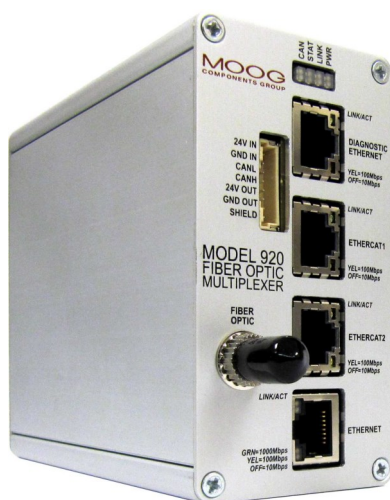# Ethernet and Data Multiplexer
Model 920-EDM

Focal Technologies Corporation, a Moog Inc. company, has over 30 years of expertise in supplying standard and custom products for harsh environment applications and is a leading manufacturer of high performance and high quality multiplexers. Contact Focal for any assistance in selecting the best solution for your requirements.

More than just a media converter, the model 920-EDM Ethernet and Data Multiplexer combines two 10/100 BASE-T(X) Ethernet channels, one 1000 BASE-T Gigabit Ethernet channel, and a CAN Bus channel on a single bidirectional fiber-optic link. This seamless integration of multiple channels in a single interface box reduces overall system costs and space requirements when optical links are needed. The availability of several interface types supports multiple control system protocols or upgrades without the need to change the interface modules. Furthermore, the low latency design of the 920-EDM makes it ideal for real-time control applications.

Front panel LEDs provide status on critical functions while detailed diagnostic information, such as optical Rx/Tx power, temperature, internal voltage and error counts, may be monitored through a Modbus TCP interface on a dedicated 10/100 BASE-T(X) Ethernet port. Built-In-Tests (BITs) may also be triggered and monitored via the diagnostic link to independently verify optical and system performance.

Features

- Multiplexes 10/100 M and Gigabit Ethernet, plus CAN Bus on the same optical link
- Ethernet and CAN Bus channels are independent and have dedicated bandwidth (i.e. non-switching)
- Single fiber operation
- Diagnostics via Modbus link on an independent Ethernet port
- Low and deterministic latency to allow for real-time protocols such as EtherCAT and DeviceNet

Benefits

- Replaces multiple media converters with a single module
- Replaces multiple fiber cables with a single fiber
- Supports multiple real-time serial protocols e.g. CAN Bus, DeviceNet
- Supports multiple real-time Ethernet protocols, e.g. EtherCAT, PROFINET, and Modbus TCP
- Simplifies troubleshooting and system testing with advanced diagnostics

Applications

- Wind Energy
- Industrial Controls
- Remote Tooling Stations
- Sensor Monitoring Systems

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Specifications

Ethernet

No. Copper Ports and Data Rates	3 x 10/100 BASE-T(X) (920-EDM-600M) or 2 x 10/100 BASE-T(X) and 1 x 10/100/1000 BASE-T(X) (920-EDM-2.5G)
Features	Non-switched dedicated bandwidth ports, low latency for real-time signals, auto-negotiation, auto MDI/MDIX

Latency is 4uS/pair for all Ethernet channels.

CAN Bus

No. Channels	1
Data Rate	125/250/500 kbps with autobaud
Latency	0.12 to 4.6 ms depending on bit-rate

Optical

Optical Fiber	1 multimode (50/125 µm)
Baud Rate	625 Mbaud (920-EDM-600M) or 2.5 Gbaud (920-EDM-2.5G)
Wavelength	1310/1550 nm standard
Flux Budget	>10 dB (15 dB optional)
Range	500 m - may be further limited by acceptable CAN Bus latency
Options	Singlemode, CWDM wavelengths

Mechanical

Dimensions	53 x 103 x 122.8 mm [2.09 x 4.06 x 4.83 inches]
Weight	550g
Mounting	DIN-rail mounts included

Electrical

Power Voltage	+24V +/- 20%, regulated
Power Current	0.2 A typical (0.45 A max.)
Power used	5 W typical (8 W max.)
Protection	ESD, EMI, over voltage, reverse voltage, over current

Connectors

Optical	1 x ST/PC
Ethernet	4 x RJ-45 (including diagnostics port)
CAN Bus	2 pins of 8-pin header
Power	2 input pins and 2 output pins of 8-pin header

Environmental

Temperature	-10°C to +70°C (operational) -45°C to + 85°C (storage)
Humidity	85% RH, non-condensing
Ingress	IP40

Diagnostics and Control

IP Address	1 per card, assigned by DHCP or static
Accessibility	LEDs and data over dedicated 10/100M Ethernet port using Modbus TCP
Parameters	Tx/Rx power, optical/copper link, temperature, current, voltages