

ICS-G7748A/G7750A/G7752A/ G7848A/G7850A/G7852A Series

48G/48G+2 10GbE/48G+4 10GbE-port Layer 2/Layer 3 full Gigabit modular managed Ethernet switches



- > Up to 48 Gigabit Ethernet ports plus 4 10G Ethernet ports
- > Up to 52 optical fiber connections (SFP slots)
- > Up to 48 PoE+ ports with external power supply (with IM-G7000A-4PoE module)
- > Fanless, -10 to 60°C operating temperature range
- > Modular design for maximum flexibility and hassle-free future expansion
- > Hot swap interface and power modules for continuous operation
- > Turbo Ring and Turbo Chain (recovery time < 50 ms @ 250 switches), RSTP/STP, and MSTP for network redundancy
- > Isolated redundant power inputs with universal 110/220 VAC power supply range
- > Supports MXstudio for easy, visualized industrial network management
- > V-ON™ ensures millisecond-level multicast data and video network recovery



Introduction

Process automation and transportation automation applications combine data, voice, and video, and consequently require high performance and high reliability. The ICS-G7748A/G7750A/G7752A/G7848A/G7850A/G7852A series full Gigabit backbone switches' modular design makes network planning easy, and allows greater flexibility by letting you install up to 48 Gigabit Ethernet ports plus 4 10 Gigabit Ethernet ports. The ICS-G7848A/G7850A/G7852A series also supports Layer 3 routing functionality to facilitate the deployment of applications across networks, making them ideal for

large scale industrial networks. The ICS-G7748A/G7750A/G7752A/G7848A/G7850A/G7852A's full Gigabit capability increases bandwidth to provide high performance and the ability to quickly transfer large amounts of video, voice, and data across a network. The switches support the Turbo Ring, Turbo Chain, and RSTP/STP redundancy protocols, and are fanless and come with an isolated redundant power supply to increase system reliability and the availability of your network backbone.

Features and Benefits

- Layer 3 switching functionality to move data and information across networks (ICS-G7800A series)
- Advanced PoE management functions: PoE output setting, PD failure check, PoE scheduling, and PoE diagnostics (with IM-G7000A-4PoE module)
- Command line interface (CLI) for quickly configuring major managed functions
- Supports advanced VLAN capability with Q-in-Q tagging
- Software based IEEE 1588 PTPv2 (Precision Time Protocol) for precise time synchronization of networks
- DHCP Option 82 for IP address assignment with different policies
- Support EtherNet/IP and Modbus/TCP protocols for device management and monitoring
- Compatible with EtherNet/IP protocols for transparent data transmission
- Redundant Gigabit Turbo Ring and Turbo Chain (recovery time < 50 ms @ 250 switches), RSTP/STP, and MSTP for network redundancy
- IGMP snooping and GMRP for filtering multicast traffic
- IEEE 802.1Q VLAN and VRRP protocol to ease network planning
- QoS (IEEE 802.1p/1Q and TOS/DiffServ) to increase determinism
- Port Trunking for optimum bandwidth utilization
- TACACS+, SNMPv3, IEEE 802.1X, HTTPS, and SSH to enhance network security
- Access control lists (ACL) increase the flexibility and security of network management (ICS-G7800A series)
- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- Bandwidth management prevents unpredictable network status
- Lock port function for blocking unauthorized access based on MAC address
- Port mirroring for online debugging
- Automatic warning by exception through e-mail, relay output
- Digital inputs for integrating sensors and alarms with IP networks
- Redundant, dual AC power inputs

Specifications

Technology

Standards:

IEEE 802.3 for 10BaseT
 IEEE 802.3u for 100BaseT(X) and 100BaseFX
 IEEE 802.3ab for 1000BaseT(X)
 IEEE 802.3z for 1000BaseSX/LX/LHX/ZX
 IEEE 802.3ae for 10 Gigabit Ethernet
 IEEE 802.3af/at for PoE/PoE+ output
 IEEE 802.3x for Flow Control
 IEEE 802.1D-2004 for Spanning Tree Protocol
 IEEE 802.1w for Rapid Spanning Tree Protocol
 IEEE 802.1s for Multiple Spanning Tree Protocol
 IEEE 802.1Q for VLAN Tagging
 IEEE 802.1p for Class of Service
 IEEE 802.1X for Authentication
 IEEE 802.3ad for Port Trunk with LACP

Software Features

Management: IPv4, SNMP v1/v2c/v3, LLDP, Port Mirror, DDM, RMON, DHCP Server/Client, DHCP Option 66/67/82, BootP, TFTP, SMTP, RARP, Telnet, Syslog, SNMP Inform, Flow Control, Back Pressure Flow Control

Filter: 802.1Q VLAN, Q-in-Q VLAN, GVRP, IGMP v1/v2/v3, GMRP

Redundancy Protocols: STP, RSTP, MSTP, Turbo Ring v1/v2, Turbo Chain, Link Aggregation

Security: RADIUS, TACACS+, SSL, SSH, Broadcast Storm Protection, Port Lock, Access Control Lists (ICS-G7800A series only)

Unicast Routing: Static Routing, RIPV1/V2, OSPF (ICS-G7800A series)

Multicast Routing: DVMRP, PIM-DM, PIM-SM, PIM-SSM (ICS-G7800A series)

Time Management: SNTP, NTP Server/Client, IEEE 1588v2 PTP (software-based)

Industrial Protocols: EtherNet/IP, Modbus/TCP

MIB: MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Groups 1, 2, 3, 9

Routing Redundancy: VRRP (ICS-G7800A series)

Switch Properties

Priority Queues: 8

Max. Number of VLANs: 256

VLAN ID Range: VID 1 to 4094

IGMP Groups: 4096

MAC Table Size: 16 K

Packet Buffer Size: 12 Mbit

DRAM Size: 128 MB

Flash Size: 16 MB

Jumbo Frame Size: 9.6 KB

Interface

Gigabit Ethernet: 12 slots for 4-port interface modules

- 10/100/1000BaseT(X), or
- PoE+ 10/100/1000BaseT(X), or
- 100/1000BaseSFP slots

Note: See the IM-G7000A datasheet for Gigabit Ethernet module product information.

10 Gigabit Ethernet: 2 or 4 10GbE SFP+ slots (ICS-G7750A/G7850A and ICS-G7752A/G7852A only)

Console Port: USB-serial console (Type B connector)

Storage Port: USB storage (Type A connector for ABC-02-USB)

Alarm Contact: 1 relay output with current carrying capacity of 2 A @ 30 VDC

Digital Inputs: 1 input with the same ground, but electrically isolated from the electronics.

- +13 to +30 V for state "1"
- -30 to +1 V for state "0"
- Max. input current: 8 mA

Power Requirements

Input Voltage: 110/220 VAC

Operating Voltage: 85 to 264 VAC

Input Current: ICS-G7748A/G7848A: Max. 0.87/0.6 A @ 110/220 VAC

ICS-G7750A/G7850A: Max. 0.94/0.64 A @ 110/220 VAC

ICS-G7752A/G7852A: Max. 1.01/0.68 A @ 110/220 VAC

Overload Current Protection: Present

Reverse Polarity Protection: Present

Physical Characteristics

IP Rating: IP30 protection

Dimensions: 440 x 176 x 523.8 mm (17.32 x 6.93 x 20.62 in)

Weight: 12.9 kg (28.5 lb)

Installation: 19-inch rack mounting

Environmental Limits

Operating Temperature: -10 to 60°C (14 to 140°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

Safety: UL 60950-1, EN 60950-1

EMC: EN 55022/24

EMI: CISPR 22, FCC Part 15B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m

IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV

IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV

IEC 61000-4-6 CS: Signal: 10 V

IEC 61000-4-8

Rail Traffic: EN 50121-4

Shock: IEC 60068-2-27

Freefall: IEC 60068-2-32

Vibration: IEC 60068-2-6

Note: Please check Moxa's website for the most up-to-date certification status.

MTBF (mean time between failures)

Time:

ICS-G7748A/G7848A: 314,973 hrs

ICS-G7750A/G7850A: 282,329 hrs

ICS-G7752A/G7852A: 274,488 hrs

Standard: Telcordia (Bellcore), GB

Warranty

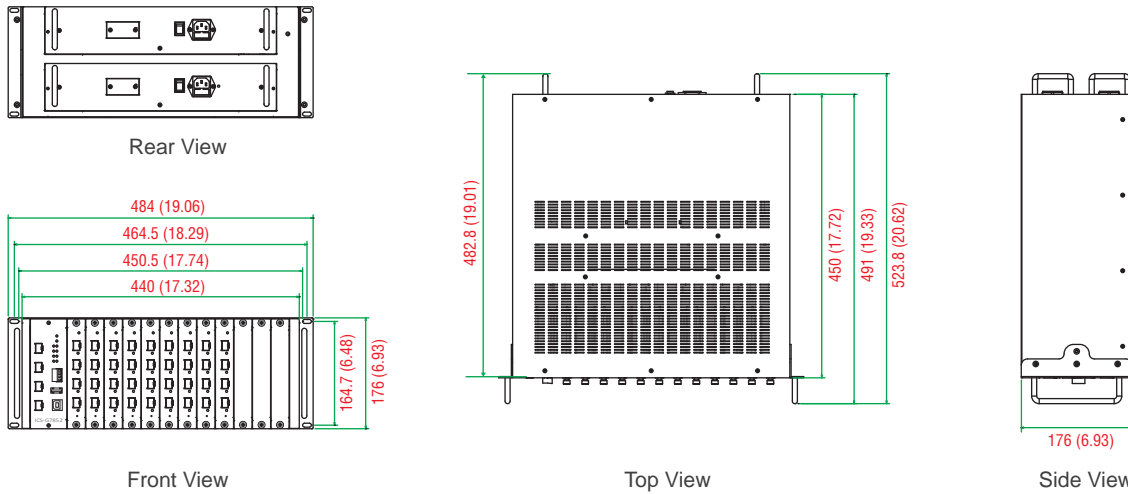
Warranty Period: 5 years

Details: See www.moxa.com/warranty

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Dimensions

Unit: mm (inch)



Ordering Information

Step 1: Select Ethernet switch system

Step 2: Select interface modules

ICS-G7748A/G7750A/G7752A/G7848A/
G7850A/G7852A with power supply



IM-G7000A
(Gigabit Ethernet)

Note: The ICS-G7748A/G7750A/G7752A/G7848A/G7850A/G7852A Ethernet switch system is delivered without interface modules. See the IM-G7000A datasheet to determine which interface modules are suitable for your application. See the SFP-10G, SFP-1G, and SFP-1FE datasheets for SFP module product information.

Available Models

Available Models	Port Interface			Power Supply	
	Gigabit Ethernet		10 Gigabit Ethernet	Isolated Power Supply 1	Isolated Power Supply 2
	10/100/1000BaseT(X)	100/1000BaseSFP*	10GbE SFP+*	HV: 85 to 264 VAC	HV: 85 to 264 VAC
ICS-G7748A/G7750A/G7752A Series Layer 2 Switches					
ICS-G7748A-HV-HV	up to 48	up to 48	–	1	1
ICS-G7750A-2XG-HV-HV	up to 48	up to 48	2	1	1
ICS-G7752A-4XG-HV-HV	up to 48	up to 48	4	1	1
ICS-G7848A/G7850A/G7852A Series Layer 3 Switches					
ICS-G7848A-HV-HV	up to 48	up to 48	–	1	1
ICS-G7850A-2XG-HV-HV	up to 48	up to 48	2	1	1
ICS-G7852A-4XG-HV-HV	up to 48	up to 48	4	1	1

Note: The ICS-G7748A/G7750A/G7752A/G7848A/G7850A/G7852A series supports 10GbE SFP+ and 100/1000BaseSFP slots. See the SFP-10G, SFP-1G, and SFP-1FE datasheets for SFP module product information.

Optional Accessories (can be purchased separately)

MXview: Moxa industrial network management software with 50, 100, 250, 500, 1000, or 2000 nodes

EDS-SNMP OPC Server Pro: OPC server software that works with all SNMP devices

ABC-02-USB: Configuration backup and restoration tool for managed Ethernet switches, 0 to 60°C operating temperature

Power Cords: See Appendix A for details

Package Checklist

- ICS-G7748A/G7750A/G7752A/G7848A/G7850A/G7852A switch
- 12 interface cover plates
- USB cable (Type A male to Type B male)
- 2 power cords (US type x 1, EU type x 1)
- Protective caps for unused ports
- 2 rackmount ears
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card

IM-G7000A Series

4G-port Gigabit Ethernet interface modules for ICS-G7748A/G7750A/G7752A/G7848A/G7850A/G7852A series modular managed Ethernet switches

Specifications

Gigabit Ethernet Interface Modules, IM-G7000A Series



Interface

RJ45 Ports: 10/100/1000BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection

Fiber Ports: 100/1000BaseSFP slot

LED Indicators: STAT, 10/100/1000 for TP port, 100/1000 for fiber port

Hot Swap Button: Push this button prior to swapping IM-G7000A modules

PoE+ Ports: 10/100/1000BaseT(X) auto negotiation speed, compliant with IEEE 802.3af/at high power mode up to 36 W

Power Requirements

Power Consumption:

IM-G7000A-4GTX: 3.47 W

IM-G7000A-4GSFP: 1.32 W

IM-G7000A-4PoE: 5.14 W (without PD power consumption)

Note: A 48 VDC external power supply is required to provide power to PoE devices.

Physical Characteristics

IP Rating: IP30 protection

Dimensions: 28.8 x 174.7 x 166.8 mm (1.13 x 6.88 x 6.57 in)

Weight: 220 g (0.49 lb)

MTBF (mean time between failures)

Time:

IM-G7000A-4GTX: 1,569,520 hrs

IM-G7000A-4GSFP: 1,544,084 hrs

IM-G7000A-4PoE: 394,348 hrs

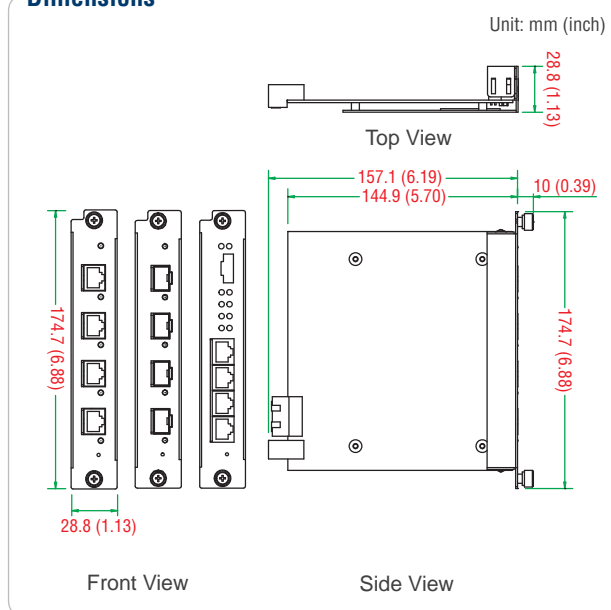
Standard: Telcordia (Bellcore), GB

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions



Ordering Information

Available Models

IM-G7000A-4GTX: Gigabit Ethernet interface module with 4 10/100/1000BaseT(X) ports, -10 to 60°C operating temperature

IM-G7000A-4GSFP: Gigabit Ethernet interface module with 4 100/1000BaseSFP slots, -10 to 60°C operating temperature

IM-G7000A-4PoE: Gigabit Ethernet PoE+ interface module with 4 10/100/1000BaseT(X) ports, -10 to 60°C operating temperature

Note: See the SFP-1G, SFP-1G Copper, and SFP-1FE datasheets for SFP module product information.

Package Checklist

- IM-G7000A interface module
- Warranty card