous discharge power(kW)	5.376 (0.5C)
Terminal output	Connectors
Dimension mm (W*D*H)	372*640*226mm(without lug puller) 420*674*226mm(with lug puller)
Communication method	CAN

Outdoor Battery Cabinet

The batteries in this solution are integrated into a protective enclosure with protection class IP54 and are equipped with a specialized BMS battery management system.

Item	Parameters	Prerequisite
Cell capacity	280Ah	Standard charge and discharge
Serial-parallel method	1P120S	N.A.
Nominal voltage	384V	Standard charge and discharge
Nominal capacity	107.52kWh	Standard charge and discharge
Overall size(W*D*H)	960*1000*2060mm (W*D*H) (Excluding air-conditioner protruding size) 960*1108*2060mm (W*D*H) (Including air-conditioner protruding size)	see drawing
Discharge cutoff voltage	336V or either battery cluster Monoblock to 2.8V	T > 0°C
Charge cut-off voltage	438V or either battery cluster Monoblock to 3.65V	N.A.
Rated charge/discharge current	140A	(25±2)°C
Operating temperature range	-20~50°C (Discharge) 0~50°C (Charge)	N.A.
Storage temperature range	-20~50°C	N.A.
Communication method	CAN	N.A.
Shipment SOC (%)	30~50	(25±2)°C
Guaranteed operating conditions for the life of the product	(25±5)°C	N.A.