Wireless Module

*Bluetooth® low energy* Module Overview

May 28, 2019 Version 2.0
TAIYO YUDEN Bluetooth® low energy Module Line-Up

nRF52 Bluetooth® low energy Module

- **nRF52840 Module**
  - EYSKBN UWB-WX
    - TY’s Application
    - Embedded
    - High-end
    - Embedded antenna
    - Int. 32kHz X’tal
    - Int. LC for DC/DC
    - 10.0 x 15.4 x 2.0mm

- **nRF52832 Module**
  - EYSHCN ZWZ
    - RAM 64kB
    - SoftDevice S132
    - Big
    - Embedded antenna
    - Ext. 32kHz X’tal
    - Ext. LC for DC/DC
    - *1: 3.25 x 8.55 x 0.85mm
    - *2: 3.25 x 8.55 x 1.00mm

- **nRF52810 Module**
  - EYSHJN ZWZ
    - RAM 64kB
    - SoftDevice S132
    - Small
    - Embedded antenna
    - Ext. 32kHz X’tal
    - Ext. LC for DC/DC
    - 5.1 x 11.3 x 1.3mm
  - EYSHSN ZWZ
    - RAM 64kB
    - SoftDevice S112
    - Ultra-small*1
    - Embedded antenna
    - Int. 32kHz X’tal
    - Int. LC for DC/DC
    - 9.6 x 12.9 x 2.0mm
  - EYSLCN ZWW
    - RAM 24kB
    - SoftDevice S112
    - Big
    - Embedded antenna
    - Int. 32kHz X’tal
    - Int. LC for DC/DC
    - 10.0 x 15.4 x 2.0mm
  - EYSLSN ZWW
    - RAM 24kB
    - SoftDevice S112
    - Ultra-small*2
    - Embedded antenna
    - Ext. 32kHz X’tal
    - Ext. LC for DC/DC
    - 5.1 x 11.3 x 1.3mm

TAIYO YUDEN
TAIYO YUDEN Bluetooth® low energy Module Line-Up

nRF51x22 Bluetooth® low energy Module

**Big**
- Embedded antenna
- Int. 32kHz X’tal
- Int. LC for DC/DC
- 9.6 x 12.9 x 2.0 mm

**Small**
- Embedded antenna
- Ext. 32kHz X’tal
- Ext. LC for DC/DC
- 5.1 x 11.3 x 1.3 mm

**EYSGCN Series**
- Basic
- Application
- Embedded

**EYSGJN Series**
- Basic
- Application
- Embedded

**EYAGJN Series**
- Application

**Specifications**
- RAM 16kB
- RAM 32kB
- TY’s App BT 4.2
- UART Control
- RAM 32kB
- TY’s App BT 4.1
- UART Control
- RAM 32kB
- ANT + BLE
- SoftDevice S310
- RAM 16kB
- SoftDevice S110
- RAM 32kB
- SoftDevice S120
- TY’s App BT 4.2
- UART Control
- TY’s App BT 4.1
- UART Control
## Latest Documents for Bluetooth® low energy Module

<table>
<thead>
<tr>
<th>Model</th>
<th>URL</th>
</tr>
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<tbody>
<tr>
<td>EYSKBNZWB</td>
<td><a href="http://www.yuden.co.jp/or/product/category/module/EYSKBNZWB.html">http://www.yuden.co.jp/or/product/category/module/EYSKBNZWB.html</a></td>
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<td>EYSGCNZXX</td>
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<td>EYSKBNUWB-WX</td>
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</table>

- The documents for the evaluation board and evaluation kit are also available on the above page.
- The Japanese documents are available on the following page.
  [http://www.yuden.co.jp/jp/product/category/module/lineup.html#Bluetooth](http://www.yuden.co.jp/jp/product/category/module/lineup.html#Bluetooth)
**Bluetooth® 5.0 low energy Module: EYSKBNZWB**

**Features**
- Frequency: 2402 to 2480 MHz with +8dBm Output power
- Single power supply: 1.7 – 5.5V
- Single Mode Bluetooth 5.0 / 802.15.4 (e.g. Thread, Zigbee)
- Bluetooth 5 data rate support: 2M / 1M / 500k / 125kbps
- Chip: nRF52840 (Nordic)
- Integrated System/Sleep Clock, 2 x LC for DC/DC
- Integrated high performance PCB antenna
- ARM® Cortex M4F 32bit processor and 1MB Flash & 256kB RAM
- ARM® TrustZone® Cryptocell 310 cryptographic accelerator
- Interface: USB, NFC-A, SPI, UART, I2C, I2S, PDM and 12bit ADC
- Outline: 10.0 x 15.4 x 2.0 mm
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

**Applications**
- Advanced wearables
  - Connected watches
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - Interactive entertainment devices

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**TAIYO YUDEN**
## Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
<thead>
<tr>
<th>EYSKBNZWB (Module)</th>
<th>EBSKBNZWB (EV-B)</th>
<th>EKSKBNZWB (EV-K)</th>
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</tr>
<tr>
<td>Tray</td>
<td>Tape</td>
<td>SEGGER J-Link LITE Attached</td>
</tr>
</tbody>
</table>

**Taiyo Yuden**
**2Mbps Bluetooth® 5.0 low energy Module:** EYSHSNZWZ

**Features**

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7–3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Chip: nRF52832 (Nordic) with Bluetooth low energy 2Mbps mode
- Integrated System Clock
- ARM Cortex M4F 32bit processor
- 512kB Flash and 64kB RAM
- Interface: SPI, UART, I2C, I2S, PDM and 12bit ADC
- Support NFC-A Type-2 for Touch-to-Pair
- Integrated high performance PCB antenna
- Outline: 3.25 x 8.55 x 0.85mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

**Applications**

- Smart wristband
- Smart glasses
- Remote control ring
- Smart pen
- Heart rate monitor
- Pressure monitor
- Blood glucose meter
- Thermometer
- Mobile accessories

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**Bluetooth® low energy Module Sample, Evaluation Board / Kit**

<table>
<thead>
<tr>
<th>EYSNSNZWZ (Module)</th>
<th>EBNSNZWZ (EV-B)</th>
<th>EKNSNZWZ (EV-K)</th>
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<td>Tray</td>
<td>SEGGER J-Link LITE Attached</td>
<td></td>
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</table>

- **EYSNSNZWZ (Module)**
  - Tray
  - Tape

- **EBNSNZWZ (EV-B)**

- **EKNSNZWZ (EV-K)**

**TAIYO YUDEN**
Features

• Frequency: 2402 to 2480 MHz with +4dBm Output power
• Single power supply: 1.7 – 3.6V
• Single Mode Bluetooth low energy (ANT™ Available)
• Chip: nRF52832 (Nordic) with Bluetooth low energy 2Mbps mode
• Integrated System/Sleep Clock, LC for DC/DC
• Integrated high performance ceramic chip antenna
• ARM Cortex M4F 32bit processor
• 512kB Flash and 64kB RAM
• Interface: SPI, UART, I2C, I2S, PDM and 12bit ADC
• Support NFC-A Type-2 for Touch-to-Pair
• Outline: 9.6 x 12.9 x 2.0 mm with 1mm pad pitch
• Operating Temperature range: -40 to 85 deg-C
• Bluetooth and Japan, FCC, IC qualified
• ETSI EN 300 328 v2.1.1 Conducted Test Report Available
• RoHS compliant / Complete Lead Free

Applications

• Cycle computer
• Heart rate monitor
• Blood pressure monitor
• Blood glucose meter
• Weighing machine
• Thermometer
• Mobile accessories
• Sports and fitness sensors
• Remote controllers / Toys

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**2Mbps Bluetooth® 5.0 low energy Module: EYSHJNZWZ**

**Features**
- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7–3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Chip: nRF52832 (Nordic) with Bluetooth low energy 2Mbps mode
- Integrated System Clock
- ARM Cortex M4F 32bit processor
- 512kB Flash and 64kB RAM
- Interface: SPI, UART, I2C, I2S, PDM and 12bit ADC
- Support NFC-A Type-2 for Touch-to-Pair
- Integrated high performance pattern antenna
- Outline: 5.1 x 11.3 x 1.3mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

**Applications**
- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

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**Outline**

**Block Diagram**

**Top View**

**Bottom View**

**Unit: mm**
# Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
<thead>
<tr>
<th>EYSJHNZWZ (Module)</th>
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</tr>
<tr>
<td>or</td>
<td></td>
<td>SEGGER J-Link LITE Attached</td>
</tr>
</tbody>
</table>

![Tray](image4) or ![Tape](image5)

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TAIYO YUDEN
**Features**

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7– 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Bluetooth 5.0 low energy 2Mbps mode
- Chip: nRF52810 (Nordic)
- Integrated System Clock
- ARM Cortex M4 32bit processor
- 192kB Flash and 24kB RAM
- Interface: SPI, UART, I2C, PDM and 12bit ADC
- Integrated high performance PCB antenna
- Outline: 3.25 x 8.55 x 1.00mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

**Applications**

- Smart wristband
- Smart glasses
- Remote control ring
- Smart pen
- Heart rate monitor
- Pressure monitor
- Blood glucose meter
- Thermometer
- Mobile accessories

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### Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
<thead>
<tr>
<th>EYSLSNZWW (Module)</th>
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<td>Tray or Tape</td>
<td><img src="image" alt="Evaluation board image" /></td>
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</table>

**SEGGER J-Link LITE Attached**
2Mbps Bluetooth® 5.0 low energy Module: EYSLCNZWW

Features
- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Chip: nRF52810 (Nordic) with Bluetooth low energy 2Mbps mode
- Integrated System/Sleep Clock, LC for DC/DC
- Integrated high performance ceramic chip antenna
- ARM Cortex M4 32bit processor
- 192kB Flash and 24kB RAM
- Interface: SPI, UART, I2C, PDM and 12bit ADC
- Outline: 9.6 x 12.9 x 2.0 mm with 1mm pad pitch
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

Applications
- Beacon
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

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Taiyo Yuden
### Bluetooth® low energy Module Sample, Evaluation Board / Kit

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- **Tray** or **Tape**

**SEGGER J-Link LITE Attached**
Bluetooth® low energy Module: EYSGCNZXX

Features
- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy Slave
- Chip: nRF51822 Rev.3 (Nordic)
- Integrated System/Sleep Clock
- Integrated high performance ceramic chip antenna
- ARM Cortex M0 32bit processor
- 256kB Flash and 16kB RAM
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

Outline
- Unit: mm
- 9.6 x 12.9 x 2.0 mm with 1mm pad pitch

Applications
- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

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Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy Slave / Master
- Chip: nRF51822 Rev.3 (Nordic)
- Integrated System/Sleep Clock
- Integrated high performance ceramic chip antenna
- ARM Cortex M0 32bit processor
- 256kB Flash and 32kB RAM
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Operating Temperature range: -25 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

Applications

- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

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<td><img src="image5" alt="Tape" /></td>
<td><img src="image6" alt="SEGGER J-Link LITE Attached" /></td>
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</tbody>
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**TAIYO YUDEN**
Bluetooth® low energy Module  EYSGJNZXX

Features
- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy Slave
- Chip: nRF51822 Rev.3 (Nordic)
- Integrated System Clock
- ARM Cortex M0 32bit processor
- 256kB Flash and 16kB RAM
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Integrated high performance pattern antenna
- Outline: 5.1 x 11.3 x 1.3mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

Outline

Applications
- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

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**Features**

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy Slave / Master
- Chip: nRF51822 Rev3 (Nordic)
- Integrated System Clock
- ARM Cortex M0 32bit processor
- 256kB Flash and 32kB RAM
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Integrated high performance pattern antenna
- Outline: 5.1 x 11.3 x 1.3mm MAX
- Operating Temperature range: -25 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

**Applications**

- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

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TAIYO YUDEN
ANT + Bluetooth® low energy Module  EYAGJNZXX

Features
- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- ANT + Single Mode Bluetooth low energy Slave
- Chip: nRF51422 Rev 3 (Nordic)
- Integrated System Clock
- ARM Cortex M0 32bit processor
- 256kB Flash and 32kB RAM
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Integrated high performance pattern antenna
- Outline: 5.1 x 11.3 x 1.3mm MAX
- Operating Temperature range: -25 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

Applications
- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

Outline

Block Diagram

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### Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
<thead>
<tr>
<th>Module samples</th>
<th>Evaluation board</th>
<th>Evaluation kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EYSGJNZXX, EYSGJNZWY, EYAGJNZXX (Module)</td>
<td>EBSGJNZWY, EBAGJNZXX (EV-B)</td>
<td>EKSGJNZWY, EKAGJNZXX (EV-K)</td>
</tr>
</tbody>
</table>

![Module samples](image)

- **Tray**
- **Tape**

![Evaluation board](image)

- **SEGGER J-Link LITE Attached**

---

**TAIYO YUDEN**

23
Application Layer image for **Basic Module**

**Bluetooth® low energy Device**

- Switch
- Sensors
- Clock
- LED
- Data

**Taiyo Yuden module**

- Temperature Sensor
- Power Regulator
- 32MHz X’tal
- 32kHz X’tal (e.g., EYSHCN)

- **Application (Profiles)**
  - Generic Access Profile
  - Generic Attribute Profile
  - SM
  - ATT
  - L2CAP
  - LL
  - PHY

- Antenna

**Taiyo Yuden Basic Module**

**Nordic SDK**

- Alert Notification
- Blood Pressure
- Cycling Speed and Cadence
- Glucose
- HID Mouse
- Heart Rate
- Phone Alert Status
- Proximity
- Running Speed and Cadence
- Time

**Softdevice**

- **SM:** Security Manager
- **ATT:** Attribute Protocol
- **L2CAP:** Logical Link Control and Adaptation Protocol
- **LL:** Link Layer
- **PHY:** Physical Layer

**Taiyo Yuden module**

**Taiyo Yuden Basic Module**

**Taiyo Yuden module**
**Features**
- Frequency: 2402 to 2480 MHz with +8dBm Output power
- Single power supply: 1.7 – 5.5V
- Single Mode Bluetooth 5.0 (Master / Slave)
- Bluetooth 5 data rate support: 2M / 1M / 125kbps
- Chip: nRF52840 (Nordic)
- Integrated System/Sleep Clock, 2 x LC for DC/DC
- Integrated high performance PCB antenna
- ARM® Cortex M4F 32bit processor and 1MB Flash & 256kB RAM
- Application Embedded by Taiyo Yuden
- Interface: UART, SPI, USB and ADC
- Outline: 10.0 x 15.4 x 2.0 mm
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

**Applications**
- Advanced wearables
  - Connected watches
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - Interactive entertainment devices

---

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Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
<thead>
<tr>
<th>EYSKBNUWB-WX (Module)</th>
<th>EBSKBNUWB-WX (EV-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module samples</strong></td>
<td><strong>Evaluation board</strong></td>
</tr>
<tr>
<td>Tray</td>
<td>Tape</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
</tbody>
</table>

TAIYO YUDEN
Bluetooth® low energy Module: EYSGCNAWY-VX

Features
• Frequency: 2402 to 2480 MHz
• Output power: +4dBm typ.
• Single power supply: 1.8 – 3.6V
• Single Mode Bluetooth 4.2 low energy Slave / Master
• Chip: nRF51822 (Nordic)
• Integrated System/Sleep Clock
• Integrated high performance ceramic chip antenna
• ARM Cortex M0 32bit processor
• Application Embedded by Taiyo Yuden
  • (TY’s App : Generic Data transfer, Battery Service)
• Interface: UART
• Outline: 9.6 x 12.9 x 2.0 mm with 1mm pad pitch
• Operating Temperature range: -25 to 85 deg-C
• Bluetooth and Japan, FCC, IC qualified
• CE Conducted Test Report Available
• RoHS compliant / Complete Lead Free

Applications
• Cycle computer
• Heart rate monitor
• Blood pressure monitor
• Blood glucose meter
• Weighing machine
• Thermometer
• Mobile accessories
• Sports and fitness sensors
• Remote controllers / Toys

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Taiyo Yuden
### Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
<thead>
<tr>
<th>EYSGCNAWY-VX (Module)</th>
<th>EBSGCNAWY-VX (EV-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module samples</strong></td>
<td><strong>Evaluation board</strong></td>
</tr>
<tr>
<td>[Image of module samples]</td>
<td>[Image of evaluation board]</td>
</tr>
<tr>
<td>Tray</td>
<td>or</td>
</tr>
<tr>
<td>Tape</td>
<td></td>
</tr>
</tbody>
</table>
Bluetooth® low energy Module  EYSGJNAWY-VX

Features
• Frequency: 2402 to 2480 MHz
• Output power: +4dBm typ.
• Single power supply: 1.8 – 3.6V
• Single Mode Bluetooth 4.2 low energy Slave / Master
• Chip: nRF51822 Rev3 (Nordic)
• Integrated System Clock
• ARM Cortex M0 32bit processor
• Application Embedded by Taiyo Yuden
• (TY’s App : Generic Data transfer, Battery Service)
• Interface: UART
• Integrated high performance pattern antenna
• Outline: 5.1 x 11.3 x 1.3mm MAX
• Operating Temperature range: -25 to 85 deg-C
• Bluetooth and Japan, FCC, IC qualified
• CE Conducted Test Report Available
• RoHS compliant / Complete Lead Free

Applications
• Cycle computer
• Heart rate monitor
• Blood pressure monitor
• Blood glucose meter
• Weighing machine
• Thermometer
• Mobile accessories
• Sports and fitness sensors
• Remote controllers / Toys

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TAIYO YUDEN
<table>
<thead>
<tr>
<th>Bluetooth® low energy Module Sample, Evaluation Board / Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EYSGJNAWY-VX (Module)</strong></td>
</tr>
<tr>
<td>■ Module samples</td>
</tr>
<tr>
<td><img src="image1" alt="Module Samples Image" /></td>
</tr>
<tr>
<td><img src="image2" alt="Module Samples Image" /></td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>Tray</td>
</tr>
<tr>
<td>Tape</td>
</tr>
<tr>
<td><strong>EBSGJNAWY-VX (EV-B)</strong></td>
</tr>
<tr>
<td>■ Evaluation board</td>
</tr>
<tr>
<td><img src="image3" alt="Evaluation Board Image" /></td>
</tr>
</tbody>
</table>

TAIYO YUDEN
Bluetooth® low energy Module: EYSGCNAWY-WX

Features
• Frequency: 2402 to 2480 MHz
• Output power: +4dBm typ.
• Single power supply: 1.8 – 3.6V
• Single Mode Bluetooth 4.1 low energy Slave / Master
• Chip: nRF51822 (Nordic)
• Integrated System/Sleep Clock
• Integrated high performance ceramic chip antenna
• ARM Cortex M0 32bit processor
• Application Embedded by Taiyo Yuden
• (TY’s App : Generic Data transfer, Battery Service)
• Interface: UART
• Outline: 9.6 x 12.9 x 2.0 mm with 1mm pad pitch
• Operating Temperature range: -25 to 85 deg-C
• Bluetooth and Japan, FCC, IC qualified
• ETSI EN 300 328 v2.1.1 Conducted Test Report Available
• RoHS compliant / Complete Lead Free

Applications
• Cycle computer
• Heart rate monitor
• Blood pressure monitor
• Blood glucose meter
• Weighing machine
• Thermometer
• Mobile accessories
• Sports and fitness sensors
• Remote controllers / Toys

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TAIYO YUDEN
## Bluetooth® low energy Module Sample, Evaluation Board / Kit

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<th>EYSGCNAWY-WX (Module)</th>
<th>EBSGCNAWY-WX (EV-B)</th>
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<td><strong>Evaluation board</strong></td>
</tr>
<tr>
<td>Module samples</td>
<td>Evaluation board</td>
</tr>
<tr>
<td>Tray</td>
<td>or</td>
</tr>
<tr>
<td>Tape</td>
<td>Tape</td>
</tr>
<tr>
<td>or</td>
<td>or</td>
</tr>
<tr>
<td>Tape</td>
<td>Tape</td>
</tr>
</tbody>
</table>
**Bluetooth® low energy Module**  EYSGJNAWY-WX

**Features**
- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth 4.1 low energy *Slave / Master*
- Chip: nRF51822 Rev3 (Nordic)
- Integrated System Clock
- ARM Cortex M0 32bit processor
- Application Embedded by Taiyo Yuden
  - (TY’s App : Generic Data transfer, Battery Service)
- Interface: UART
- Integrated high performance pattern antenna
- Outline: 5.1 x 11.3 x 1.3mm MAX
- Operating Temperature range: -25 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
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**Applications**
- Cycle computer
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- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

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Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Module samples</strong></td>
<td><strong>Evaluation board</strong></td>
</tr>
</tbody>
</table>

- Tray
- Tape

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Taiyo Yuden module

Application Embedded Module

Bluetooth® low energy Device

- Switch
- Sensors
- Clock
- LED
- Data

Power Regulator

32MHz X’tal

32kHz X’tal (e.g. EYSGCN)

Power Management

Application

Generic Access Profile

Generic Attribute Profile

SM

ATT

L2CAP

LL

PHY

DTM

Antenna

Connection option

- VX, WX module for Module – Module
Module – Smart phone

Softdevice

Taiyo Yuden module

SM: Security Manager
ATT: Attribute Protocol
L2CAP: Logical Link Control and Adaptation Protocol
LL: Link Layer
PHY: Physical Layer
DTM: Direct Test Mode
## Bluetooth® low energy standard module

<table>
<thead>
<tr>
<th>Type</th>
<th>Part No.</th>
<th>Size (LxWxH)</th>
<th>Specification</th>
<th>ANT™ Support</th>
<th>I/F</th>
<th>RAM (kB)</th>
<th>Certification</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Performance Basic</td>
<td>EYSKBNZWB</td>
<td>10.0x15.4x2.0mm</td>
<td>Bluetooth V5.0</td>
<td>✔</td>
<td>USB※3, UART, SPI, I2C</td>
<td>256</td>
<td>Japan FCC IC (CE)※2</td>
<td>-40~+85 deg-C</td>
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<td>EYSHSNZWZ</td>
<td>3.25x8.55x0.85mm</td>
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<td>UART, SPI</td>
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<td></td>
<td>EYSLSNZWZ</td>
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<tr>
<td></td>
<td>EYSHCNZWZ</td>
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<td>✔</td>
<td>I2C</td>
<td>64</td>
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<td></td>
<td>EYSLCNZWW</td>
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<td>✔</td>
<td>I2S※4, PDM</td>
<td>24</td>
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<tr>
<td></td>
<td>EYSHJNZWZ</td>
<td>5.1x11.3x1.3mm</td>
<td></td>
<td>✔</td>
<td></td>
<td>64</td>
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<tr>
<td>Basic</td>
<td>EYSGCNZXZ</td>
<td>9.6x12.9x2.0mm</td>
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<td>UART, SPI</td>
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<td>✔</td>
<td>SPI, I2C</td>
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<td></td>
<td>✔</td>
<td>I2C</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>EYSGJNZWY</td>
<td>5.1x11.3x1.3mm</td>
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<tr>
<td>Application Embedded -</td>
<td>EYSKBNUWX</td>
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<td>Module</td>
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<td>EYSKBNZWB-WX</td>
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<td>Bluetooth V5.0</td>
<td>✔</td>
<td>UART, SPI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

※1 Supported by S130 SoftDevice, ※2 ETSI EN 300 328 v2.1.1 conducted test report available
※3 Supported by EYSKBNZWB only, ※4 Supported by EYSKBNZWB and EYSHxNZWZ

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