050-355

DATA SHEET

SIZE 8 ELECTRO-OPTICAL CONTACT TRANSMITTER OR RECEIVER
MULTI-MODE, 1.25MM FERRULE ARINC 801
FRONT INSERT – FRONT RELEASE
PINOCCHIO NOSE VARIANT OF THE 050-304

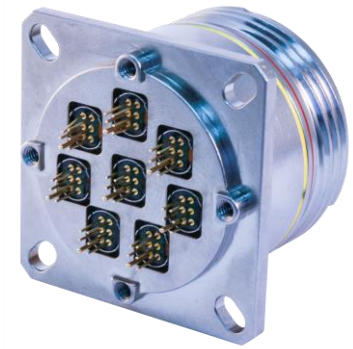
REV	DESCRIPTION	DATE	APPROVED
A	Released	08/11/2016	GC/SZ/NH
B	Per DCN70264; General Update	04/26/2018	SZ/NH/GC
C	Per DCN72285; Update mating connector P/N for J8 configuration to D38999/26FJ8SN	09/05/2018	RAS/GC
D	Per DCN72776; Add 050-399 and 0500-3015 contact options	10/30/2018	RAS/GC
E	Per DCN74572; Update the color picture. Update the Contacts P/Ns in Table II. Add PCB layouts for all possible arrangements. Add FO Inspection/Cleaning tools.	02/21/2019	YA/CA

BF12U2-2817

050-355 DATASHEET

D38999 Series III Type Active Receptacle Connector with Glenair Size #8 Opto-Electronic Contacts

MIL-DTL-38999 type Receptacle Connector with Size 8 Opto-Electronic Contacts



Glenair 050-355 series of Active Opto-electronic panel mount connectors offers customers the power to convert from electrical to fiber optic signals within a D38999 connector to support high speed fiber optic transmissions in harsh environments. The 050-355s incorporate size 8 active contacts in one of the three standard configurations to enable optical Transmitters, optical Receivers, or Optical Transceivers. The opto-electronic performance parameters of the 050-355 are defined by the performance of the size 8 contacts that are incorporated. For example, if one incorporates a 4.25Gbps contact into the connector then each of the contacts will be 4.25Gbps capable.

The fiber optic signal that is generated within the 050-355 active connector is transmitted via ARINC 801 fiber optic connector interface to fiber optic cable systems using a standard D38999 plug connector that has been fitted with adapters to incorporate ARINC 801 fiber optic contacts. For example a D38999 plug connector with size 8 contact cavities, such as a 25-08 insert arrangement (per MIL-DTL-1560) can be fitted with Glenair ARINC 801 contact adapters that convert this electrical connector into a fiber optic connector that enables it to properly house and retain contacts at the required optical interface to achieve very repeatable low loss optical transmission characteristics.

The 059-0001 adapter converts D38999 size 8 cavities (twinax, coax, or quadrax) into ARINC 801 LuxCis fiber optic connectors. For more information, please refer to 059-0001 sales drawing.

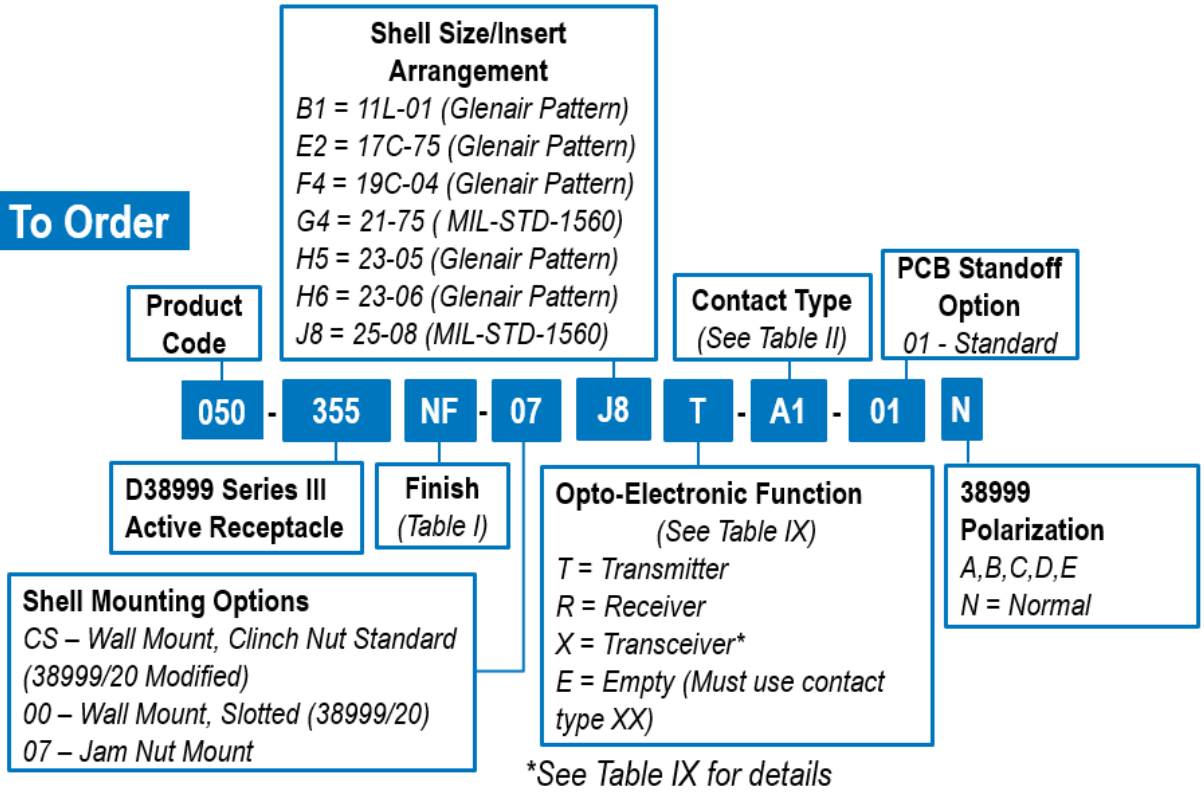
KEY FEATURES/BENEFITS

- MIL-STD-1560 arrangements & Glenair arrangements
- Arrangements from 1 - 8 Size 8 cavities available, contact factor for custom arrangements
- May be configured in 1 of 3 standard configurations: Transmitter, Receiver or Transceiver
- 050-301 contacts to support ARINC 801 1.25mm fiber optic interconnect,100Mbps to 4.25Gbps per contact
- 050-367 contacts to support ARINC 801 1.25mm fiber optic interconnect, 3G-SDI and HD-SDI
- 059-0001 Adapters available to support converting PLUG D38999 Size 8 cavities into ARINC 801 fiber optic compatible connectors
- PC tail electrical interfaces or custom micro-coax or flex to PCB interfaces available
- Connector rear face contains standoffs to allow direct mechanical attachment to PCB

APPLICATIONS

- Harsh Environment such as: Airborne, Tactical, Railway, Industrial, Oil and Gas and Shipboard applications
- Ethernet, Fast Ethernet, Gigabit Ethernet, AFDX, 1x/2x/4x Fiber Channel, DVI, HDMI, SFDP, Serial Rapid I/O (sRIO) and other high speed communication all over Multimode Fiber

How To Order



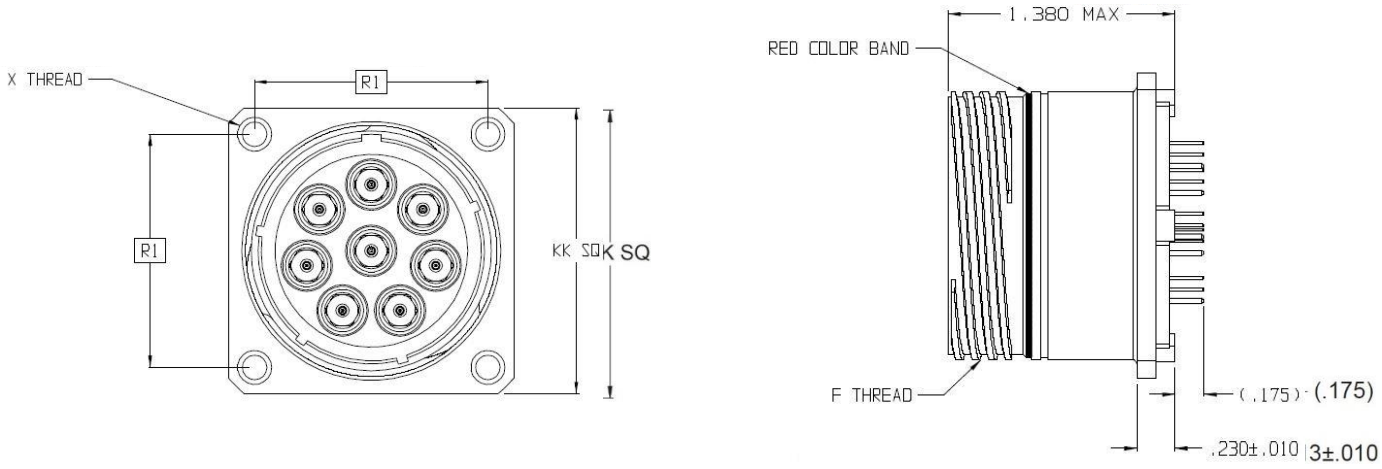
Notes:

- This connector is designed to meet applicable dimensional, environmental, and performance characteristics of D38999 Series III per appropriate material class
- For opto-electric performance specifications, see Table II
- This connector mates with standard MIL-DTL-38999/26 plug connector. See Table X for applicable part numbers
- For cleaning tools and instructions, see GCLT-H125 in Glenair Fiber Optic Catalog
- Receptacle and plug cavity adapter contact removal tool: M81969/14-12
  Plug optical contact insertion/removal tool: M81969/14-03

Table I: Material And Finish		
SYM	**Material**	**Finish Description**
M	Aluminum	Electroless Nickel
MT		Nickel – PTFE
NF		Cadmium, Olive Drab
ZR		Zinc Ni, Black (Tri-Valent CR)
MA		Electroless Nickel Plate, Matte
Z1	Stainless Steel	Passivate
ZL		Electro-Deposited Nickel

Table II: Contact Type				
Contact Type	**Contact Option**	**Contact P/N**	**Description**	**Contact Type Description**
A (Multimode 50/125 & 62.5/125)	1	050-301-01-T	1.25 Gbps Transmitter	050-301 series opto-electronic size #8 contact, 100Mbps – 5.00Gbps, 850nm VCSEL Transmitter or PIN/TIA Receiver, 1.25mm LuxCis optical interface that mates with ARINC 801 terminus**
		050-301-01-R	1.25 Gbps Receiver	
	2	050-301-02-T	2.50 Gbps Transmitter	
		050-301-02-R	2.50 Gbps Receiver	
	3	050-301-03-T	3.20 Gbps Transmitter	
		050-301-03-R	3.20 Gbps Receiver	
	4	050-301-04-T	4.25 Gbps Transmitter	
		050-301-04-R	4.25 Gbps Receiver	
	5	050-301-05-T	5.00 Gbps Transmitter	
		050-301-05-R	5.00 Gbps Receiver	
C (Multimode 50/125 & 62.5/125)	1	050-367-1-T	HD-SDI Transmitter	050-367 series opto-electronic size 8 contact, HD-SDI and 3G-SDI, 1.25mm LuxCis optical interface that mates with ARINC 801 terminus
		050-367-1-R	HD-SDI Receiver	
	2	050-367-T	3G-SDI Transmitter	
		050-367-R	3G-SDI Receiver	
D (Multimode 50/125 & 62.5/125)	1	050-399-01-TX	DC to 1 Mbps TX	050-399 series opto-electronic size 8 contact, DC to 1 Mbps, 1.25mm LuxCis optical interface that mates with ARINC 801 terminus
		050-399-01-RX	DC to 1 Mbps RX	
E (Multimode 50/125 & 62.5/125)	1	0500-3015-01-TX	DC to 50 Mbps TX	050-399 series opto-electronic size 8 contact, DC to 50 Mbps, 1.25mm LuxCis optical interface that mates with ARINC 801 terminus
		0500-3015-01-RX	DC to 50 Mbps RX	
X	X	N/A	No Contact, Empty	

Active MIL-DTL-38999 type Wall-Mount Clinch Nut Receptacle



CS – Wall Mount, Clinch Nut (38999/20 Modified)

Table V: Dimensions for Clinch Nut Receptacles					
Shell Size Code	**Shell Size**	**F Thread Per M38999/20**	**X Thread**	**R1 Per D38999**	**KK SQ ± .010**
B	11	.7500-.1P-.3L-TS-2A	#4-40	0.812 (20.6)	1.200 (30.5)
E	17	1.875-.1P-.3L-TS-2A	#4-40	1.062 (27.0)	1.450 (36.8)
F	19	1.2500-.1P-.3L-TS-2A	#4-40	1.156 (29.4)	1.550 (39.4)
G	21	1.3750-.1P-.3L-TS-2A	#4-40	1.250 (31.8)	1.650 (41.9)
H	23	1.5000-.1P-.3L-TS-2A	#6-32	1.375 (34.9)	1.770 (45.0)
J	25	1.6250-.1P-.3L-TS-2A	#6-32	1.500 (38.1)	1.900 (48.3)

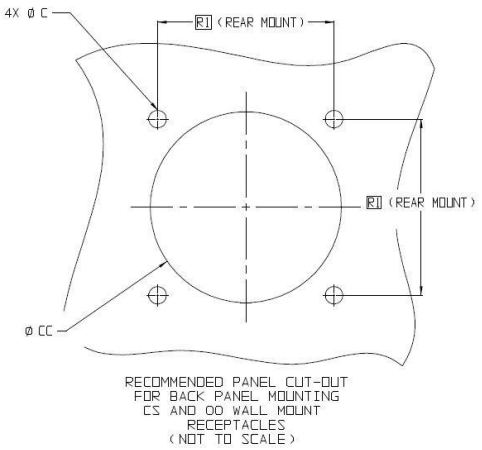
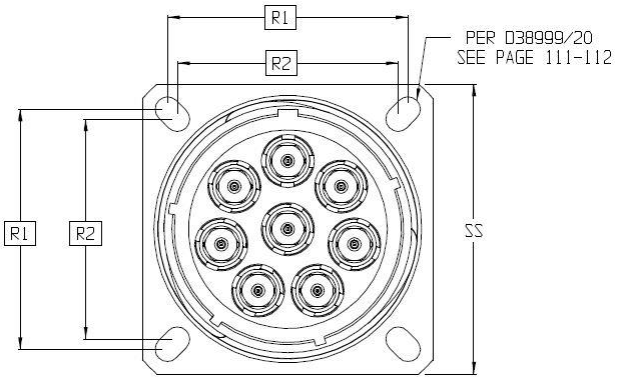
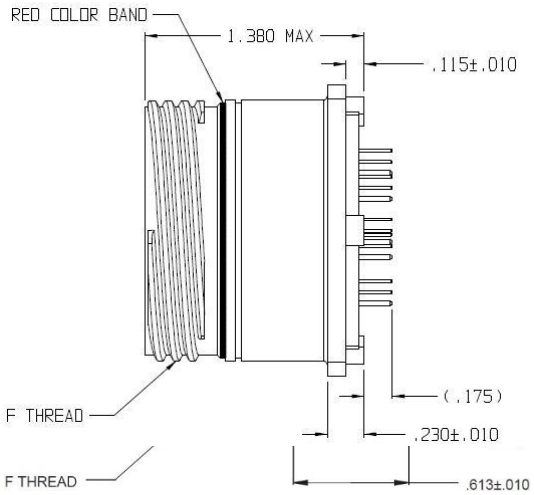


Table VI: Recommended Panel Cut-Out			
Shell Size Code	**Shell Size**	**ØC ±.005**	**ØCC min**
A	11	0.128 (3.3)	0.796 (20.2)
E	17	0.128 (3.3)	1.219 (31.0)
F	19	0.128 (3.3)	1.297 (32.9)
G	21	0.128 (3.3)	1.422 (36.1)
H	23	0.154 (3.9)	1.547 (39.3)
J	25	0.154 (3.9)	1.672 (42.5)

Active MIL-DTL-38999 type Wall-Mount Slotted Receptacle





00 – Wall Mount, Slotted (38999/20)

Table VII: Dimensions for Slotted Receptacles					
Shell Size Code	**Shell Size**	**F Thread Per M38999/20**	**R1 Per D38999**	**R2 Per D38999**	**SS SQ ± .010**
B	11	.7500-.1P-.3L-TS-2A	0.812 (20.6)	0.719 (18.3)	1.032 (26.2)
E	17	1.875-.1P-.3L-TS-2A	1.062 (27.0)	0.969 (24.6)	1.311 (33.3)
F	19	1.2500-.1P-.3L-TS-2A	1.156 (29.4)	1.062 (27.0)	1.437 (36.5)
G	21	1.3750-.1P-.3L-TS-2A	1.250 (31.8)	1.156 (29.4)	1.563 (39.7)
H	23	1.5000-.1P-.3L-TS-2A	1.375 (34.9)	1.250 (31.8)	1.689 (42.9)
J	25	1.6250-.1P-.3L-TS-2A	1.500 (38.1)	1.375 (34.9)	1.811 (46.0)

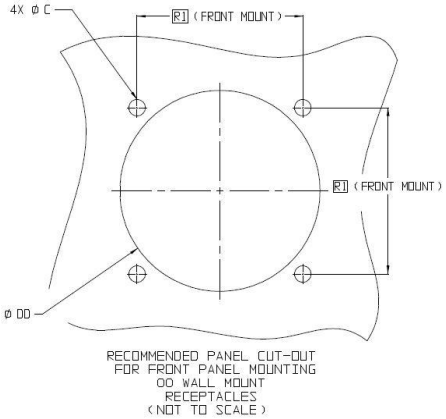
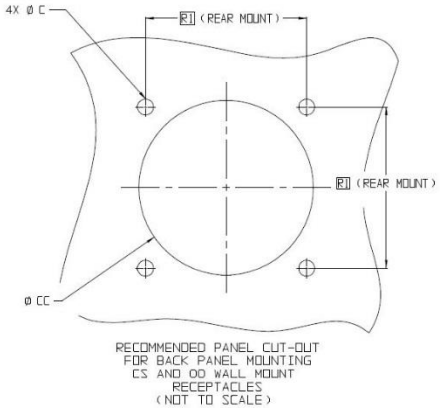
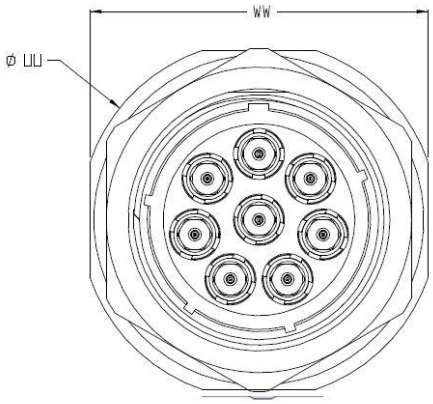
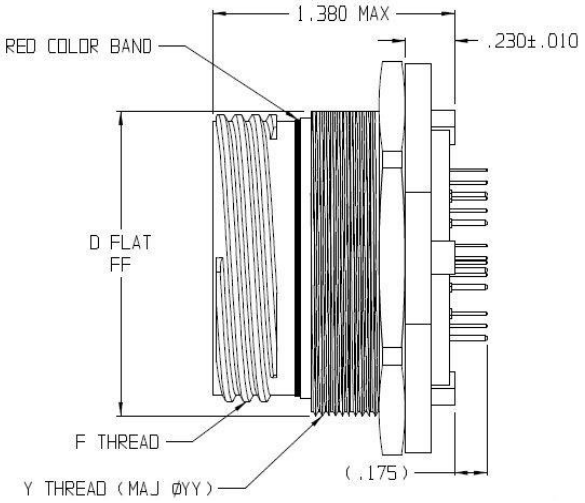


Table VIII: Recommended Panel Cut-Out				
Shell Size Code	**Shell Size**	**ØC ±.005**	**ØCC min**	**ØDD min**
B	11	0.128 (3.3)	0.796 (20.2)	0.800 (20.3)
E	17	0.128 (3.3)	1.219 (31.0)	1.170 (29.7)
F	19	0.128 (3.3)	1.297 (32.9)	1.275 (32.4)
G	21	0.128 (3.3)	1.422 (36.1)	1.275 (32.4)
H	23	0.154 (3.9)	1.547 (39.3)	1.525 (38.7)
J	25	0.154 (3.9)	1.672 (42.5)	1.700 (43.2)



Active MIL-DTL-38999 type Jam Nut Receptacle

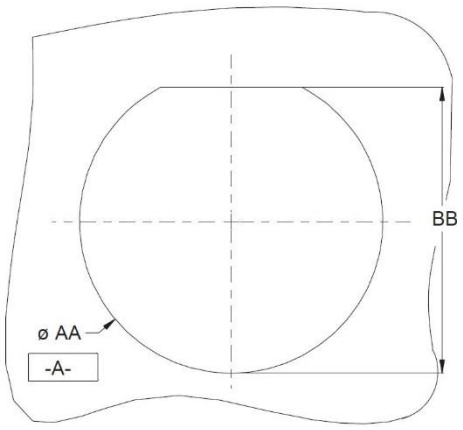




07 – Jam Nut Mount (38999/24)

Table X: Dimensions for Slotted Receptacles					
Shell Size Code	**Shell Size**	**F Thread Per M38999/20**	**Y Thread Per M38999/24**	**ØUU ± 0.010**	**WW sq ± 0.010**
B	11	.7500-.1P-.3L-TS-2A	M20 X 1.0-6g 0.100R	1.377 (35.0)	1.259 (32.0)
E	17	1.875-.1P-.3L-TS-2A	M32 X 1.0-6G 0.100R	1.752 (44.5)	1.625 (41.3)
F	19	1.2500-.1P-.3L-TS-2A	M35 X 1.0-6G 0.100R	1.937 (49.2)	1.822 (46.3)
G	21	1.3750-.1P-.3L-TS-2A	M38 X 1.0-6G 0.100R	2.063 (52.4)	1.940 (49.3)
H	23	1.5000-.1P-.3L-TS-2A	M41 X 1.0-6G 0.100R	2.190 (55.6)	2.073 (52.7)
J	25	1.6250-.1P-.3L-TS-2A	M44 X 1.0-6G 0.100R	2.311 (58.7)	2.189 (55.6)

Table XI: Recommended Panel Cut-Out			
Shell Size Code	**Shell Size**	**ØAA (min) Per M38999/24 ± .005**	**ØBB (min) Per M38999/24 ± .005**
B	11	0.128 (3.3)	0.796 (20.2)
E	17	0.128 (3.3)	1.219 (31.0)
F	19	0.128 (3.3)	1.297 (32.9)
G	21	0.128 (3.3)	1.422 (36.1)
H	23	0.154 (3.9)	1.547 (39.3)
J	25	0.154 (3.9)	1.672 (42.5)



RECOMMENDED PANEL CUT-OUT
FOR JAM NUT RECEPTACLE
(NOT TO SCALE)

Insert Arrangements and PCB tails

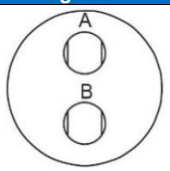
Arrangement B1

Arr. 11L-01
1X #8
Glenair Special

Recommended PCB Layout

Contact Position ID	Master Pin Position	
	X Position	Y Position
A	.000	.000

Arrangement E2

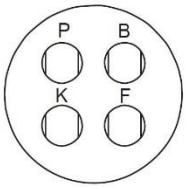


Arr. 17C-75
2X #8
Glenair Special

Recommended PCB Layout

Contact Position ID	Master Pin Position	
	X Position	Y Position
A	.000	+.187
B	.000	-.187

Arrangement F4

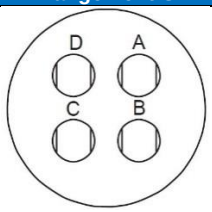


Arr. 19C-04
4X #8
Glenair Special

Recommended PCB Layout

Contact Position ID	Master Pin Position	
	X Position	Y Position
B	+.180	+.180
F	+.180	-.180
K	-.180	-.180
P	-.180	+.180

Arrangement G4

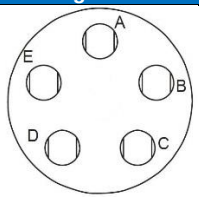


Arr. 21-75
4X #8
MIL-STD-1560C

Recommended PCB Layout

Contact Position ID	Master Pin Position	
	X Position	Y Position
A	+.180	+.180
B	+.180	-.180
C	-.180	-.180
D	-.180	+.180

Arrangement H5

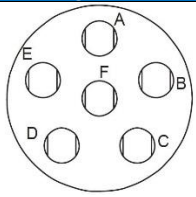


Arr. 23-05
5X #8
Glenair Special

Recommended PCB Layout

Contact Position ID	Master Pin Position	
	X Position	Y Position
A	.000	+.364
B	+.347	+.113
C	+.214	-.295
D	-.214	-.295
E	-.347	+.113

Arrangement H6



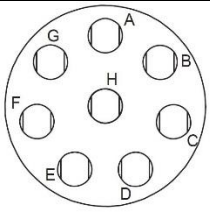
Arr. 23-06
6X #8
Glenair Special

Recommended PCB Layout

Contact Position ID	Master Pin Position	
	X Position	Y Position
A	.000	+.364
B	+.347	+.113
C	+.214	-.295
D	-.214	-.295
E	-.347	+.113
F	.000	.000

Insert Arrangements and PCB tails (continued)

Arrangement J8



Arr. 25-08
8X #8
MIL-STD-1560C

Recommended PCB Layout

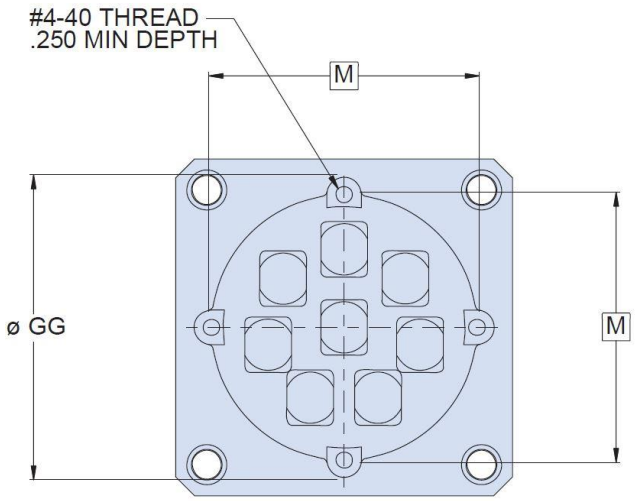
Contact Position ID	Master Pin Position	
	X Position	Y Position
A	.000	+.426
B	+.333	+.266
C	+.415	-.095
D	+.185	-.384
E	-.185	-.384
F	-.415	-.095
G	-.333	+.266
H	.000	.000

Function Assignments and Mating Connectors

Table IX: Function Assignments				
Insert Arrangement	**Contact Position ID**	**T = Transmitter**	**R = Receiver**	**X* = Transceiver**
B1	A	Transmitter	Receiver	N/A
E2	A	Transmitter	Receiver	Transmitter
	B			Receiver
F4	B	Transmitter	Receiver	Transmitter
	F			Receiver
	K			Transmitter
	P			Receiver
G4	A	Transmitter	Receiver	Transmitter
	B			Receiver
	C			Transmitter
	D			Receiver
H5	A	Transmitter	Receiver	Transmitter
	B			Receiver
	C			Transmitter
	D			Receiver
	E			Transmitter
H6	A	Transmitter	Receiver	Transmitter
	B			Receiver
	C			Transmitter
	D			Receiver
	E			Transmitter
	F			Receiver
J8	A	Transmitter	Receiver	Transmitter
	B			Receiver
	C			Transmitter
	D			Receiver
	E			Transmitter
	F			Receiver
	G			Transmitter
	H			Receiver
*Contact factory for other function assignments				

Table XII: Mating Connector P/N				
Receptacle Connector Ins. Arr.	**Mating Connector Description**	**Glenair P/N****	**Contact Adapter Type A*****	
			Qty	P/N
B1	Glenair Special	**233-217-G6?11-1BN**	1	**059-0001**
E2	Glenair Special	**233-217-G6?17-75BN**	2	**059-0001**
F4	Glenair Special	**233-217-G6?19-4BN**	4	**059-0001**
G4	D38999/26FG4SN	**233-217-G6?21-75BN**	4	**059-0001**
H5	Glenair Special	**233-217-G6?23-5BN**	5	**059-0001**
H6	Glenair Special	**233-217-G6?23-6BN**	6	**059-0001**
J8	D38999/26FJ8SN	**233-217-G6?25-8BN**	8	**059-0001**
** Replace **?** Material/Finish code from Table I. If unavailable, inquire about 233-105 as alternative. *** Must order indicated amount for complete plug connector. Contact adapters include respective contacts for each type				

Recommended PCB Layout



PCB Standoff Locations

Applicable to All Configurations

Table III: Dimensions for PCB Standoff Locations			
Shell Size Code	**Shell Size**	**M basic**	**Ø GG Max**
B	11	.550 (14.0)	.760 (19.3)
E	17	.920 (23.4)	1.130 (28.7)
F	19	1.025 (26.0)	1.235 (31.4)
G	21	1.025 (26.0)	1.235 (31.4)
H	23	1.275 (32.4)	1.485 (37.7)
J	25	1.450 (36.8)	1.600 (42.2)

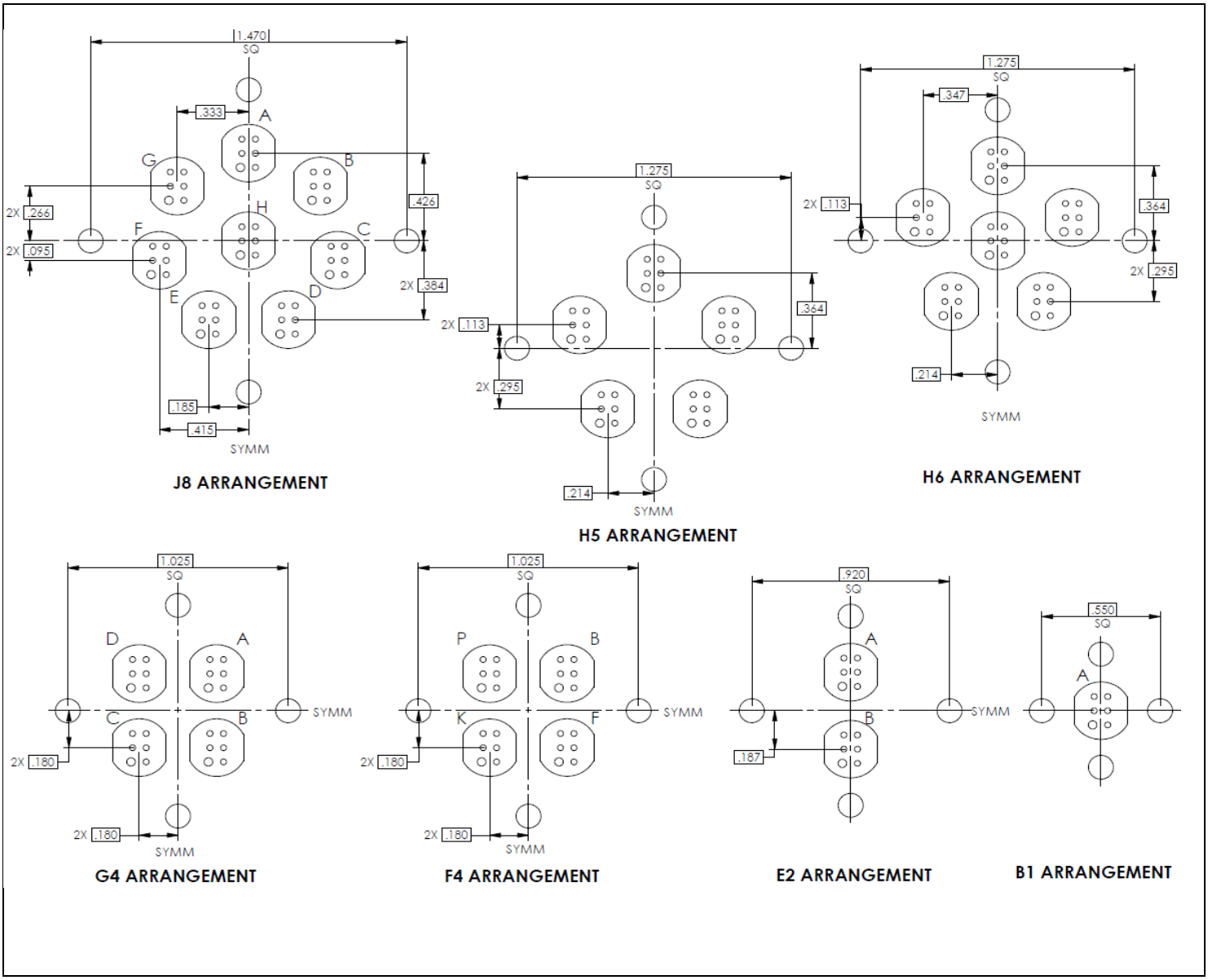
Table IV: Recommended PCB Hole Sizes for 050-301 and 050-367 Contacts		
	Ø J	**Ø L**
Solder	.028	.040
Mill-Max*	.039	.060
*Maximum PCB thickness to use Mill-Max contacts is .090” 5X 0566-2-15-15-21-27-10-0 1X 0305-2-15-80-47-27-10-0		

Table IV: Recommended PCB Hole Sizes for 050-399 and 0500-3015 Contacts	
	Ø J
Soldering	.028
Mill-Max*	.039
*Maximum PCB thickness to use Mill-Max contacts is .090” 3X 0305-2-15-80-47-27-10-0	

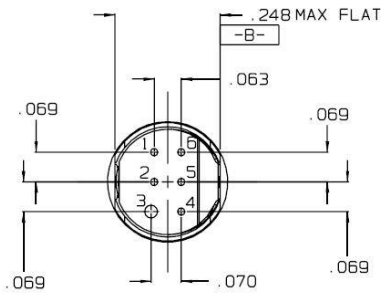
- **050-399 and 0500-3015 are active size #8 DC-Coupled opto-electronic contacts.**

Recommended PCB Layout (continued)

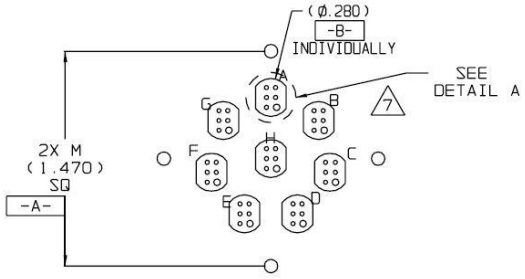
PCB layouts for different arrangemenets



Recommended PCB Layout (continued)

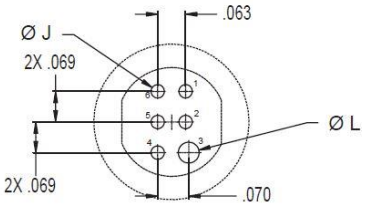


Size 8 Active Contact PC Tail Arrangement



J8 Arrangement Example Recommended PCB Cutout

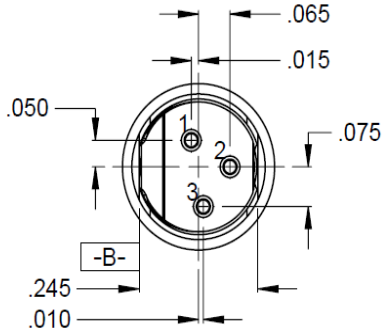
All diameters are ⌖ Ø .004 Ⓜ A



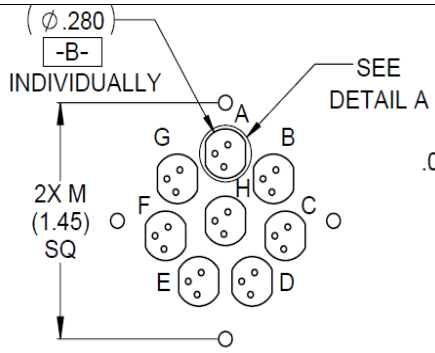
Detail A
Scale 3:1

All diameters are ⌖ Ø .004 Ⓜ B

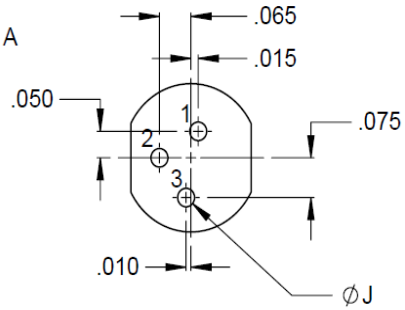
Rx



Size 8 Active Contact PC Tail Arrangement

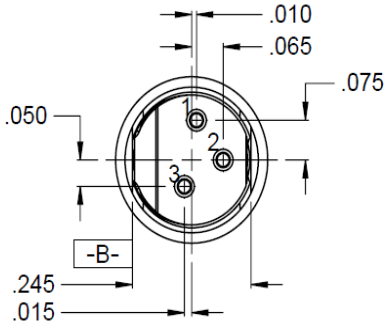


J8 Arrangement Example Recommended PCB Cutout

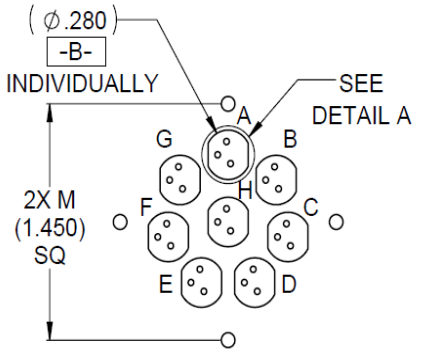


DETAIL A
SCALE 3 : 1

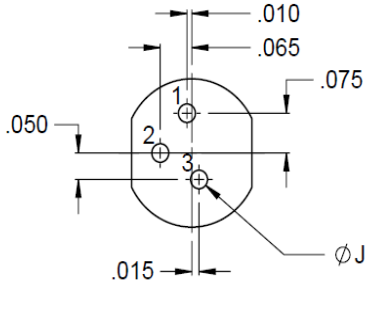
Tx



Size 8 Active Contact PC Tail Arrangement



J8 Arrangement Example Recommended PCB Cutout



DETAIL A
SCALE 3 : 1

Recommended Inspection & Cleaning Tools/Kits

The following recommendations are suggested for this product:

- **GBS-1001 Inspection Kit which includes GIT-003 tip for ARINC 801 fiber contacts.**
- **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**