

# NORA-W36 series



## Stand-alone dual-band Wi-Fi™ modules with Bluetooth® LE

### Compact dual-band Wi-Fi and Bluetooth modules with u-connectXpress

- Dual-band Wi-Fi 4 and Bluetooth LE
- u-connectXpress software for accelerated time to market
- Wide range of embedded security features
- Small footprint, multiple antenna options, pin compatible with other NORA modules
- Global certification



10.4 × 14.3 × 1.9 mm



### Product description

NORA-W36 series are small, stand-alone, dual-band Wi-Fi and Bluetooth LE modules, perfect for integrating wireless connectivity in end products. With Wi-Fi 4 (802.11a/b/g/n) in the 2.4 and 5 GHz bands it can be a Wi-Fi station or an access point. NORA-W36 can assume Bluetooth peripheral and central roles, or both simultaneously. It can be a GATT client or server.

With the u-connectXpress software pre-flashed to the modules, end-product integration is simplified, and time-to-market reduced. The host controller configures the wireless communication using high-level AT commands without need for expertise in Wi-Fi and Bluetooth protocols stacks.

The software comes with a TCP/IP stack that allows for both point-to-point as well as point-to-multipoint use cases.

For secure communication with cloud-based applications and services, support for TLS encryption with TCP, MQTT, and HTTP protocols is provided. NORA-W36 has secure authentication methods like WPA2/WPA3, Wi-Fi enterprise security, and Bluetooth LE secure connections. Many other features are also supported, all accessible through the AT command interface.

The modules are suited to a wide range of applications, including industrial automation, smart buildings and homes, smart cities, metering, healthcare, and EV charging. NORA-W366 has an internal PCB antenna to provide a robust low-profile solution with high performance and an extensive range, while NORA-W361 has a pin to connect an external antenna of choice. The NORA-W36 series is globally certified for use with the internal antenna or a range of external antennas, reducing time, cost and effort for customers integrating Wi-Fi and Bluetooth LE in their designs.

NORA-W36 modules have the same size and position of critical pads and interfaces as other NORA modules. This offers maximum flexibility for the development of similar end-devices with different radio technologies. The modules support operation in an extended temperature range of -40°C to +105°C and are qualified for professional grade applications.

	NORA-W361	NORA-W366
<b>Grade</b>		
Automotive		
Professional	•	•
Standard		
<b>Radio</b>		
Chip inside	Realtek RTL8720DF	
Qualified against Bluetooth Core	5.3	5.3
Bluetooth Low Energy	•	•
Bluetooth output power [dBm]	6.5	8
Antenna type (see footnotes)	pin	pcb
Wi-Fi 2.4 / 5 [GHz]	2.4 and 5	2.4 and 5
Wi-Fi IEEE 802.11 standards	a/b/g/n	a/b/g/n
Wi-Fi output power [dBm]	20	20
Max Wi-Fi range [meters]	500	500
<b>Application software</b>		
u-connectXpress	•	•
<b>Interfaces</b>		
UART	•	•
<b>Features</b>		
AT command interface	•	•
Wi-Fi access point [max stations]	5	5
TCP/IP stack	•	•
MQTT client	•	•
HTTP client	•	•
Wi-Fi throughput [Mbit/s] *	2.5	2.5
WPA2/WPA3	•	•
Wi-Fi enterprise security	•	•
End-to-end security (TLS)	•	•
Maximum Bluetooth connections	3	3
Secure boot and updates	•	•
Low Energy Serial Port Service	•	•

pin = Antenna pin  
pcb = Internal PCB antenna

\* = User data throughput over UART

## Features

Wi-Fi standards	802.11a/b/g/n	
Wi-Fi channels	2.4 GHz: 1-14 (depending on region) 5 GHz: 36-165, U-NII Band 1, 2, 2e, 3 (depending on region)	
Wi-Fi maximum transfer rates	802.11a/g: 54 Mbit/s	802.11b: 11 Mbit/s
	802.11n: 150 Mbit/s	
Output power (conducted)	Wi-Fi 2.4 GHz:	20 dBm
	Wi-Fi 5 GHz:	18 dBm
	Bluetooth Low Energy:	8 dBm
Sensitivity (conducted)	Wi-Fi 2.4 GHz:	-98 dBm
	Wi-Fi 5 GHz:	-93 dBm
	Bluetooth Low Energy:	-101 dBm
Bluetooth PHY rate	1 Mbit/s, 2 Mbit/s	
Antenna	Internal PCB antenna or antenna pin for connecting to an external antenna	

## Electrical data

Power supply	3.3 V ( $\pm 10\%$ )	
Power consumption	Wi-Fi Tx 17 dBm:	252 mA
	Wi-Fi Rx:	60 mA
	Bluetooth LE Tx 8 dBm:	100 mA
	Bluetooth LE Rx:	60 mA
	Deep-sleep mode:	10 $\mu$ A

## u-connectXpress software

This section describes the NORA-W36 features integrated in the u-connectXpress software. All modules are delivered with this software pre-flashed and configured using AT commands.

Wi-Fi features	Wi-Fi station Wi-Fi access point
Bluetooth features	u-blox Low Energy Serial Port Service (SPS) GATT server and client Simultaneous central and peripheral roles Central role with up to 3 simultaneous links
Security features	WPA2/WPA3 Enterprise security (EAP-TLS, PEAP) End-to-end security with TLS 1.2 Protected Management Frames (PMF) Secure boot Secure simple pairing Bluetooth LE secure connections
IoT features	TCP/UDP client/server MQTT client HTTP client DHCP client/server
Throughput (user data)	Bluetooth Low Energy: 420 kbit/s Wi-Fi: 2.5 Mbit/s
Support tools	s-center 2

## Further information

For contact information, see [www.u-blox.com/contact-u-blox](http://www.u-blox.com/contact-u-blox).

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

## Package

Dimensions	10.4 x 14.3 x 1.9 mm
Weight	< 1 g
Mounting	Machine mountable solder pads

## Environmental data, quality, and reliability

Operating temperature	-40 °C to +105 °C
Storage temperature	-40 °C to +105 °C
Humidity	RH 5-90% non-condensing
RoHS directive	RoHS 2 and RoHS 3

## Certifications and approvals

Type approvals	Europe (ETSI RED), Great Britain (UKCA), US (FCC/CFR 47, part 15 unlicensed modular transmitter approval), Canada (ISED RSS), Japan (MIC), Taiwan (NCC), South Korea (KCC), Australia (ACMA), New Zealand, Brazil (ANATEL), South Africa (ICASA)
Health and safety	EN 62368-1, IEC 62311
Medical Electrical Equipment	IEC 60601-1-2
Bluetooth	Qualified against Bluetooth Core 5.3

## Support products

EVK-NORA-W361	Evaluation kit for NORA-W361 module with antenna pin
EVK-NORA-W366	Evaluation kit for NORA-W366 module with internal PCB antenna

## Product variants

NORA-W361	Multiradio module with u-connectXpress and antenna pin
NORA-W366	Multiradio module with u-connectXpress and internal PCB antenna

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