# EVALUATION BOARD MANUAL
## EBSNSN Series

# EVALUATION KIT MANUAL
## EKSNSN Series
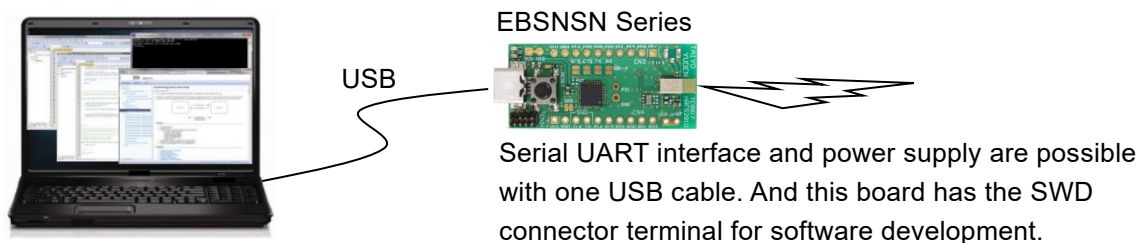
### for EYSNSN Series Bluetooth® low energy Module



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## Introduction

This evaluation board is applicable for Taiyo Yuden's *Bluetooth*® **low energy** module, EYSNSN Series.

EBSNSN Series

USB

Serial UART interface and power supply are possible with one USB cable. And this board has the SWD connector terminal for software development.

## Mounted module

EYSNSN (8.55mm x 3.25mm x 1.00mm_MAX)

Nordic nRF52811 / ARM® Cortex™-M4 32 bit processor
28-pin Land Grid Array / 15GPIOs / SWD

- Basic Module -
EYSNSNZWW
Taiyo Yuden writes firmware for (EYSNSNZWW) SoftDevice to this product.
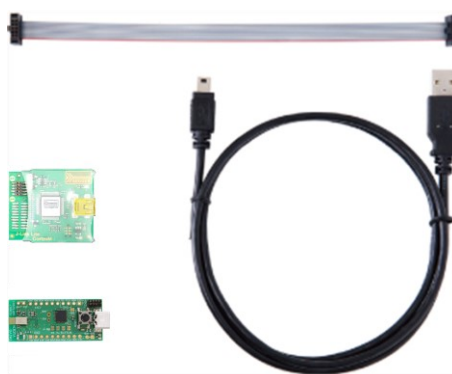The user can develop unique application for the module.

## Content

| 1 | EBSNSN Series Evaluation Board | 1 pc |
|---|---|---|
| 2 | J-Link Lite (EKSNSN Series Only) | 1 set |

1. EBSNSN

2. EKSNSN

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## Evaluation board circuit schematic
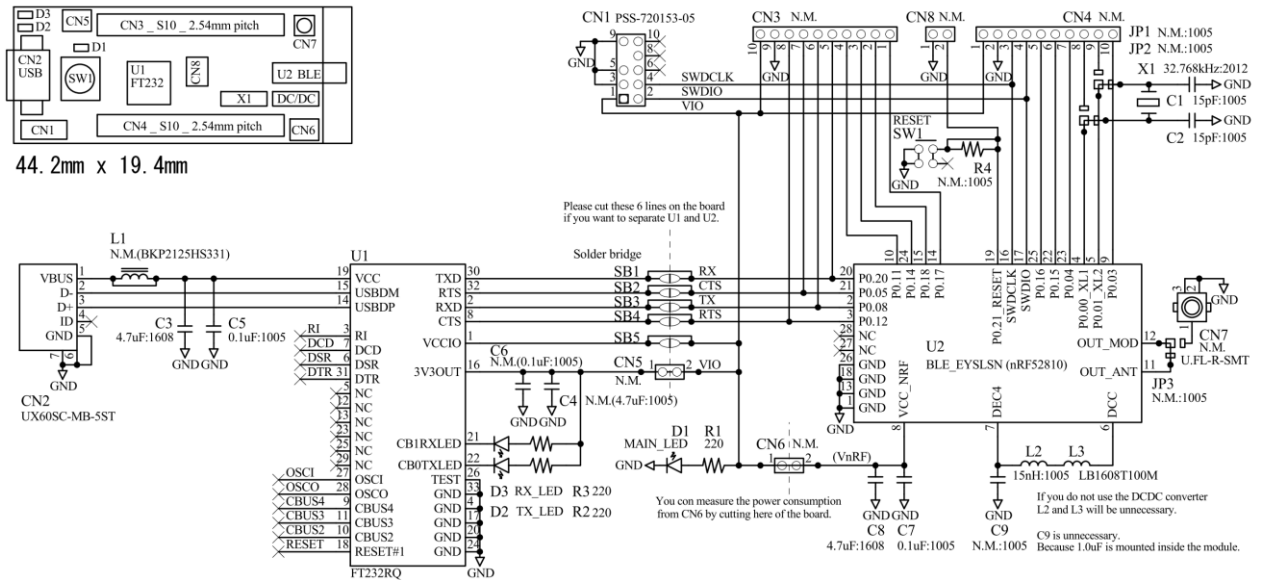


## Evaluation board layout



**CN5: Jumper of internal 3V3 Default: Short**

**CN3: GPIOs and external DC power supply**

**CN7: RF Connector U.FL-R-SMT**

**JP3: Antenna selector Default: Internal Antenna**

**U2: BLE Module EYSNSN Series**

**CN2: miniUSB - UART +5V DC power supply**

**SW1: Reset button**

**CN1: SWD (for J-link lite)**

**L2,3: DC/DC converter setup**

**JP1,2: 32.768KHz source select JPW Default: External X'tal**

**CN6: Power consumption monitor Default: Short**

**CN4: GPIOs, SWD and DC power supply**

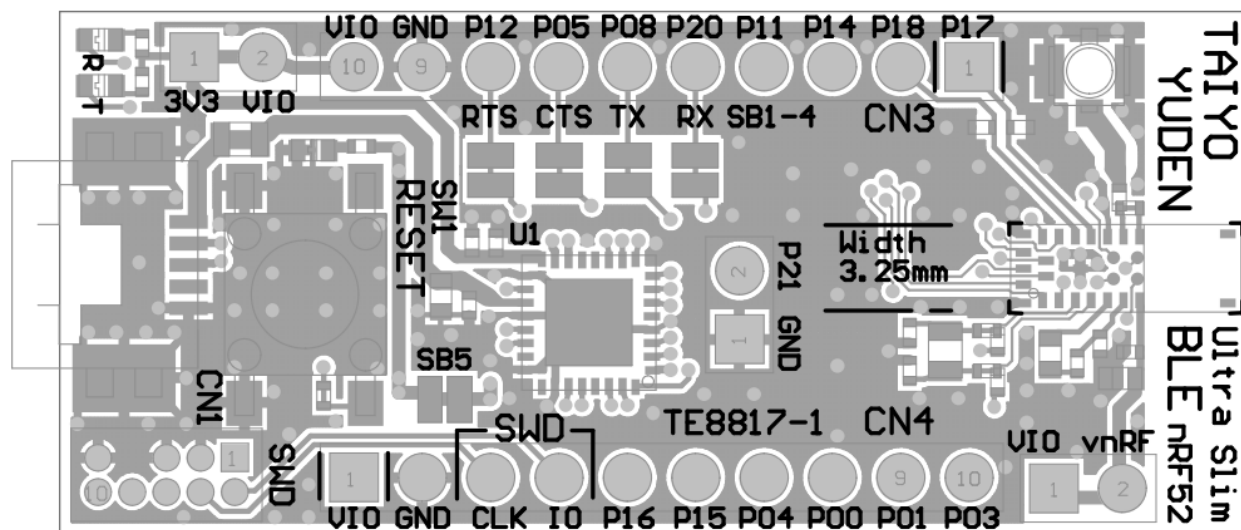**1)** All pin headers are 2.54mm pitch. And distance between **CN3** and **CN4** is **15.24mm**.
**2) CN3-CN8, C4, C6, C9, R4, L1, JP1-JP3, SB1-5** are not mounted (N.M.).
**3) D1 (LED):** 3.3V Indicator
**4) D2 (LED):** UART TX Indicator
**5) D3 (LED):** UART RX Indicator
**6) SW1 (Push button):** Module Reset (active low)

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## Silkscreen Printing



## Pin Descriptions

| Pin No. | CN3 | CN4 | CN8 |
|---------|------|--------|-------------|
| 1 | P0.17 | VIO | GND |
| 2 | P0.18 | GND | P0.21/RESET |
| 3 | P0.14 | SWDCLK | |
| 4 | P0.11 | SWDIO | |
| 5 | P0.20 | P0.16 | |
| 6 | P0.08 | P0.15 | |
| 7 | P0.05 | P0.04 | |
| 8 | P0.12 | P0.00 | |
| 9 | GND | P0.01 | |
| 10 | VIO | P0.03 | |

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## How to use

It is very easy just to tie this board to the PC with a USB cable. It is not necessary to change the setting of the board. The power supply of the module supplies by default 3.3V from 3V3OUT of FT232RQ.

## For software development

Nordic-DK and Use case

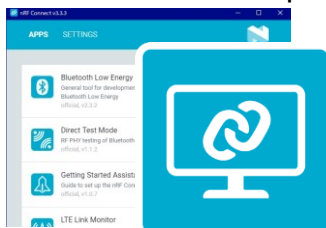Nordic nRF Connect etc.

NORDIC DK
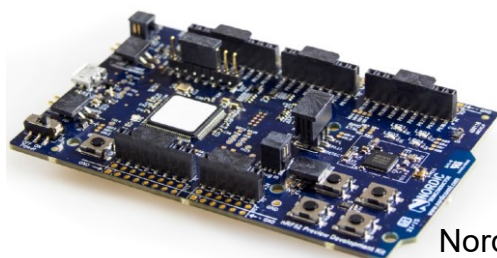
EBSNSN Series

miniUSB

SWD

・SEGGER Embedded Studio

・nRF Connect for Desktop
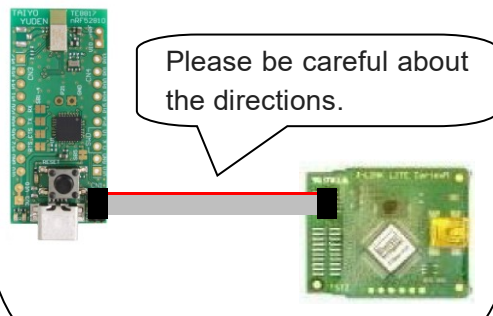
etc.

SWD : Serial Wire Debug
For example, please use J-Link Lite CortexM-9 JTAG/SWD Emulator.
EKSNSN included

CN1 supports the connection of the 10 pin 1.27 mm flat cable.

Please be careful about the directions.

Nordic-DK
http://www.nordicsemi.com/eng/Products/Bluetooth-low-energy/nRF52-DK

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## MEMO

### 1) Current measurement
To measure the current, please cut the shorting 1pin and 2 pin of CN6. And connect an ampere-meter between the pins of connector CN6 to monitor the current directly.
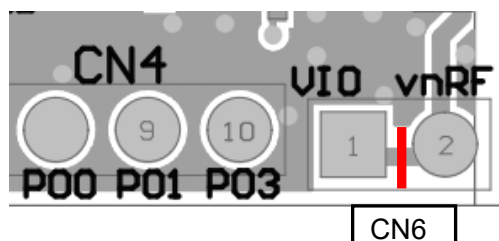


### 2) About the power supply of the module
When you use external power supply, please supply power from 9pin and 10pin of CN3. On this configuration, you cut short circuit 1pin and 2pin of CN5 and should separate 3V3OUT of FT232RQ.
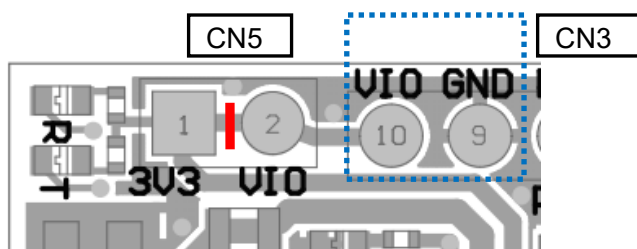


### 3) USB to serial UART interface
It needs to install driver of FT232RQ to use USB for UART interface.
The drivers are available on FTDI website.

http://www.ftdichip.com/Drivers/D2XX.htm

In addition, by the application development, please assign GPIO as follows.

| GPIO | UART |
|------|------|
| P0.12 | RTS |
| P0.08 | TX |
| P0.05 | CTS |
| P0.20 | RX |

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## 4) Size and Coordinate information



44.2 (mm)

19.4 +/- 0.2mm

19.4 (mm)

D3 R3
D2 R2
L1
CN5
D1 R1
CN3
4.98,17.7 (mm)
10
CN7
33.78,17.34 (mm)
1
C11 C10
JP3
U2
39.6,9.875 (mm)
CN2
1.7,10 (mm)
SW1
9.1,8.9 (mm)
C3 C5 C4 C6
U1
CN8
1 25.25,7.23 (mm)
C2 X1
C1
JP2
JP1
C9 C7
L3 L2
C8
R4
SB5
SB4 SB2 SB3 SB1
CN1
1.27mm pitch
1
6.49,2.835 (mm)
10 2
0.0 (mm)
Y
X
CN4
10.92,2.1 (mm)
10
CN6
36.93,1.7 (mm)
1
44.2 +/- 0.2mm

8.1mm (MAX)
5.1mm
1.0mm
2.0mm
1.8mm
1.9mm