EWT105-WBS30S Development Board

User Manual



Chengdu Ebyte Electronic Technology Co.,Ltd.

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1 Introduction

1.1 Brief Introduction

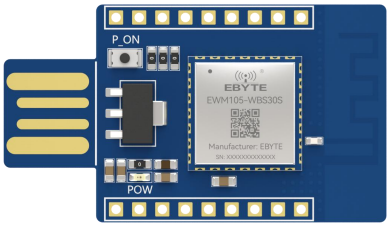


Figure 1: Photo of the development board

EWT105-WBS30S is an entry-level development board developed by Chengdu EBYTE Electronics Technology Co., Ltd., featuring the EWM105-WBS30S WiFi/Bluetooth/Starlight Combo three-in-one module. This development board features Wi-Fi 6.0, SLE 1.0, and BLE 5.2 capabilities, supporting the Wi-Fi 802.11b/g/n/ax protocol, as well as the BLE and SLE protocols. Most of the module's pins are exposed on both sides of the board, allowing developers to connect various peripheral devices according to their specific needs. Additionally, the development board features a USB 2.0 gold-finger dongle design, allowing it to be connected to a host MCU via the USB interface for operation.

1.2 Features

- Features a USB pin header design
- Supports the 2.4 GHz frequency band
- Supports IEEE 802.11 b/g/n/ax
- Supports BLE 4.0/4.1/4.2/5.0/5.1/5.2
- Supports SLE 1.0
- Wi-Fi security supports WPA/WPA2/WPA3-Personal/WPS 2.0
- Supports 20/40 MHz bandwidth, with a maximum data rate of 150 Mbps
- Supports coexistence modes: STA, SoftAP, STA+SoftAP, and STA+PTP
- Supports UART, USB 2.0, GPIO, and more

2 Key Specifications

No	Parameter Name	Parameter value	Notes
1	Supported Modules	EWM105-WBS30S	StarFlash/Wi-Fi/Bluetooth Combo Module
2	Product Model	EWT105-WBS30S	EWM105-WBS30S
3	Module	42*24mm	Dimensions shown are for the PCB only;

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	Dimensions		please refer to the product dimension diagram for full dimensions (including the plug-in components).
4	Manufacturing Process	Lead-free process, machine placement	Wireless products must be surface-mounted to ensure consistency and reliability in mass production.
5	Power Supply Interface	USB 2.0	-
6	Power Supply Range	3V~3.6V	Supply voltage: 3V–3.6V; supply current: ≥500mA
7	Communication Interface	UART	-
8	Available I/O Pins	14 个	-
9	Operating Temperature	-40 ~ +85℃	Industrial grade
10	Operating Humidity	10% ~ 90%	Relative humidity, non-condensing
11	Storage Temperature	-50 ~ +150℃	Industrial grade
12	Flash	Without Flash	-

2.1 RF Performance

RF Projects	Min.	Typical value	Max.	Unit	Test Conditions
Operating Band	2400	-	2500	MHz	Frequencies below 2401 MHz and above 2483.5 MHz do not meet the radiation requirements set by the National Radio Regulatory Commission; the selection of channel frequencies must comply with the requirements of the relevant agreements and regulations.
WiFi RX Sensitivity	-	-99.4	-97.9	dBm	WIFI RX 11B 1Mbps DSSS PER8% 1024 octet PSDU
WiFi RX Adjacent Channel Rejection Ratio	39	43	-	dB	WIFI RX 11B 1Mbps DSSS Mask margin 大于 5db
WiFi TX Maximum transmit power	22	23	-	dBm	WIFI TX 11B 1Mbps DSSS PER8% 1024 octet PSDU

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WiFi Approximate communication range	-	250	-	m	@EWM105-WBS30S, clear, open, unobstructed environment; onboard PCB antenna gain of 0.5 dBi; antenna height of 1.2 m; transmit power of 20 dBm
	-	400	-	m	@EWM105-WBS30S, clear, open, unobstructed environment, antenna gain 5.0 dBi, antenna height 1.2 m, transmit power 20 dBm
BLE RX Sensitivity	-	-99	-97.5	dBm	@BLE 1M，PER<30%
BLE TX Maximum transmit power	19.5	20	-	dBm	@Meets EVM and ACP requirements
BLE Reference Communication Range	-	360	-	m	@EWM105-WBS30S, clear, open, unobstructed environment; onboard PCB antenna gain of 0.5 dBi; antenna height of 1.2 m; transmit power of 20 dBm
	-	580	-	m	@EWM105-WBS30S, clear, open, unobstructed environment, antenna gain 5.0 dBi, antenna height 1.2 m, transmit power 20 dBm
SLE RX Sensitivity	-	-98.8	-97.3	dBm	@SLE 1M GFSK，PER<10%
SLE TX Maximum transmit power	19.5	20	-	dBm	@SLE 1M GFSK, meets EVM and ACP requirements
SLE Reference communication range	-	360	-	m	@EWM105-WBS30S, clear, open, unobstructed environment; onboard PCB antenna gain of 0.5 dBi; antenna height of 1.2 m; transmit power of 20 dBm
	-	580	-	m	@EWM105-WBS30S, clear, open, unobstructed environment, antenna gain 5.0 dBi, antenna height 1.2 m, transmit power 20 dBm

2.2 Electrical Performance

Electrical Projects	Min	Typical value	Max.	Unit	Notes
Operating voltage	3.0	3.3	3.6	V	≥3.3V ensures sufficient output power; voltages exceeding 3.6V may cause the device to burn out.
Communication level	-	3.3	-	V	Using 5V TTL levels carries a risk of damage; please use level-shifting circuits appropriately.
WiFi TX current	-	500	550	mA	@3.3V instantaneous power consumption; maximum transmission power in Wi-Fi mode; depends on the matched antenna
BLE TX current	-	450	500	mA	@3.3V instantaneous power consumption; maximum transmission power in BLE mode; depends on the matched antenna
SLE TX current	-	450	500	mA	@3.3V instantaneous power consumption; maximum transmit power in SLE mode; depends on the matched antenna

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Operating Temperature	-40	-	+85	℃	Industrial-grade design
Operating Humidity	10	-	90	%rh	-
Storage Temperature	-50	-	+150	℃	-

3 Overview of Features

3.1 Component Overview

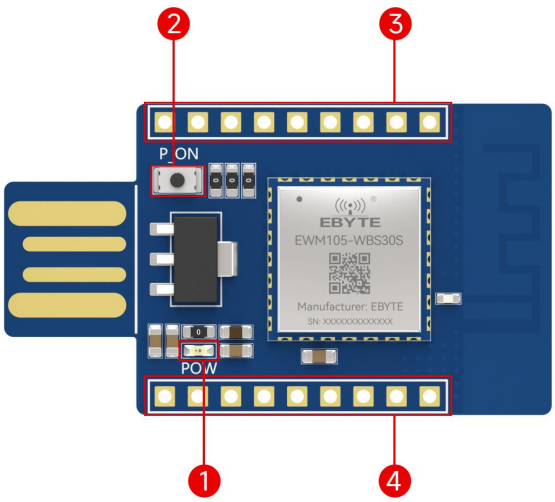


Figure 2: Diagram of Main Components

No	Main components	Child component	Introduction
1	LED	PWR	Power Indicator
2	Button	P_ON	Reset Button
3	Pin header	GND	Module GND
		IO13	General-purpose I/O pin
		IO04	General-purpose I/O pin
		IO06	General-purpose I/O pin
		IO07	General-purpose I/O pin
		IO08	General-purpose I/O pin
		IO09	General-purpose I/O pin
		IO10	General-purpose I/O pin
		IO00	General-purpose I/O pin
4	Pin header	GND	Module GND
		P_ON	Module reset pin; internally pull-up resistor is already added; active-low
		IO11	General-purpose I/O pin

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		IO05	General-purpose I/O pin
		IO04	General-purpose I/O pin
		IO03	General-purpose I/O pin
		3V3	Module power supply pin, 3.3V
		IO02	General-purpose I/O pin
		IO01	General-purpose I/O pin

3.2 Product Dimensions

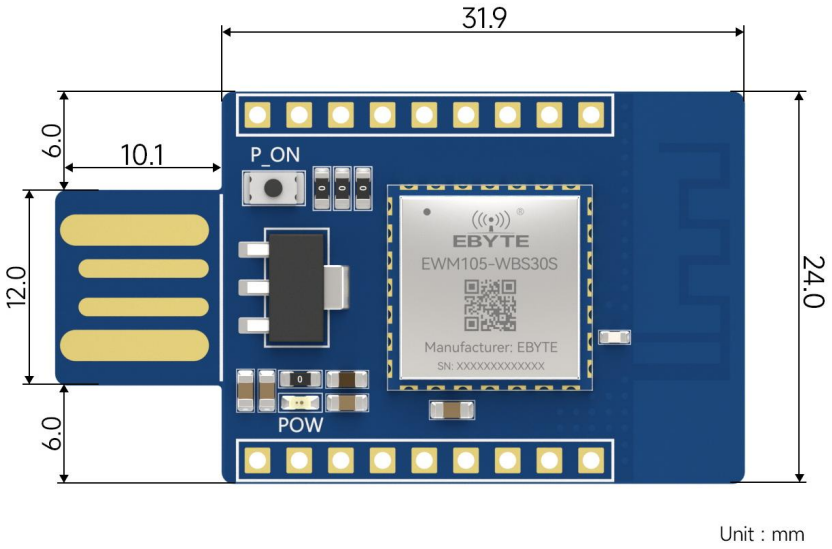


Figure 3: Product Dimensions

4 Electrostatic Requirements

EWT105-WBS30S is an electrostatic-sensitive device; special precautions must be taken when handling it.



Figure 4: ESD Diagram

Revision history

Version	Date	Description	Issued by
1.0	2026-3-20	Initial version	Lan

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