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FGRCP - SERIES

Cathodic Protection 900 MHz Industrial Radios

Overview:

FreeWave® Technologies board level radios provide outstanding performance and versatility in a small footprint that is ideal for a diversity of applications. The FreeWave Model FGRCP Cathodic Protection is a Wireless Data Communication Radio Modem with superior, multi-purpose, all-in-one radio with ultra low power for remote monitoring & reporting. FreeWave's Cathodic Protection radio is specified for:

- Impressed current rectifier output voltage and current.
- Rectifier inlet power status.
- Rectifier interruption (automated or manually operated).
- Pipe-to-soil voltage potential.
- Galvanic anode potential.
- Pipeline pressure, temperature, and pigging operations.
- Communications integration.
- Battery voltage

Features:

- 100% backwards compatibility with all FreeWave 900 MHz products.
- Own your own communication network with no reoccurring monthly costs.
- Enhanced Security by retaining all data within the confines of your company, no firewalls to manage.
- Easily Integrates into existing radio networks leveraging existing investments in supervisory control and data acquisition systems.
- Long Range: up to 60 miles with clear line of sight.
- Error Free Communication: 32 bit CRC with automatic retransmission.
- Industrial Grade Specifications: 100% factory tested for full RF performance.
- Each FGRCP can perform as a Slave Radio, a Repeater and simultaneous Slave/Repeater.
- High Speed: 115.2 Kbps true throughput.
- Supply voltage 10 to 30 VDC.
- Ultra Low Power Consumption: In sleep mode, radio will awaken, synchronize and be ready to transmit data is less than 150 microseconds.
- Separate Diagnostics Serial Port: Allows real time simultaneous local diagnostics and setup without tying up the FGRCP main communication port.
- Separate RS232 Serial Port: allows simultaneously communicate to the I/O termination points and to auxiliary PLC's, EFM's, RTU's.
- Enhanced Diagnostics: including signal level in dBm and transmit current.
- Noise Immunity: Superior, robust communication performance in noisy, congested areas.
- Secure: Proprietary spread spectrum technology.



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Technical Specifications

Transmitter			
Rectifier Monitoring	Output Voltage 0-112 VDC, Output Current 0-100 amp		
	Rectifier Interruption	DO relay output, user programmable	
	Pipe-to-Soil Monitor	-3 to +3 volt DC	
	Aux. Analog Input	1 to 5 VDC, 4 to 20 milli-amp	
Frequency Range	902-928 MHz (FHSS)		
Output Power	100 mW to 1 W		
Range, Line of Sight	60 Miles with Clear Line of Sight		
Modulation	2 level GFSK, 115.2 Kbps		
Occupied Bandwidth	230 kHz		
Hopping Patterns	15 per band, 105 total, user selectable		
Hopping Channels	50 to 112, user selectable		
Hopping Bandwidth	7, user selectable		
RF Connector	SMA straight or reversed, or no RF connector		
Receiver			
Sensitivity	-108 dBm for BER 1×10^{-6} , -110 dBm for BER 1×10^{-4}		
Selectivity	20 dB at $f_c \pm 460$ kHz (2 nd IF)		
System Gain	140 dB		
Data Transmission			
Error Detection	32 bit CRC, Retransmit on Error		
Data Encryption	Substitution, Dynamic Key, 128 bit AES available		
Link Throughput	115.2 Kbps standard speed, 80 Kbps low speed ** Uncompressed, measured assuming 75% frequency availability		
Data Interface	Serial		
Protocol	RS232 / 485 / 422, TTL		
Data Connector	10-pin header with locking ramp, 0.1 inch spacing, power/data connector.		
Power Requirement			
Operating Voltage	10 - 30 VDC		
Current [mA]	Mode	12 VDC	30 VDC
	Transmit	500 mA	200 mA
	Receive	86 mA	12 mA
	Idle	21 mA	12 mA
	Sleep	6 mA	3 mA
General Information			
Temperature Range	-40 °C to +75 °C	Weight	100 g
Dimension	127 L x 61 W x 15 H (mm)	Humidity	0 to 95% non-condensing

FreeWave Radios Require Professional Installation.

Specifications may change at any time without notice. ©2006 FreeWave Technologies, Inc.



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