High Voltage Master-Slave BMS Specification Sheet

Product Model:SRS99C10P7

Basic Configuration	parametric	instructions
Charge and Discharge Interface Type	parting of lips	
Charge/discharge switch type	relay (electronics)	
string number	6~255	
continuous current	100A-400A	Different relays can be selected
communication method	CAN, RS485 (optional)	
display screen	have	Optional

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1. Main features

This BMS is suitable for state management and safety management of high voltage (6~255 series) lithium battery system, and its main features include: 1. High voltage sampling accuracy (±3mV). 2;

2. High current sampling accuracy (±1%FS);

3. High temperature sampling accuracy (±2℃);

4. Battery power (State of Charge, Soc) estimation; 5. Adjustable battery over-charge, over-discharge, over-temperature, and over-current protection;

6. Pre-charge function;

7. Secondary protection function (optional)

8. Insulation detection (optional)

9. Charge heating control (optional); other auxiliary functions include:

1. Battery life management (optional);

2. Firmware of main control system is upgraded online; various communication interfaces are available:

1. RS232 serial port;

2. CAN (Controller Area Network) port

3. RS485 serial port (Modbus RTU protocol) for two wireless connections:

1. Bluetooth local connection

2.2G or 4G remote connection to multiple HMI terminals:

1. Embedded LCD screen
2. WeChat applet
3. PC client, PC web

Users can monitor the BMS operation status, set parameters or upgrade the system firmware locally or remotely through the above human-machine interaction terminal. The system structure is shown in Figure 1.

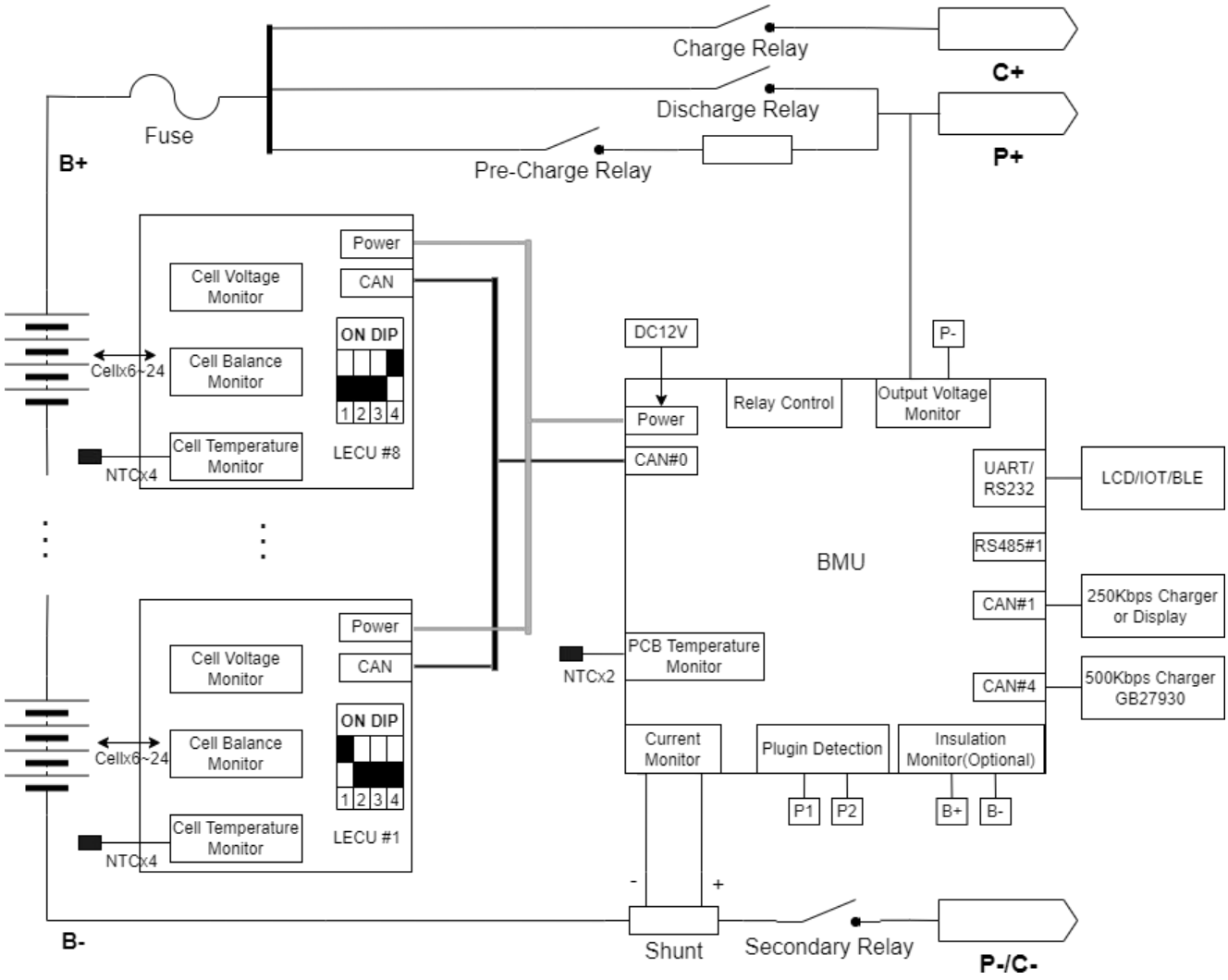


Figure 1.

2. Electrical Characteristics

sports event	parameters	minimal	conventional (weapons)	greatest	unit (of measure)	note
total voltage	Charging Voltage			780	V	
total current	Charging current		100A			Determined by the cell, relay and shunt
	discharge current		200A			Determined by the cell, relay and shunt
Power supply	input voltage	10	12	15	V	
	amps		500		mA	

Standby power consumption	Without LCD		680		mW	Excluding relay drive power consumption
	LCD Resting Screen		920		mW	
	LCD On Screen		1880		mW	
Single Cell Voltage	voltage range	0	3.2	5		
	Sampling accuracy	± (0.1% FS + 0.1% RD)				0V~5V,-40°C~105°C
	sampling period	200			ms	
Output Voltage Sampling	input voltage		780		V	
	accurate	± (1% FS + 1% RD)				
current sampling	resistive shunt		300		A	
	accurate		± 1 per cent		A	
electrical insulation resistance	Insulation resistance value			6.5M	*	
	warning error					
temperature sampling	temperature range	-40		105	°C	
	sample size (statistics)	2	4	6		4 NTCs per slave
	Sampling accuracy		±2		°C	
AC charging port	CC, CP		1			AC Charger Signal
DC national standard fast charging	CC2		1			DC Charger Signal
DC charging interface			1			there are
Charge and Discharge Port Connection Method	Same port/split port		parting of lips			
CAN port	quantities		3			
RS485 port	quantities		1			
RS232 port	quantities		1			
dry contact	quantities		0			
Heating drive	quantities		1			12V/0.5A relay driven or connected to battery Voltage 3A Heating current

3. Functional Description

3.1. Basic Parameter Setting

In order to ensure the normal operation of the BMS, the following parameters need to be set correctly according to the actual situation.

serial number	parameters	default value	Is it possible to set	note
1	Number of Battery Sections	27	configurable	Number of sections of series-connected batteries
2	Rated power value	100Ah	configurable	Rated capacity of battery cell
3	Current range	300A	configurable	Adjustment to sampling resistor or shunt
4	Current zero offset	0	configurable	
5	Current False Detection Threshold	1.0A	configurable	Adjusted to the sampling chip
6	Cell type (parameter programme switch)	lithium iron (chemistry)	configurable	Ternary or LiFe, affecting SoC calculations
7	Temperature probe enable	31	configurable	Each bit corresponds to one temperature probe enable, the default is 5.
8	Sensor Enable (supported on some models)	0	configurable	Turn off humidity alarm by default
9	Series Parameters (Cells)	8+6, 7+6	configurable	Sampling quantity of the core Slave 1: 8+6 strings, Slave 2: 7+6 strings
10	Serial parameter (temperature enable)	3, 4	configurable	Slave core temperature sampling enables 3rd and 4th probes

3.2. Alarm protection

serial number	sports event	Relevant parameters	default value	Is it possible to set	note
1	overcharge protection	Monoblock Overcharge Voltage	3.65V	configurable	
		Single unit overcharge recovery voltage	3.4V	configurable	
		Total overvoltage	58.4V	configurable	Take 16 strings as an example
		Overcharge protection delay	1S	unsupportable	
		Overcharge recovery delay	10S	unsupportable	
2	overdrive protection	unit overdischarge voltage	2.8V	configurable	
		Monoblock Overdischarge Recovery Voltage	3.0V	configurable	
		Total Undervoltage	44.8V	configurable	Take 16 strings as an example
		over-amplification protection delay	10S	unsupportable	
		over-release recovery delay	1S	unsupportable	
3	Discharge overcurrent protection	Primary discharge overcurrent	120A	configurable	
		Primary discharge overcurrent delay	30S	configurable	
		Secondary discharge overcurrent	150A	configurable	
		Secondary discharge overcurrent delay	10S	configurable	
		Discharge overcurrent recovery delay	10S	unsupportable	
4	Charge overcurrent protection	Charge overcurrent threshold	30A	configurable	
		Charge Current Limit	30A	configurable	When connecting a charger with communication, it will be connected to the charger. Communication limiting charging current
		Charge overcurrent protection delay	10S	unsupportable	
		Charge overcurrent recovery delay	10S	unsupportable	
5	short circuit protection	Short-circuit protection current	400A	unsupportable	Response time less than 300us (MOS only) version)
		Short circuit protection recovery delay	5S	unsupportable	Short-circuit protection disengages 5s after short-circuit fault is cleared
		System High Temperature Protection	85℃	configurable	Greater than or equal to threshold protection trigger

6	High temperature protection	System High Temperature Alarm	75℃	configurable	Less than threshold protection released; greater than or equal to threshold report Alarm triggered, less than threshold alarm cancelled
		Battery High Temperature Protection	60℃	configurable	Greater than or equal to threshold protection trigger
		Battery High Temperature Alarm	55℃	configurable	Less than threshold protection release
		High temperature protection delay	10S	unsupportable	
		High temperature protection recovery delay	1S	unsupportable	
7	low temperature protection	Charging Low Temperature Protection	-5℃	configurable	Less than or equal to the threshold protection trigger, greater than the threshold protection Disengage
		Discharge cryoprotection	-20℃	configurable	Less than or equal to the threshold protection trigger, greater than the threshold protection Disengage
		Low temperature protection delay	10S	unsupportable	
		Low Temperature Protection Recovery Delay	10S	unsupportable	
8	secondary protection	Protection opening delay	5S	unsupportable	Failure of any of the charging, discharging and temperature protection. switch on when in effect
		Protection recovery delay	reboot to clear	unsupportable	
9	Humidity Alarm (supported by some models)	Humidity Alarm Threshold	95%RH	configurable	Greater than threshold alarm trigger, less than or equal to threshold alarm trigger lift
10	Differential pressure alarm	Charge Differential Alarm Segment Voltage	3.5V	configurable	When the highest monomer is greater than this threshold use a high segment threshold
		Charge High Section Differential Pressure Alarm	0.3V	configurable	For lithium ternary batteries at the same time will start charging protection
		Charge Low Differential Pressure Alarm	0.5V	configurable	
		Differential Pressure Alarm Segment Voltage	3.3V	configurable	
		Differential pressure alarm for high section	0.5V	configurable	For Li-ion ternary batteries, discharge protection is activated at the same

					time.
		Low Differential Pressure Alarm	0.5V	configurable	
11	Insulation Alarm (supported by some models)	Insulation resistance less than 500Ω/V	reboot to clear	unsupportable	Simultaneous switching off of charging and discharging

3.3. control function

serial number	sports event	Relevant parameters	default value	Is it possible to set	note
1	Condition monitoring	total voltage	0	unsupportable	
		Charge/discharge current	0	unsupportable	
		SoC (percentage of power)	0	unsupportable	The SoC is automatically calibrated when the battery is fully discharged.
		unit voltage	0	unsupportable	
		cell temperature	-50°C	unsupportable	
		System (MOS) temperature	-50°C	unsupportable	
		switching control	0xD0	unsupportable	See switch control list for details
		warning message	0x00	unsupportable	See the list of alarm messages for details
		Number of cycles	0	configurable	
		output voltage	0	unsupportable	or clamping voltage, clamping voltage = total battery power Voltage - Output Voltage
2	Battery equalisation	Equalised switch-on voltage	3.3V	configurable	
		Equalising opening differential pressure	20mV	unsupportable	
		Equalisation current	40mA	unsupportable	
3	precharge	pre-charge time	2S	unsupportable	Pre-charging is activated 4s after switching on the computer, and the maximum cycle of pre-charging is 3 charges, 2 minutes between precharges
		Monoblock Overcharge Voltage	3.65V	configurable	Battery highest single exceeds this value SoC calibrated to

					100%
4	SoC Initial Value Calibration	Full voltage	3.65V	configurable	Battery maximum single exceeds this value SoC calibrated to 100%
		Monoblock Overdischarge Recovery Voltage	3.0V	configurable	Battery lowest single below this value SoC calibrated to 0 per cent
		unit overdischarge voltage	2.8V	configurable	Battery lowest single below this value SoC calibrated to 0 per cent
5	Sleep/Shutdown	Standby with more than 20% power	15 days	unsupportable	Master-slave control if controlled by external power supply BMS does not sleep when power is applied to it.
		Less than 20 per cent but higher voltage than monomer overdischarge voltage	48 hours	unsupportable	
		Voltage lower than single overdischarge recovery voltage	30 minutes.	unsupportable	
		Charge below the single overdischarge voltage	2 minutes.	unsupportable	
		Switch button long press	3S	unsupportable	The entire management system is powered down after switching off, including charging. Discharge, communication interface, etc.
6	Wake Up/Power On	Switch button pressed	1S	unsupportable	
		Charger activation (supported by some models)			selectable
		Load activation (supported on some models)			selectable
7	Rechargeable heating (supported by some models)	Charging Low Temperature Protection	-5℃	configurable	When the temperature is below the heating trigger temperature and there is a charging Heating on at electric current
		Heating trigger temperature	-5℃	configurable	Note that the heating on temperature can not be lower than the charging low temperature protection threshold, otherwise the low temperature charging protection unrecoverable
		Heating Off Temperature	5℃	configurable	

		Heating trigger/off delay time	5S	unsupportable	
8	System cooling (supported by some models)	Thermal Trigger Temperature	55℃	configurable	
		Thermal shutdown temperature	50℃	configurable	
9	Charge Interlock (supported by some models)	With CAN charging interface			With communication charger and splitter board support charging Discharge function is turned off when
		National standard DC charging interface			
10	Access Detection (supported by some models)	High Voltage Output Switch			Detecting device access before switching on the discharge output. Otherwise discharging output is switched off
11	limit the current used for charging (supported by some models)	Charge overcurrent threshold			Greater than charging overcurrent threshold 7/8 Open current limit. After 5 minutes, release the current limit and re-test whether it is charging or not. electrical overcurrent
		current limit	10A	unsupportable	Current limit size determined by hardware
12	Multiple machines in parallel (supported by some models)	Parallel total pressure differential	5V	configurable	For parallel operation, see the section on multiple machines in parallel
13	Utility switching	Load Detection	5V	unsupportable	When disconnecting the relay due to utility access battery full, at this time, if the utility power drop, will restart the battery power supply when the load voltage is lower than the battery voltage 5V, to prevent the load from dropping out of power, the MCU response time is less than 300us, switching time Approx. 40ms (depending on relay operation time)
14	Load Detection	Load Detection	60 per cent FS	configurable	When the clamp voltage is greater than 60% of the battery voltage electrical Pool wakes up from hibernation into discharge
15	Charge Detection	Charge Detection	1V	configurable	When the external input voltage is 1V greater than the battery

					voltage When the battery enters charging wake-up from hibernation
16	Lease management	Internal battery timestamp		configurable	Discharge shutdown at lease expiry
		Start of rental timestamp		configurable	
		Number of days leased	3000 days	configurable	
17	User Registration	Registration Phone Number		configurable	Storing the user's registered mobile phone number
18	Firmware Upgrade	Hardware and software version number			BMS firmware can be upgraded online via RS232/TTL serial port and host PC, serial port can be expanded for connection Wireless module to upgrade firmware wirelessly

3.4. Communications and interfaces

serial number	sports event	Relevant parameters	default value	Is it possible to set	note
1	communications interface	RS232/TTL (either one)	57600bps	unsupportable	Connecting a display or Bluetooth or IoT module
		RS485 #1 (supported on some models)	57600bps	unsupportable	Modbus RTU protocol or parallel intranet bus port
		RS485 #2 (supported on some models)	57600bps	unsupportable	Parallel intranet bus port
		RS485 #3 (supported on some models)	57600bps	unsupportable	Inverter communication port
		CAN0 (supported by some models)	250kbps	unsupportable	master-slave intranet communication port
		CAN1	250kbps	unsupportable	Chargers or customised protocols
		CAN4 (supported by some models)	500kbps	unsupportable	GB fast charging port or customised protocols
2	wireless module	BLE4.0 Bluetooth Module			selectable
		2G/4G modules			selectable
		WIFI Module			selectable
3	display screen	0.96 inch			Supports one display connection
		1.8 inch			
		2.8 inch			
		3.5 inch			
		7 inch			
4	host computer	applet			Only supports Bluetooth local connection, 2G/4G module remote connection
		PC-based applications			Supports RS232/TTL local connection only
		Web Client			Supports 2G/4G/WIFI module remote connection only
5	charging port	Common charging port			Pay attention to match the charger voltage level
		With CAN charging interface			Slow Charge CAN Protocol
		National standard DC charging interface			Master-slave only, compliant with GB27930 protocols
		National standard AC charging interface			Master-slave only, in accordance with NB/T 33002-2018

4. Description of alarm instructions

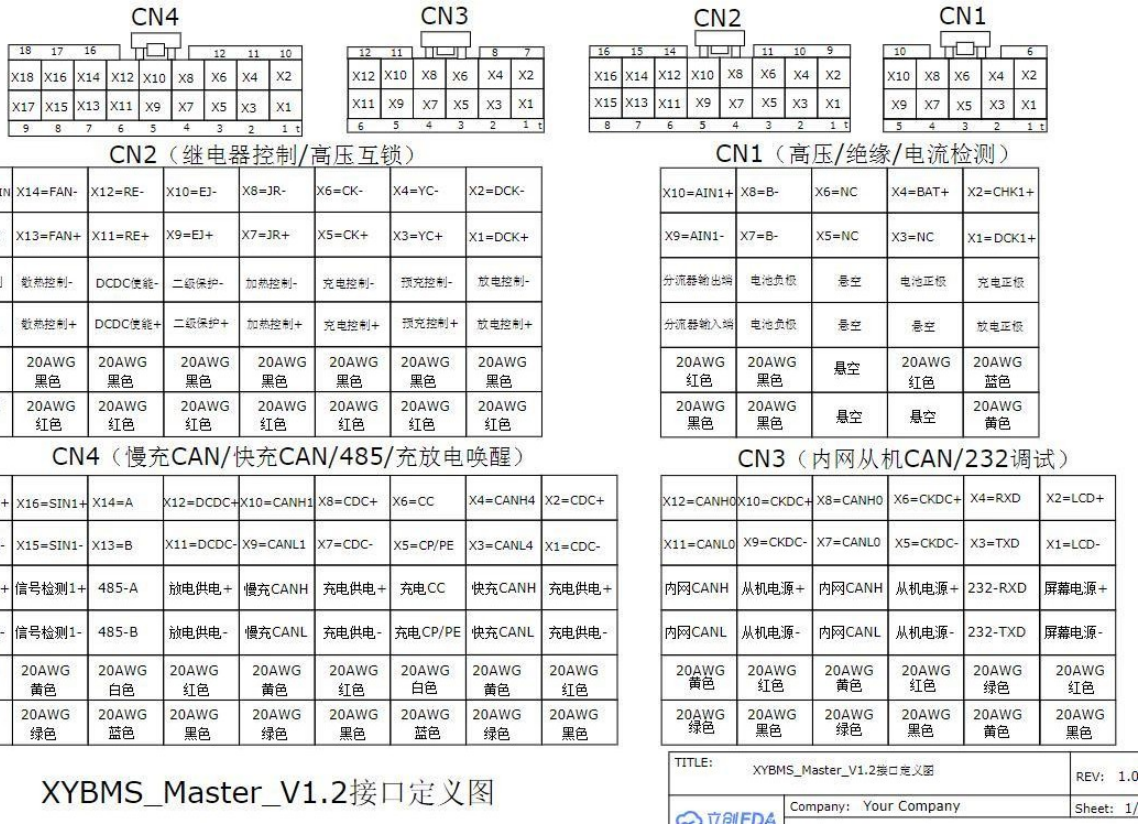
Buzzer Beeping Patterns	span	warning message	Display
Beep 0.2s Stop 0.2s (1 short interval 0.2s)	from the beginning of ... up ...	overcharge	overcharge
incessant whine	from the beginning of ... up ...	Charging overcurrent	Charging overcurrent
Long beep 0.6s stop 1s Beep 0.2s stop 1s Beep 0.2s stop 1s Beep 0.2s stop 1s (1 long 3 short)	from the beginning of ... up ...	Excessive differential pressure	Excessive differential pressure
Beep 0.2s stop 2s (1 short interval 2s)	from the beginning of ... up ...	undercharge	undercharge
	from the beginning of ... up ...	run out of battery power	run out of battery power
	10S	Charge to 20 per cent	undercharge
Long beep 0.6s stop 1s Beep 0.2s stop 1s (1 long, 1 short)	from the beginning of ... up ...	Excessive temperature 1	overheating
	from the beginning of ... up ...	Excessive temperature 2	overheating
Long beep 0.6s stop 1s Beep 0.2s stop 1s Beep 0.2s stop 1s (1 long, 2 short)	from the beginning of ... up ...	Excessive current 1	Overcurrent
	from the beginning of ... up ...	Excessive current 2	Overcurrent
Beep 0.2s stop 0.2s Beep 0.2s stop 2ş 2 short interval 2s)	from the beginning of ... up ...	short circuit failure	short circuit protection
Beep 0.2s stop 0.2s Beep 0.2s stop 0.2s Beep 0.2s Stop 2s (3 short intervals of 2s)	from the beginning of ... up ...	Insulation failure	Insulation failure

5. wiring diagram

Wiring diagrams are available separately depending on the number of battery strings used.

5.1. motherboard (computer) (lit. lord control board)

5.1.1. Interface Definition Diagram



X16=PLUGIN	X14=FAN-	X12=RE-	X10=EJ-	X8=JR-	X6=CK-	X4=YC-	X2=DCK-
X15=GND	X13=FAN+	X11=RE+	X9=EJ+	X7=JR+	X5=CK+	X3=YC+	X1=DCK+
防打火控制	散热控制-	DCDC使能-	二级保护-	加热控制-	充电控制-	预充控制-	放电控制-
电源负极	散热控制+	DCDC使能+	二级保护+	加热控制+	充电控制+	预充控制+	放电控制+
20AWG 黄色	20AWG 黑色	20AWG 黑色	20AWG 黑色	20AWG 黑色	20AWG 黑色	20AWG 黑色	20AWG 黑色
20AWG 黑色	20AWG 红色	20AWG 红色	20AWG 红色	20AWG 红色	20AWG 红色	20AWG 红色	20AWG 红色

X10=AIN1+	X8=B-	X6=NC	X4=BAT+	X2=CHK1+
X9=AIN1-	X7=B-	X5=NC	X3=NC	X1=DCK1+
分流器输出端	电池负极	悬空	电池正极	充电正极
分流器输入端	电池负极	悬空	悬空	放电正极
20AWG 红色	20AWG 黑色	悬空	20AWG 红色	20AWG 蓝色
20AWG 黑色	20AWG 黑色	悬空	悬空	20AWG 黄色

X18=SIN2+	X16=SIN1+	X14=A	X12=DCDC+	X10=CANH1	X8=CDC+	X6=CC	X4=CANH4	X2=CDC+
X17=SIN2-	X15=SIN1-	X13=B	X11=DCDC-	X9=CANL1	X7=CDC-	X5=CP/PE	X3=CANL4	X1=CDC-
信号检测2+	信号检测1+	485-A	放电供电+	慢充CANH	充电供电+	充电CC	快充CANH	充电供电+
信号检测2-	信号检测1-	485-B	放电供电-	慢充CANL	充电供电-	充电CP/PE	快充CANL	充电供电-
20AWG 白色	20AWG 黄色	20AWG 白色	20AWG 红色	20AWG 黄色	20AWG 红色	20AWG 白色	20AWG 黄色	20AWG 红色
20AWG 蓝色	20AWG 绿色	20AWG 蓝色	20AWG 黑色	20AWG 绿色	20AWG 黑色	20AWG 蓝色	20AWG 绿色	20AWG 黑色

X12=CANH0	X10=CKDC+	X8=CANH0	X6=CKDC+	X4=RXD	X2=LCD+
X11=CANL0	X9=CKDC-	X7=CANL0	X5=CKDC-	X3=TXD	X1=LCD-
内网CANH	从机电源+	内网CANH	从机电源+	232-RXD	屏幕电源+
内网CANL	从机电源-	内网CANL	从机电源-	232-TXD	屏幕电源-
20AWG 黄色	20AWG 红色	20AWG 黄色	20AWG 红色	20AWG 绿色	20AWG 红色
20AWG 绿色	20AWG 黑色	20AWG 绿色	20AWG 黑色	20AWG 黄色	20AWG 黑色

5.1.2. Host connector specifications

serial number	Function Name	Connector type specification	quantities
CN1	High voltage/insulation/current detection	HWT-5557-10H	1
CN2	Relay control/high voltage interlock	HWT-5557-16H	1
CN3	Intranet Slave CAN/232 Commissioning	HWT-5557-12H	1
CN4	Charging CAN/485/charge/discharge wake-up call	HWT-5557-18H	1

5.1.3. Host Interface Functional Definition Description

serial number	notation	Symbol Name	Wire Colour Specification	define
CN1-X1	DCK1+	Discharge Positive	20AWG Yellow	Used to detect the voltage at the positive output of the discharge relay.
CN1-X2	CHK1+	Charge Positive	20AWG Blue	Voltage at the charging positive output or heating relay sticking detection.
CN1-X4	BAT+	Battery Positive	20AWG Red	For checking total battery voltage and insulation detection.
CN1-X7	B-	Battery Negative	20AWG Black	Connects directly to the negative terminal of the battery, corresponding to DCK1+, CHK1+, and BAT+ for voltage, Insulation testing.
CN1-X8	B-	Battery Negative	20AWG Black	
CN1-X9	AIN1-	Splitter input	20AWG Black	AIN1- connects to shunt input (battery negative B-), AIN1+ connects to shunt output terminal for detecting the charging and discharging currents.
CN1-X10	AIN1+	Splitter output	20AWG Red	
CN2-X1	DCK+	Discharge control+	20AWG Red	Discharge relay control, relay drive current 3A or less.
CN2-X2	DCK-	Discharge control -	20AWG Black	
CN2-X3	YC+	Precharge control+	20AWG Red	Pre-charging relay control, pre-charging duration 2s, pre-charging within 1 minute per discharge start-up 3 times.
CN2-X4	YC-	Precharge control -	20AWG Black	
CN2-X5	CK+	Charge Control+	20AWG Red	Charging relay control, relay drive current 3A or less.
CN2-X6	CK-	Charge Control -	20AWG Black	
CN2-X7	JR+	Heating control+	20AWG Red	Heating relay control, power supply comes from charging, only charging heating is currently supported.
CN2-X8	JR-	Heating control -	20AWG Black	
CN2-X9	EJ+	Secondary protection+	20AWG Red	General control of the total negative pole, the positive pole has been the charge and discharge control, in the case of anomalies, charge and discharge The protection fails and the secondary protection is triggered after 10s.
CN2-X10	EJ-	Secondary protection -	20AWG Black	
CN2-X11	RE+	DCDC Enable+	20AWG Red	Generally used for controlling external DC power supply, if the customer has such a need, it must be specified. Need to be optioned according to the programme.
CN2-X12	RE-	DCDC enable-	20AWG Black	
CN2-X13	FAN+	Thermal Control+	20AWG Red	Generally the heat dissipation logic is rewritten according to the requirements of different customers, sometimes as a reserved Interface.
CN2-X14	FAN-	Thermal control -	20AWG Black	

CN2-X15	GND	Power supply negative pole	20AWG Black	With the battery in a dormant state and the interface continuously shorted, waking up the BMS and controlling only the discharge, the To adjust the parameter, it can be used for high voltage interlocking.
CN2-X16	PLUFIN	anti-knockout control	20AWG Yellow	
CN3-X1	LCD-	Screen power-	20AWG Black	LCD+, LCD-, external display power supply, voltage range 12V-24V, TXD, RXD for 232 communication line, can be connected to the Internet of Things, host computer, display, mainly for debugging.
CN3-X2	LCD+	Screen Power+	20AWG Red	
CN3-X3	TXD	232-TXD	20AWG Yellow	
CN3-X4	RXD	232-RXD	20AWG Green	
CN3-X5	CKDC-	Slave power supply -	20AWG Black	The master parallels out two CANs that interface with the slave and are internally connected, CKDC+, CKDC-. CANH0 and CANL0 are the CAN buses that communicate with each slave.
CN3-X6	CKDC+	Slave power supply +	20AWG Red	
CN3-X7	CANL0	Intranet CANL	20AWG Green	
CN3-X8	CANH0	Intranet CANH	20AWG Yellow	
CN3-X9	CKDC-	Slave power supply -	20AWG Black	The master parallels out two CANs that interface with the slave and are internally connected, CKDC+, CKDC-.
CN3-X10	CKDC+	Slave power supply +	20AWG Red	CANH0 and CANL0 are the CAN buses that communicate with each slave.
CN3-X11	CANL0	Intranet CANL	20AWG Green	
CN3-X12	CANH0	Intranet CANH	20AWG Yellow	
CN4-X1	CDC-	Charging power supply -	20AWG Black	CDC+ and CDC- DC fast charger supply 12V or 24V power directly to the host, connect to A+ and A- respectively, CANH4 and CANL4 are communication lines with the charger, connect to S+ and S- respectively.
CN4-X2	CDC+	Rechargeable power supply +	20AWG Red	
CN4-X3	CANL4	Fast charging CANL	20AWG Green	
CN4-X4	CANH4	Fast charging CANH	20AWG Yellow	
CN4-X5	CP/PE	Charging CP/PE	20AWG Blue	CP/PE, CC When national standard DC fast charging, connect PE, CC2 signal respectively, national standard AC slow charging. When charging, connect CP and CC respectively.
CN4-X6	CC	Charging CC	20AWG White	
CN4-X7	CDC-	Charging power supply -	20AWG Black	Slow charger supplies power to BMS CDC+, CDC-, 12V-24V.
CN4-X8	CDC+	Rechargeable power supply +	20AWG Red	
CN4-X9	CANL1	Slow Charge CANL	20AWG Green	Slow charging CAN communication, if externally interfaced to the customer's protocol, at a baud rate of 250K, also will use this interface.
CN4-X10	CANH1	Slow Charge CANH	20AWG Yellow	
CN4-X11	DCDC-	Discharge power supply -	20AWG Black	External power supply to provide BMS discharge power supply, voltage range 12V-24V.
CN4-X12	DCDC+	Discharge power supply +	20AWG Red	
CN4-X13	B	485-B	20AWG Blue	We have our own independent protocols, and can provide changes if customers demand corresponding protocol requirements.
CN4-X14	A	485-A	20AWG White	
CN4-X15	SIN1-	Signal detection 1-	20AWG Green	The BMS wakes up in a dormant state with an input voltage signal of 12-24V, discharged.
CN4-X16	SIN1+	Signal detection 1+	20AWG Yellow	
CN4-X17	SIN2-	Signal detection 2-	20AWG Blue	BMS in sleep state, input voltage signal 12-24V, charge wake-up.
CN4-X18	SIN2+	Signal detection 2+	20AWG White	

5.2. slave control board

5.2.1. Interface Definition Diagram

从机接口定义

J5内网CAN J4内网CAN J3调试串口

X4	X3	X2	X1

X4	X3	X2	X1

X4	X3	X2	X1

J2 高段排线采集电压

X18	X16	X14	X12	X10	X8	X6	X4	X2
X17	X15	X13	X11	X9	X7	X5	X3	X1

J1 低段排线采集电压

X18	X16	X14	X12	X10	X8	X6	X4	X2
X17	X15	X13	X11	X9	X7	X5	X3	X1

J2 高段排线采集电压

X18温度4	X16温度3	X14悬空	X12=B11	X10=B9	X8=B7	X6=B5	X4=B3	X2=B1
X17温度4	X15温度3	X13=B12	X11=B10	X9=B8	X7=B6	X5=B4	X3=B2	X1=B0
温度4	温度3	悬空	第23串正极	第21串正极	第19串正极	第17串正极	第15串正极	第13串正极
温度4	温度3	第24串正极	第22串正极	第20串正极	第18串正极	第16串正极	第14串正极	第13串负极
22AWG 黑色	22AWG 黑色	悬空	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色
22AWG 黑色	22AWG 黑色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色

J1 低段排线采集电压

X18温度2	X16温度1	X14悬空	X12=B11	X10=B9	X8=B7	X6=B5	X4=B3	X2=B1
X17温度2	X15温度1	X13=B12	X11=B10	X9=B8	X7=B6	X5=B4	X3=B2	X1=B0
温度2	温度1	悬空	第11串正极	第9串正极	第7串正极	第5串正极	第3串正极	第1串正极
温度2	温度1	第12串正极	第10串正极	第8串正极	第6串正极	第4串正极	第2串正极	第1串负极
22AWG 黑色	22AWG 黑色	悬空	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色
22AWG 黑色	22AWG 黑色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色	22AWG 绿色

J4内网CAN

X4=GND	X3=CANL	X2=CANH	X1=12V
CKDC-	CANL	CANH	CKDC+
22AWG 黑色	22AWG 绿色	22AWG 黄色	22AWG 红色

J5内网CAN

X4=GND	X3=CANL	X2=CANH	X1=12V
CKDC-	CANL	CANH	CKDC+
22AWG 黑色	22AWG 绿色	22AWG 黄色	22AWG 红色

J3调试串口

X4=GND	X3=RXD	X2=TXD	X1=12V
GND	RXD	TXD	12V
22AWG 黑色	22AWG 绿色	22AWG 黄色	22AWG 红色

从机排线定义

排线18芯

12串

18温度2	16温度1	14悬空	12=B11	10=B9	8=B7	6=B5	4=B3	2=B1
17温度2	15温度1	13=B12	11=B10	9=B8	7=B6	5=B4	3=B2	1=B-

排线18芯

11串

18温度2	16温度1	14悬空	12=B11	10=B9	8=B7	6=B5	4=B3	2=B1
17温度2	15温度1	13=B11	11=B10	9=B8	7=B6	5=B4	3=B2	1=B-

排线18芯

10串

18温度2	16温度1	14悬空	12悬空	10=B9	8=B7	6=B5	4=B3	2=B1
17温度2	15温度1	13=B10	11=B10	9=B8	7=B6	5=B4	3=B2	1=B-

排线18芯

9串

18温度2	16温度1	14悬空	12悬空	10=B9	8=B7	6=B5	4=B3	2=B1
17温度2	15温度1	13=B9	11悬空	9=B8	7=B6	5=B4	3=B2	1=B-

排线18芯

8串

18温度2	16温度1	14悬空	12悬空	10悬空	8=B7	6=B5	4=B3	2=B1
17温度2	15温度1	13=B8	11悬空	9=B8	7=B6	5=B4	3=B2	1=B-

排线18芯

7串

18温度2	16温度1	14悬空	12悬空	10悬空	8=B7	6=B5	4=B3	2=B1
17温度2	15温度1	13=B7	11悬空	9悬空	7=B6	5=B4	3=B2	1=B-

排线18芯

6串

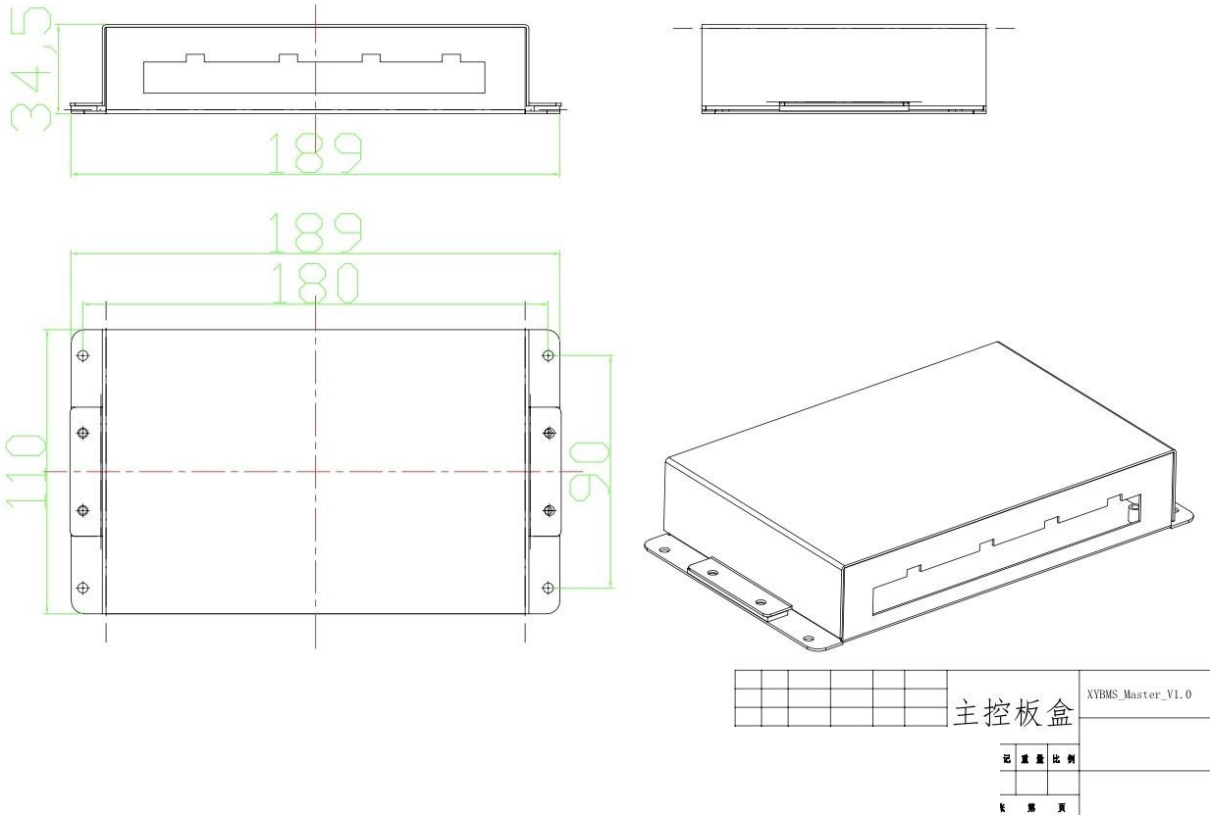
18温度2	16温度1	14悬空	12悬空	10悬空	8悬空	6=B5	4=B3	2=B1
17温度2	15温度1	13=B6	11悬空	9悬空	7=B6	5=B4	3=B2	1=B-

5.2.2. Slave connector specifications

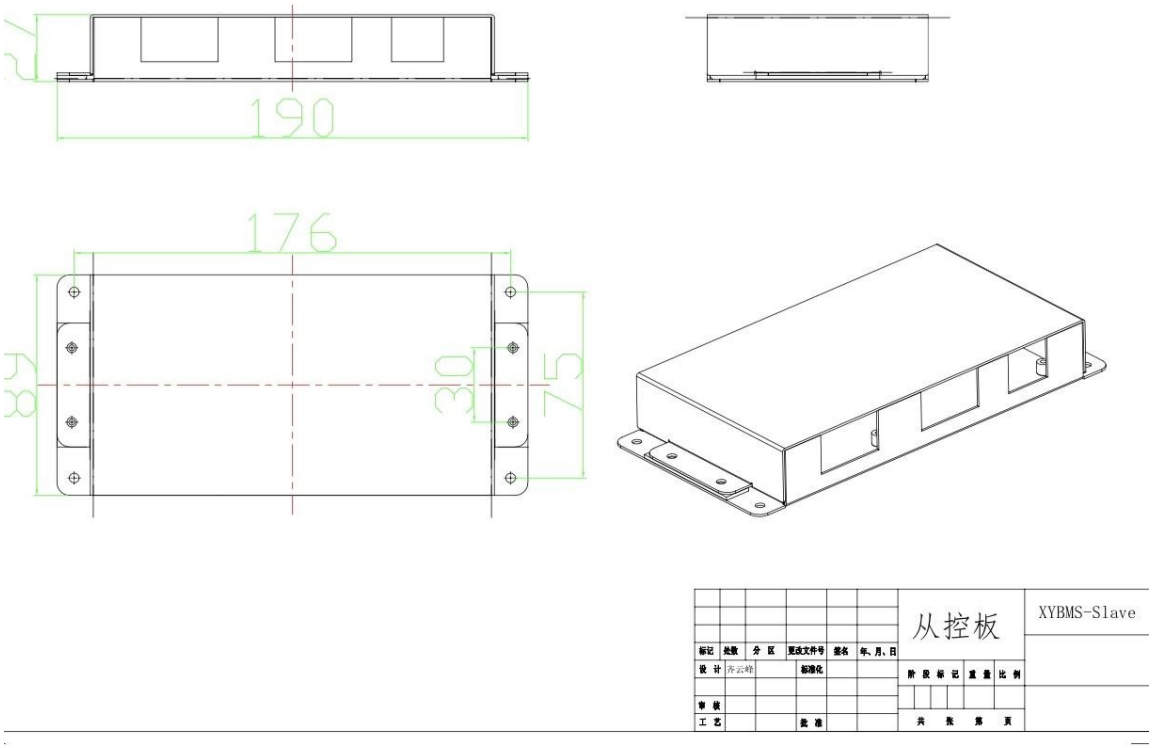
serial number	Function Name	Connector type specification	brand name	quantities	colour
J1	Lower section of the line to collect voltage	Red Star 43025-18P-Small 5777	five pointed star as symbol or communism or proletariat	1	fig. reactionary
J2	High-section line collection voltage	Red Star 43025-18P-Small 5777	five pointed star as symbol or communism or proletariat	1	fig. reactionary
J3	Debugging Serial Ports	HXH-XH2.54-4A	five pointed star as symbol or communism or proletariat	1	fig. reactionary
J4	Intranet CAN	HXH-XH2.54-4A	five pointed star as symbol or communism or proletariat	1	fig. reactionary
J5	Intranet CAN	HXH-XH2.54-4A	five pointed star as symbol or communism or proletariat	1	fig. reactionary

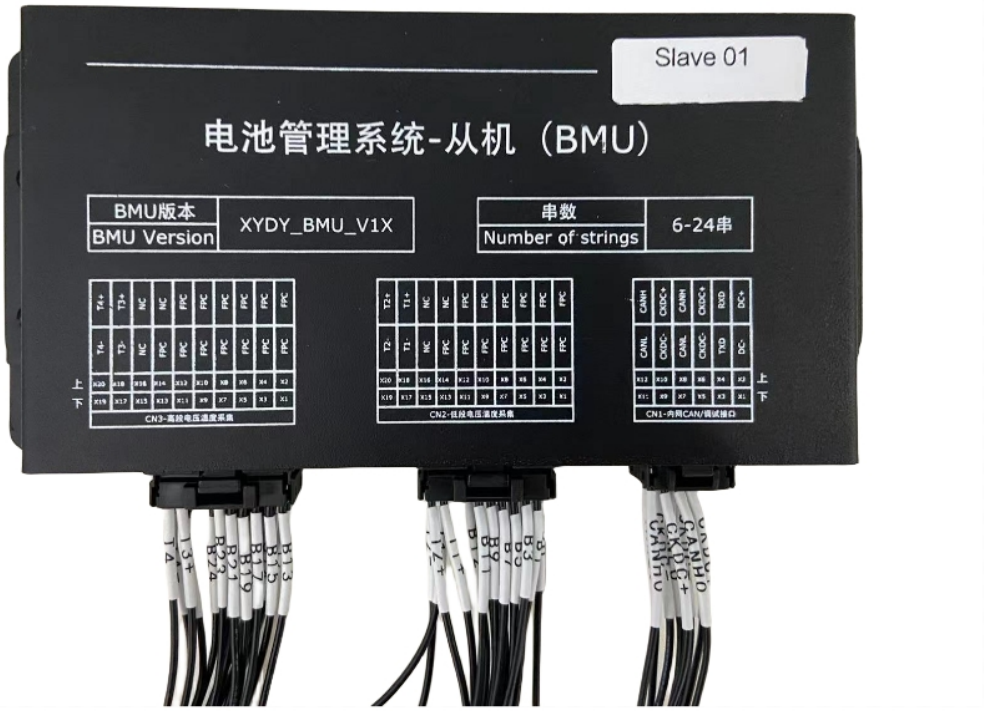
6.dimension drawing

6.1. Master BMS



6.2. slave box





TOPBMS

www.topbms.cn

Wiring Diagram

(Same Port)