WI-FI 5 + 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. 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(WLAN)/UART(BT)
- Industrial Temperature Rating (-40° to +85 °C)
- **Ultra-small footprint** (12 mm x 17 mm) including on-board antenna
- Module options:
  o External antenna module
  o On-board antenna module
  o M.2 module w/antenna diversity
- List options of external antennas available
- **Rugged Design** – solder down form factor
- **Global Certifications** – FCC, IC, CE, Giteki, RCM (pending)
- **Linux Backports** for broad kernel support

FEATURES AT A GLANCE

Infineon + **CYPRESS** EMBEDDED IN TOMORROW™

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 ºC to +85 ºC for every component utilized.

GLOBAL APPROVALS
Carries several modular FCC, IC, CE, RCM, Giteki and Bluetooth SIG approvals. (all pending)

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®	v5.0
	Frequency	Dual-Band 2.4GHz & 5GHz
	Transmit Power	+ 18 dBm (maximum)
	Receive Sensitivity	TBD
	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
	Bluetooth Interface	UART
Key Wi-Fi Features	Wi-Fi 5 (802.11ac)	• 20, 40, and 80MHz wide channels • Single-stream spatial multiplexing up to 433.3 Mbps data rate. • Integrated PA/LNA • Antenna Diversity (optional on base module, mandatory on M.2 board)
Key Bluetooth Features	Bluetooth Low Energy	• Central/Peripheral roles • Up to 7 BLE connections • UART baud rates up to 4 Mbps • Adaptive frequency hopping (AFH) • Quality of service (QoS) • Secure simple pairing (SSP) • LE Secure Connections • LE Privacy 1.2 • LE Data Length Extension • Fast connect (interlaced page and inquiry scans)
Supply Voltage		3.3V
Power Consumption	Estimated Current	Continuous TX: TBD Sleep: TBD IEEE Power Save: TBD
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 5.0 (pending)
Regulatory	Approvals	FCC/IC/CE/MIC/RCM (all pending)

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

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