FREEWAVE

FGR3-CE-U

FGR3 Series

FGR3 900 MHz Industrial Radio

FGR3-C-U

FREEWAVE

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The FGR3 Series is the next generation of FreeWave's FGR2 Series of serial radios and has the same proven performance, reliability, and quality that our customers have come to know and expect in all of our products. The FGR3 is a cost-effective solution that allows customers to incorporate wireless communications into a wide variety of applications.

Offered as a board-level product and in a ruggedized enclosure, the FGR3 provides tremendous flexibility for use in applications around the world ranging from oil and gas to golf carts, water systems, and more. The FGR3 Series is backward compatible with the FGR2, FGR, and DGR Series of FreeWave radios, enabling existing customers to leverage and extend their existing investment.

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: Up to 97 km (60 miles) with clear line of sight with the ability to extend through Repeaters

Noise Immunity: Superior performance in noise congested environments

Secure: 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 +75°C

UL Approved: Class I, Division 2



Technical Specifications | FGR3 Series 900 MHz Industrial Radio

Transmitter	
Frequency Range	902 to 928 MHz
Output Power	Up to 1 W
Range	97 km (60 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	-107 dBm @ 115.2 kbps for BER 10 ⁻⁴ -104 dBm @ 153.6 kbps for BER 10 ⁻⁴
IF Selectivity	40 dB at fc +/- 460 kHz
RF Selectivity	>60 dB
Maximum Input Power	+10 dBm

Data Transmission					
Туре	Frequency Hopping Spread Spectrum				
Modulation	2 level GFSK				
Data Throughput	80 kbps, standard speed 115.2 kbps, high speed				
Error Detection	32-bit CRC, retransmit on error				
Data Encryption	Options: AES 128- / 256-bit encryption and Proprietary Spread Spectrum Technology				
Hopping Zones	16 zones, user-selectable				
Hopping Channels	50 to 112, user-selectable				
Hopping Patterns	15 per band, 105 total, user-selectable				
Protocol	RS232 / RS422 / RS485				

Interfaces	
Data Interface	Serial, 1200 bps to 230.4 kbps, DCE FGR3-C-U: 10-pin shrouded header for power and data, 2mm pin spacing FGR3-CE-U: DB-9
Diagnostics Interface	Serial, RS232 or TTL FGR3-C-U: 20-pin header FGR3-CE-U: 3-pin plug
RF Connector	FGR3-C-U: SMA Female FGR3-CE-U: TNC Female

General Information			
Operating Temperature	-40°C to +75°C (-40°F to +167°F)		
Humidity	0 to 95%, non-condensing		
Dimensions	FGR3-C-U: 127 L x 61 W x 12 H (mm) 5.0 L x 2.4 W x 0.47 H (in)		
	FGR3-CE-U: 173 L x 107 W x 35 H (mm) 6.8 L x 4.2 W x 1.4 H (in)		
Weight	FGR3-C-U: 58 g (0.13 lbs)		
	FGR3-CE-U: 504 g (1.1 lbs)		
Safety	Class I, Division 2, Groups A-D		
Reliability	220,000 hours MTBF		

Information to Order			
Model Number	Description		
FGR3-C-U	Board Level		
FGR3-CE-U	Rugged Enclosure		

Power Requirements								
Operating Voltage	+6 to 30 VDC							
Current Consumption, Typical	Voltage	Transmit	Receive	ldle, Linked (Slave)	ldle, Linked (Master)			
	+6 VDC	192 mA	74 mA	73 mA	118 mA			
	+12 VDC	101 mA	42 mA	42 mA	63 mA			

22 mA

32 mA

+30 VDC 47 mA 22 mA

FREEWAVE

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