

SENMARCK ENERGY

HEADQUARTERS

Add: No. 333 Longfei Rd, Longgang District, Shenzhen, China.

Tel: +86-755-28908130

E-mail: sales@senmarck.com Website: www.senmarck.com



GUARD PLUS RESIDENTIAL ENERGY STORAGE SYSTEM

Powering solutions™

2024

Web www.senmarck.com



About Senmarck

Senmarck Energy Limited is high-tech global company based in Shenzhen, China. SENMARCK is ISO9001:2015, ISO45001:2018 and ISO14001:2015 certified company, which specializes in design, production of solar and energy storage systems for residential and commercial applications.

SENMARCK is committed to providing the highest standards of energy storage systems for global customers.



Energy Storage System Factory



Qualification Certificate



GUARD PLUS RESIDENTIAL ESS All-In-One Solution

3.6kW 5kW 10kW

Original CATL LFP battery
The safest battery in the market
10,000 life cycles

High safety for home users
51.2V low voltage battery pack

Hybrid inverter easy set up for self-consumption
battery priority and load shifting and peak shaving

Modular design
Easy installation and expansion



Guard Plus All-in-One--TÜV SÜD Qualification--Quadruple Levels Design



CATL 100Ah LFP Cell

- CATL intelligent manufacturing system
- CATL battery safety- 273 tests
- The long life- 10,000 cycles



CATL Module Level

- Meet UL 94V-0 flame retardant requirements
- Meet GB/T18384 electric shock protection requirement
- Meet EN IEC 61000, EN IEC 62619, UN38.3, CEI 0-21:2022



CATL PACK Level

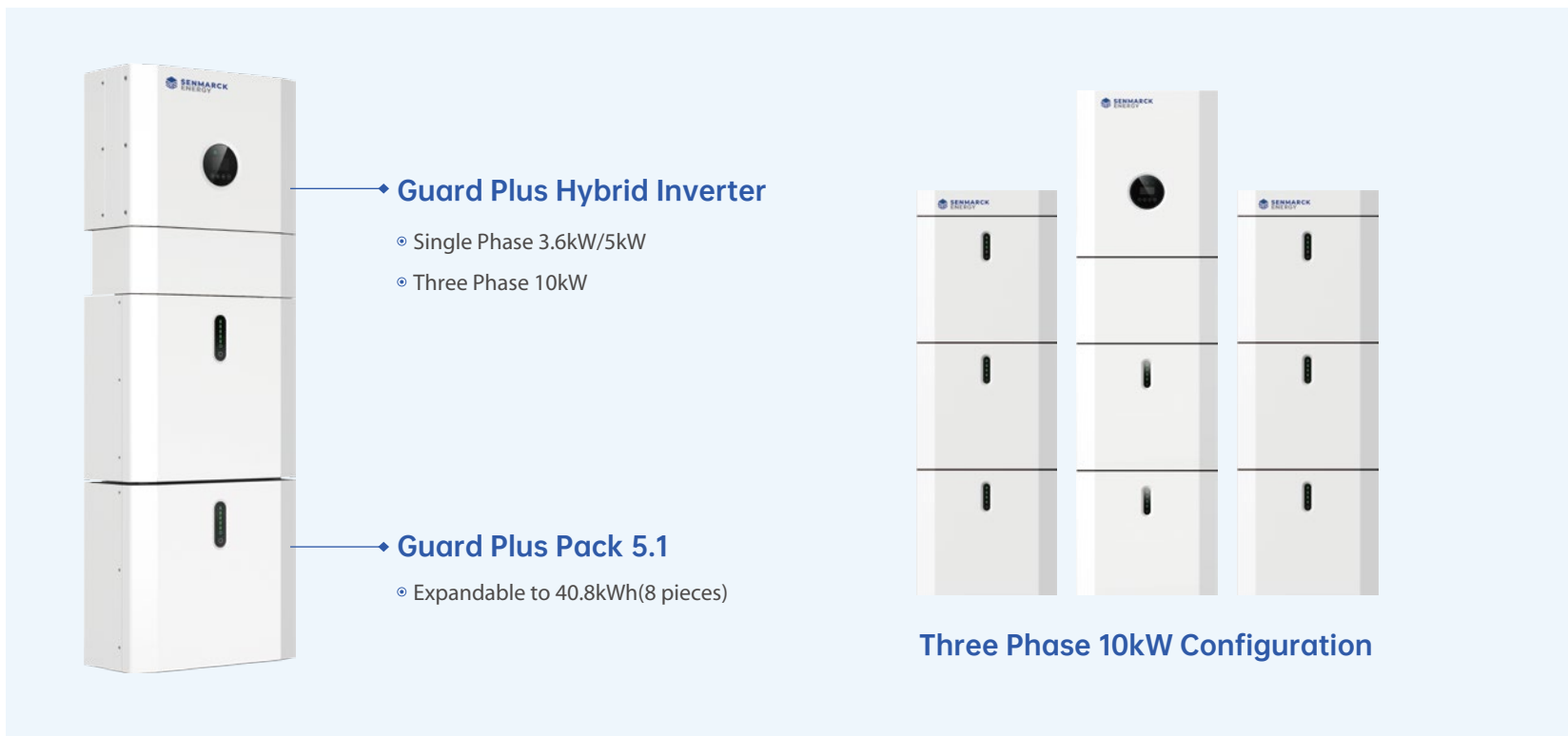
- 51.2V low voltage, safe for home users
- 90% DOD pack level energy optimization
- Pack 5.1kWh, expandable to 40kWh
- Heating film protection, discharge under -10 °C



All-in-One System Level

- System leakage protection, overload and short circuit protection
- Meet inverter safety IEC/EN 62109 requirements
- Meet EU grid-connecting requirements, TÜV SÜD qualification

► Guard Plus All-in-One Energy Storage System



Safe & Reliable
Low voltage battery
safe for home use



Easy Installation
58kg battery module



VPP Function
Support VPP function



UPS Function
Battery priority
work mode

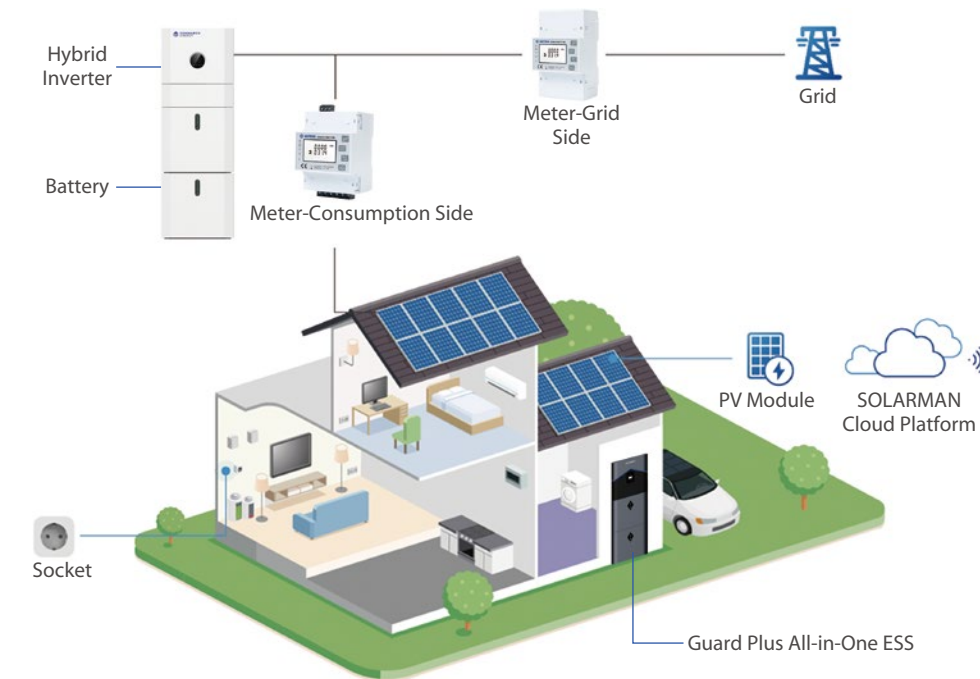


Online Monitoring
24/7 hours online
monitoring

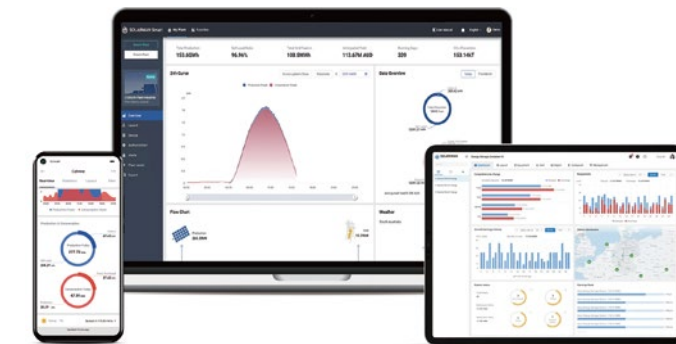


Long life
10,000 CATL cycles of life
10 years warranty

► Energy Storage System For House Owners



► Online Energy Management System



Solarman Smart Home System of Guard Plus ESS is an open protocol monitoring platform. It helps operators to monitor a diverse range of PV plants via PC or mobile APP.

It carries data processing notifications and maintenance functions, supports the PV operators to manage the generation of energy efficiently and comfortably.

Guard Plus Residential ESS

All-in-One Energy Storage System

Single Phase 3.6kW 5kW

-  **Safety & Reliability**
CATL LFP cells and pack, 51.2V low voltage pack, High safety for home users
-  **Cold Climate**
Heating film supports battery charging under extreme weather
-  **Easy Installation**
58kg battery module
-  **UPS & Peak shaving Function**
Battery priority/peak shaving work mode
-  **Online Monitoring**
24/7 hours online monitoring

Battery Model		GUARD PLUS-PACK5.1			
Performance		General Specification			
Energy Capacity	5.12kwh	Max. Charge/Discharge Current	50A/80A	Cooling	Natural convection
Usable Capacity	4.6kwh	Rated DC power	4096W	Noise emission	≤ 25db
Depth of Discharge (DoD)	90%	Max. Charge/Discharge Power	2825W/4096W	Max. operating altitude	≤ 2000m
Nominal Voltage	51.2V	Operating Temperature Range	0 to 50 °C charging	Display	SOC status indicator
DC Circuit Breaker	125A		-10 to 50 °C discharging	Installation	Floor stand(standard), Wall mount(optional)
Operating Voltage Range	44.8-56.5V	Humidity	0~95% (No condensation)	Scalability	Max. 4 battery packs in parallel operation for single phase system; Max. 8 battery packs in parallel operation for 3 phase system;
Internal Resistance	<20mΩ	Capacity	100-400Ah		
Cycle Life	10,000cycle	Power Consumption	<2W	Compatibe inverters	Guard Plus 3680E/5000E, Guard Plus 8KH3/10KH3/12KH3
Battery type	LiFePO4	Communication	CAN & RS485		
System Weight	54KG	Monitoring Parameters	System voltage, current, cell voltage, cell temperature, PCBA temperature measurement	Standard Compliance(more available upon request)	
Dimension (W x D x H)	540*490*240			Certificates	CE, EMC, IEC62619, UN38.3, UL1973
IP Protection	IP65				
Warranty	5 Years Product Warranty, 10 Years Performance Warranty				



Hybrid Inverter Model	Guard Plus 3680E	Guard Plus 5000E
PV String Input		
Max. DC Voltage	580V	580V
Nominal Voltage	400V	400V
MPPT Voltage Range	80V-560V	80V-560V
Start Voltage	130V	130V
Number of MPPT Tracker	2	2
Strings Per MPPT Tracker	1	1
Max. Input Current Per MPPT	15A	15A
Max. Short-circuit Current Per MPPT	18A	18A
Output (On Grid)		
Nominal AC Output Power	3680W	5000W
Max. AC Apparent Power	7360VA (from grid)	7360VA (from grid)
Max. AC Output Power	3680W	5000W ¹
Nominal AC Voltage	230Vac	230Vac
AC Grid Frequency Range	50 / 60Hz±5Hz	50 / 60Hz±5Hz
Max. Output Current	16A	22A ²
Max. Input Current	32A	32A
Power Factor (cosΦ)	0.8leading-0.8lagging	0.8leading-0.8lagging
Max. total harmonic distortion	<3%	<3%
Battery Input		
Battery Type	LFP (LiFePO4)	LFP (LiFePO4)
Nominal Battery Voltage	48V	48V
Charging Voltage Range	40-60V	40-60V
Max. Charging Current	50A	100A
Max. Discharging Current	80A	100A
Battery Capacity	100-400Ah	100-400Ah
Charging Strategy for Li-ion Battery	Depend on the BMS	Depend on the BMS
Output (Off-Grid)		
Max. Output Apparent Power	4000VA	5000VA
Peak Output Apparent Power	6900VA 10sec	6900VA 10sec
Max. Output Current	16A	20A
Rated Output Voltage	230V	230V
Nominal Output Frequency	50/60Hz	50/60Hz
Output THDv (@Linear Load)	<3%(Linear Load)	<3%(Linear Load)
Power Factor Range	0.8leading-0.8lagging	0.8leading-0.8lagging
Efficiency		
Max. PV Efficiency	97.6%	97.6%
Euro. PV Efficiency	97.0%	97.0%

Hybrid Inverter Model	Guard Plus 3680E	Guard Plus 5000E
Features & Protection		
DC Switch	Bipolar DC Switch (125A/Pole)	Bipolar DC Switch (125A/Pole)
Anti-islanding Protection	Yes	Yes
Output Over Current	Yes	Yes
DC Reverse Polarity Protection	Yes	Yes
String Fault Detection	Yes	Yes
AC/DC Surge Protection	DC Type II; AC Type III	DC Type II; AC Type III
Insulation Detection	Yes	Yes
AC Short Circuit Protection	Yes	Yes
Input-side disconnection device	YES	YES
Residual current monitoring	YES	YES
AC overcurrent protection	YES	YES
AC overvoltage protection	YES	YES
Ripple receiver control	YES	YES
Battery reverse charging from grid	YES	YES
General Data		
Dimensions W x H x D	540*590*240mm	
Weight	32kg	
Operating Temperature Range	-25 C ~+60 C	
Noise (dB)	<25	
Cooling Type	Natural Convection	
Max. Operation Altitude	2000m	
Operation Humidity	0~95% (No Condensation)	
IP Class	IP65	
Topology	Battery Isolation	
Communication	RS485/CAN2.0/WIFI/4G	
Display	LCD/APP	
Standard Compliance (more available upon request)		
Certificates	IEC 62109-1:2010; EN IEC 61000-6-1:2019	
	EN IEC 61000-6-2:2019; EN IEC 61000-6-4:2019	
	EN 61000-6-3:2007/A1:2011; EN IEC 61000-3-11:2019	
	IEC 62109-2:2011; IEC 61683:1999; IEC63056:2020	
Grid connection standards	VDE-AR-N 4105:2018	
	DIN VDE V 0124-100:2020; CEI 0-21:2019; EN50549-1;	
	G99; UNE217001, UNE217002, UNE206007	
	NTS V2.1 Type A	

*1. Nominal AC output power is 4999W for Australia and 4600W for Germany and South Africa.

*2. Maximum output current is 21.7A for Australia and 20A for Germany and South Africa.

Guard Plus Residential ESS

All-in-One Energy Storage System

Three Phase 10kW Battery made by CATL

- Safety & Reliability**
CATL LFP cells and pack, 51.2V low voltage pack, High safety for home users
- Simple & Easy**
Plug & Play modules, One man installation
- High Efficiency & Multiple Work Modes**
200% PV power input, Self-consumption, UPS backup, peak shaving
- Cold Climate**
Heating film supports battery charging under extreme weather
- Scalable**
Modular pack, expandable to 40kWh
- Online Monitoring**
24/7 hours online monitoring

Battery Model		GUARD PLUS-PACK5.1			
Performance		General Specification			
Energy Capacity	5.12kwh	Max. Charge/Discharge Current	50A/80A	Cooling	Natural convection
Usable Capacity	4.6kwh	Rated DC power	4096W	Noise emission	≤ 25db
Depth of Discharge (DoD)	90%	Max. Charge/Discharge Power	2825W/4096W	Max. operating altitude	≤ 2000m
Nominal Voltage	51.2V	Operating Temperature Range	0 to 50 °C charging	Display	SOC status indicator
DC Circuit Breaker	125A		-10 to 50 °C discharging	Installation	Floor stand(standard), Wall mount(optional)
Operating Voltage Range	44.8-56.5V			Scalability	Max. 4 battery packs in parallel operation for single phase system; Max. 8 battery packs in parallel operation for 3 phase system;
Internal Resistance	<20mΩ	Humidity	0~95% (No condensation)	Compatibe inverters	Guard Plus 3680E/5000E, Guard Plus 8KH3/10KH3/12KH3
Cycle Life	10,000cycle	Capacity	200-800Ah		
Battery type	LiFePO4	Power Consumption	<2W	Standard Compliance(more available upon request)	
System Weight	54KG	Communication	CAN & RS485		
Dimension (W x D x H)	540*490*240	Monitoring Parameters	System voltage, current,	Certificates	CE, EMC, IEC62619, UN38.3, UL1973
IP Protection	IP65		cell voltage, cell temperature,		
Warranty	5 Years Product Warranty, 10 Years Performance Warranty		PCBA temperature measurement		



Hybrid Inverter Model	Guard Plus 10KH3
PV String Input	
Max. Continuous PV Input Power	20kW
Max. DC Voltage	1100V
Nominal Voltage	720V
MPPT Voltage Range	140V-1000V
MPPT Voltage Range (Full Load)	420V-850V
Start Voltage ¹	200V
Number of MPPT	2
Strings Per MPPT	1
Max. Input Current Per MPPT	15A
Max. Short-circuit Current Per MPPT	20A
Output (On Grid)	
Nominal AC Output Power	10kW
Max. AC Apparent Power	11kVA
Nominal AC Voltage	400Vac
AC Grid Frequency Range	50 / 60Hz±5Hz
Nominal Output Current	14.5A
Max. Output Current	16A
Power Factor (cos Φ)	0.8leading-0.8lagging *
Max. total harmonic distortion	< 3%
Battery Input	
Battery Type	LFP (LiFePO4)
Nominal Battery Voltage	51.2V
Charging Voltage Range	44-58V
Max. Charging Current	160A
Max. Discharging Current	200A
Battery Capacity	200/400/600/800Ah
Output (Off Grid)	
Nominal AC Output Power	9.2kW
Max. Apparent Power	10kVA
Nominal Output Current	13.3A
Max. Output Current	14.5A
Nominal Output Voltage	400V
Nominal Output Frequency	50/60Hz
Output THDv (@Linear Load)	<3% (Linear Load)
Power factor range	0.8leading-0.8lagging

Hybrid Inverter Model	Guard Plus 10KH3
Efficiency	
Max. PV Efficiency	97.60%
Euro. PV Efficiency	97.00%
Features & Protections	
Anti-islanding Protection	Yes
Output Over Current Protection	Yes
DC Reverse Polarity Protection	Yes
String Fault Detection	Yes
AC/DC Surge Protection	DC Type II; AC Type III
Insulation Detection	Yes
AC Short Circuit Protection	Yes
Input-side disconnection device	YES
Residual current monitoring	YES
AC overcurrent protection	YES
AC overvoltage protection	YES
Ripple receiver control	YES
Battery reverse charging from grid	YES
General Data	
Dimensions W x H x D	540*980*240mm
Weight	49kg
Operating Temperature Range	-25 °C ~+60 °C
Cooling Type	Natural Convection
Max. Operation Altitude	2000m
Operation Humidity	0~95% (No Condensation)
IP Class	IP65
Topology	Battery Isolation
Communication	RS485/CAN2.0/WIFI/4G
Display	LCD/APP
Standard Compliance (more available upon request)	
Certificates	IEC 62109-1: 2010; EN IEC 61000-6-1: 2019 EN IEC 61000-6-2: 2019; EN IEC 61000-6-4: 2019 EN 61000-6-3:2007/A1: 2011; EN IEC 61000-3-11:2019 IEC 62109-2:2011
Grid connection standards	VDE-AR-N 4105:2018 DIN VDE V 0124-100:2020; CEI 0-21:2019; OVE-Richtlinie R 25:2020; EN 50549-1:2019/AC:2019

* 0.95leading-0.95lagging for Germany.