



050-208

PRODUCT BRIEF

4 Channel SMPTE HD-SDI

Copper to Fiber Media Converter

28VDC (DO-160 Audio Conducted Susceptibility Cat Z),
Lightning Strike (DO-160 level 3 waveform 3/3) on Power Connector
D38999 (ARINC801), D38999 (Quadrax), D38999 (Power)

REV	DESCRIPTION	DATE	APPROVED
3	Preliminary	01/07/2016	MF/RAS
4	Clarification of BIT, removal of UART option	07/18/2018	SZ/RAS
5	Clarification of internal connections on the J2 (power connector)	08/31/2018	SZ/RAS
6	Add option for 2-channel version	10/31/2018	RAS/GC
7	Add UID Data Matrix specs in the Marking section, FO Inspection/Cleaning Tools	01/28/2019	YA/RAS
8	Updated Compliance Table	3/15/2019	RAS

BF15U2-1953

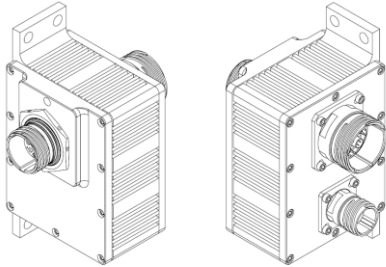
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050-208 PRODUCT BRIEF

**4-Channel SMPTE HD-SDI Media Converter, Flange Mount
100 Ohm Input and Output**



4-Channel SMPTE HD-SDI Copper to Fiber Media Converter



The Glenair 050-208 is a SMPTE Copper to Fiber Optic Media Converter which extends the reach between the camera and the video display or data recorder. This media converter is configured as either transmitter, converting 100 Ohm electrical SMPTE signals to fiber, or as a receiver, converting fiber optic signals into 100 Ohm electrical SMPTE signals. It comes in either a 2-Channel or 4-Channel option. The media converter incorporates a power supply power supply which is designed to accept a wide DC input voltage range, 18V to 36V and dirty 28V power as defined in DO-160. The 050-208 is designed for harsh environments and incorporates electronics in an environmentally sealed enclosure that incorporates three environmental M38999 connectors. High Speed HD-SDI Signal I/O passes through 100 Ohm quadrax contacts in a 38999 shell. Fiber Optic I/O passes through a 38999 using ARINC 801 contacts for multi-mode fiber applications. Power supply passes through 38999 using standard #22HD pins.

KEY FEATURES/BENEFITS

- 850nm Lasers for HD-SDI
- GaAs PIN PD for HD-SDI
- Wide Input Voltage Range: 18-36V
- HD-SDI Input through 100-Ohm quadrax contacts
- Active User Adjustable Equalization to optimize for cable length
- Power Input DO160 compliant to:
 - Lightning Strike Category A3J3XX
 - Voltage Spike Category A
 - Audio Frequency Conducted Susceptibility input, Category Z

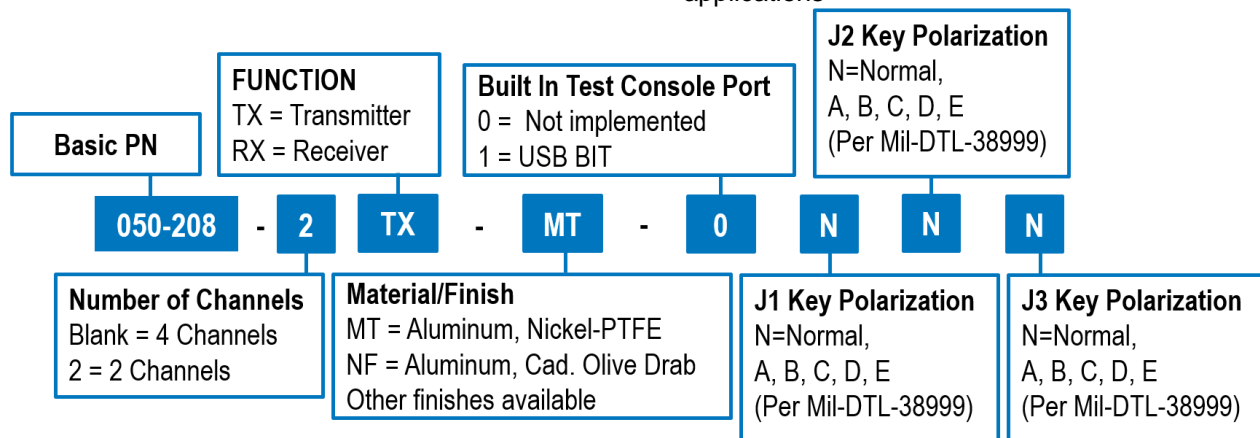
- IP67 in mated condition
- 2-Channel or 4-Channel Option
- M38999 Quadrax & pin for Signal, BIT and service port
- M38999 Power
- M38999 ARINC 801 for Fiber Optic
- Flange Mount

OPTIONAL FEATURES

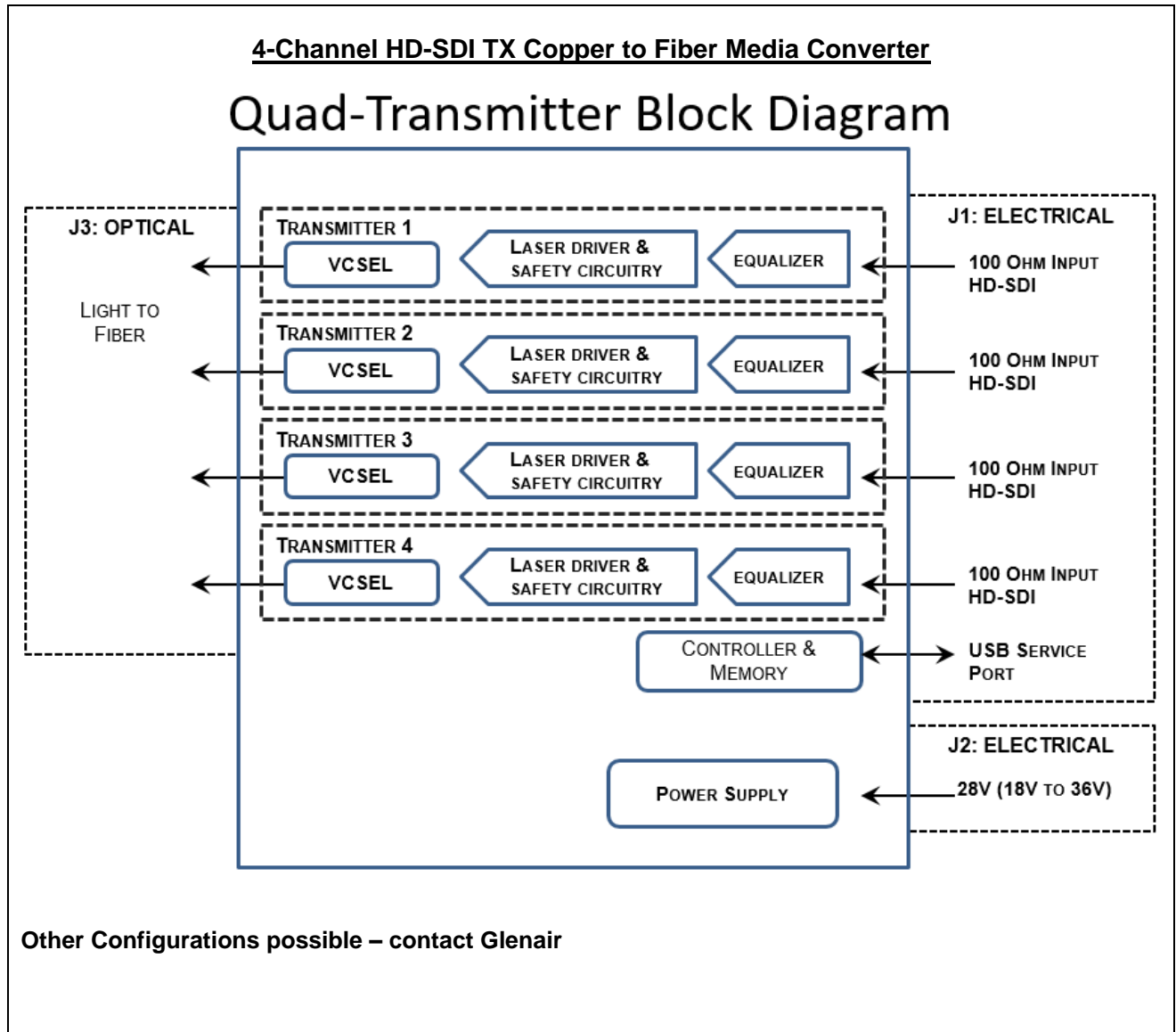
- Built In Test Console Port accessible via USB2.0

APPLICATIONS

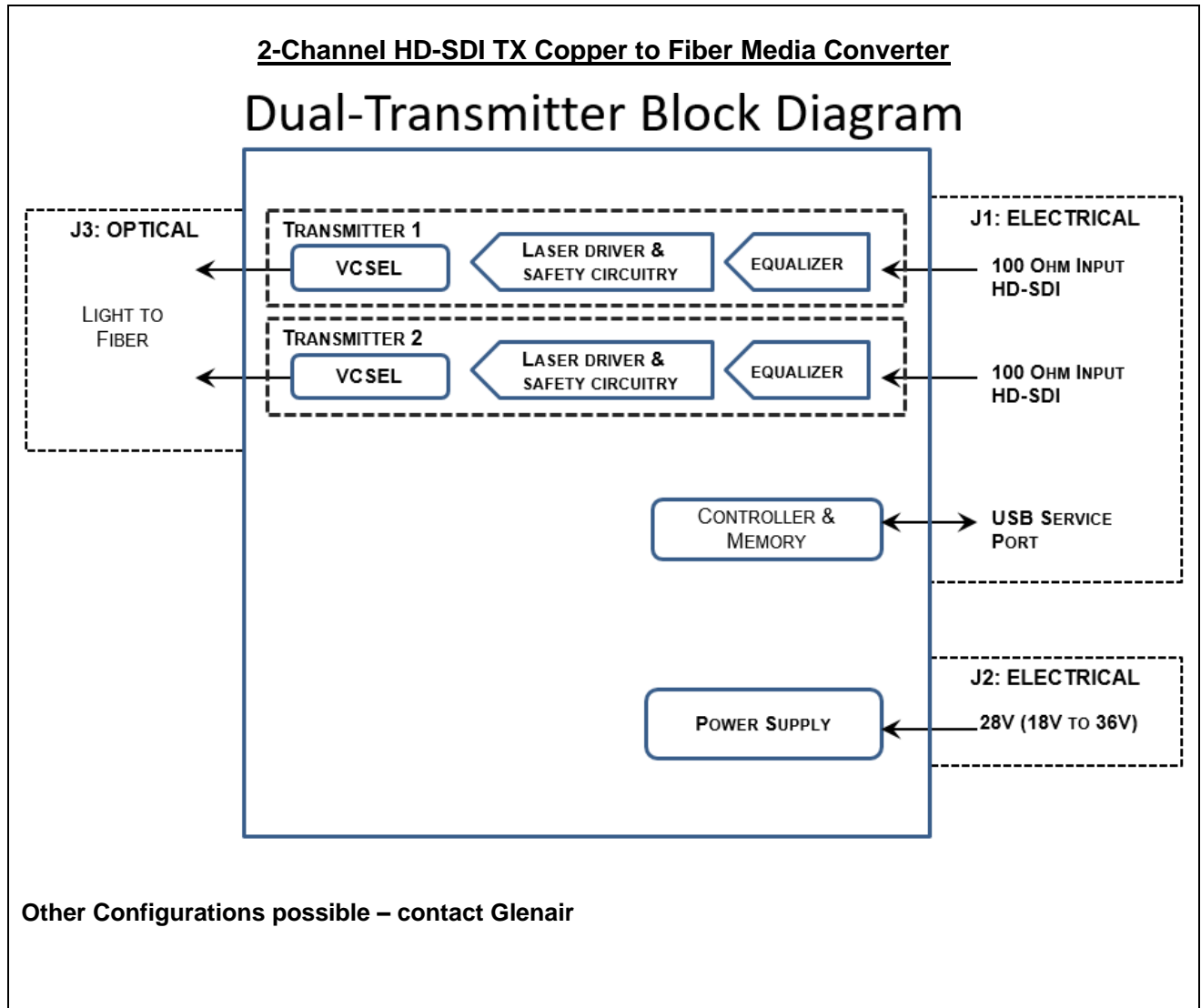
- Harsh Environment such as: Airborne, Tactical, Railway, Industrial, Oil and Gas and Shipboard applications



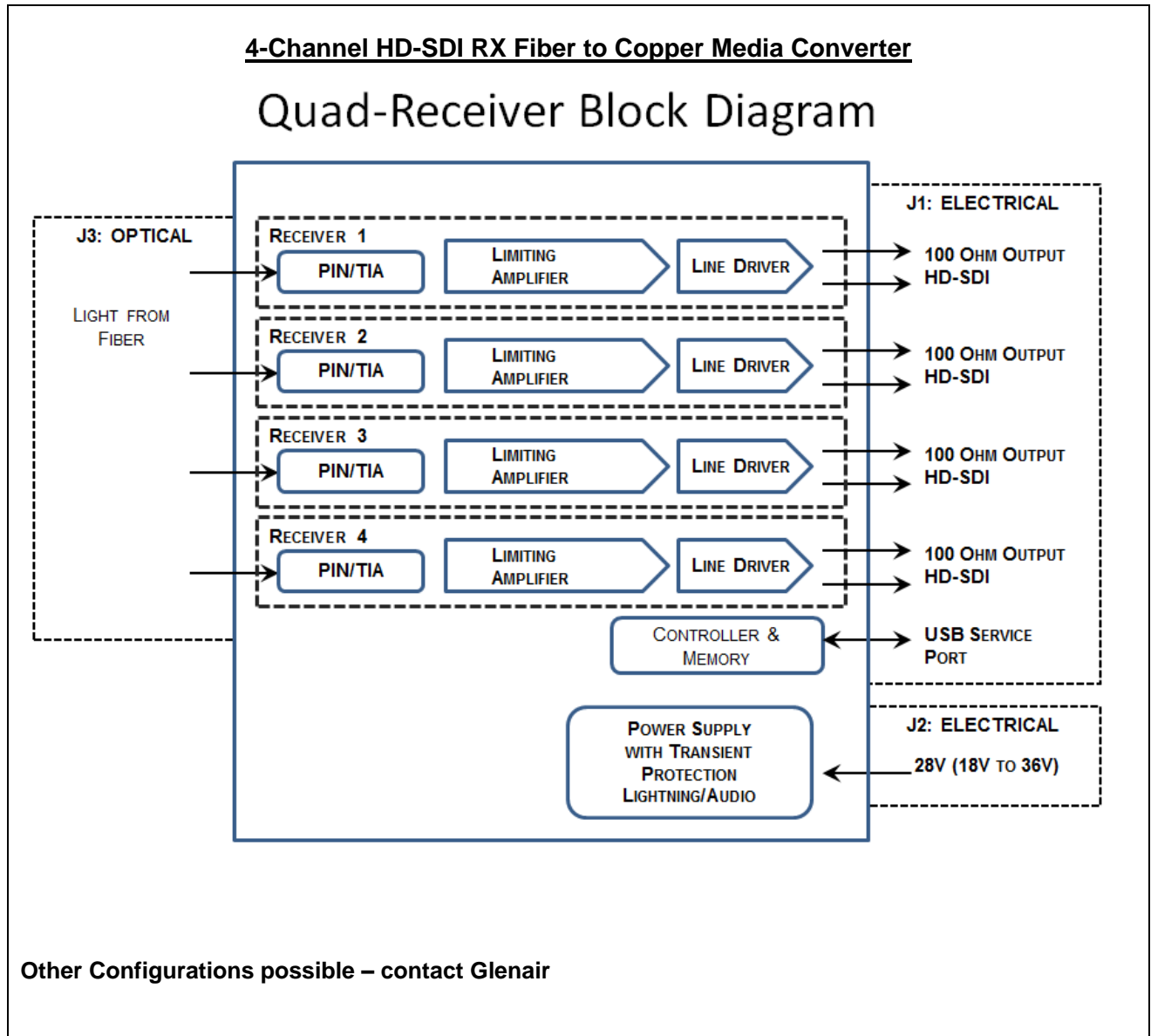
Functional Block Diagram



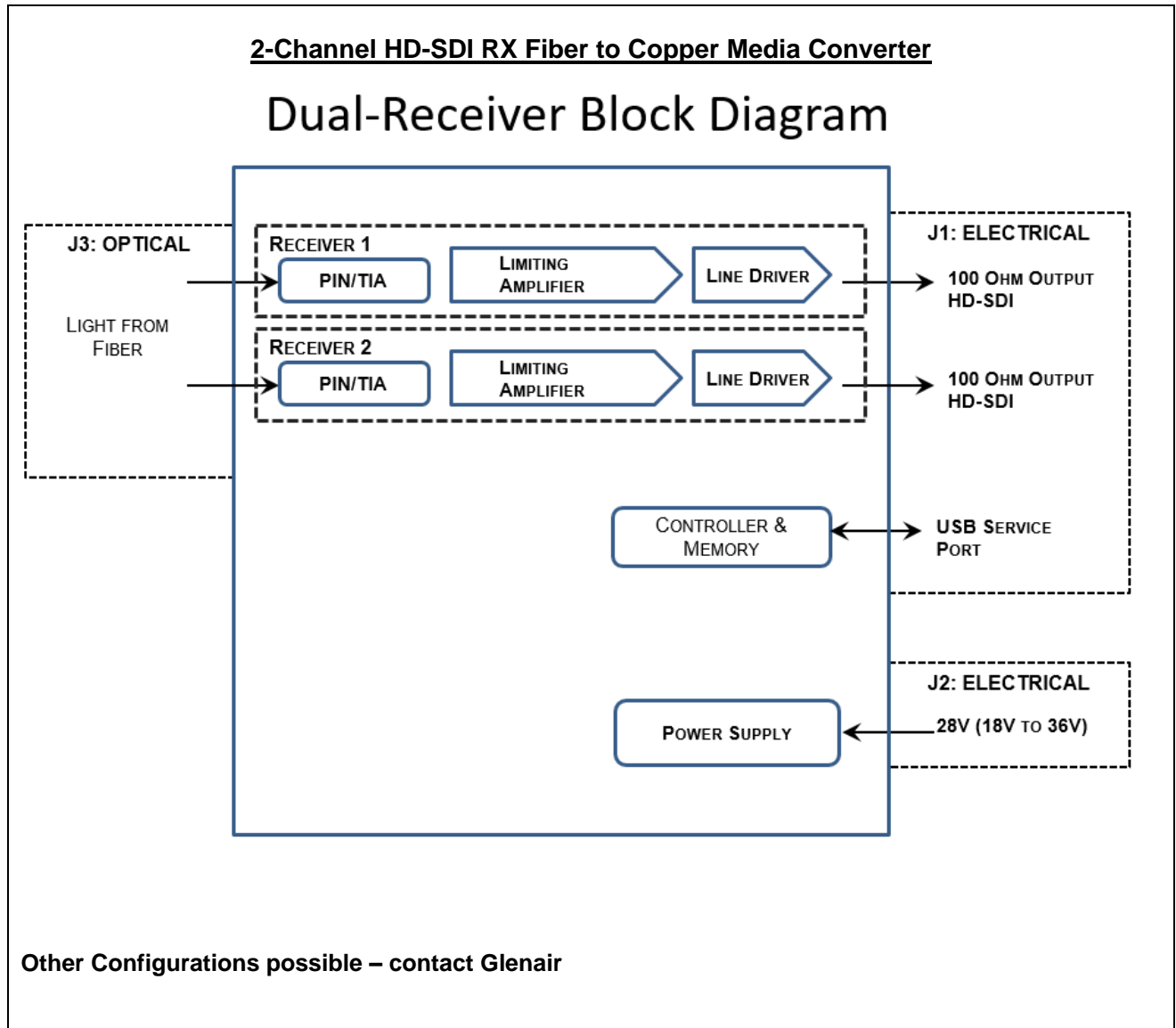
Functional Block Diagram (continued)



Functional Block Diagram (continued)




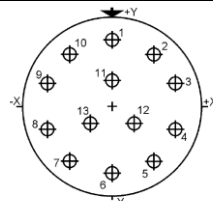
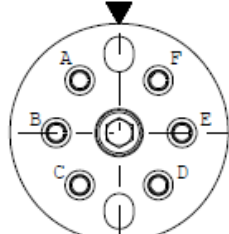
Functional Block Diagram (continued)



050-208 PRODUCT BRIEF
4-Channel SMPTE HD-SDI Media Converter, Flange Mount
100 Ohm Input and Output



Connectors

NAME	Insert Arrangement	Function	Media Converter	Mating PLUG Connector
J1		Electrical Signal, Status and Built In Test (BIT)	D38999 Series III type, 19Q-18 14X SIZE 22D Pins 4X SIZE 8 QUADRAX Pins (AS39029/119)	Generic PN D38999/26#F18SN type with Quadrax polarization Glenair PN 257-606-G6##19-18SN
J2		Power	D38999 Series III type, 11-35 13X SIZE 22D Pins	Generic PN D38999/26#B35SN Glenair PN 233-105-G6##11-35SN
J3	 ARR. 15-6 SHELL SIZE 15	Fiber Optic Signal	D38999 Series III Insert Arrangement per ARINC 801 <u>CONTACTS</u> 181-076-P-126	Glenair PN 180-159##06-15-6N-R (D38999 Style Plug, ARINC 801 15-6 arrangement) <u>CONTACTS:</u> Glenair PN 181-076-P-126 126.0 micron, pull proof design, MMF

Note: # = Environmental Class (Material/Finish)

Built In Test (BIT) Functionality - Optional Features

Built in test Monitor and Control functions, contact factory for details

050-208 PRODUCT BRIEF
4-Channel SMPTE HD-SDI Media Converter, Flange Mount
100 Ohm Input and Output



Ratings and Specifications

OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Units	Notes
Operating Temperature	T _{op}	-40		+85	°C	
Supply Voltage	V _{cc}	18	28	36	V	
Supply Current	I _{cc}		100	150	mA	

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typ	Max	Units	Notes
Storage Temperature	T _s	-55		+100	°C	
Supply Voltage	V _{cc}	-0.4		40	V	

OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Units	Notes
Operating Temperature	T _{op}	-40		+85	°C	
Supply Voltage	V _{cc}	18	28	36	V	
Supply Current	I _{cc}		100	150	mA	

ELECTRO-OPTICAL CHARACTERISTICS – TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Units	Notes
Optical Output Power	P _{OUT}	-8	-5	-3	dBm	850nm VCSEL, 1.5 Gbps
Extinction Ratio	E _r	8	10		dB	1.5Gbps
Optical Wavelength	λ _{OUT}	830	850	860	nm	
Spectral Width, rms	Δλ			0.85	nm	
Relative Intensity Noise	RIN			-117	dB/Hz	
Timing Jitter	T _J			1	UI	SMPTE 292, 1.5 Gbps, Color bar
Alignment Jitter	A _J			0.2	UI	SMPTE 292, 1.5 Gbps, Color bar
Transmitter Differential Input Impedance	Z _{in}		100		Ohms	AC coupled Internally
Differential Input Voltage	V _{in_d}	250		2200	mV _{p-p}	CML, 100 ohm



Ratings and Specifications - (continued)

COMPLIANCE SPECIFICATIONS

CHARACTERISTIC	Standard	Condition	Notes
Mechanical Shock, Operating	MIL-STD-810	20g	11 ms
Mechanical Shock, Survival	MIL-STD-810	40g	11 ms
Mechanical Vibration	MIL-STD-810	30g rms	Per Addendum
Power Input	DO-160G, Section 16	28VDC, Category Z	No damage, Normal Operation (BER free) before and after test
Voltage Spike	DO-160G, Section 17	Category A	No damage, Normal Operation (BER free) before and after test
Power supply, Audio Frequency Conducted Susceptibility	DO-160G, Section 18	Category Z	Normal Operation (BER free) in the presence of "Dirty Power"
Induced Signal Susceptibility	DO-160G, Section 19	Category Z	No damage, Normal Operation (BER free) before and after test
RF Frequency Susceptibility Conducted Susceptibility	DO-160G Section 20.4	Category R	
RF Frequency Susceptibility Radiated Susceptibility	DO-160G Section 20.5	Category R	
Emission of Radio Frequency Energy Conducted Emissions	DO-160G, Section 21.4	Category M	
Emission of Radio Frequency Energy Radiated Emissions	DO-160G, Section 21.3	Category M	
Lightning Strike	DO-160G, Section 22	Category A3J3XX	Applies only to J2 (Power) No damage, Operate error free before and after application of the pin injection tests. Will operate error free during shielded cable bundle injection tests
ESD	MIL-STD-883	Class II	2200V HBM
Mating Durability	MIL-DTL--38999/20	500 Cycles	
Flame Resistance	EIA364-104		30 seconds
Damp Heat	EIA364-321		240 hours
Eye Safety	CDRH and IEC-825	Class 1 Laser Product	



Ratings and Specifications - (continued)

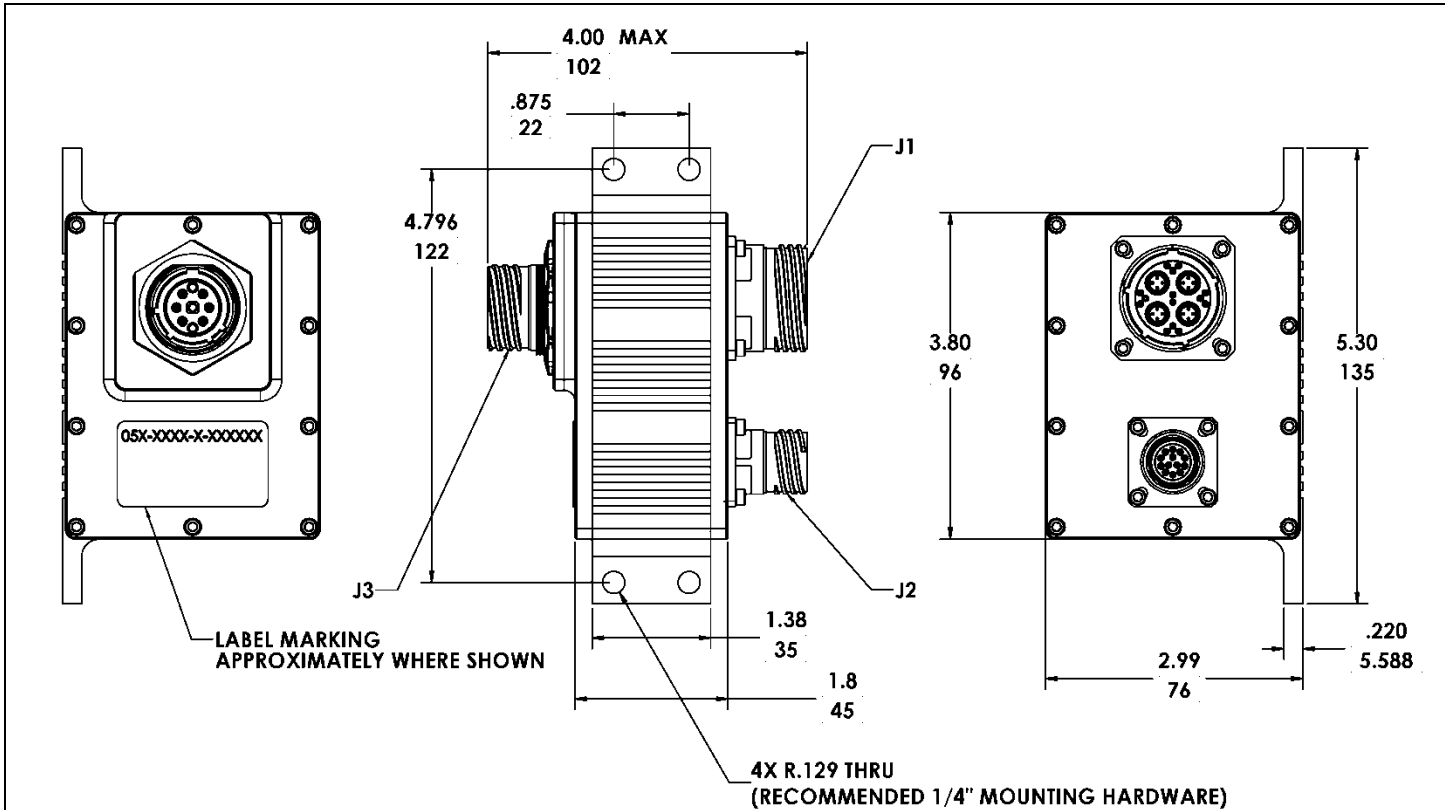
Material/Finish

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, Fluorosilicon
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: Connector PC Tails to PCBA	Sn63Pb37 and/or Sn60Pb40
Solder type	RoHS compliant Sn95/Sb5 (232°C melting temp) & RoHS compliant Sn96.5/Ag3.0/Cu0.5 (217° melting)

050-208 PRODUCT BRIEF
 4-Channel SMPTE HD-SDI Media Converter, Flange Mount
 100 Ohm Input and Output



OUTLINE DRAWING



Dimensional Tolerances Unless specified otherwise:

- 0.x ± 0.1"
- 0.xx ± 0.03"
- 0.xxx ± 0.015"

Marking

Assembly is identified with a label in the approximate marking location as shown. The label contains Manufacturer's Name, Cage Code, Part Number, Date Code and Serial Number. The label also includes a UID to report the part number and the serial part number for tracing purposes. The UID is a Construct Number 2 MIL-STD-130N Data Matrix Symbol using ECC 200 encoding/decoding format.

Weight:

Description	Weight	Comments
050-208-TX 4 Channel SMPTE Transmitter	1.45 lbs	Preliminary computer modeled calculation. This will updated to include maximum weights after manufacturing units. Calculations exclude dust caps.
050-208-RX 4 Channel SMPTE Receiver	1.45 lbs	

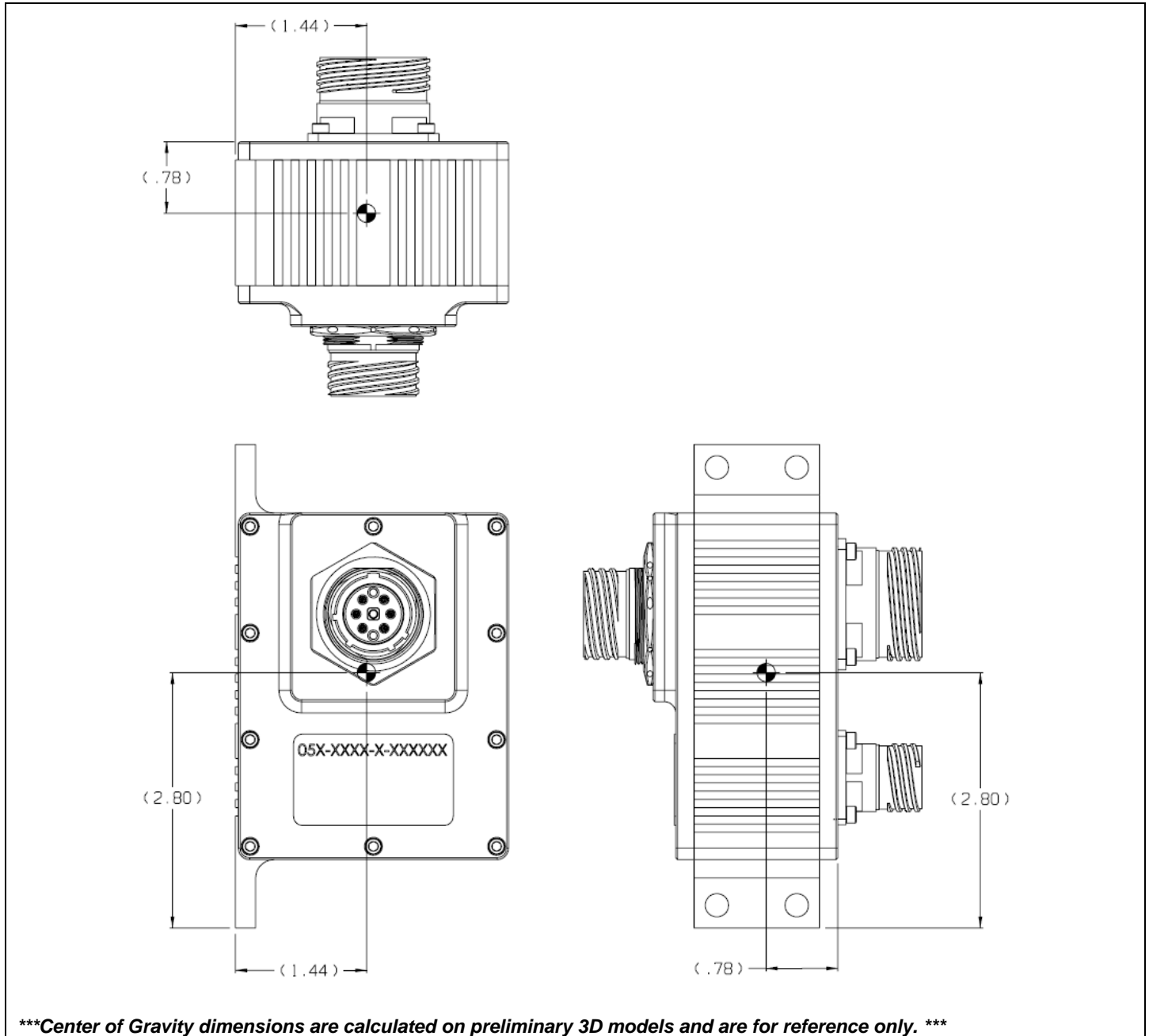
Connectors will be covered with protective caps at time of shipment

Please contact Glenair for other configurations

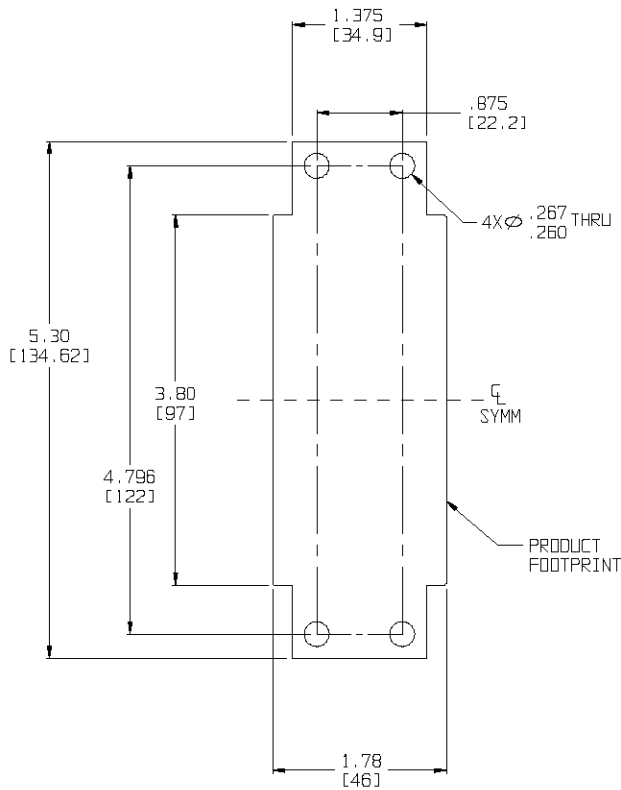
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Center of Gravity (Preliminary Calculation)



MOUNTING HOLE LOCATIONS



RECOMMENDED MOUNTING HOLES FOR BASEPLATE
1/4" HARWARE REQUIRED FOR MOUNTING

Dimensional Tolerances Unless specified otherwise:

0.x ± 0.1"

0.xx ± 0.03"

0.xxx ± 0.015"



Recommended Inspection & Cleaning Tools/Kits

The following recommendations are suggested for the 050-208 Media Converter:

- **GBS-1001 Inspection Kit (GIT-003 tip for ARINC 801 fiber contacts is included).**
- **GCLT-H200 or GCLT-HA125 cleaning tool for ARINC 801 system.**

GBS1001 Inspection Probe with USB Adapter and Fiber Chek 2 Software



How To Order

GBS1001

Basic Part Number Includes:

- *Inspection probe with USB adapter*
- *Fiber Chek 2 Software*

Comes with

(installed on the probe):

GIT-003 Universal 1.25mm patch cord

The GBS1001 is the only inspection probe today with a high resolution, all digital sensor and USB2 video stream which delivers high-resolution uncompressed images directly to your personal computer.

GBS1001 Specifications

Weight	.11 Kg / .25 lb
Resolution	Better than 1.5 Microns
Cable	Integrated USB 2.0 coil cable 2.5' relaxed, 10.5' fully extended
Certification	CE
Warranty	1 year

Fiber Chek Software

Fiber Optic Analysis Program

Fiber Chek is an integrated hardware/software package engineered with the single purpose of critically and consistently grading fiber end-faces. Works hand in hand with the Quick Capture Analog Probe for visual inspection, taking pictures and testing fibers.

- Automatic debris and defect detection, including fine scratches
- Measures epoxy ring for out-of-tolerance conditions
- Inspection results, including image data, can be printed or archived
- Utilizes industry standards or user defined threshold settings

Recommended Inspection & Cleaning Tools/Kits – (Continued)

Dry action cleaning tool for ARINC 801 systems



Dry action cleaning tool for ARINC 801 test adapters



- A simple push motion engages tool
- Audible click when tool is fully engaged
- Durable — over 525 engagements per tool
- Crush resistant to over 250N
- Impact resistant to survive drops over 1.5M