



Eagle (1W) Directional PowerBridge

DATASHEET

Technical Datasheet

1 Key Features

- Works with Wiliot®
 - Up to +30 dBm 900 MHz band energizing signal
 - Up to +20 dBm 2.4 GHz band energizing signal
 - BLE beacon filter and repeater functionality
- Dual linear 900 MHz and 2.4 GHz antennas
- 5V/1A Operation

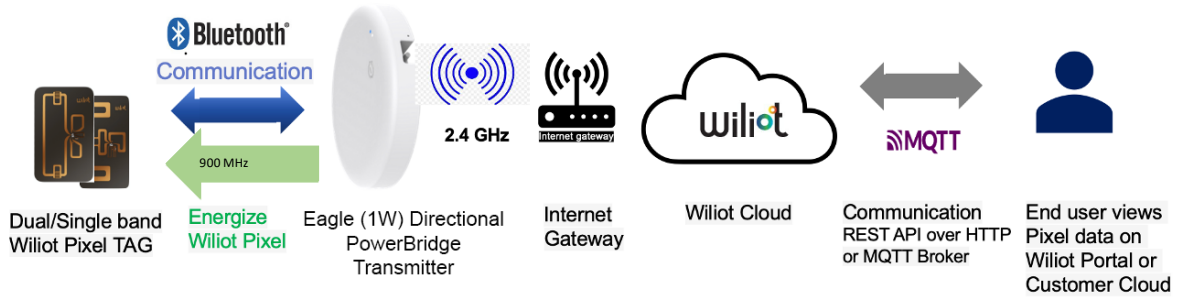


2 Characteristics

Specification	Description
Supported products	Wiliot Single band IoT Pixels Wiliot Dual band IoT Pixels
Energizing*	Up to +30 dBm in 900 MHz band Up to +20 dBm in 2.4 GHz band
Echo function*	Scan for Wiliot beacons, filter non-Wiliot BLE beacons, and re-broadcast
Antennas	Dual linear Sub-1 GHz and 2.4 GHz
Typical antenna gain	Sub-1 GHz: Dual 2 dBi linear 2.4 GHz: Dual 2.5 dBi linear
Antenna 3 dB beam width	Sub-1 GHz: ±35° 2.4 GHz: ±35°
LED indicators	Echo LED: blue LED blinks = Wiliot Pixel Packets are echo'd Energizing LED: white LED on = bridge is energizing Blink action: blue and white LEDs blink rapidly = bridge receives blink action Keep alive: Echo LED blinks 3 times every 30 seconds = transmission of management packets by bridge if no Pixel Packets are being sent Advertisement mode (BLE services): constant Echo LED = bridge is in Advertisement mode 30 seconds after wake up and can be connect for BLE services
Software updates	Via OTA from Wiliot management portal
Power supply	5V/1A via USB-C connector
Certifications	FCC Part 15, ISED (Canada), EU, UK, CN, KR, JP
Operating temperature	0° ~ 50°C
Dimensions	15.4 cm diameter, 2.6 cm thick

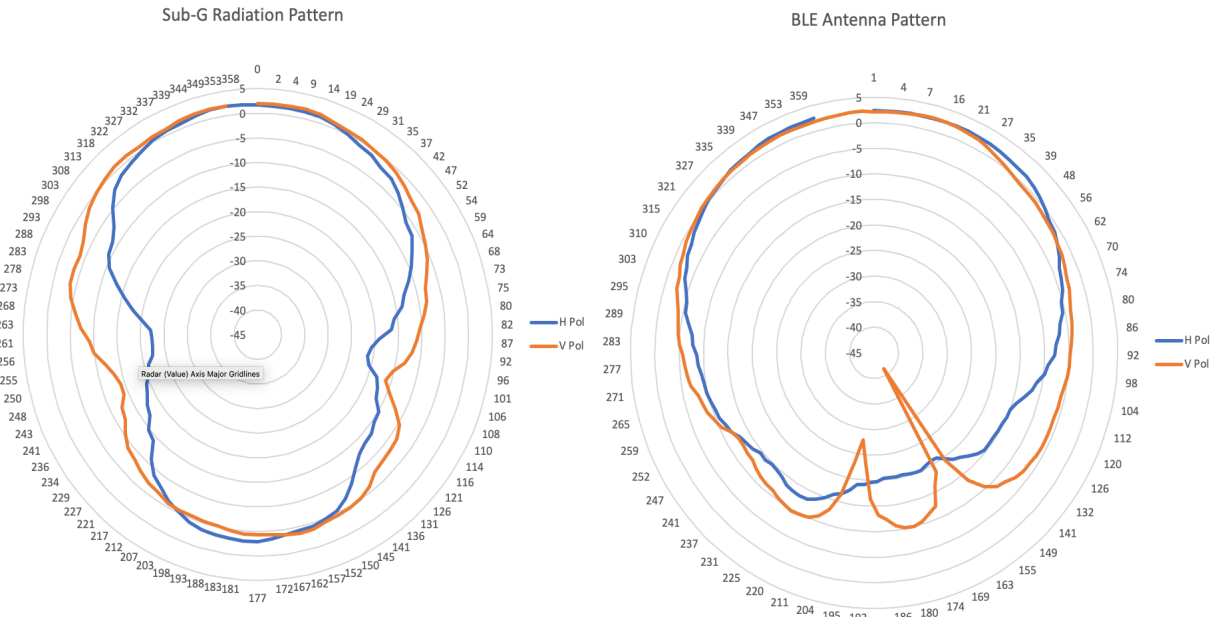
*Programmable from Wiliot Management portal

3 Application – System Level Workflow Architecture Diagram



Eagle (1W) Directional PowerBridge within the Works with Wiliot® Ecosystem

4 Antenna Radiation Patterns



900 MHz and 2.4 GHz Radiation Pattern

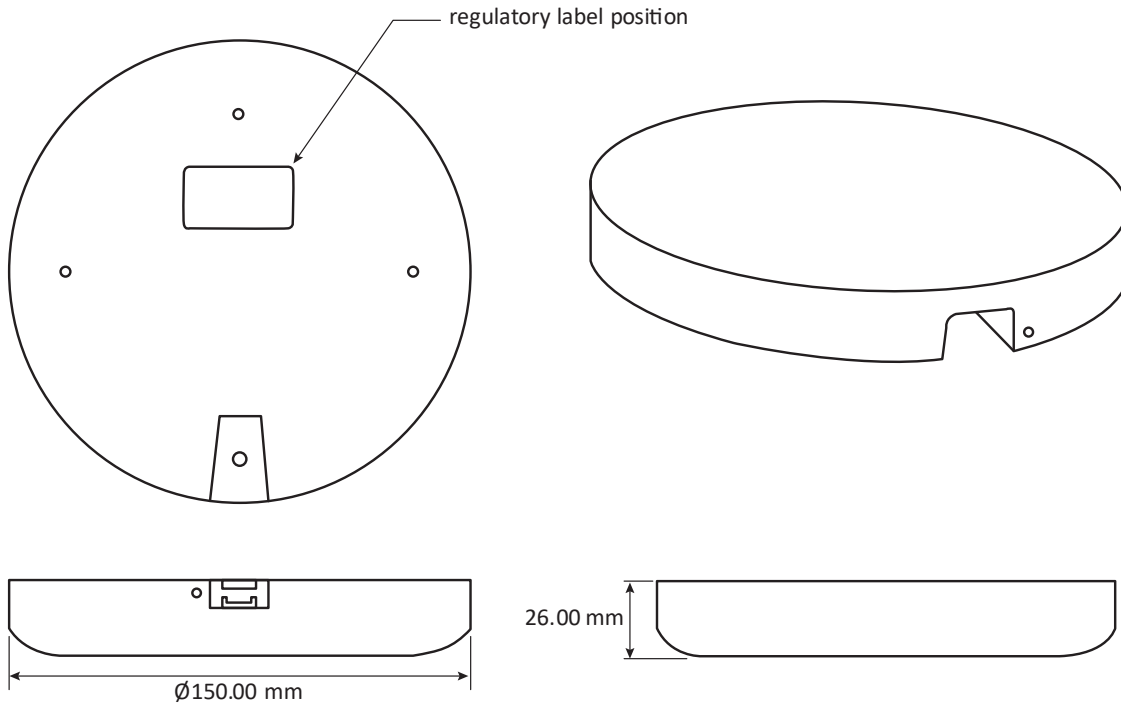
5 Operational Range

The PowerBridge energizes Pixels over a distance. Packets received from Pixels are rebroadcast by the PowerBridge at a higher power level; this is called *Echoing*. The distance over which Pixels can be energized is defined as *Energizing Range* and the distance over which the rebroadcast packet can be received is defined as *Echo Range*. This allows Pixel deployments to be meshed, with fewer gateways and “dead zones”. Being an RF technology, the operating environment plays a critical role in determining the range.

6 Pacing

The PowerBridge can reduce the amount of over-the-air traffic and throttle the amount of data pushed to the cloud. This feature is known as *Pacing* and refers to how often data packets received from Pixels are echoed by the bridge, which is programmable via the Wiliot management portal.

7 Eagle (1W) Directional PowerBridge Diagram



8 Regulatory Certification

The following countries are covered by 900 MHz band versions regulatory certification:

- USA
- Canada
- United Kingdom
- European Union
- Japan
- Korea
- China
- Australia
- New Zealand

Contact

support@energous.com

T: (408) 963-0200

9 Part Number Information

Part Number	Description
EN-TXS-1000-US-00	Energous Eagle (1W) Directional PowerBridge Transmitter - US - 918 MHz - with power supply
EN-TXS-1000-EU-00	Energous Eagle (1W) Directional PowerBridge Transmitter - EU - 918 MHz - with power supply
EN-TXS-1000-CN-00	Energous Eagle (1W) Directional PowerBridge Transmitter - CN - 900 MHz - with power supply
EN-TXS-1000-KR-00	Energous Eagle (1W) Directional PowerBridge Transmitter - KR - 900 MHz - with power supply
EN-TXS-1000-JP-00	Energous Eagle (1W) Directional PowerBridge Transmitter - JP - 900 MHz - with power supply

10 Revision History

Version #	Date	Description of Changes
Version 1.2	05/09/23	<ul style="list-style-type: none"> - In section 1, changed third bullet to “Circular Polarized 900 MHz and...” - In section 2, added footnote to Energizing Specification, changed description for Energizing Specification to "Up to +30 dBm in 900 MHz band, Up to +20 dBm in 2.4 GHz band", changed Echo function description to "Scan for Wiliot beacons, filter non-Wiliot BLE beacons, and re-broadcast", added "Typical" to Antenna Gain Specification, changed Antenna Gain Specification to “Sub-1 GHz: Dual 2 dBi linear 2.4 GHz: Dual 2.5 dBi linear”, changed Antenna 3 dB beam width to "Sub-1 GHz: ±35°...", rewrote description for LED indicators, and in image under table changed green arrow for Energize Wiliot Pixel to "900 MHz" - In section 3, replaced Antenna Radiation Pattern diagrams - In section 4, replaced information for Operational Range table - In section 7, renamed section to Regulatory Certification and replaced information with list of countries - Added new section 8 for Part Number Information - Added new section 9 for Revision History
Version 1.21	05/14/24	<ul style="list-style-type: none"> - Changed product name to “Eagle (1W) Directional...” throughout entire document - In section 1, changed polarization type in bullet 2 to “Dual linear” - In section 2, changed Antennas polarization type to “Dual linear” - Added new section 3, and moved image from section 2 to section 3 - In section 5, removed table - In section 8, changed US to “USA” - In section 9, removed last part number



Contact:

sales@energous.com

T: (408) 963-0200