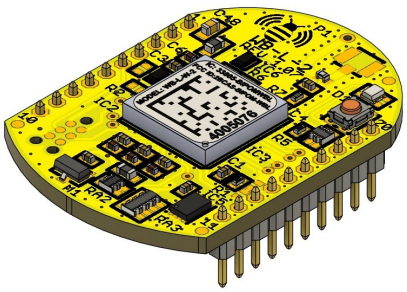
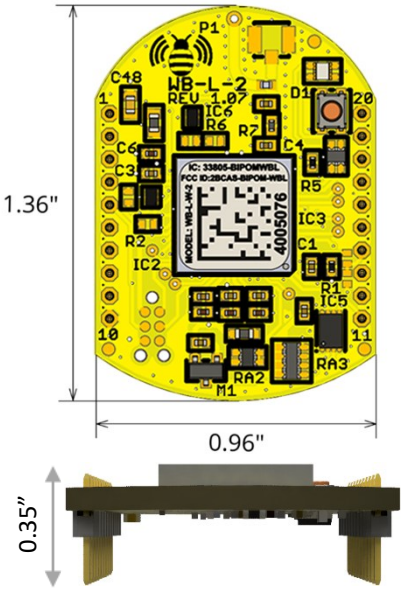
WillowBee

Industrial LoRaWAN Wireless Module

WillowBee is an industrial wireless microcontroller module that is designed for LoRaWAN sensor end-node designs and embedded applications that need LoRaWAN communications. WillowBee uses the popular STM32WL Cortex-M4 microcontroller from ST Micro.This microcontroller combines a computer unit and a LoRaWAN radio on a single chip.

WillowBee is pin compatible with other popular wireless devices. WillowBee is fully backed by a 3-year warranty, technical support and application assistance from BiPOM Electronics, Inc.





Rear View

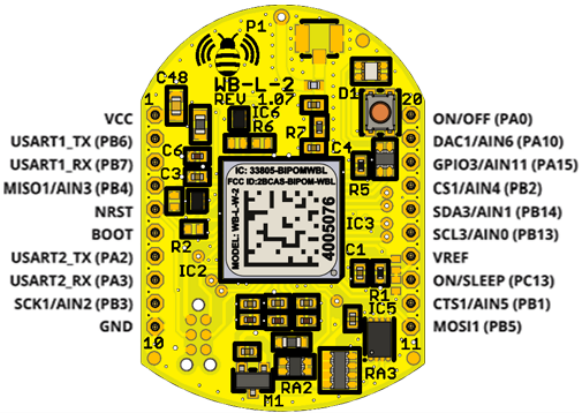
Microcontroller Features:

- Built-in LoRaWAN 1.1.0 Stack
- Ultra Low Power
- Suitable for battery operation
- User programmable
- Configurable power output
- Maximum output power: 22 dBm
- Frequency Bands: US915 /AS915/ AU915/ EU868/ CN779/EU433/KR920/IN865/RU86 (Supported but not officially certified in all regions)
- 64 KB of RAM and 256 KB of Flash available to user applications

WillowBee Specifications:

- Pin compatible with popular modules
- u.FL Connector
- RF Shield
- Dual Power option: Battery or DC Power
- Temperature Range: -40°C to +85°C
- Dimensions 1.36” x 0.96” x 0.36” (34.54 mm x 24.38 mm x 9.14 mm)
- 2 LED’s and 1 Button
- 32-Mbit Serial Flash
- Configurable 15 I/O Pins

WB-L-U-2 AND WB-L-W-2 PINOUT



Part numbers:

WB-L-U-2	WillowBee with u.FL antenna connector
WB-L-W-2	WillowBee with built-in coil (wire) antenna

More details and Technical Manual are available for download at www.bipom.com/products/us/4390994.html

BiPOM Electronics Inc. • Phone: 1-713-283-9970 • E-mail: info@bipom.com • Web: www.bipom.com

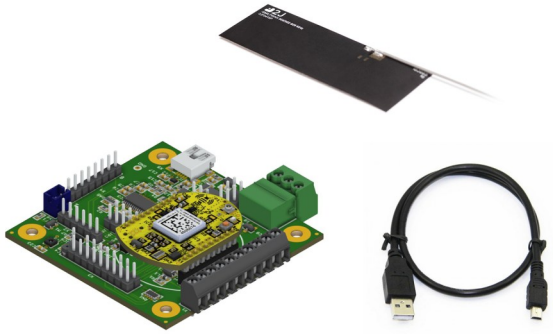
WillowBee Engineering Kits for fast deployment

These engineering kits are built around the WillowBee LoRaWAN industrial wireless microcontroller module and a versatile carrier board such as BRD-WB-L-USB or MINI-MAX/WB-1. These boards are designed for the evaluation, demonstration, and deployment of wireless sensors based on WillowBee. WillowBee is a high-performance wireless module designed for LoRaWAN sensor end-node applications, as well as embedded systems that require reliable wireless communication. WillowBee LoRaWAN is based on the popular STM32WL Cortex-M4 microcontroller from STMicroelectronics, which integrates both a processing unit and a LoRaWAN radio on a single chip. Programs can be easily downloaded to the carrier boards via USB or JTAG using a Windows PC, typically within just a few seconds—ideal for rapid development and prototyping.

EKIT-WB-L-MINI

Features:

- BRD-WB-L-USB board
- WillowBee LoRaWAN WB-L-W-2 www.bipom.com/products/us/4390994.html
- Mini USB cable
- Wire (coil) antenna soldered to WillowBee
- WillowBee Development System
- Free download from BiPOM website www.bipom.com/products/us/4390316.html
- Warranty Period: 1 year



EKIT-WB-L-MAXI

Features:

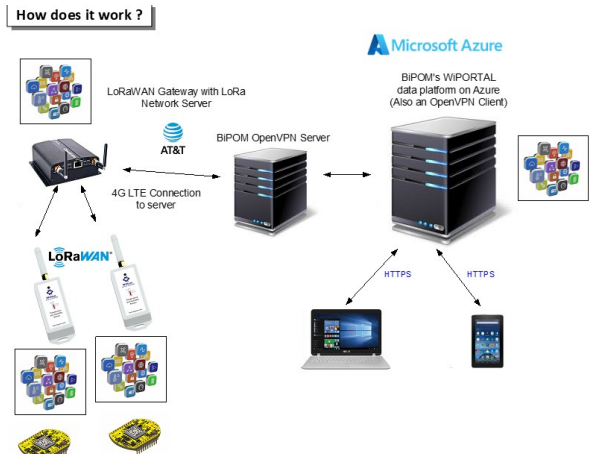
- MINI-MAX/WB-1 board
- WillowBee LoRaWAN WB-L-U-2 www.bipom.com/products/us/4390994.html
- Mini USB cable
- Flex Antenna 2JF0415P-010MC137 for LoRa Bands (dual band 868/915 MHz) www.bipom.com/products/us/4388463.html
- WillowBee Development System
- Free download from BiPOM website www.bipom.com/products/us/4390316.html
- Warranty Period: 1 year

WiPOM

Wireless Point of Monitoring

Gateway Software:

WiPOM is a software application package that adds sophisticated data logging, remote terminal, and PLC-like capabilities to the edge gateways that interface with WillowBee sensor boards. WiPOM handles all aspects of Industrial IoT applications development, including I/O management, tags, alarms, events, SMS/email handling, MODBUS master and slave capability, modem detection, and management and Cloud portal support. Coupled with the WiPOM Client running on a Windows PC or on a web server, configuring and managing the. WillowBee sensor boards and networks is reduced to a series of configuration selections to build a complete IoT system. WiPOM takes software out of the equation for faster time to market. Creating remote monitoring and control systems and sensors has not been easier.

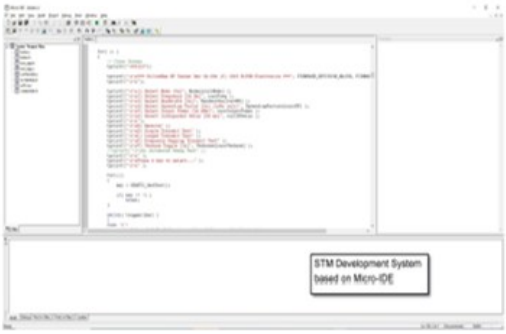


Private LoRaWAN

Public LoRaWAN

Sensor/WillowBee Software:

- Supported by popular development packages
- BiPOM's Micro-IDE integrates GCC Compiler and Downloader for WillowBee
- Keil µVision and ST Micro Cube support
- Command line downloader for any 3rd party development tool
- Examples for all major build environments
- Various LoRa sensor projects
- Libraries and drivers for a variety of sensor components and IC's.
- Generic UART, I2C, SPI, 1-wire, analog and digital I/O drivers
- Open source examples for:
  - LED Control
  - FreeRTOS
  - UART
  - Watchdog Timer
  - Engineering Console
  - LoRa End Node
  - Wireless Tester (Transmit and Receive)
  - Actual Sensor Examples



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WillowBee IoT Applications

Bee in Energy

Bee in Smart Cities

Bee in Transport

Bee in Agriculture

Bee in Factory

Bee in Buildings

Bee Secure - Bee Informed - Bee Online

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