

Spread-Spectrum Radio Modem for FieldPoint

SRM6000

- Wireless FP-1000-to-PC link or FP-20xx-to-PC link
- Cables directly to FP-1000 network module
- Operates in 902-928 MHz range; no FCC or DOC license required
- Certified for use in U.S., Canada, and Latin America
- Transmits up to 20 miles with line-of-sight antennas
- Superior noise immunity using frequency-hopping spread-spectrum technology
- Configured for quick setup
- -40 to 70 °C operating range

Other wireless options for use in Europe and Asia are available. Visit ni.com/info and enter **wireless**.



Overview and Applications

When wiring is costly or problematic, the SRM6000 radio modem converts a FieldPoint system into a wireless I/O and data acquisition system. The SRM6000 is designed specifically for reliable wireless communications in industrial environments with excellent noise immunity and range. Because the radio modem uses 902-928 MHz spread spectrum RF, you can operate the SRM-6000 without an FCC or DOC site license. The SRM6000 radio modem greatly simplifies the implementation of wireless systems because it comes configured as a FieldPoint accessory.

Features

The SRM6000 radio modem converts a serial RS-232 FieldPoint system into a wireless I/O system by transparently converting the FieldPoint RS-232 commands and data into wireless, spread spectrum communications.

You can configure your wireless FieldPoint system in point-to-point and point-to-multipoint configurations. A wireless FieldPoint system includes one master radio modem connected to a PC serial COM port. At each I/O location, a slave radio modem connects to an FP-1000 network interface module. You can have several slave modems/FP-1000 FieldPoint I/O locations. You can also use repeater radio modems to increase the communications distance or to achieve line of sight by routing the communications signal around obstructions.

Although you order an SRM6000 configured for operation as a master, slave, or repeater, you can easily reconfigure the operation of the radio modem using a PC with a terminal emulator program, such as HyperTerminal. You can also reconfigure other communications parameters, such as baud rate, hopping algorithm, and transmit power.

The SRM6000 modems are software-transparent – they work with standard FieldPoint software and drivers.

License-Free RF Communications

The SRM6000 uses frequency-hopping spread-spectrum (FHSS) for maximum range, reliability, and interference immunity. The radio modem operates in the 902-928 MHz band, which the FCC and DOC have designated for license-free operation. The SRM6000 ensures error-free transmission using frequency hopping and error correction. It changes frequencies 100 times across 112 channels. The RF data rate provides a fast 144 kb/s. Even in severe interference, the modem has excellent data throughput.

The SRM6000 is capable of communicating up to 20 miles (line of sight) or even further using repeater modems. Inside most buildings, you can make connections of several hundred feet without line of sight, even through walls.

Antennas and Accessories

While the SRM6000 includes a built-in whip antenna capable of close communications, you may require an external antenna to achieve long-range operation. Omnidirectional antennas are available with extension cables up to 100 ft in length. For outdoor installations, you should install a lightning arrestor on every antenna.

Each radio modem kit includes a 24 VDC wall-mount power supply. Each master and slave radio configuration includes the appropriate serial cable to connect the modem to a PC or FieldPoint FP-1000 module.

INFO CODES

For more information, or to order products online visit ni.com/info and enter:

srm6000

BUY ONLINE!

Spread-Spectrum Radio Modem for FieldPoint

Ordering Guide

Step 1. Select the master SRM6000 to connect to a host PC.

Step 2. For each remote FieldPoint I/O bank, select one slave SRM6000, which includes a cable for direct connection to the FP-1000 network interface module. You can also daisy chain additional FieldPoint banks from the FP-1000 using RS-485 and the FP-1001.

Step 3. As needed, select repeater modems to increase the transmission distance or to route communications around obstructions to obtain a line-of-sight connection.

Step 4. For each radio modem, determine if you require an external antenna is required to achieve line of sight. If needed, select an optional omnidirectional antenna with maximum cable length of 100 ft.

Worldwide Wireless Solutions

Other wireless options are available for Fieldpoint. The SRM6000 is currently certified to work in North America only. Other solutions are available for Europe, Asia, and other parts of the world, as well as narrow-band solutions. To see the latest list of radio wireless solutions for FieldPoint, visit ni.com/info and enter **wireless**

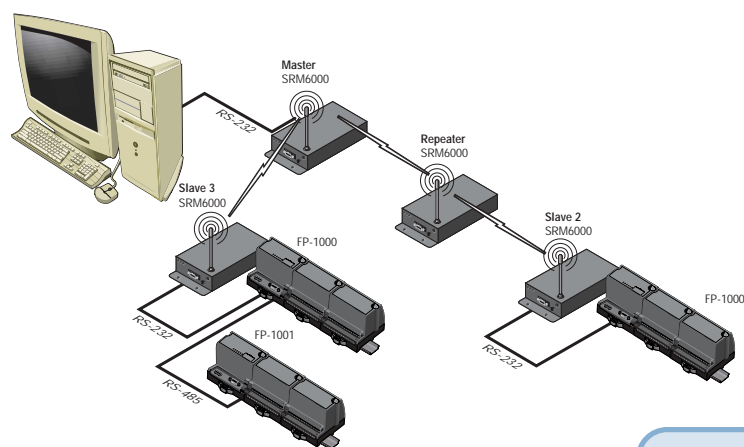


Figure 1. Wireless FieldPoint Topology

Ordering Information

SRM6000

Master	777971-01
Slave	777971-02
Repeater	777971-03

Includes radio modem with built-in antenna, power supply, and either a PC serial cable (master and repeater) or a FieldPoint serial null-modem cable (slave).

Optional Antennas

Omnidirectional antenna with coaxial cable

3.05 m (10 ft.)	777985-10
7.62 m (25 ft.)	777985-25
15.24 m (50 ft.)	777985-50
30.5 m (100 ft.)	777985-100

Specifications

RS-232 data interface	1.2 to 115.2 kb/s
Frequency range	902 to 928 MHz (no FCC site license required)
RF output power	0.1 to 1 W, selectable
Spreading function	Frequency hopping 112 channels
Operation	Point-to-point, multipoint (unlimited number of slaves)
Maximum range	Up to 32 km (20 miles) line of sight, depending on environment, geographical conditions, and antenna

Power Requirement

Voltage	12 to 38 VDC (120 VAC power supply included)
Power consumption	8 W peak (650 mA at 12 VDC)

Physical

LED Indicators	Power, carrier, data in, data out
Dimensions	12.7 by 19.8 by 3.6 cm (5.0 by 7.75 by 1.38 in.)
Weight	0.8 kg (1.8 lb)
Enclosure	All-metal, 18-gauge steel, polyurethane paint

Connectors

RS-232	9-pin female D-Sub
Antenna	Standard-thread SMA
Power	2 screw terminals, pluggable

Environment

Operating temperature	-40 to 70 °C
Relative humidity	10 to 90% noncondensing