

Gigabit Network Switches



NS3500-24T-4C
Layer 2 (Non-PoE)



NS3702-24P-4S
Layer 3 (PoE-at)

OVERVIEW

NS3500-24T-4C

This Enterprise-Class Network Switch provides 24 Gigabit Ethernet ports with 4 shared 100/1000Mbps SFP slots. This switch provides a high-performance switch architecture and non-blocking switch fabric capable of wire-speed throughput as high as 48Gbps.

User-Friendly Traffic Control

Designed to deliver optimal IP video transmission performance for applications with limited network resources, the NS3500-24T-4C offers user-friendly traffic management features, including quick and simple QoS configuration through a Web interface.

Flexible Management

The NS3500-24T-4C is equipped with console, Web and Simple Network Management Protocol (SNMP) management capabilities, and can be accessed via telnet. It also supports secure remote management via a SNMPv3 connection which encrypts the packet content at each session.

Quiet, Energy-Efficient Technology

Designed as a fanless switch, the NS3500-24T-4C provides a quiet, energy-efficient, high-speed network environment, delivering Gigabit performance at a cost similar to Fast Ethernet.

NS3702-24P-4S

This Enterprise-Class Network Switch is engineered to meet a variety of high-performance applications, including PoE distribution, optical network architectures and high-density performance through reliable technology and advanced Layer 3 networking features.

Simple Web Management

All switch management functions, including Port Speed Configuration, Port Link Aggregation, IEEE 802.1Q VLAN and Q-in-Q VLAN, Port Mirroring, Rapid Spanning Tree and ACL security can be programmed via a simple, yet powerful GUI interface.

The NS3702-24P-4S supports standard 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.

Full Power, Isolated per Port PoE

The NS3702-24P-4S 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 24 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 NS3702-24P-4S provides support for up to 14 ports of IEEE 802.3at (30w) PoE+.

Built-in Monitoring, Diagnostics and Trouble-Shooting Tools

The NS3702-24P-4S can be configured to monitor the status of a connected PD (Powered Device) 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 to operational status.

Other features for enhanced troubleshooting and management include PoE monitoring, management and scheduling to support energy-savings, built-in cable diagnostics, and support for SNMP – all designed to help reduce IT time and costs while keeping network downtime to a minimum.

Static Routing

The NS3702-24P-4S supports IPv4/IPv6 Layer 3 static routing, providing a cost-effective solution for inter-VLAN routing in a LAN production network. This allows flexible network design and greater control of network traffic – essential for larger IP Video systems.

STANDARD FEATURES

Physical Ports

24-port Gigabit Layer 3 Managed PoE+ Switch (NS3702-24P-4S)

- 24-ports 10/100/1000Base-T Gigabit Ethernet RJ-45 with IEEE 802.3at PoE+
- 4 SFP/mini-GBIC slots shared with ports 21 to 24 - compatible with 1000Base-SX/LX/BX and 100Base-FX SFP transceivers
- RS-232 DB9 console interface for basic switch management and setup

24-port Gigabit Managed Switch (NS3500-24T-4C)

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High-performance Switch Architecture

- Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z standards
- High performance Store and Forward architecture, broadcast storm control, runt/CRC filtering reduces erroneous packets to optimize the network bandwidth
- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x PAUSE frame flow control (full-duplex)
- Up to 56Gbps non-blocking switch fabric
- 10K bytes Jumbo frame support
- 8K MAC address table, automatic source address learning and ageing

Full Multicast Support for IP Video

- IGMP Snooping v1, v2 and v3 fast leave
- IGMP Query mode support
- Up to 256 multicast groups

VLAN Support

- IEEE 802.1Q Tag-Based VLAN
- Up to 255 VLANs groups, out of 4096 VLAN IDs

Layer 3 IP Routing (NS3702-24P-4S)

- Supports maximum 128 static routes and route summarization

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); Up to 8 MSTP instances

Quality of Service (QoS)

- 4 priority queues on all switch ports
- Traffic classification:
 - IEEE 802.1p Class of Service
 - IP TOS/DSCP code priority
 - Port Base priority
- Strict priority and weighted round robin (WRR) CoS policies
- Ingress/Egress Bandwidth Control on each port

Power over Ethernet

(NS3702-24P-4S)

- Complies with IEEE 802.3at Standard
- 380 Watt Total Power Budget
- Auto-detects PoE powered devices (PD)
- Provides full-power (15.4W) PoE up to 24 ports and up to 12 ports (30.8W) PoE+
- Circuit protection isolates and reduces power interference between ports
- End-Span (PSE) configuration supplies power up to 100m
- PoE Management Features
 - Total power budget control
 - Per port control (enable/disable, priority, power limit)
 - Per port scheduling
 - PD classification detection
 - Power Supply Over temperature Protection
 - PD alive-checking

Link Aggregation

- IEEE 802.3ad LACP (Link Aggregation Control Protocol)
- Up to 12 Trunk groups
- Up to 16 ports per trunk group with 1.6Gbps bandwidth (Full Duplex mode)
- Supports Cisco ether-Channel (Static Trunk)

Advanced Security

- IEEE 802.1x Port-based authentication
- RADIUS and TACACS+ users access authentication
- Layer 3 and Layer 4 Access Control List (ACL)
- MAC Filtering and Source IP/MAC address port-binding
- Port Mirroring to monitor incoming or outgoing traffic on a particular port



Switch Management

- Local console or remote switch management via Web browser, Telnet CLI, SNMP v1, v2c, v3
- SNMP Trap for alarm notification of events
- Four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events)
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- Configuration upload/download via TFTP or HTTP
- Firmware upgrade via TFTP or HTTP
- SNTP (Simple Network Time Protocol)
- LLDP Protocol
- Supports Ping function
- Reset button for system management



Warranty

- 3-year Limited Warranty

Specifications

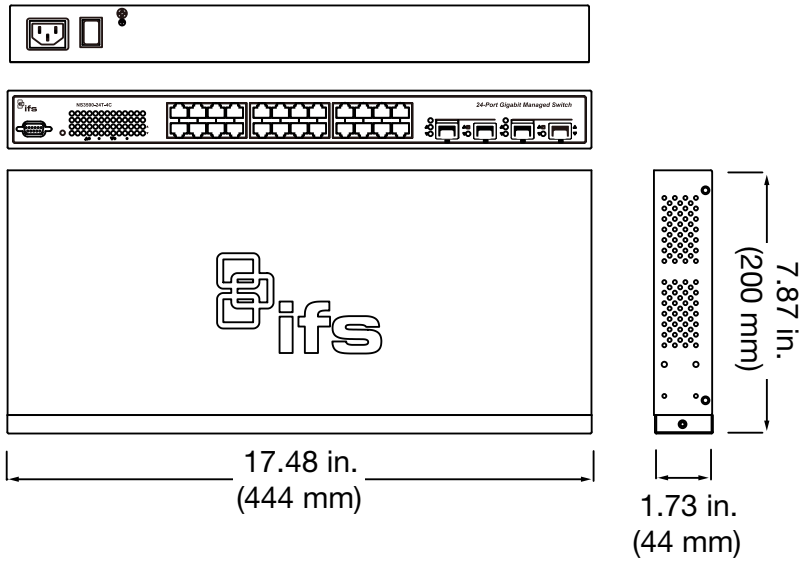
Part No.		NS3500-24T-4C	NS3702-24P-4S
Description			
Physical Ports	10/100/1000Base-T (X) Ports	RJ-45 (24)	RJ-45 (24) with IEEE 802.3at PoE
	SFP/Mini-GBIC Slots	SFP/Mini-GBIC Slots (4) - Shared with RJ-45 Ports-21 to 24; 1000Base-SX/LX/BX and 100Base-FX SFP transceiver compatible	SFP/Mini-GBIC Slots (4) - Shared with RJ-45 Ports-21 to 24; 1000Base-SX/LX/BX and 100Base-FX SFP transceiver compatible
	Port Configuration	Auto MDI/MDI-X	
	Port Speed	Auto-negotiate	
Switch Performance	Switch Architecture	Store-and-Forward	
	Switch Fabric	48Gbps non-blocking	
	Switch Throughput	35.7Mbps@64Bytes	
	Mac Address Table	8K entries	16K entries
	Share Data Buffer	1392kB	4.1 megabits
	Jumbo Frame Size	10kB	
	Flow Control	IEEE 802.3x Pause Frame for Full-Duplex Back pressure for Half-Duplex	
Layer 2 Functions	Management Interface	Console, Telnet, Web Browser, SNMPv1, v2c and v3	
	Port Configuration	Port enable/disable; Auto-negotiation; 10/100/1000Mbps full and half duplex mode selection; Flow Control enable/disable; Bandwidth control on each port	
	Port Status	Display each port's: speed duplex mode, link status, flow control status, Auto negotiation status, trunk status	
	Port Mirroring	TX/RX/Both; Many-to-1 monitor	
	Bandwidth Control	Ingress: 500Kb to 80Mbps; Egress: 64Kb to 80Mbps	Ingress/Egress rate control: configure per 128Kbps VLAN
	VLAN	802.1Q tagged-based VLAN Up to 255 VLAN groups, out of 4094 VLAN IDs 802.1ad Q-in-Q tunneling Voice VLAN Protocol VLAN Private VLAN (Protected port) GVRP	802.1Q Tagged-based VLAN, up to 256 VLAN groups Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-Based VLAN IP Subnet-based VLAN Voice VLAN MVR (Multicast VLAN Registration) GVRP Up to 255 VLAN groups, out of 4094 VLAN IDs
	Layer 3 IP Routing	Max. 32 routing entries, Max. 8 VLAN interfaces	Supports maximum 128 static routes and route summarization
	Link Aggregation	IEEE 802.3ad LACP and static trunk Supports 10 groups of 16-port trunk	IEEE 802.3ad LACP and static trunk Supports 12 groups of 16-port trunk
	Quality of Service (QoS)	8 mapping ID to 8 level priority queues - Port Number - 802.1p priority - 802.1Q VLAN tag - DSCP field in IP Packet Traffic classification based, Strict priority and WRR	
	Multicasting/IGMP	IGMP (v1/v2/v3) Snooping, up to 255 multicast groups; IGMP Querier mode support	
	MLD Snooping	MLD (v1/v2) Snooping, up to 256 multicast groups	
	Access Control List	IPv4 / IPv6 IP-based ACL / MAC-based ACL	
	Security	IEEE 802.1X – port-based authentication Built-in RADIUS client to co-operate with RADIUS server RADIUS / TACACS+ user access authentication IP-MAC port binding MAC filter	

Specifications (continued)

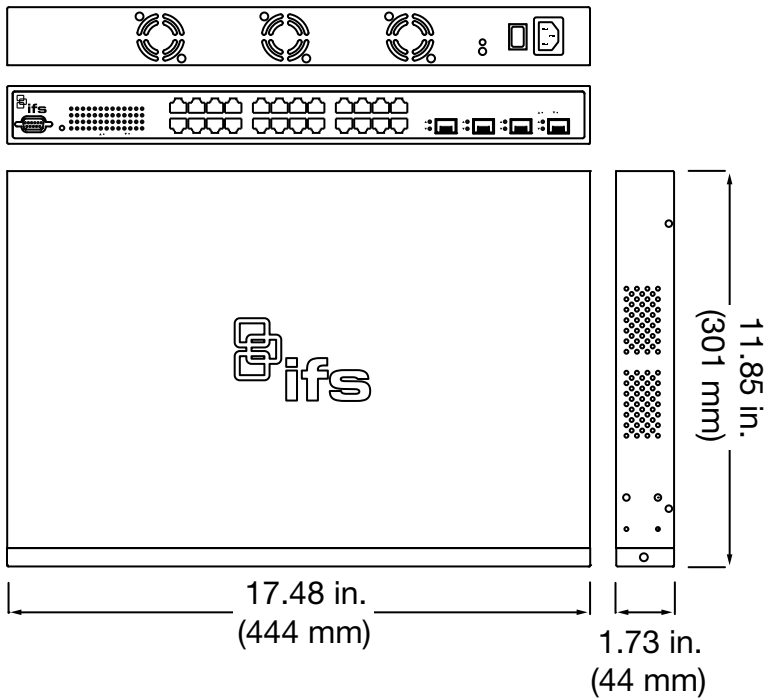
Part No.		NS3500-24T-4C	NS3702-24P-4S
Description			
Power over Ethernet	PoE Standard	IEEE 802.3at	
	PoE Power Supply Type	End-Span (PSE)	
	PoE Power Budget	380 Watts	
	Max. number of PD @ 30.8 Watts	12	
	Max. number of PD @ 15.4 Watts	24	
	PoE Power Output Per Port	56VDC; Max 30.8 Watts	
	Power Pin Assignment	1/2(+), 3/6(-)	
LED Indicators & Switch	Power	On/Green	
	10/100/1000Base-TX Ports	1000Mbps (green), LNK/ACT (orange)	10/100/1000Mbps LNK/ACT (green) PoE In-Use (orange)
	10/100/1000Base-T/SFP Ports	1000 (green), 100 (orange)	
	FAN(s)	Fanless Design	FAN1 (green), FAN2 (green), FAN3 (green)
	Reset Button	System reboot: push and hold < 5 sec. Factory Default: push and hold > 5 sec.	
Electrical & Mechanical	AC Power Input Voltage	100 ~ 240VAC, 50 / 60Hz, Auto-sensing	
	Power Consumption	30 Watts	422 Watts
	Dimensions (WxDxH); in/cm	17.32 x 7.87 x 1.75 in. (44 x 20 x 4.45 cm)	17.32 x 11.81 x 1.75 in. (44 x 30 x 4.45 cm)
	Weight; lbs/kgs	7.28 lbs, 3.3 kgs	10.5 lbs, 4.75 kgs
Environmental	Operating Temperature	0°C~50°C	
	Storage Temperature	-20°C~70°C	
	Relative Humidity	0%~95% (non-condensing)	
Standards Compliance	Regulatory Standards	FCC Part 15 Class A, CE, UL, cJUL	
	IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX/100Base-FX IEEE 802.3z Gigabit SX/LX IEEE 802.3ab Gigabit 1000T IEEE 802.3x Flow Control and Back pressure IEEE 802.3ad Port Trunk with LACP IEEE 802.1D Spanning Tree protocol IEEE 802.1w Rapid 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 802.1ab LLDP IEEE 802.3af Power over Ethernet IEEE 802.3at High 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 RFC 3376 IGMP version 3 RFC 2710 MLD version 1 RFC 3810 MLD version 2	

Dimensional Diagrams

NS3500-24T-4C



NS3702-24P-4S



Gigabit Network Switches

Ordering Information

NS3500-24T-4C	24-Port Gigabit Ethernet w/4 Gigabit SFP Ports
NS3702-24P-4S	24-Port Gigabit Ethernet w/4 Gigabit SFP Ports, PoE+ and L3 Static Routing
Included Accessories	User's Manual CD, Quick Installation Guide, Power Cord, Console Port Cable, Rubber Feet, Rack Ears with Screws

Note: These switches require 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. Gigabit SFPs (S30) are recommended for best trunking bandwidth performance.

Accessories

SFP	S30 Series
SFP	S20 Series



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