承 认 书

客户名称	**东莞达锂电子有限公司 Dong guan Daly Electronics Co.,Ltd**			
产品型号	**HI-WNT**			
版本	**0.1**			
日期	**2022-04-15**			
配件清单	**序号**	**名称**	**型号**	**数量**
	1	接口板		1
	2	主板连接线		1
	3	显示屏连接线	没有显示屏就不配线	1
	4	NTC 线	WNT 默认没有，BMS 默认两个	0
	5	RS485 上位机连接线		1

配 置 表

Configure the table

功能	故障存储 /Fault storage	☐无/No ☐存储__10000___条/Store__10000__items
	显示屏 /Display screen	☐无/No ☐中英文智能/Chinese and English intelligence ☑默认不配显示屏，支持选配/The default is not equipped with a display screen, support optional
	干接点 /Dry contact	☐无/No ☑有，一路/Yes，1-Way 定义：干接点(PIN1 to PIN2)：平时打开，低电量时闭合 Definition: Dry contact (PIN1 to PIN2): usually open, closed when low battery

	是否有120Ω终端电阻 /Is there a 120Ω termination resistor?	☑无/No ☐有/Yes	
	弱电开关 /low-voltage switch	☑无/No ☐有/Yes	
	蜂鸣器 /Buzzer	☑无/No ☐有/Yes	
	定位功能 /location function	☑无/No ☐有_____/Yes	
	采样插座 /Sampling socket	☑立式/Vertical ☐卧式/Horizontal	
	特殊功能 /unique capabilities	1	并联个数：8个 Number of parallel connections: 8
		2	
		3	
通信	通信接口 /Communication interface	☑ RS232 ☐ RS485 ☑并联双RS485 ☐UART ☑ 并联双CAN	
	升级方式 /Upgrade method	☑ RS232 ☑ RS485 ☑ CAN	
	通信协议 /communication protocol	☑达锂标准通信协议 daly ☑派能-PYLON CAN协议 PYLON CAN ☑首航485协议 SOFAR 485 ☑古瑞瓦特485协议 GROWATT 485 ☑古瑞瓦特CAN协议 GROWATT CAN ☑硕日485协议 SRNE 485 ☑日月圆485协议 VOLTRONICPOWER 485 ☑固德威CAN协议 GOODWE CAN ☐美克CAN协议 MUST CAN	

文件更改摘要

Summary of file changes

日期	版本号	修订说明	制作人	核准人
2022-4-15	1.0	新定。	罗立	闫连红

目录

1. 简介 Introduction

随着铁锂电池在户用储能行业的广泛应用，对电池管理系统也提出了高性能、高性价比及多功能等要求。本产品是专门针对户用储能电池设计的通用接口板，可广泛应用在储能项目。

With the widespread application of iron-lithium batteries in home storage and base stations, requirements for high performance, high reliability, and high cost performance have also been put forward for battery management systems.

This product is a universal interface board specially designed for household energy storage batteries, which can be widely used in energy storage projects.

2. 功能特性 functionalities

- 并联通讯功能查询 BMS 信息
The parallel communication function queries BMS information
- 休眠及唤醒
Sleep and wake
- 支持 LED 显示屏
Support LED display
- 并联双路 CAN 通信
Parallel dual CAN communication
- LED 状态指示功能
LED status indication function
-
- 设置 BMS 参数
Set BMS parameters
- 功耗（0.3W~0.5W）
Power consumption(0.3W~0.5W)
- 并联双路 RS485通信
Parallel dual RS485 communication
- 支持两路干接点
Support two dry contacts
-
-

3. 环境要求 environmental requirements

项目	参数	单位
工作温度 Operating temperature	- 20 ~ 75	℃
储存温度 Storage temperature	- 20 ~ 75	℃
工作湿度 Relative humidity	10 ~ 85	%RH
储存湿度 Relative humidity	10 ~ 85	%RH

4. LED 指示说明 LED illustrate

表 1　LED 工作状态指示

状态 Status	正常/告警/保护 Normal / Alarm / Protection	**ON/ OFF**	**RUN**	**ALM**	**电量指示 LED**						**说明**
		●	●	●	●	●	●	●	●	●	
关机	休眠	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	全灭 OFF

待机	正常	常亮 Solid Green	闪 1 Flash 1	灭 OFF	依据电量指示 According to the electric quantity indication						待机状态 Standby status
	告警	常亮 Solid Green	闪 1 Flash 1	闪 3 Flash 3							模块低压 Module low pressure
充电	正常	常亮 Solid Green	常亮 Solid Green	灭 OFF	依据电量指示 According to the electric quantity indication						最高电量 LED 闪动（闪 2），过充告警时 ALM 不闪烁 The maximum power LED flashes (flashing 2), and the ALM does not flash during the overcharge alarm
	告警	常亮 Solid Green	常亮 Solid Green	闪 3 Flash 3							
	过充保护	常亮 Solid Green	常亮 Solid Green	灭 OFF	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	若无市电 ，指示灯转为待机状态 If there is no mains supply, the indicator turns to standby
	温度、过流、失效保护	常亮 Solid Green	灭	常亮 Solid Green	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	停止充电 Stop charging
放电	正常	常亮 Solid Green	闪 3 Flash 3	灭	依据电量指示 According to the electric quantity indication						
	告警	常亮 Solid Green	闪 3 Flash 3	闪 3 Flash 3							
	欠压保护	常亮 Solid Green	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	停止放电 Stop discharging
	温度、过流、短路、反接、失效保护	常亮 Solid Green	灭 OFF	常亮 Solid Green	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	停止放电 Stop discharging
失效		灭 OFF	灭 OFF	常亮 Solid Green	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	停止充、放电 Stop charging and discharging

表 2　容量指示说明

状态	充	放电	状态

Status		电 Charge	Discharge					Status					
容量指示灯 Capacity indicator light		L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
电量（%）	0～16.6%	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	闪 2 Flash 2	灭 OFF	灭 OFF	灭 OFF	灭 OFF	灭 OFF	常亮 Solid Green
	16.6～33.2%	灭 OFF	灭 OFF	灭 OFF	灭 OFF	闪 2 Flash 2	常亮 Solid Green	灭 OFF	灭 OFF	灭 OFF	灭 OFF	常亮 Solid Green	常亮 Solid Green
	33.2～49.8%	灭 OFF	灭 OFF	灭 OFF	闪 2 Flash 2	常亮 Solid Green	常亮 Solid Green	灭 OFF	灭 OFF	灭 OFF	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green
	49.8～66.4%	灭 OFF	灭 OFF	闪 2 Flash 2	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	灭 OFF	灭 OFF	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green
	66.4～83.0%	灭 OFF	闪 2 Flash 2	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	灭 OFF	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green
	83.0～100%	闪 2 Flash 2	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green	常亮 Solid Green
运行指示灯 ● Run LED		常亮 Solid Green						闪 3 Flash 3					

表 3　LED 闪动说明

闪动方式 Flash Mode	亮 ON	灭 OFF
闪 1 Flash 1	0.25S	3.75S
闪 2 Flash 2	0.5S	0.5S

闪 3 Flash 3	0.5S	1.5S

5. 按键休眠及唤醒 Press to sleep and wake

休眠 sleep

接口板本身没有休眠功能，如果 BMS 休眠，接口板就会关机。

The interface board itself does not have a sleep function, if the BMS sleeps, the interface board will shut down.

唤醒 wake

单次按激活按键就会唤醒。

A single press of the activation button wakes up.

6. 通信说明 Communication Instructions

RS232 通信 RS232 communication

RS232 接口可以连接上位机，默认波特率为 9600bps，和显示屏只能二选一，不能同时共用。

The RS232 interface can be connected to the host computer, the default baud rate is 9600bps, and the display screen can only choose one of the two, and cannot be shared at the same time.

CAN 通信，RS485 通信 CAN communication, RS485 communication

CAN 默认通信速率 500K，可以连接上位机，可以升级。

The default communication rate of CAN is 500K, which can be connected to the host computer and can be upgraded.

RS485 默认通信速率 9600，可以连接上位机，可以升级。

RS485 default communication rate 9600, can be connected to the host computer, can be upgraded.

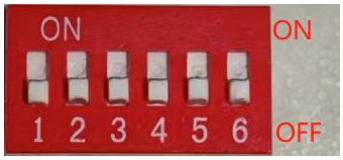
CAN 和 RS485 是双并联通讯接口，支持 15 组电池并联通讯，CAN 当主机连接逆变器时，RS485 就当并机，RS485 当主机连接逆变器时，CAN 就当并机，两种情况需要刷相对应的程序。

CAN and RS485 are dual parallel communication interfaces, support 15 groups of battery parallel communication, CAN when the host is connected to the inverter, RS485 should be parallel, RS485 when the host is connected to the inverter, CAN should be parallel, the two situations need to brush the corresponding program.

7.拨码开关设置 DIP switch configuration

当 PACK 作并联使用时，可通过接口板上的拨码开关设置地址区分不同的 PACK，需避免地址设为相同，BMS 拨码开关的定义参照下表。注：拨码 1、2、3、4 为有效拨码，拨码 5、6 为预留扩展功能。

When the PACK is used in parallel, the address can be set through the DIP switch on the interface board to distinguish different PACK, to avoid setting the address to the same, the definition of the BMS DIP switch refers to the following table. Note: Dials 1, 2, 3, and 4 are valid dials, and dials 5 and 6 are reserved for extended functions.

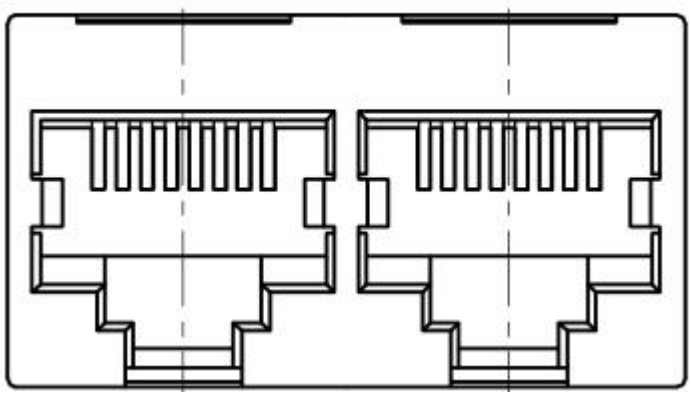


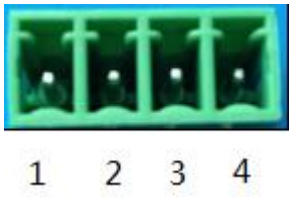
地址	拨码开关位置				说明
	#1	#2	#3	#4	
0	OFF	OFF	OFF	OFF	无级联，单机使用 No cascade, single machine use
1	ON	OFF	OFF	OFF	PACK 并联时拨码 0 和 1 都能作为主板 When PACK is connected in parallel, both dial 0 and 1 can serve as the motherboard
2	OFF	ON	OFF	OFF	设为从 PACK1 Let PACK2 set to be slave
3	ON	ON	OFF	OFF	设为从 PACK2 Let PACK2 set to be slave
4	OFF	OFF	ON	OFF	设为从 PACK3 Let PACK2 set to be slave
5	ON	OFF	ON	OFF	设为从 PACK4 Let PACK2 set to be slave
6	OFF	ON	ON	OFF	设为从 PACK5 Let PACK2 set to be slave
7	ON	ON	ON	OFF	设为从 PACK6 Let PACK2 set to be slave
8	OFF	OFF	OFF	ON	设为从 PACK7

					Let PACK2 set to be slave
9	ON	OFF	OFF	ON	设为从 PACK8 Let PACK2 set to be slave
10	OFF	ON	OFF	ON	设为从 PACK9 Let PACK2 set to be slave
11	ON	ON	OFF	ON	设为从 PACK10 Let PACK2 set to be slave
12	OFF	OFF	ON	ON	设为从 PACK11 Let PACK2 set to be slave
13	ON	OFF	ON	ON	设为从 PACK12 Let PACK2 set to be slave
14	OFF	ON	ON	ON	设为从 PACK13 Let PACK2 set to be slave
15	ON	ON	ON	ON	设为从 PACK14 Let PACK2 set to be slave

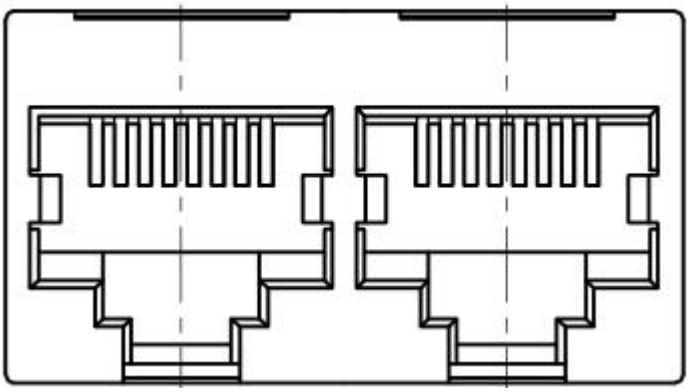
8.接口定义 Interface definition

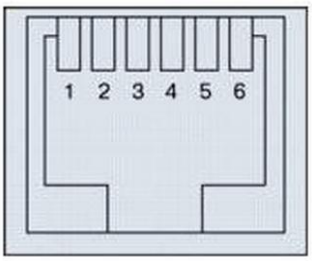
接口图示 Interface diagram





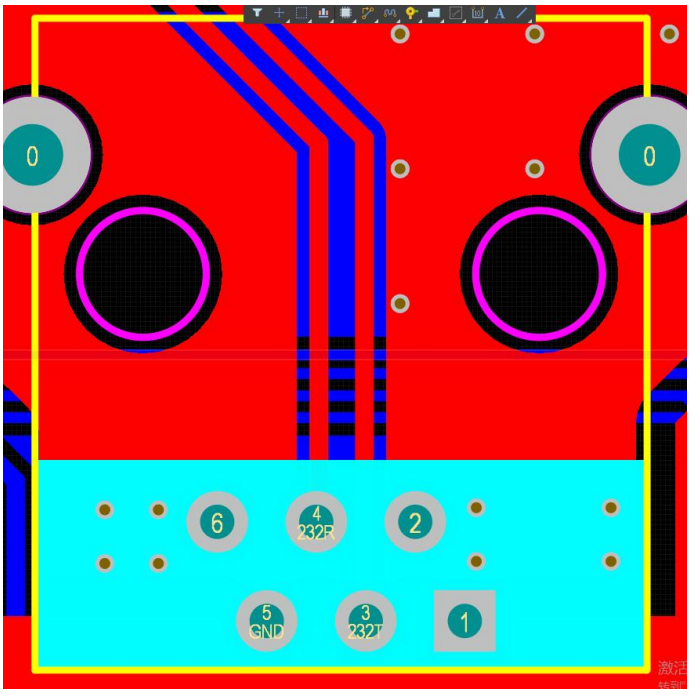
CAN 接口　　干接点





RS485 接口　　RS232 通讯接口

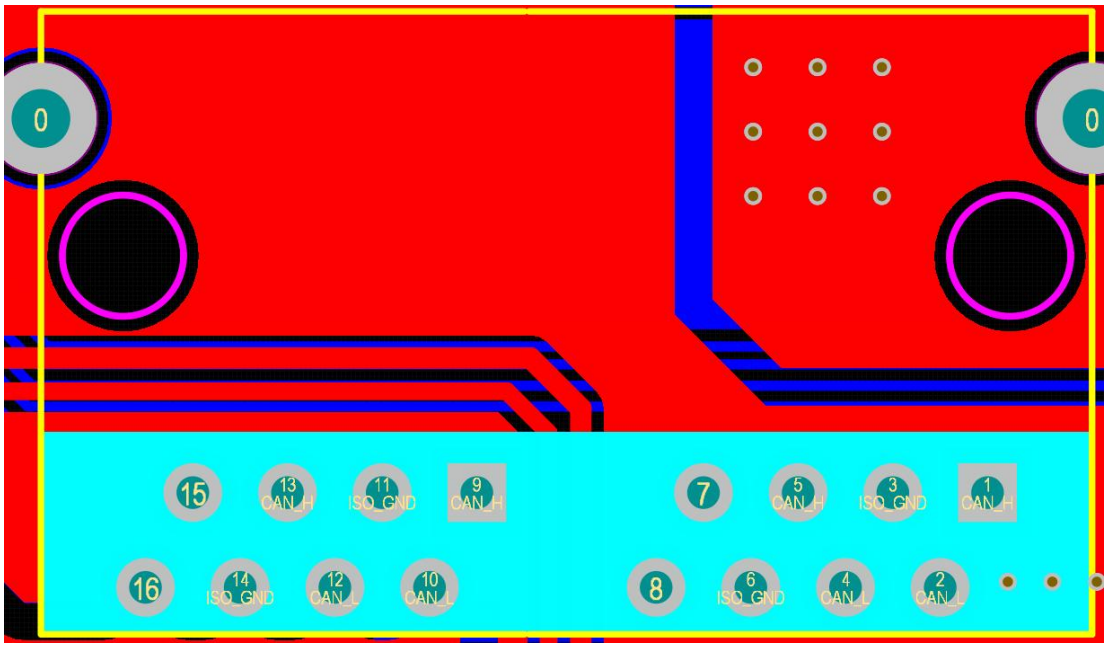
RS232--采用 6P6C 立式 RJ11 插座 RS232--Using 6P6C vertical RJ11 socket	
RJ11 引脚 RJ11 pin	定义说明 Define a description
1	NC
2	NC
3	232TX
4	232RX
5	GND
6	NC



RS232 接口

CAN--采用 8P8C 立式 RJ45 插座 CAN--Using 8P8C vertical RJ45 socket		CAN--采用 8P8C 立式 RJ45 插座 CAN--Using 8P8C vertical RJ45 socket	
RJ45 引脚 RJ45 pin	定义说明 Define a description	RJ45 引脚 RJ45 pin	定义说明 Define a description
1	CANH	9	CANH
2	CANL	10	CANL
3	ISO-GND	11	ISO-GND
4	CANL	12	CANL
5	CANH	13	CANH
6	ISO-GND	14	ISO-GND
7	NC	15	NC
8	NC	16	NC

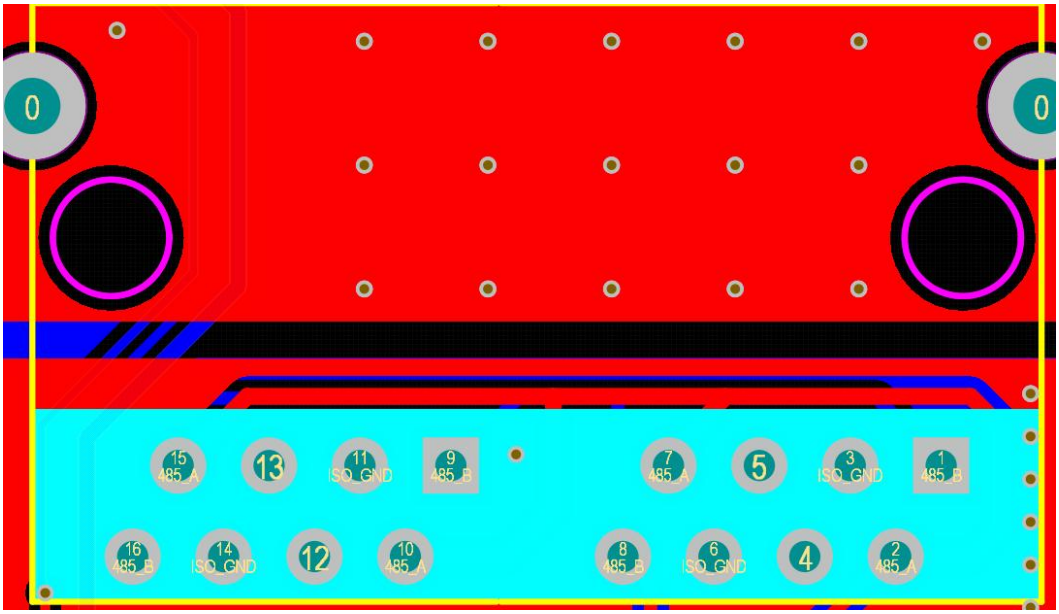
CAN 接口



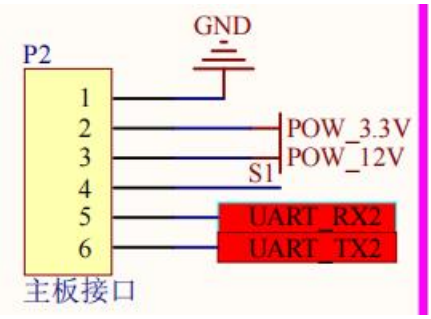
CAN 接口

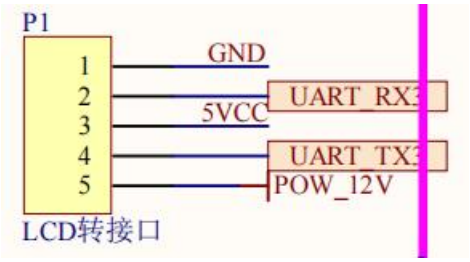
RS485--采用 8P8C 立式 RJ45 插座 RS485--Using 8P8C vertical RJ45 socket		RS485--采用 8P8C 立式 RJ45 插座 RS485--Using 8P8C vertical RJ45 socket	
RJ45 引脚 RJ45 pin	定义说明 Define a description	RJ45 引脚 RJ45 pin	定义说明 Define a description
1	RS485-B	9	RS485-B
2	RS485-A	10	RS485-A
3	ISO-GND	11	ISO-GND
4	NC	12	NC
5	NC	13	NC
6	ISO-GND	14	ISO-GND
7	RS485-A	15	RS485-A
8	RS485-B	16	RS485-B

485 接口



485 接口

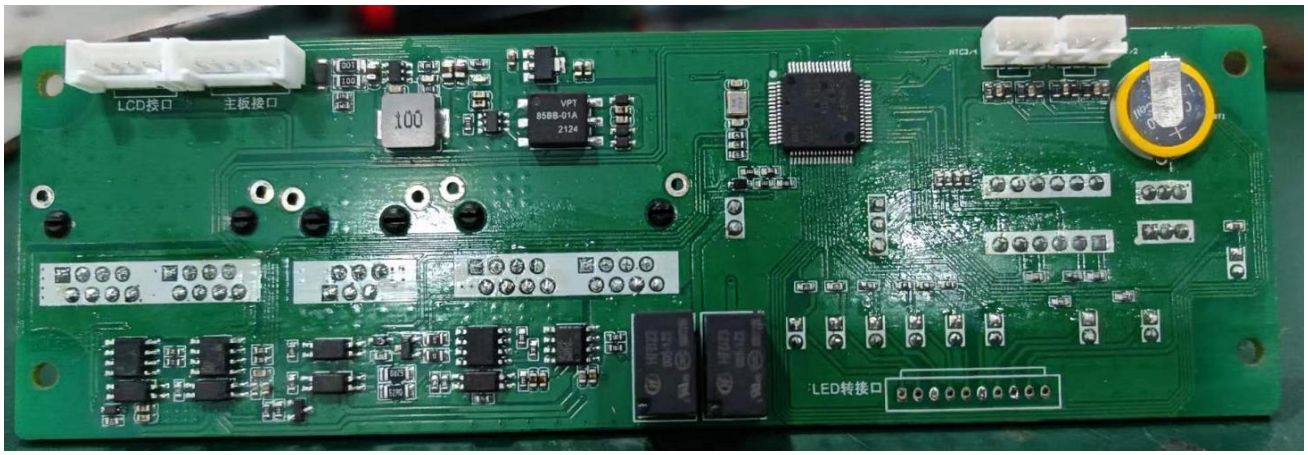


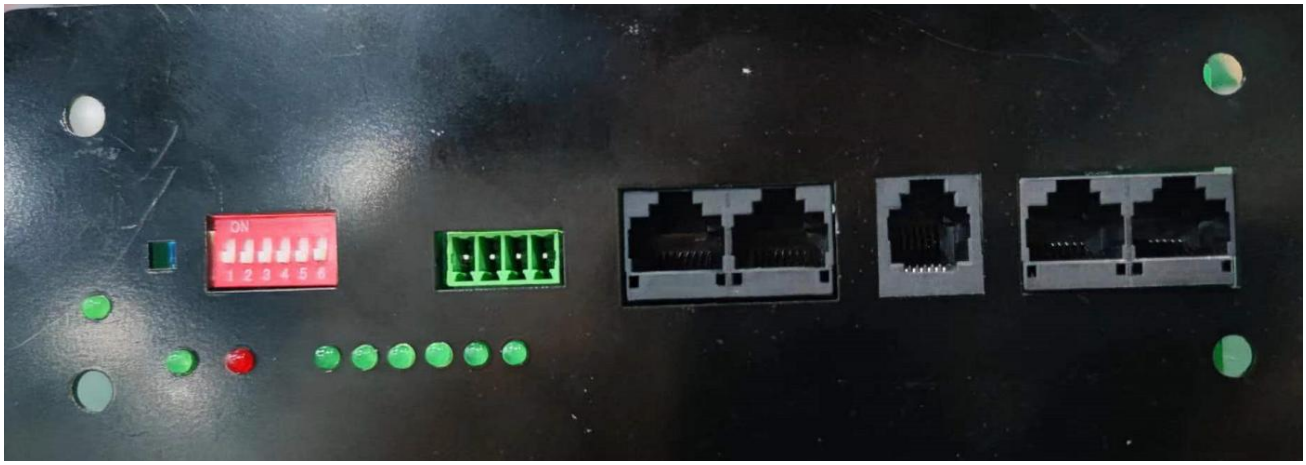


9.实物图和尺寸图 Physical drawings and dimensional drawings

参考实物图:（以实物为准）

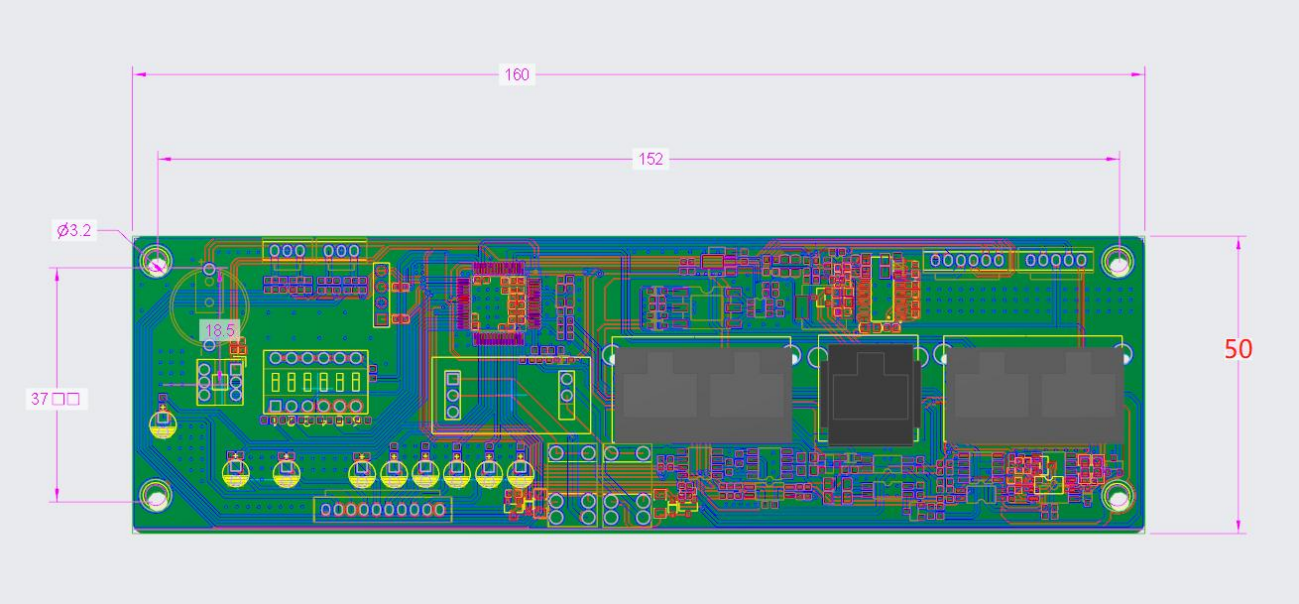
Reference physical picture: (subject to the actual product)





主板尺寸图:（以结构图为准）

Motherboard size drawing: (subject to the structure drawing)



10.上位机说明 Instructions for the host computer

上位机 V2.1.5 功能主要分为六大部分：数据监控、参数设置、参数读取、工程模式、历史告警和 BMS 升级。

The functions of the host computer V2.1.5 are mainly divided into six parts: data monitoring, parameter setting, parameter reading, engineering mode, historical alarm, and BMS upgrade.

升级说明：

Upgrade Instructions:

1. 当 BMS 或者接口板（WNT）需要升级时，需单独连接相对应的电池组，不可在通讯并联的情况下升级。

When the BMS or interface board (WNT) needs to be upgraded, the corresponding battery pack needs to be connected separately, and it cannot be upgraded in parallel communication.

2. 通过接口板可以升级 BMS 程序，也可以升级接口板的程序，需在上位机的升级界面选对相对应模块。如下图所示：

Through the interface board, you can upgrade the BMS program, you can also upgrade the program of the interface board, you need to select the corresponding module in the upgrade interface of the host computer. As shown in the following figure:

3. 通过接口板 RS485 和 RS232 通讯升级默认波特率为 9600。
Upgrade the default baud rate to 9600 through the interface board RS485 and RS232 communication.
4. 通过接口板 CAN 升级时，波特率需和当前逆变器协议对应。
When upgrading through the interface board CAN, the baud rate needs to correspond to the current inverter protocol.

11. 协议配对说明 Protocol pairing instructions

1. 通过上位机工程模式界面可以选择相对应的逆变器协议。连上上位机后设置完逆变器协议后，需重启 BMS，再读取确认。如下图所示：
The corresponding inverter protocol can be selected through the interface of the upper computer engineering mode. After connecting to the host computer and setting the inverter protocol, you need to restart the BMS and read it again. As shown in the following figure: