

ICS-G7828A Series

24G+4 10GbE-port Layer 3 full Gigabit managed Ethernet switches



Features and Benefits

- 24 Gigabit Ethernet ports plus up to 4 10G Ethernet ports
- Up to 28 optical fiber connections (SFP slots)
- Fanless, -40 to 75°C operating temperature range (T models)
- Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches)¹, 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-G7828A Series is equipped with 24 Gigabit Ethernet ports plus up to 4 10 Gigabit Ethernet ports, and support Layer 3 routing functionality to facilitate the deployment of applications across networks, making them ideal for large-scale industrial networks.

The ICS-G7828A'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

- Layer 3 switching functionality to move data and information across networks
- Command line interface (CLI) for quickly configuring major managed functions
- Supports advanced VLAN capability with Q-in-Q tagging
- DHCP Option 82 for IP address assignment with different policies
- Supports EtherNet/IP, PROFINET, and Modbus TCP protocols for device management and monitoring
- IGMP snooping and GMRP for filtering multicast traffic
- IEEE 802.1Q VLAN and GVRP protocol to ease network planning
- Port mirroring for online debugging
- Automatic warning by exception through email and relay output
- 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
- Digital inputs for integrating sensors and alarms with IP networks
- Redundant, dual AC power inputs

Specifications

Ethernet Interface

| | |
|--|--|
| 10/100/1000BaseT(X) Ports (RJ45 connector) | ICS-G7828A-4XG-HV-HV-T: 20 ICS-G7828A-8GSFP-4XG-HV-HV-T: 12 |
| 100/1000BaseSFP Ports | ICS-G7828A-8GSFP-4XG-HV-HV-T: 8 ICS-G7828A-20GSFP-4XG-HV-HV-T: 20 |
| 10GbE SFP+ Slots | 4 |

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

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| Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+) | 4 |
| Standards | IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1X for authentication IEEE 802.3 for 10BaseT IEEE 802.3ab for 1000BaseT(X) IEEE 802.3ad for Port Trunk with LACP IEEE 802.3ae for 10 Gigabit Ethernet IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for flow control IEEE 802.3z for 1000BaseSX/LX/LHX/ZX |

Ethernet Software Features

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|----------------------|---|
| Management | ARP Back Pressure Flow Control BOOTP DDM DHCP Option 66/67/82 DHCP Server/Client Flow control IPv4 LLDP Port Mirror RARP RMON SCP SMTP SNMP Inform SNMPv1/v2c/v3 Syslog Telnet TFTP |
| Filter | 802.1Q BPDU Filter BPDU Guard GMRP GVRP IGMP v1/v2/v3 QinQ VLAN |
| Multicast Routing | DVMRP PIM-DM PIM-SM PIM-SSM |
| Redundancy Protocols | Link Aggregation MRP MSTP RSTP Turbo Chain Turbo Ring v1/v2 V-ON |
| Routing Redundancy | VRRP |
| Security | Access control list Broadcast storm protection HTTPS/SSL MAB authentication Sticky MAC NTP authentication Port Lock RADIUS SSH TACACS+ |

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| Time Management | NTP Server/Client SNTP |
| Unicast Routing | OSPF RIPv1/V2 Static Route |
| Industrial Protocols | EtherNet/IP Modbus TCP PROFINET |
| MIB | Bridge MIB Ethernet-like MIB MIB-II P-BRIDGE MIB Q-BRIDGE MIB RMON MIB Groups 1, 2, 3, 9 RSTP MIB |

Switch Properties

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|--------------------|---------------|
| 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

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| Storage Port | USB Type A |
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Serial Interface

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| Console Port | USB-serial console (Type B connector) |
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Input/Output Interface

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

Power Parameters

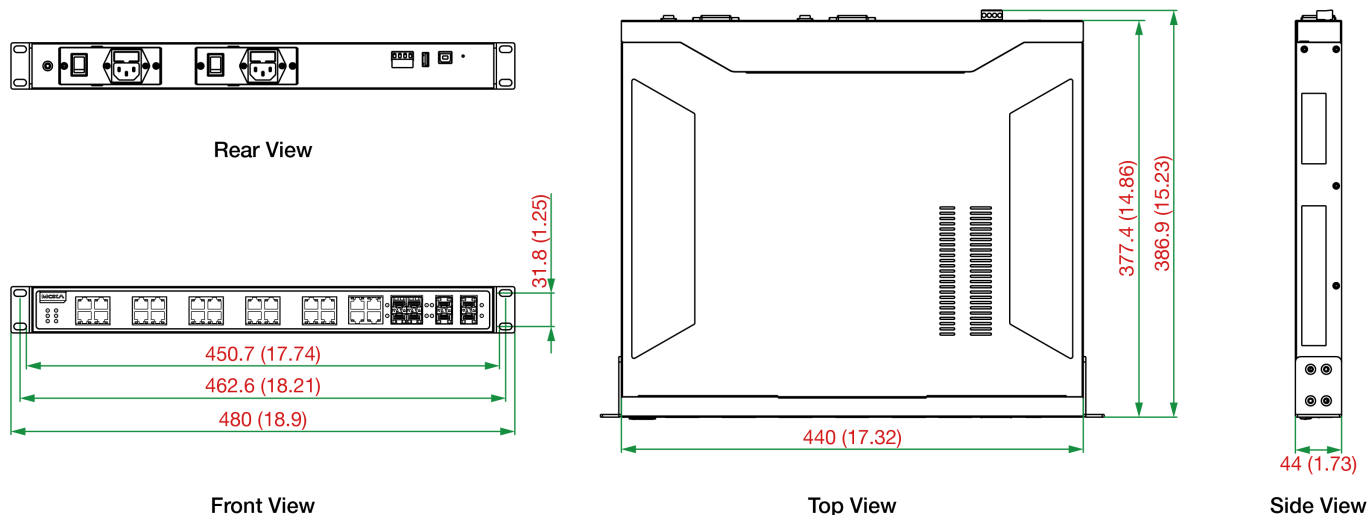
| | |
|-------------------|--|
| Input Voltage | 100 to 240 VAC Redundant dual inputs |
| Operating Voltage | 85 to 264 VAC |
| Input Current | Max. 1.08 A @ 110 VAC Max. 0.7 A @ 220 VAC |
| Power Consumption | Max. 66.41 W @ 110 VAC Max. 67.96 W @ 220 VAC |

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| Overload Current Protection | Supported |
| Reverse Polarity Protection | Supported |
| Physical Characteristics | |
| IP Rating | IP30 |
| Dimensions | 440 x 44 x 386.9 mm (17.32 x 1.73 x 15.23 in) |
| Weight | 6470 g (14.26 lb) |
| Installation | Rack mounting |
| Environmental Limits | |
| Operating Temperature | -40 to 75°C (-40 to 167°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 | UL 61010-2-201, EN 61010-2-201, UL 62368-1, IEC 62368-1 |
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V 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 | ICS-G7828A-4XG-HV-HV-T: 574,249 hrs ICS-G7828A-8GSFP-4XG-HV-HV-T: 539,574 hrs ICS-G7828A-20GSFP-4XG-HV-HV-T: 561,034 hrs |
| Standards | Telcordia (Bellcore), GB |
| Warranty | |
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |
| Package Contents | |
| Device | 1 x ICS-G7828A Series switch |
| Cable | 1 x USB type A male to USB type B male |
| Installation Kit | 2 x rack-mounting ear caps, plastic, for SFP slot 12 x cap, plastic, for SFP slot 20 x cap, plastic, for SFP slot 32 x cap, plastic, for SFP slot |

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| Power Supply | 1 x power cord, EU type 1 x power cord, US type |
| Documentation | 1 x quick installation guide 1 x warranty card |
| Note | SFP modules need to be purchased separately for use with this product. |

Dimensions

Unit: mm (inch)



Ordering Information

| Model Name | Layer | 10GbE SFP+ Slots | Combo Ports 10/100/ 1000BaseT(X) or 100/ 1000BaseSFP+ | 100/1000BaseSFP Slots | 10/100/ 1000BaseT(X) Ports (RJ45 Connector) | Operating Temp. |
|-------------------------------|-------|------------------|---|--------------------------|--|-----------------|
| ICS-G7828A-4XG-HV-HV-T | 3 | 4 | 4 | 0 | 20 | -40 to 75°C |
| ICS-G7828A-8GSFP-4XG-HV-HV-T | 3 | 4 | 4 | 8 | 12 | -40 to 75°C |
| ICS-G7828A-20GSFP-4XG-HV-HV-T | 3 | 4 | 4 | 20 | 0 | -40 to 75°C |

Accessories (sold separately)

Storage Kits

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|--------------|---|
| 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 |

SFP Modules

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|--------------|--|
| 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 |

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| SFP-10GLRLC-T | SFP+ module with 1 10GBase-LR port, LC connector for 10 km 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 |

Power Cords

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

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|-------------------|--|
| 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) |

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