

RV-M50 Secure Wireless Modem

RV-M50 902-928MHz
OEM Radio Modem

The RV-M50 OEM radio modem is a small, very low-power radio modem for use in the license-free USA 902-928MHz ISM band. Having the longest communication range of almost any radio modem available, it is ideal for GPS tracking, meter reading, telemetry, and network extension.



Preliminary Product Overview

Long-Range Operation

The M50 radio modem communicates over 1 to 10 km, depending upon terrain, with an unprecedented RX sensitivity 50X better than most radio modems in its class.

Embedded Radio Modem

The M50 is a radio transceiver and radio modem in one small OEM module. (Enclosures are available). Dozens of options and features in the modem may be user-configured to optimize it for communication range, bandwidth, data rates, and security.

Efficient Power Consumption

The RV-M50 can operate off DC input from 5V, or 7-30V with the optional DC regulator. While receiving, the M50 draws less than 250mW of power!

High Speed and High Efficiency

The RV-M50 operates with user-selectable over-the-air data rates of 1750 to 21,870bps (21.8kb/s). Faster rates for higher efficiency or lower-speed for increased communication range.

Secure Data

The data encryption feature may be enabled on any Tech Series data radio modem. When secure data is enabled, the M50 will encrypt transmissions using AES128 encryption. When properly managed, your wireless network using M50 radio modems will be secure and hacker-proof.

GPS Option

The optional internal GPS allows the RV-M50 to be a powerful Automatic Vehicle Locating (AVL) system or Time Space Position Information (TSPI) reporting device.

Internet of Things (IOT) Modem

The M50 may be used with another M50 for point-to-point communications, or with a *Daisy Collector* base station for point-to-multi-point wireless networking connected to the Internet.

Tech Series I/O Options

The M50 may be installed in a Raveon Tech Series enclosure with these I/O options. The following interface boards may be attached or changed at any time:

- RS-232 [S]
- USB [U]
- RS-485 [T]
- RS-422 [F]
- GPIO [G]
- Bluetooth [B]

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

Flexible Addressing and Error Correction

The RV-M50 uses a dynamic addressing scheme with a network mask, allowing for an unlimited number of devices to be co-located without receiving each other.

General Specifications

Model:

RV-M50-EC-oo (oo = options)

Size:

61mm X 37mm

Weight:

1.5 oz

Input Voltage:

4.7-5.5 VDC full-spec standard

(3.3V reduced spec)

7-28 VDC optional

Power Consumption:

Receiving data: <250mW (50mA @5V)

Transmitting data: < 3000mW (600mA@5.0V)

Sleep (<50uA)

Frequency Bands:

EC 902-928MHz

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)

9 rates from 1.75kb/s to 21.87kb/s

Full Spec Operating Temperature range

-30°C to +60°C

TX-RX and RX-TX turn-around time

<5mS

RF I/O Connector

MCX (Female)

Addressing

Individual address: 4,398,046,000

Options

Internal GPS - GX option

Security

Encryption Method..... AES128

Electronic Serial Number..... Silicon ESN

Configuration Monitor..... Serialized on update

Transmitter Specifications

RF Power Output.....21-26dBm

(automatically selected to comply with regulations)

Maximum Duty Cycle.....100% to 40C, 20% to 60C

Receiver Specifications

RX sensitivity

1.17kb/s..... < -129dBm

37.5kb/s..... < -115dBm

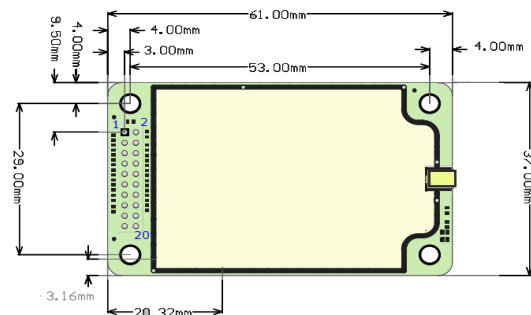
Input/Output Connection Functions

20-Pin Interface Port

1	GND	Ground
2	VCC	DC Input
3	CD	Carrier Detect Out.
4	TX On	Pin is High when module is transmitting. Low when off, receiving, or sleeping.
5	Data In (TXD)	Transmit data input.
6	Data Out (RXD)	Receive data output.
7	Enable	Low to shutdown the module. High to enable it.
8	Sleep	CPU Sleep input. Put in low-power fast-startup mode.
9	CTS	Clear to send output. Indicates state of internal buffers.
10	RTS	RTS input for serial flow control.
11	AUDOUT	Audio Output (Option)
12	VDIG	3.3V output
13	IOA	IO port A, USB DP
14	IOB	IO port B, USB port, DM
15	IOC	IO port C
16	STAT1	Status IO 1
17	AUDIN	Audio input (option)
18	STAT2	Status LED out
19	GND	Ground
20	V-BACK	Backup Battery In

Mechanical Specifications

Enclosure Size



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