ODIN-W160

Standard | **Professional** | Automotive

Host-based multiradio module with Wi-Fi & Bluetooth

Highlights

- Dual-band Wi-Fi 2.4 GHz & 5 GHz
- Dual-mode Bluetooth v4.0 with BR/EDR and Bluetooth low energy
- Open source Linux driver
- RF parameters and MAC addresses stored in EEPROM
- Fully certified with the U.FL antenna connector

ODIN-W160
14.8 x 22.3 x 2.9 mm

Product description

The host-based multiradio ODIN-W160 module is ready-to-embed for demanding industrial, vehicle, medical, and security applications.

The compact 14.8 x 22.3 mm ODIN-W160 module supports dual-band IEEE 802.11a/b/g/n on 2.4 GHz and 5 GHz channels 36-165 (U-NII bands 1, 2, 2e, 3), as well as dual-mode Bluetooth v4.0, which includes Bluetooth BR/EDR and Bluetooth low energy.

The host-based module is designed for a long lifecycle and ultra-low power consumption. Thanks to the ready-to-use module and the open-source Linux host driver, minimal development time is needed to implement short range wireless communication in end-devices. Also, no trimming or tuning is required during manufacturing of customer end-devices, since the modules have

pre-calibrated radio parameters and MAC addresses are stored in an on-board EEPROM.

Each module is in a castellated package, improving visual inspection of end-devices. The ODIN-W160 module has a U.FL antenna connector for a wide selection of certified antennas.

The module provides modular radio type approvals for Europe, US, Canada and Japan (R&TTE, FCC, IC, MIC), EMC certification, and Bluetooth qualification. Additionally, the modules support infrastructure and AP mode, TKIP & AES hardware accelerator, as well as security features WEP64, WEP128, WPA, and WPA2.

The operating temperature range is –40 °C to +85 °C.

Product selector

Model	Radio								Interfaces		Power	Connectors	Features					Grade		
	Wi-Fi IEEE 802.11 version	2.4 GHz channels 1-13	5 GHz channels 36-165	Max range	Bluetooth qualification	Bluetooth profiles	Max output power incl. antenna	Antenna type	UART	SDIO, SPI	Power supply: 3.0 - 3.6 V	Solder pins	Android connectivity	iOS connectivity	Wi-Fi Security	RF parameters in EEPROM	MAC addresses in EEPROM	Standard	Professional	Automotive
ODIN-W160	a/b/g/n	•	•	500 m	v4.0	H	19 dBm	E	B	W	•	•	•	W/LE	Sec	•	•		■	

H = HCI   E = U.FL connector(s) for external antenna   B = Bluetooth   LE = Bluetooth Low Energy
W = Wi-Fi   Sec = WPA2, Enterprise, EAP-TLS

Features

Wi-Fi IEEE 802.11	a/b/g/n(single-stream, 65 Mbps)/d/e/h/i/k/r/s
Wi-Fi channels	2.4 GHz channels: 1-13 5 GHz channels: 36-165 (U-NII Band 1, 2, 2e, 3)
Bluetooth	v2.1 (Bluetooth BR/EDR) up to HCI layer v4.0 (Bluetooth low energy) up to HCI layer Bluetooth EDR 2 Mbps and 3 Mbps rates
Range	500 m
Output power	Wi-Fi 2.4 GHz: 19 dBm Wi-Fi 5 GHz: 19 dBm Bluetooth BR/EDR: 12 dBm Bluetooth low energy: 8 dBm

Software features

RF parameters	Available in on-board EEPROM
MAC addresses	Available in on-board EEPROM
Security	WEP64/128 WPA-EAP-TLS, WPA-PSK WPA2-EAP-TLS, WPA2-PSK TKIP and AES hardware accelerator
Operational modes	Infrastructure (BSS) Software AP (DFS channels excluded)
Driver support	Open-source Linux driver

Advanced power management

Internal support for Wi-Fi and Bluetooth co-existence

Android connectivity

iOS connectivity (Wi-Fi and Bluetooth low energy)

Electrical data

RF power supply	3.0 - 3.6 VDC
I/O power supply	1.75 - 1.9 VDC
Power consumption	Wi-Fi: 　Deep sleep: 0.08 mA 　Tx @ 4 Mbps: 130 mA Bluetooth BR/EDR: 　Deep sleep: 0.07 mA 　Tx @ 1 Mbps: 34 mA Bluetooth low energy: 　Advertising: 1.2 mA 　Connection event: 1.2 mA

Interfaces

Wi-Fi	SDIO, SPI
Bluetooth	UART
RF parameters:	I²C
MAC addresses:	I²C
U.FL antenna connector	

Package

Dimensions	14.8 x 22.3 x 2.9 mm
Weight	1.5 g
Mounting	Solder edge pads with castellations (visually inspectable)

Environmental data, quality & reliability

Operating temperature	−40 °C to +85 °C

Certifications and approvals

Type approvals	Europe (ETSI R&TTE) US (FCC/CFR 47 part 15 unlicensed modular transmitter approval) Canada (IC RSS) Japan (MIC - formerly TELEC)
R&TTE Directive 1999/5/EC	EN 300 328, EN 301 893 EMC: EN 301 489-1, EN 301 489-17, EN 61000-6-2 Safety Compliance: IEC 60950-1, EN 60950-1
Medical Electrical Equipment	IEC 60601-1-2

High quality production according to IPC class standard

Bluetooth Qualification	v4.0 (controller subsystem)

Support products

EVK-W16	Evaluation kit for ODIN-W160

Product variants

ODIN-W160, with U.FL connector for external 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.