Product summary

NORA-W46 series

S

Stand-alone Wi-Fi™ 6 multiradio modules

Standard

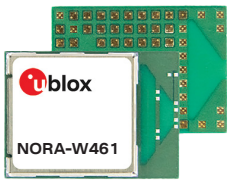
Professional

Automotive

Single-band Wi-Fi 6 network processor

- Single-band Wi-Fi 6 and Bluetooth® LE
- u-connectXpress 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 x 14.3 x 1.9 mm



Product description

NORA-W46 series are small, stand-alone, single-band Wi-Fi 6 and Bluetooth LE wireless modules, with everything needed for integration into end-products. The modules are ideal for users looking to add advanced wireless connectivity to their end products.

With Wi-Fi 6, several features improve network efficiency, latency, range, and power consumption compared to earlier Wi-Fi generations. Moreover, being qualified against Bluetooth Core 5.3 further expands the number of use cases supported.

The modules are delivered with u-connectXpress software for simple end-product integration and reduced time-to-market. The host controller configures the wireless communication using high-level AT commands with no need for expertise in Wi-Fi and Bluetooth protocol stacks. NORA-W46 supports Wi-Fi station or access point mode, and can take both roles concurrently. It can take Bluetooth peripheral and central roles, or both simultaneously. It can be a GATT client and server. NORA-W46 supports Bluetooth LE connections both in high data rate mode (2 Mbit/s PHY) and long range mode (125 kbit/s coded PHY). The software comes with a TCP/IP stack allowing for point-to-point and point-to-multipoint use cases.

For secure communication with cloud-based applications and services, support for TLS encryption and MQTT protocols is provided. NORA-W46 has secure authentication methods like WPA/WPA3, Wi-Fi enterprise security, and Bluetooth LE secure connections. A wide range of other features are also supported, all accessible through the AT command interface.

NORA-W466's internal PCB antenna provides a robust, low-profile solution and an extensive range, while NORA-W461 has a module pin to connect to an external antenna of choice. The modules are globally certified for use with the internal antenna or a range of external antennas. This reduces time, cost and effort for customers integrating Wi-Fi and Bluetooth LE in their products.

The modules are ideally suited to a wide range of applications, including industrial automation, smart buildings and homes, smart city, healthcare and medical devices, and telematics.

	NORA-W461	NORA-W466
Grade		
Automotive		
Professional	•	•
Standard		
Radio		
Chip inside	ESP32-C6	ESP32-C6
Qualified against Bluetooth Core	5.3	5.3
Bluetooth LE	•	•
Bluetooth output power EIRP [dBm]	10	10
Wi-Fi bands [GHz]	2.4	2.4
Wi-Fi IEEE 802.11 standards	b/g/n/ax	b/g/n/ax
Wi-Fi output power EIRP [dBm]	20	20
Antenna type (see footnotes)	pin	pcb
Application software		
u-connectXpress	•	•
Interfaces		
UART	•	•
GPIO pins (user available)	TBD	TBD
Features		
AT command interface	•	•
Access point	•	•
TCP/IP stack	•	•
MQTT client	•	•
Wi-Fi throughput [Mbit/s]	TBD	TBD
WPA2/WPA3	•	•
Wi-Fi enterprise security	•	•
End-to-end security (TLS)	•	•
Maximum Bluetooth connections	TBD	TBD
Low Energy Serial Port Service	•	•
Secure boot	•	•

pin = Antenna pin
pcb = Internal PCB antenna

NORA-W46 series

S

Features

Wi-Fi standards	IEEE 802.11 b/g/n/ax
Wi-Fi channels	2.4 GHz channels 1-14 (depending on region)
Wi-Fi maximum transfer rates	IEEE 802.11b: 11 Mbits/s IEEE 802.11g: 54 Mbit/s IEEE 802.11n: 72 Mbit/s (HT20) 150 Mbits/s (HT40) IEEE 802.11ax: 114 Mbit/s
Bluetooth	Qualified against Bluetooth Core 5.3
Bluetooth PHY rate	125 kbps, 1 Mbps, 2 Mbps
Output power (conducted)	Wi-Fi: 17 dBm Bluetooth: 7 dBm
Sensitivity (conducted)	Wi-Fi: -99 dBm Bluetooth: -98 dBm
Antenna	Internal PCB antenna or antenna pin for connecting to an external antenna

Electrical data

Power supply	3.3 V (+/-10%)
Power consumption	TBD

u-connectXpress features

This section describes the NORA-W46 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
Security features	Secure boot WPA2/WPA3 Enterprise security (EAP-TLS, PEAP) End-to-end security with TLS 1.2/1.3 Protected Management Frames (PMF) Secure Simple Pairing Bluetooth LE secure connections
IoT features	TCP/UDP client/server MQTT client HTTP client DHCP client/server
Throughput (user data)	Bluetooth LE: TBD Wi-Fi: TBD
Support tools	s-center

Package

Dimensions	10.4 x 14.3 x 1.9 mm
Mounting	Machine mountable solder pins

Environmental data, quality & reliability

Operating temperature	–40 °C to +85 °C
Storage temperature	–55 °C to +125 °C
Humidity	RH 5-90% non-condensing
RoHS directive	RoHS 2 and RoHS 3

Certifications and approvals [1]

Type approvals	Europe (RED), Great Britain (UKCA), US (FCC), Canada (ISED), Japan (MIC), Taiwan (NCC), South Korea (KCC), Australia (ACMA), New Zealand
Health and safety	EN 62479, EN 62368-1, IEC 62311
Medical Electrical Equipment	IEC 60601-1-2
Bluetooth	Qualified against Bluetooth Core 5.3

1 = Certifications are pending

Support products

EVK-NORA-W461	Evaluation kit for NORA-W461 module with antenna pin
EVK-NORA-W466	Evaluation kit for NORA-W466 module with internal PCB antenna

Product variants

NORA-W461	Multiradio module with u-connectXpress and antenna pin
NORA-W466	Multiradio module with u-connectXpress and internal PCB antenna

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.