

I-Series

Policy-based Industrial Ethernet Switch



Industrial Ethernet switch with 2 modular slots for configuration flexibility

Industrial-grade components support explosive gas and other physically demanding environments

Strong authentication capabilities enable placement in unsecured locations

Redundant, 24-volt external power supplies

Product Overview

The Enterasys I-Series is a 2-slot modular, industrially-hardened Ethernet switch with an IP50 dust-resistant design and Class 1 Division 2 support suitable for explosive gas and other physically demanding environments, such as manufacturing plants, oil refineries, and utilities. Along with its operational tolerance for extreme temperatures ranging from -40° C to 60° C, the I-Series combines multi-layer switching capabilities with wire-rate performance to support the demanding requirements of industrial applications. The I-Series provides 2 modular slots which can support up to 24 10/100Base-T Ethernet ports as well as 2 1 Gbps Small Form Factor Pluggable (SFP) Ethernet uplink ports. In order to provide a reliable, high-availability network, all I-Series models support redundant, 24-volt external power supplies as well as Link Aggregation Groups (LAGs) for scalable, redundant uplinks.

The DIN-mountable I-Series utilizes industrial-grade components and provides a set of event-driven relay connectors to support external alarms. In addition, the I-Series offers a portable, non-volatile memory card, which is capable of storing the system configuration and may be used by non-technical personnel to quickly replicate the configuration on a replacement switch thus making it an ideal solution for dynamic environments without requiring dedicated technical support personnel.

In conjunction with its non-blocking architecture, the I-Series provides strong support for a variety of network-attached devices such as Programmable Logic Controllers (PLCs), shop floor workstations, and security cameras. The I-Series' highly customizable Layer 2/3/4 packet classification capabilities together with its intelligent queuing mechanisms ensure that mission-critical devices and applications receive prioritized access to network resources.

Making use of Enterasys' policy capabilities, a network administrator can define distinct roles or profiles that represent industry-specific operational groups or devices. Each defined role is granted individualized access to specific network services and applications (e.g., supervisor, operator, PLC, security camera) and these access privileges remain associated with users/devices for both wired and wireless network access. Users and devices are authenticated via IEEE 802.1X, MAC address, or web-based authentication, and then assigned a pre-defined operational role ensuring that each user has access to appropriate information, thus aligning network resource utilization with business goals and priorities.

In order to sustain a secure, feature-rich and cost-effective network well into the future, the I-Series comes with a 5-year warranty.

Benefits

Business Alignment

- Supports a variety of network-attached devices such as Programmable Logic Controllers (PLCs), shop floor workstations, and security cameras
- DIN-mountable and rack-mountable for flexible installation
- Portable, non-volatile memory card enables quick configuration of new or replacement switches

Operational Efficiency

- Operational tolerance for extreme temperatures (-40° C to 60° C) enables placement in uncontrolled temperature environments
- High-availability design and simple field maintenance minimizes technical support expense
- External alarm support enables problem notification without physical monitoring

Security

- Integral security without performance degradation
- Network security maintained concurrently with user/device mobility
- Network resources securely allocated according to user/device operational roles

Support and Service

- Industry-leading customer satisfaction and first call resolution rates
- Personalized response services
- 5-year warranty

**There is nothing more important
than our customers.**

Features and Benefits

Industrial-Grade Reliability: Maintenance-free reliability can provide years of uninterrupted service in a wide range of severe temperature and hazardous gas conditions.

Advanced Security and Traffic Control Features in a Hardened Switch: No switch vendor matches Enterasys for providing a secure

infrastructure. This same functionality is now available in a fully-industrialized switch.

Fully Managed Solution: The I-Series is securely SNMP-managed to allow control of the device by authorized users from anywhere on the network, while all events and traffic statistics are reported and tracked by the Enterasys Network Management Suite (NMS).

Easy Installation: Optional memory configuration card allows non-technical personnel to field-replace I-Series switches with a simple removal and reinsertion of a memory configuration card. The card carries a copy of the switch configuration and allows settings to be quickly transferred to another I-Series switch.

Standards and Protocols

Layer 2 Capabilities

- IEEE 802.1D – Spanning Tree
- IEEE 802.1t – 802.1D Maintenance
- IEEE 802.1p – Traffic Management/Mapping to 6 of 8 Hardware Queues
- IEEE 802.1Q – Virtual LANs w/ Port-based VLANs
- IEEE 802.1s – Multiple Spanning Tree
- IEEE 802.1w – Rapid Spanning Tree Reconvergence
- IEEE 802.1X – Port-based Authentication
- IEEE 802.3 – 10 Base-T
- IEEE 802.3ab – 1000 Base-T
- IEEE 802.3ad – Link Aggregation
- IEEE 802.3u – 100 Base-T
- IEEE 802.3x – Flow Control
- Private Port (Private VLAN)
- Many-to-One Port Mirroring, One-to-One Port Mirroring
- Per-Port Broadcast Suppression
- Spanning Tree Backup Root
- STP Pass Thru
- RFC 1213 – MIB II
- RFC 1493 – Bridge MIB
- RFC 2668 – Ethernet-like MIB
- RFC 2233 – Interfaces Group MIB using SMI v2
- RFC 2618 – RADIUS Authentication Client MIB

- RFC 2620 – RADIUS Accounting MIB
- RFC 2674 – VLAN MIB
- RFC 2737 – Entity MIB version 2
- RFC 2819 – RMON Groups 1, 2, 3, & 9
- IEEE 802.1X MIB (IEEE 802.1-PAE-MIB)
- IEEE 802.3AD MIB (IEEE802.3-AD-MIB)

Authentication

- MAC Authentication
- Web Authentication (PWA)
- 802.1X Authentication
- RFC 3580 – Dynamic VLAN Assignment
- RADIUS Client
- RADIUS Accounting for MAC Authentication
- EAP Pass Through
- Dynamic and Static Mac Locking

QoS

- Strict or Weighted Round Robin
- Inbound Rate Limiting
- 8 Hardware Queues/Port
- 802.3x Flow Control
- 64 kbps Increment Granularity

Management

- NMS Console
- NMS Policy Manager
- NMS Inventory Manager
- NMS Automated Security Manager

- WebView
- SSL Interface to WebView
- Telnet with SSH
- Radius Control to Management Interface
- RMON (4 Groups: History, Statistics, Alarms, and Events)
- Text-based Configuration Upload/Download
- Simple Network Time Protocol (SNTP)
- Alias Port Naming
- Node/Alias Table
- RFC 854 – Telnet
- RFC 1157 – SNMP v1, v2c, and v3
- RFC 1901 – Community-based SNMP v2
- RFC 2271 – SNMP Framework MIB
- RFC 2465 - IPv6 MIB
- RFC 2466 - ICMPv6 MIB
- RFC 3413 – SNMP v3 Applications
- RFC 3414 – User-based Security Model for SNMP v3
- RFC 3415 – View-based Access Control Model for SNMP

Specifications

Physical Ports

2 slots for 10/100 Mbps I/O modules
2 slots for Gigabit Ethernet SFP uplinks

I/O Modules

12-port 10/100 Base-T
8-port 100 Base-FX
4-port 100 Base-FX
6-port 10/100 Base-T with memory configuration slot
4-port 100 Base-FX with memory configuration slot
8-port 10/100 Base-T and 2-port 100 Base-FX

LED

1 red/green LED showing system status
2 green LEDs showing each power input status
2 green LEDs showing link activity of SFP ports

Capacity & Performance

Address Table Size – 8000 MAC Addresses
1024 VLANs Supported
8 Hardware Queues/Port
VLAN Spanning Tree (802.1S)
– 4 Instances Supported
802.3AD Link Aggregation
– 8 ports per trunk group, 6 groups supported
Main memory: 256 MB
Flash memory: 32 MB

Physical Specifications

Dimensions (H x W x D):

8.89 cm x 33.86 cm x 18.41 cm
(3.5" x 13.33" x 7.25")

I/O Module Dimensions:

4.57 cm x 10.7 cm x 11.4 cm (1.8" x 4.21" x 4.5")

Weight:

I3H252-12TX	4.35 kg (9.57 lbs)
I3H252-4FXM	4.33 kg (9.53 lbs)
I3H252-4FX-MEM	4.34 kg (9.55 lbs)
I3H252-6TX-MEM	4.34 kg (9.55 lbs)
I3H252-8FXM	4.43 kg (9.75 lbs)
I3H252-8TX-2FX	4.31 kg (9.48 lbs)
I3H-12TX	0.24 kg (0.53 lbs)
I3H-4FX-MM	0.22 kg (0.48 lbs)

I3H-4FXM-MEM	0.23 kg (0.51 lbs)
I3H-6TX-MEM	0.23 kg (0.51 lbs)
I3H-8FX-MM	0.32 kg (0.70 lbs)
I3H-8TX-2FX	0.20 kg (0.44 lbs)

MTBF

I3H252-12TX	182,146 hours
I3H252-4FXM	184,898 hours
I3H252-4FX-MEM	159,144 hours
I3H252-6TX-MEM	164,848 hours
I3H252-8FXM	164,891 hours
I3H252-8TX-2FX	177,472 hours
I3H-12TX	657,722 hours
I3H-4FX-MM	695,075 hours
I3H-4FXM-MEM	432,172 hours
I3H-6TX-MEM	819,538 hours
I3H-8FX-MM	477,350 hours
I3H-8TX-2FX	600,601 hours

Environmental Specifications

Operating Temperature:

-40° C to 60° C (-40° F to 140° F)

Storage Temperature:

-40° C to 70° C (-40° F to 158° F)

Operating Humidity:

95% Relative Humidity Non-Condensing

Power Consumption:

The I-Series accepts 24 volt DC power only. The customer must provide DC power to the switch or purchase the optional external DC power unit (I3H-PWR).

Operation Shock:

50 G Trapezoidal Shock

Agency and Standards Specifications

Standard Safety:

UL 60950-1, CSA 22.2 60950-1-03, EN 60950-1, and IEC 60950-1

Standard EMC:

FCC Part 15 Class A, ICES-003 Class A, BSMI, VCCI V-3, AS/NZS CISPR-22 Class A, EN 55022 Class A, EN 55024 Class A

Industrial EMC:

EN 61000-6-4, EN 61000-6-2, EN 55011

Hazardous Locations:

ANSI/ISA 12.12.01; CAN/CSA C22.2 No. 213-M1987; EN 60079-0:2006; EN 60079-15:2005; for use in Class 1, Division 2, Groups A, B, C, and D

Service and Support

Enterasys Networks provides comprehensive service offerings that range from Professional Services to design and implement customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Enterasys account executive for more information about Enterasys Service and Support.

Warranty

As a customer-centric company, Enterasys is committed to providing quality products and solutions. In the event that one of our products fails due to a defect, we have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired or media replaced as soon as possible.

The Enterasys I-Series comes with a 5 year warranty against manufacturing defects. For full warranty terms and conditions please go to: www.enterasys.com/support/warranty.aspx.

Ordering Information

Part Number	Description
I3H252-12TX	Factory Configured I-Series base unit with one I3H-12TX
I3H252-4FXM	Factory Configured I-Series base unit with one I3H-4FX-MM
I3H252-4FX-MEM	Factory Configured I-Series base unit with one I3H-4FXM-MEM
I3H252-6TX-MEM	Factory Configured I-Series base unit with one I3H-6TX-MEM
I3H252-8FXM	Factory Configured I-Series base unit with one I3H-8FX-MM
I3H252-8TX-2FX	Factory Configured I-Series base unit with one I3H-8TX-2FX
I3H-12TX	12-port 10/100 TX I/O card
I3H-4FX-MM	4-port 100 FX I/O card
I3H-4FXM-MEM	4-port 100 FX I/O card with Memory Configuration Slot
I3H-6TX-MEM	6-port 10/100 TX I/O card with Memory Configuration Slot
I3H-8FX-MM	8-port 100 FX I/O card
I3H-8TX-2FX	10-port I/O card (8-port 10/100 TX and 2-port 100 FX)
I3H-DIN-KIT	DIN Rail Kit for I-Series
I3H-PWR	24VDC Power Unit for I-Series
I3H-RACK-MNT	19" Rack Mount Kit for I-Series
I3H-MEM	Memory Configuration Card; works with the following I-Series part numbers only: I3H-4FXM-MEM and I3H-6TX-MEM.
I-MGBIC-GZX	Mini GBIC 1000Base-LX, single-mode fiber, maximum distance 80 km, industrial version for use with I-Series only.
I-MGBIC-GLX	Mini GBIC 1000Base-LX, multi-mode or single-mode fiber, maximum distance 550 meters (multi-mode), 10 km (single-mode) industrial version for use with I-Series only.
I-MGBIC-GSX	Mini GBIC 1000Base-SX, multi-mode fiber, maximum distance 550 meters, industrial version for use with I-Series only.
I-MGBIC-GTX	Mini GBIC 1000Base-T, twisted pair, 100 meters, industrial version for use with I-Series only.

Contact Us

For more information, call Enterasys Networks toll free at **1-877-801-7082**, or +1-978-684-1000 and visit us on the Web at enterasys.com



© 2009 Enterasys Networks, Inc. All rights reserved. Enterasys Networks reserves the right to change specifications without notice. Please contact your representative to confirm current specifications. Please visit <http://www.enterasys.com/company/trademarks.aspx> for trademark information.

