RV-M7-VB

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. Additional options include IP65-rated ("weatherproof") enclosure and/or GPS.

Product Overview

Long-Range Operation

Operating in the VHF 150-174MHz frequency band (other bands available), the RV-M7-VB 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. The M7 is easily configured through the included PC program "*Radio Manager*".

Digital Base Band

Data rate, modulation, and IF bandwidth are 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 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 a minimum amount of resources.

Rugged and "Weatherproof"

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. 1-760-444-5995.

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 Band:

Band	Frequency
B	*150-174*MHz

Available Frequencies:

A	*136-155*MHz
MURS	5 MURS chan. (USA only)

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

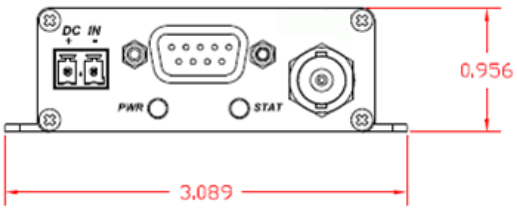
Front Panel LEDs
- Power , Status (Carr Det, TX, mode…)

RF I/O Connector
- BNC (Female)

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

Addressing

Individual address:	65,536
Groups:	254



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

For a complete feature list see the technical manual here:
http://www.raveon.com/support.html

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