# RV-M7-CEx

*The M7 CE compliant UHF data transceiver is a rugged 1-5 watt UHF data radio modem with an RS-232 (or optional 422/485) serial interface, perfect for SCADA, AVL and telemetry applications.*

## Product Overview

### Long-Range Operation

Operating in the UHF 440-450MHz frequency band using 3-sub-bands, 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 fast synthesizer in it, making it especially well suited for polled, TDMA, DNP and MODBUS applications. Its fast-switching radio enables it to send up to 50 transmissions per second.

### High Speed and High Efficiency

The M7 operates with user-selectable over-the air data rates of 1200, 4800, or 9600bps. Faster rates for higher efficiency or lower-speed for increased communication range.

### GPS Option

The optional internal GPS allows the 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 "AT" type commands. Parameters such as network IDs, unit ID and transmission rate are easily configured. Raveon also provides a PC program called "*Radio Manager*" that simplifies configuring the M7.

### 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 IP65 rated weatherproof 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 or visit us a www.raveon.com.

## General Specifications

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

Size:
5.0 X 3.76W X 0.95H

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 Sub-Bands:
CEA       *440-450*MHz
CEB       *450-470*MHz
CEC       470-480MHz

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)
-N  4.8k
-W 9.6k

ETSI Compliance:        EN 300 113
                        EN 301 89

Operating Mode
Simplex or Half-duplex

Operating Temp.        -30°C to +60°C
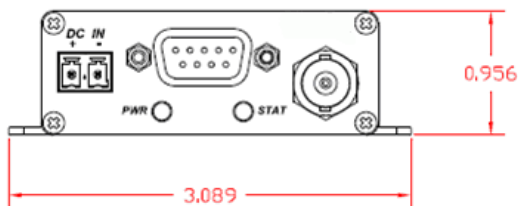TX-RX time             <10mS
Wake-up time           <500mS from OFF
Front Panel LEDs
     Power , Status (Carr Det, TX, mode…)
RF I/O Connector       BNC (Female)
Power Cable P/N:       RT-CB-H1
Individual address:    65,536
Options:
Internal GPS            -GX option
RS422/485 option        -4 option
Narrow-Band             -N
Wide-Band               standard



## Transmitter Specifications

RF Power Output ........................... *500mW – 5.0 W*
                                          *programmable*
Maximum Duty Cycle ............... *100% @ 2W to 40C, 25% @5W*
                                  *(100% w/ optional heatsink)*
Frequency Deviation ........................ *± 2.2kHz (-N) ± 3.5kHz (-W)*
RF Bandwidth................................... 10MHz no-tune
Occupied bandwidth......................... *11 kHz (-N)  16kHz(-W)*
TX Spurious outputs.......................... *< -70dBc*
Occupied Bandwidth......................... *Per ETSI 300*
Emissions Designator ....................... *11K0F1D (-N)*
                                          *15k3F1D (-W)*
Frequency Stability ........................... *Better than ±1.5ppm*

## Receiver Specifications

Wideband RX sensitivity 9600bps ........... < -112dBm
Narrowband RX sensitivity 4800bps ....... < -115dB
1200 & 2400baud .............................. Contact Factory
RF No-tune bandwidth .................... 10MHz
Channel Spacing .............................. 25kHz (-W)
                                          12.5kHz (–N)
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
LEDs operation or disabled
Auto Status report on/off and interval.