RM2-MARS

110A & B HF Data Modem
DATASHEET

GOV
DIVISION

Features & Benefits:

- **MIL-STD-188-110A Modem:** Up to 2400 bps
- **Hardware Solution:** Performance & Reliability
- **Works with Any Radio:** via Audio Line
- **Activation Keys:** Unlock Upgrades

Upgrades Available:

- **MIL-STD-188-110B Modem:** Up to 9600 bps
- **MIL-STD-188-110C Modem:** Up to 16000 bps 3 kHz*
- **MIL-STD-188-110C Orderwire:** 75/4 bps*

Also Available:

- **STANAG 5066 ARQ:** RC50 Email Software
- **MIL-STD-188-141B:** 2G ALE

* Future feature

Military Auxiliary Radio System (MARS)

The basic **RM2** MARS Solution fulfils the MARS requirement for a 2400 bps MIL-STD-188-110A data modem. The data rate can be extended to 9600 bps (MIL-STD-188-110B) by means of an activation key. Possible future MARS requirements can be added and activated as needed.

Package Contents:

RM2 Modem with 110A Capability
DataPoint 110A/B Interface Software
Serial Remote Control Cable
Wire-ended DC Power Connector

High Performance Data Modem

The **RM2** is a compact HF data modem with exceptional performance and reliability. The **RM2** is suitable Military Auxiliary Radio System (MARS) operators.
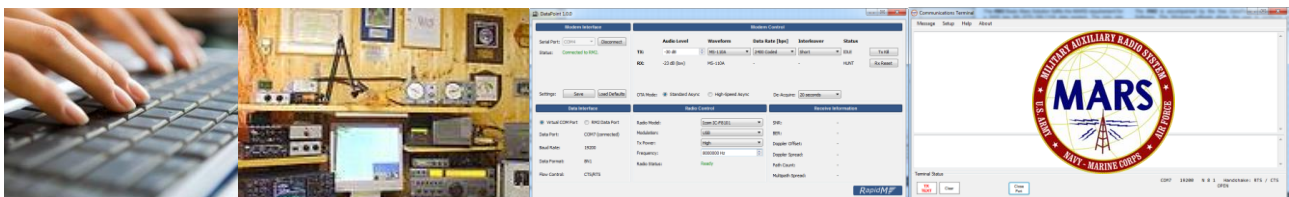
Superior Modem Performance

Long-range communication is especially prone to interference. The **RM2** benefits from *RapidM's* superior technology and experience in HF modem design. The modem features adaptive equalization and is able to deal with in-band distortion. The result is extended range and increased data throughput.
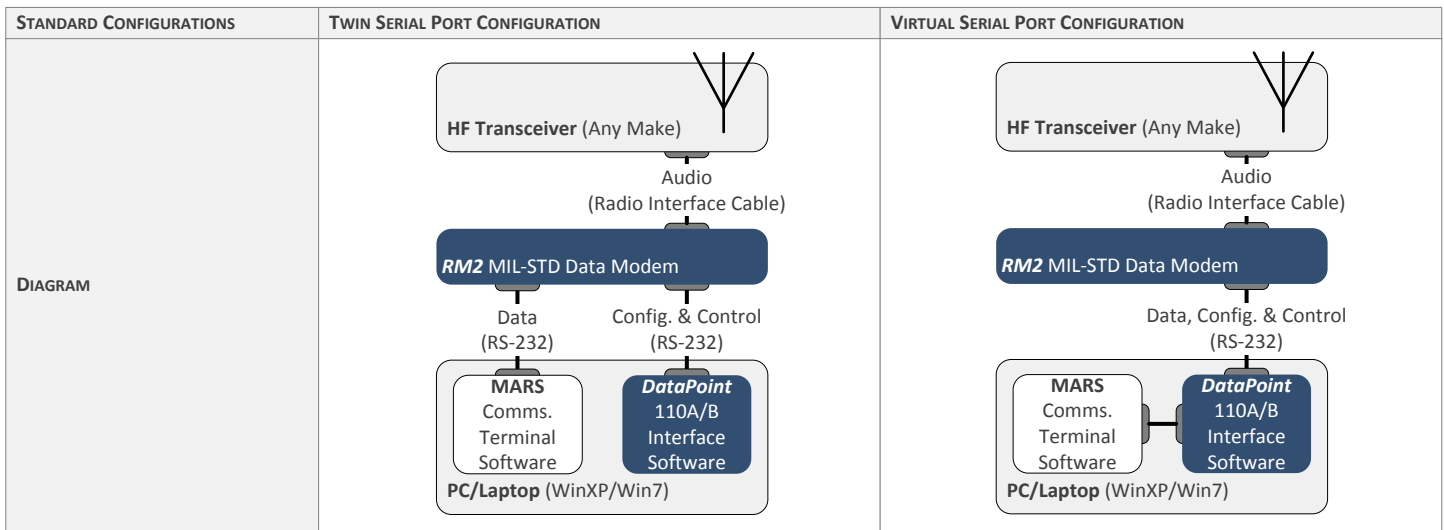
DataPoint 110A/B Interface Software

The **RM2** is accompanied by the free *DataPoint* 110A/B Interface Software. This Windows software allows the user to configure and control the modem for basic MIL-STD-188-110A and MIL-STD-188-110B operation. *DataPoint* also allows data to be tunnelled to/from the MARS Communications Messaging Terminal.

Not Included:

HF Transceiver
DC Power Supply (the RM2 can share a power supply with the transceiver)
Windows PC with Serial Port
MARS Communications Messaging Terminal
Radio interface cable ordered separately

MIL-STD HF Data Modem

RapidM

WAVEFORMS	MODULATION	DATA RATES & CHARACTERISTICS	OPTIONS	
			BASIC	110B
MIL-STD-188-110A	PSK	[75, 150, 300, 600, 1200, 2400 bps] (Coded), 4800 bps	✓	✓
MIL-STD-188-110B	PSK/QAM	[75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600 bps] (Coded)	-	✓

STANDARD CONFIGURATIONS	TWIN SERIAL PORT CONFIGURATION	VIRTUAL SERIAL PORT CONFIGURATION
DIAGRAM	HF Transceiver (Any Make) Audio (Radio Interface Cable) **RM2** MIL-STD Data Modem Data (RS-232) Config. & Control (RS-232) MARS Comms. Terminal Software **DataPoint** 110A/B Interface Software **PC/Laptop** (WinXP/Win7)	HF Transceiver (Any Make) Audio (Radio Interface Cable) **RM2** MIL-STD Data Modem Data, Config. & Control (RS-232) MARS Comms. Terminal Software **DataPoint** 110A/B Interface Software **PC/Laptop** (WinXP/Win7)

REAR PANEL INTERFACES

GPS ANTENNA (MCX)	Int. GPS (optional):	High performance internal GPS module
ETHERNET (RJ45)	Remote Control:	10/100 Base T (IEEE 802.3U compatible), full duplex Protocol: RapidM Control Protocol (RAP1/ RIPC) over TCP/IP
REM / GPS (DE9M)	Remote Control:	RS-232, 115200 bps, 1 stop bit, 8 bit character lengths Protocol: Control Protocol (RAP1 + RIPC)
	GPS:	External GPS Control Pins: RS-232 (nominally input) Data Rate: 300 to 115200 bps (nominally 4800 bps), 1/2 stop bits, 7/8 bit data. PPS line: RS 232 (NMEA) or TTL
RADIO / DATA (DE25M)	Radio Control:	Selectable RS-232, TTL and 1-wire modes (1-wire allows direct connection to Icom CT-17/CI-V) 75 to 230400 bps, 1 or 2 stop bits, 7/8 bit data (no Hardware flow control)
	Radio Audio:	Input Audio: 600 Ohm balanced, −35 to +3 dBm without adjustment Output Audio: Balanced, −40 to +3 dBm adjustable into 600 ohm load Keyline: Open Collector (<36 V, 200 mA) PTT Sense Input: Pull to ground to indicate external PTT
	Raw Data:	75 to 230400 bps, RS-232 unbalanced, Rx, TX, RTS, CTS, DCD Full Duplex, 5/6/7/8 bit data, 1/2 stop bits, Hardware (RTS/CTS)/Software (XON/XOFF) Flow ctrl Half & Full Duplex operation, Standard Async and High-speed Async mode supported

HARDWARE		ENVIRONMENTAL	
WEIGHT	0.7 kg	**SAFETY**	IEC/EN 60950
SIZE	35 x 111 x 180 x mm (h x w x d)	**FCC**	Title 47 CFR, Part 15 Subpart B Class A Digital Device.
COLOUR	Black, powder coat	**SHOCK**	40G, 6-9 ms, 3 shocks in x, y & z direction
MOUNTING	Desktop/vehicle (mounting bracket included)	**VIBRATION**	Composite wheeled vehicle 10Hz – 2000Hz, @2.5g.
POWER INPUT	6-36 V DC, XLR3 plug and fused cable supplied or via radio interface. Vehicle surge protected.	**TEMPERATURE**	-30°C to +70°C (operating), -40°C to +85°C (storage)
GND SCREW	M6 screw used for system grounding. Strap provided.	**HUMIDITY**	0 to 90%, non-condensing.

ORDERING INFORMATION	STOCK NUMBER	DESCRIPTION
RM2 MARS SOLUTION, 110A MODEM (2400 bps)	RM2-BU-MARS-000	Bundle: RM2 MARS 110A, 2400bps
UPGRADE: 110B 9600 bps	MAR-SW-11BC-UPG	Upgrade: 110B 9600bps
UPGRADE: RC50 EMAIL SOFTWARE [1] [3]	MAR-SW-RC50-UPG	Upgrade: RC50 Email S5066
UPGRADE: 2G ALE [2] [3]	MAR-SW-2G00-UPG	Upgrade: 2G ALE 141B

RADIO INTERFACE CABLES	STOCK NUMBER	DESCRIPTION	
WIRE-ENDED (FIT OWN RADIO CONNECTOR)	RM2-CB-0881-V01	Cable: RCTRL/AUD, Unterminated	V01
BARRETT 950/2050	RM2-CB-0884-V01	Cable: RCTRL/AUD Barrett 950/2050	V01
CODAN 2110	RM2-CB-0883-V01	Cable: RCTRL/AUD Codan 2110	V01
ICOM IC-78	RM2-CB-0885-V01	Cable: RCTRL/AUD Icom CI-V	V01
ICOM IC-F8101	RM2-CB-0886-V01	Cable: RCTRL/AUD Icom IC-F8101	V01
ICOM IC-M802/IC-F7000	RM2-CB-0882-V02	Cable: RCTRL/AUD Icom NMEA Unbal.	V02

[1] RC50 requires 110B.
[2] 2G ALE requires RC50 or other control software. Future versions of DataPoint will also include 2G ALE control.
[3] Datasheets available from RapidM.