FREEWAVE

GXM Series

2.4 GHz Global Radio Module

Building on the success of our 900 MHz product family, the FreeWave 2.4 GHz GXM radio has been designed to provide OEMs the performance, reliability and quality they have come to know and expect in our products in a globally available spectrum and full ETSI, FCC, IC, and UL Class I, Division 2 Certifications.

The 1.4" x 2" form factor of the GXM is a drop-in replacement for the MM2, enabling OEMs to leverage their existing designs for international markets where 900 MHz spectrum is unavailable and is ideally suited for applications where space is a premium.

The GXM has all of the functionality of our larger footprint GX family of products and is backward compatible with the I2 Series radio.

Linear power control allows output power to be specified from 0 to +27 dBm. 500 mW maximum output power with an optional 100 mW limit to meet compliance requirements.

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

Key Features

Versatility: Gateway, Endpoint, Repeater or simultaneous Endpoint and Repeater function in a single radio

Long Range: 32 km (20 miles) with clear line of sight with the ability to extend through Repeaters

Noise Immunity: Superior performance in noise congested environments

Secure: Using Frequency Hopping Spread Spectrum (FHSS) technology; available with 128- and 256-bit AES encryption

Error Free Communications: 32-bit CRC with automatic retransmissions

Low Power Consumption: Ideal for solar, battery, and DC applications

Industrial Grade: Operating temperature from -40°C to +85°C

Made in USA

Transmitter

Frequency Range	2.4 to 2.483 GHz
Output Power	Up to 500 mW with options to limit to 100 mW
Range	Up to 32 km (20 miles) with clear line of sight
Channel Spacing	230 kHz
RF Data Rate	115.2 kbps standard speed, 153.6 kbps high speed, user-selectable

Receiver

Sensitivity	-105 dBm @ 115.2 kbps for BER 10^{-4} -102 dBm @ 153.6 kbps for BER 10^{-4}
IF Selectivity	20 dB at fc +/- 345 kHz
System Gain	132 dB
Dynamic Range	+10 dBm 3RD Order Intercept Point at Input Connector

Data Transmission

Type	Frequency Hopping Spread Spectrum Options: TDMA, Super Epoch TDMA
Modulation	2 level GFSK
Data Throughput	80 kbps 115.2 kbps
Error Detection	32-bit CRC, retransmit on error
Data Encryption	Options: 128- and 256-bit AES encryption
Hopping Zones	16 zones, user-selectable
Hopping Bands	7 bands, user-selectable
Hopping Channels	3 groups of 80, user-selectable
Hopping Patterns	15 per band, 105 total, user-selectable
Protocol	RS232, RS485, or TTL

Power Requirements

Operating Voltage	+3.3 VDC to 5.0 VDC			
Current Consumption	**Voltage**	**Transmit**	**Receive**	**Idle**
	+3.3 VDC	1200 mA	165 mA	35 mA
	+5 VDC	700 mA	135 mA	19 mA

Interfaces

Data Interface	Straight 14-pin or 24-pin dual row header for power and data 2 mm pin spacing
Diagnostics Interface	Serial, RS232, or TTL
RF Connector	MMCX

General Information

Operating Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	0 to 95%, non-condensing
Dimensions	50.8 L x 35.6 W x 9.6 H (mm) 2.0 L x 1.4 W x 0.38 H (in)
Weight	15 g (0.03 lbs)

Certifications

UL	Class I, Division 2
FCC	Part 15

Information to Order

Model Number	Description
GXM-T14	Board level, 14-pin connector, MMCX
GXM-T14-SR300	Board level, 14-pin connector, TTL, MMCX
GXM-T24	Board level, 24-pin connector, MMCX
GXM-T24-SR100	Board level, 24-pin connector, TTL, AES-128, MMCX
GXM-T24-SR101	Board level, 24-pin connector, TTL, AES-256, MMCX

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