The M7 UHF data transceiver is a rugged 5 Watt UHF data radio modem with RS-232 (or optional 422/485) serial interface, ideal for SCADA and telemetry applications.

**Product Overview**

**Long-Range Operation**
Operating in the UHF 450-470MHz frequency band, the RV-M7 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**
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.

**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.

**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 fast and easy.

**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.

**Rugged and Weather Proof Options**
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.

**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.

**For More Information**
For more information about this or any other Raveon product, call in the U.S.A. 1-760-444-5995 or visit www.raveon.com.
**General Specifications**

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: (2.1A @ 5W, 1.2A @ 2W typical)
- Sleep (<25mA)

Standard Frequency Band:
- C 450-480MHz

Optional Frequency Bands
- C 450-470MHz

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, 512, 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

ESD Performance on IO pins and Power (1.5kΩ CDM)
- Air Gap Disch.: ±15kV Contact Disch.: ±8kV
- Human Body Model: ±15kV
- 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

Certifications
- FCC, CE, NZ, IC,

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**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

Channel Spacing: 25KHz

FCC Emissions Designator: 11K0F1D (-N)

Frequency Stability: Better than ±1.5ppm

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**Receiver Specifications**

RX sensitivity (.1% BER): 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

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**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
- LEDs operation or disabled
- Auto Status report on/off and interval.
- Read DC voltage, current, forward RF power, VSWR
- Remote PING