XETAWAVE
CUSTOM RF SOLUTIONS

XETA8 DEBIAN

800/900 MHz Ethernet Radio

Industrial software-defined radio · licensed 896 to 901 & 935 to 940 MHz



105kbps
Max over-the-air rate

3W
RF output (+34.7 dBm)

70mi
Range

Compatible
MDS 9710 and SD9

The **Xeta8 Debian** Ethernet radio is an extremely capable and flexible industrial software defined radio (SDR) supporting the licensed 896 to 901 and 935 to 940 MHz frequency range and running the Debian operating system, the **Xeta8 Debian** radios are XetaWave's latest generation of radios.

The **Xeta8** 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 **Xeta8** radios across the XetaWave Debian and XetaEdge families are over-the-air compatible. The **Xeta8 Debian** radios support compatibility with the **MDS 9710/9790** and **SD9** master radios. For applications requiring simultaneous transmit and receive capability, The **Xeta8x8 Debian** models support full-duplex operation.

KEY FEATURES

High Speed
10 kbps to 105 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 3 W (+34.7 dBm).

Network Types
Point-to-Point, Point-to-Multipoint, CSMA Peer-to-Peer, Enhanced MultiPoint, Mesh, 9710, and SD9.

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.

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

GPS
Models with an optional integrated GPS.

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Hardware & Transmitter Specifications

PROCESSING

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

POWER @ +12 VDC

Transmit	395 mA
Receive	280 mA
Idle	176 mA

INTERFACES

Power	2-pin Phoenix · +10 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

	Part 90 (licensed)
Frequency Range	896 to 901 & 935 to 940 MHz
Output Power	10 to 3000 mW (+10 to +34.7 dBm)
Modulation	MSK, QPSK, 8PSK, 16QAM, 32QAM, 64QAM
Data Rate	10 to 105 kbps
Channel Bandwidth	12.5, 25 kHz
Frequency Stability	1.0 ppm
Range	70 miles

Receiver Specifications

PART 90 · 896–901 & 935–940 MHz

Modulation	Sensitivity	Data Rate
12.5 kHz channel		
MSK	-115 dBm	10 kbps
QPSK	-104 dBm	22 kbps
8PSK	-100 dBm	32 kbps
16QAM	-95 dBm	43 kbps
32QAM	-91 dBm	54 kbps
64QAM	-90 dBm	65 kbps
25 kHz channel		
MSK	-114 dBm	15 kbps
QPSK	-107 dBm	36 kbps
8PSK	-101 dBm	52 kbps
16QAM	-98 dBm	70 kbps
32QAM	-95 dBm	87 kbps
64QAM	-89 dBm	105 kbps

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

RF SELECTIVITY

	12.5 kHz	25 kHz
RF Selectivity	33 dB	30 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 9710/9790, SD9
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	Band
Single-Channel Radios					
XETA8-22MMDFA	896–901 & 935–940 MHz	Metal	2 / 2	2 DI, 1 MMS	MAS
XETA8-22MMDFA-IO	896–901 & 935–940 MHz	Metal	2 / 2	8 I/O, 1 MMS	MAS
Dual-Channel Radios					
XETA8X8-22MMDFA	896–901 & 935–940 MHz	Metal	2 / 2	2 DI, 1 MMS	MAS
XETA8X8-22MMDFA-IO	896–901 & 935–940 MHz	Metal	2 / 2	8 I/O, 1 MMS	MAS

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