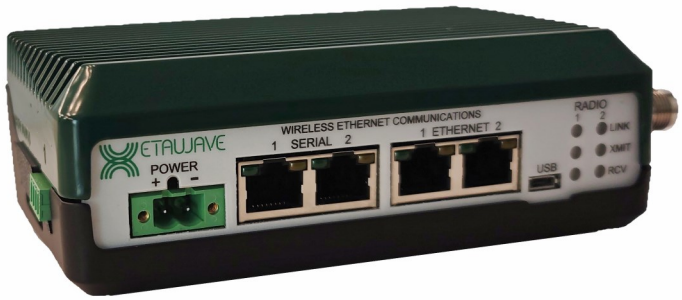
XetaEdge2

Industrial Edge Computer with 200 MHz MAS Radio

The **XetaEdge2** combines the **XetaEdge** and **Xeta2** to provide an extremely capable and flexible industrial Edge Computing application device with an integrated software defined radio (SDR) supporting the licensed 217 to 222 MHz frequency range. Based on the Debian operating system, the **XetaEdge2** radios are XetaWave's latest generation of radios.



The **XetaEdge2** 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 **XetaEdge2** 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 **Xeta2** radios from the XetaWave uTasker, Linux, Debian, and XetaEdge families are over-the-air compatible. The **XetaEdge2** radios support **compatibility** with the **MDS 2710** and **SD2** master radios and the **XetaEdge2x2** radio also supports full duplex operation.

Key Features

High Speed Over-the-air data rates from 9 kbps to 960 kbps plus higher throughput with payload compression and **EMP**.

Dual Mode Duplex and single channel operations.

Adjustable RF Output Power output up to 5 Watts (+37 dBm).

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

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.

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XetaEdge2 Specifications

Transmitter	Part 90	Part 90 Subpart T	Part 80
Frequency Range	217 to 220 MHz	220 to 222 MHz	217 to 218 & 219 to 220 MHz
Output Power	10 to 5000 mW (10 to 37 dBm)		
Modulation	MSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM		
Data Rate	10 to 216 kbps	9 to 480 kbps	153 to 960 kbps
Channel Bandwidth	12.5, 25 & 50 kHz	15, 50 & 100 kHz	200 & 250 kHz
Frequency Stability	1.0 ppm		
Range	70+ miles		

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

Receiver Part 90	12.5 kHz Channel		25 kHz Channel		50 kHz Channel	
Modulation	**Sensitivity**	**Data Rate**	**Sensitivity**	**Data Rate**	**Sensitivity**	**Data Rate**
MSK	-115 dBm	10 kbps	-114 dBm	18 kbps	-109 dBm	43 kbps
QPSK	-113 dBm	17 kbps	-112 dBm	29 kbps	-106 dBm	72 kbps
8PSK	-107 dBm	26 kbps	-106 dBm	44 kbps	-103 dBm	105 kbps
16QAM	-104 dBm	36 kbps	-103 dBm	59 kbps	-100 dBm	144 kbps
32QAM	-102 dBm	45 kbps	-100 dBm	76 kbps	-97 dBm	180 kbps
64QAM	-92 dBm	54 kbps	-89 dBm	91 kbps	-85 dBm	216 kbps

Receiver Part 90 Subpart T	15 kHz Channel		50 kHz Channel		100 kHz Channel	
Modulation	**Sensitivity**	**Data Rate**	**Sensitivity**	**Data Rate**	**Sensitivity**	**Data Rate**
MSK	-115 dBm	9 kbps	-105 dBm	36 kbps	-105 dBm	76 kbps
QPSK	-110 dBm	19 kbps	-101 dBm	59 kbps	-99 dBm	160 kbps
8PSK	-95 dBm	28 kbps	-95 dBm	88 kbps	-93 dBm	240 kbps
16QAM	-90 dBm	37 kbps	-88 dBm	117 kbps	-89 dBm	320 kbps
32QAM	-88 dBm	47 kbps	-85 dBm	146 kbps	-86 dBm	400 kbps
64 QAM	-84 dBm	56 kbps	-78 dBm	176 kbps	-80 dBm	480 kbps

Receiver Part 80	200 kHz Channel		250 kHz Channel	
Modulation	**Sensitivity**	**Data Rate**	**Sensitivity**	**Data Rate**
MSK	-102 dBm	153kbps	-102 dBm	194 kbps
QPSK	-100 dBm	320 kbps		
8PSK	-89 dBm	480 kbps		
16QAM	-88 dBm	640 kbps		
32QAM	-86 dBm	800 kbps		
64 QAM	-76 dBm	960 kbps		

XetaEdge2 Specifications

Processing

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

Power

Transmit	620 A @ +12 Vdc
Receive	190 mA @ +12 Vdc
Idle	176 mA @ +12 Vdc

Interfaces

Power	2-pin Phoenix | +12 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
Standard I/O	1x MMS input/output | 2 x DI

Environmental/Physical

Op. Temp.	-40°C to +60°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions	6.62” x 3.45” x 1.83”
Weight	700 grams

Functionality

Operating Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer, Full Duplex
Roles	Access Point, Endpoint, Repeater
Compatibility	As an Endpoint compatible with the MDS 2710 and SD2
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
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

XetaEdge2 Specifications

Ordering

XETAEC2-22MMDFB	Metal Enclosed, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS
XETAEC2-22MMDFB-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS
XETAEC2X2-22MMDFB	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS
XETAEC2X2-22MMDFB-IO	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS

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