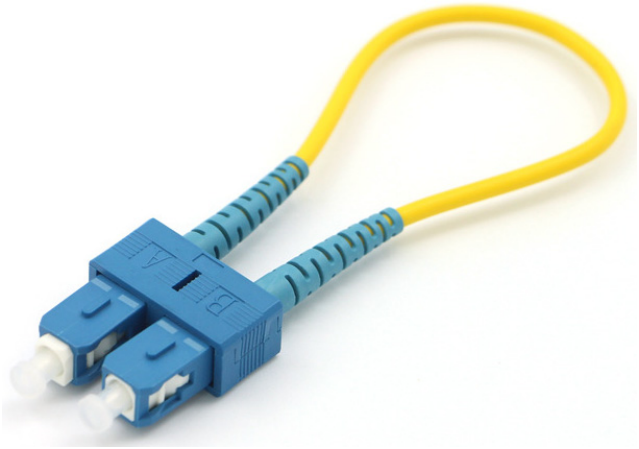
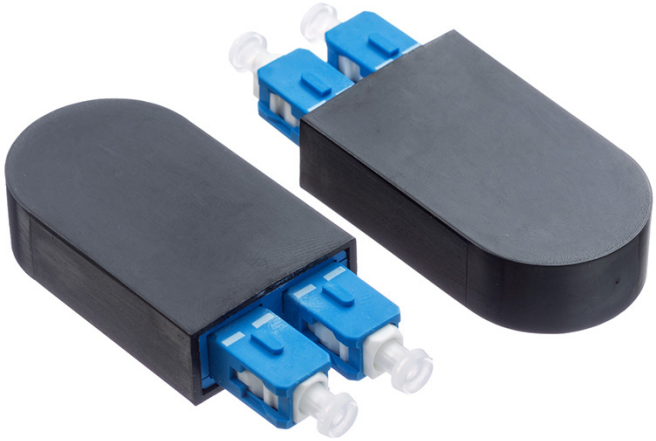
DATASHEET

SC Fiber Optic Loopback



SC loopback Cable



SC loopback module

OMC INDUSTRY CO.LIMTED

2018|En version1.0

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

SC Fiber Optic Loopback

Description

Fiber Optic Loopback modules are also called optical loopback adapters.
They are designed for testing, engineering and the burning stage of boards or other equipment. Fiber loop-back provide system test engineers a simple but effective way of testing the transmission capability and the receiver sen sitivity of network equipment.

Fiber Optic Loopback is providing a media of return patch for a fiber optic signal. Typically, it is used for fiber optic testing applications or network restorations.

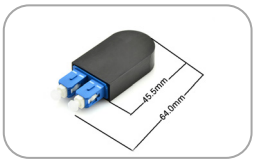
When used in testing applications, loopback signals are used for diagnosing problems. The best practice is to send a lo opback test to network equipment, one at a time for isolating the problem.

SC Fiber optic loopbacks are designed in a compact footprint. They are compliant with fast Ethernet, fiber channel, ATM and Gigabit Ethernet.

Material's details

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

High quality SM Ceramic ferrule, Good concentricity<0.5um
High quality MM Ceramic ferrule, Good concentricity<4.0um



High Quality LC PC Connector meet and Compatible with many International Standard

SC: TIA/EIA, FOCIS3, GR-326.NTT-SC IEC61754-4 and JIS C5973.

Loopback Module Specification

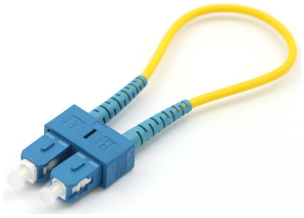
Items	BIF Single mode Fiber-G657B3	BIF Multimode fiber- 50/125 or 62.5/125
Insertion loss (typical)	0.2dB	0.2dB
Insertion loss (Max)	0.3dB	0.3dB
Return loss	UPC>50dB; APC>60dB	>35dB
Operating& Storage temperature range	-40°C to +75°C	
Repeat Ability	< 0.5dB (500 Cycle Passed)	

Loopback Cable Specification

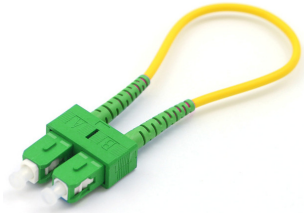
Items	BIF Single mode fiber-9/125 G657 A1	BIF Multimode fiber-50/125 or 62.5/125
Insertion loss (typical)	0.2dB	0.2dB
Insertion loss (Max)	0.3dB	0.3dB
Return loss	UPC>50dB; APC>60dB	>35dB
Operating& Storage temperature range	-40°C to +75°C	
Repeat Ability	< 0.5dB (500 Cycle Passed)	

SC Fiber Optic Loopback

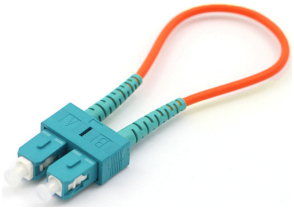
Two kinds of SC Loopbacks



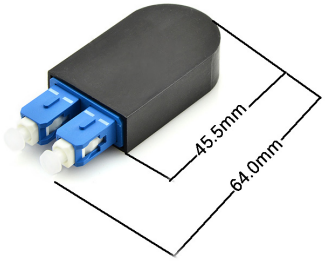
SM SC/UPC loopback Cable



SM SC/APC loopback Cable

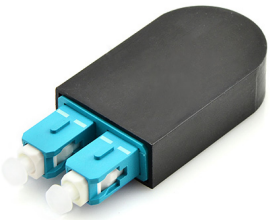


OM3 SC/PC loopback Cable



SM SC loopback module

MM SC loopback module



OM3 SC loopback module

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.

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 Loopback
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 Fiber 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-mode Fiber Loopback

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
100GBASE-PSM4	MTP/MPO (APC)	SMF	8/12 Fibers MTP/APC Single-mode
100GBASE-LR4	LC Duplex (UPC)	SMF	LC/UPC Duplex Single-mode Fiber

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 Fiber Loopback
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

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.

LC Fiber Optic Loopback

Order Index-Loopback cable

Loopback	Fiber Grade	Connector	Cable OD	Cable Color	Cable Jacket
R1-Loopback cable	2 - G657A1	A LC UPC	1 - 0.9mm	A Blue	H- LSZH
	3 - G657A2/B2	B LC APC	2 - 2.0mm	B Orange	C - PVC
	4 - G657B3	C SC UPC	3 - 2.8mm	C Green	R - OFNR
	5 - BIF OM1	D SC APC		D Brown	P - OFNP
	6 - BIF OM2	E MTRJ Female		E Grey	
	7 - BIF OM3	F MTRJ male		F White	
	8 - BIF OM4			G Red	
	9 - BIF OM5			H Black	
				I Yellow	
				J Purple	
				K Pink	
				L aqua	
				M Magenta	
				X- other	

Order Index-Loopback Module

Loopback	Fiber Grade	Connector
R2-Loopback Module	2 - G657A1	A LC UPC
	3 - G657A2/B2	B LC APC
	4 - G657B3	C SC UPC
	5 - BIF OM1	D SC APC
	6 - BIF OM2	
	7 - BIF OM3	
	8 - BIF OM4	
	9 - BIF OM5	