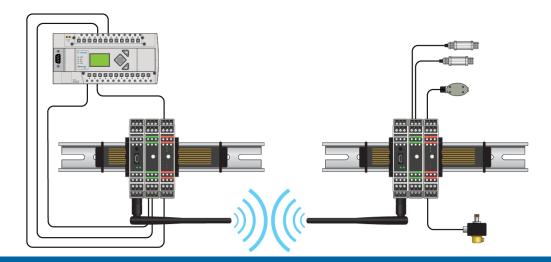# DATASHEET

Wireless I/O Radio Kit
900 MHz BM-0900-RM1K
900 MHz BM-0915-RM1K
868 MHz BM-0868-RM1K
2.4 GHz BM-2400-RM1K

How many times do you need to get a few points of digital or analog inputs and outputs from point A to point B, but can't justify the cost of running the wires? The Radio Kit is a replacement for hardwired I/O that is simple to deploy. The Kit requires no programming – just wire strippers and a screwdriver. There is no communication protocol to interpret.

The radios are paired and secured at the factory, so there are no settings or configurations to figure out. It is bi-directional, so digital and analog signals can be sent in both directions between two connected I/O stations. Inputs on one module are simply replicated as outputs on the corresponding module. Our wireless I/O makes use of the unlicensed ISM band at either 868 MHz, 900 MHz, or 2.4 GHz (USA only). The radios can send I/O up to 4 miles for the 900 MHz or 1 mile for the 868 MHz and 2.4 GHz models. Each radio pair can connect up to 16 I/O modules, more than enough for most applications.

Features

♦ *Save time and money*: Eliminates trenching and running conduit / deploys in minutes
♦ *Easy to use*: No software configuration needed
♦ *Easy to install*: Mounts onto a 35 mm DIN rail without any tools
♦ *Scalable*: Supports a multitude of I/O modules per system. See specs for details.
♦ *Secure*: Factory paired, secure radio system keeps network protected from intrusions
♦ *Failsafe*: User can defines how outputs are failed over when RF or I/O communication is ever lost
♦ *Reduced wiring:* Single power termination per station
♦ 863 to 870 MHz, 902 to 928 MHz, or 2.4 GHz License-Free ISM Band Frequency
♦ 128-bit AES RF security
♦ Controlled local shutdown (ESD) via provided dry contact input

Specifications

Hardware & System

Specification	Description
Maximum Network Capacity[2]	Max capacity depends on I/O combination Power budget calculator: http://psft.com/A5D
DIN Rail Mounting Compatibility	35 mm x 7.5 mm DIN Rail
DataRail™ (Included with Radio Kit)	6.1 in / 156 mm - Supports up five (5) I/O modules, other lengths also available
DataRail Mounting Hardware	4-Claw attachment to 35 mm DIN Rail with end bracket
Built-In Mounting Hardware	Spring-loaded clip-on system
Wire Gauge	Solid / Stranded (AWG) 28-12 gauge
Wire Rating	UL: 300 V RMS, 80 °C and 300 V, 105 °C CSA: 300 V RMS, 105 °C
Warranty	2-Year limited

[2]When using more than a 5-Module Combination per Radio, use the Power Budget Calculator to determine maximum I/O Module capacity.

Radio

Specification	Description
Frequency	863-870 MHz, 902-928 MHz, or 2.4 GHz License-Free ISM Band
Antenna Connector Type	SMA (Female Connector)
Default Transmit Speed / Update	1 Second
Turbo Tx Speed Based on Number of I/O Modules	1=100 ms, 2 to 3=200 ms, 4=250 ms, 5 to 6=333 ms, 7 to 11=500 ms, 12 to 16=1 second
Outdoor / Line of Sight Max Range (900MHz@250mW/2.4GHz@63mW)	900 MHz: 4 Miles (6.4 km) 868 MHz and 2.4 GHz: Up to 3 miles (5 km)
Indoor / Urban Max Range (900MHz@250mW/2.4GHz@63mW)	900 MHz: 1000 ft (305 m) / 2.4 GHz: 300 ft (90 m)
Maximum Transmit Power (Adjustable by Software)	868 MHz: 14dBm (25 mW) / 900 MHz: 24 dBm (250 mW) / 2.4 GHz: 18 dBm (63 mW)
Receiver Sensitivity	868 and 900 MHz: -101 dBm / 2.4 GHz: -100 dBm
Spread Spectrum	868 and 900 MHz: FHSS / 2.4 GHz DSSS
RF Security	128-bit AES

Physical

Specification	Description
Supply Voltage Range	9 to 30 VDC (± 5 %)
Power Consumption	35 mA @ 12 V AVG (10% Duty Cycle)
Kit Packaging Dimensions (WxHxD)	5.5 x 10.1 x 2.8 in / 140 x 257 x 72 mm
Net Dimensions	0.7 x 3.9 x 4.5 in / 17.5 x 99 x 114 mm
Kit Packaging Weight	1.3 lbs / 590 g
Net Weight (Single Radio)	0.3 lbs / 136 g
RF Link Alarm Digital Output	10-Second RF Timeout Trigger (NPN) - User Selectable
I/O Link Alarm Digital Output	I/O Mismatch, Bus or Module Failure (NPN)
RF Link Diagnostics (Left LED)	Green = RF Traffic / Yellow = RF Link Fail
I/O Link Diagnostics (Right LED)	Green = I/O OK, Modules Detected / Red = I/O Link Fail
Reverse Polarity Protection	Yes
Advanced User Interface Features	Test RSSI, Tx Power Adjustment, Force Local Output(s), Set FailSafe Parameters, and Additional Diagnostics

Safety & Compliance

Specification	Description
Operational Temperature	-40 °C to 80 °C / -40 °F to 176 °F
Storage Temperature	-20 °C to 85 °C / -4 °F to 185 °F
Humidity	0 to 99 %, Non-condensing
Degree of Protection / Housing Type	IP20 / Plastic
Hazardous Locations Classifications	CSA Class I; Division 2 (ATEX Zone 2)
RF Emissions	FCC Part 15/IC, see website for other RF certifications

Radio Kit Contents

Description
(2) Factory paired Radio Modules
(2) DataRails
(2) DataRail Covers
(4) End Terminal Brackets
(1) USB to Mini USB Cable
(1) Technician's Screwdriver
Quick Start Guide

Where Automation Connects™

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Ordering Information

To order this product, please use the following:

Wireless I/O Radio Kit

USA/North America

900 MHz: BM-0900-RM1K
2.4 GHz: BM-2400-RM1K

International

868 MHz: BM-0868-RM1K (Europe)
900 MHz: BM-0915-RM1K (Australia)

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