



050-513

PRODUCT BRIEF

Copper to Fiber Aggregation Media Converter 4 Channel RS422/RS485 + 2 Discrete Signals

REV	DESCRIPTION	DATE	APPROVED
6	Preliminary	7/8/2016	MF/RAS/MT/GC

BF15U2-4345

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4-Channel RS422/RS485 and Discrete Lines Aggregation Media Converter



The Glenair 050-513 is a Media Converter that combines four RS422/RS485 channels and 2 discrete transmit and receive signals and serializes for transport over fiber. The media converter ordered to support either single mode or multi-mode fiber applications.

It is designed for harsh environments and incorporates electronics in an environmentally sealed enclosure that incorporates three 38999 environmental connectors. One connector for power, one for electrical signal and the third for fiber optic signals.

KEY FEATURES/BENEFITS

- Wide Input Voltage Range
- Supports RS422 and full duplex RS485 signals
- Isolated discrete signals transported over fiber
- IP67 in mated condition
- 38999 Connectors for power, signal and fiber

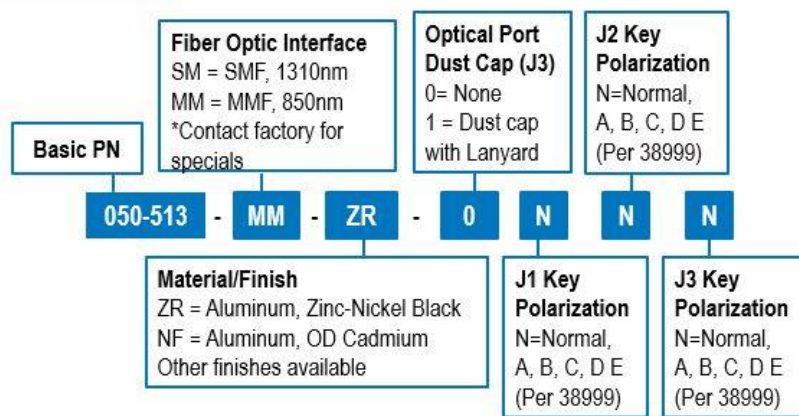
OPTIONAL FEATURES

- Optional Dust Cap for the Optical Port

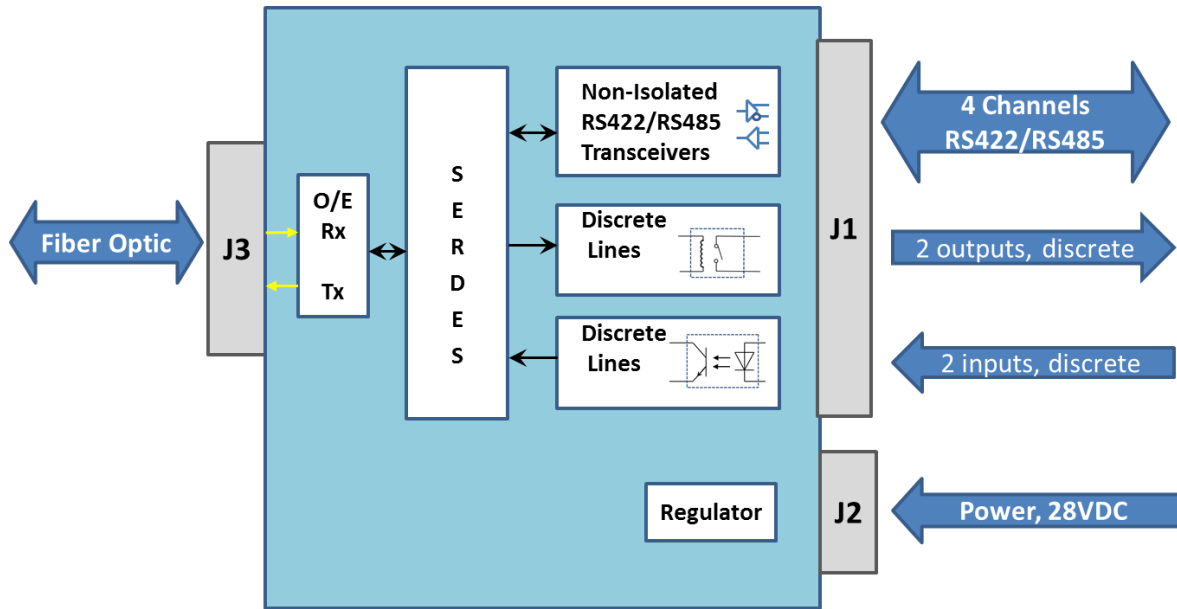
APPLICATIONS

- Harsh Environment RS422/RS485 and discrete signal over fiber for Airborne, Tactical Shipboard, Locomotive and Industrial applications.

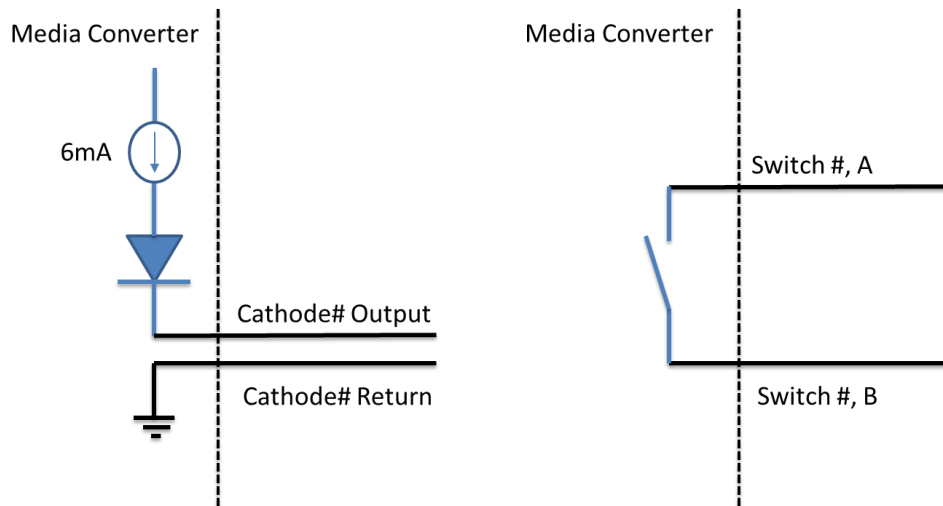
How To Order



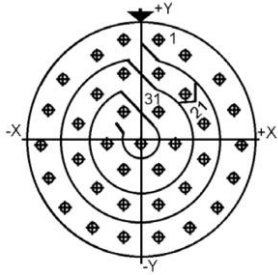
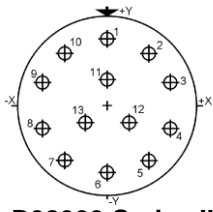
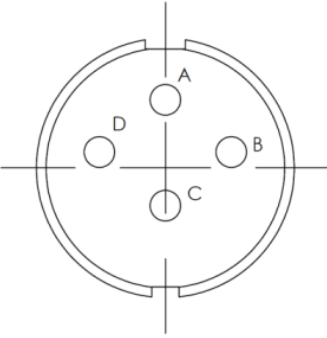
Functional Block Diagram



Discrete Interface Diagram



Connectors

NAME	Insert Arrangement	Function	Media Converter	Mating PLUG Connector
J1	 <p>D38999 Series III MIL-STD-1560 Arrangement 15-35</p>	Electrical Signal,	D38999 Series III type 15-35 <u>PIN CONTACTS, 22D</u>	Generic PN D38999/26#D35SN Glenair PN 233-105-G6#15-35SN <u>SOCKET CONTACTS, 22D</u>
J2	 <p>D38999 Series III 11-35</p>	Power	D38999 Series III type, 11-35 13X SIZE 22D Pins	Generic PN D38999/26#B35SN Glenair PN 233-105-G6##11-35SN
J3	 <p>D38999 Series III MIL-STD-1560 Arrangement 13-4</p>	Fiber Optic Signal	D38999 Series III type, 13-4 <u>PIN CONTACTS</u> SMF CONFIGURATION: MMF CONFIGURATION:	Generic PN D38999/26#C04SN Glenair PN 180-091##06-13-4SN <u>SOCKET CONTACTS</u> SMF CONFIGURATION Glenair PN 181-001-126S (M29504/5-4238) MMF CONFIGURATION Glenair PN 181-001-126 (M29504/54239)

Note: # = Environmental Class (Material/Finish)



Ratings and Specifications

ABSOLUTE MAXIMUM RATINGS

Parameter	Min	Typ	Max	Units	Notes
Storage Temperature	-55		+100	°C	
Supply Voltage	-40		40	V	

OPERATING CONDITIONS

Parameter	Min	Typ	Max	Units	Notes
Operating Temperature	-40		+85	°C	
Supply Voltage	18	28	36	V	
Supply Current		100	150	mA	Measured at 28V
Power Supply Noise (Peak-Peak)			200	mV	



Ratings and Specifications – SMF VERSION

OPTICAL CHARACTERISTICS – TRANSMITTER

Parameter	Min	Typ	Max	Units	Notes
Optical Output Power	-8.5	-4	-3	dBm	1310nm Fabry-Perot
Extinction Ratio	8			dB	
Optical Wavelength	1285	1310	1345	nm	
Spectral Width			3.5	nm	

OPTICAL CHARACTERISTICS – RECEIVER

Parameter	Min	Typ	Max	Units	Notes
Optical Sensitivity (Input Power Range)	-18		0	dBm	
Min. Sensitivity, BER 10 ⁻¹² , PRBS 2 ⁻⁷ -1, 8dB Extinction Ratio		-20	-18	dBm	PIN PD
Overload, BER 10 ⁻¹² , PRBS 2 ⁻⁷ -1	0			dBm	
Optical Wavelength	1100	1310	1590	nm	



Ratings and Specifications – MMF VERSION

OPTICAL CHARACTERISTICS – TRANSMITTER

Parameter	Min	Typ	Max	Units	Notes
Optical Output Power	-9.5		-4	dBm	VCSEL, 62.5/125µm MM
Extinction Ratio	8			dB	
Optical Wavelength	830	850	860	nm	
Spectral Width			0.85	nm	

OPTICAL CHARACTERISTICS – RECEIVER

Parameter	Min	Typ	Max	Units	Notes
Optical Sensitivity (Input Power Range)	-16		-2	dBm	
Sensitivity, BER 10 ⁻¹² , PRBS 2 ⁻⁷ -1, 8dB Extinction Ratio		-21	-16	dBm	PIN PD
Overload, BER 10 ⁻¹² , PRBS 2 ⁻⁷ -1	-2	-1		dBm	
Optical Wavelength	770	850	860	nm	



Ratings and Specifications - (continued)

OPERATING CONDITIONS – DISCRETE OUTPUT, NORMALLY OPEN, SWITCH CHARACTERISTICS

Parameter	Min	Typ	Max	Units	Notes
Switching Voltage	0.01		100	V	
Switching Current			1	A	
Contact Resistance		100		mOhm	
Insulation Resistance		1,000		MegOhm	Measured at 500VDC

OPERATING CONDITIONS – DISCRETE INPUT, SWITCH CHARACTERISTICS

Parameter	Min	Typ	Max	Units	Notes
Sink Current, Low Level	0		250	uA	
Sink Current, High Level	1.6		6.0	mA	

OPERATING CONDITIONS – RS422/RS485 DRIVER/RECEIVER

Parameter	Min	Typ	Max	Units	Notes
Input voltage at any bus terminal (separately or common mode)	-7		12	V	
Sink Current, High Level	1.6		6.0	mA	
High-level input voltage	2		3.3	V	
Low-level input voltage	0		0.8	V	
Differential input voltage	-12		12	V	
Output current, driver	-60		60	mA	
Max Data Rate	0		1	Mbps	

OPERATING CONDITIONS – AGGREGATION TIMING

Parameter	Min	Typ	Max	Units	Notes
Jitter			50	nSec P-P	
Latency	300			nSec	Measured from copper side input to copper side output through 1 meter of fiber.

Ratings and Specifications - (continued)

COMPLIANCE SPECIFICATIONS

Characteristics	Standard	Condition	Notes
Mechanical Shock	MIL-STD-810G	Method 516.6	40g, 6-9 mSec
Mechanical Vibration	MIL-STD-810G	Method 514.6	30 Grms
ESD	MIL-STD-883	Class II	2200V HBM
Conducted Emissions -- 30 Hz to 10 kHz	MIL-STD-461F	CE101	Power Leads
Conducted Emissions -- 10 kHz to 10 MHz	MIL-STD-461F	CE102	Power Leads
Conducted Susceptibility -- 30 Hz to 150KHz	MIL-STD-461F	CS101	Power Leads
Conducted Susceptibility -- Transients	MIL-STD-461F	CS106	Power Leads
Conducted Susceptibility, Structure Current, 60 Hz to 100 kHz	MIL-STD-461F	CS109	
Conducted Susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz	MIL-STD-461F	CS114	
Radiated Susceptibility, Magnetic Field, 30 Hz to 100 kHz	MIL-STD-461F	RS101	
Radiated Susceptibility, Electric Field, 2 MHz to 18 GHz	MIL-STD-461F	RS103	
Radiated Emissions, Magnetic Field, 30 Hz to 100 kHz	MIL-STD-461F	RE101	
Radiated Emissions, Electric Field, 10 kHz to 18 GHz	MIL-STD-461F	RE102	
Mating Durability	MIL-DTL-38999/20	500 Cycles	
Flame Resistance	EIA364-104		30 seconds
Humidity	MIL-STD-810G	Method 507.5	Procedure I
Aircraft Electrical Power Characteristics	MIL-STD-704F		28V DC Systems
Military Vehicle Electrical Power Characteristics	MIL-STD-1275		28V DC Systems
Eye Safety	CDRH and IEC-825	Class 1 Laser	

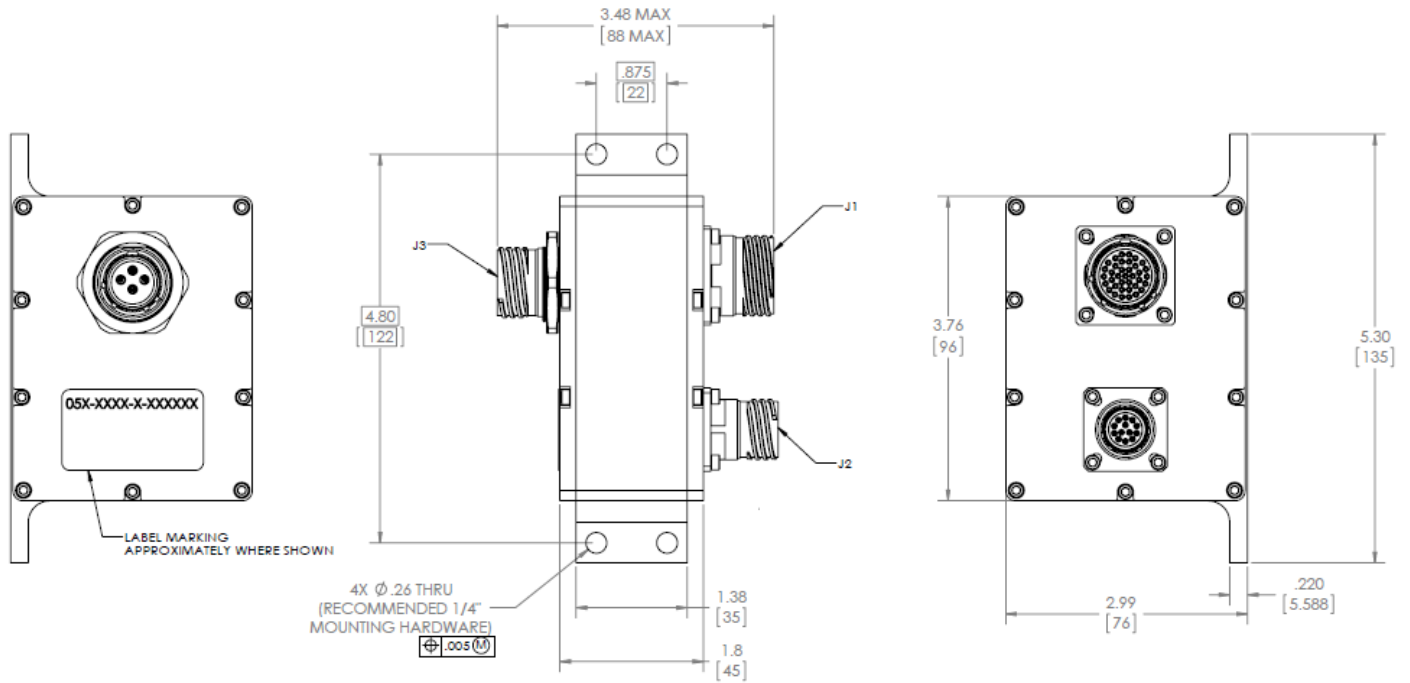


Ratings and Specifications - (continued)

MATERIAL/FINISH

Item	Material/Finish
Housing & Connector Shell	Aluminum
Plating Finish: M	Nickel
Plating Finish: MT	Nickel PTFE
Plating Finish: NF	Olive Drab Cadmium
Contacts	Copper alloy, 50 µInch gold plated
D38999 Inserts	Thermoplastics
Interfacial Seals, 38999 only	Elastomer, Fluorosilicone
Optical Ferrules & Sleeves	Zirconia, Ceramic
Insulators	Liquid crystal polymer (LCP)
Contact retention clip	Beryllium copper alloy
Seal, O-rings	Fluorosilicone rubber
Seal	Silicone elastomer
Spring	Nickel-plated beryllium copper
PC tail contacts	Copper alloy/gold plated
PCB flex	FR4 & Polyimide
Encapsulant	HYSOL EE4215
Solder type	RoHS compliant Sn95/Sb5 (232°C melting temp) & RoHS compliant Sn96.5/Ag3.0/Cu0.5 (217° melting)

Mechanical Outline Drawing



Marking

Glenair 06324
 050-513-MM-ZNU-0NNN
 DC 1434
 SN 123456

Marking

Assembly is identified with Manufacture's Name, Cage Code, Part Number, Date Code and Serial Number in approximate location shown.

Marking will conform to MIL-STD-130 (Arial font, 0.08" minimum height)

Drawing and location Not to Scale.