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

R32D-800A Instruction manual

1.Introduction

• Thanks to the advantages of the domestic supply chain and the progress of domestic lithium electric forklift trucks, with the rapid growth of China's forklift exports, the requirements for battery safety; management systems are becoming higher and higher. The relay scheme used by most high-current battery packs has the problems of large size, high price and high assembly cost. Guda Lithium Electronics launched a new protection board DL-R32D series of continuous high current condition design, using an integrated design, the collection, management, communication and other functions integrated in one.

2.Function description

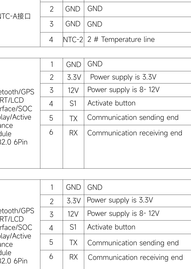
Fault storage	☑Store _400___
Charge current limit	☐No ☑1A (Built-in 1A current limit) Definition: Open when charging current > Three level charge overcurrent protection
Display screen	Support plug-in
Heating	Support plug-in
Key Switch	☐No ☑ Yes，1pcs
Wireless Communication	☐Bluetooth ☐Bluetooth+WIFI ☐ 4G+GPS ☑ Optional, not supported by default
Current sense resistor	10 pieces of 1mΩ
DO	12V/1A 5V/1A 3.3V/500mA
Sampling socket	XHB2.5 horizontal
Braking circuit	☐No ☑Yes
NTC	Route 6
Precharge	Power on a 50mF capacitor
Communication	Uart*3 CAN*2 RS485*1

Item	Condition
Detection Accuracy	Current Detection Accuracy: ≤1.5A
	Voltage Detection Accuracy: ≤10mV
	Temperature detection accuracy: <2°C (normal temperature)
	SOC accuracy (<10%和>80% capacity range or above)
Information Storage	Stores up to 400 (Standard configuration 512Kb EEPROM) message of history information, including protection times, current total voltage, current, temperature, SOC, etc.
SOC Measurement	Current integration method, accuracy < 10% (affected by ambient temperature
Working Environment Condition	Operating Temperature :-40℃ ~ 85℃
	Relative Humidity :5% ~ 85%RH
Storage Environment Condition	Storage Temperature :-40℃ ~ 85℃
	Relative Humidity :5% ~ 85%RH

3.Configuration list

Name	Default specification	Pcs	Remark
BMS PCBA	Smart BMS R32D 800A	1	
B + line	Cable _B+ Cable _2Pin_PHB2.0_18AWG Silicone cable _450mm_Y type _ Buckle _ Glue	1	
Collection line	Line line _XPin_XHB2.5_1007_22AWG_600mm_ glue _ buckle	1	X is the collection line adapted according to string number +1
Bluetooth module	Bluetooth Module _ Glue _Φ 37×6.5_ Without keys _ Lithium LOGO_ English llow-power waterproof (PHB2.0 buckle)	1	
NTC line	NTC _ 2 with _PHB2.0_4Pin_3435_1% _ 24 AWG _ 250 mm	1	
Switch	Connecting line _2PIN_PHB2.0_Ship type switch_24AWG_450mm_Glue _ Buckle	1	
Power screw	Screw _ Cross outer hexagon three combination _M6×10mm_ Machine teeth _ stainless steel	1	

4.Interface Definition



Pin order from left to right (facing the interface)

Interface name	Pin	Label	Definition description
Sampling line interface XHB 2.5 n Pin	1	B0	Connect to the negative terminal of the first battery
	2	B1+	Connect to the positive terminal of the first battery
	3	B2+	Connect to the positive terminal of the second battery
	...	...	Connect the positive terminal of the last battery
NTC-A接口	1	NTC-1	1 # Temperature line
	2	GND	GND
	3	GND	GND
	4	NTC-2	2 # Temperature line
Bluetooth/GPS /UART/LCD interface/SOC display/Active Balance Module PHB2.0 6Pin	1	GND	GND
	2	3.3V	Power supply is 3.3V
	3	12V	Power supply is 8- 12V
	4	S1	Activate button
	5	TX	Communication sending end
	6	RX	Communication receiving end
Bluetooth/GPS /UART/LCD interface/SOC display/Active Balance Module PHB2.0 6Pin	1	GND	GND
	2	3.3V	Power supply is 3.3V
	3	12V	Power supply is 8- 12V
	4	S1	Activate button
	5	TX	Communication sending end
	6	RX	Communication receiving end
KEY interface PHB2.0 2Pin	1	KEY-	Key switch negative
	2	KEY+	Key switch positive
RS485/CAN interface PHB2.0 5Pin	1	485_B	485 communication receiver
	2	485_A	485 communication sender
	3	GOLDKEY	Isolation ground GND
	4	CAN_H	CAN communication high
	5	CAN_L	CAN communication low
B+interface PHB2.0 2Pin	1	B+	Battery total positive, connect battery total positive
	2	B+	
NTC-B interface PHB2.0 8Pin	1	NTC-3	3 # Temperature line
	2	GND	GND
	3	NTC-4	4 # Temperature line
	4	GND	GND
	5	NTC-5	5 # Temperature line
	6	GND	GND
	7	NTC-6	6 # Temperature line
	8	GND	GND

Bluetooth/GPS/UART1/LCD interface/SOC display/Active Balance Module PHB2.0 6Pin	1	GND	GND
	2	3.3V	Power supply is 3.3V
	3	12V	Power supply is 8- 12V
	4	S1	Activate button
	5	TX	Communication sending end
	6	RX	Communication receiving end

CAN interface PHB2.0 2Pin	1	CAN2_H	CAN communication high
	2	CAN2_L	CAN communication low

DIO parallel interface PHB2.0 4Pin	1	12V	12V <1A DO
	2	GND	GND
	3	3.3V	3.5V <500mA DO
	4	GND	GND

5VDO parallel interface PHB2.0 2Pin	1	5V	5V <1A DO
	2	GND	GND

Isolation power input and output interface (optional)	1	OUT	12V_OUT
	2	GND	GND
	3	NC	/
	4	IN	12V_IN
	5	GND	GND
	6	NC	/

5.Instructions for use

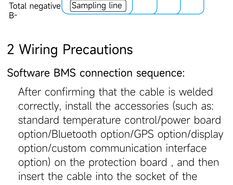
1 Wiring Instructions

- First connect the B- line of the protection board to the total negative pole of the battery pack;
- The cable starts from the thin black wire connected to B-, the second wire is connected to the positive electrode of the first string of batteries, and the positive electrode of each string of batteries is connected in turn; then insert the cable into the protection board; B+ is connected to the last string of positives;

Connect the temperature control, switch and Bluetooth module first.

- After the line is completed, Observe whether the green indicator light is working, connect the bluetooth APP or PC application to check for any fault alarms, measure whether the voltages of battery B+ and B- are the same as those of P+ and P-. The same means that the protection board is working normally; otherwise, please re-operate according to the above;

- When removing the protection board, First disconnect the load power switch and unplug the ribbon cable (if there are two cables, first pull out the high-voltage cable, then pull out the low-voltage cable), and then Remove P -, and finally remove power line B.



2 Wiring Precautions

Software BMS connection sequence:

After confirming that the cable is welded correctly, install the accessories (such as: standard temperature control/power board option/Bluetooth option/GPS option/display option/custom communication interface option) on the protection board , and then insert the cable into the socket of the protection board; the blue B-line on the protection board is connected to the total negative pole of the battery, and the black P-line is connected to the negative pole of charge and discharge.

When NTC fails to insert, BMS will malfunction and cannot perform normal charging and discharging.

Parameter modification:

The number of BMS strings and protection parameters (NMC, LFP, LTO) have default values when they leave the factory, but the capacity of the battery pack needs to be set according to the actual capacity AH of the battery pack. If the capacity AH is not set correctly, then The percentage of remaining power will be inaccurate. For the first use, it needs to be fully charged to 100% as a calibration. Other protection parameters can also be set according to the customer's own needs (it is not recommended to modify the parameters at will).

For the wiring method of the cable, refer to the wiring process of the hardware protection board on the back. The smart board APP modifies the parameters.
Factory password: 123456

6.Precautions

1.BMS of different voltage platforms cannot be mixed. For example, NMC BMSs cannot be used on LFP batteries.

2.The cables of different manufacturers are not universal, please make sure to use our company's matching cables.

3.Take measures to discharge static electricity when testing, installing, touching and using the BMS.

4.Do not let the heat dissipation surface of the BMS directly contact the battery cells, otherwise the heat will be transferred to the battery cells and affect the safety of the battery.

5.Do not disassemble or change BMS components by yourself.

6.The company's protective plate metal heat sink has been anodized and insulated. After the oxide layer is damaged, it will still conduct electricity. Avoid contact between the heat sink and the battery core and nickel strip during assembly operations.

7.If the BMS is abnormal, please stop using it and use it after the problem is solved.

8.Plug and unplug the connector cable, pay attention to press the buckle position to unplug and unplug, otherwise the wire may be damaged.

9.The BMS board has built-in low-power parallel connection capability. For high current parallel connection, please choose a separate accessory. For series connection, it needs to be customized separately.

10、The maximum load power of BMS peripherals must not exceed 20W. If there is a high load requirement, contact the service provider for customization.

7.Contact Us

Official Website

FaceBook