东莞市达锂电子有限公司
DALY Dongguan DALY Electronics Co., Ltd.

Smart Active Balance BMS User Manual



125*66*15.8mm	162*65.5*15mm	178.7*66*16mm	178.7*67.2*1mm	195.8*100.6*26mm
4-24S 40A-60A	4-24S 80A-100A	4-24S 150A	4-24S 200A	4-24S 250-500A
171g	216g	320g	375g	665g

Smart Active Balance BMS

- Intelligent Multiple Strings
- Built-in Bluetooth
- Balancing 1A
- Safe paralleling

Official Quality Assurance | Professional Team Core Technology | 1 year warranty

Kind Reminder :

Thank you for choosing DALY BMS . Before using the product, please check whether the product and accessories are consistent with your purchase order and whether they are missing or damaged. If there is no abnormality, please use this product according to the instructions. If there is any abnormality, please contact customer service in time.

Ⅰ Packing List



① Smart Active Balance BMS

② P-&B- Cable
Standard:
10AWG*1(40-60A) 7AWG*1 (80-100A)
4AWG*1(150-200A) 2AWG*1 (250A)
4A WG*2(300A) 1AWG*2 (400A-500A)
Optional:
6AWG*1 (80-100A) 2AWG*1 (150-200A)

③ Screws
(TH40/60A No Screw)
(40-250A Scres*2Pcs)
(300-500A Scres*4Pcs)

④ Sampling cable
Stadard:450mm
Optional:800mm

⑤ B+ Cable

⑥ NTC (One standard,two optional)

⑦ User manual

⑧ WIFI module
(standardpackage onlyfor BT Wifi version bms)

⑨ RS485/Can Cable
(only for full-function board)

⑩ Packaging box

Ⅱ User Manual

1、Welding

(1) Welding sampling cable: Start with the thin black wire connecting battery B- (total negative electrode), the second wire connects the positive electrode of the first string of batteries, and then connects the positive electrode of each string of batteries in turn; finally, weld the B+ wire on the last string (total positive pole). (Please refer to the wiring diagram on the back of the manual).
Note: Do not insert the bms when welding the sampling cable. Please weld according to the actual number of battery strings. The extra sampling cable do not need to be welded.Please insulate them.

(2) Detection voltage: Use a multimeter or line sequence detection equipment to measure whether the voltage of each string of pinholes in the cable is within the normal range. If not, please check whether there are misconnections, false soldering, missing soldering, etc. in the wiring.

(3) Welding P- & B- cable: Screw the B- cable (blue one) and P- cable (black one) to the corresponding B- and P- nuts of the BMS; recommended torque 10N·m.And weld the B- cable to the total negative terminal of the battery.
Note: Please insulate the P- cable when welding the B- cable, and then remove it when connecting the output terminal.

(4)Connect the BMS accessories:such as temperature control, power board, GPS, LCD display, etc., and then insert the sampling cable into the BMS to activate automatically.

2、Download and Install APP method

(1) Scan the QR code on the BMS.

(2)Search APP "Smart BMS" in the iOS store or Google store.

(3) Download APP from official website (www.dalybms.com).

(4) Contact with customer service of store.

3、Set parameters

When using BMS for the first time,the battery type and capacity need to be set in the APP or PC (the factory default is LFP parameters). The capacity of the battery pack needs to be set according to the actual capacity of the battery pack. The battery needs to be filled to 100% for calibration at the frist time use. Other protection parameters can be set according to your own needs. The factory default password for modifying parameters on the APP is 123456, and the password for modifying parameters on the PC host is 20211115.
Note: When there is no charging or discharging, the BMS will sleep after 3600 seconds by default, and will wake up automatically when charging and discharging are detected. The sleep time can also be modified through the APP or PC. If set to 65535, it means no sleep.

4、Special instructions

(1) Cables from different manufacturers are not universal, please make sure to use our company's sampling cables;

(2) When testing, installing, contacting and using the BMS, anti-static measures must be taken;

(3) Do not let the heat dissipation surface of the BMS directly contact the battery cell, Otherwise the heat will be transmitted to the battery cell and affect the safety of the battery;

(4) Do not disassemble or change the components of the BMS by yourself;

(5) The outer shell of BMS will still conduct electricity. Pls avoid contact with the battery cell and nickel strip during assembly operations due to the need for electrostatic protection design.
the shell and the motherboard share the same ground, and it is normal to appear voltage during measurement;

(6) All our products have undergone strict ex-factory inspection and testing to provide customers with the best quality products. Please make sure to use the BMS according to the parameter instructions, and avoid to use it in high temperature and ultra-low temperature environments (normal applicable temperature -40℃ - 85℃) to prevent the failure of BMS.

Ⅲ Specification parameter

1、Basic specification

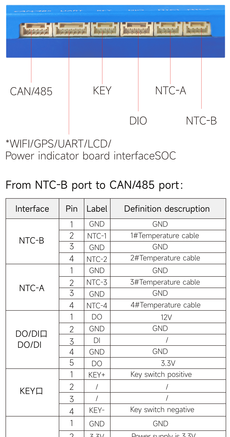
Index	Speciciacation
Battery pack type	Li-ion、LifePO4、LTO
Number of battery string	Li-ion：4-8S/8-15S/8-20S LifePO4：4-8S/8-17S/8-24S LTO：6-8S/8-17S/8-24S
Cell sampling voltage range	1.5V-4.9V
Operating voltage range	> 10V
Balance method	Active Balance
Working power consumption	≤1.25W
Sleep current	≤0.025W
Working temperature	-40℃ - 85℃
Indicator light	Green: works properly Red: Alarm or protection

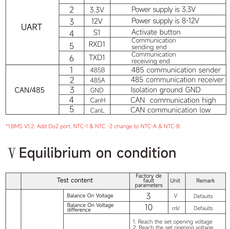
2、Current parameter correspondence table

Model	Compatible Strings	Continous Discharge Current	Discharge Protection Current	Continous charge current	Short-Circuit Protection Current
R24TH1A 8S 40A	4-8	40A	60A	40A	150A
R24TH1A 8S 60A	4-8	60A	90A	60A	225A
R24TK1A 8S 80A	4-8	80A	120A	80A	300A
R24TK1A 8S 100A	4-8	100A	150A	100A	375A
R24TM1A 8S 150A	4-8	150A	225A	150A	450A
R24TM1A 8S 200A	4-8	200A	300A	200A	600A
R24TS1A 8S 250A	4-8	250A	375A	250A	750A
R24TS1A 8S 300A	4-8	300A	450A	300A	60A
R24TS1A 8S 400A	4-8	400A	600A	400A	90A
R24TS1A 8S 500A	4-8	500A	750A	500A	120A
R24TH1A 17S 40A	8-17	40A	60A	40A	150A
R24TH1A 17S 60A	8-17	60A	90A	60A	225A
R24TK1A 17S 80A	8-17	80A	120A	80A	300A
R24TK1A 17S 100A	8-17	100A	150A	100A	375A
R24TM1A 17S 150A	8-17	150A	225A	150A	450A
R24TM1A 17S 200A	8-17	200A	300A	200A	600A
R24TS1A 17S 250A	8-17	250A	375A	250A	750A
R24TS1A 17S 300A	8-17	300A	450A	300A	60A
R24TS1A 17S 400A	8-17	400A	600A	400A	90A
R24TS1A 17S 500A	8-17	500A	750A	500A	120A
R24TH1A 24S 40A	8-24	40A	60A	40A	150A
R24TH1A 24S 60A	8-24	60A	90A	60A	225A
R24TK1A 24S 80A	8-24	80A	120A	80A	300A
R24TK1A 24S 100A	8-24	100A	150A	100A	375A
R24TM1A 24S 150A	8-24	150A	225A	150A	450A
R24TM1A 24S 200A	8-24	200A	300A	200A	600A
R24TS1A 24S 250A	8-24	250A	375A	250A	750A
R24TS1A 24S 300A	8-24	300A	450A	300A	450A
R24TS1A 24S 400A	8-24	400A	600A	400A	600A
R24TS1A 24S 500A	8-24	500A	750A	500A	750A

Ⅳ Interface definition description

(Standard 2 channels of NTC,4 channels of NTC needs to be customized)





*WIFI/GPS/UART/LCD/
Power indicator board interfaceSOC

From NTC-B port to CAN/485 port:

Interface	Pin	Label	Definition description
NTC-B	1	GND	GND
	2	NTC-1	1#Temperature cable
	3	GND	GND
	4	NTC-2	2#Temperature cable
NTC-A	1	GND	GND
	2	NTC-3	3#Temperature cable
	3	GND	GND
	4	NTC-4	4#Temperature cable
DO/DI□ DO/DI	1	DO	12V
	2	GND	GND
	3	DI	/
	4	GND	GND
	5	DO	3.3V
KEY□	1	KEY+	Key switch positive
	2	/	/
	3	/	/
	4	KEY-	Key switch negative
UART	1	GND	GND
	2	3.3V	Power supply is 3.3V
	3	12V	Power supply is 8-12V
	4	S1	Activate button
	5	RXD1	communication sending end
	6	TXD1	communication receiving end
CAN/485	1	485B	485 communication sender
	2	485A	485 communication receiver
	3	GND	Isolation ground GND
	4	CanH	CAN communication high
	5	CanL	CAN communication low

*18MS V1.2 Add Do2 port. NTC-1 & NTC -2 change to NTC-A & NTC-B

Ⅴ Equilibrium on condition

Test content			Factory default parameters	Unit	Remark
Active balance	Balance ON conditions	Balance On Voltage	3	V	Defaults
		Balance On Voltage difference	10	mV	Defaults
			1. Reach the set opening voltage 2. Reach the set opening voltage difference (The above two conditions must be met at the same time. If one of condition is not meet, balance will be closed)		
	Balance current		1100±200	mA	Remark

·Wiring Diagram·

Battery pack wiring precautions:

1. Please pay attention to the position of B- and P- of the BMS, and connect the wires in strict accordance with B- to the negative terminal of the battery and P- to the negative terminal of the load or charger.

2. When soldering the wires, please make sure the wires are soldered in the correct order before plug into the BMS. (Miswiring protection is limited to 6 strings of miswiring interval, more than 6 strings will damage the BMS.)

3. Power-on sequence:
① install B-
② insert the collection line
③ connect the B+ line
④ install P-

4. Power-off sequence: ①remove B+ cable ②remove collection cable ③remove P- ④ remove B-.

5. NTC cable need to plug into NTC-1 or NTC-A port first.

6. Weld the sampling calbes to the battery pack spec and seal the other excess sampling lines with insulation tape. For example, if you buy an 8-17S bms for the 10S battery pack, you can just seal the remaining 7 blue sampling cable with insulation tape.
Please follow the wiring sequence strictly, if the wiring sequence is reversed, it will lead to the damage of the BMS.

Battery pack parallel connection precautions:

1. parallel connection of lithium battery packs to ensure that the battery pack voltage is the same, each group of battery packs, the total pressure difference <1V, to prevent the parallel connection of different battery packs, the high voltage battery pack to the low voltage battery pack high-current charging, triggering the BMS short-circuit protection function.

2. When paralleling lithium battery packs, manually disconnect the discharging MOS in the Bluetooth APP control center interface and then paralleling, preventing the battery packs from firing when paralleling.

BMS application environment:

1. Ensure the accuracy of wiring.

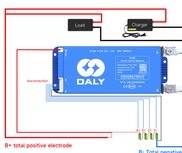
2. BMS collection harness, B + harness, B- and P- harness must be fixed firmly to prevent vibration and other environmental factors affect the reliability of the connection.

3. BMS use working temperature: -40°C ~ 85°C.

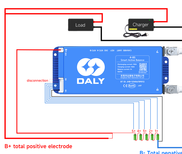
4. Attention to waterproof, moisture-proof, insulation.

5. battery pack, total positive or negative and shell insulation resistance ≥ 10MΩ.

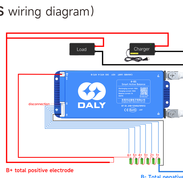
(**4S** wiring diagram)



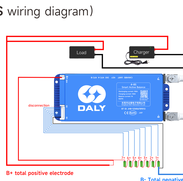
(**5S** wiring diagram)



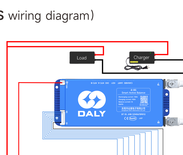
(**6S** wiring diagram)



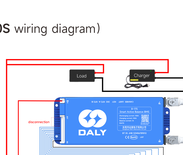
(**7S** wiring diagram)



(**8S** wiring diagram)



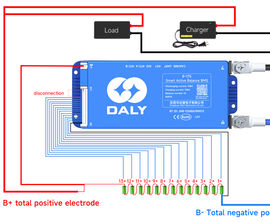
(**10S** wiring diagram)



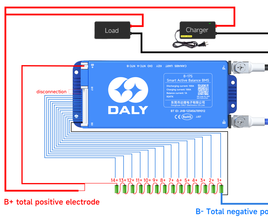
(**12S** wiring diagram)



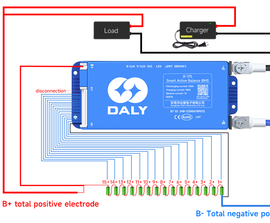
(**13S** wiring diagram)



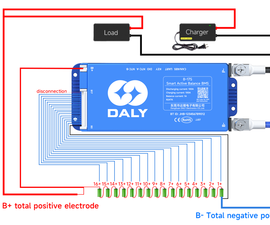
(**14S** wiring diagram)



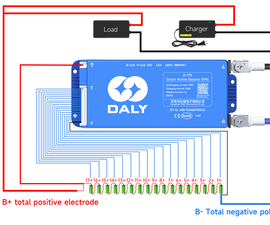
(**15S** wiring diagram)



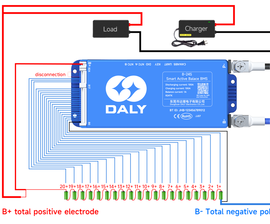
(**16S** wiring diagram)



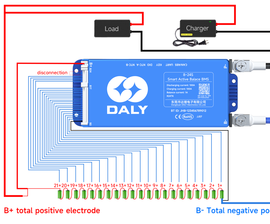
(**17S** wiring diagram)



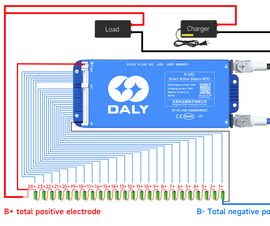
(**20S** wiring diagram)



(**21S** wiring diagram)



(**24S** wiring diagram)



Remark: It's mandatory to connect B+ cable of BMS to battery B+ (total positive electrode).

VI Contact Us

Official Website

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