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# I2-IO Series

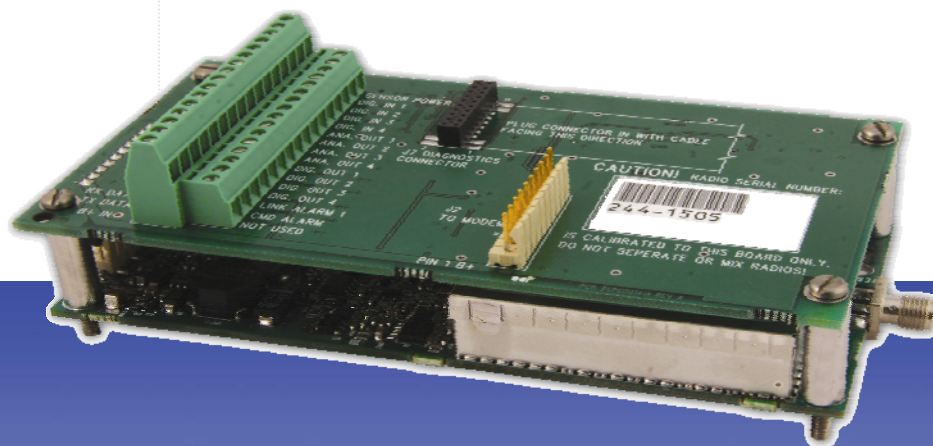
## I2IO-M Industrial 2.4 GHz Radio

### Overview:

The FreeWave Technologies I2IO-M System provides outstanding performance and versatility in wireless transmission of process-control signals. I2IO-M offers "transparent" acquisition, transport and reconstruction of analog, digital and power signals, eliminating the need for associated buried wiring. The RTU requires no altered programming. The I2IO-M is Class 1 Division 2 Approved and is lower-cost and provides better signal integrity than vulnerable

### Features:

- Frequency Hopping - Communication and diagnostics between the IO Master and the IO Slaves.
- Affordable - Low installation and long-term maintenance costs.
- Low Latency - Less than one second signal delay.
- High Accuracy - I2IO System analog signal fidelity is factory calibrated and drift with time and temperature is much less than that of transducers.
- Short Rang/Low power - Suitable for Solar powered installations.
- Error Free Communications - 32 bit CRC with automatic retransmission.
- Industrial Grade Specifications - 100% tested for RF performance from  $-40^{\circ}\text{C}$  to  $+75^{\circ}\text{C}$ .
- Master Input Voltage Range - Input voltage range is 6-30 VDC at full RF output power.
- Noise Immunity - Superior performance in noise congested environments.
- Secure - Proprietary spread spectrum technology prevents unauthorized access.
- Slave Radio - Accepts 2 Digital Inputs (DI), 2 Analog Inputs (AI) and switches 2 Digital Outputs (DO).
- Master Radio - Mirrors signals for up to 4 slaves and provides Link and Command Alarm signals.
- Wire Replacement - I2IO System accuracy is not diminished by distance as it may be in wired systems.



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## Radio Specifications

Transmitter				
Frequency Range	2.4-2.483 GHz (FHSS)			
Output Power	5 mW to 500 mW			
Range - Line of Sight	20 miles with clear LOS			
Modulation	2 level GFSK			
Occupied Bandwidth	230 kHz			
Hopping Patterns	15 per Band, 105 total user selectable			
Hopping Channels	50 to 80 out of 240 user selectable			
Hopping Bands	7, user selectable			
RF Connector	Type SMA			
Master Receiver				
Sensitivity	-105 dBm for BER 10 <sup>-6</sup> -107 dBm for BER 10 <sup>-4</sup>		Master Analog Outputs	
Selectivity	TBD		Number of Outputs	4, can be mapped to up to 4 slaves
System Gain	134 dB		Accuracy, Resolution	+/- .1%, 16 bit
			Output Range	.2-5.62V, > 10 Kohm Load Resistance
Master Digital Outputs			Master Digital Input	
Number of Outputs	4 per Master Link, 1 Command Alarm		Number of Inputs	4
Output Connector	Mini Phoenix (3.55mm)		Master Input to Slave Out-put Delay	1 Second Max
Slave Input to Master Output Delay	1 Second Max			
Signal Output Voltage Range	0 - 4.6 V		Voltage Range	0 - 30 V
Data Transmission				
Error Detection	32 bit CRC, Retransmit on Error			
Data Encryption	Dynamic Key Substitution			
Link Throughput	115.2 kbps			
Data Interface	Serial			
Protocol	RS 232 / 485 / 422, 1200 Baud to 115.2 KBAud			
Data Connector	10 - pin header with locking ramp, 0.1 inch spacing, power/data connector			
Data Interface				
Connector	Separate 20 - pin PCB header			
Power Requirements				
Operating Voltage	6 to 30 VDC			
Current	Mode	6 VDC	12 VDC	30 VDC
	Transmit	375 mA	295 mA	140 mA
	Receive	120 mA	80 mA	51 mA
	Idle	9 mA	5 mA	3 mA
General Information				
Operating Temperature Range	-40 °C to +75 °C.			
Dimensions	Board Level: 140 mm L x 62 mm W x 16 mm H			
Weight	Board Level: 137g			
Humidity	0 to 95% non-condensing			

