SolisStorage

FlexAIO Three Phase

6-54kWh All-in-One Stackable High-Voltage Energy Storage System (ESS)

Flexible All-in-One Stackable Storage
AI-Powered Energy Control

- Uses A+ grade cells, ≥10,000+ cycle life ①
- Five-layer hardware redundancy protection as standard
- Supports 200% PV oversizing, maximizing solar energy utilization
- Supports 150% overload for 10 seconds in off-grid mode
- Supports seamless on-grid and off-grid switching with transfer times <10ms
- Designed for all environments: IP66 protection & C5-M anti-corrosion
- Intelligent thermal management with standard battery heating and active cooling, operable from -20°C to 55°C
- Supports mixing of 6kWh and 9kWh battery packs, as well as old and new batteries
- Each cluster supports up to 6 stacked modules, with up to 6 clusters in parallel, expandable to a maximum of 324kWh
- Independent module management with intelligent per-cluster optimisation
- The system continues to operate safely even if a single battery pack fails
- Dedicated VPP communication channel, plug-and-play direct connection to third-party EMS/VPPs with an open protocol
- Solis AI – smart energy management with generator support
- Integrated stackable design for quick and easy installation within 5 minutes
- Supports OTA remote upgrades for efficient operation and maintenance

FlexAIO 54kWh ESS

With S7-EH3P(5-20)K-NV-ND-D stacked inverter



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DATASHEET

S7-EH3P(5-20)K-NV-ND-D

Models	5K03	6K03	8K03	10K04	12K04	15K04	20K04
Input DC (PV side)							
Recommended max. PV array size	10 kW	12 kW	16 kW	20 kW	24 kW	30 kW	40 kW
Max. usable PV Input power	8 kW	9.6 kW	12.8 kW	16 kW	19.2kW	24 kW	32 kW
Max. input voltage	1000 V						
Rated voltage	680 V						
Start-up voltage	180 V						
MPPT voltage range	160 - 950 V						
Max. MPPT input current ②	2 × 21 A						
Max. MPPT short circuit current	2 × 24 A						
MPPT number / Max. input strings number	3 / 1 + 1 + 1			4 / 1 + 1 + 1 + 1			
Battery (Battery Connection)							
Battery module models	FlexAIO-BAT6kWh-D, FlexAIO-BAT9kWh-D						
Number of modules per controller	1 ~ 6pcs						
Battery module voltage range	520 - 812 V						
Max. charging / discharging power	5 kW	6 kW	8 kW	10 kW	12 kW	15 kW	20 kW
Max. charging / discharging current	9 A	11 A	15 A	19 A	23 A	28 A	38 A
Output AC (Grid side)							
Rated output power	5 kW	6 kW	8 kW	10 kW	12 kW	15 kW	20 kW
Max. apparent output power	5 kVA	6 kVA	8 kVA	10 kVA	12 kVA	15 kVA	20 kVA
Rated grid voltage	3/N/PE, 220 V / 380 V; 3/N/PE, 230 V / 400 V						
Rated grid frequency	50 Hz / 60 Hz						
Rated grid output current	7.6 A / 7.2 A	9 A / 8.6 A	12.2 A / 11.5 A	15.2 A / 14.4 A	18.2 A / 17.3 A	22.8 A / 21.7 A	30.4 A / 28.8 A
Power factor	> 0.99 (0.8 leading - 0.8 lagging)						
THDi	< 3%						
Input AC (Grid side)							
Max. input power	5 kW	6 kW	8 kW	10 kW	12 kW	15 kW	20 kW
Input voltage range	323 - 460 V						
Max. input current	15.2 A	18 A	24.4 A	30 A	30 A	45 A	45 A
Output AC (Back-up)							
Rated output power	5 kW	6 kW	8 kW	10 kW	12 kW	15 kW	20 kW
Max. apparent output power	1.5 times of rated power, 10 s						
Back-up switch time	< 10 ms						
Rated output voltage	3/N/PE, 220 V / 380 V; 3/N/PE, 230 V / 400 V						
Rated frequency	50 Hz / 60 Hz						
Rated output current	7.6 A / 7.2 A	9 A / 8.6 A	12.2 A / 11.5 A	15.2 A / 14.4 A	18.2 A / 17.3 A	22.8 A / 21.7 A	30.4 A / 28.8 A
Max. continuous AC passthrough current	15.2 A	18 A	24.4 A	30 A	30 A	45 A	45 A
THDv (@linear load)	< 3%						
Input AC (Generator side)							
Max. input power	5 kW	6 kW	8 kW	10 kW	12 kW	15 kW	20 kW
Max. input current	7.6 A / 7.2 A	9 A / 8.6 A	12.2 A / 11.5 A	15.2 A / 14.4 A	18.2 A / 17.3 A	22.8 A / 21.7 A	30.4 A / 28.8 A
Rated input voltage	3/N/PE, 220 V / 380 V; 3/N/PE, 230 V / 400 V						
Rated input frequency	50 Hz / 60 Hz						
Efficiency							
Max. efficiency	≥ 97.7%						
EU efficiency	96.1%	96.6%	97.1%	97.2%	97.2%	97.3%	97.3%
Protection							
Surge protection	DC Type II / AC Type II (Optional)						
Output over current protection	Yes						
Insulation resistance monitoring	Yes						
Residual current detection	Yes						
Integrated PV switch	Yes						
DC reverse-polarity protection	Yes						
Protection class / Over voltage category	I / II						
Integrated AFCI	Yes						
Anti-islanding protection	Yes						
General Data							
Max. power per phase (grid & back-up)	50%						
Dimensions (W × H × D)	850 × 400 × 265 mm						
Weight	35 kg					38 kg	
Inverter topology	Non-isolated						
Operating temperature range	-30 ~ +60°C (Derated above 45°C)						
Relative humidity	0 - 95%						
Ingress protection	IP66						
Noise emission (typical)	<35 dB(A) (@ Rated Power)					<55 dB(A) (@ Rated Power)	
Cooling concept	Natural cooling					Smart fan cooling	
Max. operation altitude	4000 m (Derated above 2000 m)						
Grid connection standard	G98, G99, VDE-AR-N 4105/VDE V 0124, EN 50549-1, CEI 0-21, C10/11, IEC 62116, IEC 61727, IEC 60068, IEC 61683						
Safety / EMC standard	IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-3						
Features							
DC connection	MC4 Quick connection plug (PV)						
AC connection	Quick connection plug						
Display	LED						
Communication	RS485, Optional: Wi-Fi, LAN, Ethernet, DI × 2 / DO × 2 / DRM						

② When the ambient temperature is within the range of -30°C to +30°C, the maximum current can reach 21 A. When the ambient temperature is between +30°C and +45°C, the maximum current decreases.

Preliminary

DATASHEET

FlexAIO-BAT6kWh-D, FlexAIO-BAT9kWh-D

Models	6kWh	9kWh
Performance		
Battery type	$LiFePO_4$	
Nominal energy	6 kWh	9 kWh
Operating voltage	Single Phase: 250 - 406 V; Three Phase: 500 - 812 V	
Cell capacity	314 Ah	
Max. charge / discharge power	3 kW	4.5 kW
Peak charge / discharge power (10 seconds)	4.5 kW	6.75 kW
Depth of discharge	Max. 100% DOD	
Communication	CAN	
Cycle life ①	≥ 10000	
Protection		
Over/under voltage protection	Yes	
Over current protection	Yes	
Over/under temperature protection	Yes	
DC overcurrent fuses	Yes	
Aerogel thermal insulation plate	Yes	
Fire protection function	Yes	
Explosion release valves	Yes	
General Specification		
Dimensions (W × H × D)	850 × 270 × 265 mm	
Weight	59.2 kg	76 kg
Cooling	Natural convection	
Ingress protection	IP66	
Anti-corrosion class	C5M	
Operating ambient temperature range	-20~55 °C (Smart heating function)	
Storage temperature range	-20~55 °C	
Relative humidity range	5~95 %	
Max. operating altitude	4000 m	
Installation method	Floor standing / Wall-mounted	
Compatible inverters	S7-EH1P(3-10)K-NV-ND-D/S7-EH3P(5-20)K-NV-ND-D	
Standard Compliance		
Certificates	IEC 62619, IEC 63056, ISO13849, VDE 2510-50, UN 38.3, EN/IEC61000-6-1/2/3/4, IEC 60730-1, IEC 60529(IP), RoHS, REACH	

Preliminary

① Provided by battery cell manufacturer based on cell test condition of 25°C ,0.5P charge and discharge rate, 100% DOD and SOH=60%.