

## RV-M8S

## UHF/VHF Modem 5 Watt Radio

*The M8S radio modem is an economic and rugged single-board 5W VHF/UHF half-duplex data radio modem with digital serial interface, ideal for AMR, SCADA and telemetry applications. The M8S is over-the-air compatible with Raveon's 5-watt RV-M7 series of data radios and POCSAG transmitters.*



### Preliminary Product Overview

#### Ultra-low power consumption

Using only 70mA of current, the M8S is designed for long battery life making it the radio of choice for large-scale infrastructure monitoring solutions without reliable power source.

#### Custom development platform

For OEM users, Raveon will assist integration with custom applications. The M8S utilizes a 120MHz ARM processor. Half of the processing power is reserved for custom applications for your particular implementation.

#### Long-Range Operation

Available in many frequency bands, the M8S radio modem works over 10 miles point-to-point and many miles with omni-directional antennas.

#### Location Tracking

The M8S's GPS and GLONASS option includes built-in TDMA for real-time GPS tracking. Reporting rates can be configured from 4/sec to every 99999 seconds. It reports location, speed, heading, altitude, temp, and many other parameters. Any M7 or M8 series radio can receive the location messages.

#### Dual Mode

The RV-M8S may be used as a two-way data radio modem, communicating with Raveon M7 or M9 series of data radio modems. It also has an ultra-sensitive POCSAG decode mode.

#### Automatic Meter Reading

Being small, power efficient, and fast make the M8 ideal for automatic water-meter reading. With a communication range of many miles, a network of M8 radios can cover a national smart grid.

#### Secure Data

When secure data is enabled, the M8S will encrypt transmissions using AES128 encryption.

#### TDMA Option

The optional on-board GPS chip allows the RV-M8S to use a sophisticated Time Division Multiple Access schema to facilitate efficient and large scale networks of tens-of-thousands radios.

#### Fully Programmable

It is configured with a serial connection using industry-standard AT commands. Parameters such as network IDs, unit ID and transmission rate are easily configured. Raveon also provides a PC program called "Radio Manager" that makes configuring the M8S very convenient.

#### OTA Configuration

The ID of a particular transponder and certain system parameters such as report rate may be configured Over-The-Air, without having to physically connect to the unit.

#### Real-time diagnostics and statistics

Channel performance, RSSI, RF power, packet counters, and radio configuration are easily accessed via the serial port or remotely over-the-air

#### Very Low Power Consumption

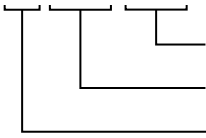
It has very low power consumption, and sleep modes that allow it to be active and consume almost no power at all.

#### Flexible Addressing

The RV-M8 uses a 16 bit address with a 16 bit network mask, allowing for many devices to be co-located without receiving each other, as well as the creation of sophisticated network topologies.

## Part Numbering

RV-M8M-AA<-W>



Bandwidth  
Band  
Model

### Model Options:

- S: Data Modem
- G: GPS Transponder

### Band Options / No Tune Range\*:

- UA: 400-434 MHz / 34 MHz
- UB: 419-440 MHz / 21 MHz
- UC: 450-480 MHz / 20 MHz
- UD: 470-512 MHz / 20 MHz
- VA: 132-155 MHz / 23 MHz
- VB: 150-174 MHz / 24 MHz
- VC: 216-222 MHz / 2 MHz
- VM: 150-174 MHz MURS Channels

*Custom bands available upon request*

### Bandwidth Options:

- [Blank]: 12.5 kHz
- W: 25 kHz

\* Specify lower and upper frequency when ordering

## General Specifications

### Size:

3.9" X 2.46" X .55"

### Weight:

3 oz

### Input Voltage:

9-15V DC

### Power Consumption:

- Transmitting data: <1900mA at 12.0V input
- Receiving: <100mA at 12V input
- Sleep: <100uA

### Data Rate:

512 – 19200 bps

### Serial Baud Rate:

1200 – 115200 baud

### Full Spec Operating Temperature range

-30°C to +60°C

### Standby to TX turn-around time

<5mS

### Over-the-air Protocols

- Raveon Data Radio: 1200 – 19200 bps
- POCSAG RX: 512, 1200, 2400

### RF I/O Connector

MMCX Female

## Transmitter Specifications

RF Power Output .....	500mW – 5.0W
Maximum Duty Cycle .....	100% (cooled)
TX Spurious outputs.....	< -70dBc
Occupied Bandwidth.....	Per FCC
FCC Emissions Designator .....	11K0F1D
Frequency Stability .....	Better than ±1.5ppm

## Receiver Specifications

Data RX sensitivity (.1% BER)	9600bps < -108dBm
	4800bps < -113dBm
1200 & 2400baud	< -116dBm
POCSAG decoder, 512 baud	<-118dBm
RF No-tune bandwidth	20MHz
Adjacent Channel Selectivity 12.5kHz ....	-55dB
Alternate Channel Selectivity .....	-65dB
Blocking and spurious rejection .....	-75dB
RX intermodulation rejection.....	-70dB

## Interface Specifications

Asynchronous serial data

3 digital General Purpose Input/Output (GPIO)

The I/O connector is a 20-pin header, 2mm pin spacing.

Pin #	Function	I/O	Function
1	GND	-	Ground
2	Vcc	I	DC Input
3	Carr Det	0	CD Out. Low for carrier.
4	TX On	0	Pin is High when module is transmitting.
5	Data In	I	Transmit data input.
6	Data Out	0	Receive data output.
7	Enable	I	Low (<.7V) to shut down the module.
8	Sleep	1	CPU Sleep input
9	CTS	0	Clear to send output.
10	RTS	I	RTS input for serial flow control.
11	RSSI	0	Receiver signal strength indicator
12	3.3V out	0	3.3V out of the M8 module. 50mA max.
13	IOA	I/O	General purpose I/O. 3v digital
14	IOB	I/O	General purpose I/O. 3v digital logic
15	Mode	I	3v digital logic with 10k pull-up
16	STAT1	0	Output to drive external dual-color LED.
17	RX Audio	0	Receive and transmit audio output
18	STAT2	0	Output to drive external dual-color LED
19	GND	I	System Ground to M8
20	Vbu		Backup battery input

