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Energy Storage System Brochure

SYL(NINGBO) BATTERY CO.,LTD.



About SYL Battery

SYL Battery (SYL), a subsidiary of Risen Group, was established in 2005 at Ninghai which is located on the east coast of China and is known as the "Natural Oxygen Bar". SYL is a high-tech company with the capability of R&D, integration, manufacturing, sales, and service. SYL has focused on lithium batteries for 17 years, with an annual production capacity of 8GWh+, and has more than 200 senior battery technology R&D and system integration engineering employees onboard. SYL is devoted to being one of the world's leading suppliers for "Energy Storage +" smart energy systems.

The 1500V high-voltage energy storage battery system developed by SYL independently is the first 280Ah battery system that passed the UL 9540A test in China. With its advantages of energy storage battery technology, SYL is capable of offering BESS solutions for Renewable Energy Smoothing, Peak Shaving, Frequency Regulation, Microgrid, Backup Power, Black-start, and other applications. With a full spectrum of product line covers battery systems, residential, C&I, and utility energy storage systems, SYL has delivered BESS to China, the United States, United Kingdom, Germany, Czech Republic, Canada, Australia, Thailand, Japan, Philippines, and other countries around the world.

Utility-Scale BESS Solution



Highlights

- Low Capex
- Low Field Labor Cost
- Plug and Play
- Pre-populated with Battery
- Flexible Deployment According to The Site Layout

System Features



Rack level Lockable Disconnect



Short Circuit Protection



Fire Detection and Suppression



Water-based Supression System (Optional)



Intrusion Detect System



System Controller

Technical Specification

Item	Specification	
System Model	SU340U85K	SU340U170K

System Information

Nominal AC Power	85kW	170kW
Nameplate Capacity	340.48kWh	

Battery Information

Battery Chemistry	LFP	
Capacity	280Ah	
Configuration	380S1P	
Nominal Voltage	1,216V	
Voltage Range	1,064~1,368V	

Working Conditions

Degree of Protection	NEMA 3R / IP55	
Noise Emission	≤70dB@1m	
Operating Temperature Range	-22°F~ 122°F / -30°C~50°C	
Relative Humidity	0~95% (Non-condensing)	
Max. Working Altitude	9,800ft/3,000m	

System Information

Dimensions (W×H×D)	1,585×2,500×1,675mm	
Weight	3,990kg	
Cooling	HVAC	
Fire Suppression System	Aerosol	
Certificate	IEC62619, UL1973, UL9540A	

Golden Sigma

Utility-Scale Liquid Cooling Solution



Highlights

- Low Capex
- Low Field Labor Cost
- Minimized Site Installation
- Flexible Deployment According to The Site Layout

System Features



Rack level Lockable Disconnect



Short Circuit Protection



Fire Detection and Suppression



Water-based Supression System (Optional)



Intrusion Detect System



System Controller

Technical Specification

Item	Specification	
System Model	SU344U170K	SU344U340K
System Information		
Max. Power	172kW	344kW
Nameplate Capacity	344kWh	
Battery Information		
Battery Chemistry	LFP	
Capacity	280Ah	
Configuration	384S1P	
Nominal Voltage	1228.8V	
Voltage Range	1075.2~1382.4V	
Working Conditions		
Degree of Protection	NEMA 3R / IP55	
Noise Emission	≤65dB @1M	
Operating Temperature Range	-22°F~122°F / -30°C~50°C	
Relative Humidity	0~95% (No condensing)	
Max. Working Altitude	6,500' / 2,000m	
General Information		
Dimensions(W×H×D)	1,300×2,460×1,300mm	
Weight	3,500kg	
Cooling	Liquid Cooling	
Fire Suppression System	Aerosol	
Certificate	IEC62619, UL1973, UL9540A	

Utility-Scale Liquid Cooling Solution



Highlights

- Low Capex
- Low Field Labor Cost
- Minimized Site Installation
- Flexible Deployment According to The Site Layout

System Features



Rack level Lockable Disconnect



Short Circuit Protection



Fire Detection and Suppression



Water-based Supression System (Optional)



Intrusion Detect System



System Controller

Technical Specification

Item	Specification	
System Model	SU3441U1725K	SU3441U3440K
System Information		
Max. Power	1725kW	3440kW
Nameplate Capacity	3440.64kWh	3440.64kWh
Compatible Inverters	PE: FP2865k SMA: SCS2630UP-XT	PE: FP3820k2 SMA: SCS3450UP
Battery Information		
Battery Chemistry	LFP	
Capacity	280Ah	
Configuration	384S10P	
Nominal Voltage	1228 8V	
Voltage Range	1075.2~1382.4V	
Working Conditions		
Degree of Protection	NEMA 3R / IP54	
Noise Emission	≤80dB @1M	
Operating Temperature Range	-30℃~50℃	
Relative Humidity	0~95% (No condensing)	
Max. Working Altitude	9,800ft/3,000m	
General Information		
Dimensions(W×H×D)	6,058×2,438×2,896mm	
Weight	36,000kg	
Cooling Method	Liquid Cooling	
Fire Suppression System	FM200 (Novec/optional)	
Aux. Power Supply	480VAC/3P4L, 60HZ	
Max.Current of Aux. Power Supply	72A	90A
Communication Protocol	Modbus TCP/IP	
Certificate	IEC62619, UL1973, UL9540A , UN3536	

C&I Energy Storage System



Highlights

- ◆ Plug and play design
- ◆ Turnkey solution with PCS and batteries
- ◆ Flexible Depolyment According to the Site Layout

System Features



Rack level Lockable Disconnect



Short Circuit Protection



Fire Detection and Suppression



Water-based Supression System (Optional)



Intrusion Detect System



System Controller

Technical Specification

Item	Specification		
System Model	SU573U125HV	SU860U250HV	SU1147U500HV

System Information

Nominal AC Power	125kW	250kW	500kW
Nameplate Capacity	573.44kWh	860.16kWh	1146.88kWh

Battery Information

Battery Chemistry	LFP		
Capacity	280Ah		
Configuration	320S2P	320S3P	320S4P
Nominal Voltage	1024V		
Voltage Range	896~1,152V		

Inverter Information

Max. AC Power	125kW	250kW	500kW
Nominal Grid/Islanding Voltage	480V		
Grid Voltage Range	422~528V		
Power Factor	-1 to 1, continuously adjustable		
Nominal Grid Frequency	60Hz		
Isolation	Transformerless		

Working Conditions

Degree of Protection	NEMA 3R / IP55		
Noise Emission	≤70dB @1m		
Operating Temperature Range	-22°F ~ 122°F / -30°C ~ 50°C		
Relative Humidity	0~95% (No condensing)		
Max. Working Altitude	9,800ft/3,000m		

System Information

Dimensions (W×H×D)	4,770×2,500×1,673mm	6,955×2,500×1,673mm	9,740×2,500×1,673mm
Weight	8,600kg	12,400kg	16,600kg
Cooling Method of Battery Cabonet	HVAC		
Cooling Method of PCS	Forced air cooling with replaceable fan module		
Fire Suppression System	Aerosol		
Communication Protocol	Modbus TCP/IP		
Certificate	UL1741, UL1741 SB, UL1741 CRD, IEEE1547, UL1973, UL9540A, UL9540		

Global Sales Network

- ▲ Headquarters
- Sales Service Center



SYL has delivered BESS to China, the United States, United Kingdom, Germany, Czech Republic, Canada, Australia, Thailand, Japan, Philippines, and other countries around the world.

Global Certification



Battery System Specification

Cell	Specification
Battery Chemistry	LFP
Packaging form	Prismatic
Dimension(W×H×D)	174.7×71.7×207.1mm
Weight	5.43kg
Nominal capacity	280Ah
Nominal energy	896Wh
Nominal voltage	3.2Vdc
Operating voltage range	2.8 ~ 3.6Vdc



Pack	
Pack configuration	1P48S
Key components	48 Cells, Module BMU
Dimension(W×H×D)	810×254.5×1111.5
Weight	310kg
Nominal capacity	280Ah
Nominal energy	43.01kWh
Nominal voltage	153.6V
Operating voltage range	134.4-172.8V
Maximum charge and discharge power	1C

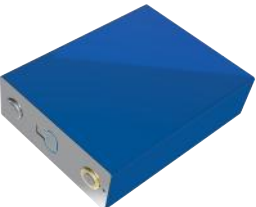


Rack	
Rack configuration	1P384S
Key components	8Module, 1BSPU
Dimension(W×H×D)	950×2,480×1,120
Weight	3100kg
Nominal capacity	280Ah
Nominal energy	344.064
Nominal voltage	1228.8
Operating voltage range	1075.2-1382.4
Maximum charge and discharge power	1C
Certificates	UL9540A, UL1973, UN38.3, GB/T36276 IEC62619, IEC61000, UL62477



Battery System Specification

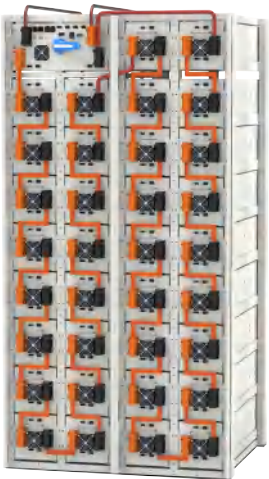
Cell	Specification
Battery Chemistry	LFP
Packaging form	Prismatic
Dimension(W×H×D)	174.7×71.7×207.1mm
Weight	5.43kg
Nominal capacity	280Ah
Nominal energy	896Wh
Nominal voltage	3.2Vdc
Operating voltage range	2.8 ~ 3.6Vdc



Pack	
Pack configuration	1P 10S
Key components	10Cells, Module BMU
Dimension(W×H×D)	220×232×980mm
Weight	72kg
Nominal capacity	280Ah
Nominal energy	8.96kWh
Nominal voltage	32Vdc
Operating voltage range	28 ~ 36Vdc
Maximum charge and discharge power	4.48kW (0.5C)



Rack	
Rack configuration	1P 340S
Key components	34Modules, 1 BSPU
Dimension(W×H×D)	1,160×2,275×1,000mm
Weight	2,800kg
Nominal capacity	280Ah
Nominal energy	304.64kWh
Nominal voltage	1,088V
Operating voltage range	952 ~ 1,224V
Maximum charge and discharge power	152.32kW (0.5C)
Certificates	UL9540A, UL1973, UN38.3 IEC62619, IEC61000, UL62477



Case Study of Energy Storage System



Time: 2022
Address: TX, USA
Size: 60MW/143MWh

Application:

- Energy Shifting
- Ancillary Services



Time: 2022
Address: NC, USA
Size: 40MW/109MWh

Application:

- Peak Shifting
- Ancillary Services



Time: 2023
Address: TX, USA
Size: 100MW/123MWh

Application:

- Frequency Regulation
- Ancillary Services



Time: 2021
Address: USA
Size: 6.4MWh

Application:

- PV+S DC-Coupled
- Renewable Smoothing



Time: 2022
Address: CA, USA
Size: 25MW/118MWh

Application:

- Energy Shifting
- Renewable Smoothing



Time: 2021
Address: CA, USA
Size: 10MW/47MWh

Application:

- PV+S Energy Shifting
- Renewable Smoothing

Case Study of Energy Storage System



Time: 2022
Address: Ningxia, China
Size: 200MW/400MWh

Application:

- Utility BESS Sharing
- Ancillary Services



Time: 2022/2023
Address: UK
Size: 285MW/279.5MWh

Application:

- Frequency Regulation
- Ancillary Services



Time: 2022
Address: Belgium
Size: 25MW/116MWh

Application:

- Energy Shifting
- Renewable Smoothing



Time: 2022
Address: UK
Size: 6.54MW/6.7MWh

Application:

- Frequency Response



Time: 2022
Address: UK
Size: 22MW/22.7MWh

Application:

- Frequency Regulation
- Ancillary Services



Time: 2021
Address: KS, USA
Size: 1MW/5.1MWh

Application:

- Peak Shifting
- Ancillary Services