

# EUM8000

900 MHz, Non-Line-of-Sight  
Integrated Outdoor Subscriber Station

[www.vecima.com](http://www.vecima.com)



The EUM8000 is a high speed, integrated outdoor modem for use by residential and commercial subscribers. The EUM8000 uses new adaptive OFDM modulation schemes for much higher data rates and system capacity than its successful predecessor, the EUM3006.

Increased data rates and system capacity allow Wireless Internet Service Providers a faster return on investment.

## Features

### High-Speed OFDM Modulation Schemes

- The multiple modulation schemes based on Orthogonal Frequency Division Multiplexing are ideal in non-line-of-sight and highly multipath radio environments for robust and spectrum efficient communications over different channel conditions and ranges.

### Smart Diversity Antenna

- Provides superior performance in a multipath environment by automatically switching to either a vertical or horizontal polarization based on link conditions
- High-gain (10 dBi) antenna, enables the EUM8000 to generate the full +36 dBm EIRP average transmit power allowed by the FCC

### Weatherproof Package

- Tested to meet ETSI 300-019 environmental standards for outdoor installations, with an extended temperature range of -40° C to 50° C plus solar loading

### Power over Ethernet (PoE)

- The EUM8000 is powered by standard 48 VDC Power over Ethernet (802.3af Mode B compatible)

### Configuration Capabilities

- Auto CCU discovery – EUM8000 selects CCU with best RF signal.
- DHCP Client – EUM8000 can obtain its IP address, subnet mask and gateway information from a DHCP server
- Automatic remote configuration - EUM8000 will accept parameters from a RADIUS server to set other configurable parameters in the modem

### Installation Tools

- MDB1000 – hand-held device provides detailed key signal quality information to facilitate installation and alignment by a single installer (optional)
- SETUP Menu – allows any user to align the antenna or troubleshoot the RF link

### Adaptive Modulation

- Higher modulation rates – Over-the-air data rates of 1.5 to 13.5 Mbps and access speeds up to 8 Mbps
- Each individual radio modem dynamically adapts to transmit the highest sustainable rate for its link to the base station

## Advantages

- Over-the-air data rates of 1.5 to 13.5 Mbps and user access speeds up to 8 Mbps
- LOS range up to 25 miles; NLOS range up to 5 miles
- Highest system capacity
- Best in class Dynamic Polling MAC
- VoIP support
- Supports RADIUS AAA
- SNMP monitoring
- PPPoE support
- Supports a profitable business model



## Radio Specifications

Radio Type and Wireless Topology  
Base Station Unit Compatibility  
Operating Frequency Band  
Radio Access  
Radio Modulation

Subscriber Unit for STAR Topology  
CCU8000  
902 to 928 MHz  
Dynamic Polling MAC and ARQ  
Orthogonal Frequency Division Multiplexing (OFDM) with 8 different levels of quadrature amplitude modulation (QAM) and forward error correction (FEC) plus Direct Sequence Spread Spectrum (DSSS) with Complementary Code Keying (CCK) modulation

Type	Modulation	FEC Rate	Signalling Rate [Mbps]	RF Rx Threshold (internal antenna port, not including antenna gain) [dBm]
OFDM	BPSK	1/2	1.5	-88
OFDM	BPSK	3/4	2.25	-87
OFDM	QPSK	1/2	3	-86
OFDM	QPSK	3/4	4.5	-84
OFDM	16QAM	1/2	6	-81
OFDM	16QAM	3/4	9	-77
OFDM	64QAM	3/4	12	-73
OFDM	64QAM	3/4	13.5	-72

Average Output Power

up to +36 to 25 dBm EIRP (software selectable) depending on modulation scheme

Minimum/Maximum Center Channel Frequency

905.2/924.8 MHz

Channel Bandwidth

5.5 MHz

Center Frequency Spacing Increment

0.2 MHz

Orthogonal Channels

4

Orthogonal Channel Separation

6.6 MHz

## Radio Performance

Signaling Rates  
User Data Rate  
Maximum Link Path Distance

1.5, 2.25, 2.75, 3, 4.5, 6, 9, 12 and 13.5 Mbps  
Up to 8 Mbps  
> 25 miles (40 km) LOS 1st Fresnel zone clearance

## Antenna Specification

Antenna Package  
Antenna Gain  
Antenna Beamwidth  
Front-Back Min. Ratio  
Diversity

Integrated with modem in single outdoor package  
10 dBi  
45 degrees for both Horizontal and Vertical Polarization  
15 dB  
Automatic Diversity Selection of Horizontal and Vertical Polarization

## Data and Power Interface

Ethernet Connector  
Power over Ethernet  
Max. Ethernet Cable Length

10/100BaseT RJ-45 HDX Ethernet Jack (TIA - T568A)  
+48 VDC, 802.3af Mode B compatible PoE, pairs 1 & 4  
330 feet (100 m)

## Power over Ethernet Injector

Input  
Output  
Power Consumption (typical)

Auto-sensing 100-240 VAC, 47-63 Hz  
48 VDC, 350 mA max  
10 W

## Dimensions

L x W x H  
Weight  
Materials

16.25" x 8.25" x 3.5" (41.5 cm x 21 cm x 9 cm)  
6.4 lb (2.9 kg)  
Aluminum base , plastic radome

## Environmental Specifications

Operating Temperature  
Storage Temperature  
Operating Humidity  
Standards  
Wind Loading

-40° C to 50° C plus solar loading  
-40° C to 70° C  
0% to 95% RH (non-condensing @ 50° C)  
Compliant with ETSI-300-019-1-4, Class 4.1 with extended temp. range  
Better than 110 mph (180 kph) - maintains alignment to better than 56 mph (90 kph)  
Better than 1.25" (32 mm)  
Mounts to any secure pole from 1" to 3" (2.5 cm to 7.6 cm)  
Mounts horizontally or vertically

Ice Loading  
Mounting Interface  
Orientation

## Approvals

Radio Transmitter  
Safety

FCC Part 15, Subpart C, 15.247; Industry Canada RSS-102 and RSS-210  
UL, CSA

## Ordering Information

SKU: WR200-8000 Includes: EUM8000 Outdoor Integrated Wireless Modem; 10 dBi integrated smart diversity antenna; mounting hardware; Universal AC/DC adapter with integrated 48 VDC PoE injector; NA AC cord



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