The M7 UHF data transceiver is a rugged ½ - 5 watt UHF data radio modem with an RS-232 (or optional 422/485) serial interface, ideal for SCADA and telemetry applications.

**Product Overview**

**Long-Range Operation**
Operating in the UHF 419-440MHz 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.

**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 on-board GPS allows the RV-M7 to be a powerful Automatic Vehicle Locating (AVL) system or Time Space Position Information (TSPI) reporting device. For details see: [http://www.raveon.com/rv_m7GX.html](http://www.raveon.com/rv_m7GX.html)

**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](http://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:
(2.7A @ 5w, 1.2A @ 2W typical)
Sleep (<25mA)

Standard Frequency Band:
B 419-440MHz

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, 4000, 4.8k, 5124, 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:
On-board GPS -GX option
IP65-rated (“waterproof”) -WX option
RS422/485 option -4 option

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

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

Selected Configuration Options

Channel Number and Operating Frequency
Carrier Detect Operation
Modern 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

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

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.................< -70dB

Channel Spacing .................25kHz

FCC Emissions Designator ..............11K0F1D (-N)
Frequency Stability ......................Better than ±1.5ppm

Transmitter Specifications

RF Power Output 500mW – 5.0 W programmable

Raveon Technologies Corporation
2320 Cousteau Court
Vista, CA 92081
Phone: +1-760-444-5995
Fax: +1-760-444-5997

Email: sales@raveon.com

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Version C3. Printed in the USA

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