



# 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,  $\geq 10,000+$  cycle life <sup>①</sup>
- 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  $< 10\text{ms}$
- Designed for all environments: IP66 protection & C5-M anti-corrosion
- Intelligent thermal management with standard battery heating and active cooling, operable from  $-20^{\circ}\text{C}$  to  $55^{\circ}\text{C}$
- 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



# 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.

## DATASHEET

## FlexAIO-BAT6kWh-D, FlexAIO-BAT9kWh-D

| Models                                     | 6kWh                                                                                                                 | 9kWh    |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------|
| Performance                                |                                                                                                                      |         |
| Battery type                               | LiFePO <sub>4</sub>                                                                                                  |         |
| 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 <sup>①</sup>                    | ≥ 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 |         |

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%.