# 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

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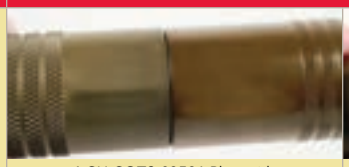
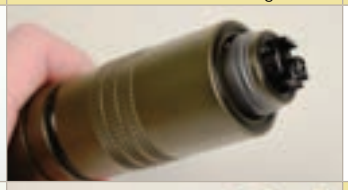
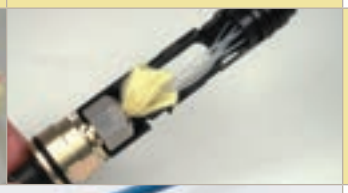
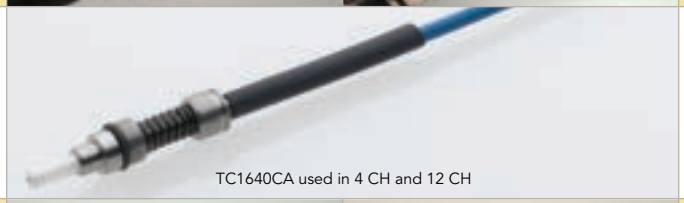
## Features and Benefits

| 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. |

# COMMERCIAL COTS-83526

## COTS-83526 – Standard Configurations (options and modifications available)

| | | | | | |
|---|---|---|---|---|---|
|  | |  | |  | |
| 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, ZiNi, 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, ZiNi | 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-835268 12 CH External Jam-Nut Strain Relief Receptacle (SRR) & Female Dust Cap, EMI, Cable Dia. 0.240–0.269" | | |

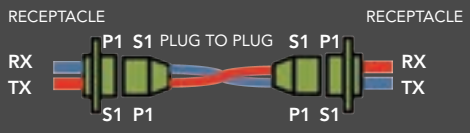
# COMMERCIAL COTS-83526

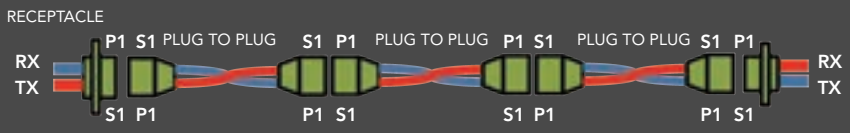
## Performance Specifications

| 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 ZiNi 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.

# COMMERCIAL COTS-83526

## Ordering Information

| 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" |

## Ordering Information

| 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" |

# COMMERCIAL COTS-83526

## Ordering Information

| 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: CCTG2**2**B31CD) 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: CCTG22F**k**1CD) 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.



OPTICAL CABLE CORPORATION

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