SNS-MR3312-4C Switch

Gigabit Ethernet Layer 3 Switch; 12 ports 10/100/1000 Ethernet Routing Switch; 8 1000Base-X SFP ports and 4 Combo Gigabit ports - 1000FX SFP or built-in RJ45 10/100/1000BASE-T

SNS-MR3312-4C Product Overview

SNS-MR3312-4C switch is intelligent, multilayer and high performance Enterprise switch, designed for widespread applications such as education, government and large/medium enterprise networks. The SNS-MR3312-4C switch provides solid structure of enhanced security, quality of service (QoS), high availability and exceptional performance. The robust Layer 3 foundation, with enhanced security and rich features enabling high performance, high reliability and high availability for optical L3 Ethernet communications. Giga Ethernet L3 Gigabit Ethernet, interface flexibility with hardware forwarding, wire-speed performance and ASIC based ACL, ensure Enterprise and Internet Service Provider requirements.

SNS-MR3312-4C switch meet the requirements of Giga wire-speed forwarding and looking up table items. The embedded table items have strong scalability and can be deployed to simultaneously look up ACL and QoS items and realize multiple looking-up chains among user, service and specific protocol stacks. Through fast table-lookup technology, FPGA logic analysis and ASIC-based high-speed forwarding, SNS-MR3312-4C switch router is able to finish learning and converging of thousand OSPF routes in seconds.

With hardware based IP routing, SNS-MR3312-4C switch delivers flexibility routing protocol features along with practical propriety extensions allow easier deployment of network services.

Routing protocol such and RIP and OSPF provides dynamic routing by exchanging routing information with other L3 switches or routers. SNS-MR3312-4C switch is a safe investment when future protocols and features need to be deployed. SNS-MR3312-4C switch embody advanced networking solutions and provide high availability and multiple services over IP backbone networks. SNS-MR3312-4C provides widespread L2/3 features such as Private VLAN, IEEE 802.3ad (LACP) Link aggregation, L2/4 QoS features include 802.1p and DiffServ, port-based 802.1x, Access Control Lists, SSH security features, HTTPS/SSL, rate-limiting, WRR, strict scheduling, Unique SMTP function to send alerts to the administrator's email box. The SNS-MR3312-4C offers multiple security algorithms such as TACACS+, 802.1x, Port Security, Web management Encryption, SSL, RADIUS, Web management Encryption. The SNS-MR3312-4C offers variety of routing features include such as RIP, Static routing protocol and OSPF

Key Feature Highlights:

- Wire-speed and line-rate performance on all ports.
- Auto MDI/MDIX and Auto-sensing on all ports
- Four Combo ports -1000FX SFP or RJ45 10/100/1000T
- Enhanced Management features include WEB Management, Standard CLI, interface, SNMP, RMON, Telnet, Access control list, Standard CLI interface, SNMP, Syslog and SMTP (Logging to eMail)
- Full Layer 3 features including:

— OSPF routing
— RIP I and RIP II
— IP Multicast Routing: IGMPv1/v2, DVMRP, PIM-DM/SM
— IP Redundancy - VRRP supported
— Routing at wire speed
— ARP
— Supernetting (CIDR)
— Up to 4K IP address entries
— DHCP client
— Multi-netting

- Full Layer 2 features including:
- Eight hardware queues per port to enable comprehensive L2/4 QOS: Rate Limiting TCP/UDP, Priority Queue Scheduling, Priority Queue Scheduling,
- Port-base VLAN, Protocol-based VLAN (802.1v),
- Internet Group Management Protocol (IGMP) Snooping
- Spanning Tree IEEE 802.1d, Rapid Spanning Tree Protocol 802.1w, 802.1s Multiple Spanning Tree Protocol.
- Link aggregation 802.3ad, Traffic Load Balancing and 802.1x for port security.
- Enhanced Security - Port Security, IEEE 802.1x port-based, powerful, ACL, Security Shell and Secure Sockets Layer encrypts network management information via Telnet and web.
- Support for jumbo frames of up to 9,000 bytes ideal for high-end server connectivity and network attached file servers.

High Performance and architecture

The SNS-MR3312-4C switch provides wire-speed switching fabric capacity of 24 Gbps, on all gigabit ports, allowing users to take full advantage of existing high-performance, gigabit integrated Servers, by significantly improving the responsiveness of applications and file transfer times. The SNS-MR3312-4C is providing four SFP 1000FX Ethernet ports with flexible uplink, interface. The SNS-MR3312-4C offers variety of routing features such as RIP, Static routing protocol and OSPF. he robust Layer 3 foundation, with enhanced security and rich features enabling high performance, high reliability and high availability for optical L3 Ethernet communications. Giga Ethernet L3 Gigabit Ethernet, interface flexibility with hardware forwarding, wire-speed performance and ASIC based ACL, ensure Enterprise and Internet Service Provider requirements. Through fast table-lookup technology, FPGA logic analysis and ASIC-based high-speed forwarding, SNS-MR3312-4C switch router is able to finish learning and converging of thousand OSPF routes in seconds.

Enhanced Security Features

The SNS-MR3312-4C switch provides enhanced security by using multiple mechanisms to protect network. Port Security ensures access to switch ports based on MAC address limits the total number of devices from using a switch port and protects against attacks. Security Shell (SSH) and Secure Sockets Layer (SSL/HTTPS) encrypt network management information via Telnet and web, providing secure network management. Terminal Access Controller Access Control System (TACACS+) or Remote Access Dial-In User Service (RADIUS) Authentication enables centralized control of the switch and restricts unauthorized users from altering the configuration of the switch. IEEE 802.1x port-based ensures all users are authorized before being granted access to the network. User authentication is carried out using any standard-based RADIUS server.The SNS-MR3312-4C switch offers Private VLAN isolated edge ports to ensure user privacy.

Comprehensive QOS and Rate Limiting

Eight hardware queues per port to enable comprehensive L2/4 QOS: Rate Limiting TCP/UDP, Priority Queue Scheduling and Priority Queue Scheduling of up to eight traffic types. Traffic is prioritized according to 802.1p and DSCP, giving optimal performance to real-time applications such as voice and video. Asymmetric bidirectional rate-limiting, per port or per traffic class, preserves network bandwidth and allowing maximum control of network resources.

Network Availability

With IEEE 802.1s Multiple Spanning Tree Protocol, IEEE 802.1w Rapid Spanning Tree Protocol and IEEE 802.1d Spanning Tree Protocol provides a loop-free network and redundant links to the core network with rapid convergence, to ensure faster recovery from failed links, enhancing overall network stability and reliability. IEEE 802.3ad Link Aggregation Control Protocol (LACP) increases bandwidth by automatically aggregating several physical links together as a logical trunk and providing load balancing and fault tolerance for uplink connections. IGMP snooping prevents flooding of IP multicast traffic and limits bandwidth intensive video traffic to only the subscribers. Broadcast Storm Control prevents faulty end stations from degrading overall system performance.

Complete variety of optical links Using SFP/XFP

The SNS-MR3312-4C switch provides complete variety of optical links using 1000FX SFP for both single mode and multi mode SFP. The SNS-MR3312-4C is ideally for applications where security and reliability required. Using the Giga SFP the SNS-MR3312-4C offers flexibility and unlimited connectivity to the backbone. The switch uses SFP transceivers for connections, providing the flexibility of running any mix of 1000BASE-FX multimode fiber up to 1.2 miles or single-mode fiber up to 120Km, respectively for cost-effective enterprise network solutions.

Comprehensive Management

The SNS-MR3312-4C switch with Industry standard Command Line Interface (CLI) via Telnet or console port provides a common user interface and command set for users to manipulate the switch. Embedded user friendly web interface helps users quickly and simply configure switches.

The switch can be managed and monitored using SNMP and Four groups of RMON for traffic and analysis. When upgrading firmware or fine tuning configuration, the dual software images and multiple configuration files can be used for backup. TFTP can be used to backup or restore firmware and configuration files.

Feature Summary

12 10/100/1000BASE-T (RJ-45)
4 Combo 1000FX SFP or RJ45 10/100/1000BASE-T
1 console port

L2 Features

Auto- MDI/MDIX on all 10/100Base-TX ports
16K MAC address entries
Flow Control:

- IEEE 802.3x for full duplex mode
- Back-Pressure for half duplex mode

Spanning Tree Protocol:

- IEEE 802.1D Spanning Tree Protocol (STP)
- IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)

VLANs:

- Supports 4k IEEE 802.1Q VLANs
- Port-based VLANs
- IEEE 802.1v Protocol-based VLANs
- Private VLAN

Link Aggregation:

- Static Trunk
- IEEE 802.3ad Link Aggregation Control Protocol
- Trunk groups: 6, Trunk links: 2~8

IGMP Snooping:

- IGMP v1/v2 snooping

Supports jumbo frames up to 9KB

Basic L3 protocols

- 4K IP Address entries
- Multi-netting, Super-netting (CIDR)
- Arp
- DVMRP PIM-DM
- VRRP
- OSPF

• 256 static routes
• RIPv1, RIPv2
• Up to 256 IP interface
• DHCP/BootP relay
• DHCP server
• DNS proxy

QoS Features

Priority Queues: 8 per port
Traffic classification based on IEEE 8802.1p CoS, IP Precedence, DSCP, TCP/UDP port number, Access Control List, Marking
DiffServ
Port Rate Limiting

Security

Supports IEEE 802.1X port based
port security
RADIUS authentication
TACACS+
Access Control List
HTTPS/SSL
SSH/Secure Telnet

Management

Switch Management:
- CLI via console port or Telnet
- WEB management
- SNMP v1, v2c, v3

Firmware & Configuration:
- Dual firmware images
- Firmware upgrade via TFTP server
- Multiple configuration files
- Configuration file upload/download via TFTP server

Supports RMON (groups 1, 2, 3 and 9)
Supports SNTP
Event/Error Log/Syslog
Supports BOOTP, DHCP for IP address assignment
SNMP/HTTP/Telent/SNTP/RADIUS/TFTP/R emote Ping

IEEE Standards

IEEE 802.3
Ethernet, Fast Ethernet, Gigabit Ethernet
Full duplex flow control
IEEE 802.1D Spanning Tree Protocol
IEEE 802.1w Rapid Spanning Tree Protocol
IEEE 802.1s Multiple Spanning Tree Protocol
IEEE 802.1Q Virtual LAN

Mechanical
Dimensions (H x W x D): 4.3 x 44 x 24 cm (1RU)
LED Indicators: Port, Uplink, System, Diagnostic

Safety
CSA/NRTL (UL1950, CSA 22.2.9.50)
TUV/GS (EN60950)

Electromagnetic Compatibility
CE Mark
FCC Class A
VCCI Class A

Environmental Specifications
Temperature:
- IEC 68-2-14
- 0c to 50c (Standard Operating)
- -40c to 70c (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

Ordering Information

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* Future specification

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