FREEWAVE
FUSION™ BRIDGE

Fusion Bridge is FreeWave's new dual-radio gateway, bringing WiFi connectivity to remote areas on a ZumLink Network.

CONNECT REMOTE WIFI ASSETS AND LIBERATE CRITICAL DATA

Fusion Bridge is your operations game-changer. It's a dual-radio WiFi Bridge that adds seamless WiFi access point connectivity to remote 900MHz networks. Fusion Bridge lets you connect multiple wireless devices and sensors in the field and create new opportunities for connectivity, efficiency, and asset management.

Data is everywhere, but WiFi isn't. And without on-site connectivity to gather and share real-time data, your operations are probably suffering.

TRANSFORM YOUR OPERATIONS WITH FUSION BRIDGE.

Using a ZumLink network with Fusion Bridge, you can connect any WiFi device to the Network, including tablets, smartphones, and cameras. And with easy browser-based configuration, Fusion Bridge is OEM-ready with a customizable software interface.

Compatible with the FreeWave Edge platform, Fusion Bridge will grow with your connectivity needs into the future, with plans for BLE, Cellular, Lora, and Satellite coming soon.

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Fusion Bridge Benefits

- Securely connect remote and mobile assets for instant data access

- Simplify installation and networking set up to collect on-site asset data

- Provide mobile field workers in remote areas with a safe and secure method to collect and send data to headquarters

- Publish real-time WiFi sensor data to the cloud for more efficient operations and improved decision making

- Improve security through easy on-site installation and integration with off-the-shelf wireless security equipment

- Get a future-ready platform for deploying AI, ML operations, and data collection

FUSION BRIDGE KEY FEATURES

- Introduces WiFi connectivity to 900MHz networks

- Over-the-air compatible with ZumLink networks

- Add instant WiFi connectivity to remote and mobile assets

- Easy browser-based configuration

- Connect any WiFi device, including sensors, tablets, smartphones, and cameras

- OEM-ready with a customizable software interface

- Includes a Linux application development environment

- Includes the latest FreeWave Edge software features

Fusion Bridge Saves Money

- Remote WiFi monitoring and security for a fraction of the cost of on-site alarm systems, security personnel, or third-party security services

- Easy to implement and activate and creates a seamless WiFi access point at any remote location so you can avoid the recurring costs of a cellular solution

- Minimizes trenching, wiring, and infrastructure set up costs

Fusion Bridge Saves Time

- Plug-and-play integration is easy to install, set up, and use without any additional services and training

- Mobile WiFi access to enable asset tracking, mobile resource management, worker safety, and operational efficiency at any remote location

- Simplifies data collection and lets you publish to the cloud in real-time for more efficient operations and decision making

Fusion Bridge Eliminates Security Concerns

- Creates flexible options for camera systems without closed circuit or network wiring

- Provides a platform for remote security intelligence applications like human or vehicle presence alerting, activity monitoring, and remote access protection outside of network range

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Specifications

Receiver

IF Selectivity	> 40 dB
System Gain	135 dB

Sensitivity	RF Data Rates	Without FEC	With FEC
	115.2 kbps	-105 dBm	-108 dBm
	250 kbps	-102 dBm	-105 dBm
	500 kbps	-99 dBm	-102 dBm
	1 Mbps	-95 dBm	-98 dBm
	1.5 Mbps (Beta)	-90 dBm	-93 dBm
	4 Mbps	-83 dBm	-86 dBm

Transmitter

Frequency Range*	902 to 928 MHz
Output Power*	10 mW to 1 W; user selectable
Range	97 km (60 miles) with clear line of sight
Channel Spacing	230.4, 345.6, 691.2, 1382.4, 1612.8 (Beta), & 3225.6 kHz
RF Data Rate	115.2, 250, 500 kbps, 1, 1.5 (Beta), & 4 Mbps; user selectable

System Specifications

Processor	NXP i.MX6 Solo (Debian Linux Core)
Storage	16GB
Memory	1GB DDR3
ISM Radio	FreeWave Z9-T -- 902 to 928MHz, 10mW to 1W
Wifi Radio	Wifi Access Point, 802.11ac at 2.4GHz up to 867Mbps
Data Rates	Up to 1Mbps Wifi bridge, up to 4Mbps 900MHz network rate
Connectors	Ethernet (RJ45), Serial (RJ45), USB Hub (Type A), USB (Type C)
Operating Voltage	6 to 30VDC
Hardware Features	Real-time Clock, Power-down detection
Breakout Connections	UART, SPI, I2C, GPIO
Form Factor	Board-level, 6.5"x2.8", mounting plate option
Temperature	-20 to 70C (Humidity 0-95% Non-Condensing)
Regulatory	C1D2 Groups A-D, FCC, UL

Data Transmission

Type	Frequency Hopping Spread Spectrum	
Modulation	2 level GFSK	4- and 8-ary FSK
Link Throughput	Up to 1.6 Mbps; 4 Mbps w/ Compression	
Topology	Point to Point, Point to Multipoint, Pseudo-Mesh	
Error Detection	ARQ and CRC, retransmit on error, FEC	
Hopping Rates	400, 200, 100, 50, 25 ms	
Hopping Channels*	Up to 110; RF Data Rate Dependent	
Hopping Patterns	Up to 16; RF Data Rate Dependent	
AirProtocol	Adaptive Spectrum Learning (ASL)	
User Interface Rates	Ethernet Rate: 10/100 Mbps Serial Rate: up to 250 kbps	
Serial Protocols	Asynchronous Byte Oriented Protocols, Modbus, DNP3.0, DF1, X.28 and others	
Data Encryption	128-bit and 256-bit AES CCM	
Advanced Features	Packet Compression and Aggregation	

Start Your Fusion Bridge Journey. Visit freewave.com/products/fusion