

NCL8000

900 MHz Non-Line-of-Sight Point-to-Point Outdoor Wireless Bridge

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Vecima Networks continues its leadership in the 900 MHz market with the newest member of the WaveRider point-to-point family, the NCL8000 outdoor wireless bridge. The NCL8000 features new OFDM modulation technology and significantly higher over-the-air data rates than its successful predecessor, the NCL900.

Vecima Networks has assembled a kit with the components required for a fully configured “out of the box” solution for a wireless point-to-point link. The NCL8000 also supports a full suite of IP management and radio configuration tools.

NCL8000 Point-to-Point Kit Includes:

- One NCL8000 master station with integrated 10 dBi antenna
- One EUM8000 subscriber station with integrated 10 dBi antenna
- Two PoE lightning arrestors
- One MDB1000 antenna alignment tool
- Two 48 VDC PoE injectors/power supplies
- Pole mounting accessories
- Ordering part number: WR150-8902

NCL8000 Applications:

- Cost-effective T-1 or lease line replacement
- IP-based video surveillance solutions
- Remote monitoring
- Wireless wide area network connectivity
- Municipal, education, healthcare, security, enterprise and more

NCL8000 Advantages:

- Over-the-air data rates up to 13.5 Mbps and access speeds up to 8 Mbps
- Packet prioritization: supports VoIP, video and data communications
- Extended temperature range of -40° C to 50° C
- Superior 900 MHz non-line-of-sight performance
- No spectrum license required
- Line-of-sight range up to 50 miles (80 km)
- Non-line-of-sight range up to 5 miles (8 km)
- 36 dBm EIRP max transmit power
- -87 dBm (BER<10⁻⁶) receiver sensitivity



Radio Specifications

Link Type	Point-to-Point Master, connects to EUM8000 Station (see EUM8000 specifications)
Operating Frequency Band	902 to 928 MHz
Radio Access	Dynamic Polling MAC & ARQ
Radio Modulation	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 (at antenna port) [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	3/8	12	-73
OFDM	64QAM	3/4	13.5	-72

Maximum Output Power	36 to 25 dBm EIRP
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 (for co-location, 96 dB isolation is required)
Orthogonal Channel Separation	6.4 MHz
Channel Selection	Static (Station will auto-discover master, can deny unauthorized access)
LED Indication with MDB1000	Power On, Signal Level, Signal Quality, Ethernet Link, Master (A)
Data Type	TCP/IP with QoS for VoIP
User Access Protocols	Telnet w/ Password
Management Protocols	RADIUS, DHCP, SNMP, NTP, ftp, Telnet

Radio Performance

Maximum Over-the-Air Raw Data Rate	13.5 Mbps
User Data Rate	Up to 8 Mbps
Maximum Link Path Distance	Up to 50 miles (80 km) LOS First Fresnel Clearance

Antenna Specification

Antenna Package	Integrated with modem in single outdoor package
Antenna Gain	10 dBi
Antenna Beam width	45 degrees for both Horizontal and Vertical Polarization
Front-Back Min. Ratio	15 dB
Diversity	Polarization Horizontal or Vertical User Selectable through CLI

Data and Power Interface

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

Power over Ethernet Injector

Input	Auto-sensing 100-240 VAC, 47-63 Hz
Output	48 VDC, 350 mA max
Power Consumption (typical)	10 W

Dimensions

L x W x H	16.25" x 8.25" x 3.5" (41.5 cm x 21 cm x 9 cm)
Weight	6.4 lb (2.9 kg)
Materials	Aluminum base, Plastic uV Protected Radome

Environmental Specifications

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

Approvals

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



Vecima Networks Inc.

150 Cardinal Place Saskatoon, SK S7L 6H7
 ☎ (888) 292-8266 / (306) 955-7075
 📠 (306) 955-9919
 ✉ sales@vecima.com

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