



technical datasheet

9208-ET-3x

Three Fibre Industrial Ethernet Unmanaged Switch

- Three 100Mbps fibre optic ports for noise immune links up to 120km
- Slim packaging fits on your DIN rail
- High performance and value
- Truly industrial hardened design
- Dual power inputs keeps you running
- Plug & play saves you time and money



The 9208-ET-3x is an 8-port industrial Ethernet unmanaged switch featuring three noise-immune fibre optic ports. This ruggedized switch is industrial hardened to provide superior reliability for long term operation. They require no user setup and immediately start operating as soon as you power them up. Don't trust your critical communications to so-called industrial hardware from commercial switch manufacturers. MTL switches give you proven assurance that your system will keep running for years to come.

PRODUCT HIGHLIGHTS

- Three 100Mbps fibre optic ports for noise immune links up to 120km
- Slim packaging fits on your DIN rail
- High performance and value
- Truly industrial hardened design
- Dual power inputs keeps you running
- Plug & play saves you time and money

REAL-TIME OPERATION

- Intelligent routing - No collisions!
- Ideal for any 10/100 Ethernet system

PLUG AND PLAY SIMPLICITY

- Auto-sensing for speed and duplex
- Auto-mdi/mdix-crossover and auto-polarity

TROUBLE FREE OPERATION

- Ultra-reliable 1,000,000+ hours MTBF
- -40 to +75°C operating range
- UL, CSA (CUL), CE and Hazloc (Zone 2) rated
- Dual power inputs with spike/surge protection
- Rugged corrosion-resistant aluminum case
- DIN rail or direct panel mounting in multiple positions – no accessories required

9208-ET-3x DRAFT

 **COOPER** Crouse-Hinds

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SPECIFICATION

ETHERNET PERFORMANCE

- Unmanaged with 8 Ethernet ports
- Ethernet switch type: Intelligent store and forward wire speed
- Ethernet protocols supported: All IEEE 802.3
- RJ45 ports (shielded): 10/100BaseTX
- RJ45 speed (10 or 100Mbps): Auto-negotiation
- RJ45 MDI/MDIX and TD/RD: Auto-crossover and auto-polarity
- Fibre optic port speed: 100BaseFX (100Mbps)
- Fibre optic port wavelength: 1300nm center
- Fibre multimode (mm) typical: 50 or 62.5/125µm (SC or ST)
- Fibre singlemode (sm) typical: 9 or 10/125µm (SC or ST)
- Fibre max. distance (full duplex) (see web for details) 4 km (mm), 20km (sm) or 60km (long haul) or more (contact MTL)
- See separate datasheet for complete fibre transceiver details.
- Typical latency for 100M ports
 - 5µs + frame time
 - Varies on load
- Typical latency for 10M ports
 - 16µs + frame time
 - Varies on load
- Fibre duplex operation: Full duplex
- MAC addresses supported: 1024
- Memory bandwidth: 3.2Gbps
- Ethernet isolation: 1500VRMS 1 minute

ETHERNET COMPLIANCE

- IEEE 802.3 (10Mbps Ethernet supports legacy devices)
- IEEE 802.3u (Fast Ethernet 100Mbps for newer devices)
- IEEE 802.3x (Full-Duplex with Flow Control)

POWER INPUT

- Redundant input terminals
- Input power consumption: 8.0W
 - (typical w/all ports active)
- Power input voltage: 10-30VDC
 - Transient protection: 15,000 watts peak
 - Spike Protection: 5,000 watts (10 times for 10µS)

ENVIRONMENTAL

- Operating temperature range: -40 to +75°C cold startup @ -40°C
- Storage temperature range:-40 to +85°C
- Humidity (non-condensing):
 - 5 to 95% RH
 - Conformal coating is available – contact MTL
- Vibration: IEC68-2-6

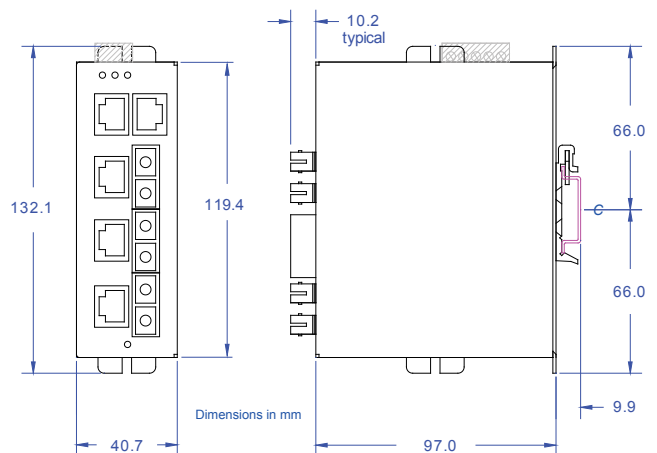
STANDARD COMPLIANCE

- Electrical safety - UL508/CSA C22.2/14, EN61010-1, CE
- EMC - FCC part 15, ICES-003, EN55022, EN61000-6, CE
- Hazardous locations: UL1604/CSA C22.2/213 (Class 1, Div. 2); EN60079-15 (Zone 2, Category 3), CE (ATEX)
- Maritime rated for marine & offshore per ABS
- Eye safety (fibre models) - IEC60825-1, Class 1; FDA 21 CFR 1040.10 and 1040.11

PHYSICAL

- DIN rail or direct panel mounting
- Packaging: Aluminum with IP30 protection
- Weight: 0.31kg (11oz.)
- Dimensions – see mechanical diagram

MECHANICAL



ORDERING INFORMATION

9208-ET-3M-SC 9208-ET-3M-ST	8 Port Ethernet Unmanaged switch with 5 RJ45 ports & 3 multimode fibre ports - SC or ST style connector for up to 4km
9208-ET-3S-SC 9208-ET-3S-ST	8 Port Ethernet Unmanaged switch with 5 RJ45 ports & 3 singlemode fibre ports - SC or ST style connector for up to 20km
9208-ET-3L-SC 9208-ET-3L-ST	8 Port Ethernet Unmanaged switch with 5 RJ45 ports & 3 singlemode fibre ports - SC or ST style connector for up to 60km

Special, mixed or long haul (up to 120km) fibre transceivers are available for special order.

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.



TRANSMITTER OPTICAL CHARACTERISTICS:						
PARAMETER	RATING	MIN.	TYP.	MAX	UNIT	NOTE
Optical Transmit Power	-M- -S- -L-	-19 -15 -3	- - -	-14 -7 2	dBm	Average
Extinction Ratio	-M-, -S- -L-	8.2 10	- -	- -	dB	P1/P0
Output Centre Wavelength	-M-, -S-, -L-	1260	1310	1360	nm	
Spectral Width (-20dB)	-M- -S- -L-	- - -	- - -	80 7.7 4	nm	
Rise/Fall time (10% - 90%)	All models	-	-	2	ns	
Relative Intensity Noise	-	-	-	-117	dB/Hz	
Output Eye	Compliant with Bellcore TR-NWT-000253 and ITU-T G.957/OC3					
RECEIVER OPTICAL CHARACTERISTICS:						
Wavelength Operation	All models	1200	-	1600	nm	
Sensitivity	-M- -S- -L-	- - -	- - -	-32 -21 -36	dBm	Note 2
Saturation Input Power	All models	-3	-	-	dBm	Note 2
Signal Detect - Asserted	-M- -S- -L-			-32 -31 -36	dBm	
Signal Detect - Deasserted	All models	-45	-	-	dBm	
Signal Detect - Hysteresis	All models	1	-	6	dB	

Notes:

- 1). The distance rating is for reference only. The actual transmission distance will depend on the system setup, and the power budget should be used for distance estimation.
- 2). Minimum sensitivity and saturation levels measured at 10^{-10} BER for 2^{23-1} PRBS

For distances of from 60-120km consult MTL for special fibre options

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