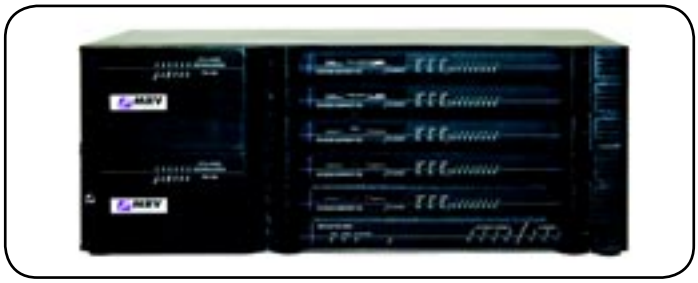
MRV Communications, Inc.

REMOTE PRESENCE SOLUTIONS

Datasheet

In-Reach 6000/15000 Series



The In-Reach 15000 and the In-Reach 6000 are high-performance, multi-processor and modular chassis-based out-of-band network element management (NEM) systems. These multifunctional platforms offer the same powerful and innovative remote console, alarm and sensor management features found in the In-Reach standalone solutions.

The reliability, security and performance of the In-Reach chassis-based solutions significantly reduce the cost of network operations by eliminating the need for trained technicians at every site and minimizing costly on-site visits. The In-Reach solution enhances operations support system (OSS) management by enabling more centralized monitoring and control of network elements (NEs). NEs such as server farms, switches, routers, CSU/DSUs, alarm devices, environmental sensors and telecommunications equipment can be managed efficiently from a single In-Reach chassis.

Ideally suited for communication network service providers and enterprise networks, In-Reach solutions offer a range of processor and I/O module configurations to provide an all-in-one solution for remote console, alarm/control and sensor management.

High Port Density

In-Reach chassis models deliver the highest port density NEM system in the industry. The IR-15000 is a 15-slot chassis that scales from 20 to 336 physical ports. The IR-6000 is a 6-slot chassis that scales from 20 to 100 physical ports.

The IR-15000 can provide a maximum of 336 remote console ports, 560 alarm/control points or 280 sensor ports and the IR-6000 can provide a maximum of 100 remote console ports, 200 alarm/control points or 100 sensor ports, all in a single chassis.

Scaleable Architecture

In-Reach systems can scale to thousands of ports by interconnecting multiple chassis and standalone systems either locally or remotely. In-Reach networking modules support autosensing 10/100BaseTX copper, 100 BaseFX multimode fiber Ethernet, or asynchronous dial-up connections.

Features

- Highest port densities in the industry
- 6/15 slots for IR-6000/IR-15000
- 1 slot reserved for power and Ethernet connection
- Integrated console, alarm and sensor management
- Scaleable, modular multi-processor design
- Hot-swappable modules and power supplies
- AC or -48 VDC power models
- Load balancing power supplies
- N+1 power redundancy
- 19/23" rackmount
- Sun Break compatible
- Per-port, multi-level password protection, PPP, PPP dialback, PAP, CHAP, SLIP, TN3270, TL1, RADIUS, ACLs
- SecurID, data logging, IP filtering, Secure Shell
- Flash card for easy software loading and upgrades
- SNMP-based management

Applications

- Integrated remote console, alarm and sensor management
- Unmatched multi-processor performance
- Decreased costly on-site visits
- Reduced network operations costs
- Lower cost of ownership
- Robust security features
- Enhanced quality of service
- Increased customer satisfaction and retention

The scaleable In-Reach software architecture offers maximum investment protection by using a common software image across all In-Reach models. This design simplifies the management of all remote console, alarm and sensor devices. Further, the In-Reach software is equipped with an intuitive command line interface (CLI) for installation, configuration, maintenance and troubleshooting. The In-Reach chassis operates efficiently in heterogeneous networks and can be managed by any industry-standard, SNMP-compliant NMS such as MegaVision, HP OpenView, Sun NetManager, etc.

OPERATION

Console Management

The In-Reach remote console management processor and I/O modules connect to the serial console or craft ports of the network elements to be managed. This serial connection allows network operations and OSS managers to remotely access, configure, manage, troubleshoot or upgrade their network elements as if attached locally. This centralized out-of-band management approach is required for maintaining the operational stability of in-band networks and geographically dispersed network elements.

In-Reach console management systems also support script-based automated provisioning for unmanned environments. Optional external modems can be connected to serial ports for reliable and secure out-of-band access to the console ports of remote network elements. In addition to the physical ports, In-Reach provides nine virtual management ports enabling multiple users to perform system operations simultaneously.

In-Reach systems do not generate serial break signals when powered off; therefore, Sun servers attached to In-Reach chassis are protected from unexpected and costly server outages.

Next Generation IP-Based Alarm and Sensor Management

In-Reach alarm management processors and I/O modules connect to dry-contact closures and provide discrete alarm management. Our next-generation IP-based alarm management enables network managers from a centralized network operations center (NOC) to monitor all types of alarm devices, such as door, pressure, flood, gas and battery. It also allows either manual or automatic handling of control outputs such as emergency lighting, sirens and power generators. In-Reach software enables each physical alarm management port to operate as an alarm master port or pairs of alarm inputs and control outputs.

Alarm inputs accept discrete input signals that are generated when contact closures change state. In-Reach control outputs send voltage signals to relays in devices such as backup generators or emergency lighting systems in response to state changes from alarm devices.

The serial ports of the In-Reach system can be configured to monitor the readings of temperature/humidity sensors. Coupled with its intelligent self-healing feature, environmental conditions of equipment facilities can be managed efficiently.

Automated Response to Alarm Conditions

The *automated response to alarm conditions* feature in the In-Reach software facilitates timely, intelligent and unmanned alarm and sensor management. Using this feature, alarm or sensor-trigger-conditions and corresponding response conditions can be defined.

Response actions can be defined to initiate an SMNP trap or control output signal, or automatically execute a pre-defined command script. These trigger actions can also be configured to initiate a response whenever measured parameter values of a sensor port change beyond preset thresholds or when an alarm input changes state.

The self-healing feature has the provision to define as many as 255 trigger conditions and 255 actions, ensuring reliable alarm and sensor management.

Security

To add to your peace of mind, In-Reach software offers a set of robust security features such as per-port and multi-level password protection, access control lists (ACLs), IP filtering, PPP PAP/CHAP, PPP dialback, SecurID and RADIUS. In addition, support for the industry-standard Secure Shell (V1.5) encryption serves as a secure alternative to Telnet and prevents unauthorized intrusion.

The In-Reach software also includes a powerful data-logging feature that provides the ability to track previously entered commands and data. With this feature, security breaches and last change events are accounted for and easily identified.

Redundant Power

In-Reach chassis N+1 power redundancy guarantees the delivery of reliable power to the system in the rare occurrence of a power supply failure. The IR-15000 can accommodate up to five load-balancing power supplies and the IR-6000 can accommodate a maximum of two power supplies for critical applications that require power redundancy. In-Reach chassis can also accommodate redundant power inputs from multiple power sources.

Terminal Server Applications

At no extra cost, full support for a large variety of traditional terminal server protocols is also provided. The IR-6000 and the IR-15000 can be easily configured to support any combination of LAT, Telnet, TN3270 and DEC Multisessions making them among the most versatile and cost-effective solutions in the industry today.

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

Specification	IR-6000	IR-15000
Total Slots	6	15
Maximum Available Slots	5	14
	1 slot reserved for power and Ethernet connections	
Dimensions		
Width	44.6 cm (17.6 in)	44.6 cm (17.6 in)
Height	17.6 cm (6.9 in.)	44.1 cm (17.44 in)
Depth	35.9 cm (14.1 in)	35.9 cm (14.1 in)
Weight	9.5 kg (21 lb) (includes chassis, fans and AC controller module)	18.1 kg (40 lb)
Power Supplies	Up to 2 AC (260 W), DC (260 W) for load sharing	Up to 5 AC (750 W), DC (750 W) for load sharing
Power Input Module	12 A thermal circuit breaker with integrated on/off switch; occupies one slot	
Operating Environment	0 to 45°C (32 to 113° F), 5 to 90% humidity, non-condensing	
Safety Compliance	Complies with UL 1950, third edition; CSA C22 No. 950; EN 60950	
Emissions/Immunity Compliance	FCC part 15, class A; EN 55022; EN 50082-1	
EU Directives	Meets all applicable requirements of current EU directives	
Telecommunications	FCC part 68, IC CS 03, CTR 21 (module-specific)	
Network Terminal Server Protocols	TCP/IP, PPP, Telnet, BOOTP/TFTP, SNP, LAT, TLI, TN3270 and Multisessions.	
AC Power Supplies (Managed)		
Output per Power Supply	130 W +5 V @ 12 A; +12 V @ 4.0 A; -12 V @ 3.0 A	
Input per Power Supply	110–240 VAC, 5 A (max)	
AC Overload Protection	5.0 A, 250 V slow-blow fuse	
DC Power Supplies (Managed)		
Output per Power Supply	150 W, +5 V @ 12 A; +12 V @ 4.0 A; -12 V @ 3.0 A	
Input per Power Supply	-36 to -72 VDC; 5.0 A (max) input peak	
DC Overload Protection	8.0 A, 100 VDC slow-blow fuse	
Weight	2.27 kg (5 lb)	

Technical Specifications

IRM-2020-001 Alarm Point I/O Module Specifications		
Physical Ports	20	
Pairs of Alarm Inputs (max)	40	
Pairs of Control Outputs (max)	40	
Control Output Current (max)	25 mA	
Control Output Voltage	(+/-) 2.5V (min)	(+/-) 6V (max)
Warranty	One year	

Ordering Information

Chassis	
IR-6000-001	In-Reach 6000 6-slot chassis including AC controller module and cooling fans. Requires AC power supply
IR-6000-001DC	In-Reach 6000 6-slot chassis including DC controller module and cooling fans. Requires DC power supply
IR-15000-001	In-Reach 15000 15-slot chassis including AC controller module and cooling fans. Requires AC power supply
IR-15000-001DC	In-Reach 15000 15-slot chassis including DC controller module and cooling fans. Requires DC power supply
IR-15000R-001	In-Reach 15000 15-slot chassis including 2 redundant AC controller modules. Requires AC power supply
IR-15000R-001DC	In-Reach 15000 15-slot chassis including 2 redundant DC controller modules. Requires DC power supply
Chassis Power	
IRM-PS-001	In-Reach Managed AC power supply
IRM-PS-001DC	In-Reach Managed DC power supply
IRM-2400-001	In-Reach Spare AC controller module
IRM-2400-001DC	In-Reach Spare 48-volt DC controller module
IRM-2400R-001	In-Reach Spare redundant AC controller module. For use with IR-15000 Chassis Models only. Customer must provide the Ethernet address for the redundant module when placing order.
IRM-2400R-001DC	In-Reach Spare redundant DC controller module. For use with IR-15000 Chassis Models only. Customer must provide the Ethernet address for the redundant module when placing order.
Alarm / Console Mgmt / Sensor Modules	
IRM-2500-700	In-Reach Alarm Management Processor Module, 6MB RAM, used with IRM-2020-001 or IRM-2024-001 I/O cards
IRM-2500-800	In-Reach Console Management Processor Module, 6MB RAM, used with IRM-2020-001 or IRM-2024-001 I/O cards
IRM-2500-900	In-Reach (Alarm/Console/Sensor/Alarm Master/Power Master) Management Processor Module Software Configurable, 6 MB RAM.
IRM-2020-001	Sun Compatible. IRM-2020 I/O Module, 20 Physical Ports, RJ45 Interface, used with IRM-2500-700, 800 or 900 processor cards
IRM-2024-001	Sun Compatible. IRM-2024 I/O module, 24 console ports OR 48 alarm input or control output points via 3 50-pin Telco connectors. (Used with IRM-2500-700 or 800 only (not IRM-2500-900).
Ethernet Management Processor Modules	
IRM-2500-200	In-Reach Hub or Repeater Management Processor Module
Ethernet I/O Modules	
IRM-2000-203	In-Reach Ethernet I/O Module (RJ45 interface) 20-port 10Base-T Enhanced I/O module. Integrated RJ45 connectors

Ordering Information

LAN Interface Modules	
IRM-2500-301	In-Reach LAN Interface Module, one 10/100Base-TX Ethernet auto-sense interface with RJ-45 type connector. For use in IR-6000, IR-15000 series chassis. May only be used in slot 1 (power input module). Connects to Segment A only.
IRM-2500-302	In-Reach LAN Interface Module, one 100Base-FX Ethernet multi-mode interface with MT-RJ type connector. For use in IR-6000, IR-15000 series chassis. May only be used in slot 1 (power input module). Connects only to Segment A.
Software and Documentation	
IR-CSK-18	In-Reach flash memory card, 4MB used by IRM 700, 800 and 900 modules and IR-MGR Series, IR-7000, 7500, 8000 and 9000 standalone models and chassis modules. Sun Break Fix included.
IR-MED-01	In-Reach Software CD Kit
MED-IM-10	IR-Flash memory card, 4MB, for IRM 2500-200.
MX-260-0449	In-Reach 4MB Flash card. No software (Blank Card)

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