



## SNS-MR2350-S4C Switch

Gigabit Ethernet Stackable Switch L2/4 26- ports; 20 10/100/1000BASE-T (RJ-45) and 4 Combo Gigabit - 1000FX SFP or built-in RJ45 10/100/1000BASE-T plus 2 optional module for 10G XFP uplink with basic L3 features.



### SNS-MR2350-S4C Product Overview

The SNS-MR2350-S4C is a high performance Gigabit Ethernet intelligent switch, part of the winning SNS series. The SNS-MR2350-S4C is providing enhanced features such as an advanced security, quality of service (QoS), VLANs and IGMP Snooping. The SNS-MR2350-S4C delivers wire-speed QoS, Security Filtering and Rate Limiting to the network edge ports. The hardware forwarding and ASIC based ACL policy ensure no effect and maintaining the simplicity of LAN switching of 144 Gbps. Using advanced stacking of up to 8 switches into a single manageable unit. The SNS-MR2350-S4C is ideal as an aggregate layer switch for education, government and large/medium enterprise networks. SNS-MR2350-S4C provides widespread L2/4 features such as Private VLAN, IEEE 802.3ad (LACP) Link aggregation, L4 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-MR2350-S4C offers multiple security algorithms such as TACACS+, 802.1x, Port Security, Web management Encryption, SSL, RADIUS, Web management Encryption. The SNS-MR2350-S4C offers variety of IPv6 features include IPv6 ACLs, IPv6 QoS, IPv6 Policy-maps, IPv6 Management and basic L3 protocols such as RIP and Static routing protocol.

### 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
- Two expansion optional module for 10G XFP and two 10G stacking ports.
- Enhanced Management features include WEB Management, Standard CLI, interface, SNMP, RMON, Telnet, Access control list, Standard CLI interface, SNMP, Syslog, SMTP (Logging to eMail) and IPv6 Management
- 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), Q-in-Q,
  - 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 encrypt network management information via Telnet and web.
- Basic L3 support - up to 2K IP entries, up to 64 static entries, up to 512 RIP route entries and 32 IP interfaces, IPv6 default static route provided by the CPU.
  - 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-MR2350-S4C switch provides wire-speed switching fabric capacity of 144 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-MR2350-S4C is providing two 10 Gigabit Ethernet ports with flexible uplink, interface. The SNS-MR2350-S4C offers variety of IPv6 features include IPv6 ACLs, IPv6 QoS, IPv6 Policy-maps, IPv6 Management and basic L3 protocols such as RIP and Static routing protocol.

### **Enhanced Security Features**

The SNS-MR2350-S4C switch provide enhanced security by using multiple mechanism 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-MR2350-S4C 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-MR2350-S4C switch provides complete variety of optical links using 1000FX SFP and 10G XFP for both single mode and multi mode SFP. The SNS-MR2350-S4C is ideally for applications where security and reliability required. Using the 10G XFP expansions the SNS-MR2350-S4C offers flexibility and unlimited connectivity to the backbone.

The switch uses SFP/XFP transceivers for connections, providing the flexibility of running any mix of 100BASE-FX /1000BASE-FX and 10G multimode fiber up to 1.2 miles or single-mode fiber up to 120Km, respectively for cost-effective enterprise network solutions.

## **10G expansion interface SNS-MR10G-XFP**



## **Comprehensive Management**

The SNS-MR2350-S4C 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.

## **Stacking Architecture**

The SNS-MR2350-S4C stacking allows connecting up to 8 units or up to 192 ports into a single entity with single IP address. By using the stacking feature you could manage the remote side from the management station via single IP address.

## **Feature Summary**

- 48 10/100/1000BASE-T (RJ-45)
- 4 Combo 1000FX SFP or RJ45 10/100/1000BASE-T
- 2 10GBASE expansion module slots for XFP transceivers
- Two 10G slots for stacking
- 1 RJ-45 console port



## **L2 Features**

Auto- MDI/MDIX on all 10/100Base-TX ports

8K 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 255 IEEE 802.1Q VLANs
- Port-based VLANs
- IEEE 802.1v Protocol-based VLANs
- Private VLAN
- Q-in-Q

Link Aggregation:

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

IGMP Snooping:

- IGMP v1/v2 snooping
- IGMP Queried
- IGMP Filtering

DHCP Dynamic provision

Supports jumbo frames up to 10KB

## **Basic L3 protocols**

- 2K IP Address entries
- 512 entries
- 64 static routes
- RIPv1, RIPv2, RIPng
- Up to 256 IP interface
- Provides Multi-netting

## **QoS Features**

Priority Queues: 8 per port

Traffic classification based on IEEE 8802.1p CoS, IP Precedence, DSCP,

Support WRR and Strict Scheduling Rate Limiting

64kbps for Gigabit port

1Mbps for 10Gigabit port



### **Security**

Supports IEEE 802.1X port based  
Static 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,

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 SNMP

Event/Error Log/Syslog

### **SNMP Standards**

- IEEE 802.1 PAE MIB
- IEEE 802.3 LAG MIB
- IP Forward MIB (RFC 2096)
- RMON MIB (RFC 2819)
- RMON 2 MIB (RFC 2021)
- RIP v2 MIB (RFC 1724)
- Bridge MIB (RFC 1493)
- P-Bridge MIB (RFC 2674P)
- Q-Bridge MIB (RFC 2674Q)
- V-Bridge MIB
- MAU MIB (RFC 2668)
- IF MIB (RFC 2863)
- DNS Resolver MIB (RFC 1612)
- Ether-Like MIB (RFC 2665)
- Entity MIB (RFC 2737)
- IP MIB (RFC 2011)
- TCP MIB (RFC 2012)
- UDP MIB (RFC 2013)



- VRRP MIB (RFC 2787)
- IPMROUTE STD MIB (RFC 2932)
- IGMP STD MIB (RFC 2933)
- PIM MIB (RFC 2934)
- PEA Equipment MIB
- SNMP v2 MIB (RFC 1907)
- SNMP FrameWork (RFC 3411)
- SNMP MPD MIB (RFC 3412)
- SNMP Target MIB (RFC 3413)
- SNMP Notify MIB (RFC 3413)
- SNMP User-Based SM MIB (RFC 3414)
- SNMP View-Based ACM MIB (RFC 3415)
- Private MIB

#### **IEEE Standards**

- IEEE 802.3 10BASE-T [1]
- IEEE 802.3u 100BASE-TX and 100BASE-FX [2]
- IEEE 802.3z[3] 1000BASE-SX
- IEEE 802.3x flow control support
- IEEE 802.1D (Bridging), 1993
- IEEE 802.1Q (Virtual LAN) 1998
- IEEE 802.3ad (LACP)
- IEEE 802.1s
- IEEE 802.1w
- IEEE 802 1x Port based security Management

#### **IPv6 Features**

- IPv6 address type
  - Uncast
  - Multicast
- ICMPv6
- ICMP Path MTU discovery
- SNMP over IPv6
- Datasheet
- HTTP over IPv6
- SSH over IPv6
- IPv6 Telnet
- IPv6 DNS resolver
- IPv6 Radius+ support
- IPv6 syslog support
- IPv6 SNTP support
- IPv6 SMTP support



- IPv6 TFTP support
- Remote IPv6 Ping
- IPv6 DSCP remapping CoS

### Mechanical

Dimensions (H x W x D): 4.3 x 44 x 33 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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