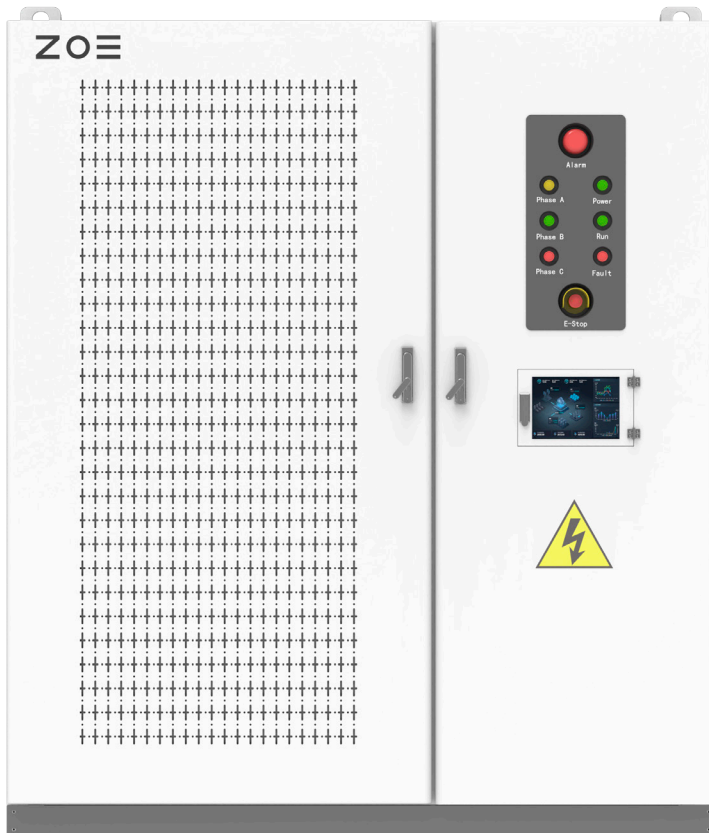


ESS Microgrid with PV+DG

Z BOX-M 520



The 520kW reverse dc-coupled integrated photovoltaic-storage-diesel microgrid system features a prefabricated, integrated architecture enabling plug-and-play rapid deployment. It delivers millisecond-level (less than 20 ms) seamless switching between grid-connected and off-grid modes, with adaptive operation across multiple modes. This system provides efficient, stable, and cost-effective uninterrupted power supply for off-grid, weak-grid, and remote scenarios, significantly enhancing clean energy integration capabilities and the long-term investment value of power systems.

Redefine the technical standards for off-grid microgrid power supply across six dimensions

Efficiency





Load Capacity

Reliability

Cost-effectiveness

Environmental Compatibility

Intelligent Scheduling

-  Reverse DC Coupling Architecture
-  Sic Three-Phase Four-Leg PCS
-  2X Photovoltaic Over-provisioning + μ s-level Dynamic Control
-  Built-in STS with Millisecond-level Seamless Switching
-  All-scenario High-reliability Design
-  Cloud-edge Integrated Intelligent EMS

Parameters

Model	Parameter	Remark
PV Input Parameters		
MPPT voltage range	250V-950V	
Full load voltage range	580V-700V	DC voltage - PV voltage>20V
MPPT quantity	Channel 8	The device supports up to 12 units and can be configured with 2x PV.
Max photovoltaic power(kW)	780kW	
Maximum current per MPPT channel	168A	
Maximum short-circuit current per MPPT channel	210A	
MPPT Maximum Tracking Accuracy	≥99.9%	
DC Battery Side Parameters		
Rated power(KW)	520kW	
Full load voltage range	650V-950V	
Maximum current	880A	
AC Network Side Parameters		
Rated power	1380kW	
Rated voltage	400V	Range 340-460V
Rated current	1504A	Maximum 2000A
Rated frequency	50Hz/60Hz	Range ±5Hz
Power factor	>0.99	
THDi	<1.5%(100% PN) , <5%(≥20%PN)	
AC Load Side Power		
Rated power	520kW	
Rated voltage	400V	Range 340-460V
Rated current	752A	
Rated frequency	50Hz/60Hz	
THDu	1%	Linear load
Unbalanced load capability	100%	
Overload capacity	110%: Long-term operation; 120%: at least 1 minute 150%: Not less than 1 second(at a constant temperature of 35°C)	
System Parameters		
Ambient temperature range	-30°C~70°C Full power operation at an ambient temperature of 50°C; derating operation at an ambient temperature of 50-70°C. Start-up supported at -30°C.	
Storage temperature range	-40°C~75°C	
AC/DC surge protection	TYPE II	
Cooling method	Intelligent air cooling	
Permissible altitude	4000m(Derating above 3000m)	
Relative humidity	0~95%(no condensation)	
Protection grade	IP55	
Noise Level	<75dB	
Isolation methods	Non-isolation	
Maximum efficiency	97%	
On/Off-grid Switching Time	<20ms	
Dimensions(W*D*H)	2200*1350*2300	
Weight	2500kg	Current estimated weight
Display method	7-inch industrial LCD touchscreen HMI	Standard configuration
Local Communication methods	RS-485/CAN/Enet	4G and other technologies require customers to provide their own routers.
Communication Protocol	RTU/CAN2.0B/TCP	