



## Trailblazer™ Phone Line Extender



### A POINT-TO-POINT DIGITAL RADIO PROVIDING VOICE AND ETHERNET DATA

Trailblazer™ radios use TrueTDM™ fixed latency technology to provide perfect wire line quality telephone service to residences and businesses beyond existing phone lines. Configurable for up to eight 64 kbps PCM voice channels (POTS) with ranges up to 32 mi/50 km, or more with repeaters. Features full fax and Ethernet capability. Additionally, 4-wire (E&M) leased line configuration and multipoint systems are available.

#### APPLICATIONS:

- WISP Networks
- VoIP PBX Links
- Cellular Backhaul
- Remote Equipment Monitoring
- Remote Video Surveillance
- Temporary and Disaster Restoration Communications
- Rural Broadband
- Smart Grid
- Streaming Media
- UDP Intensive Applications
- SCADA Polling
- WiMax Backhaul

#### FEATURES:

##### Flexible and Programmable

All Trailblazer™ models are bench or field programmable. Configure the bandwidth, allocate voice and data, use installation and antenna alignment aids and diagnostic tools. All models support Carrier Class features, fax, and Ethernet connectivity.

##### Fixed Latency Radio for Perfect Wireline Quality

Carlson Wireless' exclusive TrueTDM™ technology offers low (less than 5 milliseconds) fixed latency signaling that is compatible with all voter receiver/comparators. TrueTDM™ also eliminates the need to equip your voter comparators/receivers with a jitter buffer and/or GPS oscillators, saving you money and time.

##### Advantages Over Wireline

All Trailblazer™ models deliver voice, data or both up to 32 mi / 50 km. Using Carlson's exclusive TrueTDM™ technology and state-of-the-art digital electronics and wireless links, Trailblazer™ radios provide network quality and reliability without the expense of right of way costs or wireline hard costs.

##### Plug-and-Play Simplicity and Reliability

All components, including digital radio cards, multiplexer, power supplies and CPU are fully integrated into the outdoor 3 kg / 8 lb waterproof enclosure or a standard aluminum rackmount.

##### Easy Installation

ODUs are easily installed with a simple wall or pole mount and built-in power supply. Programming with a GUI and your laptop completes the job.

##### Rugged & Weatherproof

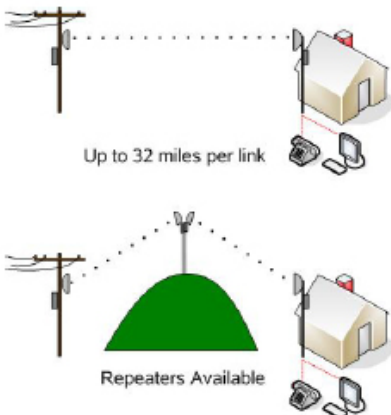
Terminals are housed in a NEMA 4X waterproof enclosure, built to last in tough climates.

##### No License Required, Yet Private and Secure

Uses the license-exempt (in most countries) 900 MHz\*, 2.4 GHz, 5.4 GHz or 5.8 GHz frequency bands. Licensed 4.9 GHz and 5.9 GHz models are also available. Trailblazer™ uses TDMA framing for additional over the air security.

##### Low Power Draw, Solar Powerable

Point-to-Point systems draw low power and accept any DC Voltage from 12V to 24V. Solar power kits available with up to 7 days of backup power.





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### SYSTEM SPECIFICATIONS

<b>Product Description</b>	Digital microwave radio with POTS, Leased line 10 Base T/V.35 port
<b>Air Interface</b>	Proprietary Time Division Duplexing with Direct Sequence Spread Spectrum CDMA
<b>Overall Data Throughput Rate</b>	64 - 512 kbps, Selectable (Configurable GUI)
<b>End to End System Latency</b>	Fixed latency, Less than 5 ms
<b>Operating Power</b>	CPE terminal: 3W (idle) to 9W (max) Base terminal: 2.5W (typical)
<b>Supply Voltage - Filtered DC</b>	12V - 24V (32V max). Earth ground required, AC adaptor available (100 - 260 VAC, 50 - 60 Hz)

### RF PERFORMANCE

<b>Frequency Range</b>	2.412 to 2.472 GHz, 4.950 to 4.980 GHz, 5.250 to 5.925 GHz, 902-928 MHz also available* (additional equipment required)
<b>RF Channels</b>	20 MHz
<b>Spreading Codes</b>	4 auto-selectable orthogonal codes
<b>Modulation</b>	BPSK (256 bbs) or QPSK (512 kbps) DSSS
<b>Tx Power</b>	+20 dBm
<b>Receiver Sensitivity (10-6 BER)</b>	-93 dBm/256 kbps; -90 dBm/512 kbps
<b>Antenna</b>	Various external antennas
<b>EMC Compatibility</b>	FCC Part 15.247

### FXO SPECIFICATIONS

<b>DS-O Lines</b>	2, 4, 6 or 8
<b>Line and Balance Impedance</b>	Both resistive and reactive parameters can be factory set per country requirements
<b>Maximum Loop Length</b>	1500 ohms at 20 mA
<b>Ring Type and Equivalent Number</b>	Balanced sinusoidal, 0.3B per line
<b>Ring Detect Threshold</b>	24-110 Vrms, 17-34 Hz
<b>2-Wire Port Return Loss</b>	24 dB (min)
<b>Regulatory</b>	TIA/EIA/IS-968 (FCC), UL 1950, UL 60950, EN60950, IEC60950, EN55022B, CISPR22B, EN55024 and TRB-21

### FXS SPECIFICATIONS

<b>DS-O Lines</b>	2, 4, 6 or 8
<b>Line and Balance Impedance</b>	Both resistive and reactive parameters can be factory set per country requirements
<b>Open Loop Voltage</b>	36 - 48 Volts
<b>Loop Current</b>	20 mA (min) to 24 mA (max)
<b>Maximum Loop Length</b>	1200 ohms including instrument
<b>Ring Voltage, Waveform and Load</b>	60 VAC RMS, Balanced sinusoidal, 3 REN
<b>TTX Generation</b>	12 or 16 KHz, typically set to 200 mV rms
<b>2-Wire Port Return Loss</b>	24 dB (min)
<b>Regulatory</b>	LSSGR, TR57, ITU Q.552 and G.712

### USER DATA INTERFACE

<b>Data Port Interface</b>	10BaseT Ethernet or V.35
<b>Synchronous Data Rate (kbps)</b>	512/256/128/64, selectable from configurable GUI
<b>Digital Latency, End to End</b>	< 4.5 ms
<b>Data Interface Connector</b>	25 pin "D" type female

### MAINTENANCE DATA INTERFACE

<b>Command Console Port</b>	RS-232 (9600 bps, N, 8, 1)
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### ENVIRONMENTAL SPECIFICATIONS

<b>Operating Temperature &amp; Humidity</b>	-30° to 60 °C, 0 to 90% non-condensing
<b>Exposure to the Elements (ODU)</b>	NEMA 4X, rain, wind and ice protected
<b>Shock and Vibration</b>	Mil Standard 810 D
<b>Mounting</b>	25.4 - 57.15 mm (1 to 2.25") pipe/pole mount

