

Product summary

MAYA-W1 series

Host-based multiradio modules with Wi-Fi 4 and Bluetooth 5.2



Small, flexible, dual-band Wi-Fi 4 and full-featured Bluetooth Low Energy 5.2 modules

- Wi-Fi 4 (802.11a/b/g/n) dual-band 2.4 and 5 GHz
- Operation modes: Access-point, Station, Wi-Fi direct (combinations)
- Dual-mode Bluetooth classic and Bluetooth Low Energy 5.2
- Support for long range Bluetooth Low Energy and rate up to 2 Mbit/s
- Variants with PCB-antenna, U.FL connectors, and antenna pins; Supports antenna diversity

10.4 x 14.3 x 1.8 mm



Product description

The MAYA-W1 series are host-based Wi-Fi 4 and Bluetooth 5.2 multiradio modules designed for a wide range of industrial applications, such as industrial automation and smart manufacturing, EV charging infrastructures, professional appliances, tracking and telematics, point-of-sale and ticketing machines, building automation, and healthcare. The modules are designed and built to meet the high reliability and quality requirements of such applications.

MAYA-W1 modules support the Wi-Fi 4 (802.11a/b/g/n) standard and deliver up to 150 Mbit/s data throughput. With dual-band 2.4/5 GHz and 40 MHz channel-width, the modules can work as a station with different types of access points, such as a simple access point, in P2P communication, or a combination of these. MAYA-W1 supports both Bluetooth classic and Bluetooth Low Energy 5.2.

At 10.4 x 14.3 mm, MAYA-W1 are among the most compact Wi-Fi dual-band SMD modules available in the market.

All u-blox modules undergo extensive qualification tests to ensure reliability over their life-time, and each module is fully tested before leaving the assembly line.

MAYA-W1 is based on the multiradio chip IW416 from NXP.

Key features

- Variants with antenna pins, U.FL connectors and embedded PCB antenna
- Wi-Fi 4, dual-band, single stream, data rate up to 150 Mbit/s
- 20 and 40 MHz Wi-Fi channels
- Wi-Fi 802.11d/e/h/i/k/r/u/v/w
- Dual-mode Bluetooth version 5, supporting all features
- Temperature range -40 °C to +85 °C
- Security: WPA3, WPA2, TKIP/WPA, WEP (64/128 bit), WAPI, AES
- Supports up to 8 Stations in AP-mode
- Supports up to 16 Bluetooth Low Energy connections

| | MAYA-W160 | MAYA-W161 | MAYA-W166 |
|--|-----------|-----------|-----------|
| Grade | | | |
| Automotive | | | |
| Professional | • | • | • |
| Standard | | | |
| Radio | | | |
| Chip inside | | NXP IW416 | |
| Bluetooth qualification | | v5.2 | |
| Bluetooth profiles | | HCI | |
| Bluetooth BR/EDR | • | • | • |
| Bluetooth Low Energy | • | • | • |
| Wi-Fi 4 IEEE 802.11 standards | | a/b/g/n | |
| Wi-Fi frequency band [GHz] | | 2.4 and 5 | |
| Bluetooth output power conducted [dBm] | 10 | 10 | 10 |
| Wi-Fi output power conducted [dBm] | 18 | 18 | 18 |
| Antenna type | U.FL | pin | pcb /pin |
| Number of antennas | 2 | 2 | 1 |
| OS support | | | |
| Android / Linux drivers (from u-blox) | • | • | • |
| RTOS (via NXP i.MX RT MCUs) | • | • | • |
| Interfaces | | | |
| High-speed UART (Bluetooth) | 1 | 1 | 1 |
| PCM, I2S (Bluetooth audio) | 1 | 1 | 1 |
| SDIO (Wi-Fi) [version] | 3.0 | 3.0 | 3.0 |
| Features | | | |
| Micro Access Point [max connects] | 8 | 8 | 8 |
| Wi-Fi direct | • | • | • |
| WPA3 | • | • | • |
| RF calibration in OTP | • | • | • |
| Programmed MAC address | • | • | • |

pin = antenna pin

U.FL = U.FL antenna connector



Features

| | |
|-----------------|---|
| Wi-Fi standards | Wi-Fi 4 IEEE 802.11a/b/g/n IEEE 802.11d/e/h/i/k/r/u/v/w |
| Wi-Fi channels | 2.4 GHz: 1-13 5 GHz: 36-165 |
| Bluetooth | v5.2, class 1 and 2 transmission Bluetooth low energy and Bluetooth BR/EDR |
| Antennas | MAYA-W160: 2 U.FL connectors MAYA-W161: 2 antenna pins MAYA-W166: 1 embedded PCB antenna or pin |
| Output Tx-power | TBD |
| Security | 128-bit AES hardware encryption |

Software features

| | |
|-----------------------------|--|
| RF calibration | Available in on-board OTP memory |
| MAC addresses | Available in on-board OTP memory |
| Security | WEP 64/128 bit WPA (TKIP, AES) WPA2 (CCMP, AES) WPA3 WAPI |
| Wi-Fi operational modes | Station, Access-Point, Wi-Fi direct, or any combination of these |
| Driver support | Free of charge drivers for Linux and Android RTOS (with certain types of NXP MCUs) |
| Wi-Fi/Bluetooth coexistence | Internal TDM mechanism |

Interfaces

| | |
|-----------|---|
| Wi-Fi | SDIO 3.0 (4-bit, up to 150 MHz clock) |
| Bluetooth | 4-wire high-speed UART PCM and I2S for audio |
| Other | GPIOs |

Package

| | |
|------------|--------------------------|
| Dimensions | 10.4 × 14.3 × 1.8 mm |
| Mounting | Soldering, 76 pins (LGA) |

Environmental data, quality and reliability

| | |
|----------------------------|------------------|
| Operating temperature | -40 °C to +85 °C |
| Moisture sensitivity level | 4 |
| RoHS and REACH compliance | |

Electrical data

| | |
|------------------|--------------------|
| RF power supply | 3.0 – 3.6 VDC |
| I/O power supply | 3.3 VDC or 1.8 VDC |

Certifications and approvals

| | |
|-------------------------|--|
| Type approvals | Europe (RED); US (FCC); Canada (ISED); Japan (GITEKI); South Korea (KC) Other certifications will be considered upon request |
| Bluetooth qualification | v5.2 (Bluetooth BR/EDR and Bluetooth Low Energy) |

Support products

| | |
|---------------|------------------------------|
| EVK-MAYA-W161 | Evaluation kit for MAYA-W161 |
| EVK-MAYA-W166 | Evaluation kit for MAYA-W166 |

Product variants

| | |
|---------------|---|
| MAYA-W160-00B | Professional grade module with two separate U.FL connectors for Wi-Fi and Bluetooth |
| MAYA-W161-00B | Professional grade module with two separate antenna pins for Wi-Fi and Bluetooth |
| MAYA-W166-00B | Professional grade module with embedded PCB antenna for Wi-Fi and Bluetooth |
| MAYA-W166-01B | Professional grade module with single antenna pin for Wi-Fi and Bluetooth |

Further information

For contact information, see www.u-blox.com/contact-u-blox.

For more product details and ordering information, see the product data sheet.

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