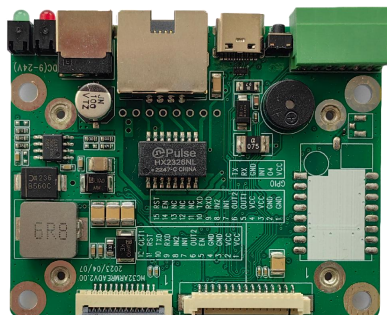


SLD1010 接口板说明手册



**With the English version following
the Chinese version.**

编号: 20223041001

版本: V1.01

日期: 2023/07/14

北京芯联创展电子技术股份有限公司

Tel: (+86) 010-62153842/62153840

<http://www.silion.com.cn>

版本记录

文件编号	版本号	拟制人/修改人	拟制/修改日期	更改理由	更改内容
	V1.0		2023-04-10	初始版本	无
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注：每次更改归档文件（指归档到事业部或公司档案室的文件）时，需填写此表。					

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目录

第 1 章 概述	1
第 2 章 技术参数	2
第 3 章 硬件说明	3
3.1 接口说明	3
3.2 GPIO 接线说明	3
3.3 指示灯介绍	5
3.4 外观尺寸	5
第 4 章 使用说明	7
4.1 IP 复位	7
4.2 演示 demo 连接	7
4.2.1 RS232 通讯	7
4.2.2 USB (TYPE-C) 通讯	9
4.2.3 网口通讯	10

第 1 章 概述

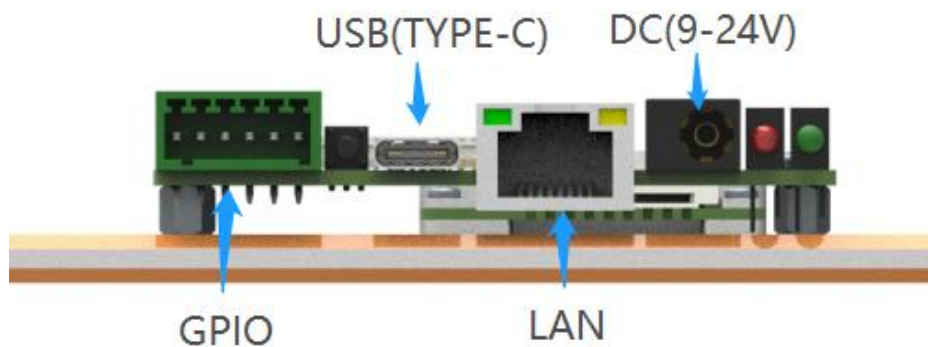
SLD1010 是一款方便射频模块测试和组装整机的接口板。该系列产品采用工业级设计。板子可以直接连接各种模块：SIM7100、SIM7200、SIM7300、SLR1200、SLR5600 等模块。提供 type-c、RS232、TCP/IP 通信接口。1 进 1 出 GPIO 口，驱动能力强，可以直接驱动指示灯、报警器等外设。基于板子可以方便地对射频模块性能进行评估，也可配合外壳做成固定式读写器，结构紧凑、方便安装、性能稳定，适合各种工业应用场合。同时方便进行 GPIO 操作、复位、上电控制等测试。接口板供电 9-24V，外接电源供电请使用配套的电源适配器供电（12V/3A）。

第 2 章 技术参数

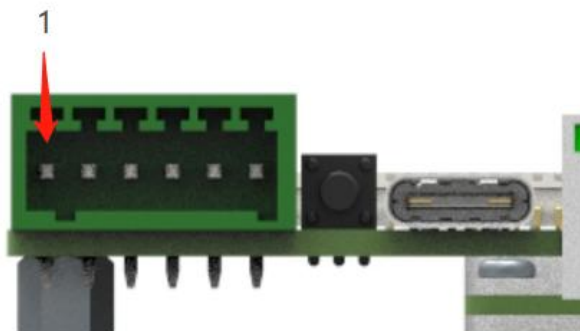
硬件性能		
CPU	HC32F460JEUA	
硬件接口		
通信接口	10M/100M 自适应网口，RS232（9600-230400ps），type-c（9600-921600bps）	
指示灯	电源指示灯（绿灯），状态指示灯（红灯）	
GPIO	1 路输入，1 路强驱动输出（每路拉电流可以达到 250mA）	
供电/功耗		
供电	供电 9-24V 标配适配器 12V/3A	
功耗	搭载 SIM7400	待机状态 1.68W 工作状态 14.76W
	单板	工作状态 0.6W
环境特性		
工作温度	-25℃ - +65℃	
存储温度	-40℃ - +85℃	
湿度	相对湿度：5-95% 非冷凝	
安全性		
适配器	空气放电 8KV, 接触放电 6KV；浪涌抗扰性：4KV	
单板	接触放电:8KV	
尺寸		
长宽高	70mm X 57mm X 12.3mm	

第 3 章 硬件说明

3.1 接口说明

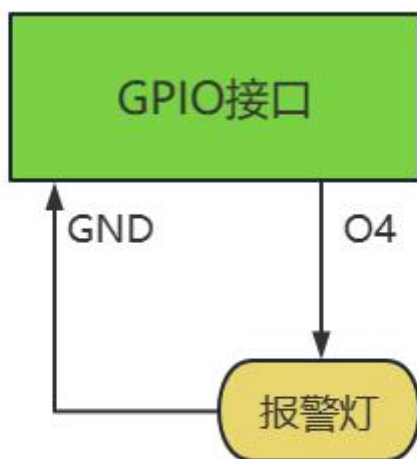


GPIO:

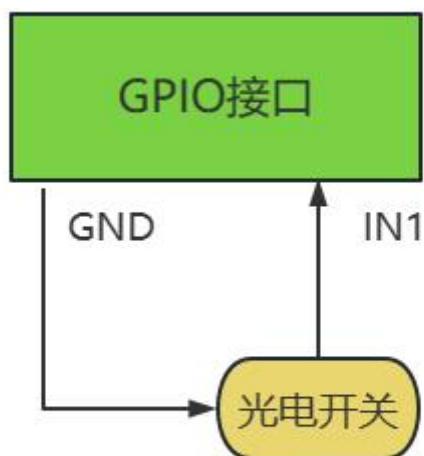


接口名称	序号	电气特性
VCC	1	开发板输出电源
O4	2	GPIO 输出，输出电压范围：0 至 (VGPI0-0.3V) 拉电流能力：内部供电时四路总电流可到 1A, 单路 250mA 外部供电时每路可以达到 1A 设备逻辑 0 输出高电平 (VGPI0-0.3V) 设备逻辑 1 输出低电平 (0-0.3V, 内部 3K 电阻下拉)
IN1	3	GPIO 输入，输入电压范围是 (0-24V) 输入高电压 (0.66-24V) 判定为逻辑 0 输入低电压 (0-0.5V) 判定为逻辑 1
GND	4	参考地
RX	5	232 接收端
TX	6	232 发射端

3.2 GPIO 接线说明



设备内部供电
驱动GPIO口报警灯



连接光电感应器

GPIO 测试可以通过 DEMO 程序 ModuleReaderManager.exe 实现。按照上面的步骤和模块建立通信以后，点击参数设置，然后出现下面的界面，红色框中所示，可以设置 GPO 的状态，以及获取 GPIN 的状态。通过设置 gpo 或者触发 gpi 外置设备可以查看状态是否发生变化。如果不需要用到 GPIO 口，GPIO 引脚悬空即可。

参数配置

主板类型: arm7 主板 硬件版本: 31.04.00.00 射频类型: sim7400 **永久保存**

主板版本: 22.08.22.00 软件版本: 22.08.22.00 模块温度: 28

GEN2设置

Session: Session0 Qval: 自动

Target: A 编码: RF_MODE_7

写模式: 字写 **获取** **设置**

GPI0设置

☐ GP01 ☐ GP02 ☐ GP03 ☐ GP04 **设置**

☒ GPI1 ☐ GPI2 ☐ GPI3 ☐ GPI4 **获取**

IP信息

IP地址: 192.168.1.100 子网掩码: 255.255.255.0 ☐ 以太

网关: 192.168.1.254 MAC地址: 1E306CA2455E ☐ Wifi

☐ 手动指定

ssid: 加密模式: **获取**

key: 密钥类型: **设置**

频率设置

北美

条目

- ☒ 902750
- ☒ 903250
- ☒ 903750
- ☒ 904250
- ☒ 904750
- ☒ 905250
- ☒ 905750
- ☒ 906250
- ☒ 906750
- ☒ 907250
- ☒ 907750
- ☒ 908250

☒ 全选 **获取** **设置**

其他设置

天线驻留(ms): 0

天线检测: 检测天线

跳频模式: 模式0 **获取** **设置**

特殊参数

波特率: 115200

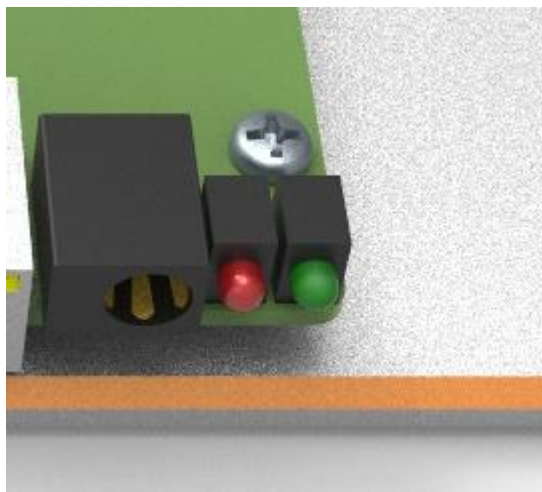
上电跳转应用层: ☐ 是 ☒ 否

频率时间: 400

恢复出厂值

准备升级更新固件指令

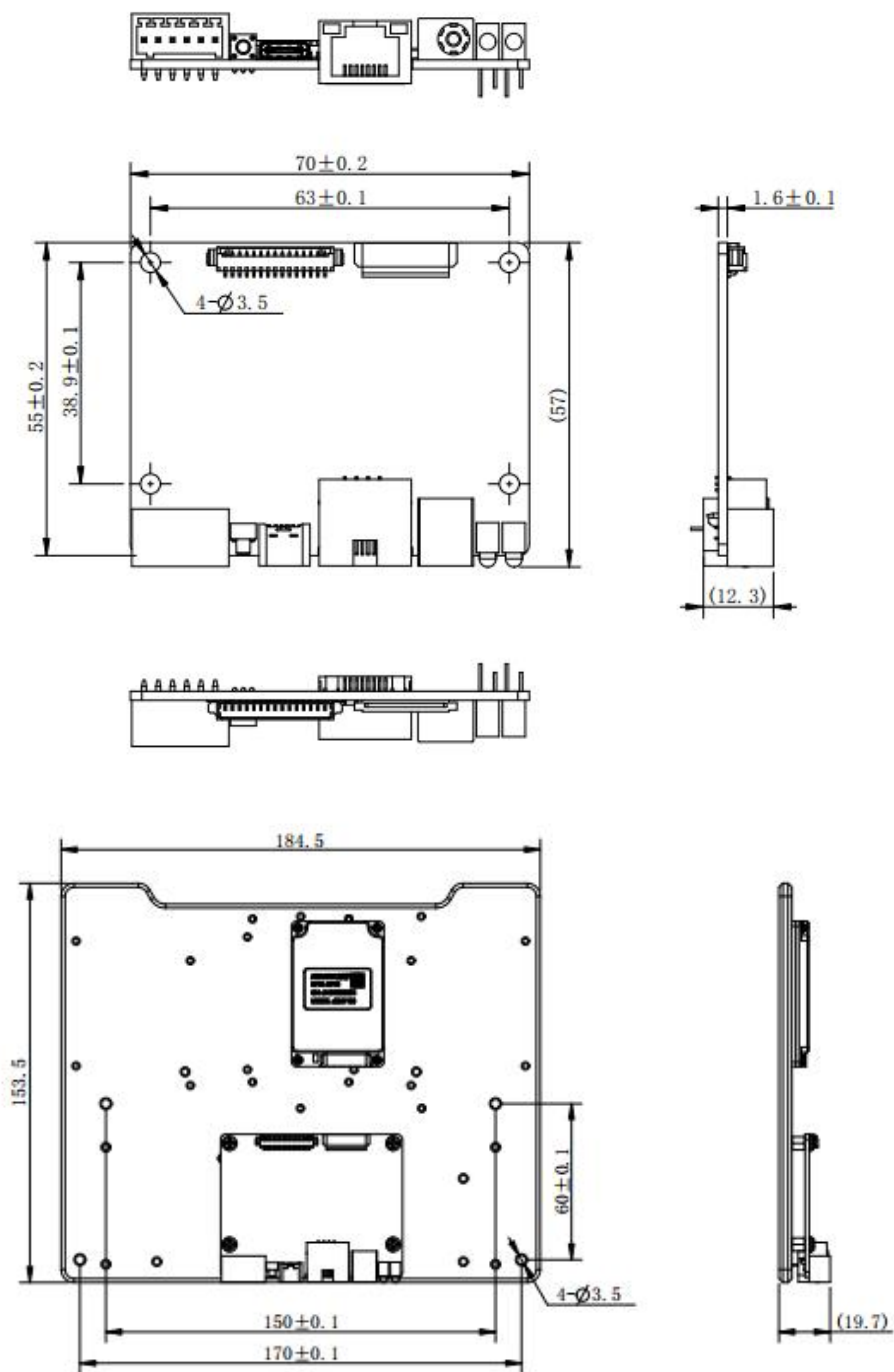
3.3 指示灯介绍



红色指示灯: 电源, 上电后, 红灯亮起

绿色指示灯: 状态指示灯。上电 5 秒后, 绿灯长亮, 代表射频模块与底板连接成功。绿灯闪烁, 代表射频模块与底板未连接。

3.4 外观尺寸 (单位:mm)



第 4 章 使用说明

4.1 IP 复位

可以在通电状态下长按复位按钮 3s，即可复位 ip，复位后的 ip 为 192.168.1.100。IP 复位以后网络参数如下：

IP 地址 :192.168.1.100
子网掩码 :255.255.255.0
网关 :192.168.1.1

4.2 演示 demo 连接

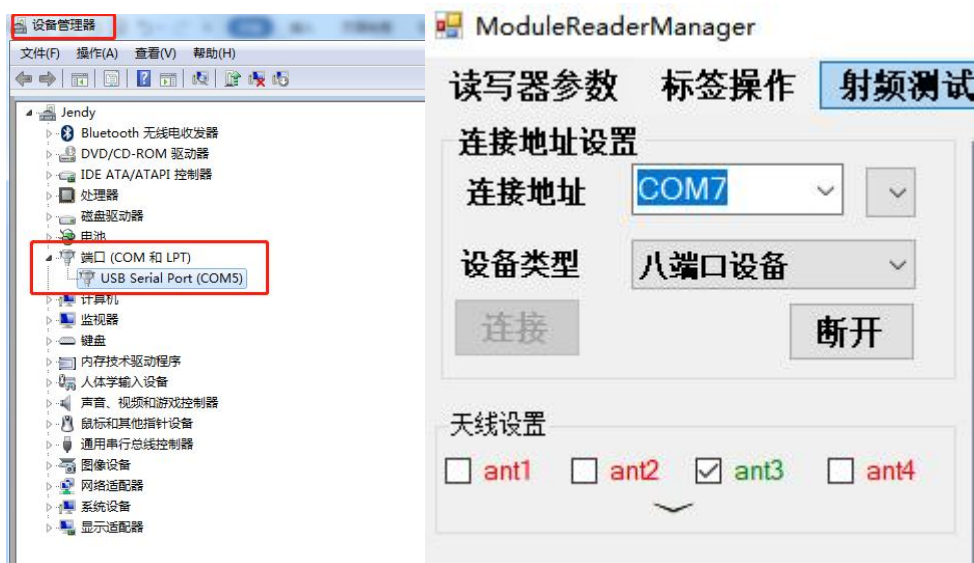
4.2.1 RS232 通讯

选择 RS232 串口通信，接上通讯接口后，给板子上电。可以通过 232 连接线与 GPIO 上的 TX RX GND 连接。

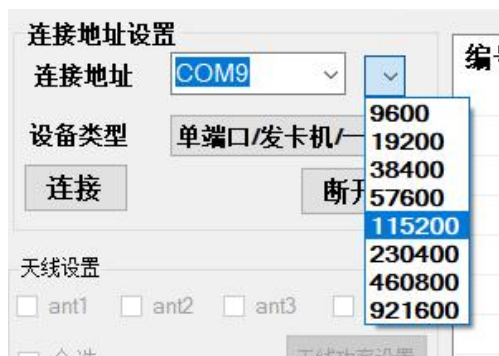




再将一公一母的串口直通延长线连接上位机和 232 连接线。打开测试 DEMO 程序 ModuleReaderManager.exe。填写对应的串口号。选择对应的天线端口数点击连接（具体看板子连接的射频模块天线端口数，例如 SIM7100 有一个天线口，选择单天线，SIM7200 有四个天线口，选择四天线，SIM7300 有八个天线口，选择八天线）。连接上以后就可以进行相关模块测试。具体参考 DEMO 程序操作说明。



注：模块默认设置波特率 115200bps。如果修改了模块波特率，当模块波特率 ≥ 115200 时，无需选择波特率，demo 依然是默认 115200 方可连接。当模块波特率 > 115200 ，在使用串口连接时，需要选择对应波特率。

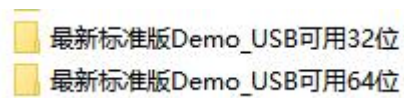


如使用的 demo 版本没有波特率选择功能，则在地址后+：（对应波特率），如 COM9:57600



4.2.2 USB（TYPE-C）通讯

选择 USB 接上通讯接口后，给板子上电。首先需要选择与电脑（win10 及 win11 除外）操作系统匹配的 demo 进行连接。（64 位和 32 位）



连接电脑后，会自动识别为“HDSC”设备。打开测试 DEMO 程序 ModuleReaderManager.exe。在连接地址上填写“USB”后点击连接。连接上以后就可以进行相关模块测试。具体参考 DEMO 程序操作说明。



4.2.3 网口通讯

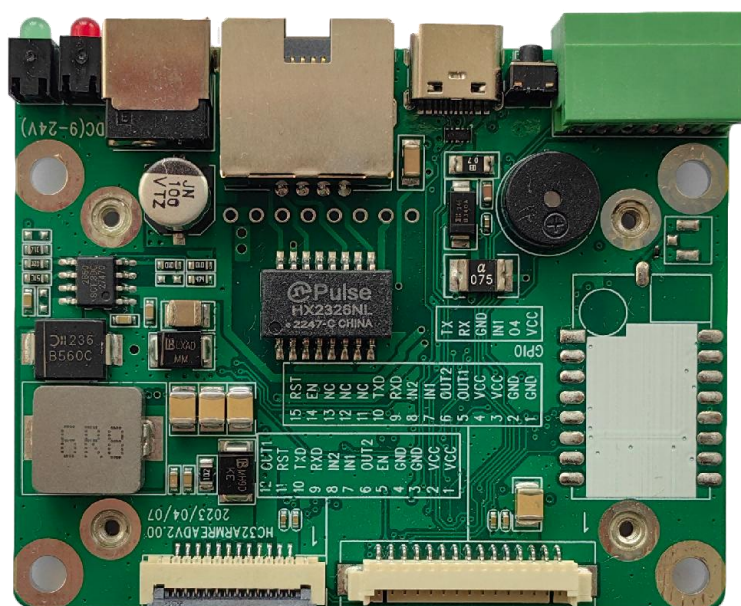
在网口连接中，读写器的默认地址是 192.168.1.100，默认网关是 192.168.1.254，子网掩码为 255.255.255.0，与读写器连接的计算机 IP 地址与读写器的 IP 地址必须在同一网段下，如下图所示；正确设置计算机 IP 地址后，确保网络通畅后即可连接。打开测试 DEMO 程序 ModuleReaderManager.exe。在连接地址上选择对应的 IP 地址后，点击连接。连接上以后就可以进行相关模块测试。具体参考 DEMO 程序操作说明。



SLD1010

Connector Board

User Manual



Number: 20223041001

Version: V1.01

Date: 2023/07/14

Shenzhen Silion Technology Co.,Ltd.
Tel: (+86) 010-62153842/62153840
en.silion.com.cn

Version Logging

File Serial Number	Ver. Number	Modify By	Modify Date	Modify Reason	Modify Contents
	V1.0		2023-04-10	Initial Version	None
	V1.1		2023-07-14		Main Image
Note: Each time modify this file, must fill this form.					

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Contents

User Manual	11
Disclaimer	12
1 Overview	1
2 Technical Description	2
3 Hardware Description	3
3.1 Interface Description	3
3.2 GPIO wiring description	4
3.3 Indicator Light Description	5
3.4 Dimension	6
4、Introduction of use	7
4.1 IP Reset	7
4.2 DEMO Connection	7
4.2.1 RS232 Communication	7
4.2.2 USB(TYPE-C) Communication	9
4.2.3 Internet Port Communication	10

1 Overview

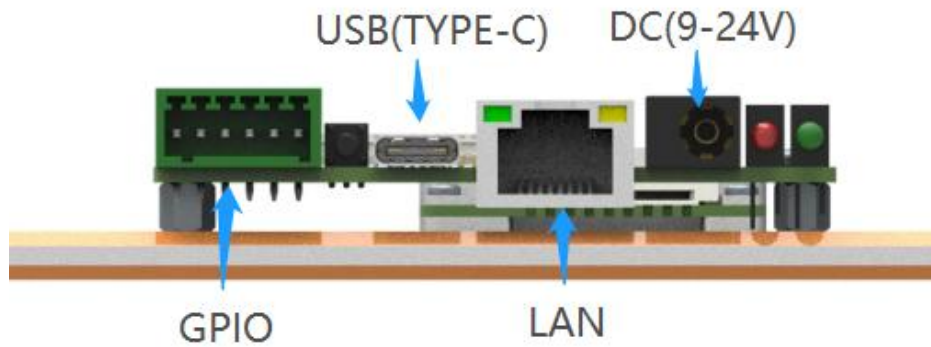
SLD1010 is an interface board that is convenient for RF module testing and assembly. This series of products adopts industrial design. The board can be directly connected to various modules: SIM7100、SIM7200、SIM7300 and other module. Provide Type-c、RS232、TCP/IP communication interface. 1input 1 output, GPIO port; strong driving ability, can directly drive peripherals such as indicator lights and alarms. Based on board, the performance of the RF module can be easily evaluated, and it can also be made into a fixed reader with the shell, which is compact in structure, easy to install, and stable in performance, suitable for various industrial applications. it is convenient to perform GPIO operation, reset, power-on control and other tests. Interface board power supply 9-24V, external power supply please use the matching power adapter to supply power (12V/3A).

2 Technical Description

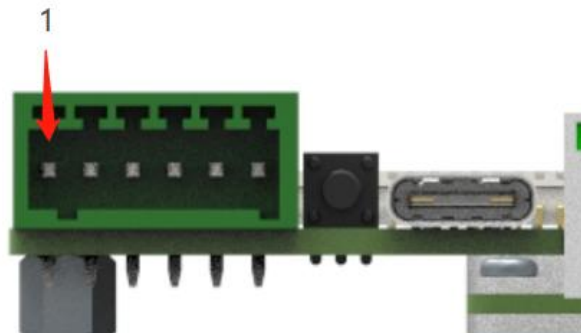
Hardware Parameters		
CPU	HC32F460JEU4	
Hardware Interface		
Communication Interface	10M/100M adaptive net port, RS232(9600-230400ps), type-C (9600-921600bps)	
Indicator Light	Power light (Green), Status light (Red)	
GPIO	1 input, 1 output with strong driving ability (Each port current can reach 250mA)	
Power Supply/Consumption		
Power Supply	supply 9-24V, power adapter 12V/3A	
Power Consumption	Equipped with SIM7400	Standby: 1.68W work: 14.76W
	Single board	Work: 0.6W
Environment Features		
Working Temp	-25℃ - +65℃	
Storage Temp	-40℃ - +85℃	
Humidity	Relative humidity: 5-95% non-condensing	
Safety		
Adapter	Air discharge 8KV, contact discharge 6KV; surge immunity: 4KV	
Single Board	Contact discharge:8KV	
Dimension		
L*W*H	70mm X 57mm X 12.3mm	

3 Hardware Description

3.1 Interface Description

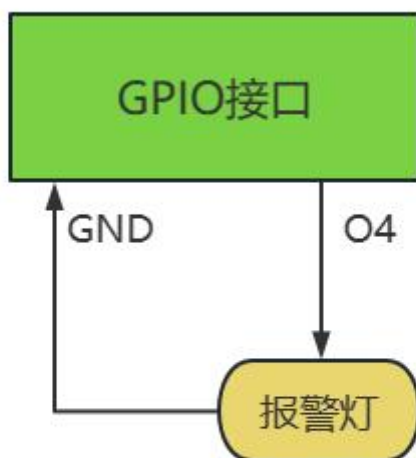


GPIO:

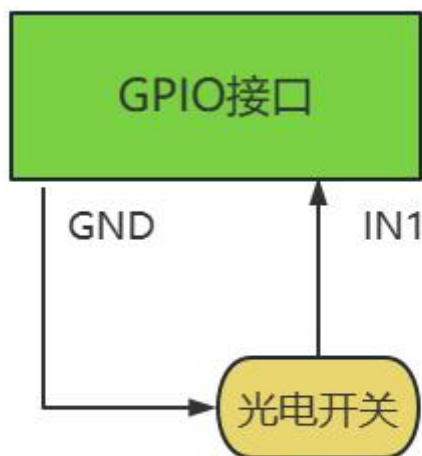


Interface Name	Serial Name	Electronic Features
VCC	1	The out power of the board
O4	2	GPIO output, output voltage range: 0~(VGPI0-0.3V) Current-drawing capability: when the internal powered, the total current of four channels can reach 1A, and the single channel can reach 250mA; Each channel can reach 1A when externally powered. Device logic 0 output high level (VGPI0-0.3V) Device logic 1 output low level (0-0.3V, internal 3K resistor pull down)
IN1	3	GPIO input, input voltage range: (0-24V) Input high voltage (0.66-24V) judged as logic 0 Input low voltage (0-0.5V) judged as logic 1
GND	4	Ground
RX	5	232 receiving end
TX	6	232 transmitting end

3.2 GPIO wiring description



Internal power supply of the device drives the alarm light of the GPIO port



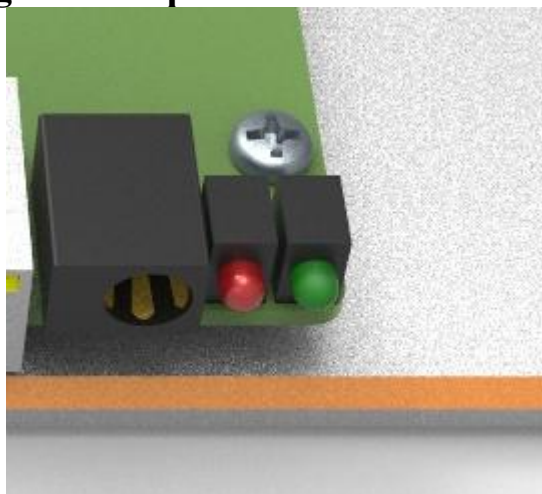
Connect the photoelectric sensor

The GPIO test can be implemented by the DEMO program “ModuleReaderManager.exe”. After establishing communication with the module according to the above steps, click the parameter setting, and then the following interface will appear, as shown in the red box, you can set the status of GPO and obtain the status of GPIN. You can check whether the status has changed by setting the “gpo” or triggering the “gpi” external device. If the GPIO port is not needed, the

GPIO pin can be left floating.



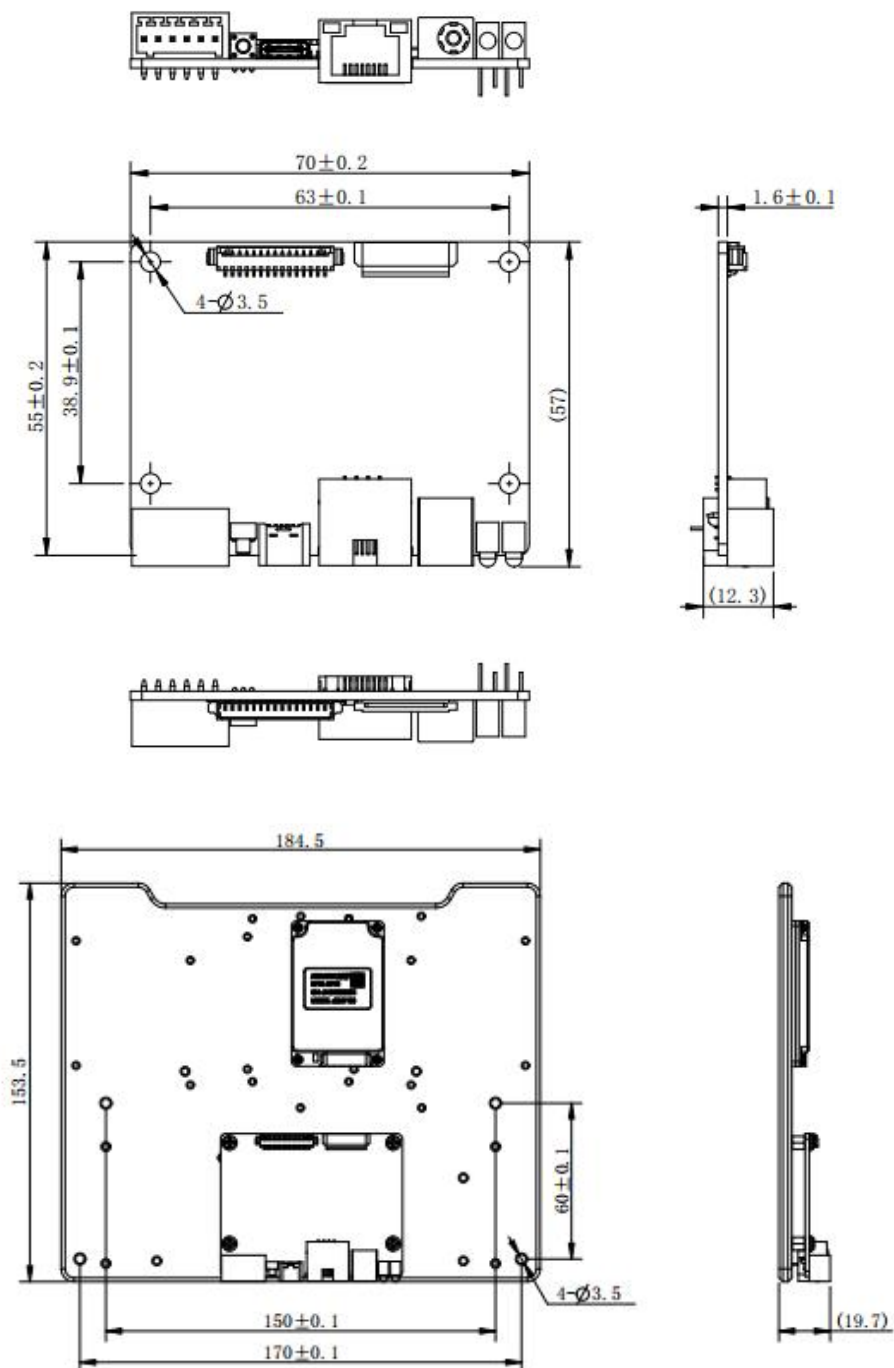
3.3 Indicator Light Description



Red indicate light: Power light, after power on, the red light will light.

Green indicate light: Status light. After 5 seconds of power-on, the green light will be on continuously, indicating that the RF module is successfully connected to the baseboard. If the green light is blinking, it means that the RF module is not connected to the backplane.

3.4 Dimension (unit:mm)



4、Introduction of use

4.1 IP Reset

Can press and hold the reset button for 3s in the power-on state to reset the IP, the IP after reset is 192.168.1.100. After IP reset, the network parameters are as follows:

IP address: 192.168.1.100
subnet mask: 255.255.255.0
gateway: 192.168.1.1

4.2 DEMO Connection

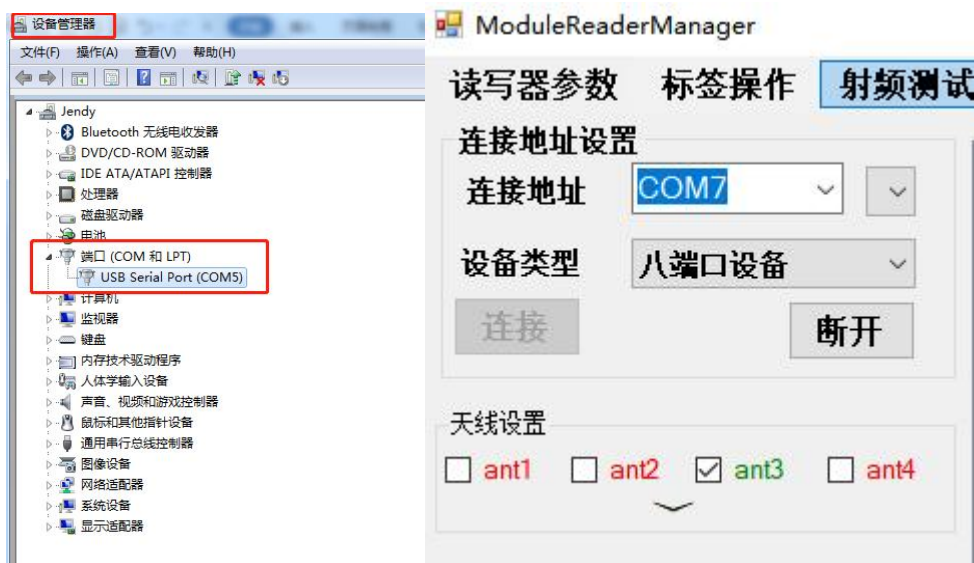
4.2.1 RS232 Communication

Select RS232 serial port communication, connect the communication interface, and power on the board. It can be connected to TX RX GND on GPIO through 232 connection line.

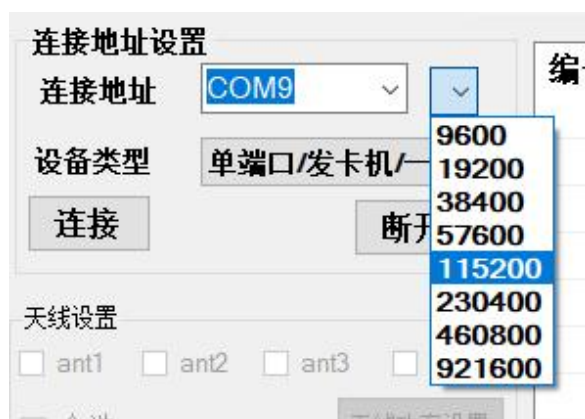




Then connect a male and a female serial port straight-through extension cable to the host computer and the RS232 connection cable. Open the test DEMO program “ModuleReaderManager.exe”. Fill in the corresponding serial port number. Select the corresponding number of antenna ports and click Connect (refer to the number of RF module antenna ports connected to the board. For example, SIM7100 has one antenna port, so choose single antenna; SIM7200 has four antenna ports, choose four antennas; SIM7300 has eight antenna ports, choose eight antennas). After connecting, can test related modules. For details, refer to the DEMO program operation instructions.



Note: module default set baud rate: 115200bps. If the baud rate of the module is modified, when the baud rate of the module is ≥ 115200 , there is no need to select the baud rate, and DOME can still be connected with the default 115200. When the module baud rate > 115200 , when using the serial port connection, you need to select the corresponding baud rate.



If the DOME version used does not have the baud rate selection function, after the serial address need add ": (corresponding to the baud rate)", such as COM9:57600.



4.2.2 USB(TYPE-C) Communication

After selecting USB to connect to the communication interface, power on the board. First, you need to select a demo that matches the operating system of the computer (except win10 and win11) to connect. (64-bit and 32-bit)

-  最新标准版Demo_USB可用32位
-  最新标准版Demo_USB可用64位

After connecting to the computer, it will be automatically recognized as an "HDSC" device. Open the test DEMO program "ModuleReaderManager.exe". Fill in "USB" in the connection address and click connect. After connecting, you can test related modules. For details, refer to the DEMO program operation instructions.



4.2.3 Internet Port Communication

In the network port connection, the default address of the reader: 192.168.1.100, the default gateway: 192.168.1.254, the subnet mask: 255.255.255.0, the IP address of the computer connected to the reader and the IP address of the reader must be in the same network segment, as shown in the figure below. After setting the IP address of the computer correctly, you can connect after ensuring that the network is smooth. Open the test DEMO program "ModuleReaderManager.exe". After selecting the corresponding IP address on the connection address, click Connect. After connecting, you can test related modules. For details, refer to the DEMO program operation instructions.

