Xeta1 Series 150 MHz
10 – 88 kbps

XETAWAVE CUSTOM RF SOLUTIONS

Licensed Software Defined Radio

The **Xeta1** is a licensed 136 – 174 MHz (*FCC: 150.8 – 173.4 MHz; IC 150.05 – 174 MHz*) software defined radio that features **Dynamic Modulation**, flexible configuration options, and multi-layer Ethernet capabilities including VLAN and Routing.

The **Xeta1** selectively switches modulation based on link quality and environmental noise. This **Dynamic Modulation** allows for data rates from 10 kbps – 88 kbps in the licensed 136 – 174 MHz band using 12.5 – 25 kHz channel sizes and power output from 50 – 5000 mW (17 – 37 dBm).

With built-in support for **MultiSpeed MultiPoint™,** the **Xeta1** enables both high and low speed remotes to operate on the same network with a single Access Point.

This new capability allows for unparalleled flexibility in network design. Remotes with shorter links can operate at faster data rates, maximizing system performance; while remotes with longer or more challenging links can operate at slower data rates, maximizing system flexibility.

Based on its patent pending **Dual Decode Digital Architecture™,** XetaWave's technology platform offers performance second to none in the commercial market today.

Technology Differentiators

High Speed 10 – 88 kbps over-the-air data rates. XetaWave's proprietary DSM technology offers the industry's highest data rate in a 12.5 kHz channel at 54 kbps.

Dual Radio Support for optional 2nd RF Module (of any Xeta Series) in a single enclosure provides enhanced repeater functionality, higher throughput rates and multi-band/multi-frequency operations.

Link Adaptation Dynamic data rate automatically adapts communication parameters to achieve optimal link performance.

Multi-Speed Multi-Point Unique to XetaWave, a *single* radio can have multi-logical data channels with different speeds, providing configuration and installation flexibility where long range or high speed can be prioritized.

Ethernet Switch The **Xeta1** acts like a switch, making more efficient use of RF bandwidth when compared to other "bridge" products. Two independent Ethernet ports and up to two RF Modules, each with full VLAN support, allow multiple logical networks to exist within the same physical system.

IP Routing Layer 3 Routing provides improved Ethernet traffic management for slower narrowband links, making the most efficient use of RF link bandwidth.

Serial Services Enables integration of hybrid networks utilizing both Ethernet and legacy Serial devices through TCP Terminal Server, TCP Terminal Client, UDP Terminal, and Modbus RTU Server capabilities.

IO Services Enables integration of Digital / Analog inputs and outputs with control and monitoring via Modbus TCP with ASCII/RTU support.

Configuration Management HTTP/HTTPS Web UI, text based configuration files and CLI (accessed via serial interface or SSH).

Onboard Diagnostics Built-in diagnostic support with tools such as Neighbor List, RF Ping, RF Throughput and RF Statistics.

SNMP V1/V2, V3 support for network management.

5 Watts Adjustable power output from 50 mW – 5 W (17 – 37 dBm)

Industry Applications

Oil & Gas

- Bandwidth for expanding IP-based control systems.
- Unified serial and IP/Ethernet infrastructure
- Licensed product where 136 – 174 MHz licenses are available; FCC: 150.8 – 173.4 MHz
  IC: 150.05 – 174 MHz
- Channel size selectivity to meet various global frequency deployment criteria.

Energy

- 100% testing over full -40°C to +75°C operating range ensures reliable communications across the harshest environments. *Contact XetaWave for lower temperature operation*.

Industrial Controls

- Optional I/O allows seamless integration of ModBus RTU, ModBus TCP, and DNP3 protocols into a unified wireless network.

Electric Power

- Distribution Automation
- Substation Automation
- SCADA
- Grid Sensors
- Voltage Optimization

Water & Wastewater

- Higher data rates allows more frequent polling and the ability to add compressed video monitoring in critical locations.
- Standard AES 256 bit encryption support secures critical communications channels from unauthorized use and interception.

Technical Specifications

Transmitter

Frequency Range	-	136 – 174 MHz (FCC: 150.8 – 173.4 MHz; IC 150.05 – 174 MHz)[1]
Output Power	-	50 – 5000 mW (17 – 37 dBm @ 12.5 / 25 kHz channels)[2]
Modulations	-	MSK, QPSK, 8PSK, 16QAM[3], 32QAM[3], 64QAM[3]
RF Data Rate	-	10 – 88 kbps
Occupied Bandwidth	-	12.5 / 25 kHz – *other channel sizes available to meet local regulations.*
Frequency Stability	-	1.0 ppm
Duty Cycle	-	Continuous
Output Impedance	-	50 Ohms
Range	-	70+ miles

[1] *FCC and IC operation is limited internally to valid frequencies under FCC Part 90 and IC SRSP-500.* **Contact XetaWave for other applications in the 136 – 174 MHz frequency range.**

[2] *25 kHz QAM modes are limited to 1W / 30dBm transmit power.*

[3] *QAM modes are available only in Canada.* **FCC waiver application in progress.**

Receiver

Sensitivity	-		12.5 kHz			25 kHz		
		MSK	-113	@	10 kbps	-113	@	17 kbps
		QPSK	-103	@	18 kbps	-109	@	29 kbps
		8PSK	-97	@	27 kbps	-103	@	41 kbps
		16QAM[3]	-94	@	37 kbps	-100	@	56 kbps
		32QAM[3]	-91	@	45 kbps	-96	@	72 kbps
		64QAM[3]	-86	@	54 kbps	-90	@	88 kbps

Data Transmission

Error Detection	-	Up to 32-bit CRC, Retransmit on Error	Data Encryption	-	AES128 / AES 256
Data Interfaces	-	2 x 10/100 Mbps Ethernet 2 x RS232/422/485	Data Connector	-	4 x RJ45
Serial Interface Speed	-	up to 230.4 kbps			

Power / Physical

Operating Voltage	-	12 – 32 VDC with reverse polarity protection to 32 VDC		
Power Consumption (mA) @ 12VDC (Avg)				
• **Xeta1-EL** (1W/5W)	-	Transmit: 562 / 945 mA	Receive: 330/530 mA	Idle: 243/322 mA
• **Xeta1x1-EL** (1W/5W)	-	Transmit: 611 / 1145 mA	Receive: 380 / 1108 mA	Idle: 297/389 mA
RF Connector	-	Enclosed: TNC	Module: MMCX	
Dimensions (L x W x H)	-	Enclosed: 6.625 " x 3.45 " x 1.835 " / 16.83 cm x 8.76 cm x 4.66 cm		
Weight	-	**Xeta1-EL** 1.54 lbs / 0.70 kg, **Xeta1x1-EL** 1.61 lbs / 0.73 kg,		

Environmental

Operating Temp Range	-	-40°C to +75°C. *Contact XetaWave for lower temperature operation.*
Humidity	-	95% operating humidity @ 40°C non-condensing.

UL Class 1 Div 2 cULus approved

Xeta1 Series

Xeta1-EL

- Single RF Module
- 10 – 88 kbps Data Rates with 5 W Max RF Xmit Power
- Linux Operating System
- HTTP/HTTPS
- VLANs
- IP Routing
- IP Filtering
- 2 x 10/100 Mbps Ethernet Ports
- 2 x RS232/422/485 Serial Ports
- TCP Terminal Server, TCP Terminal Client, UDP Terminal, Multicast Terminal and Modbus RTU Server capabilities
- IO support
- Management: XetaNET, Configuration Files, UI, SNMP, onboard Diagnostics and Spectrum Analyzer application
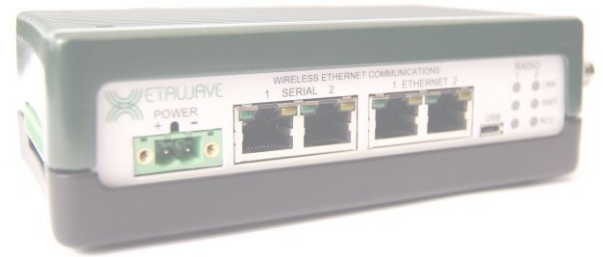
Dimensions (L x W x H): 6.625 " x 3.45 " x 1.835 " / 16.83 cm x 8.76 cm x 4.66 cm
Weight 1.54 lbs / 700 grams

Xeta1x1-EL

- Dual RF Module – can be installed as a Repeater or dual-AP
- Frequency Diversity – Second RF Module can be Xeta2, 4, 7, 9 or 24
- 10 – 88 kbps Data Rates with 5 W Max RF Xmit Power
- Linux Operating System
- HTTP/HTTPS
- VLANs
- IP Routing
- IP Filtering
- 2 x 10/100 Mbps Ethernet Ports
- 2 x RS232/422/485 Serial Ports
- TCP Terminal Server, TCP Terminal Client, UDP Terminal, Multicast Terminal and Modbus RTU Server capabilities
- IO support
- Management: XetaNET, Configuration Files, UI, SNMP, onboard Diagnostics and Spectrum Analyzer application

Dimensions (L x W x H): 6.625 " x 3.45 " x 1.835 " / 16.83 cm x 8.76 cm x 4.66 cm
Weight 1.61 lbs / 730 grams

Contact

For more information or to schedule a demo, please contact us at 408-642-5458 or **sales@elevatewireless.com**

Distributed by:
Elevate Wireless
Tel.: 408-642-5458
Email: info@elevatewireless.com

XetaWave provides an industry leading 3 year warranty on its products.

All XetaWave radios are 100% designed, manufactured, and tested at its headquarters in Louisville, Colorado, USA.