RV-M7-V

M7 VHF Band
½ - 5 watt Data Radio

The M7 VHF data transceiver is a rugged ½ - 5 watt VHF data radio modem with an RS-232 (or optional 422/485) serial interface, perfect for SCADA and telemetry applications. It has an optional GPS and IP65 weatherproof aluminum enclosure for use in AVL and asset tracking applications.

Product Overview

Long-Range Operation

Operating in the UHF 136-174MHz frequency band, the RV-M7 radio modem works over 60 miles point-to-point and many miles with omni-directional antennas. All RV-M7 modems support store-and-forward repeating for wide-area coverage.

Fast Polling

The M7 transceiver has a 5mS PLL in it, making it one of the fastest telemetry radios available, especially well suited for polled, DNP and MODBUS applications. Its can send up to 50 transmissions per second.

High Speed and High Efficiency

The *RV-M7* operates with user-selectable over-the air data rates of 800 to 19200bps. Faster rates for higher efficiency, or lower-speed for increased communication range.

GPS Option

The optional internal GPS allows the RV-M7 to be a powerful Automatic Vehicle Locating (AVL) system or Time Space Position Information (TSPI) reporting device.

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 M7 a snap.

Digital Base Band

Data rate, modulation, and IF bandwidth are all digitally programmed. Wide (25kHz) and Narrow (12.5kH) IF bandwidths may be user-configured. The over-the-air data rate may be adjusted to suit a particular application.

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

The advanced VHF transceiver is integrated with a powerful 16-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.

Rugged and Weather Proof

The RV-M7 is available with optional IP65 rated weatherproof connections and enclosure. All models include protection against damage from over-temperature, high VSWR, and reverse voltage.

Flexible Addressing and Error Correction

The RV-M7 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.

For More Information

For more information about this or any other Raveon product, call in the U.S.A. 1-760-727-8004 or visit us a www.raveontech.com.

General Specifications

Model:
- RV-M7-Vx-oo (x=band) (oo=options)
- RV-M7-VM (MURS model)

Size:
- 4.60" X 2.60" X .956 (11.7cm X 6.6cm X 2.43cm)

Weight:
- 6 oz

Input Voltage:
- 10 – 16 VDC

Current draw:
- Receiving data: <65mA (55mA typ. at 12VDC)
- Transmitting data: (1.8A @ 5w, 1.1A @ 2W typical)

Frequency Bands:

Band	Frequency	FCC ID
A	*136-155*MHz	(for export)
B	*150-174*MHz	SRS-M7-VB
MURS	5 MURS chan.	SRS-M7-VM

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)
- Narrow IF: 800, 1200, 2000, 2400, 4.8k, 5142, 8K, 9.6k
- Wide IF: 1200, 2000, 2400, 4.8k, 8k, 9.6k, 19.2k

Operating Mode
- Simplex or Half-duplex

Full Spec Operating Temperature range
- -30°C to +60°C

TX-RX and RX-TX turn-around time
- <5mS

Wake-up time
- <500mS from OFF
- <5mS from Sleep

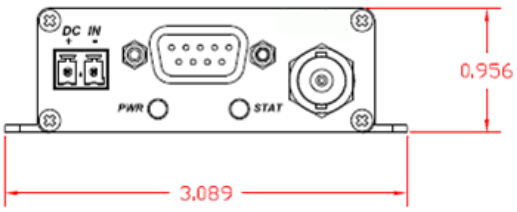
Front Panel LEDs
- Power , Status (Carr Det, TX, mode…)

RF I/O Connector
- BNC (Female)

Power Cable
- Raveon P/N: RT-CB-H1

Addressing
- Individual address: 65,536
- Groups: 254

Options:
- Internal GPS -GX option
- Waterproof Enclosure -WX option
- RS422/485 option -4 option



Transmitter Specifications

RF Power Output	500mW – 5.0 W programmable (2W max for MURS model)
Maximum Duty Cycle	100% @ 2W to 40C, 25% @5W (100% w/ optional heatsink)
Frequency Deviation	± 2.2kHz (N) ± 3.3kHz (W)
RF Bandwidth	Full-band without tuning
Occupied bandwidth	11 kHz (-N) 16kHz(-W)
TX Spurious outputs	< -70dBc
TX Harmonic outputs	< -80dBc
Occupied Bandwidth	Per FCC
FCC Emissions Designator	11K0F1D (narrowband mode) 15K0F1D (wideband mode)
Frequency Stability	Better than ±2.5ppm

Receiver Specifications

RX sensitivity (1% PER, N)	9600bps	< -108dBm
	4800bps	< -114dB
	1200bps	< -118dB
RF No-tune bandwidth	Full-band without tuning	
Adjacent Channel Selectivity	-70dB (1200bps Wide)	
Adjacent Channel Selectivity	-65dB (1200bps Narrow)	
Adjacent Channel Selectivity	-60dB (4800bps Narrow)	
Alternate Channel Selectivity	-70dB	
Blocking and spurious rejection	-80dB	
RX intermodulation rejection	-75dB (4800bps Narrow)	
RX intermodulation rejection	-80dB (1200bps Narrow)	

Interface Specifications

Serial Interface Port

Connector Type	DB-9
IO Voltage Levels	RS-232, RS-485, RS-422 (user selectable)
Word length	7 or 8 bits, N, O, or E
Modem handshake signals	RTS, CTS, CD

AT Commands Overview

- Channel Number, Operating Frequency, IF bandwidth
- Modem Statistics
- Power-savings modes
- Unit Address and Destination address
- Network Address Mask
- ARQ error correction on/off
- Baud Rate, parity, stop bits
- Select Packet or Streaming mode of data transmission
- Store-and-forward Repeating configuration
- Hardware flow control operation
- LEDs operation or disabled
- Auto Status report on/off and interval.
- Read DC voltage, current, forward RF power, VSWR
- Remote PING

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