

# OPTOKON HMA<sup>1</sup> patchcord

## Description:

The OPTOKON HMA optical modules are 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.

Benefiting from expanded beam technology, with a long and proven industry track record, the precision optical alignment system creates immunity from water, mud, dust, oil and other contaminants.

The HMA Hermaphroditic coupling eliminates the need for adaptors and male and female mating halves. Hermaphroditic housings allow for rapid deployment, creating low loss Single mode, Multimode and Hybrid daisy chained links in a variety of planforms ranging from simplex fiber to a copper Hybrid. The OPTOKON HMA is ideally suited for environmental extremities where low maintenance and quick repairability is necessary, the connectors are uniquely field installable and rapidly field repairable.

There are two different types of OPTOKON HMA connection modules:

- LD type military tactical cable with OPTOKON HMA plugs at both sides
- Hybrid connection module OPTOKON HMA to standard fiber optic connectors (FC, SC, ST, LC, ...)

## Features:

- Advanced expanded beam technology
- Hermaphroditic interconnection
- 1 to 8 Fiber channels Single mode or Multimode
- Rugged connector design
- Two versions
  - HMA plug tactical cable
  - HMA bulkhead hybrid cable



Military tactical cable terminated with the HMA plug

## Application:

- Military communications
- Broadcast
- Industrial, Petrochemical



Tactical cable with HMA plug connectors coiled on SBD-200 drum.

## HMA-J connector specifications:

|                       |   |
|-----------------------|---|
| Insertion loss (typ.) | 0.5 – 0.7 dB (MM)<br>0.7 – 1.0 dB (SM)  |
| Return loss           | >32 dB (SM)   |
| Operating temperature | -55 to +85 °C   |
| Storage temperature   | -55 to +85 °C   |
| Water immersion       | up to 15 m depth, 24 hrs  |
| Vibration Sinusoidal  | 10-500 Hz, 0.75 amplitude<br>@ 10 g acceleration  |
| Free fall resistance  | 500 falls onto concrete<br>from 1.2 m height  |
| Bump resistance       | 4000 bumps @ 40 g acceleration  |
| Tensile Strength      | Tensile of 1500 N<br>cable dependent  |
| Cable Variations      | Compatible with tactical cable <sup>1</sup> :<br>Plug < 6 mm o/d<br>Bulkhead < 3 mm o/d |

HMA-J/LD4 S7A-JC-200



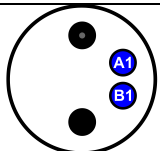
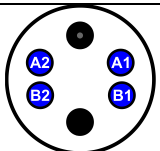
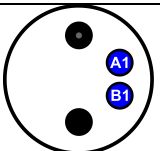
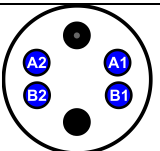
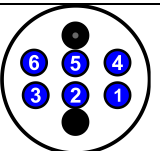
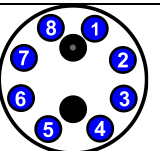
HMA-J-BN-SCD/D8 OM2-002



HMA-J-4xSL/LD4 OM2-0.5-002

Hybrid cable with HMA connector and SC, ST

## Planforms:

| HMA-J / HMA-M   |   |   | HMA-S   |   |   |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| 2 CH  | 4 CH  | 2 CH  | 4 CH  | 6 CH  | 8 CH  |

**Ordering Code:**

|   |  |  |
|---|--|--|
| <b>HMA-X(x)<sup>5</sup> – (NxAAA)<sup>4</sup></b>   | <b>/ CCC FFF</b>   | <b>- XX - (L2) - LLL</b>   |
| <p><b>Connector type<sup>1</sup></b><br/>Up to 4 fibers</p> <p><b>HMA-J</b> Plug (J type)<br/><b>HMA-J-BN(B)<sup>3</sup></b> Bulkhead jam-nut<br/><b>HMA-J-BF(B)<sup>3</sup></b> Bulkhead flange</p> <p><b>HMA-M</b> Plug (type mini)<br/><b>HMA-M-BN</b> Bulkhead jam-nut<br/><b>HMA-M-BF</b> Bulkhead flange<sup>1</sup><br/><b>HMA-M-BX</b> Bulkhead flange<sup>1</sup></p> <p>Up to 8 fibers</p> <p><b>HMA-S</b> Plug (S type)<br/><b>HMA-S-BN</b> Bulkhead jam-nut<br/><b>HMA-S-BF</b> Bulkhead flange</p> | <p><b>CCC – Cable type</b></p> <p><b>LD2</b> Tactical cable 2 fibers<br/><b>LD4</b> Tactical cable 4 fibers<br/><b>LD6</b> Tactical cable 6 fibers<br/><b>LD8</b> Tactical cable 8 fibers<br/><b>LDAC4<sup>7</sup></b> Armored cable 4 fibers<br/><b>D8</b> Duplex 2.8 x 5.5 mm<br/><b>28</b> Cable Ø 2.8 mm</p> <p><b>FF – Fiber type</b></p> <p><b>OM1</b> MM 62.5/125 µm<br/><b>OM2</b> MM 50/125 µm<br/><b>OM3</b> MM 50/125 µm<br/><b>S2D</b> SM 9/125 µm (G.652D)<br/><b>S7A<sup>6</sup></b> SM 9/125 µm (G.657A1)</p> | <p><b>Cable length</b><br/><b>L, L2</b> Length (m)</p> <p><b>Cable type</b></p> <p><b>P</b> Pigtail<br/><b>JC</b> jumper crossed<sup>2</sup><br/><b>JS</b> jumper straight</p> |

- Note: 1) Other type of rugged connector on demand  
Detailed information concerning connectors: HMA-J: STR\_02-08\_EN-Connector\_HMA-J  
HMA-S: STR\_03-08\_EN-Connector\_HMA-S  
HMA-M: STR\_01-12\_EN-Connector\_HMA-M
- 2) HMA cables: JC – standard, JS cable straight – on demand  
Hybrid cable: HMA to single fiber connectors (FC, SC, ST, LC, ..): JS – standard  
3) –BNB, –BFB boot version, more information refer to STR\_02-08\_EN-Connector\_HMA-J  
4) Hybrid cable – HMA to standard connectors (defined according to the CON\_13-01\_EN-ORD\_CODE)  
5) x –if cable configuration is different than planform configuration please use x=2, 4, 6 or 8 according to planform  
6) S7A - G.657A1 standard, other on request  
7) LDAC – armored flexible cable



**Cable connection:**

|                                  |  |
|----------------------------------|--|
|                                  |  |
| Straight cable<br>Connected pins | Cross cable<br>Connected pins  |
| 2 fibers connector               | 4 fibers connector   |
| A1 – A1<br>B1 – B1               | 2 fibers<br>A1 – B1<br>B1 – A1   |
|                                  | 4 fibers<br>A1 – B1<br>A2 – B2<br>B1 – A1<br>B2 – A2                             |
|                                  | 6 fibers<br>1 – 6<br>2 – 5<br>3 – 4<br>4 – 3<br>5 – 2<br>6 – 1                   |
|                                  | 8 fibers<br>1 – 5<br>2 – 6<br>3 – 7<br>4 – 8<br>5 – 1<br>6 – 2<br>7 – 3<br>8 – 4 |