XETAWAVE
CUSTOM RF SOLUTIONS

Xeta1 Linux

100 MHz Ethernet
Software Defined Industrial Radio

The **Xeta1 Linux** Ethernet radio is an extremely capable and flexible industrial software defined radio covering the 150 to 174 MHz frequency band. The **Xeta1 Linux** Ethernet radio is offered with an option to include 8 programmable inputs and outputs. The **Xeta1** is based on the XetaWave patented **Dual Decode Digital Architecture™** that offers significant receiver performance.

The **Xeta1** supports multiple modulation schemes and features that can selectively switch to achieve optimal data throughput given the available channel size and environmental noise.

MultiSpeed MultiPoint™ mode enables Endpoints operating at different over-the-air data transfer rates to communicate with a single Access Point over the same network. The **Enhanced MultiPoint (XetaEMP)** mode provides an increase in throughput and decrease in latency over our standard modes and against competitive products.

Key Features

High Speed Over-the-air data transfer rates from 5 to 88 kbps plus higher throughput with payload compression and in the **XetaEMP** mode.

Selective Modulation Multiple MSK, PSK, and QAM modulations.

Dual Mode Duplex and single channel operations.

Network Types Point to Point, Point to MultiPoint, CSMA peer to peer, Enhanced MultiPoint (**XetaEMP**).

Adjustable RF Output 10 mW to 5 Watts (+10 to +37 dBm) RF output.

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

MultiSpeed Multipoint Access Points communicate with Endpoints operating at different RF Data Rates.

XetaEMP An enhanced Point to MultiPoint protocol with increased throughput and decreased latency.

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Xeta1 Linux Specifications

Transmitter	FCC	IC
Frequency Range	150.8 to 173.4 MHz	150.05 to 174 MHz
Output Power	10 to 5000 mW (10 to 37 dBm)	
Modulation	MSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM	
Data Rate	5 to 88 kbps	
Channel Bandwidth	6.25, 12.5 & 25 kHz	
Frequency Stability	1.0 ppm	
Range	70+ miles	

Receiver	6.25 kHz Channel		12.5 kHz Channel		25 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK		5 kbps	-113 dBm	10 kbps	-113 dBm	17 kbps
QPSK			-103 dBm	18 kbps	-109 dBm	29 kbps
8PSK			-97 dBm	27 kbps	-103 dBm	41 kbps
16QAM			-94 dBm	37 kbps	-100 dBm	56 kbps
32QAM			-91 dBm	45 kbps	-96 dBm	72 kbps
64QAM			-86 dBm	54 kbps	-90 dBm	88 kbps

Xeta1 Linux Specifications

Power

Transmit	945 mA @ +12 Vdc
Receive	300 mA @ +12 Vdc
Idle	176 mA @ +12 Vdc

Interfaces

Power	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	TNC / 50 Ohms

Environmental/Physical

Op. Temperature	-40°C to +75°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions (LxWxH)	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
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, Radius
Management	Web GUI, SNMP v1, v2, & v3, SNMP Traps
VLANs	802.1q VLANs and Trunks, QoS
Quality of Service	Four Levels of VLAN QoS
Serial Services	TCP/UDP Terminal Server, TCP Terminal Client, Multicast Terminal, Modbus Bridging
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	Decompress Only, Low, High
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, DNS Lookup, Serial Statistics, Modbus Bridging Statistics, Network Statistics, Forwarding Table, Route Table, ARP Table, Channel Utilization, IO Status
Programmable I/O	Option for 8 programmable input/output signals (4 independently programmed analog inputs, analog outputs, or digital inputs and 4 independently programed digital inputs or digital outputs)
Dual Radio	Option for dual radio that has the same or different frequency band

Xeta1 Linux Specifications

Ordering

XETA1-22MMLFA	Metal Enclosed, 2 Ethernet & 2 Serial
XETA1-22MMLFA-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O
XETA1X1-22MMLFA	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial

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