Radio Kit with Onboard I/O
900 MHZ: BR-0900-RM4
2.4 GHZ: BR-2400-RM4

SIMPLE RADIO AND I/O COMBO-IN-ONE

The WIO® Radio Module Kit with Onboard I/O is the quickest and simplest method for replicating process signals without the hassle of digging trenches, running conduit, and wiring. Both Radio Modules A and B are equipped with two configurable digital channels so that you can run digital signals in both directions and in any combination. Radio A is equipped with two analog 4-20 mA inputs that correspond to the two analog 4-20mA outputs on Radio B.
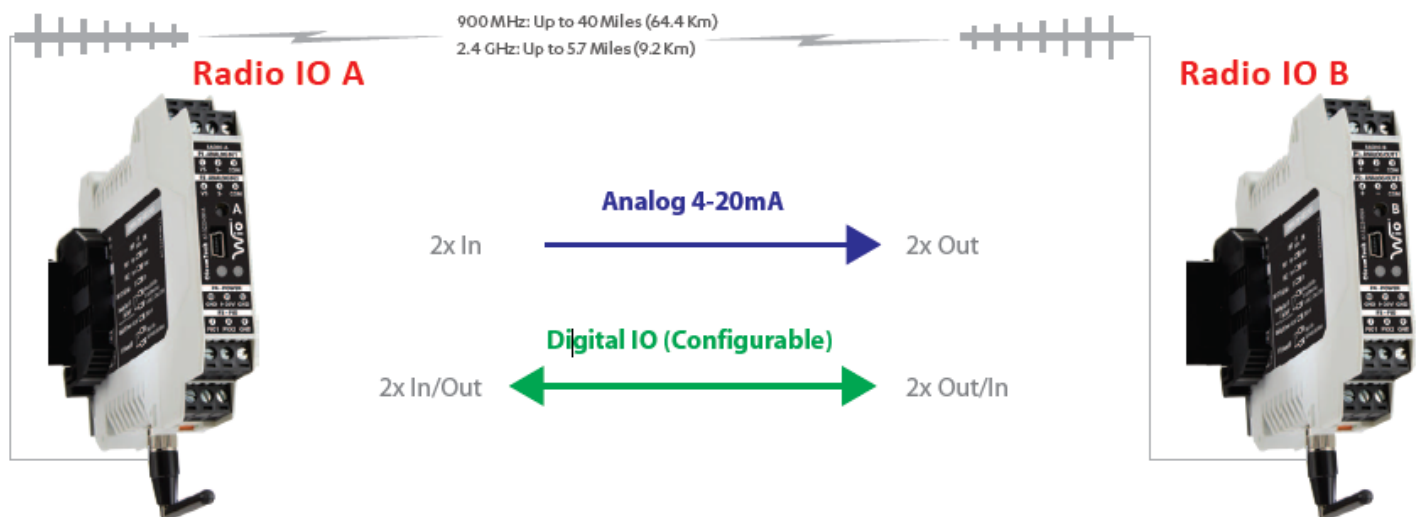
READY OUT-OF-THE-BOX

The secure point-to-point wireless I/O system is factory paired and requires zero software programming. The system is configured using only the DIP switches on each module. These modules mount on any 35 mm DIN rail with no additional mounting hardware required - just need wire and a screwdriver.

FAIL-SAFE PROTECTION

Fail-safe output options let you determine what values the outputs will go to in the event of RF signal loss. Digital signals can fail to 'on' or 'off' states. For analog signals, you can select last known value, 4 mA or 20 mA. All fail-safe modes are configured using DIP switches.

SECURE, ROBUST AND RELIABLE WIRELESS

Although using this radio system is simple, the RF technology behind it is highly advanced, robust, reliable, and secure using AES encryption providing you with a peace-of-mind. You also have to ability to set the communication speed between radios to 250 ms or 1 second to control power consumption and signal response requirements. The WIO Radio I/O System is available in 900 MHz and 2.4 GHz. The 900 MHz option offers selectable 140 mW or 1 W transmit power. Both options offer multiple user-selectable RF channels so that multiple systems can operate within close proximity.

900 MHz: Up to 40 Miles (64.4 Km)
2.4 GHz: Up to 5.7 Miles (9.2 Km)

Radio IO A

Radio IO B

Analog 4-20mA

2x In → 2x Out

Digital IO (Configurable)

2x In/Out ← → 2x Out/In

Specifications

I/O & Hardware

Specification	Description
Analog 4-20 mA Communication	2 x Uni-Directional (Radio A to B)
Digital/Discrete Communication	2 x Bi-Directional (DIP Switches)
DIO Mismatch Indication - Right LED	Green: OK Red: Mismatch
DIN Rail Mounting Compatibility	35 mm Standard DIN Rail (Direct Mount)
Built-In Mounting Hardware	Spring-Loaded Clip-On System
Wire Gauge	Solid / Stranded (AWG) 28-12 Gauge
Wire Rating (Recommended)	300 V RMS, 80 °C and 300 V, 105 °C
Supply Voltage Range	9 to 30 Vdc (±5 %)
Reverse Polarity Protection	Yes
Power Consumption	TBD
Packaging Dimensions (WxHxD)	4.8 x 5.1 x 2.8 in 123 x 129 x 72 mm
Net Dimensions	0.7 x 3.9 x 4.5 in 17.5 x 99 x 114 mm
Packaging Weight	0.8 lbs / 363 g
Net Weight (Single Radio)	0.3 lbs / 136 g
Warranty	2-Year Limited

Radio

Specification	Description
Communication Type	Point-to-Point Wireless I/O Communication System
Radio Frequency (RF)	902 to 928 MHz 2.4 GHz License-Free ISM Band
RF Security	128-bit AES Encryption
Antenna Connector Type	SMA (Female Connector)
Default Transmit Speed / Response Time	1 Second
Turbo Transmit Speed / Response Time	250 ms
Line of Sight Maximum RF Range	900 MHz: Up to 40 Miles (64.4 Km) 2.4 GHz: Up to 5.7 Mile (9.2 Km)
RF Transmit Power	900 MHz: 140 mW/1 W (22 or 30 dBm - user selectable) 2.4 GHz: 63 mW (18 dBm)
Receiver Sensitivity	900 MHz: -101 dBm 2.4 GHz: -100 dBm
Spread Spectrum	900 MHz: FHSS 2.4 GHz: DSSS
RF Link Indication - Left LED	Green: OK Solid Yellow: Failed
RF Timeout Trigger	10 Seconds
RF Response Time	Flashing Normal (1 sec) Flashing Fast (250 ms)
RF Signal Quality	Flashing Green: Strong Flashing Yellow: Weak

Analog Inputs (Radio A only)

Specification	Description
2x Analog Inputs	4 to 20 mA (16-bit Resolution)
Accuracy	< 0.2 % of Full Scale
Internal Loop Power	9 to 30 Vdc (Depends on Supply Voltage)
AI Input Impedance (loop)	250 Ohm

Analog Outputs (Radio B only)

Specification	Description
2x Analog Outputs	4 to 20 mA (16-bit Resolution)
Output Terminal Voltage Range	10 Vdc Min.
	30 Vdc Max.
RF Fail-Safe Output Modes	Last Known Value (Def.), < 4 mA, > 20 mA (DIP)

Digital I/O (Radios A and B)

Specification	Description
I/O Channel Count	2x Configurable Channels on Each Radio Module
Signal Direction	Any Direction, Any Combination (If A = In; B = Out)
	Signal Direction Controlled via DIP Switches
Input Voltage Range	3 to 30 VDC
Input Voltage Threshold	Signal ("H"): TBD
	0 Signal ("L"): < 1.1 VDC
Output Rating	1 A Sink Current for
	Open-Drain Outputs / NPN
Fail-Safe Output Modes	On or Off (DIP Switch Controlled)

Safety & Compliance

Specification	Description
FCC	FCC Part 15
Industry Canada (IC)	ICES-003
RoHS	
CSA (Canada and US)	