

OptiSwitch® MR2324E-4C L2/4 Gigabit Managed Switch

24 - ports 10/100/1000Base-T Layer 2 Gigabit Ethernet standalone switch – 20 ports 10/100/1000 Base-T and 4 combo Gigabit ports each comprised of a RJ-45 and a SFP.



MR2324E-4C Product Overview

The MR2324E-4C Gigabit-to-the-desktop Ethernet Switch delivers wire-speed intelligent services. With 24 10/100/1000 Base T ports, this switch is ideal for high-performance departmental workgroups that need to boost network performance over existing Category 5 copper cabling. The MR2324E-4C also offers High Speed fiber connectivity to the backbone through SFP fiber-optic transceivers. The MR2324E-4C Switch enhances any Network performance by intelligently scaling beyond 100 Mbps over existing Category 5 copper cabling. The MR2324E-4C offers a complete set of sophisticated multilayer services delivering security, quality of service (QoS), and availability with the simplicity of traditional LAN switching.

MR2324E-4C supports comprehensive layer 2/4 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, 8-level priority in switching to ensure the steadiness of data communication. Furthermore, its unique SMTP function will send alerts for unusual packets to the administrator's email box. The MR2324E-4C Jumbo packets can support up to 9K bytes under Gigabit speed that give administrators the flexibility to make performance-enhancing adjustments. The MR2324E-4C provides multiple security algorithms such as Port Security, SSL, Web management Encryption, RADIUS, TACACS+ and 802.1x.

Feature Highlights

- Wire-speed performance.
- 4 Gigabit Ethernet ports to deliver integrated RJ-45 (Copper) or SFP (fiber) for uplink installation, giving greater flexibility and cost savings for wiring closet Installations
- Complete Layer 2 standard features including:
 - IEEE 802.1q and 802.1p (Class of Service) with 8 hardware queues
Per port to enable prioritization of mission-critical applications
 - Port-base VLAN
 - Spanning Tree IEEE 802.1D, 802.1W
 - 802.3ad for automatic link aggregation 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
- CoS L4 Features:
Bandwidth Management, Class of Service (802.1p) mapping to Type Of Service, DiffServ, priority queuing algorithm such as Weighted Round Robin and Strict.

- Support for jumbo frames of up to 9,000 bytes ideal for high-end server connectivity and network attached file servers
- Supports Up to 16K MAC address entries
- Management L2/L3/L4 –access control list, Cisco look alike CLI interface, SNMP V1/V2c/V3, RMON, WEB Management, BOOTP client, DHCP client, Syslog
- Security- IEEE 802.1X, RADIUS, TACACS+, Port Security, SSH, ACL, SSL

Performance

The MR2324E-4C High-end switch performs L2/L4 switching eliminating network bottlenecks with wire-speed switching capabilities. The MR2324E-4C switch offers an elaborate set of software to manage and secure the entire communication network.

The intelligent high-quality design of the MR2324E-4C switch provides a comprehensive set of features, including: Quality of Service, bandwidth provisioning, access control features enable Voice over IP (VoIP) telephony, video conferencing, port trunking, broadcast storm protection, extensive VLAN support, IGMP snooping, Rapid Spanning Tree, and link aggregation.

Fault-Tolerance

Spanning tree is a link management protocol that provides path redundancy while preventing undesirable loops in the network. The MR2324E-4C switch performs the IEEE802.1D (Spanning Tree) protocol, the IEEE802.1s (Multiple Spanning Tree) protocol, the IEEE802.1w (Rapid Spanning Tree) protocol, and Spanning Tree for Fault-Tolerance. The MR2324E-4C also provides redundant power supply hook-ups to enable simultaneous connections to two independent power sources to ensure the system reliability.

Enhanced Security Features

The OptiSwitch-MR Series switches 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) secure the network, 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 provide packet filtering for IP frames based on address, protocol, TCP/UDP port number or TCP control code or any frames (based on MAC address or Ethernet type). ACLs can be used to improve performance by blocking unnecessary network traffic or to implement security controls by restricting access to specific network resources or protocols.

Network Control Through Advanced QOS and Rate Limiting

The MR2324E-4C switch prioritizes each packet based on the required level of service, using four priority queues with 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 MR2324E-4C switch also supports several common methods of prioritizing 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.

Interface Options using SFP

The MR2324E-4C switch offers 4 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.

Eliminates Network Bottlenecks

To secure bandwidth for bandwidth-hungry traffic applications, the MR2324E-4C switch offers the basic IEEE 802.3ad Link Aggregation, and Cisco's Ether Channel for static trunks. Users have a user-friendly option to choose which of the two better suits their needs.

MR2324E-4C Switch Properties

Physical Ports

- 20 Giga RJ-45 ports
- 4 Giga combo port (RJ-45/ SFP)
- 1 RS232 port
- 1 Redundant Power (DC) connector

L2 Features

- 10/100/1000BASE-TX ports support auto-sensing, auto-negotiation.
- Supports Jumbo frame up to 9KB
- Supports up to 32K MAC address entries
- Supports Flow Control supported:
- Provides IEEE802.3x for full duplex mode
- Back-Pressure flow control half duplex mode

- Provides store-and-forward forwarding scheme
- Provides HOL (Head of Line) blocking prevention
- Provides Broadcast storm protection
- Supports IGMP snooping v1/v2
- Supports IGMP querier

Advanced Features

- Link Aggregation
- Complies to IEEE 802.3ad (LACP)
- Cisco Ether-Channel compatible (Static Trunk)
- Up to 6 trunks
- 2 ~ 8 ports per trunk
- Support Load Balance for both Unicast and Multicast traffic
- Supports IEEE 802.1D Spanning Tree Protocol
- Supports IEEE 802.1s Multiple Spanning Tree
- Supports IEEE 802.1w Rapid Spanning Tree
- VLAN functions
- IEEE 802.3ac frame extension for VLAN tagging
- IEEE 802.1Q tagging VLAN
- Up to 255 VLAN entries
- Supports Port-based VLAN
- Supports Protocol-based VLAN
- GVRP protocol for dynamic VLAN management
- DNS support server (proxy)

Security

- User/Password protected system management terminal
- Static port security (MAC-based)
- L2/L3/L4 access control list
- RADIUS
- TACACS+
- SSH/Secure Telnet (v1.5/2.0) port based security
- HTTPS/SSL
- IEEE 802.1x

Quality of Service Features

- 802.1p based CoS
- 8 priority queues per port
- WRR for priority queue
- Strict Scheduling priority queue

- IP TOS/Precedence based CoS
- DSCP based CoS
- TCP/UDP port-based CoS
- Bandwidth Management: both Ingress and Egress
- DiffServ

Management

- Provides 1 Male DB9 RS-232C console interface configured as DTE
- Supports Cisco-like Command Line Interface (CLI) using VT-100 style terminal, 4 sessions
- Supports Telnet management
- Supports Embedded Web-based Management
- Supports software upgrade/download via XMODEM or TFTP
- Supports configuration download/upload via TFTP
- Support Port Mirroring
- Supports BOOTP/DHCP client for IP address Assignment
- Supports Remote Ping
- Supports dual copies of Firmware image
- Supports multiple copies of configuration
- Supports System/Crash/Error log
- Supports SNMP (RFC 2030)
- Supports SNMPv1/v2c/v3
- Supports RFC 2819 RMON group (1,2,3 & 9)
- Supports MIBs

Mechanical

- Dimension (D x W x H): 44.0 x 31 x 4.4cm (17.4 x 12.2 x 1.8in)

Performance

- Switch Fabric: 48Gbps
- MAC addresses: 16K

Temperature

- Operating: 0 to 40°C (32 to 104°F)
- Storage: -40 to 70°C (-40 to 158°F)

Humidity

- Operating: 5% to 95% (non-condensing)

Electrical Power Requirements

- Nominal Input Voltages: 100V/240V
- Input Frequency: 50/60Hz
- RPS/DC Input 12V

Safety

- CSA/NRTL (UL1950, CSA 22.2.950)
- TUV/GS (EN60950)
- CB IEC60950-1

IEEE Standards

- IEEE 802.3 Ethernet
- IEEE 802.3u Fast Ethernet
- IEEE 802.3z 802.3ab Gigabit Ethernet
- IEEE 802.1D (Bridging)
- IEEE 802.3x full-duplex flow control
- ISO/IEC 8802-3



Datasheet

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

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