NS3502-8P-2S

8-port Gigabit PoE+ Managed Switch

NS3502-8P-2S
8-Port 10/100/1000Mbps PoE-af/at (30w) Managed Switch with 2 Gigabit SFP Uplink Ports

OVERVIEW

For fast and efficient connectivity from the network edge to a backbone switch or server, the IFS® 8-port Gigabit Ethernet Managed Switch features eight 10/100/1000Mbps Gigabit Ethernet ports with support for PoE+ (30w) and 2 Gigabit SFP ports. Both 100Base-X or 1000Base-X transmission is supported through two GBIC interfaces.

Robust Layer 2 Features
For efficient switch management, the IFS 8-port Gigabit Ethernet Managed Switch is easily programmable via a simple, yet powerful Web Interface, the switch can manage Port Speed Configuration, Port Link Aggregation, IEEE 802.1Q VLAN and Q-in-Q VLAN, Port Mirroring, Spanning Tree and ACL security. The switch includes advanced features such as Multicasting with IGMP snooping and query, QoS (Quality of Service), broadcast storm and bandwidth control to enhance bandwidth utilization.

This switch supports standard Simple Network Management Protocol (SNMP) and includes an advanced SNMP feature set to monitor the status of the switch and traffic per port. The switch can also be monitored via any standards-based SNMP management software.

Engineered for Real-time Performance
This switch is designed with a high performance non-blocking switch fabric and provides wire-speed throughput as high as 20Gbps. To ensure optimum quality of service, the IFS 8-port Gigabit Ethernet Managed Switch classifies and prioritizes Layer 2 802.1p or Layer 3 IP TOS/DSCP traffic into four hardware queues that support strict or Weighted Round Robin (WRR) queuing algorithms. This functionality provides maximum allocation of limited network resources and guarantees best performance for real-time applications.

Full Power, Isolated per Port PoE
This Gigabit PoE Managed Switch provides optimized deployment and safe power management to PoE edge devices such as IP Surveillance cameras, access control panels, wireless access points (WAP) and Voice over IP (VoIP). Full power PoE-af (15.4w) is provided to all 8-ports with no power sharing, and added port circuit protection isolates and prevents power interference between ports. In addition to standard IEEE 802.3af (15.4w), the IFS Gigabit PoE Managed Switch provides support for up to 5 ports of IEEE 802.3at (30w) PoE+.

Built-in Monitoring, Diagnostics and Trouble-shooting Tools
The IFS 8-port Gigabit PoE+ Managed Switch can be configured to monitor a connected PD (Powered Device) status in real-time via IP ping. If a PD (IP Camera, IP Access Reader, IP Intercom, VoIP phone, Wireless Access Point) no longer responds to a ping, the switch will cycle PoE power on the port thus rebooting the PD back to operational status. This along with PoE monitoring, management and scheduling for energy-savings, built-in cable diagnostics, and support for SNMP can greatly enhance the IT administrator's trouble-shooting and management abilities, saving time and labor while keeping network downtime to a minimum.

STANDARD FEATURES

Physical Ports

- 8-Port 10/100/1000Base-T Gigabit Ethernet RJ-45 with IEEE 802.3af / 802.3at PoE Injector
- 2 100/1000Base-X mini-GBIC/SFP slots, SFP type auto detection
- RS-232 DB9 console interface for basic management and setup

Power over Ethernet

- Complies with IEEE 802.3af Power over Ethernet End-Span PSE
- Complies with IEEE 802.3at high-power Power over Ethernet End-Span PSE
- Up to 8 ports for IEEE 802.3af / at devices powered
- Supports PoE Power up to 30.8 Watts for each PoE port
- Auto detect powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100m
- PoE Management
- Total PoE power budget control
- Per port PoE function enable / disable
- PoE Port Power feeding priority
- Per PoE port power limit
- PD classification detection
- PD Alive check/reboot

Layer 2 Features

- Prevents packet loss with back pressure (Half-Duplex) and IEEE 802.3x PAUSE frame flow control (Full-Duplex)
- High performance of Store-and-Forward architecture and run/ CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Storm Control support
- Multicast / Unknown-Unicast / Broadcast
- Supports VLAN
- IEEE 802.1Q Tagged VLAN
- Up to 256 VLANs groups, out of 4095 VLAN IDs
- Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
- Private VLAN Edge (PVE)
- Protocol-Based VLAN
- MAC-Based VLAN
- Voice VLAN
- Supports Spanning Tree Protocol
- STP, IEEE 802.1D Spanning Tree Protocol
- RSTP, IEEE 802.1w Rapid Spanning Tree Protocol
- MSTP, IEEE 802.1s Multiple Spanning Tree Protocol, spanning tree by VLAN
- BPDU Guard
- Supports Link Aggregation
- 802.3ad Link Aggregation Control Protocol (LACP)
- Cisco ether-channel (Static Trunk)
- Maximum 5 trunk groups, up to 10 ports per trunk group
- Up to 20Gbps bandwidth (Duplex Mode)
- Provides Port Mirror (many-to-1)
- Port Mirroring to monitor the incoming or outgoing traffic on a particular port

Quality of Service

- Ingress Shaper and Egress Rate Limit per port bandwidth control
- 8 priority queues on all switch ports
- Traffic classification
- IEEE 802.1p CoS
- IP TOS / DSCP / IP Precedence
- IP TCP/UDP port number
- Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Supports QoS and In/Out bandwidth control on each port
- Traffic-policing policies on the switch port
- DSCP remarking

Multicast

- Supports IGMP Snooping v1, v2 and v3
- Support MLD Snooping v1 and v2
- Querier mode support
- IGMP Snooping port filtering
- MLD Snooping port filtering
- MVR (Multicast VLAN Registration)

Security

- IEEE 802.1x Port-Based / MAC-Based network access authentication
- Built-in RADIUS client to co-operate with the RADIUS servers
- TACACS+ login users access authentication
- RADIUS / TACACS+ users access authentication
- IP-Based Access Control List (ACL)
- MAC-Based Access Control List
- Source MAC / IP address binding
- DHCP Snooping to filter untrusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP Source Guard prevents IP spoofing attacks
- Auto DoS rule to defend DoS attack
- IP address access management to prevent unauthorized intruder

Management

- Switch Management Interfaces
- Console / Telnet Command Line Interface
- Web switch management
- SNMP v1, v2c, and v3 switch management
- SSH / SSL secure access
- Four RMON groups (history, statistics, alarms, and events)
- IPv6 IP Address / NTP / DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- Firmware upload / download via HTTP / TFTP
- DHCP Relay
- DHCP Option 82
- User Privilege levels control
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP) Protocol
- Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues
- Reset button for system reboot or reset to factory default

Specifications

| Physical Ports	NS3502-8P-2S
Copper Ports (RJ45)	8 x 10/100/1000Base-T
SFP Uplink Ports	2 x 1000Base-SX/LX/BX SFP interfaces (also compatible with 100Base-FX SFP)
Port Configuration	Auto MDI/MDI-X
Port Speed	Auto-negotiate
Switch Performance	
Switch Architecture	Store-and-forward
Switch Fabric	20Gbps (non-blocking)
Switch Throughput	14.88Mpps @ 64Bytes
MAC Address Table	8K entries
Share Data Buffer	1392 Kilobytes
Maximum Frame Size	9K Bytes (Jumbo Frames)
Flow Control	Back pressure for Half-Duplex; IEEE 802.3x Pause Frame for Full-Duplex
Layer 2 Functions	
Management Interface	Console, telnet, Web browser, SSH/SSL secure access, SNMPv1 and v2c and v3c
Port Configuration	Port enable/disable. Auto-negotiation. 10/100/1000Mbps full-and-half duplex mode selection. Flow control enable/disable
Port Status	Display each port's speed duplex mode, link status and flow control status.
Port Mirroring	TX/RX/Both; 1 to 1 monitoring
Bandwidth Control	Ingress: 500Kb~80Mbps, Egress: 64Kb~80Mbps
VLAN	IEEE 802.1q tagged-based VLAN, up to 256 VLANs groups, out of 4096 VLAN IDs Port-based VLAN. Q-in-Q tunneling GVRP for VLAN management, Private VLAN Edge (PVE) protected port with two protected port groups
Link Aggregation	Static Port Trunk IEEE 802.3ad LACP (Link Aggregation Protocol) Supports 5 groups of up to 10-port trunk, IEEE 802.3ad LACP
Quality of Service (QoS)	8 priority queue Traffic classification based on: • Port priority • 802.1p priority • DSCP/TOS field in IP Packet
Multicasting/IGMP	IGMP Snooping (v1, v2, v3). IGMP Query. Up to 255 multicast groups
Access Control List	IP-based Layer 3/Layer 4 ACL. Up to 123 ACL rule entries
SNMP MIBs	RFC-1213 MIB-II RFC-2863 Interface MIB RFC-2665 EtherLike MIB RFC-1493 Bridge MIB RFC-2819 RMON MIB (Group 1, 2, 3,9) RFC-2737 Entity MIB POWER-ETHERNET-MIB
Power over Ethernet	
PoE Standard	IEEE 802.3af / IEEE 802.3at
PoE Power Supply Type	End-Span (PSE)
PoE Power Budget	150 Watts
Max. number of Class 2 PD	8
Max. number of Class 3 PD	8
Max. number of Class 4 PD	5
PoE Power Output Per Port	48VDC, 350mA max. 15.4 watts (IEEE 802.3af) 52VDC, 590mA max. 30 watts (IEEE 802.3at)
Power Pin Assignment	1/2(+), 3/6(-)
LED Indicators & Switch	
Power/FAN Alert	On/Green; On/Failure
10/100/1000Base-TX/PoE Ports (8)	10/100 LNK/ACT - Green; 1000 LNK/ACT - Green; PoE in Use - Amber
100/1000Base-X/SFP Ports	100 LNK/ACT - Green; 1000 LNK/ACT - Green
Reset Button	System reboot: push and hold < 5 sec. Factory default: push and hold > 5 sec.
Electrical and Mechanical	
AC Power Input Voltage	100~240VAC, 50/60Hz, Auto-sensing
Full Load Power Consumption	173 Watts
Dimensions (W x D x H)	13 x 6 x 1.7 in. - (330 x 153 x 44mm)
Weight	3.96 lbs., 1.8kg
Environmental	
Operating Temperature	0°C~+50°C
Storage Temperature	-20°C~+70ºC
Relative Humidity	0%~95% (non-condensing)
Standards Compliance	
Regulatory Standards	FCC Part 15 Class A; CE; UL
IEEE/RFC Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3z 1000Base-SX/LX IEEE 802.3ab 1000Base-T IEEE 802.3x Flow Control and Back pressure IEEE 802.3ad Port trunk with LACP IEEE 802.1d Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1p Class of service IEEE 802.1Q VLAN Tagging IEEE 802.1x Port Authentication Network Control IEEE 802.3af and 802.3at Power over Ethernet RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP version 1 RFC 2236 IGMP version 2

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Dimensional Diagrams

6.0 in.
(153 mm)

8-port Gigabit Ethernet
PoE+ Managed Switch

1.7 in.
(44 mm)

13.0 in.
(330.20 mm)
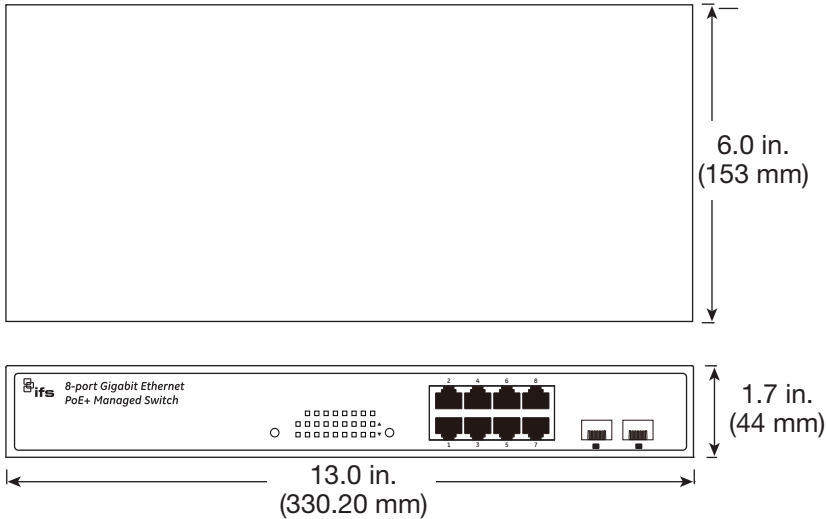
Ordering Information

NS3502-8P-2S	8-Port Gigabit PoE+ Managed Switch
Included Accessories	User's Manual CD, Quick Installation Guide, AC Power Cord, RS-232 Cable, Rubber Feet, Rack Mount Ears with Screws

Note: This switch requires a Small Form-factor Pluggable (SFP) for optical uplink use. IFS SFPs are available for multi-mode, single mode, and 1 or 2 fibers for various transmission distances over optical fiber. Please refer to the IFS SFP data sheet to select the appropriate SFP for your particular application needs. IFS S20 or S30 Series SFPs are recommended.

Accessories

SFP	S30 Series
SFP	S35 Series (wide-temp)
SFP	S20 Series
SFP	S25 Series (wide-temp)

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