8-Port Fast Ethernet Layer 2 Managed Switches

NS2503-8P/2C
8-Port 10/100Mbps PoE-af/at (30w) Managed Switch with 2 Gigabit SFP Combo Uplink Ports

GE-DS-82
8-Port 10/100Mbps Managed Switch with 2 Gigabit SFP Combo Uplink Ports

GE-DS-82-PoE
8-Port 10/100Mbps PoE-af (15.4w) Managed Switch with 2 Gigabit SFP Combo Uplink Ports

OVERVIEW

For fast and efficient connectivity from the network edge to a backbone switch or server, the IFS 8-port Fast Ethernet Managed Switch Series features eight 10/100Mbps Fast Ethernet ports with 2 Gigabit TP/SFP combo ports. The 2 Gigabit TP/SFP combo ports can support either 10/100/1000Mbps (RJ45) or (1000Base-SX/LX/BX) through an SFP (Small Form-factor Pluggable) GBIC interface. This series is also available with PoE and PoE+ capabilities.

Robust Layer 2 Features
For efficient switch management, the IFS 8-port Fast Ethernet Managed Switch Series 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.

These switches support standard Simple Network Management Protocol (SNMP) and include 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 series is designed with a high performance switch architecture that is capable of providing a non-blocking switch fabric and wire-speed throughput as high as 5.6 Gbps. To ensure optimum quality of service, the IFS 8-port Fast Ethernet Managed

Switch Series 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
The GE-DS-82-POE and NS2503-8P/2C models provide optimized deployment and safe power management of 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 NS2503-8P/2C provides support for up to 5 ports of IEEE 802.3at (30w) PoE.

Advanced Security
This switch also offers comprehensive Layer 3 and Layer 4 Access Control List (ACL) to filter out unwanted traffic. Its protection mechanisms are comprised of RADIUS and Port-Based 802.1x user and device authentication. In addition, the switch provides MAC filter, Static MAC, IP/MAC binding and Port Security for enforcing security policies to the edge. With IFS enterprise-class switches, a network administrator can now construct a highly secure network with considerably less time and effort.

STANDARD FEATURES

Physical Ports

- 8-Port 10/100Base-TX RJ-45 (GE-DS-82)
- 8-Port 10/100Base-TX RJ-45 with PoE (GE-DS-82-PoE and NS2503-8P/2C)
- 2-Uplink Gigabit TP/SFP combo ports
- 1 RS-232 male DB9 console port
- Auto-MDI/MDI-X detection
- Auto-negotiation
- Supports full-duplex/half-duplex modes

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 and runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Broadcast/multicast/unicast storm control
- 5.6 Gbps non-blocking switch fabric
- 9K bytes Jumbo frame support
- 8K MAC address table, automatic source address learning and aging

Full Multicast Support for IP Video

- IGMP Snooping v1 and v2 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 4041 VLAN IDs
- Port-Based VLAN
- Q-in-Q tunneling (Double Tag VLAN)

Spanning Tree Protocol

- STP, IEEE 802.1D (Spanning Tree Protocol)
- MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol)

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 (PoE) [GE-DS-82-PoE and NS2503-8P/2C Only]

- Complies with IEEE 802.3af Standard
- Complies with IEEE 802.3at Standard (NS2503-8P/2C only)
- Up to 180 Watt power budget
- Auto-detects PoE powered devices (PD)
- Provides full-power PoE on each port - no port sharing
- Circuit protection isolates and prevents 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)
  - PD classification detection
  - Power Supply Over temperature Protection

Link Aggregation

- IEEE 802.3ad LACP (Link Aggregation Control Protocol)
- Up to 13 Trunk groups
- Up to 8 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 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
- Configuration upload/download via TFTP or HTTP
- Firmware upgrade via TFTP or HTTP
- Supports Ping function
- Reset button for system management

Warranty

- 3-year Limited Warranty

ADDITIONAL FIRMWARE 1.5 FEATURES

Management

- 6 Levels of User Privilege Access Control • Improved Multicast Control • Configuration Backup Expect IP • Event Log/Alarms
- Remote IP Ping by Port • MAC Table Query by Port • Addition support for SNMP v3

Power over Ethernet (PoE) Management

- System PoE Enable/Disable • PoE Threshold and Event • Temperature Threshold and Event • PoE Scheduling

Specifications

Physical Ports	GE-DS-82	GE-DS-82-PoE	NS2503-8P/2C
10/100Base-T(x) Ports	RJ-45 (8)		
GigE Combo Uplink Ports	RJ-45 (Ports 9 and 10) 10/100/1000Mbps; SFP/Mini-GBIC Slots (Shared with Ports 9 and 10) 1000Base-SX/LX/BX (Gigabit SFPs only)		
Port Configuration	Auto MDI/MDI-X		
Port Speed	Auto-negotiate		

Switch Performance

Switch Architecture	Store-and-forward		
Switch Fabric	5.6Gbps (non-blocking)		
Switch Throughput	4.16Mpps @ 64Bytes		
MAC Address Table	8K entries		
Share Data Buffer	2 Mbytes		
Maximum Frame Size	9K Bytes		
Flow Control	Back pressure for Half-Duplex; IEEE 802.3x Pause Frame for Full-Duplex		

Layer 2 Functions

Management Interface	Console, telnet, Web browser, SSL, SNMPv1 and v2c and v3c		
Port Configuration	Port enable/disable. Auto-negotiation. 10/100Mbps 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/Egress rate control: configure per 128Kbps		
VLAN	IEEE 802.1q tagged-based VLAN, up to 255 VLANs groups, out of 4041 VLAN IDs Port-based VLAN. Q-in-Q tunneling GVRP for VLAN management, up to 128 dynamic VLAN entries Private VLAN Edge (PVE) protected port) with two protected port groups		
LInk Aggregation	Static Port Trunk IEEE 802.3ad LACP (Link Aggregation Protocol) Supports 13 groups of 8-port trunk, IEEE 802.3ad LACP		
Quality of Service (QoS)	4 priority queue Traffic classification based on: • Port priority • 802.1p priority • DSCP/TOS field in IP Packet		
Multicasting/IGMP	IGMP Snooping (v1/v2). IGMP Query. Up to 256 multicast groups		
Access Control List	IP-based Layer 3/Layer 4 ACL. Up to 220 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	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	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 802.3af / IEEE 802.3at
PoE Power Supply Type		End-Span (PSE)	End-Span (PSE)
PoE Power Budget		180 Watts	150 Watts
Max. number of Class 2 PD		8	8
Max. number of Class 3 PD		8	8
Max. number of Class 4 PD			5
PoE Power Output Per Port		48VDC, 350mA; 15.4 watts max.	48VDC, 350mA. Max. 15.4 watts (IEEE 802.3af) 52VDC, 590mA. Max 30 watts (IEEE 802.3at)
Power Pin Assignment		1/2(+), 3/6(-)	1/2(+), 3/6(-)

LED Indicators & Switch

Power	On/Green	On/Green	On/Green
10/100Base-TX/PoE Ports (8)	10/100 LNK/ACT - Green; 100Mbps - Amber	10/100 LNK/ACT - Green; PoE in Use - Amber	10/100 LNK/ACT - Green; PoE in Use - Amber
10/100/1000Base-T/SFP Ports	100 LNK/ACT - Amber; 1000 LNK/ACT - Green	100 LNK/ACT - Amber; 1000 LNK/ACT - Green	100 LNK/ACT - Amber; 1000 LNK/ACT - Green
Reset Button	System reboot: push and hold < 5 sec. Factory default: push and hold > 5 sec.	System reboot: push and hold < 5 sec. Factory default: push and hold > 5 sec.	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	100~240VAC, 50/60Hz, Auto-sensing	100~240VAC, 50/60Hz, Auto-sensing
Full Load Power Consumption	16 Watts	200 Watts	200 Watts
Dimensions (W x D x H)	13 x 6 x 1.7 in. - (330 x 153 x 44mm)		
Weight	2.6 lbs., 1.2kg	3.5 lbs., 1.6kg	3.5 lbs., 1.6kg

Environmental

Operating Temperature	0 to +50℃	0 to +50℃	0 to +50℃
Storage Temperature	-20 to +70℃	-20 to +70℃	-20 to +70℃
Relative Humidity	0% to 95% (non-condensing)	0% to 95% (non-condensing)	0% to 95% (non-condensing)

Standards Compliance

Regulatory Standards	FCC Part 15 Class A; CE; UL	FCC Part 15 Class A; CE; UL	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 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	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 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	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

8-Port Fast Ethernet Layer 2 Managed Switches

Dimensional Diagrams
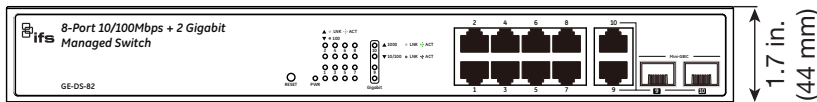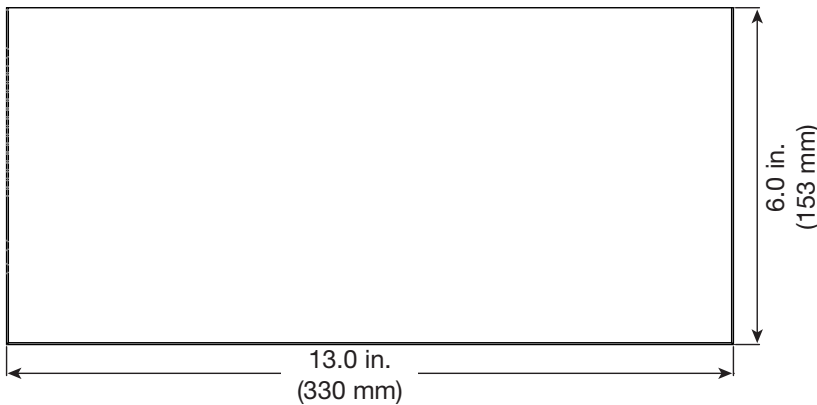
6.0 in.
(153 mm)

13.0 in.
(330 mm)

8-Port 10/100Mbps + 2 Gigabit
Managed Switch

GE-DS-82

1.7 in.
(44 mm)
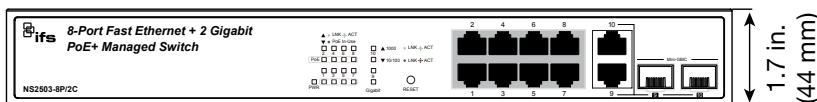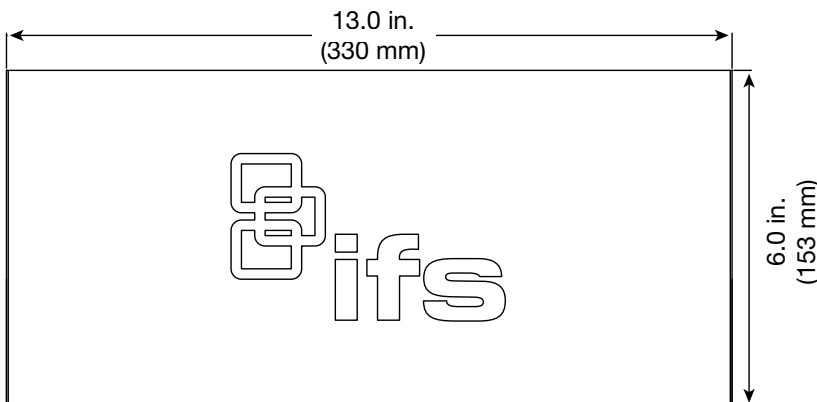
GE-DS-82

Ordering Information

GE-DS-82	8-Port Fast Ethernet Managed Switch
GE-DS-82-PoE	8-Port Fast Ethernet PoE-af Managed Switch
NS2503-8P/2C	8-Port Fast Ethernet PoE-af/at 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: 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. The mini-GBIC ports on these units accept Gigabit SFPs only. IFS S30 Series SFPs are recommended.

Accessories

SFP	S30 Series
SFP	S35 Series (wide-temp)

13.0 in.
(330 mm)

6.0 in.
(153 mm)

8-Port Fast Ethernet + 2 Gigabit
PoE+ Managed Switch

NS2503-8P/2C

1.7 in.
(44 mm)

GE-DS-82-PoE and NS2503-8P/2C

interlogix