

# ICS-G7752A Series

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



## Features and Benefits

- 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-swappable interface and power modules for continuous operation
- Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches)<sup>1</sup>, and STP/RSTP/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

## Certifications



## Introduction

Process automation and transportation automation applications combine data, voice, and video, and consequently require high performance and high reliability. The ICS-G7752A 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-G7752A'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 fanless switches support the Turbo Ring, Turbo Chain, and RSTP/STP redundancy technologies, and come with an isolated redundant power supply to increase system reliability and the availability of your network backbone.

## Additional Features and Benefits

- 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
- DHCP Option 82 for IP address assignment with different policies
- Supports EtherNet/IP and Modbus TCP protocols for device management and monitoring
- Compatible with PROFINET protocol for transparent data transmission
- Automatic warning by exception through email and relay output
- Digital inputs for integrating sensors and alarms with IP networks
- Redundant, dual AC power inputs
- IGMP snooping and GMRP for filtering multicast traffic
- IEEE 802.1Q VLAN and GVRP 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
- SNMPv1/v2c/v3 for different levels of network management
- RMON for proactive and efficient network monitoring
- Bandwidth management to prevent unpredictable network status
- Lock port function for blocking unauthorized access based on MAC address
- Port mirroring for online debugging

1. If the port link speed is 1 Gigabit or higher, the recovery time is < 50 ms.

## Specifications

### Input/Output Interface

|                        |   |
|------------------------|---|
| Alarm Contact Channels | Relay output with current carrying capacity of 2 A @ 30 VDC                     |
| Digital Inputs         | +13 to +30 V for state 1<br>-30 to +1 V for state 0<br>Max. input current: 8 mA |

### Ethernet Interface

|                  |  |
|------------------|--|
| 10GbE SFP+ Slots | 4  |
| Slot Combination | 12 slots for 4-port interface modules (10/100/1000BaseT(X), or PoE+ 10/100/1000BaseT(X), or 100/1000BaseSFP slots) <sup>2</sup>  |
| Standards        | IEEE 802.1D-2004 for Spanning Tree Protocol<br>IEEE 802.1p for Class of Service<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1s for Multiple Spanning Tree Protocol<br>IEEE 802.1w for Rapid Spanning Tree Protocol<br>IEEE 802.1X for authentication<br>IEEE 802.3 for 10BaseT<br>IEEE 802.3ab for 1000BaseT(X)<br>IEEE 802.3ad for Port Trunk with LACP<br>IEEE 802.3u for 100BaseT(X) and 100BaseFX<br>IEEE 802.3x for flow control<br>IEEE 802.3z for 1000BaseSX/LX/LHX/ZX<br>IEEE 802.3af/at for PoE/PoE+ output<br>IEEE 802.3ae for 10 Gigabit Ethernet |

### Ethernet Software Features

|                      |  |
|----------------------|--|
| Management           | ARP<br>Back Pressure Flow Control<br>BOOTP<br>DDM<br>DHCP Option 66/67/82<br>DHCP Server/Client<br>Flow control<br>IPv4/IPv6<br>LLDP<br>Port Mirror<br>RARP<br>RMON<br>SCP<br>SMTP<br>SNMP Inform<br>SNMPv1/v2c/v3<br>Syslog<br>Telnet<br>TFTP |
| Filter               | 802.1Q<br>BPDU Filter<br>BPDU Guard<br>GMRP<br>GVRP<br>IGMP v1/v2/v3   |
| Redundancy Protocols | Link Aggregation<br>MRP<br>MSTP<br>RSTP<br>Turbo Chain<br>Turbo Ring v1/v2<br>V-ON   |
| Security             | Access control list<br>Broadcast storm protection<br>HTTPS/SSL   |

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

|                      |   |
|----------------------|---|
|                      | MAB authentication<br>Sticky MAC<br>NTP authentication<br>Port Lock<br>RADIUS<br>SSH<br>TACACS+                     |
| Time Management      | NTP Server/Client<br>SNTP   |
| Industrial Protocols | EtherNet/IP<br>Modbus TCP   |
| MIB                  | Bridge MIB<br>Ethernet-like MIB<br>MIB-II<br>P-BRIDGE MIB<br>Q-BRIDGE MIB<br>RMON MIB Groups 1, 2, 3, 9<br>RSTP MIB |

### Switch Properties

|                    |               |
|--------------------|---------------|
| DRAM               | 128 MB        |
| Flash              | 16 MB         |
| IGMP Groups        | 4096          |
| Jumbo Frame Size   | 9.6 KB        |
| MAC Table Size     | 16 K          |
| Max. No. of VLANs  | 256           |
| Packet Buffer Size | 12 Mbits      |
| VLAN ID Range      | VID 1 to 4094 |
| Priority Queues    | 8             |

### USB Interface

|              |            |
|--------------|------------|
| Storage Port | USB Type A |
|--------------|------------|

### Serial Interface

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

### Power Parameters

|                             |   |
|-----------------------------|---|
| Input Voltage               | 110 to 220 VAC<br>Redundant dual inputs   |
| Operating Voltage           | 85 to 264 VAC   |
| Input Current               | 1.31/0.83 A @ 110/220 VAC<br>Note: These are the input current ratings for the device with the maximum number of modules installed.         |
| Power Consumption (Max.)    | 120.38/138.34 W @ 110/220 VAC<br>Note: These are the power consumption ratings for the device with the maximum number of modules installed. |
| Total PoE Power Budget      | Installed with IM-G7000A-4PoE Module: Maximum 1,440 W @ 48 VDC  |
| Overload Current Protection | Supported   |
| Reverse Polarity Protection | Supported   |

## Physical Characteristics

|              |  |
|--------------|--|
| IP Rating    | IP30   |
| Dimensions   | 440 x 176 x 523.8 mm (17.32 x 6.93 x 20.62 in) |
| Weight       | 12,900 g (28.5 lb)                             |
| Installation | Rack mounting                                  |

## Environmental Limits

|  |                            |
|--|----------------------------|
| Operating Temperature                  | -10 to 60°C (14 to 140°F)  |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity              | 5 to 95% (non-condensing)  |

## Standards and Certifications

|           |  |
|-----------|--|
| Safety    | EN 61010-2-201<br>UL 61010-2-201   |
| EMC       | EN 55032/35  |
| EMI       | CISPR 32, FCC Part 15B Class A   |
| EMS       | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8 PFMF |
| Railway   | EN 50121-4   |
| Freefall  | IEC 60068-2-32   |
| Shock     | IEC 60068-2-27   |
| Vibration | IEC 60068-2-6  |

## MTBF

|           |                          |
|-----------|--------------------------|
| Time      | 274,488 hrs              |
| Standards | Telcordia (Bellcore), GB |

## Warranty

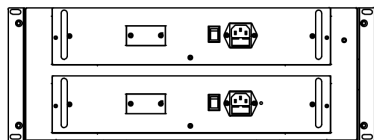
|                 |  |
|-----------------|--|
| Warranty Period | 5 years  |
| Details         | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> |

## Package Contents

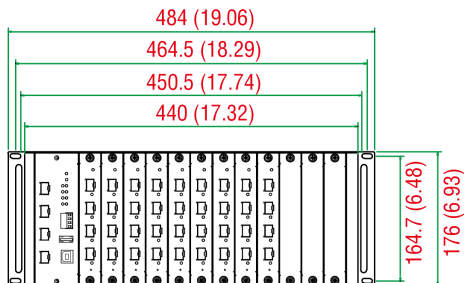
|                  |  |
|------------------|--|
| Device           | 1 x ICS-G7752A Series switch   |
| Cable            | 1 x USB type A male to USB type B male   |
| Installation Kit | 2 x rack-mounting ear<br>8 x cap, plastic, for SFP slot  |
| Power Supply     | 1 x power cord, EU type<br>1 x power cord, US type   |
| Documentation    | 1 x quick installation guide<br>1 x warranty card  |
| Note             | 48 V external power supply, SFP modules and/or modules from the IM-G7000A Module Series need to be purchased separately for use with this product. |

## Dimensions

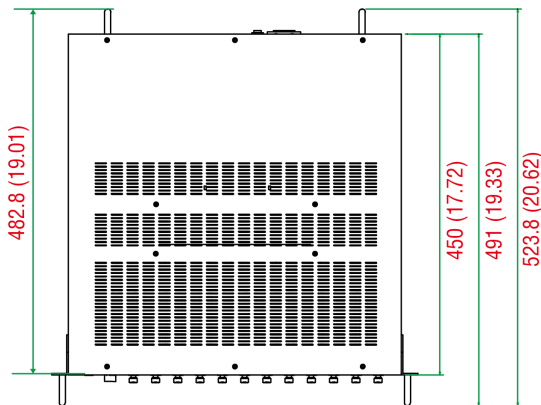
Unit: mm (inch)



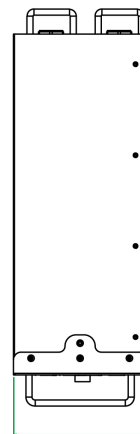
Rear View



Front View



Top View



Side View

## Ordering Information

| Model Name           | Layer | 10GbE SFP+ Slots | 100/1000Base SFP Slots | 10/100/1000BaseT(X) Ports RJ45 Connector | Operating Temp. |
|----------------------|-------|------------------|------------------------|--|-----------------|
| ICS-G7752A-4XG-HV-HV | 2     | 4                | Up to 48               | Up to 48                                 | -10 to 60°C     |

## Accessories (sold separately)

### IM-G7000A Module Series

|                 |  |
|-----------------|--|
| IM-G7000A-4GSFP | Gigabit Ethernet interface module with 4 100/1000BaseSFP slots, -10 to 60°C operating temperature          |
| IM-G7000A-4GTx  | Gigabit Ethernet interface module with 4 10/100/1000BaseT(X) ports, -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 |

### Power Modules

|               |   |
|---------------|---|
| PWR-G7000A-AC | Power supply module (85 to 264 VAC) for ICS-G7748A/G7750A/G7752A/G7848A/G7850A/G7852A Series, -10 to 60°C operating temperature |
|---------------|---|

### SFP Modules

|               |  |
|---------------|--|
| SFP-1FELLc-T  | SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature                                      |
| SFP-1FEMLC-T  | SFP module with 1 100Base multi-mode, LC connector for 2/4 km transmission, -40 to 85°C operating temperature  |
| SFP-1FESLC-T  | SFP module with 1 100Base single-mode with LC connector for 40 km transmission, -40 to 85°C operating temperature                                      |
| SFP-1G10ALC   | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature   |
| SFP-1G10ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G10BLC   | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature   |

|                |  |
|----------------|--|
| SFP-1G10BLC-T  | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1G20ALC    | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature   |
| SFP-1G20ALC-T  | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G20BLC    | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature   |
| SFP-1G20BLC-T  | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1G40ALC    | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature   |
| SFP-1G40ALC-T  | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G40BLC    | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature   |
| SFP-1G40BLC-T  | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1GEZXC     | SFP module with 1 1000BaseEZC port with LC connector for 110 km transmission, 0 to 60°C operating temperature  |
| SFP-1GEZXC-120 | SFP module with 1 1000BaseEZC port with LC connector for 120 km transmission, 0 to 60°C operating temperature  |
| SFP-1GLHLC     | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature  |
| SFP-1GLHLC-T   | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature  |
| SFP-1GLHXC     | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature   |
| SFP-1GLHXC-T   | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature   |
| SFP-1GLSXC     | SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature   |
| SFP-1GLSXC-T   | SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature                                       |
| SFP-1GLXC      | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature  |
| SFP-1GLXC-T    | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature  |
| SFP-1GSXC      | SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°C operating temperature  |
| SFP-1GSXC-T    | SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°C operating temperature                                      |
| SFP-1GZXC      | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature  |
| SFP-1GZXC-T    | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature  |
| SFP-1GTXRJ45-T | SFP module with 1 1000BaseT port with RJ45 connector for 100 m transmission, -40 to 75°C operating temperature   |
| SFP-10GSRLC-T  | SFP+ module with 1 10GBase-SR port, LC connector for 33m/82m/300m/400m transmission, -40 to 85°C operating temperature                                 |
| SFP-10GZRLC-T  | SFP+ module with 1 10GBase-ZR port, LC connector for 80 km transmission, -40 to 85°C operating temperature   |
| SFP-10GERLC-T  | SFP+ module with 1 10GBase-ER port, LC connector for 40 km transmission, -40 to 85°C operating temperature   |
| SFP-10GLRLC-T  | SFP+ module with 1 10GBase-LR port, LC connector for 10 km transmission, -40 to 85°C operating temperature   |

## Power Cords

|                  |   |
|------------------|---|
| PWC-C7UK-2B-183  | Power cord with United Kingdom (UK) plug, 2.5A/250V, 1.83 m     |
| PWC-C7EU-2B-183  | Power cord with Continental Europe (EU) plug, 2.5A/250V, 1.83 m |
| PWC-C13EU-3B-183 | Power cord with Continental Europe (EU) plug, 1.83 m            |
| PWC-C13US-3B-183 | Power cord with United States (US) plug, 1.83 m                 |
| PWC-C13AU-3B-183 | Power cord with Australian (AU) plug, 1.83 m                    |
| PWC-C13CN-3B-183 | Power cord with three-prong China (CN) plug, 1.83 m             |
| PWC-C7US-2B-183  | Power cord with United States (US) plug, 10A/125V, 1.83 m       |
| PWC-C13UK-3B-183 | Power cord with United Kingdom (UK) plug, 1.83 m                |
| PWC-C7AU-2B-183  | Power cord with Australian (AU) plug, 2.5A/250V, 1.83 m         |

## Software

|                   |  |
|-------------------|--|
| MXview-50         | Industrial network management software with a license for 50 nodes (by IP address)             |
| MXview-100        | Industrial network management software with a license for 100 nodes (by IP address)            |
| MXview-250        | Industrial network management software with a license for 250 nodes (by IP address)            |
| MXview-500        | Industrial network management software with a license for 500 nodes (by IP address)            |
| MXview-1000       | Industrial network management software with a license for 1000 nodes (by IP address)           |
| MXview-2000       | Industrial network management software with a license for 2000 nodes (by IP address)           |
| MXview Upgrade-50 | License expansion of MXview industrial network management software by 50 nodes (by IP address) |

## Storage Kits

|              |   |
|--------------|---|
| ABC-02-USB   | Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, 0 to 60°C operating temperature   |
| ABC-02-USB-T | Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, -40 to 75°C operating temperature |

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