



Xiamen HAIKAI New Technology Co., Ltd.

# Industrial Energy Storage System

Customized Battery Pack | Lithium Battery Systems





# About HAIKAI

**We are a specialist manufacturer of energy storage systems and backup power solutions** for industrial (behind-the-meter), commercial, and residential scenarios. We are capable of design and manufacturing BMS, Pack, integrated energy storage solutions, and customized production.

Based in China, we have more than 10 years of experience in the back-up power industry. With strong R&D, reliable quality, and effective supply chain management, we excel at tackling complex technology challenges and delivering high-quality solutions at scale to help our customers realize greater value.

## HAIKAI's OEM and ODM Specialties

- Battery Management System (BMS)
- Customized Battery Pack
- Industrial Energy Storage System (ESS for UPS, DC cabinet, standalone customized systems)
- Energy Storage System for EV Charging Station
- Residential and Commercial Energy Storage System

## Our Strengths

HAIKAI has been awarded over 20 patents for our innovation, utility models, software, and more. Our cutting-edge R&D team is led by Ph. D. researchers and globally educated experts from world-class institutions to provide the most professional support for your projects. We have complete equipment such as automatic vision positioning laser welding, programmable temperature & humidity test chamber to support PACK production, cabinet assembly, and comprehensive machine testing. Our manufacturing line follows the standard of ISO 9001 and Six Sigma under fully implemented ERP and MES process control.

We follow rigorous and standardized production management to guarantee the best lead time and product quality, from order generation, production to delivery. We also accept customization to provide flexibility for your projects. Having partnered with multiple well-known companies, we source the most suitable and trusted materials for your projects at the best cost.



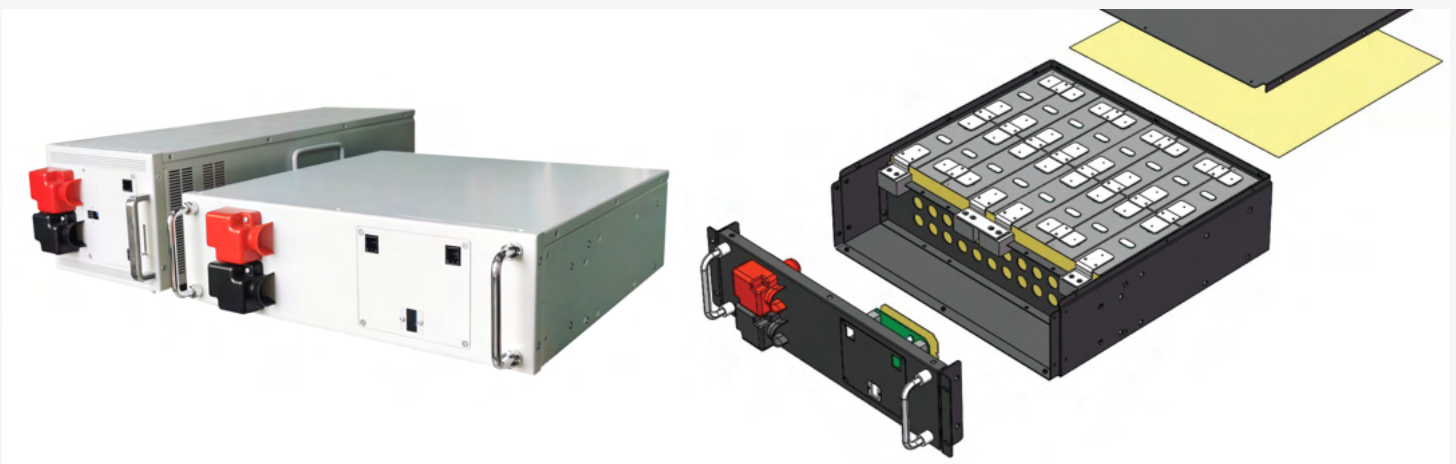
# Lithium Battery Energy Storage System

## Customized Battery Pack

HAIKAI customized Pack Battery System is manufactured with high quality lithium battery cells such as CATL, BYD and other customized high power cells. Our own patented BMS enables real-time monitoring and autonomous equalizing of voltage and temperature for each string to ensure optimal operation of the module.

HAIKAI is capable of complete pack production and testing line, as well as accepting customizations on dimension, capacity, and IP level according to your needs.

| Pack          | Discharge Rate | Nominal Voltage | Operating Voltage | Typical Capacity | Operating Temperature           | Cycle Life                                    |
|---------------|----------------|-----------------|-------------------|------------------|---------------------------------|---|
| Regular       | 1C~4C          | 48V/51.2V       | 41.6~57.6V        | 50Ah             | 0°C~40°C<br>(Recommend 20~25°C) | 4000 Cycles @80%<br>DOD, 0.5C/0.5C<br>80% DoD |
|               | 1C~2C          | 48V/51.2V       | 41.6~57.6V        | 100Ah            | 0°C~40°C<br>(Recommend 20~25°C) | 4000 Cycles @80%<br>DOD, 0.5C/0.5C<br>80% DoD |
| High Capacity | 1C             | 48V/51.2V       | 41.6~57.6V        | 100Ah            | 0°C~40°C<br>(Recommend 20~25°C) | 4000 Cycles @80%<br>DOD, 0.5C/0.5C<br>80% DoD |
|               | 1C             | 48V/51.2V       | 41.6~57.6V        | 200Ah            | 0°C~40°C<br>(Recommend 20~25°C) | 4000 Cycles @80%<br>DOD, 0.5C/0.5C<br>80% DoD |
| High Power    | 6C~12C         | 48V/51.2V       | 41.6~57.6V        | 50Ah             | 0°C~40°C<br>(Recommend 20~25°C) | 4000 Cycles @80%<br>DOD, 0.5C/0.5C<br>80% DoD |



# Lithium Battery Energy Storage Systems

## Standard, High Energy Density, High Power

HAIKAI's Industrial Energy Storage System is specially designed for UPS which can directly be used to replace existing lead-acid battery. The application and wiring are no different to conventional lead-acid batteries. The built-in BMS system greatly improves the system reliability. The lithium battery BMS data can be accessed at the UPS terminal according to user's requirements. Three configurations and two cabinet types are available to meet user's different needs.

### MAIN FEATURES

- Greatly reduce floor area and weight.
- Supports customization of DC voltage and system capacity.
- Direct replacement of lead-acid battery, seamless implementation to the original UPS system.
- The built-in BMS system effectively improves the predictability and manageability of the system.
- Equipped with excellent quality Lithium iron phosphate battery which has longer service life, higher safety standards and simpler maintenance.



# Standard Lithium Battery System

## Product Features:

- 51.2V standard battery module.
- 50Ah module supports 4C, 100Ah module supports 2C continuous discharge.
- Suitable for applications with backup time more than 15 min.
- Can directly replace lead-acid batteries with rated voltages of 192V, 240V, 384V ( $\pm 192V$ ) and 480V ( $\pm 240V$ )

| Standard Lithium Battery |  |  |      |          |                               |       |          |
|--------------------------|--|--|------|----------|-------------------------------|-------|----------|
| Module                   | Cell Type                              | Lithium Iron Phosphate Battery   |      |          |                               |       |          |
|                          | Cell Composition                       | 27Ah, 2P16S  |      |          | 105Ah, 1P16S                  |       |          |
|                          | Rated Voltage                          | 51.2V  |      |          |                               |       |          |
|                          | Operating Voltage                      | 41.6～57.6V   |      |          |                               |       |          |
|                          | Rated Capacity                         | 50Ah   |      |          | 100Ah                         |       |          |
|                          | Rated Power                            | 2.56kWh  |      |          | 5.12kWh                       |       |          |
|                          | Discharge Current                      | 200A Continuous Discharge(4C)  |      |          | 200A Continuous Discharge(2C) |       |          |
|                          | Output Power                           | 10.24kW  |      |          | 10.24kW                       |       |          |
|                          | Standard Standby Time                  | 15min  |      |          | 30min                         |       |          |
|                          | Charging Current                       | 50A Continuous Charging(1C)  |      |          | 50A Continuous Charging(0.5C) |       |          |
|                          | Dimension W × D × H                    | 200×645×175(4U)mm  |      |          | 200×645×241.8(5.5U)mm         |       |          |
|                          | Weight                                 | 32kg   |      |          | 45kg                          |       |          |
| System                   | Optional Specifications and Capacities | 204.8V   | 50Ah | 10.24kWh | 204.8V                        | 100Ah | 20.48kWh |
|                          |  | 256V   | 50Ah | 12.8kWh  | 256V                          | 100Ah | 25.6kWh  |
|                          |  | 409.6V   | 50Ah | 20.48kWh | 409.6V                        | 100Ah | 40.96kWh |
|                          |  | ±204.8V  | 50Ah | 20.48kWh | ±204.8V                       | 100Ah | 40.96kWh |
|                          |  | 512V   | 50Ah | 25.6kWh  | 512V                          | 100Ah | 51.2kWh  |
|                          |  | ±256V  | 50Ah | 25.6kWh  | ±256V                         | 100Ah | 51.2kWh  |
|                          | Discharge Current                      | 200A Continuous Discharge(4C)  |      |          | 200A Continuous Discharge(2C) |       |          |
|                          | Charging Current                       | 50A Continuous Charging(1C)  |      |          | 50A Continuous Charging(0.5C) |       |          |
|                          | Cycle Life                             | 4000 Cycles @80% DOD, 0.5C/0.5C  |      |          |                               |       |          |
|                          | Communication Interface                | CAN/RS485/Dry Contact  |      |          |                               |       |          |
|                          | Protection Function                    | Overcharge, Over Discharge, Over Temperature, Over Current, Short Circuit, etc |      |          |                               |       |          |
|                          | Cabinet Type                           | Frame  |      |          |                               |       |          |
|                          | Dimension W × D × H                    | 600×800×1800mm   |      |          |                               |       |          |
|                          | Weight                                 | Module Weight × N + Cabinet Weight 200kg                                       |      |          |                               |       |          |
|                          | Storage Temperature                    | 0℃～40℃   |      |          |                               |       |          |
|                          | Transport Temperature                  | -20℃～60℃   |      |          |                               |       |          |
|                          | Operating Temperature                  | 0℃～40℃ (Recommend 20～25℃)  |      |          |                               |       |          |
|                          | Relative Humidity                      | 5%～95% (No Condensation)   |      |          |                               |       |          |
| Altitude                 | ≤2000 m                                |  |      |          |                               |       |          |

The above parameters are at 25 °C. The current product specifications are subject to change without further notice.

# High Energy Density Lithium Battery System

## Product Features:

- 51.2V standard battery module.
- 3U battery module with capacity up to 200Ah.
- It is suitable for applications with backup time of 60 min. and above.
- Can directly replace lead-acid batteries with rated voltages of 192V, 240V, 384V ( $\pm 192V$ ) and 480V ( $\pm 240V$ )

| High Energy Density Lithium Battery |  |  |       |          |  |       |          |
|-------------------------------------|--|--|-------|----------|--|-------|----------|
| Module                              | Cell type                              | Lithium Iron Phosphate Battery   |       |          |  |       |          |
|                                     | Cell Composition                       | 100Ah, 1P16S   |       |          | 100Ah, 2P16S                                 |       |          |
|                                     | Rated Voltage                          | 51.2V  |       |          |  |       |          |
|                                     | Operating Voltage                      | 41.6~57.6V   |       |          |  |       |          |
|                                     | Rated Capacity                         | 100Ah  |       |          | 200Ah  |       |          |
|                                     | Rated Power                            | 5.12kWh  |       |          | 10.24kWh                                     |       |          |
|                                     | Discharge Current                      | 100A Continuous Discharge (1C)   |       |          | 200A Continuous Discharge (1C)               |       |          |
|                                     | Output Power                           | 5.12kW   |       |          | 10.24kW                                      |       |          |
|                                     | Standard Standby Time                  | 60min  |       |          | 60min  |       |          |
|                                     | Charging Current                       | 50A Continuous Charging (0.5C)   |       |          | 100A Continuous Charging (0.5C)              |       |          |
|                                     | Dimension W × D × H                    | 440×441×131(3U) mm   |       |          | 440×770.5×131(3U) mm                         |       |          |
|                                     | Weight                                 | 43 kg  |       |          | 80 kg  |       |          |
| System                              | Optional Specifications and Capacities | 204.8V   | 100Ah | 20.48kWh | 204.8V                                       | 200Ah | 40.96kWh |
|                                     |  | 256V   | 100Ah | 25.6kWh  | 256V   | 200Ah | 51.2kWh  |
|                                     |  | 409.6V   | 100Ah | 40.96kWh | 409.6V                                       | 200Ah | 81.92kWh |
|                                     |  | ±204.8V  | 100Ah | 40.96kWh | ±204.8V                                      | 200Ah | 81.92kWh |
|                                     |  | 512V   | 100Ah | 51.2kWh  | 512V   | 200Ah | 102.4kWh |
|                                     |  | ±256V  | 100Ah | 51.2kWh  | ±256V  | 200Ah | 102.4kWh |
|                                     | Discharge Current                      | 100A Continuous Discharge (1C)   |       |          | 200A Continuous Discharge (1C)               |       |          |
|                                     | Charging Current                       | 50A Continuous Charging (0.5C)   |       |          | 100A Continuous Charging (0.5C)              |       |          |
|                                     | Cycle Life                             | 4000 Cycles @80% DOD, 0.5C/0.5C  |       |          |  |       |          |
|                                     | Communication Interface                | CAN/RS485/Dry Contact  |       |          |  |       |          |
|                                     | Protection Function                    | Overcharge, Over Discharge, Over Temperature, Over Current, Short Circuit, etc |       |          |  |       |          |
|                                     | Cabinet Type                           | Frame  |       |          |  |       |          |
|                                     | Dimension W × D × H                    | 600×800×1800mm   |       |          | 600×1000×1800mm                              |       |          |
|                                     | Weight                                 | Module Weight × N<br>+ Cabinet Weight 200 kg                                   |       |          | Module Weight × N<br>+ Cabinet Weight 250 kg |       |          |
|                                     | Storage Temperature                    | 0℃~40℃   |       |          |  |       |          |
|                                     | Transport Temperature                  | -20℃~60℃   |       |          |  |       |          |
|                                     | Operating Temperature                  | 0℃~40℃ (Recommend 20~25℃)  |       |          |  |       |          |
| Relative Humidity                   | 5%~95% (No Condensation)               |  |       |          |  |       |          |
| Altitude                            | ≤2000 m                                |  |       |          |  |       |          |

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# High Power Lithium Battery System

## Product Features:

- 51.2V standard battery module.
- Special 50Ah high power cell, supporting 6 ~ 12C continuous discharge.
- Suitable for applications with backup time less than 10 min.
- Can directly replace lead-acid batteries with rated voltages of 192V, 240V, 384V ( $\pm 192V$ ) and 480V ( $\pm 240V$ )

| High Power Lithium Battery |  |  |      |          |
|----------------------------|--|--|------|----------|
| Module                     | Cell Type                              | High Discharge Rate Lithium Iron Phosphate Battery                             |      |          |
|                            | Cell Composition                       | 50Ah, 1P16S  |      |          |
|                            | Rated Voltage                          | 51.2V  |      |          |
|                            | Operating Voltage                      | 41.6~57.6V   |      |          |
|                            | Rated Capacity                         | 50Ah   |      |          |
|                            | Rated Power                            | 2.56kWh  |      |          |
|                            | Discharge Current                      | 300~600A Continuous Discharge (6~12C)  |      |          |
|                            | Output Power                           | 30.72kW  |      |          |
|                            | Standard Standby Time                  | 5 min  |      |          |
|                            | Charging Current                       | 50A Continuous Charging (1C)   |      |          |
|                            | Dimension W × D × H                    | 200×645×175(4U) mm   |      |          |
|                            | Weight                                 | 32kg   |      |          |
| System                     | Optional Specifications and Capacities | 204.8V   | 50Ah | 10.24kWh |
|                            |  | 256V   | 50Ah | 12.8kWh  |
|                            |  | 409.6V   | 50Ah | 20.48kWh |
|                            |  | ±204.8V  | 50Ah | 20.48kWh |
|                            |  | 512V   | 50Ah | 25.6kWh  |
|                            |  | ±256V  | 50Ah | 25.6kWh  |
|                            | Discharge Current                      | 300~600A Continuous Discharge (6~12C)  |      |          |
|                            | Charging Current                       | 50A Continuous Charging(1C)  |      |          |
|                            | Cycle Life                             | 4000 Cycles @80% DOD, 0.5C/0.5C  |      |          |
|                            | Communication Interface                | CAN/RS485/Dry Contact  |      |          |
|                            | Protection Function                    | Overcharge, Over Discharge, Over Temperature, Over Current, Short Circuit, etc |      |          |
|                            | Cabinet Type                           | Frame  |      |          |
|                            | Dimension W × D × H                    | 600×800×1800mm   |      |          |
|                            | Weight                                 | Module Weight × N + Cabinet Weight 250 kg                                      |      |          |
|                            | Storage Temperature                    | 0°C~40°C   |      |          |
|                            | Transport Temperature                  | -20°C~60°C   |      |          |
|                            | Operating Temperature                  | 0°C~40°C (Recommend 20~25°C)   |      |          |
|                            | Relative Humidity                      | 5%~95% (No Condensation)   |      |          |
|                            | Altitude                               | ≤2000 m  |      |          |

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