

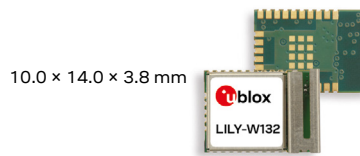
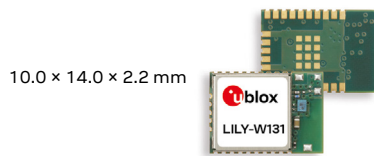
LILY-W1 series



Ultra-compact host-based Wi-Fi modules

The most economical, lean, and compact Wi-Fi modules

- Extremely small footprint
- On-board antenna
- Integrated LTE filter
- Micro access point feature for up to 8 clients
- Wi-Fi direct



Product description

The LILY-W1 series ultra-compact Wi-Fi front end modules include an integrated MAC/baseband processor and RF front end components. The modules connect to a host via SDIO or USB interface. They provide simultaneous operation as a station and a micro access point for up to 8 clients. The LILY-W132 variant further includes an internal antenna and LTE filter to enable in-device co-existence without jeopardizing Wi-Fi performance. LILY-W1 is certified for US, Europe, Canada, Taiwan, and Japan. Approvals for other countries are possible upon inquiry.

Key features

- Wi-Fi Standards IEEE 802.11b/g/n
- 802.11n 1x1 SISO
- 802.11 PHY data rates of up to 72 Mbps
- Station and micro access point operation with up to 8 clients
- AES-CCMP and WAPI hardware encryption
- Dual MAC addresses and RF parameters stored on the module
- 1.8 V or 3.3 V IO signal levels
- Extended operating temperature range of -40 °C to +85 °C

	LILY-W131	LILY-W132	LILY-W133
Grade			
Automotive			
Professional	•	•	•
Standard			
Radio			
Chip inside	NXP 88W8801	NXP 88W8801	NXP 88W8801
Wi-Fi IEEE 802.11 standards	b/g/n	b/g/n	b/g/n
Wi-Fi 2.4 / 5 [GHz]	2.4	2.4	2.4
LTE filter		•	
Channel width [MHz]	20	20	20
Antenna type	1a	i	i
OS support			
Android / Linux (from u-blox)	•	•	•
Interfaces			
SDIO [version]	v2	v2	v2
USB 2.0	1	1	1
Features			
Micro Access Point [max connects]	8	8	8
AES hardware support	•	•	•
Wi-Fi direct	•	•	•
Factory-assigned MAC address	•	•	•
Factory calibrated RF	•	•	•

i = Internal antenna 1a = 1 pin for external antenna

LILY-W1 series



Features

Wi-Fi IEEE 802.11	b/g/n (single-stream, 72 Mbps)
Channels	2.4 GHz channels 1-13
Channel bandwidth	20 MHz
Range (max)	200 m
Output power (max)	LILY-W131: 19 dBm including 3 dBi antenna gain LILY-W132 and LILY-W133: 15 dBm including antenna gain
LTE filter	Embedded LTE frequency filter (LILY-W132 only)

Software features

RF parameters	Available in on-board OTP memory
MAC addresses	Available in on-board OTP memory
Security	WPA-PSK WPA2-PSK WPA3 TKIP and AES hardware accelerator WAPI
Operational modes	Station (STA) / Client Micro-AP supports up to 8 stations Simultaneous STA and Micro-AP
Driver support	Free of charge drivers for: – Android – Linux

Interfaces

Host interface	SDIO 2.0 USB 2.0 (slave/device)
I/O signals	1.8 V or 3.3 V selectable

Package

Dimensions	10.0 x 14.0 x 2.2 mm (LILY-W131) 10.0 x 14.0 x 3.8 mm (LILY-W132, LILY-W133)
Weight	< 2 g
Mounting	Solder edge pins with castellations (visually inspectable)

Environmental data, quality & reliability

Operating temperature	–40 °C to +85 °C
Cold	EN 60068-2-1
Dry heat	EN 60068-2-2
Change of temperature	EN 60068-2-14 and EN 60068-2-27
Vibration	EN 60068-2-6
Road vehicles	ISO 16750
Production & design	IPC-a-610 class 3

Electrical data

RF power supply	3.0 VDC – 3.6 VDC
Power consumption	Idle (sleep) mode: < 0.1 mA @ 3.3 VDC Max (Rx/Tx) mode: < 340 mA @ 3.3 VDC

Certifications and approvals

Type approvals	European Radio Equipment Directive (RED), US (FCC/CFR 47 part 15 unlicensed modular transmitter approval), Canada (IC RSS), Japan (Giteki), Taiwan (NCC)
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Support products

EVK-LILY-W131	Evaluation kit for LILY-W131. Includes a LILY-W131 module mounted on the adapter board with SDIO card and USB interface, external RPSMA antenna, and RPSMA to U.FL adapter cable.
EVK-LILY-W132	Evaluation kit for LILY-W132. Includes a LILY-W132 module mounted on the adapter board with SDIO card and USB interface.

Product variants

LILY-W131	LILY-W1 module with antenna pin
LILY-W132	LILY-W1 module with internal antenna and LTE filter
LILY-W133	LILY-W1 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](#).

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