

Simple and  
Smart  
Point-to-Point  
Wireless  
Communication  
Portfolio

# BreezeNET<sup>®</sup> B

BreezeNET B is a comprehensive and highly-proficient portfolio of wireless point-to-point bridging solutions for license-exempt frequency bands. It offers long range and high-capacity support for high bandwidth applications, as well as providing efficient, reliable and secure communications for voice and real time applications including building-to-building connectivity and backhaul services between two remote locations. A flexible solution with pay-as-you-grow support, 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.



## BreezeNET B System Components



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.



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).



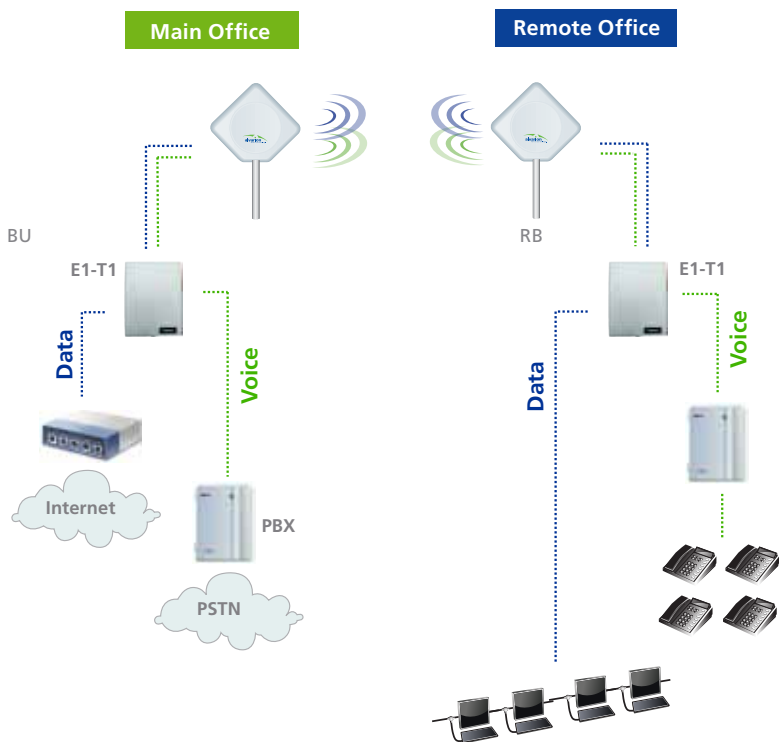
The BreezeNET B E1/T1 transport unit enables point-to-point tunneling of T1 or E1 traffic across wireless Ethernet devices, thereby providing dramatic cost savings over the cost of conventional leased lines. BreezeNET B E1/T1 supports all BreezeNET B frequencies, is simple to deploy, supports NLOS and 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/T1 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, B100, B130 and B300 reaching up to 250 Mbps
- Long reach: over 60 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 (QoS) for data, voice and video (wireless link prioritization)
- Secure AES, WEP and FIPS

### Deployment Scenario for Ethernet Services

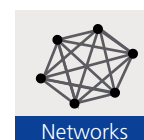
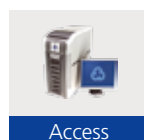
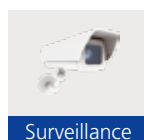
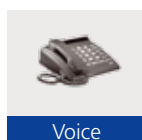
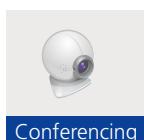


## Comprehensive Range of Options

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
<b>BreezeNET B10</b>	5.4 and 5.8 GHz	10 and 20 MHz channels	Up to 10 Mbps aggregated	None	Integrated antenna from 16/20 dBi	Complete link in a box (base unit and remote bridge)
<b>BreezeNET B14</b>	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 and B100	Integrated antenna from 16/20 dBi or external antenna up to 24/28 dBi	Up to 2 E1/T1 links (optional)
<b>BreezeNET B28</b>	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)
<b>BreezeNET B100</b>	5.x GHz	10, 20 and 40 MHz channels	Up to 73 Mbps (up to 70 Mbps uplink and up to 70 Mbps downlink)	B130 to B300		Up to 4 E1/T1 links (optional)
<b>BreezeNET B130/B300</b>	4.9 - 5.9 GHz	5, 10, 20 and 40 MHz channels	Up to 250 Mbps*			

\* Subject to local regulations



## Specifications

### Radio

#### Frequency

##### B10

5.47-5.725 GHz  
5.725-5.875 GHz

##### B14

5.150-5.350 GHz  
5.250-5.350 GHz  
5.470-5.725 GHz  
5.725-5.875 GHz  
(universal country code with HW Rev C)  
2.400-2.484 GHz

##### B28+B100

5.150-5.350 GHz  
5.250-5.350 GHz  
5.470-5.725 GHz  
5.725 - 5.875 GHz  
(universal country code with HW Rev C)  
5.725-5.850 GHz (all other country codes)  
**B130/B300**  
4.9-5.9 GHz

#### Modulation

OFDM modulation, BPSK, QPSK, QAM16, QAM64

#### Radio Type

OFDM TDD

#### Channel BW

**B10**  
10/20 MHz  
**B14+B28+B100**  
10/20/40 MHz  
**B130/B300**  
5/10/20/40 MHz

#### Maximal Net Throughput

**B10:** 10 Mbps  
**B14:** 14 Mbps  
**B28:** 28 Mbps  
**B100:** 73 Mbps  
**B130/B300:** 250 Mbps

#### Output Power (at antenna port)

**B10-B100**  
Up to 21 dBm (dependant upon regulation)  
wall/pole mounting with tilting option  
**B130/B300**  
Up to 18 dBm (dependant upon regulation)  
wall/pole mounting with tilting option

### Antenna

#### B10

##### RB/BU 5 GHz Integrated Antenna

14° h/v 20 dBi EN 302 085  
Class TS 1,2,3,4,5 compliant

#### B14

##### RB/BU 2.4 GHz External Antenna

24 dBi, 6° horizontal x 10° vertical flat  
RB/BU 2.4 GHz Integrated Antenna  
16 dBi 20° horizontal x 20° vertical flat  
EN 301 525 v1.1.1 TS 2 (2000-06) compliant

#### B14-B100

##### RB/BU 5 GHz External Antenna

23 dBi, 9° flat; 28 dBi, 4.5° flat

##### RB/BU 5 GHz Integrated Antenna

21 dBi, 10.5° horizontal x  
10.5° vertical, flat EN 302 085  
Class TS 1,2,3,4,5 compliant

#### B130/B300

##### RB/BU 5 GHz External Antenna

ANT,T,S, 4.9-6 GHz,9° Dual polarized,23 dBi  
ANT,T,S, 4.9-6 GHz,6° Dual polarized,28 dBi

##### RB/BU 5 GHz Integrated Antenna

ANT,T,S, 4.9-6 GHz,9° Dual polarized,23 dBi

## Headquarters

International Corporate HQ  
Email: corporate-sales@alvarion.com

North America HQ  
Email: n.america-sales@alvarion.com

## Sales Contacts

Australia:  
anz-sales@alvarion.com

Asia Pacific:  
ap-sales@alvarion.com

Brazil:  
brazil-sales@alvarion.com

Canada:  
canada-sales@alvarion.com

Caribbean:  
caribbean-sales@alvarion.com

China:  
cn-sales@alvarion.com

Czech Republic:  
czech-sales@alvarion.com

France:  
france-sales@alvarion.com

Germany:  
germany-sales@alvarion.com

Italy:  
italy-sales@alvarion.com

Ireland:  
uk-sales@alvarion.com

Japan:  
jp-sales@alvarion.com

Latin America:  
lasales@alvarion.com

Mexico:  
mexico-sales@alvarion.com

Nigeria:  
nigeria-sales@alvarion.com

Philippines:  
ph-sales@alvarion.com

Poland:  
poland-sales@alvarion.com

Portugal:  
sales-portugal@alvarion.com

Romania:  
romania-sales@alvarion.com

Russia:  
info@alvarion.ru

Singapore:  
asean-sales@alvarion.com

South Africa:  
africa-sales@alvarion.com

Spain:  
spain-sales@alvarion.com

U.K.:  
uk-sales@alvarion.com

Uruguay:  
uruguay-sales@alvarion.com

For the latest contact information  
in your area, please visit:  
[www.alvarion.com/company/locations](http://www.alvarion.com/company/locations)



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## Specifications (cont.)

### Data Communication

#### Standard and Network Compliance

**B10-B100**  
IEEE 802.3 CSMA/CD 1x 10/100BaseT  
**B130/B300**  
IEEE 802.3 CSMA CD, ARP filter/proxy  
MAC/IP filtering Layer 2 switch 1x or  
2x Ethernet 10/100BaseT

#### VLAN Support

**B10-B100**  
Based on 802.1q  
**B130/B300**  
802.1q transparent or frame tagging  
and re-tagging

#### QoS

**B10-B100**  
Wireless Link Prioritization (WLP)

802.1p  
DRAP  
IP TOS/DSCP  
Fast Packet Processing  
**B130/B300**  
QoS enforcer  
Classification and traffic limiting based  
on:  
IP ToS/DSCP/802.1p tags  
VLAN/IP/MAC address and protocol/  
**E1/T1 IDU Interfaces**  
**B14-B300**  
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

**B10-B100**  
a. Association protocol - ESSID  
b. WEP 128, AES 128, FIPS 197  
c. IP level filtering for user addresses or  
protocols  
d. Access direction and IP address  
filtering for management  
**B130/B300**  
Mutual key-based authentication  
Storm/flood protection  
Password protection  
Protocol messages encryption  
Over-the-air payload encryption  
IP Firewall

### Configuration Management

#### Management Options

**B10-B100**  
Monitor via Telnet, SNMP and  
configuration upload/download  
**B130/B300**  
Configure/monitor SNMP traps, web  
interface, CLI

#### Remote Management Access

From wired LAN, wireless link

#### Allocation of IP Address

**B10-B100**  
Configurable or automatic (DHCP  
client)  
**B130/B300**  
DHCP client/server/relay  
**SW Upgrade**  
**B14-B300**  
Via TFTP and FTP

#### Configuration Upload / Download

Via TFTP and FTP  
**SNMP Agents**  
**B10-B100**  
SNMP v1 client, MIB II, Bridge MIB,  
Private BreezeACCESS® VL MIB  
**B130/B300**  
SNMP V1/SNMP V3 MIB II, private  
MIB

### Electrical Characteristics - RB/BU and E1/T1 IDU

#### Power consumption

**B10-B100:** 25W  
**B130/B300:** Up to 20W

#### Input Power

RB and BU: AC, 100-240 VAC, 50-60  
Hz  
(DC 10.5-32VDC 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

**B10-B100**  
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

**B10-B100**  
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)  
**B130/B300**  
SU: 5 x 4 x 2 cm (0.14 kg)  
ODU with integrated antenna:  
30 x 30 x 8 cm (3.7 kg)

ODU with external antenna  
24 x 24 x 5 cm (2.1 kg)

#### Dimensions E1/T1 IDU

**B14-B300**  
4 cm x 18 cm x 5.9 cm (0.36 kg)

#### Operating Temperature

**B10-B100**  
Outdoor unit: -40°C to 55°C  
Indoor unit: 0°C to 40°C  
**B130/B300**  
Outdoor units: -40°C to 60°C  
Indoor unit: 0°C to 40°C

#### Operating Humidity

**B10-B100**  
Outdoor unit: 5%-95% non  
condensing, weather protected,  
Indoor unit: 5%-95% non condensing  
**B130/B300**  
Outdoor units: 100% humidity,  
condensing  
(exceeds IP65 rating)  
Indoor unit: 95% humidity, non-  
condensing

### Standards and Regulations

#### Radio

**B10-B100**  
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  
**B130/B300**  
Pending:  
FCC part 15.247, FCC P15.407  
ETSI: EN 302 502,  
EN 301 893 (1.4.1),  
EN 300 440-1/2, EN 300 329

#### EMC

**B10-B100**  
FCC part 15 class B  
ETSI: EN 301489-1  
**Safety**  
**B10-B100**  
UL 60950-1, EN 60950-1  
**Lightening Protection**  
**B10-B100**  
EN 61000-4-5, class 3 (2kV)

#### Storage

**B10-B100**  
ETS 300 019-2-1 class 1.2E

#### Transportation

**B10-B100**  
ETS 300 019-2-2 class 2.3T

#### Environmental

**B10-B100**  
Operation: ETS 300 019 part 2-3  
class 3.2E for indoor unit  
E1/T1 IDU ETS 300 019 part 2-4 class  
4.1E for outdoor unit

### About Alvarion

Alvarion (NASDAQ:ALVR) is a global leader in 4G wireless communications with the industry's most extensive customer base with hundreds of commercial WiMAX deployments. Alvarion's industry leading solutions enable true open 4G and vertical applications for service providers and enterprises. Through an OPEN WiMAX strategy, superior IP and OFDMA know-how, and ability to deploy large scale end-to-end turnkey networks, Alvarion is delivering the true 4G broadband experience today ([www.alvarion.com](http://www.alvarion.com))