

www.lslithiumbattery.com



LITHIUM STORAGE

Battery energy storage systems to unlocking renewable power's full potential



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A battery energy storage system (BESS) captures energy from renewable and non-renewable sources and stores it in rechargeable batteries (storage devices) for later use.



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COMPANY PROFILE

LITHIUM STORAGE designs manufactures and sells advanced lithium ion battery solutions for Commercial Vehicles and Energy Storage Equipment. Established in 2011 invested by Australia headquarter, Lithium Storage is one of the earliest enterprises in the lithium ion battery sector. Lithium Storage has operation center in Nanjing, EV Pack Manufacturer in Jiangsu, and Energy Storage system

production base and international sales center in Luoyang, as well as international branches in the United Kingdom and Pakistan respectively. We have developed a series of intelligent lithium battery products to cooperate with our customers to accelerate the global green energy transformation. This brochure is specially for battery storage products.

Lithium Storage provides battery storage systems with unprecedented flexibility to respond to multiple application cases, including energy storage block, energy supply cabinet, and energy supply container three series of products. Lithium Storage has cumulatively delivered 20GWH battery storage systems till now. Our products have been widespread applied in grid-

side energy storage, fast charge stations, off-grid energy storage and industrial factories & commercial buildings etcetera.

Our factory has successively passed the authoritative quality management system certification such as ISO9001, ISO14001 and ISO45001, and products have received international certifications such as MSDS, UN38.3, IEC62619, UL1973 and UL9540.



USA
Branch

UK
Branch

Pakistan
Solar Pannel

Luoyang Sales Center
Luoyang Factory



China

Nanjing
Operation Center

Suzhou
Factory

Australia
Headquarter

Energy Storage Block

- Energy Efficiency $\geq 94\%$ @ 0.5P, room temperature
- Standard modules, flexible system expansion
- Compact Design, light weight
- Low internal resistance, stable discharge

Air-cooling Block

LS280A-1P16S/LS280A-1P24S



Liquid-cooling Block

LS280L-1P48S/LS280L-1P52S-A



Liquid-cooling Block

LS280L-1P52S-B/LS320L-1P04S



Model	LS280A-1P16S	LS280A-1P24S	LS280L-1P48S	LS280L-1P52S-A	LS280L-1P52S-B	LS320L-1P04S	Note
Cell Configuration	1P16S	1P124S	1P48S	1P52S	1P52S	1P104S	/
Nominal Voltage	51.2V	76.8V	153.6V	166.4V	166.4V	332.8V	/
Minimum Working Voltage	43.2V	64.8V	129.6V	140.4V	140.4V	260V	$T > 0^{\circ}\text{C}$ @cell2.7V
Maximum Working Voltage	58.4V	87.6V	175.2V	189.8V	189.8V	379.6V	$T > 0^{\circ}\text{C}$ @cell3.65V
Rated Energy	14.336kWh	21.504kWh	43.008kWh	46.592kWh	46.592kWh	106.496kWh	$25 \pm 2^{\circ}\text{C}$, 0.5C
Weight	$100 \pm 2\text{kg}$	$150 \pm 2\text{kg}$	$325 \pm 5\text{kg}$	$340 \pm 5\text{kg}$	$330 \pm 5\text{kg}$	$690 \pm 5\text{kg}$	/
Dimensions	435*743*238	471*1085*240	510*1050*251	810*1145*251	810*1140*240	779*2150.5*259	WxDxH, $\pm 2\text{mm}$
Energy Density	$> 140\text{Wh/kg}$	$> 140\text{Wh/kg}$	$> 132\text{Wh/kg}$	$> 137\text{Wh/kg}$	$> 141\text{Wh/kg}$	$> 154\text{Wh/kg}$	/
Cell Capacity	280Ah	280Ah	280Ah	280Ah	280Ah	320Ah	0.5C discharge current, $\pm 2^{\circ}\text{C}$
Cycle Life	6000	6000	6000	6000	6000	6000	$25 \pm 2^{\circ}\text{C}$, 0.5C, SOC $\geq 80\%$
Maximum Continuous Charging Current	140A/0.5C	140A/0.5C	140A/0.5C	140A/0.5C	140A/0.5C	160A/0.5C	$20\text{--}35^{\circ}\text{C}$, SOC: 0-90%
Maximum Continuous Discharging Current	140A/0.5C	140A/0.5C	140A/0.5C	140A/0.5C	140A/0.5C	160A/0.5C	$15\text{--}35^{\circ}\text{C}$, SOC: 10-100%
Self-discharge Rate						$\leq 3\%$ /month	$25 \pm 2^{\circ}\text{C}$, 30% SOC, storage for 3 months
Operating Temperature						Charge: $0\text{--}55^{\circ}\text{C}$ Discharge: $-20\text{--}55^{\circ}\text{C}$	Charging below 0°C requires external heating
Insulation Grade						Resistance $\geq 500\text{M}\Omega$ @1000VDC	Battery pack main positive and negative terminals referenced to ground
Withstand Voltage						Leakage Current $\leq 1\text{mA}$ @4500VDC	/
Battery Pack Casing Protection Rating	IP2X	IP2X	IP67	IP67	IP67	IP67	/
Cooling Mode	Air-cooling	Air-cooling	Liquid-cooling	Liquid-cooling	Liquid-cooling	Liquid-cooling	/
Product State Of Charge At Shipment	$30\% \pm 5\%$	$30\% \pm 5\%$	$30\% \pm 5\%$	$30\% \pm 5\%$	$30\% \pm 5\%$	$30\% \pm 5\%$	/

Commercial&Industrial Energy Supply Cabinet

LS215A-100K-1S240-10P24-280



Product Model		LS215A-100K-1S240-10P24-280
AC Side		
Rated Power		100kW
Maximum Output Power		120kW,1min
Permissible Grid Voltage		400Vac(-15%~+10%)
Permissible Grid Frequency		50Hz±2.5Hz
Rated Input Current		145A
Wiring Configuration		3P4W+PE
DC Side		
Cell Type		LFP 3.2V/280AH
Rated Energy		215.04kWh
Maximum Output Power		100kW
Rated Voltage		768Vdc
Voltage Range		648-876Vdc
Battery Pack Configuration		1P24S/21.504kWh
Battery System Configuration		1P240S (10*1P24S)
Energy		215kWh
Maximum Output Power		192A
System Data		
Dimensions (DxWxH)		1500*2050*1250mm
Weight		2650kg
Noise		<75dB
IP Rating		IP54
Operating Temperature		-20~50°C(>45°C derating)
Cooling		Air-cooling
Ambient Humidity		0-95%(non-condensing)
Operating Altitude		2000m(derating if more than 2000m)
Fire Protection Method		aerosol/heptafluoropropane (optional)
Communication Interface		RS485,Ethernet,CAN
Communication Protocols		Modbus TCP/RTU

Commercial&Industrial Energy Supply Cabinet

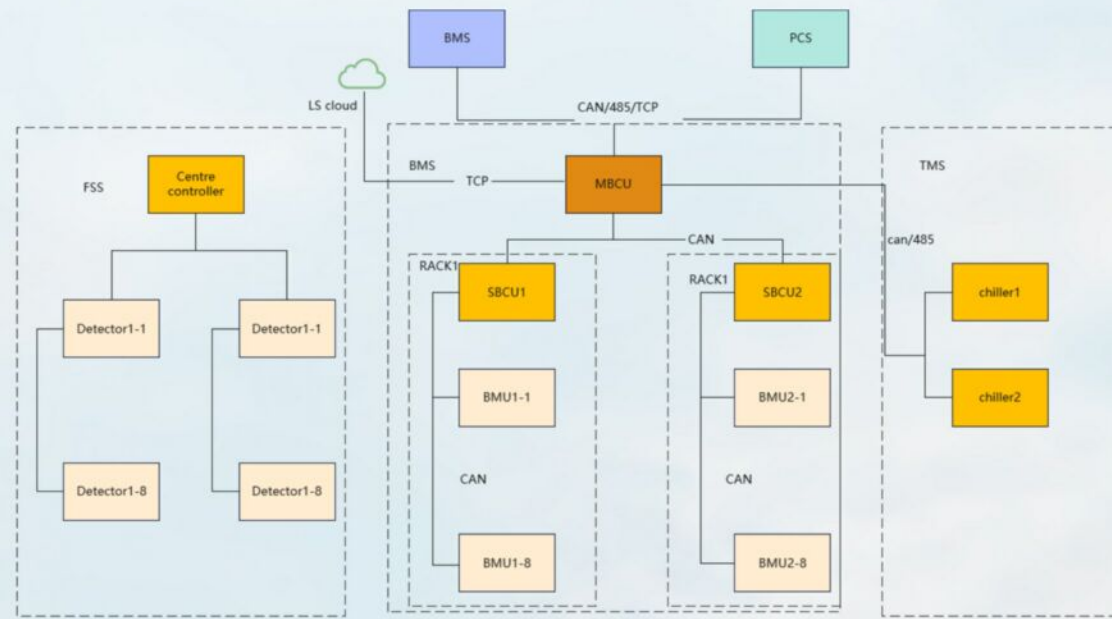
LS215L-100K-1S240-5P48-280

LS232L-100K-1S260-5P52-280



Product Model	LS215L-100K-1S240-5P48-280	LS232L-100K-1S260-5P52-280
AC Side		
Rated Power	100kW	100kW
Maximum Output Power	1101min	1101min
Permissible Grid Voltage	400Vac(-15%~+10%)	400Vac(-15%~+10%)
Permissible Grid Frequency	50/60Hz±2.5Hz	50/60Hz±2.5Hz
Rated Input Current	158A	158A
Wiring Configuration	3P4W+PE	3P4W+PE
DC Side		
Cell Type	LFP 3.2V/280AH	LFP 3.2V/280AH
Rated Energy	215.04KWh	232.96KWh
Voltage Range	648-864V	702-936V
Battery Pack Configuration	1P48S/43KWh	1P52S/46.6KWh
Battery System Configuration	1P240S (5*1P48S)	1P260S (5*1P52S)
Energy	215.04KWh	232.96KWh
Highest Efficiency Of The PCS	98%	98%
System Efficiency	>88%	>88%
Charge-discharge Rate	≤0.5C	≤0.5C
System Data		
Dimensions (DxWxH)	1000*1350*2391mm (Eyebolts included)	1000*1350*2391mm (Eyebolts included)
	1000*1350*2300mm (Eyebolts not included)	1000*1350*2300mm (Eyebolts not included)
Weight	2400kg	2550kg
Noise	<75dB	<75dB
IP Rating	IP54	IP54
Operating Temperature	-20~50°C(>45°C derating)	-20~50°C(>45°C derating)
Cooling	Liquid cooling	Liquid cooling
Ambient Humidity	0-95%(non-condensing)	0-95%(non-condensing)
Operating Altitude	2000m (derating if more than 2000m)	2000m (derating if more than 2000m)

Energy Supply Container



Three-level BMS architecture for battery power station



Item	LS3727-BSC-10S416-8P52-280	LS5111-BSC-12S416-4P104-320	Remark
Configuration	416S10P	416S12P	
Rated Energy	3727.36kWh	5111.8kWh	100%DOD, 25°C, 0.5C
Operating Voltage Range	1081.6~1497.6V	1040~1500V	For cell 2.6V~3.6V
Dimension	6058mm×2438mm×2896mm	6058mm×2438mm×2896mm	
Mass	~35000kg	~43000Kg	
Rated Charge Current	1400A (for 0.5P system)	1920A (for 0.5P system)	According to current map
Rated Discharge Current	1400A (for 0.5P system)	1920A (for 0.5P system)	According to current map
Short Overload Charging Current (≤1min)	2800A (for 0.5P system)	3840A (for 0.5P system)	According to current map
Short Overload Charging Current (≤1min)	2800A (for 0.5P system)	3840A (for 0.5P system)	According to current map
Temperature Range In Cabin	-20~50°C	-20~50°C	
IP Level Of Cabin	Bat. room IP54 Electric room Ip54	Bat. room IP54 Electric room Ip54	
Cooling And Heating Type	Liquid cooling / heating	Liquid cooling / heating	
Communication Agreement	CAN, RS485, TCP/IP	CAN, RS485, TCP/IP	
Environment Temperature	-30°C~55°C	-30°C~55°C	/
Environment Humidity	5%~90%RH	5%~90%RH	/
Altitude	≤3000m	≤3000m	/

Product Feature Of Energy Supply Cabinet

High performance

Average conversion efficiency >88%

Energy supply cabinet's blocks are connected in series to decrease parallel capacity mismatch loss and avoid circuiting current between battery clusters, and well-designed duct-work

Long lifespan

System service life exceeds 15 years

Entire life cycles exceeds 6,000 cycles

Thermal management system maintains battery operation in best temperature range 15-35degree and realizes temperature difference of

Flexible Deployment

On grid, allow 1000 cabinets in parallel

Off-grid, supports up to 10 cabinets in parallel

The internal integrated inverter energy supply

High safety

CAT technology Simulation

Adopting advanced CAE technology to simulate thermal runaway and thermal propagation in battery systems and predict failure conditions for every component in the case of complex and multi-physical coupling.

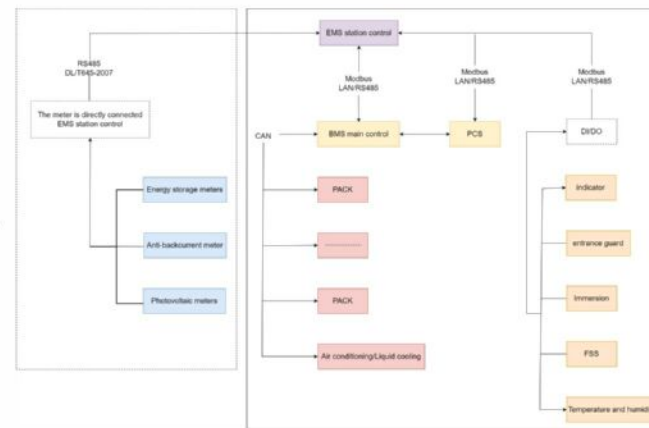
Intelligent control

Intelligent BMS system management monitors the state of batteries in real time and report health condition assessment to energy management system, energy management system ensures safety with multi-level electrical protection devices and Fire Suppression System.

enhances conditioned air uniform distribution efficiently, and intelligent environmental temperature control technology to maintain best operation condition for batteries.

average 5 degree by our thermal management system, plus charge and discharge DOD control strategy to prolong battery lifespan of battery system.

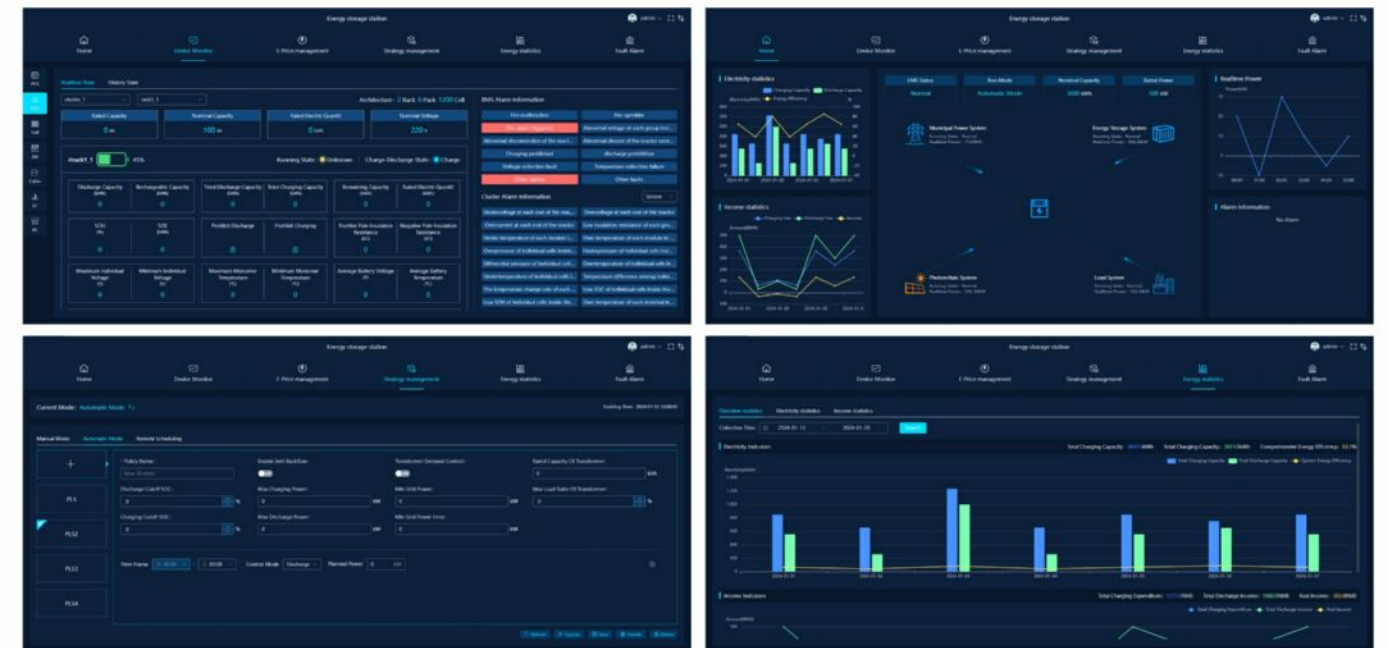
cabinet is designed to be easy to install, quick to deploy, and requires minimal maintenance, avoiding on site wiring and commissioning.



Topology of energy supply cabinet

Intelligent Energy Management System

Lithium Storage Energy Manager & my Lithium Storage portal realizes makes remote energy management and monitor and maintenance to become intelligent and convenient.



Panoramic monitoring

Real-time monitoring and display of the operation data and safety status of each part of the system, and you can query the voltage, temperature and internal resistance of each battery at any time.

Process backtracking

Automatically record the stored fault point data, and can query and trace the operation of the system at any time.

Intelligent operation & maintenance

Automatic battery calibration and maintenance, automatic output power station operation economy report and operation and maintenance suggestions.

Data analysis

Automatic analysis of energy storage system thermal management operation data, as well as battery system attenuation and deterioration data.

REFERENCE

40/80MWH

Shiguai Baotou / Wind Power
Distribution and Storage /
MING YANG GROUP



40MW/80MWH

Gansu Yumen/
China First Energy Storage Project/
SINOPEC GROUP



20GWH
battery storage
system delivery

4MWH Park Storage

Zhuhai Guangdong /
Distribution / HUAFA GROUP



100KW/180KW

Holland / commercial and industrial
air-cooled energy storage cabinet



70MWH

Yiyang Henan / wind power
distribution storage /
PINGGAO GROUP



10MW/20MWH

Luoshan Xinyang / Wind Power
Distribution and Storage /
MING YANG GROUP



315MWH

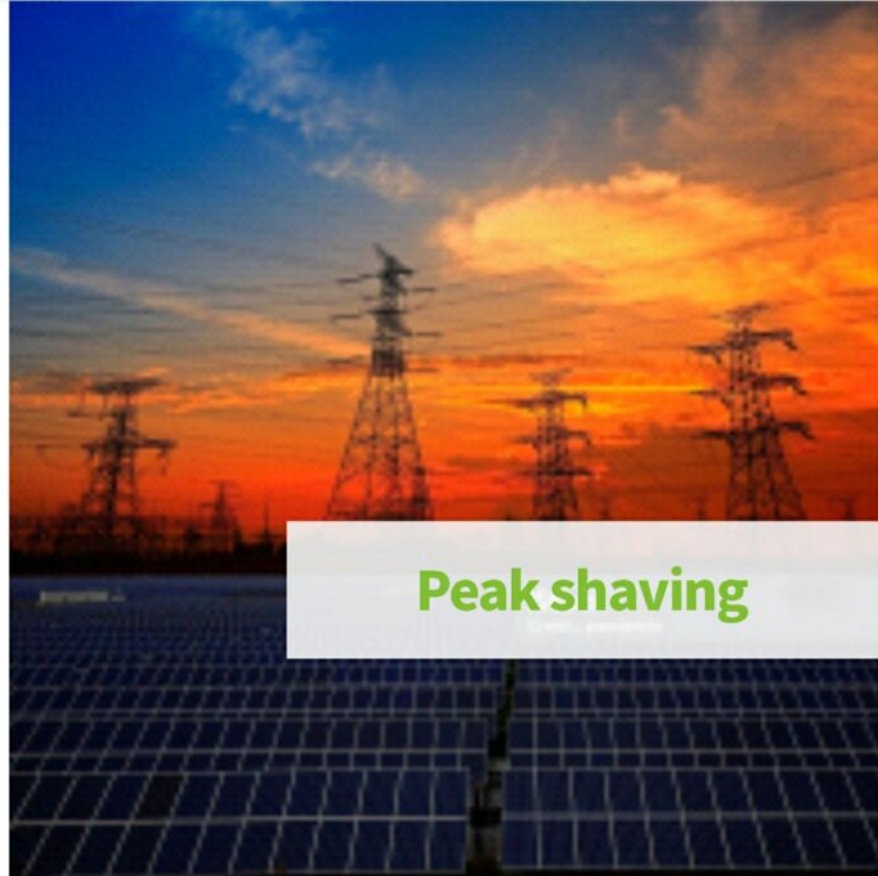
Xinjiang Bole /
Wind Energy Storage /
PINGGAO GROUP



400MWH

Jinyuan Guizhou / Independent
Shared Power Station /
China Electric Equipment





Peak shaving



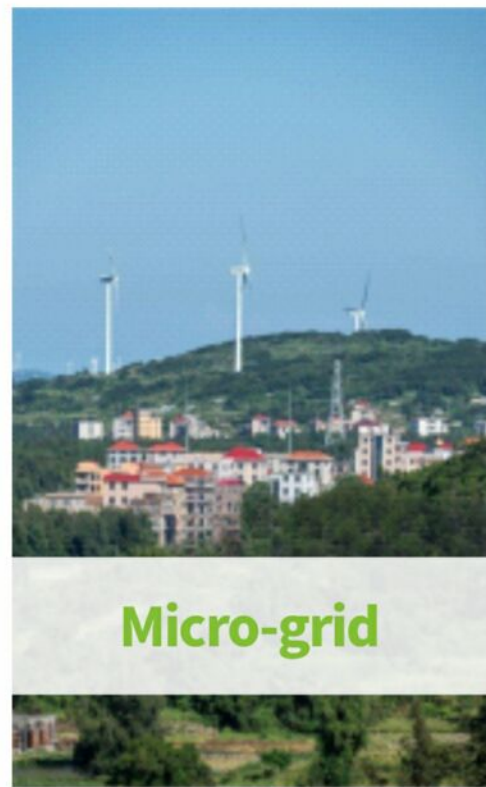
Renewable energy integration



Capacity expansion



Backup power



Micro-grid



Energy arbitrage

APPLICATION