E101-S3MN8 Series

Development Board User Manual

成都亿佰特电子科技有限公司
Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Contents

E101-S3MN8 Series 1
Development Board User Manual 1
Disclaimer and Copyright Notice 3
1. Module introduction 1
1.1 Features 1
1.2 Parameter introduction 1
2. Function Introduction 2
2.1 Component introduction 2
2.2 Pin definition 4
2.3 Features 6
3. Notes for developing applications 6
4. Version Information 6
5. About us 7

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Disclaimer and Copyright Notice

The information in this document, including the URL address for reference, is subject to change without notice. The document is provided "as is" without any guarantee responsibility, including any guarantee for marketability, suitability for a specific purpose, or non-infringement, and any guarantee for any proposal, specification or sample mentioned elsewhere. This document does not bear any responsibility, including the responsibility for infringement of any patent rights caused by the use of the information in this document. This document does not grant any license for the use of intellectual property rights in estoppel or other ways, whether express or implied.

The test data obtained in the article are all obtained by the Ebyte laboratory, and the actual results may vary slightly.

We hereby declared that all brand names, trademarks and registered trademarks mentioned in this document are the property of their respective owners.

The final interpretation right belongs to Chengdu Ebyte Electronic Technology Co., Ltd.

Notice :

Due to product version upgrades or other reasons, the contents of this manual may be changed. Ebyte Electronic Technology Co., Ltd. reserves the right to modify the contents of this manual without any hint or noticet. This manual is only used as a guide. Chengdu Ebyte Electronic Technology Co., Ltd. makes every effort to provide accurate information in this manual. However, we does not guarantee that the contents of the manual are completely free of errors. All statements, information and suggestions in this manual do not constitute any express or implied guarantee.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1. Module introduction

1.1 Features

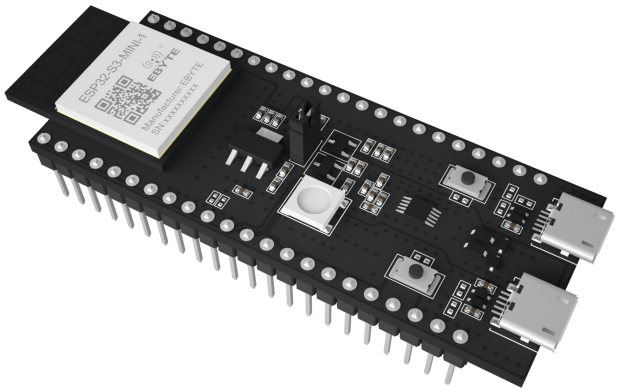


Figure 1 Actual picture of the module

E101-S3MN8-PS-TB&E101-S3MN8-XS-TB are two entry-level development boards, using E101-S3MN8-PS &E101-S3MN8-XS modules. This development board has complete Wi-Fi and low-power Bluetooth functions, and most of the module pins on the board have been led to pin headers on both sides. Developers can easily connect various peripheral equipments through jumpers according to actual needs. The development board can also be used on a breadboard too..

1.2 Parameter introduction

No.	Parameter name	Parameter value	Comment
1	Supported module	E101-S3MN8-PS E101-S3MN8-XS	WiFi serial port module
2	Module size	62.74 * 25.4mm	Including USB interface
3	Production Process	Lead-free process, machine-mounted	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

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7	Working humidity	10% ~ 90%	Relative humidity, no condensation
8	Storage temperature	-40 ~ +125℃	Industrial grade

2. Function Introduction

2.1 Component introduction

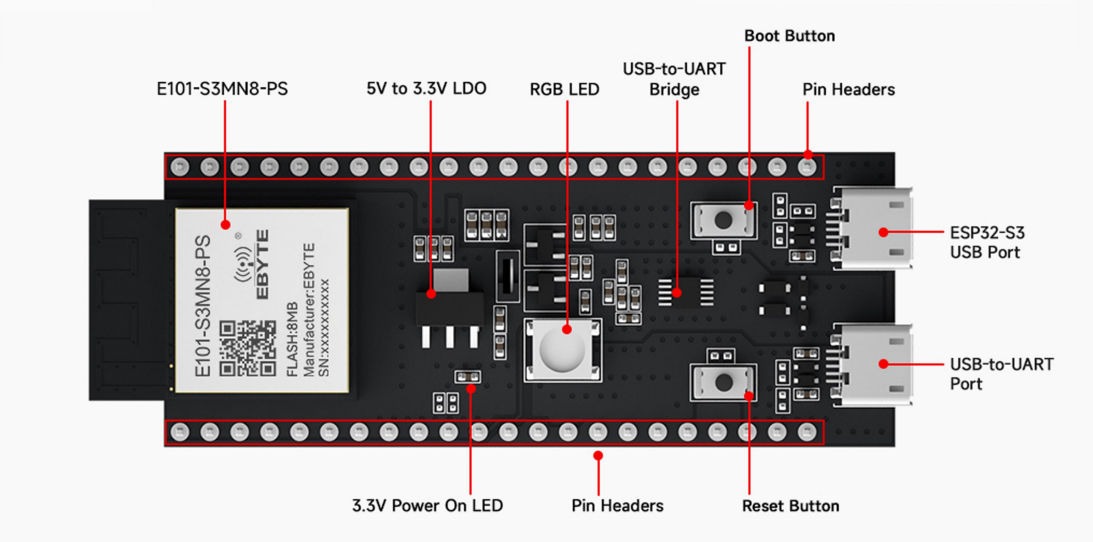


Figure 2 Main component diagram

No.	Main components	Introduction
1	E101-S3MN8-PS&E101-S3MN8-XS	E101-S3MN8-PS and E101-S3MN8-XS are general-purpose Wi-Fi + Bluetooth Low Energy MCU modules with rich peripheral interfaces. E101-S3MN8-PS uses a PCB on-board antenna, and E101-S3MN8-XS uses a connector to connect to an external antenna. The core of both modules is the ESP32-S3FN8 chip. The chip comes with 8 MB flash, and since the flash is directly packaged in the chip, the E101-S3MN8-PS/1U module has a smaller package size.
2	5 V convert to 3.3 V LDO	Power converter, 5 V input, 3.3 V output.
3	Pin Headers	All available GPIO pins (except the flash SPI bus) are routed to the development board's pin headers. Please see Pin Headers for more information.
4	USB to UART interface	The Micro-USB interface can be used as the power supply interface of

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

		the development board to be used to burn firmware to the chip. It can also be used as a communication interface to communicate with the chip through the onboard USB to UART bridge.
5	Boot key	Download button. Press and hold the Boot key and press the Reset key simultaneously to enter the "firmware download" mode and download the firmware through the serial port.
6	ESP32-S3 USB interface	ESP32-S3 USB OTG interface, supporting full-speed USB 1.1 standard. The ESP32-S3 USB interface can be used as the power supply interface of the development board, burning firmware to the chip, communicating with the chip through the USB protocol, and can also be used for JTAG debugging.
7	Reset Key	Reset button.
8	USB to UART bridge	Single-chip USB to UART bridge providing transfer rates up to 3 Mbps.
9	RGB LED	An addressable RGB LED driven by GPIO8, model WS2812E.
10	3.3 V Power Indicator	After the development board is connected to the USB power supply, the indicator light turns on.

Note: For specific function instructions, please refer to the user manual of E101-S3MN8-PS&E101-S3MN8-XS.

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.2 Pin definition

The picture below shows the front view of E101-S3MN8-PS-TB&E101-S3MN8-XS-TB:

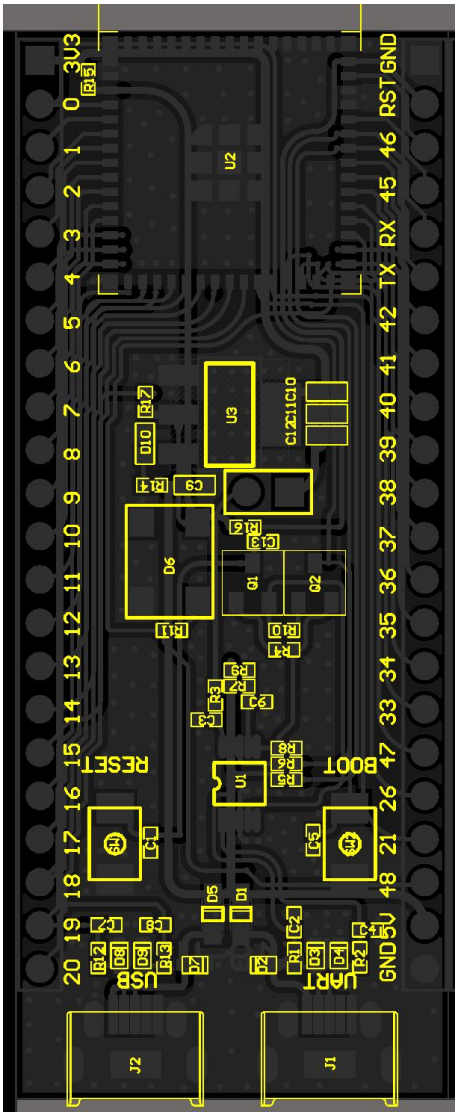


Figure 3 Current test interface diagram

Pin number	Pin name	Type	Pin usage
1	3V3	P	3.3 V power supply
2	0	I/O/T	RTC_GPIO0, GPIO0
3	1	I/O/T	RTC_GPIO1, GPIO1, TOUCH1, ADC1_CH0
4	2	I/O/T	RTC_GPIO2, GPIO2, TOUCH2, ADC1_CH1
5	3	I/O/T	RTC_GPIO3, GPIO3, TOUCH3, ADC1_CH2
6	4	I/O/T	RTC_GPIO4, GPIO4, TOUCH4, ADC1_CH3
7	5	I/O/T	RTC_GPIO5, GPIO5, TOUCH5, ADC1_CH4

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8	6	I/O/T	RTC_GPIO6, GPIO6, TOUCH6, ADC1_CH5
9	7	I/O/T	RTC_GPIO7, GPIO7, TOUCH7, ADC1_CH6
10	8	I/O/T	RTC_GPIO8, GPIO8, TOUCH8, ADC1_CH7, SUBSPICS1
11	9	I/O/T	RTC_GPIO9, GPIO9, TOUCH9, ADC1_CH8, FSPIHD, SUBSPIHD
12	10	I/O/T	RTC_GPIO10, GPIO10, TOUCH10, ADC1_CH9, FSPICS0, FSPIIO4, SUBSPICS0
13	11	I/O/T	RTC_GPIO11, GPIO11, TOUCH11, ADC2_CH0, FSPID, FSPIIO5, SUBSPID
14	12	I/O/T	RTC_GPIO12, GPIO12, TOUCH12, ADC2_CH1, FSPICLK, FSPIIO6, SUBSPICLK
15	13	I/O/T	RTC_GPIO13, GPIO13, TOUCH13, ADC2_CH2, FSPIQ, FSPIIO7, SUBSPIQ
16	14	I/O/T	RTC_GPIO14, GPIO14, TOUCH14, ADC2_CH3, FSPIWP, FSPIDQS, SUBSPIWP
17	15	I/O/T	RTC_GPIO15, GPIO15, U0RTS, ADC2_CH4, XTAL_32K_P
18	16	I/O/T	RTC_GPIO16, GPIO16, U0CTS, ADC2_CH5, XTAL_32K_N
19	17	I/O/T	RTC_GPIO17, GPIO17, U1TXD, ADC2_CH6
20	18	I/O/T	RTC_GPIO18, GPIO18, U1RXD, ADC2_CH7, CLK_OUT3
21	19	I/O/T	RTC_GPIO19, GPIO19, U1RTS, ADC2_CH8, CLK_OUT2, USB_D-
22	20	I/O/T	RTC_GPIO20, GPIO20, U1CTS, ADC2_CH9, CLK_OUT1, USB_D+
23	G	G	Ground
24	RST	I	EN
25	46	I/O/T	GPIO46
26	45	I/O/T	GPIO45
27	RX	I/O/T	U0RXD, GPIO44, CLK_OUT2
28	TX	I/O/T	U0TXD, GPIO43, CLK_OUT1
29	42	I/O/T	MTMS, GPIO42
30	41	I/O/T	MTDI, GPIO41, CLK_OUT1
31	40	I/O/T	MTDO, GPIO40, CLK_OUT2
32	39	I/O/T	MTCK, GPIO39, CLK_OUT3, SUBSPICS1
33	38	I/O/T	GPIO38, FSPIWP, SUBSPIWP
34	37	I/O/T	SPIDQS, GPIO37, FSPIQ, SUBSPIQ
35	36	I/O/T	SPIIO7, GPIO36, FSPICLK, SUBSPICLK
36	35	I/O/T	SPIIO6, GPIO35, FSPID, SUBSPID
37	34	I/O/T	SPIIO5, GPIO34, FSPICS0, SUBSPICS0
38	33	I/O/T	SPIIO4, GPIO33, FSPIHD, SUBSPIHD

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co.,Ltd.

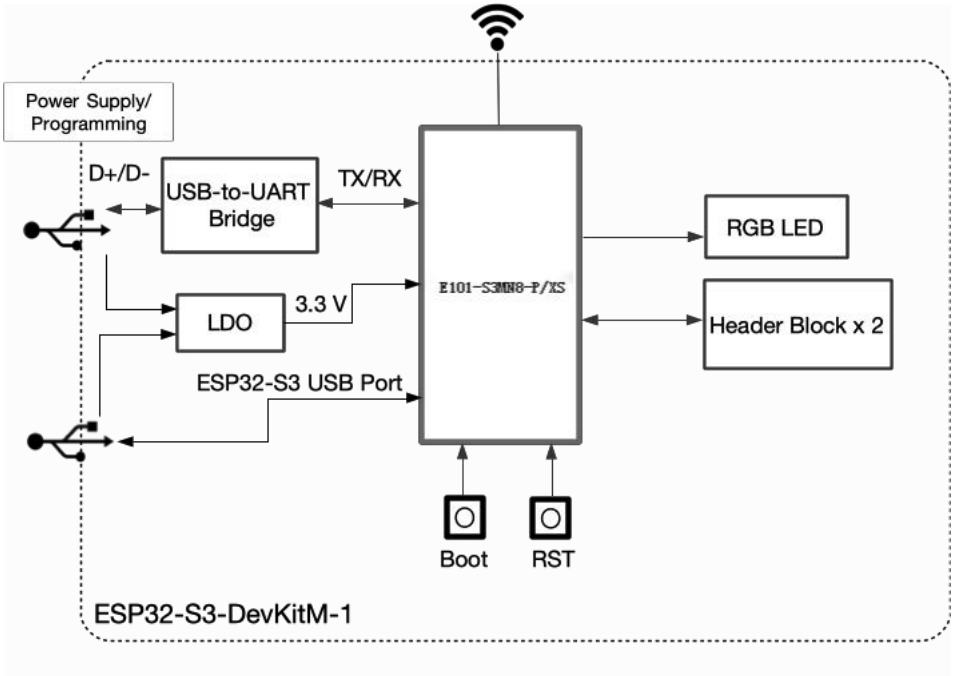
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

39	47	I/O/T	SPICLK_P, GPIO47, SUBSPICLK_P_DIFF
40	26	I/O/T	SPICS1, GPIO26
41	21	I/O/T	RTC_GPIO21, GPIO21
42	48	I/O/T	SPICLK_N, GPIO48, SUBSPICLK_N_DIFF, RGB LED
43	5V	P	5 V power supply
44	G	G	Ground

Note: 1.P: power supply; I: input; O: output; T: can be set to high impedance.

2.3 Features

E101-S3MN8-PS-TB&E101-S3MN8-XS-TB : The main components and connections are shown in the figure below:



3. Notes for developing applications

- Before powering on, please make sure that E101-S3MN8-PS-TB&E101-S3MN8-XS-TB is intact.
- Preparation tools: E101-S3MN8-PS-TB or E101-S3MN8-XS-TB, USB 2.0 data cable (standard type A to Micro-B type, computer (Windows, Linux or macOS). (Please make sure using an appropriate USB data cable, some cables can only be used for charging and cannot be used for data transfer and programming.)

4. Version Information

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Version	Revision date	Revision notes	Maintenance Man
1.0	2022-10-27	Initial version	Hao
1.1	2025-3-19	Modified function diagram	Hao
1.2	2025-12-3	Correct description	Hao

5. About us

Technical support: support@cdebyte.com
Documents and RF Setting download link: www.cdebyte.com
Thank you for using Ebyte products! Please contact us with any questions or suggestions: info@cdebyte.com
---
Web: www.cdebyte.com
Address: , Building B5, Mould Industrial Park, 199# Xiqu Ave, High-tech Zone, Chengdu, 611731, Sichuan, China

Chengdu Ebyte Electronic Technology Co.,Ltd.

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000