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Your Open WiMAX Choice

BreezeNET® B

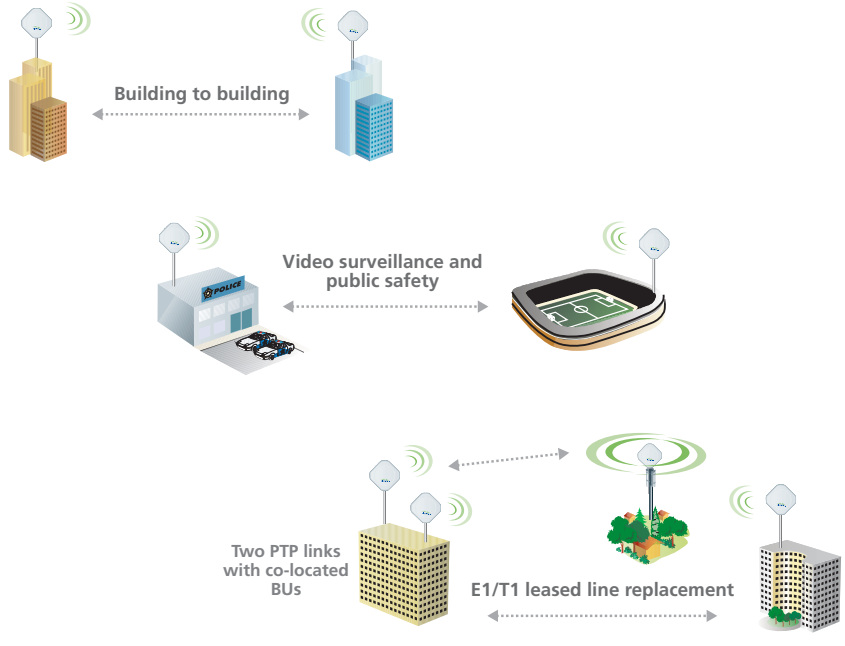
Point-to-Point Bridging Solutions

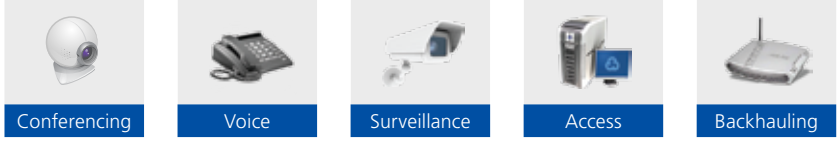
BreezeNET B is a product family of wireless point-to-point bridging solutions for license-exempt frequency bands. Providing an efficient and secure solution for several applications – broadband access, building-to-building connectivity and backhaul services between two remote locations – BreezeNET B is also a powerful and cost-effective wireless link for backhauling point-to-multipoint networks to their Internet points-of-presence, eliminating the necessity for expensive leased lines over wireline infrastructures.

Comprehensive Range of Options

BreezeNET B is available in several configurations, ensuring an optimal cost/performance solution for every deployment.

Configuration	Frequency Range	Bandwidth	Net Throughput (FTP)	Upgrade Options	Antenna	Additional Information
BreezeNET B10	5.4 and 5.8 GHz	10 and 20 MHz channels	Up to 10 Mbps (up to 5 Mbps uplink and up to 5 Mbps downlink)	None	Integrated antenna from 16/20 dBi	Complete link in a box (base unit and remote bridge)
BreezeNET B14	2.4 GHz, 5.x GHz	10 and 20 MHz channels	Up to 14 Mbps (up to 7 Mbps uplink and up to 7 Mbps downlink)	B28 & B100	Integrated antenna from 16/20 dBi or external antenna up to 24/28 dBi	Up to 2 E1/T1 links (optional)
BreezeNET B28	5.x GHz	10, 20 and 40 MHz channels	Up to 35 Mbps (up to 20 Mbps uplink and up to 20 Mbps downlink)	B100		Up to 2 E1/T1 links (optional)
BreezeNET B100	5.x GHz	10, 20 and 40 MHz channels	Up to 73 Mbps (up to 70 Mbps uplink and up to 70 Mbps downlink)			Up to 4 E1/T1 links (optional)





BreezeNET B Market Applications

- Wireless broadband access - ADSL alternative for connecting to remote buildings
- Backhaul services for WISPs - leased line replacement
- Private networks connectivity
- Disaster recovery
- Video surveillance
- IP telephony
- Video conferencing, e-Education, e-Health
- SCADA and Intelligent Traffic Networks (ITN)

BreezeNET B System Components

Base Unit (BU)*

The Base Unit 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 indoor/outdoor RF cables.

Remote Bridge (RB)*

The Remote Bridge is placed at the far end of the PTP link, connecting the end user to the centrally located BU. It is composed of two parts - an identical universal indoor unit (IDU) and an outdoor unit (ODU).

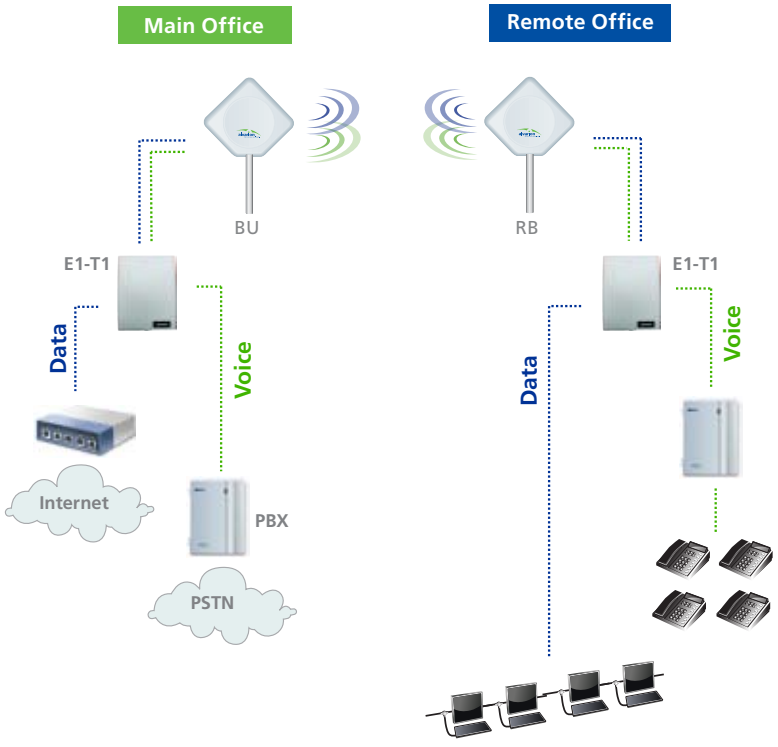
BreezeNET B E1/T1

The BreezeNET B E1/T1 transport unit enables point-to-point tunneling of T1 or E1 traffic across wireless Ethernet devices, thereby providing dramatic cost savings over the cost of conventional leased lines. BreezeNET B E1/T1 supports all BNB frequencies, is simple to deploy, supports NLOS and contains QoS for voice and video applications. The BreezeNET B E1/T1 unit provides the capability for recovering from data loss (using an optional forward Error Correction mechanism), without propagating errors to following frames. The pay-as-you-grow option allows BreezeNET B E1/T1 to be upgraded with a software license from one E1/T1 link to support up to a maximum of 4 E1/T1s links

* Same components with different system configurations

BreezeNET B Highlights

- High capacity, point-to-point, robust outdoor wireless solution
- Flexible rate options: B10, B14, B28 and B100 reaching up to 108 Mbps
- Long reach: up to 50 km
- Superior OFDM radio technology
- Robust performance in non-line-of-sight (NLOS) environments
- Simple deployment with adaptive modulation and automatic transmit power control (ATPC), management and maintenance
- Quality of Service for data, voice and video (wireless link prioritization)
- Secure AES, WEP and FIPS



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For the latest contact information in your area, please visit:
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Specifications

Radio

Frequency
2.400-2.4835 GHz, 5.15-5.35 GHz, 5.47-5.725 GHz, 5.725-5.875 GHz*

Radio Type
OFDM, TDD

Modulation
BPSK, QPSK, 16QAM, 64QAM

Channel Bandwidth
10/20/40 (40MHz in turbo mode only for BNB14, BNB28 and BNB100)

Central Frequency Resolution
5 MHz

Output Power (at antenna port)
Up to 21 dBm
(dependent upon regulation)

Sensitivity, Typical (dBm at antenna port)

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
- When using 10 MHz sensitivity is increased by 3 dB
- When using 40 MHz (turbo mode) sensitivity is reduced by 3 dB

Antenna

BU and RB 2.4 GHz Integrated Antenna	BU and RB 5 GHz Integrated Antenna		BU and RB 2.4 GHz Detached Antenna	BU and RB 5 GHz Detached Antenna
16 dBi 20° horizontal x 20° vertical flat	21 dBi, 10.5° horizontal x 10.5° vertical, flat	BNB 10: 14° h/v 20 dBi	24 dBi, 6° horizontal x 10° vertical flat	23 dBi, 9° flat, 28 dBi, 4.5° flat

Antenna Port (Detached Model)
N Type, 50 Ohm

BNB 10 Antenna
Integrated Antenna only

Data Communications

Standard Compliance
IEEE 802.3 CSMA/CD

VLAN Support
Based on 802.1q

QoS
Wireless Link Prioritization (WLP)
802.1p
DRAP
IP TOS/DSCP
Fast Packet Processing

E1/T1 IDU Communications Ports
Three 10/100base T. Complies with IEEE 802.3 LAN, WAN, and local standards, Four T1/E1: RJ-45. Complies with ANSI T1.403, ITU-T G.703; AT&T TR-62411

Security
a. Association protocol - ESSID
b. WEP 128, AES 128, FIB 197
c. IP level filtering for user addresses or protocols
d. Access direction and IP address filtering for management

Configuration and Management

Management Options
Monitor via Telnet, SNMP and configuration upload/download

Remote Management Access
From wired LAN, wireless link

Allocation of IP Parameters
Configurable or automatic (DHCP client)

Management Access Protection
a. Multilevel password
b. Configuration of remote direction (from Ethernet only, wireless only, or both sides)
c. Configuration of IP addresses of authorized stations

Software Upgrade
Via TFTP and FTP

Configuration Up/Download
Via TFTP and FTP

SNMP Agents
SNMP v1 client, MIB II, Bridge MIB, Private BreezeACCESS VL MIB

Electrical Characteristics - RB/BU and E1/T1 IDU

Power Consumption
25W

Input Power
RB and BU: AC, 100-240 VAC, 50-60 Hz (DC 10.5-32UDC with OPS-DC add-on module)
E1/T1 IDU: 00 to 260 VAC, 47 to 63 Hz, 24 Watts

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).

E1/T1 IDU: Front Panel: STATUS (Serves as front panel providing overall unit operating conditions), Back Panel: Local, LAN and WAN Connection / Link Activity, E1/T1 (DS1 1, 2, 3, 4) Signal Present / Activity

AC Power
Indoor unit: 3 pin AC power plug
E1/T1 IDU: In-line "brick" power supply provides 56 VDC to unit

Connectors
RJ-45

Physical and Environmental

Dimensions - RB/BU
Indoor unit: 16 x 9 x 6 cm (0.55 kg)
Outdoor unit with integrated antenna in 2.4 GHz: 43.2 x 30.2 x 5.9 cm (2.9 kg)
Outdoor unit with integrated antenna in 5 GHz: 30.5 x 30.5 x 6.2 cm (3.3 kg)

Outdoor unit detached (w/o antenna): 30.6 x 12 x 4.7 cm (1.85 kg)

Dimensions - E1/T1 IDU
4 cm x 18 cm x 5.9 cm (0.36 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 15.247, FCC P15.407, ETSI: EN 302 502, EN 301 893 (1.3.1), EN 300 440-1/2, EN 300 328

EMC
FCC part 15 class B, ETSI: EN 301 489-1

Safety
UL 60950-1, EN 60950-1

Lightning Protection
EN 61000-4-5, Class 3 (2kV)

Storage
ETS 300 019-2-1 class 1.2E

Transportation
ETS 300 019-2-2 class 2.3t

Environmental
Operation: ETS 300 019 part 2-3 class 3.2E for indoor unit and E1/T1 IDU, ETS 300 019 part 2-4 class 4.1E for outdoor unit

Note: Not all options are available in all regions. Please contact your local representative for further information.
* 5.15-5.35 GHz is only available for the B14 and for the B28 (not for the B100)