Simple and Smart Point-to-Point Wireless Communication Portfolio

alvarion®
Your Open WiMAX Choice

BreezeNET® B

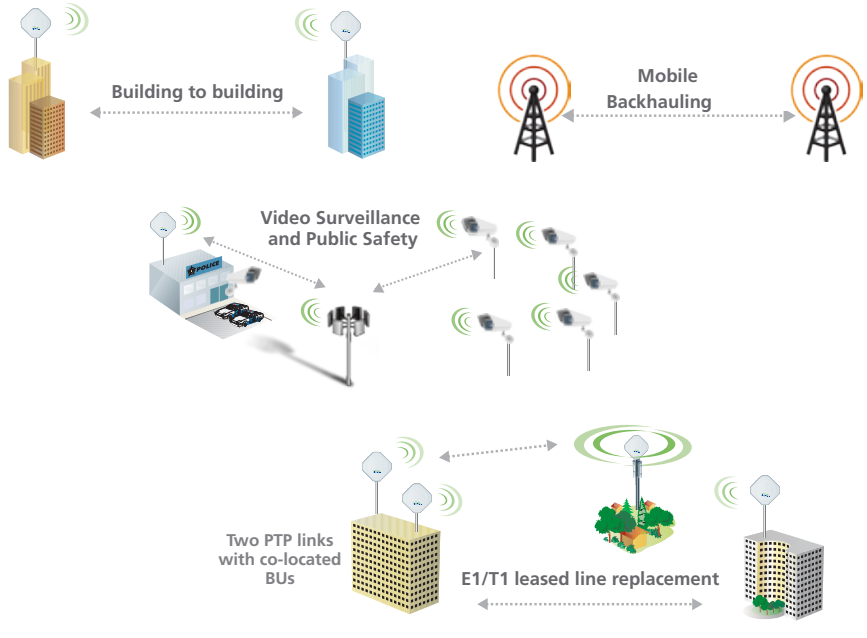
BreezeNET B is a comprehensive and highly-proficient portfolio of wireless point-to-point bridging solutions for license-exempt frequency bands. It offers long range and high-capacity support for high bandwidth applications, as well as providing efficient, reliable and secure communications for voice 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.

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 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 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)	None		Up to 4 E1/T1 links (optional)
BreezeNET B300	4.9 - 5.9 GHz	5, 10, 20 and 40 MHz channels	Up to 250 Mbps*			

* Subject to local regulations



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)
- Mobile Backhauling

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

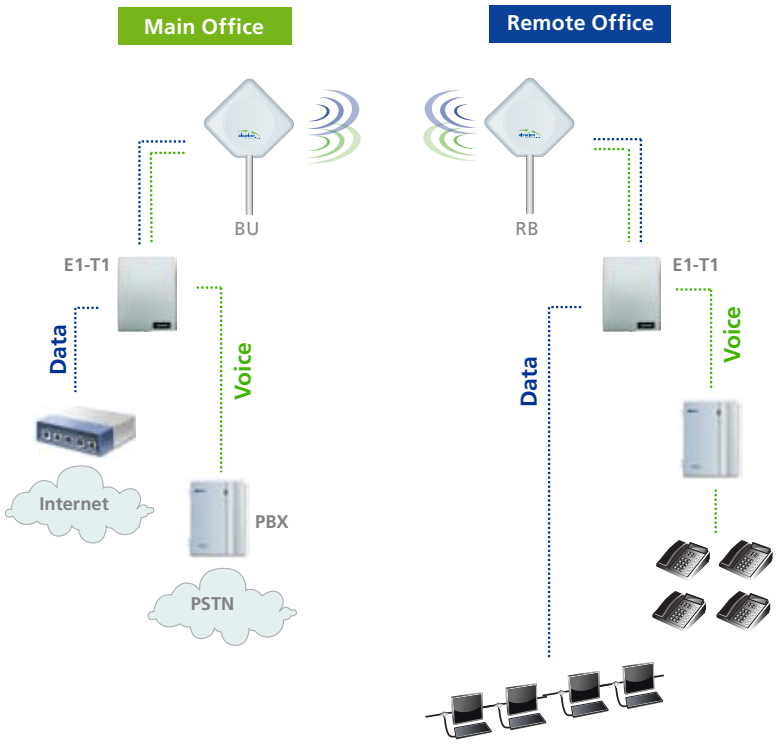
The BreezeNET B E1/T1 transport unit enables point-to-point tunneling of T1 or E1 traffic across wireless Ethernet devices, thereby providing dramatic cost savings over the cost of conventional leased lines. BreezeNET B E1/T1 supports all BreezeNET B frequencies, is simple to deploy, supports NLOS and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



Specifications

		B10	B14	B28	B100	B300
Radio	Frequency	5.47-5.725 GHz 5.725-5.875 GHz	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) 2.400-2.4835 GHz	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)	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)	4.9 GHz-5.9 GHz
	Modulation	OFDM modulation, BPSK, QPSK, QAM16, QAM64				
	Radio Type	OFDM TDD				
	Channel BW	10 MHz / 20 MHz	10 MHz / 20 MHz / 40 MHz	10 MHz / 20 MHz / 40 MHz	10 MHz / 20 MHz / 40 MHz	5 MHz / 10 MHz / 20 MHz / 40 MHz
	Maximal Net Throughput	10 Mbps	14 Mbps	28 Mbps	73 Mbps	250 Mbps
	Output Power (at antenna port)	Up to 21 dBm (dependant upon regulation)				Up to 18 dBm (dependant upon regulation)
Antenna	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			
	RB/BU 5 GHz External Antenna			23 dBi, 9° flat 28 dBi, 4.5° flat		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	14° h/v 20 dBi EN 302 085, Class TS 1,2,3,4,5 compliant		21 dBi, 10.5° horizontal x 10.5° vertical, flat EN 302 085, Class TS 1,2,3,4,5 compliant		ANT,T.S, 4.9-6 GHz,9° Dual polarized,23 dBi
Data Communication	Standard and Network Compliance			IEEE 802.3 CSMA/CD 1x 10/100BaseT		IEEE 802.3 CSMA CD, ARP filter/proxy MAC/IP filtering Layer 2 switch 1x or 2x Ethernet 10/100BaseT
	VLAN Support			Based on 802.1q		802.1q transparent or frame tagging and re-tagging
	QoS			Wireless Link Prioritization (WLP) 802.1p DRAP IP TOS/DSCP Fast Packet Processing		QoS enforcer Classification and traffic limiting based on: IP ToS/DSCP/802.1p tags VLAN/IP/MAC address and protocol/
	E1/T1 IDU Interfaces			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, FIPS 197 c. IP level filtering for user addresses or protocols d. Access direction and IP address filtering for management		Mutual key-based authentication Storm/flood protection Password protection Protocol messages encryption Over-the-air payload encryption IP Firewall

Specifications (Continued)

		B10	B14	B28	B100	B300
Configuration Management	Management Options	Monitor via Telnet, SNMP and configuration upload/download				Configure/monitor SNMP traps, web interface, CLI
	Remote Management Access	From wired LAN, wireless link				
	Allocation of IP Address	Configurable or automatic (DHCP client)				DHCP client/server/relay
	SW Upgrade		Via TFTP and FTP			
	Configuration Upload / Download	Via TFTP and FTP				
	SNMP Agents	SNMP v1 client, MIB II, Bridge MIB, Private BreezeACCESS® VL MIB				SNMP V1/SNMP V3 MIB II, private MIB
Electrical Characteristics RB/BU and E1/T1 IDU	Power consumption	25W				Up to 20W
	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 Enviormental	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)				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		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				Outdoor units: -40°C to 60°C, Indoor unit: 0°C to 40°C,
	Operating Humidity	Outdoor unit: 5%-95% non condensing, weather protected, Indoor unit: 5%-95% non condensing				Outdoor units: 100% humidity, condensing (exceeds IP65 rating) Indoor unit: 95% humidity, non-condensing
Standart 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				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	FCC part 15 class B ETSI: EN 301489-1				
	Safety	UL 60950-1, EN 60950-1				
	Lightening 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 E1/T1 IDU ETS 300 019 part 2-4 class 4.1E for outdoor unit				

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About Alvarion

Alvarion (NASDAQ: ALVR) is the largest WiMAX pure-player with the most extensive WiMAX customer base and over 250 commercial deployments around the globe. Committed to growing the WiMAX market, the company offers solutions for a wide range of frequency bands supporting a variety of business cases. Through its OPEN WiMAX strategy, superior IP and OFDMA know-how, and ability to deploy end-to-end turnkey WiMAX projects, Alvarion is shaping the new wireless broadband experience.