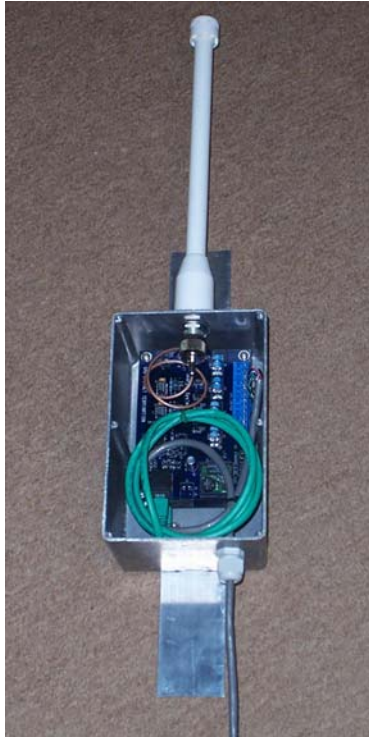




2.4 GHz RFM Modem for Point-to-Point Communications



The SAS-RFM is a pole mount, 2.4 GHz frequency hopping, spread spectrum radio modem used to provide wireless networks of the SAS-1 multi-lane traffic detector, T-Box cabinet processors, cabinet controllers, and remote sensors. The base station is typically used as the base station for a network of sensors providing data to a roadside cabinet controller. The SAS-RFM services up to 7 SAS-1's for real time intersection applications, and polls up to 62 individual devices (SAS-1's, T-Box's) on the same network hopping pattern, with up to 40 different hopping patterns available to eliminate interference between adjacent networks. The SAS-RFM can be used back-to-back to provide relay of data in non-line of site applications.

Pictured: The SAS-RFM Base with mounted whip antenna. Antennas specified by application and geometry. Suggestions on reverse.

General Specifications and Features:

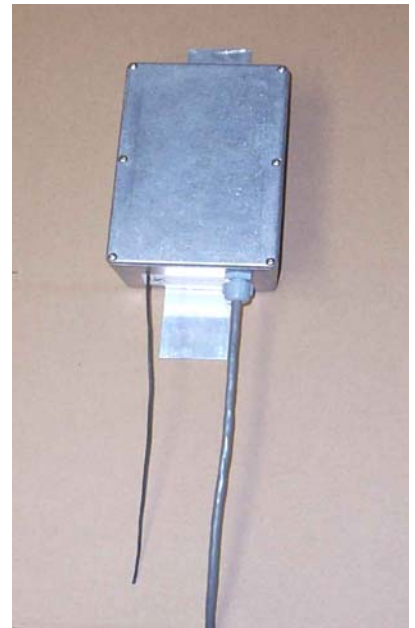
- Housed in a metal, 7.4"x4.7"x3.25" enclosure
- RS-232 Serial interface, Asynchronous CMOS signal at 3.3v; 5v tolerant
- Operating Temperature -20°C to 70°C
- 7.5 to 24 VDC input
- Selectable 10 or 100 MW output, outdoor ranges of 3000 ft with a dipole to >20 miles with gain antenna
- 12 mA standby, 50 mA typical, 200 mA peak (Tx) current consumption
- I/O Data rates of up to 230 Kbps, software selectable
- Supports point-to-point and point-to-multipoint modes
- FCC and ETSI certified for license free operation
- Shown here as a sealed unit with integral omni-whip antenna with N-Connector, other antenna options available. See reverse for suggestions.



Antenna Options

Antennas must be matched carefully to the application for proper performance. Adding a more expensive, high gain, highly directional antenna can actually defeat the purposes of the system designer wishing a reliable communications stream. These antennas, when coupled with applicable mates at remote sites, should provide consistent data links.

- Omni-directional drop whip. RG-316 Flexible drop whip from bottom of metal enclosure. Most effective configuration for short distances up to approximately 1000 feet due to its omni-directional pattern and low gain.
- Mounted 4 dB whip. Fiberglass enclosed whip antenna with moderate gain.
- Mounted 6 dB whip. Fiberglass enclosed whip antenna with additional directivity and 6 dB of gain (in horizontal plane, see pattern print outs). Recommended for distances of 1500 to 4500 feet between base station and remote sensors.
- Mounted 8 dB whip. Fiberglass enclosed whip antenna with 8 dB additional gain and directivity. Recommended for distances between 3000 feet to 2 miles. Ensure that sufficient distance is available between remote site to allow for sufficient pattern spread such that remote sites are not in antenna nulls.
- Separate 13 dB Yagi. Highly directional, high gain antenna used for long distance transmission paths up to 5 miles (some manufactures claim distances up to 10 miles, but these distances have not been tested by SmarTek). Use in conjunction with whip antennas at remote sites or for repeater applications.



SAS-RFM with Drop Whip



8 dB whip antenna



13 dB Yagi antenna