

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



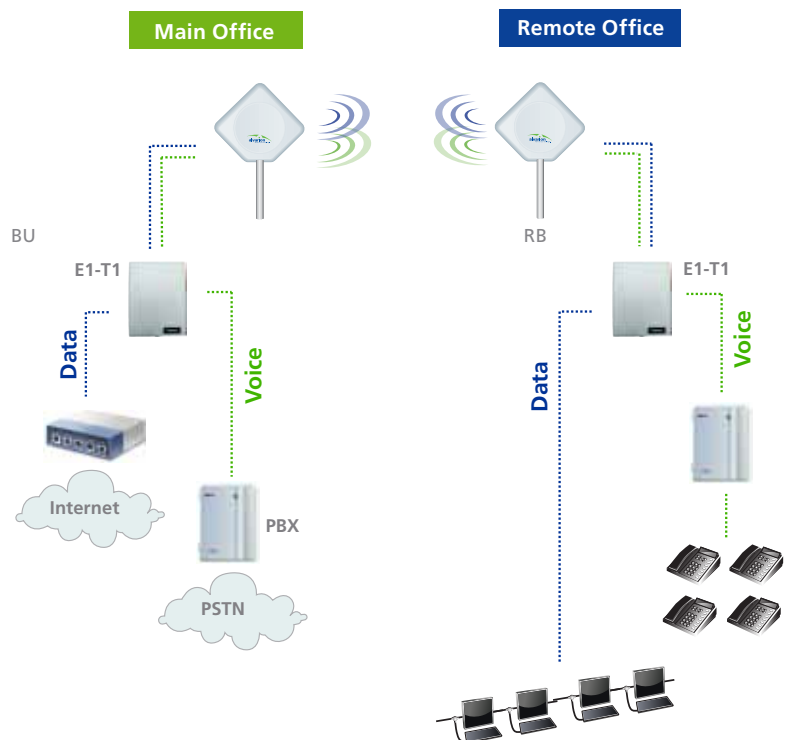
The BreezeNET B E1/T1 transport unit enables point-to-point tunneling of T1 or E1 traffic across wireless Ethernet devices, thereby providing dramatic cost savings over the cost of conventional leased lines. BreezeNET B E1/T1 supports all BreezeNET B frequencies, is simple to deploy, supports NLOS and 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 16 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

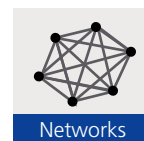
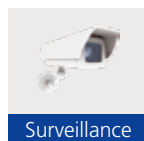
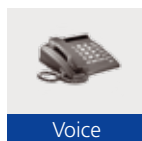
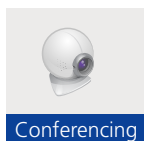


Comprehensive Range of Options

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
BreezeNET B10	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)
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 and 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 4 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)	B130 to B300		Up to 16 E1/T1 links (optional)
BreezeNET B130/B300	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)

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

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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, 2/4/8/16 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)

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 4G communications leader with the industry's most extensive customer base, including hundreds of commercial 4G deployments. Alvarion's industry leading network solutions for broadband wireless technologies WiMAX, TD-LTE and WiFi, enable broadband applications for service providers and enterprises covering a variety of industries such as mobile broadband, residential and business broadband, utilities, municipalities and public safety agencies. Through an open network 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)