

Aprisa **SR**

Smart point-to-multipoint SCADA radio for monitoring and control communications in utility, mining, oil and gas networks



Aprisa SR top ten smarts

- Defence in depth
- Ownership and control
- Point-to-point backhaul
- Network efficiency
- Ease of use
- Maximum flexibility
- Unbeatable reliability
- Future-proof design
- Total life cost approach
- Expansion options

For critical infrastructure, performance improvement is complex. How can the quantity and duration of network faults and outages be reduced? How can the time spent on maintenance be lowered? How can today's very real cyber security concerns be addressed? How can these requirements be balanced while also controlling costs? The answer is improved network and asset supervision control and data acquisition, real time or on demand. Go beyond SCADA by improving monitoring to provide early problem isolation and identify opportunities for preventative maintenance. This requires you to quickly and cost-effectively extend the reach and capacity of your communications infrastructure. The Aprisa SR radio combines a powerful and smart feature set to provide a secure, flexible, future-proof platform that evolves along with your needs. It will quickly become an integral, long-term component of your SCADA network.



Defence in depth

Security has never been so paramount. The Aprisa SR approach incorporates security fundamentals, network interfaces, types of attack, relevant security design standards and recommendations. A 360-degree approach to security: smart.

- AES encryption for both serial and IP data
- CBC-MAC data integrity
- Licensed radio spectrum, robust modulation
- Forward error correction and interleaving
- Management and data segregation
- Management USB port protection
- IEC/TR 62443 (TC65), NIST IR-7628, NISCC/CPNI, NIST 800-38C



Ownership and control

It's your network: why let someone else operate it? With the Aprisa SR you own and can flexibly design your own communications network, unlike GPRS or leased lines, removing dependence on third parties for operation, security and maintenance. You are also in complete financial control, eliminating OpEx: smart.

- Licensed spectrum for guaranteed QoS
- Cost-effective network deployment
- Redeploy equipment and reconfigure network
- Complete network visibility
- Coverage for remote or rural infrastructure



Point-to-point backhaul

When infrastructure is dispersed, how can your monitoring and control network be seamlessly managed? The Aprisa SR integrates with the Aprisa XE point-to-point link to backhaul traffic from a remote monitoring point or rural network. Maximum flexibility and coverage: smart.

- Sub 3GHz bands for point-to-point links
- GUI application for network configuration
- Multiple channel sizes, modulation, capacity and interface options



Network efficiency

Efficiency is more than raw data rate: it is optimising every detail. The Aprisa SR combines superior RF for greater range; data management techniques for increased data quality and quantity; and extended configurability for topology-specific efficiency gains. Additional IP layer features will further increase efficiency. Optimising your communications for your needs: smart.

- High transmit power and low noise receiver
- Transmitter attack time < 1.5ms
- Direct conversion design
- Data interleaving and compression
- Efficient wireless error handling
- Configurable channel access parameters
- Access control and filtering
- Flexible security settings



Ease of use

When it comes to network management, easiest is best. The Aprisa SR has a comprehensive, yet simple, visual management tool: the embedded SuperVisor web server. Base station and remote unit parameters can be configured directly or over the air. Incorporation of SNMP will enable use of standard third party network management systems. Detailed graphical network visibility and point-and-click configuration: smart.

- Edit security levels and encryption settings
- View RSSI, alarm status and other parameters
- LEDs for on-site alarms and basic diagnostics
- Onsite firmware upgrade via USB stick
- Configure frequencies, transmit power, channel access and port settings



Maximum flexibility

Make your network work for you: with the Aprisa SR, there is no 'one size fits all' approach. Every element of your network is flexible and configurable. The network can be reconfigured as it expands and needs change. A standards-based approach compatible with real world requirements: smart.

- Unit can be a base station, remote or repeater
- Standard USB ports for local management
- Multiple SCADA protocols supported
- Install in cabinet, on flat surface or rack mount
- Compliance to international RF, EMC, safety and environmental standards



Unbeatable reliability

When it comes to critical infrastructure, compromise is not an option. 4RF has a history of designing highly reliable, robust radio equipment. With the attention to detail needed to meet your demanding requirements, the single, small form-factor box is specialist manufactured to ensure quality and performance in the real world. Reliable operation, however lengthy the deployment: smart.

- Operation from -40 to +70°C
- Output power maintained over range
- Electronic tuning over entire frequency band
- No moving parts, so fewer failures
- Single compact 'uniboard' design
- Thermal testing for every unit
- High efficiency amplifier technology
- Integrated passive heat sinking



Future-proof design

Who knows what the future will hold? The Aprisa SR has been designed taking into account that once deployed, it will be part of your communications network for some time. Whether you need serial, IP, or a combination, the Aprisa SR enables a managed transition to IP while protecting your legacy investment. A product for today and tomorrow: smart.

- Serial/Ethernet connectivity (2 Ethernet ports)
- Concurrent use of serial and IP protocols
- Software upgradeable
- Support for multiple SCADA protocols including IEC 101, IEC 104, DNP3 and Modbus



Total life cost approach

Commercial sense should be a given, not a bonus, when making a communications choice. The Aprisa SR not only provides reliable, high performing, secure radio communications but also a sustainable business case in the short and the long term. A flexible future-proof product that stands the test of time: smart.

- Complete financial control, limited to CapEx
- Rapid return on investment
- Reduced operation and maintenance costs
- Deploy as a stand alone network or integrate into larger SCADA network



Expansion options

What if you want to do more? As more data becomes available, moving towards a unified communications infrastructure makes financial and operational sense. The Aprisa SR, unlike any other SCADA radio, has been designed with more than today's needs in mind, with an integral mini-PCI slot for a number of possible expansion applications. More than just a SCADA radio: smart.

- Concentrate and backhaul meter information
- Add communications for substation security
- Connect multiple wireless or wired RTUs to a single Aprisa SR





Who uses the Aprisa SR?



Electric utilities use the Aprisa SR for monitoring, control and asset supervision throughout their distribution networks, including monitoring current flow, line voltage, fault indicators, circuit breaker operation and other substation equipment.

Water and waste utilities use the Aprisa SR to monitor and regulate a variety of performance parameters across multiple sites in their supply and distribution networks, including water flow, tank and reservoir levels, pipe pressures and alarm status.



Oil, gas and mining companies use the Aprisa SR for onshore and offshore applications throughout their pump jacks, oil rigs, refineries and storage tanks, including monitoring flow, status, pressure, valve position, temperature, tank levels, alarm and security status.



The Aprisa SR in brief

- 136 MHz and 400 MHz licensed bands
- RS-232 and IEEE 802.3 protocols
- 12.5 kHz and 25 kHz channel size
- Up to 19.2 kbit/s data rate
- 256 bit AES encryption
- 4-CPFSK modulation
- -40 to +70 °C operational temperature
- 177W x 110D x 41.5H mm form factor
- Single or dual frequency half duplex
- ETSI standards compliant
- Seamlessly integrates with Aprisa XE point-to-point radio

ABOUT 4RF

Operating in more than 130 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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