Voltarix Sdn Bhd
No. 46, Jalan SP 5/3, Pusat Perdagangan BSP,Bandar Saujana Putra, 42610, Jenjarom, Selangor.
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BESS CABINET SYSTEM

Safety Technology

- A+ grade lithium iron phospshate
- Configured with multi-level fuse protection
- Built-in aerosol fire extinguishing systems at package and rack levels

More Reliable

- The system is rigorously designed and tested to operate stably under various conditions.
- Equipped with protections against overcharge over-discharge, and over-temperature to prevent accidents.

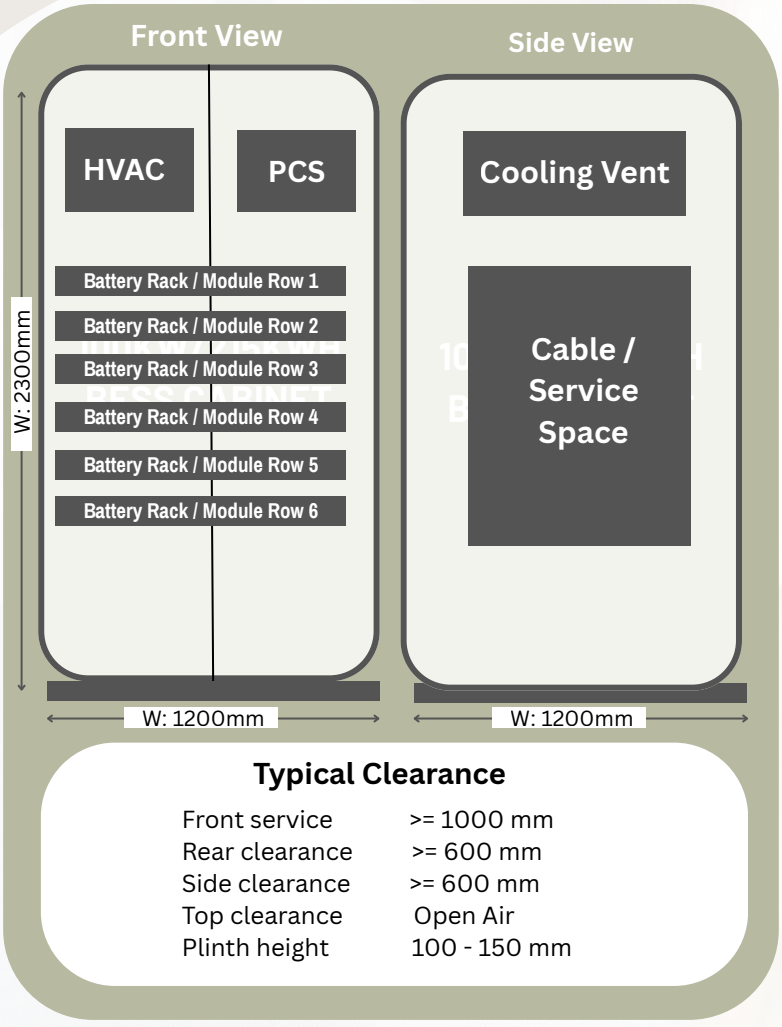
Easy to Install and Use

- Highly integrated for ease of transportation, installation and deployment.
- Modular design with flexible system capacity configuration.

Energy Management System

- Emergency power supply
- Peak shaving
- Demand mitigation
- Self-cosumption
- Micro-grids
- Price arbitrage

Concept Measurements



Typical Clearance

Front service	>= 1000 mm
Rear clearance	>= 600 mm
Side clearance	>= 600 mm
Top clearance	Open Air
Plinth height	100 - 150 mm

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General Cabinet Specifications

Item	Sample Measurement / Requirement
Cabinet Type	Outdoor integrated BESS cabinet, floor mounted
Rated Power	100 kW AC
Nominal Energy	215 kWh
Approx. Width	1,200 mm
Approx. Depth	1,200 mm
Approx. Height	2,300 mm
Approx. Weight	2,500 - 3,500 kg, subject to OEM
Mounting	Concrete plinth / skid base with anchor bolts
Access	Front service access; rear/side clearance as per OEM
Protection Rating	IP54 / IP55 outdoor enclosure

Electrical and Battery Specifications

Parameter	Sample Specifications
Battery Chemistry	LFP/LiFePO4
Usable Capacity	Approx. 190 - 205 kWh depending on DoD and OEM
Nominal DC Voltage	Approx. 768 VDC
DC Voltage Range	Approx. 672 - 864 VDC
PCS	100 kW bidirectional PCS
AC Output	400/415 VAC, 3 phase, 50Hz
Round Trip Efficiency	Approx. 90 - 96%
Cooling	HVAC air cooling or liquid cooling
BMS	Cell, module, rack and system level monitoring
EMS/Communication	Modbus TCP/IP, RS485. CANbus, Ethernet

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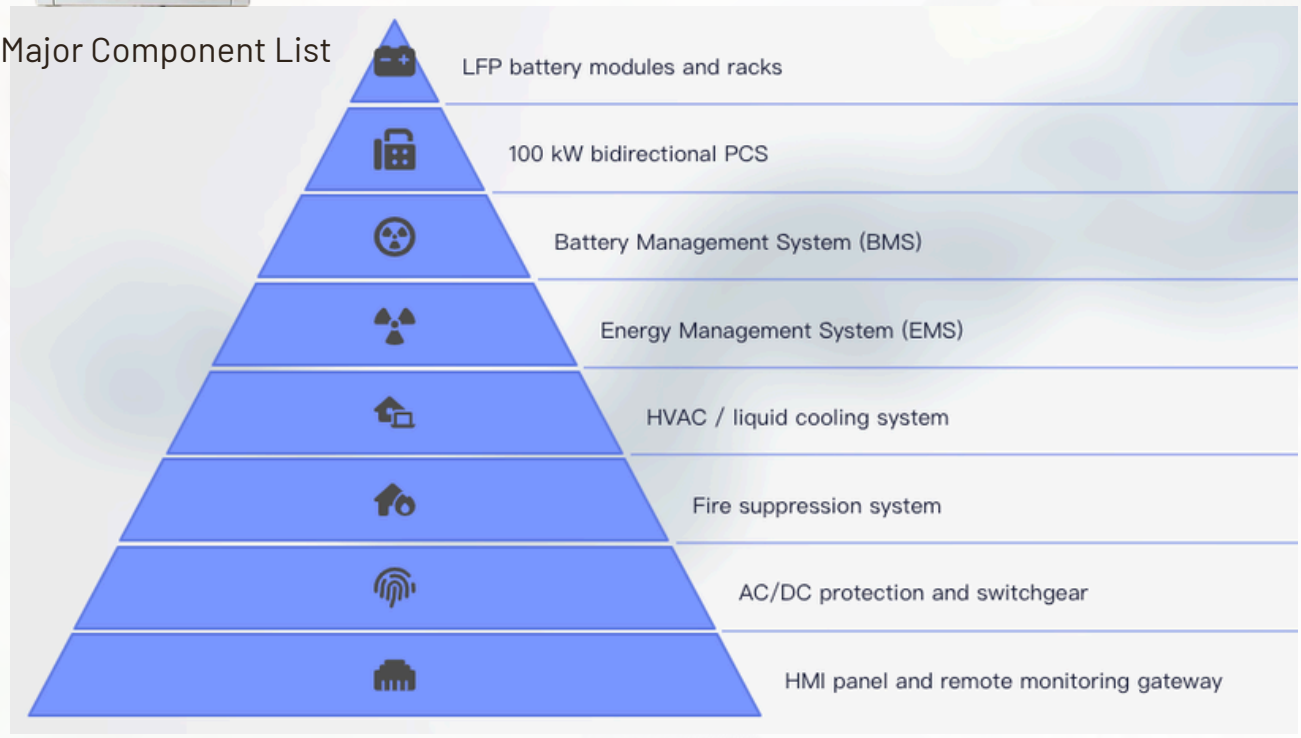
BESS CABINET SYSTEM

CONCEPTIONAL SINGLE LINE ARRANGEMENT

Grid / Solar PV / Load Panel → AC Protection → 100 kW PCS → DC Protection → 215 kWh Battery Rack → BMS /EMS /SCADA

Major Component List



Installation Notes

Provide concrete plinth or skid foundation suitable for cabinet weight and site condition.	Maintain minimum 1,000 mm front service clearance and 600 mm side / rear clearance unless OEM requires more.	Provide earthing, surge protection and external emergency stop interface as required.	Provide fire detection, suppression interface, smoke / heat / gas detection and ventilation strategy.	Final cable sizing, breaker rating and protection coordination shall be confirmed by detailed electrical design.

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BESS CABINET SYSTEM
COMPONENTS

12kw Solar Hybrid Storage Inverter Work with 48V Low Voltage Lithium Battery

Hybrid Inverter
SUN 5000-12000 SGO4LP3-EU

5-12kW | Three Phase | UPS

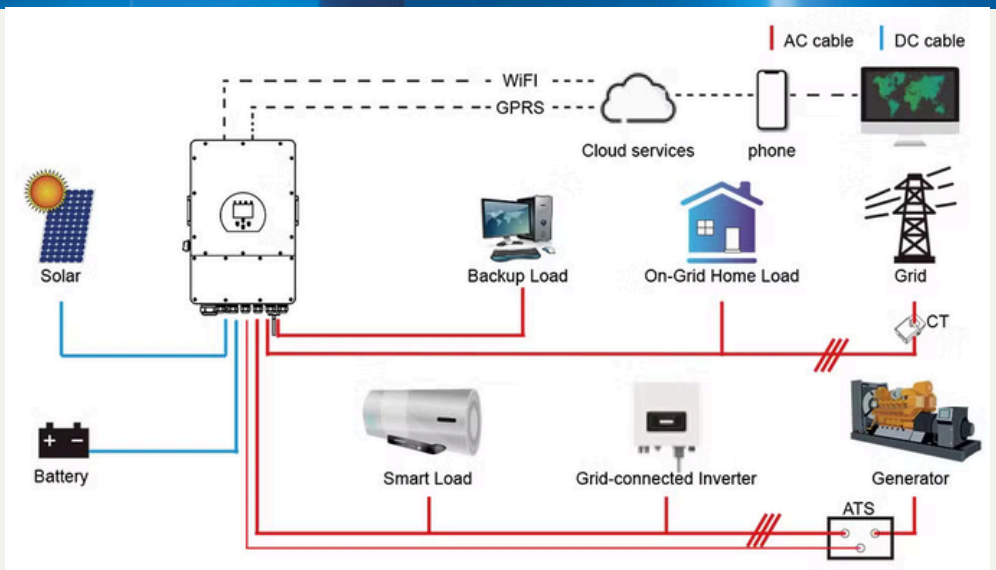
- **Support multiple batteries parallel.**
- **DC couple AC couple to retrofit existing solar system.**
- **Max. 16 pieces parallel for on-grid and off-grid operation.**
- **Max. charging/discharging current of 240A.**
- **48V low voltage battery, transformer isolation design.**

Higher Yields
Improve self-consumption up to 80% / Reducing your electricity bill DC/AC ratio up to 12/Completely suitable for double-side PV modular Two MPPT design.

Reliable
PPV lightning protection / Anti-islanding protection / Leakage current proptection / IP65 protection / Automatically switch from Grid-Tied to Off-Grid mode within 5ms.

User Friendly
LCD Touch screen and buttons / Easy operation Compatible with a lithium-ion battery and lead-acid battery / Web browser and mobile App monitoring supported.

Smart
Programmable charging and discharging schedule / Both wind turbines and solar panels can be connected as DC input power /16 units can be paralleled for higher system power.



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Hybrid Inverter
SUN 5000-12000 SG04LP3-EU

Model	SUN-8K-SG04LP3	SUN-10K-SG04LP3	SUN-12K-SG04LP3
Battery Input Data			
Battery Type	Lead-acid or Li-Ion		
Battery Voltage Range (V)	40~60V		
Max. Charging Current (A)	190A	210A	240A
Max. Discharging Current (A)	190A	210A	240A
Charging Curve	3 Stages / Equalization		
External Temperature Sensor	Optional		
Charging Strategy for Li-Ion Battery	Self-adaption to BMS		
PV String Input Data			
Max. DC Input Power (W)	10400W	13000W	15600W
PV Input Voltage (V)	550V (150V~800V)		
MPPT Range (V)	200V-650V		
Start-up Voltage (V)	160V		
PV Input Current (A)	13A+13A	26A+13A	26A+13A
No.of MPPT Trackers	2		
No.of MPPT Trackers	1+1	2+1	2+1

Model	SUN-8K-SG04LP3	SUN-10K-SG04LP3	SUN-12K-SG04LP3
AC Output Data			
Rated AC Output and UPS Power (W)	8000W	10000W	12000W
Max. AC Output Power (W)	8800W	11000W	12000W
Peak Power (off grid)	2 times of rated power, 10 S		
AC Output Rated Current (A)	12A	15A	18A
Max. AC Current (A)	18A	23A	27A
Max. Continuous AC Passthrough (A)	50A		
Output Frequency and Voltage	50/60Hz; 230/400Vac (Three phase)		
Grid Type	Current Harmonic Distortion		
Current Harmonic Distortion	THD<3% (Linear load<1.5%)		
Efficiency			
Max. Efficiency	97.60%		
Euro Efficiency	97.00%		
MPPT Efficiency	99.90%		

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Hybrid Inverter
SUN 5000-12000 SG04LP3-EU

Model	SUN-8K-SG04LP3	SUN-10K-SG04LP3	SUN-12K-SG04LP3
Protection			
PV Input Lightning Protection	Integrated		
Anti-islanding Protection	Integrated		
PV String Input Reverse Polarity Protection	Integrated		
Insulation Resistor Detection	Integrated		
Residual Current Monitoring Unit	Integrated		
Output Over Current Protection	Integrated		
Output Shorted Protection	Integrated		
Output Over Voltage Protection	Integrated		
Surge protection	DC Type II / AC Type II		
Certifications and Standards			
Grid Regulation	IEC61727, IEC62116, IEC60068, IEC61683, NRS 097-2-1		
Safety EMC / Standard	IEC62109-1/-2, IEC61000-6-1, IEC61000-6-3, IEC61000-3-11, IEC61000-3-12		

Model	SUN-8K-SG04LP3	SUN-10K-SG04LP3	SUN-12K-SG04LP3
General Data			
Operating Temperature Range (ºC)	-25~60ºC , >45ºC Derating		
Cooling	Smart cooling		
Noise (dB)	<30 dB		
Communication with BMS	Communication with BMS		
Weight (kg)	36.8		
Size (mm)	422W×658H×281D		
Protection Degree	IP65		
Installation Style	Wall-mounted		
Warranty	5 years		

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BESS CABINET SYSTEM
COMPONENTS

Sumac 1500 Liters Carbon Steel TransCube 1000L-15000L

Name	Self-Bunded Portable Gasoline Diesel Fuel Tank For Farm Refueling
Application	Self bunded waste coolant storage tank
Usage	For storing, managing and dispensing recycled fuel.
Medium	Waste fuel, oil, petrol, diesel, coolant, etc.
Storage capacity	2000 Liters
Material	Carbon Steel
Wall	Double wall
Test pressure	35Kpa
Tank type	Stationary
Type	SUMAC self-bunded waste coolant storage tank

Medium	Diesel, Gasoline
Material	Steel
Machinery Test Report	Provided
Core Components	None
Finish Type	Powder Coated
Warranty	1 Year
Video Outgoing-Inspection	Provided
Key Selling Points	Long Service Life
Max Working Pressure(MPa)	0
Weight (KG)	430
Brand Name	SUMAC
Dimension(l*w*h)	2180x1420x1305mm

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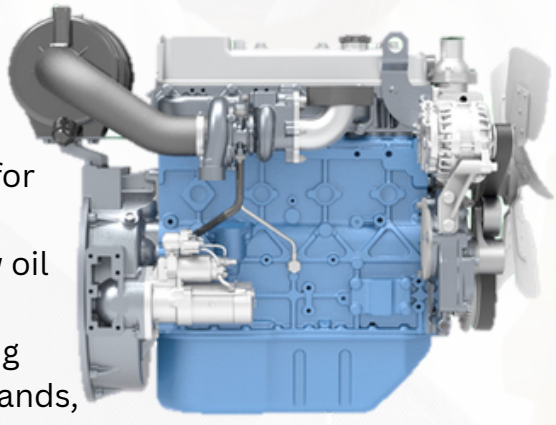
BESS CABINET SYSTEM
COMPONENTS

Prime Power:	18kW
Standby Power:	20kW
Engine Model:	WP2.3D25E200
Alternator Brand:	Stamford
Alternator Model:	PI 144E
Voltage/Frequency:	230/400V, 50 HZ
Winding/Power Factor:	3-phrase, 4-wire, 0.8
Controller:	Deepsea
Size (Silent Type):	1950X1050X1290(MM)
Fuel Tank Capacity:	8 hours working time
Noise Level:	70dB(A) at 7Meters

20kW Generator
Weichai
WP2.3D25E200

20kW Weichai Diesel Generator with Stamford Alternator & Deepsea Control

This 20kW generator is powered by a reliable Weichai engine, paired with a Stamford alternator and a Deepsea control system.



Weichai, a leading engine brand in China, is recognized for its high quality and advanced technology. The engine design includes a large oil passage body and a high-flow oil pump to enhance oil circulation, preventing localized overheating. This makes it an ideal choice for challenging environments, including deserts, high-altitude areas, islands, and rental applications, ensuring consistent and dependable power.

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BESS CABINET SYSTEM
COMPONENTS

66HL5-BDV
710-735 watt
Bifacial Module with Dual Glass Solar Panel

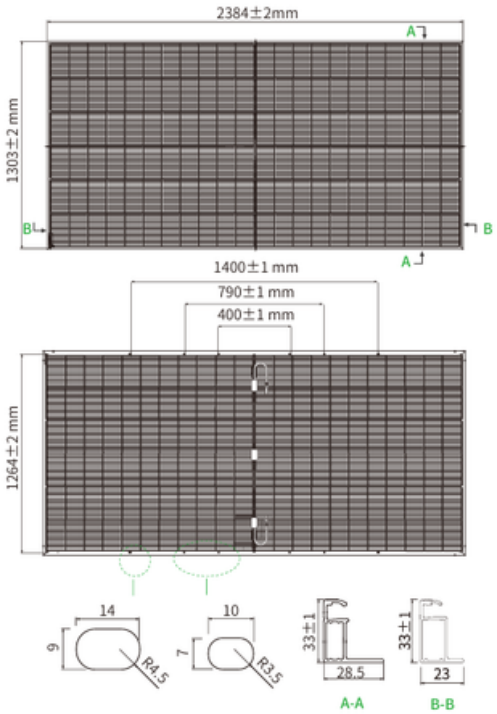
- **Dual-Sided Power Generation**
  Dual-sided power generation gain increases withbackside exposure to light , signifiicantly reducing LCOE.
- **Mechanical Load Enchanced**
  Certified to withstand:
  -5400 Pa front side max static test load
  -2400 Pa rear side max static test load
- **N-type Technology**
  N-type modules with Tunnel Oxide Passivating Contracts (TOPCon) technology offer lower LID/LeTID degradation and better low light performance.
- **HOT 3.0 Technology**
  N-Type modules with JinkoSolar's HOT 3.0 technology offer better reliability and efficiency.
- **SMBB Technology**
  Better light trapping and current collection to improve module power output and reliability.
- **Anti-PID Guarantee**
  Minimises the change of degradation caused by PID phenomena through optimisation of cell production technology and material control.

Specifications (STC)

Maximum Power - Pmax [Wp]*	710	715	720	725	730	735
Maximum Power Voltage - Vmp [V]	40.65	40.77	40.89	41.00	41.11	41.23
Maximum Power Current - Imp [A]	17.47	17.54	17.61	17.69	17.76	17.83
Open-circuit Voltage - Voc [V]	48.73	48.88	49.04	49.20	49.36	49.52
Short-circuit Current - Isc [A]	18.53	18.60	18.67	18.74	18.81	18.88
Module Efficiency STC [%]	22.86	23.02	23.18	23.34	23.50	23.66
Power Tolerance	0 ~ + 3 %					
Temperature Coefficient of Pmax	-0.29 %/°C					
Temperature Coefficient of Voc	-0.25 %/°C					
Temperature Coefficient of Isc	0.045 %/°C					

STC: Irradiance 1000W/m², Cell Temperature 25°C, AM=1.5.*Power measurement tolerance: ±3%

Engineering Drawings



*Note: For specific dimensions and tolerance ranges, please refer to the corresponding detailed module drawings.