



Energy Storage Power Station Battery Management System

Brief introduction of Energy storage **battery management system**:

Have stratification, classification, unified management for cell battery, battery packs, battery stack .According to the characteristics of each layer having calculation and analysis for various parameters and operation status of battery (cell, pack, stack), to achieve balance, alarm, protection etc. effective management, make the equal power for each pack of battery ,to ensure the system to achieve the best running status and the longest running time.

ESBMS can provide accurate battery management information , is an important basis for the energy storage system loading control strategy.According to the battery balance management ,it can greatly improve the battery energy utilization efficiency , optimize load characteristics. At the same time, ESBMS can greatly prolong the battery service life ,guarantee the battery energy storage system of stability, safety and reliability.

The function of Energy Storage Battery Power Station Management System BMS:

Acquisition and calculation: the acquisition of cell voltage, terminal voltage, charge and discharge current, cell temperature (ambient temperature) and calculation of the cell resistance.

Condition diagnosis: diagnosis of cell SOC, SOH, whole pack SOC, SOH .

Lossless equilibrium: balance circuit and balance strategy are of independent patent technology, can realize the fast and efficient lossless equilibrium .

Safety management: The system will have automatic alarm or fastly starting protection device when monitored the battery (containing cells, packs, clusters) state parameter is abnormal.

Insulation monitoring : has professional insulation monitoring function , once the insulation parameters decreased, the system will automatically alarm or start the corresponding protection.

Fault diagnosis: self fault diagnosis and fault tolerance technology, fault of any module does not affect the safe operation of other devices in the system.

Load control: professional load linkage control and optimization management, work closely with PCS, the energy storage dispatching system, improve the efficiency of the system.

Supported protocols: IEC61850, Modbus, 103, 104 etc. protocols ,send the battery information at real-time into the system or all the control layer out of the system .

Technical parameter of Energy Storage **Battery Management System BMS**:

Working power supply	DC85-265V
Current sampling period	100mS
Cell voltage acquisition accuracy	$\pm (0.1\%FS+0.1\%RD)$
Active lossless equilibrium current	2-5A
Terminal voltage acquisition precision	$\pm (0.1\%FS+0.1\%RD)$
Voltage balance balance	$\leq 1.5\%$
Current acquisition precision	$\pm (0.5\%FS+0.5\%RD)$
SOC estimation accuracy	$\leq 5\%$
Temperature acquisition accuracy	$\pm 0.5^{\circ}C$
Short-circuit protection	Actuation time<20mS
Temperature acquisition range	-40~+125 $^{\circ}C$
Ambient temperature	-20~+65 $^{\circ}C$
Voltage sampling period	100mS
Relative humidity	<90%