SIMREX Corporation
DataMover™ ESS-IV Spread Spectrum

UNLICENSED wireless DATA

1.25 Mbps/512 Kbps
902-928 MHz
Frequency Hopping
Spread Spectrum
Transceiver

SIMREX..Global wireless solutions. Unlicensed Wireless Data

For more then 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.

Introducing the SIMREX DataMover ESS-IV

The SIMREX DataMover ESS-IV is a long-range, megabit-speed, industrial, wireless IP/Ethernet solution, with advanced cyber-security. It allows the connection of Ethernet and/or serial devices to an IP network. 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 can also be used in vehicles to provide mobile network access.

SIMREX DataMover ESS-IV is a hybrid radio that combines the higher speed capability of DTS (Digital Transmission System) with the robustness of Frequency Hopping. The radio operates in the license-free 902-928 MHz ISM band. It is capable of up to 30 mile range (line-ofsight)[2] and up to 1.25 Mbps over-the-air data rate communications.

Features

- High Speed – Up to 1.25 Mbps
- 5 Data Rates
- Sensitivity up to -109 dBm
- Long Range – Up to 30 miles
- Secure – Multiple layers of cybersecurity including:
  - AES-CCM 128/256 bit with auto key rotation
  - RADIUS authentication
- Ethernet and Serial interfaces allow migration of existing serial devices to IP networks
- Industrial Grade Performance – Extended temperature range for extreme environments
- License free - Deploy immediately
- Plug and Play Connectivity

Applications

- SCADA, Traffic/ITS
- Long range megabit-speed wireless Ethernet
- Gateway for serial/legacy networks and/or devices to IP network
- Video and/or Voice-over-IP
- Mobile network access for vehicle based operation

Why Consider a DataMover ESS-IV Solution?

- Longest range industrial product in its class. Providing lowest cost of ownership.
- Secure wireless operation with multiple layers of protection, including 900 MHz physical layer, RADIUS authentication and optional AES-CCM 128/256 data encryption with automatic key rotation.
- Reliable - Designed and built for low failure rates and reduced maintenance costs.
- Resilient - The protected Access Point (a chassis housing two radios in a warm standby configuration) increases the availability of mission-critical point-to-multipoint networks. Protected Remote stations can also be used to form protected point-to-point links.
- Flexible - The SIMREX DataMover ESS-IV supports multiple users connecting to multiple applications via multiple protocols on the same DataMover ESS-IV unit or the same network - simultaneously!
- Future proof - The SIMREX DataMover ESS-IV adheres to open standards, allowing it to interface with a wide range of external devices enabling both new and old technologies to communicate.
- Comprehensive Network Management - Compatible any standard off-the-shelf SNMP management system.

WIRELESS

Topology	Point-point, Point-multipoint
Operating Modes	Access Point, Remote, Repeater (Store & Forward)
Data Rates/Sensitivity	

	(1x10-4 BER)	(1x10-6 BER)
125 Kbps	-109 dBm	-105 dBm
250 Kbps	-107 dBm	-103 dBm
500 Kbps	-103 dBm	-99 dBm
1.0 Mbps	-99 dBm	-95 dBm
1.25 Mbps	-99 dBm	-95 dBm

Average latency	< 10 msec one-way
Output Impedance	50 Ohms
Frequency	902-928 ISM Band
Spreading method	FHSS, DTS
Occupied Bandwidth	152 to 1320 kHz
Modulation	2, 4-level GFSK
Dwell Time	10-300 msec
Number of Channels	Up to 80
Carrier Power	100 mW – 1W
Range	Up to 30 miles
Max SAF Hops	Up to 8 hops
Media Access	Interference avoidance Error Detect, Retransmit Auto Repeat Dynamic fragmentation

PROTOCOL

Networking	Layer 2 bridging Layer 3 routing, QoS
Ethernet	IEEE 802.3, Spanning Tree (Bridging), VLAN, IGMP
TCP	TCP/IP DHCP, ICMP, UDP,
DNS	ARP, NTP, FTP, SFTP, TFTP,
Serial	TCP server, TCP client
Multicast	UDP Unicast and
	Terminal Server for any asynchronous serial protocol
	Modbus TCP to RTU conversion

PHYSICAL INTERFACE

Ethernet	10/100BaseT, RJ-45 Integrated Switch
Serial	RS-232/RS-485, RJ-45
USB	2.0 Management Port
Antenna Port	TNC
LEDs	PWR, ETH, COM, NIC1, NIC2

ELECTRICAL

Input Voltage	10 - 60 Volt DC
Power Consumption	at 13.8 VDC

MECHANICAL

Case	Die Cast Aluminum
Dimensions	5.4 H x 10.9 W x 11.7 cm. (2.1 H x 4.3 W x 4.6 D in.)
Weight	.66 kg (1.45lbs)
Mounting Options	Integrated DIN Rail mount Standard Mounting bracket

ENVIRONMENTAL

Temperature	-40 to 70C (-40 to 158F)
Humidity	95% at 60C (140F) non-condensing

MANAGEMENT

- HTTP, HTTPS, SSH, NETCONF, local console
- SNMPv1/v2/v3, MIB-II, Enterprise MIB

AGENCY APPROVALS

- FCC Part 15
- IC

SECURITY

Tunneling	IPSec VPN
900 ISM Encryption	AES-CCM 128/256 bit with auto key rotation
Authentication	RADIUS, PSK, EAP/TLS, PKI
Firewall	Stateful Packet Inspection Access Control Lists, NAT
Certificates	X.509, SCEP, PEM, DER
Boot Security	Digitally signed firmware

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