

COMMERCIAL COTS-83526



4, 6, 8 and 12 Channel Hermaphroditic Fiber Optic Connectors and Assemblies



Overview

Optical Cable Corporation introduces the next generation of Tactical Fiber Optic Connector family based on the retired MILPRF-83526 performance specification. This tactical fiber optic connector system features a "field convertible" hermaphroditic fiber optic plug component COTS-83526 PLUG connector with integrated strain relief and tactical cable retention systems. Available in either 4 or 12 channel shell sizes (2, 4, 6, 8 and 12 CH options), this family of tactical fiber optic connectors also features specifications for a wide variety of harsh environment companion receptacles including Internal Jam-Nut, External Jam-Nut, and Flange Mount receptacles as well as similar companion configurations with Integrated Strain Relief systems. At the heart of this robust family of tactical/deployable hermaphroditic fiber optic connectors is the TC1640CA "environmentally sealed" terminus system, which affords superior optical performance while maintaining resistance to dust, moisture or even liquid submersion. This new terminus system features a "free-floating" environmentally sealed capability utilizing commercially available 2.5mm ceramic ferrules, relying on the Insert Cap of the COTS-83526 connectors to retain the ceramic alignment sleeve. This new termini is corrosive-resistant, easily inserts at 90° angles to the termini retainer and functions as a "genderless" termini (can be either pin or socket) when used in the hermaphroditic design of the COTS-83526 connector system.

Applications

- Mobile Emergency Telecommunications Stations
- Mobile Tactical Shelters
- United States Army, Navy, and Marine Corps military tactical deployments
- Deployable Tailors for Federal Emergency Management Agency
- Homeland Security Applications



Features and Benefits

FEATURES		BENEFITS
Interoperable, inter-mateable in accordance with the retired MIL-PRF-83526/16, /17 interface specification	 4 CH COTS-83526 Plug with AFSI 4 CH TFOCA-II® Plug  12 CH COTS-83526 Plug with AFSI 12 CH TFOCA-II® Plug	Backward compatible with most fielded M83526 4 CH and 12 CH connectors. Essentially uses same assembly procedures and tools.
Field Convertible Hermaphroditic Plug Design	 	Either Plug-to-Plug assembly on a reel can be instantly provisioned for male (daisy chain) or female connectivity.
Field Convertible Hermaphroditic Plug Dust Cap Design	 	The Hermaphroditic Dust Plug Cap is instantly provisioned with mating dust cap to allow dust cap coupling.
Retentive Ceramic Split Sleeves	 2.5mm split sleeve retained in 4 CH Insert Cap  2.5mm split sleeve retained in 12 CH Insert Cap	Ceramic Split Sleeves are retained within the Insert Cap, preventing sleeves becoming misplaced during maintenance routines.
Enhanced Kevlar™ Retention System	 	Supports 400lb. cable retention without degradation of optical signal.
Sealed Termini Design	 TC1640CA used in 4 CH and 12 CH	4 CH, 6 CH, 12 CH, and 24 CH Systems utilize Sealing, Environmental Resistance to meet IP-68 requirements.
Easy Termination Capability	 	COTS-83526 Integrated "Push-Pull" system allows operators to terminate COTS-83526 Plugs and Receptacles in an efficient, non-complex format.
Dry Film Thread Lubrication		Extends Life of Mating Threads, self-lubricating through repeated mating cycles.

	CCTA10B11CA	COTS-83526 2-4 CH Hermaphroditic Fiber Optic Plug & Dust Cap, Cable Dia. 0.190-0.239"
	CCTA10F11CB	COTS-83526 8-12 CH Hermaphroditic Fiber Optic Plug & Dust Cap, ZrNi, Cable Dia. 0.240-0.269"
	CCTB21B11C	COTS-83526 2-4 CH Jam-Nut Fiber Optic Receptacle & Female Dust Cap
	CCTB21F11C	COTS-83526 8-12 CH Jam-Nut Fiber Optic Receptacle & Female Dust Cap, ZrNi
	CCTD21B31C	COTS-83526 2-4 CH Flange Mount Receptacle Fiber Optic Receptacle & Female Dust Cap, EMI
	CCTD21F31C	COTS-83526 12 CH Flange Mount Receptacle Fiber Optic Receptacle & Female Dust Cap, EMI
	CCTC21B31C	COTS-83526 2-4 CH External Jam-Nut Receptacle Fiber Optic Receptacle & Female Dust Cap, EMI
	CCTC21F31C	COTS-83526 12 CH External Jam-Nut Receptacle Fiber Optic Receptacle & Female Dust Cap, EMI
	CCTE21B31CA	COTS-83526 2-4 CH Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.190-0.239"
	CCTE21F31CB	COTS-83526 12 CH Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"
	CCTG21B31CA	COTS-83526 2-4 CH Flange Mount Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.190-0.239"
	CCTG21F31CB	COTS-83526 12 CH Flange Mount Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"
	CCTF21B31CA	COTS-83526 2-4 CH External Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.290-0.239"
	CCTF21F31CB	COTS-83526 12 CH External Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"



Performance Specifications

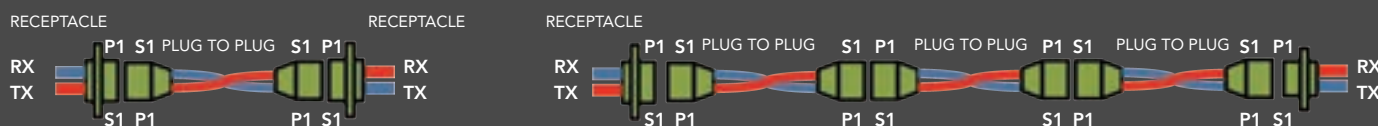
PERFORMANCE	SPECIFICATION	PARAMETER
Insertion Loss (multimode)	EIA/TIA-455-171	0.50dB – Typical, 0.75dB – Maximum
Insertion Loss (single-mode)	EIA/TIA-455-171	0.40dB – Typical, 0.75dB – Maximum
Back Reflection (single-mode, UPC polish)	EIA/TIA-455-107	-50dB – Typical, -40dB – Maximum
Operating Temperature	TIA/EIA-455-5	-54° C to + 71° C
Storage Temperature	TIA/EIA-455-5	-57° C to + 85° C
Mating Durability	TIA-455-21	2000 cycles
Impact	TIA/EIA-455-2	Method B, Omit wall pipe
Twist	TIA-455-36	±90° rotation, one cycle/ 5sec., 1000 cycles
Cable Sealing Flex	EIA/TIA-455-1	Procedure I
Cable Retention	TIA-455-6	400 lbs min.
Crush Resistance	TIA-455-26	450 lbs
Temperature Life	TIA/EIA-455-4	250 Hr, 85 ± 2°C
Thermal Shock	TIA-455-71	Condition B-0 except 10 cycles, @ 85° C and -62° C
Physical Shock	EIA/TIA-455-11	Condition C, 5 shocks/axis
Vibration	TIA-455-1	Condition III & VI Condition C for 1.5 hr, Except III
Humidity	EIA/TIA-455-5	Type II
Salt Spray ¹	EIA/TIA-455-16	Condition C
Fluid Immersion	EIA/TIA-455-12	All fluids subject to 24 hours
Water Submersion	EIA/TIA-455-98	Method A, Procedure 1, 1m for 24 hours. Bulkhead mounted in watertight cube
Flammability	EIA-364-8	
Mud Test ²	M83526, paragraph 4.8	5 min. immersion, 10 cycles
Electromagnetic Effects ^{1,3}	IEEE-299	20kHz, 150kHz, 14MHz, 400MHz, 600MHz, 1GHz, 2GHz, 8GHz, 10GHz, VERT. & HORZ., <-60dB

NOTES

¹ Applies to ZrNi plating only

² Sand/Topsoil substituted for Potter's Clay

³ 12 CH Receptacle requires application of SRR configurations



Why Hermaphroditic?

Hermaphroditic connectors are designed for quick deployment and gender-independent connectivity, allowing the end user to un-reel fiber cable without regard for identification of the male or female ends. The hermaphroditic design enables the transmission path to maintain polarity even with multiple cable segments daisy-chained together to extend the distance of the deployable system.



COTS M83526 2-4 CH CONNECTOR FAMILY

PART NUMBER	CONFIGURATION	DESCRIPTION
CCTA10B31CA	Plug	COTSM83526 2-4 CH Hermaphroditic Fiber Optic Plug & Dust Cap, Cable Dia. 0.190-0.239"
CCTA10B31CB	Plug	COTSM83526 2-4 CH Hermaphroditic Fiber Optic Plug & Dust Cap, Cable Dia. 0.240-0.269"
CCTB21B31C	Receptacle	COTSM83526 2-4 CH Jam-Nut Fiber Optic Receptacle & Female Dust Cap, EMI
CCTD21B31C	Receptacle	COTSM83526 2-4 CH Flange Mount Receptacle Fiber Optic Receptacle & Female Dust Cap, EMI
CCTC21B31C	Receptacle	COTSM83526 2-4 CH External Jam-Nut Receptacle Fiber Optic Receptacle & Female Dust Cap, EMI
CCTE21B31CA	Strain Relief Receptacle	COTSM83526 2-4 CH Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.190-0.239"
CCTE21B31CB	Strain Relief Receptacle	COTSM83526 2-4 CH Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"
CCTG21B31CA	Strain Relief Receptacle	COTSM83526 2-4 CH Flange Mount Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.190-0.239"
CCTG21B31CB	Strain Relief Receptacle	COTSM83526 2-4 CH Flange Mount Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"
CCTF21B31CA	Strain Relief Receptacle	COTSM83526 2-4 CH External Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.190-0.239"
CCTF21B31CB	Strain Relief Receptacle	COTSM83526 2-4 CH External Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"



COTS M83526 8-12 CH CONNECTOR FAMILY

PART NUMBER	CONFIGURATION	DESCRIPTION
CCTA10F31CB	Plug	COTSM83526 8-12 CH Hermaphroditic Fiber Optic Plug & Dust Cap, Cable Dia. 0.240-0.269"
CCTA10F31CF	Plug	COTSM83526 8-12 CH Hermaphroditic Fiber Optic Plug & Dust Cap, Cable Dia. 0.380-0.423"
CCTB21F31C	Receptacle	COTSM83526 8-12 CH Jam-Nut Fiber Optic Receptacle & Female Dust Cap, EMI
CCTD21F31C	Receptacle	COTSM83526 8-12 CH Flange Mount Receptacle Fiber Optic Receptacle & Female Dust Cap, EMI
CCTC21F31C	Receptacle	COTSM83526 8-12 CH External Jam-Nut Receptacle Fiber Optic Receptacle & Female Dust Cap, EMI
CCTE21F31CB	Strain Relief Receptacle	COTSM83526 8-12 CH Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"
CCTE21F31CF	Strain Relief Receptacle	COTSM83526 8-12 CH Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.380-0.423"
CCTG21F31CB	Strain Relief Receptacle	COTSM83526 8-12 CH Flange Mount Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"
CCTG21F31CF	Strain Relief Receptacle	COTSM83526 8-12 CH Flange Mount Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.380-0.423"
CCTF21F31CB	Strain Relief Receptacle	COTSM83526 8-12 CH External Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240-0.269"
CCTF21F31CF	Strain Relief Receptacle	COTSM83526 8-12 CH External Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.380-0.423"



TERMINI FOR 4 CH AND 12 CH TFOCA2		
TC1640DA	Termini	2.5mm, Environmental Resisting, Fiber Optic Termini, 126Um I.D.
TC1739AA	Termini	Dummy Termini
PC83522/16-20-S	Crimp Sleeve	Crimp Sleeve, Used with 3.00mm Loose Tube Jacket
PA35395-99-017	Crimp Sleeve	Crimp Sleeve, Used with 2.00mm Loose Tube Jacket



PROVISIONING GUIDELINES

- 1) Select the number of Dummy Termini necessary to fill a connector. Example, when planning for an 8 CH application, select 4 dummy termini to complete a 12 CH size connector
- 2) Crimp sleeves are recommended for use on receptacle configurations without Strain Relief (SRR). Crimp sleeves are generally used with simple loose tube cable for receptacle pigtails. 4 CH and 12 CH receptacles can also accommodate 3.00mm loose cable.

EMI/ NON-EMI OPTIONS

EMI-conductive O-rings and/or gaskets are typically provisioned with all COTS 83526-style receptacles but add additional cost to each component. Non-EMI options are available by simply ordering a receptacle part number with a "2" in the 6th digit position (ex: CCTG22B31CD) of part number inclusive of CCTB, CCTC, CCTD, CCTE, CCTF and CCTG configurations.

PLATING OPTIONS

Most COTS M83526 component configurations are supplied with Zinc Nickel Plating with Olive Drab coloring. For the additional plating options, the "k" in the 8th digit position of the part number (ex: CCTG22Fk1CD) is selected for the plating/material of choice.

- "1" Black Anodized, Mil-A-8625 TYPE 2 CLASS 2
- "3" Zinc Nickel Plating, SAE AMS 2417G
- "4" 303 Stainless Steel, Passivation per QQ-P-35/ASTMA967
- "5" 316 Stainless Steel, Passivation per QQ-P-35/ASTMA967
- "6" Naval Brass, C 46400 H02 Half Hard ASTMB 21/B21M



All M83526 connectors can be utilized in pre-terminated turnkey assemblies.

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CORPORATE HEADQUARTERS

5290 Concourse Drive | Roanoke, VA 24019 | USA

Phone: +1-540-265-0690 | 800-622-7711

Fax: +1-540-265-0724

occfiber.com