

Aprisa XE

POINT-TO-POINT DIGITAL MICROWAVE LINKS FCC 900 MHz licensed band



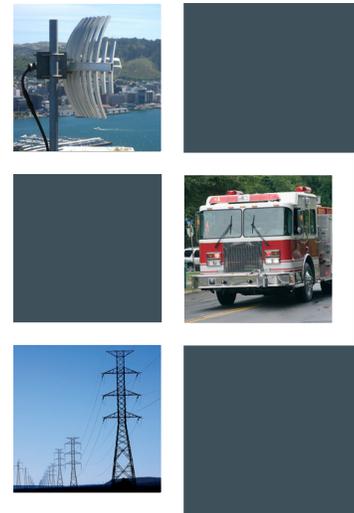
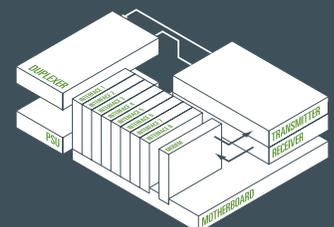
Aprisa XE: maximizing spectrum use and making challenging long distance links possible

- **Efficient future-proof single-box architecture:** the Aprisa XE's built-in multiplexer and cross-connect eliminate external equipment and minimize the over-the-air requirements, with customer-configurable interface slots integrating all IP, voice and data traffic. Configuration, performance monitoring and diagnostics are easy with the 4RF embedded web-based element management system, SuperVisor.
- **High capacity:** class-leading spectral efficiency and up to 64 QAM modulation make the maximum use of the available spectrum, with industry leading capacity of up to 952 kbit/s in a 200 kHz channel.
- **Long range:** a single 900 MHz Aprisa XE can link distances in excess of 120 miles, overcoming the problems of water, environmental conditions and topographical obstacles.
- **Carrier-class performance:** Aprisa XE links are engineered to achieve 'five 9s' availability, benefiting from state of the art forward error correction and inherent low latencies, for unrivaled quality of service.
- **Cost effective:** the Aprisa XE has a low total cost of ownership, providing a rapid return on investment by minimizing both capital and operational expenditure.
- **Redundancy option:** Monitored Hot Standby for protection in mission-critical applications.
- **Reliable:** the Aprisa XE has an actual MTBF of 95.72 years. It can be relied upon to perform in the harshest and most remote environments.

The Aprisa XE in brief

- Licensed 900 MHz frequency band
- Built-in cross-connect and multiplexer
- Up to 952 kbit/s capacity
- 50 kHz, 100 kHz and 200 kHz channel sizes
- QPSK to 64 QAM modulation
- Range of 120+ miles
- Industry-leading reliability
- Web server and SNMP management
- All voice, data and IP applications
- MHSB protection option

Future-proof single-box architecture



SYSTEM SPECIFICATION

| RF | BAND | TUNING RANGE | SYNTHESIZER STEP SIZE |
|---------------------|---|------------------------|-----------------------|
| FREQUENCIES | 900 MHz | 928 – 960 MHz | 12.5 kHz |
| MODULATION TYPES | Software configurable: QPSK / 16 / 32 / 64 QAM | | |
| FREQUENCY STABILITY | Short term ± 1 ppm (environmental effects and power supply variations) Long term ± 2 ppm (aging of crystal oscillators ≈ over 5 years) | | |
| ANTENNA CONNECTION | N-type female 50 ohm | | |
| TRANSMITTER | | | |
| POWER OUTPUT | +15 dBm to +29 dBm in 1 dB steps | | |
| RECEIVER | | | |
| MAXIMUM INPUT LEVEL | -20 dBm | | |
| DYNAMIC RANGE | 58 to 87 dB at 10 ⁻⁶ BER | | |
| C/I RATIO | Co-channel | QPSK | better than 16 dB |
| | | 16 QAM | better than 20 dB |
| | | 32 QAM | better than 23 dB |
| | | 64 QAM | better than 27 dB |
| | | First adjacent channel | better than -5 dB |
| | Second adjacent channel | better than -30 dB | |
| DUPLEXER (bandpass) | PASSBAND | TX / RX SPLIT | TUNING RANGE |
| | 1.0 MHz | ≥ 9 MHz | 928 – 960 MHz |
| | 0.5 MHz | ≥ 5.5 MHz | 928 – 960 MHz |
| | 0.5 MHz | ≥ 3.6 MHz | 928 – 960 MHz |
| POWER SUPPLY | | | |
| INPUT RANGE | 115 / 230 VAC, 50 / 60 Hz | | |
| | ±12 VDC (10.5 – 18 VDC), ±24 VDC (20.5 – 30 VDC), ±48 VDC (40 – 60 VDC) | | |
| POWER CONSUMPTION | 53 – 180 W input power (dependent on interface cards fitted and transmitter output power level) | | |

| INTERFACES | |
|----------------------|--|
| ETHERNET | Integrated 4-port 10/100Base-T switch with port-based rate limiting, VLAN tagging and QoS Support |
| E1 / T1 | Quad 120 ohm G.703/4 |
| DATA | Quad V.24 asynchronous, synchronous and over sampling mode Single synchronous X.21 / V.35 / RS-449 / RS-530 |
| ANALOG | Dual 2-wire FXS / FXO (POTS); Quad 4-wire E&M |
| AUXILIARY INTERFACES | |
| ALARMS | 4 external alarm outputs, 2 external alarm inputs |
| CONFIGURATION | Embedded web server with SNMP |
| MANAGEMENT | Ethernet interface for SuperVisor and SNMP; V.24 setup port |
| RSSI | Front panel test point |
| ENVIRONMENTAL | |
| OPERATING | +14° F to +122° F (-10° C to +50° C) |
| STORAGE | -4° F to +158° F (-20° C to +70° C) |
| HUMIDITY | Maximum 95 % non-condensing |
| MECHANICAL | |
| RACK MOUNT | 19" 2U high (internal duplexer) |
| WEIGHT | 23 lbs (10 kg) typical |
| PROTECTED OPTION | |
| MHSB | ≤ 4 dB splitter / cable loss, ≤ 1 dB TX relay / cable loss (system gain reduced by a maximum of 5 dB) |
| COMPLIANCE | |
| RADIO | FCC CFR 47 Part 101 |
| EMI / EMC | FCC CFR 47 Part 15, EN 301 489 Parts 1 & 5 |
| SAFETY | EN 60950 CSA 253147 applicable for 48 VDC and 24 VDC product variants |
| ENVIRONMENTAL | ETS 300 019 Class 3.2, WEEE |

SYSTEM PERFORMANCE

| 50 kHz CHANNEL | | QPSK | 16 QAM | 32 QAM | 64 QAM |
|-----------------------------------|----------------------|--------------------------|--------------------------|---------------------------|---------------------------|
| CAPACITY ¹ | gross (TS + wayside) | 72 (1 TS + 8) kbit/s | 152 (2 TS + 24) kbit/s | 192 (3 TS + 0) kbit/s | 232 (3 TS + 40) kbit/s |
| RECEIVER SENSITIVITY ² | | -109 dBm | -103 dBm | -100 dBm | -97 dBm |
| SYSTEM GAIN ² | | 138 dB | 132 dB | 129 dB | 126 dB |
| 100 kHz CHANNEL | | QPSK | 16 QAM | 32 QAM | 64 QAM |
| CAPACITY ¹ | gross (TS + wayside) | 136 (2 TS + 8) kbit/s | 280 (4 TS + 24) kbit/s | 352 (5 TS + 32) kbit/s | 424 (6 TS + 40) kbit/s |
| RECEIVER SENSITIVITY ² | | -106 dBm | -100 dBm | -97 dBm | -94 dBm |
| SYSTEM GAIN ² | | 135 dB | 129 dB | 126 dB | 123 dB |
| 200 kHz CHANNEL | | QPSK | 16 QAM | 32 QAM | 64 QAM |
| CAPACITY ¹ | gross (TS + wayside) | 312 (4 TS + 56) kbit/s | 632 (9 TS + 56) kbit/s | 792 (12 TS + 24) kbit/s | 952 (14 TS + 56) kbit/s |
| RECEIVER SENSITIVITY ² | | -102 dBm | -96 dBm | -93 dBm | -90 dBm |
| SYSTEM GAIN ² | | 131 dB | 125 dB | 122 dB | 119 dB |

NOTES

- T1 capacities are specified as unframed. The management Ethernet capacity must be subtracted from the gross capacity (default 64 kbit/s).
- Performance specified at the antenna port for 10⁻⁶ BER. Figures for 10⁻³ BER are typically 1 dB better.

ABOUT 4RF

Operating in more than 140 countries, 4RF provides radio communications equipment for critical infrastructure applications. Customers include utilities, oil and gas companies, transport companies, telecommunications operators, international aid organisations, public safety, military and security organisations. 4RF point-to-point and point-to-multipoint products are optimized for performance in harsh climates and difficult terrain, supporting IP, legacy analog, serial data and PDH applications.

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For more information please contact
EMAIL sales@4rf.com
URL www.4rf.com

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