

Energous 2W PowerBridge

With an industry-leading 2W of RF energy transmitted wirelessly to your sensors and tags, the Energous 2W PowerBridge system is a major advance in over-the-air (OTA) power distribution and real-time data connectivity for IoT networks. No wires, no batteries, no cables—just higher levels of continuous power, with more bi-directional data and supply chain visibility.

Energous PowerBridge transmitter systems are at the core of industrial-grade wireless power networks (WPNs). In addition to providing energy, these transmitter systems act as data links for IoT-enabled devices. This enables them to efficiently communicate valuable data and insights back to the cloud, allowing companies to analyze, optimize, and improve every part of their supply chain operations in real time. Energous delivers actionable, real-time data, alerts, and control via the Energous Cloud platform, either through our app or a desktop browser. The increased energy output of the Energous 2W PowerBridge—up to 8W Effective Isotropic Radiated Power (EIRP)—offers greatly improved range, energy distribution, flexibility, and rich, bi-directional data capacity over BLE.

By distributing power and network connectivity without the need for wires or batteries, these transmitter systems represent a breakthrough in the economics of large scale IoT, not to mention sustainability. IDC estimates that an Energous WPN-based deployment has one tenth the operating cost of RFID-based systems and can save 64% per year vs. battery power.¹ Batteries are an astonishing one half the cost of most sensor solutions, and from a sustainability perspective, over 100 batteries are added to landfills every second.²

Target applications and use cases for the Energous 2W PowerBridge include:

- 1. Retail:** Electronic shelf labels (ESLs), tags & sensors, real-time asset management.
- 2. Transportation & Logistics:** Cold chain, smart warehouses, real-time asset tracking, supply chain visibility.
- 3. Discrete Manufacturing:** Factory automation, data exchange, IoT tags, and sensor updates.



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Features	Benefits
Purpose-built custom design	Optimizes energy and data flow
Smart power distribution	Automates energy flows to optimize device performance
Dedicated software dashboard	Streamlines management with real-time control and monitoring over the network
Circularly polarized antenna	Allows more flexible antenna, tag, and sensor placement
Echoing	Rebroadcasts received packets at a higher power level allowing meshed deployments
Pacing	Reduces over-the-air traffic and throttles data pushed to the cloud

Sources: 1. IDC. Research conducted in partnership with Energous (2023). 2. JpXchange. "How to wirelessly power IoT sensors from 10m away" (2024)

High-Level Wireless Power Network (WPN) Topology



The Energous 2W PowerBridge system combines two EN3210 high-efficiency power amplifiers with an EN4100 System-on-Chip (SoC) RF transmitter to create a compact wireless charging infrastructure. The proprietary antenna design enables up to 8W EIRP with dual polarization, improving range, distribution, and sensor placement—and delivering up to 99 percent visibility of all connected devices. This makes it well suited to meet the increasing demand for large-scale power-over-distance applications, which is crucial for industries where asset tracking and monitoring are critical to their operations.

Specification	Description
Supported products	Universal solution that can energize ESLs, tags and IoT Sensors of all kinds
Energizing (EIRP)	Up to 39 dBm in 918 MHz; Up to 27 dBm in 2.4 GHz band
Echo function	Scans for BLE beacons, performs filtering, and re-broadcasts
Antennas	Circularly polarized sub 1 GHz and 2.4 GHz
Typical antenna gain	Sub-1 GHz: Dual 6.5 dBi linear; 2.4 GHz: Dual 7.5 dBi linear
Antenna 3 dB beam width	Sub-1 GHz: $\pm 45^\circ$; 2.4 GHz: $\pm 40^\circ$
LED indicators	Multiple LED indicators to display current state
Software updates	Via OTA from the Energous Cloud platform
Power supply	5V/2.4A via USB-C connector, 12V/1A via terminal block, or PoE PD 802.3af/802.3at type 1 (<13W)
Certifications	FCC Part 15 and EU (in progress)
Ingress protection	IP6x and IPx9k
Mounting standards	100 mm standard VESA
Operating temperature	-20° ~ 60°C
Dimensions	195 mm x 195 mm x 54 mm (1.1 kilograms)

Request a demo to see Energous wireless power solutions in action and learn more about how we can help deliver a battery-free, always-on energy flow for your IoT applications.

Energous Wireless Power Solutions is pioneering scalable, OTA wireless power networks that enable unprecedented levels of visibility, control, and intelligent business automation. The Company’s transmitter and receiver technologies deliver continuous access to wireless power, helping drive a new generation of battery-free devices for asset and inventory tracking and management.