

RV-M7-UC-SX

Ruggedized UHF Band GPS Tracking Radio Modem

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



Product Overview

Long-Range Operation

Operating in the UHF 450-480 MHz frequency band, this GPS radio modem works over 50 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

This 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 M7-UC-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 M7-UC-SX to be a powerful Automatic Vehicle Locating (AVL) system or Time Space Position Information (TSP) reporting device.

Fully Programmable

The radio 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 "[Radio Manager](#)" PC software makes configuring the M7-UC-SX fast and easy.

Digital Base Band

Data rate, modulation, and 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 UHF 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 M7-UC-SX is ruggedized and features IP65-rated "weatherproof" connections and enclosure and provides protection against damage from over-temperature, high VSWR, and reverse voltage.

Flexible Addressing and Error Correction

The M7-UC-SX 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 or email sales@raveon.com.

General Specifications

Model:
RV-M7-UC-RX

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
C	450-480MHz

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-SX 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 II

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	
SX intermodulation rejection	-75dB (4800bps Narrow)	
SX 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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