

XetaEdge24

Industrial Edge Computer with 2.4 GHz ISM Radio

The **XetaEdge24** combines the **XetaEdge** and **Xeta24** to provide an extremely capable and flexible industrial Edge Computing application device with an integrated Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) software defined radio supporting the unlicensed 2.4 GHz frequency band. Based on the Debian operating system, the **XetaEdge24** radios are XetaWave's latest generation of radios.

The **XetaEdge24** is 100% open source allowing quick and simple hosting of many existing or new applications including the **eACM** and the **Ignition Edge** for interacting with existing devices like flow meters, ROCs, and PLCs.



The **XetaEdge24** also supports multiple modulation schemes and **MultiSpeed** mode which allows Endpoints operating at different RF data rates to communicate with a single Access Point to achieve optimal data throughput given the available channel size and RF environment.

All **Xeta24** radios from the XetaWave uTasker, Linux, Debian, and XetaEdge families are over-the-air compatible.

Key Features

High Speed Over-the-air data rates from 57 kbps to 5.3 Mbps plus higher throughput with payload compression and **EMP**.

Dual Mode Frequency hopping and single channel operations in the 2.402 to 2.478 GHz unlicensed ISM band.

Adjustable RF Output Power output up to 1 Watt (+30 dBm).

Network Types Point to Point, Point to Multipoint, Enhanced MultiPoint, Peer to Peer, and MESH.

Selective Modulation Multiple MSK, FSK, PSK, and QAM modulations.

Secure Over-the-air data encryption using 128-bit and 256-bit AES.

Apps AUTOSOL eACM, Node-RED, Inductive Automation Ignition Edge, AVEVA IoT View, Codesys, PLC Shift, and more are supported.

Diagnostics monitoring of TX and RX statistics (noise, RSSI, more), voltage, and temperature over SNMP and Modbus.

XetaEdge24 Specifications

Transmitter	ISM FHSS	ISM DSS
Frequency Range	2402 to 2478 MHz	
Output Power	10 to 1000 mW (10 to 30 dBm)	
Modulation	MSK, BPSK, QSPK, 8PSK, 16PSK, 16QAM, 32QAM, 64QAM	
Data Rate	57 to 5303 kbps	530 to 5303 kbps
Channel Bandwidth	77, 154, 207, 310, 600 & 1200 kHz	600, 900 & 1200 kHz
Frequency Stability	1.0 ppm	
Range	70+ miles	

Receive sensitivity numbers are with FEC disabled. When enabled, sensitivity improves by 3 dBm.

Receiver	ISM					
	77 kHz Channel		154 kHz Channel		207 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-110 dBm	57 kbps	-107 dBm	114 kbps	-106 dBm	153 kbps
	310 kHz Channel		600 kHz Channel		1200 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-103 dBm	229 kbps				
BPSK			-98 dBm	530 kbps	-100 dBm	884 kbps
QPSK			-99 dBm	1061 kbps	-96 dBm	1768 kbps
8PSK			-96 dBm	1591 kbps	-90 dBm	2651 kbps
16PSK					-84 dBm	3535 kbps
16QAM			-91 dBm	2121 kbps	-85 dBm	3535 kbps
32QAM			-85 dBm	2651 kbps	-80 dBm	4419 kbps
64 QAM			-80 dBm	3182 kbps	-77 dBm	5303 kbps

XetaEdge24 Specifications

Processing

CPU	ARM Cortex-A8 @ 1 GHz
OS	Debian
RAM Flash	1 GB 16 GB

Interfaces

Power	2-pin Phoenix +10 to +32 Vdc
Ethernet	2x RJ45 10/100 Mbps Base-T
Serial	2x RJ45 up to 1Mbps RS232/422/485
Micro-USB	On-the-Go +5 Vdc @ 500 mA
RF	TNC 50 Ohms

Power

Transmit	235 mA @ +12 Vdc
Receive	190 mA @ +12 Vdc
Idle	176 mA @ +12 Vdc

Environmental/Physical

Op. Temp.	-40°C to +75°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions	6.62" x 3.45" x 1.83" (metal) 5.5" x 3.5" x 1.5" (plastic)
Weight	700 grams (metal) 182 grams (plastic)

Functionality

Operating Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer, Full Duplex, Mesh
Roles	Access Point, Endpoint, Repeater
Networking	Static IP Routing, Net Filtering, Port Forwarding, Network Address Translation, Modbus Bridging
Protocols	IEEE 802.3, TCP, UDP, ARP, DHCP, NTP, FTP, ICMP, HTTP, HTTPS, SSH, Telnet, Multicast SNMP
Management	Web GUI, SNMP v1, v2, & v3
VLANs	802.1q VLANs and Trunks, QoS
Quality of Service	Four Levels of VLAN QoS
Serial Services	TCP/UDP Terminal Server, TCP Terminal Client, Up to 5 Simultaneous Connections
Error Handling	CRC, FEC, Retransmit on error
Error Correction	Golay, Reed-Solomon
Data Encryption	128 & 256-bit AES Payload Data Encryption
RF Encryption	128-bit AES RF Overhead Encryption
Hop Patterns	10 Pseudo Random, 1 Pseudo Random Based on Network ID, & 1 Secure
Secure Hop Pattern	128-bit AES Hop Pattern Determination
Compression	Low, High, Decompress Only
Repeater	Store-and-forward
MultiMaster (MMS)	Synchronization of Collocated Access Points or Multiple Access Points within a Network
MultiSpeed	Up to 4 Data Rates within the Same Channel Bandwidth
Diagnostics	Neighbor List, RF Ping, RF Throughput, RF Statistics, IP Ping, Traceroute, IPERF, TCP Dump, DNS Lookup, Network Statistics, Serial Statistics, Modbus Bridging Statistics, Statistics Graphing and CSV downloading
Programmable I/O Option	8 programmable input/output signals (4 independently programmed analog inputs/outputs, or digital inputs and 4 independently programmed digital inputs/outputs)
Dual Radio Option	Dual radio with the same or different frequency bands

XetaEdge24 Specifications

Ordering

Starting in March 2025, all models come standard with 16GB Flash memory

XETAEC24-22IMDFB	Metal Enclosed, 2 Ethernet & 2 Serial, 2DIs, 1 MMS
XETAEC24-22IMDFB-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS
XETAEC24-22IPDFB	Plastic Enclosed, 1 Ethernet & 1 Serial, 2DIs, 1 MMS
XETAEC24-22IPDFB-IO	Plastic Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS
Mixed Band Dual Radios	
XETAEC9X24-22IMDFC	902-928 MHz & 2.402-2.478 GHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial, 2DIs, 1 MMS



Specifications subject to change without notice.

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