

Utility ESS

POWER MASTER



Utility ESS –PowerMaster

LESS LCOS

High Efficiency
and Flexibility

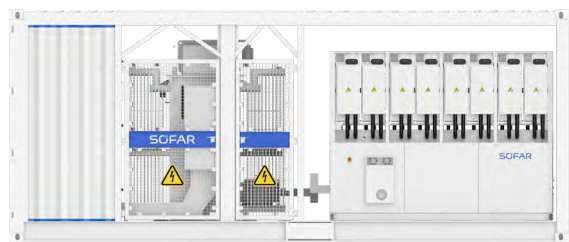
Ultimate Safety

Intelligent Stability

Utility-Scale Energy Storage System Solution



Battery container



MV station with PCS

Air-Liquid Mixing

Liquid-cooling+ Air-cooling
Intelligent Heat Dissipation



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 Emission
Explosion Vent Design



Container- Combined Layout

Support 20-foot containers
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
- Dissipation and Anti-Condensation design
- 3+2 ultimate safety design for protection of property and individuals
- Suitable for larger cells to achieve high energy density
- Support 20-foot containers 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°C.

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 |
| SPD | | DC: type II, AC: type II |
| 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) | | 2790×2115×975 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°C, 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°C, 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.