



# BreezeNET B

Taking PTP Wireless to a Higher Point of Efficiency

- Ethernet bridging & backhauling
- OFDM technology
- Outdoor radio with extra long range
- Robust performance in NLOS environments
- Multi level data security protection
- Suitable for a wide range of Point-to-Point applications
- Unlicensed 5 GHz bands
- Simple installation and maintenance





## Product Highlights & Advantages

- Cost effective alternative to leased lines with fast ROI
- Optimal cost/performance ratio: highly cost efficient solution
- Robust outdoor architecture: ensures unprecedented range and reliability
- Superior OFDM radio: enables Non Line Of Sight (NLOS) capabilities in dense urban environments
- Ideal for noisy environments: Adaptive Modulation and Forward Error Correction (FEC) features optimize performance
- High throughput: up to 28 Mbps machine dependent
- Variety of frequencies: in the 5 GHz band
- Non-compromising Security: AES or 128 bit WEP key encryption (selectable)
- Easy to install and adjust: full LED diagnostics, 10-LED bar display for antenna alignment, user-friendly management tool application
- Simple to upgrade: update software and reconfigure settings over the air
- Built-in remote diagnostics: minimize maintenance costs and downtime

### **BreezeNET B: The Optimal Point-to-Point Solution**

The BreezeNET B is a family of wireless point-to-point bridging solutions that operate in the unlicensed 5GHz band and provide an efficient and highly secured solution for building-to-building connectivity and backhauling. It is an ideal cost efficient alternative to expensive leased lines, providing an instant link for connecting remote local offices to headquarters, and isolated buildings on campuses and in industrial zones.

Moreover, ISPs can leverage BreezeNET B as a powerful and cost-effective wireless link to backhaul their Point-to-Multipoint data to their Internet access network, avoiding the need for expensive, leased lines over wire line infrastructures.

### **Operating Beyond the Line of Sight**

Alvarion developed the BreezeNET B in recognition of the need to provide a viable and cost-effective solution for dense urban and industrial environments where a clear line of sight for point-to-point applications is not always available. To that end, the BreezeNET B leverages both robust outdoor technologies and Orthogonal Frequency Division Multiplexing (OFDM) modulation in the same product. With features such as Forward Error Correction (FEC) coding, used to combat multi-path and noisy environments, the product operates seamlessly and efficiently in Non Line Of Sight (NLOS) environments with a relatively powerful throughput. The system also features adaptive modulation for automatic selection of modulation schemes to maximize the data rate and improve spectral efficiency. These inherent advantages of the BreezeNET B enable service providers to provide an effective PTP solution to a significantly higher subscriber base that would otherwise be inaccessible, due to LOS restrictions.

### **Crossing the Digital Divide for a Wide Range of Point-to-Point Environments**

Business enterprises, municipalities, university campuses, law enforcement agencies and other private and public institutions typically have multiple facilities or buildings that are spread over a wide urban or rural area. BreezeNET B Point-to-Point solutions achieve an instant building-to-building link. Organizations that rely upon Ethernet/LAN connections no longer need to worry about their remote buildings/branches being left out of the network loop; BreezeNET B provides a seamless, efficient and secure wireless bridge with high-bandwidth transmissions, covering large distances in harsh and adverse environments and weather conditions.



### Highly Secured Air Interface

BreezeNET B supports security sensitive applications through the optional use of authentication and/or data encryption utilizing AES or WEP algorithms with 128 bit keys. The system also supports VLAN based on IEEE 802.1Q, facilitating secure operation and Virtual Private Network (VPN) services and enabling remote employees or offices to conveniently access their enterprise network.

### Product Variations

BreezeNET B is available in two main variations, BreezeNET B14 and BreezeNET B28, which differ mainly in their throughput. Each product variation is available with a 21dBi integrated antenna or with a connector for a detached external antenna (in which case it can be used with either a 23 or 28 dBi flat antenna or 31.2 dBi parabolic antenna). The BreezeNET B product variation offering allows an optimal cost/performance solution for every PTP application.

### Built to Last

All BreezeNET B products are robust outdoor units that are built to perform in difficult climatic environments and withstand even the harshest weather conditions. Outdoor units typically maintain a significantly higher link budget than their indoor counterparts and therefore achieve higher performance and availability. Unlike Point-to-Point indoor units, which employ RF cables to run signals to rooftop antennas, outdoor units utilize a simple CAT-5 connection, which enables a significant reduction in the loss of power/DB levels. CAT-5 cables are also far easier to install and cost considerably less.

## BreezeNET B System Components

### Base Unit (BU)

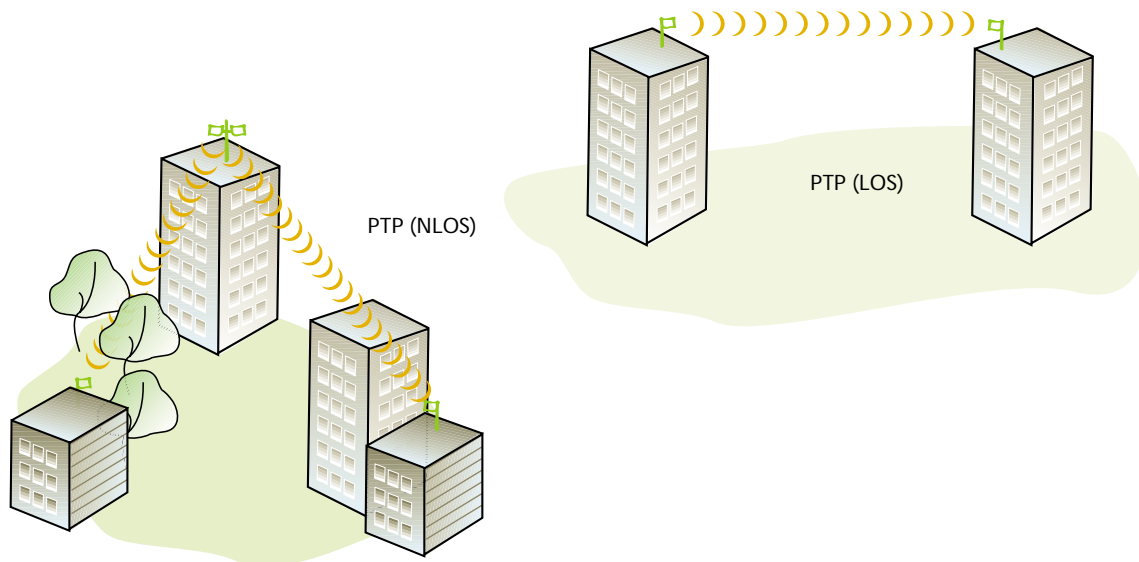
The Base Unit (BU) is installed at one end of the PTP link and connects the link to a central server or to the Internet. The BU is composed of two parts, a universal Indoor Unit (IDU) and an Outdoor Unit (ODU). The main advantage of the product is that the radio and the signal processing are both in the outdoor part; therefore, the unit is a true outdoor device with no power loss associated with its indoor/outdoor cable.

The outdoor unit is available with an integrated antenna or without an antenna (in which case an external antenna can be used).

### Remote Bridge (RB)

The RB is placed at the far end of the PTP link, connecting the end user to the centrally located BU. It is also composed of two parts, an identical universal Indoor Unit (IDU), like the one used in the BU, and an Outdoor Unit (ODU) that is also available with or without the integrated antenna.

BU-B14 or BU-B28 Base Unit	Connects directly to the 10/100 Base-T Ethernet backbone and links it to the central network point.
RB-B14 or RB-B28 Remote Bridge	Connects directly to the 10/100 Base-T Ethernet LAN and links the remote Ethernet LAN to the central point via the Base Unit, servicing up to 1024 stations



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## Specifications

### Radio

Frequency	5.725-5.850 GHz, 5.47-5.725GHz*	
Radio Type	OFDM, TDD	
Channel Bandwidth	20 MHz	
Center Frequency Resolution	10 MHz	
Output Power (at antenna port)	Up to 21 dBm	
Modulation	BPSK, QPSK, 16QAM, 64QAM	
Sensitivity	-89dBm at BPSK (9Mbps) -86dBm at QPSK (18Mbps) -81dBm at 16-QAM (36Mbps) -73dBm at 64-QAM (54Mbps)	
Antenna	BU and RB	21dBi, 10.5° horizontal x 10.5° vertical, Flat.
	Integrated Antenna	EN 302 085, Class TS 1,2,3,4,5 compliant
	BU and RB	23dBi, 9° vertical, Flat
	Detached Antennas	28dBi, 4.5° vertical, Flat
Antenna Port (Detached model)	N Type, 50 Ohm	

### Data Communication

Standard Compliance	IEEE 802.3 CSMA/CD
VLAN support	Based on 802.1q
Security	a. Association protocol - ESSID b. WEP 128, AES c. IP level filtering for user addresses or protocols d. Access direction and IP address filtering for management

### Configuration and Management

Management options	Via Telnet SNMP based Configuration Utility Configuration upload/download
Remote Management Access	From Wired LAN, Wireless Link
Management access protection	a. Multilevel password b. Configuration of remote access direction (from Ethernet only, from wireless link only or from both sides) c. Configuration of IP addresses of authorized stations
Allocation of IP parameters	Configurable or automatic (DHCP client)
Software upgrade and configuration up/download	FTP/TFTP download
SNMP Agent	SNMP V1 Client, MIB II, Bridge MIB, Private BreezeNET B MIB

### Electrical Characteristics - RB and BU

Power Consumption	25W	
Input power	AC, 100-240 VAC, 50-60 Hz	
Indoor outdoor cable	CAT-5 shielded, 90m max	
Indicators	Indoor unit	Power, Link and Ethernet LEDs
	Outdoor Unit	Status, Ethernet and W-Link LEDs SNR 10 LEDs bar indicator (RB only)
Connectors	Data	RJ-45
	AC Power	3 pin AC power plug (indoor unit only)

### Physical and Environmental

Dimensions - RB and BU	Indoor Unit	16 x 9 x 6 cm (0.55 Kg)
	Outdoor with integrated antenna	43.2 x 30.2 x 5.9 cm (2.9Kg)
	Outdoor detached (w/o antenna)	30.6 x 12 x 4.7 cm (1.85 Kg)
Operating Temperature	Outdoor Units	-40°C to 55°C
	Indoor equipment	0°C to 40°C
Operating Humidity	Outdoor Units	5%-95% non condensing, weather protected
	Indoor equipment	5%-95% non condensing

### Standards and Regulations

Radio	FCC part 15, ETSI EN 301 753, ETSI EN 301 021	
EMC	FCC part 15 class B, ETSI EN 489-1	
Safety	UL 1950, EN 60950	
Lightning protection	EN 61000-4-5, Class 3 (2kV)	
Environmental	Operation	ETS 300 019 part 2-3 class 3.2E for indoor units ETS 300 019 part 2-4 class 4.1E for outdoor units
	Transportation	ETS 300 019-2-2 class 2.3
	Storage	ETS 300 019-2-1 class 1.2E

\*Q1 2004

