Secure, narrow channel, point-to-point Ethernet radio

FCC / IC licensed bands

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 and 900 MHz licensed 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 216 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.
**SYSTEM SPECIFICATION**

**GENERAL**
- NETWORK TOPOLOGY: Point-to-point
- NETWORK INTEGRATION: Ethernet

**PROTOCOLS**
- ETHERNET: IEEE 802.3, 802.1Q, 802.1p
- WIRELESS: Proprietary

**RADIO**
- FREQUENCY RANGE: 928 MHz – 928 – 960 MHz, 2.0 kHz
- FREQUENCY STABILITY: ± 1.0 ppm

**TRANSMITTER**
- AVERAGE POWER OUTPUT: 64 QAM 0.01 – 1.6 W (+10 to +32 dBm, in 1 dB steps)
- ADJACENT CHANNEL POWER: < –60 dbc
- SPIRITIOUS EMISSIONS: < –37 dbm

**RECEIVER**
- 12.5 kHz
- SENSITIVITY (BER < 10^-6): max coded 64 QAM –101 dbm –97 dbm –94 dbm

**MODERN**
- 12.5 kHz
- GROSS DATA RATE: 64 QAM 54 kbit/s 102 kbit/s 216 kbit/s

**FORWARD ERROR CORRECTION**
- Concatenated Reed Solomon plus variable coding rate convolutional code

**DUPLER**
- MOUNTING: Adaptive FEC
- PASS BAND: 0.5 MHz ≥ 4.6 MHz 125 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)
- ANTENNA: 1 x N-type female 50 ohm
- LEDS: Status: OK, MODE, AUX, TX, RX

**PRODUCT OPTIONS**
- POWER OPTIMIZED: Providing optimized power and sleep mode
- PROTECTED STATION: Providing hot-swappable / hot-standby redundant hardware switching

**POWER**
- INPUT VOLTAGE: 10 – 30 VDC (13.8 V nominal)
- RECEIVE: STANDARD < 7 W
- TRANSMIT: ≥ 9.5 W

**MECHANICAL**
- DIMENSIONS: 434 mm (W) x 295 mm (D) x 44.45 mm (H)
- WEIGHT: 11.3 lbs (dependant on duplexer type)

**ENVIRONMENTAL**
- OPERATING TEMPERATURE: –40 to +60 °C (–40 to +140 °F)
- HUMIDITY: Maximum 95 % non-condensing

**MANAGEMENT & DIAGNOSTICS**
- LOCAL ELEMENT: Web server with full control / diagnostics
- REMOTE ELEMENT: Over-the-air remote element management with control / diagnostics

**COMPLIANCE**
- RF: FCC CFR Part 90, Part 101
- EMC: FCC CFR Part 15
- SAFETY: EN 60950

**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 analogue, serial data and PDH applications.

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