XETAWAVE
CUSTOM RF SOLUTIONS

XETA4 DEBIAN

400 MHz Ethernet Radio

Industrial software-defined radio · licensed 406 to 470 MHz



216kbps
Max over-the-air rate

10W
RF output (+40 dBm)

70+mi
Range

Compatible
MDS 4710 and SD4

The **Xeta4 Debian** Ethernet radio is an extremely capable and flexible industrial software defined radio (SDR) supporting the licensed 406 to 470 or 450 to 470 MHz frequency band and running the Debian operating system, the **Xeta4 Debian** radios are part of XetaWave's latest generation of radios.

The **Xeta4** utilizes a XetaWave Dual Decode Digital Architecture which offers significant receiver performance. The radio supports multiple network types, modulation schemes, and many other features.

All **Xeta4** radios across the XetaWave uTasker, Linux, Debian, and XetaEdge families are fully over-the-air compatible. The **Xeta4 Debian** Ethernet radios support compatibility with the **MDS 4710** and **SD4** master radios. For applications requiring simultaneous transmit and receive capability, the **Xeta4x4 Debian** models support full-duplex operation.

KEY FEATURES

High Speed
5 kbps to 216 kbps over the air; higher throughput with payload compression and Enhanced MultiPoint.

Multiple Modes
Duplex and simplex operation supported along with full-duplex Access Point with half-duplex End Points.

Adjustable RF Output
Transmit output power from 10 mW (+10 dBm) up to 10 W (+40 dBm).

Network Types
Point-to-Point, Point-to-Multipoint, CSMA Peer-to-Peer, Enhanced MultiPoint, and Mesh.

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

Selective Modulation
Multiple MSK, PSK, and QAM modulations.

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

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

Programmable I/O
I/O consisting of 4 analog inputs, outputs, or digital inputs and 4 digital inputs or outputs is available.

Edge Computer
XetaEdge4 models with edge computing capability are available.

Dual Channel
Dual channel radios covering the same or different frequency bands are available.

GPS
Models with an optional integrated GPS.

258 South Taylor Avenue | Louisville, CO 80027 | 303-447-2745 | sales@xetawave.com www.xetawave.com

Hardware & Transmitter Specifications

PROCESSING

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

POWER @ +12 VDC

Transmit	2500 mA
Receive	190 mA
Idle	176 mA

INTERFACES

Power	2-pin Phoenix · +12 to +32 Vdc
Ethernet	2× RJ45 · 10/100 Mbps Base-T
Serial	2× RJ45 · up to 1 Mbps · RS-232/422/485
Micro-USB	On-the-Go · +5 Vdc @ 500 mA
RF	TNC · 50 Ω
GPS	TNC · 50 Ω
Standard I/O	1× MMS · 2× DI

ENVIRONMENTAL & MECHANICAL

Op. Temp.	-40 °C to +60 °C
Humidity	95% @ +40 °C, non-condensing
Dimensions	6.62 × 3.45 × 1.83 in
Weight	700 g
Safety	UL Class I, Div 2

TRANSMITTER

	FCC	IC	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 +37/+40 dBm)		
Modulation	MSK, QPSK, 8PSK, 16QAM, 32QAM, 64QAM		
Data Rate	5 to 216 kbps	5 to 216 kbps	5 to 61 kbps
Channel Bandwidth	6.25, 12.5, 25, 50 kHz	6.25, 12.5, 25, 50 kHz	6.25, 12.5 kHz
Frequency Stability	1.0 ppm		
Range	70+ miles		

Receiver Specifications

FCC / IC · 406–470 MHz

Modulation	Sensitivity	Data Rate
6.25 kHz channel		
MSK	-112 dBm	5 kbps
12.5 kHz channel		
MSK	-115 dBm	10 kbps
QPSK	-104 dBm	20 kbps
8PSK	-100 dBm	31 kbps
16QAM	-95 dBm	41 kbps
32QAM	-91 dBm	51 kbps
64QAM	-90 dBm	61 kbps

Modulation	Sensitivity	Data Rate
25 kHz channel		
MSK	-114 dBm	18 kbps
QPSK	-107 dBm	29 kbps
8PSK	-101 dBm	44 kbps
16QAM	-98 dBm	59 kbps
32QAM	-95 dBm	76 kbps
64QAM	-89 dBm	91 kbps
50 kHz channel		
MSK	—	43 kbps
QPSK	—	72 kbps
8PSK	—	105 kbps
16QAM	—	144 kbps
32QAM	—	180 kbps
64QAM	—	216 kbps

Sensitivity shown with FEC disabled. Enabling FEC can improve sensitivity by 3 dB.

RF SELECTIVITY

	All channels
RF Selectivity	50 dB

Functionality

Networking	
Operating Modes	Point-to-Point, Point-to-MultiPoint, Enhanced MultiPoint, Peer-to-Peer, Full Duplex. Mesh
Roles	Access Point, Endpoint, Repeater (store-and-forward)
Compatibility	As an Endpoint, compatible with MDS 4710, SD4
Networking	Static IP Routing, Net Filtering, Port Forwarding, Masquerading, Network Address Translation, Modbus Bridging, BATMAN Mobile Ad-hoc Networking
Protocols	IEEE 802.3, TCP, UDP, ARP, DHCP, NTP, STP, FTP, ICMP, HTTP, HTTPS, SSH, Telnet, Multicast, SNMP
Management	Web GUI, SNMP v1, v2a, 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
Reliability & Security	
Error Handling	CRC, FEC, Retransmit on error
Error Correction	Golay, Reed-Solomon
Data/RF Encryption	128- & 256-bit AES, payload only or payload and RF
Compression	Low, High, Decompress Only
Network Performance & Diagnostics	
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, Spectrum Analyzer, IP Ping, Traceroute, IPERF, TCP Dump, DNS Lookup, Network / VPN / Serial / Modbus Bridging Statistics, statistics graphing and CSV download
Options	
Programmable I/O	8 programmable I/O signals (4 independently programmed analog inputs/outputs or digital inputs, and 4 independently programmed digital inputs/outputs)
Dual Radio	Dual radio with the same or different frequency bands
Integrated GPS	Integrated GPS receiver

Ordering Information

Part Number	Frequency	Enclosure	Eth / Serial	I/O	Cert
Single-Channel Radios					
XETA4-22MMDFB	406–430 & 450–470 MHz	Metal	2 / 2	2 DI, 1 MMS	FCC/IC
XETA4-22MMDFB-IO	406–430 & 450–470 MHz	Metal	2 / 2	8 I/O, 1 MMS	FCC/IC
XETA4-22MMDEB	406–470 MHz	Metal	2 / 2	2 DI, 1 MMS	ETSI/RED
XETA4-22MMDEB-IO	406–470 MHz	Metal	2 / 2	8 I/O, 1 MMS	ETSI/RED
XETA4B-22MMDFB	450–470 MHz	Metal	2 / 2	2 DI, 1 MMS	FCC
XETA4B-22MMDFB-IO	450–470 MHz	Metal	2 / 2	8 I/O, 1 MMS	FCC
Dual-Channel Radios					
XETA4X4-22MMDFB	406–430 & 450–470 MHz	Metal	2 / 2	2 DI, 1 MMS	FCC/IC
XETA4X4-22MMDFB-IO	406–430 & 450–470 MHz	Metal	2 / 2	8 I/O, 1 MMS	FCC/IC
XETA4BX4B-22MMDFB	450–470 MHz	Metal	2 / 2	2 DI, 1 MMS	FCC
XETA4BX4B-22MMDFB-IO	450–470 MHz	Metal	2 / 2	8 I/O, 1 MMS	FCC
Mixed-Band Dual-Channel Radios					
XETA9X4-22DMDFC	902–928 + 406–430/450–470 MHz	Metal	2 / 2	2 DI, 1 MMS	ISM + FCC/IC
XETA9X4-22DMDFC-IO	902–928 + 406–430/450–470 MHz	Metal	2 / 2	8 I/O, 1 MMS	ISM + FCC/IC
XETA9X4B-22DMDFC	902–928 + 450–470 MHz	Metal	2 / 2	2 DI, 1 MMS	ISM + FCC
Radios with Integrated GPS					
XETA4XG-22MMDFB	406–430 & 450–470 MHz	Metal	2 / 2	2 DI, 1 MMS	FCC/IC
XETA4XG-22MMDFB-IO	406–430 & 450–470 MHz	Metal	2 / 2	8 I/O, 1 MMS	FCC/IC
XETA4BXG-22MMDFB	450–470 MHz	Metal	2 / 2	2 DI, 1 MMS	FCC
XETA4BXG-22MMDFB-IO	450–470 MHz	Metal	2 / 2	8 I/O, 1 MMS	FCC

Specifications subject to change without notice. **Rev. 11.2026**