Spartan Series *1.3 GHz FIPS Radio

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

Powerful Diagnostics: Includes received signal strength indicator

Encryption: Certified by NIST for FIPS 140-2 Level 2

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.

Specifications

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

FreeWave®

Spartan Series 1.3 GHz FIPS Radios: Technical Specifications

TRANSMITTER	
Frequency Range	1.350-1.390 GHz
RF Data Rate	153 kbps or 115 kbps, user-selectable
Output Power	20 mW to 1 W
Data Link Range	60 miles, clear line of sight
Modulation	2 level GFSK
Occupied Bandwidth	230 kHz
Hopping Bands	7, user-selectable

RECEIVER	
Normal Sensitivity	-103 dBm at 153 kbps, $1x10^{-6}$ BER
	-106 dBm at 115 kbps, $1x10^{-6}$ BER
Selectivity	20 dB at fc +/- 230 kHz

DATA TRANSMISSION	
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	M13-NCF: RS232
	M13-NPF: IP
Data Interface	M13-NCF: 1.2 kbps to 115.2kbps
	M13-NPF: 10 Mbps/100 MBps
Connector	M13-NCF: Dual row, 14-pin, 2mm pin spacing, right-angle
	M13-NPF: Dual row, 10-pin male, 0.02 square posts, 2mm centers

POWER REQUIREMENTS	
Operating Voltage	+4.75 VDC to +5.25 VDC

+5 VDC Typical Current

Transmit: 1200 mA	Receive: 240 mA	Idle: 135 mA

GENERAL INFORMATION	
Operating Temperature	-40°C to +75°C
Humidity	0 to 95%, non-condensing
Dimensions	M13-NCF: 106.7 L x 50.8 W x 14.1 H (mm)
	M13-NPF: 103.9 L x 50.8 W x 18.1 H (mm)
Weight	M13-NCF: 66.6 g | M13-NPF: 66.9 g
Antenna Connector	MMCX

Spartan Series 1.3 GHz FIPS Radios: Applications

Defense

* This device is regulated under the U.S. International Traffic in Arms Regulation (ITAR). These regulations control the Export and Import of the defense articles. The device 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.

FreeWave Technologies, Inc.

5395 Pearl Parkway, Suite 100, Boulder, CO 80301 TF 866.923.6168 T 303.381.9200
For more information, visit www.freewave.com
Specifications are subject to change without notice.
©2014 FreeWave Technologies, Inc. All rights reserved.