

# TSN-G5004 Series

4G-port full Gigabit managed Ethernet switch



### Features and Benefits

- Compact and flexible housing design to fit into confined spaces
- Web-based GUI for easy device configuration and management
- IP40-rated metal housing
- Supports Time-sensitive Networking (TSN) technology

### Certifications



### Introduction

The TSN-G5004 Series switches are ideal for making manufacturing networks compatible with the vision of Industry 4.0. The switches are equipped with 4 Gigabit Ethernet ports. The full Gigabit design makes them a good choice for upgrading an existing network to Gigabit speed or for building a new full-Gigabit backbone for future high-bandwidth applications. The compact design and user-friendly configuration interfaces provided by the new Moxa web GUI make network deployment much easier. The TSN-G5004 Series leverages standard Ethernet Time-sensitive Networking (TSN) technology to enable real-time communications with future firmware upgrades adding support for additional TSN standards.

### Specifications

#### Ethernet Interface

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                                  | IEEE 802.3 for 10BaseT<br>IEEE 802.3u for 100BaseT(X)<br>IEEE 802.3ab for 1000BaseT(X)<br>IEEE 802.3z for 1000BaseX<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1p for Class of Service<br>IEEE 802.1D-2004 for Spanning Tree Protocol<br>IEEE 802.1w for Rapid Spanning Tree Protocol<br>IEEE 1588v2 PTP Precision Time Protocol (hardware-based)<br>IEEE 802.1 AS for Time Synchronization<br>IEEE 802.1 Qbv for Time-aware Shaper |
| 10/100/1000BaseT(X) Ports (RJ45 connector) | 4<br>Auto negotiation speed<br>Full/Half duplex mode<br>Auto MDI/MDI-X connection                                                                                                                                                                                                                                                                                                                                                    |

## Ethernet Software Features

|                      |                                                                                                                                                                                               |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Management           | IPv4/IPv6<br>LLDP<br>SMTP<br>SNMP Inform<br>SNMPv1/v2c/v3<br>SNMP Trap<br>DHCP Server/Client<br>ARP<br>TFTP<br>SFTP<br>HTTP<br>HTTPS<br>SSH<br>Telnet<br>Private MIB<br>Syslog<br>Port Mirror |
| MIB                  | RFC1213<br>Ethernet-like MIB<br>IF MIB<br>LLDP MIB<br>Bridge MIB<br>Q-BRIDGE MIB<br>IEEE8021-PAE-MIB<br>IEEE8021-SPANNING-TREE-MIB<br>SNMPv2-MIB                                              |
| Redundancy Protocols | RSTP<br>STP<br>Turbo Chain<br>Link Aggregation                                                                                                                                                |
| Security             | Broadcast storm protection<br>Trust access control<br>Login and Password Policy<br>HTTPS/SSL<br>SSH<br>SNMPv3<br>RADIUS<br>TACACS+                                                            |
| Time Management      | SNTP<br>NTP Server/Client<br>IEEE 1588v2 PTP (hardware-based)<br>IEEE 802.1 AS<br>IEEE 802.1 Qbv                                                                                              |
| Filter               | 802.1Q VLAN<br>Static Multicast                                                                                                                                                               |

## Switch Properties

|                    |               |
|--------------------|---------------|
| MAC Table Size     | 9 K           |
| Max. No. of VLANs  | 256           |
| VLAN ID Range      | VID 1 to 4094 |
| Packet Buffer Size | 2 Mbits       |

## Serial Interface

|              |                                                      |
|--------------|------------------------------------------------------|
| Console Port | RS-232 (TxD, RxD, GND), 8-pin RJ45 (115200, n, 8, 1) |
|--------------|------------------------------------------------------|

## USB Interface

|               |            |
|---------------|------------|
| USB Connector | USB Type A |
|---------------|------------|

## Input/Output Interface

|                        |                                                                                 |
|------------------------|---------------------------------------------------------------------------------|
| Alarm Contact Channels | 1<br>Relay output with current carrying capacity of 1 A @ 24 VDC                |
| Buttons                | Reset button                                                                    |
| Digital Input Channels | 1                                                                               |
| Digital Inputs         | +13 to +30 V for state 1<br>-30 to +3 V for state 0<br>Max. input current: 8 mA |

## LED Interface

|                |                                |
|----------------|--------------------------------|
| LED Indicators | STATE, FAULT, PWR1, PWR2, SYNC |
|----------------|--------------------------------|

## Power Parameters

|                             |                                         |
|-----------------------------|-----------------------------------------|
| Connection                  | 2 removable 4-contact terminal block(s) |
| Input Voltage               | 12 to 48 VDC<br>Redundant dual inputs   |
| Operating Voltage           | 9.6 to 60 VDC                           |
| Input Current               | 1.25 A @ 12 VDC                         |
| Overload Current Protection | Supported                               |
| Reverse Polarity Protection | Supported                               |

## Physical Characteristics

|              |                                                        |
|--------------|--------------------------------------------------------|
| Housing      | Metal                                                  |
| IP Rating    | IP40                                                   |
| Dimensions   | 25 x 135 x 115 mm (0.98 x 5.32 x 4.53 in)              |
| Weight       | 582 g (1.28 lb)                                        |
| Installation | DIN-rail mounting<br>Wall mounting (with optional kit) |

## 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)  |

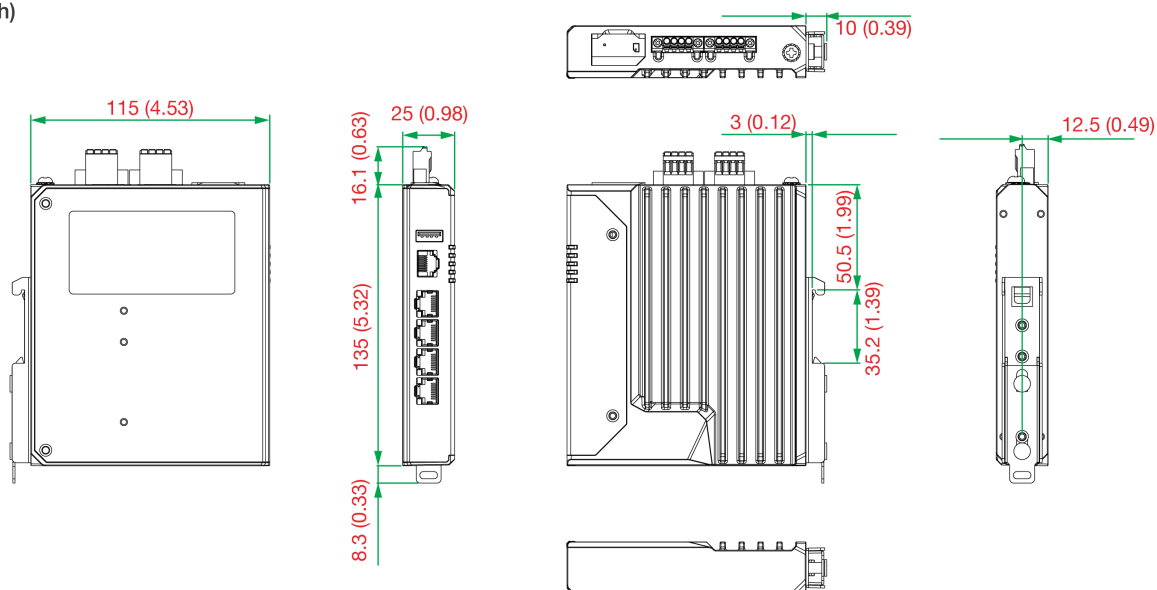
## Standards and Certifications

|        |                                                                                                                                                                                                                                            |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety | UL 61010-2-201<br>EN 62368-1                                                                                                                                                                                                               |
| 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: 10 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8 PFMF |
| Shock  | IEC 60068-2-27                                                                                                                                                                                                                             |

|                         |                                                                                                                                                                                                     |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Freefall                | IEC 60068-2-32                                                                                                                                                                                      |
| Vibration               | IEC 60068-2-6                                                                                                                                                                                       |
| <b>MTBF</b>             |                                                                                                                                                                                                     |
| Time                    | 848,997 hrs                                                                                                                                                                                         |
| Standards               | Telcordia (Bellcore), GB                                                                                                                                                                            |
| <b>Warranty</b>         |                                                                                                                                                                                                     |
| Warranty Period         | 5 years                                                                                                                                                                                             |
| Details                 | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                                                                                                                                |
| <b>Package Contents</b> |                                                                                                                                                                                                     |
| Device                  | 1 x TSN-G5004 switch                                                                                                                                                                                |
| Cable                   | 1 x RJ45-to-DB9 console cable                                                                                                                                                                       |
| Documentation           | 1 x quick installation guide<br>1 x warranty card<br>1 x substance disclosure table<br>1 x product notice, Simplified Chinese<br>1 x product certificates of quality inspection, Simplified Chinese |
| Connectors              | 2 x Terminal blocks                                                                                                                                                                                 |

## Dimensions

Unit: mm (inch)



## Ordering Information

| Model Name | Layer | No. of Ports | 10/100/1000BaseT(X) Ports<br>RJ45 Connector | Operating Temp. |
|------------|-------|--------------|---------------------------------------------|-----------------|
| TSN-G5004  | 2     | 4            | 4                                           | -10 to 60°C     |

## Accessories (sold separately)

### SFP Modules

#### SFP-1GEZXC

SFP module with 1 1000BaseEZC port with LC connector for 110 km transmission, 0 to 60°C operating temperature

|                 |                                                                                                                                                        |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| SFP-1GEZXLC-120 | SFP module with 1 1000BaseEZ 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      | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature                                            |
| SFP-1GLHXLC     | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature                                           |
| SFP-1GLSXLC     | SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature                                         |
| SFP-1GLXLC      | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature                                            |
| SFP-1GSXLC      | SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°C operating temperature                                        |
| SFP-1GZXLC      | SFP module with 1 1000BaseZX port with LC connector for 80 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-1GLHXLC-T   | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature                                         |
| SFP-1GLSXLC-T   | SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature                                       |
| SFP-1GLXLC-T    | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature                                          |
| SFP-1GSXLC-T    | SFP module with 1 1000BaseSX port with LC connector for 300m/550m 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-1GZXLC-T    | SFP module with 1 1000BaseZX port with LC connector for 80 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-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-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-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-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-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-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-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-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-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-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-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-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 |
|--------------|-------------------------------------------------------------------------------------------------------------------|

## Power Supplies

|            |                                                                                                                                      |
|------------|--------------------------------------------------------------------------------------------------------------------------------------|
| HDR-60-24  | 60 W/2.5 A DIN-rail 24 VDC power supply, universal 85 to 264 VAC or 120 to 370 VDC input voltage, -30 to 70°C operating temperature  |
| MDR-40-24  | DIN-rail 24 VDC power supply with 40W/1.7A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature                |
| MDR-60-24  | DIN-rail 24 VDC power supply with 60W/2.5A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature                |
| NDR-120-24 | 120 W/5.0 A DIN-rail 24 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature |

## Wall-Mounting Kits

|          |                                                         |
|----------|---------------------------------------------------------|
| WK-30-02 | Wall-mounting kit, 2 plates, 4 screws, 30 x 66.8 x 2 mm |
|----------|---------------------------------------------------------|

## 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                      |
| ABC-03-microSD-T | MicroSD-based configuration backup and restoration tool, firmware upgrades, and log file storage tool for managed Ethernet switches and WLAN products, -40 to 85°C operating temperature |

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