

# SIMREX Corporation

## DataMover™ ESS Spread Spectrum

902-928 MHz  
Frequency Hopping  
Spread Spectrum  
Transceiver

# UNLICENSED wireless DATA



### Features

- Simultaneously Handles Multiple Protocols/Applications/Users - over one radio or over one network
- Remotes have both Ethernet & Serial interfaces - allowing migration of existing serial devices to IP networks
- Industrial Grade Performance - UL Class 1 Div 2 \* & Extended temperature range for extreme environments
- Industrial Grade IP/Ethernet
- Long Range - Up to 60 miles <sup>2</sup>
- High Speed - Up to 512 Kbps <sup>2</sup>
- Secure - Multiple security levels; preventing eavesdropping and unauthorized access
- License free - Deploy immediately
- Plug and Play connectivity - configuration requires virtually no setup
- Advanced SNMP management system - for simplified troubleshooting and network operation

### Applications

- Gateway for serial/legacy networks and/or devices to an IP network
- Long range wireless Ethernet
- Video and/or Voice-over-IP
- Portable network access for vehicle based operation
- SCADA Applications

### SIMREX..Global wireless solutions. Unlicensed Wireless Data

For almost 2 decades, SIMREX Corporation's wireless products have been providing wireless networking solutions with applications in SCADA, telemetry, telecommunications, mobile data and online transaction markets. SIMREX Corporation provides licensed and unlicensed solutions, installed worldwide.

### Product Overview

The DataMover ESS is a long range, high speed, industrial wireless IP/Ethernet solution. It allows customers to bring business information over Ethernet or a serial gateway and onto networks. This includes mission-critical, revenue-generating data from fixed assets such as oil and gas wells, compressor stations, pipelines, fluid storage tanks and utility meters. It also enables portable network access for vehicle based operation.

### Product Overview

DataMover ESS is available in three configurations:

Access Point/Remote Dual Gateway, provides both serial and Ethernet connections, and is configurable by the customer as either an access point or a dual gateway.

Remote Serial Gateway, provides two serial ports with data encapsulation over UDP or TCP.

Remote Ethernet Bridge, provides Ethernet connectivity to multiple devices.

DataMover ESS uses advanced 900 MHz FHSS technology for license-free operation in the 902-928 MHz ISM band. It is capable of up to 30 mile range and up to 512 kbps over-the-air data rate communications. This product is available for use in Class 1, Division 2, Groups A, B, C & D hazardous locations. <sup>1</sup>

### Why Consider a DataMover ESS Solution?

- Longest range industrial product in its class. Providing lowest cost of ownership.
- Secure wireless operation with multiple layers of protection, including 900 MHz FHSS physical layer and data encryption.
- Flexible. The DataMover ESS supports multiple users connecting to multiple applications via multiple protocols on the same DataMover ESS or the same network - simultaneously!
- Future proof. We use open standards architecture design and upgradeable firmware to ensure customer investment protection over the long-term.
- DataMover Network Management System is based on a platform independent Java application. It is application independent with a centralized SNMP server and integrates with multiple vendor platforms.

# DATAMOVER™ ESS Spread Spectrum Radio Specifications

## General

Data Rate	512/256 Kbps user configurable air link 1,200-115,200 bps serial ports
Frequency Band	902-928 MHz ISM band
Spreading Mode	Frequency Hopping Spread Spectrum
Range (256 kbps)	Typical Fixed Range: 15 miles Maximum Fixed Range: 60 miles Typical Mobile Range (parked): 5 miles Typical Mobile Range (moving): 3 miles
Range (512 kbps) <sup>2</sup>	Typical Fixed Range: 8 miles Maximum Fixed Range: 15 miles

## Radio

System Gain	141 dB @ 256 Kbps; 134 dB @ 512 Kbps
Carrier Power	0.1 to 1 watt (20 to 30 dBm)
Output impedance	50 Ohms
Occupied Bandwidth	316.5 kHz
Modulation	CPFSK (Continuous Phase FSK)
Receiver Sensitivity	-92 dBm @ 512 Kbps with 10-6 BER -99 dBm @ 256 Kbps with 10-6 BER
Configurations	Access Point/Remote Dual Gateway Serial and Ethernet  Remote Serial Gateway Serial only  Remote Ethernet Bridge Ethernet only (with multidrop capability)

## Physical Interface

Ethernet	10BaseT, RJ-45
Serial	COM1: RS-232/V.24, DB-9F, DCE COM2: RS-232/V.24, DB-9M, DTE
Antenna	TNC connector (female)
LEDs	Lan, Com1, Com2, Power, Link

## Protocols

Wireless	CSMA/CA with Collision Avoidance
Ethernet	IEEE 802.3 Spanning Tree (Bridging) IP (DHCP, ICMP, UDP, TCP, ARP)
Serial	PPP Encapsulation over IP (tunneling) for serial async multidrop protocols including Modbus, DNP.3, DF1, BSAP
Management	HTTP (embedded web server), TELNET, local console SNMPv1/v2/v3, MIB II, Enterprise MIB SYSLOG SIMREX D-View NMS

## Environmental

Temperature	-30°C to +60°C (-22°F to +140°F)
Humidity	95% at 40°C (104°F) non-condensing
Input Power	10.5-30 Vdc (13.8 Vdc nominal)
Current Consumption	Rx: 2.8 W from 10.5 to 24 Vdc Rx: 3.5 W from 24.5 to 30 Vdc Tx: 8 W from 10.5 to 24 Vdc Tx: 9 W from 24.5 to 30 Vdc

## Mechanical

Case	Die Cast Aluminum
Dimensions	3.15 H x 17.2 W x 11.2 D cm (1.25 H x 6.75 W x 4.5 D in.)
Weight	908 g (2 lb.)
Mounting options	Flat surface mount brackets, DIN rail, 19" rack tray
Agency Approvals	FCC Part 15.247 UL/CSA Class 1 Div. 21 (UL 508, UL 1604) IC

<sup>1</sup> The transceiver is not acceptable as a stand-alone unit for use in the hazardous locations described above. It must either be mounted within another piece of equipment, which is certified for hazardous locations, or installed within guidelines, or conditions of approval, as set forth by the approving agencies.

<sup>2</sup> Typical fixed range calculation assumes a 6 dBd gain Omni on a 100 ft tower at the AP, a 10 dBd gain Yagi on a 25 ft mast at the remote with output power decreased to yield maximum allowable EIRP (36 dBm), a 10 dB fade margin, and a mix of agricultural and commercial terrain with line of sight. Typical mobile range calculation assumes a 6 dBd gain Omni on a 100 ft tower at the AP, a 5 dBd gain Omni with 1 watt output power at 6 ft height, a 10 dB fade margin, and 90% reliability with near line-of-sight in a mix of agricultural and commercial terrain. Maximum range achieved with a clear line-of-sight path, and fresnel zone clearance. Actual performance is dependent on many factors including antenna height, blocked paths and terrain.

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