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 Unmanaged Ethernet Switch / FO Converter

(Star and Daisy-Chain Fiber Optic Networks)

Part Number: USW-1208-FO

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

Connector types: ST, SC or FC

CE FC

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■ **INTRODUCTION**

The USW-1208-FO is a rugged, fan-less, industrial-grade, unmanaged 10/100M Ethernet switch and fiber optic media converter that supports star and daisy-chain fiber optic links. The USW-1208-FO supports up to 255 fiber nodes, 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 unit features redundant power supplies and power failure alarm relay outputs for uninterrupted system performance and easy maintenance. The USW-1208-FO features 4 unmanaged 10/100M Ethernet ports and 4 full-duplex optical fiber ports and it runs on a light-speed fiber backbone inherently resistant to radio and electrical interference, such as EMI/RFI, transient surges and ground loops. It overcomes the limitations of a conventional point-to-point fiber network and dramatically expands the Ethernet network in terms of distance and flexibility. The USW-1208-FO is a plug and play unit featuring auto-negotiation for 10 or 100M data rates, it also supports MDI and MDI-X (auto-crossover), no DIP switch or jumper settings are required.

■ **FEATURES**

- Rugged industrial-grade 10/100M Unmanaged Ethernet Switch and Fiber Optic Media Converter.
- Star and daisy-chain fiber expands the Ethernet network dramatically.
- Designed for harsh industrial environments (DIN-Rail mount, IP40).
- 4x RJ45 ports for 10/100M Ethernet (auto-negotiation).
- 4x full-duplex 100M Fiber Optic ports (ST, SC, or FC connectors).
- Supports up to 255 fiber nodes with ST, SC or FC fiber optic connectors.
- Plug and play, Auto-Negotiation, MDI and MDI-X auto-crossover.
- Full redundant power supply and power alarm relay 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**

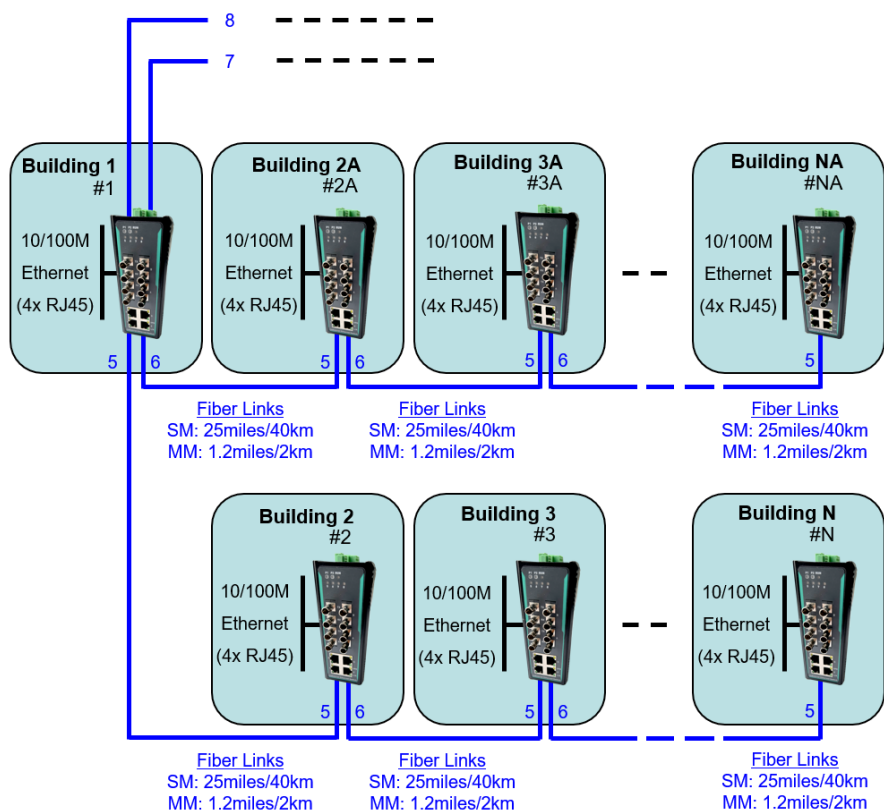|	
Compatibility:	IEEE802.3; IEEE802.3u; IEEE802.3x
Power Source:	12 to 48 VDC (redundant dual inputs; power alarm relay output)
Power Consumption:	<5W
Ethernet & Fiber Optic Ports:	4x 10/100M Ethernet ports, 4x Full-duplex optical fiber ports
Ethernet Switch Type:	Unmanaged/Layer 2
MAC Table:	2K
Protection:	Up to 15kV ESD; Overload current; 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
Max. Number of Fiber Nodes:	255
Distance (Ethernet):	328ft (100m)
Distance (Fiber):	Single-mode: 25 miles (40km); Multi-mode: 1.2 miles (2km)
Connectors (Ethernet):	4x RJ45
Connectors (Fiber):	8x ST, 8x SC, or 8x FC connectors
Connectors (Power + Relays):	5-way + 3-way terminal blocks (2x power, 2x relays)
Dimensions (H x W x D):	5.4x4.3x2.1 in (138x110x54 mm) – excluding FO connectors
IP Rating:	IP 40
Weight:	1.2 lb (550 g)
Operating Temperature:	-40ºF to 185ºF (-40ºC to 85ºC)
Operating Humidity:	5% to 95% Non-condensing

■ APPLICATION
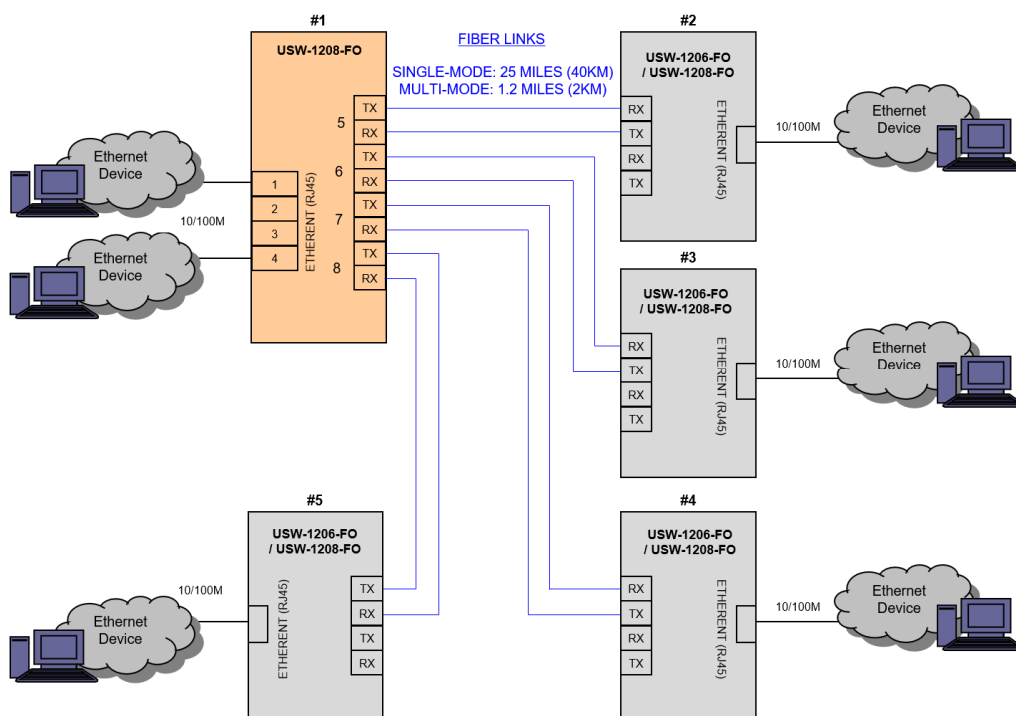

FIGURE 1 (APPLICATION): STAR + DAISY-CHAIN FIBER LINKS

■ CONNECTIONS

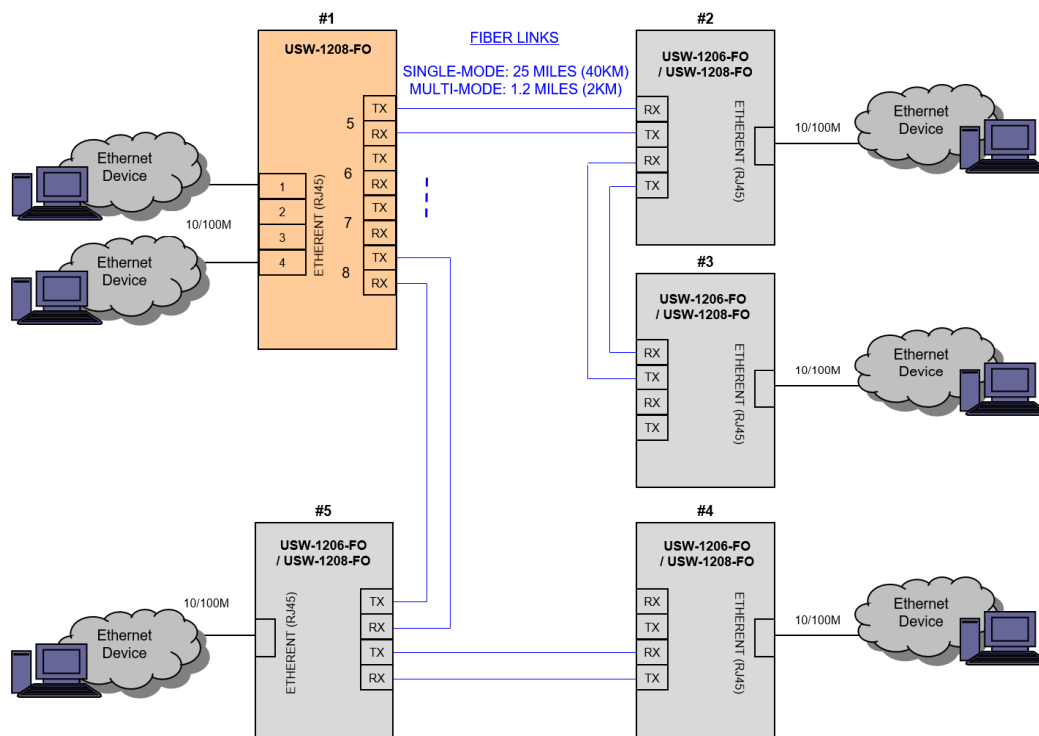FIGURE 2 (CONNECTIONS): STAR FIBER CONNECTIONS

FIGURE 3 (CONNECTIONS): STAR + DAISY-CHAIN FIBER CONNECTIONS

■ LED INDICATORS

PWR1 Indicator
ON: Power supply 1 on
OFF: Power supply 1 off
PWR2 Indicator
ON: Power supply 2 on
OFF: Power supply 2 off
RUN Indicator
ON/Flashing: The unit is in working condition
OFF: The unit is not working

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: No network connection

ON: Fiber link is active
OFF: Fiber link is inactive
Blinking: Transmitting/receiving data

■ 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)

Power 1 & 2 Alarm Outputs	
	Normally-Open Relay Alarm Outputs (Maximum Load: 1A/24VDC)

■ TROUBLESHOOTING

- Make sure power supply (12 to 48 VDC) is connected and turned ON.
- Check LEDs and ensure connections are correct (note: DO NOT connect as a ring network as otherwise broadcast storm could occur).
- Diagnose a suspected bad link by using a cable tester or other hardware tools.
- Ping or scan network devices with your computer's CLI (Command Line Interface) or other software tools.