

RV-M7-Vx-SX

Ruggedized VHF Band GPS Tracking Radio Modem

The M7 SX VHF data transceiver is a ruggedized weatherproof ½ - 5 watt VHF data radio modem with an RS-232 serial interface. It is ideal for GPS tracking, personal location, and telemetry applications. It has an internal GPS and rugged IP65 weatherproof aluminum enclosure. Its low power and fast PLL switching make it well suited for battery-powered operation.



Product Overview

Long-Range Operation

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

Fast Polling

The M7 SX 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 M7 SX 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.

Internal GPS

The internal GPS receiver allows the M7 SX 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 SX a snap.

Digital Base Band

Data rate, modulation, and IF bandwidth are all digitally programmed. Wide (25kHz) and Narrow (12.5kHz) 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 has IP65 rated weatherproof connections and enclosure. It 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 at www.raveontech.com.

General Specifications

Model:

RV-M7-Vx-SX (x=band)

Size:

5.40" X 2.60" X .956 (13.7cm X 6.6cm X 2.43cm)

Weight:

7.6 oz (213g)

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	136-155MHz	(for export)
B	150-174MHz	SRS-M7-VB
M	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

none

RF I/O Connector

TNC (Female)

Power Cable

Raveon P/N: RT-CB-SX1

Addressing

Individual address: 65,536

Enclosure Color

Army Green, RA#122 Pantone 5535

GPS Receiver

Trimble Copernicus

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 heat sink)
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

Typical sensitivity (1% BER, 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

Interface Connection

Connector type	Glenayre 801-011-07ZN6-7PA-518
Data voltage levels	RS-232, RS-485, RS-422 (user selectable)
Modem handshake signals:	RTS, CTS
DC power input	

GPS Connection

OSX Female	
DC power	3.0-3.3V supplied on center pin
Max DC current draw	30mA from external antenna

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