

MHC® II FIBER OPTIC CONNECTOR



Overview

The requirements for today's high-speed, high-bandwidth communications systems are constantly expanding with more diverse platforms and unique environments. At the same time, smaller, lighter, more efficient packaging is being demanded to allow designers to pack more into less space.

OCC's Mini Hermaphroditic Fiber Optic/Hybrid Connector (MHC II) fills that requirement. The MHC II is designed specifically to inter-connect fiber optic channels in a small, yet effective, package. Using a bayonet-style, mechanical coupling interface, the plug connector is easily mated to receptacles by a simple twisting motion.

The MHC II 8 CH Connector system provides maximum flexibility by allowing many combinations of fiber optic termini and electrical contacts to coexist within the same hermaphroditic connector system.

The MHC II fiber optic termini feature both pin and socket configurations to accommodate 62.5/125 μ m, 50/125 μ m, 9/125 μ m single-mode/multimode fiber or a combination of fiber types depending upon cable construction requirements and are available in 2-, 4-, 6- and 8-CH versions. Since the connectors are hermaphroditic, two plugs can also be mated together using the same bayonet feature, allowing for end-to-end mating of multiple links, making deployments quicker.

The MHC II series hermaphroditic connector incorporates proven 1.25mm ceramic ferrule technology to achieve excellent mating durability with excellent insertion loss performance that is on par with the OCC family of connectors. The MHC II family of connectors is available in various plating/base materials to match application needs, including nickel-teflon, black anodized, marine brass and stainless-steel.

Applications

- Voice/Data/Video in Harsh Environments
- Deployed Broadcast Systems
- Remote Monitoring Sites
- Robotic Arms and Robot Devices
- Industrial Monitoring



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Features and Benefits

FEATURES					BENEFITS
Rear locking couplenut feature					Allows easy bayonet connection and is capable of supporting excessive cable tension
Quick, easy maintenance					Removable socket cap for easy maintenance, with ceramic alignment sleeves that allow for easy field maintainability
Exceptional cable retention capability					Meets TIA-455-6 Cable Retention Spec. of 400 lbs. minimum when using military tactical fiber optic cable
Designed for retrofit applications with many more configuration options (8 fiber options include 2F + 6E, 4F + 4E, 6F + 2E)					Same footprint as popular connectors, and fits existing panel cutouts
Small form factor that provides higher density and design/retrofit space optimization					Flange-mount connectors offer strain-relief (SRR) backshells providing TIA-455-6 cable retention

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Performance Specifications

PERFORMANCE SPECIFICATION		
PERFORMANCE	SPECIFICATION	PARAMETER
Insertion loss (multimode)	EIA/TIA-455-171	0.50dB – typical, 0.75dB – max.
Insertion loss (single-mode)	EIA/TIA-455-171	0.50dB – typical, 0.75dB – max.
Back reflection (single-mode UPC polish)	EIA/TIA-455-107	-42dB – typical, -40dB – max.
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	1000 cycles
Impact	TIA/EIA-455-2	Method A
Cable retention (MILITARY TACTICAL)	TIA-455-6	400 lbs. min.
Crush resistance	TIA-455-26	Exceeds spec. (450 lbs.) and tested to 1260 lbs.
Temperature life	TIA/EIA-455-C	250 hrs., 85±2°C
Physical shock	EIA/TIA-455-14A	Condition C, 5 shocks/axis
Vibration	EIA/TIA-455-11B	Condition III and VI, Condition C for 1.5 hrs., except III
Humidity	EIA/TIA-455-5	Type II
Dust test	IEC 60529 IP68	8 hrs. dust exposure with 20 mbar
Submersion	IEC 60529 IP68	1 m for 48 hrs.

Electrical Performance – Pin and Socket Contacts

SPECIFICATION	PARAMETER
Insulation resistance	>10,000mΩ
Voltage – high	600Vrms
Voltage – low	42V AC or 60V DC
Current – high	10A
Current – low	1A
Withstand voltage	1750Vrms
Contact resistance #16 AWG contacts	2.7mΩ after 2000 mating

Materials

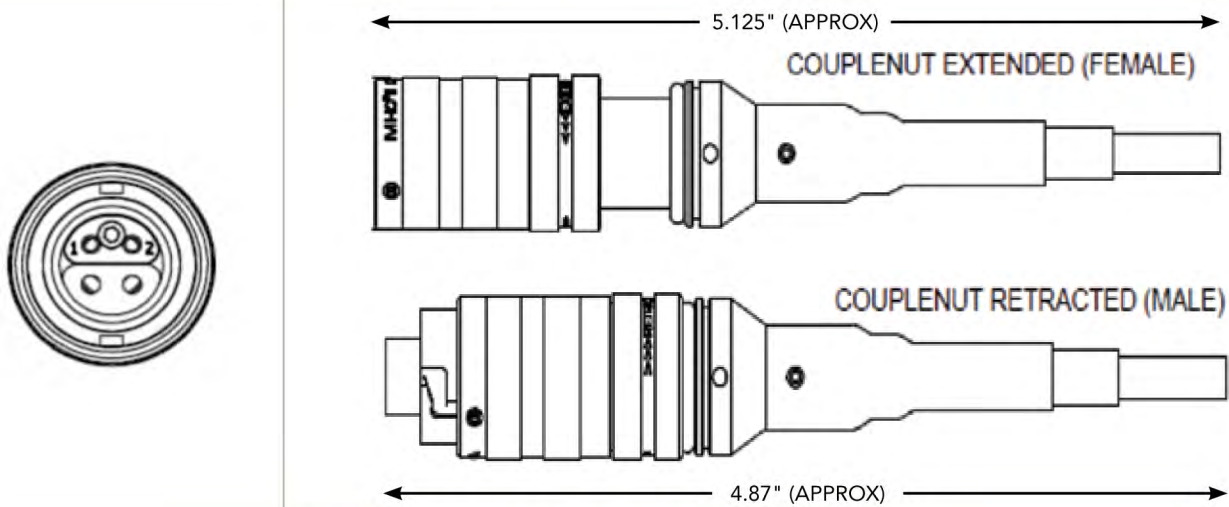
SPECIFICATION	PARAMETER
Ferrule	1.25mm diameter ceramic ferrule
Exterior parts	Aluminum black anodized
	303 or 316 stainless-steel, marine brass and nickel teflon options
Interior parts	Aluminum-anodized/alodine clear/brass
Hardware	Stainless-steel, passivated
Seals	Nitrile
Boot	Polyolefin, Neoprene, Kynar
Alignment sleeves	Ceramic split sleeve

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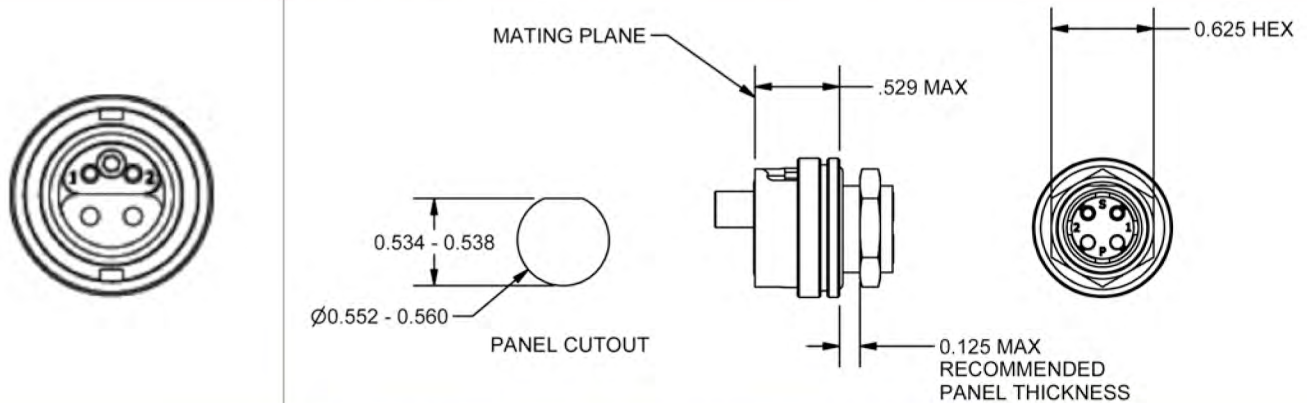
Product Drawings

2CH and 4CH MHC II Connector Systems – Shell Size A

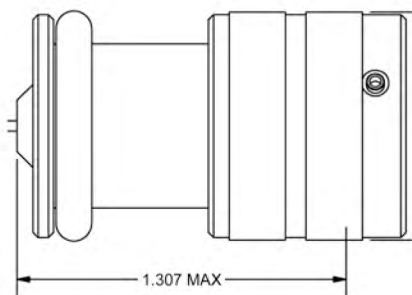
2CH and 4CH Mini Hermaphroditic Connector, Plug



2CH and 4CH Mini Hermaphroditic Connector, Jam Nut Receptacle



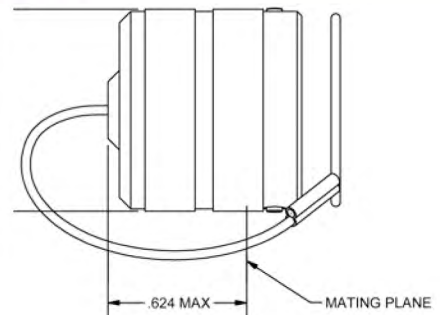
2CH and 4CH Mini Hermaphroditic, Female and Pulling Eye Dust Caps



Hermaphroditic Dust Cap



Pulling Eye Dust Cap



Female Dust Cap

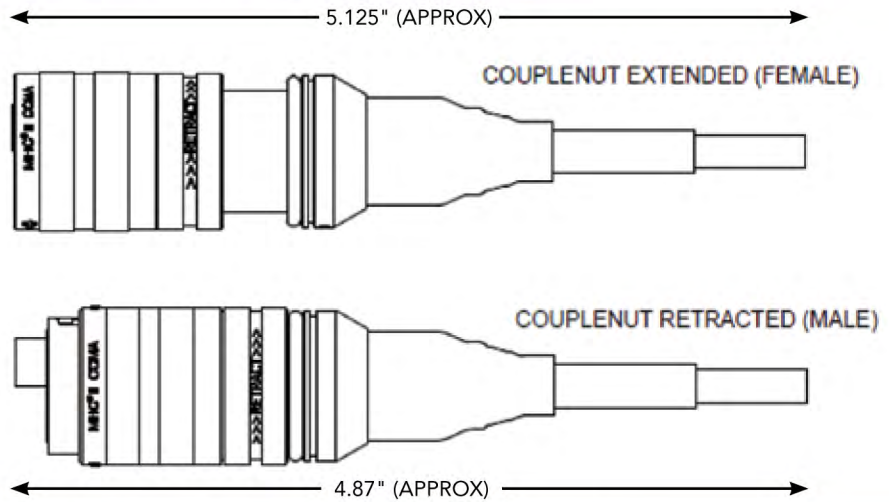
MHC® II FIBER OPTIC CONNECTOR

Product Drawings

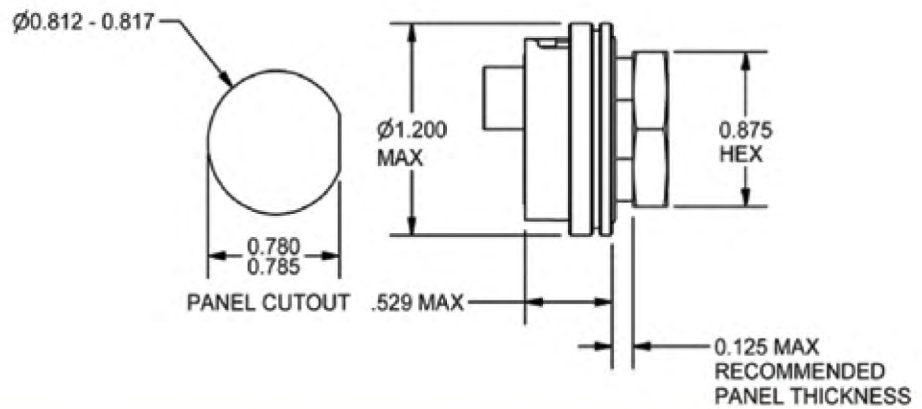
6CH and 8CH MHC II Connector Systems – Shell Size B

Examples of Face views for different configurations of Fiber and Electrical

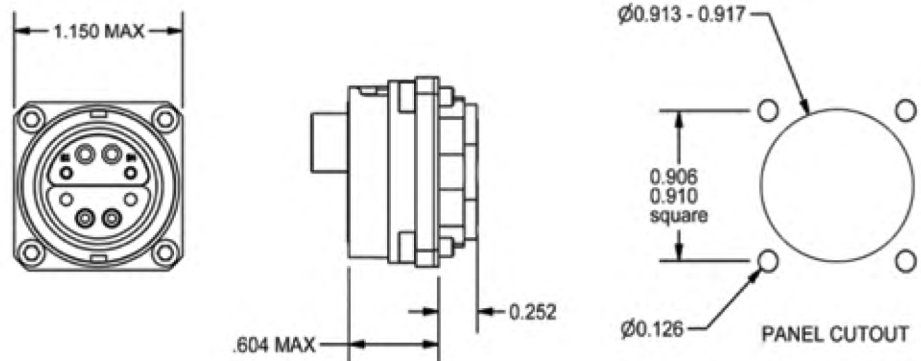
6CH and 8CH Mini Hermaphroditic Connector, Plug



6CH and 8CH Mini Hermaphroditic Connector, Jam Nut Receptacle



6CH and 8CH Mini Hermaphroditic Connector, Flange-Mount Receptacle



Custom accessories available; contact OCC for information.

MHC® II FIBER OPTIC CONNECTOR

Ordering Information

MHC II 2–4CH Hermaphroditic Connectors – Shell Size A

PART NUMBER	CONFIGURATION	DESCRIPTION
CCMA00B11CA	Plug	2–4 fiber CH, plug hermaphroditic, black anodized, up to 0.315" cable O.D.
CCMB00B11C	Receptacle, jam nut, UPC	2–4 fiber CH, jam nut receptacle, internal, black anodized
CCMD00B11C	Receptacle, flange-mount, UPC	2–4 fiber CH, flange-mount receptacle, black anodized
CCMG00B11CA	Receptacle, flange-mount, SRR, UPC	2–4 fiber CH, flange-mount, strain-relief receptacle, black anodized, up to 0.315" cable O.D.

MHC II 8CH Hermaphroditic Connectors – Shell Size B

PART NUMBER	CONFIGURATION	DESCRIPTION
CCMA00D11CB	Plug, 8f UPC	8 fiber CH, plug hermaphroditic, black anodized, up to 0.495" cable O.D.
CCMA00T11CB	Plug, 4f+4e UPC	4 fiber + 4 electrical CH, plug hermaphroditic, black anodized, up to 0.495" cable O.D.
CCMA00V11CB	Plug, 2f+6e UPC	2 fiber + 6 electrical CH, plug hermaphroditic, black anodized, up to 0.495" cable O.D.
CCMA00W11CB	Plug, 6f+2e UPC	6 fiber + 2 electrical CH, plug hermaphroditic, black anodized, up to 0.495" cable O.D.
CCMB00D11C	Receptacle, jam nut, 8f UPC	8 fiber CH, jam nut receptacle, internal, black anodized
CCMB00T11C	Receptacle, jam nut, 4f+4e UPC	4 fiber + 4 electrical CH, jam nut receptacle, internal, black anodized
CCMB00V11C	Receptacle, jam nut, 2f+6e UPC	2 fiber + 6 electrical CH, jam nut receptacle, internal, black anodized
CCMB00W11C	Receptacle, jam nut, 6f+2e UPC	6 fiber + 2 electrical CH, jam nut receptacle, internal, black anodized
CCMD00D11C	Receptacle, flange-mount, 8f UPC	8 fiber CH, flange-mount receptacle, black anodized
CCMD00T11C	Receptacle, flange-mount, 4f+4e UPC	4 fiber + 4 electrical CH, flange-mount receptacle, black anodized
CCMD00V11C	Receptacle, flange-mount, 2f+6e UPC	2 fiber + 6 electrical CH, flange-mount receptacle, black anodized
CCMD00W11C	Receptacle, flange-mount, 6f+2e UPC	6 fiber + 2 electrical CH, flange-mount receptacle, black anodized
CCMG00D11CB	Receptacle, flange-mount, SRR, 8f UPC	8 fiber CH, flange-mount receptacle with integrated strain-relief, black anodized, up to 0.495" cable O.D.
CCMG00T11CB	Receptacle, flange-mount, SRR, 4f+4e UPC	4 fiber + 4 electrical CH, flange-mount receptacle with integrated strain-relief, black anodized, up to 0.495" cable O.D.
CCMG00V11CB	Receptacle, flange-mount, SRR, 2f+6e UPC	2 fiber + 6 electrical CH, flange-mount receptacle with integrated strain-relief, black anodized, up to 0.495" cable O.D.
CCMG00W11CB	Receptacle, flange-mount, SRR, 6f+2e UPC	6 fiber + 2 electrical CH, flange-mount receptacle with integrated strain-relief, black anodized, up to 0.495" cable O.D.

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Ordering Information / Provisioning Guidelines

Accessories – Dust Caps

PART NUMBER	CONFIGURATION	DESCRIPTION
CCMH10BU1A	Dust cap	2 to 4 CH, hermaphroditic dust cap, black anodized
CCMH10DU1A	Dust cap	6 to 8 CH, hermaphroditic dust cap, black anodized
CCMH20BU1A	Dust cap	2 to 4 CH, female dust cap, black anodized
CCMH20DU1A	Dust cap	6 to 8 CH, female dust cap, black anodized
CCMH50BU1A	Dust cap	2 to 4 CH, female dust cap/pulling eye, black anodized
CCMH50DU1A	Dust cap	6 to 8 CH, female dust cap/pulling eye, black anodized

Accessories – Fiber Optic Termini, Electrical Contacts

PART NUMBER	CONFIGURATION	DESCRIPTION
TC7440DA	Fiber optic pin termini	1.25mm ceramic ferrule pin fiber optic pin, no crimp tail UPC (900µm buffer fiber only)
TC7441DA	Fiber optic socket termini	1.25mm ceramic ferrule socket fiber optic socket, no crimp tail UPC (900µm buffer fiber only)
TC7439AA	Dummy termini	Dummy termini, MHC II
UV163016AA	Pin contact, electrical	Pin contact electrical 16# AWG–22#AWG
UV164116AA	Socket contact, electrical	Socket contact electrical 16# AWG–22#AWG

Provisioning Guidelines

FIBER OPTIC ONLY

- 1) Select the appropriate shell size to accommodate the fiber optic channel count. Shell size A allows two channel and four channel. Shell size B allows six channel and eight channel.
- 2) Select the connector configurations that meet the intent of the application. All plugs are hermaphroditic and feature an integrated backshell. Receptacles are selected based on jam nut, flange-mount or flange-mount with strain-relief receptacle options.
- 3) Identify the number of termini required to support the fiber count.
- 4) Jam nut or flange-mount receptacles utilize termini that only accommodate 900µm tight buffer fiber optic cable. Flange-mount strain-relief receptacle (SRR) utilizes distribution- or breakout-style cable and provide additional pull strength for simplex connector pigtails.

HYBRID (Combination of Electrical and Fiber Optic)

- 1) Select shell size B to accommodate combination of fiber optic and electrical channels.
- 2) Select the connector configurations that meet the intent of the application. All plugs are hermaphroditic and feature an integrated backshell. Receptacles are selected base on jam nut, flange-mount or flange-mount with strain-relief receptacle options.
- 3) Identify the number of fiber optic termini and electrical contacts required to support the application. Two fiber, six electrical – V-Series (2f+6e), four fiber, four electrical – T-Series (4f+4e), six fiber, two electrical – W-Series (6f+2e) are available. There are additional configurations for each of the shell sizes with the use of dummy termini, which provide greater flexibility in provisioning.
- 4) Jam nut or flange-mount receptacles utilize termini that only accommodate 900µm tight buffer fiber optic cable. Flange-mount strain-relief receptacle (SRR) utilizes distribution- or breakout-styles of composite cable and provide additional pull strength for simplex connector pigtails.

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Provisioning Guidelines

<p>T-SERIES, 4F+4E 4 FIBER, 4 ELECTRICAL</p>	<p>V-SERIES, 2F+6E 2 FIBER, 6 ELECTRICAL</p>	<p>W-SERIES, 6F+2E 6 FIBER, 2 ELECTRICAL</p>
		
<p>T-SERIES, 2F+4E 2 FIBER, 4 ELECTRICAL (DUMMY TERMINI IN POSTION S4-P4)</p>	<p>8CH V-SERIES, 4F+2E 4 FIBER, 2 ELECTRICAL (DUMMY TERMINI IN POSTION S4-P4)</p>	<p>W-SERIES, 2F+2E 2 FIBER, 2 ELECTRICAL (DUMMY TERMINI IN POSTION S1-P1, AND S4-P4)</p>
		

Plating/Material Options

All MHC II configurations are supplied with "1" – Aluminium black anodized as standard plating. For the additional plating options, the eighth digit position of the part number (e.g., CCME00Dy1CB) is selected for the choice of plating/alternate material:

- "1" – Aluminium black anodized
- "4" – 303 stainless-steel, Passivation per QQ-P-35/ASTMA967
- "5" – 316 stainless-steel, Passivation per QQ-P-35/ASTMA967
- "6" – Marine brass
- "8" – Nickel-teflon

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