



APRISA FE

SECURE POINT-TO-MULTIPOINT RADIO

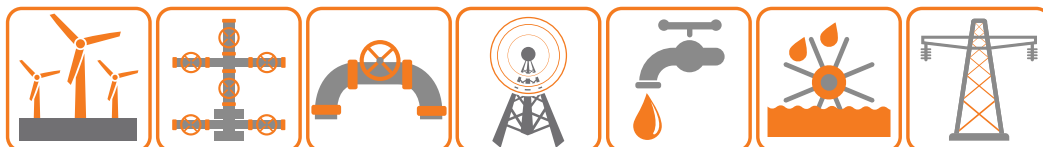
THE APRISA SR+ IN BRIEF

- Licensed narrow channel point-to-point Ethernet radio
- VHF, UHF licensed bands
- Ethernet – 4 port Layer 2 and 3
- Software selectable 12.5 kHz, 25 kHz, 50 kHz channel sizes
- Gross data rates up to 240 kbit/s
- Full duplex operation
- Internal and external pass band duplexer options
- 256, 192 or 128 bit AES encryption
- Adaptive coding modulation: QPSK to 64 QAM
- Advanced forward error correction
- Dedicated alarm port
- -40 to +60 °C operational temperature
- 434 mm (W) x 295 mm (D) x 44.45 mm (H) (dependent on duplexer type)
- ETSI and ACMA standards compliant
- Aprisa FE applications



Aprisa FE: Smart, cost effective, narrow channel, point-to-point Ethernet radio for low capacity linking and backhaul of DMR and industrial monitoring and control

- New technologies, such as digital land mobile radio, need IP connectivity while cyber security concerns are driving the need for protected operation as standard even in low end applications. Aprisa FE introduces cost effective, secure IP over Ethernet linking, while utilising the industry proven VHF/UHF bands – the mainstay for lower capacity linking and backhaul for public safety, transport and utility industries globally.
- High capacity: delivering an industry leading combination of capacity and distance the Aprisa FE provides data rates of up to 240 kbit/s in 50 kHz licensed channels.
- Advanced IP connectivity: selectable L2 Bridge or L3 Router modes, with VLAN, QoS and filtering attributes to support narrow bandwidth channels and mission critical traffic while meeting increasing security and IP network policy requirements.
- Secure: with its defence in depth approach, including AES encryption, authentication, L2 / L3 address filtering and L4 port application filtering and user access control, the Aprisa FE protects against vulnerabilities and malicious attacks.
- Link efficiency: adaptive modulation and forward error correction maintains the integrity of the wireless connection to ensure maximum capacity delivered continuously under varying atmospheric conditions.
- Reliable and robust: incorporating 4RF standard distance engineering RF design techniques, Aprisa FE maintains its high power output and performance over a wide temperature range without de-rating, delivering robust performance and long term reliability.
- Easily managed: an easy to use GUI supports full management of both local and remote terminals via HTTPS, and SNMP support allows network-wide monitoring and control via a third party network management system.



APRISA SR+ TECHNICAL SPECIFICATIONS

GENERAL

Network Topology	Point-to-point
Network Integration	Ethernet

PROTOCOLS

Ethernet	IEEE 802.3, 802.1Q, 802.1p
Wireless	Proprietary

RADIO

	FREQ BAND	TUNING RANGE	TUNE STEP
Frequency Range	400 MHz	400 – 470 MHz	6.25 kHz
	300 MHz	320 – 400 MHz	6.25 kHz
	(Note 4) 135 MHz	135 – 175 MHz	3.125 kHz

Channel Size	12.5 kHz, 25 kHz, 50 kHz software selectable
Duplex	Dual frequency full-duplex
Frequency Stability	± 1.0 ppm
Frequency Aging	<1 ppm/annum

TRANSMITTER

Average Power output (Note 1)	64 QAM 0.01 – 1.6 W (+10 to +32 dBm, in 1 dB steps) 16 QAM 0.01 – 2.0 W (+10 to +33 dBm, in 1 dB steps) QPSK 0.01 – 3.2 W (+10 to +35 dBm, in 1 dB steps)
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Adjacent Channel Power	< -60 dBc
Transient Adjacent Channel Power	< -60 dBc SPURIOUS EMISSIONS < -37 dBm

RECEIVER

		12.5 kHz	25kHz	50kHz (5)
Sensitivity (ber < 10 ⁻⁶)	max coded 64 QAM	-101 dBm	-97 dBm	-94 dB
	max coded 16 QAM	-108 dBm	-105 dBm	-102 dBm
	max coded QPSK	-113 dBm	-110 dBm	-107 dBm

Adjacent Channel Selectivity	NOTE 2	>-47 dBm (> 48 dB)	>-37 dBm (>58dB)	>-37dBm (> 58 dB)
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Co-Channel Rejection max coded QPSK	>-10dB
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Co-Channel Rejection max coded 64 QAM	>-20 dB
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Intermodulation Response Rejection	>-33 dBm (>60 dB NOTE 2)
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Blocking or Desensitisation	>-15 dBm (>78 dB NOTE 2)
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Spurious Response Rejection	>-30 dBm (>63 dB NOTE 2)
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MODEM

		12.5 kHz	25kHz	50kHz (5)
Gross Data Rate	64 QAM	60 kbit/s	120 kbit/s	240 kbit/s
	16 QAM	40 kbit/s	80 kbit/s	160 kbit/s
	QPSK	20 kbit/s	40 kbit/s	80 kbit/s

Forward error correction	Variable length concatenated Reed Solomon plus convolutional code
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Adaptive burst support	Adaptive FEC Adaptive Coding Modulation
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DUPLEXER MOUNTING PASS BAND TX/RX SPLIT FREQUENCY BANDS

DUPLEXER MOUNTING	PASS BAND	TX/RX SPLIT	FREQUENCY BANDS
External	0.5 MHz	≥ 4.6 MHz	135 MHz
Internal/External (1U)	0.5 MHz	≥ 5.0 MHz	300, 400 MHz
Internal/External (1U)	1.0 MHz	≥ 9.45 MHz	300, 400 MHz

SECURITY

Data Encryption	256,192 or 128 bit AES
Data Authentication	CCM

INTERFACES

Ethernet	4 port RJ45 10/100Base-T switch
Management	1 x USB micro type B (device port) 1 x USB standard type A (host port) 1 x Alarm port RJ45

LEDs	Status: OK, Mode, AUX, TX, RX Diagnostics: Rssl, Traffic port status
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Test Button	Toggles LEDs between diagnostics/status
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Antenna	1 x N-type Female 50 ohm
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RSI Button	Toggles LEDs between RSSI test / product status
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POWER

Input Voltage	10 - 30 VDC (13.8V nominal)
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Receive	< 6 W, Full Ethernet activity < 4.5 W, No Ethernet activity
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Transit	< 35 W
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MECHANICAL

Dimensions	434 mm (W) x 295 mm (D) x 44.45 mm (H)
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Weight	5.0 kg (11.3 lbs) (dependant on duplexer type)
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Mounting	Rack mount 19" 1U high (internal duplexer)
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ENVIRONMENTAL

Operating Temperature	-40 to +70°C, Humidity Maximum 95% non-condensing
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MANAGEMENT & DIAGNOSTICS

Local Element	Web server with full control / diagnostics Partial diagnostics via LEDs and test button Software upgrade from PC or USB flash drive
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Remote Element	Over-the-air remote element management with control / diagnostics
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Network	SNMPv2 and SNMPv3 security support for integration with external network management systems
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COMPLIANCE

RF	EN 302 561, EN 300 113, EN 302 217
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EMC	EN 301 489 Parts 1 and 5 IEEE 1613 NOTE 6
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Safety	EN 60950
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Environmental	ETS 300 019 Class 3.4
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Notes:

- The Peak Envelope Power (PEP) at maximum set power level is +39 dBm.
- The receiver figures are shown in typical fixed interference dBm values and dB values [in brackets] relative to the sensitivity. Relative values are given for QPSK modulation and max coded FEC. Refer to the Aprisa FE User Manual for a complete list of modulation and coding levels.
Blocking (desensitisation), intermodulation, spurious response rejection, and adjacent channel selectivity values determined according to the methods introduced in V1.7.1 of ETSI standards EN 300 113-1.
- The Aprisa FE has been successfully evaluated against the requirements of IEEE 1613 for class 1 performance criteria.
- Please consult 4RF for availability.

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Automation Group

Sydney • Newcastle • Dubbo • Brisbane • Melbourne • Perth

P 1300 724 743 E sales@automationgroup.com.au W automationgroup.com.au