

# HMA-JF Series

## Harsh environmental ferrule connector

### Description:

The new HMA-JF connector, to compliment the existing and wide range of harsh environment products. The HMA-JF uses the design of 1.25 mm ferrules, already industry proven in both singlemode and multimode applications. The HMA-JF ideally suits long distance military applications where the excellent transmission parameters are desired. The unique design of the HMA-JF allows users to ensure high performance of SFF, Small Form Factor optical connectors in the field conditions.

Rapid deployment and 'daisy chaining' is achieved with hermaphroditic designs, eliminating the need for adaptors or male and females mating halves. Hermaphroditic interconnection; facilitates expansion of cable distances by insertion of standard cable harnesses. The HMA-JF is IP68 rated and fully sealed.

### Features:

- Ruggedised field design
- Hermaphroditic interconnection
- 2 - 4 Fiber channels
- Singlemode and/or Multimode

### Benefits:

- No adaptors necessary
- Excellent transmission parameters
- Lightweight
- SFF ferrule termination procedure

### Application:

- Military communications
- Telecomms
- Surveillance
- Broadcast



### Available types:

- HMA-JF-2XX 2 fibers plug
- HMA-JF-4XX 4 fibers plug
- HMA-JF-BN-2XX 2 fibers bulkhead, jam nut
- HMA-JF-BN-4XX 4 fibers bulkhead, jam nut

### Specifications:

Optical Loss	50/125 @ 850/1300 nm 0.3 dB typ
	9/125 @ 1310/1550 nm 0.5 dB typ
Return Loss	9/125 @ 1310/1550 nm > 45 dB (typical 48 dB)
Operating temperature	-40 to +70 °C
Storage temperature	-55 to +85 °C
Water immersion	up to 2 m depth, IP 68
Vibration Sinusoidal	10-500 Hz, 0.75 amplitude @ 10 g acceleration
Shock resistance	100 g, 6 ms
Mating durability	1000 cycles
Tensile Strength	Tensile of 500 N, cable dependent
Corrosion Resistance	500 Hours Salt Spray
Cable Variations	Compatible with tactical cable: ≤ 5.5 mm outer diameter
	Other cable sizes available on request

### Technical drawings:

<p>Plug Connector: <b>HMA-JF (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm</p>
<p>Bulkhead Jam-Nut: <b>HMA-JF-BN (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm  Duplex 2 channel 2.8x5.5 mm 4 channel 2x 2.8x5.5 mm</p>



HMA-JF endface

**Ordering code:**

HMA	-	XX	-	XXX	-	X(SM, M5, M6) - Y(D,P)
M	Mini					X fiber number
J	Junior (4)					YD contact number, size 20
S	Senior (6)					YP contact number, size 16
-	Expanded Beam			-	plug	
F	Ferrule			BN	bulkhead jam nut	
P	POF			BNB	bulkhead jam nut with boot	
				BF	bulkhead flange	
				BFB	bulkhead flange with boot	

# HMA-J Series connector

## Description:

The OPTOKON HMA-J connector series, a medium size „Expanded Beam“ connector is designed for connection of the nodes of tactical network by the help of cables with optical fibers. The used expanded beam technology preserves all advantages of signals transmission through the optical lines in field harsh environmental conditions. Additionally to military optical networks the HMA-J is suited for a vast array of applications, like heavy industry connections, petrochemical application, broadcasting temporary optical lines.

The innovative designs ensure its ability for deployment in the toughest environments where high performance and total reliability are critical. Benefiting from expanded beam technology the precision optical alignment system creates immunity from water, mud, dust oil and other contaminants.

The HMA-J Hermaphroditic coupling eliminates the need for adaptors and male and female mating halves. Hermaphroditic housings allow for rapid deployment, creating low loss Singlemode and Multimode daisy chained links in a variety of planforms ranging from simplex fiber to a four fibers. The OPTOKON HMA-J is ideally suited for environmental extremities where low maintenance and quick repairability is necessary.

## Features:

- Advanced expanded beam technology
- MIL-DTL-83526 specification
- Hermaphroditic interconnection
- 1 to 4 fiber channels Singlemode or Multimode
- Rugged field repairable connector design
- Keyed boot for 'Blind Mating'

## Benefits:

- Best optical performance available
- No adaptors necessary
- Inexpensive, low downtime field repair
- Easy clean, no special tools

## Materials:

- Black anodized high grade lightweight alloy
- Neoprene BR568 Grip ring



HMA-J plug

## Application:

- Broadcast
- Military communications
- Industrial
- Petrochemical



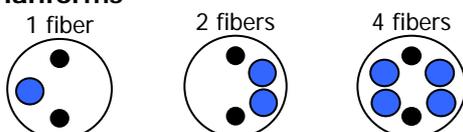
HMA-J bulkhead

## Specifications:

Optical Loss	50/125 @ 850/1300 nm 0.7 dB typ., 9/125 @ 1310/1550 nm 1.0 dB typ.
Return Loss	9/125 @ 1310/1550 nm >32 dB
Durability	3000 matings minimum
Operating temperature	-55 to +85 °C
Storage temperature	-55 to +85 °C
Water immersion	2 m depth duration 24 Hours
Vibration Sinusoidal	10-500 Hz, 3 directions, 0.75 mm amplitude @ 10 G acceleration
Free fall resistance	500 falls from 1.2 m height
Bump resistance	4000 bumps @ 40 G acceleration
Tensile Strength	Tensile of 1500 N, cable dependent
Cable Variations	Compatible with tactical cable: Plug: 5.0-5.5 mm, Bulkhead: 2.8-5.5 mm o/d Other cable sizes available on request

All tests compliant to EN 186000-1 specifications

## Planforms



**Technical drawings:**

<p>Plug Connector: <b>HMA-J (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm</p>
<p>Bulkhead Jam-Nut: <b>HMA-J-BN (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm  Duplex 2 channel 2.8x5.5 mm 4 channel 2x 2.8x5.5 mm</p>
<p>Bulkhead Jam-Nut with Boot: <b>HMA-J-BNB (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm  Duplex 2 channel 2.8x5.5 mm 4 channel 2x 2.8x5.5 mm</p>
<p>Bulkhead Flange: <b>HMA-J-BF (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm  Duplex 2 channel 2.8x5.5 mm 4 channel 2x 2.8x5.5 mm</p>
<p>Bulkhead Flange with Boot: <b>HMA-J-BFB (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm  Duplex 2 channel 2.8x5.5 mm 4 channel 2x 2.8x5.5 mm</p>

**Ordering code:**

HMA	-	XX	-	XXX	-	X(SM, M5, M6) - Y(D,P)
M	Mini					X fiber number
J	Junior (4)					YD contact number, size 20
S	Senior (6)					YP contact number, size 16
-	Expanded Beam					
F	Ferrule					
P	POF					
				-	plug	
				BN	bulkhead jam nut	
				BNB	bulkhead jam nut with boot	
				BF	bulkhead flange	
				BFB	bulkhead flange with boot	

# HMA-S Series connector

## Description:

The OPTOKON HMA-S connector series, a large size „Expanded Beam“ connector is designed for connection of the nodes of tactical network by the help of cables with optical fibers. The used expanded beam technology preserves all advantages of signals transmission through the optical lines in field harsh environmental conditions. Additionally to military optical networks the HMA-S is suited for a vast array of applications, like heavy industry connections, petrochemical application, broadcasting temporary optical lines.

The innovative designs ensure its ability for deployment in the toughest environments where high performance and total reliability are critical. Benefiting from expanded beam technology the precision optical alignment system creates immunity from water, mud, dust oil and other contaminants.

The HMA-S Hermaphroditic coupling eliminates the need for adaptors and male and female mating halves. Hermaphroditic housings allow for rapid deployment, creating low loss Singlemode and Multimode daisy chained links in a variety of planforms ranging from simplex fiber to a four fibers. The OPTOKON HMA-S is ideally suited for environmental extremities where low maintenance and quick repairability is necessary.

## Features:

- Advanced expanded beam technology
- Hermaphroditic interconnection
- 1 to 8 fiber channels Singlemode or Multimode
- Hybrid electrical & fiber channel options available
- Rugged field repairable connector design
- keyed boot for 'Blind Mating'
- HMA-S is fully compatible with another producers of HMA connector and with Pro Beam Senior connector

## Benefits:

- Best optical performance available
- No adaptors necessary
- Combined fiber and electrical channels
- Inexpensive, low downtime field repair
- Easy clean, no special tools

## Application:

- Broadcast
- Military communications
- Industrial
- Petrochemical

## Materials:

- Anodized high grade lightweight alloy
- Neoprene BR568 Grip ring



Plug Connector:



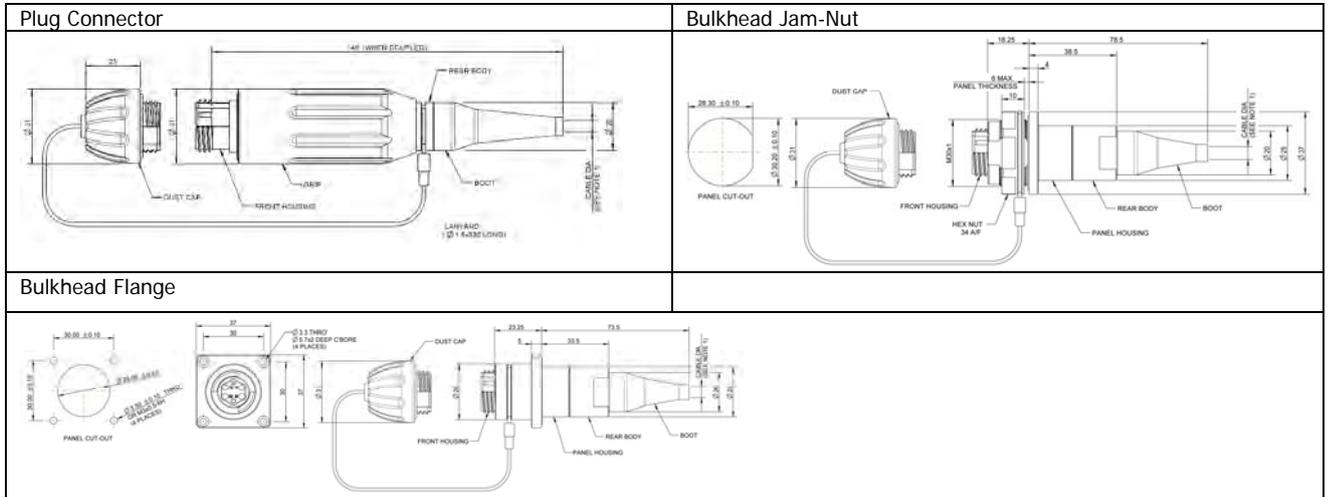
Bulkhead Jam-Nut

### Specifications:

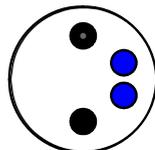
Optical Loss	50/125 @ 850/1300 nm 1.0 dB max 9/125 @ 1310/1550 nm 1.5 dB max
Return Loss	9/125 @ 1310/1550 nm > 30
Electrical power contacts	Size 20 & size 16 MIL-C-39029. Contact resistance < 4 mΩ. Operating voltage 1000 VAC. Operating current 5A (short term 15A)
Operating temperature	-40 to +70 °C
Storage temperature	-55 to +85 °C
Water immersion	up to 2 m depth
Vibration Sinusoidal	10-500 Hz, 0.75 amplitude @ 10 G acceleration
Free fall resistance	500 falls onto concrete from 1.2 m height
Bump resistance	4000 bumps @ 40 G acceleration
Tensile Strength	Tensile of 1500 N, cable dependent
Cable Variations	Compatible with tactical cable: Plug ≤ 6 mm o/d , Bulkhead ≤ 3 mm o/d Other cable sizes available on request

For details and technical information on the hybrid versions, please contact the factory.  
All tests compliant to EN 186000-1 specifications

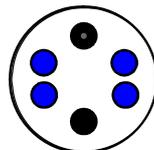
### Technical drawings:



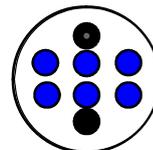
### Optical insert arrangement:



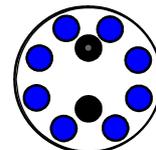
2CH OPTICAL



4CH OPTICAL

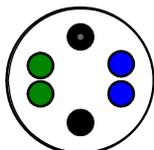


6CH OPTICAL

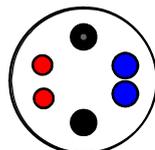


8CH OPTICAL

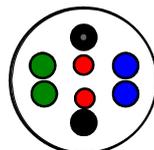
### Hybrid insert arrangement:



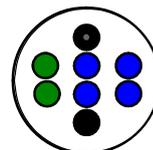
2CH OPTICAL  
2 POWER (#16)



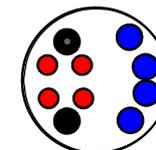
2CH OPTICAL  
2 SIGNAL (#20)



2CH OPTICAL  
2 POWER (#16)  
2 SIGNAL (#20)



4CH OPTICAL  
2 POWER (#16)



2CH OPTICAL  
4 ELECTRICAL (#20)

# HMA-M Mini connector

## Description:

The OPTOKON HMA-M connector series, a mini size „Expanded Beam“ connector is designed for connection of the nodes of tactical network by the help of cables with optical fibers. The used expanded beam technology preserves all advantages of signals transmission through the optical lines in field harsh environmental conditions. Additionally to military optical networks the HMA-M is suited for a vast array of applications, like heavy industry connections, petrochemical application, broadcasting temporary optical lines.

The innovative designs ensure its ability for deployment in the toughest environments where high performance and total reliability are critical. Benefiting from expanded beam technology the precision optical alignment system creates immunity from water, mud, dust oil and other contaminants.

The HMA-M Hermaphroditic coupling eliminates the need for adaptors and male and female mating halves. Hermaphroditic housings allow for rapid deployment, creating low loss Singlemode and Multimode daisy chained links in a variety of planforms ranging from simplex fiber to a four fibers. The OPTOKON HMA-M is ideally suited for environmental extremities where low maintenance and quick reparability is necessary.

## Features:

- Advanced expanded beam technology
- MIL-DTL-83526 specification
- Hermaphroditic interconnection
- 1 to 4 fiber channels Singlemode or Multimode
- Rugged field repairable connector design
- Keyed boot for 'Blind Mating'

## Benefits:

- Best optical performance available
- No adaptors necessary
- Inexpensive, low downtime field repair
- Easy clean, no special tools

## Materials/colors:

- Black anodized aluminium shell
- Grip & boot black



HMA-M plug

## Application:

- Broadcast
- Military communications
- Industrial
- Petrochemical

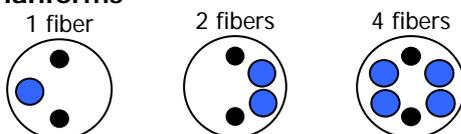


HMA-M bulkhead

## Specifications:

Optical Loss	50/125 @ 850/1300 nm 0.7 dB typ., 1.0 dB max. 9/125 @ 1310/1550 nm 1.0 dB typ., 1.5 dB max.
Return Loss	9/125 @ 1310/1550 nm >32 dB
Durability	3000 matings minimum
Operating temperature	-55 to +85 °C
Storage temperature	-55 to +85 °C
Water immersion	2 m depth duration 24 Hours
Vibration Sinusoidal	10-500 Hz, 3 directions, 0.75 mm amplitude @ 10 g acceleration
Free fall resistance	500 falls from 1.2 m height
Bump resistance	4000 bumps @ 40 g acceleration
Tensile Strength	Tensile of 1500 N, cable dependent
Crush resistance	6.7 kN
Cable Variations	Compatible with tactical cable: Plug: 5.0-5.5 mm Bulkhead: 2.8-5.5 mm o/d Other cable sizes available on request

## Planforms



**Technical drawings:**

<p><b>Plug Connector: HMA-M (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm</p>
<p><b>Bulkhead Jam-Nut: HMA-M-BN (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm  Duplex 2 channel 2.8x5.5 mm 4 channel 2x 2.8x5.5 mm</p>
<p><b>Bulkhead Flange (square): HMA-M-BF (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm  Duplex 2 channel 2.8x5.5 mm 4 channel 2x 2.8x5.5 mm</p>
<p><b>Bulkhead Flange (rectangular): HMA-M-BX (SM,MM)</b></p>	<p>Suitable cable: MIL-TAC D 2 channel Ø 5.0 mm 4 channel Ø 5.5 mm  Duplex 2 channel 2.8x5.5 mm 4 channel 2x 1.8x3.5 mm</p>

**Ordering code:**

HMA	-	X	-	XX	-	X(SM, M5, M6)
M		Mini				X fiber number
-						plug
BN						bulkhead jam nut
BF						bulkhead flange (square)
BX						bulkhead flange (rectangular)