900-MHz or 2.4-GHz Serial Transceiver Client/Server
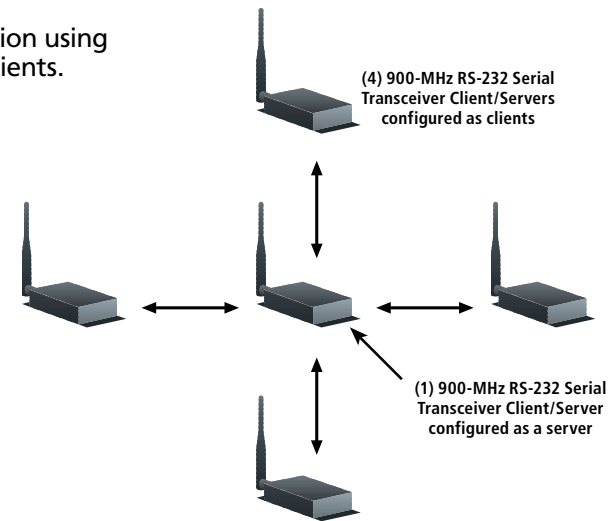
Go wireless!
Replace thousands of feet of serial cable with these wireless transceiver client/servers.

FEATURES

» Choose from RS-232 or RS-485, and 900-MHz or 2.4-GHz models to connect to your PC's serial port.

» Select the 900-MHz USB Host Transceiver to link to your PC's USB port.

» Uses Frequency-Hopping Spread Spectrum (FHSS) modulation for license-free operation.

» Durable industrial-grade enclosure.

» Transparent operation—supports any legacy system.

» Transmits around corners and through walls.

» Offers reliable communication up to 115.2 kbps.

A typical point-to-multipoint application using 5 MDR292A units links 1 server to 4 clients.

(4) 900-MHz RS-232 Serial Transceiver Client/Servers configured as clients

(1) 900-MHz RS-232 Serial Transceiver Client/Server configured as a server

OVERVIEW

The Serial Transceiver Client/Server is a Frequency-Hopping Spread Spectrum (FHSS) transceiver designed for license-free operation in the 900-MHz or 2.4-GHz ISM band. Models are available for 900-MHz RS-232, 900-MHz RS-485, 2.4-GHz

RS-232, and 2.4-GHz RS-485. Use the transceiver as a wireless link to replace up to 20 miles (32.2 km) of serial cable. Its RS-232 or RS-485 interface integrates seamlessly into legacy data systems. You can even control your PC's USB port instead of a standard serial port via the 900-MHz USB Host Transceiver (MDR291A).

FHSS technology.

With FHSS modulation, the wireless transceivers "hop" from frequency to frequency several times per second using a specific hop pattern that applies to all transceivers in the same network.

Each channel number (the number assigned to the network) uses a distinct hopping pattern that allows multiple networks to co-exist in the same area without interference.

The transceivers operate in point-to-point or point-to-multipoint, client-server or peer-to-peer installations. One transceiver is configured as a server that transmits/receives to multiple clients. To establish synchronization between transceivers, the server emits a beacon. When a client transceiver detects this beacon, it informs its host, and an RF link is established.

Supports a proprietary communication protocol.

A proprietary communication protocol ensures secure data transmissions. Since it uses FHSS technology, the data is reliable over long distances. The units use license-free frequency bands, so they're ready to use with no further certification requirements.

Custom configurations.

Each unit is small and easily portable for use in mobile and temporary settings as well as for fixed installations. The unit's configuration software enables custom configurations based on unique application requirements.

Point-to-point or point-to-multipoint operation.

The transceivers support RS-232/RS-485 (2-wire half-duplex) protocols. In a cabled environment, the RS-485 protocol can tolerate high noise and push signals over long cable lengths. RS-485 cabling can also communicate as far as 4000 feet (1219.2 m) and offer multidrop capability up to 32 nodes.

RS-232 cabling is suitable for distances less than 100 feet (30.5 m) and supports point-to-point communications only.

Set up in minutes.

Since it's wireless, the transceiver is extremely easy to set up. One unit is used as a server; one or more units configured as clients can communicate with the server via the 900-MHz or 2.4-GHz frequency band.

Software is simple, too, since special host software isn't needed. Just use the included GUI-based Windows software to tailor the transceivers to your needs.

The 900-MHz RS-232 and RS-485 transceivers support up to 32 independent networks; the 2.4-GHz RS-232 and RS-485 transceivers handle up to 40 networks; and the 900-MHz USB Host Transceiver supports up to 56 networks.

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What's included

NOTE: All items include a user's manual.

MDR292A:
- ✦ (1) RS-232 900-MHz Serial Transceiver Client/Server
- ✦ (1) Power supply
- ✦ (1) Antenna
- ✦ (1) 6-foot (1.8-m) DB9 female to DB9 female cable

MDR293A-KIT:
- ✦ (2) RS-232 900-MHz Serial Transceiver Client/Servers
- ✦ (2) Power supplies
- ✦ (2) Antennas
- ✦ (1) 6-foot (1.8-m) DB9 female to DB9 female cable

MDR294A:
- ✦ (1) RS-485 900-MHz Serial Transceiver Client/Server
- ✦ (1) Power supply
- ✦ (1) Antenna
- ✦ (1) 6-foot (1.8-m) DB9 female to DB9 female cable

MDR295A-KIT:
- ✦ (2) RS-485 900-MHz Serial Transceiver Client/Servers
- ✦ (2) Power supplies
- ✦ (2) Antennas
- ✦ (1) 6-foot (1.8-m) DB9 female to DB9 female cable

MDR242A:
- ✦ (1) RS-232 2.4-GHz Serial Transceiver Client/Server
- ✦ (1) Power supply
- ✦ (1) Antenna
- ✦ (1) 6-foot (1.8-m) DB9 female to DB9 female cable

MDR243A-KIT:
- ✦ (2) RS-232 2.4-GHz Serial Transceiver Client/Servers
- ✦ (2) Power supplies
- ✦ (2) Antennas
- ✦ (1) 6-foot (1.8-m) DB9 female to DB9 female cable

MDR244A:
- ✦ (1) RS-485 2.4-GHz Serial Transceiver Client/Server
- ✦ (1) Power supply
- ✦ (1) Antenna
- ✦ (1) 6-foot (1.8-m) DB9 female to DB9 female cable

MDR245A-KIT:
- ✦ (2) RS-485 2.4-GHz Serial Transceiver Client/Servers
- ✦ (2) Power supplies
- ✦ (2) Antennas
- ✦ (1) 6-foot (1.8-m) DB9 female to DB9 female cable

MDR291A:
- ✦ (1) 900-MHz USB Host Transceiver
- ✦ (1) Power supply
- ✦ (1) Antenna

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TECH SPECS

Transceiver Performance:
Output Power — 900-MHz models, 900-MHz USB Host: 1000 mW, variable;
 2.4-GHz models: 100 mW, fixed
Transmission Range — 900-MHz models: Up to 1500 ft. (457.2 m) indoors;
 Up to 20 mi. (32.2 km) line-of-sight;
 2.4-GHz models: Up to 5000 ft. (1524 m) indoors; Up to 1 mi. (1.6 km)
 line-of-sight;
 900-MHz USB Host: 4 mi. (6.4 km) with clear line-of-sight
Data Rate — Up to 115.2 kbps
RF Data Rate — 900-MHz models, 900-MHz USB Host: 76.8 kbps fixed;
 2.4-GHz models: 576 kbps fixed
Receiver Sensitivity — 900-MHz models, 900-MHz USB Host: -100 dBm
 typical @ 76.8 kbps RF data rate;
 2.4-GHz models: -100 dBm typical @ 576 kbps RF data rate
 Power Consumption (@ 12 VDC) — 900-MHz models: 400 mA;
 2.4-GHz models: 102 mA (50% transmit/receive duty cycle);
 900-MHz USB Host: 107 mA TX, 51 mA RX
Configuration Software — Windows® based

Networking and Security:
Frequency Band, RF Technology — 900-MHz models, 900-MHz USB Host:
 902–928, FHSS (USA); 915-928, FHSS (Australia);
 2.4-GHz models: 2402–2478 MHz, FHSS
Supported Network Topologies — Point-to-point, point-to-multipoint
Channels — 900-MHz models: 32;
 2.4-GHz models: 40 for U.S./Canada/Europe; 20 for France;
 900-MHz USB Host: 56
Security — 900-MHz models, 900-MHz USB Host: One-byte system ID,
 56-bit DES encryption key;
 2.4-GHz models: One-byte system ID

Antenna:
RF Connector — RPSMA jack
Type — 1/2-wave dipole

Electrical:
Electrical Requirements — Line voltage 100–120 V (240 V outside U.S.)
Power Supply — 6-ft. (1.8-m) cable, AC power connector

Environmental:
Temperature Tolerance — Operating: -40 to +176°F (-40 to +80°C)
Humidity Tolerance — 10 to 90%, noncondensing

Physical:
Connectors — MDR292A, MDR242A: (1) DB9 male;
 MDR294A, MDR244A: (1) RS-485 terminal block;
 900-MHz USB Host: (1) USB Type B
Indicators — (4) LEDs: Pwr, Link, Rx, and Tx
Size — 1.4"H x 4.4"W x 2.7"D (3.6 x 11.2 x 6.9 cm);
 900-MHz models, 2.4-GHz models: Serial cord length: 6 ft. (1.8 m)
Weight — 6 oz. (170 g)

MDR292A

Why Buy From Black Box? Exceptional Value. Exceptional Tech Support. Period.

Recognize any of these situations?

- You wait more than 30 minutes to get through to a vendor's tech support.
- The so-called "tech" can't help you or gives you the wrong answer.
- You don't have a purchase order number and the tech refuses to help you.
- It's 9 p.m. and you need help, but your vendor's tech support line is closed.

According to a survey by *Data Communications* magazine, 90% of network managers surveyed say that getting the technical support they need is extremely important when choosing a vendor. But even though network managers pay anywhere from 10 to 20% of their overall purchase price for a basic service and support contract, the technical support and service they receive falls far short of their expectations—and certainly isn't worth what they paid.

At Black Box, we guarantee the best value and the best support. You can even consult our Technical Support Experts before you buy if you need help selecting just the right component for your application.

Don't waste time and money—call Black Box today.

Item	Code
Serial Transceiver Client/Server	
900-MHz	
RS-232	**MDR292A**
RS-232 Kit	**MDR293A-KIT**
RS-485	**MDR294A**
RS-485 Kit	**MDR295A-KIT**
2.4-GHz	
RS-232	**MDR242A**
RS-232 Kit	**MDR243A-KIT**
RS-485	**MDR244A**
RS-485 Kit	**MDR245A-KIT**
900-MHz USB Host Transceiver	**MDR291A**

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4 of 4