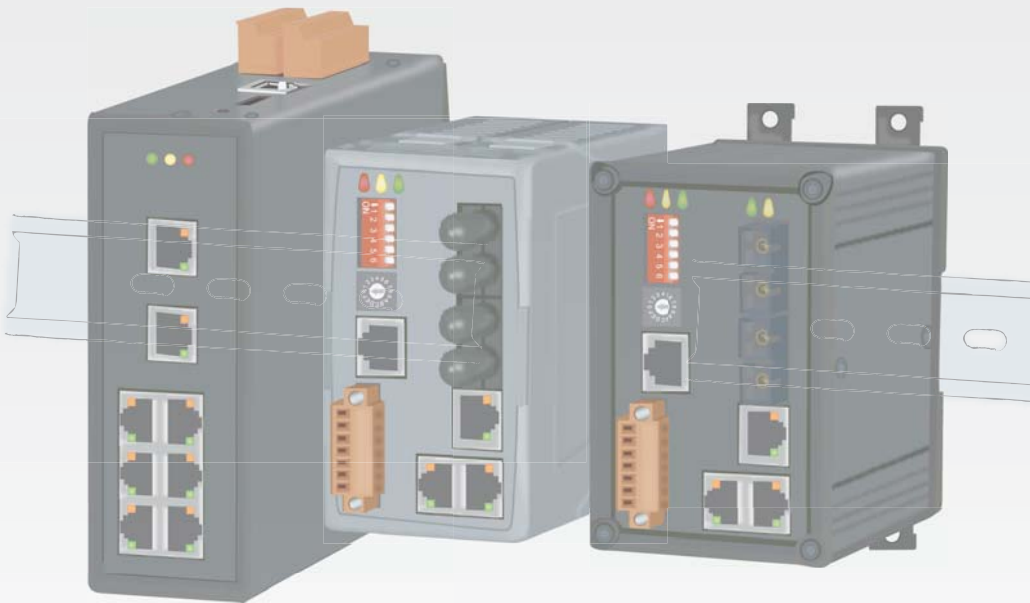# *Managed Ethernet Switches*
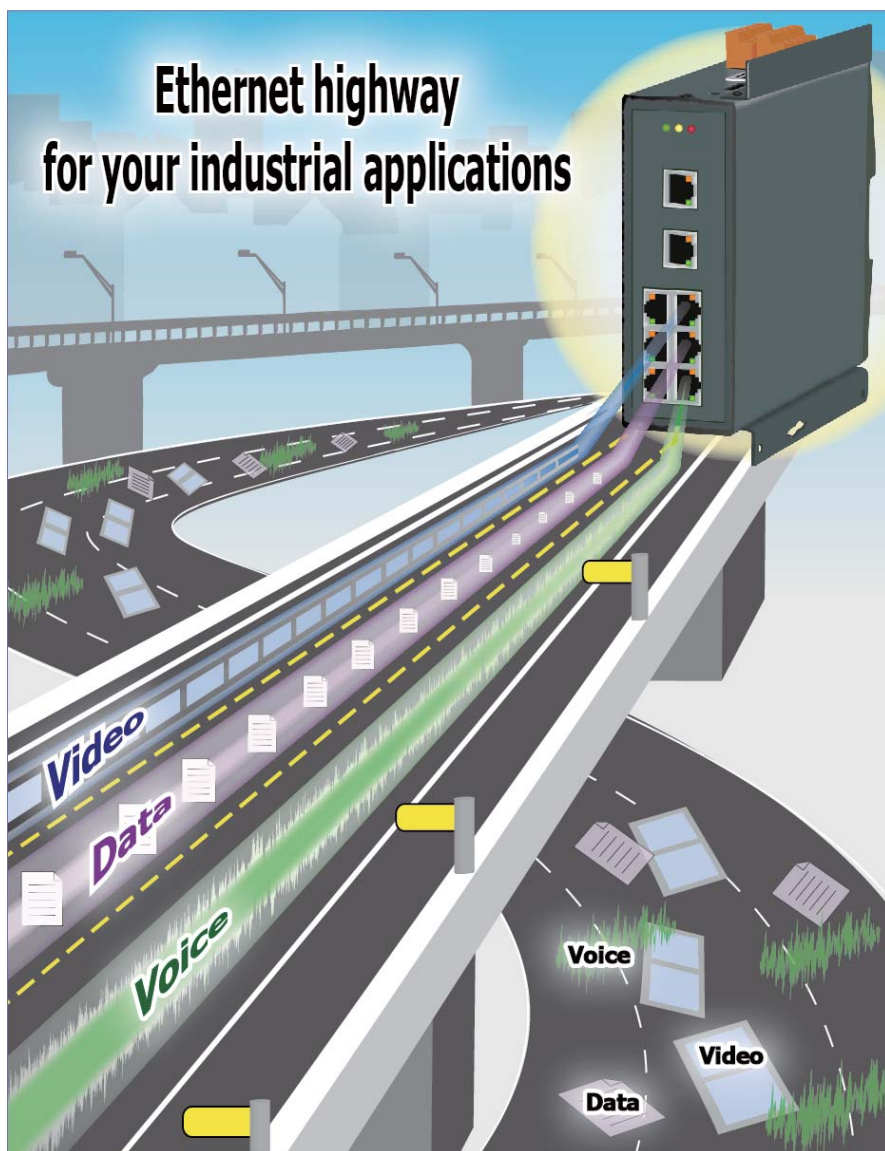
2

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 that enable multiple switches to be placed into a redundant ring. The switch detects and recovers from a fiber or copper link failure within approximately 50 ms – for the majority of applications a seamless process. Modbus/TCP, Modbus/RTU and OPC supported, SCADA application can monitor status of Ethernet and fiber port with Modbus or OPC protocol.

● Applications

Ethernet highway
for your industrial applications

2

Managed Ethernet Switches   Applications

2
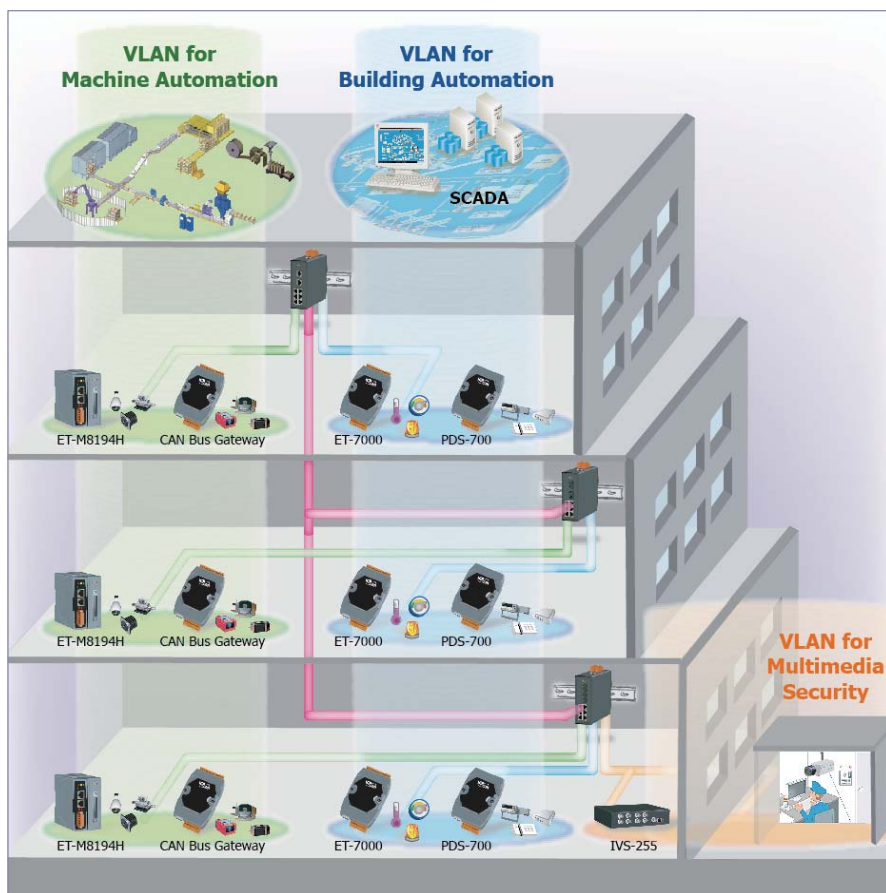
● Cyber-Ring Ethernet Self-healing Technology

It is undoubted that the power of an Ethernet LAN (Local Area Network) is tremendous when applied to factory floor or industrial automation applications. However, you cannot just use commercial Ethernet switch there. Harsh environment will become a challenge to your switch, and, in many case, fault-tolerant network is also a must. To satisfy these, 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 of either copper or fiber optic cable. While standard STP typically requires 20s to 30s to reconfiguration network structure following a link failure, Cyber-Ring technology reduces this downtime to within half a second. Average experience indicates a typical fault recovery time is 300 ms for Cyber-Ring fault-tolerant network.

Features

- ■ High reliability and fault-tolerant
- ■ Real-time deterministic performance
- ■ Scalable and flexible ring topology
- ■ Cost-effective industrial redundant ethernet solution
- ■ Plug and play
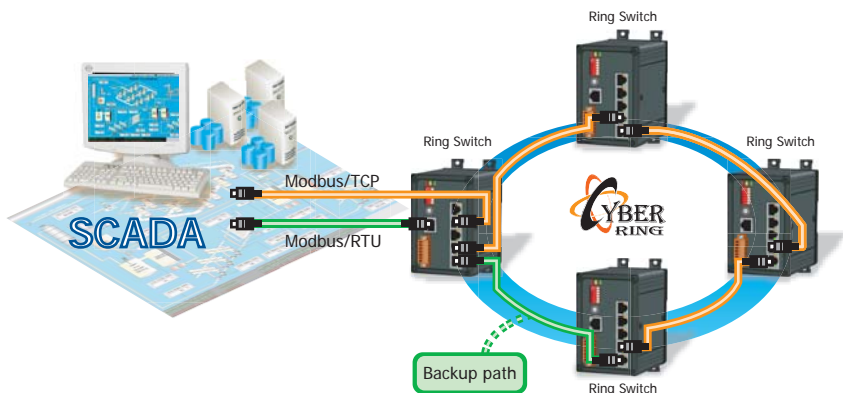
Recovery Time

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 with ten switches is less than 300 ms.

Fault Detected Time

Fault detected time is defined as the time from the occurrence of the fault until fault detected. There is a master switch of Cyber-Ring network checks the health condition of Cyber-Ring network periodically. If active path is not response after a preconfigured period of time the master assumes that active path is failure 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 was comprised of ten switches, the expected worst case reconfiguration time was 50 ms. When a fault is detected, the Cyber-Ring network will reconfigure to provide alternate traffic path of the ring within 50 ms.

● Selection Guide

✔ Managed Ethernet Switches

Model Name	Speed	Port	Operating Temperature	Redundant Power	Casing	Page
MSM-508	10/100 M	8	-40 ~ 75 °C	DC +12 ~ 48 V	Metal	2-5

✔ Real-time Redundant Ring Ethernet Switches

Model Name	Speed	Port	Operating Temperature	Redundant Power	Casing	Page
RS-405	10/100 M	5	-40 ~ 75 °C	DC +10 ~ 30 V	Plastic	2-9
RSM-405	10/100 M	5	-40 ~ 75 °C	DC +10 ~ 30 V	Metal	2-9
RS-408	10/100 M	8	-40 ~ 75 °C	DC +10 ~ 30 V	Plastic	2-13
RSM-408	10/100 M	8	-40 ~ 75 °C	DC +10 ~ 30 V	Metal	2-13

✔ Managed Ethernet Switches with Fiber Port

Model Name	Fiber Optics				Ethernet		Redundant Power	Operating Temperature	Casing	Page
	Mode	Connector	Speed	Port	Speed	Port				
MSM-508FC	Multi-mode	SC	100 M	2	10/100 M	6	DC +12 ~ 48 V	0 ~ 70 °C	Metal	2-17
MSM-508FCS	Single-mode	SC	100 M	2	10/100 M	6	DC +12 ~ 48 V	0 ~ 70 °C	Metal	2-17
MSM-508FT	Multi-mode	ST	100 M	2	10/100 M	6	DC +12 ~ 48 V	0 ~ 70 °C	Metal	2-17

✔ Real-time Redundant Ring Ethernet Switches with Fiber Port

Model Name	Fiber Optics				Ethernet		Redundant Power	Operating Temperature	Casing	Page
	Mode	Connector	Speed	Port	Speed	Port				
RS-405FC	Multi-mode	SC	100 M	2	10/100 M	3	DC +10 ~ 30 V	0 ~ 70 °C	Plastic	2-21
RSM-405FC	Multi-mode	SC	100 M	2	10/100 M	3	DC +10 ~ 30 V	0 ~ 70 °C	Metal	2-21
RS-405FCS	Single-mode	SC	100 M	2	10/100 M	3	DC +10 ~ 30 V	0 ~ 70 °C	Plastic	2-21
RSM-405FCS	Single-mode	SC	100 M	2	10/100 M	3	DC +10 ~ 30 V	0 ~ 70 °C	Metal	2-21
RS-405FT	Multi-mode	ST	100 M	2	10/100 M	3	DC +10 ~ 30 V	0 ~ 70 °C	Plastic	2-21
RSM-405FT	Multi-mode	ST	100 M	2	10/100 M	3	DC +10 ~ 30 V	0 ~ 70 °C	Metal	2-21

2

Managed Ethernet Switches   Selection Guide

2

MSM-508   NEW

8-Port Industrial Ethernet Layer 2 Managed Switch

Highlight Information ▶▶▶▶

LAN x 8 | +75 °C -40 | Wall & DIN-Rail Mount

IP30 | Alarm Contact | CYBER RING

CE FC RoHS

● Introduction

The MSM-508 is an 8-Port Industrial Ethernet (10/100 Base-TX) Layer 2 Managed Switch. 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. The switch detects and recovers from a fiber or copper link failure within approximately 50 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-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 acts as a backup to automatically support the MSM-508's power needs. And, the relay output facility can deliver warning signal while dual power or network link failure.

● Features

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Frame buffer memory: 1 Mbit
- Integrated look-up engine with dedicated 2048 unicast MAC addresses
- Supports +12 V_{DC} ~ +48 V_{DC} Power failure alarm by relay output
- Supports operating temperatures from -40 °C ~ +75 °C
- DIN-Rail mount and Screw hole for wall mounting kit

● Specifications

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	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-isolation
COM2	RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolation
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} (Non-isolation redundant input)
Power Consumption	0.25 A @ 24 V_{DC}, +/-5% arrowed with 100M Full duplex
Protection	Power reverse polarity protection
Frame Ground for EMS Protection	Yes
Connection	20-Pin Removable Terminal Block
Mechanical	
Casing	Metal
Environmental Rating	IP30 Protection
Dimensions	47 mm x 128 mm x 175 mm (W x L x H)
Installation	DIN-Rail or Wall mounting
Environmental	
Operating Temperature	-40 °C ~ +75 °C
Storage Temperature	-40 °C ~ +85 °C
Ambient Relative Humidity	10% ~ 90% RH, non-condensing
Include Cable	
CA-090510 x 1	

2

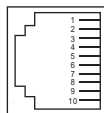Managed Ethernet Switches   MSM-508

2

● 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.

MSM-508 Series LED Indicator Functions

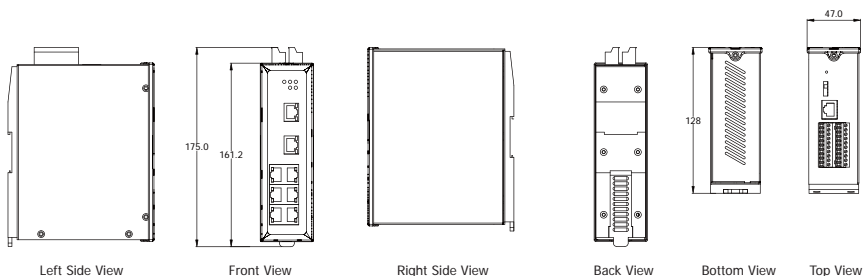| LED	Color	Description
Master	Red On	The switch is master of ring network
	Red Off	The switch is slave of ring network
PWR1	Orange On	Power input 1 is alive
	Orange Off	Power input 1 is offline
PWR2	Green On	Power input 2 is alive
	Green Off	Power input 2 is offline
Ethernet Port	Orange On	Link to 100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

● Redundant Power Inputs

Both power inputs can be connected simultaneously to live DC power sources.
If one power source fails, the other live source acts as a backup, and automatically supplies all of MSM-508 power needs.
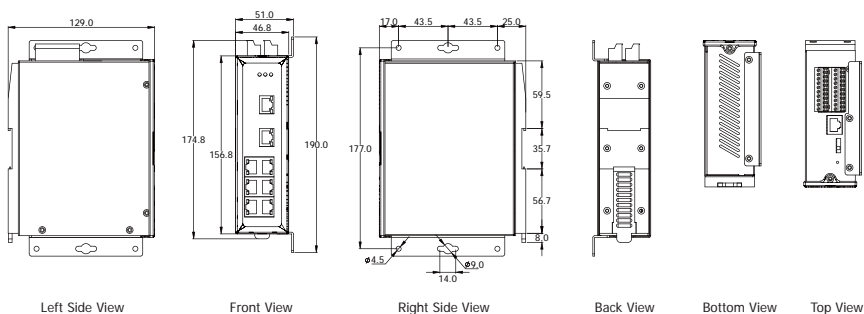

MSM-508

PWR2

Back-up Power supply

PWR1

Relay Output

+24 V$_{DC}$ Power supply

● Serial Port

10-Pin RJ-45 Serial Port Pin-Out

Pin#	Signal Name	Function
1	NC	No Connection
2	NC	No Connection
3	NC	No Connection
4	GND	RS-232 Ground
5	TXD	RS-232 TXD
6	RXD	RS-232 RXD
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection
10	NC	No Connection

● Appearance

Redundant power inputs
Relay output, Digital Input/Output, RS-485

RJ-45 serial port
Mode selection
LED indicators

Metal casing

RJ-45
Ethernet

DIN-Rail

LED indicators

Screw hole for
wall mounting kit

PWR2 PWR1 Master

MSM-508
Real-Time
8-Port 10/100M
Managed Switch

Ring Pair 1

1

2

Ring Pair 2

3

5

7

Terminal Block
1   11
10   20

COM1
RS-232

Upgrade Firmware
Normal Run
Repair Mode

Reset

● Dimensions (Unit: mm)

DIN-Rail

Left Side View   Front View   Right Side View   Back View   Bottom View   Top View

Wall Mounting

Left Side View   Front View   Right Side View   Back View   Bottom View   Top View

● Ordering Information

MSM-508 CR	8-Port Layer 2 Managed Switch with Metal Casing (RoHS)

● Accessories

CA-090510	9-Pin Female D-Sub & RJ-45 Cable, 1M Cable
MDR-20-24	24V/1A, 24 W Power Supply with DIN-Rail Mounting
KWM020-1824F	24V/0.75A, 18 W Power Supply
DIN-KA52F	24V/1.04A, 25 W Power Supply with DIN-Rail Mounting

2

Managed Ethernet Switches   MSM-508

2

RS-405/RSM-405 Series ⬤NEW

5-Port Real-time Redundant Ring Switch

Highlight Information ▶▶▶▶

RS-405/RSM-405 Series

CE FC RoHS

LAN x 5

+75 °C -40

Alarm Contact

Power Input isolation — DC in | DC out

CYBER RING

For RSM-405 Series

Wall & DIN-Rail Mount

IP30

For RS-405 Series

DIN-Rail Mount
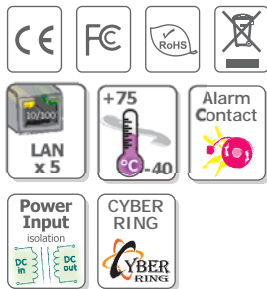
RSM-405 Series   RS-405 Series

● Introduction

The RS-405/RSM-405 series is a 5-Port Industrial Ethernet (10/100 Base-TX) Real-Time Redundant Ring Switch. RS-405/RSM-405 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 that enable multiple switches to be placed into a redundant ring. It detects and recovers from a copper link failure within approximately 300 ms – for the majority of applications a seamless process.

● Features

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth

- Frame buffer memory: 1 Mbit
- Integrated look-up engine with dedicated 2048 unicast MAC addresses
- Redundant Power Inputs +10 V_{DC} ~ +30 V_{DC} Power failure alarm by relay output
- Supports operating temperatures from -40 °C ~ +75 °C
- DIN-Rail

● Specifications

Models	RS-405	RSM-405
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-isolation	
COM2	RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolation	
Frame Ground for EMS Protection	Yes	
Power		
Input Voltage Range	+10 V_{DC} ~ +30 V_{DC} (Isolation redundant input)	
Power Consumption	0.22 A @ 24 V_{DC}, +/-5% arrowed with 100M Full duplex	
Protection	Power reverse polarity protection	
Frame Ground for EMS Protection	Yes	
Connection	7-Pin Removable Terminal Block	
Mechanical		
Casing	Plastic (Flammability UL 94V-0)	Metal (IP30 Protection)
Dimensions (W x L x H)	64 mm x 98 mm x 118 mm	73 mm x 102 mm x 132 mm
Installation	DIN-Rail	DIN-Rail or Wall Mounting
Environmental		
Operating Temperature	-40 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Ambient Relative Humidity	10% ~ 90% RH, non-condensing	
Include Cable		
CA-090510 x 1		

2 Managed Ethernet Switches   RS-405/RSM-405 Series
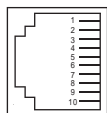
● LED Functions

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.
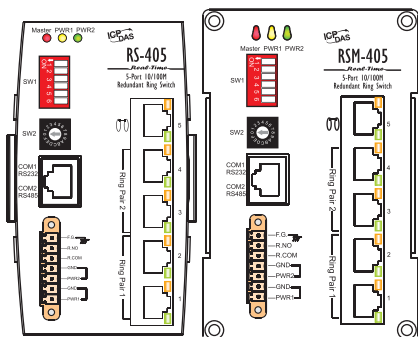
RS/RSM-405 Series LED Indicator Functions

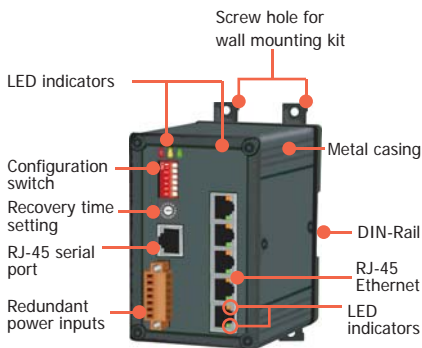| LED	Color	Description
Master	Red On	The switch is master of ring network
	Red Off	The switch is slave of ring network
PWR1	Orange On	Power input 1 is alive
	Orange Off	Power input 1 is offline
PWR2	Green On	Power input 2 is alive
	Green Off	Power input 2 is offline
Ethernet Port	Orange On	Link to 100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

● Redundant Power Inputs

Both power inputs can be connected simultaneously to live DC power sources.
If one power source fails, the other live source acts as a backup, and automatically supplies all of RS-405/RSM-405 series power needs.
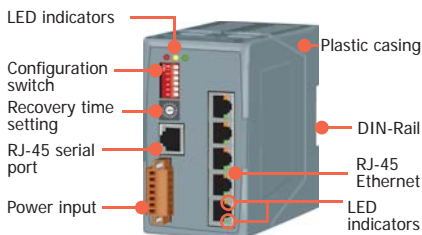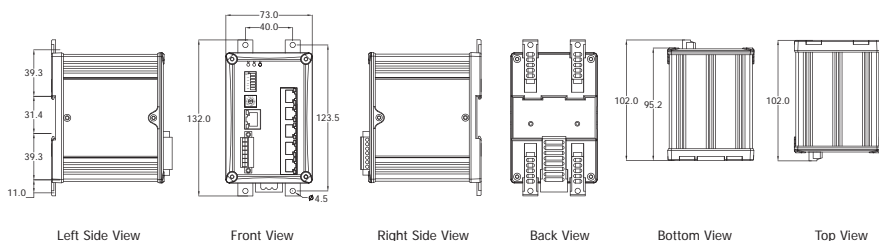
RS-405/RSM-405 Series

PWR2

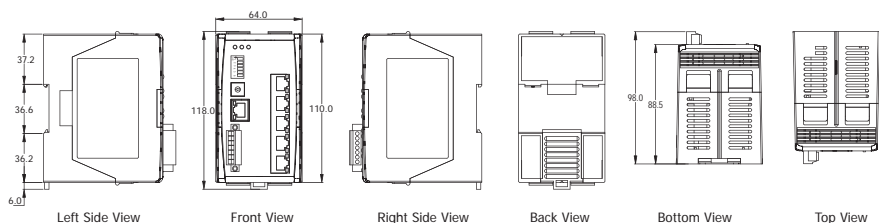Back-up Power supply

Relay Output

PWR1

+24 V_{DC} Power supply

● Serial Port

10-Pin RJ-45 Serial Port Pin-Out

Pin#	Signal Name	Function
1	NC	No Connection
2	D+	RS-485 D+
3	D-	RS-485 D-
4	GND	RS-232 Ground
5	TXD	RS-232 TXD
6	RXD	RS-232 RXD
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection
10	NC	No Connection
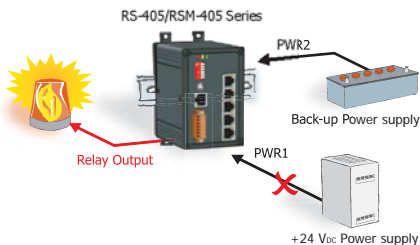
● Appearance

RSM-405 Series

Screw hole for wall mounting kit

LED indicators

Configuration switch

Recovery time setting

RJ-45 serial port

Redundant power inputs

Metal casing

DIN-Rail

RJ-45 Ethernet

LED indicators

RS-405 Series

LED indicators

Configuration switch

Recovery time setting

RJ-45 serial port

Power input

Plastic casing

DIN-Rail

RJ-45 Ethernet

LED indicators

● **Dimensions** (Unit: mm)

RSM-405 Series

Left Side View   Front View   Right Side View   Back View   Bottom View   Top View

RS-405 Series

Left Side View   Front View   Right Side View   Back View   Bottom View   Top View

● **Ordering Information**

RS-405 CR	5-Port Redundant Ring Switch with Isolation Power Input +10 V_{DC} ~ +30 V_{DC} (RoHS)
RSM-405 CR	5-Port Redundant Ring Switch with Isolation Power Input +10 V_{DC} ~ +30 V_{DC}, metal casing (RoHS)
RS-405A CR	5-Port Redundant Ring Switch with Non-isolation Power Input +12 V_{DC} ~ +48 V_{DC} (RoHS)
RSM-405A CR	5-Port Redundant Ring Switch with Non-isolation Power Input +12 V_{DC} ~ +48 V_{DC}, metal casing (RoHS)

● **Accessories**

CA-090510	9-Pin Female D-Sub & RJ-45 Cable, 1M Cable
GPSU06-6	24V/0.25A, 6 W Power Supply
KWM020-1824F	24V/0.75A, 18 W Power Supply
DIN-KA52F	24V/1.04A, 25 W Power Supply with DIN-Rail Mounting

RS-408/RSM-408 Series NEW
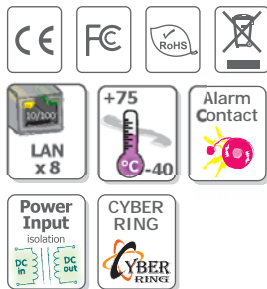
8-Port Real-time Redundant Ring Switch

Highlight Information ▶▶▶▶

RS-408/RSM-408 Series

CE   FC   RoHS

LAN x 8   +75 °C -40   Alarm Contact

Power Input isolation   CYBER RING

For RSM-408 Series

Wall & DIN-Rail Mount   IP30

For RS-408 Series

DIN-Rail Mount

RSM-408 Series   RS-408 Series

● Introduction

The RS-408/RSM-408 series is an 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 that enable multiple switches to be placed into a redundant ring. It detects and recovers from a copper link failure within approximately 300 ms – for the majority of applications a seamless process.

● Features

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Frame buffer memory: 1 Mbit
- Integrated look-up engine with dedicated 2048 unicast MAC addresses
- Redundant Power Inputs +10 V_{DC} ~ +30 V_{DC} Power failure alarm by relay output
- Supports operating temperatures from -40 °C ~ +75 °C
- DIN-Rail

● Specifications

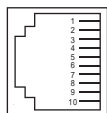| Models	RS-408	RSM-408
Technology		
Standards	IEEE 802.3, 802.3u and 802.3x	
Processing Type	Store & forward, wire speed switching	
MAC Addresses	2048	
Memory Bandwidth	3.2 Gbps	
Frame Buffer Memory	1 Mbit	
Flow Control	IEEE 802.3x flow control, back pressure flow control	
Interface		
RJ-45 Ports	10/100 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-isolation	
COM2	RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolation	
Frame Ground for EMS Protection	Yes	
Power		
Input Voltage Range	+10 V_{DC} ~ +30 V_{DC} (Isolation redundant input)	
Power Consumption	0.3 A @ 24 V_{DC}, +/- 5% arrowed with 100M Full duplex	
Protection	Power reverse polarity protection	
Frame Ground for EMS Protection	Yes	
Connection	7-Pin Removable Terminal Block	
Mechanical		
Casing	Plastic (Flammability UL 94V-0)	Metal (IP30 Protection)
Dimensions (W x L x H)	64 mm x 98 mm x 118 mm	73 mm x 102 mm x 132 mm
Installation	DIN-Rail	DIN-Rail or Wall Mounting
Environmental		
Operating Temperature	-40 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Ambient Relative Humidity	10% ~ 90% RH, non-condensing	
Include Cable		
CA-090510 x 1		

● 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.
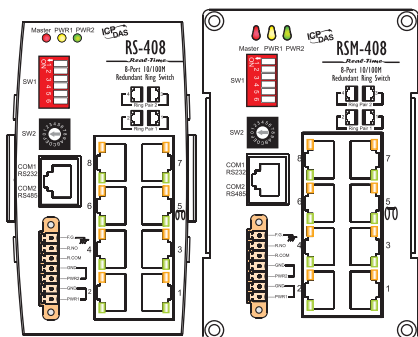
RS/RSM-408 Series LED Indicator Functions

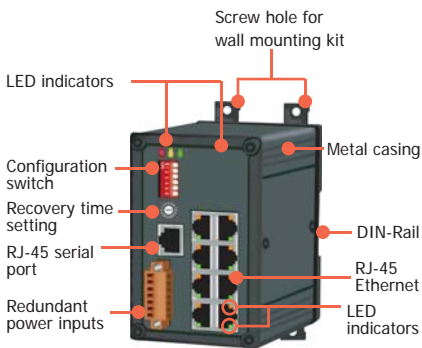| LED	Color	Description
Master	Red On	The switch is master of ring network
	Red Off	The switch is slave of ring network
PWR1	Orange On	Power input 1 is online
	Orange Off	Power input 1 is offline
PWR2	Green On	Power input 2 is online
	Green Off	Power input 2 is offline
Ethernet Port	Orange On	Link to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

● Redundant Power Inputs

Both power inputs can be connected simultaneously to live DC power sources.
If one power source fails, the other live source acts as a backup, and automatically supplies all of RS-408/RSM-408 series power needs.
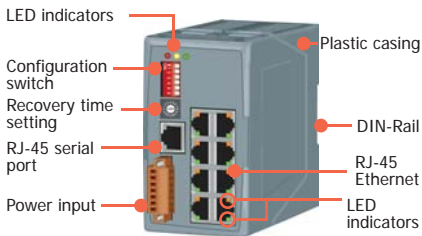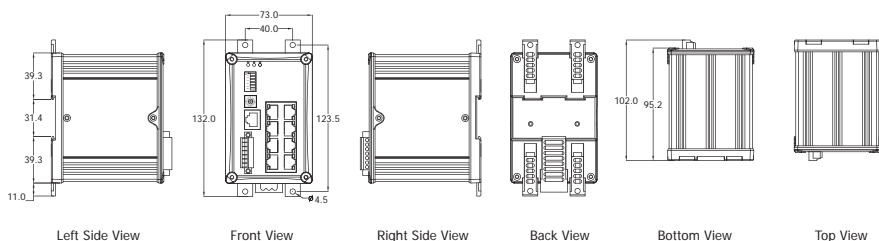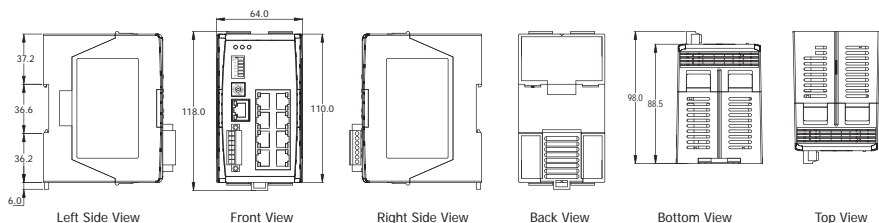

RS-408/RSM-408 Series

PWR2

Back-up Power supply

Relay Output

PWR1

+24 V$_{DC}$ Power supply

● Serial Port

10-Pin RJ-45 Serial Port Pin-Out

Pin#	Signal Name	Function
1	NC	No Connection
2	D+	RS-485 D+
3	D-	RS-485 D-
4	GND	RS-232 Ground
5	TXD	RS-232 TXD
6	RXD	RS-232 RXD
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection
10	NC	No Connection
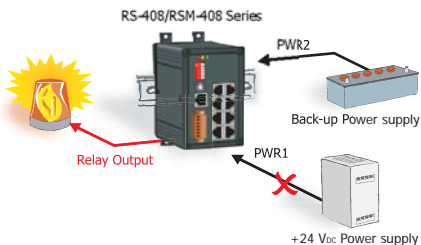
● Appearance

RSM-408 Series

Screw hole for wall mounting kit

LED indicators

Configuration switch

Recovery time setting

RJ-45 serial port

Redundant power inputs

Metal casing

DIN-Rail

RJ-45 Ethernet

LED indicators

RS-408 Series

LED indicators

Configuration switch

Recovery time setting

RJ-45 serial port

Power input

Plastic casing

DIN-Rail

RJ-45 Ethernet

LED indicators

● Dimensions (Unit: mm)

RSM-408 Series

Left Side View Front View Right Side View Back View Bottom View Top View

RS-408 Series

Left Side View Front View Right Side View Back View Bottom View Top View

● Ordering Information

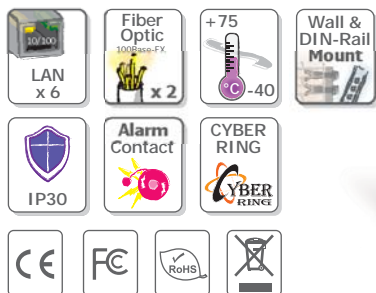| RS-408 CR	8-Port Redundant Ring Switch with Isolation Power Input +10 V_{DC} ~ +30 V_{DC} (RoHS)
RSM-408 CR	8-Port Redundant Ring Switch with Isolation Power Input +10 V_{DC} ~ +30 V_{DC}, metal casing (RoHS)
RS-408A CR	8-Port Redundant Ring Switch with Non-isolation Power Input +12 V_{DC} ~ +48 V_{DC} (RoHS)
RSM-408A CR	8-Port Redundant Ring Switch with Non-isolation Power Input +12 V_{DC} ~ +48 V_{DC}, metal casing (RoHS)

● Accessories

CA-090510	9-Pin Female D-Sub & RJ-45 Cable, 1M Cable
MDR-20-24	24V/1A, 24 W Power Supply with DIN-Rail Mounting
KWM020-1824F	24V/0.75A, 18 W Power Supply
DIN-KA52F	24V/1.04A, 25 W Power Supply with DIN-Rail Mounting

MSM-508F Series NEW

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

Highlight Information ▶▶▶▶

LAN x 6

Fiber Optic
100Base-FX
x 2

+75 °C -40

Wall & DIN-Rail Mount

IP30

Alarm Contact

CYBER RING
CYBER RING

CE FC RoHS

MSM-508FC/FCS-T Series

MSM-508FT-T Series

● Introduction

The MSM-508F series is an 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 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 that enable multiple switches to be placed into a redundant ring. The switch detects and recovers from a fiber or copper link failure within approximately 300 ms – for the majority of applications a seamless process. Modbus/TCP, Modbus/RTU and OPC supported, SCADA application can monitor status of Ethernet and fiber port with Modbus or OPC protocol.

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 acts as a backup to automatically support the MSM-508F's power needs. And, the relay output facility can deliver warning signal while dual power or network link failure.

● Features

■ Automatic MDI/MDI-X crossover for plug-and-play
■ Each port supports both 10/100 Mbps speed auto negotiation
■ Store-and-forward architecture
■ Full duplex IEEE 802.3x and half duplex backpressure flow control
■ 3.2 Gbps high performance memory bandwidth

■ Frame buffer memory: 1 Mbit
■ Integrated look-up engine with dedicated 2048 unicast MAC addresses
■ Supports +12 ~ +48 V_{DC}
  Power failure alarm by relay output
■ Supports operating temperatures from -40 °C ~ +75 °C
■ DIN-Rail mount and Screw hole for wall mounting kit

● Specifications

Models	MSM-508FC/FCS-T Series	MSM-508FT-T Series
Technology		
Standards	IEEE 802.3, 802.3u, 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	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	
Frame Ground for EMS Protection	Yes	
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	
	RX Sensitivity: Max. -32 dBm	
Single Mode	Single Mode Fiber Cables: 8.3/125, 8.7/125, 9/125 or 10/125 μm	
	Distance: 15 km, (9/125 μm recommended) for full duplex	
	Wavelength: 1300 or 1310 nm	
	Min. TX Output: -15 dBm	
	Max. TX Output: -8 dBm	
	RX Sensitivity: Max. -34 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-isolation	
COM2	RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolation	
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$_{DC}$ (Non-isolation redundant input)	
Power Consumption	0.3 A @ 24 V$_{DC}$, +/-5% arrowed with 100M Full duplex	
LED Indicator	Yes	
Protection	Power reverse polarity protection	
Frame Ground for EMS Protection	Yes	
Mechanical		
Casing	Metal (IP30 Protection)	
Dimensions (W x L x H)	47 mm x 140 mm x 175 mm	47 mm x 142 mm x 175 mm
Installation	DIN-Rail or Wall Mounting	
Environmental		
Operating Temperature	-40 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Ambient Relative Humidity	10% ~ 90% RH, non-condensing	
Include Cable		
CA-090510 x 1		

2

Managed Ethernet Switches   MSM-508F Series
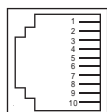
● LED Functions

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.

MSM-508F 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
Fiber Port	Green Blink	Fiber is active port
	Green Off	Fiber backup port

● Serial Port

10-Pin RJ-45 Serial Port Pin-Out

Pin#	Signal Name	Function
1	NC	No Connection
2	NC	No Connection
3	NC	No Connection
4	GND	RS-232 Ground
5	TXD	RS-232 TXD
6	RXD	RS-232 RXD
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection
10	NC	No Connection

● Appearance

Redundant power inputs
Relay output, Digital Input/Output, RS-485

RJ-45 serial port
Mode selection
LED indicators

Metal casing

Fiber port

DIN-Rail

RJ-45 Ethernet

LED indicators

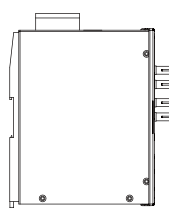Screw hole for wall mounting kit
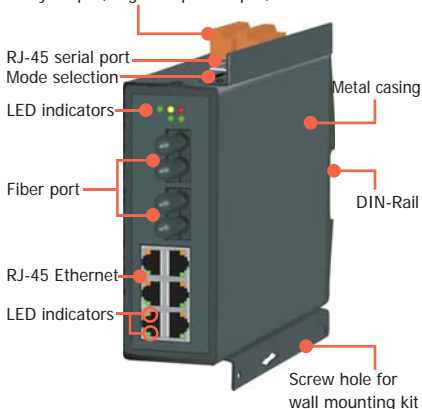
● Redundant Power Inputs

Both power inputs can be connected simultaneously to live DC power sources.
If one power source fails, the other live sourceacts as a backup, and automatically supplies all of MSM-508F series power needs.
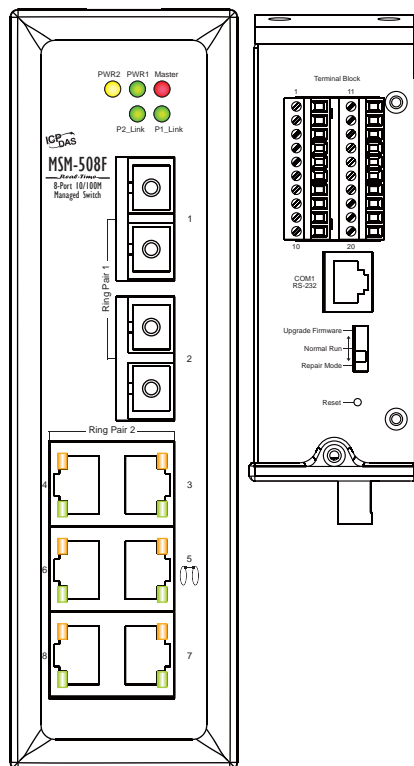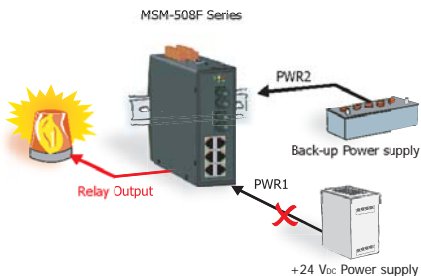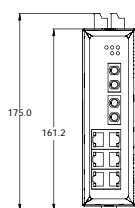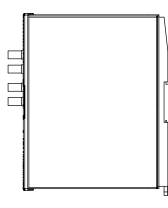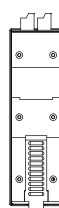
MSM-508F Series

PWR2
Back-up Power supply

Relay Output
PWR1

+24 V DC Power supply

PWR2 PWR1 Master
P2_Link P1_Link

MSM-508F
Real-Time
8-Port 10/100M
Managed Switch

Ring Pair 1

Ring Pair 2

Terminal Block

1   11

10   20

COM1
RS-232

Upgrade Firmware
Normal Run
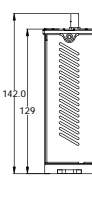Repair Mode

Reset

● Dimensions (Unit: mm)

DIN-Rail

Left Side View — Front View — Right Side View — Back View — Bottom View — Top View

175.0 / 161.2 / 47.0 / 142.0 / 129

Wall Mounting

142.0 / 129.0 / 51.0 / 46.8 / 174.8 / 156.8 / 190.0 / 177.0 / 17.0 / 43.5 / 43.5 / 25.0 / 59.5 / 35.7 / 56.7 / 8.0 / ø4.5 / ø9.0 / 14.0
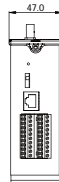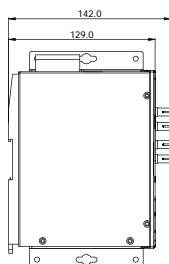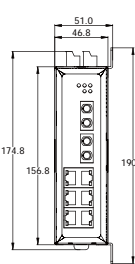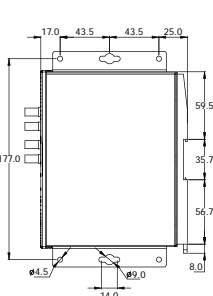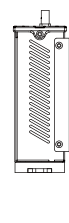
Left Side View — Front View — Right Side View — Back View — Bottom View — Top View

● Ordering Information

MSM-508F ☐☐ - 4 0 - ☐

Single Mode Distance
40: 40 km
Standard Models: 15 km

Ordering Code Definition	Fiber Port Connector	Operating Temperature
	T: Multi Mode ST Connector **C**: Multi Mode SC Connector **CS**: Single Mode SC Connector	**T**: Operating Temp: -40 °C ~ +75 °C
Models	MSM-508FT-T MSM-508FC-T MSM-508FCS-T MSM-508FCS-40T	

● Accessories

CA-090510	9-Pin Female D-Sub & RJ-45 Cable, 1M Cable
MDR-20-24	24V/1A, 24 W Power Supply with DIN-Rail Mounting
KWM020-1824F	24V/0.75A, 18 W Power Supply
DIN-KA52F	24V/1.04A, 25 W Power Supply with DIN-Rail Mounting

RS-405F/RSM-405F Series `NEW`

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

Highlight Information ▶▶▶▶

RS-405F/RSM-405F Series

RSM-405F Series   RS-405F Series

For RSM-405F Series

For RS-405F Series

● 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 that enable multiple switches to be placed into a redundant ring. It detects and recovers from a fiber or copper link failure within approximately 300 ms – for the majority of applications a seamless process.

● Features

■ Automatic MDI/MDI-X crossover for plug-and-play
■ Each port supports both 10/100 Mbps speed auto negotiation
■ Store-and-forward architecture
■ Full duplex IEEE 802.3x and half duplex backpressure flow control
■ 3.2 Gbps high performance memory bandwidth

■ Frame buffer memory: 512 Kbit
■ Integrated look-up engine with dedicated 1024 unicast MAC addresses
■ Redundant Power Inputs +10 V_{DC} ~ +30 V_{DC} Power failure alarm by relay output
■ Supports operating temperatures from 0 °C ~ +70 °C

● Specifications

Models	RS-405F Series	RSM-405F Series
Technology		
Standards	IEEE 802.3, 802.3u, 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	
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	
Frame Ground for EMS Protection	Yes	
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	
	RX Sensitivity: -34 ~ -31 dBm	
Single Mode	Single Mode Fiber Cables: 8.3/125, 8.7/125, 9/125 or 10/125 µm	
	Distance: 15 km, (9/125 µm recommended) for full duplex	
	Wavelength: 1300 or 1310 nm	
	Min. TX Output: -15 dBm	
	Max. TX Output: -8 dBm	
	RX Sensitivity: -36 ~ -31 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-isolation	
COM2	RS-485 (D2+, D2-; self-tuner ASIC inside); Non-isolation	
Power		
Input Voltage Range	+10 V$_{DC}$ ~ +30 V$_{DC}$ (Isolation redundant input)	
Power Consumption	0.4 A @ 24 V$_{DC}$, +/-5% arrowed with 100M Full duplex	
LED Indicator	Yes	
Protection	Power reverse polarity protection	
Frame Ground for EMS Protection	Yes	
Mechanical		
Casing	Plastic (Flammability UL 94V-0)	Metal (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	DIN-Rail or Wall Mounting
Environmental		
Operating Temperature	0 °C ~ +70 °C	
Storage Temperature	-20 °C ~ +85 °C	
Ambient Relative Humidity	10% ~ 90% RH, non-condensing	
Include Cable		
CA-090510 x 1		

2

Managed Ethernet Switches   RS-405F/RSM-405F Series

● 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**

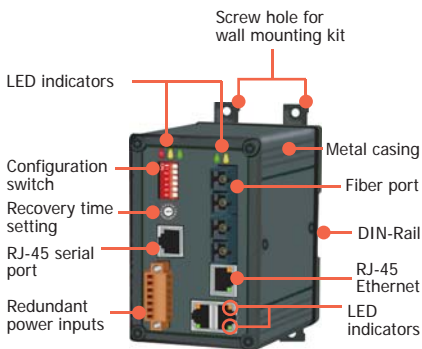| LED	Color	Description
Master	Red On	The switch is master of ring network
	Red Off	The switch is slave of ring network
PWR1	Orange On	Power input 1 is online
	Orange Off	Power input 1 is offline
PWR2	Green On	Power input 2 is online
	Green Off	Power input 2 is offline
Ethernet Port	Orange On	Link to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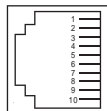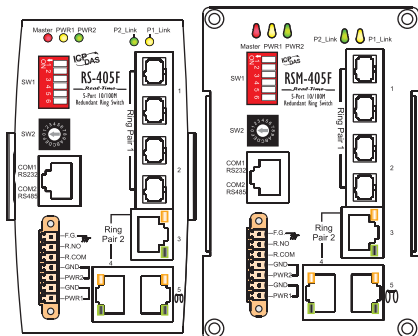
● Redundant Power Inputs

Both power inputs can be connected simultaneously to live DC power sources.
If one power source fails, the other live source acts as a backup, and automatically supplies all of RS-405F/RSM-405F series power needs.
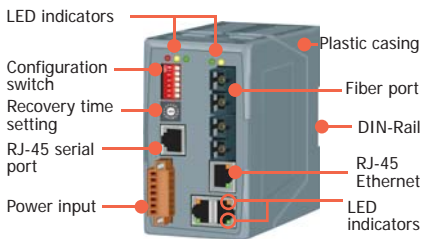
RSM-405F Series

PWR2
Back-up Power supply
Relay Output
PWR1
+24 VDC Power supply

● Serial Port

10-Pin RJ-45 Serial Port Pin-Out

Pin#	Signal Name	Function
1	NC	No Connection
2	D+	RS-485 D+
3	D-	RS-485 D-
4	GND	RS-232 Ground
5	TXD	RS-232 TXD
6	RXD	RS-232 RXD
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection
10	NC	No Connection

● Appearance

RSM-405F Series

Screw hole for wall mounting kit
LED indicators
Metal casing
Configuration switch
Fiber port
Recovery time setting
DIN-Rail
RJ-45 serial port
RJ-45 Ethernet
Redundant power inputs
LED indicators

RS-405F Series

LED indicators
Plastic casing
Configuration switch
Fiber port
Recovery time setting
DIN-Rail
RJ-45 serial port
RJ-45 Ethernet
Power input
LED indicators

● Dimensions (Unit: mm)

RSM-405F Series

Left Side View | Front View | Right Side View | Back View | Bottom View | Top View

RS-405F Series

Left Side View | Front View | Right Side View | Back View | Bottom View | Top View

● Ordering Information

RS M -405 A F ☐☐ - 4 0 - ☐

Single Mode Distance
40: 40 km
Standard Models: 15 km

M: Metal **A**: Power Input +12 V$_{DC}$ ~ +48 V$_{DC}$

Ordering Code Definition	Fiber Port Connector	Operating Temperature
	T: Multi Mode ST Connector **C**: Multi Mode SC Connector **CS**: Single Mode SC Connector	**T**: Operating Temp: -40 °C ~ +75 °C Standard Models: 0 °C ~ +70 °C
Models	RS-405FT, RSM-405FT RS-405FC, RSM-405FC RS-405FCS, RSM-405FCS RS-405AFT, RSM-405AFT RS-405AFC, RSM-405AFC RS-405AFCS, RSM-405AFCS	RS-405AFT-T, RSM-405AFT-T RS-405AFC-T, RSM-405AFC-T RS-405AFCS-T, RSM-405AFCS-T RS-405AFCS-40T, RSM-405AFCS-40T

● Accessories

CA-090510	9-Pin Female D-Sub & RJ-45 Cable, 1M Cable
MDR-20-24	24V/1A, 24 W Power Supply with DIN-Rail Mounting
KWM020-1824F	24V/0.75A, 18 W Power Supply
DIN-KA52F	24V/1.04A, 25 W Power Supply with DIN-Rail Mounting

● Managed Ethernet Switches

- Managed Switch for industrial application
- Web-based configuration
- QoS, VLAN, STP Supported
- Built-in Cyber-Ring Technology
- Dual Power Input
- Relay Alarm Output

MSM-508
8-Port 10/100 Base-TX Managed Switch with Metal Casing

MSM-508FC
Multi Mode, SC Connector, 6-Port 10/100 Base-TX + 2-Port 100 Base-FX Fiber Managed Switch with Metal Casing

MSM-508FCS
Single Mode, SC Connector, 6-Port 10/100 Base-TX + 2-Port 100 Base-FX Fiber Managed Switch with Metal Casing

MSM-508FT
Multi Mode, ST Connector, 6-Port 10/100 Base-TX + 2-Port 100 Base-FX Fiber Managed Switch with Metal Casing

● Real-time Redundant Ring Switches

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

RS-405/RSM-405
5-Port Real-time Redundant Ring Switch

RSM-405   RS-405

RS-408/RSM-408
8-Port Real-time Redundant Ring Switch

RSM-408   RS-408

RS-405FC/RSM-405FC
Multi Mode, SC Connector, 3-Port 10/100 Base-TX + 2-Port 100 Base-FX Fiber Real-time Redundant Ring Switch

RSM-405FC   RS-405FC

RS-405FCS/RSM-405FCS
Single Mode, SC Connector, 3-Port 10/100 Base-TX + 2-Port 100 Base-FX Fiber Real-time Redundant Ring Switch

RSM-405FCS   RS-405FCS

RS-405FT/RSM-405FT
Multi Mode, ST Connector, 3-Port 10/100 Base-TX + 2-Port 100 Base-FX Fiber Real-time Redundant Ring Switch

RSM-405FT   RS-405FT