

Notice for TAIYO YUDEN products

Please read this notice before using the TAIYO YUDEN products.

REMINDERS

Product Information in this Catalog

Product information in this catalog is as of October 2019. All of the contents specified herein and production status of the products listed in this catalog are subject to change without notice due to technical improvement of our products, etc. Therefore, please check for the latest information carefully before practical application or use of our products.

Please note that TAIYO YUDEN shall not be in any way responsible for any damages and defects in products or equipment incorporating our products, which are caused under the conditions other than those specified in this catalog or individual product specification sheets.

Approval of Product Specifications

Please contact TAIYO YUDEN for further details of product specifications as the individual product specification sheets are available. When using our products, please be sure to approve our product specifications or make a written agreement on the product specification with TAIYO YUDEN in advance.

Pre-Evaluation in the Actual Equipment and Conditions

Please conduct validation and verification of our products in actual conditions of mounting and operating environment before using our products.

Limited Application

1. Equipment Intended for Use

The products listed in this catalog are intended for general-purpose and standard use in general electronic equipment (e.g., AV equipment, OA equipment, home electric appliances, office equipment, information and communication equipment including, without limitation, mobile phone, and PC) and other equipment specified in this catalog or the individual product specification sheets.

TAIYO YUDEN has the line-up of the products intended for use in automotive electronic equipment, telecommunications infrastructure and industrial equipment, or medical devices classified as GHTF Classes A to C (Japan Classes I to III). Therefore, when using our products for these equipment, please check available applications specified in this catalog or the individual product specification sheets and use the corresponding products.

2. Equipment Requiring Inquiry

Please be sure to contact TAIYO YUDEN for further information before using the products listed in this catalog for the following equipment (excluding intended equipment as specified in this catalog or the individual product specification sheets) which may cause loss of human life, bodily injury, serious property damage and/or serious public impact due to a failure or defect of the products and/or malfunction attributed thereto.

- (1) Transportation equipment (automotive powertrain control system, train control system, and ship control system, etc.)
- (2) Traffic signal equipment
- (3) Disaster prevention equipment, crime prevention equipment
- (4) Medical devices classified as GHTF Class C (Japan Class III)
- (5) Highly public information network equipment, data-processing equipment (telephone exchange, and base station, etc.)
- (6) Any other equipment requiring high levels of quality and/or reliability equal to the equipment listed above

3. Equipment Prohibited for Use

Please do not incorporate our products into the following equipment requiring extremely high levels of safety and/or reliability.

- (1) Aerospace equipment (artificial satellite, rocket, etc.)
- (2) Aviation equipment ^{*1}
- (3) Medical devices classified as GHTF Class D (Japan Class IV), implantable medical devices ^{*2}

- (4) Power generation control equipment (nuclear power, hydroelectric power, thermal power plant control system, etc.)
- (5) Undersea equipment (submarine repeating equipment, underwater work equipment, etc.)
- (6) Military equipment
- (7) Any other equipment requiring extremely high levels of safety and/or reliability equal to the equipment listed above

*Notes:

1. There is a possibility that our products can be used only for aviation equipment that does not directly affect the safe operation of aircraft (e.g., in-flight entertainment, cabin light, electric seat, cooking equipment) if such use meets requirements specified separately by TAIYO YUDEN. Please be sure to contact TAIYO YUDEN for further information before using our products for such aviation equipment.
2. Implantable medical devices contain not only internal unit which is implanted in a body, but also external unit which is connected to the internal unit.

4. Limitation of Liability

Please note that unless you obtain prior written consent of TAIYO YUDEN, TAIYO YUDEN shall not be in any way responsible for any damages incurred by you or third parties arising from use of the products listed in this catalog for any equipment that is not intended for use by TAIYO YUDEN, or any equipment requiring inquiry to TAIYO YUDEN or prohibited for use by TAIYO YUDEN as described above.

Safety Design

When using our products for high safety and/or reliability-required equipment or circuits, please fully perform safety and/or reliability evaluation. In addition, please install (i) systems equipped with a protection circuit and a protection device and/or (ii) systems equipped with a redundant circuit or other system to prevent an unsafe status in the event of a single fault for a failsafe design to ensure safety.

Intellectual Property Rights

Information contained in this catalog is intended to convey examples of typical performances and/or applications of our products and is not intended to make any warranty with respect to the intellectual property rights or any other related rights of TAIYO YUDEN or any third parties nor grant any license under such rights.

Limited Warranty

Please note that the scope of warranty for our products is limited to the delivered our products themselves and TAIYO YUDEN shall not be in any way responsible for any damages resulting from a failure or defect in our products. Notwithstanding the foregoing, if there is a written agreement (e.g., supply and purchase agreement, quality assurance agreement) signed by TAIYO YUDEN and your company, TAIYO YUDEN will warrant our products in accordance with such agreement.

TAIYO YUDEN's Official Sales Channel

The contents of this catalog are applicable to our products which are purchased from our sales offices or authorized distributors (hereinafter "TAIYO YUDEN's official sales channel"). Please note that the contents of this catalog are not applicable to our products purchased from any seller other than TAIYO YUDEN's official sales channel.

Caution for Export

Some of our products listed in this catalog may require specific procedures for export according to "U.S. Export Administration Regulations", "Foreign Exchange and Foreign Trade Control Law" of Japan, and other applicable regulations. Should you have any questions on this matter, please contact our sales staff.

Wireless Module

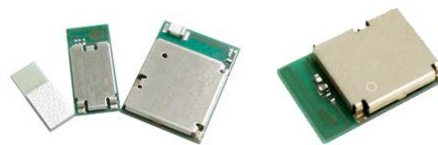
Our recommended Line Up of *Bluetooth*[®] and WLAN Modules

■ For Smartphone Peripheral & IoT Solution

Electricity/Light



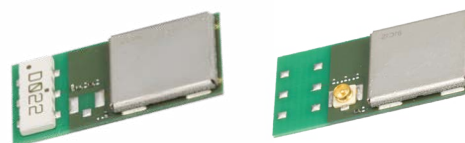
Security/Access



Bluetooth[®] low energy Module

■ For Industrial Market

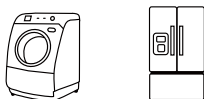
Handy Terminal / Mobile Printer



Original Antenna or RF Connector
WLAN+BT Module

■ For IoT Solution & Industrial

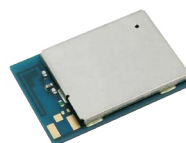
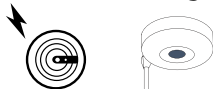
White Goods



Heating and Cooling



Alarm/Sensing



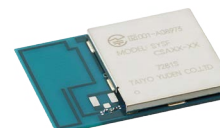
CPU Embedded
WLAN Module



CPU & TAIYO YUDEN Software
Embedded WLAN Module



2.4GHz & 5GHz Supported
WLAN + BT Module



Sub-1GHz Module

※As this catalog includes some Wireless Modules under development, the specifications of such Modules are subjects to change without prior notice.
Evaluation Kit for each module is available.

For the latest information, please visit our web site at <http://www.ty-top.com/> or feel free to contact our sales department.

※The *Bluetooth*[®] word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by TAIYO YUDEN CO., LTD. is under license.
Other trademarks and trade names are those of their respective owners.

■ Bluetooth® low energy & ANT Module

Part number	Function											I/F						Module type		Type approval					Remark	
	BLE	BT Classic	ANT	NFC	802.11a	802.11b	802.11g	802.11n	802.11ac	802.15.4 (Thread)	802.15.4g	UART	USB	PCM	SPI	I2C	I2S	SDIO	SMD	Connector	Antenna	Japan	FCC	ISED		CE
EYSHSNZWZ	○		○*	○								○			○	○	○		○		○	○	○	○	○*	Ultra Small, 64k RAM, BT5
EYSLSNZWW	○		○ [△]									○			○	○			○		○	○	○	○	○*	Ultra Small, 24k RAM, BT5
EYSKJNUWB-WX	○											○			○				○		○	○	○	○	○*	TY's APP, BT5
EYSKJNZWB	○		○ [△]	○						○		○			○	○	○		○		○	○	○	○	○*	256k RAM, BT5(Full)
EYSHJNZWZ	○		○*	○								○			○	○	○	○	○		○	○	○	○	○*	64k RAM, BT5
EYAGJNZXX	○		○									○			○	○			○		○	○	○	○	○*	32k RAM
EYSGJNAWY-VX	○											○							○		○	○	○	○	○*	TY's APP
EYSGJNZWY	○											○			○	○			○		○	○	○	○	○*	32k RAM
EYSGJNZXX	○											○			○	○			○		○	○	○	○	○*	16k RAM
EYSKBNWB-WX	○											○	○		○				○		○	○	○	○	○*	TY's APP, 32k X'tal, BT5
EYSKBNZWB	○		○ [△]	○						○		○	○		○	○	○		○		○	○	○	○	○*	32k X'tal, 256k RAM, BT5(Full)
EYSHCNZWZ	○		○*	○								○			○	○	○	○	○		○	○	○	○	○**	32k X'tal, 64k RAM, BT5
EYSLCNZWW	○		○ [△]									○			○	○			○		○	○	○	○	○*	32k X'tal, 24k RAM, BT5
EYSGCNAWY-VX	○											○							○		○	○	○	○	○*	TY's APP, 32k X'tal
EYSGCNZWY	○											○			○	○			○		○	○	○	○	○*	32k X'tal, 16k RAM
EYSGCNZXX	○											○			○	○			○		○	○	○	○	○*	32k X'tal, 16k RAM

*Softdevice S332

△Plan to support soft devices.

*ETSI EN 300 328 v2.1.1 Conducted Test Report Available

**Complies with standards required by RED (2014/53/EU)

■ Sub-1GHz Module

Part number	Function											I/F						Module type		Type approval				Remark			
	BLE	BT Classic	ANT	NFC	802.11a	802.11b	802.11g	802.11n	802.11ac	802.15.4 (Thread)	802.15.4g	UART	USB	PCM	SPI	I2C	I2S	SDIO	SMD	Connector	Antenna	Japan	FCC		ISED	CE	
SYSFCSAXX-XX											○	○							○		○	○					32k X'tal、31Multihop

■ CPU Embedded WLAN Module

Part number	Function										I/F						Module type		Type approval					Remark		
	BLE	BT Classic	ANT	NFC	802.11a	802.11b	802.11g	802.11n	802.11ac	802.15.4 (Thread)	802.15.4g	UART	USB	PCM	SPI	I2C	I2S	SDIO	SMD	Connector	Antenna	Japan	FCC		ISED	CE
WYSACVLAY-WX						○	○	○				○							○		○	○	○	○	○*	w/Cortex M4, 4M-Flash ROM
WYSACVLAY-XZ						○	○	○				○			○				○		○	○	○	○	○*	w/Cortex M4, 4M-Flash ROM

*ETSI EN 300 328 v2.1.1 Conducted Test Report Available

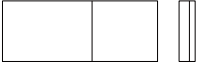
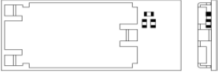
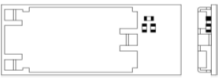
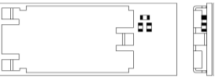
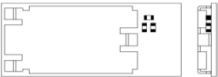
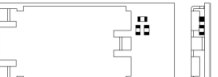
■ WLAN+BT Module

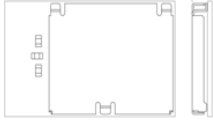
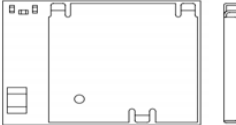
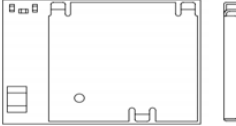
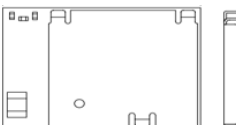
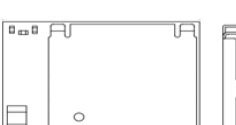
Part number	Function											I/F						Module type		Type approval					Remark		
	BLE	BT Classic	ANT	NFC	802.11a	802.11b	802.11g	802.11n	802.11ac	802.15.4 (Thread)	802.15.4g	UART	USB	PCM	SPI	I2C	I2S	SDIO	SMD	Connector	Antenna	Japan	FCC	ISED		CE	
WYSAGVDXG	○	○			○	○	○	○	○					○					○	○		○	○	○	○*	Dual Band Antenna(Chip)	
WYSEGVDXG	○	○			○	○	○	○	○					○					○	○		△**	○	○			RF Connector (Limited antenna)
WYSBHVXG	○	○			○	○	○	○	○					○					○	○							

*ETSI EN 300 328 & ETSI EN 301 893 v2.1.1 Conducted Test Report Available

**Embedded RF Connector for Limited Antenna

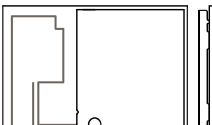
■ Bluetooth® low energy Module

Part number	Function	Module type	I/F	Feature	Outline [mm] (Height : Maximum)
EYSHSNZWZ (nRF52832)	Bluetooth® low energy v5.0 & NFC-A Type-2	BLE Slave and Master SMD type	UART I2C SPI I2S PDM 15 GPIO	w/CPU (Cortex M4F) Antenna 512KB Flash 64KB RAM FCC/ISED/Japan certified Complies with standards required by RED (2014/53/EU) ETSI EN 300 328 v2.1.1 Conducted Test Report Available	3.25 x 8.55 x 0.85 
EYSLSNZWV (nRF52810)	Bluetooth® low energy v5.0 (2Mbps Data Rate support)	BLE Slave and Master SMD type	UART I2C SPI PDM 15 GPIO	w/CPU (Cortex M4) Antenna 192KB Flash 24KB RAM FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	3.25 x 8.55 x 1.00 
EYSKJNUWB-WX (nRF52840)	Bluetooth® low energy v5.0	BLE Slave and Master SMD type TAIYO YUDEN Software Embedded	UART SPI	w/CPU (Cortex M4F) Antenna FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	5.1 x 11.3 x 1.3 
EYSKJNZWB (nRF52840)	Bluetooth® low energy v5.0 (Full) & 802.15.4 (Thread) & NFC-A Type-2	BLE Slave and Master SMD type	UART I2C SPI I2S PDM 15 GPIO	w/CPU (Cortex M4F) Antenna 1MB Flash 256KB RAM FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	5.1 x 11.3 x 1.3 
EYSHJNZWZ (nRF52832)	Bluetooth® low energy v5.0 & NFC-A Type-2	BLE Slave and Master SMD type	UART I2C SPI I2S PDM 15 GPIO	w/CPU (Cortex M4F) Antenna 512KB Flash 64KB RAM FCC/ISED/Japan certified Complies with standards required by RED (2014/53/EU) ETSI EN 300 328 v2.1.1 Conducted Test Report Available	5.1 x 11.3 x 1.3 
EYAGJNZXX (nRF51422)	Bluetooth® low energy v4.2 & ANT	BLE Slave SMD type	UART I2C SPI 14 GPIO	w/CPU (Cortex M0) Antenna 256KB Flash 32KB RAM FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	5.1 x 11.3 x 1.3 
EYSQJNAWY-VX (nRF51822)	Bluetooth® low energy v4.2	BLE Slave and Master SMD type TAIYO YUDEN Software Embedded	UART	w/CPU (Cortex M0) Antenna FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	5.1 x 11.3 x 1.3 
EYSGJNZWY (nRF51822)	Bluetooth® low energy v4.2 (*)	BLE Slave and Master SMD type	UART I2C SPI 14 GPIO	w/CPU (Cortex M0) Antenna 256KB Flash 32KB RAM FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	5.1 x 11.3 x 1.3 
EYSGJNZXX (nRF51822)	Bluetooth® low energy v4.2 (*)	BLE Slave and Master SMD type	UART I2C SPI 14 GPIO	w/CPU (Cortex M0) Antenna 256KB Flash 16KB RAM FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	5.1 x 11.3 x 1.3 

Part number	Function	Module type	I/F	Feature	Outline [mm](Height : Maximum)
EYSKBNWUB-WX (nRF52840)	Bluetooth® low energy v5.0	BLE Slave and Master SMD type TAIYO YUDEN Software Embedded	UART USB SPI	w/CPU (Cortex M4F) 32kHz Crystal Antenna FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	10.0 x 15.4 x 2.0 
EYSKBNZWB (nRF52840)	Bluetooth® low energy v5.0 (Full) & 802.15.4 (Thread) & NFC-A Type-2	BLE Slave and Master SMD type	UART USB I2C SPI I2S PDM 46 GPIO	w/CPU (Cortex M4F) 32kHz Crystal Antenna 1MB Flash 256KB RAM FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	10.0 x 15.4 x 2.0 
EYSHCNZWW (nRF52832)	Bluetooth® low energy v5.0 & NFC-A Type-2	BLE Slave and Master NFC-A Type-2 SMD type	UART I2C SPI I2S PDM 30 GPIO	w/CPU (Cortex M4F) Antenna 512KB Flash 64KB RAM 32kHz Crystal FCC/ISED/Japan certified Complies with standards required by RED (2014/53/EU) ETSI EN 300 328 v2.1.1 Conducted Test Report Available	9.6 x 12.9 x 2.0 
EYSLCNZWW (nRF52810)	Bluetooth® low energy v5.0 (2Mbps Data Rate support)	BLE Slave and Master SMD type	UART I2C SPI PDM 30 GPIO	w/CPU (Cortex M4) Antenna 192KB Flash 24KB RAM 32kHz Crystal FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	9.6 x 12.9 x 2.0 
EYSGNAWY-VX (nRF51822)	Bluetooth® low energy v4.2	BLE Slave and Master SMD type TAIYO YUDEN Software Embedded	UART	w/CPU (Cortex M0) Antenna 32kHz Crystal FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	9.6 x 12.9 x 2.0 
EYSGNZWY (nRF51822)	Bluetooth® low energy v4.2 (*)	BLE Slave and Master SMD type	UART I2C SPI 29 GPIO	w/CPU (Cortex M0) Antenna 256KB Flash 32KB RAM 32kHz Crystal FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	9.6 x 12.9 x 2.0 
EYSGNZXX (nRF51822)	Bluetooth® low energy v4.2 (*)	BLE Slave and Master SMD type	UART I2C SPI 29 GPIO	w/CPU (Cortex M0) Antenna 256KB Flash 16KB RAM 32kHz Crystal FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available	9.6 x 12.9 x 2.0 

(*) Supported by S130

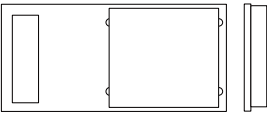
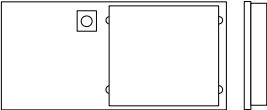
■ Sub-1GHz Module

Part number	Function	Module type	I/F	Feature	Outline [mm](Height : Maximum)
SYSFCSAXX-XX (nRF52840)	920MHz band wireless module Compliant IEEE802.15.4g/e	SMD type TAIYO YUDEN Software Embedded	UART	Antenna Japan certified Singlehop and Multihop network	21.0 x 30.0 x 2.6 

■ CPU Embedded WLAN Module

Part number	Function	Module type	I/F	Feature	Outline [mm] (Height : Maximum)
WYSACVLAY-WX	IEEE802.11b/g/n	SMD type TAIYO YUDEN Software Embedded	UART	Integrated System Clock Antenna Support Micro AP FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available W/CPU (Cortex M4)	14.0 x 21.4 x 2.4 
WYSACVLXAY-XZ	IEEE802.11b/g/n	SMD type	UART SPI	Integrated System Clock Antenna Support Micro AP FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available W/CPU (Cortex M4)	14.0 x 21.4 x 2.4 

■ WLAN+BT Module

Part number	Function	Module type	I/F	Feature	Outline [mm] (Height : Maximum)
WYSAGVDXG	IEEE802.11ac/a/b/g/n+Bluetooth® 4.2 (Chip antenna Type)	SMD type	SDIO PCM	Integrated System Clock 2.4GHz & 5GHz 11ac(HT80) Dual Band compatible Chip Antenna FCC/ISED/Japan certified ETSI EN 300 328 v2.1.1 Conducted Test Report Available ETSI EN 301 893 v2.1.1 Conducted Test Report Available	12.0 x 26.0 x 2.0 
WYSEGVXG	IEEE802.11ac/a/b/g/n+Bluetooth® 4.2 (RF connector Type)	SMD type	SDIO PCM	Integrated System Clock 2.4GHz & 5GHz 11ac(HT80) U.FL connector for external antenna FCC/ISED/Japan certified	12.0 x 26.0 x 2.0 
WYSBHVXG	IEEE802.11ac/a/b/g/n+Bluetooth® 4.2	SMD type	SDIO PCM	Integrated System Clock 2.4GHz & 5GHz 11ac(HT80)	8.9 x 12.6 x 1.9 