Smart, secure, industry-leading speed point-to-multipoint SCADA communications for industrial monitoring and control for the electricity, water, oil and gas industries

- **High capacity**: to meet the growing number of data-intensive applications in the SCADA environment, the Aprisa SR+ provides data rates of up to 360 kbit/s in 75 kHz channels.

- **Secure**: with its defense in depth approach, including AES encryption, CCM authentication, address filtering, user access control and Radius / AAA, the Aprisa SR+ protects against vulnerabilities and malicious attacks.

- **Future-proof**: the Aprisa SR+ supports multiple serial and Ethernet interfaces in a single, compact form factor, and is standards-based for long term incorporation into SCADA networks while protecting the legacy investment in serial devices.

- **Advanced L2 / L3 capabilities**: selectable L2 Bridge or L3 Router modes, with VLAN, advanced QoS, filtering and IP header and payload compression attributes to support narrow bandwidth channels and mission critical traffic while meeting increasing security and IP network policy requirements.

- **Adaptable**: the Aprisa SR+ integrates into a range of network topologies, with each unit configurable as a base station, repeater or remote station; connect multiple RTUs / PLCs to a single radio.

- **Link efficiency**: Adaptive Coding Modulation (ACM) and forward error correction maintains the integrity of the wireless connection while an effective channel access scheme and IP routing ensures efficient transfer of data across the Aprisa SR+ network.

- **Reliable and robust**: the Aprisa SR+ requires no manual component tuning and maintains its high power output and performance over a wide temperature range.

- **Easily managed**: an easy to use GUI supports local element management via HTTPS and remote element management over the air, and SNMP V1/2/3 support allows network-wide monitoring and control via a third party network management system.
### SYSTEM SPECIFICATION

#### GENERAL
- **NETWORK TOPOLOGY**: Point-to-multipoint (PMP), Master, Remote, Repeater
- **NETWORK INTEGRATION**: Serial and Ethernet (router or bridge mode)

#### PROTOCOLS
- **ETHERNET**: IEEE 802.3, 802.1d/q/p
- **SERIAL**: Legacy RS-232 transport
- **WIRELESS**: Proprietary
- **SCADA**: Transparent to all common SCADA protocols such as Modbus, IEC 60870-5-101/104, DNP3 or similar

#### RADIO
- **FREQ BAND**: 700 MHz
- **CHANNEL SIZE**: 12.5 kHz, 25 kHz, 50 kHz, 75 kHz
- **FREQUENCY RANGE**: 700 MHz – 757 – 806 MHz
- **TUNE STEP**: 625 kHz
- **FREQUENCY STABILITY**: ± 1 ppm
- **FREQUENCY AGING**: < 1 ppm / annum

#### TRANSMITTER
- **AVERAGE POWER OUTPUT**: 50 kHz
- **SENSITIVITY (BER < 10⁻⁶)**: 64 QAM 0.01 – 2.5 W (+10 to +34 dBm, in 1 dB steps)
- **QPSK**: 0.01 – 3.2 W (+10 to +35 dBm, in 1 dB steps)
- **4-CPFSK**: 0.01 – 10.0 W (+10 to +40 dBm, in 1 dB steps)

#### RECEIVER
- **Sensitivity (BER < 10⁻⁶)**: max coded 64 QAM –103 dBm –99 dBm –96 dBm –92 dBm
- **QPSK**: –110 dBm –107 dBm –104 dBm –100 dBm
- **4-CPFSK**: –113 dBm –110 dBm –107 dBm –103 dBm

#### MODERN
- **GROSS DATA RATE**: 64 QAM 60 kbit/s 120 kbit/s 240 kbit/s 360 kbit/s
- **QPSK**: 80 kbit/s 160 kbit/s 240 kbit/s

#### SECURITY
- **DATA ENCRYPTION**: 256, 192 or 128 bit AES
- **DATA AUTHENTICATION**: CCM

#### INTERFACES
- **ETHERNET**: 2 port RJ45 10/100Base-T switch
- **SERIAL**: 2 port RJ45 RS-232
- **MANAGEMENT**: 1 x USB micro type B (device port) 1 x USB standard type A (host port) 1 x Alarm port RJ45
- **ANTENNA**: 2 x TNC 50 ohm female
- **LEDs**: Status, OK, MODE, AUX, TX, RX
- **TEST BUTTON**: Toggles LEDs between diagnostics / status

#### 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**: < 3 W in active receive state
- **TRANSMIT**: < 35 W

#### MECHANICAL
- **DIMENSIONS**: 210 mm (W) x 130 mm (D) x 41.5 mm (H)
- **WEIGHT**: 1.25 kg (2.81 lbs)

#### ENVIRONMENTAL
- **OPERATING TEMPERATURE**: −40 to +70 °C (−40 to +158 °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 CFR47 Part 27
- **EMC**: FCC CFR47 Part 15, EN 301 489-5

#### 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.

**Notes:**
1. The Peak Envelope Power (PEP) at maximum set power level is +41 dBm.
2. 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 SR+ User Manual for a complete list of modulation and coding levels.
3. Please consult 4RF for availability.
4. The Aprisa SR+ has been successfully evaluated against the requirements of IEEE 1613 for class 1 performance criteria.