

# SPARTAN SERIES

\*2.4 GHZ FIPS RADIO

**FREEWAVE**



## KEY FEATURES

**Max Speed:** 153.6 kbps maximum throughput

**Reliable:** 100% tested for performance from -40°C to +75°C

**Flexible:** RS232 interfaces and userprogrammable

**Long Range:** Up to 20 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 M24 Series offered by FreeWave Technologies is designed to meet the rigorous demands of government and defense users worldwide. The 2.4 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 M24 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.

\* 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..

# TECHNICAL SPECIFICATIONS

## SPECIFICATIONS

M24-NCF	106.7 L x 50.8 W x 14.1 H (mm) Serial Board Level
M24-NCF-CC	106.7 L x 50.8 W x 14.1 H (mm) Conformal Coated M13-NCF

## TRANSMITTER

Frequency Range	2.4 to 2.843 GHz
RF Data Rate	153 kbps or 115 kbps, user-selectable
Output Power	20 mW to 500 mW
Data Link Range	20 miles, clear line of sight
Modulation	2 level GFSK
Occupied Bandwidth	230 kHz
Hopping Bands	7, user-selectable

## RECEIVER

Normal Sensitivity -	101 dBm at 153 kbps, $1 \times 10^{-6}$ BER -101 dBm at 115 kbps, $1 \times 10^{-6}$ BER
Selectivity	20 dB at fc +/- 345 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	RS232
Data Interface	1.2 kbps to 115.2 kbps
Connector	Dual row, 14-pin, 2mm pin spacing, right-angle

## POWER REQUIREMENTS

Operating Voltage	+4.75 VDC to +5.25 VDC	
<b>+5 VDC Typical Current</b>		
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	106.7 L x 50.8 W x 14.1 H (mm)
Weight	66.6 g
Antenna Connector	MMCX

## APPLICATIONS



OIL & GAS



AGRICULTURE



UTILITIES



DEFENSE



SCADA



MINING



FLEET  
MANAGEMENT



MUNICIPAL



ENTERPRISE

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