



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
- High throughput: up to 54 Mbps
- Turbo mode for improved performance
- Variety of frequencies: in the 5 GHz band
- Non-compromising Security: AES 128 bit or WEP 128 bit 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
- Supports dynamic frequency selection (DFS) and automatic transmit power control (ATPC)
- Automatic clear channel selection (ACCS): Built-in spectrum analyzer that detects noise characteristics per channel with an option for automatic clearest channel selection

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 secure solution for building-to-building connectivity and backhauling. It is an ideal alternative to expensive leased lines, providing a near-instant link for connecting remote local offices to headquarters, isolated buildings on campuses and industrial zones.

Moreover, ISPs can leverage BreezeNET B as a powerful and cost-effective wireless link to backhaul their point-to-multipoint networks to their Internet point of presence, 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), used to combat multi-path and noisy environments, the product operates seamlessly and efficiently in non-line-of-sight (NLOS) environments with good throughput. The system also features adaptive modulation for automatic modulation selection to maximize the data rate and improve spectral efficiency. These inherent advantages of the BreezeNET B enable service providers to connect an effective PTP solution to a significantly higher percentage of their 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 can achieve a near-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 Secure Air Interface

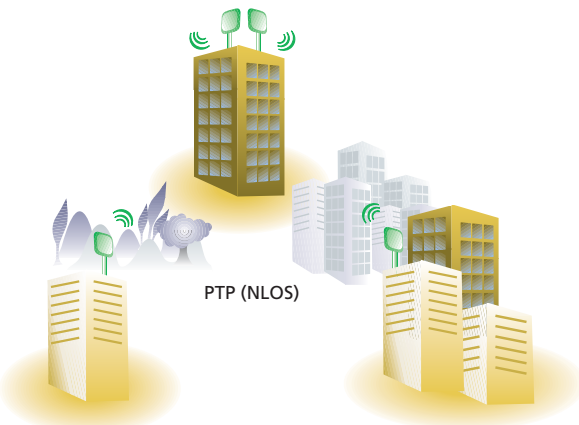
BreezeNET B also supports security sensitive applications through the optional use of authentication and data encryption utilizing AES and WEP algorithm options with 128 bit keys. The system also supports VLAN at connections based on IEEE 802.1Q, facilitating secure operation and virtual private networking (VPN) services and enabling remote employees or offices to conveniently access their enterprise networks.

Product Variations

BreezeNET B is available in two main variations, BreezeNET B14 and BreezeNET B28, with throughput as the main difference in the two products. Each is available with a 21dBi integrated antenna or with a standard RF connector supporting detached external antennas (in which case it can be used with either a 23 or 28 dBi flat panel antenna). With two BreezeNET B products, users can achieve an optimal cost/performance solution in every deployment.

Built to Last

All BreezeNET B products consist of robust outdoor units that are built to perform in even the most difficult climates and withstand 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)

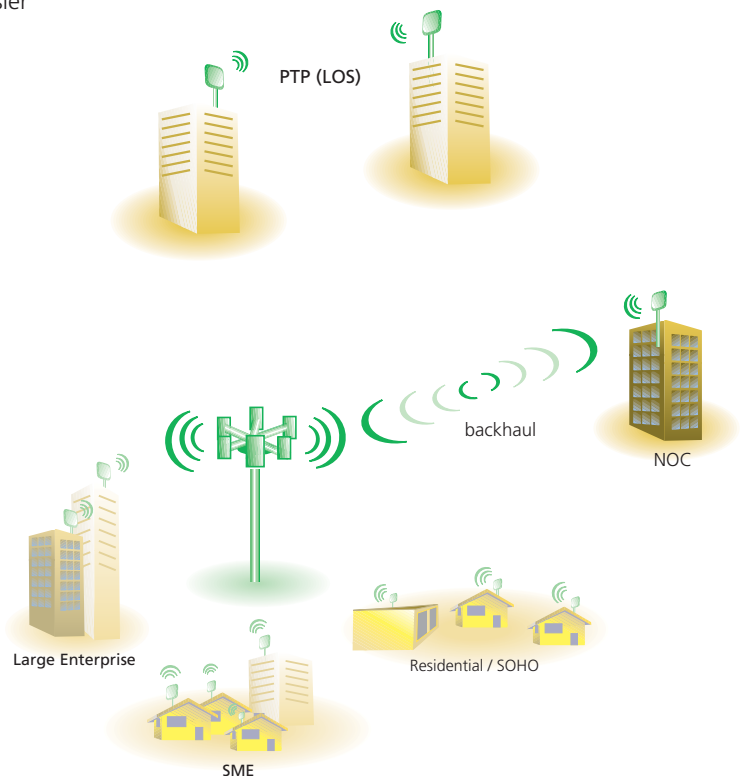
The BU is installed at one end of the PTP link and connects to a central server or to the Internet. The BU is composed of two parts, a universal indoor unit (IDU) and an outdoor unit (ODU). By combining the radio and the modem in the outdoor unit, BreezeNET B offers a true outdoor device with no power loss associated with expensive and lossy 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, like the one used in the BU, and an outdoor unit 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, 5.47-5.725 GHz, 5.15-5.35 GHz | | | | | | | | |
| Radio type | OFDM, TDD | | | | | | | | |
| Channel bandwidth | 20 MHz (40 MHz in turbo mode) | | | | | | | | |
| Center frequency resolution | 10 MHz | | | | | | | | |
| Output power (at antenna port) | Up to 21 dBm (dependent upon regulation) | | | | | | | | |
| Modulation | BPSK, QPSK, 16QAM, 64QAM | | | | | | | | |
| Sensitivity, typical (dBm at antenna port, @10 ⁻⁶) | Modulation | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | Level* (20 MHz) | -89 | -88 | -86 | -84 | -81 | -77 | -73 | -71 |
| * Modulation Level combines modulation scheme and coding gain. | | | | | | | | | |
| 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 | 23 dBi, 9° flat | | | | | | | |
| | Detached antenna | 28 dBi, 4.5° 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 128 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. Multi-level 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 unit with integrated antenna | 43.2 x 30.2 x 5.9 cm (2.9Kg) |
| | Outdoor unit detached (w/o antenna) | 30.6 x 12 x 4.7 cm (1.85 Kg) |
| Operating temperature | Outdoor unit | -40°C to 55°C |
| | Indoor unit | 0°C to 40°C |
| Operating humidity | Outdoor unit | 5%-95% non condensing, weather protected |
| | Indoor unit | 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 unit ETS 300 019 part 2-4 class 4.1E for outdoor unit |
| | Transportation | ETS 300 019-2-2 class 2.3 |
| | Storage | ETS 300 019-2-1 class 1.2E |

Note: Not all options are available in all regions. Please contact your local representative for further information



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