FREEWAVE

GXM Series

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

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 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; C1D2

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 or 153.6 kbps, user-selectable

Receiver

Sensitivity	-104 dBm @ 115.2 kbps for BER 10^{-4} -101 dBm @ 153.6 kbps for BER 10^{-6}
IF Selectivity	20 dB at fc +/- 345 kHz
Dynamic Range	+10 dBm 3RD Order Intercept Point at Input Connector

Data Transmission

Type	Frequency Hopping Spread Spectrum Option: TDMA
Modulation	2 or 4 level GFSK
Data Throughput	115.2 kbps
Error Detection	32-bit CRC, retransmit on error
Data Encryption	Options: 256-bit AES encryption
Hopping Zones	16 zones, user-selectable
Hopping Bands	7, 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	+6.5 VDC to +30 VDC			
Current Consumption	**Voltage**	**Transmit**	**Receive**	**Idle**
	+6.5 VDC	375 mA	120 mA	9 mA
	+12 VDC	295 mA	80 mA	5 mA
	+30 VDC	140 mA	51 mA	3 mA

Interfaces

Data Interface	10-pin header for power, data, and diagnostics 0.25 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	70 L x 62 W x 10 H (mm) 2.76 L x 2.44 W x 0.39 H (in)
Weight	37 g (0.8 lbs)

Certifications

UL	Class I, Division 2

Information to Order

Model Number	Description
GXM-MR-R	Board level, RS232
GXM-MR-T	Board level, TTL

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