

Product Specification

Part Number: ANT32S-500A-X



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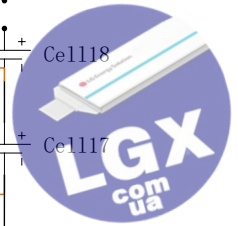
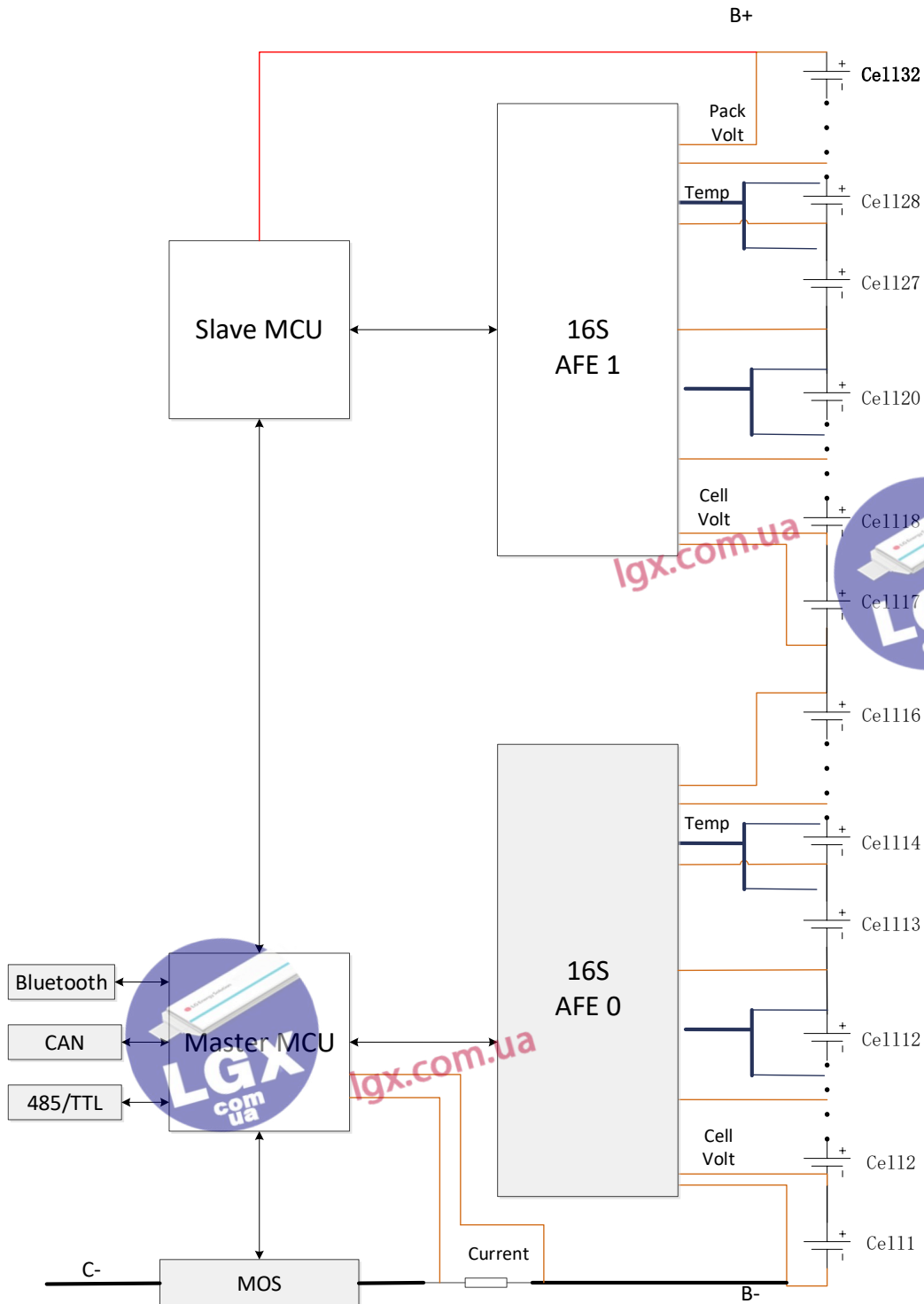
Edition: V1.4
Date: 20200303

1.1 Introduction

ANT32S-500A-X is a smart BMS. Main function includes: cell voltage/ temperature/pack voltage/current measurement, passive balance control, CAN bus, RS485, TTL port, Bluetooth (APP supported), SOC calculation, MOS control.



1.2 System Topology



1.3 Function

1.3.1 CAN Bus

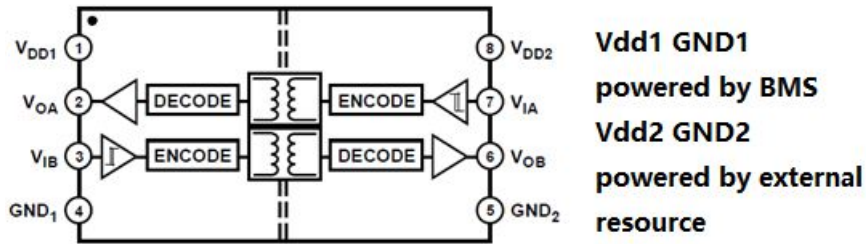
J N1939 protocol, CAN2.0A/B supported. 2500V isolated.
CAN /485/TTL can only choose one.

1.3.2 RS485 Bus

2500V isolated。 Typical baud rate is 19200.
CAN /485/TTL can only choose one.

1.3.3 TTL Port

2500V isolated。 Typical baud rate is 19200.
 Need external isolated power.**CAN /485/TTL can only choose one.**



1.3.4 Cell voltage measurement

Measures Up to 16 Battery Cells in Series.

1.3.5 Temperature measurement

MOS, balance circuit, and external temperature measurement.

1.3.6 SOC

AH integral method with OCV calibration.

1.3.7 MOS Control

Drive charge & discharge MOS to protect the battery.

1.3.8 Pack voltage measurement

Pre-charge and pack voltage are get by this function.

1.3.9 Current measurement

Short-circuit, auto wake up, soc calculation.

1.3.10 Balancing

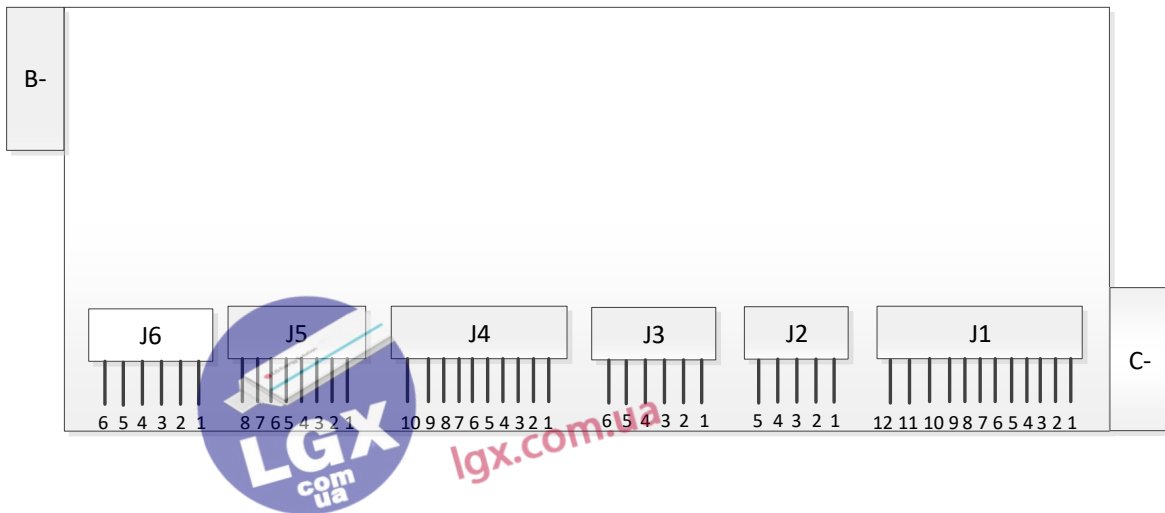
Passive cell balancing with programmable current.
 100mA/ channel for maximum.

1.4 Electrical characteristics

Index	Parameter	Detail	Remark
1	Total supply voltage	20-150V DC from battery	Auto change to sleep state
2	Cell number	16-32S	
3	Working state power consumption	< 10mA (72V)	
4	Sleep state power consumption	< 5mA (72V)	Auto wake up
5	Deep sleep state power consumption	< 20uA (72V)	Manual wake up
6	Working temperature	-40 ~ 85 °C	

7	Storage temperature	-40 ~ 95 °C	
8	Working humidity	5% ~ 95%	Conformal Coating
9	Cell voltage measurement	0-5V, measurement error< 10mV Typical is 5mV	Resolution 1mV
10	Open wire detection	Supported	
11	Passive balancing	Maximum 100mA/channel	
12	Temperature measurement	-30 ~ 125 °C,	2 channels
13	Pack voltage measurement	1 channel. 0-100V. error <0.5% FSR.	
14	Current measurement	-150A ~ 300A, error<0.5% FSR	1channel
15	SOC	< 8%	
16	CAN	1 channel, bootloader supported	Choose one in three
17	485	1 channel, bootloader supported	Choose one in three
18	TTL	1 channel, bootloader supported	Choose one in three
19	Current ability	Rated 180A, Pulse 500A (30s) @ 100V Rated 150A, Pulse 400A (30s) @ 100V The value depends highly on heat radiation.	
20	Short circuit	default 500A	
21	System log	Support	FLASH
22	Bluetooth	Support	Connect to APP
23	IP level	IP30	
24	Weight	< 400g	
25	Size	155*70*26mm	

2. Interface definition



2.1 Output negative:

C-, Black wire. Charge and discharge negative share the same port.

2.2 Battery negative:

B-, blue wire. Connect to pack negative.

B- must be connected to battery first, then cell voltage interface can be plugged in.

2.3 Cell voltage port

32 series cell voltage and BMS power wire.

Index	Item	Details
0	J1-1	Connected to pack negative
1	J1-2	Connect to positive terminal of cell 1
2	J1-3	Connect to positive terminal of cell 2
3	J1-4	Connect to positive terminal of cell 3
4	J1-5	Connect to positive terminal of cell 4
5	J1-6	Connect to positive terminal of cell 5
6	J1-7	Connect to positive terminal of cell 6
7	J1-8	Connect to positive terminal of cell 7
8	J1-9	Connect to positive terminal of cell 8
9	J1-10	Connect to positive terminal of cell 9
10	J1-11	Connect to positive terminal of cell 10
11	J1-12	Connect to positive terminal of cell 11
12	J2-1	Connect to positive terminal of cell 12
13	J2-2	Connect to positive terminal of cell 13
14	J2-3	Connect to positive terminal of cell 14
15	J2-4	Connect to positive terminal of cell 15
16	J2-5	Connect to positive terminal of cell 16
17	J4-1	Connect to positive terminal of cell 16
18	J4-2	Connect to positive terminal of cell 17
19	J4-3	Connect to positive terminal of cell 18
20	J4-4	Connect to positive terminal of cell 19
21	J4-5	Connect to positive terminal of cell 20
22	J4-6	Connect to positive terminal of cell 21
23	J4-7	Connect to positive terminal of cell 22
24	J4-8	Connect to positive terminal of cell 23
25	J4-9	Connect to positive terminal of cell 24
26	J4-10	Connect to positive terminal of cell 25
27	J5-1	Connect to positive terminal of cell 26
28	J5-2	Connect to positive terminal of cell 27
29	J5-3	Connect to positive terminal of cell 28
30	J5-4	Connect to positive terminal of cell 29
31	J5-5	Connect to positive terminal of cell 30

32	J5-6	Connect to positive terminal of cell 31
33	J5-7	Connect to positive terminal of cell 32
34	J5-8	Connect to pack positive

2.4 Temperature Port

Index	Item	Details	Index	Item	Details
1	J6-1	NTC common ground	4	J6-4	NTC3 positive
2	J6-2	NTC1 positive	5	J6-5	NTC4 positive
3	J6-3	NTC2 positive	6	J6-6	NTC5 positive

2.5 Communication Port

Index	Item	Details	Index	Item	Details
1	J3-3	CANL/485B	3	J3-5	ACC-
2	J3-4	CANH/485A	4	J3-6	ACC+

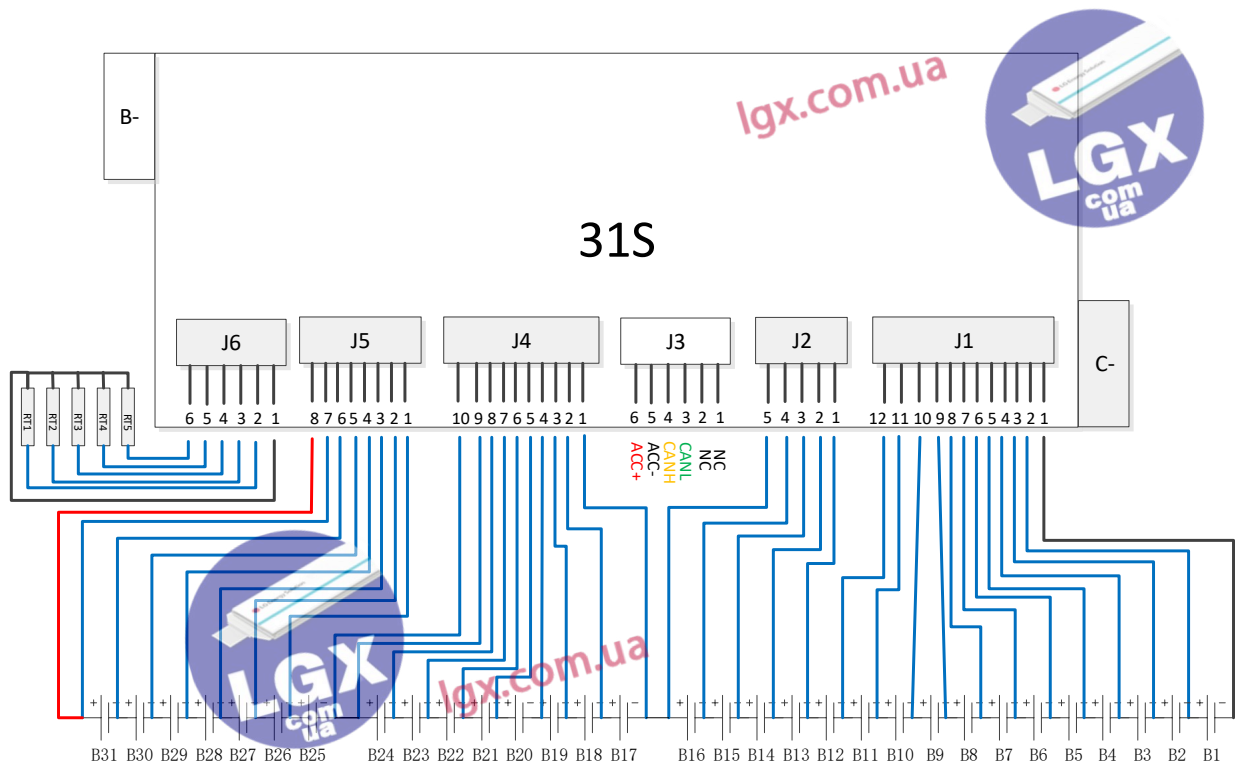
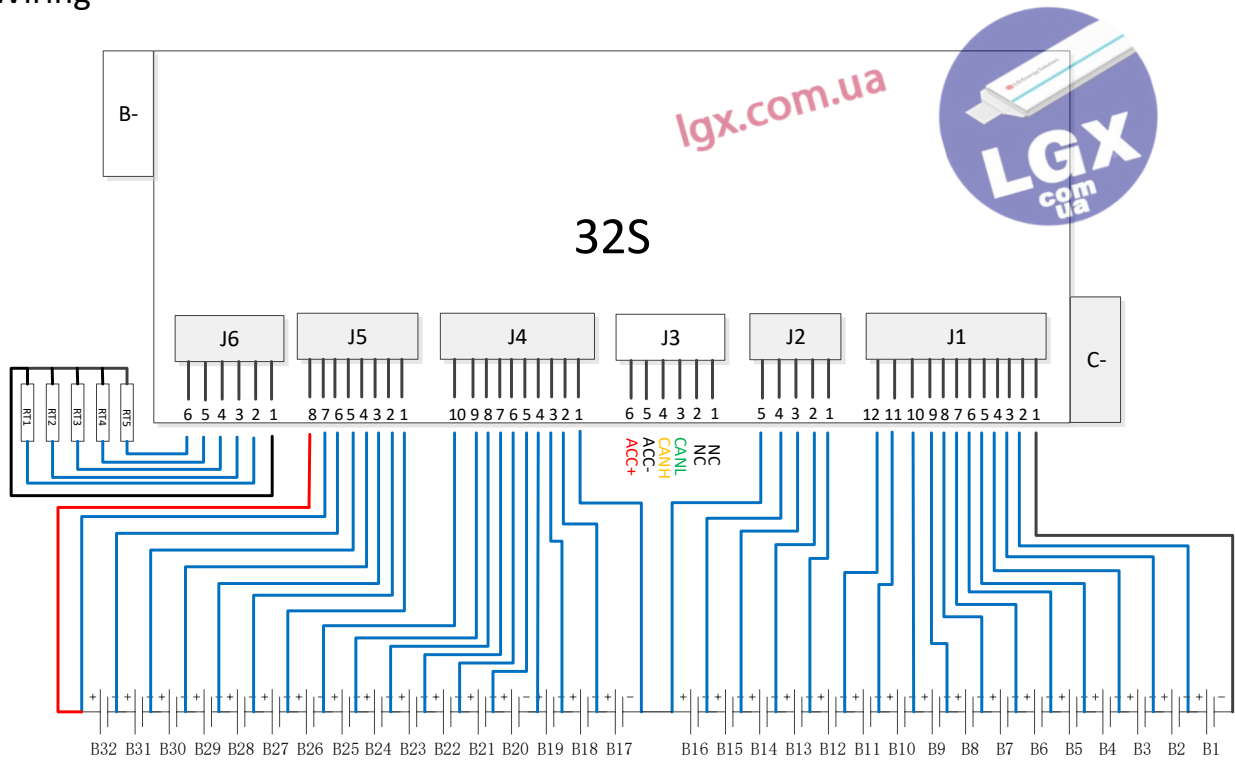
Remark: A Voltage source range from 3-12V can activate BMS via ACC + and ACC-.

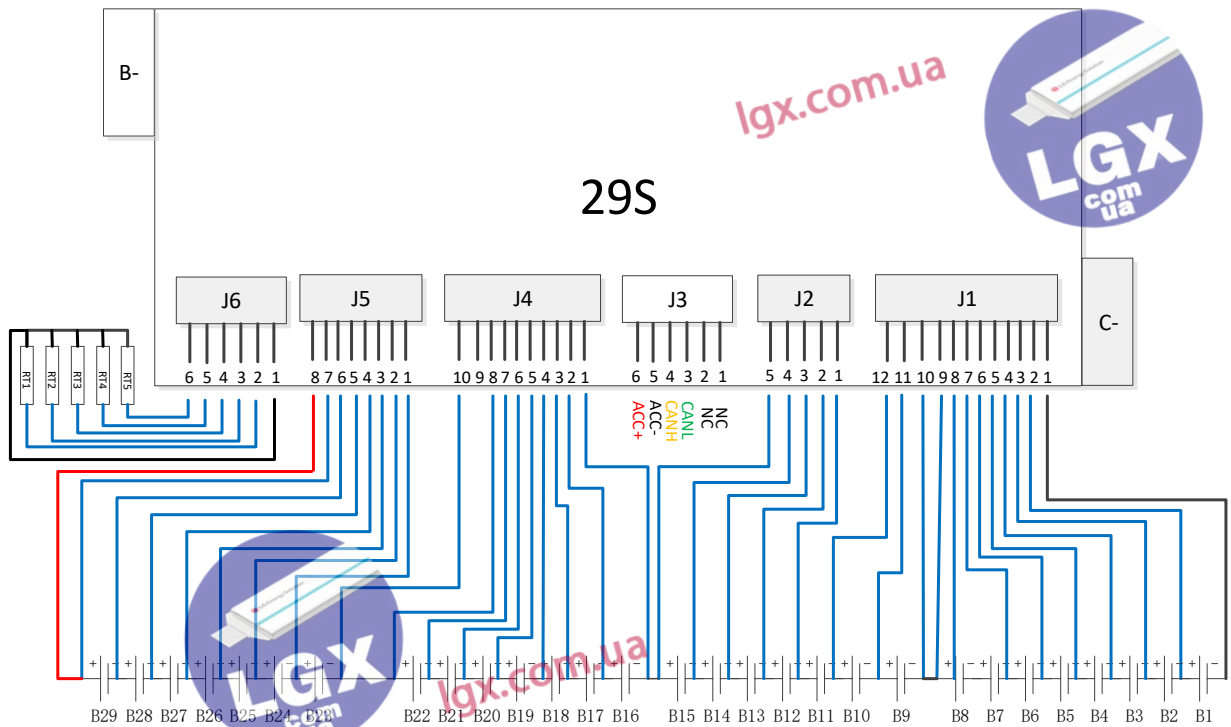
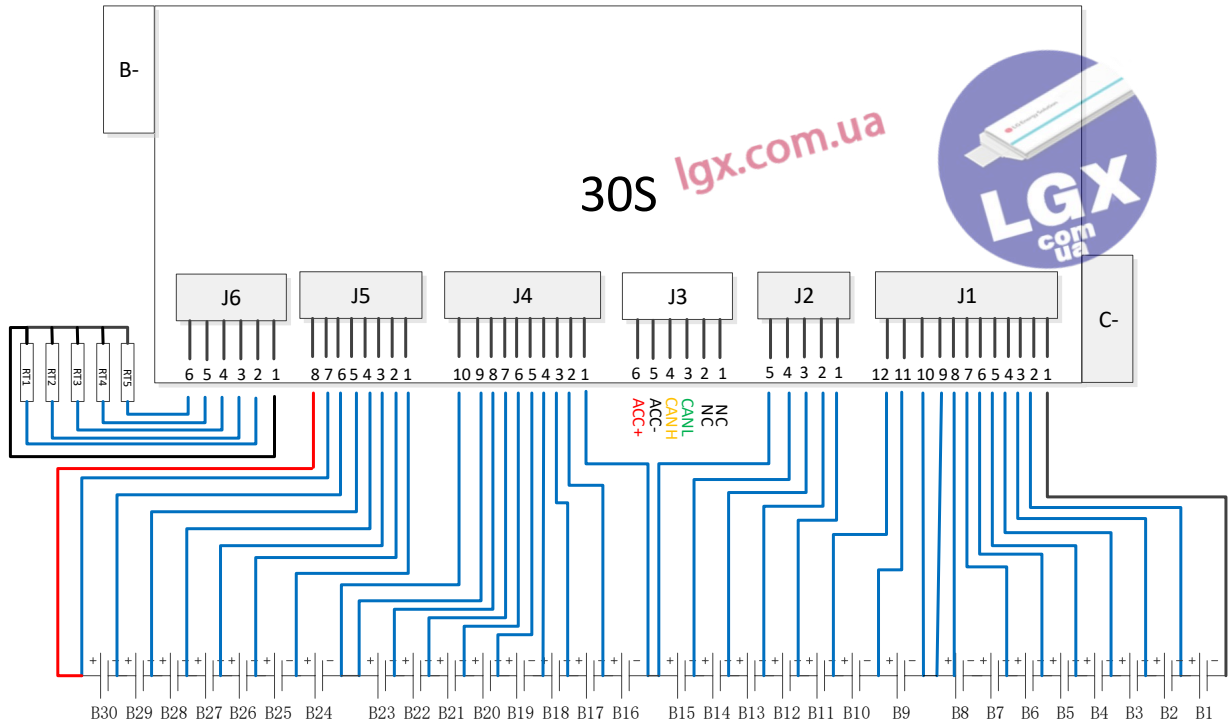
By the way, a charger can also activate BMS.

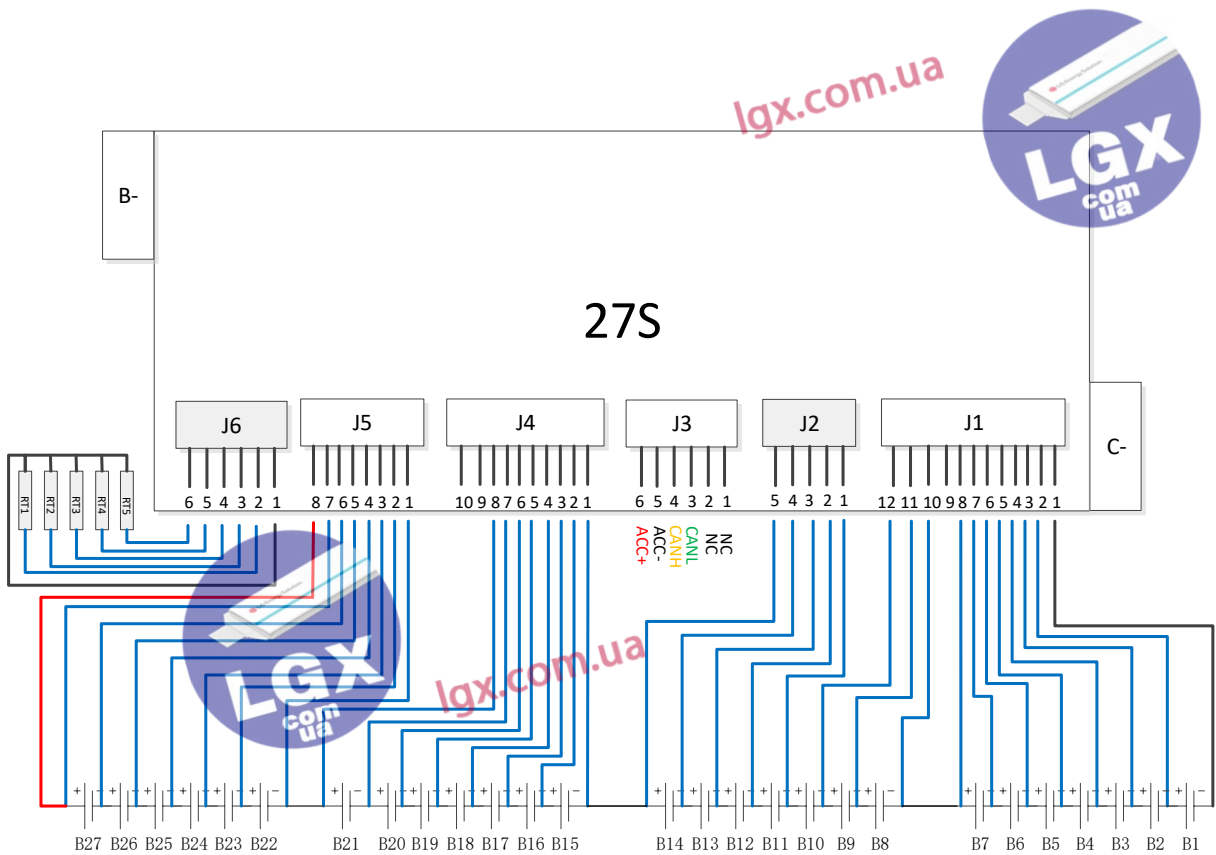
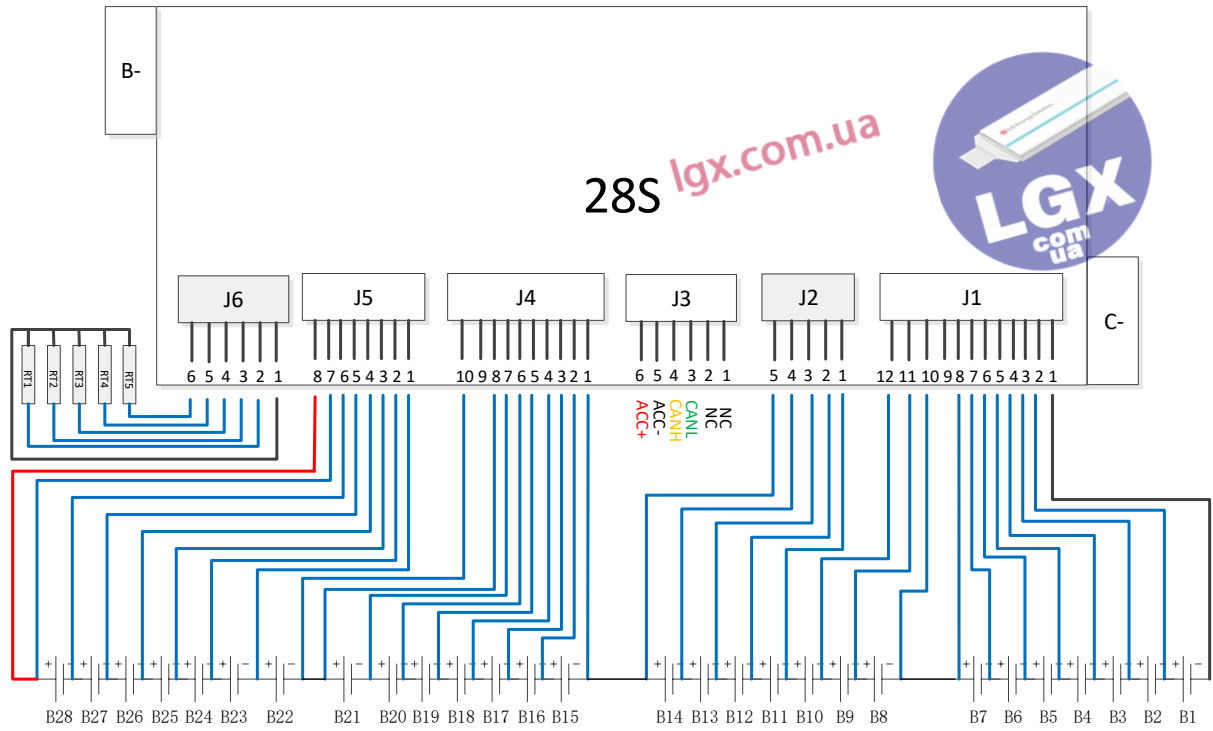


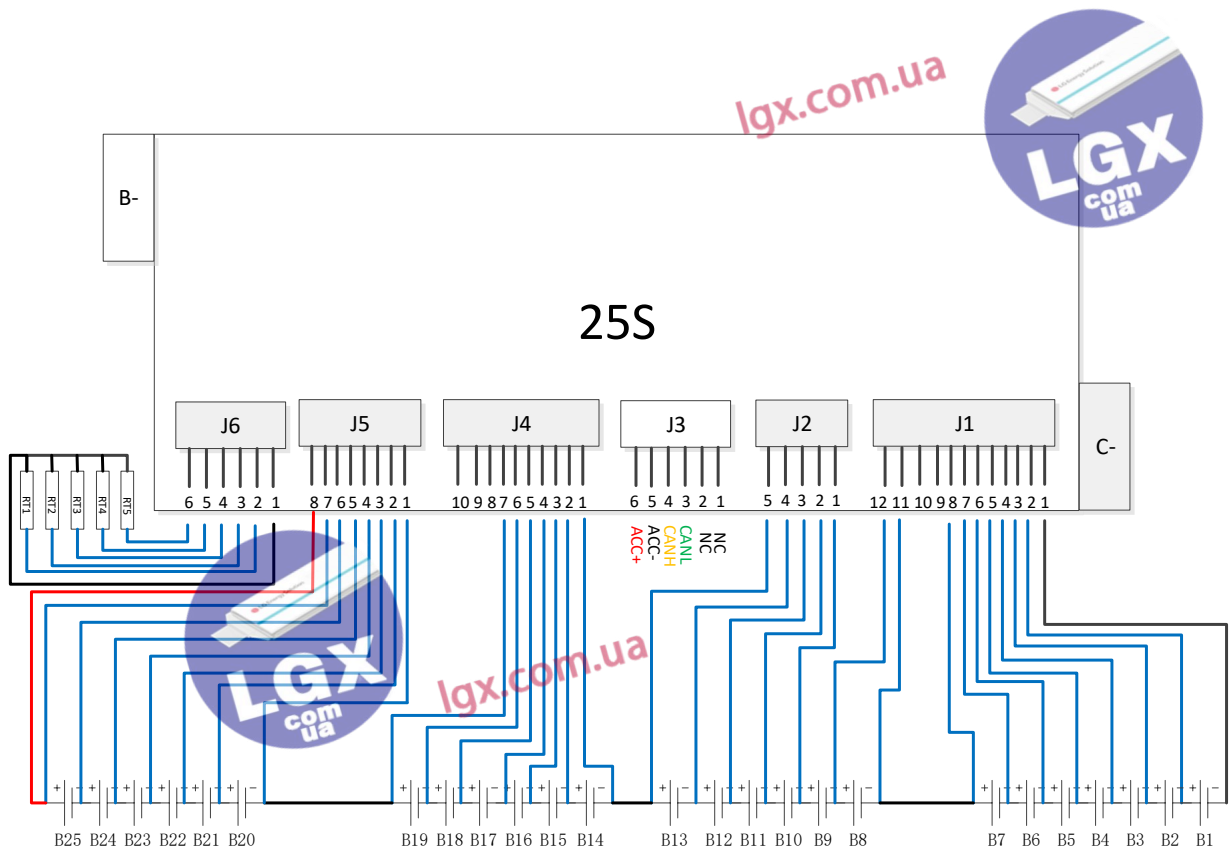
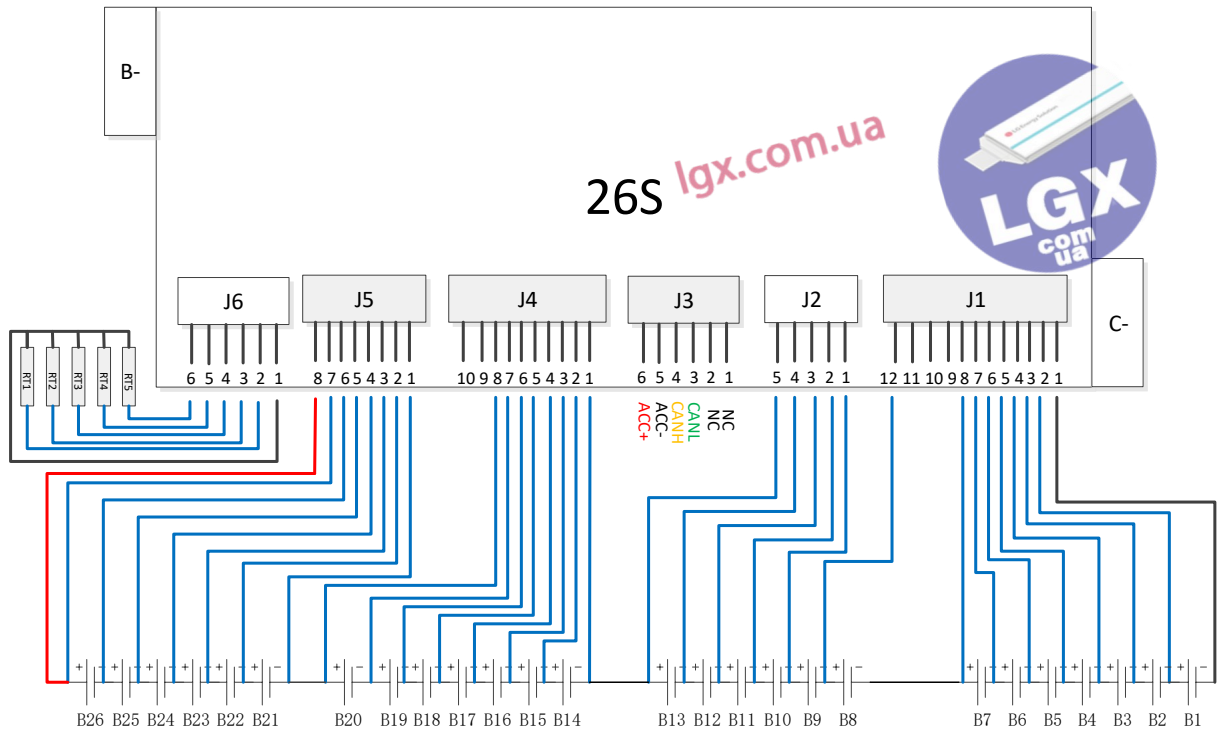
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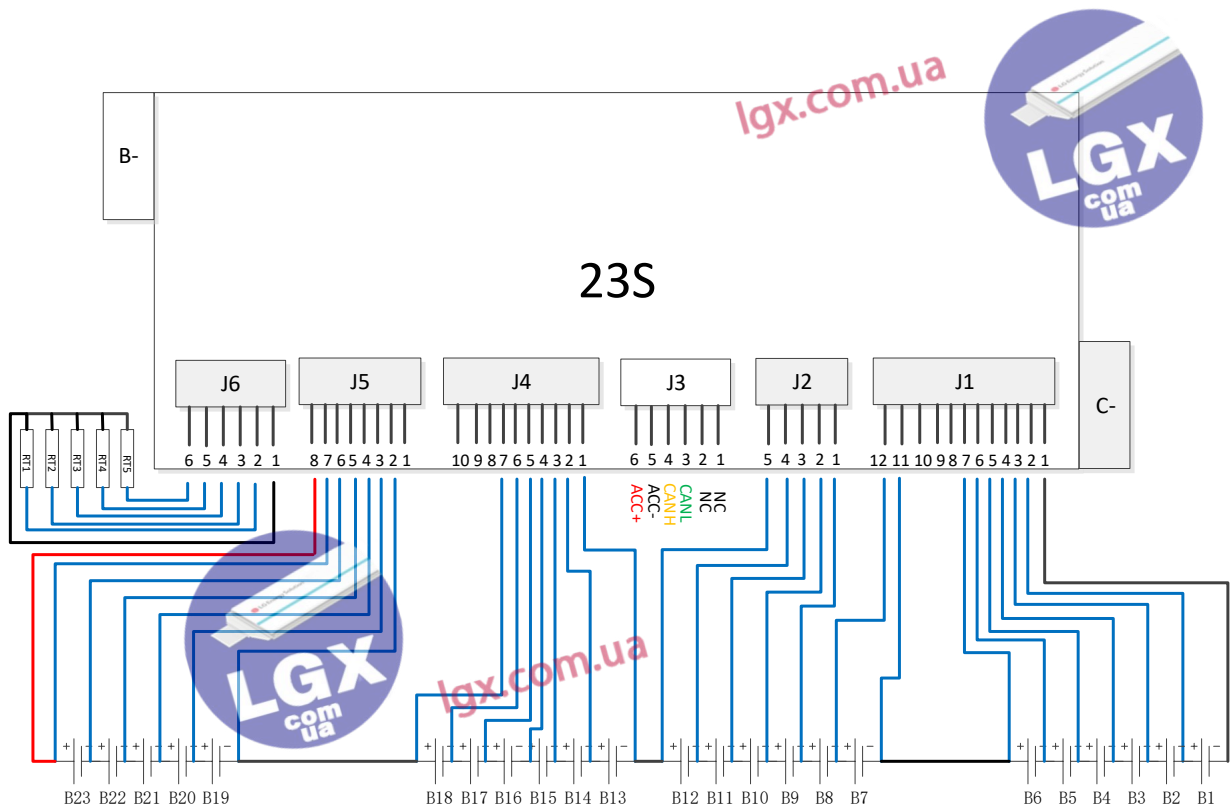
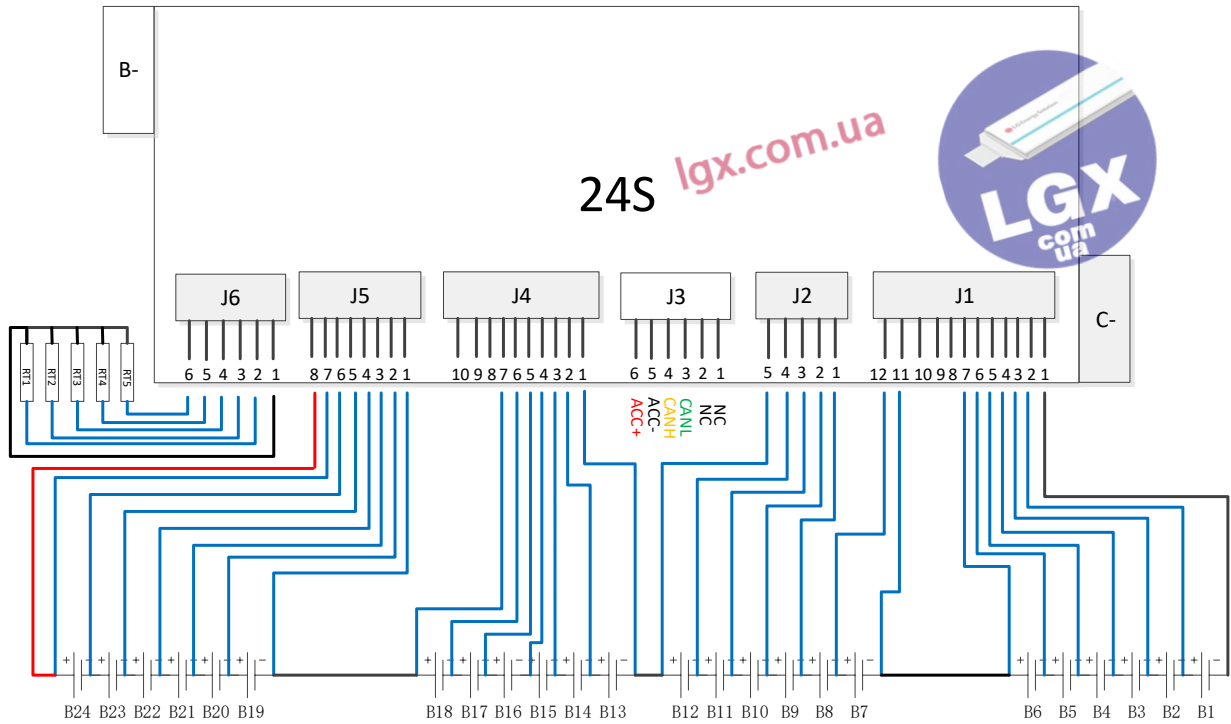
3. Wiring

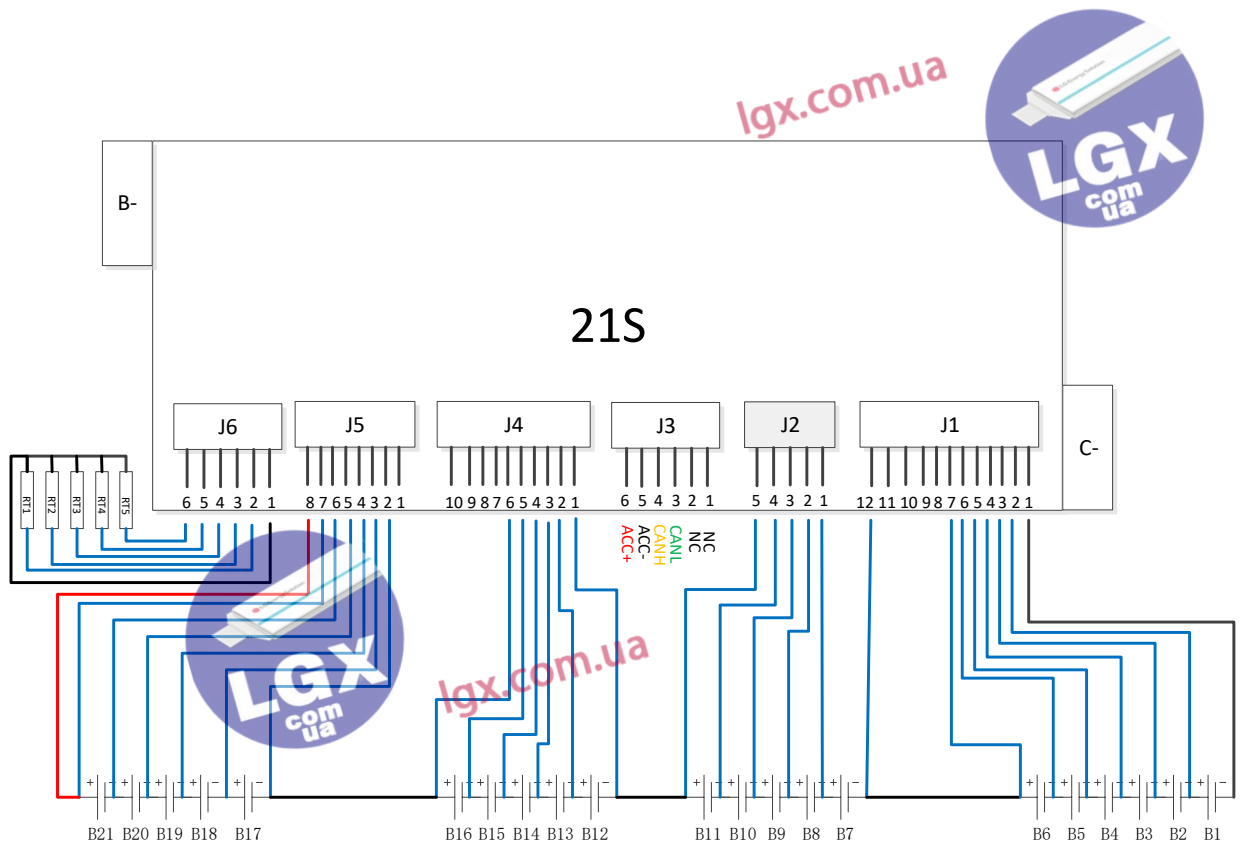
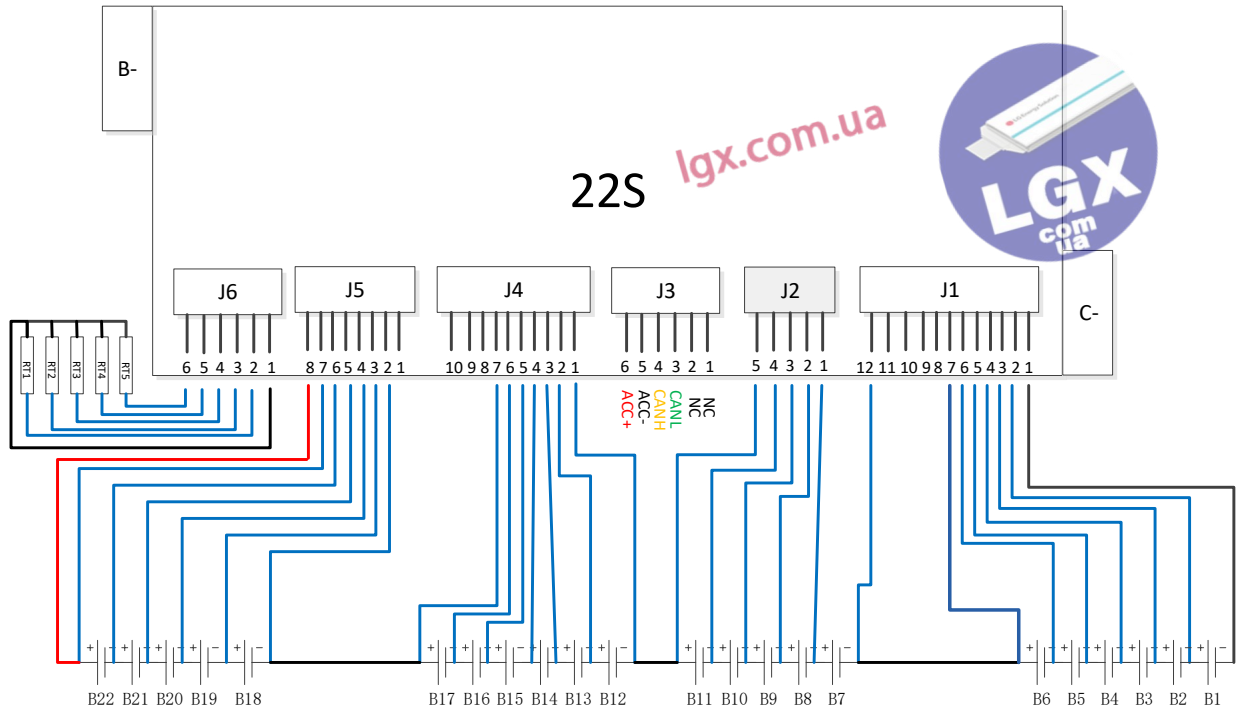


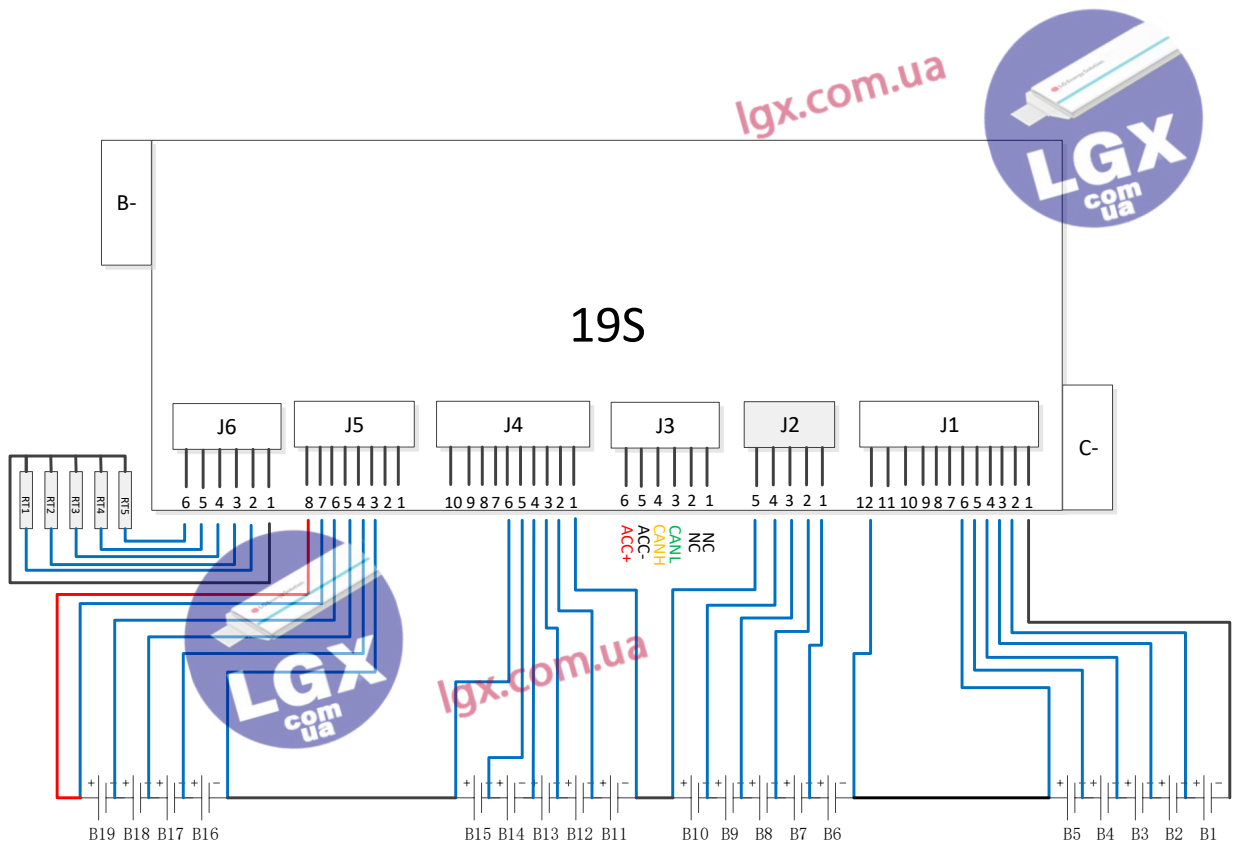
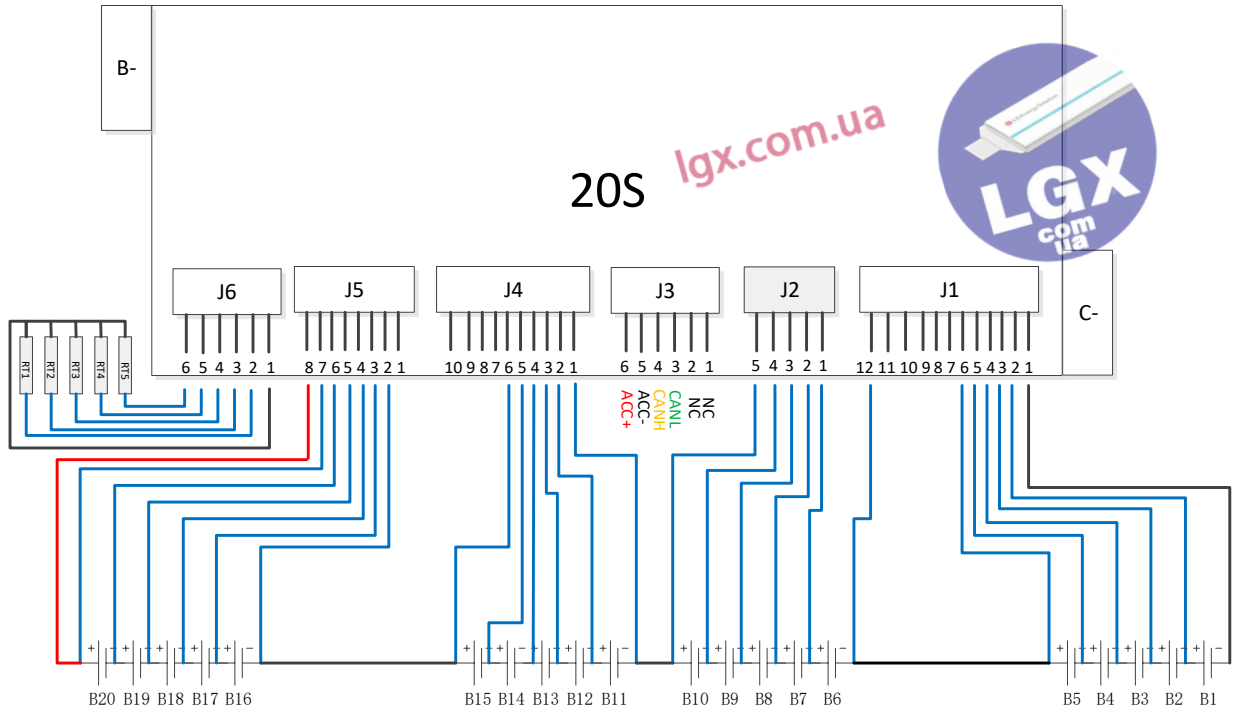


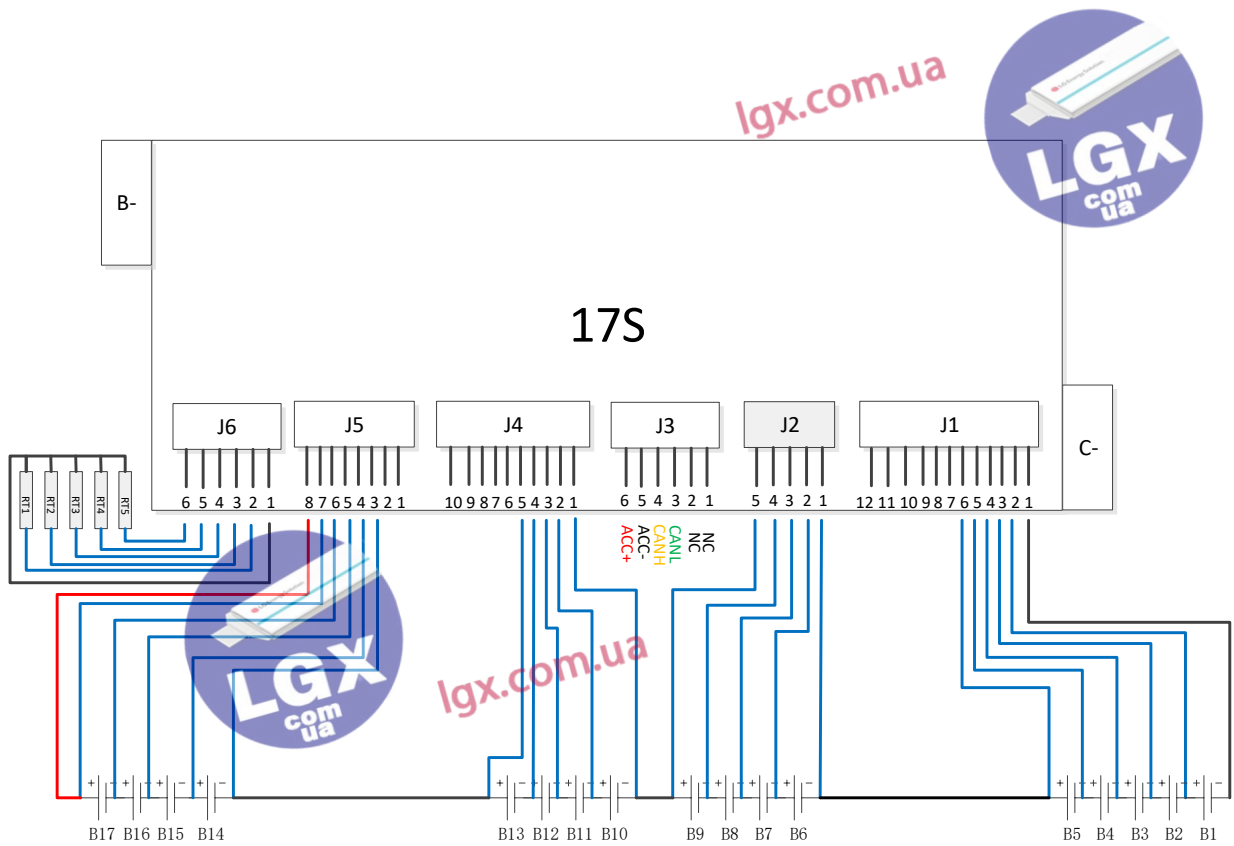
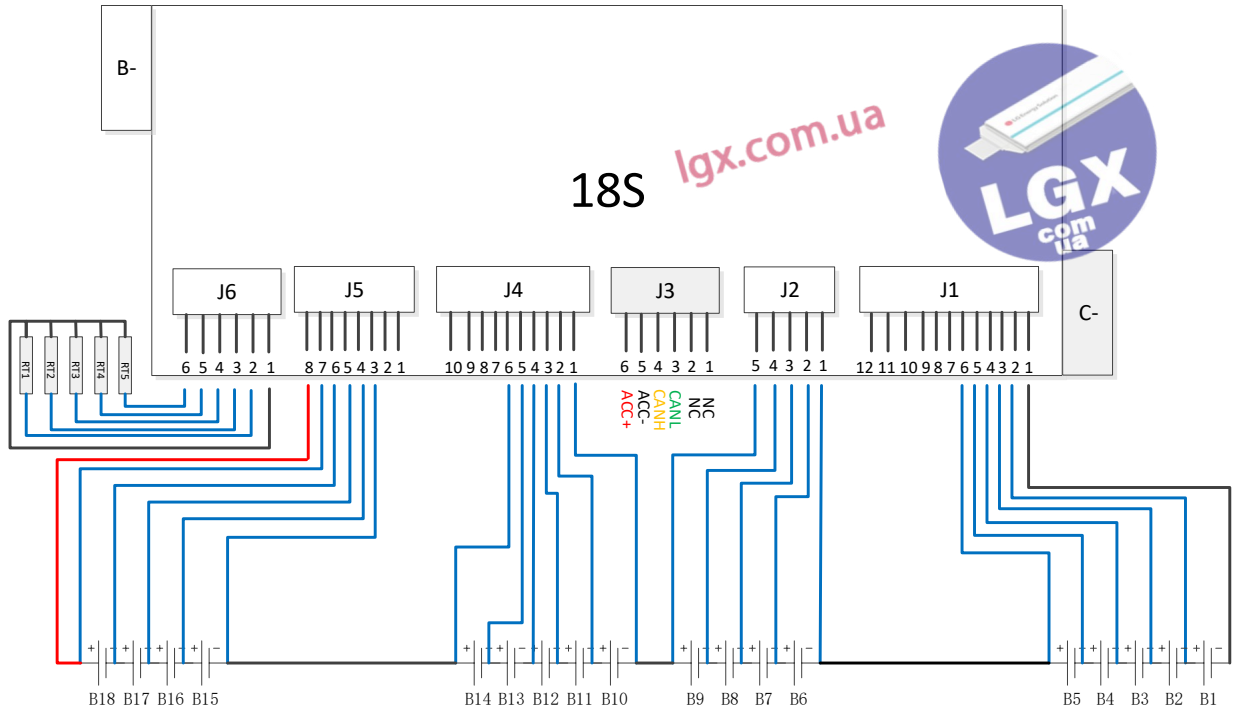


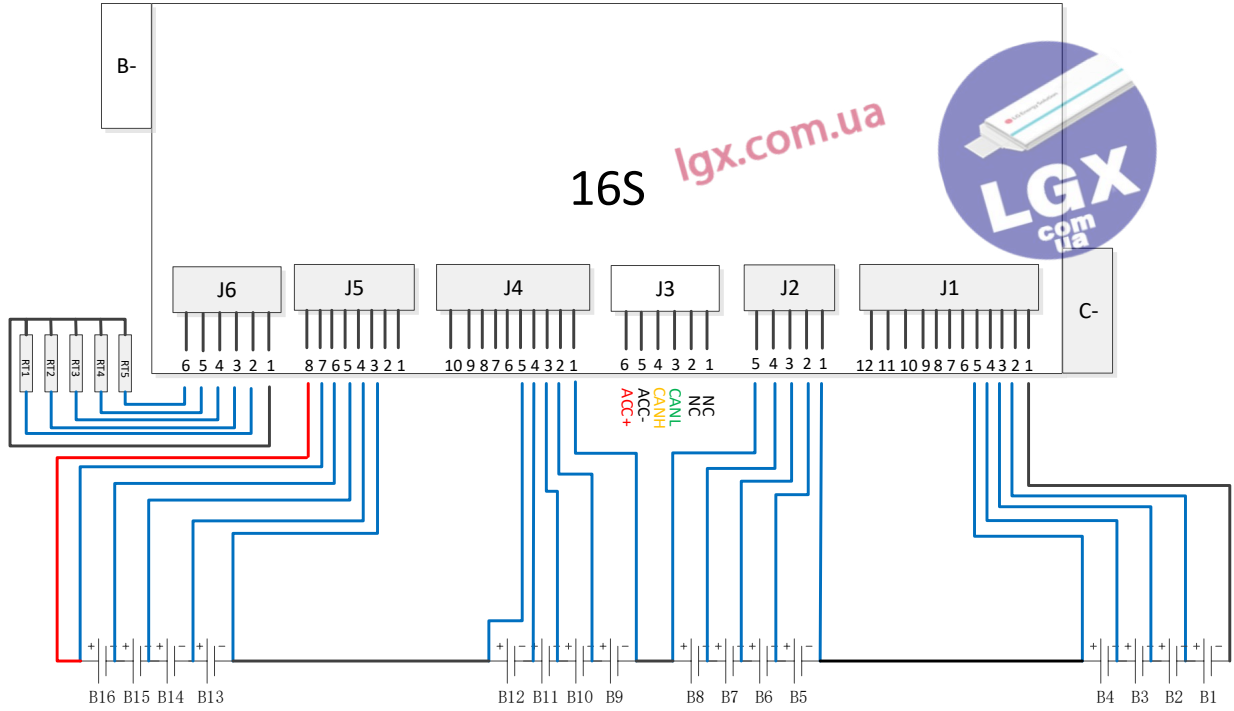












4. PC software



5. APP

The screenshots show the BMS control interface with three main sections:

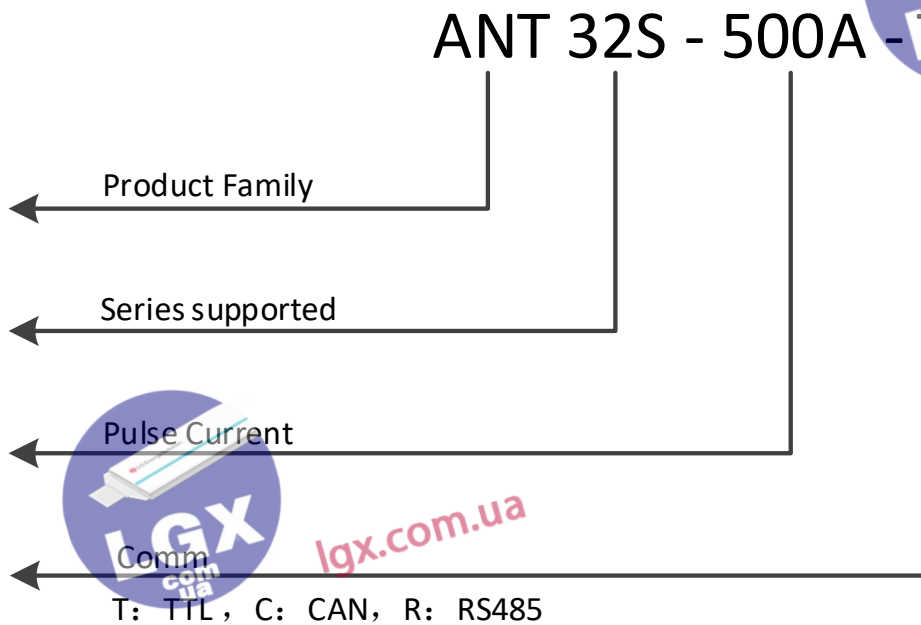
- BMS Control:** Features a '连接...' (Connect...) header, '设置可见' (Settings visible), '连接设备' (Connect device), and '系统日志 >>' (System log >>). Below are password verification fields and buttons for '钛锂参数' (Titanium Lithium parameters), '打开充电' (Open charging), '打开放电' (Open discharging), '修改蓝牙地址' (Change Bluetooth address), '关闭充电' (Close charging), '关闭放电' (Close discharging), '重启系统' (Restart system), '出厂设置' (Factory settings), '屏幕切换' (Screen switch), '自动均衡' (Automatic balancing), '铁锂参数' (Iron Lithium parameters), and '电流归零' (Current zero).
- BMS Parameter setting:** A table for configuring machine parameters. Each row includes a '项目' (Item), '机器参数' (Machine parameter), and '设定参数' (Setting parameter) with a '设置' (Set) button.
- BMS State:** Displays real-time status including RV:16043, 运行时间:53天1时31分17秒 (Running time: 53 days 1h 31m 17s), and various electrical and temperature metrics.

BMS Control

BMS Parameter setting

BMS State

6. Part Number definition



Example: ANT32S-500A-C means 32S pulse current 500A, CAN port.
 ANT32S-500A-T means 32S pulse current 500A, TTL port.

7. Structure

