



# FGR2 Series

## FGR2 900 MHz Industrial Radio



FGR2-C-U



FGR2-CE-U

### OVERVIEW

The FGR2 radio is the next generation of the FGR Series that has the same proven performance, reliability and quality that our customers have come to know and expect in all of our products. The FGR2 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 an enclosure, the FGR2 provides tremendous flexibility for use in applications around the world ranging from oil and gas to golf carts, water systems and more. The FGR2 is backward compatible with the 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, Colorado.

MODEL	DIMENSIONS	PRODUCT OPTIONS
FGR2-CE-U	173 L x 107 W x 35 H (mm)	Enclosed
FGR2-C-U	127 L x 61 W x 12 H (mm)	Board Level
FGR2-T-U	127 L x 61 W x 12 H (mm)	TTL / Board Level

### APPLICATIONS



Oil & Gas



Smart Grid



Water & Wastewater



Precision Agriculture

### KEY FEATURES

- **Improved Low Signal Performance:** RISC-based signal demodulation with matched filter
- **Long Range:** 60 mile range with clear line of sight; ability to extend through Repeaters.
- **Secure:** Proprietary spread spectrum technology prevents detection and unauthorized access; AES 128/256 bit encryption available
- **Selectable Speeds:** 115.2 kbps & 153.6 kbps
- **Versatile:** A single radio can operate as a Master, Slave, Repeater or Slave/ Repeater
- **Backward Compatible:** 100% compatible with all existing 900 MHz FreeWave Serial radios
- **Unparalleled Signal Performance:** GaAs FET RF front end with multistage SAW filtering has unmatched combination of overload immunity and sensitivity
- **UL Approved:** Class 1 Division 2
- **Industrial Grade:** 100% tested for RF performance from -40 °C to +75 °C

# FGR2-CE-U & FGR2-C-U & FGR2-T-U 900 MHz Industrial Radio Technical Specifications

		FGR2-CE-U	FGR2-C-U & FGR2-T-U		
<b>TRANSMITTER</b>	Frequency Range	902 to 928 MHz (FHSS)			
	Output Power	5 mW to 1 Watt			
	Data Link Range	60 miles, Clear Line of Sight			
	Modulation	2 level GFSK, 115.2 kbps or 153.6 kbps			
	RF Data Rate	153.6 kbps High Speed, 115.2 kbps Standard Speed			
	Occupied Bandwidth	230 kHz			
	Hopping Patterns	15 per Band, 105 total, user selectable			
	Hopping Channels	50 to 112, user selectable			
	Frequency Zones	16 Zones, 7 Channels per zone			
<b>RECEIVER</b>	Nominal Sensitivity	-105 dBm, at High Speed, $1 \times 10^{-4}$ BER -109 dBm, at Standard Speed, $1 \times 10^{-4}$ BER			
	IF Selectivity	40 dB at fc +/- 230 kHz			
	RF Selectivity	50 dB at 896 MHz, 935 MHz			
	Dynamic Range	+10 dBm 3rd Order Intercept Point at Input Connector			
<b>DATA TRANSMISSION</b>	Error Detection	32 bit CRC, Retransmit on error			
	Data Security	AES 128/256 bit encryption* and PSST**			
	Data Throughput	115.2 kbps, at High Speed RF Data Rate 80 kbps, at Standard Speed RF Data Rate			
	Data Interface	Serial, 1200 bps to 230.4 kbps, DCE			
	Protocol	RS232/RS485/RS422 (-C), TTL (-T)			
	Data Connector	DB9	10-pin Shrouded Header		
<b>DIAGNOSTICS</b>	Connector	3-pin Header	20-pin Header		
<b>POWER REQUIREMENTS</b>	Operating Voltage	+6 to +30 VDC (>7.5 VDC recommended for guaranteed performance)			
	Typical Current	<b>Mode</b>	<b>+6 VDC</b>	<b>+12 VDC</b>	<b>+30 VDC</b>
		<b>Transmit</b>	700 mA	365 mA	150 mA
		<b>Receive</b>	85 mA	48 mA	26 mA
		<b>Idle</b>	19 mA	11 mA	8 mA
		<b>Sleep</b>	5 mA	3 mA	3 mA
<b>GENERAL INFORMATION</b>	Operating Temperature	-40 °C to +75 °C (-40 °F to +167 °F)			
	Humidity	0 to 95%, non-condensing			
	Dimensions	173 L x 107 W x 35 H (mm)	127 L x 61 W x 12 H (mm)		
	Weight	504 g	58 g		
	RF Connector	TNC Female	SMA Female		

\*\*Proprietary Spread Spectrum Technology

\*Contact your FreeWave reseller or Sales representative for implementation details

FreeWave Radios Require Professional Installation. Specifications may change at any time without notice. ©2014 FreeWave Technologies, Inc.

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