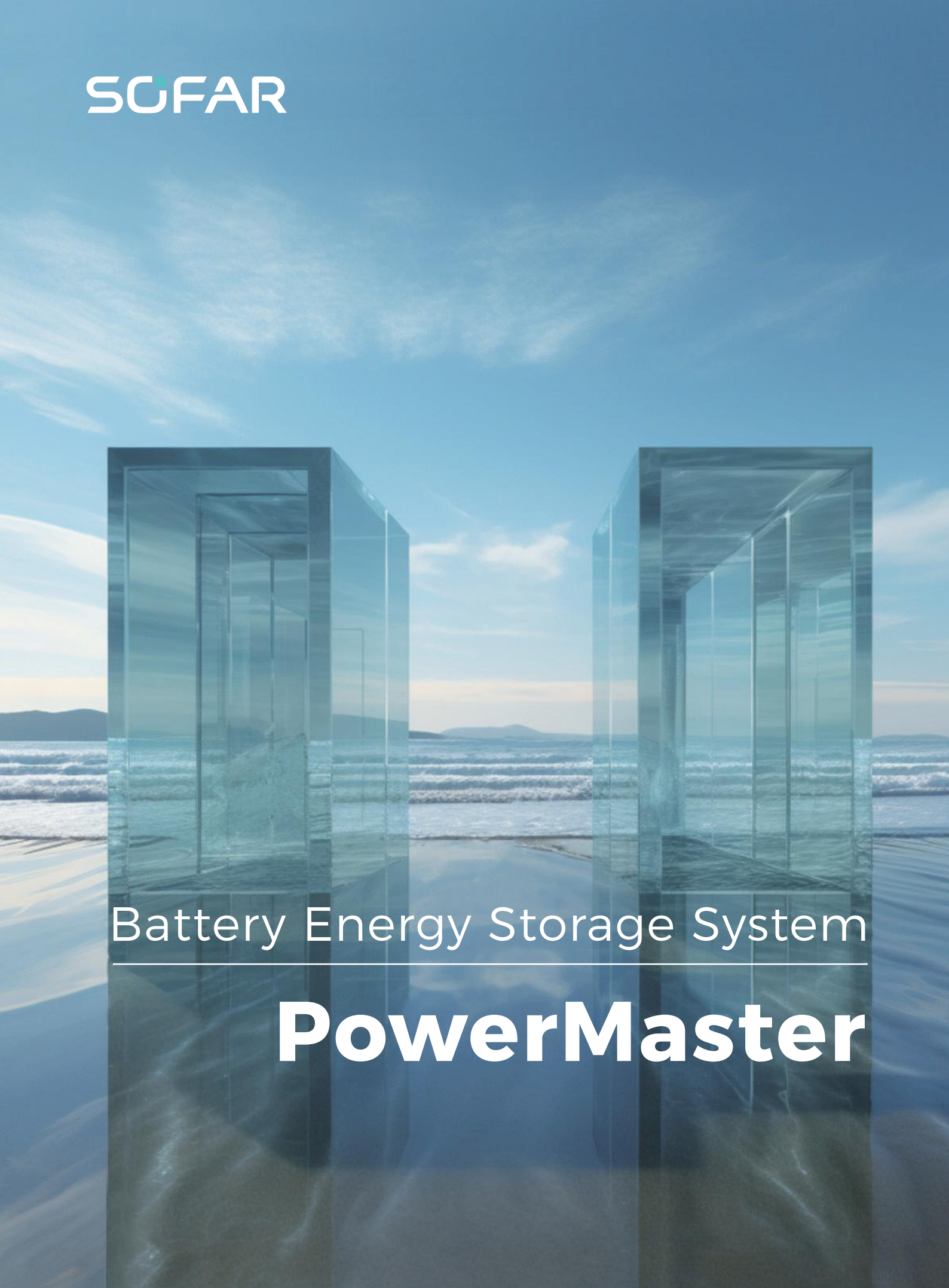
SOFAR



Battery Energy Storage System

PowerMaster

SOFAR INTRODUCTION

SOFAR is a global leading supplier of solar PV and energy storage solutions and committed to be the leader of digital energy solutions. SOFAR supports the transition to renewable energy through a comprehensive portfolio including PV inverters range from 1 kW to 255 kW, hybrid inverters range from 3 kW to 20 kW, battery storage system and smart energy management solutions for residential, commercial & industrial. and utility -scale applications.

Founded in 2013, SOFAR has always insisted on independent innovation and established a global R&D network with three R&D centers. Over 300 employees of its workforce is assigned to R&D, ensuring continuous innovation in order to remain a pioneer in the PV and energy storage industry.

SOFAR has implemented a globalization strategy since its establishment and now has two global manufacturing bases with an annual production capacity of l O GW PV and storage inverters, and l GWh batteries. Its extensive service network contains over 20 branch offices worldwide. SOFAR offices can now be found in the UK, Poland, Germany, South Korea, UAE, Pakistan, Australia, etc. By the end of 2021, SOFAR had shipped over l million inverters to more than 90 countries.

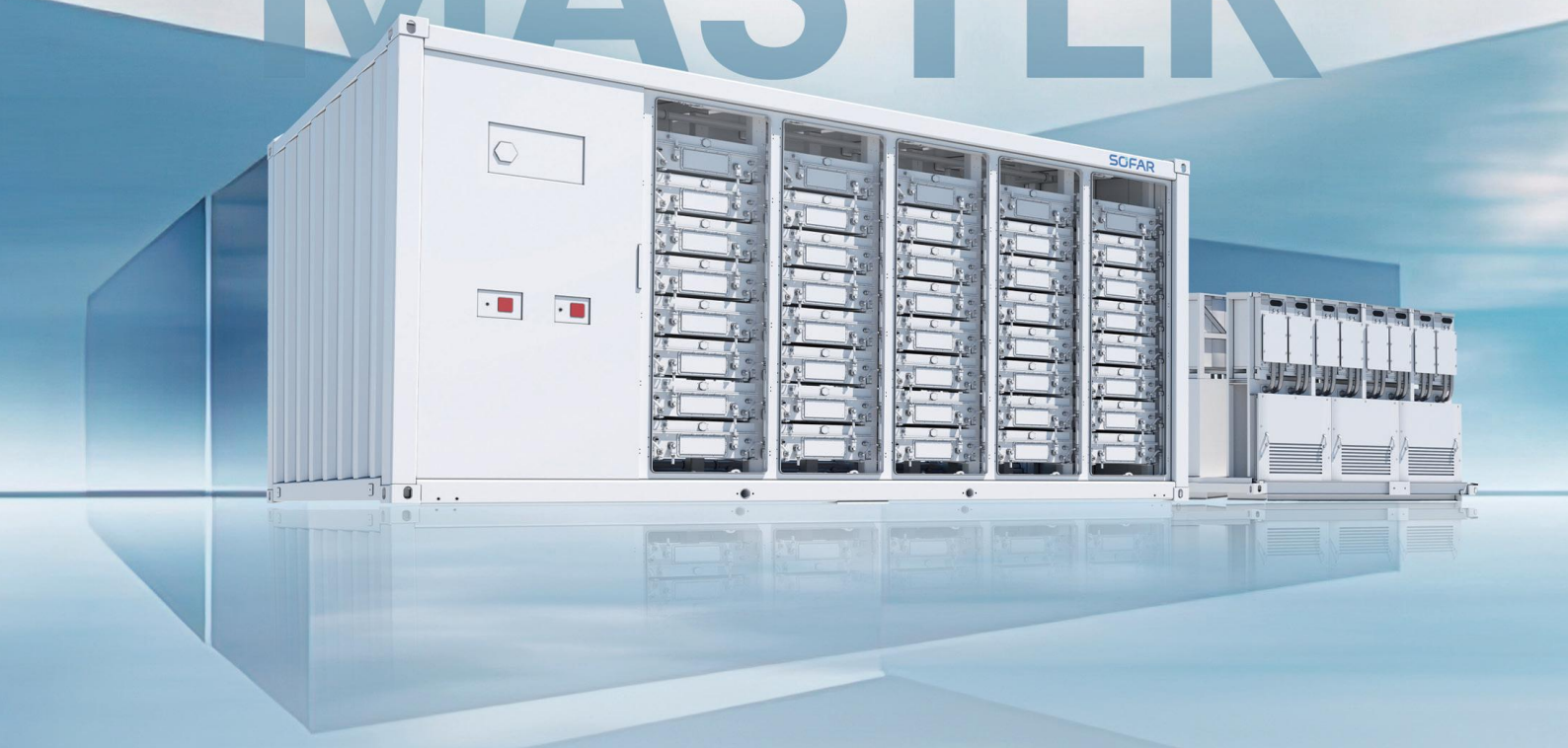
As the world's fastest-growing solar energy brand. SOFAR stands firmly among the mainstream solar energy brands with a compound annual growth rate of 86% from 2019 till 2021.SOFAR has received many awards for its state-of-the-art solutions. including the China "CQC" certification. the Chinese Top 5 String Inverter Brand, and the TOP 5 Global Hybrid Inverter Manufacturer. SOFAR has also been entitled by Eu PD as TOP Brand PV Inverter in India, Poland, the U.K., Italy and Brazil.

Looking forward, SOFAR believes technology drives the green energy transition. Through independent. continuous innovation and state-of-the-art PV solar and energy storage solutions, SOFAR aims to play a key role in this global transition.

PRODUCT PORTFOLIO

Utility ESS

POWER MASTER

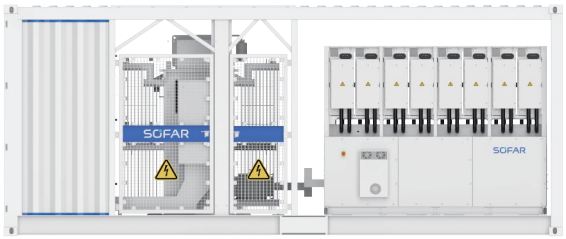


Utility ESS –**PowerMaster**

LESS LCOS | **High Efficiency and Flexibility** | **Ultimate Safety** | **Intelligent Stability**

Utility-Scale Energy Storage System Solution

Battery container



MV station with PCS

Air-Liquid Mixing

Liquid-cooling+ Air-cooling
Intelligent Heat Disspation

Modular Design

One unit malfunction
will not affect others
Easy O&M, Lower OPEX

Suitable For Large Cells

Higher Energy Density
3.93 MWh

3+2 Ultimate Safety Design

Cell-Level
Cabin-Level
Water Firefighting level

Combustible Gas Emissi
Explosion Vent Desig

Container-Combined Layout

Support 20-foot conainers installed side by side, the land area reduced by more than 30 %

High conversion efficiency in the full power range

Smart coordination strategy to ensure high efficiency performance of PCS full power-range

Battery Container

ESS-3M44LA-BD1

Product Advantages

- Highly integrated & all pre-assembled for easy transport and O&M
- Liquid-cooling+ Air-cooling, to realize intelligent heat
- Disspation and Anti-Condensation design
- 3+2 ultimate safey design for protection of property and individuals
- Suitable for larger cells to achieve high energy density
- Support 20-foot conainers installed side by side, the land area reduced by more than 30 %
- IP 55 outdoor cabinet and optional C5 anti-corrosion

BESS Specifications

Cell Type	LFP/280Ah
Nominal Capacity (BOL)	3.44MWh
DC operating voltage range	960~1401.6V
Recommended Working Voltage Range	1036.8~1363.2V
Charge and Discharge Rate	≤0.5P
Operating Ambient Temperature	-30℃~55℃
Working Environment Relative Humidity	0~100%(No Condensation)
Working Altitude	≤4000m
Cooling Method	Air Cooling + Liquid Cooling
Safety design	Perfluoro Gas Firefighting (Cell Level & Cabin Level) + Backup Water FireFighting+Combustible Gas Emission + Explosion Venting Design
Communication Interface	Ethernet/CAN/RS485
Communication Protocol	IEC61850、IEC104、CAN2.0、Modbus
Degree of Protection	IP55
Anti-Corrosion Grade	C4 (C5 optional)
Dimensions (W*D*H)	6058*2438*2896mm
Weight	~34T
Standards	GB/T36276、IEC62619、UL1973、UL9540A、UN3536

PACK Specifications

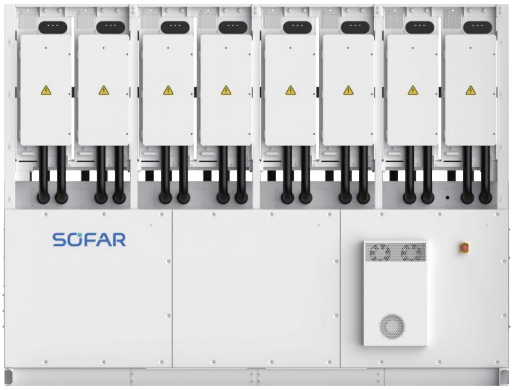
Model	S1G-LP430
Cell Type	LFP
Series and Parallel Mode	1P48S
Nominal Capacity/Energy	280Ah/43kWh
Rated Voltage	153.6V
DC operating voltage range	120~175.8V
Recommended Working Voltage Range	129.6~170.4V
Charge and Discharge Rate	≤0.5P
Working Temperature	-30℃~55℃
Working Environment Relative Humidity	0~100%(No Condensation)
Working Altitude	≤4000m
Cooling Method	Liquid Cooling
Fire Fighting Method	Cell-Level Firefighting (Perfluoro)
Communication Interface	CAN
Degree of Protection	IP67
Dimensions (W*D*H)	765*1050*245mm
Weight	≤310kg
Standards	GB/T36276、IEC62619、UL1973、UN38.3

Rack Specifications

Nominal Energy	344kWh
Configuration	1P384S
Rated Voltage	1228.8V
DC operating voltage range	960~1401.6V
Recommended Working Voltage Range	1036.8~1363.2V
Charge and Discharge Rate	≤0.5P
Working Temperature	-30℃~55℃
Working Environment Relative Humidity	0~100%(No Condensation)
Working Altitude	≤4000m
Cooling Method	Liquid Cooling
Fire Fighting Method	Perfluoro Gas Firefighting
Communication Interface	CAN、Dry Contact
Dimensions (W*D*H)	1050*1105*2400mm
Weight	≤3.2T
Standards	GB/T36276、IEC62619、UL1973

* All specifications are subject to change without notice.

Smart String PCS



Product Advantages

High Yield

- Support 1500Vdc battery system, high conversion efficiency in full power band.
- Modular design, easy installation, easy maintenance, lower OPEX.
- Intelligent air cooling, no derating at 45℃.

Grid Friendly

- Supports IEC61850 and fast power response.
- Supports active and reactive power response and four-quadrant operation.
- Supports high and low voltage ride-through to support the grid.

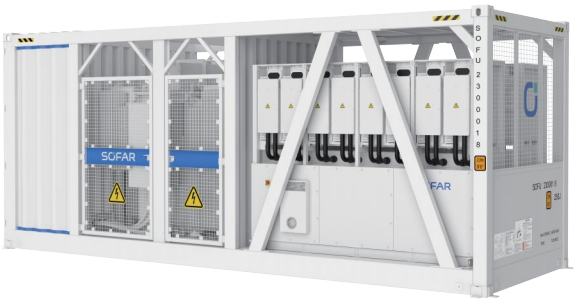
Safe and Reliable

- Module IP66 protection level, system IP55.
- Modularized design, high system availability.

Model	EBI 1725K
DC Side	
Maximum DC Voltage	1500 V
DC Voltage Working Range	1000 ~ 1500 V
Maximum DC Current	875A*2
AC Side (Grid-on)	
Rated AC Power	1725kW
Maximum AC Active Power	1898kW
Maximum AC Apparent Power	1898kVA
Rated AC Current	1443A
Maximum AC Current	1588A
Rated Grid Voltage	690V
Grid Voltage Range	586.5~759V
Rated Grid Frequency	50/60Hz
Grid Frequency Range	45~55Hz/55~65Hz
Power Factor	-1~1, Adjustable
Current Total Harmonic Distortion (@Rated Power)	＜3%
System Characteristics	
Working Temperature	-35℃~60℃
Relative Humidity	0~100%, no condensation
Noise level	＜80dB@1m
Maximum Working Altitude	4000m
Cooling method	Smart air forced cooling
Communication port	CAN, RS485, Ethernet
Communication protocol	CAN2.0, Modbus RTU, Modbus TCP, IEC 61850, IEC104
Degree of Protection	Module：IP66, System：IP55
Mechanical Parameters	
Dimensions (W*H*D)	2790x2115x975 mm
Weight	＜1500kg
Standards	IEC/EN 61000-6-2/4、IEC 62477-1

* All specifications are subject to change without notice.

SP3545K-MV



Product Advantages

Smart O&M

- Modular PCS, easy O&M and more generation
- OTA update, less OPEX

Lower CAPEX

- Integrated PCS, MV transformer, RMU and auxiliary power, lower transportation and installation cost
- Oil leakage tank integrated, lower initial investment

Environment adaptation

- IP55 ingress protection, easy for outdoor installation
- No detating up to 45℃, suitable for high-temp environment
- C5 anti-corrosion degree optional, adjust to harsh applications

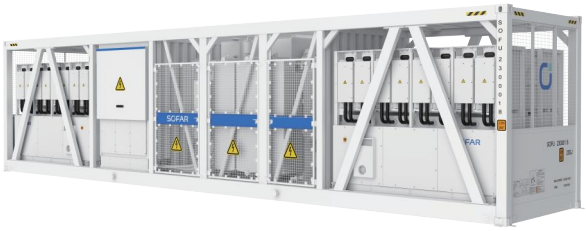
Grid support

- Compliance with standards: IEC 62477-1, IEC 62271-202, IEC 62271-200, IEC 60076 and grid code
- Support L/HVRT, fast active/reactive power response

Model	SP3545K-MV
DC Side	
Max. DC Voltage	1500V
DC Voltage Range	1000~1500V
Max. DC Current	875A*4
AC Side (Grid-on)	
AC Output Power	3545kVA@45℃/3900kVA@35℃
Max. AC Current	2966A@45℃/3263A@35℃ (690V)
PCS Nominal AC Voltage	690V
PCS AC Voltage Range	586.5～759V
Nominal Frequency / Frequency Range	50Hz/45～55Hz (60Hz/55～65Hz)
Harmonic (THD)	＜3% (At nominal power)
Power Factor	-1~1 (Adjustable)
Feed-in Phases / AC Connection	3/3
MV Transformer	
Transformer Rated Power	3545kVA
Transformer Max. Power	3900kVA
LV/MV Voltage	0.69kV/ (6~37) kV
Transformer Vector	Dy11
Transformer Cooling Type	ONAN
Winding Material	Al (Cu optional)
Oil Type	Mineral oil (PCB free) or degradable oil on request
Protection	
PCS Output Protection	Circuit breaker+Fuse
AC Output Protection	Circuit breaker
Surge Protection	Type II+Type I (PCS)
Overheat Protection	Yes
Overcurrent Protection	Yes
Grid Monitoring / Ground Fault Monitoring	Yes/Yes
Insulation Monitoring	Yes
Transformer Protection	Yes (Includes oil temperature, oil level, pressure relief, gas relays)
System Parameters	
Operating Temperature	-35℃~60℃ (Derated above 45℃)
Working Environment Relative Humidity	0~100% (No condensation)
Battery Expansion	Max 5h duration hours BESS (Max 5 ESS-3M44LA-BD1 connected)
Cooling Method	Temperature controlled forced air cooling
Protection Class	IP55
Anti-corrosion Grade	C4-M/C5 (Optional)
Max. Working Altitude	4000m (more than 2000m needs to be customized)
Communication	RS485, CAN, Ethernet
Compliance	IEC 62477-1, IEC 62271-202, IEC 62271-200, IEC 60076
Dimensions (W*D*H)	7000*2438*2896mm
Weights	＜20t

* All specifications are subject to change without notice.

SP7100K-MV



Product Advantages

Smart O&M

- Modular PCS, easy O&M and more generation
- OTA update, less OPEX

Lower CAPEX

- Integrated PCS, MV transformer, RMU and auxiliary power, lower transportation and installation cost
- Oil leakage tank integrated, lower initial investment

Environment adaptation

- IP55 ingress protection, easy for outdoor installation
- No detating up to 45℃, suitable for high-temp environment
- C5 anti-corrosion degree optional, adjust to harsh applications

Grid support

- Compliance with standards: IEC 62477-1, IEC 62271-202, IEC 62271-200, IEC 60076 and grid code
- Support L/HVRT, fast active/reactive power response

Model	SP7100K-MV
DC Side	
Max. DC Voltage	1500V
DC Voltage Range	1000~1500V
Max. DC Current	875A*8
AC Side (Grid-on)	
AC Output Power	7100kVA@45℃/7810kVA@35℃
Max. AC Current	2*2971A@45℃/2*3268A@35℃ (690V)
PCS Nominal AC Voltage	690V
PCS AC Voltage Range	586.5~759V
Nominal Frequency / Frequency Range	50Hz/45~55Hz
Harmonic (THD)	＜3% (At nominal power)
Power Factor	-1~1 (Adjustable)
Feed-in Phases / AC Connection	3/3
MV Transformer	
Transformer Rated Power	7100kVA
Transformer Max. Power	7810kVA
LV/ MV Voltage	0.69kV/ (6.6~37) kV
Transformer Vector	Dy11y11
Transformer Cooling Type	ONAN
Winding Material	Al (Cu optional)
Oil Type	Mineral oil (PCB free) or degradable oil on request
Protection	
PCS Output Protection	Circuit breaker+Fuse
AC Output Protection	Circuit breaker
Surge Protection	Type II+Type I (PCS)
Overheat Protection	Yes
Overcurrent Protection	Yes
Grid Monitoring / Ground Fault Monitoring	Yes/Yes
Insulation Monitoring	Yes
Transformer Protection	Yes (Includes oil temperature, oil level, pressure relief, gas relays)
System Parameters	
Operating Temperature	-35℃~60℃ (Derated above 45℃)
Working Environment Relative Humidity	0~100% (No condensation)
Battery Expansion	Max 5h duration hours BESS (Max 10 ESS-3M44LA-BD1 connected)
Cooling Method	Temperature controlled forced air cooling
Protection Class	IP55
Anti-corrosion Grade	C4-M/C5 (Optional)
Max. Working Altitude	4000m (more than 2000m needs to be customized)
Communication	RS485, CAN, Ethernet
Compliance	IEC 62477-1, IEC 62271-202, IEC 62271-200, IEC 60076
Dimensions (W*D*H)	12192*2438*2896mm
Weights	＜33t

* All specifications are subject to change without notice.

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