

# NORA-W36 series



## Stand-alone dual-band Wi-Fi modules with Bluetooth Low Energy



Standard



Professional

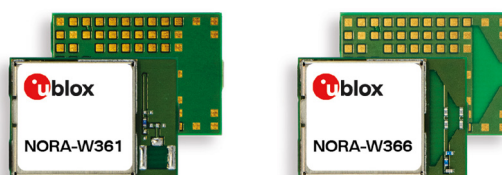


Automotive

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

- Dual-band Wi-Fi 4 and Bluetooth Low Energy 5.3
- 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 Low Energy 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 and MQTT 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 and utilities, 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 module pin to connect to an external antenna of choice. The NORA-W36 series will be 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 Low Energy 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	
Bluetooth qualification	v5.3	v5.3
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	•	•
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
Low Energy Serial Port Service	•	•
Secure boot and updates	•	•

pin = Antenna pin  
pcb = Internal PCB antenna

\* = User data throughput over UART

# NORA-W36 series



## 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	5.3 Bluetooth Low Energy	
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 (±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 µA

## 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 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) <sup>1</sup> , Australia (ACMA) <sup>1</sup> , New Zealand <sup>1</sup> , Brazil (ANATEL) <sup>1</sup> , South Africa (ICASA) <sup>1</sup>
Health and safety	EN 62368-1, IEC 62311
Medical Electrical Equipment	IEC 60601-1-2
Bluetooth qualification	Low Energy 5.3

1 = Certification pending

## 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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