

## Aprisa SR+ Migration Master Station

The Aprisa SR+ Migration Master Station (MMS) provides smooth migration from legacy radio networks to next generation Aprisa SR+ SCADA radio networks utilizing existing frequencies and antenna infrastructure. From the very first remote radio replacement enjoy market leading Aprisa radio features in terms of speed, coverage, security, IP, and advanced management options. Your network is no longer limited to performing in a crippled backward compatibility mode.

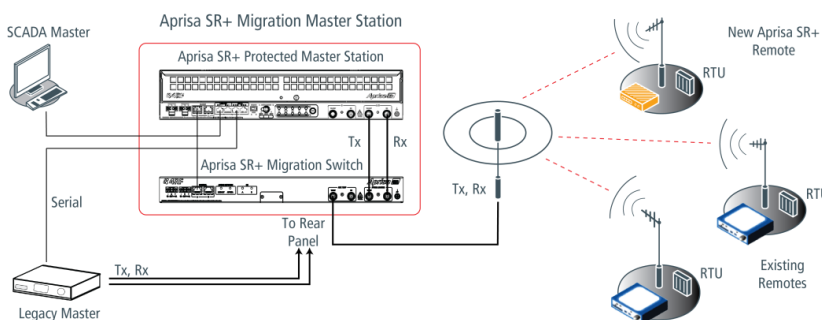


### THE MMS BENEFITS

Benefit now by migrating your network smoothly with the minimum of cost and downtime, using existing frequencies and antennas. Leverage your maintenance budget to get a real performance and feature set upgrade. Legacy vendor backward compatibility solutions lead to a staged upgrade program, only achieving promised improvements and investment return at the end of the project at which point the network will be behind today's next generation Aprisa SR+ performance and feature set. Think forwards not backwards!

### MMS SYSTEM COMPONENTS AND CONFIGURATION

The MMS system comprises of two main components, the standard Aprisa SR+ protected or non-protected master station and the new migration switch, a fully redundant RF switch. The MMS is installed side-by-side with the legacy master station. The new Aprisa SR+ network uses the same frequencies and antenna as the existing radio network. The migration switch connects to the RF antenna and shares this with the legacy master or the Aprisa SR+ master station as required by the remotes. The migration switch is managed by the advanced logic in the Aprisa SR+ protected master station. All SCADA traffic is directed through the Aprisa SR+ master, which passes traffic destined for the legacy network to the legacy base station in addition to setting the migration switch for the antenna.



The Aprisa SR+ provides smart, secure point-to-multipoint communications for oil, gas and utility monitoring and control.

- 220 MHz, UHF, and 900 MHz licensed bands
- RS-232 and IEEE 802.3 protocols with multiple port options
- Software selectable: 12.5 kHz, 25 kHz, and 50 kHz channel sizes
- Software selectable single / dual frequency selection
- Software selectable dual / single antenna port operation
- Gross data rates up to 216 kbit/s
- 256, 192, or 128 bit AES encryption
- AES-CCM to NIST SP 800-38C
- Adaptive Coding and Modulation: QPSK, 16, and 64 QAM
- Advanced forward error correction
- Dedicated alarm port per radio
- Layer 2 bridge (VLAN aware) and layer 3 router modes
- VLAN add/remove, single or double VLAN (QinQ)
- QoS priority enforcement
- L3/L4 filtering and ICMP-ping, Telnet, HTTPS, SNMP, SNMP proxy protocol filtering
- Power supply options of 12 VDC and 48 VDC
- -40 to +70°C operating temperature without fans
- Class I, Div 2 for hazardous locations
- 432.6 mm (W) x 372 mm (D) x 83 mm (H)
- ETSI, FCC, and IC standards compliant

## MMS OPERATING CONFIGURATIONS

The Aprisa SR+ MMS supports standard legacy radio networks, with repeater based network support scheduled for the near future. The MMS supports integration with MDS™ x790 / x710 networks with the master station operating in non-continuously keyed switched carrier mode. The legacy network traffic must be serial utilizing a standard poll/response protocol. Support is protocol specific. Multiple protocols including DNP3, Modbus and a range of others are supported with the initial release, additional protocols will be released on customer request. The MMS supports Aprisa SR+ protected or non-protected master stations. Future support for other products and operating modes is in development.

## OPERATIONAL OVERVIEW

The Aprisa SR+ inspects the serial SCADA traffic packets to determine the destination address. Each packet is mapped to either the legacy or the Aprisa SR+ network based on SCADA address learning, utilizing the address / destination ID field of the SCADA protocol. Initially all SCADA protocol addresses will be assumed to exist on the legacy network. If a transaction to a remote address times out or there is no response the packet can be resent on the Aprisa SR+ network. If an address is detected as working on the Aprisa SR+ network, it is added to the address map for the Aprisa SR+ network. This allows you to progressively switch out legacy remote radios without any configuration of the MMS address map or host controller. The address map can also be manual defined as an option. When migration of all remotes is complete the legacy master and the migration switch component of the MMS can be removed resulting in a standard Aprisa SR+ master station installation.

## REDUNDANCY

The migration switch contains a fully redundant RF switch, operating as a part of the MMS. Any hardware failure in the migration switch (or master station) results in a switchover and the MMS will continue to operate switching traffic between the legacy and Aprisa SR+ networks. The MMS provides full protection to the master station site.

## CONNECTION TO SCADA MASTER / HOST CONTROLLER

For best performance the existing serial connection to the host controller should be set to the maximum bit rate (115 kbit/s) or replaced by an Ethernet connection, if available, to maximize the performance of the network as remote upgrades progress. These higher speeds also work to reduce serialization delays in the legacy master station connection.

## OPERATING TEMPERATURE

With the superior thermal design common across all Aprisa products the MMS operates across the full temperature range without de-rating or the need for fans.

## POWER SUPPLY

The Aprisa SR+ MMS supports redundant power supply inputs. Power supply options of 12 VDC and 48 VDC are available.

## MANAGEMENT

Configuration and management of the Aprisa SR+ protected station (and MMS) is done via the 4RF SuperVisor web-based browser application. With its comprehensive, easy to use graphical user interface SuperVisor enhances network configuration and set up, improves fault identification and isolation, and increases asset visibility.

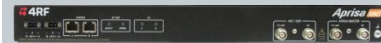
## ABOUT 4RF LIMITED

Operating in more than 130 countries, 4RF Limited 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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**Aprisa SR+**



The Aprisa SR+ fully redundant Migration Switch characteristics.

- 220 MHz, UHF, and 900 MHz licensed bands
- Dedicated TNC antenna port operation
- Dual / single N-Type antenna port connection to legacy master station
- Dual / single TNC antenna port connection to Aprisa SR+ master station
- Dedicated USB port
- Power supply options of 12 VDC and 48 VDC
- Monitoring and operational LEDs
- -40 to +70°C operating temperature without fans
- <1.5 dB MMS RF switch insertion loss
- Class I, Div 2 for hazardous locations
- 432.6 mm (W) x 372 mm (D) x 83 mm (H)
- ETSI, FCC, and IC standards compliant

### NOTE

All third party product names and trademarks are acknowledged as property of their respective owners. MDS™, x790 and x710 are trademarks and/or service marks owned by the General Electric Company.



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