

## SAFETLINK 1, 2, 4 X T1 PRODUCT SPECIFICATION SUMMARY

| Feature  | Specification  |
|--|--|
| <p>Typical Link Operational Distance, 1 MHz channels.</p> <p>Calculation per ITU-R P.580-8 Standard for Wireless Link Availability</p> | <p>With integrated antenna:</p> <p style="padding-left: 40px;">7.8 miles with 99.999% availability</p> <p style="padding-left: 40px;">12.5 miles with 99.99% availability</p> <p>With external 2' dish antenna:</p> <p style="padding-left: 40px;">13 miles with 99.999% availability</p> <p style="padding-left: 40px;">20 miles with 99.99% availability</p> |
| Antenna Connector (on ODUs without integrated antenna)   | Type "N" Female  |
| Integral Panel Antenna Details   | (on ODUs with integrated antenna)  |
| Physical Size  | 14 inches square by 0.8 inch deep (radome size). Diamond configuration for lowest antenna sidelobe performance   |
| Gain   | 20 dBi minimum.  |
| Polarization   | Linear. Shipped vertically polarized, may be reconfigured to horizontal polarization by the user.  |
| Cross-Polarization Isolation   | Greater than 23 dB.  |
| Transmitter Power  | Up to +20 dBm at the antenna connector. Power once set is controlled by automatic level control loop.  |
| Transmitter Attenuation  | Power can be adjusted down to 0 dBm or lower in 1 dB steps via the software controls.  |
| Occupied BW / Minimum Receive Level Sensitivity is for BER threshold of $10^{-6}$  | <p>1 x T1: 1 MHz / -89 dBm</p> <p>2 x T1: 2 MHz / -86 dBm</p> <p>4 x T1: 5 MHz / -81 dBm</p>   |
| Maximum Receive Level  | -30 dBm, up to +10 dBm input at the antenna connector with no damage to the equipment.   |
| Frequency Control  | PLL Synthesized. Receiver and Transmitter are independently set by the user. FCC channels 1-6 and 13-18 are selectable. 4940.500 to 4947.500 and 4982.500 to 4989.500 MHz channel center frequency settings.   |
| Duplex Method  | Frequency Division Duplex. Full duplex operation. Both ends have identical hardware and can be interchanged with minimal reconfiguration.  |
| Modulation   | Digital 16 QAM modulation. Spectrally-efficient modem to conform to the FCC channel plan for the 4940-4990 MHz band.   |
| Forward Error Correction   | Concatenated Reed-Solomon coding with interleaving   |
| Regulatory Compliance  | FCC Part 90.2 for the ODU and Unintentional emissions per FCC part 15 for class B device.  |
| Network Management   | CLI, GUI, SNMP options. All of the features and functions of the system are controlled via the network management.   |
| Network Management Physical Interfaces   | 10/100BaseT Ethernet and RS-485 serial. RS-485 is active unless Ethernet is connected.   |
| T1 Line Interfaces   | One, two or four T1 Interfaces, selected by user. ODU automatically changes RF bandwidth to match the number of T1 channels selected   |
| Digital Interface  | DSX-1 per Telcordia GR-499. 1.544 MBPS clear channel. System intercommunications does not take any user bandwidth.   |

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|---|--|
| T1 connector  | 28-pin weather-resistant (shared with management and power) on ODU<br>RJ-48 connectors on optional IDUs  |
| T1 Line Coding  | AMI or B8ZS, selectable for each T1 channel  |
| T1 Line Buildout<br><br>Independently selectable for each T1 channel. | DSX-1 (0-133ft.) / 0 dB CSU<br>DSX-1 (133-266ft.)<br>DSX-1 (266-399ft.)<br>DSX-1 (399-533ft.)<br>DSX-1 (533-655ft.)<br>-7.5dB CSU<br>-15bB CSU<br>-22.5dB CSU  |
| T1 Clocking   | All T1 clock sources are synchronous.<br>User selection of clock source at either end of the SafeTLink system. Slave end of the link delivers regenerated Master end T1 clocking to the user equipment |
| T1 Line Interface Diagnostics   | Near and Far-end T1 loopback, AIS generation, 2 <sup>15</sup> -1 BIST pattern test, independently selectable for each active T1 channel  |
| Major and Minor Alarm Relay Contacts (rack-mounted IDU required)      | 1 form C each, nominal switching load 1A at 30 VDC, 0.3A at 125 VAC, maximum switching voltage 110 VDC, 125 VAC. User configurable alarm criteria.   |
| External Alarm Inputs (rack-mounted IDU required)                     | Contact closure or DC voltage input triggers the alarm, which is sent to the far end of the wireless link.   |
| DC Power Input 24/48 VDC option                                       | At the ODU: Wide 18 to 75 VDC operating range, either polarity, floating relative to ground, 1500 volt surge protection.   |
| DC Power Input 12 VDC option  | 9 to 18 VDC operating range, polarized, floating relative to ground, 1500 volt surge protection.   |
| ODU Power Dissipation   | 25 watts   |
| Operating Altitude  | Up to 15,000 feet MSL  |
| ODU Operating Environment   | -40 to +70 C, 0-100% humidity, weather resistant, outdoor mounted. Convection cooled.  |
| ODU Physical Dimensions   | Approximately 12 x 12 x 5 inches not including antenna or mount. Cast Aluminum housing with rugged powder coated paint, white. Weight approximately 12 pounds including mount (furnished)              |
| Indoor Units  | The Indoor Unit (IDU) is optional. The ODUs may be operated with no IDU, or with either of the optional IDUs:  |
| Rack-mounted IDU Operating Environment                                | -40 to +70 C, 5-95% humidity, indoor mounted   |
| Rack-mounted IDU Physical Dimensions                                  | 19 or 23 inch rack mount, 1U high  |
| Small Format IDU Operating Environment                                | -40 to +70 C, 5-95% humidity, indoor mounted   |
| Small Format IDU Physical Dimensions                                  | 5 x 5 x 1 inch not including connectors. The small format IDU provides a convenient interconnection of all system cables.  |

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