The M9 data transceiver is a rugged MIL810G compliant ½ - 5 watt UHF data radio mode. Interface options include Ethernet, dual serial ports, USB, and CAN.   It has an optional GPS for use in AVL and asset tracking applications. Other options include tilt-sensor, EAS encryption, and 25 watt power amplifier.

Product Overview

Long-Range Operation

Operating in the UHF 450-470MHz frequency band, the RV-M9 radio modem works over 50 miles point-to-point and many miles with omni-directional antennas.   All RV-M9 modems support store-and-forward repeating for wide-area coverage.   The optional 25 watt RF amplifier can increase the communication range another 2-4 times.

High-Performance RF

The M9 has enhanced RF performance, exceeding the RF performance of virtually every radio modem in its class. Its 3mS PLL makes it fast, and its receiver has an exceptional dynamic range and selectivity.   The GFSK transmitter can operate up to 5 watts output, and 25 watts with the optional RF power amplifier.

Rugged and Weather Proof

The RV-M9 is built to MIL810G standards, and is fully submersible for an hour at 1 meter.   The M9 will work in the harshest of physical and RF environments.

High Speed and High Efficiency

The *RV-M9* operates with user-selectable over-the air data rates of 1200 to 19200bps.   It draws less than 90mA when receiving.

GPS Option

The optional internal GPS allows the RV-M9 to be a powerful Automatic Vehicle Locating (AVL) system or Time Space Position Information (TSPI) reporting device.

Fully Programmable

It is configured using industry-standard AT commands. The RV-M9S has dual RS232 serial ports, allowing simultaneous configuration and system monitoring. The RV-M9L has an Ethernet port for simultaneous data communications using TCP/Ip sockets, and configuration via Telnet or WEB browser. Raveon also provides a PC program called "*Radio Manager*" that makes configuring the M9 a snap.

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 secondary serial port, telnet, or remotely over-the-air.

Very Low Power Consumption

The advanced UHF transceiver is integrated with a powerful 32-bit microprocessor-based modem in one easy-to mount package.   It has very low power consumption, and sleep modes that allow it to be active and consume almost no power at all.

Flexible Addressing and Error Correction

The RV-M9 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.

General Specifications

Model:
  RV-M9i-Ux-oo (i-I/O, x=band, oo=options)

Size: .... 4.50" X 2.60" X 1.62
(11.7cm X 6.6cm X 2.43cm)
Weight:...6 oz
Input Voltage: ....10.5 – 30 VDC
Optional Extended Voltage:..............40.0 – 50.0 VDC
DC Voltage Input 12-14V
Other options available.

Current draw:
Receiving data: serial .... <100mA
Receiving data: Ethernet I/O .... <150mA
Transmitting data: 2.6A @ 5w, 1.2A @ 2W typical
Sleep ....<10mA

Frequency Bands:

UA	*403-434*MHz (for export)	
UB	*419-440*MHz (for export)	
UC	450-480MHz (for US channels)	
UD	470-512MHz (for export)	

Optional Serial Port Baud Rates (programmable)
1.2k, 2.4k, 4.8k, 9.6k, 19.2k, 38.4k, 57.6k, 115.2k

Over-the-air baud rates (programmable)
-N 1200, 2000, 2400
-W 1200, 2000, 2400

Operating Mode
Simplex or Half-duplex

Full Spec Operating Temperature range
Full-spec:..-30°C to +60°C
Reduced performance..................-40°C to +70°C

TX-RX and RX-TX turn-around time
<3mS

Wake-up time ....<3s from OFF
.... <10ms from Sleep

Front Panel LEDs
Power , Status, GPS

RF Connector ....N (Female)
GPS Connector......................................TNC(Female)
Power Cable .... Raveon P/N: RT-CB-H1

Addressing
Individual address:.....................................65,536

I/O Choices
Single Serial Port...R
Dual serial port option.......................................S
Ethernet I/O...E
USB ....U
USB and Single Serial ports...............................Y

Options:
Internal GPS .... -GX
3-Axis Tilt Sensor...-T
AES encryption...-E1
DES encryption...-E2

Transmitter Specifications

RF Power Output....................*500mW – 5.0 W*
programmable

Maximum Duty Cycle .... *100% @ 2W to 40C, 25% @5W*
(100% w/ optional heat-sink)
Frequency Deviation .... *± 2.2kHz (-N) ± 3.5kHz (-W)*
RF Bandwidth.................................... 20MHz no-tune
Occupied bandwidth........................ *11 kHz (-N) 16kHz(-W)*
TX Spurious outputs........................ *< -80dBc*
Occupied Bandwidth........................ *Per FCC*
FCC Emissions Designator .... *11K0F1D (-N)*
Frequency Stability -30 to +60C........ *Better than ±1.0ppm*
Frequency Stability -40 to +70C........ *Better than ±1.5ppm*

Receiver Specifications

RX sensitivity (.1% BER)……...............1200bps < -118dBm
RF No-tune bandwidth 20MHz
12.5KHz Adjacent Channel Selectivity -60dB
25KHz Adjacent Channel Selectivity   -70dB
Alternate Channel Selectivity......... -75dB
Blocking and spurious rejection..... -80dB
RX intermodulation rejection .... -80dB

Interface Specifications

Serial Interface Port
Connector Type .... 5-Pin Circular
IO Voltage Levels........... RS-232, RS-485, RS-422
(user selectable)
RX and TX data ....Transparent Async
Word length...7 or 8 bits
Format .... N, O, or E
Ethernet Interface
Connector Type RJ45
Standard 802.3-2008
Speed .... 10/100 auto-sense
Protocols... telent
USB Peripheral Device Interface
Connector type .... TBD
Speed .... USB 2.0

Notes: 1. Encryption options not available on product for export out of the United States of America.

For More Information

For more information about this or any other Raveon product, call in the U.S.A. 1-760-444-5995.

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