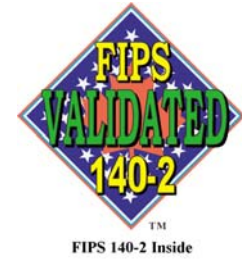


# Spartan Series

## 1.3 GHz FIPS Radio



Spartan M13

### OVERVIEW

The Spartan M13 Series offered by FreeWave Technologies is designed to meet the rigorous demands of government and defense users worldwide. The 1.3 GHz products are available as OEM board level radios that are extremely user programmable including FIPS 140-2 Level 2 encryption. It is an affordable solution for UAV and UGV applications with serious size, weight and power constraints. The Spartan M13 Series shares the same features as other FreeWave radios that ensure reliable data transmission, such as 32 bit CRC error detection with automatic retransmission.

The FreeWave Spartan Series of wireless radios are designed to provide the performance, reliability and quality that our customers have come to know and expect in our products. The Spartan product family combines high performance with a small size making it ideal for applications where space is at a premium.

All radios are designed, manufactured and tested in Boulder, CO.

### APPLICATIONS



Government & Defense

### KEY FEATURES

- **Max Speed:** 115.2 kbps maximum throughput
- **Reliable:** 100% tested for performance from -40° C to +75° C
- **Flexible:** RS232 or Ethernet Interfaces and User Programmable
- **Long Range:** Up to 60 miles with clear Line of Sight (LOS)
- **Powerful Diagnostics:** Includes received signal strength indicator
- **Encryption:** Certified by NIST for FIPS 140-2 Level 2

MODEL	DIMENSIONS	INTERFACE
<b>M13-NCF</b>	106.7 L x 50.8 W x 14.1 H (mm)	Serial Board Level
<b>M13-NCF-CC</b>	106.7 L x 50.8 W x 14.1 H (mm)	Conformal Coated M13-NCF
<b>M13-NPF</b>	103.9 L x 50.8 W x 18.1 H (mm)	Ethernet Board Level

# Spartan Series 1.3 GHz FIPS Radios Technical Specifications

		M13-NCF	M13-NPF
<b>TRANSMITTER</b>	Frequency Range	1.350-1.390 GHz	
	RF Data Rate	153 Kbps or 115 Kbps, User Selectable	
	Output Power	20 mW to 1 W	
	Range	60 miles with clear LOS	
	Modulation	2-level GFSK	
	Occupied Bandwidth	230 kHz	
	Hopping Bands	7, User Selectable	
<b>RECEIVER</b>	Nominal Sensitivity	-103 dBm at 153 Kbps, $1 \times 10^{-6}$ BER	
		-106 dBm at 115 Kbps, $1 \times 10^{-6}$ BER	
	Selectivity	20 dB at $f_c \pm 230$ kHz	
<b>DATA TRANSMISSION</b>	Error Detection	32 bit CRC, Retransmit on error	
	Data Throughput	115.2 Kbps and 80 Kbps, User Selectable	
	Data Encryption	FIPS 140-2 Level 2	
	Protocol	RS-232	IP
	Data Interface	1.2 Kbps to 115.2 Kbps	10 Mbps / 100 Mbps
<b>DIAGNOSTICS</b>	Connector	Dual row, 14-pin, 2mm pin spacing, right - angle	Dual row, 10-pin male, .020 square posts, 2mm centers
<b>POWER REQUIREMENTS</b>	Operating Voltage	+4.75 VDC to +5.25 VDC	
	Typical Current (mA)	<b>Mode</b>	<b>+5 Volts</b>
		<b>Transmit</b>	1200
		<b>Receive</b>	240
	<b>Idle</b>	135	
<b>GENERAL INFORMATION</b>	Operating Temperature	-40° C to +75° C (-40° F to +167° F)	
	Humidity	0 to 95% non-condensing	
	Dimensions	106.7 L x 50.8 W x 14.1 H (mm)	103.9 L x 50.8 W x 18.1 H (mm)
	Weight	66.6 g	66.9 g
	Antenna Connector	MMCX	

\* These devices are regulated under the U.S. International Traffic in Arms Regulation (ITAR). These regulations control the Export and Import of the defense articles. These devices may only be sold or transferred to a non-U.S. party (in the U.S. or abroad) after authorization is obtained from the U.S. Department of State. Customer (a) agrees to comply with ITAR regulations and (b) shall be responsible for obtaining all necessary U.S. Government authorizations required to ensure compliance with these and other applicable U.S. Laws. Please contact FreeWave for export control information for specific products.

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