

# Model BreezeLink



## Plug & Play Wireless E1/T1



### FEATURES:

- **License Free**
  - **Frequency Hopping Spread Spectrum**
  - **Operation in the 2.4 GHz ISM Band**
- **Plug and Play**
  - **Transparent Operation Support E1/T1, V35, RS-530, X.21**
  - **DTE Rates of 56-2048 Kbps**
  - **Comprehensive Self Test**
  - **Local and Remote Management**
  - **Link Quality Measurement**
  - **SNMP Management**
- **Leased Line Behavior**
  - **Data Rates of up to Full E1/T1**
  - **Full Duplex Operation**
- **High Performance**
  - **Interference Immunity (freq. hopping)**
  - **ARQ Protocol Eliminates Burst Noise**
  - **Antenna Diversity and DSP Modem**
  - **Range: up to 20 Miles (30 km)**

## DESCRIPTION

The BreezeLink 121 provides high performance, wireless connection for point-to-point transmission of synchronous data. The BreezeLink 121 is a full-duplex system providing an ideal solution for wireless transmission of E1 or T1, or other applications with any type of synchronous data. The BreezeLink 121 supports DTE rates of 56-2048 Kbps, operating at radio link data rates of up to 3 Mbps.

BreezeLink-121 is designed for Plug & Play installation. Local and remote Operation, Administration and Maintenance (OA&M) is supported. User friendly monitoring, diagnostics and configuration ensures instant deployment and immediate adaptation to specific needs. The small compact BreezLink 121 has a modular Data port, allowing flexible interfacing with all applicable DTE types.

The BreezeLink 121 meets all applicable standards and regulations for license-free installation. Frequency Hopping Spread Spectrum radio, combined with error correction algorithm, verifies interference avoidance as well as the ability to coexist with other wireless networks, and guarantees data link error rate better than  $10^{-9}$ . Robust and reliable communication under adverse conditions is ensured by the use of multi-rate, DSP based GFSK modem with adaptive equalization. Together with antenna diversity to defeat multipath propagation, this is the state of the art solution for reliable wireless data communication.

The BreezeLink 121 is an ideal solution for wide variety of applications such as "last mile" connection, campus networks, fast deployment, backup links and disaster recovery.

# SPECIFICATIONS

## DTE Interface Options

### Data rates (full duplex)

56, 64, 128, 256, 384, 512, 768, 1024, 1544, 2048 Kbps.

### T1 Interface

Data Rate: 1,544 Kbps  
Type: DSX-1, meets CCITT G. 823 and AT&T pub 63411  
Connector: RJ-48 C  
Line Code: Bipolar AMI or B8ZS

### E1 Interface

Data rate: 2,048 Kbps  
Type: CEPT-1, meets CCITT G. 703 and G. 823  
Connector: BNC (unbalanced), RJ-45 (balanced)  
Line Code: HDB3 or AMI

### V. 35 Interface

Data Rate: 56-2048 Kbps  
Type: synchronous data, V. 35/V. 11 levels  
Connector: Winchester 34 pins, female

### RS-530 Interface

Data Rate: 56-2048 Kbps  
Type: synchronous data, RS-530/RS-422 levels  
Connector: D-type, 25 pins, female

### X. 21 Interface

Data rate: 56-2048 Kbps  
Type: synchronous data, X. 21 levels  
Connector: D-type, 15 pins, female

## LED Indicators

- Power
- Self Test
- Data Link Status (LOS, AIS)
- Data Link Activity (TXD, RXD)
- Radio Link Status (RxSync, TxSync)
- Monitor Activity

## Management

- Remote and local monitoring, diagnostics and configuration
- Interface: V. 24/RS-232, D-type 9 pins, female (dial up modem compatible)
- Software download, including Modem module
- SNMP management (optional)

## Radio/Modem Link

### Frequency range

2.4 - 2.4835 GHz

### Radio

Frequency Hopping Spread Spectrum

### Output power

50 mW

### Transmission power (EIRP)

4W (USA), 100mW (Europe)

### Modulation

2, 4, and 8 GFSK

### Data rate

0.5, 1, 2, 3 Mbps

### Antenna (optional diversity)

- One or two receive antennas
- One or two transmit antennas
- Connectors: SMA
- Impedance: 50 Ohm
- Directional antennas 8.5-24 dBi

### Range (BER>10<sup>-9</sup>, 24 dB Rx antenna)

| DTE RATE (kbps) | US MODEL (miles) | EUROPE MODEL (km) |
|-----------------|------------------|-------------------|
| 56-384          | 20               | 7                 |
| 512, 768        | 11               | 4.5               |
| 1028, 1544 (T1) | 4.5              | 2                 |
| 2048 (E1)       | 2                | 1                 |

## Electrical

100-240 VAC, 25W

## Dimensions

9.8 x 7.7 x 1.8 in (25 x 19.5 x 5.4 cm)

## Weight

2.2 lb (1Kg)

## Environmental

Operating temperature: 32°F to 105°F (0°C to 40°C)

Operating humidity: 5% to 95%, non-condensing

## Standards

US: FCC Part 15 C, UL 1950

Europe: ETS 300-328, EN 60950

## BreezeLINK Range table

| Tx Ant.    | Rx Ant. | Cable Length [ft] | Cable Type | Tx Gain | EIRP [dBm] | Rx Gain | Range for E1 | Range for T1 | Range for 512,768 Kbps | Range for 56 to 384 Kbps |
|------------|---------|-------------------|------------|---------|------------|---------|--------------|--------------|------------------------|--------------------------|
| 8.5        | 8.5     | 8                 | LMR-240    | 6       | 21         | 6       | 500 ft       | 1500 ft      | 0.6 mi                 | 0.9mi                    |
| 12         | 12      | 20                | RG 8/U     | 10      | 25         | 10      | 1000 ft      | 0.5 mi       | 1 mi                   | 1.5 mi                   |
| 12         | 18      | 30                | RG 8/U     | 10      | 25         | 15      | 0.4 mi       | 0.7 mi       | 1.5 mi                 | 2 mi                     |
| 18         | 18      | 30                | RG 8/U     | 15      | 30         | 15      | 0.5 mi       | 1.5 mi       | 3 mi                   | 4.5 mi                   |
| 24         | 24      | 50                | LMR-600    | 21      | 36         | 21      | 1.5 mi       | 3 mi         | 6 mi                   | 9 mi                     |
| 24         | 24+LNA  | 50                | RG 8/U     | 19      | 34         | 24      | 1.5 mi       | 3 mi         | 6 mi                   | 9 mi                     |
| 12+booster | 18+LNA  | 30                | RG 8/U     | 12      | 36         | 18      | 1.5 mi       | 3.5 mi       | 8 mi                   | 10 mi                    |
| 12+booster | 24+LNA  | 50                | RG 8/U     | 12      | 36         | 24      | 2.5 mi       | 6 mi         | 12 mi                  | 15 mi                    |

## ORDERING GUIDE

### WIRELESS MODEMS

#### Model BL-121-T1

BreezeLINK 121 Wireless Modem with T1 Interface

#### Model BL-121-V35

BreezeLINK 121 Wireless Modem with V.35 Interface

#### Model BL-121-RS530

BreezeLINK 121 Wireless Modem with RS530 Interface

#### Model BL-121-X21

BreezeLINK 121 Wireless Modem with X.21 Interface

### DETACHED ANTENNAS & ACCESSORIES

#### Model UNI-85-EXT

One 8.5 dBi uni-directional antenna (75°), surface mount hardware and one 8' cable that accepts extensions and/or arrestor

#### Model UNI-12

One 12 dBi directional antenna, 6 in. RG58 strain relief, 20' RG8/U 9913 main cable, mounting hardware for 1" to 2" mast

#### Model UNI-18

One 18 dBi directional antenna, 6 in. RG58 strain relief, 30' RG8/U 9913 main cable, mounting hardware for 1" to 2" mast

#### Model UNI-24

One 24 dBi directional antenna, 6 in. RG58 strain relief, 50' RG8/U 9913 main cable, mounting hardware for 1" to 2" mast

#### Model AL-1

In-Line Lightning Arrestor, with 5 ft. Extension Cable

#### Model TPA-24

Transmit power amplifier, providing 14 dBm fixed output, with "N" Male to "N" Female Connectors

#### Model LNA-10

Low noise in-line receive amplifier, w/120 vac power adapter (Requires RG-59 power inserter cable - installer supplied)

#### Model EXT-10

Extremely Low-Loss Extension Cable - 10 ft.

#### Model EXT-20

Extremely Low-Loss Extension Cable - 20 ft.

#### Model EXT-30

Extremely Low-Loss Extension Cable - 30 ft.

#### Model EXT-50

Extremely Low-Loss Extension Cable - 50 ft.

#### Model EXT-70

Extremely Low-Loss Extension Cable - 70 ft.

#### EXT-100

Extremely Low-Loss Extension Cable - 100 ft.

#### EXT-150

Extremely Low-Loss Extension Cable - 150 ft.

