MRV MR2228-2C-POE L2/4 POE Switch

L2/4 Power Over Ethernet Switch 24 - ports 10/100BASE-T (RJ-45) , two 10/100/1000 ports and two Combo Tri mode ports -100FX SFP/1000FX SFP or built-in RJ45 10/100/1000T receptacle for uplink

MR2228-2C-POE Product Overview

The MR2228-2C-POE is part of the successful OptiSwitch MR family, the MR2228-2C-POE Power Over Ethernet Switch is a resilient, secure switch with IEEE 802.af Power Over Ethernet (POE) capabilities to power devices such as IP phones, wireless access points, network cameras, security and lighting devices, and access control devices .The MR2228-2C-POE is a high-end switch providing intelligent service features such as VLANs, GVRP and IGMP Snooping. It also delivers QOS and advanced security features like Rate Limiting and Security Filtering to the network edge, while maintaining the simplicity of traditional LAN switching. The MR2228-2C-POE delivers wire-speed performance on all ports with a switching fabric capability of 12.8 Gbps connecting remote stations and users to the local LAN. The MR2228-2C-POE Switch is managed Layer 2/4 10/100 Switch designed for Enterprises and workgroups.

MR2228-2C-POE supports comprehensive layer 2 features such as Private VLAN, IEEE 802.3ad (LACP) trunking and Link aggregation; port-based 802.1x, Access Control Lists, HTTPS/SSL and SSH security features and L4 QoS features include 802.1p and DiffServ, rate-limiting, WRR, strict scheduling, 4-level priority in switching to ensure the steadiness of data communication. Furthermore, its unique SMTP function will send alerts to the administrator's email box. The MR2228-2C-POE provides multiple security algorithms such as Port Security, SSL, Web management Encryption, RADIUS, TACACS+ and 802.1x.

MR2228-2C-POE switch Feature Highlights:

- IEEE 802.3af Power Over Ethernet compliant, provides power over unused Category 5 cable pairs.
- Automatically detects POE devices and provides power to detected devices.
- Leading power management features including per port short circuit protection.
- Enables remote RESET of hard to reach Wireless access points, for easy troubleshooting.
- Cost-effective solution for high-performance LAN environments
- Wire-speed performance, auto-sensing, and auto MDI/MDIX on all ports.
- Combination Gigabit Ethernet ports deliver integrated RJ-45 (Copper) or SFP (fiber).
- Complete, Layer 2 Standard features including:
  - IEEE 802.1q and 802.1p (Class of Service) with 4 hardware queues per port to enable prioritization of mission-critical applications.
  - Port-base VLAN.
  - Q in Q
  - Spanning Tree IEEE 802.1D, 802.1W
  - 802.3ad for automatic link aggregation, GVRP and 802.1x for port security.
  - 802.1w Rapid Spanning Tree Protocol for superior network reliability.
  - Support for Generic VLAN Registration Protocol (GVRP).
  - Internet Group Management Protocol (IGMP) Snooping
- Robust Quality-of-Service features, including Class of Service (802.1p) mapping to Type of Service or DiffServ and support for priority queuing algorithm such as Weighted Round Robin and Strict.
- Low latency – as low as 10μs, ideal for advanced applications like VoIP and video conferencing over IP.
- Extensive management and monitoring features, including an industry-standard CLI, secure web-based GUI, integrated SNMP agent with mini-RMON and Secure Shell for secured and encrypted management access.

IEEE 802.3af Compliance

The MR2228-2C-POE switch is IEEE 802.3af compliant. It can provide Power Over Ethernet to any IEEE 802.3af compliant device such as IP phones, wireless access points, network cameras, security and lighting devices, and access control devices. The benefits of being interoperable with standard-based equipment means that customers are not forced to tie themselves to any one vendor, as the switch has the flexibility to power multiple vendors' devices.

High Performance:

The MR2228-2C-POE switch provides high performance architecture with 12.8 Gbps total switching fabric capacity. GVRP allows automatic configuration of VLAN.IGMP snooping enables identifying multicast traffic to make an efficient utilization of the switch bandwidth. Link aggregation provides greater bandwidth between devices by supporting IEEE 802.3ad (LACP) and IEEE 802.1p, combined with four queues to help to prioritize time-sensitive applications such as multimedia voice traffic.

Fault-Tolerance

Spanning tree is a link management protocol that provides path redundancy while preventing undesirable loops in the network. The MR2228-2C-POE switch performs the IEEE802.1D (Spanning Tree) protocol, the IEEE802.1s (Multiple Spanning Tree), and the IEEE802.1w (Rapid Spanning Tree) protocol for Fault-Tolerance.

Enhanced Security Features

The MR2228-2C-POE switch offer enhanced data security through a wide range of security features that protect network management and administrative traffic, secure the network from unauthorized users, provide granular levels of network access to users, and track where users are located.

Secure Shell (SSH), Secure Telnet (v1.5/2.0) port based security, Simple Network Management Protocol version 3 (SNMPv3) are supported, thereby protecting it from tampering or eavesdropping. Terminal Access Controller Access Control System (TACACS+) or Remote Access Dial-In User Service (RADIUS) authentication enables centralized access control of switches and restricts unauthorized users from altering the configurations. Alternatively, a local username and password database can be configured on the switch itself. Multi levels of authorization on the switch console and two levels on the web-based management interface provide the ability to give different levels of configuration capabilities to different administrators.

Port security and 802.1x provide the ability to keep unauthorized users from accessing the network. Port security limits access on an Ethernet port based on the MAC address of the device that is connected to it. It can also be used to limit the total number of devices plugged into a switch port, thereby reducing the risks of rogue wireless access points or hubs. 802.1x can be used to authenticate users based on username and password (or other credentials) via a centralized RADIUS server. This is particularly useful for a mobile workforce because the authentication will be executed regardless of where the user connects to the network.

ACLs restrict access to sensitive portions of the network by denying packets based on source and destination MAC addresses, IP addresses, or TCP/UDP ports. ACL lookups are done in hardware; therefore, forwarding performance is not compromised when implementing ACL-based security in the network. The MR2228-2C-POE switch offer VLAN and port-based ACLs.

Network Control Through Advanced QOS and Rate Limiting

The MR2228-2C-POE switch prioritizes each packet based on the required level of service, using four priority queues with strict or Weighted Round Robin Queuing. It uses IEEE 802.1p and 802.1Q tags to prioritize incoming traffic based on input from the end-station application. These functions can be used to provide independent priorities for delay-sensitive data and best-effort data.

The MR2228-2C-POE switch also supports several common methods of prioritizing layer 3/4 traffic to meet application requirements. Traffic can be prioritized based on the priority bits in the IP frame's Type of Service (ToS) octet. When these services are enabled, the priorities are mapped to a Class of Service value by the switch, and the traffic then sent to the corresponding output queue.

The Rate Limiting feature controls the maximum rate for traffic transmitted or received on an interface. Rate limiting is configured on interfaces at the edge of a network to limit traffic into or out of the network. Traffic that falls within the rate limit is transmitted, while packets that exceed the acceptable amount of traffic are dropped.

Network Availability

The MR2228-2C-POE provides efficient use of resources in bandwidth-hungry applications. It supports the Internet Group Management Protocol (IGMPv1/2) snooping, to identify multicast traffic and to ensure an efficient utilization of the bandwidth. The MR2228-2C-POE is ideal for server-to-server backups. Advanced features of the MR2228-2C-POE includes support for VLAN's, trunking and packet priority.

Full Range of Interface Options Using SFP

The MR2228-2C-POE switch offers 2 combination ports , each comprised of an SFP interface for fiber-optic hookup and an RJ-45 connector for category 5 copper cable connection. The SFP interface supports both single mode and multi mode Gigabit fiber-optic communication, allowing network managers the flexibility to upgrade their networks connecting the distribution back to the enterprise backbone using SX, LX, or EZX optics. Fiber-optic transmission enables distances of 300m, 5Km,or up to 120Km, respectively. This solution delivers a cost-effective and efficient aggregation of wiring closets within an enterprise network.

Network Management

The MR2228-2C-POE switch supports the SNMP protocol, and the Telnet interface delivers comprehensive in-band management. The system can be managed and monitored using the SNMP/RMON protocol through computers equipped with network management software.   LED indicators are located on the front panel to assist network administrators in troubleshooting. A Port Mirroring feature provides a non-intrusive mechanism for traffic inspection across the entire switch

MR2228-2C-POE Switch Properties

Feature Summary

Layer 2 Features

- Supports 24 RJ-45 10/100Base-T IEEE 802.3af compliant ports, 2 10/100/1000 Base-T ports and 2 Gigabit combo ports with RJ-45 connectors and associated SFP slots
- Supports half and full duplex mode 10/100M bps speed for all ports
- Supports auto MDI/MDIX on all 10/100Base-TX ports
- Supports up to 8K MAC address entries.
- Provides flow control mechanism: backpressure for half duplex; IEEE802.3x for full duplex operation.
- Provides store-and-forward forwarding scheme
- Provides HOL (Head of Line) blocking prevention
- Provides Link Aggregation
- 2/3/4 ports per trunk
- Up to 6 trunk groups
- Supports 802.3ad (LACP)
- Supports Cisco Ether-channel (static truck)

- Support Load Balance for both Unicast and Multicast traffics
- Supports VLAN
- IEEE 802.1Q tagging VLAN.
- Port-based VLAN
- Up to 255 VLANs
- GVRP protocol for VLAN management. (255 VLANs)
- Supports IGMP (v1/v2) Snooping and Query function
- Supports Broadcast Storm control.
- Supports Spanning Tree protocol
- Supports IEEE 802.1D Spanning Tree protocol
- Supports IEEE 802.1w Rapid Spanning Tree
- Supports IEEE 802.1s Multiple Spanning Tree
- Support Proprietary per port based Fast Forwarding mode
- Support GVRP

QoS Features

- Per port bandwidth management
- Supports L2/L3/L4Traffic Classification/Priority Management
- Supports CoS by IEEE 802.1p 4 priority queues control
- Traffic Classification/Priority Management based on TOS
- Traffic Classification/Priority Management based on TCP/UDP port number
- IEEE 802.1p priority queue scheme
- Supports WRR for priority queues
- Strict scheduling for priority queue

Management Features

- Provides 1 Male DB9 RS-232C console interface configured as DTE for operation, diagnostics, status, and configuration information.
- Provides Command Line Interface from the console port using a VT-100 terminal, up to 4 sessions
- Supports SNMP v1/v2c and SNMP v3 management functions.
- Supports RMON (group 1,2,3 and 9).
- Supports Web-based management.
- Supports TELNET console interface.
- Supports BOOTP and DHCP client for IP address assignment.
- Support DNS client and proxy
- Supports software upgrade/download via TFTP
- Supports two or more Configuration files
- Supports Configuration file upload/download by TFTP protocol
- Support Event/Error Log
- To Local Flash
- To Remote server via System Log
- SMTP
- Support SNTP
- MegaVision (Windows)
- Syslog (SMTP, RFC3164 Remote log to server)
- Port Mirroring

- Supports MIBs
- RFC 1213 standard MIB-II
- RFC 1215 Trap
- RFC 1493 Bridge MIB
- RFC 1643 Ether-like MIB
- RFC 1757 RMON MIB
- RFC 2618 RADIUS MIB
- RFC 2674 Bridge MIB Extensions (IEEE802.1Q MIB)
- RFC 2737 Entity MIB
- RFC 2819 RMON MIB (groups 1, 2, 3 and 9)
- IEEE 802.1w Rapid Reconfiguration Spanning Tree MIB
- IEEE 802.3ad Link Aggregation MIB
- Private MIB
- Supports Traps :
  - RFC1215 Trap
  - RFC 1493 Trap
  - RFC 2819 RMON Groups (1, 2, 3 and 9) Traps
  - RFC 3248 Traps

Security Features

- SNMP/Telnet management interface.
- MAC based port security (Proprietary)
- RADIUS client (Authentication)
- TACACS+ Authentication
- SSH (v1.5/2)
- Access Control List
- Supports IEEE 802.1x port-based security

Power Over Ethernet Features

- Compliant with IEEE802.3af
- Power feeding of Ethernet limited for fixed 10/100Base-T/TX ports only
- Provides power to the appliance over the Ethernet cable
- Centralized Power Distribution – Multiple access points can be connected to a single switch.
- Automatic Load Sensing – Power control circuitry automatically detects Power Over Ethernet on access point before providing power.
- Power start/stop (remote sense)
- Maximum output power per port up to 15.4 W
- Provides power on all 24 ports
- Support 10/100Base-TX port on the management agent for the In-band management function such as Telnet.
- Independent overload and short-circuit protection for each port
- LED indicators for power status per port
- Power on/off command for each port
- Support IEEE802.3af MIB for power over Ethernet function

Mechanical

- Dimensions (H x W x D): 45 x 440 x 330 mm
- LED Indicators: Port, Uplink, System, Diagnostic

Safety

- CSA/NRTL (UL60950, CSA 22.2.No 60950-00)
- TÜV/GS (EN60950)

Electromagnetic Capability

- CE Mark
- FCC Class A
- VCCI Class A
- CISPR Class A

Environmental Specifications

Temperature:

- IEC 68-2-14
- 0 to 45 degrees C (Standard Operating)
- -40 to 70 degrees C (Non-Operating)
- Humidity: 10% to 90% (Non-condensing)
- Vibration: IEC 68-2-36, IEC 68-2-6
- Shock: IEC 68-2-29
- Drop: IEC 68-2-32

* Future specification

Ordering Info	
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Gigabit Ethernet SFP	
SFP-G-SX	SFP 1000Base-SX, MM, 850nm, 0-550m.
SFP-G-MMX	SFP 1000Base-SX, Extended MM, 1310nm, 0-2km.
SFP-G-LX	SFP 1000Base-LX, SM, 1310nm, 10km.
SFP-GD-ELX	SFP 1000Base-ELX, SM, 1310nm, 25km
SFP-GD-XD	SFP 1000Base-XD, SM, 1550nm, 50km
SFP-GD-ZX	SFP 1000Base-ZX, SM, 1550nm, 80km
SFP-GD-EZX	SFP 1000Base-EZX, SM 1550nm, 120km

MRV has more than 50 offices throughout the world. Addresses, phone numbers and fax numbers are listed at www.mrv.com.
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