

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



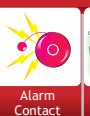
RS-405F Series/RSM-405F Series



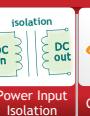
LAN x3



Fiber Optic x2



Alarm Contact



Power Input Isolation



CYBER RING



CE



FCC



RoHS



WEEE



Wall & DIN-Rail Mount



IP30



DIN-Rail Mount

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 it's power needs. And the relay output facility can deliver warning signal while power or network link failure.

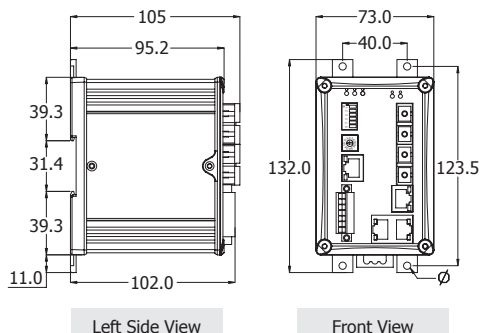
Specifications

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	

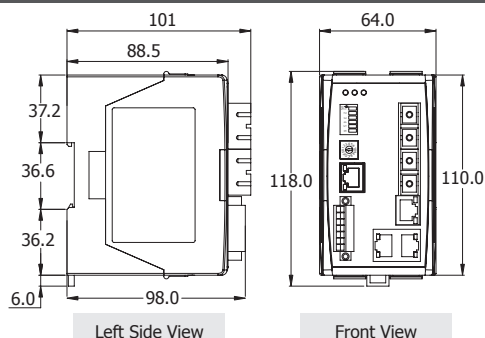
Models		RS-405F Series	RSM-405F Series
Interface			
RJ-45 Ports		10/100 Base-TX auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection	
Fiber Optics Port		100 Base-FX	
LED Indicators		10/100M, Link/Act, Full duplex/Half duplex (Fiber Port)	
Ethernet Isolation		1500 V _{rms} 1 minute	
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 (Tx/D, Rx/D 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)

RSM-405F Series



RS-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 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	Orange Blink	Fiber1 is active port
	Orange Off	Fiber1 backup port
	Green Blink	Fiber2 is active port
	Green Off	Fiber2 backup port

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



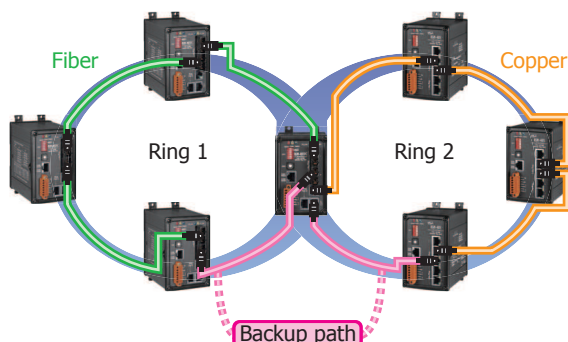
State	Time	State	Time	State	Time
F	1.5 s	9	900 ms	3	300 ms
E	1.4 s	8	800 ms	2	200 ms
D	1.3 s	7	700 ms	1	100 ms
C	1.2 s	6	600 ms	0	N/A
B	1.1 s	5	500 ms		
A	1.0 s	4	400 ms		

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.



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