FREE 24-hour Tech Support: 724-746-5500
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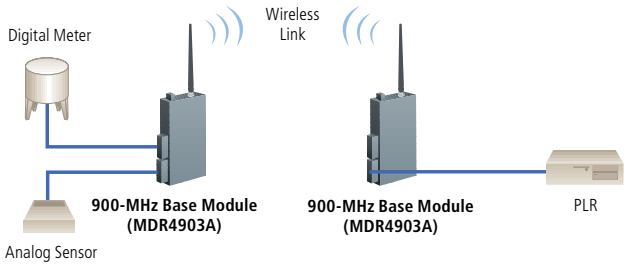
Modular Wireless Extenders for Digital or Analog I/O

Get the wireless range you need to control industrial I/O devices.

FEATURES

- Build an expandable wireless communications system to manage inputs and outputs at extended distances.
- Great for replacing cable links in wired Modbus RTU installations.
- Base modules communicate with sensors, meters, PLRs, and other input/output monitoring equipment. Add expansion modules as needed.
- 2.4-GHz or 900-MHz frequencies.
- The 1-mW-to-1W 900-MHz models feature a 14-mile (22.5-km) range!
- DIN-rail mountable. Rugged IP30-rated cases protect internal circuitry.
- Operate in a wide temperature range and work in most indoor and outdoor applications.
- Fit easily into most industrial power control and automation systems. Work with Modbus® and PROFIBUS® systems—no converters are needed!
- Offer constant signal strength for easy installation and troubleshooting.
- RoHS compliant.
- For data communications with RS-232, RS-422, or RS-485 devices, add Wireless Serial Data Extenders (see "Related Products" on the previous screen).

Typical application: peer-to-peer mode



OVERVIEW

Why buy a complete wireless control system when all you need are a few links to existing I/O devices? BLACK BOX® Modular Wireless Extenders for Digital or Analog I/O give you the flexibility to order only what you need.

They enable you to custom build a system for cable-free links in your demanding application. Start with base modules for several I/O points, and when your site grows, just snap in expansion modules to establish more connections.

Your choice of specific radio ranges.

The system's base modules are available with varying radio power. With four ranges to choose from, there's no need to spend money on longer distance radios if you really don't need the longer distance. Some extend I/O communications a mile; others go as far as 14 miles in an optimum outdoor setting. The 900-MHz models provide the greatest distances.

You can also plug in a compatible high-gain antenna to get further distances. If you want an external antenna for your application, contact our FREE Tech Support.

Easy expansion and integration.

The modular system is built around a Wireless I/O Base Module, which provides I/O and radio communications with other nodes in the system. All modules in the family feature similar enclosures with local bus plugs and receptacles that enable them to be connected together. You can plug up to six expansion modules into the base module to add more I/O capabilities.

What's more, all modules are DIN rail-mountable for simple, space-saving integration into your existing industrial application. And because the system is Modbus compatible, you can communicate with many popular industrial-control applications, including the legacy systems that you've been running for years. Connect to Wonderware® or LabVIEW automation and industrial control applications or a number of Modbus-compatible utilities to bring data directly into your PLC system.

Easy input and output customization for industrial control.

All modules feature removable screw terminal blocks for the inputs and outputs. Use the digital inputs to detect the presence of contact closures, transistor switches, or on/off, and use the digital outputs to drive external devices such as indicators, relay coils, or other equipment. Use the analog inputs/outputs to accept or produce voltage or current signals. You can even choose from several different combinations of digital inputs, digital outputs, analog inputs, and analog outputs. How's that for customization?

Configure and control your I/O system from a PC.

To configure modules and manage your I/O devices, order the system's programming module. It gives you a convenient way to use a PC to interface with base and expansion modules. The programming module comes with a 6-foot (1.8-m) cable, which enables you to use an RS-232 serial connection to link to a computer running the included management software.

Through this software, you choose your communication mode:

In **Modbus** mode, the system exchanges Modbus messages with a Modbus radio modem, such as a BLACK BOX Wireless Serial Data Extender. In all, you can have up to 150 base modules in a system and up to six systems running simultaneously when operating in Modbus mode. You can also set up a wireless SCADA system, a radio-based system in which a remote termination unit (RTU) serves as a Modbus slave RTU.

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In **Peer-to-Peer** mode, two Wireless I/O Base Modules communicate across a wireless link. You just configure one base module as the master and the other as the slave. Analog and digital input signals connected to analog inputs and digital outputs on one module appear on the corresponding analog outputs and digital outputs of the other module.

In **Repeater** mode, you can extend the range of your system by adding units as active repeaters. When a base module is configured as a radio repeater, it relays data—either from a Modbus modem (such as a BLACK BOX® Wireless Serial Data Extender) or another base module. This way, you can place modules where they need to go—by the sensors or other instruments on the factory floor. You can also extend a wireless path around barriers to ensure a reliable, secure link for your critical industrial communications. All base modules except the 2.4-GHz, 100-mW units feature built-in active repeater functionality.

TECH SPECS

Antenna — 2.4 GHz models: 2.1-dBi male RPSMA dipole; 900-MHz models: 3-dBi male RPSMA dipole
Digital/Analog I/O Voltage — Digital inputs: 0–48 VDC; Digital outputs: 10–48 VDC (from PNP sourcing transmitters); Analog inputs and outputs: 4–20 mA, 0–20 mA or 0–10 VDC (software-selectable)
DIN Rail Mount — 35 mm
Distance (Maximum) — MDR4243A–MDR4244A: Indoor: 600 ft. (182.8 m); Outdoor: 3 mi. (4.8 km); MDR4241A–MDR4242A: Indoor: 300 ft. (91.4 m); Outdoor: 1 mi. (1.6 km); MDR4901A–MDR4902A: Indoor: 1500 ft. (457.2 m); Outdoor: 7 mi. (11.2 km); MDR4903A–MDR4904A: Indoor: 3000 ft. (914.4 m); Outdoor: 14 mi. (22.5 km)
Frequency — 2.400 GHz–2.4385-GHz ISM band or 902-MHz–928-MHz ISM band
Modulation — Frequency shift keying
Temperature Tolerance — 40 to 185° F (4 to 85° C)
Connectors — Base and expansion modules: I/O: 2-, 4-, or 8-position terminal block(s); Base module also has: Power: 2-position terminal block; Programming module: (1) DB9 F; Optional antenna for base module: (1) SMA F (reverse polarity plug); All base, expansion, and programming modules also have: (2) 14-pin local bus connectors (M/F) for plugging modules together
Power — Base modules: Input: 10–48 VDC /18–30 VAC (not included); Expansion and programming modules: From the connected base module
Size — Base, expansion, and programming modules: 1.2"H x 3.7"W x 5"D (3 x 9.4 x 12.7 cm)

Item	Code
Modular Wireless Extenders for Digital or Analog I/O	
2.4-GHz Wireless I/O Base Modules	
50-mW, 3-Mile Max. Outdoor Range	
(2) Digital In, (2) Digital Out/(2) Analog In, (2) Analog Out	**MDR4243A**
(4) Digital In, (4) Digital Out	**MDR4244A**
100-mW, 1-Mile Max. Outdoor Range	
(2) Digital In, (2) Digital Out/(2) Analog In, (2) Analog Out	**MDR4241A**
(4) Digital In, (4) Digital Out	**MDR4242A**
900-MHz Wireless I/O Base Modules	
100-mW, 7-Mile Max. Outdoor Range	
(2) Digital In, (2) Digital Out/(2) Analog In, (2) Analog Out	**MDR4901A**
(4) Digital In, (4) Digital Out	**MDR4902A**
1-mW–1-W (Selectable), 14-Mile Max. Outdoor Range	
(2) Digital In, (2) Digital Out/(2) Analog In, (2) Analog Out	**MDR4903A**
(4) Digital In, (4) Digital Out	**MDR4904A**
Wireless I/O Expansion Modules	
with (8) Digital In	**MDE01A**
with (8) Digital Transistor Out	**MDE02A**
with (4) Digital In, (4) Digital Transistor Out	**MDE03A**
with (4) Analog In	**MDE04A**
with (4) Analog Out	**MDE05A**
with (2) Analog In, (2) Analog Out	**MDE06A**
To power a DIN rail-mounted module, order a…	
DIN Rail-Mount Power Supply (24-DC, 40-Watt)	**PSD100**
To easily configure your entire system from a PC, order…	
Programming Module with Cable	**MDP01**
Programming Module with Cable and Software CD	**MDP02**