

# NS3503-16P-4C

16-Port Gigabit Ultra-PoE Managed Switch

## Overview

For fast and efficient connectivity from the network edge to a backbone switch or server, the IFS® 16-Port Gigabit Ethernet Managed Switch by Interlogix features sixteen Gigabit Ethernet ports with support for Ultra-PoE (60w) plus 4 RJ45/SFP combo ports. Both 100Base-X or 1000Base-X transmission is supported through four GBIC interfaces. For efficient switch management, the 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, broadcast storm and bandwidth control to enhance bandwidth utilization.

## 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 40Gbps. The 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 Ultra-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 16-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 Ultra-PoE Managed Switch provides support for up to 13 units of IEEE 802.3at (30w) PoE+ and up to 6 units for Ultra-PoE.

## Built-in Monitoring, Diagnostics and Troubleshooting Tools

The Switch can be configured to monitor a connected PD (Powered Device) status in real-time via IP ping.



## Details

- 16-Port 10/100/1000Base-T RJ-45 with IEEE 802.3af / 802.3at / Ultra PoE
- 4-Port 100/1000Base-X mini-GBIC/SFP slots, SFP type auto detection with digital diagnostics monitoring (DDM) functions.
- 1 x RS-232 console interface for basic management and setup
- Web-based, telnet, SSH, SSL and console command line management, IP address security management to prevent unauthorized intruder
- RADIUS / TACACS+ users access authentication
- Complies with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z, IEEE 802.3af, IEEE 802.3at standards
- Supports auto-negotiation and half-duplex/full-duplex modes for all 10Base-T/100Base-TX and 1000Base-T
- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause-frame flow control (full-duplex) groups, out of 4K VLAN IDs
- IP-Based Access Control List (ACL), MAC-Based Access Control List, Source MAC / IP address binding
- Ingress/egress bandwidth control on each port
- Supports IGMP Snooping v1, v2 and v3, IGMP query mode for multicast media application and Multicast VLAN Registration
- Internal power supply
- Port mirroring to monitor the incoming or outgoing traffic on a particular port
- Supports LLDP to allow switch to advise its identification and capability on the LAN
- IPv4 and IPv6 IP Address / NTP / DNS management
- Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues

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If a PD (IP Camera or IP Access Reader) 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 built-in cable diagnostics, and support for SNMP can greatly enhance the IT administrator's trouble-shooting and management abilities.

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## Technical Specifications

### Category

Category	Commercial
Management	Managed
Managed	Yes
PoE	Yes

### Physical ports

No. of ports	16
Port type	Gig
Speed	Gigabit
PoE/PoE+	16 Port PoE/13 Port PoE+/6 Port PoE-Ultra
Fiber port	4
Supported SFP's	S20/S25 series, S30/S35 series
SFP speed	100/1000

### Switch Performance

Switch fabric	40 Gbps
Throughput (Mpps)	29.7
Mac table	8 K
Jumbo frame support	9 K

### Layer 2 Functions

Management interface	Console, Web, Telnet, SNMP 1,2,3, SSH/SSL secure access
IGMP snooping	255 Group, Snooping v1, v2, v3
IGMP query	Yes
VLAN, QoS	256, yes
Access control list	123 entries

### General

Storm control	Broadcast, Multicast, Unicast
Security	802.1x, ACL, RADIUS, Source MAC / IP address binding
DHCP s1oping	Yes
Fault relay output	No

### Physical

Physical dimensions	440 x 300 x 44 mm
Net weight	4.479 kg
Colour	Black
Mounting type	19" rack
Stackable	No

### Environmental

Operating temperature	0 to +50°C
Storage temperature	-20 to +70°C
Relative humidity	5 to 95% (non-condensing)
Environment	Indoor
Operating :	Temperature 0 to +50°C; Relative Humidity 5%~95% (non-condensing)
Storage :	Temperature -20 to +70°C; Relative Humidity 5%~95% (non-condensing)

### Electrical

PoE power budget	400 W
Power supply type	100 to 240 VAC
Power consumption	500 W

### Hardware Specifications

Copper Ports:	16-port x 10/100/1000Base-T
RJ45/SFP Combo ports:	4 - 10/100/1000Mbps copper; 4 - 100/1000Base-x mini-GBIC/SFP slots, SFP type auto detection
Switch Architecture :	Store-and-Forward
Switch Fabric :	40Gbps (non-blocking)
Switch Throughput :	29.7 Mpps @ 64Bytes
Address Table :	8K entries
Share Data Buffer :	4.1 Megabits
Maximum Frame Size :	10K Byte (Jumbo frames)
Flow Control :	Back pressure for Half-Duplex and IEEE 802.3x Pause Frame for Full-Duplex
LED Indicators :	Per unit: Power (Green), Ring Master (Green), Power 1 (Green), Power 2 (Green), Fault (Red)

16 x port 10/100: Link/Activity (Green), Full-Duplex/Collision (Yellow)
4 x SFP port: LNK/ACT (Green)
4 x 1000T: LNK/ACT (Green), 1000M (Green)
PoE: Ultra-PoE In-Use (Green), POE-af/at (Amber)

Console Interface :	One RJ-45-to-RS-232 male connector for switch
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### Power over Ethernet

PoE Support :	IEEE 802.3af / IEEE 802.3at/POE-Ultra
Units Can Be Powered :	16 PoE (15 w), 13 PoE (30 w), 6 PoE (60 w)
PoE Power Output :	48VDC, 15.4 watts (IEEE 802.3af); 52VDC, 30 watts (IEEE 802.3at); 54VDC, 60 watts (IEEE 802.3bt - provisional)
Power Pin Assignment :	End-span: 1/2(-), 3/6(+); Mid-span: 4/5(+), 7/8(-)

IEEE 802.3 10Base-T
IEEE 802.3u 100Base-TX/100Base-FX
IEEE 802.3z Gigabit SX/LX
IEEE 802.3ab Gigabit 1000Base-T
IEEE 802.3ad Port trunk with LACP
IEEE 802.3af Power over Ethernet
IEEE 802.3at Power over Ethernet
IEEE 802.3x Flow Control and Back Pressure
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
RFC 768 UDP, RFC 791 IP, RFC 792 ICMP
RFC 793 TFTP, RFC 2068 HTTP
RFC 1112 IGMP Version 1, RFC 2236 IGMP Version 2

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## 16-Port Gigabit Ultra-PoE Managed Switch

### Layer 2 Function

Management Interface :	Console, telnet, Web browser, SSH/SSL secure access, SNMPv1 and v2c and v3c
Port Configuration :	Port disable/enable. Auto-negotiation 10/100Mbps full- and half-duplex mode selection. Flow control disable/enable. Bandwidth control on each port.
Port Status :	Display each port's speed duplex mode, link status, Flow control status, Auto negotiation status
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
Spanning Tree :	IEEE 802.1d Spanning Tree, IEEE 802.1w Rapid Spanning Tree, MSTP, IEEE 802.1s Multiple Spanning Tree Protocol, spanning tree by VLAN
Voice :	Voice VLAN
Link Aggregation :	Static Port Trunk, IEEE 802.3ad LACP (Link Aggregation Control Protocol), Supports 4 groups of 4-Port trunk
QoS :	Traffic classification based on : • Port Number • 802.1Q Tag • 802.1p priority • IP DSCP/TOS field in IP Packet
IGMP Snooping :	IGMP Snooping (v2, v3). IGMP Query. Up to 256 multicast groups
Bandwidth Control :	Ingress: 0~1000000Kbps (multiples of 16), Egress: 0~1000000Kbps (multiples of 16)
Port Mirror :	TX/RX/Both; Many to 1 monitoring
SNMP MIBs :	RFC-1213 MIB-II, RFC-2863 Interface MIB, RFC-1493 Bridge MIB
SNMP MIBs :	RFC-2819 RMON MIB (Group 1, 2, 3, 9), RFC-2674 Extended Bridge MIB (Q-Bridge), Private MIB

