RV-M8

UHF/VHF Modem
5 Watt Radio

The M8 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 M8 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 M8G'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 M8 will encrypt transmissions using AES128 encryption. When properly managed, your wireless network using M8S radio modems will be secure and hacker-proof.

TDMA Option

The optional on-board GPS chip allows the RV-M8G 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 M8 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
- Version

Version Options:

S: Data Modem
G: GPS Transponder

Band Options (TX and RX cover these bands)

UA: 400-435 MHz /35 MHz
UB: 419-450 MHz / 31 MHz
UC: 450-470 MHz / 20 MHz
UD: 480-512 MHz / 20 MHz
UJ: 370-400 MHz / 30 MHz
VA: 132-155 MHz / 23 MHz
VB: 150-174 MHz / 24 MHz
VC: 216-222 MHz / 6 MHz
VM: 150-174 MHz MURS Channels
Custom bands available upon request

Bandwidth Options:

[Blank]: 12.5 kHz or 25kHz.
-W: 25 kHz -N: 12.5kHz -S: 6.25kHz
-Q = All

*** Specify lower and upper frequency when ordering. A 20Mhz range must be selected between low/highest frequency.**

General Specifications

Size: 3.9" X 2.46" X .55"
Weight:
3 oz
Input Voltage:
10V - 30V 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
GNSS RX connector: U.FL Male

Transmitter Specifications

RF Power Output	500mW – 5.0W
Maximum Duty Cycle/min	25% over any temp.
Maximum Duty Cycle/min	40% if <50CV
Maximum Duty Cycle/min	100% (if cooled < 40C)
TX Spurious outputs	*< -70dBc*
Occupied Bandwidth	*Per FCC*
FCC Emissions Designator	*8K20F1D – N. 11K0F1D - W*
Frequency Stability	*Better than ±1.5ppm*

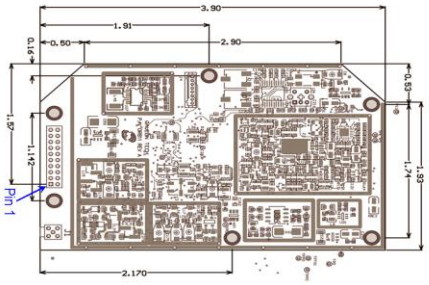
Receiver Specifications

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	O	CD Out. Low for carrier.
4	TX On	O	Pin is High when module is transmitting.
5	Data In	I	Transmit data input.
6	Data Out	O	Receive data output.
7	Enable	I	Low (<.7V) to shut down the module.
8	Sleep	i	CPU Sleep input
9	CTS	O	Clear to send output.
10	RTS	I	RTS input for serial flow control.
11	RSSI	O	Receiver signal strength indicator
12	3.3V out	O	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	O	Output to drive external dual-color LED.
17	RX Audio	O	Receive and transmit audio output
18	STAT2	O	Output to drive external dual-color LED
19	GND	I	System Ground to M8
20	Vbu		Backup battery input



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