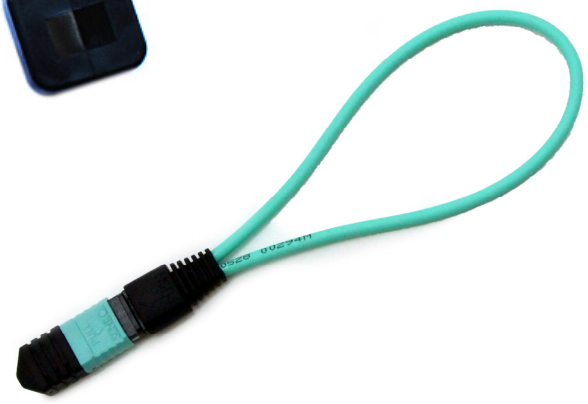
DATASHEET

8F-24F MPO Fiber Optic Loopback

MPO Loopback Module



MPO Loopback Cable

OMC INDUSTRY CO.LIMTED

2018|En version1.0

www.omcftth.com sales@omcftth.com 0086-755-29163551

8F-24F MPO Fiber Optic Loopback

Description

MPO Loopback modules provides a looped signal to test the transmit and receiving functions. It used widely within testing environment especially within parallel optics 40 and 100G networks.

Loopbacks are built to link Transceivers (TX) and Receivers (RX) positions of MPO transceivers interfaces. MPO loop-backs can facilitate and speed up IL testing of optical networks segments by connecting them to MPO trunks/patch leads.

MPO loopback assemblies' standard products include a female MPO 12-fiber interface with 8-fiber Quad SmallForm-actor Pluggable (QSFP) option or 24-fiber, singlemode or multimode ferrules. Our compact and rugged housing design provides high stability and reliability.

8F MPO Fiber Loopback Module allows verification and testing of transceivers featuring MPO interface – 40GBASE-SR4/ CSR4 QSFP+ devices.

12F MPO Fiber Loopback Module allows verification and testing of transceivers featuring MPO interface – 40GBASE-SR4 QSFP+ or 100GBASE-SR4 devices.

24F MPO Fiber Loopback Module allows verification and testing of transceivers featuring MPO interface – 100GBASE-SR10 CXP/CFP devices.

OMC offers a line of MPO fiber optic loopback assemblies for burn-in and testing of MPO network components and systems. These MPO Loopback Assemblies are used to effectively test transmitter capability and receiver sensitivity of network equipment, particularly for telecom and datacom requirements. They are packaged in a compact housing for the highest density available for these applications.

Material's details

Bend Insensitive fiber of G657A1,G657A2/B2,G657B3,OM1,OM2, OM3, OM4, OM5 Fibers Offering stable transmission

High quality MT ferrule,

Available for 12F,24F

High Quality Senko MPO Connector meet and Compatible with many International Standard

Connector	Reference	Housing Details
MPO Single Mode	IEC 61754-7	SM APC: Green connectors+black boot (Standard Loss MPO) SM APC: Yellow connectors+black boot (Super low loss MPO)
MPO Multimode	IEC 61754-7	OM1&OM2 PC: Beige connectors+black boot (Standard Loss MPO) OM3&OM4 PC: Aqua connectors+black boot (Standard&Super low loss MPO) OM3&OM4 PC: Heather Violet connectors+black boot (Standard loss MPO)

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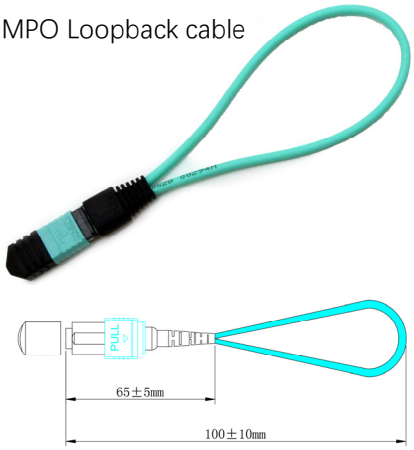
Products details

MPO Loopback cable

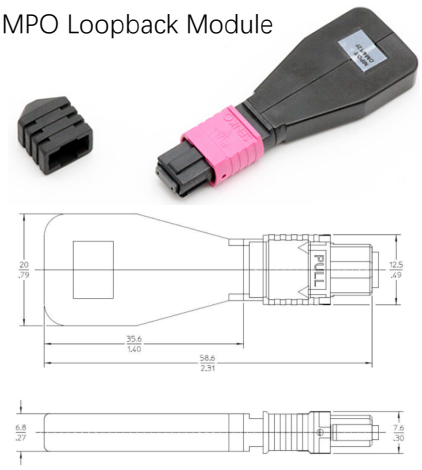


8Fibers

12 Fibers

24 Fibers

MPO Loopback Module

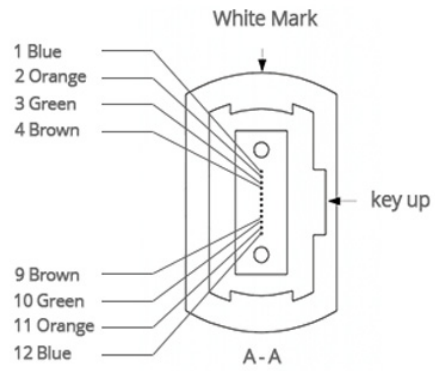


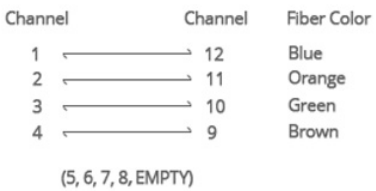
Specification

Item	Parameter
Fiber Type	Singlemode or Multimode
Fiber Diameter	9/125um, 50/125um, 62.5/125um
Insertion loss	MM < 1.0dB, SM(G657A1) < 1.0dB
Return loss	SM > 50dB; MM > 25dB
Insert-pull Test	500times, IL < 0.5dB
Operation Temperature	-40℃~ +80℃

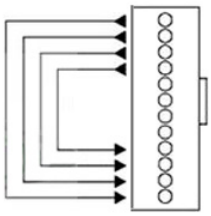
Polarity (Channel Alignment)

8F Loopback





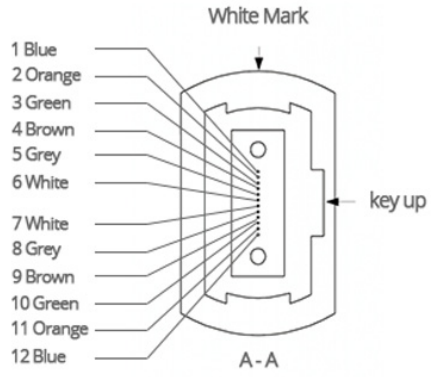
Type 1 Connection



8F-24F MPO Fiber Optic Loopback

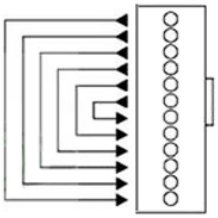
Polarity (Channel Alignment)

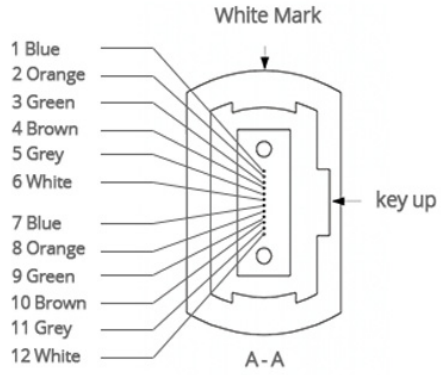
12F Loopback



Channel	Channel	Fiber Color
1	12	Blue
2	11	Orange
3	10	Green
4	9	Brown
5	8	Grey
6	7	White

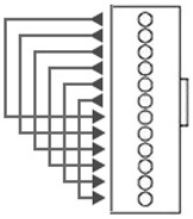
Type 1 Connection



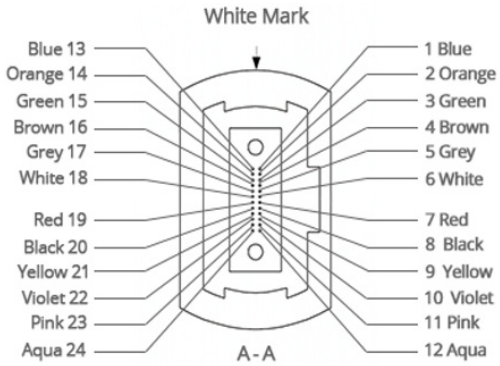


Channel	Channel	Fiber Color
1	7	Blue
2	8	Orange
3	9	Green
4	10	Brown
5	11	Grey
6	12	White

Type 2 Connection

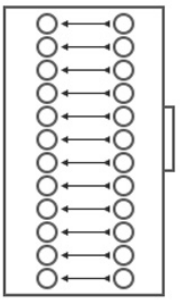


24F Loopback



Channel	Channel	Fiber Color
13	1	Blue
14	2	Orange
15	3	Green
16	4	Brown
17	5	Grey
18	6	White
19	7	Red
20	8	Black
21	9	Yellow
22	10	Violet
23	11	Pink
24	12	Aqua

Type 1 Connection



8F-24F MPO Fiber Optic Loopback

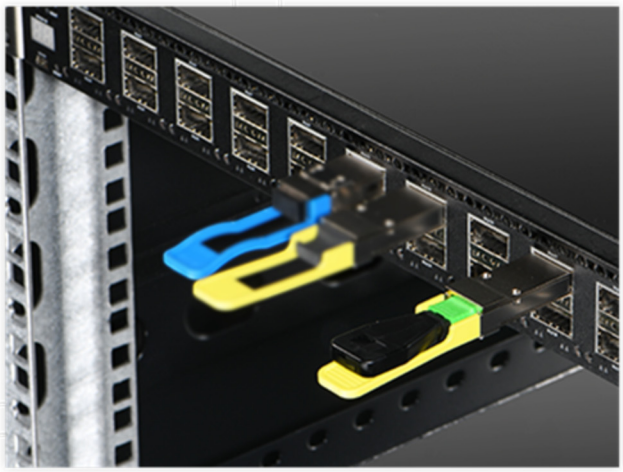
Fiber Optic Loopback Testing

Typically, a loopback test is a test in which a signal is sent from a communication device and looped back to the device as a way to determine whether it is functioning well or as a way to troubleshoot a defective node in the network. As for fiber optic loopback testing, optical loopbacks are used to verify the operational reliability of the device. Using fiber optic loopback cable or fiber optic loopback module for data transmission, the signal emitted by the device is looped from the transmit (Tx) end of an active component back to the receive (Rx) end of the same component.

Application

When it comes to practical application, fiber optic loopback test is often employed for checking fiber optic transceivers. Since transceiver has two ports for receiving and transmitting the light signal, it is necessary to test the ports to see whether they are still under operation. Thus, fiber optic loopback test is the most convenient way for transceiver maintenance. The testing process is by routing the laser signal from the transmitter port back to the receiver port. Then the transmitted pattern is compared with the received pattern to make sure they are identical and have no error.

Collocated with 40G or 100G MPO/MPO interface transceivers
Loopback Module can be used for testing the transmission capability and receiver sensitivity of fiber optic network equipment.



Order Index

Loopback	Fiber Grade	Pin	Structure	Fiber account	Polairty
R3-MPO	2 - G657A1	A Female	1 - cable	1 - 8F	1 - Polarity 1
R4-MTP	3 - G657A2/B2	B Male	2 - Module	2 - 12F	2 - Polarity 2
	4 - G657B3			3- 16F	
	5 - BIF OM1			4 - 24F	
	6 - BIF OM2			5 - 32F	
	7 - BIF OM3				
	8 - BIF OM4				
	9 - BIF OM5				

Which to Choose for a Specific Transceiver?

Considering the common features of the transceiver and the loopback, we should think about the connector type, polish type, and cable type when selecting a loopback for the transceiver. The selection guide for some mostly used transceiver modules is summarized in the following tables.

Table 1: Loopback choices for 10G SFP+ transceivers

Model	Interface type	Cable Type	Suited Loopback
10GBASE-USR	LC Duplex (PC)	MMF	LC/UPC Duplex Multimode Fiber Loop-back
10GBASE-SR	LC Duplex (UPC)	MMF	
10GBASE-LR	LC Duplex (UPC)	MMF	
10GBASE-ER	LC Duplex (UPC)	SMF	LC/UPC Duplex Single-mode Fiber Loopback
10GBASE-ZR	LC Duplex (PC)	SMF	

Table 2: Loopback choices for 40G QSFP+ transceivers

Model	Interface type	Cable Type	Suited Loopback
40GBASE-CSR4	MTP/MPO (UPC)	MMF	8/12 Fibers MTP/UPC Multimode Fiber Loopback
40GBASE-SR4	MTP/MPO (UPC)	MMF	
40GBASE-PLRL4	MTP/MPO (APC)	SMF	8/12 Fibers MTP/APC Single-mode Fi-ber Loopback
40GBASE-PLR4	MTP/MPO (APC)	SMF	
40GBASE-LR4	LC Duplex (PC)	SMF	LC/UPC Duplex Single-mode Fiber Loopback
40GBASE-LR4L	LC Duplex (UPC)	SMF	
40GBASE-ER4	LC Duplex (UPC)	SMF	
40GBASE-LX4	LC Duplex (UPC)	MMF/SMF	LC/UPC Duplex Multimode/Single-

Table 3: Loopback choices for 100G QSFP28 transceivers

Model	Interface type	Cable Type	Suited Loopback
100GBASE-SR4	MTP/MPO (UPC)	MMF	8/12 Fibers MTP/UPC Multimode Fiber Loopback
100GBASE-PSM4	MTP/MPO (APC)	SMF	8/12 Fibers MTP/APC Single-mode Fiber Loopback
100GBASE-LR4	LC Duplex (UPC)	SMF	LC/UPC Duplex Single-mode Fiber Loopback

Table 4: Loopback choices for CFP transceivers

Model	Interface type	Cable Type	Suited Loopback
40GBASE-SR4 CFP	MPO/MTP (UPC)	MMF	8/12 Fibers MTP/UPC Multimode Fi-
40GBASE-LR4 CFP	SC Duplex (UPC)	SMF	SC/UPC Duplex Single-mode Fiber Loopback
40GBASE-FR CFP	SC Duplex (UPC)	SMF	
100GBASE-LR4 CFP	SC Duplex(PC/UPC)	SMF	
100GBASE-ER4 CFP	SC Duplex(PC/UPC)	SMF	
100GBASE-SR4 CFP	MPO/MTP (UPC)	MMF	24 Fibers MTP/UPC Multimode Fiber Loopback

Conclusion

This post discusses specific fiber loopback choices for some most commonly used fiber optic transceivers. For other transceiver modules that are not mentioned in this post, we can also know how to choose a suitable loopback for it by getting details about its interface type, physical contact and cable type.