

XetaEdge9

Industrial Edge Computer w/900 MHz Radio

The **XetaEdge9** combines the **XetaEdge** and **Xeta9** to provide an extremely capable and flexible industrial Edge Computing application device with an integrated 900 MHz Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) software defined radio. The **XetaEdge9** is compatible with the Xeta9 family of radios in the ISM and MAS band, and is Class 1 Div 2 certified.

The **XetaEdge9** is 100% open source allowing quick and simple hosting of many existing or new applications including the **AUTOSOL eACM** and the **Inductive Automation Ignition Edge** for interacting with existing devices like flow meters, ROCs, and PLCs while reducing bandwidth needs with the use of the **MQTT** protocol.



Plastic enclosure. Metal enclosure also available.

The **XetaEdge9** also supports multiple modulation schemes and MultiSpeed MultiPoint™ that allows End Points to selectively switch transfer rates with an Access Point to achieve optimal data throughput given the available channel size and RF environment. All Xeta9 radios from the uTasker, Linux, XetaEdge, and Debian series are over-the-air compatible and the XetaEdge9 also supports **compatibility with MDS 9710/9790, SD9, and TransNET** master and repeater radios.

Key Features

High Speed Over-the-air data rates from 10 kbps to 5.3 Mbps plus higher throughput with payload compression and in the **XetaEMP** mode.

Dual Mode Frequency hopping and single channel operations in the 902 to 928 MHz unlicensed ISM band.

Networks Point to Point, Point to MultiPoint, Enhanced MultiPoint (**XetaEMP**), CSMA Peer to Peer, and **XetaMESH**.

Memory Capacity Host and run applications with 1 GB RAM and 4 GB Flash with an option for 8GB or 16GB plus a micro SD slot.

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

Open Source Utilize existing Linux applications or host new ones developed in Java, Python, Ruby, Perl, and many more.

XetaEdge9 Specifications

Transmitter	ISM FHSS	ISM DTS
Frequency Range	902 to 928 MHz	
Output Power	10 to 1000 mW (10 to 30 dBm)	
Modulation	MSK, 2FSK, BPSK, QSPK, 8PSK, 16PSK, 16QAM, 32QAM, 64QAM	
Data Rate	57 to 5303 kbps	530 to 5303 kbps
Channel Bandwidth	77, 154, 207, 310, 600, 900 & 1200 kHz	600, 900 & 1200 kHz
Frequency Stability	1.0 ppm	
Range	70+ miles	30 miles

Receive sensitivity numbers below are with FEC disabled. With FEC enabled, these typically improve 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	-105 dBm	229 kbps				
BPSK			-100 dBm	530 kbps	-99 dBm	884 kbps
QPSK			-98 dBm	1061 kbps	-97 dBm	1768 kbps
8PSK			-93 dBm	1591 kbps	-92 dBm	2651 kbps
16PSK					-85 dBm	3535 kbps
16QAM			-89 dBm	2121 kbps	-87 dBm	3535 kbps
32QAM			-86 dBm	2651 kbps	-83 dBm	4419 kbps
64 QAM			-76 dBm	3182 kbps	-76 dBm	5303 kbps
	900 kHz Channel					
Modulation	Sensitivity	Data Rate				
2FSK	-100 dBm	663 kbps				
RF Selectivity	50 dB					

** Frequency Range may vary by Country, for example*

Australia, Peru	916-928 MHz
Brazil	902-907 & 916-928 MHz

XetaEdge9 Specifications

Transmitter

MAS

Frequency Range	928 to 960 MHz
Output Power	10 to 4000 mW (10 to 36 dBm)
Modulation	MSK, 4FSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM
Data Rate	10 to 1209 kbps
Channel Bandwidth	12.5, 25, and 50 kHz (100, 200, & 250 kHz available upon request)
Frequency Stability	1.0 ppm
Range	70+ miles

Receive sensitivity numbers below are with FEC disabled. With FEC enabled, these typically improve by 3 dBm.

Receiver

MAS

Modulation	12.5 kHz Channel		25 kHz Channel		50 kHz Channel	
	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-115 dBm	10 kbps	-114 dBm	19 kbps	-114 dBm	39 kbps
4FSK	-108 dBm	19 kbps	-111 dBm	39 kbps		
QPSK	-104 dBm	23 kbps	-107 dBm	36 kbps	-107 dBm	71 kbps
8PSK	-100 dBm	34 kbps	-101 dBm	52 kbps	-101 dBm	101 kbps
16QAM	-95 dBm	45 kbps	-98 dBm	70 kbps	-98 dBm	137 kbps
32QAM	-91 dBm	57 kbps	-95 dBm	87 kbps	-95 dBm	175 kbps
64 QAM	-90 dBm	68 kbps	-89 dBm	105 kbps	-89 dBm	210 kbps
RF Selectivity	33 dB		30 dB		30 dB	

XetaEdge9 Specifications

Processing

CPU	1 GHz ARM Cortex-A8
OS	Debian
RAM / Flash	1 GB / 4 GB 8 GB & 16 GB Flash Options

Interfaces

Power Connector	2-pin Phoenix / +12 to +32 Vdc
Ethernet	2 x RJ45 / 10/100 Mbps Base-T
Serial	2 x RJ45 / up to 1Mbps / RS232/422/485
Micro USB	On-the-Go; +5 Vdc @ 500 mA
RF Connector	TNC / 50 Ohms

Power

Transmit	235 mA (ISM) & 395 mA (MAS) @ +12 Vdc
Receive	190 mA (ISM) & 280 mA (MAS) @ +12 Vdc
Idle	176 mA @ +12 Vdc

Environmental/Physical

Op. Temperature	-40°C to +75°C (ISM) & +60°C (MAS)
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions (LxWxH)	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, Mesh
Roles	Access Point, Endpoint, Repeater
Compatibility Modes	As an Endpoint compatible with MDS 9710/9790, SD9, TransNET
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, Modbus RTU Server
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 (ISM)
Secure Hop Pattern	128-bit AES Hop Pattern Determination (ISM)
Compression	Low, High, Decompress Only
Repeater	Store-and-forward
MultiMaster	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, Serial Statistics, Modbus Bridging Statistics
Programmable I/O	Option for 8 programmable input/output signals (4 independently programmed analog inputs, analog outputs, or digital inputs and 4 independently programmed digital inputs or digital outputs)
Dual Radio	Option for dual radio that has the same or different frequency band

XetaEdge9 Specifications

Ordering

XETAEC9-22DMDFC	Metal Enclosed, 2 Ethernet & 2 Serial, ISM & MAS
XETAEC9-22DMDFC-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, ISM & MAS
XETAEC9-22IMDFC	Metal Enclosed, 2 Ethernet & 2 Serial, ISM Only
XETAEC9-22IMDFC-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, ISM Only
XETAEC9X9-22IMDFC	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial, ISM Only
XETAEC9X9-22IMDFC-IO	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O, ISM Only
XETAEC9X9-22IMDFC-8G	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial, 8 GB Flash, ISM Only
XETAEC9-22IPDFC	Plastic Enclosed, 2 Ethernet & 2 Serial, ISM Only
XETAEC9-22IPDFC-IO	Plastic Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, ISM Only
Mixed Band Dual Radios	
XETAEC9X4-22DMDFC	902-928 MHz & 406-430/450-470 MHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial
XETAEC9X4B-22DMDFC	902-928 MHz & 450-470 MHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial