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

Product Overview

Long-Range Operation
Operating in the UHF 450-480MHz frequency band, the RV-M7 radio modem works over 50 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 3mS PLL in it, making it one of the fastest telemetry radios available, especially well suited for polled, DNP and MODBUS applications.

High Speed and High Efficiency
The RV-M7 operates with user-selectable over-the-air data rates of 1200 to 19200bps. Faster rates for higher efficiency or lower-speed for increased communication range. Its fast-switching radio enables it to send up to 50 transmissions per second.

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.

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 serial port or remotely over-the-air. An Auto-Status feature enables the RV-M7 to periodically report its status and DC voltage.

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.

Rugged and Weather Proof
The RV-M7 is available with optional ‘weather proof’ IP65 (NEMA 4) rated 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. 1-760-457-1620.
### General Specifications

**Model:**
RV-M7-Ux-oo (x=band) (oo=options)

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

**Weight:**
6 oz

**Input Voltage:**
9.5 – 16 VDC

**Current draw:**
- Receiving data: <90mA,
- Transmitting data: (2.7A @ 5w, 1.2A @ 2W typical)
- Sleep (<25mA)

**Frequency Bands:**
- A: 403-434MHz (for export)
- B: 419-440MHz (for export)
- C: 450-480MHz (for US channels)
- D: 470-512MHz (for export)

**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, 4.8k, 5142, 8K, 9.6k
- W: 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:**
<3mS

**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

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

### 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:**
< -70dBc

**Frequency Stability:**
Better than ±1.5ppm

### Receiver Specifications

**RX sensitivity (.1% BER):**
- 9600bps < -108dBm
- 4800bps < -116dB

1200 & 2400baud Contact Factory

**RF No-tune bandwidth:**
20MHz

**Adjacent Channel Selectivity:**
-50dB

**Alternate Channel Selectivity:**
-65dB

**Blocking and spurious rejection:**
-75dB

**RX intermodulation rejection:**
-70dB

### Interface Specifications

**Serial Interface Port**
- Connector Type: DB-9
- 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
- Modem handshake signals: RTS, CTS, CD

**AT Commands Overview**
- Channel Number and Operating Frequency
- Carrier Detect Operation
- 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
- Busy-channel lock-out
- Hardware flow control operation
- Auto Status report on/off and interval.
- Remote PING

For a complete list of commands see:
http://www.raveon.com/support.html