MRV Communications, Inc.

REMOTE PRESENCE SOLUTIONS

Datasheet

In-Reach 9000 Series

Overview

The In-Reach® 9000 (IR-9000) series of standalone remote presence management solutions from MRV Communications, Inc. offers console aggregation, high-density alarm, sensor monitoring and—when combined with the In-Reach 5100 (IR-5100) series—power management of remote devices, all in a single platform. The IR-9000 series is designed for network, system and operations personnel who manage distributed networks and systems, who cannot afford the consequences of operational downtime and are being forced to reduce and control operations costs. By extending serial and console port access and facilitating alarm and power management capabilities over IP networks, the IR-9000 gives you visibility and control from virtually anywhere.

The IR-9000 enables administrators, systems and operations staff to gain remote access to a variety of network elements (NEs) such as UNIX servers, switches, CSU/DSUs, routers and multiplexers as well as other serial devices such as remote terminal units (RTUs). Additionally, the IR-9000 can manage discrete alarm devices, monitor environmental conditions including temperature/humidity and pressure, and control remote assets such as aerial lighting, pumps, valves and power.

The IR-9000 includes the industry's most comprehensive set of security features including per port password protection, RADIUS, Access Control Lists, SecureID, PPP, PAP/CHAP, PPP dial-back, on-board database, Secure Shell data encryption and others. As a result, centralized access to critical remote assets and data is made possible without compromising security.

Geographically dispersed devices and systems can be configured and managed from a central network operations or control center, reducing costly on-site visits, service disruptions and skilled personnel requirements. The In-Reach 9000 series is the ideal secure remote presence solution for carriers, service providers and cable operators, as well as energy and utility providers.

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

Features

- **Remote console access** Minimize downtime and lower operations costs
- **Serial to IP conversion** Access and acquire data from virtually anywhere
- **Industry-leading security** Grant flexible access without compromising security
- **Ease of use** Non-disruptive to install, simple to manage and maintain
- **Scripting and menus** Automated and guided processes save time and money
- **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 and 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
- **Robust security protocol support** Non-disruptive to implemented operations procedures
- **IROS OS** Reliable and easily extensible software foundation

Applications

- Data center console, power and alarm management
- Out-of-band IT and remote site infrastructure management
- Telecom remote site management
- Energy and utility provider secure remote site management
- Telemetry, SCADA and distribution data acquisition with alarm management
- Unmanned equipment configuration, provisioning and management

processes to compete. Real-time electronic business processes are a necessity across all markets, including the e-commerce, 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.

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. In-Reach remote presence solutions make logistically difficult, skilled manpower-intensive tasks easy and cost-effective to manage. In-Reach remote presence solutions allow centrally located personnel and applications to monitor, manage and respond to globally distributed networks and systems.

IR-9000 Product Details

The IR-9000 series is an advanced model that incorporates all software features available in the IR-8000, including secure console and power control capabilities, along with the complete set of In-Reach alarm and sensor management capabilities. The IR-9000's software configurable ports provide the total flexibility required to control a variety of core network, discrete alarm and environmental sensor devices all with a single box.

Additionally, the IR-9000 supports the In-Reach master/slave concept available with its IR-7100 series of alarm and sensor products, enabling a solution that can manage well over 1000 alarms per unit. The IR-9000'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.

Access to the system is achieved via an extensive Command Line Interface (CLI) or via a user-friendly browser-based Graphical User Interface (GUI), making it simple and cost-effective to deploy. Editable parameter files and SNMP management enhance the product's ease of use and simple management.

Key Capabilities

Console, Alarm, Sensor and Power Management

The In-Reach IR-9000 series products combine console aggregation, high-density alarm, sensor and power management functions all in one platform. Through secure serial device and console port access combined with alarm and power management over IP networks, these advanced servers provide complete visibility and control from virtually anywhere.

When utilized in a master-slave configuration with the IR-7000 series, the IR-9000 provides extremely scaleable alarm, control output and analog sensor capabilities The master/slave architecture can scale to support literally thousands of alarms and over 250 sensor and control relay sensor points. This same configuration can also support analog circuits to obtain real-time readings of devices such as fuel and pressure gauges.

By providing remote connections to discrete alarms and control relays, the IR-9000 enables a few qualified individuals to monitor alarm and control devices from a central operations center. The IR-9000 also easily integrates with existing fault management systems (FMS) and operations support systems (OSS) via TL1 or SNMP. This increases accuracy of operations and visibility of remote conditions and events. For example, whenever a measured parameter changes beyond pre-set thresholds, an alarm signal is transmitted to an existing FMS or key personnel via SNMP, email or pager. Technicians can receive instant event messages or periodically monitor the environmental readings and perform remedial operations in response to any alarm conditions.

The IR-9000 alarm and sensor points accept discrete input signals generated when contact closure devices such as aerial lights or door alarms change state. Ports can also be connected to temperature/humidity sensors to monitor the temperature and humidity readings of remote sites. Control points can be software configured to activate devices such as generators or fire alarms in response to any alarm signal received. Additionally, up to 255 triggers and corresponding actions can be defined for unmanned automatic fault management of mission-critical applications using the self-healing feature. With the IR-9000 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.

Technical Specifications

Model	**IR-9008**	**IR-9020**	**IR-9040**
No. of Console Ports	8	20	40
Power Master Control Ports	8	20	40
Pairs of Alarm Input Points	16	40	80
Pairs of Alarm Output Points	16	40	80
Alarm Output Current	25mA	25mA	25mA
Control Output Point Voltage	(+/-) 2.5 Volts (Min) or (+/-) 6 V (Max)	(+/-) 2.5 Volts (Min) or (+/-) 6 V (Max)	(+/-) 2.5 Volts (Min) or (+/-) 6 V (Max)
No. of Sensor Ports	8	20	40
Rackmount Form Factor	Desktop	1U (19/23")	1U (19/23")
Port Speeds	50 bps to 115.2 kbps	50 bps to 115.2 kbps	50 bps to 57.6 kbps
Power Requirements(DC)	-36 to -72 VDC 2A (max)	-36 to -72 VDC 3.3A (max)	-36 to -72 VDC 3.3A (max)
Power Requirements(AC)	100 - 250 VAC, 50-60 Hz 0.7 A at 120 V	100 - 240 VAC, 50-60 Hz 1.58 A at 110 V	100 - 240 VAC, 50-60 Hz 1.58 A at 110 V
Height	4.1 cm/1.62 in	4.48 cm/1.75 in	4.48 cm/1.75 in
Width	23.3 cm/9.9 in	48.26 cm/17.5 in	48.26 cm/17.5 in
Depth	19.5 cm/7.7 in	29.71 cm/11.7 in	29.71 cm/11.7 in
Weight	1.7 kg/3.8 lbs with external power supply	3.75 kg/7.55 lbs	4.2 kg/8.4 lbs
Common Specifications for all Units			
Network Interface	One Ethernet/IEEE 802.3 AUI (10Base-5) port and one RJ-45 (10Base-T) port		
Serial Interface	RS-423/232, Modular RJ-45 connectors		
Base Memory	4MB DRAM		
Expansion Memory	Field upgradeable to 8MB (6MB on IR-9008)		

Technical Specifications

Non-Volatile Storage	32KB
Memory Card Interface	JEIDA/PCMCIA
Network Protocols	TCP/IP, PPP, Telnet, BOOTP/TFTP
Security Options	Per port password, multi-level password, RADIUS, access control lists, PAP, CHAP, SecurID,
Network Management	SNMP MIB I, MIB II, proprietary MIB extensions, Telnet
Environment	
Operating Temperature	32 to 113°F (0 to 45°C)
Storage Temperature	-4 to 140°F (-20 to 60°C)
Humidity	10% to 90% non-condensing
Diagnostic LEDs	Run, LAN, console, port status, memory card status
Emissions/Immunity Compliance	FCC Part 15, Class B; EN55022; EN55024; EN50082-1
Safety Compliance	Complies with UL 1950, third edition; CSA C22.2 No. 950; EN 60950
EU Directives	Meets all applicable requirements of current EU directives
Telecommunications	NEBS Level 3 compliant (GR-1089-CORE, GR-63-CORE), FCC Part 68, IC CS 03, CTR 21 (applicable to specific 20 and 40 port models)
Modem Models	All modem models are FCC Part 68, IC CS 03 and CTR 21 compliant

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.

MRV Los Angeles
20415 Nordhoff St.
Chatsworth, CA 91311
800-338-5316
818-773-0900

MRV Boston
295 Foster St.
Littleton, MA 01460
800-338-5316
978-952-4700

MRV International
Business Park Moerfelden
Waldeckerstrasse 13
64546 Moerfelden-Walldorf
Germany
Tel. (49) 6105/2070
Fax (49) 6105/207-100