

## Specification for Approval

Model: KS48100- Ho21 (16S 200A 200Ah)

Type: Separate Type + Wi- Fi + 5- inch Touch Screen + LED Strip

Revision: A1

### 1. Accessories List

No.	Item	Description	Qty
1	BMS Main Board	KS- 48100- Ho21_V1; with heating function; no dry contact; charge limit 20A; 3×RS485; 1×CAN;	1 pc
2	B+ Cable	UL1015; 16AWG; red; 3.5 banana female OT8; ROHSLength 200mm±10mm	1 pc
3	Cell Voltage Acquisition Cable	XHB- 17P with lock; UL1430 22AWG; OT4 terminal; red/black; ROHS; L=800mm±10mm	1 pc
4	Temperature Sensor Cable	PHS- 8P; 24AWG; NTC 10K B- value 3950; ROHS; L=900mm±10mm	1 pc
5	Self- lock Switch with Harness	PJPB16- AP1SEB03N; 16mm; blue LED 3V; metal button; L=900mm±10mm	1 pc
6	Screws	M5×15 assembly screws	8 pcs
7	Adapter Board	KS- PB18 V1 (with dry contact terminals, 6×SOC LEDs removed)	1 pc
8	18- pin Adapter Cable	2.54mm 18P; FC18P; UL2651 26AWG; red edge; butterfly latch; L=600mm±10mm	1 pc
9	16- pin Adapter Cable	2.54mm 16P; FC16P; UL2651 26AWG; red edge; butterfly latch; L=600mm±10mm	1 pc
10	5- inch Touch Screen	KS- LCD3- V2; supports protocol selection	1 pc
11	Wi- Fi Module	-	1 pc
12	Wi- Fi Power Cable	PHS- 4P; UL1430 24AWG; white; ROHS; L=600mm±10mm	1 pc
13	Touch Screen Harness	PHS- 2.0; UL1430 24AWG; black/white; power + control + communication; L=600mm±10mm	1 set
14	LED Strip & Harness	LED8- V1; 32 LEDs; L=600mm±10mm	1 set

## 2. Function Configuration

- Cells in series: **16S**
- Charge current limit: **20A (passive)**
- Reverse polarity protection: None
- Low voltage power switch: Yes
- Buzzer: Yes
- Data logging: **500 records**
- Heating port: Yes
- Secondary protection port: Yes
- Dry contact: None
- Display: **5- inch touch screen**
- DIP switch: 4- position
- LED indicators: RUN, ALARM, SOC (4), LED strip
- Sampling connector: Vertical 17+8P
- Wi- Fi: Yes
- Bluetooth: Yes
- Communication: 3×RS485, 1×CAN
- Firmware upgrade: Via RS485
- Inverter compatibility (CAN): Pylon, Deye, Growatt, Goodwe, Ginlong, Victron, SMA
- Inverter compatibility (RS485): Voltronic, Shunri, Pylon

## 3. Revision History

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Date	Revision	Description	Author	Approved
2024- 08- 08	A1	Initial release	Li Bo	Guo Jing

## 4. Scope of Application

This BMS is designed for **16- series lithium battery packs**. It provides complete protection including over- voltage, under- voltage, over- current, over- temperature, under- temperature, and short circuit. It supports accurate SOC/SOH calculation, cell balancing, data monitoring, and communication with inverters and host software. Typical applications: home energy storage systems, industrial backup power, telecom base stations.

## 5. Key Functions

### 5.1 Cell Voltage Detection

- Accuracy:  $\pm 10\text{mV}$  @ 0–45°C;  $\pm 20\text{mV}$  @ –20~70°C
- Adjustable alarm and protection thresholds

## 5.2 Current Detection

- Continuous charge/discharge current: **200A**
- Accuracy:  $\pm 1\%$
- Temperature rise  $< 50^{\circ}\text{C}$

## 5.3 Temperature Detection

- 4×cell temperature sensors
- 1×ambient temperature sensor
- 1×MOS temperature sensor
- NTC 10K B- value 3950
- Accuracy:  $\pm 2^{\circ}\text{C}$

## 5.4 SOC & Cycle Count

- SOC accuracy:  $\leq \pm 5\%$
- Cycle count increases at 80% DOD
- Supports OCV and dynamic calibration

## 5.5 Cell Balancing

- Adjustable balancing voltage and difference
- Balancing current:  $\sim 65\text{mA}$

## 5.6 LED & Buzzer Indicators

- SOC level, running status, alarm/fault status

## 5.7 Keys & Switches

- Power on/off
- Sleep / wake / reset functions

## 5.8 Communication

- RS485: monitoring, parallel control, firmware upgrade
- CAN: communication with inverter
- Supports up to **16 packs in parallel**

## 5.9 Heating Function

- Activates when cell temperature  $< 0^{\circ}\text{C}$  during charging
- Stops when temperature  $> 15^{\circ}\text{C}$

## 5.10 Secondary Protection

Triggers when:

- MOS failure + temperature  $> 100^{\circ}\text{C}$  for 5s
- Cell voltage  $> \text{OVP} + 300\text{mV}$  (charging) for 5s
- Cell voltage  $< \text{UVP} - 300\text{mV}$  (discharging) for 5s

## 6. Electrical Specifications

Item	Min	Max	Typical	Unit
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Item	Min	Max	Typical	Unit
Operating voltage	38	60	51.2	V
Charging voltage	48	60	57.6	V
Operating temperature	- 25	60	25	° C
Continuous current	-	200	-	A
Discharge internal resistance	-	<10	-	mΩ
Working current (no screen)	-	≤30	-	mA
Working current (with screen)	-	≤80	-	mA
Sleep current	-	200	100	μ A

## 7. Protection & Alarm Default Settings

### Cell Voltage

- Overvoltage alarm: 3600mV
- Overvoltage protection: 3650mV
- Undervoltage alarm: 2700mV
- Undervoltage protection: 2500mV

### Pack Voltage

- Overvoltage protection: 58.4V
- Undervoltage protection: 40.0V

### Temperature

- Charge inhibit high: 55°C
- Charge inhibit low: -1°C
- Discharge inhibit high: 60°C
- Discharge inhibit low: -20°C

### Current

- Charge overcurrent 1: 215A
- Discharge overcurrent 1: 215A
- Short circuit protection: ~380A (within 300μs)

## 8. Communication Interface

### CAN (RJ45)

- CAN\_H: pin4
- CAN\_L: pin5
- GND: pin6

### RS485 (RJ45)

- RS485 A1/B1: pins 1,8; 2,7
- GND: pin6

## Parallel RS485

- Independent port for multi-pack parallel

## 9. Wiring Instructions

### Power On Sequence

1. Connect B-
2. Connect cell sampling cable
3. Connect B+
4. Connect P- / P+ (load/charger)

### Power Off Sequence

1. Disconnect charger/load
2. Disconnect B+
3. Disconnect sampling cable
4. Disconnect B-

### Terminals

- B+, B-: battery main terminals
- P-: charge/discharge negative (common port)
- Terminals: M5 size

## 10. Operating Modes

- Charging mode
- Discharging mode
- Sleep mode (low power)
- Wake by charger or key
- Shutdown mode (via power switch)

## 11. Cautions

1. Follow correct power on/off wiring sequence.
2. Do not reverse connections.
3. Avoid short circuits on the BMS board.
4. Keep away from moisture, water, and ESD.
5. Perform a full charge/discharge cycle to calibrate capacity.
6. Do not store batteries at 0V. Recharge within 12 hours after full discharge.