



050-103
10/100/1000BASE-T to 1000BASE-SX/LX
Media Converter with Mighty Mouse Connectors

Media converter with Series 80 Mighty Mouse connector interface



10/100/1000BASE-T to 1000BASE-SX/LX10 Media Converter

Glenair 050-103 Ethernet Media Converters use state-of-the-art opto-electro-mechanical technology to provide effective harsh environment Ethernet interconnect solutions that enable much longer distances than copper cables using fiber optics. The Ethernet Media Converter uses rugged Mighty Mouse 805 Series electrical connector and incorporates electrical to optical (E/O) and optical to electrical (O/E) conversion, Voltage Regulation, Signal Conditioning with SERDES (Serialization Deserialization) in the circular back shells to enable compact electrical to fiber optic Ethernet media conversions for harsh environments. Glenair Ethernet Media converters are ideal for military, petrochemical, mining, industrial or utility applications where significant levels of shock, vibration and extreme temperature ranges are experienced.

Using 850 nm VCSEL technology, the SX version of the Media Converter converts 10/100/1000BASE-T electrical to 1000BASE-SX fiber optic and can support interconnection distances up to 550m over multi-mode fiber.

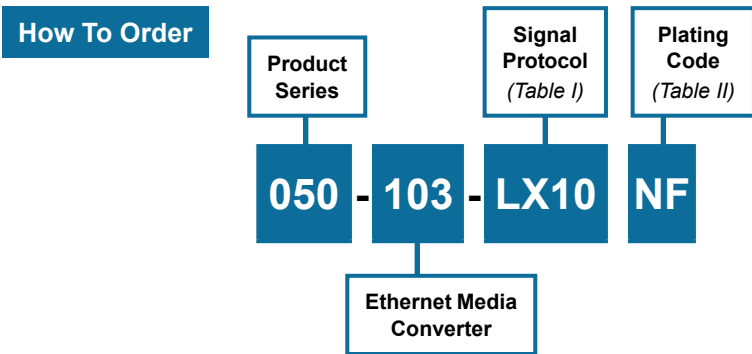
Using 1310nm Laser technology, the LX version of the Media Converter converts 10/100/1000BASE-T electrical to 1000BASE-LX fiber optic and can support interconnection distances up to 10km over single-mode fiber.

KEY FEATURES

- IEEE 802.3-2005 Gigabit Ethernet standard compliant
- -40°C to +85°C operating temperature range
- Ideal for military and other harsh environment applications.
- Meets MIL-STD-810 mechanical shock and vibration
- Meets MIL-STD-1344 immersion resistance
- Up to 550 Meters for VCSEL 850nm version with Multimode fiber
- Up to 10 Kilometers for 1310nm laser version with Singlemode fiber
- Power supply operation from 5V to 30V
- IP67 in unmated condition

APPLICATIONS

- Military tactical communication systems
- Harsh environment telemetry or communications
- Satcom systems
- Industrial, mining, petrochemical facilities communications infrastructure



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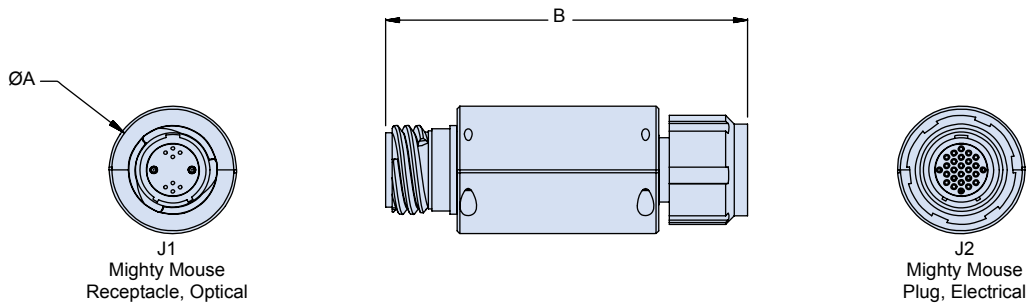
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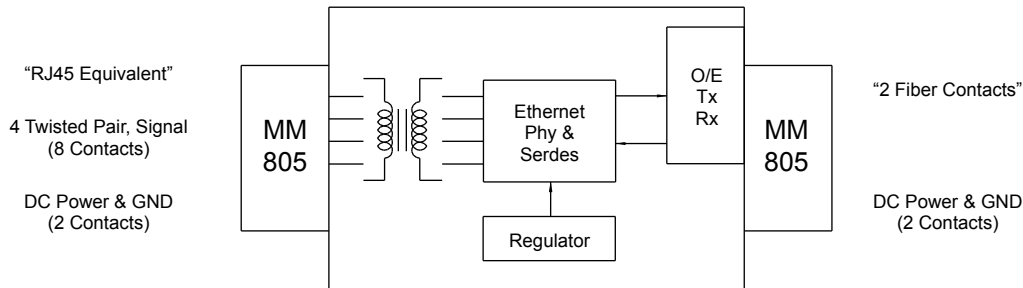
Table I: Signal Protocol		
Code	Name	Medium
SX	1000BASE-SX	Multimode Fiber
LX10	1000BASE-LX	Singlemode Fiber

Table IV: Dimensions		
Dash No.	A Max	B Max
-01	1.500 (38.10)	4.500 (114.30)

Table II: Material And Finish		
SYM	Material	Finish Description
M*	Aluminum	Electroless Nickel
MT		Nickel - PTFE
NF		Cadmium, Olive Drab
ZN		Zinc-Nickel, Olive Drab
ZNU		Zinc-Nickel, Black



Block Diagram



Material and Finish

Enclosures: See Table II

Connectors: Matching plating with enclosure

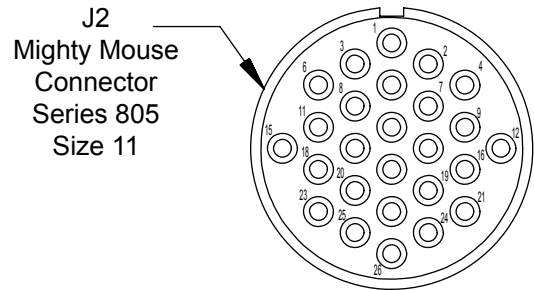
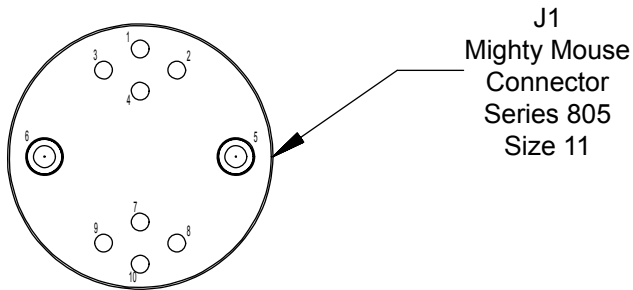
Assembly Notes

Interface connectors are designed to mate with any Glenair Series 805 Mighty Mouse plug or receptacle having the same insert arrangement and polarization; opposite contact gender.

All connector cavities without defined contacts to be populated with appropriate sealing plug. MS27488 Type sealing plugs are recommended.

Connector Configurations

Table III: 050-103-SX/LX10 Connector Pin Out Definitions					
J1 - Power Connector 805-#####-#### (Glenair Mighty Mouse)			Mating Connector for J1 805-#####-#### (Glenair Mighty Mouse)		
Contact P/N (SX): 181-057-126 Contact P/N (LX): 181-057-125			Contact P/N (SX): 181-075-126 Contact P/N (LX): 181-075-125		
Pin	Name	Description	Pin	Name	
1	NC	No Connect	1	NC	
2	NC	No Connect	2	NC	
3	Rx	#16 FO Contact, Rx	3	Tx	
4	Tx	#16 FO Contact, Tx	4	Rx	
5	NC	No Connect	5	NC	
6	NC	No Connect	6	NC	
J2 - Data Connector 805-#####-#### (Glenair Mighty Mouse)			Mating Connector for J2 805-#####-#### (Glenair Mighty Mouse)		
Contact P/N: N/A			Contact P/N: N/A		
Pin	Name	Description	Equivalent RJ45 Pin # (for reference only)	Pin	Name
1	MDD-	Data D (-)	8	1	MDD-
2	Vin	Vin	N/A	2	Vin
3	MDD+	Data D (+)	7	3	MDD+
4	NC	No Connect	NC	4	NC
5	MDC-	Data C (-)	5	5	MDC-
6	MDC+	Data C (+)	4	6	MDC+
7	NC	No Connect	N/A	7	NC
8	NC	No Connect	N/A	8	NC
9	GND	GND	N/A	9	GND
10	GND	GND	N/A	10	GND
11	GND	GND	N/A	11	GND
12	NC	No Connect	N/A	12	NC
13	NC	No Connect	N/A	13	NC
14	MDB-	Data B (-)	6	14	MDB-
15	MDB+	Data B (+)	3	15	MDB+
16	NC	No Connect	N/A	16	NC
17	MDA-	Data A (-)	2	17	MDA-
18	Vaux	Vaux	N/A	18	Vaux
19	MDA+	Data A (+)	1	19	MDA+



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Ratings and Specifications



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Absolute Maximum Rating					
Parameter	Symbol	Min	Typ	Max	Unit
Storage Temperature	T_s	-55		+100	°C
Operating Voltage	V_{cc}	-0.4		+40	V

Operating Conditions					
Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{op}	-40		+85	°C
Supply Voltages	V_{cc}	4.75	12	30	V

Optical Transmitter LX10					
Parameter	Sym	Min	Type	Max	Unit
Optical Output Power 1310nm Fabry-Perot	P_{out}	-5	-3	-1	dBm
Optical Wavelength 1310nm Fabry-Perot	λ_{out}	1285	1310	1345	nm
Spectral Width 1310nm Fabry-Perot	$\Delta\lambda$			4	nm

Optical Receiver LX10					
Parameter	Sym	Min	Type	Max	Unit
Receiver Input Sensitivity Pin PD	P_{in}	-22			dBm
Optical Wavelength 1310nm Fabry-Perot	λ_{in}	1270	1310	1355	nm

Optical Transmitter SX					
Parameter	Sym	Min	Type	Max	Unit
Optical Output Power 850nm VCSEL	P_{out}	-9	-6	-3	dBm
Optical Wavelength 850nm VCSEL	λ_{out}	830	850	860	nm
Spectral Width 850nm VCSEL	$\Delta\lambda$			0.85	nm

Optical Receiver SX					
Parameter	Sym	Min	Type	Max	Unit
Receiver Input Sensitivity 850nm	P_{in}	-20			dBm
Optical Wavelength	λ_{in}	830	850	860	nm

Copper Link Distances		
Protocol	Cable Type	Distance
Ethernet (IEEE 802.3, 10BASE-T) Fast Ethernet (IEEE 802.3.u, 1000BASE-T) Gigabit Ethernet (IEEE 802.3ab, 1000BASE-T)	TIA/EIA-568-B Cat 5E	100 Meters

Optical Distances		
Protocol	Cable Type	Distance
Gigabit Ethernet (IEEE 802.3z, 1000BASE-LX, 1310nm FP)	Singlemode fiber, SMF, (9/125 μ m)	10 Kilometers
Gigabit Ethernet (IEEE 802.3z, 1000BASE-SX, 850nm VCSEL)	Multimode fiber, MMF, (50/125 μ m) Multimode fiber, MMF, (62.5/125 μ m)	550m 275m

Power Supply Current @ 85 C Max. Operating Condition			
Parameter	Symbol	Max	Unit
Supply Voltage 5 V 12 V 24 V 28 V	I_{cc}	630 230 110 95	mA

Military Specification Compliance			
Feature	Standard	Condition	Notes
Mechanical Shock	MIL-STD-810	40g	6-9ms
Mechanical Vibration	MIL-STD-810	30g RMS	18ms
ESD	MIL-STD-883	Class II	2200v
Mating Durability	MIL-STD-38999/20	500 Cycles	<0.5 db change
Flame Resistance	MIL-STD-1344	Method 1012	30 Seconds
Damp Heat	MIL-STD-1344	10 Cycles	24 Hours