XETAWAVE
CUSTOM RF SOLUTIONS

XETACELL24

Cell Modem with 2.4 GHz Radio

Class 1 Div 2 LTE cell modem · integrated unlicensed 2.4 GHz radio



150Mbps
LTE CAT 4 download

5.3Mbps
ISM max over-the-air rate

70mi
ISM Range

1W
ISM output (+36 dBm)

The **XetaCell24** is a flexible and extremely capable industrial Class 1 Div 2 LTE cell modem certified for operation in the US and Canada with an integrated Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) software defined radio (SDR) supporting the unlicensed 2.4 GHz frequency band. The **XetaCell24** is offered in two variants – as a standard product or integrated within the **XetaEdge** edge computer platform. Both are based on the open Debian operating system and are available with an optional 8 programmable I/O.

The **XetaCell24 XetaEdge** is a powerful, low-cost platform that supports hosting of applications such as the AUTOSOL eACM, Inductive Automation Ignition Edge, Node-RED, Reverity PLC Shift, and supports multiple protocols for interacting with existing devices like flow meters, ROCs, and PLCs.

The web user interface of the **XetaCell24** is consistent with the Debian Xeta24, XetaEdge24, and the XetaCell which simplifies configuration and use. The **XetaCell24** with the 2.4 GHz ISM radio is compatible with all XetaWave Xeta24 products.

KEY FEATURES

Variants
Offering standard Debian or Edge Computer variants with CAT M1 or CAT 4 and a 2402 to 2478 MHz ISM software defined radio (SDR).

Carriers
Supports Verizon, AT&T, T-Mobile, FirstNet, Rogers, and Telus cellular networks.

Industrial Safe
C1D2 certified for operation from –40 °C to +75 °C for hazardous industrial applications.

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

Selective Modulation
Multiple MSK, PSK, and QAM modulations.

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

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

Adjustable RF Output
Transmit output power from 10 mW (+10 dBm) up to 1 Watt (+30 dBm).

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

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 (Debian) ARM Cortex-A8 @ 1 GHz (XetaEdge)
OS	Debian
RAM / Flash	256 MB / 4 GB (Debian) 1 GB / 16 GB (XetaEdge)

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
LTE / GPS	2× SMA / 1× SMA · 50 Ω
RF	1× TNC · 50 Ω
Standard I/O	1× MMS · 2× DI
SIM	Micro SIM (3FF)

POWER @ +12 VDC

Cell Linked	190 mA
Radio Transmit	235 mA
Radio Receive	190 mA
Radio Idle	176 mA
Radio Idle / Cell Off	140 mA

ENVIRONMENTAL & MECHANICAL

Op. Temp.	-40 °C to +75 °C
Humidity	95% @ +40 °C, non-condensing
Dimensions	5.5 × 3.5 × 1.5 in
Weight	182 grams
Safety	UL Class I, Div 2

CELLULAR

Carriers	Verizon · AT&T · T-Mobile · FirstNet · Rogers · Telus
LTE M1 / NB2	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B27, B28, B66, B71, B85 M1: 588 kbps down, 1 Mbps up · NB2: 120 kbps down, 160 kbps up
LTE 4	B2, B4, B5, B12, B13, B14, B66, B71 150 Mbps down, 50 Mbps up

TRANSMITTER

	ISM FHSS & DTS
Frequency Range	2402 to 2478 MHz
Output Power	10 to 1000 mW (+10 to +30 dBm)
Modulation	MSK, BPSK, QPSK, 8PSK, 16PSK, 16QAM, 32QAM, 64QAM
Data Rate	57 to 5303 kbps
Channel Bandwidth	77, 154, 207, 310, 600, 1200 kHz
Frequency Stability	1.0 ppm
Range	70 miles

Receiver Specifications

ISM · 2402–2478 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	-103 dBm	229 kbps
600 kHz channel		
BPSK	-98 dBm	530 kbps
QPSK	-99 dBm	1061 kbps
8PSK	-96 dBm	1591 kbps
16QAM	-91 dBm	2121 kbps
32QAM	-85 dBm	2651 kbps
64QAM	-80 dBm	3182 kbps

Modulation	Sensitivity	Data Rate
1200 kHz channel		
BPSK	-100 dBm	884 kbps
QPSK	-96 dBm	1768 kbps
8PSK	-90 dBm	2651 kbps
16PSK	-84 dBm	3535 kbps
16QAM	-85 dBm	3535 kbps
32QAM	-80 dBm	4419 kbps
64QAM	-77 dBm	5303 kbps

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

Functionality

Radio & Networking	
Carrier Selection	Manual carrier selection or automatic selection with automatic switching if a carrier is unavailable
Radio Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer, Mesh
Radio Roles	Access Point, Endpoint, Repeater (store-and-forward)
Compatibility	As an Endpoint compatible with the 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 encryption
Hop Patterns	10 pseudo-random, 1 pseudo-random based on Network ID, and 1 secure
Secure Hop Pattern	128-bit & 256-bit AES hop-pattern determination
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 Statistics, VPN Statistics, Serial Statistics, Modbus Bridging Statistics, statistics graphing and CSV downloading
Options	
Programmable I/O	Optional 8 programmable input/output signals (4 independently programmed analog inputs/outputs, or digital inputs and 4 independently programmed digital inputs/outputs)

Ordering Information

Part Number	Type	LTE	Enclosure	Eth / Serial	I/O
LTE Cat M1/NB2 · 2402–2478 MHz XETA24 Radio					
XETA24C1-22IPDFB	Standard	CAT M1	Plastic	2 / 2	2 DI, 1 MMS
XETA24C1-22IPDFB-IO	Standard	CAT M1	Plastic	2 / 2	8 I/O, 1 MMS
XETAEC24C1-22IPDFB	Edge Computer	CAT M1	Plastic	2 / 2	2 DI, 1 MMS
XETAEC24C1-22IPDFB-IO	Edge Computer	CAT M1	Plastic	2 / 2	8 I/O, 1 MMS
LTE Cat 4 · 2402–2478 MHz XETA24 Radio					
XETA24C4-22IPDFB	Standard	CAT 4	Plastic	2 / 2	2 DI, 1 MMS
XETA24C4-22IPDFB-IO	Standard	CAT 4	Plastic	2 / 2	8 I/O, 1 MMS
XETAEC24C4-22IPDFB	Edge Computer	CAT 4	Plastic	2 / 2	2 DI, 1 MMS
XETAEC24C4-22IPDFB-IO	Edge Computer	CAT 4	Plastic	2 / 2	8 I/O, 1 MMS

Specifications subject to change without notice. **Rev. 10.2026**