



# HES7000 Series Gigabit Hardened Ethernet Switch



## FEATURES

- Store-and-forward switching with full wire-speed forwarding rate
- Stores up to 8192 MAC addresses
- Gigabit Industrial Switch
- Auto-negotiates for 10/100/1000 Mbps and full/half duplex
- Supports VLAN, ID Tagged VLAN, MAC based Trunking, and Spanning Tree Algorithm
- Multiple mounting configurations: Tabletop, wall mount brackets, rack mount and cabinet input file version

## Description:

The GDI HES7000 Series of Ethernet switches is designed with the demands of the Traffic and ITS markets in mind. The GDI Ethernet switch line is designed to be installed in either an air-conditioned office or in a cabinet located on the corner of an intersection or beside the highway.

The GDI Ethernet switches are temperature hardened that operate from  $-34^{\circ}\text{C}$  to  $+74^{\circ}\text{C}$ , making them ideal for operation in harsh environments while not sacrificing any features. The GDI Ethernet switches provide VLAN and ID tagged VLAN (IEEE802.1Q), IGMP snooping, spanning tree algorithm (IEEE 802.1D), IEEE 802.3 compliant flow control, port prioritization and MAC based trunking.

GDI Ethernet switches provide a range of management options for remote installations. Choose from SNMP, Telnet/FTP, and web based management tools.

The GDI HES7000 Ethernet switch provides up to 10 ports of connectivity. The switch can be delivered in a variety of configurations. For example, the HES7000 can be configured for ten 10/100/1000BaseTx copper ports or eight 10/100/1000BaseTx copper ports and two 100/1000BaseX SFP fiber optic ports. The HES7000 series switches utilize standard SFP plug-in modules in either multimode or single-mode configurations to provide installation flexibility. POE capability is also an available option. Contact the factory for available configurations.

The GDI HES7000 is available in several mounting configurations. The HES7000 is available as a shelf mount, wall mount with mounting ears, 19" rack mount or an option for a space saving plug-in to the input file of the cabinet.

Management of the switch can be accomplished thru the local RS232 port or by an HTTP web based Ethernet Graphical User Interface (GUI).

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## Form Factor/Environmental:

Size	1.6H x 5.5W x 8.00D
Weight	1 lb.
Case Material	Aluminum, black anodized
Mounting	wall mount ears (1)
Temperature	TS-2 1998, Section 2, paragraphs 2.2.7.3, 2.2.7.4, 2.2.7.5, 2.2.7.6 (no fans)
Humidity	95% non-condensing Optional: Conformal Coating
Vibration	TS-2 1998, Section 2, paragraphs 2.2.8.4
Mechanical Shock	TS-2 1998, Section 2, paragraphs 2.1.10
Electrical Transients	TS-2 1998, Section 2, paragraphs 2.1.6.1, 2.1.6.2, 2.1.7, 2.1.8

## Power Requirements:

Input voltage	12 VDC; temperature hardened power supply (-40 to 75C)
Power Consumption	10 W
Critical Alarm Relay	Form-C failsafe contact relay: 1A @ 30 VDC (optional)

## Port Configuration:

Copper Ports	8 - 10/100/100BaseTX ports If fiber ports are not fitted 2 extra copper ports can be fitted Optional PoE
Fiber Ports	2 - 100/1000BaseX ports minimum Supports standard SFP plug-in modules
Fiber Connectors	ST, SC, FC, LC
Fiber Type	Multimode - 850 & 1310 nm Singlemode 1310 nm
Fiber Distance	Multimode - 2 km Single Mode - 10 & 25 km
Typical Link Budget	Multimode 17 dB Single mode 17 dB (10 km) 19 dB (25 km)
Local Config Port	DB9 RS232, HTTP web-base Ethernet Graphical User Interface (GUI)

## Security:

- user password to guard against unauthorized configuration
- SSH/SSL
- Enable/Disable Ports
- MAC based Port Security
- Port Blocking - block either TX or RX functionality on per port basis

(1) rack mount and input file versions also available

## Switch Properties:

Switching method:	Store & Forward
Switching latency:	7 us
Switching bandwidth:	over 16Gbps
MAC Addresses:	8192
MAC address table size:	32kbytes
Priority Queues:	4
Frame buffer memory:	4000kbit
VLANs:	4096
IGMP multicast groups:	8192
Port rate limiting:	2, 16, 128, 256, 512 kbps, 1, 10, 2, 4, 8, 10, 102Mbps

No head of line blocking  
Broadcast Storm Filtering  
Port Rate Limiting: limits unicast and multicast traffic  
Port Based Network Access Control  
Standard, Multiple and Rapid Spanning Tree  
Event Logging and Alarms

## IEEE Compliance:

- 802.3-10BaseT
- 802.3u-100BaseTX, 100BaseFX
- 802.3x-Flow Control
- 802.3z-1000BaseLX
- 802.3ab-1000BaseTX
- 802.3ad-Link Aggregation
- 802.1d-MAC Bridges
- 802.1d-Spanning Tree Protocol
- 802.1p-Class of Service
- 802.1q-VLAN Tagging
- 802.1w-Rapid Spanning Tree Protocol
- 802.1x-Port Based Network Access Control

## IETF RFC Compliance:

- RFC768-UDP
- RFC783-TFTP
- RFC791-IP
- RFC792-ICMP
- RFC793-TCP
- RFC826-ARP
- RFC854-Telnet
- RFC894-IP over Ethernet
- RFC1112-IGMP v1
- RFC1541-DHCP (client)
- RFC2068-HTTP
- RFC2236-IGMP v2
- RFC2284-EAP
- RFC2475-Differentiated Services

Specifications subject to change without notice

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## **IETF SNMP MIBS:**

- RFC1493-BRIDGE-MIB
- RFC1907-SNMPv2-MIB
- RFC2012-TCP-MIB
- RFC2013-UDP-MIB
- RFC2578-SNMPv2-SMI
- RFC2579-SNMPv2-TC
- RFC2819-RMON-MIB
- RFC2863-IF-MIB

## **Network Management:**

- HTTP graphical web-based
- SNMP v1, v2c
- Telnet, VT100
- Command Line Interface (CLI)
- Port Mirroring
- Loss of Link Management
  - Dynamically scales the bandwidth and provides failover when a link goes down
- Configuration via ASCII Text File
- Ability to update firmware on like switches remotely on a per switch basis via TFTP

## **Design for following Approvals:**

- Hazardous Locations: Class 1, Division 2
- ISO: Designed and manufactured using a ISO9001: 2000 certified quality program
- CE Marking
- Emissions: FCC Part 15 (Class A), EN55022 (CISPR22 Class A)
- Safety: cCSAus (Compliant with CSA C22.2 No. 60950, UL 60950, EN60950)
- Laser Eye Safety (FDA/CDRH): Complies with 21 CFR Chapter 1, Subchapter J.

## **Warranty**

- 2 Years-Applicable to design or manufacturing related product defects

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