RECOMMENDED POWER SUPPLY
12V, 24V, OR 48V / 40W, DIN-RAIL, SLIM
MODEL: CF-MDR-40-12, CF-MDR-40-24
OR CF-MDR-40-48

Industrial Managed Ethernet Switch / FO Converter

(Star, Daisy-Chain, or Self-Healing Redundant-Ring Network)

Part Number: MSW-1208-FO

Single-Mode (25miles/40km) or Multi-Mode (1.2miles/2km)

Connector types: ST, SC or FC

C E FC

CommFront®

Communications made easy

Http://www.CommFront.com

■ **INTRODUCTION**

The MSW-1208-FO is a rugged, fan-less, industrial-grade, layer 2, managed 10/100M Ethernet switch that supports star, daisy-chain or redundant-ring network topology. The MSW-1208-FO equips with 6 Fast Ethernet ports and 2 fiber ports, and it features rich layer 2 managed functions such as VLAN, QoS, IGMP Snooping, SNMP, Fast Ring, RSTP, Port Trunking, and Port Authentication, etc. All configurations and settings can be done through the built-in user-friendly web management interface. The unit can be configured as a self-healing redundant-ring network with a fast recovery time of 15ms, and it also features redundant 12 to 48 VDC power inputs, as well as relay alarm outputs for instant system malfunction notification, making it an ideal solution for uninterrupted, mission-critical industrial applications. The MSW-1208-FO supports flexible network topology, including daisy-chain and redundant-ring fiber links, and each fiber node can extend the 10/100M Ethernet's distance to 25 miles (40km) for single-mode converters and cables, or 1.2 miles (2km) for multi-mode converters and cables. The MSW-1208-FO runs on a light-speed fiber backbone and it overcomes the limitations of a conventional point-to-point fiber network and dramatically expands the Ethernet data network in terms of distance, flexibility, and reliability.

■ **FEATURES**

- Rugged industrial grade
- Star, daisy-chain, or self-healing redundant-ring network
- Designed for harsh industrial environments (DIN-Rail mounting, IP30)
- Managed 10/100M Ethernet switch with 6 fast Ethernet ports and 2 full-duplex FO ports
- Manageable via Console, Web, and SNMP
- Supports VLAN, QoS, IGMP, SNMP, Port Mirroring, Fast Ring, RSTP, and Port Trunking
- Redundant Fast-Ring network with a fast recovery time of 15ms
- Redundant 12 to 48 VDC power inputs and relay alarm output
- Protects against ESD (15kV), overload current, reversed power polarity, and broadcast storm
- Operating temperature: -40ºF to 185ºF (-40ºC to 85ºC)
- Surface Mount Technology manufactured to RoHS and ISO-9001 standards
- Compliance: CE, FCC
- 5-Year manufacturer's warranty

■ **SPECIFICATIONS**

Compatibility:	IEEE802.3, IEEE802.3u, IEEE802.3x, IEEE802.1ab, IEEE802.1d, IEEE802.1w, IEEE802.1q, IEEE802.1p, IEEE802.1x
Power Source/Consumption:	12 to 48 VDC/Less than 8W (redundant dual inputs)
Ethernet Switch Type:	Managed/Layer 2 (switching delay<5us, ring recovery time<15ms)
MAC Table:	4K
VLAN:	4096
QoS:	4 levels
Supported Protocols:	VLAN, QoS, IGMP, SNMP (v1/v2c), Fast Ring, RSTP, Port Trunking
Protection:	15kV ESD, Overload or Reversed power polarity, Broadcast storm
Wavelength:	1310nm
Usable Fiber Optic Cables:	Single-mode: 8.3/125, 8.7/125, 9/125, 10/125µm Multi-mode: 50/125, 62.5/125µm
Distance (Fiber):	Single-mode: 25 miles (40km), Multi-mode: 1.2 miles (2km)
Distance (Ethernet):	328ft (100m)
Connectors (Fiber):	4x ST, 4x SC, or 4x FC connectors
Connectors (Ethernet):	6x RJ45 (10/100M Ethernet), 1x RJ45 (RS232 Console)
Connectors (Power & Alarm):	6-way terminal block (2x V1 power, 2x V2 power, 2x Alarm)
Earth Grounding:	1x Safety grounding (earth) screw
Dimensions (H x W x D):	6.1x4.7x2.1 in (154x120x53 mm) – excluding FO connectors
Weight:	1.5 lb (700 g)
Operating Temperature:	-40ºF to 185ºF (-40ºC to 85ºC)
Operating Humidity:	5% to 95% non-condensing

■ LED INDICATORS

RUN Indicator
ON/Flashing: The unit is in working condition
OFF: The unit is not working

PWR1 Indicator
ON: Power supply 1 on
OFF: Power supply 1 off

PWR2 Indicator
ON: Power supply 2 on
OFF: Power supply 2 off

LINK7 Indicator
ON: Fiber loop is in working condition
Flashing: Sending/receiving data
OFF: Fiber loop is disconnected

LINK8 Indicator
ON: Fiber loop is in working condition
Flashing: Sending/receiving data
OFF: Fiber loop is disconnected

10/100M Indicator
ON: The unit is connected to a 100M network
OFF: The unit is connected to a 10M network or is disconnected

Link/Act Indicator
ON: The unit is connected to a network
Flashing: Sending/receiving data
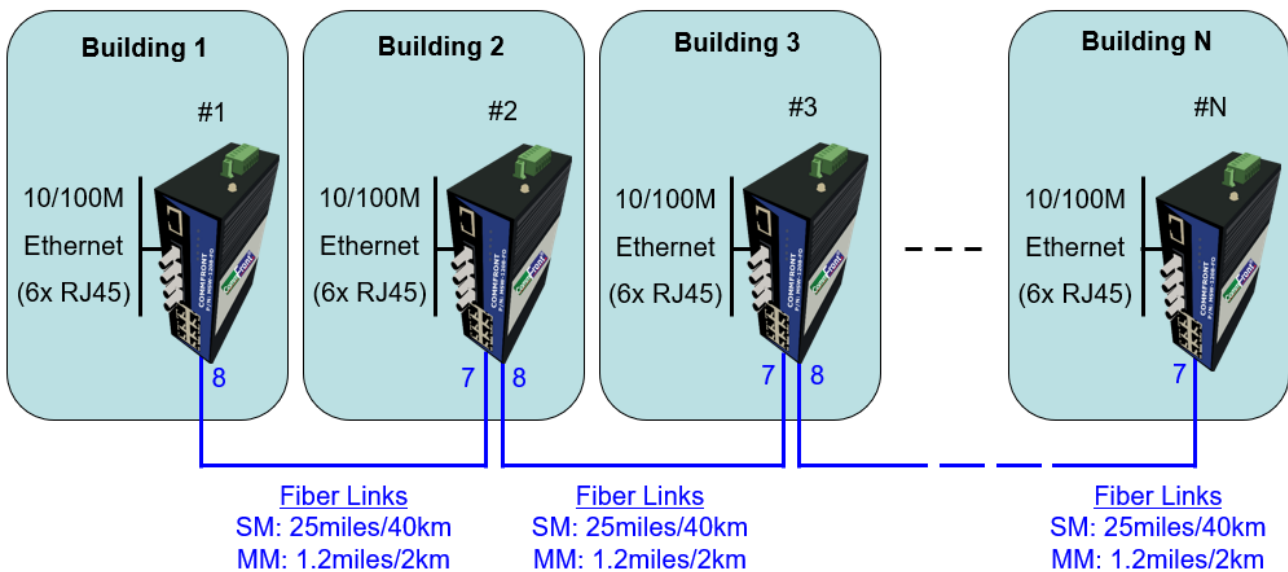OFF: The unit is disconnected from a network

■ INPUTS/OUTPUTS

Power 1 & 2 Inputs
V1+/V1-: Power Supply 1 Input (12 to 48 VDC)
V2+/V2-: Power Supply 2 Input (12 to 48 VDC)

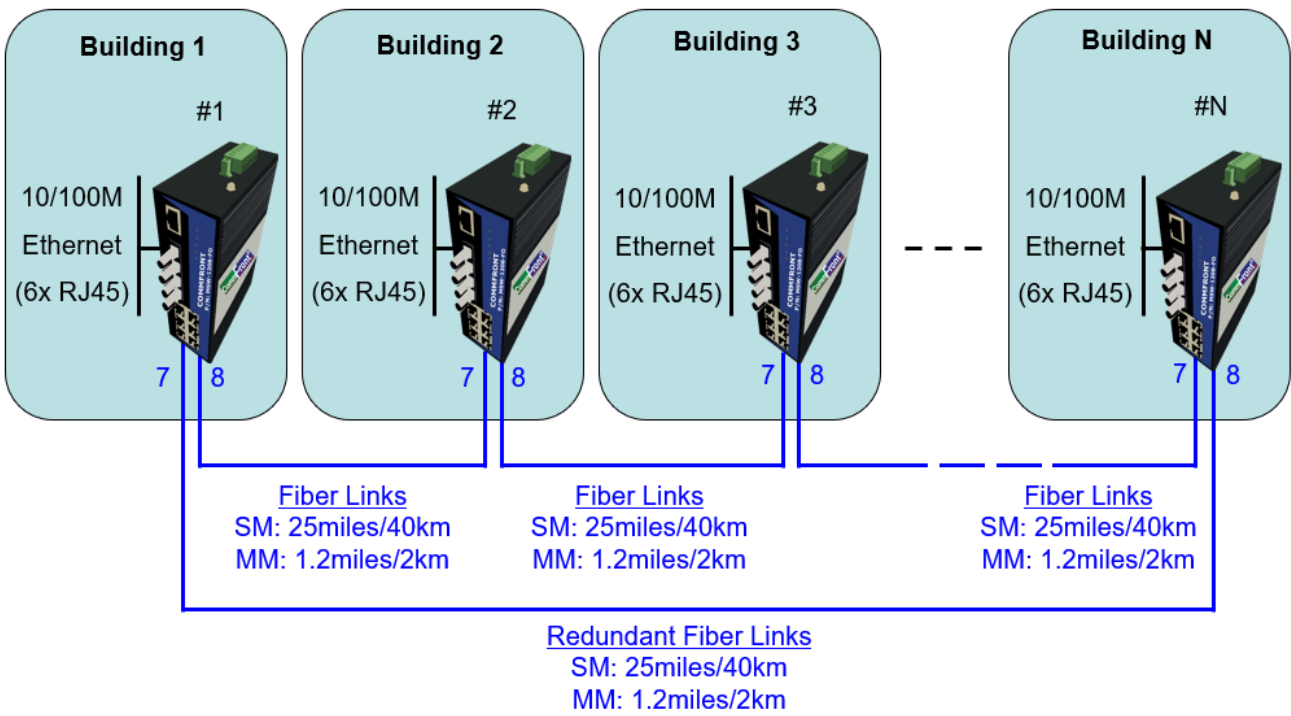| Link Down/Broadcast Storm/Power Failure Alarm Output |
| --- |
| Normally-Open Relay Alarm Output (Maximum Load: 1A/24VDC) |

■ FACTORY DEFAULT SETTINGS

IP Settings:	Static IP
IP Address:	192.168.1.253
Subnet Mask:	255.255.255.0
Gateway:	192.168.1.1
Console Port (RS-232 / DCE):	Baud Rate: 115.2Kbps, Data-Bit: 8, Parity: None, Stop-Bit: 1, Flow Control: None
User Name:	admin
Password:	admin

■ TYPICAL APPLICATIONS

Building 1
#1
10/100M Ethernet
(6x RJ45)
8

Building 2
#2
10/100M Ethernet
(6x RJ45)
7   8

Building 3
#3
10/100M Ethernet
(6x RJ45)
7   8

Building N
#N
10/100M Ethernet
(6x RJ45)
7

Fiber Links
SM: 25miles/40km
MM: 1.2miles/2km

Fiber Links
SM: 25miles/40km
MM: 1.2miles/2km

Fiber Links
SM: 25miles/40km
MM: 1.2miles/2km

APPLICATION 1: DAISY-CHAIN FIBER LINKS

Building 1 #1
10/100M Ethernet (6x RJ45)
7 8

Building 2 #2
10/100M Ethernet (6x RJ45)
7 8

Building 3 #3
10/100M Ethernet (6x RJ45)
7 8

Building N #N
10/100M Ethernet (6x RJ45)
7 8

Fiber Links
SM: 25miles/40km
MM: 1.2miles/2km

Fiber Links
SM: 25miles/40km
MM: 1.2miles/2km

Fiber Links
SM: 25miles/40km
MM: 1.2miles/2km

Redundant Fiber Links
SM: 25miles/40km
MM: 1.2miles/2km

APPLICATION 2: SELF-HEALING REDUNDANT-RING FIBER LINKS

■ **TYPICAL CONNECTION**
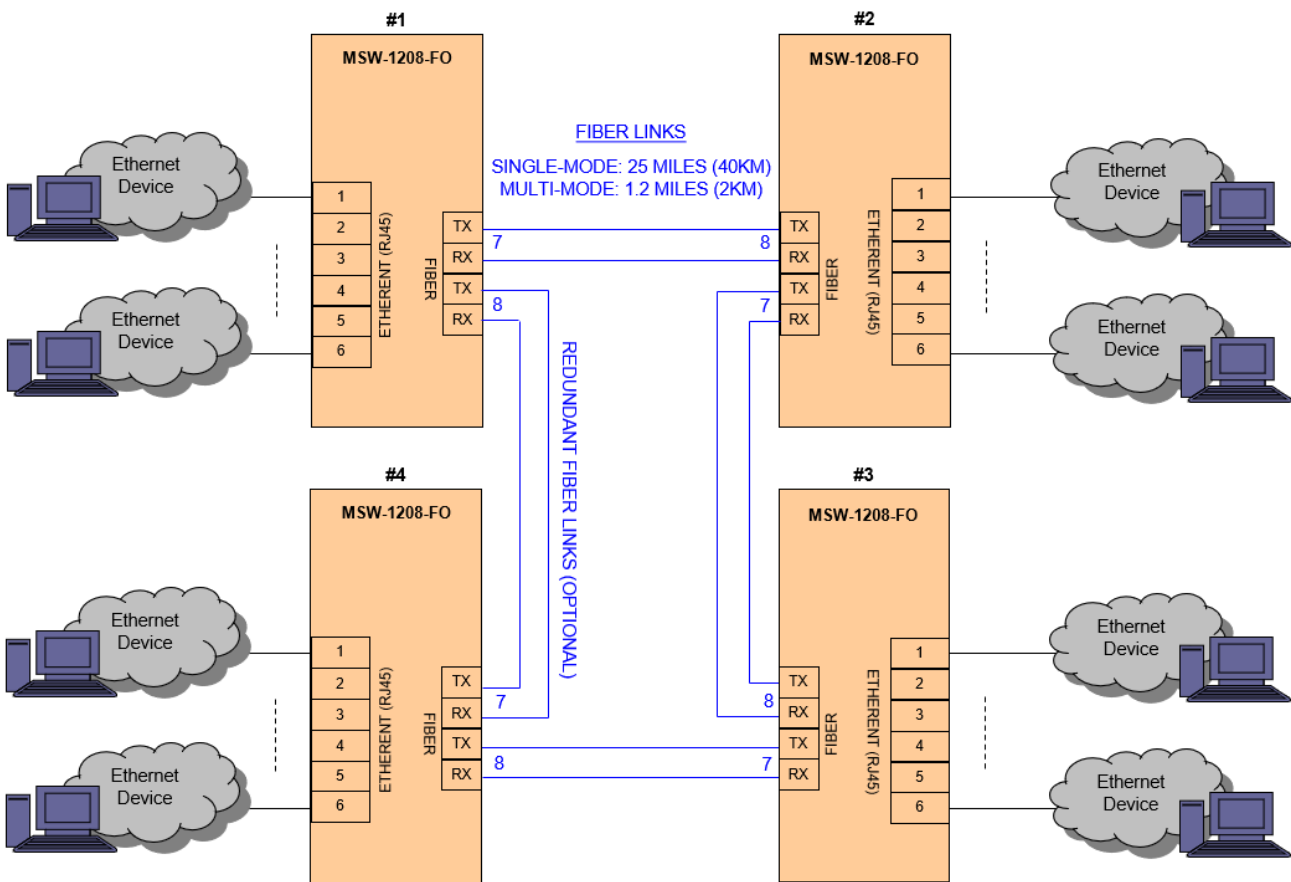
CONNECTION: DAISY-CHAIN OR REDUNDANT-RING FIBER CONNECTION DIAGRAM

■ **FAST RING APPLICATIONS**

Redundancy is crucial for mission-critical applications such as production and power plants, simply because of the significant cost of downtime. Recovery time is also another extremely important

concern, in which more than 10 seconds is considered unacceptable, making the conventional STP/RSTP undesirable for most industrial applications. CommFront's Fast-Ring technology, a self-healing redundancy with a super-fast recovery time of less than 15ms, makes its industrial managed switches ideal for most mission-critical applications. Unlike most other sophisticated protocols, CommFront's Fast-Ring protocol provides various types of flexible yet simple topologies such as single-ring and coupling rings, which in turn improve the reliability of the entire network.
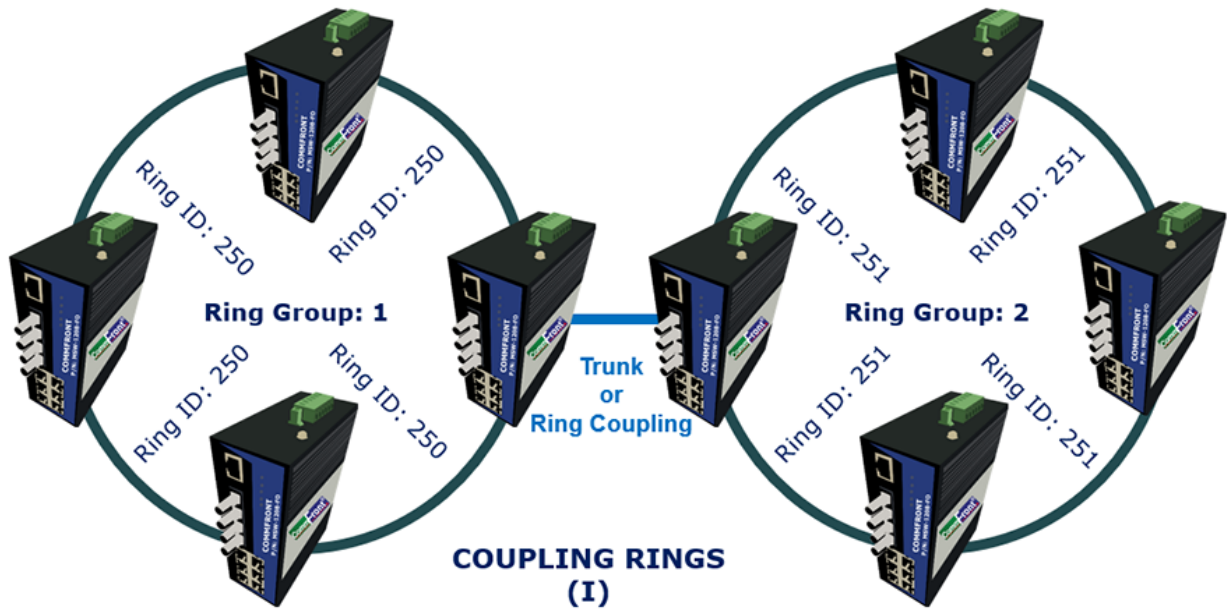
- **SINGLE RING**

FAST RING APPLICATION 1: SINGLE RING
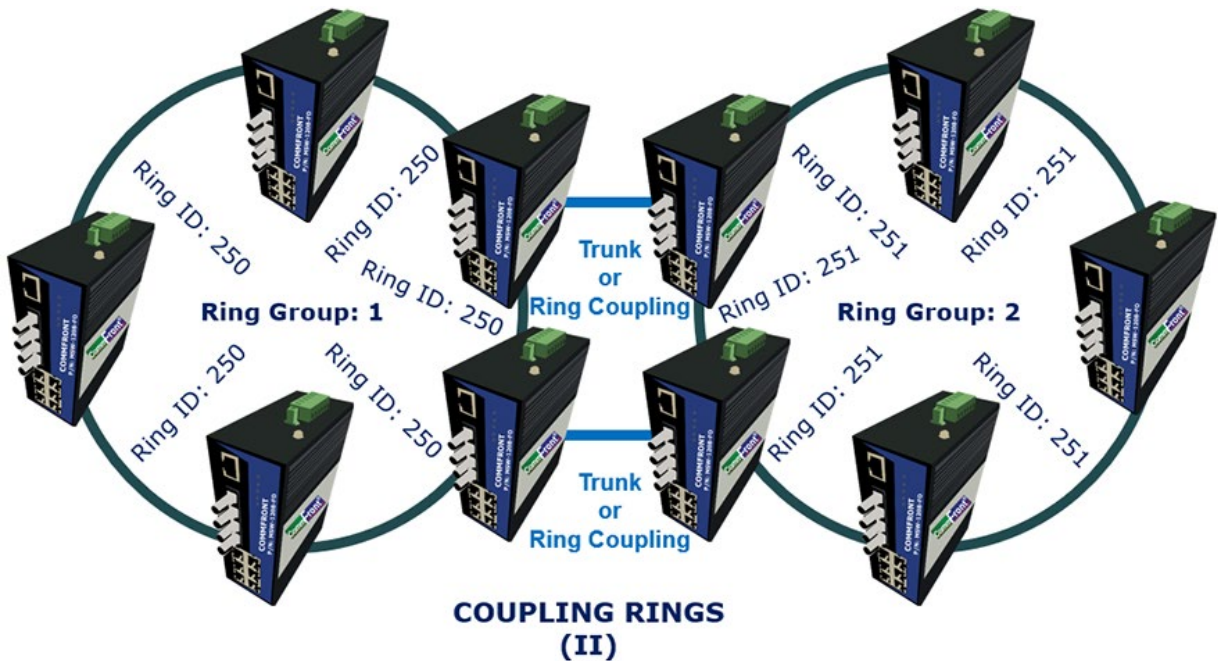
- **DOUBLE RINGS**
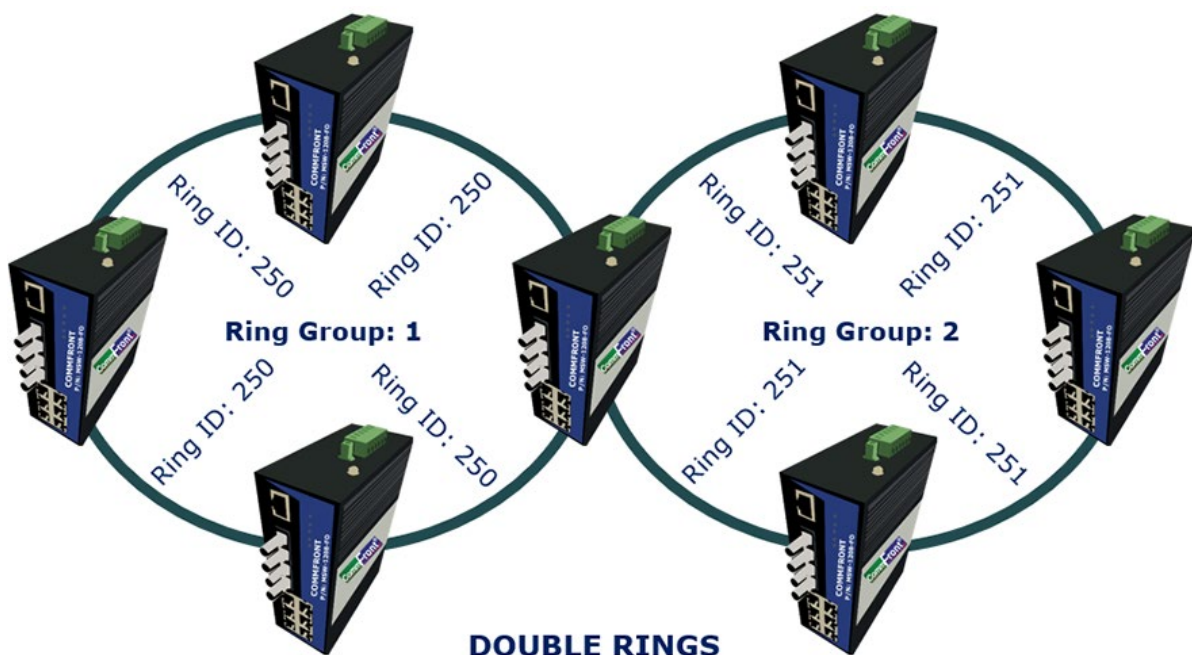
FAST RING APPLICATION 2: DOUBLE RINGS

- **COUPLING RINGS (I)**

FAST RING APPLICATION 3: COUPLING RINGS (I)

- **COUPLING RINGS (II)**

FAST RING APPLICATION 4: COUPLING RINGS (II)

■ **TROUBLESHOOTING**

1) Make sure power supply (12 to 48 VDC) is connected and turned ON.
2) Check LEDs and ensure connections are correct (note: DO NOT connect as a ring network prior to setting up the Fast Ring for all switches, as otherwise broadcast storm could occur).
3) Diagnose a suspected bad link by using a cable tester or other hardware tools.
4) Ping or scan network devices with your computer's CLI (Command Line Interface) or other software tools.
5) Ensure the MSW-1208-FO and your computer are at the same subnet and there are no duplicate IP addresses.
6) Go to "Management/Reset to factory default" to restore factory settings, if necessary.