

SOC Battery Equalizer

Overview

The LNBE series SOC battery equalizer is a high-power-factor, high-precision programmable IGBT-type switching power supply device used in flow battery energy storage power stations and flow battery energy storage testing systems.

Designed for three-phase power grids, the SOC battery equalizer is adaptive to 50/60Hz grid frequencies, employs DC-AC bidirectional conversion, and four-quadrant SVPWM/SPWM technology, ensuring bidirectional energy flow and a power factor exceeding 0.99. It also features low grid harmonic pollution and high power quality.

The SOC battery equalizer's output power factor is adjustable (-0.8 leading to 1.0 to +0.8 lagging) to meet different grid requirements. A touchscreen serves as the human-machine interface, integrating display and control, providing real-time display of operating data, status information, and fault information, and offering a historical fault information query function (storing up to 200,000 records). An optional AC/DC energy meter is available, providing accurate AC/DC energy statistics (accuracy class 0.2).

The SOC battery equalizer can accommodate various energy storage methods, including lead-acid batteries, lithium batteries, flow batteries, and supercapacitors. Multiple communication interfaces are available, including RS485, TCP/IP, and CAN, using the standard Modbus communication protocol for remote monitoring. Optional Wi-Fi and GPRS communication modules are also available. By downloading a smart terminal app to a mobile phone or computer, users can monitor equipment operation data and alarm information 24/7 without leaving home.

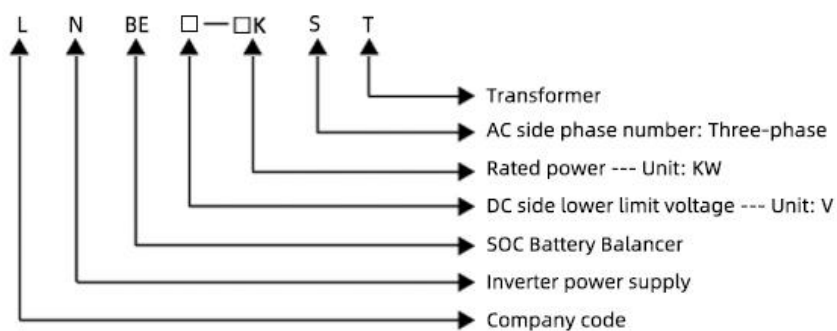
Typical applications: SOC balancing between battery clusters, etc.



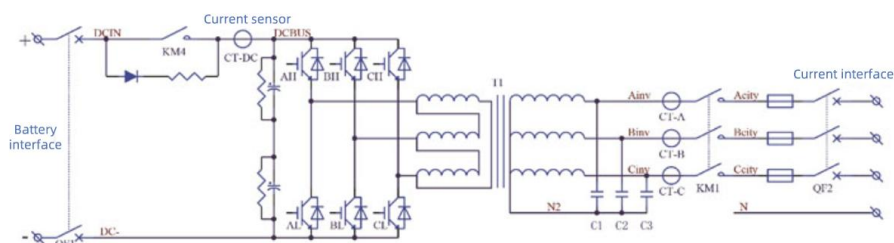
Technical Features

1. Four-quadrant operation, bidirectional energy flow, adaptive to 50/60Hz grid.
2. Adjustable output power factor (-0.8 leading to 1.0 to +0.8 lagging), customizable reactive power compensation.
3. DC reverse connection protection, over/under voltage protection, overcurrent protection, and overheat protection.
4. Color touchscreen with Chinese/English switching, integrated display and control, providing clear and concise operational data.

Model and meaning

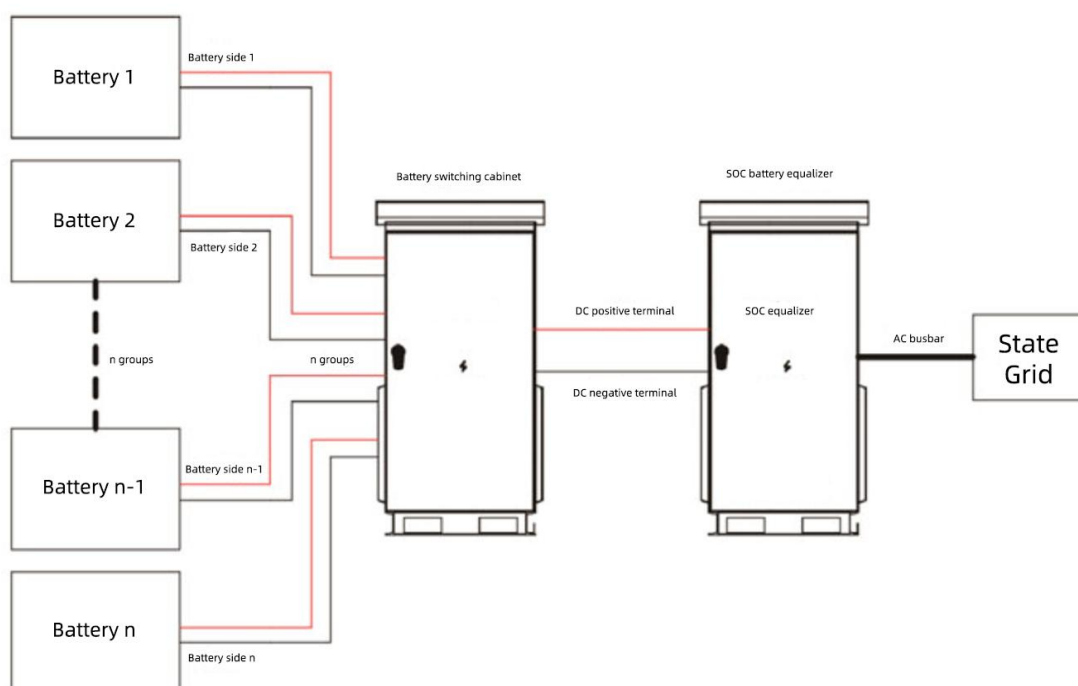


SOC battery equalizer schematic diagram



▲ SOC Battery Balancer (without off-grid mode)

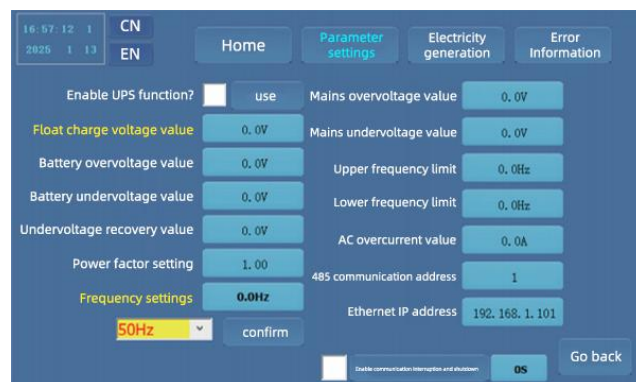
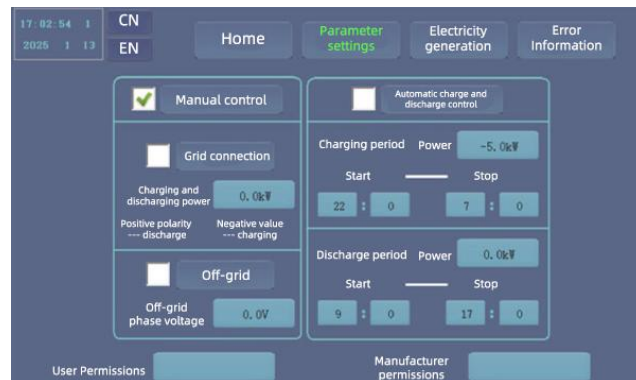
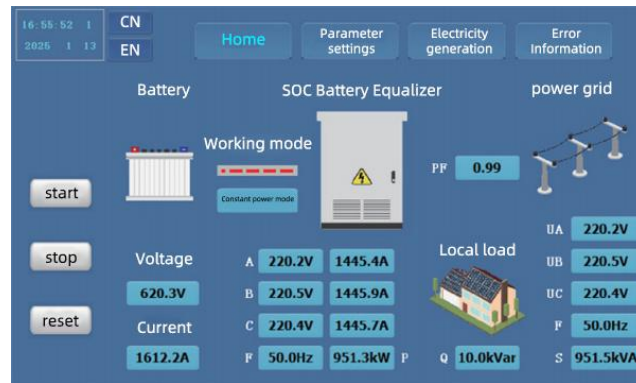
Topology diagram of SOC battery equalizer application in flow energy storage power station



When N clusters of batteries are connected to the battery switching cabinet, after the host computer makes a judgment, one battery is connected to the SOC battery equalizer (only one battery is connected to the SOC battery equalizer at a time). The host computer sends charging and discharging commands to the equalizer according to the power status of this battery cluster, so that the target battery cluster can charge and discharge to the grid.

Operating Interface

Color touch screen, integrated display and control, supports Chinese and English language switching.



Technical parameters and selection criteria

Equipment parameters					
Rated equipment power	30KW	40KW	50KW	100KW	150KW
Maximum equipment power	33KW	44KW	55KW	110KW	165KW
DC side parameters					
DC voltage range	130-400VDC				
Voltage regulation/current accuracy	±1%FS				
DC current ripple	< 3%Imms				
AC side parameters					
AC Wiring Method	3-phase 3-wire/3-phase 4-wire (please specify in order notes)				
Rated Mains Voltage	380/440/550/630VAC (other voltages can be customized)				
Mains Voltage Range	±15%				
Rated Mains Frequency	50/60Hz				
Mains Frequency Range	±10%				
Total Current Distortion	THD < 3% (standard power grid)				
Power Factor	-0.8 Leading ~ 1.0 ~ +0.8 Lagging, adjustable				
System parameters					
Operating modes	Manual mode, automatic mode				
Charging and discharging modes	Constant current → constant voltage, constant power → constant voltage				
Maximum conversion efficiency	96% (including transformers)				
Noise	<65dB				
Protection level	IP20 (customizable to IP54)				
Permissible ambient temperature	-15℃ to 50℃ (Other temperatures can be customized)				
Permissible relative temperature	0-95% (no condensation)				
Permitted altitude	For depths ≤6000m and above 2000m, capacity must be reduced (1% reduction for every 100m increase).				
Cooling method	Intelligent air cooling				
Emergency shutdown	There is an emergency stop button.				
Display	Touchscreen				
Insulation monitoring	Insulation tester				
Temperature monitoring	Temperature monitoring instrument				
Communication interface	RS48 , Ethemet , WIFI , GPRS , CAN				
Communication protocol	Modbus RTU/ Modbus TCP				
This indicates optional features. The above technical parameters are standard parameters and are for reference only; they can be customized according to the user's actual needs.					

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