

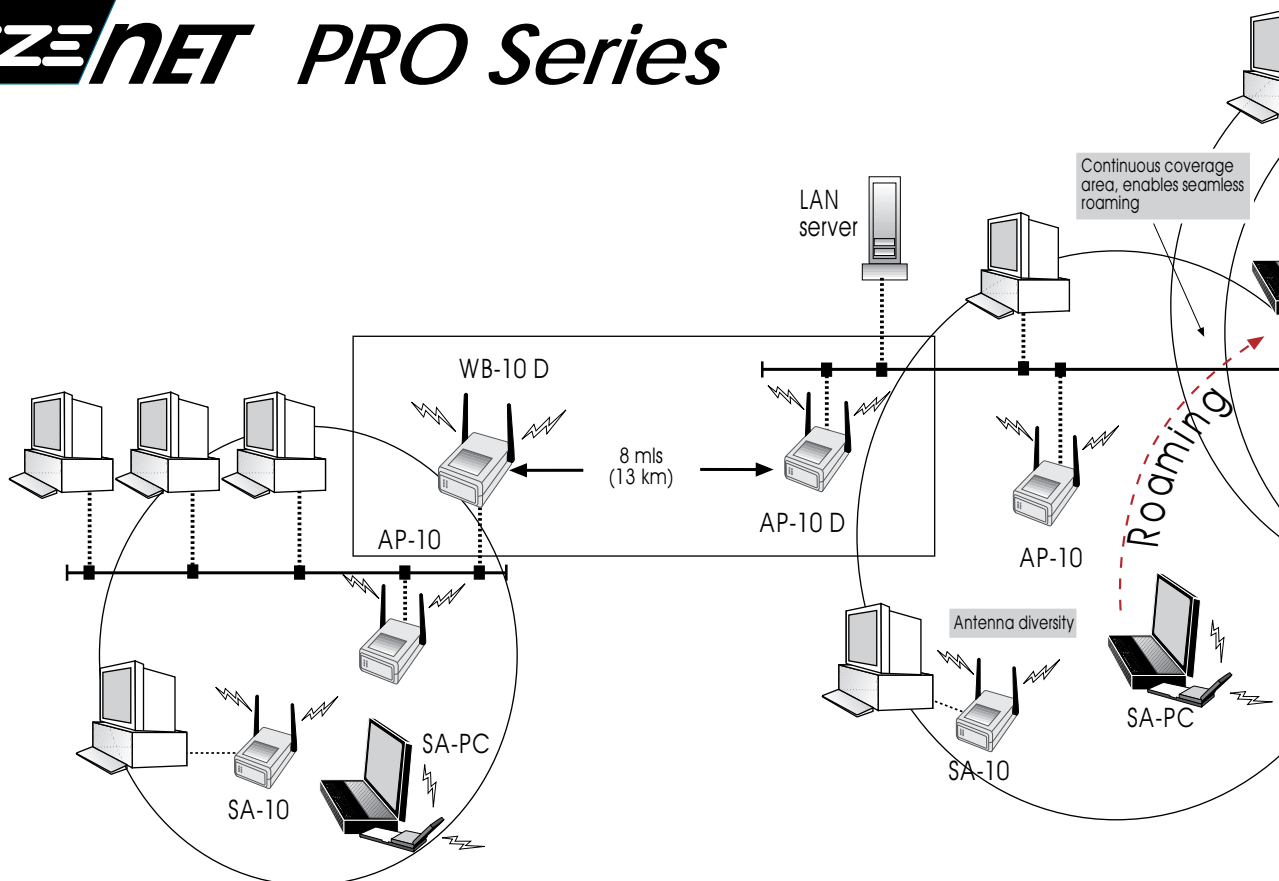


Z e r o   E f f o r t   N e t w o r k i n g <sup>TM</sup>

**BreezeNET - PRO series**  
W i r e l e s s   E t h e r n e t

# BREEZE<sup>NET</sup> PRO Series

Standard + Plug & Play = Zero Effort Networking  
Wireless Ethernet



## Access Points

Connected to the wired Ethernet, APs provide wireless stations with access to the wired LAN and to other wireless stations. The coverage area of an AP is known as a cell.

One Ethernet interface



**AP-10 PRO**

**AP-10 D PRO**

**AP-10 DE PRO**

European ETSI compliant only

With integrated antennas

For use with external antennas

Extended range, for use with external antennas

## Station Adapters

Connected to any workstation or PC equipped with an Ethernet interface, SAs provide wireless connection to the AP, and through it to the wired LAN and to other wireless stations.

One Ethernet interface



**SA-10 PRO**

**SA-10 D PRO**

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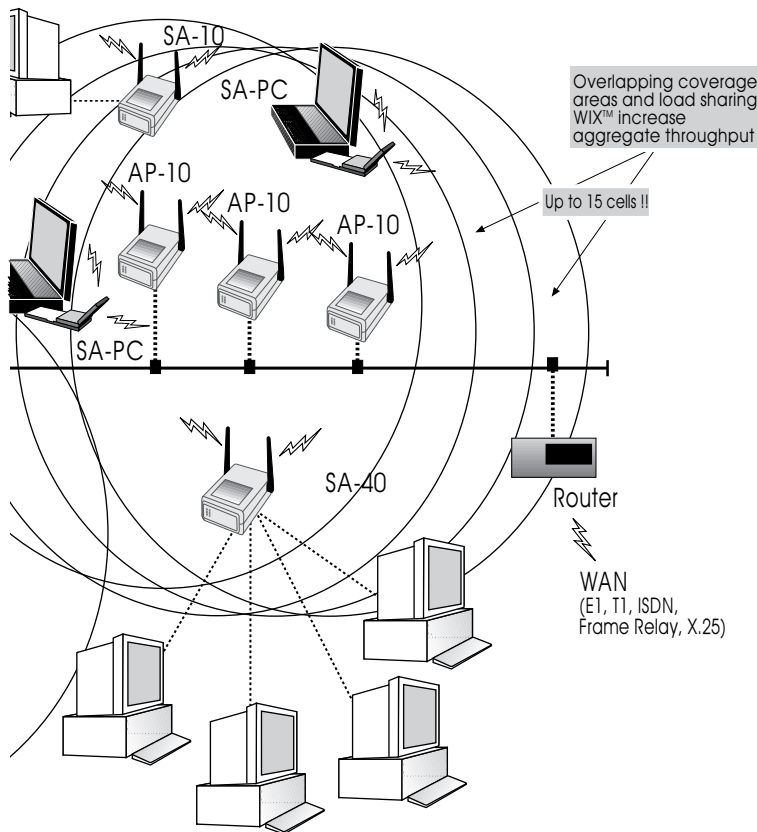
Four Ethernet interfaces



**SA-40 PRO**

**SA-40 D PRO**

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**Ease of Installation** - BreezeNet PRO series products are easily integrated into any existing Ethernet/ IEEE 802.3 environment. Just plug and play! Any station with an Ethernet interface can be instantaneously provided with a wireless connection to the LAN using BreezeNet PRO series products. No hardware changes are required and no additional drivers or setup software is needed when standalone units are used. The site survey feature makes the installation process a breeze by helping users position products for best radio signal reception.

**Data Rates** - BreezeNet PRO systems operate at high rates of up to 3Mbps over the air and use an automatic dynamic rate selection algorithm, for maximum efficiency in the use of the radio medium. The system monitors the quality of the radio medium and dynamically adapts the transmission rate accordingly. Rate decisions are taken on a per station basis, based on station's capabilities and radio link quality to that specific station.

**Range** - Using the products' small, built-in antennas, distances of up to 3,000 ft (1,000 m) are possible between the Access Point and wireless stations and bridges. Using high gain external antennas, the range is extended to several miles (kilometers).

**Standards Compliance** - The BreezeNet PRO series is designed to meet the specifications of the upcoming IEEE 802.11 wireless LAN standard and relevant regulations for license-free operation worldwide, thus ensuring investment protection and future interoperability with other standard compliant wireless LAN products. Upgrading to the final version of the standard (when ratified) is, for most of the products, just a question of down-loading new operating software. On the wired LAN side, the BreezeNET PRO series meets the IEEE 802.3 standard.

**Protocol Transparency** - The BreezeNet PRO series is transparent to network protocols as well as to station hardware.

**Load Balancing** - In high traffic environments, multiple co-located cells may be created by installing several Access Points. Using an efficient load balancing and switching algorithm, WIX™, wireless stations select the Access Point with the lowest load levels.

**Mobility and Roaming** - Mobile devices can move from one cell to another with no interruption in network services, thanks to the fast and seamless roaming feature of the system. The innovative fast roaming mechanism guarantees uninterrupted network connectivity even when stations move from one cell to another at speeds of up to 60 mph (90km/h).

**Radio Technology** - The BreezeNet PRO series uses Frequency Hopping Spread Spectrum (FHSS) technology at 2.4 GHz. No license is required for the operation of the radio links. The effective use of advanced technologies assures reliable and robust wireless connectivity, overcoming the adverse effects of interference and multipath fading and allowing co-existence with other wireless systems in the same geographical area.

**Antenna Diversity** - All BreezeNet PRO products have two integrated antennas. The product dynamically selects the antenna providing a higher quality signal, for improved performance. For greater distances models with external antennas (omni/uni-directional) are supplied.

**Station Configuration** - The BreezeNET PRO series operating parameters are S/W configurable via local dumb terminal (ASCII, RS 232, serial monitor port).

**Network Management** - The BreezeNet PRO series is manageable through the SNMP agents implemented in the products. The implementations include both standard MIBs and proprietary MIBs.

**S/W Upgradability** - BreezeNET PRO series' management feature allows upgrading of the products through S/W download. Upgrading to the final version of the IEEE 802.11 standard (when ratified) is just a question of loading new operating software.

**Form Factor** - The SA-PC has the dimensions of a standard PCMCIA card and has built-in antennas. All the rest of the products - AP, SA, WB - are extremely compact, about the size of a computer mouse!

## PCMCIA Adapters

Inserted in any PCMCIA slot in a notebook PC or handheld device, SA-PCs provide wireless access to the AP, and through it to the wired LAN and to other wireless stations.

One slot



LAN users' mobility

**SA-PC PRO**

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## Ethernet Bridges

Connected to a remote located wired (or wireless) Ethernet, WBs provide wireless bridge connection to the AP and its LAN.

One Ethernet interface



Inter building connectivity

**WB-10 PRO**

**WB-10 D PRO**

**WB-10 DE PRO**

European ETSI compliant only

Technical Specifications	Access Points	Station Adapters	Ethernet Bridges	PCMCIA adapters
	AP-10 XX PRO	SA-10 XX PRO   SA-40 X PRO	WB-10 XX PRO	SA-PC PRO
Wired LAN interface				
Compliant with	Ethernet / IEEE 802.3 CSMA/CD standard			-
Physical interface	10Base T			PC card type II
Network Operating Systems supported	All			Netware, Win95 and WinNT*
Network protocols supported	All			NDIS / ODI
Wireless LAN interface				
Designed to meet	IEEE 802.11 CSMA/CA wireless LAN standard drafts			
Physical interface - two antennas	Integrated or external			Integrated
Radio Specifications				
Type	Frequency Hopping Spread Spectrum (FHSS)			
Frequency range	2.4 GHz - 2.4835GHz (ISM band) (different ranges available for countries using other bands)			
Dwell time	20 ms - 128 ms			32 , 64 , 128 ms
Transmitted Power    - integrated antennas - external antenna	5 mW or 100 mW (20 dBm) EIRP			100 mW EIRP
	- 50 mW (17 dBm) at the connector - up to 36 dBm EIRP for 24dBi antenna			-
Sensitivity                       - @ 1 Mbps - @ 2 Mbps - @ 3 Mbps	- 81 dBm - 75 dBm - 67 dBm			- 80 dBm - 75 dBm
Modulation	Multilevel GFSK			
Demodulation	DSP based with adaptive equalization			
Antenna Diversity	Two antennas, selected for use on a per packet basis			
Approvals of compliance	FCC part 15			
	ETS 300-328			
	UL, UL/C, TUV/GS, CE			
Configuration and Management				
Configuration and set-up	Via Local Monitor port (serial RS232)			Via notebook PC
SNMP Management    - SNMP Agents - Access via	MIB II, Bridge MIB, WLAN MIB and proprietary MIB			-
	Wired LAN, Wireless LAN			
Site survey	Via Local Monitor port (serial RS232)			Via notebook PC*
Front panel display LED indicators	-Power on -Wired LAN activity -Wireless LAN synchronization / Radio interference -Wireless LAN signal quality / Load			- Transmit data - Receive data
S/W upgradable to IEEE 802.11 when ratified	Yes, through TFTP download			-
System Considerations				
Range ** (Access Point to adapter) - Unobstructed - integrated antennas - external antenna (models D and DE)				
	3,000 ft (1,000 m)			
	- USA - FCC - up to 8 miles - Europe - ETSI - up to 2.5 km - Europe - ETSI (extended) - up to 5 km - Deregulated - over 30 km For detailed range information, contact BreezeCOM representative.			-
	500 feet (150m)			
- Office environment				
Maximum number of APs per wired LAN	unlimited			
Maximum number of co-located (overlapping) cells (Access Points)	15			
Data Rate                       - over the air - nominal net - aggregate	1 Mbps, 2 Mbps, 3 Mbps Up to 1.6 Mbps			1 Mbps and 2 Mbps Up to 1.3 Mbps
	Over 15 Mbps with overlapped cells			
High speed roaming support	yes			
Load sharing support	yes (WIX™)			
Dynamic rate selection based on radio medium quality	yes			
Electrical				
External Power Supply	100V - 240V, 7.5W			-
Input Voltage	5Vdc, 1400mA			XMT - 5 Vdc, 365 mA RCV - 5 Vdc, 270 mA
Dimensions				
	5.1" x 3.4"x 1.2" (13cm x 8.6cm x 3cm)			2.2" x 5.4" x 0.5" (5.6 x 13.7 x 1.3 cm) including the antenna element
Weight	1 lb (0.45 Kg)			2 Oz (60 g)
Environmental				
Operating Temperature	32°F - 105°F (0°C - 40°C)			
Operating Humidity	5% -95% non condensing			

\*Available Q1 1997 \*\* Range is a function of rate and length / quality of antenna cable. Accurate values are to be calculated for each specific installation. Specifications may change without previous notice.

The **BreezeNET PRO** series includes a line of plug-and-play wireless LAN products providing high performance, cost-effective solutions for mobile computing, temporary and ad-hoc networks. With low initial investment and zero operational costs, the **BreezeNET PRO** series has a remarkably short return on investment.

The **BreezeNET PRO** series is an ideal solution for:

- Internet access
- Temporary installations
- Wire elimination in open space offices
- Meeting rooms
- Building-to-building LAN wireless connections
- Point-of-sale
- Exhibitions
- Historical buildings
- Back-up
- Disaster recovery

as well as for organizations where mobility is a must:

- hospitals
- warehouses and ports of entry
- airports.

Its ease of installation together with its high performance and smooth upgrade path to the upcoming international standard for wireless LAN, IEEE 802.11, makes the BreezeNET PRO series particularly useful in applications where wireless operation, Ethernet compatibility, fast deployment and mobility can encrease productivity.



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