MPO-12 APC (Female) to 2 MPO-4 APC (Female) Type B LSZH Single-mode Splitter Fiber Cable

Features

- Flexible round outer jacket for easy installation
- Push-pull latching for quick release
- Female-to-Female connectors
- 9/125 μm Single-mode fibers
- Telcordia GR-1435 compliant
- IEC Standard Connectors:

  MPO: IEC 61754-7 and ANSI/TIA/EIA 604-5-199
- OFNR/LSZH (low smoke zero halogen) jacket
- Supports InfiniBand, Ethernet protocols

Applications

- Optical long-reach high speed links in data centers
- Data processing and storage systems

Description

The S2MPOA2x4F, is a Single-mode, 4-channel to two 2-channel splitter fiber cable. The Multiple Push On, 12 fiber, Angled Polished Connectors (MPO-12/APC) uses 8 active fibers to transmit light and 4 inactive fibers as strength members. The Angled Polished Connector has a 8-degree polished angle to deflect internal optical back reflections from entering the transceivers and distorting the signal quality.

The 4-channel end is inserted into a Twin port OSFP, 800Gb/s transceiver. The 2-channel ends are inserted into two, single-port 400Gb/s OSFP and/or QSFP112 transceivers which with only 2 fibers can output 200G rates. Two splitter fiber cables are used in the twin-port OSFP transceiver enabling four, 2-channel ends to four transceivers.

The fibers are "crossover", Type-B cables enable directly attaching two transceivers together and allow the transmit laser fiber on pin 1 to "crosses over" and align with pin 12 of the opposite fiber end transceiver photo detector. The typical usecase is linking OSFP switches to in ConnectX-7® network adapters and/or BlueField-3® Data Processing Units (DPUs) in compute and storage servers.

Rigorous cable production testing ensures best out-of-the-box installation experience, performance, and durability. NADDOD's optical solutions provide short, medium, and long reach scalability for all topologies, utilizing innovative optical technologies to enable high signal integrity and reliability.

Absolute Maximum Specifications

Absolute maximum ratings are those beyond which damage to the device may occur.

Prolonged operation between the operational specifications and absolute maximum ratings is not intended and may cause permanent device degradation.

Environmental Specifications

Table1-Environmental Specifications

Parameter	Min	Max.	Units
Storage temperature	-40	85	°C
Operating temperature	0	70	°C
Humidity	10	85	%RH

Mechanical and Optical Specifications

Table2-Mechanical and Optical Specifications

Parameter	Note	Value	Units
Tolerance on length,	Length < 10m Length ⩾ 10 m	-0/+0.2 -0/+0.5	m
Number of Fibers		12	
Cable diameter		3 ± 0.2	mm
Minimum bending radius	Anywhere on the cable	30	mm
Cable Jacket		Yellow, LSZH-OFNR	

Topology	Crossed	Type B	
Connectors and connector end face	Low loss MPO	APC, female	
Insertion Loss, connector end face,IL	L=length {m}	≤0.35+0.0004 x L	dB
Return Loss, connector end face, RL		≥ 60	dB

Interconnection Scheme

The fiber which connects transceiver A's lane 1 must end at transceiver B's lane 12 at the other end of the link. This calls for a crossed MPO cable, commonly referred to as Type B.

Table3-Interconnection Scheme

MPO1 MPO/APC Female	Connection	MPO2 MPO/APC Female	MPO3 MPO/APC Female
1	-----→	12	-
2	-----→	11	-
3	-----→	-	12
4	-----→	-	11
5	Not Connected	-	-
6	Not Connected	-	-
7	Not Connected	-	-
8	Not Connected	-	-
9	←-----	-	2
10	←-----	-	1
11	←-----	2	-
12	←-----	1	-

Application

The S2MPOA2x4F Fiber Cable is intended for interconnection of 2 servers sharing a port in a high-speed switch. The cable mates with pluggable optical 400GbE transceivers such as OSFP 800G 2xDR4 twin port OSFP DR8 transceiver for InfiniBand and Ethernet systems in the switch end and OSFP 400G DR4 or QSFP112 400G DR4 in ConnectX-7 network adapters and BlueField-3 DPUs.

- Twin port OSFP transceivers must use the same fiber type in both MPO-12/APC ports (straight or 1:2 splitter) and cannot be mixed.
- Single-mode fibers use an industry standard Magenta fiber jacket color
- Jacket is Low-Smoke, Zero-Halogen (LSZH) type to reduce toxic smoke in event of a fire.
- The connector has an green connector shell denoting MPO-12/APC.
- MPO-12/APC connectors cannot be used with MPO-12/UPC ultra-flat polish connectors because the fiber polish is different and cannot be matched.
- The split ends can support either OSFP and/or QSFP112 transceivers at the same time depending on the adapter type.

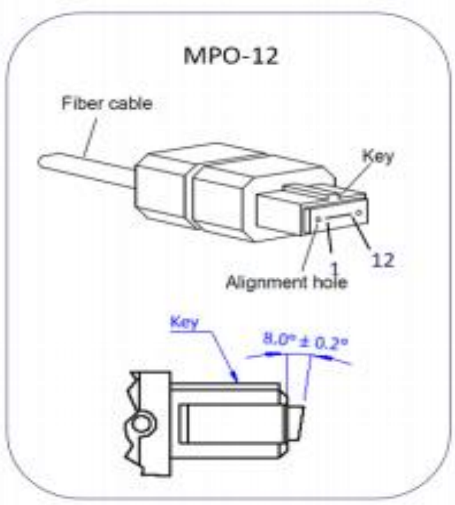
Connector Details

The S2MPOA2x4F fiber cables have 8 individual fibers, 4 in each direction.

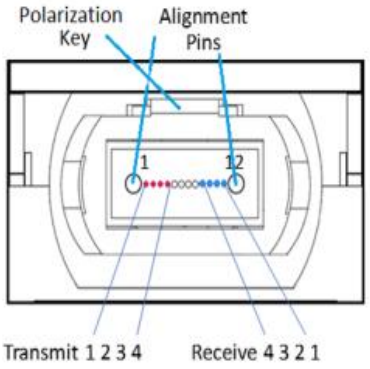
The MPO connectors are the angle-polished (APC) type which provide minimal reflection of the optical signal for optimal signal integrity.

Transceivers have alignment pins for precise positioning of the cable connector against the optical beams. The fiber cable has alignment holes matching the transceiver's pins.

MPO Connector with Alignment Holes and Positioning Key:



Optical Receptacle and Lane Assignment (transceiver, front view):



Reference: IEC specification IEC 61754-7. [1]

Handling Precautions

The cable is shipped with dust caps which protect the connectors from contamination during shipment and installation. The caps should not be removed until the cable is plugged in at the time of installation. Prior to insertion of the fiber cable into the transceiver, always clean both the cable and the transceiver connector using optical connector cleaners to remove any contamination. Keep the cables away from any Liquids.

Fiber cables have no conductive parts and are not ESD sensitive. However, they plug into ESD sensitive transceivers. Due to that, standard ESD handling precautions must be observed during installation.

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