MRV Communications, Inc.

REMOTE PRESENCE SOLUTIONS

Datasheet

In-Reach LX-4000 Series

Overview

The In-Reach LX-4000S series from MRV Communications, Inc., is the newest console/alarm server product in the In-Reach family. It provides the best security solution in the industry for Remote Presence Management. It is a complete solution based on a RISC processor design powered with our LINUX-based operating system (IROS). The LX-4000S series allows network administrators and system operators to proactively respond to all remote control, configuration and data acquisition needs as if they are physically there. By extending serial and console port access and facilitating alarm and power management capabilities over IP networks, the LX-4000S gives you visibility and control from virtually anywhere. Unlike any other communications server or console management solution, the LX series is optimized to provide a secure and converged remote site presence solution, offering serial connectivity, console, power and alarm management capabilities, all in a single box at a great price per port.

The Need for Remote Presence

Today's market conditions dictate that any business, no matter how big or small, must develop and implement electronically driven processes to compete. Real-time electronic business processes are a necessity across all markets, including the financial, healthcare, telecommunications, retail, transportation, manufacturing and utilities industries.

This new business environment has led to geographically distributed networks, applications and systems. Enterprises have deployed extensive networks to carry distributed applications that facilitate businesses such as e-commerce, enterprise resource planning (ERP), supply chain automation, telemetry systems and industrial automation.

To meet the explosive growth in digital communications, carriers and service providers have built massive high-speed wireline and wireless networks. These networks enable enterprises to connect with supply and distribution chains, customers and themselves. When applications and networks stop, business stops. No enterprise can afford the economic or business consequences of operational downtime. This, coupled with the demand that businesses do more with less, puts network operations and systems managers in a very precarious position.

Features

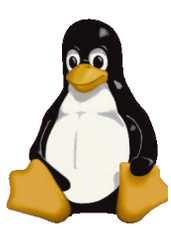
- **Serial to IP Conversion** Access and acquire data from virtually anywhere
- **Power Management** Remotely turn on, off and reboot equipment
- **Industry-leading Security** Grant flexible access without compromising security
- **Ease of Use** Non-disruptive to install, simple to manage and maintain
- **Scripting & Menus** Automated and guided processes save time and money
- **IROS, Linux-based OS** Reliable and easily extensible software foundation
- **Sun Break Compatible** Prevents inadvertent shutdowns of Sun Servers
- **Virtual Management Ports** Simultaneous multiple user access with individual rights
- **Out-of-Band Access** Secure, guaranteed access
- **Console, Alarm, Sensor & Power (CASP)** A single solution for all remote management needs
- **Instant Event Messaging** Instant event notification anywhere – quicker responses
- **Automated response to alarm conditions** Corrective responses without human intervention saves time and money
- **Software Upgradeable** Investment protection with cost-effective migration path

Applications

- Data center console and power management
- Out-of-band IT infrastructure management
- Telecom and utility remote site console and alarm management
- Point-of-sale and SCADA data acquisition
- Unmanned equipment configuration, provisioning and management

RSA SECURED

Sun microsystems Solaris™ Ready



How do the people responsible for these applications, networks and systems cost effectively manage them and their countless remote elements to ensure minimal operational downtime? The answer is Remote Presence. MRV's LX Series Remote Presence solutions make logistically difficult, skilled manpower intensive tasks easy and cost-effective to manage. Remote Presence solutions allow centrally located personnel and applications to monitor, manage and respond to globally distributed networks and systems.

Product Details

The LX Series family offers a variety of port densities and input power options. All models are powered by 32-Bit RISC embedded processors, enabling execution of an extensive software feature set with processing power to spare. The LX-4000S series is driven by the In-Reach Operating System (IROS), a Linux-based operating system tuned for optimal performance, security and reliability.

Access to the system is achieved via an industry-familiar Command Line Interface (CLI) or via a user-friendly browser based Graphical User Interface (GUI), making it simple and cost-effective to deploy. Easily editable ASCII configuration files and administrative logging capabilities further enhance the product's ease of use and management. Configuration file and IROS updates are accomplished through remote downloads via FTP or TFTP protocols.

The LX Series supports SNMPv3, is SNMP MIB II compatible and can be configured to send SNMP traps to any Fault Management System (FMS) in response to alarm events.

The LX-4000S's unique flexibility enables it to meet today's console, alarm, sensor and power management needs with the capacity and scalability to address even the most demanding future needs.

The LX-4000S models are designed for applications requiring secure console or serial port management, sensor management and power control. Because you can't grant remote access unless you know it is secured, the LX-4000S includes the most comprehensive security features. These security features include per port password protection, RADIUS, Secure Shell v2.0, SecurID, TACACS+, PPP PAP/CHAP, PPP dial-back, on-board data-base and others. With the LX-4000S you can feel as confident in your ability to monitor and manage remote equipment, network devices and servers as if you were physically there. The LX-4000S supports integrated management of the IR-5100 and IR-5150 series power management products, solutions enabling remote power control for hundreds of power outlets per unit.

Key Capabilities

Console Management

The LX Series console management solution enables centrally located or remote personnel to connect to the console or craft ports of any network element or server. This serial connection allows administrators to manage and configure the remote network devices and servers as well as perform software upgrades as if attached locally. Additionally, an editable ASCII based parameter file enables automated scripting of repetitive provisioning tasks, making cost-efficient unmanned installation possible. The LX series is fully Sun compatible to prevent the industry common "Sun Break" issue from triggering inadvertent shutdowns of Sun servers.

The LX series allows the management of any device, server or element with a serial port to be extended back to one centralized location or Operations Center, where qualified technicians can easily remotely monitor, manage and control them as if they were there. Software upgrades, provisioning and configuration changes of switches, routers and servers that once required a qualified technician on site can now be accomplished remotely.

Secure IP connectivity can be established in-band through the LX's 10/100Base-T Ethernet port, or across a separate, dedicated management network. Alternatively, secure IP connectivity can be established via the internal V.90 modem, either as standard practice or as a method of reliable back-door access in the case of a primary connection failure. This ensures the ability to respond to problems and guarantee maximum operational uptime.

Alarm Features (future upgrade)

To provide investment protection and the flexibility to meet your growing Remote Presence needs, the LX-4000S series is SW upgradeable to include MRV's complete set of alarm management capabilities. In addition to the features mentioned above, the LX-4000S's software configurable ports provide the added flexibility required to control a variety of core network and discrete alarm devices, all with a single box. The LX-4000S supports the master/slave concept available with its IR-7100 series of alarm and sensor products, enabling a solution that can manage over 1000 alarms per unit. The LX-4000S can manage discrete alarms of equipment, from door alarms to aerial lights of cellular towers. It can also be used to monitor environmental conditions using temperature and humidity sensors and real-time analog readings of pressure and fuel tank gauges. When definable thresholds are crossed, the LX-4000S can notify operations personnel and fault management systems (FMS) using SNMP traps, email and pagers. Further, it can react with automated or manual control output capabilities to turn on lights and supplementary air-conditioning and sound alarms. This intelligent self-healing feature allows triggers with

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The LX-4000S models are ideal for alarm management needs, providing remote connections to discrete alarms and control relays. This enables qualified individuals to monitor alarms and control devices from a central operations center. Because of its ability to extend alarm and sensor readings over an IP network, the LX-4000S easily integrates with existing FMS and Operations Support Systems (OSS) management software via SNMP.

Power Management

The LX-4000S also provides a modular power solution for managing remote power. Via the IROS software, ports can be configured as power master ports to manage and control the In-Reach IR-5100 and IR-5150 series power management units. The solution provides for remote current monitoring and AC power control of equipment at remote facilities. With the LX-4000S and the IR-5100/5150 series, administrators have the ability to remotely power cycle a locked up server, bring a redundant system online or turn on an auxiliary air conditioner from anywhere. AC current utilization can also be monitored to better understand power consumption and provide visibility for capacity planning needs.

Summary

Console management capabilities, combined with powerful alarm and power control capabilities, make the LX-4000S the ideal solution for converging serial data acquisition or console management and your alarm, sensor, and control output requirements over a single IP infrastructure. With the LX-4000S you can feel secure in your ability to gain remote visibility and control.

Service and Support

Delivering value added service and support for nearly 20 years, MRV Communications provides worldwide technical assistance through a highly trained team of dedicated corporate and field based engineers as well as through certified channel partners. Whether your needs are for 24x7 dedicated support, same day replacement parts shipment, on-site support or network design and installation related professional services, you'll gain the opportunity to build a responsive and accountable partnership with the MRV service and support experts .

Ordering Information

AC POWER	
LX-4008S-001AC	LX-4000S with (8) RS232 RJ45 ports, power control & AC power
LX-4008S-101AC	LX-4000S with (8) RS232 RJ45 ports, power control, AC power & internal V.90 modem
LX-4016S-001AC	LX-4000S with (16) RS232 RJ45 ports, power control & AC power
LX-4016S-101AC	LX-4000S with (16) RS232 RJ45 ports, power control, AC power & internal V.90 modem
LX-4032S-001AC	LX-4000S with (32) RS232 RJ45 ports, power control & AC power
LX-4032S-101AC	LX-4000S with (32) RS232 RJ45 ports, power control, AC power & internal V.90 modem
LX-4048S-001AC	LX-4000S with (48) RS232 RJ45 ports, power control & AC power
LX-4048S-101AC	LX-4000S with (48) RS232 RJ45 ports, power control, AC power & internal V.90 modem
DC POWER	
LX-4008S-001DC	LX-4000S with (8) RS232 RJ45 ports, power control & DC power
LX-4008S-101DC	LX-4000S with (8) RS232 RJ45 ports, power control, DC power & internal V.90 modem
LX-4016S-001DC	LX-4000S with (16) RS232 RJ45 ports, power control & DC power
LX-4016S-101DC	LX-4000S with (16) RS232 RJ45 ports, power control, DC power & internal V.90 modem
LX-4032S-001DC	LX-4000S with (32) RS232 RJ45 ports & power control, DC power
LX-4032S-101DC	LX-4000S with (32) RS232 RJ45 ports, power control, DC power & internal V.90 modem

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Technical Specifications

Model Name	LX-4008S	LX-4016S	LX-4032S	LX-4048S
No. of Console Ports (Max)	8	16	32	48
Internal Modem Option	N/A	Yes	Yes	Yes
No. of Pairs of Discrete Alarms *	16	32	64	96
	*Alarm functionality provided in a future SW release			
No. of Sensor Ports (Max)	8	16	32	48
Rack Mount Form Factor	19 or 23"	19 or 23"	19 or 23"	19" or 23"
	1U rack unit	1U rack unit	1U rack unit	1U rack unit
Port Speeds	300 bps to 230 kbps	300 bps to 230 kbps	300 bps to 230 kbps	300 bps to 230 bps
Power Requirements (AC)	1.0 Amp	1.2 Amps	1.0 Amp	1.0 Amp
120-240VAC, 50/60Hz				
Power Requirements (DC)	1.0 Amp	1.2 Amps	1.75 Amps	N/A
20 – 72V auto-ranging, dual feed				
Physical Dimensions				
Height	4.1 cm,1.62 in	4.1 cm,1.62 in	4.1 cm,1.62 in	4.1 cm,1.62 in
Width	48.2 cm,19 in	48.2 cm,19 in	48.2 cm,19 in	48.2 cm,19 in
Depth	21.5cm, 8.5 in	21.5cm, 8.5 in	21.5cm, 8.5 in	21.5cm, 8.5 in
Physical Weight	3.1 kg/6.9 lbs	3.3 kg/7.3 lbs	3.4 kg/7.5 lbs	3.54 kg/7.8 lbs
Shipping Weight	4.0 kg/8.8 lbs	4.1 kg/9.1 lbs	4.4 kg/9.6 lbs	4.5 kg/9.9 lbs
General				
Network Interface	One Ethernet/IEEE 802.3 RJ-45 (10/100Base-T) port			
Serial Interface	RS-232, Modular RJ-45 connectors			
Base Memory	8 MB Flash, 64MB DRAM			
Network Protocols	TCP/IP, PPP, Telnet, BOOTP/TFTP, FTP, SNTP			
Security Options	Per port password, multi-level password, RADIUS, access control lists, PAP, CHAP, SecurID, IP Filtering, Secure Shell V2.0			
Network Management	SNMP V1/V2/V3, MIB I, MIB II, proprietary MIB extensions, Telnet			
Environment				
Operating Temperature	32 to 104°F (0 to 40°C)			
Storage Temperature	-40 to 185°F (-40 to 85°C)			
Humidity	5% to 90% non-condensing			
Front Diagnostic LEDs	Fault, OK, port status			
Rear Diagnostic LEDs	Link, RCV, 100 Base-T			
Compliance				
All Models				
Emissions/Immunity	FCC Part 15, Class A			
Safety	Complies with UL 60950, third edition; CSA C22.2 No. 60-950-00; CB Scheme certified			
LX-4048-001 only				
Emissions/Immunity	BSMI (Taiwan); VCCI (Japan); C-Tick (Australia)			
Safety	S-Mark (Argentina); GOST-R (Russia); MIC (Korea); G S Mark (Germany); CCC (China); C-Tick (Australia)			
Telecommunications	NEBS design			
Modem Models	All modem models are FCC Part 68, IC CS 03 and CTR 21 compliant.			
Warranty	Three year			

MRV has more than 50 offices throughout the world. Addresses, phone numbers and fax numbers are listed at www.mrv.com. Please e-mail us at **sales@mrv.com** or call us for assistance.

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