



Xeta4 Debian 400 MHz MAS Ethernet Software Defined Industrial Radio

The **Xeta4** Debian Ethernet radio is an extremely capable and flexible industrial software defined radio (SDR) supporting the licensed 406 to 470 MHz frequency range. Based on the Debian operating system, the **Xeta4** Debian radios are XetaWave's latest generation of radios.

The **Xeta4** utilizes a XetaWave patented **Dual Decode Digital Architecture™** which offers significant receiver performance. The radio supports multiple modulation schemes and features. The **MultiSpeed** mode 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. The **Enhanced Multipoint (EMP)** mode provides an increase in throughput and a decrease in latency over traditional modes and against competitive products.



All **Xeta4** radios from the XetaWave uTasker, Linux, Debian, and XetaEdge families are over-the-air compatible. The **Xeta4** Debian radios support **compatibility** with the **MDS 4710/4790** and **SD4** master radios and the **Xeta4x4** Debian radio also supports full duplex operation.

Key Features

High Speed Over-the-air data rates from 5 kbps to 216 kbps plus higher throughput with payload compression and **EMP**.

Dual Mode Duplex and single channel operation.

Adjustable RF Output Power output up to 10 Watts (+40 dBm).

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

Selective Modulation Multiple MSK, PSK, and QAM modulations.

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

MultiSpeed Endpoints communicate at different RF data rates with Access Point.

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

Xeta4 Debian Specifications

Transmitter	FCC	IC/FCC	ETSI/RED
Frequency Range	450 to 470 MHz	406 to 430 & 450 to 470 MHz	406 to 470 MHz
Output Power	10 to 8000/10000 mW (10 to 39/40 dBm)		
Modulation	MSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM		
Data Rate	5 to 216 kbps		5 to 61 kbps
Channel Bandwidth	6.25, 12.5, 25 & 50 kHz		6.25 & 12.5 kHz
Frequency Stability	1.0 ppm		
Range	70+ miles		

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

Receiver	6.25 kHz Channel		12.5 kHz Channel		25 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-112 dBm	5 kbps	-115 dBm	10 kbps	-114 dBm	18 kbps
QPSK			-104 dBm	20 kbps	-107 dBm	29 kbps
8PSK			-100 dBm	31 kbps	-101 dBm	44 kbps
16QAM			-95 dBm	41 kbps	-98 dBm	59 kbps
32QAM			-91 dBm	51 kbps	-95 dBm	76 kbps
64 QAM			-90 dBm	61 kbps	-89 dBm	91 kbps

50 kHz Channel		
Modulation	Sensitivity	Data Rate
MSK		43 kbps
QPSK		72 kbps
8PSK		105 kbps
16QAM		144 kbps
32QAM		180 kbps
64 QAM		216 kbps

Xeta4 Debian Specifications

Processing

CPU	ARM Cortex-A8 @ 300 MHz
OS	Debian
RAM Flash	256 MB 4 GB

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

Power

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

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 MDS 4710/4790 and SD4
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

Xeta4 Debian Specifications

Ordering

IC/FCC 406-430 & 450-470 MHz

XETA4-22MMDFB	Metal Enclosed, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS
XETA4-22MMDFB-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS
XETA4X4-22MMDFB	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS
XETA4X4-22MMDFB-IO	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS

ETSI/RED 406-430 & 450-470 MHz

XETA4-22MMDEB	Metal Enclosed, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS
XETA4-22MMDEB-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS

FCC 450-470 MHz

XETA4B-22MMDFB	Metal Enclosed, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS
XETA4B-22MMDFB-IO	Metal Enclosed, 2 Ethernet & 2 Serial, with 8 Programmable I/O, 1 MMS, MAS
XETA4BX4B-22MMDFB	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS
XETA4BX4B-22MMDFB-IO	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS

Mixed Band Dual Radios

XETA9X4-22DMDFC	902-928 MHz & 406-430/450-470 MHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS
XETA9X4-22DMDFC-IO	902-928 MHz & 406-430/450-470 MHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS
XETA9X4B-22DMDFC	902-928 MHz & 450-470 MHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial, 2DIs, 1 MMS, MAS