Product Summary

NINA-W10 series

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Stand-alone multiradio modules

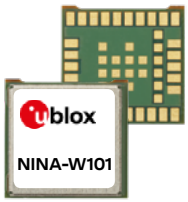
Standard

Professional

Automotive

The smallest industrial Wi-Fi and Bluetooth modules

- Wi-Fi 802.11b/g/n
- Dual-mode Bluetooth v4.2
- Powerful open CPU for advanced customer applications
- Small footprint and multiple antenna options
- Pin compatible with other NINA modules
- Global certification



10.0 × 10.6 × 2.2 mm

10.0 × 14.0 × 3.8 mm

Product description

The NINA-W10 series are stand-alone multiradio MCU modules that integrate a powerful microcontroller (MCU) and a radio for wireless communication. With the open CPU architecture, customers can develop advanced applications running on the dual core 32-bit MCU. The radio provides support for Wi-Fi 802.11b/g/n in the 2.4 GHz ISM band, Bluetooth BR/EDR, and Bluetooth low energy communications.

The NINA-W10 includes the wireless MCU, flash memory, crystal, and components for matching, filtering, antenna and decoupling, making it a very compact stand-alone multiradio module. The module can be used to design solutions with top grade security, thanks to integrated cryptographic hardware accelerators. This enables secure boot, which ensures the module boots up only in the presence of authenticated software. The small size and the embedded security capabilities make NINA-W10 ideal for critical IoT applications where security is important. Intended applications include telematics, low power sensors, connected factories, connected buildings (appliances and surveillance), point-of-sales, and health devices.

Device design is simplified as developers can choose to either use an external antenna (NINA-W101) or take advantage of the internal antenna (NINA-W102). Additionally, the NINA-W10 modules are pin-compatible with the NINA-B1 Bluetooth low energy modules, thus offering maximum flexibility for development of similar devices offering different radio technologies.

The NINA-W10 is designed for stable radio performance with plans for global certification. The module will initially be certified for the US, Europe, Canada, and Taiwan. Certifications for other countries are planned. The modules will be qualified according to ISO 16750 for professional grade operation, supporting an extended temperature range of –40 °C to +85 °C.

Product selector

Model	Radio								Interfaces										Features		Security				Grade		
	Wi-Fi IEEE 802.11 version	Wi-Fi output power EIRP (dBm)	Bluetooth BR/EDR v4.2	Bluetooth low energy v4.2	Bluetooth BR/EDR output power EIRP (dBm)	Bluetooth low energy output power EIRP [dBm]	Maximum Wi-Fi range (m)	Antenna type	UART	RMII	SPI / Quad SPI	SDIO Host	CAN	JTAG	I^2S	I^2C	GPIO pins	DAC/ADC	Wi-Fi Station	Wi-Fi Micro access point	WPA / WPA2	WPS	Enterprise security	Secure boot	Standard	Professional	Automotive
NINA-W101 *	b/g/n	19	●	●	8	8	400	P	●	●	●	●	●	●	●	●	20	●	●	●	●	●	●	●		●	
NINA-W102 *	b/g/n	19	●	●	8	8	300	I	●	●	●	●	●	●	●	●	20	●	●	●	●	●	●	●		●	

* = Features enabled by hardware. The actual support depends on the open CPU application software / P = antenna pin / I = internal antenna

NINA-W10 series

S

Features

Wi-Fi standards	802.11b/g/n
Wi-Fi channels	2.4 GHz channels 1-11
Wi-Fi maximum transfer rates	802.11b: 11 Mbit/s 802.11g: 54 Mbit/s 802.11n: 72 Mbit/s (20 MHz channel bandwidth) 150 Mbit/s (40 MHz channel bandwidth)
Output power	Wi-Fi: 19 dBm EIRP Bluetooth BR/EDR: 8 dBm EIRP Bluetooth low energy: 8 dBm EIRP
Sensitivity (conducted)	Wi-Fi: –96 dBm Bluetooth BR/EDR: –90 dBm Bluetooth low energy: –90 dBm
Bluetooth	v4.2 (Bluetooth BR/EDR and Bluetooth Low Energy)
Antenna	Internal antenna or antenna pin for connecting to the external antenna

Electrical data

Power supply	3.0 V to 3.6 V
Power consumption	Wi-Fi 16 dBm: 190 mA Bluetooth BR/EDR 0 dBm: 130 mA Bluetooth low energy 0 dBm: 130 mA Idle mode: 35 mA

Interfaces

NINA-W101 and NINA-W102	UART, RMII, I²S, I²C, SPI, ADC, DAC, GPIO, SDIO host, CAN

Package

Dimensions	NINA-W101: 10.0 x 10.6 x 2.2 mm NINA-W102: 10.0 x 14.0 x 3.8 mm
Weight	< 1 g
Mounting	Machine mountable Solder pins

Environmental data, quality & reliability

Operating temperature	–40 °C to +85 °C
Storage temperature	–40 °C to +85 °C
Humidity	RH 5-90% non-condensing

Certifications and approvals

Type approvals	Europe (ETSI RED), US (FCC/CFR 47 part 15 unlicensed modular transmitter approval), Canada (IC RSS), Japan (MIC), Taiwan (NCC), South Korea (KCC) [1], Australia (ACMA) [1], New Zealand [1]; Brazil (Anatel) [1], South Africa (ICASA) [1]
Health and safety	EN 62479, EN 60950-1, IEC 60950-1
Medical Electrical Equipment	IEC 60601-1-2
Bluetooth qualification	v4.2

1 = Pending approvals

Support products

EVK-NINA-W101	Evaluation kit for NINA-W101 module with antenna pin
EVK-NINA-W102	Evaluation kit for NINA-W102 module with internal antenna

Product variants

NINA-W101	Multiradio wireless MCU module with antenna pin
NINA-W102	Multiradio wireless MCU module with internal antenna

Further information

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

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