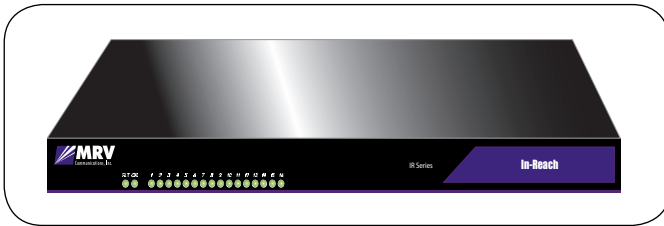


# In-Reach 9220M



## Overview

With its 20 configurable ports and 8 control relay output points, the In-Reach 9220M (IR-9220M) provides the total flexibility required to control a variety of core network, discrete alarm and environmental sensor devices all with a single box.

The 20 serial ports of the IR-9220M are software-configurable to perform console, discrete alarm (input and output), sensor, power master or alarm master management in any combination, depending on an administrator's needs.

The IR-9220M enables corporate network administrators and operations support systems (OSS) managers to gain out-of-band serial port access to a variety of network elements (NEs) such as UNIX servers, switches, CSU/DSUs, routers and multiplexers. In addition, with appropriate port configurations, the IR-9220M allows administrators to manage discrete alarm devices such as door alarms and aerial lights of cellular towers and monitor environmental conditions using temperature/humidity sensors.

Using the IR-9220M, corporate network administrators can configure, troubleshoot and manage geographically dispersed NEs from a central network operations center (NOC), thereby reducing costly on-site visits, service disruptions and skilled personnel requirements. OSS managers of ISPs and broadband service providers can centrally manage and provision services dynamically across multiple data centers.

## OPERATION

### Console Management

IR-9220M ports that are configured for console management connect to the console or craft ports of NEs. This serial connection allows administrators to manage and configure the NEs and perform software upgrades via the Command Line Interface (CLI), as if attached locally.



## Features

- Software-configurable ports
- 20 port standalone unit
- 8 control relays
- Sun Break compatible
- 1 Ethernet 10Base-T port for network connectivity
- V.90 internal modem
- 1U Rackmount, 19 & 23"
- Per-port, multi-level password protection
- PPP (PAP, CHAP), ACLs, RADIUS, IP filtering, SecurID, Secure Shell, Fallback
- DC power options
- Web-based management

## Applications

- Compact design
- Remote console, alarm and sensor management in a single box
- Control relay support
- Power master of IR-5100 models
- Alarm master of IR-7104 high density alarm concentrator
- Increased service revenue, customer retention
- HTML-manageable
- Robust security
- Simple, centralized OSS fault management
- Uninterrupted service provisioning

## Datasheet

The console management ports of the IR-9220M support script-based automated provisioning of NEs to enable scheduled, unmanned and efficient installations.

Through its 10Base-T Ethernet port or its internal V.90 modem, the IR-9220M can be connected to a separate network by which the administrator can gain out-of-band access to mission-critical elements in the in-band network.

In case of a blackout or a network failure, the internal secure modem ensures reliable back-door access to the NEs.

The IR-9220M is Sun compatible with a combination of hardware, software and firmware solutions that guarantee significant cost-savings through reduced personnel visits and undisturbed operation of the Sun devices.

### Alarm Management

The IR-9220M ports are configured for alarm management and are connected to the relay interfaces of discrete alarms. This connection enables corporate network administrators and OSS managers to monitor and control alarm devices from a central NOC. The In-Reach software enables each alarm management port to represent pairs of alarm input and control output points.

The alarm points accept discrete input signals generated when contact closure devices such as aerial lights or door alarms change state.

Control points can be software configured on the serial ports to activate devices such as generators or fire alarms in response to any alarm signal the alarm points receive. Typical output current levels do not exceed 25mA at +/- 2.5 volts (min.) or +/- 6 volts (max.).

When the IR-9220M is used with the intelligent self-healing feature, it can be deployed for unmanned automatic fault management of mission-critical applications.

### Control Output Relays

8 Form C relay control output points are available on the Control Output option module for enabling a wide range of devices, including backup power generator systems, emergency lighting systems, control valves, sirens and other devices. The control relay state can be software configurable to normally open or normally closed per control output point.

### Sensor Management

The IR-9220M ports that are configured for sensor management are typically connected to temperature and humidity sensors. These ports monitor the temperature and humidity

readings of factory environments or data centers. Whenever a measured parameter changes beyond pre-set thresholds, an alarm signal is transmitted to the IR-9220M. Network managers can periodically monitor the environmental readings and perform remedial operations in response to any alarm conditions. The intelligent self-healing feature enables unmanned automatic fault management of environmental conditions at critical network centers.

### Virtual Management Ports

The IR-9220's console management software offers 9 virtual ports that can be used to establish concurrent Telnet or Secure Shell sessions to the IR-9220M. This feature allows multiple management users to perform system administration or troubleshooting operations simultaneously.

### SNMP Compatible

The SNMP-compatible IR-9220M operates efficiently in heterogeneous network environments and can be managed by any industry-standard, SNMP-compliant network management system (NMS).

Further, the IR-9220M can be configured to send SNMP traps to the NMS in response to alarm events and thereby alert the administrator to perform time-sensitive remedial operations.

### Scalable Software

Feature-rich In-Reach software offers extensive scalability by using a master slave concept. The IR-9220M operates as an alarm and power master. This software feature enables the IR-9220M to control power slave models from the IR-5100 Series. The IR-9220M can master up to 8 IR-7104 slave units and efficiently manage thousands of alarm points using a single IP address.

To add to your peace of mind, the IR-9220M offers a variety of built-in security features, such as, per-port and multi-level password protection, access control lists (ACLs), IP filtering, SecurID, RADIUS, Fallback, dialback and PPP (PAP, CHAP). In addition, support for the industry-standard Secure Shell (version 1.5), serves as a highly secure alternative to non-secure Telnet access and prevents unauthorized intrusion during out-of-band access. This package of robust security features comes standard with the In-Reach software and is unmatched in the industry.

## Datasheet

### Power Control

The IR-9220M ports that are configured for power management and connected to one of the IR-5100 power control units can command 15, 20 or 30 amp AC loads giving you the ability to remotely power cycle network or facility devices saving expensive site visits and excessive down time. As applicable, if you connect an IR-9220M remote console port to these devices, you now have complete power and console control, all from remote locations and utilizing the maximum security features built into the IR-9220M.

### 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 device management. Using this feature, network/OSS managers can define specific alarm trigger conditions and associate them with corresponding remedial actions. Consequently, any defined trigger condition that occurs at an alarm point automatically activates the corresponding action. With provision to define as many as 255 trigger conditions and 255 actions, the self-healing feature enhances the reliability and availability of mission-critical networks and ensures predictable fault management.

### Out-of-Band Management

Wherever you are, you can be in reach of your network using the extensive out-of-band management features of the IR-9220M. The IR-9220M allows you to perform installation, configuration, management and troubleshooting of your network elements (NEs). The IR-9220M, when connected to your out-of-band management network, can be accessed through a variety of standard interfaces, including 10Base-T Ethernet (RJ-45), PPP-compatible integrated (or external) V.90 modem. These interfaces allow network administrators to gain out-of-band access to their NEs quickly and reliably via TCP/IP Telnet, Secure Shell and PPP dialup.

### 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

Features	Qty./Measure
No. of Console Ports	(Max) 20
No. of Pairs of Discrete Alarm Collection Scan Points (Input)/Max	40
No. of Pairs of Discrete Control Distribution Points (Output)/Max	40
Control Output RJ-45	25mA
No. of Control Relays	8
Control Point Output Voltage	(+/-) 2.5V (Min) or (+/-) 6V (Max)
Control Relay	Max. Switching 30VDC @1.0A Resistive Load, Form C Relay Outputs, Screw-type Terminals
No. of Sensor Ports (Max)	20
No. of Power Master Ports (Max)	20
Rackmount Form Factor	19" or 23" 1U rack unit
Port Speeds	50bps to 115.2 kbps
Power Requirements	-18 to -72VDC 2A (max)
<b>Physical Dimensions</b>	
Height	4.48 cm, 1.75 in
Width	44.87 cm, 17.519 in
Depth	30.0 cm, 11.7 in
Physical Weight	3.63 kg/ 8.0lbs

## Datasheet

### Technical Specifications

Network Interface	One Ethernet/IEEE 802.3 RJ-45 (10Base-T) port
Serial Interface	RS-423/232, Modular RJ-45 connectors
Base Memory	4 MB DRAM
Expansion Memory	Can be upgraded in the field by qualified personnel in 2MB increments for a total of 8MB
Non-Volatile Storage	1 MB
Memory Card Interface	JEIDA/PCMCIA
Network Protocols	TCP/IP, PPP, Telnet, BOOTP/TFTP
Security Options	Per port password, multi-level password, RADIUS, ACLs, PPP (PAP, CHAP) SecurID, IP Filtering, Secure Shell & Fallback
Network Management	SNMP MIB I, MIB II, proprietary MIB extensions, Telnet
<b>Environment</b>	
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.
<b>Warranty</b>	One year

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