XETAWAVE
CUSTOM RF SOLUTIONS

XETA9X DEBIAN

900 MHz Ethernet Radio

Industrial FHSS & DTS software-defined radio · unlicensed 900 MHz



5.3Mbps
Max over-the-air rate

1W
RF output (+30 dBm)

60mi
Range

Compatible
MDS TransNet

The **Xeta9x** Debian Ethernet radios are extremely capable, flexible, and low-cost industrial Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) software defined radios supporting the unlicensed 900 MHz frequency band. Based on the Debian operating system, the **Xeta9x** Debian radios are XetaWave's latest generation.

The **Xeta9x** 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 **Xeta9x** and **Xeta9** radios across the uTasker, Linux, Debian, XetaEdge, and XetaCell product families are fully over-the-air compatible. **Xeta9x Debian** Ethernet radios support compatibility with the **MDS TransNet**, and **TransNext™** master radios.

KEY FEATURES

High Speed
10 kbps to 5.3 Mbps over the air; higher throughput with payload compression and Enhanced MultiPoint.

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

Bands
902–928 MHz unlicensed ISM band.

Selective Modulation
Multiple MSK, FSK, PSK, and QAM modulations.

Adjustable RF Output
Transmit output power from 10 mW (+10 dBm) up to 1 W (+30 dBm) for all non-QAM modulations and 250 mW (+24 dBm) for all QAM modulations.

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

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

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

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Hardware & Transmitter Specifications

PROCESSING

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

INTERFACES

Power	2-pin Phoenix · +10 to +32 Vdc
Ethernet	1× RJ45 · 10/100 Mbps Base-T
Serial	1× RJ45 · up to 1 Mbps · RS-232/422/485
Micro-USB	On-the-Go · +5 Vdc @ 500 mA
RF	TNC (plastic) · SMA (board) · 50 Ω

POWER @ +12 VDC

Transmit	204 mA
Receive	141 mA
Idle	103 mA

ENVIRONMENTAL & MECHANICAL

Op. Temp.	-40 °C to +85 °C (board) -40 °C to +75 °C (plastic)
Humidity	95% @ +40 °C, non-condensing
Dimensions	5.1 × 3.2 × 1.0 in (board) 5.5 × 3.5 × 1.5 in (plastic)
Weight	170 g (board) · 182 g (plastic)
Safety	UL Class I, Div 2

TRANSMITTER

	ISM
Frequency Range	902 to 928 MHz *
Output Power	10 to 1000 mW (non-QAM) and 250 mW (QAM)
Modulation	MSK, 2FSK, BPSK, QPSK, 8PSK, 16PSK, 16QAM, 32QAM, 64QAM
Data Rate	57 to 5303 kbps
Channel Bandwidth	77, 154, 207, 310, 600, 900, 1200 kHz
Frequency Stability	1.0 ppm
Range	60 miles

*** Frequency range may vary by country, for example:**
Australia, Peru: 916 to 928 MHz
Brazil: 902 to 907 & 916 to 928 MHz

Receiver Specifications

ISM · 902–928 MHz

Modulation	Sensitivity	Data Rate
77 kHz channel		
MSK	-110 dBm	57 kbps
154 kHz channel		
MSK	-107 dBm	114 kbps
207 kHz channel		
MSK	-106 dBm	153 kbps
310 kHz channel		
MSK	-105 dBm	229 kbps
600 kHz channel		
BPSK	-100 dBm	530 kbps
QPSK	-98 dBm	1061 kbps
8PSK	-93 dBm	1591 kbps
16QAM	-89 dBm	2121 kbps
32QAM	-86 dBm	2651 kbps
64QAM	-76 dBm	3182 kbps

Modulation	Sensitivity	Data Rate
900 kHz channel		
2FSK	-100 dBm	663 kbps
1200 kHz channel		
BPSK	-99 dBm	884 kbps
QPSK	-97 dBm	1768 kbps
8PSK	-92 dBm	2651 kbps
16PSK	-85 dBm	3535 kbps
16QAM	-87 dBm	3535 kbps
32QAM	-83 dBm	4419 kbps
64QAM	-76 dBm	5303 kbps

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

RF SELECTIVITY

	ISM (all channels)
RF Selectivity	50 dB

Functionality & Ordering

Networking	
Operating Modes	Point-to-Point, Point-to-MultiPoint, Enhanced MultiPoint, Peer-to-Peer, Mesh
Roles	Access Point, Endpoint, Repeater (store-and-forward)
Compatibility	As an Endpoint, compatible with MDS TransNet and TransNext
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
Hop Patterns	10 pseudo-random, 1 pseudo-random based on Network ID, and 1 secure
Secure Hop Pattern	128- & 256-bit AES hop-pattern determination
Compression	Low, High, Decompress Only
Network Performance & Diagnostics	
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

ORDERING INFORMATION

Part Number	Frequency	Enclosure	Eth / Serial	I/O	Band
XETA9X-11INDFD	902–928 MHz	Board Level	1 / 1	None	ISM
XETA9X-11IPDFD	902–928 MHz	Plastic	1 / 1	None	ISM

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