FREEWAVE

IOEX-4440; 4422; 4404

Introducing the all New
ZumEdge™

Z9-IO-PE-ZE

The New ZumEdge - Our ZumLink 900MHz Plus A Lot More

ZumEdge adds seamless IO integration and industrial intelligence at the Edge. ZumEdge is the next evolution of FreeWave's Edge intelligence product line and features I/O connectivity, easy installation, and setup. Customers can access the data they need and make decisions on the edge in the harshest environments - in minutes - not hours - without requiring traditional SCADA connections.

Without existing Ethernet or SCADA infrastructure, critical sensor data is often stranded in the field, waiting to be acted upon, creating inefficiencies, and by extension, cost.

ZumEdge with an I/O module makes it easy (and possible) to establish a direct sensor connection allowing customers to access and monitor their data in the field and make decisions based on that data quickly.

ZumEdge is ideal for any industry that requires sensor data capture and measurement in rugged, isolated, and potentially hazardous environments. ZumEdge allows the user to automate decision making and utilize data infrastructure like MQTT and other third-party platforms to make their networks smarter, faster, and more efficient, without adding infrastructure or modifying existing systems.

Key Features

ZumEdge adds the capability to connect analog and digital IO devices directly to the IIoT network through IOEX expansion modules

ZumEdge configuration tool adds the ability to quickly and easily configure up to 15 IOEX modules (up to 180 individual IOs, depending on configuration).

The ZumEdge software implements a REST API to allow the customer to easily configure applications that control and read IO over ethernet using an API.

ZumEdge comes standard with the FreeWave IQ application environment, so customers can create their own on-board smart applications to make decisions on the Edge.

The IO and network configuration tool is self-contained on the device and served as a web page for remote configuration -- no extra software is required.

ZumEdge contains the Z9 radio module, making it over-the-air compatible with existing ZumLink networks, and implements ZumLink network management software.

ZumEdge is housed in a DIN-Rail-Mountable case.

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

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

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 with Compression
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
Protocol	Adaptive Spectrum Learning (ASL)
User Interface Rates	Ethernet Rate: 10/100 Mbps Serial Rate: up to 250 kbps
Data Encryption	128-bit and 256-bit AES CCM
Advanced Features	Packet Compression and Aggregation

Computing Resources

CPU	ARM Cortex-A8 1 GHz
RAM	512 MB
Storage	1 GB
OS	Debian-based Linux

Management

Management	HTTP, SSH
	SNMPv1/v2c/v3, MIB-II, Enterprise MIB, Modbus

Networking

VLAN	802.1Q
Serial	TCP server, Modbus/TCP, Modbus RTU, TCP client
Traffic Filtering	Netmask filter, ARP filter

Interfaces

Data Connectors	Three RJ-45 ports (1 Ethernet, 2 Serial)
USB Connectors	Micro USB
RF Connector	SMA
Power Connectors	Phoenix Contact (#17765240)

Power Requirements

Operating Voltage	+7.5 to +30VDC			
Current Consumption	Voltage	Transmit	Receive	Idle
	12VDC	358 mA	146 mA	118 mA

General Information

Operating Temperature	-40 to 65 Degrees C (-40 to 149 Degrees F)
Humidity	0 to 95% non-condensing
Dimensions	165.28 L x 76.89 W x 27.55 (mm) 6.51 L x 3.03 W x 1.08 H (inches)
Weight	0.55lbs/250g
Reliability	MTBF 206,186
Safety	Class I, Division 2, Groups A-D
UL	

Information to Order

Model Number	
Z9-IO-PE-ZE	ZumEdge
IOEX-4440; 4422; 4404	IO Expansions

*Country-specific models and information are available. Contact FreeWave Sales for information.

**Requires licensing. Contact FreeWave Sales for information.