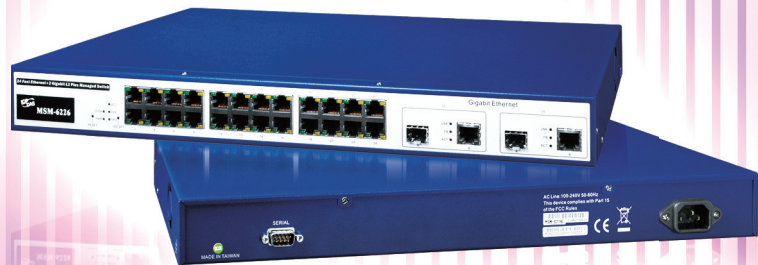


Managed Ethernet Switches

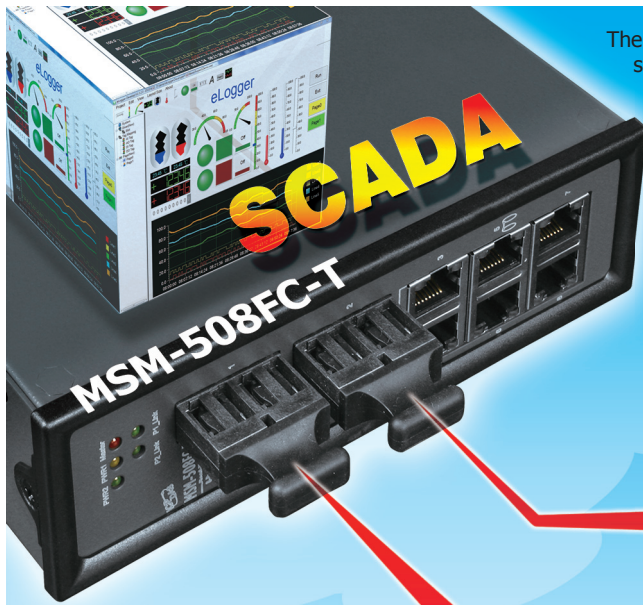
2



Managed Switch for Industrial Ethernet Applications

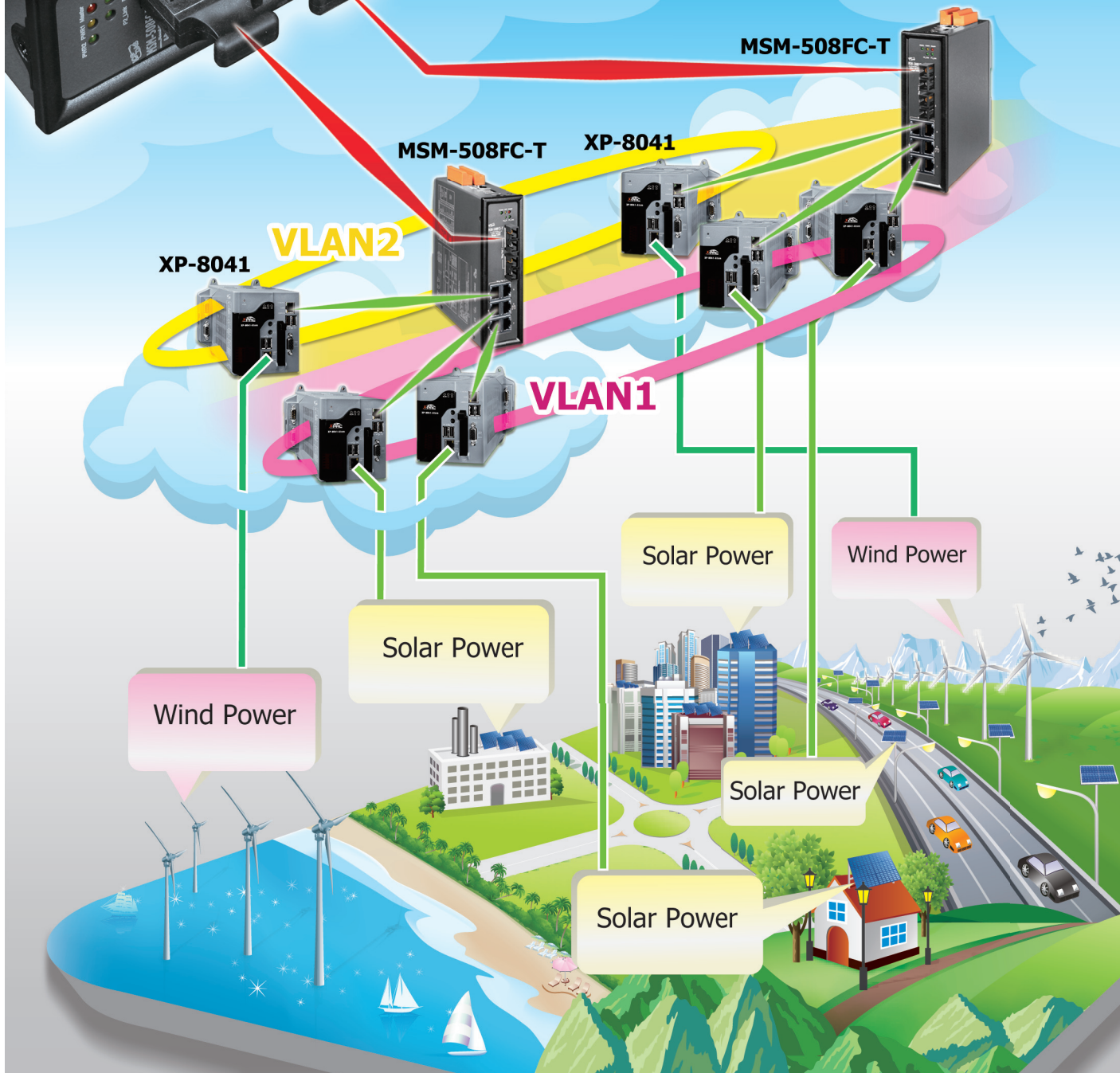
2

Managed Ethernet Switches

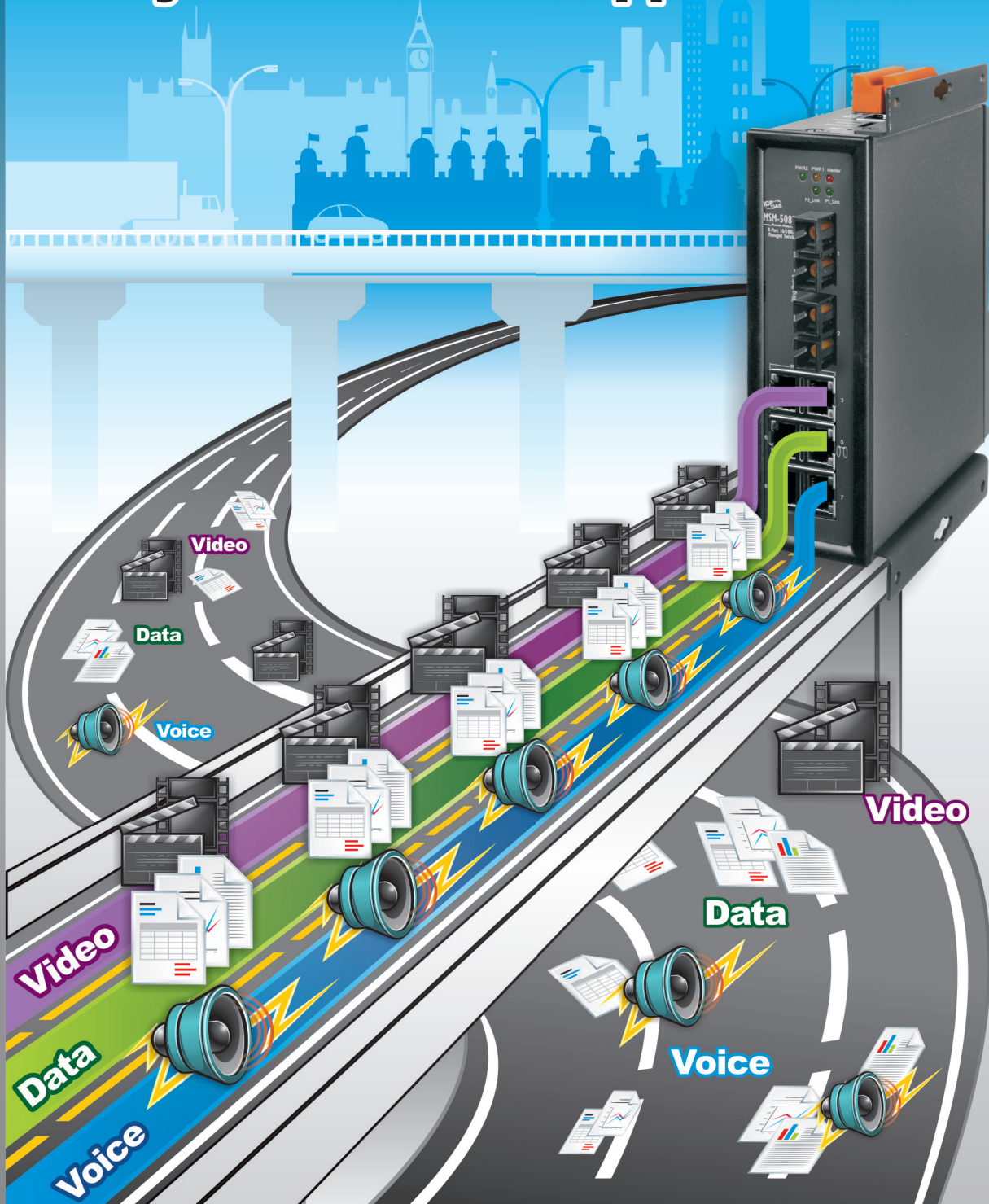


The managed switch can be configured through RS-232 port via serial console or Ethernet port using telnet or Web browser. In addition, the switch supports a lot of powerful managed functions, such as 802.1Q Tag-based VLAN, Port-based VLAN, 802.1p QoS (Quality of Service), Port Trunking, Spanning Tree, Cable Testing and Port Mirroring.

Built-in ICP DAS Cyber-Ring technique enables multiple switches to be placed into a redundant ring. Typically the switch detects and recovers from a fiber or copper link failure within approximately 20 ms – for the majority of applications, it is seamless. Modbus/TCP, Modbus/RTU and OPC supported, SCADA application can monitor status of Ethernet and fiber port with Modbus or OPC protocol.



Ethernet highway for your industrial applications



Cyber-Ring Ethernet Self-healing Technology

The power of applying an Ethernet LAN (Local Area Network) to factory floor or industrial automation applications is undoubtedly tremendous. However, a commercial Ethernet switch cannot meet the high reliability requirements demanded by industrial applications. To satisfy these requirements, ICP DAS's Cyber-Ring technology provides you a rugged fault-tolerant, plug and play Ethernet solution.

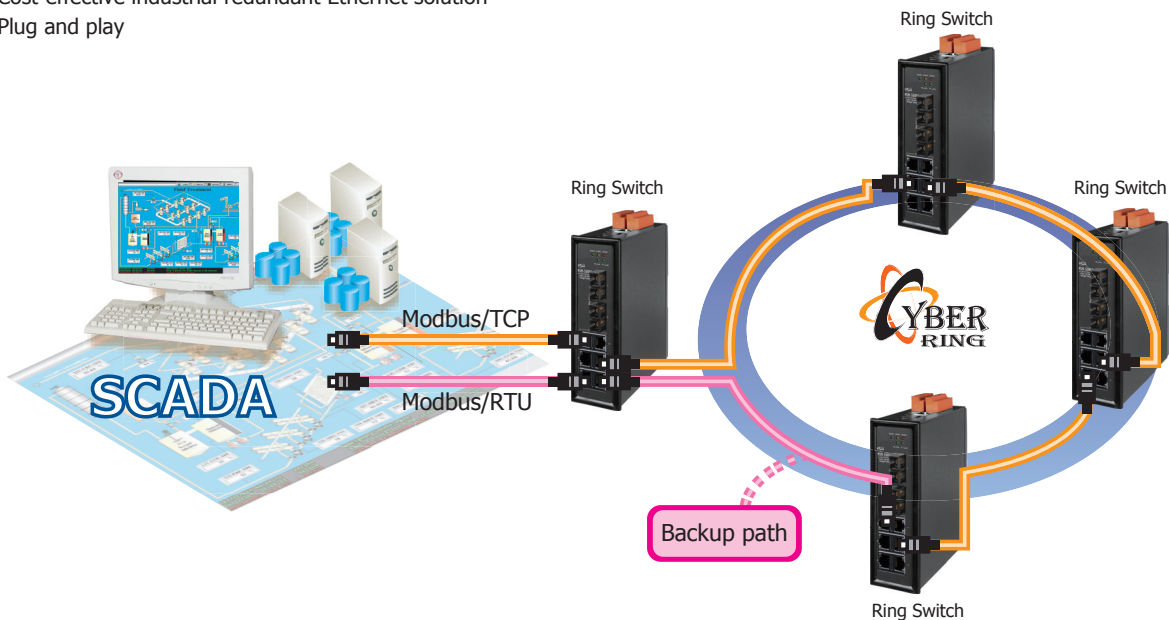
The ICP DAS's proprietary Cyber-Ring self-healing Ethernet technology can establish industrial Ethernet with high reliability and fault-tolerant capability. It can employ a ring topology network over either copper or fiber optic cable. While standard STP typically requires 20s to 30s for network structure reconfiguration following a link failure, Cyber-Ring technology reduces this downtime to within half a second. Average experience indicates a typical fault recovery time is 20 ms for Cyber-Ring fault-tolerant network.

2

Managed Ethernet Switches

Features

- High reliability and fault-tolerant
- Real-time performance
- Scalable and flexible ring topology
- Cost-effective industrial redundant Ethernet solution
- Plug and play



Recovery Time

The recovery time of Cyber-Ring network consists of two parts, fault detected time and reconfiguration time. Recovery time of Cyber-Ring network is associated with the number of switches of the network and Cyber-Ring technology offers a variable preconfigured recovery time to support a wide range of number of switches. Typically, the recovery time of Cyber-Ring network is less than 20 ms.

Fault Detected Time

Fault detected time is defined as the time from the occurrence of the fault until fault is detected. There is a master switch of Cyber-Ring network checks the health condition of Cyber-Ring network periodically. If active path does not response after a preconfigured period of time, the master assumes that active path is failed and invokes reconfiguration mechanism to redirect traffics to the backup path.

Reconfiguration Time

The reconfiguration time of Cyber-Ring network is less than 5 ms per switch. For example, a Cyber-Ring fault-tolerant network that is comprised of ten switches, the expected worst case reconfiguration time will be 50 ms. When a fault is detected, the Cyber-Ring network will reconfigure to provide alternative traffic path of the ring within 50 ms.

Selection Guide

Managed Ethernet Switches

| Model Name | Speed | | Port | | Operation Temperature | Power Input | Casing | Page |
|------------|---------------|------------|------|---|-----------------------|-------------------------------------|--------|------|
| | | | | | | | | |
| MSM-6226 | 10/100 M | 1000 M | 24 | 2 | -10 °C ~ +60 °C | +100 VAC ~ +240 VAC | Metal | 2-5 |
| MSM-6226G | 10/100/1000 M | 100/1000 M | 20 | 6 | 0 °C ~ +50 °C | +100 VAC ~ +240 VAC | Metal | 2-9 |
| MSM-506 | 10/100 M | | 6 | | -40 °C ~ +75 °C | +12 Vdc ~ +48 Vdc (Redundant Power) | Metal | 2-13 |
| MSM-508 | 10/100 M | | 8 | | -40 °C ~ +75 °C | +12 Vdc ~ +48 Vdc (Redundant Power) | Metal | 2-13 |

Managed Ethernet Switches with Fiber Port

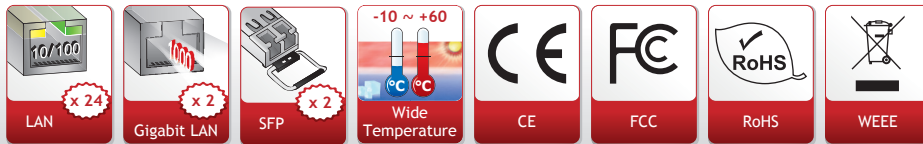
| Model Name | Fiber Optics | | | | Ethernet | | Operation Temperature | Redundant Power | Casing | Page |
|--------------|--------------|-----------|-------|------|----------|------|-----------------------|-------------------|--------|------|
| | Mode | Connector | Speed | Port | Speed | Port | | | | |
| MSM-506FC-T | Multi-mode | SC | 100 M | 2 | 10/100 M | 4 | -30 °C ~ +75 °C | +12 Vdc ~ +48 Vdc | Metal | 2-17 |
| MSM-506FCS-T | Single-mode | SC | 100 M | 2 | 10/100 M | 4 | -30 °C ~ +75 °C | +12 Vdc ~ +48 Vdc | Metal | 2-17 |
| MSM-506FT-T | Multi-mode | ST | 100 M | 2 | 10/100 M | 4 | -30 °C ~ +75 °C | +12 Vdc ~ +48 Vdc | Metal | 2-17 |
| MSM-508FC-T | Multi-mode | SC | 100 M | 2 | 10/100 M | 6 | -30 °C ~ +75 °C | +12 Vdc ~ +48 Vdc | Metal | 2-17 |
| MSM-508FCS-T | Single-mode | SC | 100 M | 2 | 10/100 M | 6 | -30 °C ~ +75 °C | +12 Vdc ~ +48 Vdc | Metal | 2-17 |
| MSM-508FT-T | Multi-mode | ST | 100 M | 2 | 10/100 M | 6 | -30 °C ~ +75 °C | +12 Vdc ~ +48 Vdc | Metal | 2-17 |

Real-time Redundant Ring Ethernet Switches

| Model Name | Speed | Port | Operation Temperature | Redundant Power | Casing | Page |
|------------|----------|------|-----------------------|----------------------------------|---------|------|
| RS-405 | 10/100 M | 5 | -40 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Plastic | 2-21 |
| RSM-405 | 10/100 M | 5 | -40 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Metal | 2-21 |
| RSM-405-R | 10/100 M | 5 | -40 °C ~ +75 °C | +12 Vdc ~ +48 Vdc (Non-isolated) | Metal | 2-21 |
| RS-408 | 10/100 M | 8 | -40 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Plastic | 2-25 |
| RSM-408 | 10/100 M | 8 | -40 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Metal | 2-25 |
| RSM-408A | 10/100 M | 8 | -40 °C ~ +75 °C | +12 Vdc ~ +48 Vdc (Non-isolated) | Metal | 2-25 |

Real-time Redundant Ring Ethernet Switches with Fiber Port

| Model Name | Fiber Optics | | | | Ethernet | | Operation Temperature | Redundant Power | Casing | Page |
|------------|--------------|-----------|-------|------|----------|------|-----------------------|-------------------|---------|------|
| | Mode | Connector | Speed | Port | Speed | Port | | | | |
| RS-405FC | Multi-mode | SC | 100 M | 2 | 10/100 M | 3 | 0 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Plastic | 2-29 |
| RSM-405FC | Multi-mode | SC | 100 M | 2 | 10/100 M | 3 | 0 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Metal | 2-29 |
| RS-405FCS | Single-mode | SC | 100 M | 2 | 10/100 M | 3 | 0 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Plastic | 2-29 |
| RSM-405FCS | Single-mode | SC | 100 M | 2 | 10/100 M | 3 | 0 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Metal | 2-29 |
| RS-405FT | Multi-mode | ST | 100 M | 2 | 10/100 M | 3 | 0 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Plastic | 2-29 |
| RSM-405FT | Multi-mode | ST | 100 M | 2 | 10/100 M | 3 | 0 °C ~ +75 °C | +10 Vdc ~ +30 Vdc | Metal | 2-29 |



Features ▶▶▶

- 2 Dual Media for Flexible Fiber Connection
- Supports Q-in-Q (Double-tag)
- IEEE802.1X Access Control improves network security
- Unknown Unicast/Broadcast/Multicast storm control
- IP-MAC-port binding for LAN security
- ACL Based on Ethernet Type/ARP/IPv4 for packets permit or deny, rate limitation and port copy
- Supports LLDP (Link Layer Discovery Protocol) provides a standards-based method for enabling switches to advertise themselves.
- Port Mirroring helps supervisor monitoring network
- IEEE802.1Q tag-based VLAN for performance & security
- IEEE802.1D Compatible, IEEE802.1w Rapid Spanning Tree & IEEE802.1s
- Multiple Spanning Tree
- Multicast VLAN management for IPTV
- QCL Based on Application traffic for QoS and rate
- Supports DHCP snooping (DHCP option 82)
- Supports "power saving" for Green Ethernet requirement
- Supports IGMPv3 snooping and IGMP Proxy

Introduction

MSM-6226 is a L2 Managed Switch that meets all IEEE 802.3/u/x/z Gigabit, Fast Ethernet and Ethernet specifications. It provides 24 Fast Ethernet ports (10/100 Mbps TP) and 2 Gigabit dual media ports with TP/SFP (or GBIC).

The switch can be managed through RS-232 serial port via direct connection, or through Ethernet port using Telnet or Web-Based management unit, associated with SNMP agent. With the SNMP agent, the network administrator can logon the switch to monitor, configure and control each port activity in a friendly way. The overall network management is enhanced and the network efficiency is also improved to accommodate high bandwidth applications. In addition, the switch features comprehensive and useful function such as DHCP Option 82, QoS (Quality of Service), Spanning Tree, VLAN, Port Trunking, Bandwidth Control, Port Security, SNMP/RMON and IGMPv3 Snooping capability via the intelligent software. It is suitable for both Metro-LAN and office application.

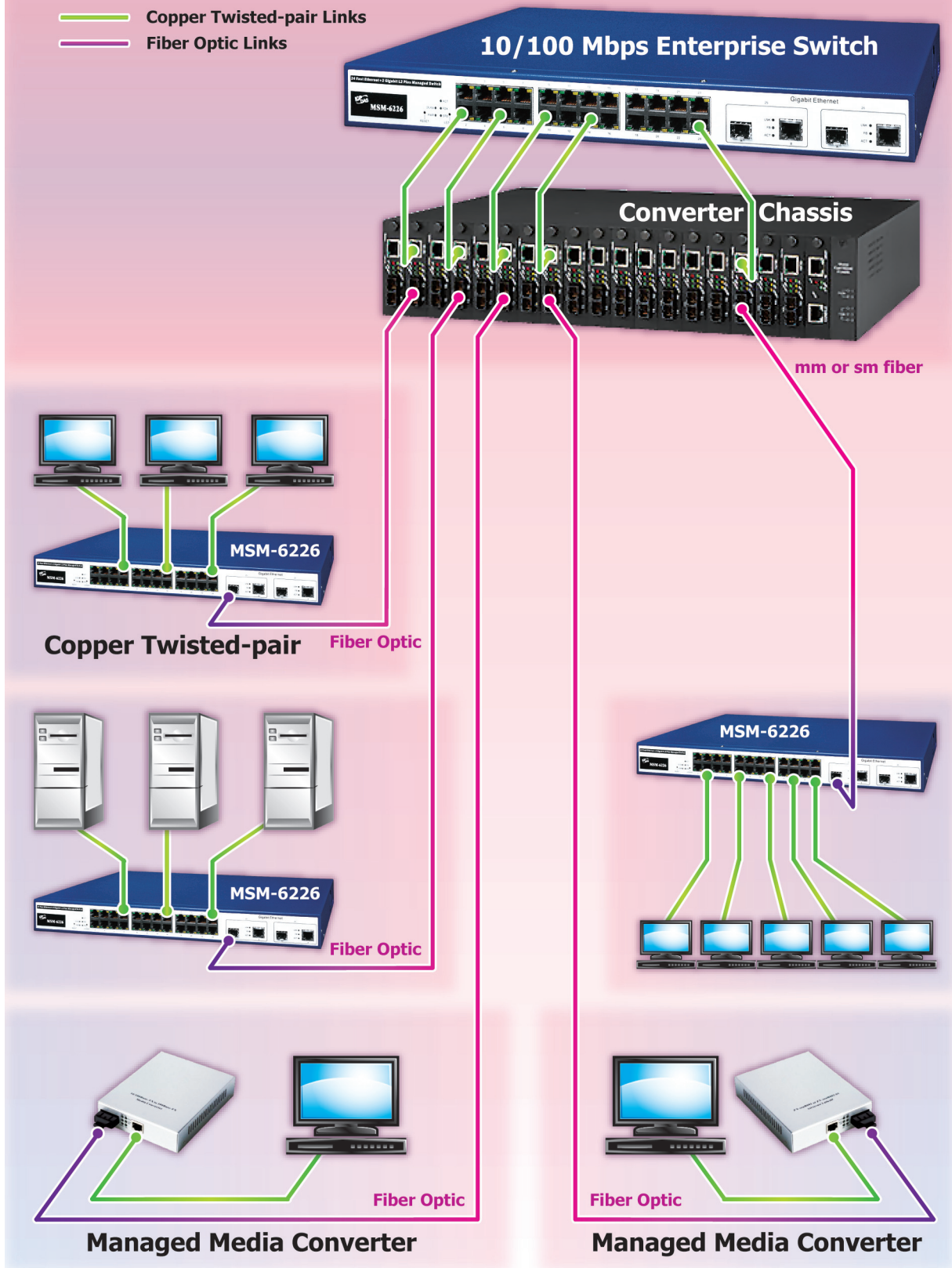
The switch also supports the power saving to reduce the power consumption with Power Management technique. It could efficiently saving the switch power by auto detect the client idle and cable length.

 **Specifications**

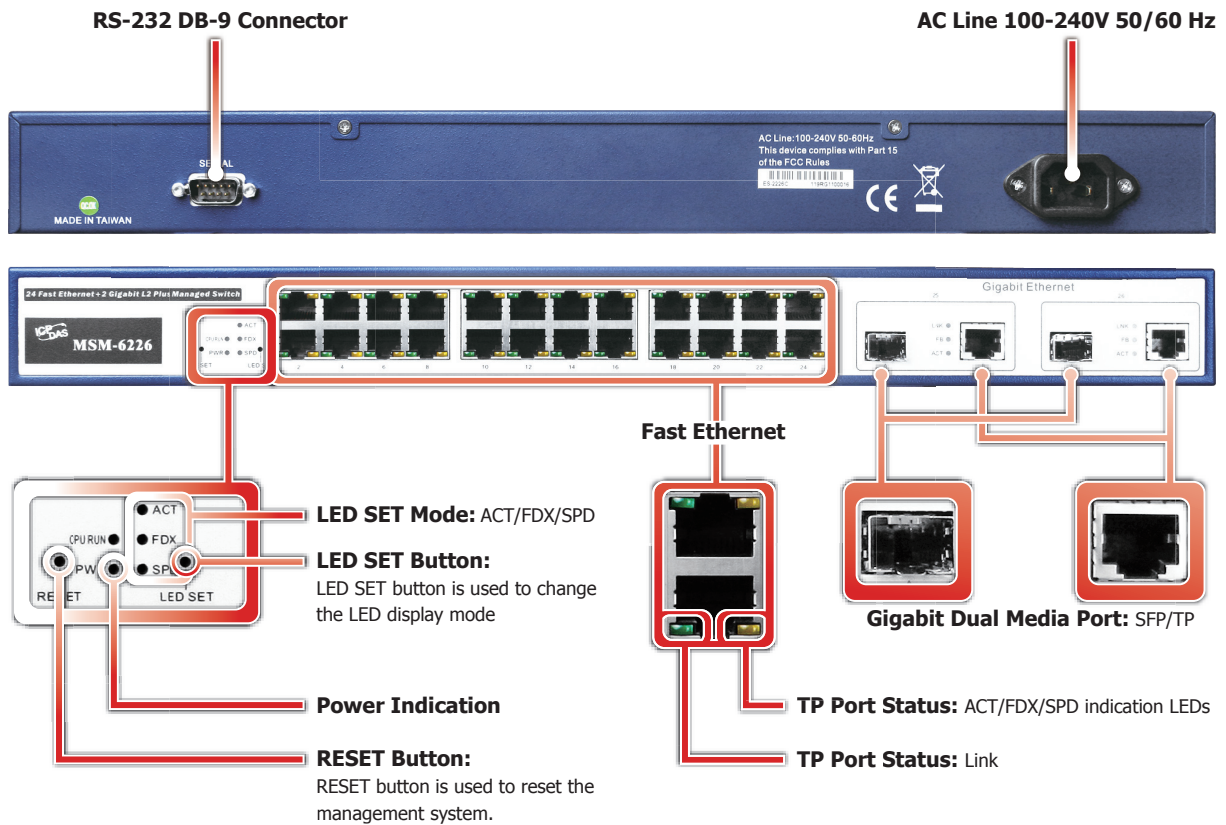
| Technology | |
|--|--|
| Standards | 2 Dual Media for Flexible Fiber Connection |
| | Port Mirroring helps supervisor monitoring network |
| | Improves Q-in-Q (Double-tag) |
| | IEEE802.1Q tag-based VLAN for performance & security and 4094 VLAN entries |
| | IEEE802.1X Access Control improves network security |
| | IEEE802.1D Compatible, IEEE802.1w Rapid Spanning Tree & IEEE802.1s Multiple Spanning Tree |
| | Unknown Unicast/Broadcast/Multicast storm control |
| | Multicast VLAN management for IPTV |
| | IP-MAC-port binding for LAN security |
| | QCL Based on Application traffic for QoS and rate limitation management |
| | Supports IGMPv3 snooping and IGMP Proxy |
| | Supports DHCP snooping (DHCP option 82) |
| | ACL Based on Ethernet Type/ARP/IPv4 for packets permit or deny, rate limitation and port copy |
| | Supports "power saving" for Green Ethernet requirement |
| | Supports LLDP (Link Layer Discovery Protocol) provides a standards-based method for enabling switches to advertise themselves. |
| MAC Addresses | 8192 |
| Processing Type | Non-blocking, store-and-forward and shared-memory L2 managed switch |
| Memory Bandwidth | 8.8 Gbps |
| Frame Buffer Memory | Embedded 256 KB packet buffers and 128 KB control memory |
| Flow Control | Backpressure flow control for half duplex |
| | 802.3x flow control for full duplex |
| Protocol | VLAN, QoS, Port Trunk, SMTP, TELNET, SNMP, IGMP, IEEE802.1X, LLDP |
| Interface | |
| RJ-45 Ports | 24-port 10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection and 2 Gigabit Ethernet ports with non-blocking wise speed performance. |
| SFP | 2-port 1000 Mbps SFP Fiber Module Dual Media Auto Detection |
| LED Indicators | CPURUN, POWER, ACT, FDX, SPD |
| Ethernet Isolation | 2 K V _{DC} Isolation |
| COM1 | RS-232 (TxD, RxD and GND); Non-isolated |
| Frame Ground for EMS Protection | EMS Requirements: IEC-61000-4-2, IEC-61000-4-3, IEC-61000-4-4, IEC-61000-4-5, IEC-61000-4-6, IEC-61000-4-8, IEC-61000-4-11 |
| Power | |
| Input Voltage Range | +100 V _{AC} ~ +240 V _{AC} |
| Power Consumption | 15 W |
| Protection | Over-Voltage Protection (Spec.: 6.5 V+/-0.7 V); Over-Current Protection (Spec.: 6 A ~ 10 A); Short Circuit Protection |
| Frame Ground for EMS Protection | Yes |
| Mechanical | |
| Casing | Metal |
| Environmental Rating | IP20 |
| Dimensions (W x L x H) | 442 mm x 209 mm x 44 mm |
| Installation | Installing Chassis to a 19-Inch Wiring Closet Rail; No Wall mounting |
| Environmental | |
| Operating Temperature | -10 °C ~ +60 °C |
| Storage Temperature | -10 °C ~ +70 °C |
| Ambient Relative Humidity | 5% ~ 90% RH, non-condensing |

Network Connection between Remote Site and Central Site

— Copper Twisted-pair Links
 — Fiber Optic Links



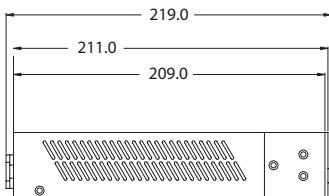
Appearance



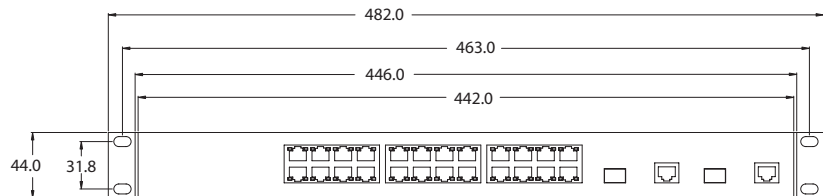
2

Managed Ethernet Switches

Dimensions (Units: mm)



Left Side View



Front View

Ordering Information

| | |
|-------------|--|
| MSM-6226 CR | 24-port Ethernet + 2 TP/SFP Gigabit Dual Media Layer2 Managed Switch. (include 9-Pin Female-Female D-sub cable, 1.8 M Cable and Power Cord) |
|-------------|--|

Accessories

| | | |
|--|----------------|---------------------------------------|
| | SFP-1G85M-SX | Multi-mode 850 nm, 0.5 km SFP module |
| | SFP-1G13M-SX2 | Multi-mode 1310 nm, 2 km SFP module |
| | SFP-1G13S-LX | Single-mode 1310 nm, 10 km SFP module |
| | SFP-1G13S-LX20 | Single-mode 1310 nm, 20 km SFP module |
| | SFP-1G13S-LHX | Single-mode 1310 nm, 40 km SFP module |
| | SFP-1G15S-XD | Single-mode 1550 nm, 60 km SFP module |



Features ▶▶▶

- IEEE 802.3ab 1000BASE-T Gigabit Ethernet
- L2+ features provide better manageability, security, QoS, and performance
- IPv6 and s-Flow supports
- Supports IGMPv3 snooping and IGMP Proxy
- IEEE 802.3z Gigabit Ethernet
- Dual speed SFPs for FE or GbE fiber uplink
- 802.3az Energy Efficient Ethernet standard
- Port Mirroring helps supervisor monitoring network

Introduction

MSM-6226G is a L2 Managed Switch that meets all IEEE 802.3ab/u/x/z Gigabit, Gigabit Ethernet and Ethernet specifications. It provides 20 gigabit Ethernet ports (10/100/1000 Mbps TP), 4 combo TP/SFP ports and 2 SFP ports.

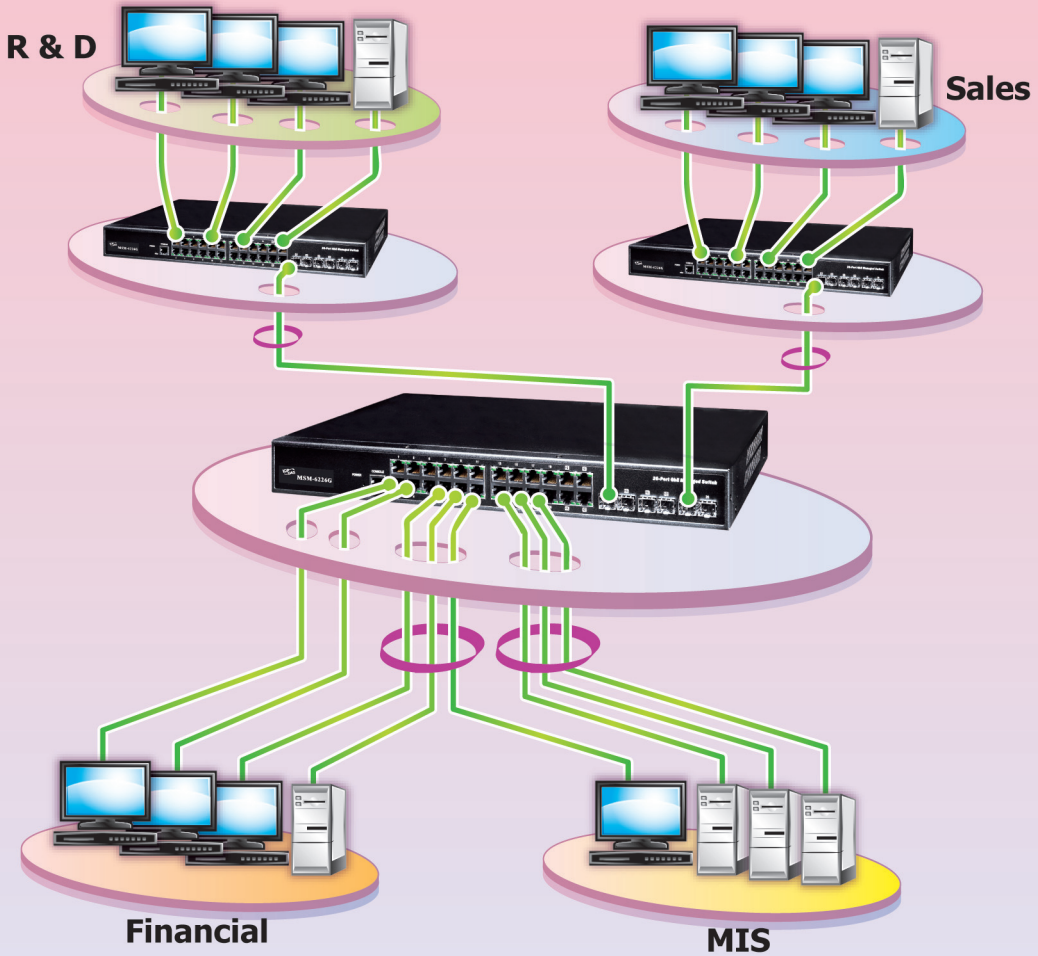
The switch can be managed through RS-232 serial port via direct connection, or through Ethernet port using Telnet or Web-Based management unit, associated with SNMP agent. With the SNMP agent, the network administrator can logon the switch to monitor, configure and control each port activity in a friendly way. The overall network management is enhanced and the network efficiency is also improved to accommodate high bandwidth applications. In addition, the switch features comprehensive and useful function such as DHCP Option 82, QoS (Quality of Service), Spanning Tree, VLAN, Port Trunking, Bandwidth Control, Port Security, SNMP/RMON and IGMPv3 Snooping capability via the intelligent software. It is suitable for both Metro-LAN and office application.

The switch also supports the power saving to reduce the power consumption with Power Management technique. It could efficiently saving the switch power by auto detect the client idle and cable length.

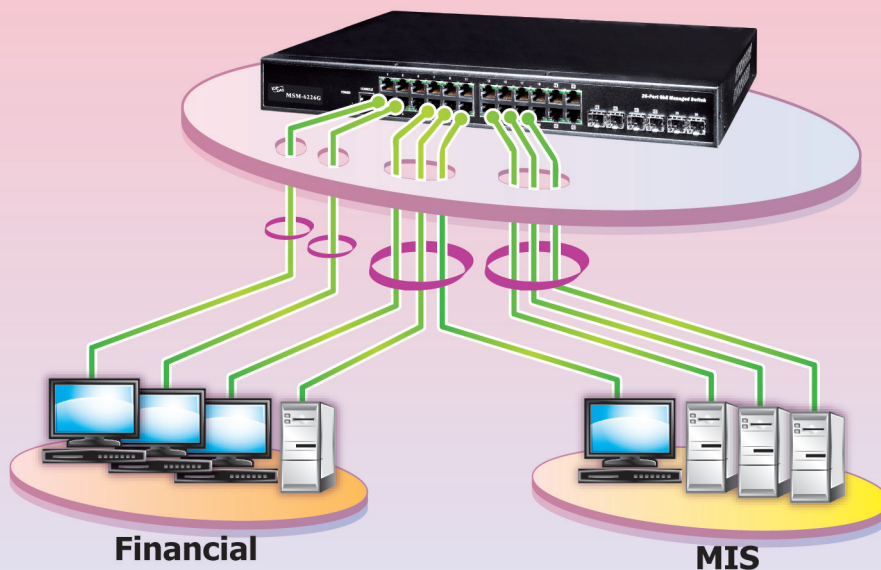
 Specifications

| Technology | |
|--|--|
| Standards | Port Mirroring helps supervisor monitoring network |
| | IEEE 802.1Q tag-based VLAN for performance |
| | IEEE 802.1X Access Control improve network security |
| | IEEE 802.1D Compatible, IEEE802.1w Rapid Spanning Tree & IEEE802.1s Multiple Spanning Tree |
| | IEEE 802.3ab 1000BASE-T Gigabit Ethernet (twisted-pair copper) |
| | IEEE 802.3z Gigabit Ethernet (fiber) ANSI/IEEE 802.3 |
| | Unknown Unicast/Broadcast/Multicast storm control |
| | IP-MAC-Port binding for LAN security |
| | QCL Based on Application traffic for QoS and rate limitation management |
| | Supports IGMPv3 snooping and IGMP Proxy |
| | Supports DHCP snooping (DHCP option 82) |
| | ACL Based on Ethernet Type/ARP/IPv4 for packets permit or deny, rate limitation and port copy |
| | Supports "power saving" for Green Ethernet requirement |
| | Supports LLDP (Link Layer Discovery Protocol) provides a standards-based method for enabling switches to advertise themselves. |
| MAC Addresses | 8 K |
| Processing Type | Store & forward |
| Memory Bandwidth | 52 Gbps |
| Frame Buffer Memory | 4 Mbits |
| Protocol | VLAN, QoS, Port Trunk, SMTP, TELNET, SNMP, IGMP, IEEE802.1X, LLDP |
| Interface | |
| RJ-45 Ports | 20-port 10/100/1000 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection |
| UTP/SFP Combo | 4-port combo 100/1000 BAST-T/SFP slots |
| SFP | 2-port 100/1000 Mbps SFP Fiber Module slots |
| LED Indicators | POWER, TP Port LED, SFP Port LED |
| Ethernet Isolation | 2 K V _{DC} Isolation |
| Serial Port | RS-232 (TxD, RxD and GND); Non-isolated |
| Frame Ground for EMS Protection | EMS Requirements: IEC-61000-4-2, IEC-61000-4-3, IEC-61000-4-4, IEC-61000-4-5, IEC-61000-4-6, IEC-61000-4-8, IEC-61000-4-11 |
| Power | |
| Input Voltage Range | +100 V _{AC} ~ +240 V _{AC} |
| Power Consumption | 16 W |
| Frame Ground for EMS Protection | Yes |
| Mechanical | |
| Casing | Metal |
| Environmental Rating | IP20 |
| Dimensions (W x L x H) | 442 mm x 170 mm x 44 mm |
| Installation | Wall mounting, 19" rackmountable, brackets included |
| Environmental | |
| Operating Temperature | 0 °C ~ +50 °C |
| Storage Temperature | -20 °C ~ +70 °C |
| Ambient Relative Humidity | 10% ~ 90% RH, non-condensing |

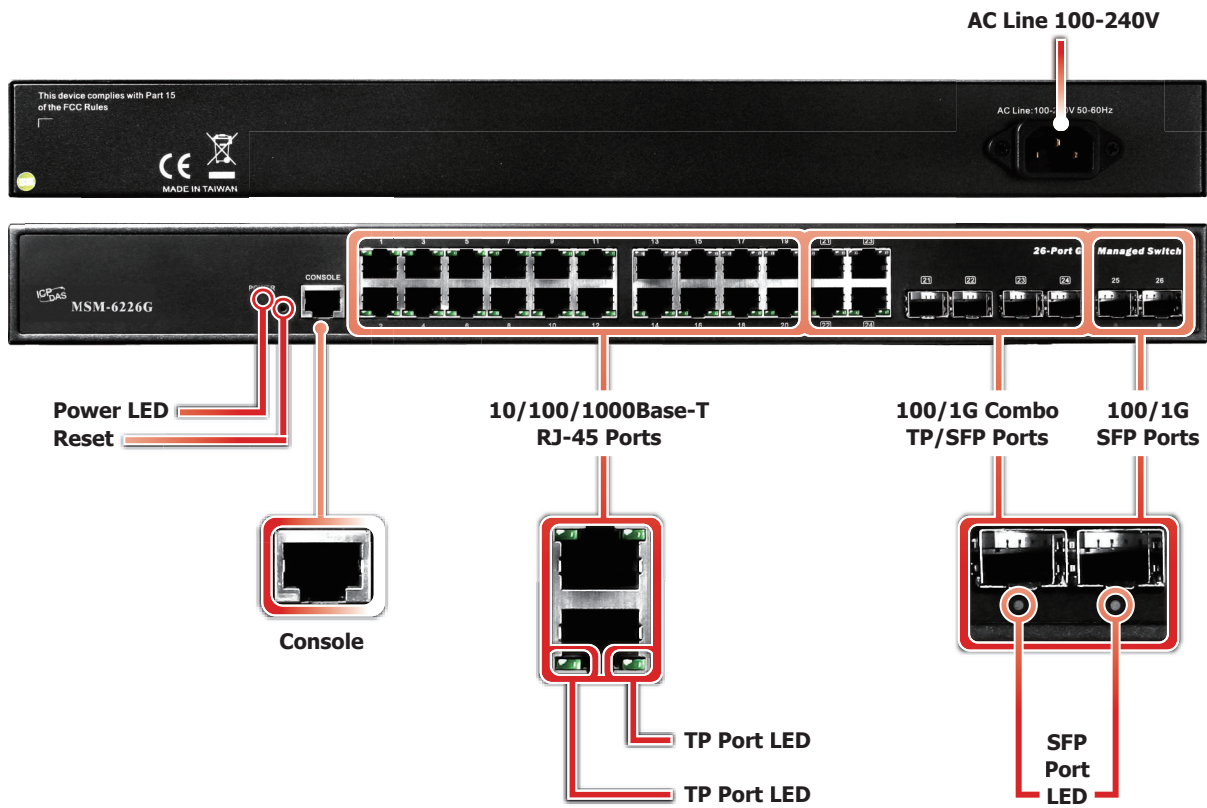
Office Network Connection



Peer-to-peer Network Connection



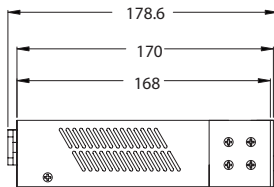
Appearance



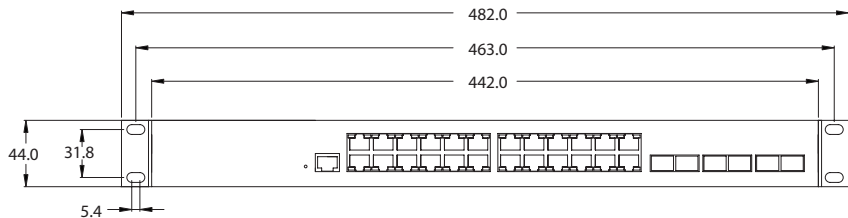
2

Managed Ethernet Switches

Dimensions (Units: mm)



Left Side View



Front View

Ordering Information

| | |
|--------------|--|
| MSM-6226G CR | 20-port 10/100/1000Base-T + 4 TP/(100/1G) SFP Combo + 2 (100/1G) SFP L2 Plus Managed Switch (9-Pin Female D-sub & RJ-45 cable, and Power Cord) |
|--------------|--|

Accessories

| | | |
|--|----------------|---------------------------------------|
| | SFP-1G85M-SX | Multi-mode 850 nm, 0.5 km SFP module |
| | SFP-1G13M-SX2 | Multi-mode 1310 nm, 2 km SFP module |
| | SFP-1G13S-LX | Single-mode 1310 nm, 10 km SFP module |
| | SFP-1G13S-LX20 | Single-mode 1310 nm, 20 km SFP module |
| | SFP-1G13S-LHX | Single-mode 1310 nm, 40 km SFP module |
| | SFP-1G15S-XD | Single-mode 1550 nm, 60 km SFP module |

MSM-506 *Available soon*

6-port Industrial Ethernet Layer 2 Managed Switch

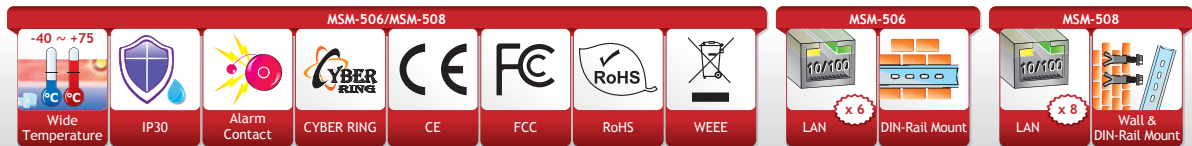
MSM-508

8-port Industrial Ethernet Layer 2 Managed Switch

MSM-506



MSM-508



Features ▶▶▶

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Supports wide operating temperature -40 °C ~ +75 °C
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Redundant Dual Power Inputs +12 V_{DC} ~ +48 V_{DC}
Power failure alarm by relay output
- Frame buffer memory: 1 Mbit
- 2048 MAC addresses
- Store-and-forward architecture
- DIN-Rail Mounting
- Modbus remote monitoring
- Supports Modbus OPC Server
- Built-in Cyber-Ring redundant technique

Introduction

The MSM-506/MSM-508 is a 6-port/8-port Industrial Ethernet (10/100 Base-TX) Layer 2 Managed Switch. MSM-506/MSM-508 supports 10/100M auto negotiation feature and auto MDI/MDI-X function. It can automatically switch the transmission speed (10 Mbps or 100 Mbps) for corresponding connections. The connectors of Ethernet port are shielded RJ-45. The shielded RJ-45 connectors offer a high reliability Ethernet environment for industrial control and automation.

It can be managed through RS-232 port via serial console or Ethernet port using telnet or Web browser. In addition, the switch supports a lot of powerful managed functions, such as 802.1Q Tag-based VLAN, Port-based VLAN, 802.1p QoS (Quality of Service), Port Trunking, Spanning Tree, Cable Testing and Port Mirroring. Built-in ICP DAS Cyber-Ring technique that enable multiple switches to be placed into a redundant ring. Typically the switch detects and recovers from a copper link failure within approximately 20 ms – for the majority of applications a seamless process. Modbus/TCP, Modbus/RTU and OPC supported, SCADA application can monitor status of Ethernet port with Modbus or OPC protocol.

MSM-506/MSM-508 provides two power inputs that can be connected simultaneously to live DC power sources. If one of the power inputs fails, the other live source will act as a backup to automatically support the it's power needs. And the relay output facility can deliver warning signal while power or network link failure.

Specifications

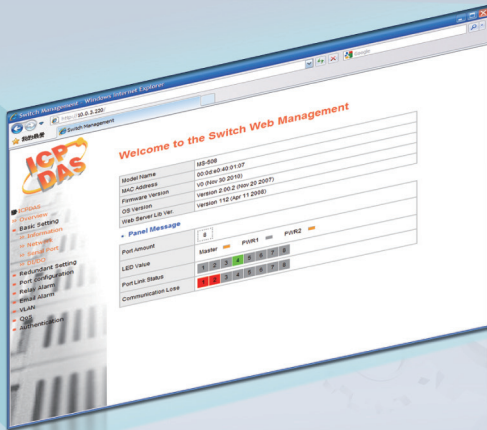
| Models | MSM-508 | MSM-506 |
|--|---|--|
| Technology | | |
| Standards | IEEE 802.3, 802.3u and 802.3x | |
| Processing Type | Store & forward, wire speed switching | |
| MAC Addresses | 2048 | |
| Memory Bandwidth | 3.2 Gbps | |
| Frame Buffer Memory | 1 Mbit | |
| Flow Control | IEEE 802.3x flow control, back pressure flow control | |
| Protocol | VLAN, QoS, Port Trunk, SMTP, TELNET | |
| Interface | | |
| RJ-45 Ports | 8-port 10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection | 6-port 10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection |
| LED Indicators | Power, 10/100M, Link/Act, Master | |
| Ethernet Isolation | 1500 V _{rms} 1 minute | |
| COM1 | RS-232 (TxD, RxD and GND); Non-isolated | |
| COM2 | RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolated | |
| Frame Ground for EMS Protection | Yes | |
| Digital Input/Output | | |
| Digital Input | 3-channel, Wet Contact, L: +11 V _{dc} Max., H: +19 V _{dc} ~ +30 V _{dc} | – |
| Digital Output | 3-channel, Open Collector, Sink/NPN, 30V/100 mA Max. | – |
| Power | | |
| Input Voltage Range | +12 V _{dc} ~ +48 V _{dc} Redundant Dual Inputs (Non-isolated) | |
| Power Consumption | 0.25 A @ 24 V _{dc} | 0.2 A @ 24 V _{dc} |
| Protection | Power reverse polarity protection | |
| Frame Ground for EMS Protection | Yes | |
| Connector | 20-Pin Removable Terminal Block | 6-Pin Removable Terminal Block |
| Mechanical | | |
| Casing | Metal | |
| Environmental Rating | IP30 Protection | |
| Dimensions (W x L x H) | 47 mm x 128 mm x 175 mm | 25 mm x 119 mm x 168 mm |
| Installation | DIN-Rail Mounting or Wall mounting | DIN-Rail Mounting |
| Environmental | | |
| Operating Temperature | -40 °C ~ +75 °C | |
| Storage Temperature | -40 °C ~ +85 °C | |
| Ambient Relative Humidity | 10% ~ 90% RH, non-condensing | |
| Accessories | | |
| Included Cable | CA-090510 x 1 | |

Comparison Table of MSM-508 and MSM-506

| Mode Name | MSM-508 | MSM-506 |
|-------------------------------|------------------------------------|--------------------------------|
| RJ-45 Ports | 8-port 10/100 Base-TX | 6-port 10/100 Base-TX |
| Digital Input | 3-channel, Wet Contact | – |
| Digital Output | 3-channel, Open Collector | – |
| Power Consumption | 0.25 A @ 24 V _{dc} | 0.2 A @ 24 V _{dc} |
| Connector | 20-Pin Removable Terminal Block | 6-Pin Removable Terminal Block |
| Dimensions (W x L x H) | 47 mm x 128 mm x 175 mm | 25 mm x 119 mm x 168 mm |
| Installation | DIN-Rail Mounting or Wall mounting | DIN-Rail Mounting |

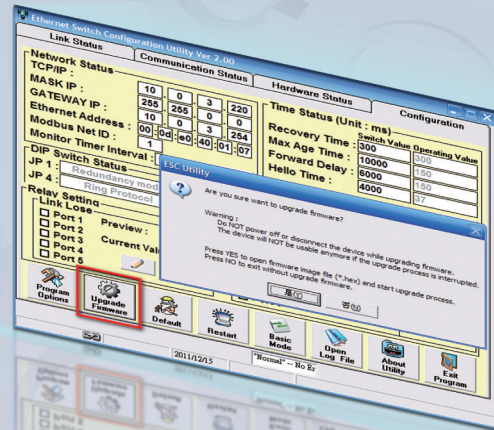
Web Configuration

Built-in web-based management, providing a more convenient UI for the user.



Firmware Upgrade

Use ESC Utility to upgrade firmware.

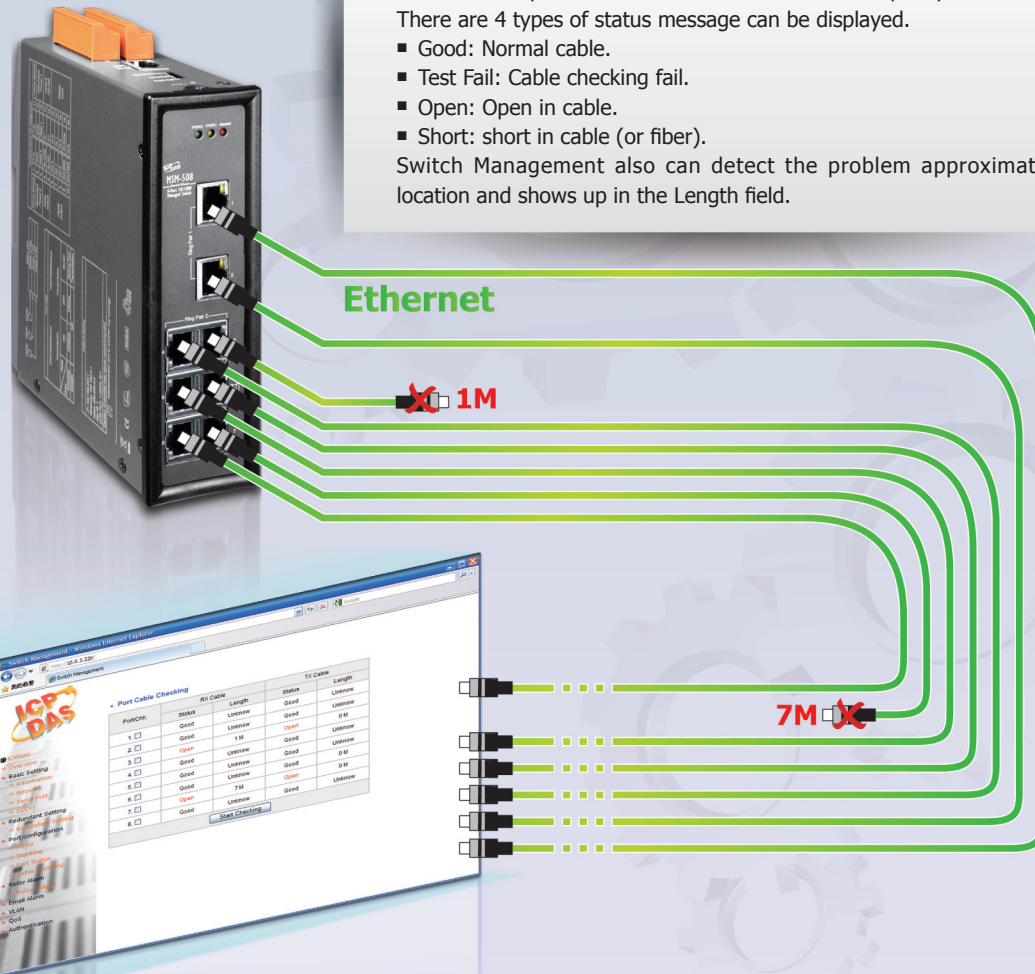


Cable Test

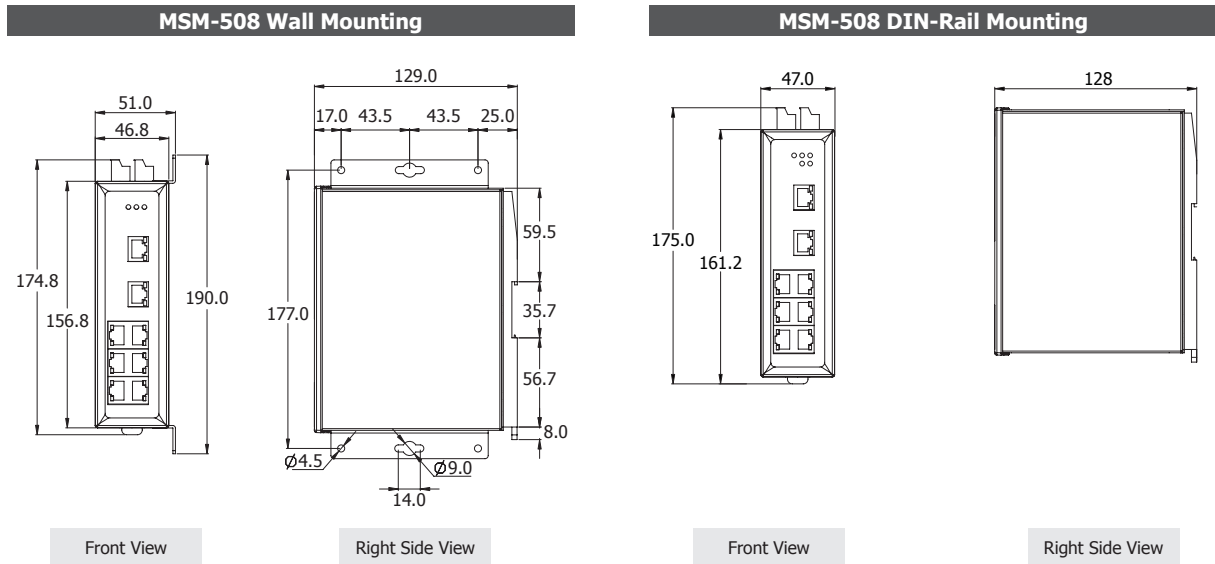
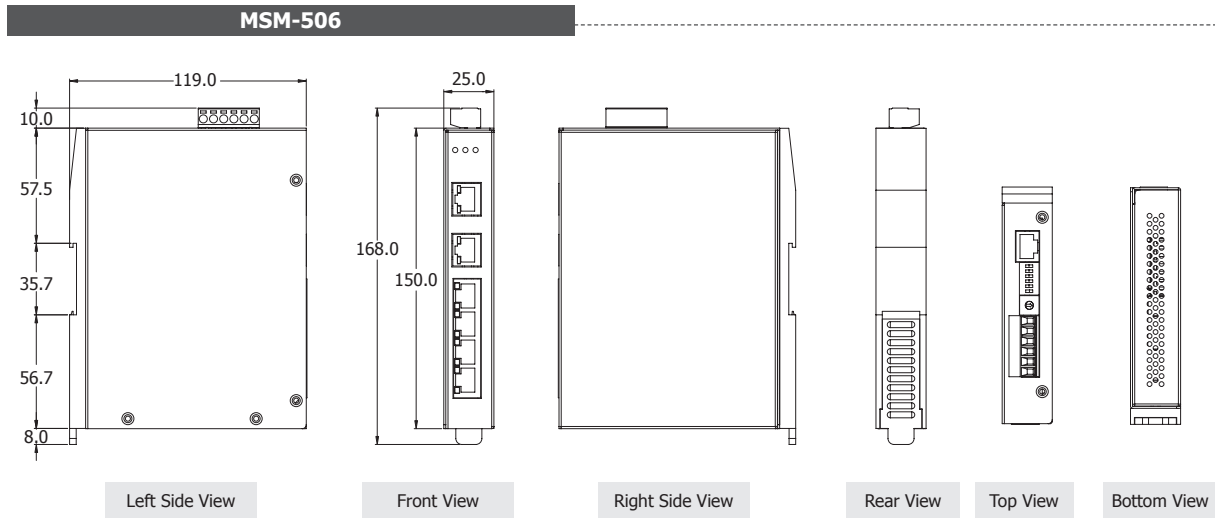
This function provides a useful tool to detect the quality of cables. There are 4 types of status message can be displayed.

- Good: Normal cable.
- Test Fail: Cable checking fail.
- Open: Open in cable.
- Short: short in cable (or fiber).

Switch Management also can detect the problem approximate location and shows up in the Length field.



Dimensions (Units: mm)



Ordering Information

| | |
|------------|--|
| MSM-506 CR | 6-port Layer 2 Managed Switch with metal casing (RoHS) |
| MSM-508 CR | 8-port Layer 2 Managed Switch with metal casing (RoHS) |

Accessories

| | |
|-----------|---|
| CA-090510 | 9-Pin Female D-Sub & RJ-45 Cable, 1 M Cable |
| MDR-20-24 | 24 V/1 A, 24 W Power Supply with DIN-Rail Mounting |
| MDR-60-48 | 48 V/1.25 A, 60 W Power Supply with DIN-Rail Mounting |
| DIN-KA52F | 24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting |
| DR-120-24 | 24 V/5 A, 120 W Power Supply with DIN-Rail Mounting |

MSM-506F Series *Available soon*

6-port Industrial Ethernet Layer 2 Managed Switch with 2-Fiber Port

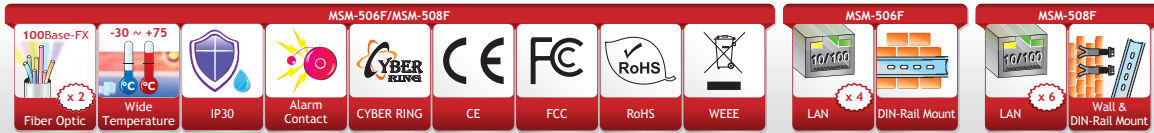
MSM-508F Series *NEW*

8-port Industrial Ethernet Layer 2 Managed Switch with 2-Fiber Port

MSM-506F Series



MSM-508F Series



Features ▶▶▶

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- Supports wide operating temperatures from -30 °C ~ +75 °C
- Built-in Cyber-Ring redundant technique
- Redundant Dual Power Inputs +12 V_{DC} ~ +48 V_{DC}
Power failure alarm by relay output
- Modbus remote monitoring
- Supports Modbus OPC Server
- Store-and-forward architecture
- Frame buffer memory: 1 Mbit
- 2048 MAC addresses
- 3.2 Gbps high performance memory bandwidth
- DIN-Rail Mounting

Introduction

The MSM-506F/MSM-508F series is an 6-port/8-port Industrial Ethernet Layer 2 Managed Switch with 2-Fiber Port that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference. It is a perfect solution for applications where transmission must be protected from electrical exposure, surges, lightning or chemical corrosion.

It can be managed through RS-232 port via serial console or Ethernet port using telnet or Web browser. In addition, the switch supports a lot of powerful managed functions, such as 802.1Q Tag-based VLAN, Port-based VLAN, 802.1p QoS (Quality of Service), Port Trunking, Spanning Tree, Cable Testing and Port Mirroring.

Built-in ICP DAS Cyber-Ring technique enables multiple switches to be placed into a redundant ring. Typically the switch detects and recovers from a fiber or copper link failure within approximately 20 ms – for the majority of applications, it is seamless. Modbus/TCP, Modbus/RTU and OPC supported, SCADA application can monitor status of Ethernet and fiber port with Modbus or OPC protocol.

MSM-506F/MSM-508F provides two power inputs that can be connected simultaneously to live DC power sources. If one of the power inputs fails, the other live source will act as a backup to automatically support the it's power needs. And the relay output facility can deliver warning signal while power or network link failure.

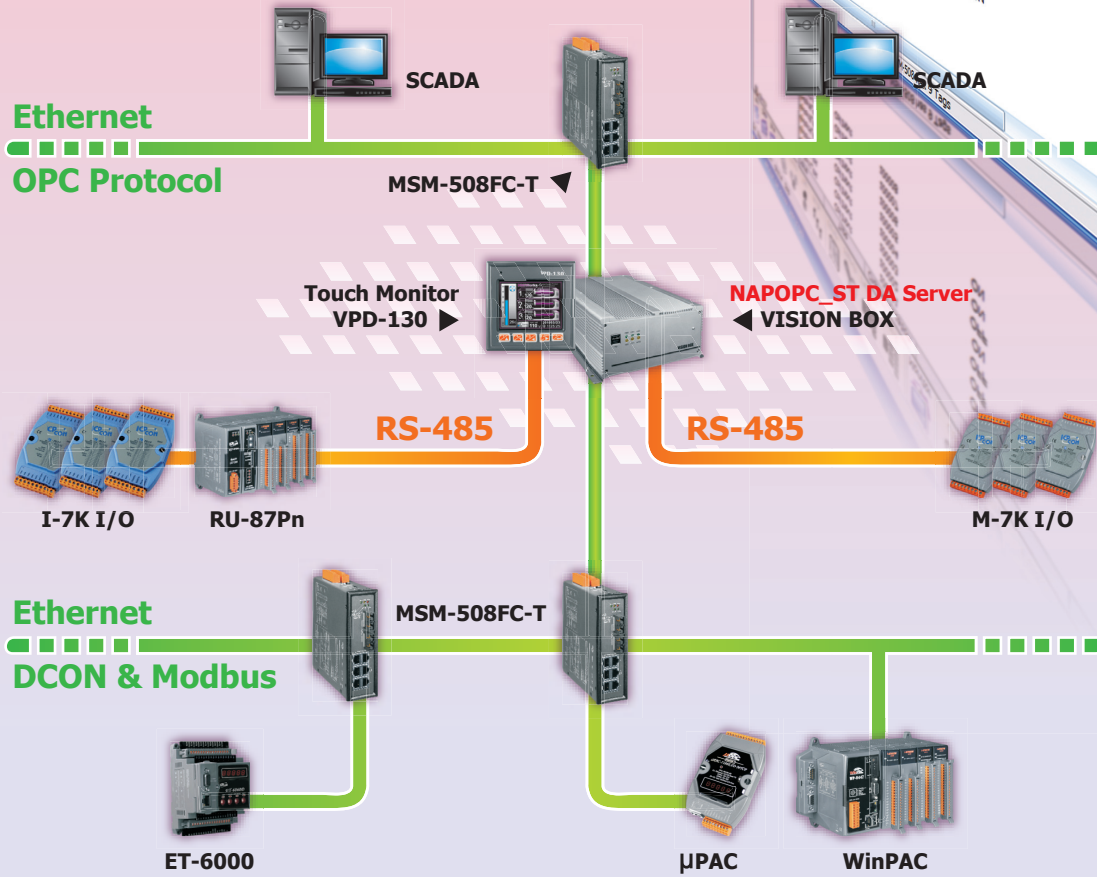
 **Specifications**

| Models | MSM-506FC-T MSM-506FCS-T Series | MSM-506FT-T Series | MSM-508FC-T MSM-508FCS-T Series | MSM-508FT-T Series |
|---|--|--|---|-----------------------|
| Technology | | | | |
| Standards | IEEE 802.3, 802.3u and 802.3x | | | |
| Processing Type | Store & forward, wire speed switching | | | |
| MAC Addresses | 2048 | | | |
| Memory Bandwidth | 3.2 Gbps | | | |
| Frame Buffer Memory | 1 Mbit | | | |
| Flow Control | IEEE 802.3x flow control, back pressure flow control | | | |
| Protocol | VLAN, QoS, Port Trunk, SMTP, TELNET | | | |
| Interface | | | | |
| RJ-45 Ports | 4-port 10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection | | 6-port 10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection | |
| Fiber Optics Port | 2-port 100 Base-FX | | | |
| LED Indicators | 10/100M, Link/Act, Full duplex/Half duplex (Fiber Port) | | | |
| Ethernet Isolation | 1500 V _{rms} 1 minute | | | |
| Multi-mode | Multi-mode Fiber Cables | 50/125, 62.5/125 or 100/140 μ m | | |
| | Distance | 2 km, (62.5/125 μ m recommended) for full duplex | | |
| | Wavelength | 1300 or 1310 nm | | |
| | Min. TX Output | -20 dBm | | |
| | Max. TX Output | -14 dBm | | |
| Single-mode | Single-mode Fiber Cables | 8.3/125, 8.7/125, 9/125 or 10/125 μ m | | |
| | Distance | 30 km, (9/125 μ m recommended) for full duplex | | |
| | Wavelength | 1300 nm or 1310 nm | | |
| | Min. TX Output | -15 dBm | | |
| | Max. TX Output | -8 dBm | | |
| COM1 | RS-232 (TxD, RxD and GND); Non-isolated | | | |
| COM2 | RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolated | | | |
| Frame Ground for EMS Protection | Yes | | | |
| Digital Input/Output | | | | |
| Digital Input | - | | 3-channel, Wet Contact, L: +11 V _{dc} Max., H: +19 V _{dc} ~ +30 V _{dc} | |
| Digital Output | - | | 3-channel, Open Collector, Sink/NPN, 30V/100 mA Max. | |
| Power | | | | |
| Input Voltage Range | +12 V _{dc} ~ +48 V _{dc} Redundant Dual Inputs (Non-isolated) | | | |
| Power Consumption | 0.2 A @ 24 V _{dc} | | 0.3 A @ 24 V _{dc} | |
| LED Indicator | Yes | | | |
| Protection | Power reverse polarity protection | | | |
| Frame Ground for EMS Protection | Yes | | | |
| Connector | 6-Pin Removable Terminal Block | | 20-Pin Removable Terminal Block | |
| Mechanical | | | | |
| Casing | Metal | | | |
| Environmental Rating | IP30 Protection | | | |
| Dimensions (W x L x H) (Units: mm) | 25 x 131 x 168 | 25 x 131 x 168 | 47 x 140 x 175 | 47 x 142 x 175 |
| Installation | DIN-Rail Mounting | | DIN-Rail Mounting or Wall mounting | |
| Environmental | | | | |
| Operating Temperature | -30 °C ~ +75 °C | | | |
| Storage Temperature | -40 °C ~ +85 °C | | | |
| Ambient Relative Humidity | 10% ~ 90% RH, non-condensing | | | |
| Accessories | | | | |
| Included Cable | CA-090510 x 1 | | | |

OPC Server

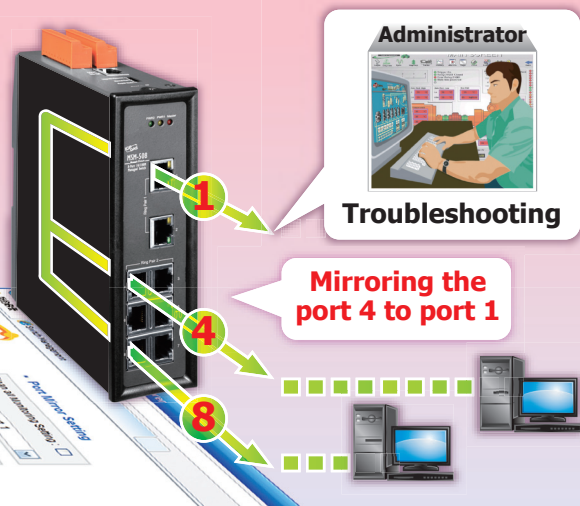
NAPOPC_ST DA Server is a free OPC DA Server (The "OPC" stands for "OLE for Process Control" and the "DA" stands for "Data Access") for ICP DAS products. NAPOPC_ST DA Server provides many benefits to users such as reduce time through lower system integration costs, integrate easily with plug-and-play SCADA/HMI/Database, connect and interoperate easily to custom applications, access to data by anyone in the automation hierarchy, reduce troubleshooting and maintenance cost, write to devices synchronously and asynchronously.

| Item | Type | Channel/Location | Value | Scaling |
|--------|-----------|------------------|-------|---------|
| OPC-IN | Gal Input | 300001 | ON | |
| OPC-IN | Gal Input | 300002 | OFF | |
| OPC-IN | Gal Input | 300003 | OFF | |
| OPC-IN | Gal Input | 300004 | OFF | |
| OPC-IN | Gal Input | 300005 | OFF | |
| OPC-IN | Gal Input | 300006 | ON | |
| OPC-IN | Gal Input | 300007 | OFF | |
| OPC-IN | Gal Input | 300008 | ON | |

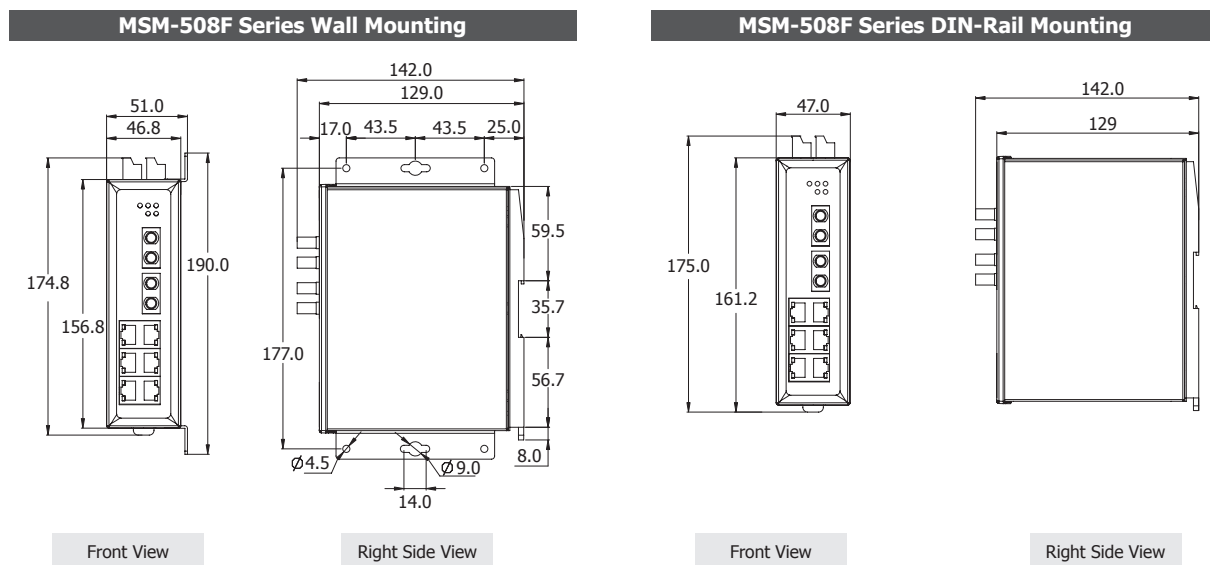
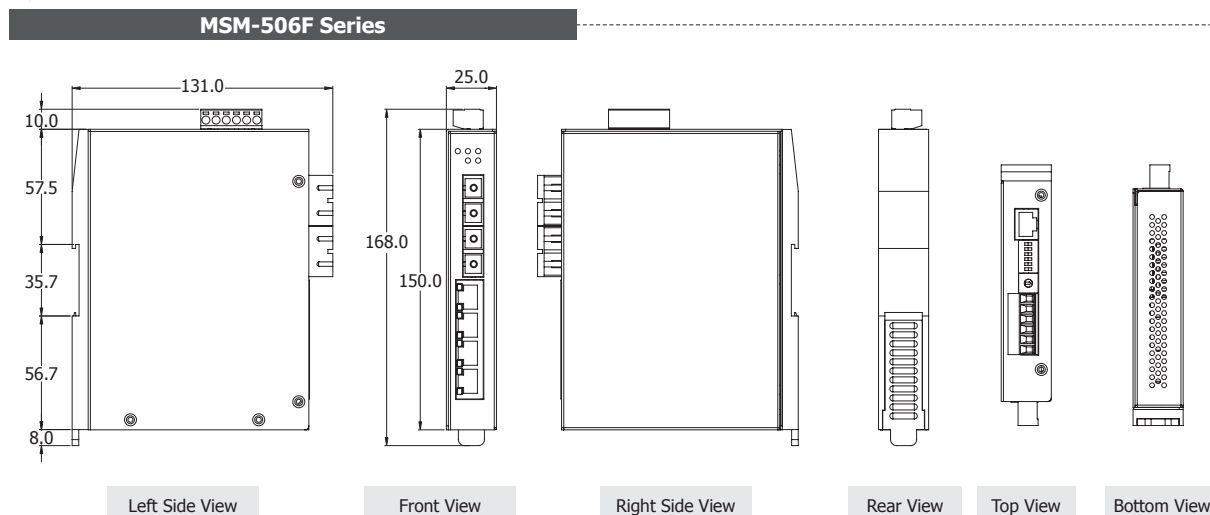


Port Mirroring

Port Mirroring is used on a network switch to send a copy of network packets seen on one switch port to a network monitoring connection on another switch port. This is commonly used for network appliances that require monitoring of network traffic, such as an intrusion-detection system. Network Engineers or Administrators use port mirroring to analyze and debug data or diagnose errors on a network. It helps the administrator keep a close eye on network performance and will alert them when problems occur. It can be used to mirror either inbound or outbound traffic on single or multiple interfaces.



Dimensions (Units: mm)



Ordering Information

| | |
|-------------------|---|
| MSM-506FT-T CR | 6-port Layer 2 Managed Switch with 2-Fiber Port, Multi-mode, ST Connector (RoHS) |
| MSM-506FC-T CR | 6-port Layer 2 Managed Switch with 2-Fiber Port, Multi-mode, SC Connector (RoHS) |
| MSM-506FCS-T CR | 6-port Layer 2 Managed Switch with 2-Fiber Port, Single-mode, SC Connector (RoHS) |
| MSM-506FCS-60T CR | 6-port Layer 2 Managed Switch with 2-Fiber Port, Single-mode 60 km, SC Connector (RoHS) |
| MSM-508FT-T CR | 8-port Layer 2 Managed Switch with 2-Fiber Port, Multi-mode, ST Connector (RoHS) |
| MSM-508FC-T CR | 8-port Layer 2 Managed Switch with 2-Fiber Port, Multi-mode, SC Connector (RoHS) |
| MSM-508FCS-T CR | 8-port Layer 2 Managed Switch with 2-Fiber Port, Single-mode, SC Connector (RoHS) |
| MSM-508FCS-60T CR | 8-port Layer 2 Managed Switch with 2-Fiber Port, Single-mode 60 km, SC Connector (RoHS) |

Accessories

| | |
|-----------|---|
| CA-090510 | 9-Pin Female D-Sub & RJ-45 Cable, 1 M Cable |
| MDR-20-24 | 24 V/1 A, 24 W Power Supply with DIN-Rail Mounting |
| MDR-60-48 | 48 V/1.25 A, 60 W Power Supply with DIN-Rail Mounting |
| DIN-KA52F | 24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting |
| DR-120-24 | 24 V/5 A, 120 W Power Supply with DIN-Rail Mounting |

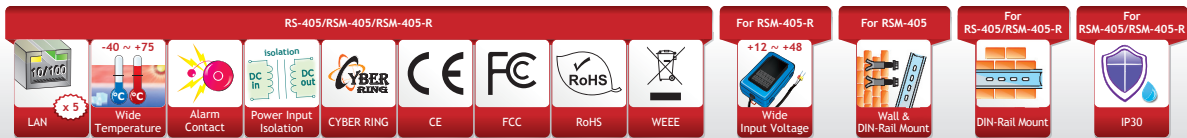
RS-405 Series



RSM-405 Series



RSM-405-R



Features ▶▶▶

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 2048 MAC addresses
- Supports wide operating temperature -40 °C ~ +75 °C
- Redundant Dual Power Inputs +10 V_{DC} ~ +30 V_{DC}
Power failure alarm by relay output
- Modbus remote monitoring
- Supports Modbus OPC Server
- Frame buffer memory: 1 Mbit
- Store-and-forward architecture
- 3.2 Gbps high performance memory bandwidth
- Absolutely free of software setting
- DIN-Rail Mounting

Introduction

The RS-405/RSM-405/RSM-405-R series is a 5-port Industrial Ethernet (10/100 Base-TX) Real-time Redundant Ring Switch. RS-405/RSM-405/RSM-405-R supports 10/100M auto negotiation feature and auto MDI/MDI-X function, it can automatically switch the transmission speed (10 Mbps or 100 Mbps) for corresponding connections.

Built-in ICP DAS Cyber-Ring technique enables multiple switches to be placed into a redundant ring. Typically the switch detects and recovers from a copper link failure within approximately 20 ms – for the majority of applications, seamless.

The RS-405/RSM-405/RSM-405-R series is much more easy to use and absolutely free of software setting. After unpacking the shipping case, it just takes one or two dip or rotary switch to make it work.

RS-405/RSM-405/RSM-405-R provides two power inputs that can be connected simultaneously to live DC power sources. If one of the power inputs fails, the other live source will act as a backup to automatically support the it's power needs. And the relay output facility can deliver warning signal while power or network link failure.

Specifications

| Models | RS-405 | RSM-405 | RSM-405-R |
|---------------------------------|---|------------------------------------|--|
| Technology | | | |
| Standards | IEEE 802.3, 802.3u and 802.3x | | |
| Processing Type | Store & forward, wire speed switching | | |
| MAC Addresses | 2048 | | 1024 |
| Memory Bandwidth | 3.2 Gbps | | |
| Frame Buffer Memory | 1 Mbit | | |
| Flow Control | IEEE 802.3x flow control, back pressure flow control | | |
| Interface | | | |
| RJ-45 Ports | 10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection | | |
| LED Indicators | Power, 10/100M, Link/Act, Master | | |
| Ethernet Isolation | 1500 V _{rms} 1 minute | | |
| COM1 | RS-232 (TxD, RxD and GND); Non-isolated | | |
| COM2 | RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolated | | - |
| Frame Ground for EMS Protection | Yes | | |
| Power | | | |
| Input Voltage Range | +10 V _{dc} ~ +30 V _{dc} Redundant Dual Inputs (Isolated) | | +12 V _{dc} ~ +48 V _{dc} Redundant Dual Inputs (Non-isolated) |
| Power Consumption | 0.22 A @ 24 V _{dc} | | |
| Protection | Power reverse polarity protection | | |
| Frame Ground for EMS Protection | Yes | | |
| Connector | 7-Pin Removable Terminal Block | | 6-Pin Removable Terminal Block |
| Mechanical | | | |
| Casing | Plastic | Metal | Metal |
| Environmental Rating | Flammability UL 94V-0 | IP30 Protection | IP30 Protection |
| Dimensions (W x L x H) | 64 mm x 98 mm x 118 mm | 73 mm x 102 mm x 132 mm | 25 mm x 119 mm x 168 mm |
| Installation | DIN-Rail Mounting | DIN-Rail Mounting or Wall Mounting | DIN-Rail Mounting |
| Environmental | | | |
| Operating Temperature | -40 °C ~ +75 °C | | |
| Storage Temperature | -40 °C ~ +85 °C | | |
| Ambient Relative Humidity | 10% ~ 90% RH, non-condensing | | |
| Accessories | | | |
| Included Cable | CA-090510 x 1 | | |

2

Managed Ethernet Switches

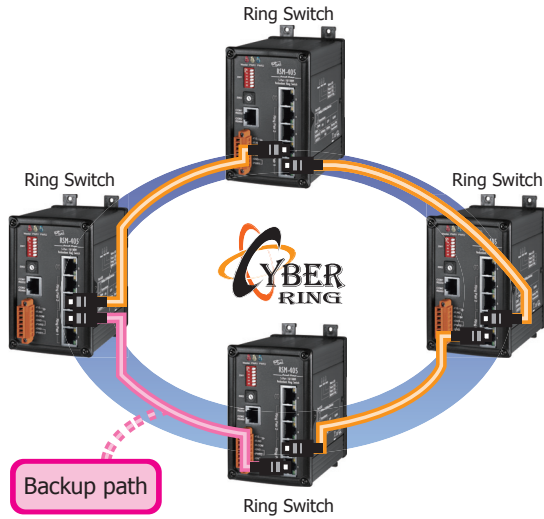
Comparison Table of 5-port Real-time Redundant Ring Switch

| Mode Name | RS-405 | RSM-405 | RSM-405-R |
|------------------------|---|------------------------------------|--|
| Input Voltage Range | +10 V _{dc} ~ +30 V _{dc} | | +12 V _{dc} ~ +48 V _{dc} (Non-isolated) |
| Casing | Plastic | Metal | Metal |
| Installation | DIN-Rail Mounting | DIN-Rail Mounting or Wall Mounting | DIN-Rail Mounting |
| Dimensions (W x L x H) | 64 mm x 98 mm x 118 mm | 73 mm x 102 mm x 132 mm | 25 mm x 119 mm x 168 mm |

Applications

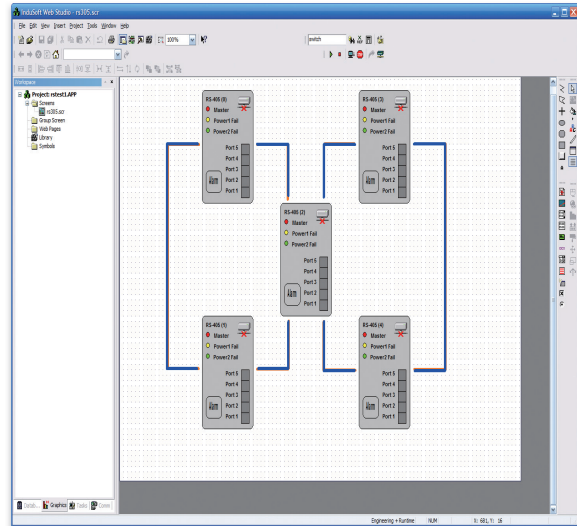
Ring Topology

A Single Ring network topology with Cyber-Ring technology can satisfy the requirement for link-lose-backup in the industrial field application. (In normal operation, traffic on the backup path is either blocked or ignored. If any network node or cable segment of active path is failure, Cyber-Ring will redirect traffics to the backup path automatically. After repair of the failed path, the network is again reconfigured to normal operation stat.



HMI Monitor

Use HMI (Human Machine Interfaces) to monitor Redundant Ring Network status.



LED Functions

RS/RSM-405 Series LED Indicator Functions

| LED | Color | Description |
|---------------|--------------|--------------------------------------|
| Master | Red On | The switch is master of ring network |
| | Red Off | The switch is slave of ring network |
| PWR1 | Orange On | Power input 1 is alive |
| | Orange Off | Power input 1 is offline |
| PWR2 | Green On | Power input 2 is alive |
| | Green Off | Power input 2 is offline |
| Ethernet Port | Orange On | Link to 100 Mbps |
| | Orange Off | Link to 10 Mbps |
| | Orange Blink | Backup Port |
| | Green Blink | Data Transmission |

DIP/Rotary Switches

SW1: Redundancy mode configuration



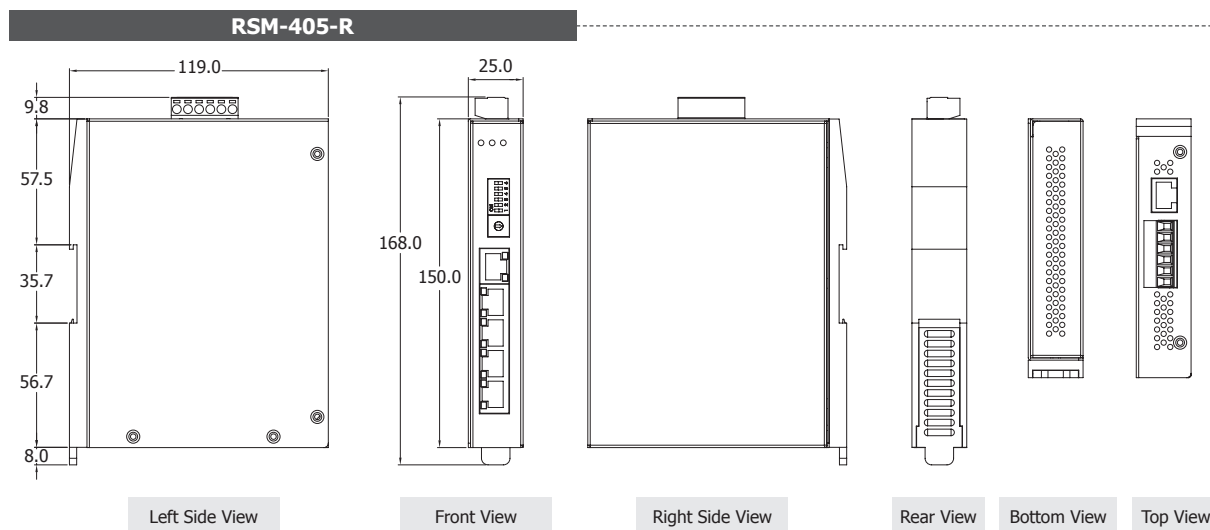
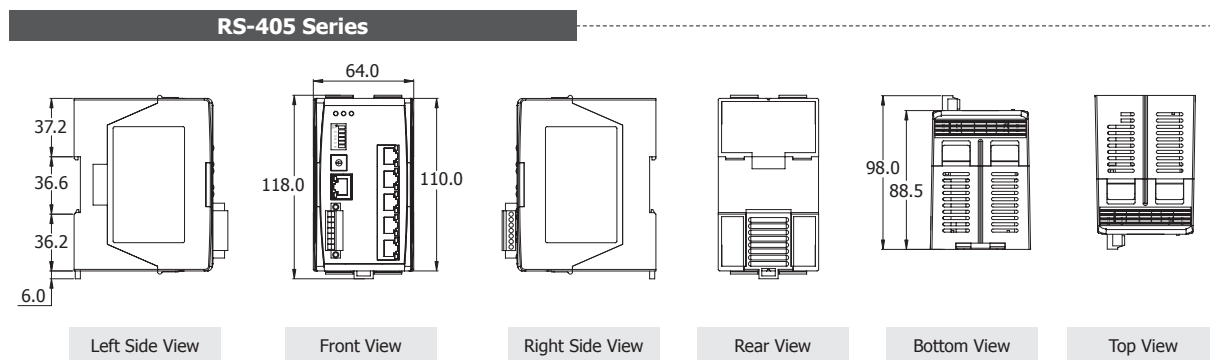
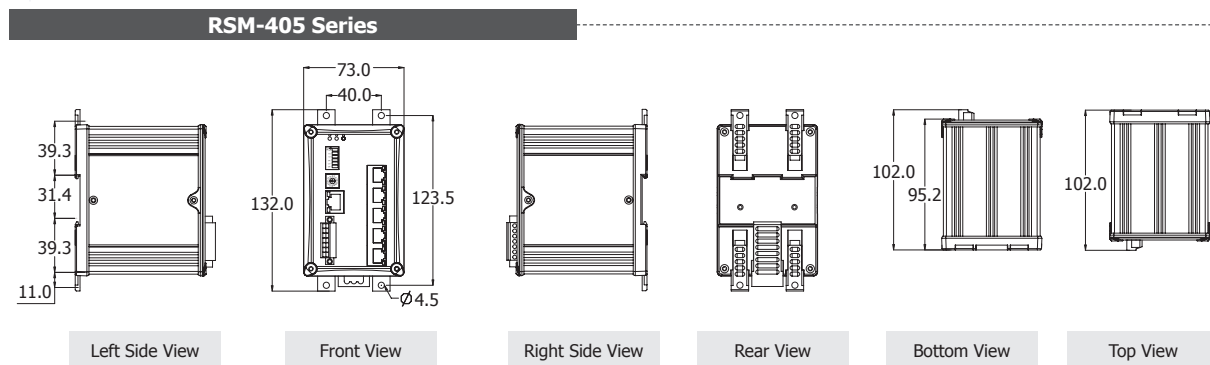
| | OFF | ON |
|---|--------------------|-------------------|
| 1 | Redundancy Mode | Tradition Mode |
| 2 | Normal State | Default Setting |
| 3 | Primary Switch | Secondary Switch |
| 4 | Ring Protocol | STP Protocol |
| 5 | Disable Ring Pair2 | Enable Ring Pair2 |
| 6 | Disable Ring Pair1 | Enable Ring Pair1 |

SW2: Max. Recovery time selection



| State | Time | State | Time | State | Time |
|-------|-------|-------|--------|-------|--------|
| F | 1.5 s | 9 | 900 ms | 3 | 300 ms |
| E | 1.4 s | 8 | 800 ms | 2 | 200 ms |
| D | 1.3 s | 7 | 700 ms | 1 | 100 ms |
| C | 1.2 s | 6 | 600 ms | 0 | N/A |
| B | 1.1 s | 5 | 500 ms | | |
| A | 1.0 s | 4 | 400 ms | | |

Dimensions (Units: mm)



Ordering Information

| | |
|--------------|--|
| RS-405 CR | 5-port Redundant Ring Switch with Isolated Power Input +10 V _{dc} ~ +30 V _{dc} (RoHS) |
| RSM-405 CR | 5-port Redundant Ring Switch with Isolated Power Input +10 V _{dc} ~ +30 V _{dc} , metal casing (RoHS) |
| RSM-405-R CR | 5-port Redundant Ring Switch with Non-isolated Power Input +12 V _{dc} ~ +48 V _{dc} , metal casing (RoHS) |

Accessories

| | |
|-----------|---|
| CA-090510 | 9-Pin Female D-Sub & RJ-45 Cable, 1 M Cable |
| MDR-20-24 | 24 V/1 A, 24 W Power Supply with DIN-Rail Mounting |
| MDR-60-48 | 48 V/1.25 A, 60 W Power Supply with DIN-Rail Mounting |
| DIN-KA52F | 24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting |
| DR-120-24 | 24 V/5 A, 120 W Power Supply with DIN-Rail Mounting |

RS-408/RSM-408

8-port Redundant Ring Switch with Isolated Power Input +10 V_{DC} ~ +30 V_{DC}

RSM-408A *Available soon*

8-port Redundant Ring Switch with Non-isolated Power Input +12 V_{DC} ~ +48 V_{DC}

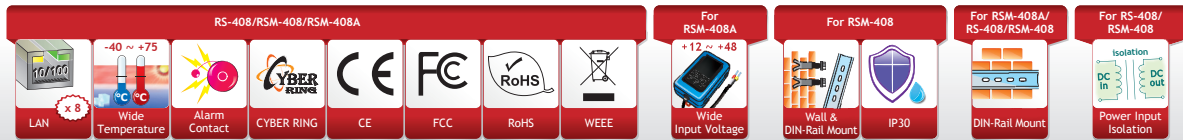
RS-408



RSM-408



RSM-408A



Features ▶▶▶

- Automatic MDI/MDI-X crossover for plug-and-play
- Store-and-forward architecture
- Each port supports both 10/100 Mbps speed auto negotiation
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- Supports wide operating temperature -40 °C ~ +75 °C
- 3.2 Gbps high performance memory bandwidth
- Redundant Dual Power Inputs +12 V_{DC} ~ +48 V_{DC} for RSM-408A
- Power failure alarm by relay output
- Modbus remote monitoring
- Supports Modbus OPC Server
- 2048 MAC addresses
- Frame buffer memory: 1 Mbit
- Absolutely free of software setting
- Built-in Cyber-Ring redundant technique
- DIN-Rail Mounting

Introduction

The RS-408/RSM-408/RSM-408A series is a 8-port Industrial Ethernet (10/100 Base-TX) Real-time Redundant Ring Switch. RS-408/RSM-408 supports 10/100M auto negotiation feature and auto MDI/MDI-X function, it can automatically switch the transmission speed (10 Mbps or 100 Mbps) for corresponding connections.

Built-in ICP DAS Cyber-Ring technique enables multiple switches to be placed into a redundant ring. Typically the switch detects and recovers from a copper link failure within approximately 20 ms – for the majority of applications, it is seamless process. The RS-408/RSM-408/RSM-408A series is much more easy to use and absolutely free of software setting. After unpacking the shipping case, it just takes one or two dip or rotary switch to make it work.

RS-408/RSM-408/RSM-408A provides two power inputs that can be connected simultaneously to live DC power sources. If one of the power inputs fails, the other live source will act as a backup to automatically support the it's power needs. And the relay output facility can deliver warning signal while power or network link failure.

Specifications

| Models | RS-408 | RSM-408 | RSM-408A |
|--|---|--|-------------------------|
| Technology | | | |
| Standards | IEEE 802.3, 802.3u and 802.3x | | |
| Processing Type | Store & forward, wire speed switching | | |
| MAC Addresses | 2048 | | |
| Memory Bandwidth | 3.2 Gbps | | |
| Frame Buffer Memory | 1 Mbit | | |
| Flow Control | IEEE 802.3x flow control, back pressure flow control | | |
| Interface | | | |
| RJ-45 Ports | 10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection | | |
| LED Indicators | Power, 10/100M, Link/Act, Master | | |
| Ethernet Isolation | 1500 V _{rms} 1 minute | | |
| COM1 | RS-232 (TxD, RxD and GND); Non-isolated | | |
| COM2 | RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolated | | |
| Frame Ground for EMS Protection | Yes | | |
| Power | | | |
| Input Voltage Range | +10 V _{dc} ~ +30 V _{dc} Redundant Dual Inputs (Isolated) | +12 V _{dc} ~ +48 V _{dc} Redundant Dual Inputs (Non-isolated) | |
| Power Consumption | 0.3 A @ 24 V _{dc} | 0.25 A @ 24 V _{dc} | |
| Protection | Power reverse polarity protection | | |
| Frame Ground for EMS Protection | Yes | | |
| Connector | 7-Pin Removable Terminal Block | 6-Pin Removable Terminal Block | |
| Mechanical | | | |
| Casing | Plastic | Metal | Metal |
| Environmental Rating | Flammability UL 94V-0 | IP30 Protection | IP30 Protection |
| Dimensions (W x L x H) | 64 mm x 98 mm x 118 mm | 73 mm x 102 mm x 132 mm | 25 mm x 119 mm x 168 mm |
| Installation | DIN-Rail Mounting | DIN-Rail Mounting or Wall Mounting | DIN-Rail Mounting |
| Environmental | | | |
| Operating Temperature | -40 °C ~ +75 °C | | |
| Storage Temperature | -40 °C ~ +85 °C | | |
| Ambient Relative Humidity | 10% ~ 90% RH, non-condensing | | |
| Accessories | | | |
| Included Cable | CA-090510 x 1 | | |

Comparison Table of 8-port Real-time Redundant Ring Switch

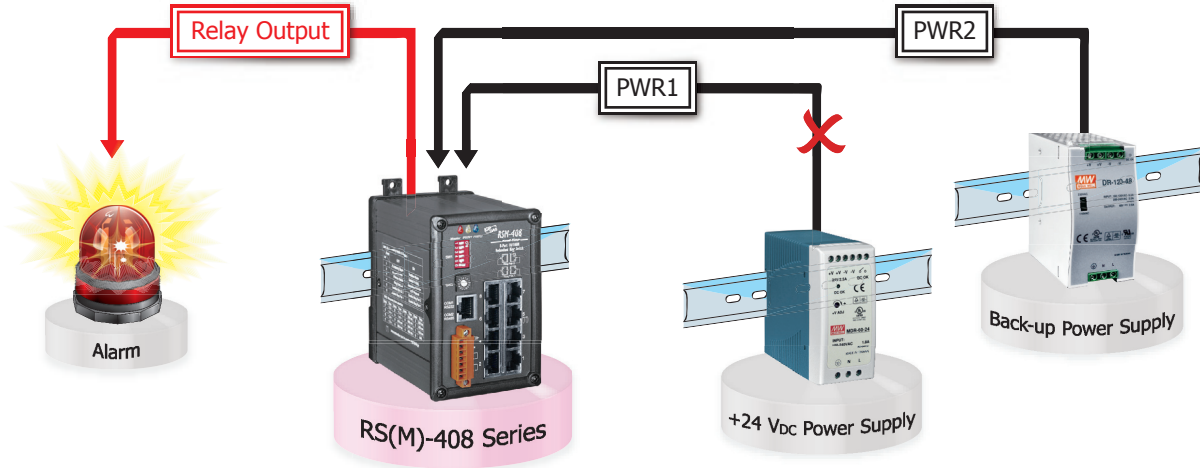
| Mode Name | RS-408 | RSM-408 | RSM-408A |
|-------------------------------|---|------------------------------------|--|
| Input Voltage Range | +10 V _{dc} ~ +30 V _{dc} | | +12 V _{dc} ~ +48 V _{dc} (Non-isolated) |
| Casing | Plastic | Metal | Metal |
| Installation | DIN-Rail Mounting | DIN-Rail Mounting or Wall Mounting | DIN-Rail Mounting |
| Dimensions (W x L x H) | 64 mm x 98 mm x 118 mm | 73 mm x 102 mm x 132 mm | 25 mm x 119 mm x 168 mm |

Applications

Redundant Power Inputs

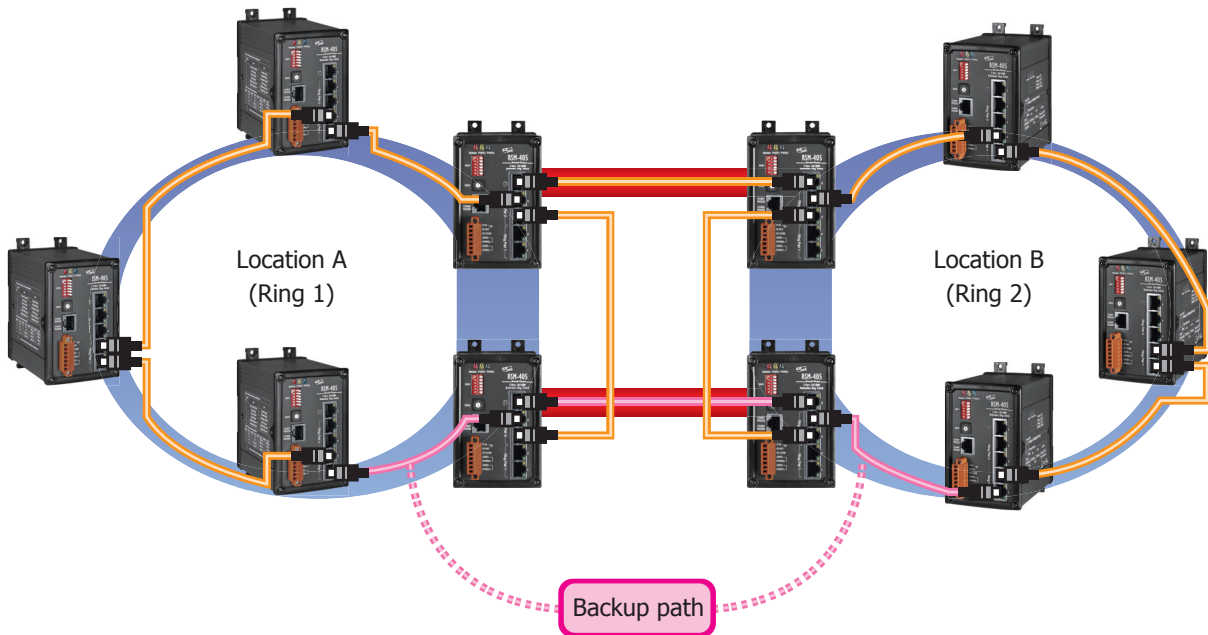
Both power inputs can be connected simultaneously to live DC power sources.

If one power source fails, the other live source will act as a backup, and automatically supplies all of RS-408/RSM-408 series power needs.



Double Ring Coupling

Double Ring Coupling is the enhanced version of Ring Coupling topology. It improves the reliability of Ring Coupling topology. In Double Ring Coupling topology, there are two coupling points providing redundant coupling path of two rings.



DIP/Rotary Switches

SW1: Redundancy mode configuration



| | OFF | ON |
|---|--------------------|-------------------|
| 1 | Redundancy Mode | Tradition Mode |
| 2 | Normal State | Default Setting |
| 3 | Primary Switch | Secondary Switch |
| 4 | Ring Protocol | STP Protocol |
| 5 | Disable Ring Pair2 | Enable Ring Pair2 |
| 6 | Disable Ring Pair1 | Enable Ring Pair1 |

SW2: Max. Recovery time selection



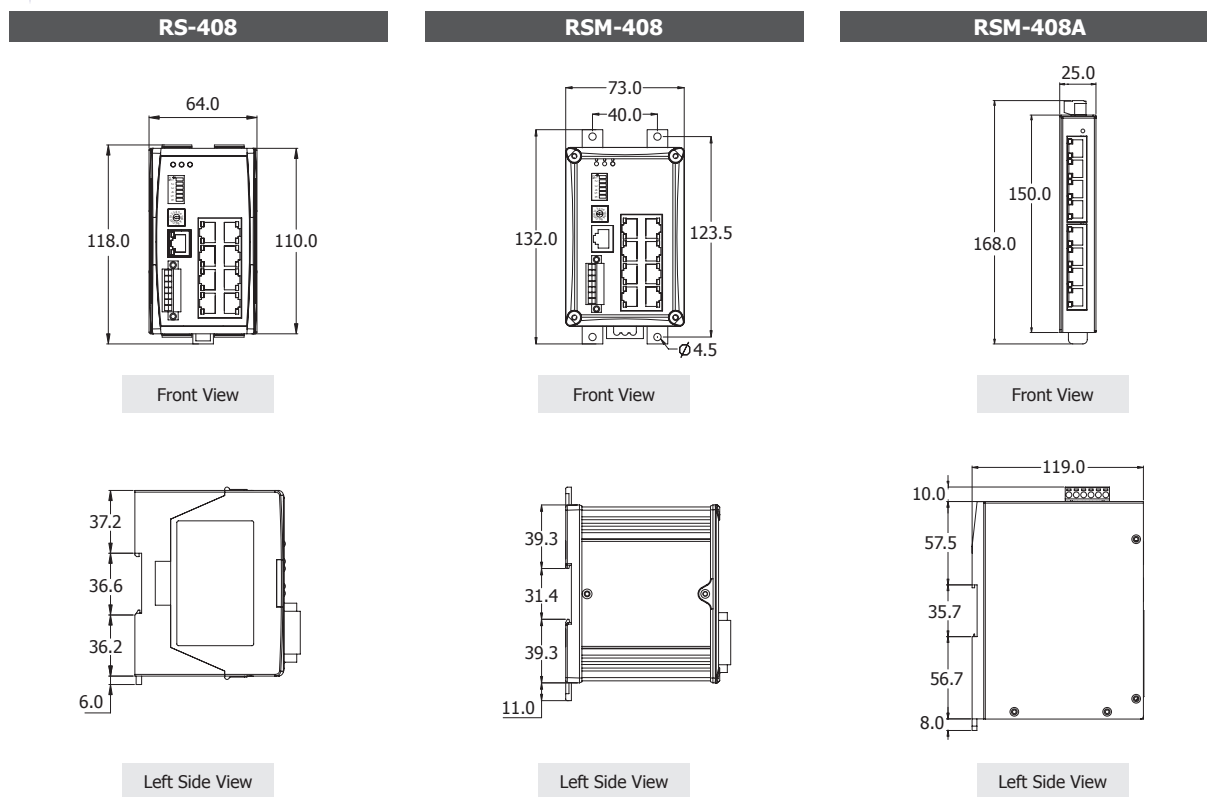
| State | Time | State | Time | State | Time |
|-------|-------|-------|--------|-------|--------|
| F | 1.5 s | 9 | 900 ms | 3 | 300 ms |
| E | 1.4 s | 8 | 800 ms | 2 | 200 ms |
| D | 1.3 s | 7 | 700 ms | 1 | 100 ms |
| C | 1.2 s | 6 | 600 ms | 0 | N/A |
| B | 1.1 s | 5 | 500 ms | | |
| A | 1.0 s | 4 | 400 ms | | |

LED Functions

RS/RSM-408 Series LED Indicator Functions

| LED | Color | Description |
|---------------|--------------|--------------------------------------|
| Master | Red On | The switch is master of ring network |
| | Red Off | The switch is slave of ring network |
| PWR1 | Orange On | Power input 1 is alive |
| | Orange Off | Power input 1 is offline |
| PWR2 | Green On | Power input 2 is alive |
| | Green Off | Power input 2 is offline |
| Ethernet Port | Orange On | Link to 100 Mbps |
| | Orange Off | Link to 10 Mbps |
| | Orange Blink | Backup Port |
| | Green Blink | Data Transmission |

Dimensions (Units: mm)



Ordering Information

| | |
|-------------|--|
| RS-408 CR | 8-port Redundant Ring Switch with Isolated Power Input +10 V _{dc} ~ +30 V _{dc} (RoHS) |
| RSM-408 CR | 8-port Redundant Ring Switch with Isolated Power Input +10 V _{dc} ~ +30 V _{dc} , metal casing (RoHS) |
| RSM-408A CR | 8-port Redundant Ring Switch with Non-isolated Power Input +12 V _{dc} ~ +48 V _{dc} , metal casing (RoHS) |

Accessories

| | |
|-----------|---|
| CA-090510 | 9-Pin Female D-Sub & RJ-45 Cable, 1 M Cable |
| MDR-20-24 | 24 V/1 A, 24 W Power Supply with DIN-Rail Mounting |
| MDR-60-48 | 48 V/1.25 A, 60 W Power Supply with DIN-Rail Mounting |
| DIN-KA52F | 24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting |
| DR-120-24 | 24 V/5 A, 120 W Power Supply with DIN-Rail Mounting |

RS-405F/RSM-405F Series

5-port Real-time Redundant Ring Switch with 2-Fiber Port

RS-405FC/FCS Series

RS-405FT Series

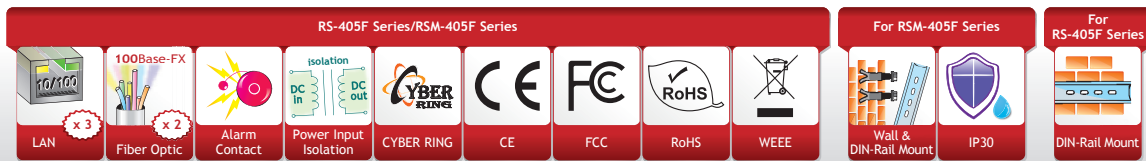
RSM-405FC/FCS Series

RSM-405FT Series



2

Managed Ethernet Switches



Features ▶▶▶

- Automatic MDI/MDI-X crossover for plug-and-play
- 3.2 Gbps high performance memory bandwidth
- Each port supports both 10/100 Mbps speed auto negotiation
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- Supports wide operating temperature from 0 °C ~ +70 °C
- Redundant Dual Power Inputs +10 V_{DC} ~ +30 V_{DC}
Power failure alarm by relay output
- Modbus remote monitoring
- Supports Modbus OPC Server
- Store-and-forward architecture
- Built-in Cyber-Ring redundant technique
- Frame buffer memory: 512 Kbit
- 1024 MAC addresses
- DIN-Rail Mounting

Introduction

The RS-405F/RSM-405F series is a 5-port Industrial Ethernet Real-time Redundant Ring Switch with 2-Fiber Port that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference.

Built-in ICP DAS Cyber-Ring technique enables multiple switches to be placed into a redundant ring. Typically the switch detects and recovers from a fiber or copper link failure within approximately 20 ms – for the majority of application, it is seamless. After unpacking the shipping case, it just takes one or two dip or rotary switch to make it work.

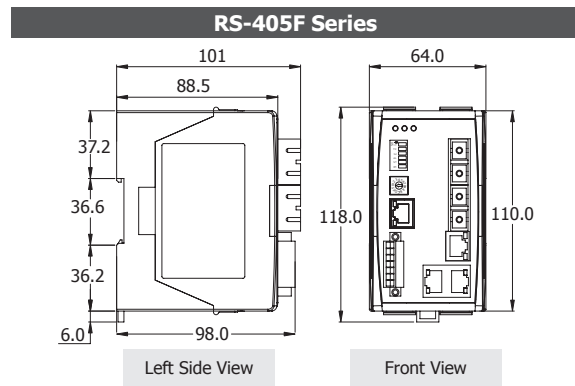
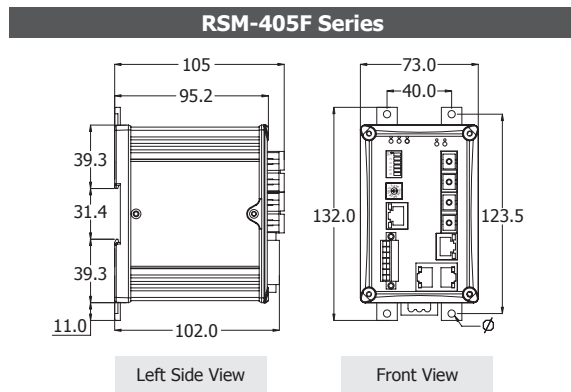
RS-405F/RSM-405F provides two power inputs that can be connected simultaneously to live DC power sources. If one of the power inputs fails, the other live source will act as a backup to automatically support the its power needs. And the relay output facility can deliver warning signal while power or network link failure.

Specifications

| Models | RS-405F Series | RSM-405F Series |
|----------------------------|--|-----------------|
| Technology | | |
| Standards | IEEE 802.3, 802.3u and 802.3x | |
| Processing Type | Store & forward, wire speed switching | |
| MAC Addresses | 1024 | |
| Memory Bandwidth | 3.2 Gbps | |
| Frame Buffer Memory | 512 Kbit | |
| Flow Control | IEEE 802.3x flow control, back pressure flow control | |

| Models | | RS-405F Series | RSM-405F Series |
|--|---------------------------------|---|------------------------------------|
| Interface | | | |
| RJ-45 Ports | | 10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection | |
| Fiber Optics Port | | 100 Base-FX | |
| LED Indicators | | 10/100M, Link/Act, Full duplex/Half duplex (Fiber Port) | |
| Ethernet Isolation | | 1500 V _{rms} 1 minute | |
| Multi-mode | Multi-mode Fiber Cables | 50/125, 62.5/125 or 100/140 μm | |
| | Distance | 2 km, (62.5/125 μm recommended) for full duplex | |
| | Wavelength | 1300 or 1310 nm | |
| | Min. TX Output | -20 dBm | |
| | Max. TX Output | -14 dBm | |
| | Max. RX Sensitivity | -32 dBm | |
| | Min. RX Overload | -8 dBm | |
| | Budget | 12 dBm | |
| Single-mode | Single-mode Fiber Cables | 8.3/125, 8.7/125, 9/125 or 10/125 μm | |
| | Distance | 30 km, (9/125 μm recommended) for full duplex | |
| | Wavelength | 1300 nm or 1310 nm | |
| | Min. TX Output | -15 dBm | |
| | Max. TX Output | -8 dBm | |
| | Max. RX Sensitivity | -34 dBm | |
| | Min. RX Overload | -5 dBm | |
| | Budget | 19 dBm | |
| Single-mode (60T) | Single-mode Fiber Cables | 8.3/125, 8.7/125, 9/125 or 10/125 μm | |
| | Distance | 60 km, (9/125 μm recommended) for full duplex | |
| | Wavelength | 1300 nm or 1310 nm | |
| | Min. TX Output | -5 dBm | |
| | Max. TX Output | 0 dBm | |
| | Max. RX Sensitivity | -35 dBm | |
| | Min. RX Overload | -5 dBm | |
| | Budget | 30 dBm | |
| Ethernet Transmission Distance | Ethernet | 2-pair UTP/STP Cat.3, 4, 5, EIA/TIA-568 100 Ω | |
| | Fast Ethernet | 2-pair UTP/STP Cat. 5, EIA/TIA-568 100 Ω | |
| COM1 | | RS-232 (TxD, RxD and GND); Non-isolated | |
| COM2 | | RS-485 (D2+, D2-; Self-Tuner ASIC inside); Non-isolated | |
| Frame Ground for EMS Protection | | Yes | |
| Power | | | |
| Input Voltage Range | | +10 V _{dc} ~ +30 V _{dc} Redundant Dual Inputs (Isolated) | |
| Power Consumption | | 0.4 A @ 24 V _{dc} | |
| LED Indicator | | Yes | |
| Protection | | Power reverse polarity protection | |
| Frame Ground for EMS Protection | | Yes | |
| Connector | | 7-Pin Removable Terminal Block | |
| Mechanical | | | |
| Casing | | Plastic | Metal |
| Environmental Rating | | Flammability UL 94V-0 | IP30 Protection |
| Dimensions (W x L x H) | | 64 mm x 101 mm x 118 mm | 73 mm x 105 mm x 132 mm |
| Installation | | DIN-Rail Mounting | DIN-Rail Mounting or Wall Mounting |
| Environmental | | | |
| Operating Temperature | | 0 °C ~ +70 °C | |
| Storage Temperature | | -20 °C ~ +85 °C | |
| Ambient Relative Humidity | | 10% ~ 90% RH, non-condensing | |
| Accessories | | | |
| Included Cable | | CA-090510 x 1 | |

Dimensions (Units: mm)



LED Functions

Standard RJ-45 female connectors are provided. A standard RJ-45 plug cable is all that is necessary to connect your device to the unit since switch that supports auto crossover.

RS/RSM-405F Series LED Indicator Functions

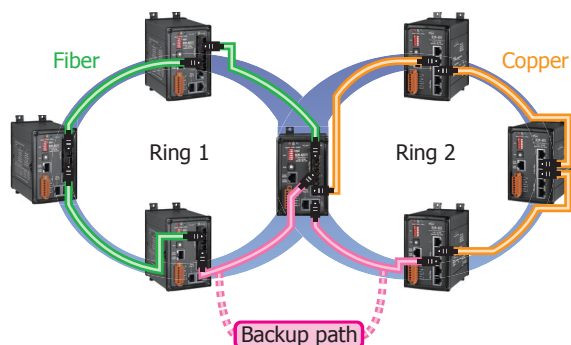
| LED | Color | Description |
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| Master | Red On | The switch is master of ring network |
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| PWR1 | Orange On | Power input 1 is alive |
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| PWR2 | Green On | Power input 2 is alive |
| | Green Off | Power input 2 is offline |
| Ethernet Port | Orange On | Link to 100 Mbps |
| | Orange Off | Link to 10 Mbps |
| | Orange Blink | Backup Port |
| | Green Blink | Data Transmission |
| Fiber Port | Orange Blink | Fiber1 is active port |
| | Orange Off | Fiber1 backup port |
| | Green Blink | Fiber2 is active port |
| | Green Off | Fiber2 backup port |

Applications

Ring Coupling

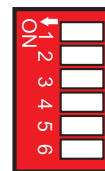
The Ring Coupling topology can connect separate Cyber-Ring network together. It is ideal for two-ring application scene.

The Ring Coupling topology not only construct individual Cyber-Ring network for each floor but also provide backup path to each other. It is a cost-effective solution to coupling ring topology.



DIP/Rotary Switches

SW1: Redundancy mode configuration



| | OFF | ON |
|---|--------------------|-------------------|
| 1 | Redundancy Mode | Tradition Mode |
| 2 | Normal State | Default Setting |
| 3 | Primary Switch | Secondary Switch |
| 4 | Ring Protocol | STP Protocol |
| 5 | Disable Ring Pair2 | Enable Ring Pair2 |
| 6 | Disable Ring Pair1 | Enable Ring Pair1 |

SW2: Max. Recovery time selection



| State | Time | State | Time | State | Time |
|-------|-------|-------|--------|-------|--------|
| F | 1.5 s | 9 | 900 ms | 3 | 300 ms |
| E | 1.4 s | 8 | 800 ms | 2 | 200 ms |
| D | 1.3 s | 7 | 700 ms | 1 | 100 ms |
| C | 1.2 s | 6 | 600 ms | 0 | N/A |
| B | 1.1 s | 5 | 500 ms | | |
| A | 1.0 s | 4 | 400 ms | | |

Ordering Information

| | |
|---------------|--|
| RS-405FT CR | 5-port Real-time Redundant Ring Switch with 2-Fiber Port, Multi-mode, ST Connector (RoHS) |
| RSM-405FT CR | 5-port Real-time Redundant Ring Switch with 2-Fiber Port, Multi-mode, ST Connector; metal case (RoHS) |
| RS-405FC CR | 5-port Real-time Redundant Ring Switch with 2-Fiber Port, Multi-mode, SC Connector (RoHS) |
| RSM-405FC CR | 5-port Real-time Redundant Ring Switch with 2-Fiber Port, Multi-mode, SC Connector; metal case (RoHS) |
| RS-405FCS CR | 5-port Real-time Redundant Ring Switch with 2-Fiber Port, Single-mode, SC Connector (RoHS) |
| RSM-405FCS CR | 5-port Real-time Redundant Ring Switch with 2-Fiber Port, Single-mode, SC Connector; metal case (RoHS) |

Accessories

| | |
|-----------|---|
| CA-090510 | 9-Pin Female D-Sub & RJ-45 Cable, 1 M Cable |
| MDR-20-24 | 24 V/1 A, 24 W Power Supply with DIN-Rail Mounting |
| DIN-KA52F | 24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting |
| DR-120-24 | 24 V/5 A, 120 W Power Supply with DIN-Rail Mounting |