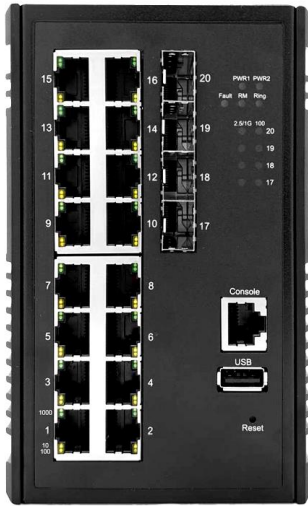


# MS-1604GE

## 16+4 Port Industrial Managed Gigabit Ethernet Switch



- 16x Gigabit Ethernet ports
- 4x 1G/2.5GF(x) SFP Slot
- Built for harsh environments and wide temperature range application
- RSTP, MSTP, ERPS, LACP for Network Redundancy
- QoS CoS/DSCP to increase determinism
- Supports IGMP Snooping v1/v2/v3, up to 512 groups
- DHCP Relay Option 82 for policies IP address assignment
- SNMP v1/v2c/v3 for network management
- Supports Storm Protection
- USB storage for configuration-free replacement
- Supports industrial automation protocols Ethernet/IP and Modbus TCP

### Specifications

#### Technology

- IEEE 802.3 10BaseT
- IEEE 802.3u 100BaseTX
- IEEE 802.3ab 1000BaseT
- IEEE 802.3z 1000BaseX
- IEEE 802.3x Flow Control
- IEEE 802.3az Energy-Efficient Ethernet
- IEEE 802.3ad/802.1AX LACP
- IEEE 802.1D Spanning Tree Protocol
- IEEE 802.1w Rapid STP
- IEEE 802.1s Multiple STP
- ITU-T G.8032 / Y.1344 ERPS
- IEEE 802.1Q VLAN Tagging
- IEEE 802.1ad Stacked VLANs
- IEEE 802.1p Class of Service
- IEEE 802.1X Network Authentication
- IEEE 802.1AB LLDP
- IEEE 1588 PTP

#### Standards

**Processing Type** Store and Forward

#### Switch Properties

|                        |           |
|------------------------|-----------|
| <b>Switch Fabric</b>   | 40Gbps    |
| <b>Priority Queues</b> | 8 Queues  |
| <b>Jumbo Frame</b>     | 9216bytes |
| <b>MAC Table Size</b>  | 16K       |
| <b>Packet Buffer</b>   | 4Mbits    |
| <b>VLAN Table Size</b> | 4094      |
| <b>IGMP Group</b>      | 512       |

**ACL Group** 512

#### Software Feature

|                            |  |
|----------------------------|--|
| <b>Network Redundancy</b>  | RSTP, MSTP, G.8032 ERPSv2, Port Trunking with LACP                                   |
| <b>Security</b>            | 802.1X, RADIUS, TACACS+, SSL, SSH  |
| <b>Management</b>          | IPv4, IPv6, Web, Telnet, Serial Console, CLI, SNMP v1/v2c/v3, uPnP                   |
| <b>Diagnostics</b>         | RMON, SNMP Inform/Trap, Syslog, SMTP, Port Mirroring, LLDP, RSPAN                    |
| <b>Configuration</b>       | DHCP Server/Client, Relay Option 82, TFTP, USB                                       |
| <b>Filter</b>              | 802.1Q VLAN, Q-in-Q, IGMP Snooping v1/v2/v3, IGMP Querier, Independent Vlan Learning |
| <b>Time Sync.</b>          | NTP, IEEE1588v2 OC (Software Timestamp), TC (Hardware Timestamp)                     |
| <b>QoS</b>                 | CoS, DSCP, WRR/SPQ Queuing, Storm Protection   |
| <b>PoE</b>                 | Powering Status, PoE Monitoring, Scheduling, PD Alive Check                          |
| <b>Industrial Profiles</b> | Ethernet/IP, Modbus TCP, Profinet  |

#### Interface

**RJ45 Port** 16x 10/100/1000T(x), auto negotiation speed duplex mode, auto MDI/MDI-X

|                       |  |
|-----------------------|--|
| <b>Fiber Port</b>     | 4x 1G/2.5GF(x) SFP Slot  |
| <b>LED Indicators</b> | <b>Per unit:</b> PWR1, PWR2, Fault, Ring Master, Ring State<br><b>Ports:</b> Link/Active with highest speed(Green), low speed(Amber) |
| <b>Alarm Contact</b>  | 1x relay output with current carrying capacity of 1A @ 24 VDC  |
| <b>Digital Inputs</b> | 1x isolated input from the electronics.<br>+13 to +30V for state "1"<br>-30 to +3V for state "0"<br>Max. input current: 8mA          |
| <b>Button</b>         | Multiple functions reset button  |
| <b>Serial Console</b> | 1x RS232 in RJ45 connector with console cable, 115.2Kbps, 8N1  |
| <b>Storage</b>        | 1x USB 2.0 storage for firmware update, configuration backup, restore, boot up and syslog  |

### Power Requirements

|                          |  |
|--------------------------|--|
| <b>Operation Voltage</b> | 12-48VDC, redundant dual inputs                        |
| <b>Connection</b>        | 1x removable 4-contact terminal block                  |
| <b>Power Consumption</b> | 1.09A@24VDC  |
| <b>Protection</b>        | Overload Current Protected, Reverse Polarity Protected |

### Mechanical Construction

|                         |                       |
|-------------------------|-----------------------|
| <b>Enclosure</b>        | Aluminum              |
| <b>Protection Class</b> | IP30                  |
| <b>Dimensions</b>       | 91x145x118 mm (WxHxD) |
| <b>Weight</b>           | 0.97 kg               |

**Mounting** DIN-Rail Mounting, Optional Wall Mounting Kits

### Environmental Limits

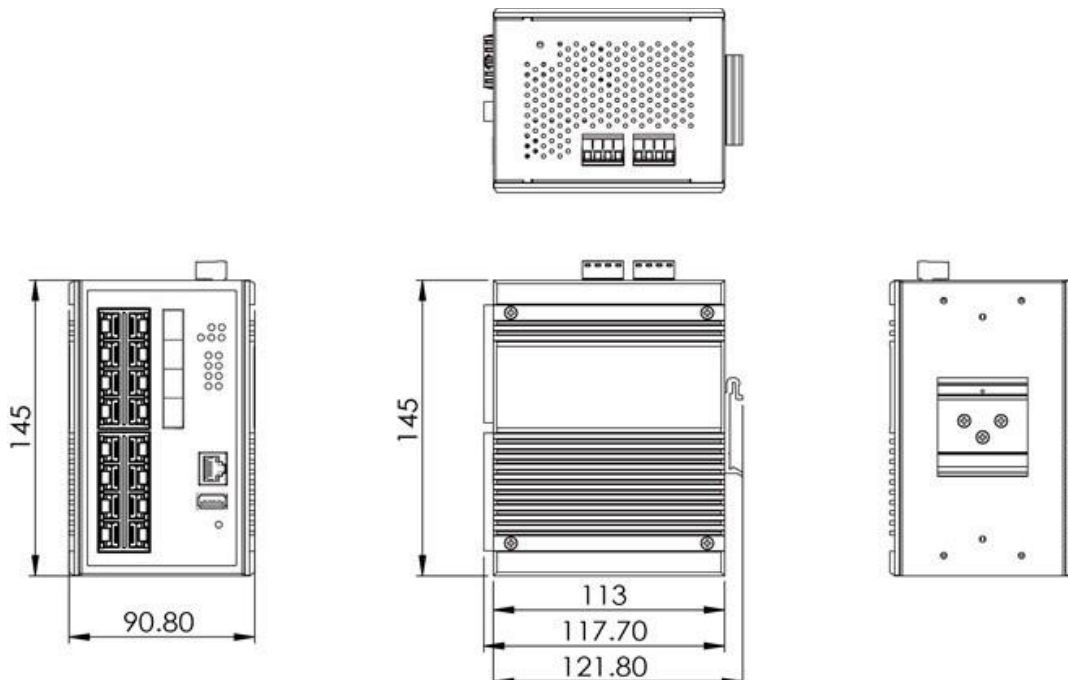
|                                  |   |
|----------------------------------|---|
| <b>Operating Temperature</b>     | Standard: -10°C ~ 60°C (14°F ~ 140°F)<br>Extended: -40°C ~ 75°C (-40°F ~ 167°F) |
| <b>Storage Temperature</b>       | -40°C ~ 85°C (-40°F ~ 185°F)  |
| <b>Ambient Relative Humidity</b> | 5 to 95%, (Non-Condensing)  |

### Regulatory Approvals

|                       |   |
|-----------------------|---|
| <b>EMI</b>            | FCC Part 15 Subpart B Class A<br>CE EN 55032 Class A  |
| <b>EMS</b>            | IEC61000-4-2 (ESD)<br>IEC61000-4-3 (RS)<br>IEC61000-4-4 (EFT)<br>IEC61000-4-5 (Surge)<br>IEC61000-4-6 (CS)<br>IEC61000-4-8 (Magnetic Field) |
| <b>Free Fall</b>      | IEC60068-2-32   |
| <b>Shock</b>          | IEC60068-2-27   |
| <b>Vibration</b>      | IEC60068-2-6  |
| <b>Green</b>          | RoHS Compliant  |
| <b>Certifications</b> | UL 60950-1/62368 (Pending)<br>IEC 61000-6-2<br>IEC 61000-6-4<br>EN 50121-4  |
| <b>MTBF</b>           | >100,000 hours  |
| <b>Warranty</b>       | 5 Years   |

Features with star(\*) implies those are under development. In a continuing effort of improvement and updated technology, product specifications are subject to change without notice.

## Dimensions (unit = mm)



## Ordering Information

**MS-1604GE** 16+4 Port Industrial Managed Gigabit Ethernet Switch  
- 16x 10/100/1000T(x) + 4x 1G/2.5GF(x) SFP Slot  
- Operating Temperature: -10° C ~ 60° C (14° F ~ 140° F)

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**MS-1604GE-T** 16+4 Port Industrial Managed Gigabit Ethernet Switch  
- 16x 10/100/1000T(x) + 4x 1G/2.5GF(x) SFP Slot  
- Operating Temperature: -40° C ~ 75° C (-40° F ~ 167° F)

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## Optional Accessories

**NDR-75-24** 75W Industrial DIN-Rail Power Supply, 24VDC (metal case)

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**NDR-75-48** 75W Industrial DIN-Rail Power Supply, 48VDC (metal case)