Overview

The D-GES7600 series of Managed Ethernet Switches provide robust transmission of 10/100 BASE-T Ethernet data. Unlike most Ethernet switches, these environmentally hardened units are designed for direct deployment in difficult out-of-plant or roadside operating environments, and are available for use with either conventional CAT-5e copper or optical transmission media. Depending upon the configuration ordered, up to 9 electrical or 6 electrical and 3 optical ports are available for easily implementing point-to-point, linear add-drop/ drop-and-repeat, star, or true self-healing ring and mesh network system architectures. The electrical ports support the 10/100 Mbps (10/100 BASE-T) Ethernet IEEE 802.3 protocol, and auto-negotiating and auto-MDI/MDIX features are provided for simplicity and ease of installation. A 1000 BASE-T or 1000 BASE-FX port (specified at time of order) is optionally available for optically or electrically linking D-GES7600 series switches when additional IP communications ports are required, allowing simple and cost-effective future expansion of the network if required. Available for use with multimode or single mode optical fiber, these network managed (through SNMP), Layer 2 switches are optically (100 BASE-FX) and electrically compatible with any IEEE 802.3 compliant Ethernet device. Plug-and-play design ensures ease of installation, and no electrical or optical adjustments are ever required. LED indicators are provided for rapidly ascertaining the operating status of the managed switch and network, and these units are available in stand-alone/shelf-mount, wall-mount, rack-mount or DIN-rail mounting configurations.

Application Examples

- ITS Traffic Signalization & Surveillance/ Incident Detection Networks
- Industrial and Factory Automation
- Integrated IP-Video and Data Transmission Networks
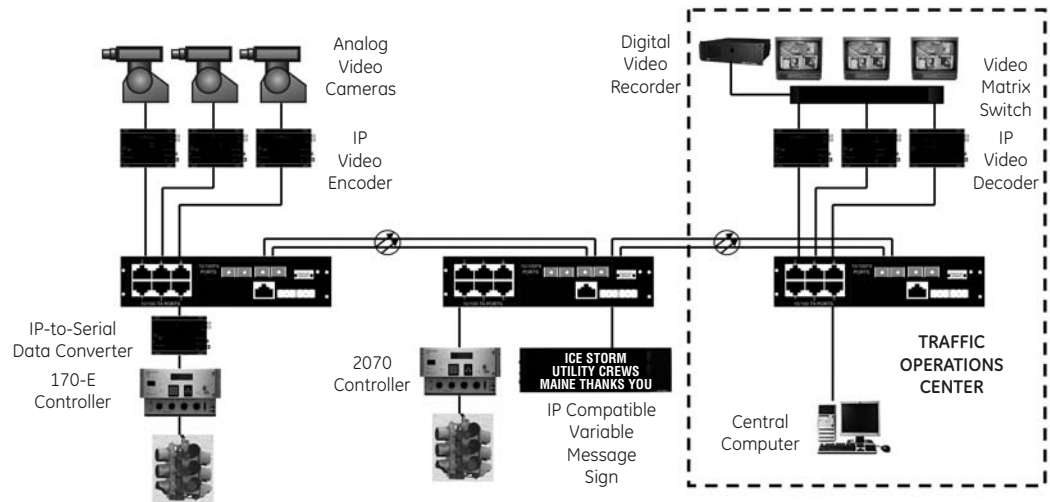- Industrial Security Access Control Systems

Standard Features

- Environmentally hardened for direct deployment in difficult unconditioned out-of-plant and roadside installations.
- Tested and certified by an independent laboratory for full compliance with the environmental requirements (ambient operating temperature, mechanical shock, vibration, humidity with condensation, high-line/low-line voltage conditions and transient voltage protection) of NEMA TS-1/TS-2 and CALTRANS Traffic Signal Control Equipment Specifications.
- Extended Ambient Operating Temperature Range, -40˚ C to +74˚ C
- NTCIP Compatible
- 10/100/1000 BASE-T and 100/1000 BASE-FX Compatible (Depending on configuration ordered)
- Available in Stand-Alone/Shelf-Mount, Wall-Mount, Rack-Mount and DIN Rail Mounting Configurations
- Redundant Power Supply Capability Reduces Possibility of Single Point-of-Failure for Highest Possible Reliability
- Fully Configurable Through Web-Based or SNMP Network Management
- Fully supports IGMP and IP Multicasting and Filtering
- Port Based VLAN (IEEE 802.1Q)
- Rapid Spanning Tree Protocol (IEEE 802.1W)
- Designed and Manufactured in the USA
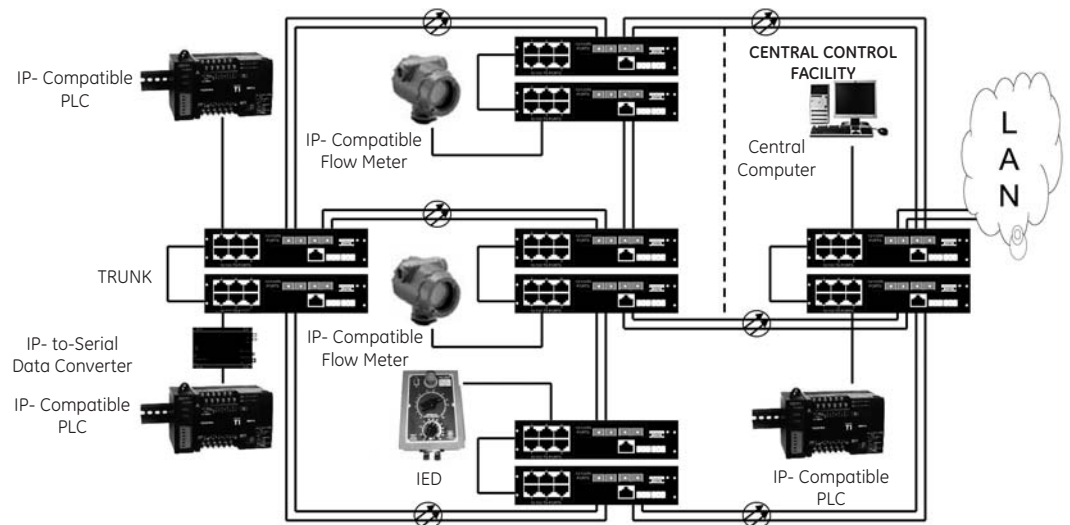- Comprehensive 5-Year Warranty

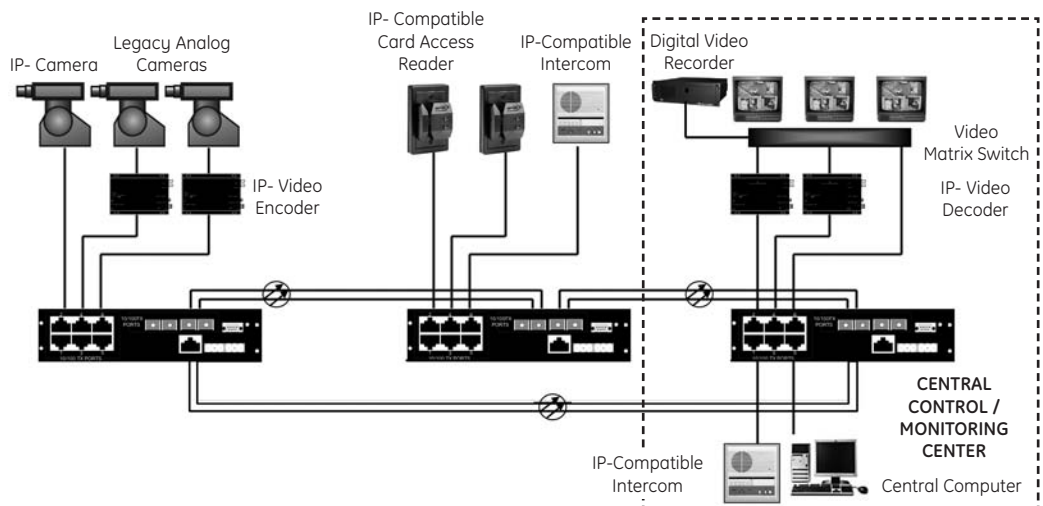# Environmentally Hardened 9 Port 10/100Mbps
D-GES7600

Typical ITS System Design (Linear Add-Drop Network Architecture)

Analog Video Cameras

IP Video Encoder

IP-to-Serial Data Converter

170-E Controller

2070 Controller

ICE STORM
UTILITY CREWS
MAINE THANKS YOU

IP Compatible Variable Message Sign

Digital Video Recorder

Video Matrix Switch

IP Video Decoder

TRAFFIC OPERATIONS CENTER

Central Computer

Typical Factory Automation Design (Mesh Network Architecture)

IP- Compatible PLC

IP- Compatible Flow Meter

CENTRAL CONTROL FACILITY

Central Computer

LAN

TRUNK

IP- to-Serial Data Converter

IP- Compatible PLC

IP- Compatible Flow Meter

IED

IP- Compatible PLC

Typical Security System Design (Self-Healing Ring Network Architecture)

IP- Camera

Legacy Analog Cameras

IP- Compatible Card Access Reader

IP-Compatible Intercom

Digital Video Recorder

IP- Video Encoder

Video Matrix Switch

IP- Video Decoder

IP-Compatible Intercom

CENTRAL CONTROL / MONITORING CENTER

Central Computer

GE
Security

U.S.
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T 888-GE-SECURITY
  888-(437-3287)
F 561 998-6224
E rs-bctinfo@gesecurity.com

Canada
T 519-376-2430
F 519-376-7258

Asia
T 852-2907-8108
F 852-2142-5063

Australia
T 61-3-9239-1200
F 61-3-9239-1299

Europe
T 44-113-238-1668
F 44-113-253-8121

Latin America
T 305-593-4301
F 305-267-4300

www.gesecurity.com

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Specifications

Switching Performance

Switching Method: Store and Forward

Port Latency: HQ <1mS @50 Mbps

MQ <4-5mS @37.5 Mbps

LQ <16mS @12.5 Mbps

MAC Addresses: Self Learning, up to 4000 addresses

VLANS: Up to 64 port, tag based

QoS: Port access control, port mirroring, 8-group trunking.

Protocols Supported

RTP/ID, TCP/IP w/full multicast support. DNS and DHCP

Network Management

- SNMP V2c

- Supports RMON for Ethernet Agent

- Supports Telenet/TFTP

Network Standards Supported

IEEE:	802.3	10 BASE-T
IEEE:	802.3 u	100 BASE-T, 100 BASE-FX
IEEE:	802.3 ab	1000 BASE-T, 1000 BASE-FX
IEEE:	802.1d	Spanning Tree
IEEE:	802.1w	Rapid Spanning Tree
IEEE:	802.1q	VLAN
IEEE:	802.1p	Class of Service (CoS)

Configuration

IEEE 802.3 Compliant

Data Interface: Ethernet Layer 2 Device

Data Rate: 10/100 Mbps (10/100 BASE-T or 10/100 BASE-FX). 1000 Mbps throughput available at optional optical or CAT-5e linking port.

Number of Ports: 8; 9 if ordered with optional 1000 BASE-T or 1000 BASE-FX linking port.

Operating Wavelength

D-GES7600-MM 1310 nm, multimode

D-GES7600-SM 1310 nm, singlemode

Optical Emitter

Multimode Units:

Vertical Cavity Surface Emitting Laser (VCSEL)

Singlemode Units:

Laser Diode

Number of Fibers Required

2, 4 or 6 depending upon configuration ordered. See Ordering Information.

Connectors

Optical: Multimode: SC

Singlemode: SC, standard.

Power: Terminal Plug with screw clamps

Data: RJ-45

Electrical & Mechanical

Power Supply Rated to: +12 VDC @1 A

+24 VDC @0.5A

Power Consumption: 10 Watts Max.

Voltage Regulation: Solid-state; independent on each board

Current Protection: Automatic Resettable Solid-State Current Limiters provide unconditional protection against major faults.

Circuit Board: Meets IPC Standard

Size (in./ cm.) (LxWxH): Stand-Alone/Shelf-Mount, Wall-Mount & DIN-Rail Mounting Configurations:
8.25"/17.8 x 6.5"/ 12.5 x 1.75"/2.5. DIN-Rail mount units are available in either side-mount or rear-mount versions. See Ordering Information.

Shipping Weight: < 2.75 lbs./1.25 kg

Summary Fault/Alarm Contact Closure

Normally-open contacts rated at 24 VDC at 0.5 A, 10W, resistive load. Consult factory for additional details.

Environmental

Operating Temp: -40° C to +74° C

Storage Temp: -40° C to +85° C

Relative Humidity: 0% to 95% (non-condensing)
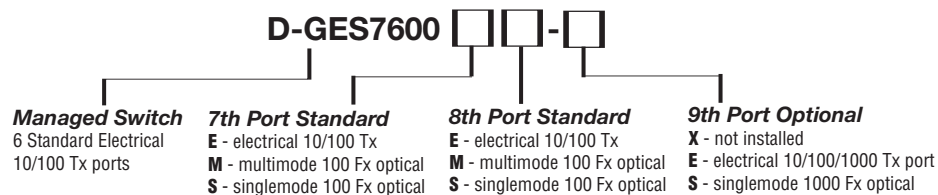
MTBF: >100,000 hours

AGENCY COMPLIANCE

FCC PART 15 COMPLIANT   CE c(UL)us

MADE IN THE USA

Complies with FDA Performance Standard for Laser Products, Title 21, Code of Federal Regulations, Subchapter J

Ordering Information

Use the Configurator below to select the options available for this product.

D-GES7600 ☐☐☐-☐

Managed Switch
6 Standard Electrical 10/100 Tx ports

7th Port Standard
E - electrical 10/100 Tx
M - multimode 100 Fx optical
S - singlemode 100 Fx optical

8th Port Standard
E - electrical 10/100 Tx
M - multimode 100 Fx optical
S - singlemode 100 Fx optical

9th Port Optional
X - not installed
E - electrical 10/100/1000 Tx port
S - singlemode 1000 Fx optical

Ordering Information

WAVELENGTH 1310 NM	PART NUMBER	DESCRIPTION	FIBERS REQUIRED	OPTICAL PWR BUDGET	MAX. DISTANCE*
ELECTRICAL (Wavelength N/A)	D-GES7600-EE-X	8 ports 10/100 TX electrical	N/A	N/A	328 ft. (100 m)
	D-GES7600-EE-E	8 ports 10/100 TX electrical 1 port 10/100/1000 TX electrical			
MULTIMODE 62.5/125µm**	D-GES7600-MM-X	6 ports 10/100 TX electrical 2 ports 100 FX optical MM - both ports	4	10 dB	1.2 miles (2 km)
	D-GES7600-MM-E	6 ports 10/100 TX electrical 2 ports 100 FX optical MM - both ports 1 port 10/100/1000 TX electrical	4		
MULTIMODE 62.5/125µm** SINGLEMODE 9/125µm**	D-GES7600-MM-S	6 ports 10/100 TX electrical 2 ports 100 FX optical MM - both ports 1 port 1000 FX optical SM	6	10 dB, MM 10 dB, SM	1.2 miles (2 km) MM 17 miles (28 km) SM
	D-GES7600-MS-X	6 ports 10/100 TX electrical 1 port 100 FX optical MM 1 port 100 FX optical SM	4	10 dB, MM 13 dB, SM	1.2 miles (2 km) MM 23 miles (37 km) SM
	D-GES7600-MS-E	6 ports 10/100 TX electrical 1 port 100 FX optical MM 1 port 100 FX optical SM 1 port 10/100/1000 TX electrical	4	10 dB, MM 13 dB, SM	1.2 miles (2 km) MM 23 miles (37 km) SM
	D-GES7600-MS-S	6 ports 10/100 TX electrical 1 port 100 FX optical MM 1 port 100 FX optical SM 1 port 1000 FX optical SM	6	10 dB, MM 13 dB, SM 100FX 10 dB, SM 1000FX	1.2 miles (2 km) MM 23 miles (37 km) SM 100FX 17 miles (28 km) SM 1000FX
SINGLEMODE 9/125µm	D-GES7600-EE-S	8 ports 10/100 TX electrical 1 port 1000 FX optical SM	2	10 dB, SM	17 miles (28 km) SM
	D-GES7600-SS-X	6 ports 10/100 TX electrical 2 ports 100 FX optical SM - both ports	4	13 dB, SM	23 miles (37 km) SM
	D-GES7600-SS-E	6 ports 10/100 TX electrical 2 ports 100 FX optical SM - both ports 1 port 10/100/1000 TX electrical	4	13 dB, SM	23 miles (37 km) SM
	D-GES7600-SS-S	6 ports 10/100 TX electrical 2 ports 100 FX optical SM - both ports 1 port 1000 FX optical SM	6	13 dB, SM 100FX 10 dB, SM 1000FX	23 miles (37 km) SM 100FX 17 miles (28 km) SM 1000FX
ACCESSORIES	GES-PS-12VDC — 12 Volt DC Plug-in Power Supply (1 Supply Included). (2) Supplies Required for Redundant Power Supply Operation.♦ D-GES7600-W — Wall-Mount Brackets D-GES7600-DS — DIN Rail, Side-Mount Bracket D-GES7600-DB — DIN Rail, Rear-Mount Bracket D-GES7600-RS — Rack-Mount, Single Bracket D-GES7600-RD — Rack-Mount, Dual Bracket				

* Optical transmission distance is limited to optical loss of the fiber and any additional loss introduced by connectors, splices and patch panels. Distance can also be limited by fiber bandwidth.

♦ All power supply accessories are third party manufactured.

**For 50/125 Fiber, subtract 4 dB from Optical Power Budget.