

# BreezeACCESS™ XL

A license to deliver

BreezeACCESS XL is the ideal broadband wireless access system for carriers seeking to fill the gaps of their network infrastructure and extend their reach to the 50% of potential subscribers located in the digitally-deprived zone. BreezeACCESS XL eliminates the limitations of xDSL and cable and the need for existing copper and fiber infrastructure by reaching remote locations and providing a comprehensive wireless infrastructure solution.

Operating in licensed frequency bands, BreezeACCESS XL delivers unprecedented capacity and coverage while providing advanced IP-based services, including high speed data and toll-quality telephony.





## Product Highlights

BreezeACCESS XL delivers a comprehensive range of product features, ensuring fast, consistent and reliable data and voice service, including...

- Demand-based build-out, easy installation and low cost of ownership enables rapid market penetration, increased subscription and enhanced value-added services.
- Adaptive Circuit Switched Emulation (ACSE) air protocol maintains the efficiency of IP transmission, while reserving specific time slots for active voice call traffic.
- Fast packet-based data transmission and toll quality for delay and jitter sensitive telephony.
- Highly cost effective infrastructure and customer premises equipment.
- Toll quality voice with integrated RJ-11 voice ports in subscriber units.
- Advanced telephony features when used in conjunction with a V5.1 gateway.
- 802.1P enables delay sensitive traffic to be prioritized in the network.
- 802.1Q VLANs separate traffic into virtual private networks.
- Independent uplink/downlink transmission settings for CIR/MIR, enabling assured and differentiated QoS.
- Carrier grade features including a rack mount chassis base station with redundancy, hot swap capability and UPS facilities.
- Easy-to-use SNMP-based remote management system, enabling simple unit configuration and multiple simultaneous unit upgrading.

BreezeACCESS XL operates in Frequency Division Duplex (FDD) mode using wireless packet data switching technology and Frequency Hopping Code Division Multiple Access (FH-CDMA) radios, ensuring reliable, always-on Carrier Class connectivity.

BreezeACCESS XL provides an instant and independent infrastructure, which is immediately deployable with lower infrastructure construction and operating costs than any other solution on the market.

### BreezeACCESS XL System Components

#### BreezeACCESS XL CPEs - Crafting customer connectivity

The BreezeACCESS XL series of Customer Premises Equipment (CPE) features both data plus voice and data-only capabilities.

The BreezeACCESS XL CPEs connect to the subscriber's data equipment via a standard IEEE 802.3 Ethernet 10-BaseT (RJ 45) interface. Telephony services are supported using a standard POTS (RJ 11) interface connected directly to the subscriber's telephone.

#### Desktop Units

Optimized for indoor installations, the SU-R/SU-C Subscriber Units are simple to install, reducing time and cost of installation. The convenient and compact unit fits easily on a desktop or can be mounted on the wall.

With 28 dBm power output at the antenna port, the SU-R features several antenna options, as follows:

- **Flat panel antenna models:** Feature 18 dBi gain for external installation (SU-C).
- **Wall or window mountable antenna models:** Features 12dBi gain, for indoor or outdoor installation. Models with dual 2 dBi omni antenna are also available.



SU-R/SU-C

#### Indoor/Outdoor Units

The BreezeACCESS XL indoor/outdoor option includes an indoor desktop or wall-mountable unit and an outdoor antenna and radio unit.

Data, power, management and control signals are transmitted from the indoor unit to the outdoor unit via a coaxial cable.

The outdoor units feature two antenna options, delivering enhanced network flexibility, as follows:

- **SU-A units:** Comprise a radio module and integrated flat panel antenna.
- **SU-E units:** Include a radio module and RF connector for a separate external antenna.



SU-A

Product Name	Product Description
SU-A-1D	Integrated antenna - 1 data user
SU-E-1D	Detached antenna - 1 data user
SU-R/SU-C-1D	Detached antenna - 1 data user
SU-A-BD	Integrated antenna - full bridge
SU-E-BD	Detached antenna - full bridge
SU-R/SU-C-BD	Detached antenna - full bridge

Product Name	Product Description
SU-A-1D1V	Integrated antenna - 1 data user, 1 voice user
SU-E-1D1V	Detached antenna - 1 data user, 1 voice user
SU-R/SU-C-1D1V	Detached antenna - 1 data user, 1 voice user
SU-A-BD1V	Integrated antenna - full bridge, 1 voice user
SU-E-BD1V	Detached antenna - full bridge, 1 voice user
SU-R/SU-C-BD1V	Detached antenna - full bridge, 1 voice user



### BreezeACCESS XL Base Station Equipment - Rapid deployment, superior scalability

The modular BreezeACCESS XL Base Station is designed for optimal scalability, and rapid deployment. The adaptable line of Access Units ensures superior flexibility in architecture and network deployment.

#### Base Station Shelf

The 19" Base Station chassis (BS-SH) can hold up to six BS-AU modules, providing reliable access to maximum numbers of subscribers. The BS-AU modules are synchronized to ensure optimal utilization of the available frequency spectrum. In addition, the BS-SH includes up to two redundant power supply modules, which are served by either a -48 VDC or a 110/220 VAC power source. A GPS synchronization system allows accurate synchronization of BreezeACCESS base stations located on different sites.



BS-SH

#### Stand-Alone "Micro Cell" Access Units

The Micro Cell Access Units are stand-alone modules that connect to the same outdoor units as described in the Indoor/Outdoor Access Units configuration. The indoor units are designed to fit on a desktop or mount on the wall and are powered from the mains. Data, power, management and control signals are transmitted from the indoor unit to the outdoor unit via a coaxial cable.

- **AU-E-NI units:** Feature an indoor module and outdoor unit, which contains a radio unit and an RF connector for a separate external antenna.

#### Indoor/Outdoor Access Units

The BreezeACCESS XL indoor/outdoor Access Unit configuration includes an indoor module and outdoor unit that contains the radio and antenna units. Data, power, management and control signals are transmitted from the indoor unit to the outdoor unit via a coaxial cable.

All Access Units are connected to the subscriber's data equipment via a standard IEEE 802.3 Ethernet 10BaseT (RJ 45) interface.

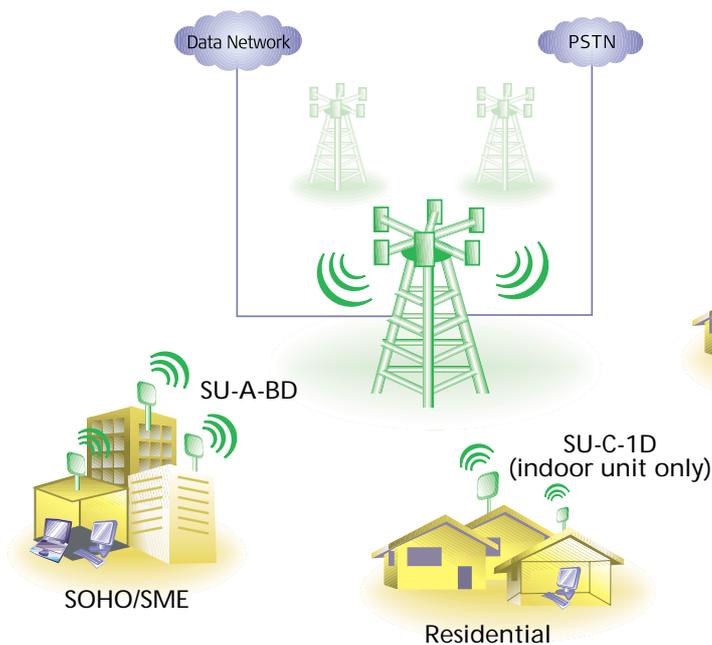
The outdoor units feature two antenna options, as follows:

- **AU-A-BS units:** Comprise an indoor module and outdoor unit, which contains a radio unit and integrated flat panel antenna.
- **AU-E-BS units:** Feature an indoor module and outdoor unit, which contains a radio unit and an RF connector for a separate external antenna.



AU-E-BS

Product Type	Product Name	Product Description
Base Station Shelf	BS-SH	Base station chassis with one DC power supply
	BS-SH-AC	Base station chassis with one AC power supply
Outdoor Access Units for use with Base Station	AU-A-BS	Includes base station module and outdoor unit with integrated antenna
	AU-E-BS	Includes base station module and outdoor unit with connectors for external antenna
Stand-alone Access Point	AU-E-NI	Includes indoor unit and outdoor unit with connectors for external antenna
Power Supply	BS-PS	Base station DC power supply
	BS-PS-AC	Base station AC power supply
GPS Synchronization System	GU-A-BS	Includes synchronization card and outdoor GPS radio unit with integrated antenna



## BreezeACCESS XL

Instant infrastructure, Carrier Class communication.



Residential



Residential

## Specifications

### Radio

Frequency	Series	Uplink (GHz)	Uplink-Downlink Separation (MHz)
(consult Alvarion regarding other bands)	2.6b	2.551 - 2.593	74
	3.3a	3.300 - 3.324	76
	3.5a1	3.400 - 3.452	100
	3.5b	3.450 - 3.500	100
	3.5ab (for SU-R/SU-C only)	3.400 - 3.500	100
	3.5e	3.425-3.450	50
	3.6b	3.660 - 3.710	100
	3.8	3.925 - 4.015	-320

Media Access Method	Frequency Hopping Code Division Multiple Access (FH-CDMA), EN 301 253		
Operation Mode	Frequency Duplex Division (FDD)		
Sub-channel Bandwidth	1.75 MHz		
Sub-channel Spacing	2 MHz, 1.75 MHz		
Output Power (at antenna port)	28 dBm typical, Control Range 20 dB typical		
Antenna	SU-RA: 17 dBi, 20' AU-RA: 16.5 dBi, 60'		
Sensitivity (dBm at antenna port, BER 1E-6)	Data Rate	SU-A/SU-E	SU-R/SU-C
	1 Mbps	-93	-92
	2 Mbps	-86	-85
	3 Mbps	-77	-76
Data Rate	3 Mbps max.		
Modulation	Multilevel GFSK		

### Outdoor Unit to Indoor Unit Communication

Intermediate Frequency (IF)	440 MHz
IF Cable Impedance	50 ohm
Maximum IF cable Attenuation	15 dB
Maximum IF cable DC Resistance	1.5 ohm

### Voice Communication (DV series)

Protocol	H.323 Voice over IP compliant
Compression	G.723 6.3 Kbps compression, G.7298 Kbps compression, G.711 64Kbps transparent
Echo Cancellation	G.168, G.131

### Configuration and Management

Local Management	Via MON port, Monitor program using terminal emulation
Remote Management	SNMP, Telnet, TFTP
Remote Management Access	From the wired LAN or from the wireless link
SNMP agents	MIB II, Bridge MIB, BreezeACCESS Private MIBs
Accounting	Radius compatible client in subscriber units
Security	Authentication, Filtering and Virtual LAN
Software upgrade	TFTP download

### Interfaces

RF (antenna)	AU-RE, SU-RE: N-Type jack, lightning protected
Intermediate Frequency (IF)	AU-RA/RE, SU-RA/RE outdoor units: TNC jack, lightning protected SU-NI, BS-AU indoor units: TNC jack, lightning protected
Ethernet	Indoor units: 10BaseT,(RJ 45) with 2 embedded LEDs
Telephone (DV series)	RJ 11 (POTS)
Monitor	Indoor units: 3-pin low profile
Power	AU-RA/RE, SU-RA/RE outdoor units: 12 VDC via the RF cable SU-NI indoor units: DC power plug to the external power supply BS-PS (Power Supply module of BS-SH): 4-pin DC power plug to a -48 VDC power source

### Electrical

SU-A/E	12 VDC / 2.5 A from the external power supply (supplied with the unit), 100-240 VAC, 47-63 Hz
BS-SH (modular base station shelf)	-48 VDC or 110/220 VAC, 200 W for a fully equipped shelf 25 W each AU (outdoor unit plus indoor module)

### Mechanical

SU-RA	30 cm x 30 cm x 7.2 cm, 3 kg
AU-RE, SU-RE	30 cm x 12 cm x 5 cm, 2.2 kg
BS-SH	19", 3U, depth 26 cm, 6 kg fully loaded

### Environmental

Operating Temperature	Indoor units and modules: 0°C to 40°C Outdoor units: -40°C to 60°C
Operating Humidity	5% to 95% non-condensing - Outdoor units are weather protected

### Standards Compliance, General

EMC	EN 300-385
Safety	EN 60950
Environmental	ETS 300 019