

UTILITY SCALE ENERGY STORAGE SOLUTIONS



ZeS ESS

ZES ESS CONTAINERIZED ENERGY STORAGE SYSTEMS



USE CASES

ZES ESS Containerized BESS can be adapted to project requirements and usage scenarios.



Peak Shaving

Charge during valley hours and discharge during peak hours to reduce enterprise or park electricity costs and save customers electricity costs.



Demand Response

When the short-term power consumption exceeds the transformers capacity, the energy storage system performs rapid discharge to meet the load energy demand.



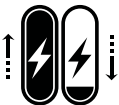
Backup Power

Provide uninterrupted short-term power supply for important loads during power interruption and reduce economical losses caused by sudden power failure of loads.



Power Trading

On the electricity market trading platform, short-term power trading is conducted by combining load forecasting to maximize profits.



Frequency Regulation

The system can quickly charge or discharge power as needed to balance the supply and demand, helping to maintain the grid's frequency within acceptable limits.



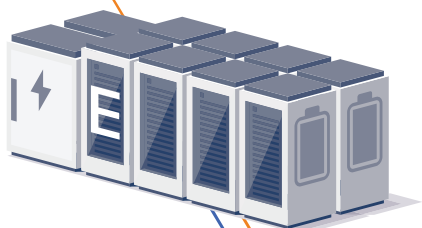
Voltage Regulation

The system helps to adjust voltage levels, ensuring they remain within acceptable limits. This capability helps improve grid stability, reliability, and efficiency, ultimately ensuring consistent and reliable electricity supply to consumers.



— USE & CHARGE / DAY

— USE / NIGHT

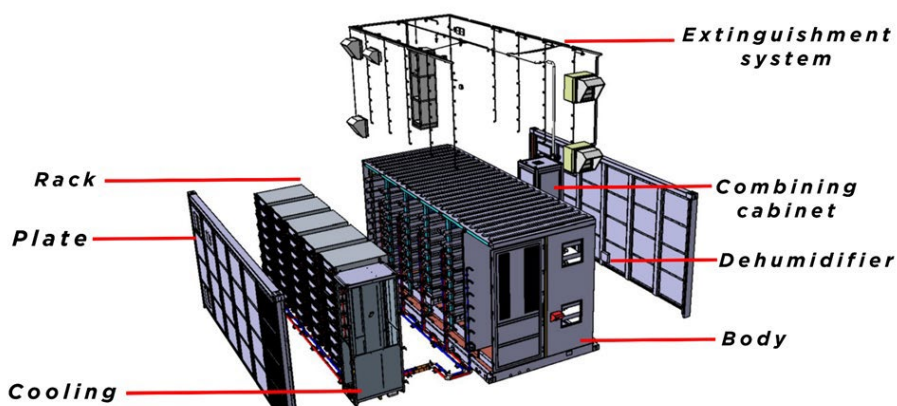


5MWH CONTAINER PARAMETERS



Technical Parameters	
Item	Parameter
Capacity	5 MWh
Voltage	1331.2 V
Voltage range	1040~1500 V
Configuration	6*1P832S
SOC	≤5%
Self Discharge	≤3% M
IP Level	IP54
Balance	Active/Passive Balancing
Weight	50.000 kg
Cooling System	Liquid cooling
Noise	<65dB
Dimension (L*W*H)	6058*2438*2896 mm

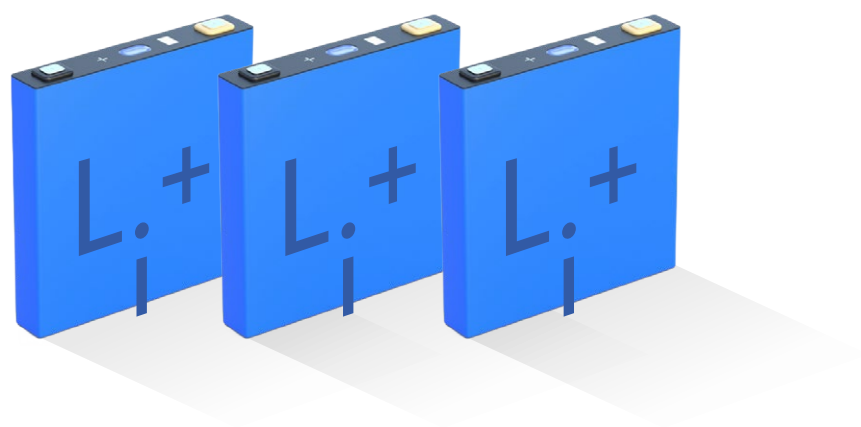
ZES ESS CONTAINERIZED BESS SYSTEM COMPONENTS



Description	QTY	Unit
Rack	6	pcs
Bus Control Cabinet	1	pcs
Cooling System	1	pcs
Fire Extinguishing System	1	pcs
Cabinet Body and Other Component	1	pcs

CELL FOR HIGHER CAPACITY

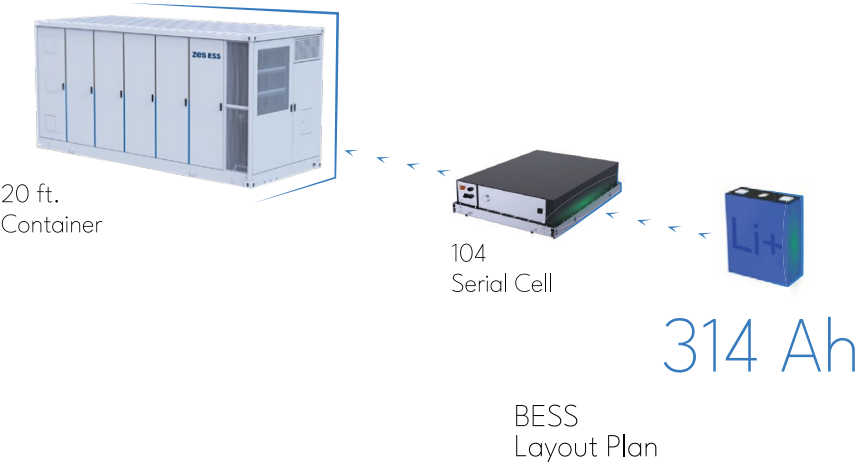
The battery is designed with higher density lithium iron phosphate cell which has 314Ah cell.



Product Feature		
Item		Cell
Nominal capacity		314 AH
Nominal voltage		3.2 V
Standard charge		0.5 C
Standard discharge		0.5 C
Temperature	Charge	0-55 °C
	Discharge	-20-55 °C
Dimension		T71*W173*H207 mm
Weight		5.68±0.15 kg
Energy density		182 Wh/kg
Certification		GB/T 36276-2023, UL1973, UL9540A, IEC62619, UN38.3, ROHS, REACH
Cycle life		8000, 10000

BATTERY MODULE SPECIFICATIONS

5MWH



Package Parameters	
Lithium Chemistry	LiFePO4
Voltage Range	145.6V-187.2V (Nom.166.4V)
Rated Capacity	314 Ah
Rated Energy	104.5kW
Circuit breaker	315 A, 2 pcs
Cooling	Liquid cooling system
Operating Temperature	0 to 50 °C
Max Charge Current	0.5C
Max Discharge Current	0.5C
Cycle Life	≥8000 times %70 SOC, 25 °C 1C/ 1C
Weight	660 kg
Dimensions (WxLxH)	2314x848x244mm
Communication Protocols	RS485, CANBUS, Ethernet
Safety Standards	IEC63056, IEC62619, IEC62620, UN38.3

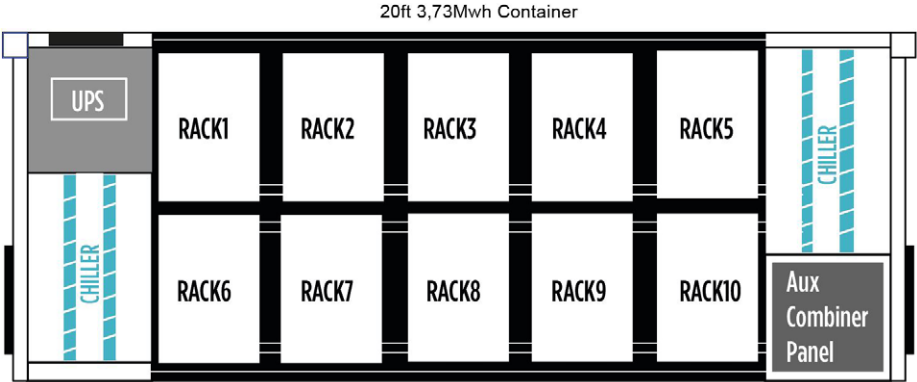
4,18 MWH CONTAINER PARAMETERS



Technical Parameters

Item	Parameter
Capacity	4,18 MWh
Voltage	1331.2 V
Voltage range	1040~1500 V
Configuration	10*1P416S
IP Level	IP54
Balance	Active/ Passivity
Weight	38000 kg
Cooling syste	Liquid cooling
Dimension (L*W*H)	6058*2438*2896 mm

ZES ESS CONTAINERIZED BESS SYSTEM COMPONENTS



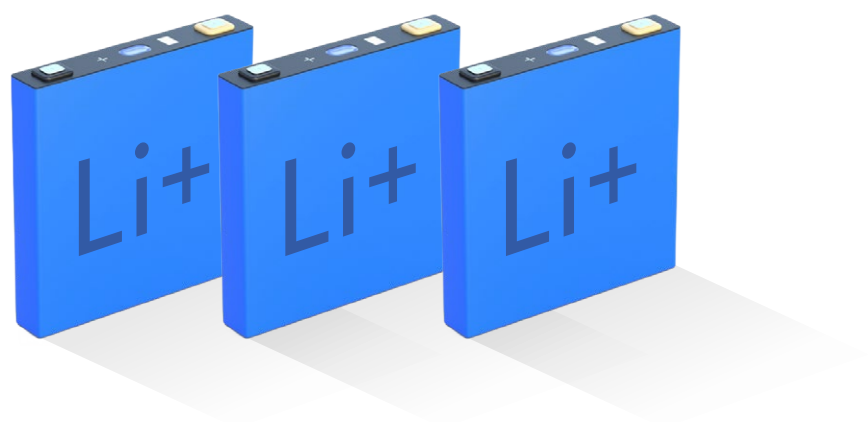
Description	QTY	Unit
Rack	10	pcs
Bus Control Cabinet	1	pcs
Cooling System	1	pcs
Fire Extinguishing System	1	pcs
Cabinet Body and Other Component	1	pcs

CELL FOR HIGHER CAPACITY

The battery is designed with higher density lithium iron phosphate cell which has 314Ah cell.

The size of the battery cell is 173*71*207mm (LxWxH)

The total weight is about 5.5 kg.



Product Feature		
Item		Cell
Nominal capacity		314 AH
Nominal voltage		3.2 V
Standard charge		1 C
Standard discharge		1 C
Temperature	Charge	0-60 °C
	Discharge	-30-60 °C
Dimension		T71*W173*H207 mm
Weight		5490 g±300 g
Energy density		182,7 Wh/kg
Certification		GB/T 36276-2023, UL1973. UL9540A, IEC62619. UN38.3. ROHS. REACH
Cycle life		8000

BATTERY MODULE SPECIFICATIONS

4,18MWH



20 ft.
Container



52
Serial Cell



314 Ah

BESS
Layout Plan

Package Parameters	
Lithium Chemistry	LiFePO4
Voltage Range	145.6V-187.2V (Nom.166.4V)
Rated Capacity	314 Ah
Rated Energy	52,25 kWh
Circuit breaker	630A @250Vdc, 1 pcs
Cooling	Liquid cooling system
Operating Temperature	0 to 50 °C
Max Charge Current	1C
Max Discharge Current	1C
Cycle Life	≥8000 times %70 SOC, 25 °C 1C/ 1C
Weight	330 kg
Dimensions (WxLxH)	1157x848x244mm
Communication Protocols	RS485, CANBUS, Ethernet
Safety Standards	IEC63056, IEC62619, IEC62620, UN38.3

LIQUID COOLING C&I SYSTEM COMPONENTS

ZES ESS liquid cooling C&I battery solution has both only DC cabinet System option which support bigger capacities with parallel connection capability and also all in one cabinet option to provide a compact and ready design. ZES ESS, can support you for any use cases with several C&I solutions.



C&I BATTERY SOLUTIONS

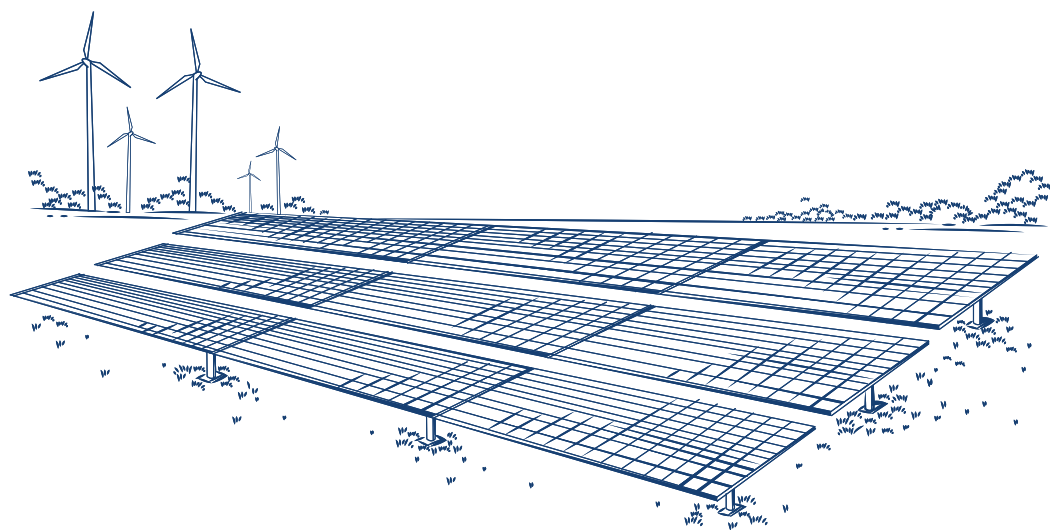
LIQUID COOLING C&I CABINET TECHNICAL PARAMETERS

PARAMETERS	418KWH	261KWH
AC Side		
Rated output power	N/A	125kW
Maximum AC power	N/A	138kW (continuous for 1 minute)
Grid voltage	N/A	400V ac/3P+N+PE
Grid frequency	N/A	50Hz/60Hz
AC voltage harmonics	N/A	≤3% (linear load)
DC component	N/A	<0.5% _{p-n}
Power factor range	N/A	0.99
Energy conversion efficiency	N/A	≥89%
DC Side		
Cell type	LFP 314Ah	LFP 314Ah
Grouping method	1P416S	1P260S
Rated energy	418kWh	261.00kWh
Rated capacity	314Ah	314Ah
Rated voltage	1331.2 Vdc	832V
Recommended voltage range	1164.8~1497.6 Vdc	DC 728~936V
Charging/discharging rate	≤1C	≤0.5C
Maximum current	314Ah	157A
Discharge depth	95%DOD	95%DOD
General Parameters		
Cycle life	≥8000 times (25±2°C)	≥8000 times (25±2°C)
Protection level	IP65	IP65
Cooling method	Active liquid cooling	Active liquid cooling
Operating temperature	-25 to 55°C	-25 to 55°C
Relative humidity	0~95%RH	0~95%RH
Working Altitude	≤2000m	≤2000m
Dimensions (W*D*H)	1,300 × 1,300 × 2,400 mm	1050*1350*2400mm
Total weight	Approximately 3,700kg	Approximately 2,670kg
Fire protection system	PACK-level aerosol (Optional) + RACK-level aerosol fire extinguishing	PACK-level aerosol (Optional) + RACK-level aerosol fire extinguishing
Communication	Ethernet/RS485/CAN	Ethernet/RS485/CAN
Standards complied with	UN38.3, IEC62619, IEC63056, IEC62281, IEC62619, IEC61000	UN38.3, IEC62619, IEC63056, IEC62281, IEC62619, IEC61000

C&I BATTERY SOLUTIONS

LIQUID COOLING C&I CABINET BATTERY MODULE SPECIFICATIONS

PARAMETERS	52S PACK (314Ah)	52S PACK (314Ah)
Model	52S Battery Pack	52S Battery Pack
Cell Configuration	52S1P	52S1P
Design Capacity	314Ah	314Ah
Cell Chemistry	Lithium Iron Phosphate (LFP)	Lithium Iron Phosphate (LFP)
Cell Under Voltage (per cell)	2.8V	2.8V
Cell Over Voltage (per cell)	3.6V	3.6V
Voltage Range	DC 145.6 - 187.2V (Nominal 166.4V)	DC 145.6 - 187.2V (Nominal 166.4V)
Rated Energy	52.250Wh (166.4V × 280Ah)	52,249.6Wh (166.4V × 314Ah)
Maximum CHARGE/DISCHARGE Current	314Ah @1C	157A @0.5C
SAFE Pin Activation Enabled	NO	NO
Communication Protocols	Daisy Chain, UART	Daisy Chain, UART
Cooling Method	Active liquid cooling	Active liquid cooling
Circuit breaker	550A @250Vdc, 1pcs	315A @250Vdc, 1pcs
Manual Safety Disconnect	350A@1500Vdc, 1pcs	350A@1500Vdc, 1pcs
Cell Balancing Enabled	Yes	Yes
Internal or External Temperature Sensor	External Enabled	External Enabled
BMU Features	Voltage Monitoring (Max. 52 sampling) Temperature Monitoring (Max. 52 Sampling) Passive Balancing Overcurrent Self Protection Voltage Drop Monitoring (Optional) Manual Safety Clamp Detection (Optional)	Voltage Monitoring (Max. 52 sampling) Temperature Monitoring (Max. 52 Sampling) Passive Balancing Overcurrent Self Protection Voltage Drop Monitoring (Optional) Manual Safety Clamp Detection (Optional)
Power Consumption (Active Mode)	min. 60mA ; max. 100mA	min. 60mA ; max. 100mA
Power Consumption (Shut Down Mode)	min. 60uA ; max. 100uA	min. 60uA ; max. 100uA
Display Mode	2-bar LED(Run,Alarm) (Optional)	2-bar LED(Run,Alarm) (Optional)
Applicable System Voltage Level	≤1500V DC	≤1500V DC
Operating Temperature	-25 to 55°C	-25 to 55°C
Storage Temperature	-20°C to 45°C	-20°C to 45°C
Relative Humidity	0% to 95% RH	0% to 95% RH
IP Rating	IP65	IP65
Dimensions	790 x 1140 x 248 mm	790 x 1140 x 248 mm
Weight	315kg	330kg
Cycle Life	≥ 8000 cycles (70% SOH @25°C)	≥ 8000 cycles (70% SOH @25°C)
Compliance	CE, RoHS	CE, RoHS
Certifications	IEC 62619, IEC 62281	IEC 62619, IEC 62281



zes

Esentepe Mah. Büyükdere Caddesi
No: 199, Levent, Şişli, İstanbul

+90 212 456 26 45
info@zessolar.net

FOLLOW US ON SOCIAL MEDIA



/zessolar

info@zessolar.net
zessolar.net