

## WI-FI 5 WITH BLUETOOTH 5 FOR NEXT GENERATION INDUSTRIAL IOT



M.2 2230 E-Key Module



On-board Chip Antenna Module

Laird Connectivity's customers across multiple industries have a diverse set of requirements and specific needs. They asked for a truly robust industrial IoT module: one that's rugged, small, simplifies their BOM, is globally certified, has reliable connectivity, and easy to integrate.

Laird Connectivity's new Sterling-LWB5+ answers that call for next-gen wireless IoT. Powered by Infineon's CYW4373E silicon, the Sterling-LWB5+ is purpose-built for industrial IoT connectivity through a secure, reliable, and robust feature set. It's IoT from the start: fully certified, easy to integrate, and is the fastest route to the market for IoT.

**Compatible:** Our **Linux Backports** package supports many Linux kernels.

**Reliable:** Integrated PA (Power Amplifier) and LNA (Low Noise Amplifier) with **antenna diversity** for reliable connectivity in harsh RF environments.

**Robust:** Rich feature-set including 802.11ac Wi-Fi and Dual-Mode Bluetooth Low Energy. Reliable in **industrial temperature range**, and solder-down module is suitable for industrial vibration and impact demands.

**Secure:** Supports the latest WPA3 security standards.

- 1x1 **Wi-Fi 5** (802.11ac)
- Optional **Wi-Fi antenna diversity** for reliable connectivity
- **Bluetooth 5** Bluetooth Low Energy (BLE)
- Integrated **Wi-Fi + Bluetooth coexistence** for seamless connectivity
- High Speed host interface: SDIO or USB(WLAN)/UART(BT)
- Industrial Temperature Rating (-40° to +85 °C)
- **Ultra-small footprint** (12 mm x 17 mm) including on-board antenna
- Module options:
  - External antenna module
  - On-board antenna module
  - M.2 module w/antenna diversity
- List options of external antennas available
- **Rugged Design** – solder down form factor
- **Global Certifications** – FCC, IC, CE, MIC, RCM
- **Linux Backports** for broad kernel support

## FEATURES AT A GLANCE



### RELIABLE CONNECTIVITY

802.11ac Wi-Fi with integrated PA and LNA combined with Antenna Diversity add up to a reliable module for harsh RF conditions



### SOFTWARE FLEXIBILITY AND SPEED TO MARKET

Open Sourced software and Linux Backports ensures compatibility with a wide variety of Linux kernels.



### INDUSTRIAL OPERATING RANGE

Designed to the industrial temperature range of -40 °C to +85 °C for every component utilized.



### GLOBAL APPROVALS

Carries several modular FCC, IC, CE, RCM, MIC and Bluetooth SIG approvals.



### PERSONAL SUPPORT FROM DESIGN TO MANUFACTURE

Our industry-renowned support is passionate about helping you speed your design to market.



## APPLICATION AREAS



Rugged Handheld Devices



Industrial IoT Connectivity



Battery Powered Medical Devices



Industrial IoT Sensors

## KEY SPECIFICATIONS

CATEGORY	FEATURE	SPECIFICATION	
Wireless Specification	Wi-Fi	Wi-Fi 5 (802.11ac)	
	Bluetooth®	v5.2 Low Energy	
	Frequency	Dual-Band 2.4GHz & 5GHz	
	Transmit Power	+ 18 dBm (maximum)	
	Receive Sensitivity		IEEE 802.11b: -96 dBm @ 1 Mbps
			IEEE 802.11g: -93 dBm @ 6 Mbps
			IEEE 802.11a: -92 dBm @ 6 Mbps
		IEEE 802.11n (2.4 GHz band): -93 dBm @ MCS0 IEEE 802.11n (5 GHz band): -91 dBm @ MCS0	
Antenna Options	Base Module: On-board ceramic chip, MHF4 connector(s), trace pin for external antennas M.2 Board: Antenna diversity w/MHF4 connectors		
Raw Data Rates (Air)	433.3Mbps - MCS9, 80MHz, 256QAM, SGI		
Host Interface and Peripherals	WLAN Interfaces	SDIO 3.0/USB 2.0	
	Bluetooth Interface	UART	
Key Wi-Fi Features	Wi-Fi 5 (802.11ac)	<ul style="list-style-type: none"> <li>• 20, 40, and 80MHz wide channels</li> <li>• Single-stream spatial multiplexing up to 433.3 Mbps data rate.</li> <li>• Integrated PA/LNA</li> <li>• Antenna Diversity (optional on base module, mandatory on M.2 board)</li> </ul>	
Key Bluetooth Features	Bluetooth Low Energy	<ul style="list-style-type: none"> <li>• Central/Peripheral roles</li> <li>• Up to 7 BLE connections</li> <li>• UART baud rates up to 4 Mbps</li> <li>• Adaptive frequency hopping (AFH)</li> <li>• Quality of service (QoS)</li> <li>• Secure simple pairing (SSP)</li> <li>• LE Secure Connections</li> <li>• LE Privacy 1.2</li> <li>• LE Data Length Extension</li> <li>• Fast connect (interlaced page and inquiry scans)</li> </ul>	
Supply Voltage		3.3V	
Power Consumption	Estimated Current	Continuous TX: <ul style="list-style-type: none"> <li>• 2.4 GHz band – 369 mA @ 1 Mbps @ +18 dBm output power</li> <li>• 5 GHz band – 441 mA @ VHT80_MCS0 @ +17.5 dBm output power</li> </ul>	
Physical	Dimensions	12 mm x 17 mm x 2.2 mm (Modules) 22 mm x 30 mm x 3.1 mm (M.2 E-Key Module)	
Environmental	Temp Range	-40°C to +85°C	
Miscellaneous	Lead Free	Lead-free and RoHS-compliant	
	Development Kit	Development board, accessories, and evaluation software	
Qualifications	Bluetooth® SIG	Bluetooth 5.2	
Regulatory	Approvals	FCC/IC/CE/MIC/RCM	

*For full specifications on the Sterling-LWB5+ modules, please see the appropriate datasheet.*

PART #	DESCRIPTION
<b>453-00045C</b>	Module, Sterling LWB5+, Chip Antenna, Cut Tape
<b>453-00045R</b>	Module, Sterling LWB5+, Chip Antenna, Tape/Reel
<b>453-00046C</b>	Module, Sterling LWB5+, MHF4, Cut Tape
<b>453-00046R</b>	Module, Sterling LWB5+, MHF4, Tape/Reel
<b>453-00047C</b>	Module, Sterling LWB5+, Trace Pin, Cut Tape
<b>453-00047R</b>	Module, Sterling LWB5+, Trace Pin, Tape/Reel
<b>453-00048</b>	Module, Sterling LWB5+, M.2, Key E, SDIO, UART
<b>453-00049</b>	Module, Sterling LWB5+, M.2, Key E, USB, USB
<b>453-00045-K1</b>	Development Kit, Sterling LWB5+, Chip Antenna
<b>453-00046-K1</b>	Development Kit, Sterling LWB5+, MHF4
<b>453-00048-K1</b>	Development Kit, Sterling LWB5+, M.2, Key E, SDIO, UART
<b>453-00049-K1</b>	Development Kit, Sterling LWB5+, M.2, Key E, USB, USB