

Grid Renewable Energy Storage Power Supply(GRES system)

GRES is an intelligent and modular power supply equipment integrating lithium battery and MPCs. According to different application scenarios, lithium battery, bidirectional DC / AC converter, bidirectional DC / DC converter, Static switch and Power management system can be flexibly combined to realize grid connected power supply, off grid power supply and off grid uninterrupted power supply, static reactive power compensation, harmonic suppression and other function etc.. It can access to new energy, power grid, diesel generator to realize multi-energy reasonable configuration, scientific utilization, to provide users with green, environmental protection, noise free, high reliability and high security power services.

With selected LFP batteries for mobile use, it is a robust energy storage solution which could realize ultra mobile, zero-emission, adaptable to different terrains.



Configuration



PCS

Bidirectional AC / DC converter can realize the bidirectional conversion from DC to AC and AC to DC. It can not only convert AC to DC to charge battery, but also convert DC to AC to supply power to load or feed back to power grid.



Battery System

The system mainly consists of safe, efficient and long-life lithium iron phosphate cells, which are connected in series to form battery modules, and multiple modules are connected in series to form battery clusters.



Battery management system

The core components of the system can effectively protect the battery from overcharge, overdischarge and over-current. At the same time, the balanced management of the cells can ensure the safe, reliable and efficient operation of the whole system.



Power Management System

System operation data monitoring, operation strategy management, historical data record, system status record, etc.



Enclosure

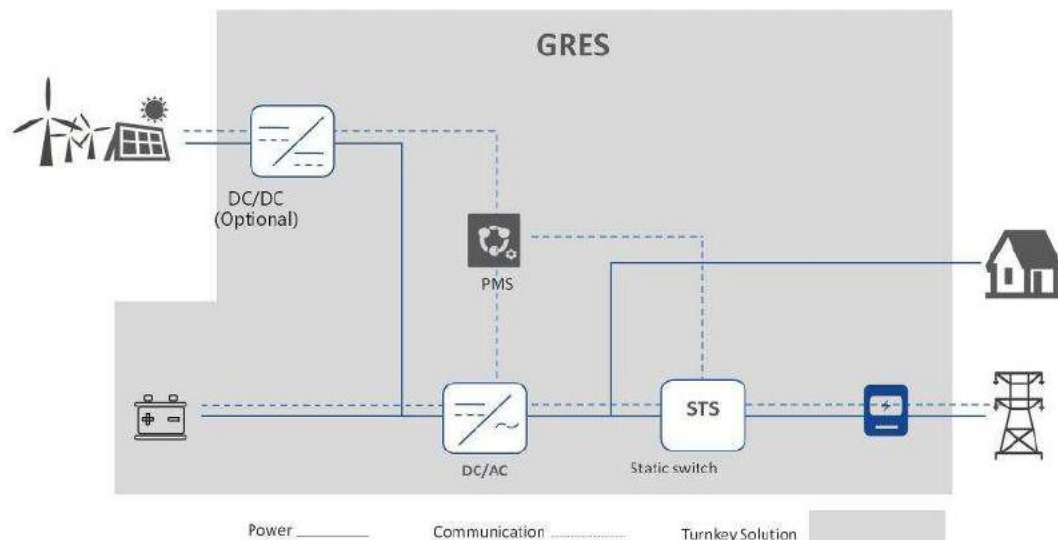
Protection degree IP54.



Air Conditioning

Air Conditioning (HVAC) system is configured to maintained an optimal temperature to maximize energy system operational life and efficiency.

System topology



Key product features and benefits

Safe and reliable

- High quality LFP batteries for mobile use.
- Laser welding is used to wiring electrode, which is of high strength and low impedance.
- Battery module is designed with PC bracket and Reinforce steel structure to guarantee the highest safety of the system, in transportation, installation and operation.
- Damping pad design for Battery installation to Improve the impact resistance of the system.
- IP54, safe and reliable operation in outdoor environment.
- Serially designed PCS and battery pack eliminates circulating current and improve system reliability.
- Integrated BMS, DC, AC multi-layer protection, maximum safety performance design.

Efficient and Convenient

- Integrated system, standard modular power module and battery module, easy for installation, maintenance and capacity expansion.
- Easy access to PV and diesel generator, intelligent multi-energy management.
- Fixed on the ground or mounted on vehicle, can be loaded and unloaded by forklift and hoisted by lifting ring.
- Multi systems could be connected in parallel.

Cost optimization

- One investment, multiple benefits: Peak shaving, backup power supply, microgrid building, power quality improving and energy storage, etc.
- Small size, light weight, less space and installation cost.
- Long cycle life, low failure rate, reduce operation and maintenance investment.
- Maximize green energy utilization.



Industrial and commercial demand management, peak shaving



Peak and frequency regulation, smoothing new energy generation



User side backup power

Application



Mobile Power Supply



Building microgrid system





GRES-75-50

Battery capacity: **75kWh**

PCS capacity: **50kW**

Dimension: **1680*1500*1700** (W*D*H)mm

GRES-150-100

Battery capacity: **150kWh**

PCS capacity: **100kW**

Dimension: **1680*2270*1700** (W*D*H)mm



GRES-225-150

Battery capacity: **225kWh**

PCS capacity: **150kW**

Dimension: **1680*3050*1700**(W*D*H)mm

GRES-300-200

Battery capacity: **300kWh**

PCS capacity: **200kW**

Dimension: **1680*3830*1700**(W*D*H) mm



| Model | GRES-75-50 | GRES-150-100 | GRES-225-150 | GRES-300-200 |
|---------------------------------------|---|----------------|----------------|----------------|
| AC parameters (grid connected) | | | | |
| Rated output power (kW) | 50 | 100 | 150 | 200 |
| Max output power (kW) | 55 | 110 | 165 | 220 |
| Rated grid voltage (V) | 3W+N+PE, 380 | | | |
| Grid voltage range | ±15% | | | |
| Rated grid frequency (Hz) | 50/60 | | | |
| Grid frequency range (Hz) | ±2 | | | |
| Current waveform distortion rate | <3%(Rated voltage) | | | |
| DC component | <0.5%In | | | |
| Power factor | >0.99(Rated voltage) | | | |
| Power factor adjustable range | 1(lead) ~ 1(lag) | | | |
| Overload capacity | 105% Long term | | | |
| AC parameters (off grid) | | | | |
| Rated output power (kW) | 50 | 100 | 150 | 200 |
| Max output power (kW) | 55 | 110 | 165 | 220 |
| Rated grid voltage (V) | 3W+N+PE, 380 | | | |
| Current waveform distortion rate | <3%(Linear Load) | | | |
| Rated frequency(Hz) | 50/60 | | | |
| Overload capacity | 105% Long term | | | |
| Battery | | | | |
| Battery type | Lithium iron phosphate | | | |
| Energy of each module(kWh) | 5.12 | | | |
| Module qty | 15 | 30 | 45 | 60 |
| Total power (kWh) | 76.8 | 153.6 | 230.4 | 307.2 |
| Running Time (h) | 1.5(Optional by Changing module qty) | | | |
| Cyclife | 25°C 1C/1C 100%DOD EOL80% ≥4000 cycles | | | |
| System efficiency | | | | |
| Max efficiency | 95% | | | |
| Protection | | | | |
| DC switch | YES | | | |
| AC switch | YES | | | |
| Grid monitoring | YES | | | |
| Surge protection | DC /AC 2nd level | | | |
| Basic Parameters | | | | |
| Dimension(W*D*H)(mm) | 1680*1500*1700 | 1680*2270*1700 | 1680*3050*1700 | 1680*3830*1700 |
| Weight (kg) | 1395 | 2470 | 3545 | 4620 |
| Isolated transformer | NO | | | |
| On/off grid switching | STS | | | |
| Protection | Outdoor IP54 | | | |
| Working temperature | -20 ~ 55°C (>45°C derating) | | | |
| Relative humidity | 0 ~ 95% (no condensing) | | | |
| Cooling | Intelligent air cooling (intelligent heating optional) | | | |
| Max working altitude(m) | 4000(>2000 derating) | | | |
| Display | Touch screen | | | |
| Communication | RS485、CAN、LAN | | | |
| Communication Protocol | Modbus-RTU, Modbus-TCP, CAN2.0B | | | |
| Certification | IEC62477-1/EN61000/IEC62619/IEC62620/UN38.3 | | | |