E101-C5WN8 Series Test Board
User Manual



Chengdu Ebyte Electronic Technology Co.,Ltd.

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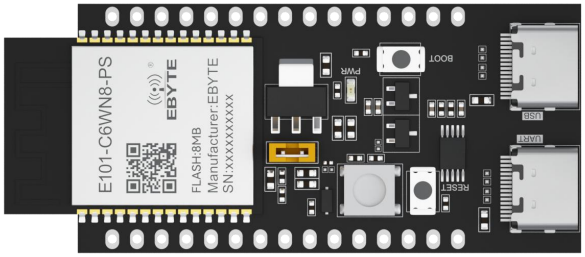
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1. Module introduction

1.1 Features



E101-C5WN8-PS-TB is an entry-level development board that uses a high-performance 2.4Hz&5GHz dual band WiFi module - E101-C5WN8-PS. This development board has complete Wi-Fi and low-power Bluetooth functions, and most of the pins of the module on the board have been led out to the pin banks on both sides. Developers can easily connect various peripheral devices through jumpers according to their actual needs, and the development board can also be plugged into a breadboard for use.

1.2 Parameters

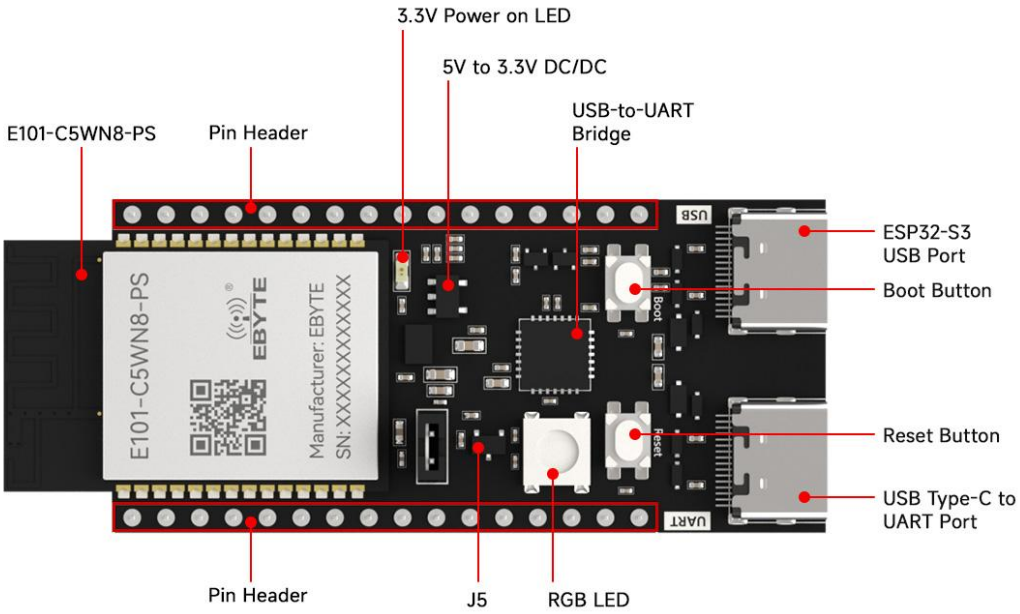
No	Parameter name	Parameter	Remarks
1	Support modules	E101-C5WN8-PS E101-C5WN8-XS	WiFi serial port module
2	module size	52.9 * 25.4mm	Including USB connector, excluding module antenna size
3	production process	Lead-free, SMT	Wireless products must be machine mounted to ensure batch consistency and reliability
4	power supply interface	USB	-
5	communication interface	TTL	-
6	Operating Temperature	-40～+85℃	Industrial-grade
7	Operating Humidity	10%～90%	Relative humidity, no condensation
8	Storage temperature	-40～+125℃	Industrial-grade

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2. Function introduction

2.1 Components



NO.	Main hardware	Description
1	E101-C5WN8-PS& E101-C5WN8-XS	E101-C5WN8-PS is a module that supports 2.4&5 GHz dual band Wi Fi 6 (802.11ax), Bluetooth ® 5 (LE), Zigbee, and Thread (802.15.4), using onboard PCB antennas. Users can also contact EBYTE customer service personnel to replace the IPEX-1 antenna version module - E101-C5WN8-XS.
2	Pin Header	All available GPIO pins (except for the SPI bus of flash) have been connected to the pin bank of the development board.
3	5 V to 3.3 V DC/DC	DC/DC power converter, input 5 V, output 3.3 V.
4	3.3 V Power On LED	After connecting the development board to a USB

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		power source, this indicator light will light up.
5	USB-to-UART Bridge	Single chip USB to UART bridge, capable of providing transmission rates up to 1Mbps.
6	ESP32-C5 USB Type-C Port	The USB Type-C interface of ESP32-C5 chip supports USB 2.0 full speed mode, with a maximum data transfer rate of 12 Mbps. Note that this interface does not support the high-speed transmission mode of 480 Mbps. This interface can be used as a power supply interface for development boards, can burn firmware to chips, can communicate with chips through USB protocol, and can also be used for JTAG debugging.
7	Boot Button	Download button. Press and hold the Boot key while pressing the Reset key to enter the "firmware download" mode and download firmware through the serial port.
8	Reset Button	Reset button.
9	USB Type-C to UART Port	Can be used as a power interface for development boards, can burn firmware to chips, and can also be used as a communication interface to communicate with ESP32-C5 chips through an onboard USB to UART bridge.
10	RGB LED	Addressable RGB light-emitting diode, driven by GPO27.
11	J5	Used for measuring current

Note:

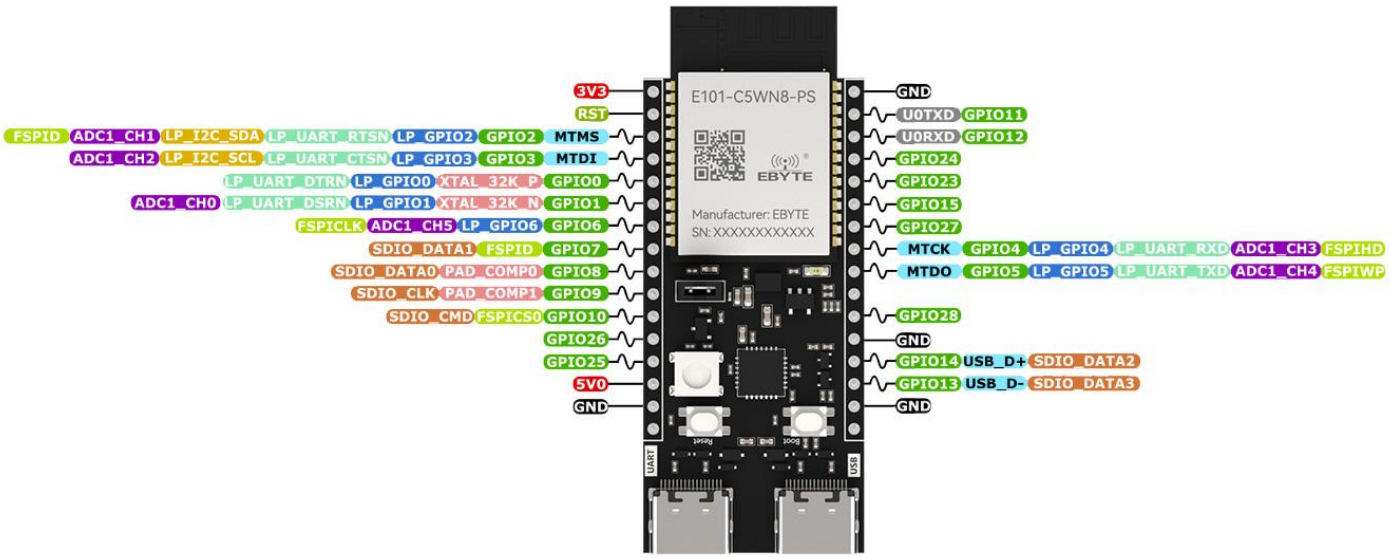
1. The J5 pin on the development board (as shown in the functional component diagram above) can be used to measure the current of the E101-C5WN8-PS module: Remove the J5 jump cap: At this time, the external devices and module power on the development board are disconnected, and the J5 pin can be connected to the ammeter to measure the module current. Install J5 jump cap (default at factory): Restore normal functionality of the development board.
2. For specific functional instructions, please refer to the user manual of E101-C5WN8-PS&E101-C5WN8-XS.

2.2 Pins definition

The following figure shows the front display of E101-C5WN8-PS-TB and E101-C5WN8-XS-TB:

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NO.	Name	Type	Pin function
1	3V3	P	3.3 V power supply
2	CHIP_PU	I	High level: chip enabled; Low level: The chip is turned off.
3	IO2	I/O/T	MTMS, GPIO2, LP_GPIO2, LP_UART_RTSN, LP_I2C_SDA, ADC1_CH1, FSPIQ
4	IO3	I/O/T	MTDI, GPIO3, LP_GPIO3, LP_UART_CTSN, LP_I2C_SCL, ADC1_CH2
5	IO0	I/O/T	GPIO0, XTAL_32K_P, LP_GPIO0,LP_UART_DTRN
6	IO1	I/O/T	GPIO1, XTAL_32K_N, LP_GPIO1, LP_UART_DSRN, ADC1_CH0
7	IO6	I/O/T	GPIO6, LP_GPIO6, ADC1_CH5, FSPICLK
8	IO7	I/O/T	GPIO7, FSPID, SDIO_DATA1
9	IO8	I/O/T	GPIO8, PAD_COMP0, SDIO_DATA0
10	IO9	I/O/T	GPIO9, PAD_COMP1, SDIO_CLK
11	IO10	I/O/T	GPIO10, FSPICS0, SDIO_CMD
12	IO26	I/O/T	GPIO26
13	IO25	I/O/T	GPIO25
14	VCC_5V	P	5 V power supply
15	GND	G	Connect to ground
16	NC	–	None
17	G	G	Grounded

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18	TX	I/O/T	U0TXD, GPIO11
19	RX	I/O/T	U0RXD, GPIO12
20	IO24	I/O/T	GPIO24
21	IO23	I/O/T	GPIO23
22	IO15	I/O/T	GPIO15
23	IO27	I/O/T	GPIO27
24	IO4	I/O/T	MTCK,GPIO4,LP_GPIO4, LP_UART_RXD, ADC1_CH3, FSPIHD
25	IO5	I/O/T	MTDO,GPIO5,LP_GPIO5, LP_UART_TXD, ADC1_CH4, FSPIWP
26	NC	–	None
27	IO28	I/O/T	GPIO28
28	GND	G	Grounded
29	IO14	I/O/T	GPIO14, USB_D+, SDIO_DATA2
30	IO13	I/O/T	GPIO13, USB_D-, SDIO_DATA3
31	GND	G	Grounded
32	NC	–	None

Note:

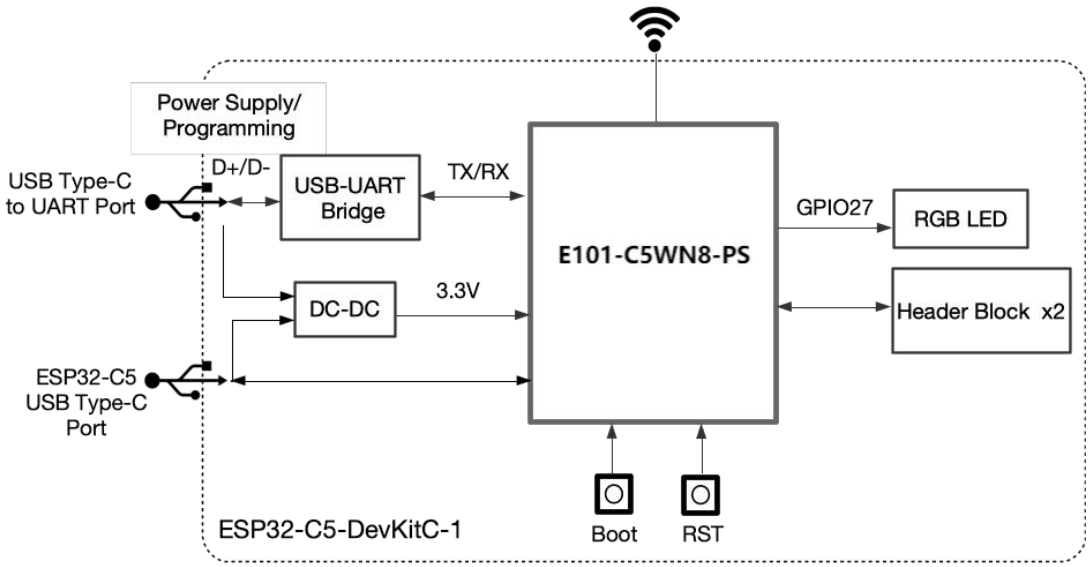
1. 1. P: Power or ground; I: Input; O: Output; T: Can be set to high resistance.
2. GPO27 is used to drive RGB LEDs.
3. MTMS, MTDI, GPO7, GPO25, GPO26, GPO27, and GPO28 are the Strapping pins of the ESP32-C5 chip. During the power on and system reset process of the chip, the Strapping pin controls the chip function based on the binary voltage value of the pin. For the specific description and application of Strapping pins, please refer to the Startup Configuration section of the ESP32-C5 Technical Reference Manual.
4. In the integrated SPI PSRAM module, NC/15 has been used as the SPICS1 function and cannot be used externally; In modules that do not integrate SPI PSRAM, this pin can be used as GPO15.

2.3 Function introduction

The main components and connection methods of E101-C5WN8-PS-TB are shown in the following
figure:

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3. Precautions for developing applications

- There are three options for power supply:

(1) USB Type-C to UART interface or ESP32-C6 USB Type-C interface power supply (choose one or both), default power supply method (recommended);
(2) 5V and GND pin power supply;
(3) 3V3 and GND pin power supply.

- Measure current

The J5 pin on the development board (see Figure E101-C5WN8-PS-TB - J5 on the front) can be used to measure the current of the E101-C5WN8-PS module:
(1) Remove the J5 jump cap: At this point, the external devices and module power on the development board are disconnected, and the J5 pin can be connected to the ammeter to measure the module current.
(2) Install J5 jump cap (default at factory): Restore normal functionality of the development board.

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4. Revision history

Version	Date	Description	Issued by
1.0	2025-10-11	Initial version	ALL

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