Aprisa XE

POINT-TO-POINT DIGITAL MICROWAVE LINKS

FCC 400 MHz licensed band

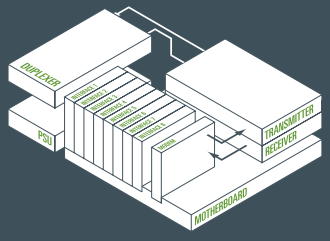
Aprisa XE: maximizing spectrum use and making challenging long distance links possible

- **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 88 kbit/s in a 25 kHz channel.
- **Long range**: a single 400 MHz Aprisa XE can link distances in excess of 150 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 options**: Monitored Hot Standby is available 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 400 MHz frequency band
- Built-in cross-connect and multiplexer
- Up to 88 kbit/s capacity
- 25 kHz channel size
- QPSK to 64 QAM modulation
- Range of 150+ 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	400 MHz	400 – 512 MHz	6.25 kHz
MODULATION TYPES	Software configurable: 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	16 QAM	+17 to + 31 dBm	
	32 QAM	+16 to + 30 dBm	
	64 QAM	+15 to + 29 dBm	
RECEIVER			
MAXIMUM INPUT LEVEL	–20 dBm		
DYNAMIC RANGE	58 to 87 dB at 10^{-6} BER		
C/I RATIO	Co-channel	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**
C0	500 KHz	≥ 3 MHz	470 – 495 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 OPTIONS	
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 90
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

25 kHz CHANNEL		16 QAM	32 QAM	64 QAM
CAPACITY [1]	gross (TS + wayside)	56 (0 TS + 56) kbit/s	72 (1 TS + 8) kbit/s	88 (1 TS + 24) kbit/s
RECEIVER SENSITIVITY [2]		–105 dBm	–102 dBm	–99 dBm
SYSTEM GAIN [2]		136 dB	132 dB	128 dB

NOTES

1 Capacities are specified as unframed. The management Ethernet capacity must be subtracted from the gross capacity (default 64 kbit/s).

2 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.

4RF

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