RS-405F/RSM-405F Series

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

Highlight Information

RS-405F/RSM-405F Series

For RSM-405F Series

For RS-405F Series

RSM-405F Series 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		

LED Functions

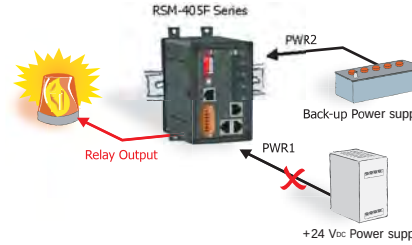
Standard RJ-45 female connectors are provided. A standard RJ-45 plug cable is all that is necessary to connect your device to the unit since switch that supports auto crossover.

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

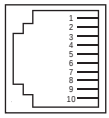
Redundant Power Inputs

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.

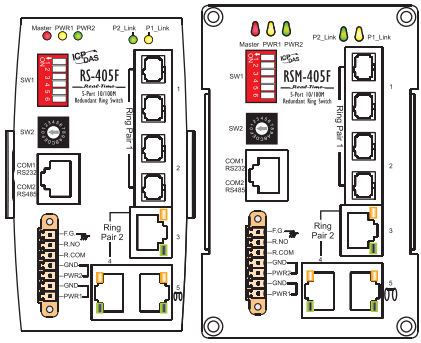


Serial Port

10-Pin RJ-45 Serial Port Pin-Out

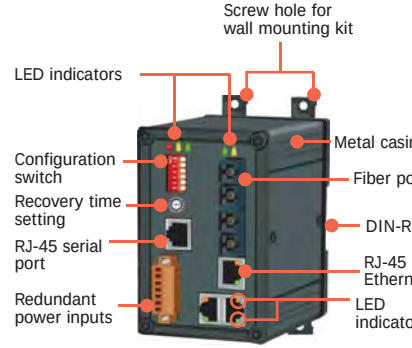


Pin#	Signal Name	Function
1	NC	No Connection
2	D+	RS-485 D+
3	D-	RS-485 D-
4	GND	RS-232 Ground
5	TXD	RS-232 TXD
6	RXD	RS-232 RXD
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection
10	NC	No Connection

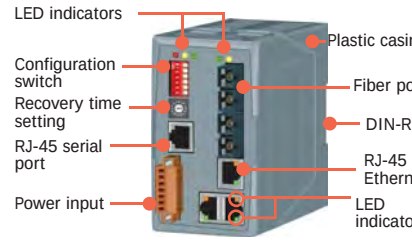


Appearance

RSM-405F Series

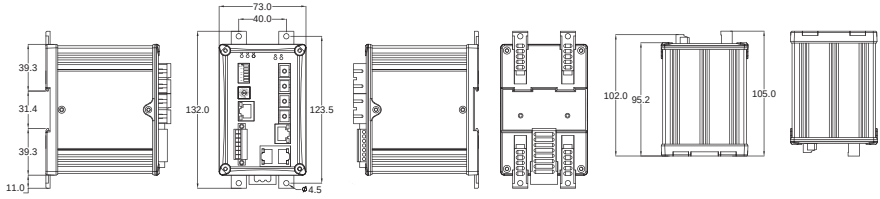


RS-405F Series



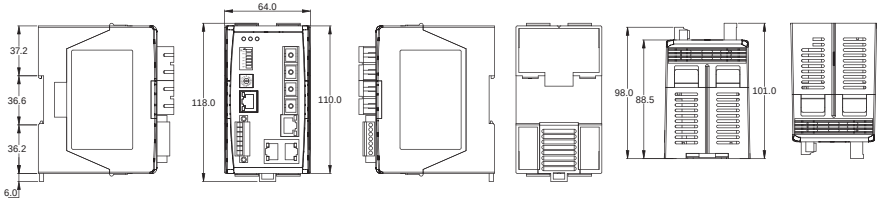
Dimensions (Unit: mm)

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 - □

M: Metal **A**: Power Input +12 V_{DC} ~ +48 V_{DC}

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

	Fiber Port Connector	Operating Temperature
Ordering Code Definition	**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

75W Single Output Industrial DIN Rail Power Supply

DR-75 series

■ Features :

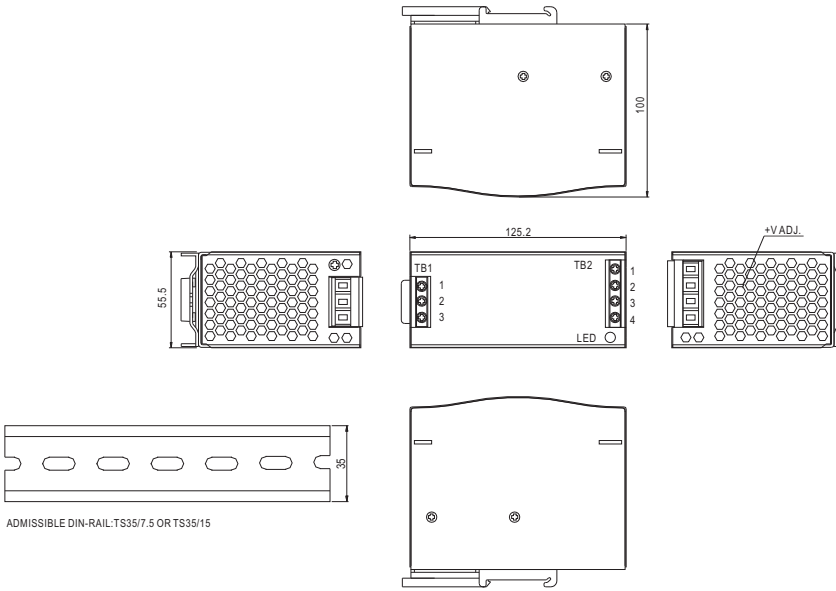
- Universal AC input/Full range
- Protections:Short circuit/Over load/Over voltage/Over temperature
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508(industrial control equipment)approved
- LED indicator for power on
- 100% full load burn-in test
- Fix switching frequency at 50KHz

SPECIFICATION

MODEL		DR-75-12	DR-75-24	DR-75-48
OUTPUT	DC VOLTAGE	12V	24V	48V
	RATED CURRENT	6.3A	3.2A	1.6A
	CURRENT RANGE	0 ~ 6.3A	0 ~ 3.2A	0 ~ 1.6A
	RATED POWER	76W	76.8W	76.8W
	RIPPLE & NOISE (max.) Note.2	100mVp-p	150mVp-p	240mVp-p
	VOLTAGE ADJ. RANGE	12 ~ 14V	24 ~ 28V	48 ~ 53V
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME	1000ms, 60ms/230VAC 1800ms, 60ms/115VAC at full load		
	HOLD TIME (Typ.)	60ms/230VAC 12ms/115VAC at full load		
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC		
	FREQUENCY RANGE	47 ~ 63Hz		
	EFFICIENCY (Typ.)	76%	80%	81%
	AC CURRENT (Typ.)	1.6A/115V 0.96A/230V		
	INRUSH CURRENT (Typ.)	COLD START 20A/115VAC 40A/230VAC		
	LEAKAGE CURRENT	<1mA / 240VAC		
PROTECTION	OVER LOAD	105 ~ 150% rated output power		
		Protection type : Constant current limiting, recovers automatically after fault condition is removed		
	OVER VOLTAGE	15 ~ 16.5V	29 ~ 34V	58 ~ 65V
		Protection type : Hiccup mode, recovers automatically after fault condition is removed		
	OVER TEMPERATURE	85℃±5℃ (TSW1) Detect on heat sink of power transistor		
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down		
ENVIRONMENT	WORKING TEMP.	-10 ~ +60℃ (Refer to output load derating curve)		
	WORKING HUMIDITY	20 ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-20 ~ +85℃, 10 ~ 95% RH		
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)		
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes		
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, TUV EN60950-1 Approved		
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC		
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC		
	EMI CONDUCTION & RADIATION	Compliance to EN55011,EN55022 (CISPR22) Class B		
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3		
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, ENV50204, EN55024, EN61000-6-2 (EN50082-2) Heavy industry level, criteria A		
OTHERS	MTBF	123.1K hrs min. MIL-HDBK-217F (25℃)		
	DIMENSION	55.5*125.2*100mm (W*H*D)		
	PACKING	0.6Kg; 20pcs/13Kg/1.1CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.			

■ Mechanical Specification

Case No. 923 Unit:mm



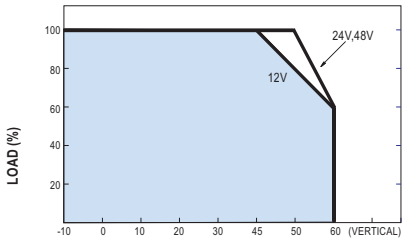
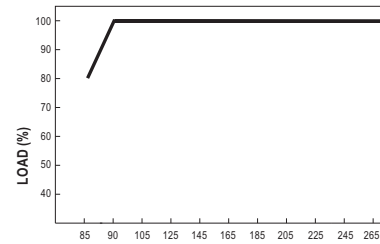
Terminal Pin. No Assignment (TB1)

Pin No.	Assignment
1	FG ⏚
2	AC/N(DC+)
3	AC/L(DC-)

Terminal Pin. No Assignment (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

■ Output Derating



■ Output Derating Vs Input Voltage