



make the world greener



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## RESIDENTIAL ENERGY STORAGE SYSTEM

# ABOUT US

Sunrise New Energy Technology Co., Ltd. (hereafter "SUNRISE"), incorporated in Kano State, Nigeria, is dedicated to delivering all-encompassing one-stop solar solutions for both residential and commercial & industrial (C&I) sectors across Nigeria.

Its parent company, Shandong Longguang Tianxu Solar Energy Co., Ltd. (abbreviated as "Tanso"), is a global leader in advanced solar solutions. Tanso, with its advanced technologies and rich experience, paves the way for SUNRISE to play a significant role in the Nigerian solar energy market.

The company's core product portfolio encompasses solar photovoltaic systems and solar thermal products. Our offerings include grid-tied solar systems, hybrid solar systems, solar water heating systems, solar water pumping systems, solar irrigation systems, and more. These solutions integrate our proprietary products alongside those from other leading Chinese brands, guaranteeing comprehensive support for all kinds of power needs and contributing significantly to carbon footprint mitigation.



## Qualifications and Honors

- National Green Factory
- National-level "Little Giant" Enterprise
- National High-tech Enterprise
- Single Product Champion in Manufacturing Industry of Shandong Province
- Quality-leading Brand in the National Solar Photothermal Industry
- Provincial Enterprise with "Abiding by Contracts and Valuing Credit"
- Provincial Enterprise Technology Center of Shandong Province
- Well-known Brand in Shandong
- High-quality Brand in Shandong
- Innovative Small and Medium-sized Enterprise
- Specialized, Sophisticated, Unique and Innovative Small and Medium-sized Enterprise

## Service

### Pre-sales

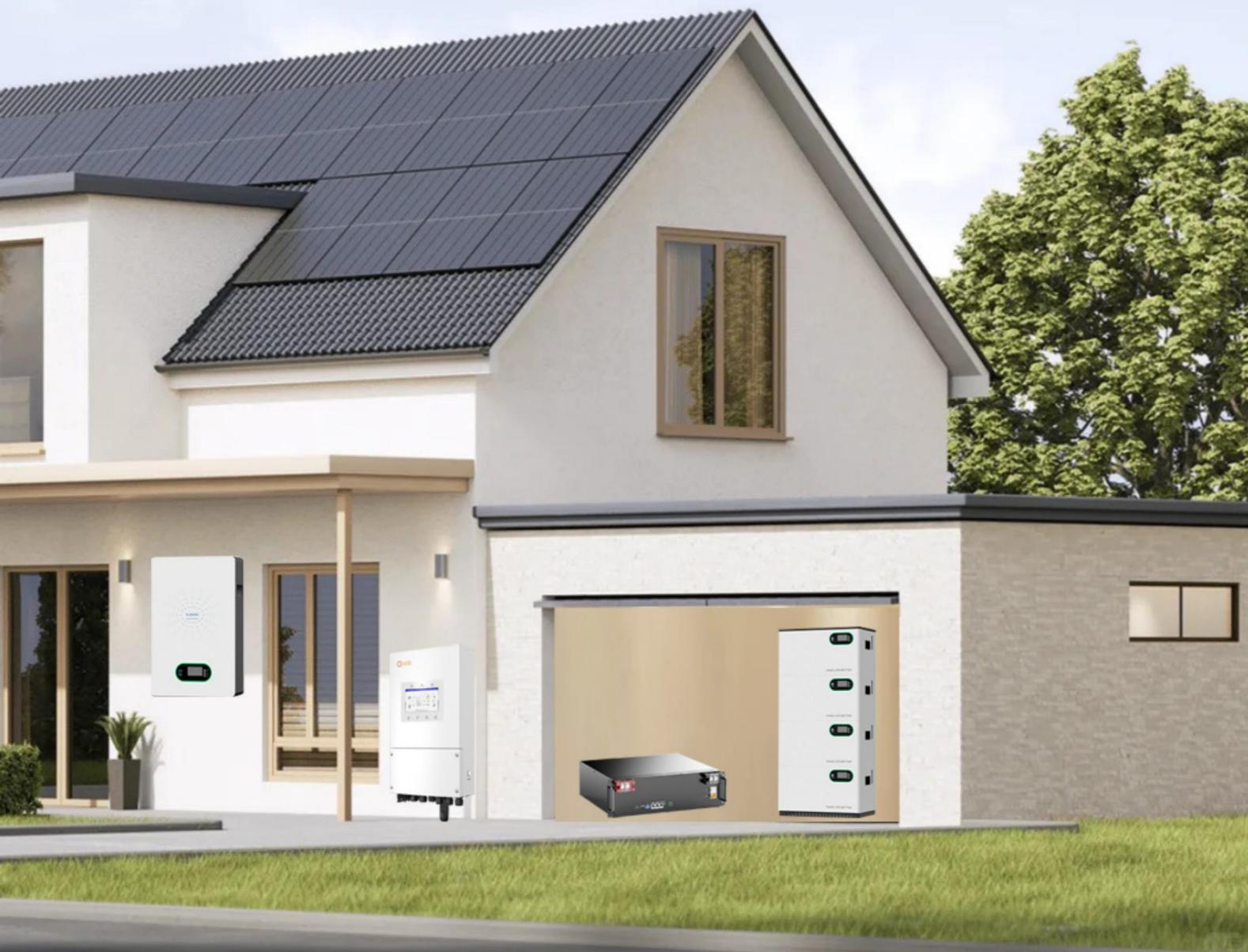
- Investment Consultation
- Site Selection Assistance
- Customized Design Solutions
- Site Construction Support
- Operations and Maintenance Planning

### After-sales

- Standardization of Workflow, Operations, and Policies
- Technical Services, Marketing Support, and Training Programs
- Collaborative Platform for Technical Exchanges
- Creating Value through Win-Win Cooperation
- 24/7 Online Support and Service



# RESIDENTIAL ENERGY STORAGE SYSTEM



## Overview of the Residential Energy Storage System

SUNRISE Residential Energy Storage System is a cutting-edge solution designed to meet the growing demand for sustainable, stable, and reliable home energy management. This system integrates advanced battery technology with intelligent energy management software, offering homeowners the ability to store excess solar energy generated during the day and use it when needed, ensuring a stable and uninterrupted power supply while maximizing energy efficiency.

### Key benefits:

#### Stable Power Supply:

The system ensures continuous, reliable power even during grid outages or instability, offering peace of mind for homeowners.

#### Cost Savings:

The system allows users to optimize energy usage by storing cheaper, off-peak electricity and utilizing it during peak periods, significantly lowering energy bills.

#### Scalable Design:

The modular architecture of the system allows it to be tailored to the specific energy needs of any household, providing flexible capacity options for different usage scenarios.

#### Energy Independence:

By storing excess energy, homeowners can reduce their reliance on the grid, particularly during peak hours or in the event of power disruptions.

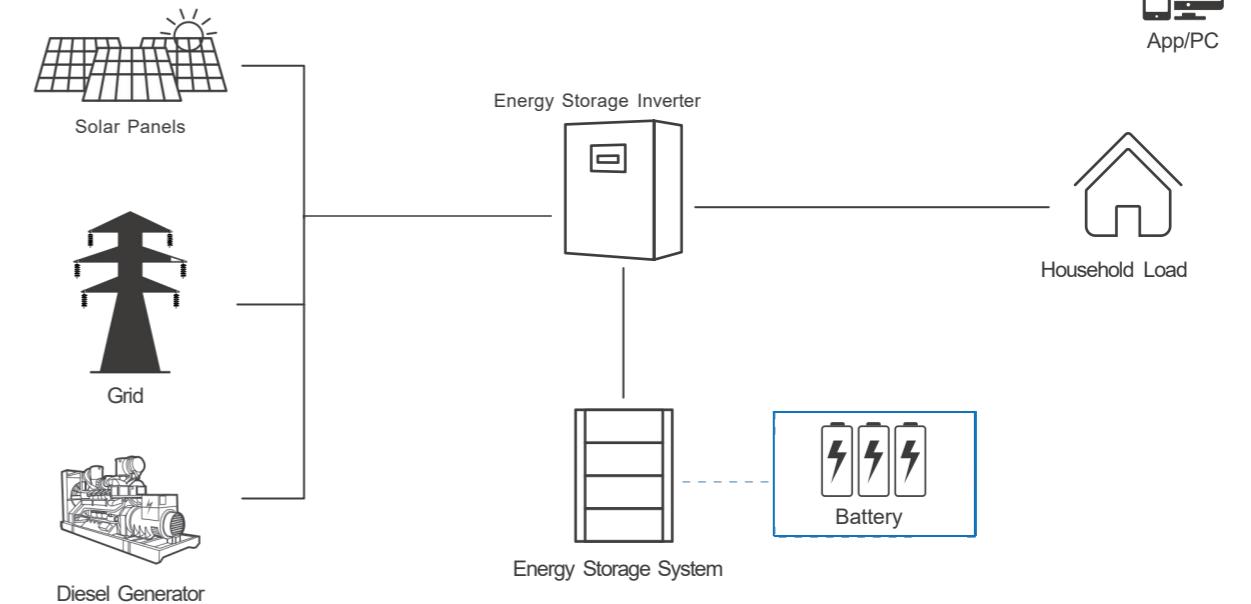
#### Eco-Friendly:

By maximizing the use of solar energy and minimizing dependence on fossil fuels, the system helps reduce the household's carbon footprint.

#### Smart Energy Management:

Integrated with advanced energy monitoring and management software, the system enables real-time data tracking and remote control, giving users full visibility and control over their energy usage.

### System Diagram



# ENERGY STORAGE PRODUCTS LIST



## Battery Module — Rack Design

<b>Model</b>
TS51200-5-S
TS51200-10-S
TS51200-15-S
TS51200-20-S





### Product Description:

- Digital monitoring system APP.
- Canbus standard connection
- High inverter compatibility
- Natural cooling system
- Reliable LFP cells
- IP20

Model	TS51200-5-S	TS51200-10-S	TS51200-15-S	TS51200-20-S
General Parameters				
Nominal voltage	51.2V			
Battery voltage range	43.2-57.6V			
Nominal capacity	100Ah	200Ah	300Ah	400Ah
Rated energy	5.12kWh	10.24kWh	15.36kWh	20.48kWh
Standard Charge / Discharge current	0.5C	0.5C	0.5C	0.5C
Max. Charge/Discharge current	1C	1C	1C	1C
Communication	CAN/RS485			
Expandable capability	15P			
Self-discharge	≤ 3% /month			
Protection	Over voltage & Under voltage/Over current/Short-circuit/Over temperature & Under temperature protection etc.			
System Parameters				
IP rating	IP20			
Cooling	Natural			
Cycles	25±2°C, 0.5C/0.5C, EOL80% ≥ 6000			
Environment				
Operating temperature range	charge:0~+60° C Discharge: -10~ +60° C			
Altitude	0 ~ 4000m (Derating over 2000m)			



### Product Description::

- Digital monitoring system APP
- Reliable LFP cells
- Natural cooling system
- High inverter compatibility
- CANbus standard connection
- IP20

Model	TS-51.2V100Ah-W	TS-51.2V200Ah-W
<b>General Parameters</b>		
Nominal voltage	51.2V	
Battery voltage range	43.2-57.6V	
Nominal capacity	100Ah	200Ah
Rated energy	5.12kWh	10.24kWh
Standard charge/discharge current	0.5C	0.5C
Max. charge/discharge current	1C	1C
Communication interface	CAN/RS485	
Expandable capability	15P	
Self-discharge	3% /month	
Protection	Over voltage & Under voltage/Over current/Short-circuit/Over temperature & Under temperature protection etc.	
<b>System Parameters</b>		
IP rating	IP20	
Cooling	Natural	
Cycles	25±2 , 0.5C/0.5C , EOL80% 6000	
<b>Environment</b>		
Operating temperature range	charge:0~+60° C Discharge: -10~ +60	
Altitude	0~ 4000m (Derating over 2000m)	



Modular design



Operational safety



Battery management system



Flexible and easy-installation



Long service life



Parallel support for more energy

### Product Description::

- Intelligent BMS multiple protection
- Excellent performance standards  $\geq 6000$  cycles life span
- Standard modular design, easy maintenance
- Battery support parallel connection with capacity up to 80kWh
- Support APP remote monitoring, cloud platform intelligent management

Model	TS51200-5-R	TS51200-10-R	TS51200-15-R	TS51200-20-R
General Parameters				
Nominal voltage	51.2V			
Battery voltage range	43.2-57.6V			
Nominal capacity	100Ah	200Ah	300Ah	400Ah
Rated energy	5.12 kWh	10.24 kWh	15.36 kWh	20.48 kWh
Standard Charge/ Discharge current	0.5C	0.5C	0.5C	0.5C
Max. Charge/Discharge current	1C	1C	1C	1C
Communication	CAN/RS485			
Expandable capability	15P			
Self-discharge	$\leq 3\% / \text{month}$			
Protection	Over voltage & Under voltage/Over current/Short-circuit/ Over temperature & Under temperature protection etc.			
System Parameters				
IP rating	IP20			
Cooling	Natural			
Cycles	$25\pm2^\circ\text{C}, 0.5\text{C}/0.5\text{C}, \text{EOL}80\% \geq 6000$			
Environment				
Operating temperature range	charge: $0\sim+60^\circ\text{C}$ Discharge: $-10\sim+60^\circ\text{C}$			
Altitude	0 ~ 4000m (Derating over 2000m)			



### Product Description::

- Digital monitoring system APP
- Reliable LFP cells
- Natural cooling system
- High inverter compatibility
- CANbus standard connection
- IP20

Model	TS-51.2V100Ah - V	TS-51.2V200Ah - V	TS-51.2V300Ah - V
<b>General Parameters</b>			
Nominal voltage	51.2V		
Battery voltage range	43.2-57.6V		
Nominal capacity	100Ah	200Ah	300Ah
Rated energy	5.12kWh	10.24kWh	15.36kWh
Standard charge/discharge current	0.5C	0.5C	0.5C
Max. charge/discharge current	1C	1C	200A
Communication interface	CAN/RS485		
Expandable capability	15P		
Self-discharge	3% /month		
Protection	Over voltage & Under voltage/Over current/Short-circuit/Over temperature & Under temperature protection etc.		
<b>System Parameters</b>			
IP rating	IP20		
Cooling	Natural		
Cycles	25±2 , 0.5C/0.5C , EOL80% 6000		
<b>Environment</b>			
Operating temperature range	charge:0~+60° C Discharge: -10~ +60		
Altitude	0~ 4000m (Derating over 2000m)		



All in one system



Modular &amp; Stacked Design



Battery energy management system



MPPT solar charging



Long service life



With communication protocol

## Product Description:

- Digital monitoring system APP
- Reliable LFP cells
- Natural cooling system
- High inverter compatibility
- CANbus standard connection
- IP20

Model	TS-3500A-5	TS-5000A-5	TS-5500A - 10	TS-5500A -15
<b>Inverter parameter</b>				
Rated power	3500W	5000W	5500W	5500W
AC rated voltage	230VAC			
Selectable voltage range	170-280VAC			
Frequency range	50HZ-60Hz			
AC voltage	230VAC±5%			
Efficiency	≥ 93.5%			
Transfer time	10ms			
Waveform	Sine Wave			
Rated battery voltage	51.2V			
Battery voltage range	40-60V			
Compatible battery type	Lithium			
Max.PV array open circuit voltage	500VDC			
Max.PV array power	3500W	5000W	5500W	5500W
MPPT range@ Operating voltage	120-450VDC			
Max.charge current	80A		100A	
Net weight	10kg			
Dimension	550*200*324 mm			
<b>Battery parameter</b>				
Rated capacity	5.12 kWh	5.12 kWh	10.24kWh	15.36 kWh
Nominal voltage	51.2V			
Discharge voltage range	43.2-57.6V			
Charging current	0.5C@25°C			
Max.charging current	1C@25°C			
Max.discharge current	1C@25°C			
Max.power output	5120Wh	5120Wh	10240Wh	15360Wh
Depth of discharge DOD	0.9			
Communication Interface	RS485/RS232/CAN			
Cycles	25±2°C , 0.5C/0.5C , EOL80% ≥ 6000			
Working Temp.Range	Charge: 0°C ~50°C Discharge: -10°C ~60°C			
Storage temperature	-20°C ~ +60°C			
Net weight	55kg	55kg	100kg	145kg
Dimension	550*200* 697mm	550*200* 697mm	550*200* 1070mm	550*200* 1443mm



All in one system



Modular &amp; Stacked Design



Battery energy management system



MPPT solar charging



Long service life



With communication protocol

### Product Description:

- One-stop home solutiont
- Modular design and intelligent switching
- Each battery is equipped with an independent BMS battery energy management system
- Support GPRS/WIFI/RS485, remote monitoring
- Warranty 3 years, 10+ years life design

Model	TS-10000A-15
<b>Inverter parameter</b>	
Rated power	
AC rated voltage	230VAC
Selectable voltage range	90-280VAC
Frequency range	50HZ-60Hz
AC voltage	230VAC±5%
Efficiency	≥ 93.5%
Transfer time	10ms
Waveform	Sine Wave
Rated battery voltage	51.2V
Battery voltage range	40-60V
Compatible battery type	Lithium
Max.PV array open circuit voltage	500VDC
Max.PV array power	11KW
MPPT range@ Operating voltage	90-450VDC
Max.charge current	150A
<b>Battery parameter</b>	
Rated capacity	15.36 kWh
Nominal voltage	51.2V
Discharge voltage range	43.2-57.6V
Charging current	0.5C@25°C
Max.charging current	200A@25°C
Max.discharge current	200A@25°C
Max.power output	15360Wh
Depth of discharge DOD	0.9
Communication Interface	RS485/RS232/CAN
Cycles	25±2°C, 0.5C/0.5C, EOL80% ≥ 6000
Working Temp.Range	Charge: 0°C ~50°C Discharge: -10°C ~60°C



ALL in one system



Modular & Slacked Design



Battery energy management system



MPPT solar charging



Long service life



With communication protocol

### Product Description:

- One-stop home solutiont
- Modular design and intelligent switching
- Each battery is equipped with an independent BMS battery energy management system
- Support GPRS/WIFI/RS485, remote monitoring
- Warranty 3 years, 10+ years life design

Model	TS-10000A-10	TS-10000A-15	TS-10000A -20	TS-10000A -25	TS-10000A -30
<b>Inverter parameter</b>					
Rated power	10KW				
AC rated voltage	230VAC				
Selectable voltage range	90-280VAC				
Frequency range	50HZ-60Hz				
AC voltage	230VAC±5%				
Efficiency	93.5%				
Transfer time	10ms				
Waveform	Sine Wave				
Rated battery voltage	51.2V				
Battery voltage range	43.2-57.6V				
Compatible battery type	Lithium				
Max.PV array open circuit voltage	500VDC				
Max.PV array power	11KW				
MPPT range@ Operating voltage	90-450VDC				
Max.charge current	150A				
<b>Battery parameter</b>					
Rated capacity	10KWh	15KWh	20KWh	25KWh	30KWh
Nominal voltage	51.2V				
Discharge voltage range	43.2-57.6V				
Charging current	0.5C@25°C				
Max.charging current	1C@25°C				
Max.discharge current	1C@25°C				
Max.power output	10240KWh	15360KWh	20480KWh	25600KWh	30720KWh
Depth of discharge DOD	0.9				
Communication Interface	RS485/RS232/CAN				
Cycles	25±2°C , 0.5C/0.5C , EOL80% ≥ 6000				
Working Temp.Range	Charge: 0°C ~50°C Discharge: -10°C ~60°C				


**DATASHEET**
**S6-EO1P(4-5)K-48**

Models	4K	5K
<b>Solar Charger</b>		
Max. usable PV input power	5.5 kW	6.5 kW
Max. input voltage	500 V	500 V
Start-up voltage	90 V	90 V
MPPT voltage range	90-430 V	90-430 V
Max. input current	16 A / 16 A	16 A / 16 A
Max. short circuit current	40 A	40 A
Max. solar charge current	100 A	100 A
MPPT number/Max. input strings number	1/2	1/2
<b>Battery</b>		
Battery type	Li-ion / Lead-acid	Li-ion / Lead-acid
Rated battery voltage	48 V	48 V
Max. charge / discharge power	5 kW / 5 kW	5 kW / 5 kW
Max. charge / discharge current	100 A	100 A
Communication	CAN	CAN
<b>Inverter Output</b>		
Rated output power	4 kVA / 4 kW	5 kVA / 5 kW
Operation phase	1/N/PE	1/N/PE
Rated grid voltage	230 V ± 1%	230 V ± 1%
Rated grid frequency	50 Hz / 60 Hz ± 0.1%	50 Hz / 60 Hz ± 0.1%
Surge capacity	8 kVA	10 kVA
Max. output current	20 A	25 A
Output voltage waveform	Pure sine wave	Pure sine wave
Transfer time	10 ms typical, 20 ms Max	10 ms typical, 20 ms Max
THDv (@linear load)	<3%	<3%
Peak efficiency (PV-AC)	96.6%	96.6%
<b>AC Charger (grid port and generator port)</b>		
Max. input power	6 kW	7 kW
Rated input voltage	1/N/PE, AC 230 V	1/N/PE, AC 230 V
Selectable voltage range	90-280 V	90-280 V
AC frequency range	50 Hz / 60 Hz	50 Hz / 60 Hz
Max. input current	26 A	30 A
Max. AC charge current	60 A	80 A
<b>Protection</b>		
Output over voltage protection	Yes	Yes
Output over current protection	Yes	Yes
Short circuit protection	Yes	Yes
Surge protection	Yes	Yes
Temperature protection	Yes	Yes
Integrated AFCI (DC arc-fault circuit protection)	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>
<b>General Data</b>		
Dimensions (W*H*D)	340*480*170 mm	340*480*170 mm
Weight	13.8 kg	13.8 kg
Topology	High frequency non-isolation	High frequency non-isolation
Relative humidity	5% - 95% (Non-condensing)	5% - 95% (Non-condensing)
Operating ambient temperature range	-10 ~ +60°C	-10 ~ +60°C
Storage temperature range	-25 ~ +60°C	-25 ~ +60°C
Ingress protection	IP21	IP21
Max. operation altitude	2000 m	2000 m
Parallel capability	6 units	6 units
Safety standard	IEC 62109, IEC 61000, 55011	IEC 62109, IEC 61000, 55011
<b>Features</b>		
DC connection	Terminal connectors	Terminal connectors
AC connection	Terminal connectors	Terminal connectors
Display	LCD	LCD
Communication	CAN, BMS, Dry-contact, Bluetooth, Optional: Wi-Fi	CAN, BMS, Dry-contact, Bluetooth, Optional: Wi-Fi

(1) Activation required.


**DATASHEET**
**S6-EH1P(3-8)K-L-PLUS**

Models	3K	3.6K	4.6K	5K	6K	8K
<b>Input DC (PV side)</b>						
Recommended max. PV array size	6 kW	7.2 kW	9.2 kW	10 kW	12 kW	16 kW
Max. usable PV input power	4.8 kW	5.76 kW	7.36 kW	8 kW	9.6 kW	12.8 kW
Max. input voltage		500 V				
Rated voltage		330 V				
Start-up voltage		90 V				
MPPT voltage range		90 - 435 V				
Max. input current	16 A / 16 A					32 A / 32 A
Max. short circuit current	20 A / 20 A				40 A / 40 A	40 A / 40 A
MPPT number / Max. input strings number	2 / 2				2 / 4	2 / 4
<b>Battery</b>						
Battery type					Li-ion / Lead-acid	
Battery voltage range					40 - 60 V	
Max. charge / discharge power	3 kW	3.6 kW	4.6 kW	5 kW	6 kW	8 kW
Max. charge / discharge current	70 A	80 A	105 A	112 A	135 A	190 A
Communication					CAN / RS485	
<b>Output AC (Grid side)</b>						
Rated output power	3 kW	3.6 kW	4.6 kW	5 kW	6 kW	8 kW
Max. apparent output power	3 kVA	3.6 kVA	4.6 kVA	5 kVA	6 kVA	8 kVA
Operation phase					L/N/PE	
Rated grid voltage					220 V / 230 V	
Rated grid frequency					50 Hz / 60 Hz	
Rated grid output current	13.7 A / 13.1 A	16.4 A / 15.7 A	20.9 A / 20 A	22.8 A / 21.8 A	27.3 A / 26.1 A	36.4 A / 34.8 A
Max. output current	13.7 A / 13.1 A	16.4 A / 15.7 A	20.9 A / 20 A	22.8 A / 21.8 A	27.3 A / 26.1 A	36.4 A / 34.8 A
Power factor					> 0.99 (0.8 leading - 0.8 lagging)	
THDi					< 2%	
<b>Input AC (Grid side)</b>						
Input voltage range					187 - 253 V	
Max. input current	21 A	25 A	29 A	32 A	40 A	50 A
Frequency range					45 - 55 Hz / 55 - 65 Hz	
<b>Output AC (Back-up)</b>						
Rated output power	3 kW	3.6 kW	4.6 kW	5 kW	6 kW	8 kW
Max. apparent output power					2 times of rated power, 10 s	
Back-up switch time					< 4 ms	
Rated output voltage					L/N/PE, 220 V / 230 V	
Rated frequency					50 Hz / 60 Hz	
Rated output current	13.7 A / 13.1 A	16.4 A / 15.7 A	20.9 A / 20 A	22.8 A / 21.8 A	27.3 A / 26.1 A	36.4 A / 34.8 A
Max. AC passthrough current	35 A	35 A	40 A	40 A	40 A	50 A
THDv (@linear load)					< 2%	
<b>Efficiency</b>						
Max. efficiency					96.2%	
EU efficiency					96.1%	
BAT charged by PV / AC max. efficiency					95.3% / 93.9%	
BAT discharged to AC max. efficiency					93.8%	
<b>Protection</b>						
Ground fault monitoring					Yes	
DC reverse-polarity protection					Yes	
Integrated AFCI 2.0					Optional	
Protection class / Overvoltage category					I / II (PV and BAT), III (MAINS and BACKUP and GEN)	
<b>General Data</b>						
Dimensions (W × H × D)					335 × 560 × 253 mm	
Weight					23 kg	23.5 kg
Topology					High frequency isolation (for battery)	
Operating ambient temperature range					-40 ~ +60°C	
Ingress protection					IP66	
Cooling concept					Natural cooling	Intelligent fan-cooling
Max. operation altitude					3000 m	
Grid connection standard					NRS 097-2-1, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530, MEA, PEA, NBR 16149, NBR 16150	
Safety / EMC standard					IEC/EN 62109-1/-2, EN 61000-6-2/-3	
<b>Features</b>						
DC connection					MC4 plug (PV port) / Terminal Block (BAT port)	
AC connection					Terminal Block	
Display					7.0" LCD display & Bluetooth + APP	
Communication					RS485, CAN, Optional: Wi-Fi, GPRS, LAN	


**DATASHEET**
**S6-EH1P(12-16)K03-NV-YD-L**

Models	12K	14K	16K
<b>Input DC (PV side)</b>			
Recommended max. PV array size	24 kW	28 kW	32 kW
Max. usable PV input power	19.2 kW	22.4 kW	22.4 kW
Max. input voltage	550 V		
Rated voltage	380 V		
Start-up voltage	100 V		
MPPT voltage range	80-520 V		
Max. input current	40 A / 40 A / 40 A		
Max. short circuit current	50 A / 50 A / 50 A		
MPPT number/Max. input strings number	3/6		
<b>Battery</b>			
Battery type	Li-ion / Lead-acid		
Battery voltage range	40 - 60 V		
Max. charge / discharge power	12 kW	14 kW	16 kW
Communication	CAN/RS485		
<b>Output AC (Grid side)</b>			
Rated output power	12 kW	14 kW	16 kW
Operation phase	L/N/PE		
Rated grid voltage	220 V / 230 V		
Rated grid frequency	50 Hz / 60 Hz		
Rated grid output current	54.5 A / 52.2 A	63.6 A / 60.9 A	72.7 A / 69.6 A
Power factor	>0.99 (0.8 leading - 0.8 lagging)		
THDi	<3%		
<b>Input AC (Grid side)</b>			
Input voltage range	187-253 V		
Max. input current	81.8 A / 78.3 A	95.5 A / 91.3 A	109.1 A / 104.3 A
Frequency range	45-55 Hz/55-65 Hz		
<b>Output AC (Back-up)</b>			
Rated output power	12 kW	14 kW	16 kW
Max. apparent output power	2 times of rated power, 10 s		
Back-up switch time	<4 ms		
Rated output voltage	L/N/PE, 220 V / 230 V		
Rated frequency	50 Hz / 60 Hz		
Rated output current	54.5 A / 52.2 A	63.6 A / 60.9 A	72.7 A / 69.6 A
THDv (@linear load)	<3%		
<b>Input Generator</b>			
Max. input power	12 kW	14 kW	16 kW
Max. input current	54.5 A / 52.2 A	63.6 A / 60.9 A	72.7 A / 69.6 A
Rated input frequency	50 Hz / 60 Hz		
<b>Efficiency</b>			
Max. efficiency	97.6%		
EU efficiency	97.2%		
BAT charged by PV Max. efficiency	> 94.9%		
BAT charged/discharged to AC Max. efficiency	> 94.33%/93.51%		
<b>Protection</b>			
Surge protection	Yes		
DC reverse-polarity protection	Yes (PV only)		
Ground fault monitoring	Yes		
Integrated AFCI 2.0	Optional		
Protection class/Overvoltage category	I / II (PV and BAT), III (MAINS and BACKUP and GEN)		
<b>General Data</b>			
Dimensions (W*H*D)	464*763*282 mm		
Weight	48.5 kg		
Topology	Transformerless		
Operating ambient temperature range	-25 ~ +60°C		
Ingress protection	IP66		
Cooling concept	Intelligent redundant fan-cooling		
Max. operation altitude	4000 m		
Grid connection standard	NRS 097-2-1, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530		
Safety/EMC standard	IEC/EN 62109-1/-2, EN 61000-6-2/-3		
<b>Features</b>			
DC connection	MC4 plug (PV port) / Terminal Block (BAT port)		
AC connection	Terminal Block		
Display	LCD + Bluetooth + APP		
Communication	RS485, Optional: Cellular, Wi-Fi, LAN		