

## cnReach<sup>™</sup> N500 450 MHz ETSI RED Radio

For outdoor critical infrastructure operations, cnReach transports process monitoring and control data from remote sensors or RTU/PLC's back to the operations center supporting real-time automated decision making and on-going analytics. Covering large geographic areas, hard to reach terrain and challenging spectrum environments, cnReach delivers reliable, secure connectivity to the petrochemical, electric utility, water/wastewater/stormwater and transportation industries. cnReach eases the migration to modern networks by combining legacy serial and analog/digital I/O with TCP/IP and Ethernet connectivity. Fully integrated into a 'single pane-of-glass' management platform (cnMaestro"), cnReach helps bridge the IT/OT sides



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of complex organizations. Combining *cn*Reach's licensed and unlicensed narrow-band radios with Cambium Networks' broadband technologies, industrial organizations are delivering end-to-end Industrial Internet of Things solutions today.

- Licensed 450 MHz (406-470 MHz); ETSI RED Compliant w/ CE Mark (also available in an FCC model)
- Up to 8W transmit (39 dBm)
- · Point-to-point, Point-to-multipoint and Back-to-back Relay configurations (dual radios)
- Secure communications with AES 128/256-bit encryption and password authentication
- · Highly reliable communications with access point synchronization and adaptive modulation
- · Single and dual radio configurations for advanced back-to-back relay topologies.
- Extensive I/O capabilities easing the transition from serial to all-IP networks with two serial ports, two Ethernet ports and optional analog/digital I/O built-in.
- Sophisticated network planning with LINKPlanner, a no-charge planning tool enabling network designers to predict both capacity and availability of networks crossing all of Cambium's technologies.
- Supported by cnMaestro software for monitoring the status of entire networks

Back-to-back Repeater (BTB) - Requires Dual Radio

Point to Multipoint (PMP)

PRODUCT	PRODUCT DESCRIPTION	ETSI MODEL NUMBERS	
	N500 450 MHz Single - ETSI RED	NB-N500430A-EU	
	N500 450 MHz Single with IO - ETSI RED	NB-N500431A-EU	
	N500 450 MHz Dual - ETSI RED	NB-N500440A-EU	
	N500 450 MHz Dual with IO - ETSI RED	NB-N500441A-EU	
DEPLOYMENT TO	POOLOGIES		
	Point to Point (PTP)		

## **Specifications**

RADIO PERFORMANCI	E							
Frequency Range	406-470 MHz							
Output Power	100 mW to 8W (13 dBm to 39 dBm)							
Step Size	10 mW							
Modulations	BPSK / MSK / QPSK / 8PSK / 16QAM / 32QAM							
Capacity*	9.6 kbps to 44 kbps RF data rate; up to 26 kbps UDP throughput in 12.5 kHz channels							
Channel Bandwidths	12.5 / 25 kHz (50 / 100 kHz available regulations permitting and by request)							
Range	Up to 110 km / 70 miles							
RECEIVE SENSITIVITY	Y 12.5 kHz CHANNEL - ETSI		NNEL - ETSI	25 kHZ CHANNEL - ETSI				
BER = 10E-4; (for 10E-6 reduce ser	nsitivities by 2 dB)	Rx Sensitivity (dBm)	Capacity* (kbps)	Rx Sensitivity (dBm)	Capacity* (kbps)			
BPSK		-110	9	-107	18			
MSK		-105	10	-102	20			
QPSK		-106	17	-102	34			
8PSK		-101	26	-98	52			
16QAM		-98	35	-95	70			
32QAM		-95	44	-92	88			
DATA CAPABILITIES								
Packet handling	Layer 2 bridge							
	Layer 3 static routes							
	VLAN support							
Error Correction	Up to 32-bit CRC, Retransmit on error							
Data Encryption	128/256-bit AES							
I/O and Serial Data Access	Optional I/O allows seamless integration of Modbus RTU and Modbus TCP protocols							
MANAGEMENT	Web-based Interface	e via HTTP/HTTPS						
	LINKPlanner integra	tion (capacity and availabilit	y planning)					
	Remote Managemer	it via SNMP						
	<i>cn</i> Maestro integratio	n (roadmap)						
	Support for configur	ation files, remote software	upgrades					
	Built-in diagnostic to	ools via web interface such a	s RF Ping and RF Throughput					

<sup>\*</sup> Capacities are over-the-air signalling rates. Usable throughput varies based on payload size, uplink/downlink ratio and protocol. UDP traffic is typically 55-60% of the over-the-air signalling rate.

## **Specifications**

INTERFACES									
Ethernet Interfaces	2 x RJ-45								
	10/100BaseT, Full Duplex, rate auto negotiated (802.3 compliant)								
Serial Interfaces	2 x RJ-45								
	RS-232/422/485, up to 230.4 kbps								
Analog/Digital I/O (optional)	8 pins for analog input/output and digital input/output								
RF / Antenna	TNC RF connectors (1 or 2 depending on single or dual-radio configuration)								
POWER									
Input	10-32VDC with reverse polarity protection								
Power Consumption (12VDC average)	1W Output		8W Output						
	Transmit	Receive	Idle	Transmit	Receive	Idle			
Single Radio Configuration (mA)	611	266	194	1145	430	345			
Dual Radio Configuration (mA)	1200	380	215	2600	1108	387			
PHYSICAL									
Dimensions	6.625" x 3.45" x 1.835" (168 mm x 876 mm x 466 mm)								
Weight	Single Radio Configuration 1.54 lbs. (0.70 kg)								
	Dual Radio Configuration			1.61 lbs. (0.73 kg)					
DIN Rail Mount	optional								
ENVIRONMENTAL									
Operating Temperature	-40C to +75C								
Humidity	95% operating humidity @ 40C non-condensing								
HAZLOC	UL-Approved to Class 1 / Div 2								
REGULATORY									
UL	Approved								
EMC/Safety	CE Mark								
	Safety: EN60950-1: 2006 EMC: EN 301 489-1 v2.1.1, Health EME: EN 50385:20 Radio: EN 300 113 v2.2.1 RoHS: EN 50581:2012		+A2:2013						