

Solar Plug-CWB1

RS485/RS232 To Wi-Fi+BLE Collector

User Manual

V 1.2



Product Features

- ✧ Supports WiFi 802.11b/g/n wireless standards
- ✧ Adopting RISC architecture SOC chip, with a maximum frequency of 160MHz, 276KB RAM, 2MB Flash, based on FreeRTOS system
- ✧ Support BLE 5.0 for diagnostic or local Bluetooth debugging and data collection functions
- ✧ Supports RS485/RS232 to WiFi data transmission, with a maximum serial port rate of 460800bps
- ✧ Support Solar Of Things energy management platform, web page or APP to monitor energy data
- ✧ Power supply: 5-36VDC
- ✧ IP65 Protect
- ✧ Size: 122.4mm x 49mm x 30.3mm

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History

V 1.0 2024-05-14 First Edition

V 1.1 2024-06-17 Update appearance.

V 1.2 2024-08-09 Update appearance.

1. PRODUCT OVERVIEW

1.1. Overview

The Solar Plug-CWB1 acquisition rod adopts a Wi-Fi+BLE data transmission method, which facilitates the collection and monitoring of data from inverters, energy storage devices, and other devices. The protection level is IP65, suitable for harsh outdoor scenarios, and the sub models support different interfaces to adapt to external devices.

Solar Plug-CWB1 is equipped with rich network protocols and integrates RS485/RS232 standard data transmission interfaces, without the need for any driver. It is convenient for traditional serial devices to connect and use, and is suitable for Solar Of Things energy management. It is suitable for the photovoltaic energy industry. You can log in to the photovoltaic platform to view the platform's functions in detail.

1.2. Product Parameters

Table1. Solar Plug-CWB1 Product Technical Parameters

Classification	Parameter
System Information	
Processor/Main Frequency	RISC 160MHz
Flash	2MB
RAM	276KB
Operating System	FreeRTOS
Wi-Fi Interface	
Wireless Standards	802.11 b/g/n
Frequency Range	2.412GHz ~ 2.472GHz
Network Mode	STA
Security Type	WEP/WPA-PSK/WPA2-PSK/WPA3-SAE
Encryption	WEP64/WEP128/TKIP/AES
Transmitting Power	802.11b: +17dBm ± 1.5dBm (@11Mbps) 802.11g: +15dBm ± 1.5dBm (@54Mbps) 802.11n: +14dBm ± 1.5dBm (@HT20, MCS7)
Receiving Sensitivity	802.11b: -96dBm (@1Mbps) 802.11b: -89dBm (@11Mbps) 802.11g: -91dBm (@6Mbps) 802.11g: -76dBm (@54Mbps) 802.11n: -91dBm (@MCS0) 802.11n: -73dBm (@MCS7)
Antenna Option	Internal PCB Antenna
BLE Interface	
Wireless Standards	BLE5.0

Frequency Range	2.402GHz ~ 2.480GHz
Transmitting Power	Max 15dBm
Receiving Sensitivity	-97dBm
Serial Port	
Number of Port	1
Interface Standard	Different sub models support one of RS485/RS232
Data Bit	7, 8
Stop Bit	1, 2
Check Bit	None, Even, Odd
Baud Rate	TTL: 1200 bps~460800 bps
Flow Control	No flow control Half duplex (RS485)
Software	
Collocation Method	APP
Firmware update	Serial port or OTA network upgrade
Basic Parameters	
Size	122.4mm x 49mm x 30.3mm
Working Temperature	-40 ~ 85°
Storage Environment	-45 ~ 105°C, 5 ~ 95% RH (without condensation)
Protection Level	IP65
Input Voltage	5~36VDC
Average Current	<30mA@9V
Average Power Consumption	180mW

1.3. Main Application Areas

Solar Plug-CWB1 connects serial devices to the Internet and transmits serial data in accordance with the TCP/IP protocol.

2. HARDWARE INTRODUCTION

Solar Plug-CWB1 is a Wi-Fi+BLE solution for serial device networking, which enables data transmission through routers, making product integration very easy.

2.1. Interface Diagram

Solar Plug-CWB1 use USB 2.0 hardware interface for Serial communication.



Figure 1. Front and side appearance



Figure 2. Top and bottom appearance

2.2. Solar Plug-CWB1 Interface Pin Definition

The pin markings are shown in the following figure.

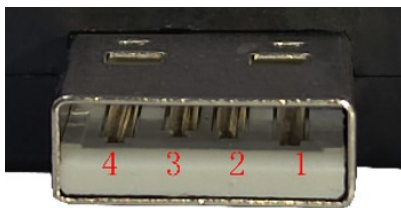


Figure 3. Pin Markings

Table2. Interface Sub Models And Pin Definition Diagram

Sub Model Code	Interface Form	Serial Port Type	Line Sequence A/T/+	Line Sequence B/R/-	Line Sequence VCC/+	Line Sequence GND/-	Remarks
-01	USB	RS232	VCC	RXD	TXD	GND	
-02	USB	RS232	VCC	TXD	RXD	GND	
-50	USB	RS485	VCC	A+	B-	GND	
-51	USB	RS485	VCC	B-	A+	GND	

Table3. Solar Plug-CWB1 Pin Description

Signal Description	Signal Type	Description
VCC	P	5~36VDC power supply input
GND	P	GND Ground
TXD	O	RS232 level serial port output
RXD-	I	RS232 level serial port input
A+	IO	RS485 level A+phase
B-	IO	RS485 level B-phase

<Description>:

I — Input; O — Output; Power—Power supply

2.3. Solar Plug-CWB1 Indicator Light and Button Functions

There are 3 LED indicator lights on the front of the product, and there is also a reset button on the bottom side.



Figure 4. Front indicator Light and Reset Button Of The Product

Table4. Solar Plug-CWB1 Indicator Light and Key Definition

Pin	Description	Network Name	Signal Type	Note
PWR	Power indicator light	PWR	O	On: Power supply is normal Off: Abnormal power supply
COM	Serial port transmission indicator light	COM	O	Off: No data interaction Off for 0.3 seconds, on for 0.9 seconds: serial port outputs data Off for 0.3 seconds, on for 0.3 seconds: serial port receives data On: Bidirectional sending and receiving.
NET	Network status indicator light	NET	O	Off for 0.3 seconds, on for 3 seconds: Connect to the router in STA mode Off for 0.3 seconds, on for 0.3 seconds: STA is not connected to the router
Reload	Reset Button	Reload	I	The default height is high. Press and hold this key (>4S) and release it to restore the module to its factory settings.

2.4. RS485 Interface Description

RS485 has outgoing lines A (data+) and B (data-) respectively. When connecting to device RS485, A (+) is connected to A (+), and B (-) is connected to B (-). In severe interference situations, it is recommended to connect GND together.

This product can come with 32 terminals and 485 devices. The maximum communication distance is 1200 meters. The 485 terminal resistance is 120 ohms, and it is generally necessary to use a terminal resistance when wiring over 300 meters. When wiring, A+and B - must be twisted together as a pair of twisted pairs to reduce signal interference.

2.5. Solar Plug-CWB1 Mechanical Dimensions

The dimensions of different sub models of Solar Plug-CWB1 products are defined as follows (in millimeters).

2.5.1. Mechanical Dimensions

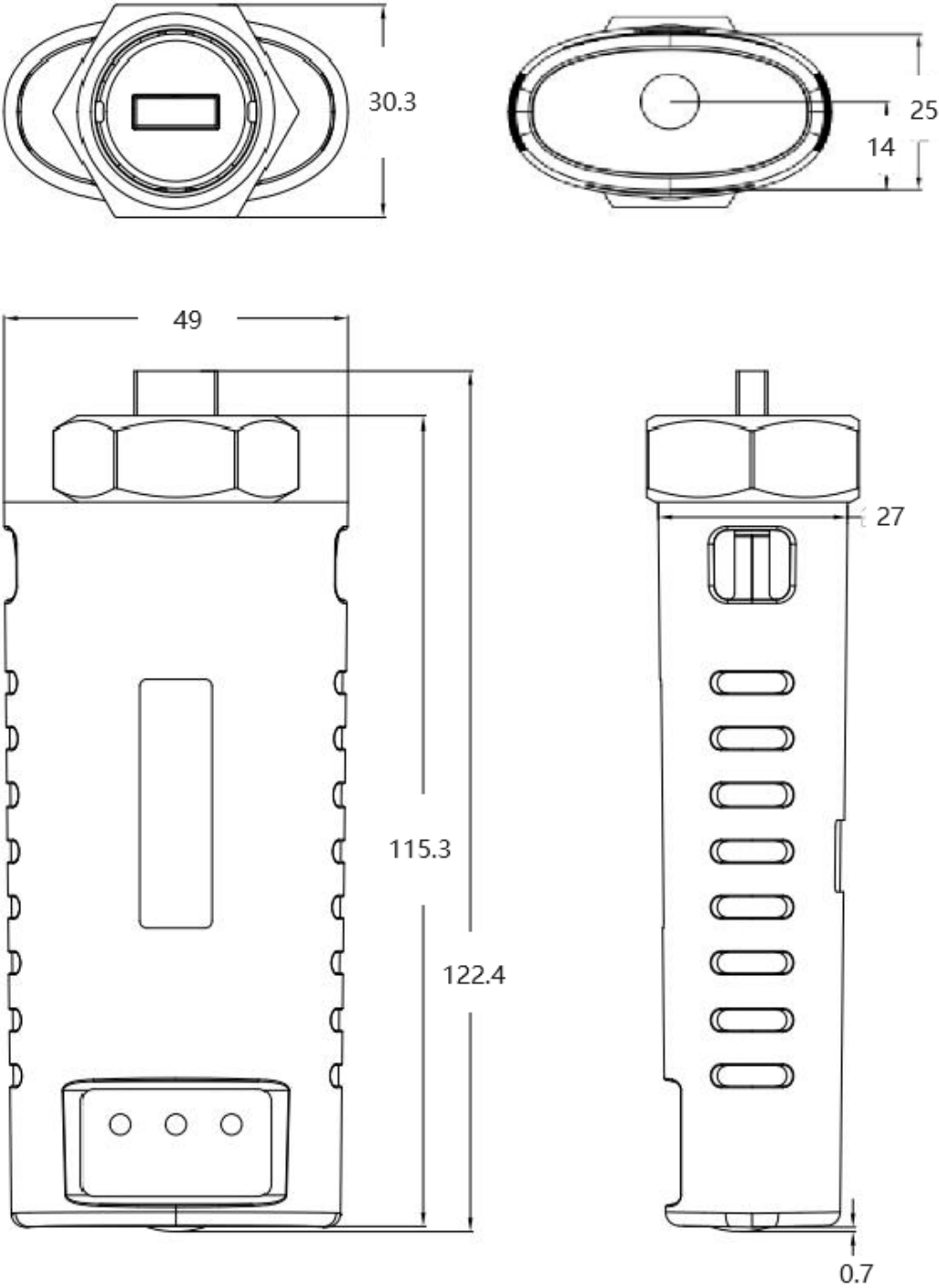


Figure 5. Mechanical Dimensions

2.6. Product Number

According to customer requirements, Solar Plug-CWB1 provides different configuration versions, as follows:

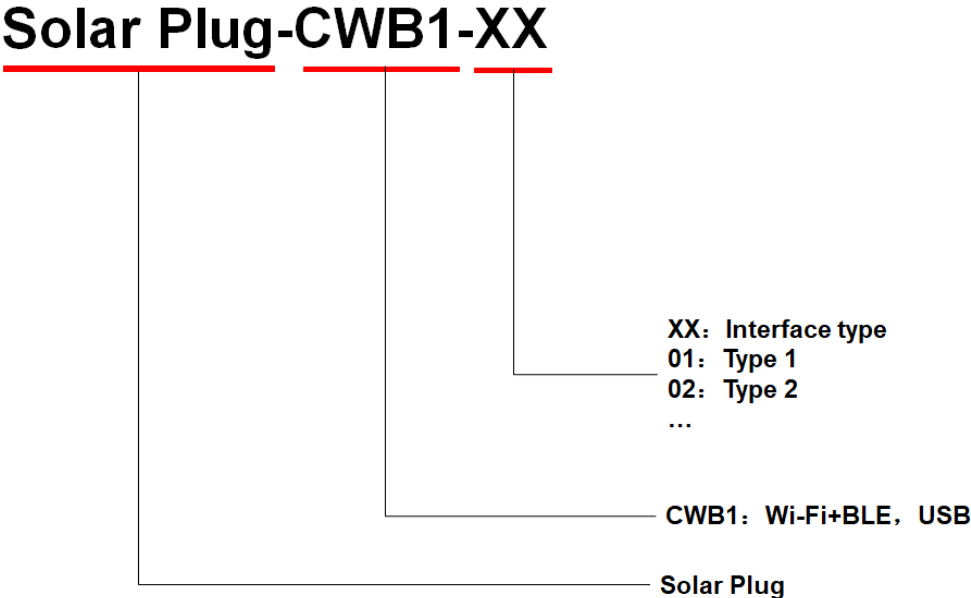


Figure 6. Solar Plug-CWB1 Product Number Definition

APPENDIX A: CONTACT INFORMATION
