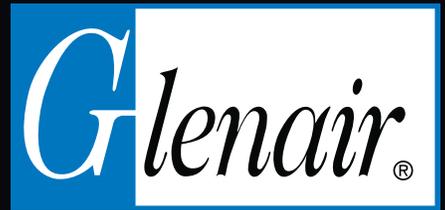


MISSION-CRITICAL
INTERCONNECT
SOLUTIONS



EXPANDED-BEAM FIBER OPTIC ASSEMBLIES · SERIES 185-002

Eye-Beam[®] GMA

IAW MIL-DTL-83526/20 and /21 · HMA Type Intermateable

JANUARY 2019

SERIES 185-002 EYE-BEAM® GMA CONNECTORS AND CABLES



M83526/21 type
Panel mount Configuration



M83526/20 type
Hermaphroditic Cable Plug Configuration



Available cable reels and
field-deployment technologies
including man-packable units



QUALITY ASSURANCE

Glenair is ISO 9001 and AS9100 certified and registered in North America; IRIS (International Railway Industry Standard), AS9100 SAE Aerospace and ISO 9001 certified and registered in Italy, and AS9100 certified and registered in the U.K. Glenair is qualified to hundreds of rigorously controlled mil-spec product and process certifications administered by the US government.

EYE-BEAM® GMA SERIES 185-002

HMA-type ball lens expanded beam connectors and cables

Featuring the industry's best performance—from insertion loss and return loss to mating durability

Ideally suited for use in harsh application environments such as geophysical exploration, military communications, industrial data transmission, and video broadcasts, Eye-Beam® GMA expanded beam connectors and cables are built in accordance with MIL-DTL-83526/20 and /21 and are fully intermateable with industry standard HMA type solutions. Sealed expanded beam interconnect technology resists water, mud, dust, oil and other chemicals contaminating the optical path and deteriorating system performance. The hermaphroditic design of the GMA interconnect eliminates the need for in-line adapters, and the environmentally resistant packaging reduces field maintenance and repair costs.

Eye-Beam GMA connectors are sold as parts of complete assemblies. Individual connectors require specialized termination, assembly, and cleaning processes. Customers are advised to consult with Glenair's fiber optic application engineering team before purchasing.

- Field-deployable system for both indoor and outdoor applications
- Beam expansion dramatically reduces loss due to contamination
- Large ball lens facilitates easy cleaning
- Fully intermateable with all MIL-DTL-83526 /20 and /21 compliant connectors
- 2 and 4-channel insert arrangements
- Singlemode and multimode versions, plus broad support for a wide range of standard and tactical military cables

MIL-DTL-83526 /20 & /21 compliant hermaphroditic expanded beam connectors

EXPANDED BEAM TECHNOLOGY



Expanded Beam connectors utilize a sealed lens to expand the emitting beam of light from the fiber media. The expanded beam is then refocused back into the fiber of the mating half. These sealed assemblies are ideally suited for environmental applications where optical connectors are subjected to repeated mating/unmating cycles. Easy to clean, and insensitive to contamination.



Field-deployable GMA connector and cable technology may be deployed in a broad range of applications, from tactical communications to oil & gas industry exploration, satellite communications, and more. Multichannel fiber optic cable—including ruggedized simplex and mil-tactical solutions—are fully supported.

SERIES 185-002 EYE-BEAM® GMA MATERIALS/FINISHES

Plug

Front housing, shell, and coupling nut	Aluminum Alloy / hard anodize
Insert body	Copper-nickel-zinc alloy
Guide pin	Stainless steel / passivate
Strain relief boot, facial seal, and grip sleeve	Fluorosilicone
Dust cap	Thermoplastic
Lanyard	Stainless steel / coated

Receptacle

Front housing	Aluminum alloy / hard anodize
Insert body	Copper-nickel-zinc alloy
Guide pin	Stainless steel / passivate
Shell, jam nut and back nut	Aluminum Alloy / Zinc-Nickel black
Facial seal and panel seal	Fluorosilicone
Dust cap	Thermoplastic
Lanyard	Stainless steel / coated



SERIES 185-002 EYE-BEAM® GMA PERFORMANCE SPECIFICATIONS

Insertion Loss	Multimode: ≤1.5 dB typical at 850/1300nm Singlemode: ≤2.0 dB typical at 1310/1550nm
Return Loss	Singlemode: Better than 31 dB typical mated Better than 34 dB typical unmated
Operating Temperature	-55°C to +85°C
Storage Temperature	-57°C to +85°C
Mating Durability	3000 mating cycles minimum
Cable Retention	1500N (cable dependent)
Bump	4000 bumps at 40g acceleration
Impact	8 drops from 0.9m per TIA/EIA-455-2, Method C, Service Class: Severe
Drop (Free Fall)	500 falls onto concrete from 1.2m
Vibration - Sinusoidal	10g Peak per TIA/EIA-455-11, Test Condition III
Vibration - Random	9g RMS per TIA/EIA-455-11, Test Condition VI-C, for 1.5 hours
Physical Shock (Half-sine Pulse)	50g Peak, 5 shocks per axis (30 shocks total) per TIA-455-14, Test Condition A
Water Immersion	Depth of 15m for 24 hours per TIA-455-74



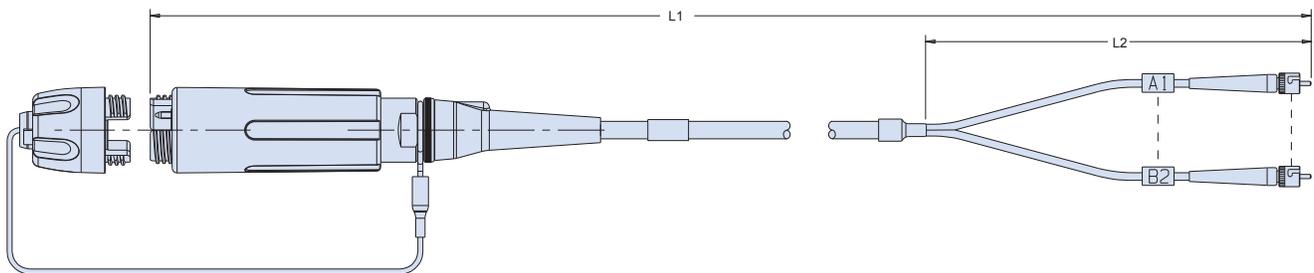
SERIES 185-002 EYE-BEAM® GMA
MIL-DTL-83526 /20 & /21 compliant
hermaphroditic expanded beam connectors
Cable harnesses and assemblies



FA03936 GMA IN LINE PLUG CABLE ASSEMBLY

Reference Part Number*	
Sample Part Number	FA03936 -60 -1 -3 -1 -4 -36-12
Basic number	GMA Fiber Optic cable
GMA Connector Type	60 = Plug, hermaphroditic, in-line
Fiber Type	1 = SM 9/125 2 = MM 50/125 3 = MM 62.5/125
Wavelength	1 = MM 850 nm 2 = MM 1300 nm 3 = SM 1310 nm 4 = SM 1550 nm
Pigtail Connector Type	0 = ST M83522/16 style 1 = ST connector 4 = SC duplex 7 = LC duplex 2 = FC connector 5 = SMA connector (906) 8 = SMA connector (905) 3 = SC connector 6 = LC connector 9 = Customer specified
Number of Fibers	2 = 2 channel 4 = 4 channel
Length (L1, L2)	in inches

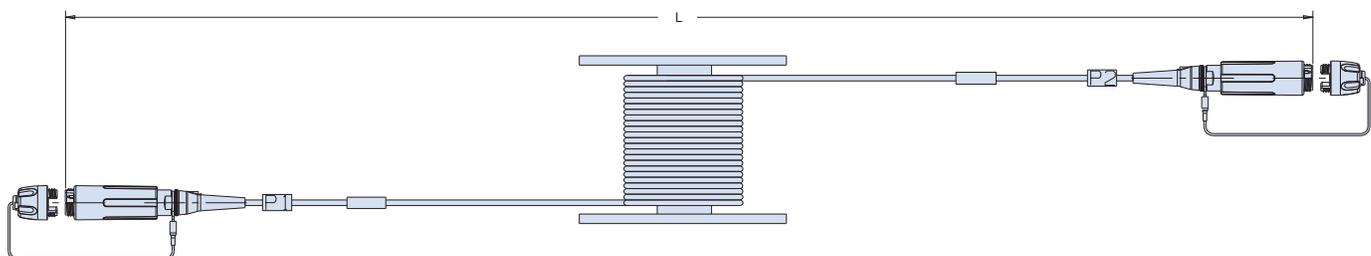
* Use this part number for reference only. A unique Glenair part number will be assigned to your cable order



FA03939 GMA IN LINE PLUG-TO-PLUG CABLE ASSEMBLY

Reference Part Number*	
Sample Part Number	FA03939 -60 -1 -3 -4 -100 -3
Basic number	GMA Fiber Optic cable
GMA Connector Type	60 = Plug, hermaphroditic, in-line
Fiber Type	1 = SM 9/125 2 = MM 50/125 3 = MM 62.5/125
Wavelength	1 = MM 850 nm 2 = MM 1300 nm 3 = SM 1310 nm 4 = SM 1550 nm
Number of Fibers	2 = 2 channel 4 = 4 channel
Length (L)	in feet
Reel Type	1 = Metal reel 2 = Metal reel with castors 3 = Wooden reel 4 = Plastic reel 5 = Manpack reel 6 = Customer specified (omit for no reel)

* Use this part number for reference only. A unique Glenair part number will be assigned to your cable order



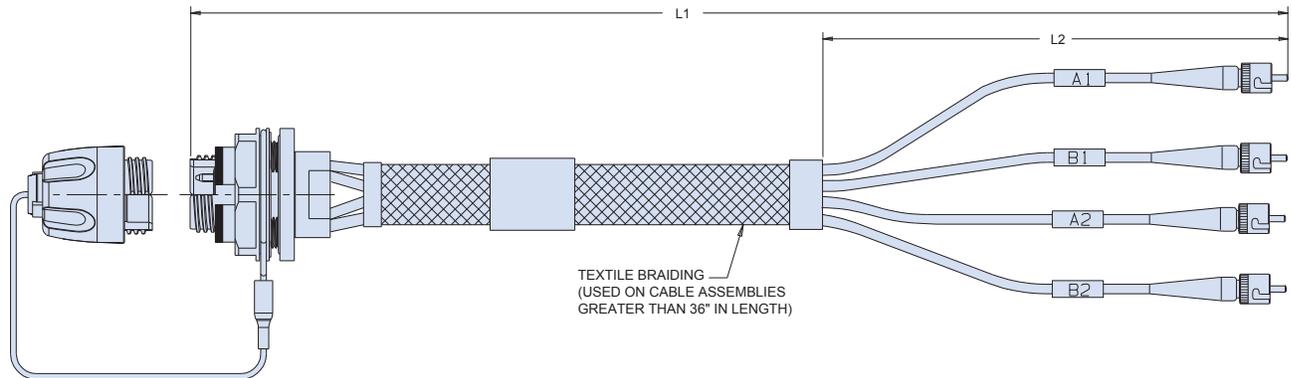
SERIES 185-002 EYE-BEAM® GMA
MIL-DTL-83526 /20 & /21 compliant
hermaphroditic expanded beam connectors
Cable harnesses and assemblies



FA03937 GMA JAM NUT MOUNT OR WALL MOUNT RECEPTACLE CABLE HARNESS

Reference Part Number*	
Sample Part Number	FA03937 -80 -1 -3 -1 -4 -36-12
Basic number	GMA Fiber Optic cable
GMA Connector Type	70 = Wall mount receptacle (low profile) 80 = Jam nut mount receptacle (low profile)
Fiber Type	1 = SM 9/125 2 = MM 50/125 3 = MM 62.5/125
Wavelength	1 = MM 850 nm 2 = MM 1300 nm 3 = SM 1310 nm 4 = SM 1550 nm
Pigtail Connector Type	0 = ST M83522/16 style 4 = SC duplex 7 = LC duplex 1 = ST connector 5 = SMA connector (906) 8 = SMA connector (905) 2 = FC connector 6 = LC connector 9 = Customer specified 3 = SC connector
Number of Fibers	2 = 2 channel 4 = 4 channel
Length (L1, L2)	in inches

* Use this part number for reference only. A unique Glenair part number will be assigned to your cable order



SERIES 185-002 EYE-BEAM® GMA MIL-DTL-83526 /20 & /21 compliant hermaphroditic expanded beam connectors



NOTE: Eye-Beam GMA connectors are sold as parts of complete assemblies. Individual connectors require specialized termination, assembly, and cleaning processes. Customers are advised to consult with Glenair's fiber optic application engineering team before purchasing.

How To Order									
Sample Part Number	185-002			-60	G	-4	B	90	L
Basic number	GMA Fiber Optic connector series								
Connector Type	60 = Plug, hermaphroditic, in-line 70 = Receptacle, wall mount, low profile 71 = Receptacle, wall mount, extended backend 80 = Receptacle, jam nut mount, low profile 81 = Receptacle, jam nut mount, extended backend								
Material/Finish	Plug			Receptacle					
	G = Al Alloy / hard anodize			ZR = Al Alloy / Zinc-Nickel black					
Number of Channels	2 = 2 channels 4 = 4 channels								
Operating Wavelength	A = Multimode dual wavelength, 850 / 1300 nm. B = Singlemode, 1310 nm. C = Singlemode, 1550 nm. D = Singlemode dual wavelength, 1310 / 1550 nm.								
Cable Diameter	See Table II								
Termini Option	L = Less termini, order termini separately T = Termini included in same quantity as number of channels (order connectors less termini (option L) for best / fastest availability)								

NOTES

Dimensions in Inches (millimeters) and are subject to change without notice.

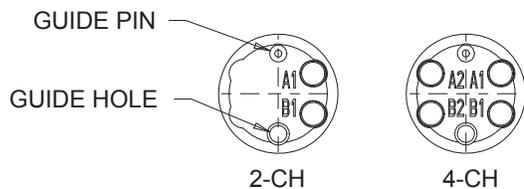
GMA connectors can be ordered with or without termini, see P/N development. Termini can be ordered separately, see Glenair dwg. 181-101 Consult factory for additional Connector Types, Materials/Finishes, and Cable Diameters

Table II: Cable Diameters

Dash No.	Ø "A" Max Cable Dia. for Receptacle, Low Profile	Ø "B" Max Cable Dia. for Receptacle, Extended Backend	Ø "C" Max Cable Dia. for Plug
10	.039 (1.0) buffered fiber		
20	.082 (2.1) simplex cable		
30		2X .118 (3.0)	
40		4X .118 (3.0)	
50		.126 (3.2)	.126 (3.2)
60		.165 (4.2)	.165 (4.2)
70		.197 (5.0)	.197 (5.0)
80		.216 (5.5)	.216 (5.5)
90		.236 (6.0)	.236 (6.0)

Consult factory for other cable sizes

185-002 INSERT ARRANGEMENTS (Number of Channels)



CONNECTOR MATING FACE
(There is a rotational relationship between D Flat and the connector mating face on jam nut receptacles)

CONNECTOR MATING FACE

SERIES 185-002 EYE-BEAM® GMA MIL-DTL-83526 /20 & /21 compliant hermaphroditic expanded beam connectors Terminus and in-line plug



181-101 TERMINUS FOR GMA CONNECTORS

How To Order GMA Terminus		
Sample Part Number	181-101	-1253
Basic number	Terminus for GMA connector	
Dash Number	See Table I	

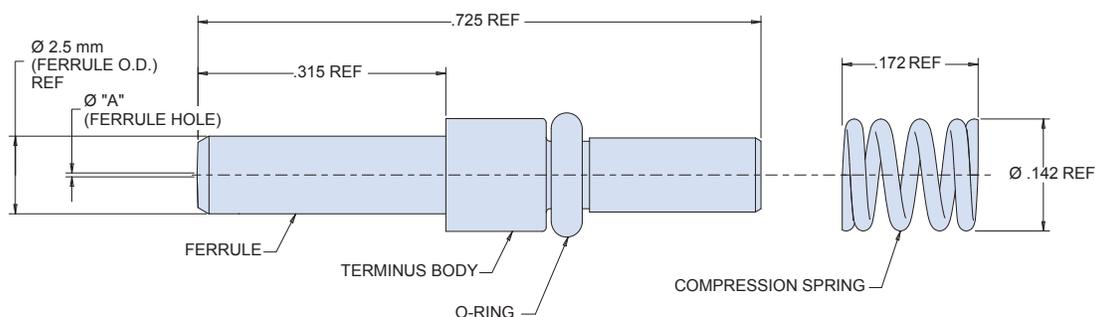
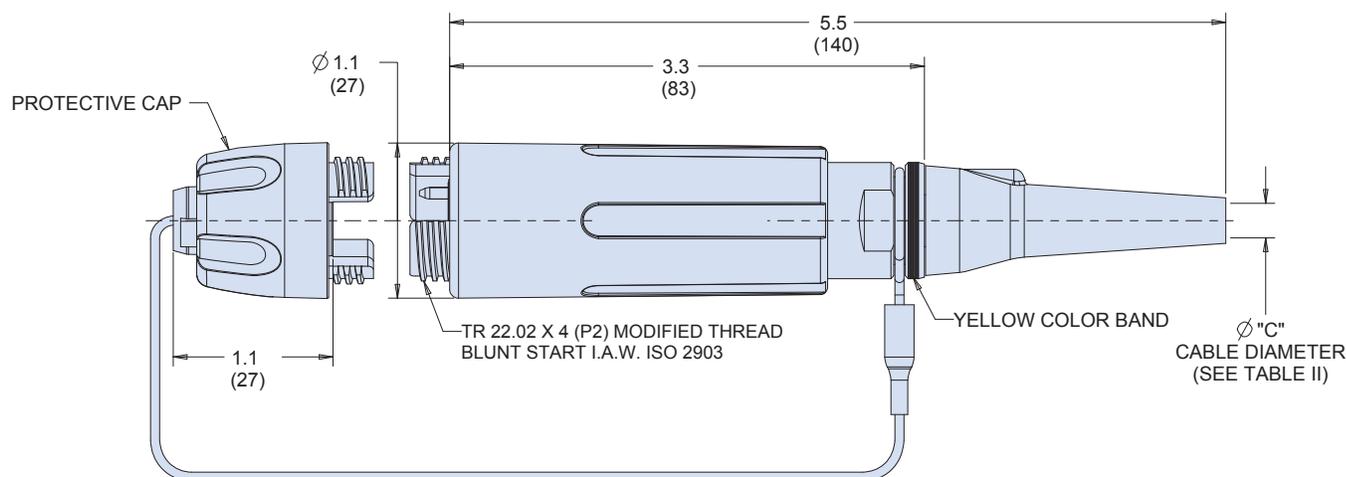


Table I		
Dash No.	Ø A (microns)	Fiber Size Core/Cladding (microns)
-1253	125.3	9/125 (singlemode)
-1260	126.0	50/125 and 62.5/125 (multimode)
Consult factory for additional sizes		

NOTES

- Material/Finish:
 Ferrule: Zirconia ceramic
 Terminus body: Stainless steel / passivate
 Compression spring: Stainless steel/passivate
 O-ring: Nitrile rubber
 Consult factory for appropriate termination and assembly tools / procedures

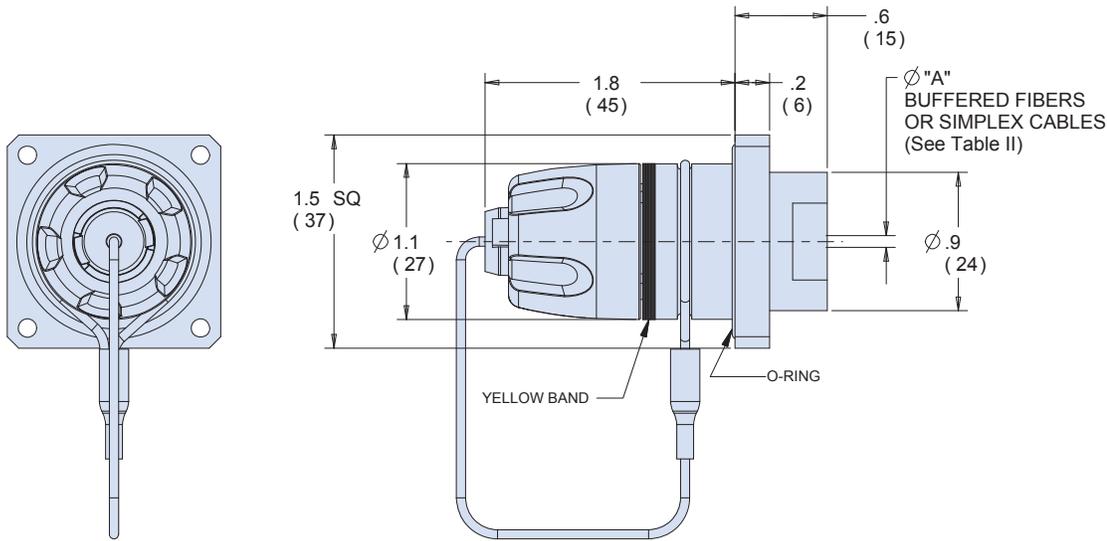
185-002-60 HERMAPHRODITIC IN-LINE PLUG



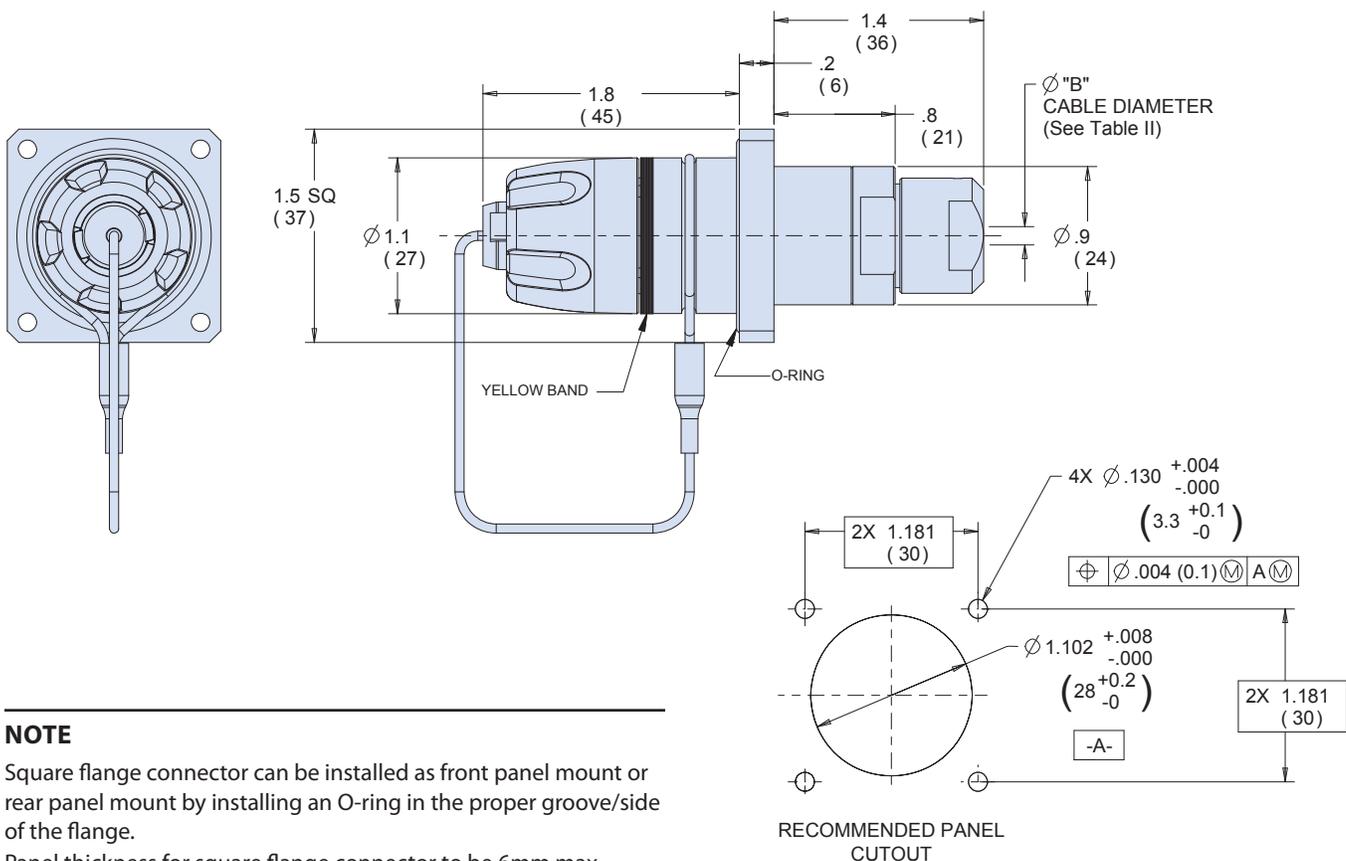
SERIES 185-002 EYE-BEAM® GMA
 MIL-DTL-83526 /20 & /21 compliant
 hermaphroditic expanded beam connectors
 Wall mount receptacles



185-002-70 LOW-PROFILE WALL MOUNT RECEPTACLE



185-002-71 WALL MOUNT RECEPTACLE WITH EXTENDED BACKEND



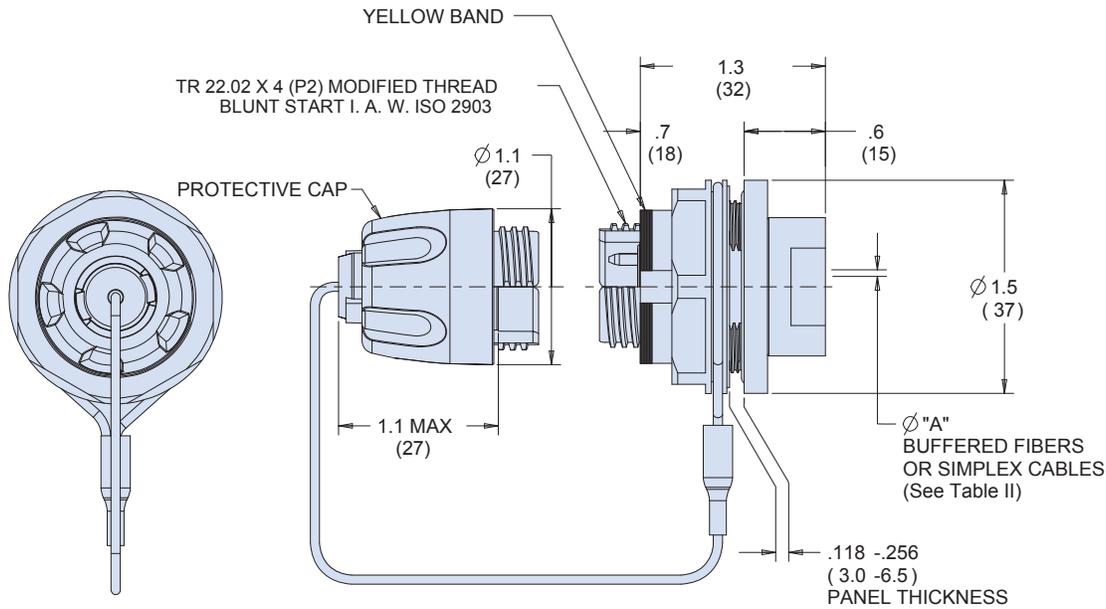
NOTE

Square flange connector can be installed as front panel mount or rear panel mount by installing an O-ring in the proper groove/side of the flange.
 Panel thickness for square flange connector to be 6mm max.

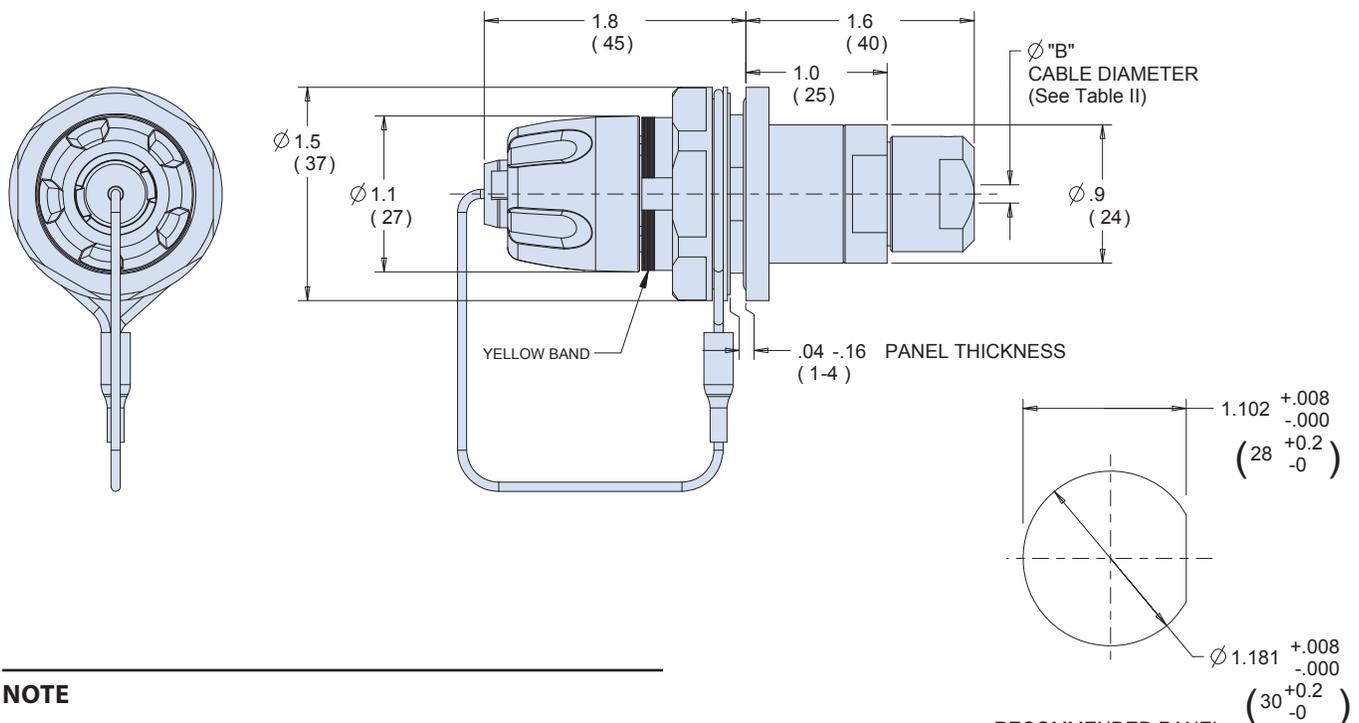
SERIES 185-002 EYE-BEAM® GMA
MIL-DTL-83526 /20 & /21 compliant
hermaphroditic expanded beam connectors
Jam nut mount receptacles



185-002-80 LOW-PROFILE JAM NUT MOUNT RECEPTACLE



185-002-81 JAM NUT MOUNT RECEPTACLE WITH EXTENDED BACKEND



NOTE

There is a rotational relationship between D Flat and the connector mating face on jam nut receptacles

RECOMMENDED PANEL CUTOUT (as viewed from front of panel)

FIBER OPTIC
DATALINKS AND
PHOTONICS



Glenair signature high-performance fiber optic connectors, cables, and assemblies



High-performance fiber optic interconnect systems: Rugged, harsh-environment, high-bandwidth aerospace-grade connectors, termini, toolkits, and cable assemblies

- Fiber Optic backbone systems are expandable for future equipment needs, without recabling
- Tight tolerance fiber optic connectors
- Weight-saving composite, aluminum and stainless steel shells available
- Qualified size #23, #18, #16, and #12 precision ceramic termini
- Singlemode and multimode fiber, from 9/125 to 1000 microns
- Ultra-low insertion loss values, <.50dB typical

Environmental point-to-point connectors and cable assemblies for rugged applications



Inside-the-box fiber optic datalink pigtail assemblies

SIGNATURE
Fiber Optic Data Transmission
Connectors, Cables, and Assemblies
Butt-joint and expanded beam



GLENAIR SIGNATURE BUTT-JOINT AND EXPANDED BEAM FIBER OPTIC INTERCONNECT SOLUTIONS



Glenair High Density (GHD) fiber optic higher-density alternative to D38999 type



Mighty Mouse fiber optic: Size #23, #20HD, and #16 size- and weight-saving solution



Glenair Front Release (GFR) innovative drop-in termini solution for individual connector cavity fiber media



Glenair fiber optic backshell assemblies for improved optical media alignment and protection against micro-bending



Eye-Beam® GMA (HMA type intermateable) IAW M83526/21 panel mount configuration



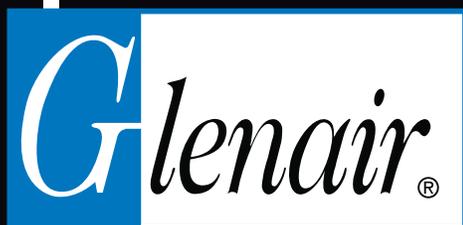
EYE-BEAM® GMA

Eye-Beam® GMA (HMA type intermateable) IAW M83526/20 hermaphroditic cable plug configuration



EYE-BEAM® GLT

Innovative Eye-Beam® GLT grin-lens expanded-beam termini can be integrated into virtually any circular or rectangular connector package. Factory terminated lens pin termini and lens socket termini on cable jumpers allow for easy fusion splicing in the field.



MISSION-CRITICAL INTERCONNECT SOLUTIONS

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