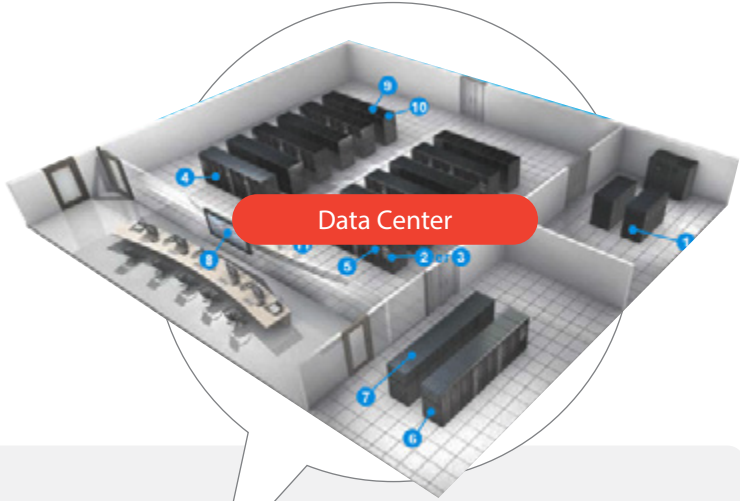




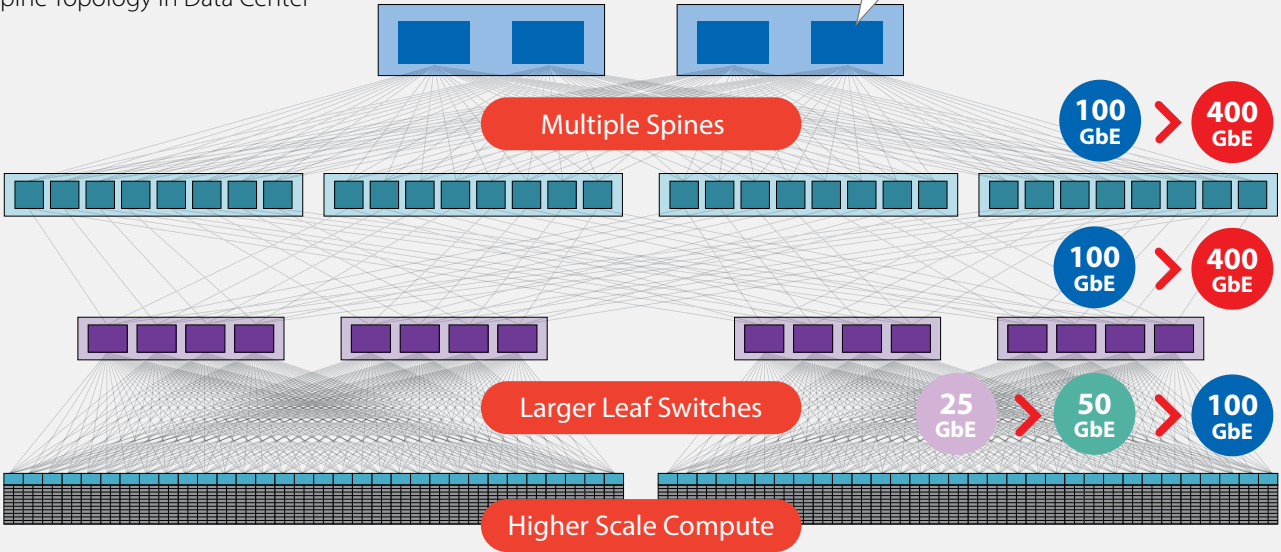
DATA CENTER SOLUTIONS

• DATA CENTER INTRODUCTION	pg. 4
• HOW TO CHOOSE THE RIGHT CONNECTOR	pg. 10
• CS SERIES	pg. 14
• SN SERIES	pg. 30
• SN-MT	pg. 42
• LC SERIES	pg. 44
• MPO SERIES	pg. 48
• AIR-MT SERIES	pg. 54
• CLEANING AND INSPECTION	pg. 59

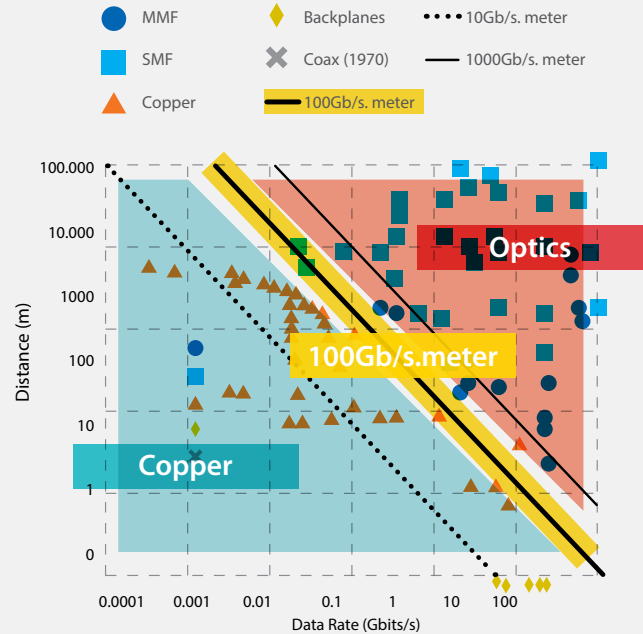
More and more fibers are required in Data Center applications as the data traffic requirements and bandwidths grow so does the need for new innovative interconnect solutions



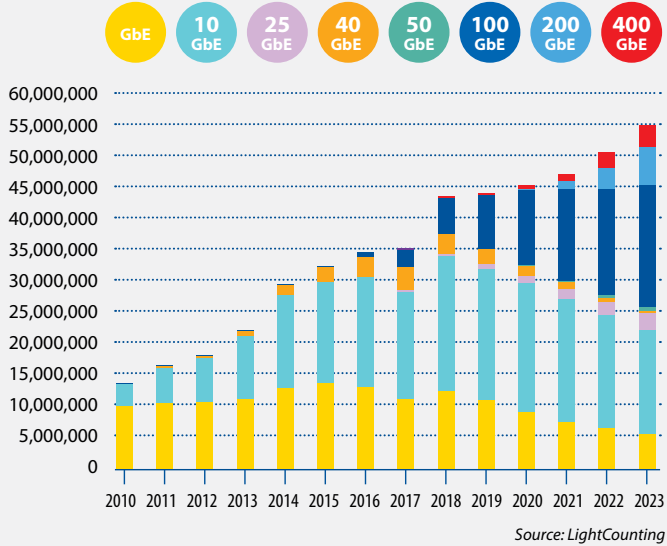
Distributed Data Center
Leaf-Spine Topology in Data Center



Copper vs. Optics



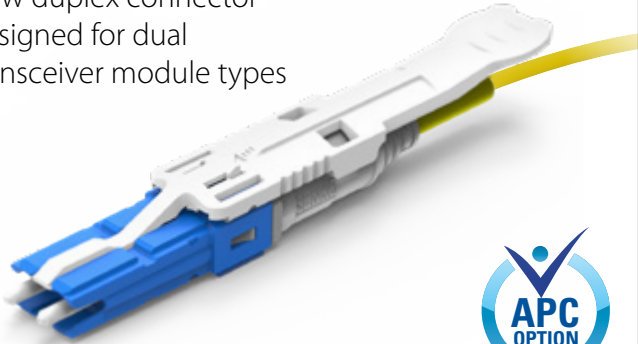
Shipments of ethernet optical transceivers by Data Rate
(historical data and forecast)



SENKO's solutions for the future data centers:

CS® EZ-FLIP CONNECTOR
Reach higher density

New duplex connector designed for dual transceiver module types

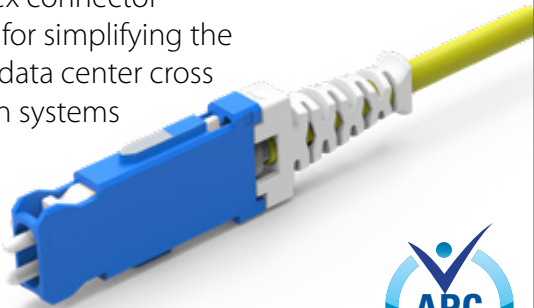


- Double the density from legacy LC solutions
- Great usability while maintaining performance
- Specified in QSFP-DD, OSFP, COBO for 2x 100/200/400G applications
- Meets GR-326 Objective



SN® EZ-FLIP CONNECTOR
Simplifying Network Cabling

New duplex connector optimized for simplifying the cabling in data center cross connection systems

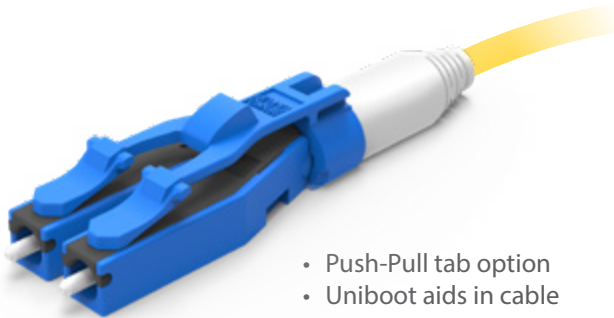


- Super high density duplex solution
- Specified in QSFP-DD, OSFP for 4x duplex break out MDI
- Simplifying the Data Center structure to easily make cross-connections and mesh structures without cassettes or fan-out assemblies
- Meets GR-326



LC EZ-FLIP®
Polarity Reversible Connectors

Polarity change made easy without opening the housing



- Push-Pull tab option
- Uniboot aids in cable management
- Polarity Reversal without twisting fiber

MPO+PLUS®
Premium Mini Connector

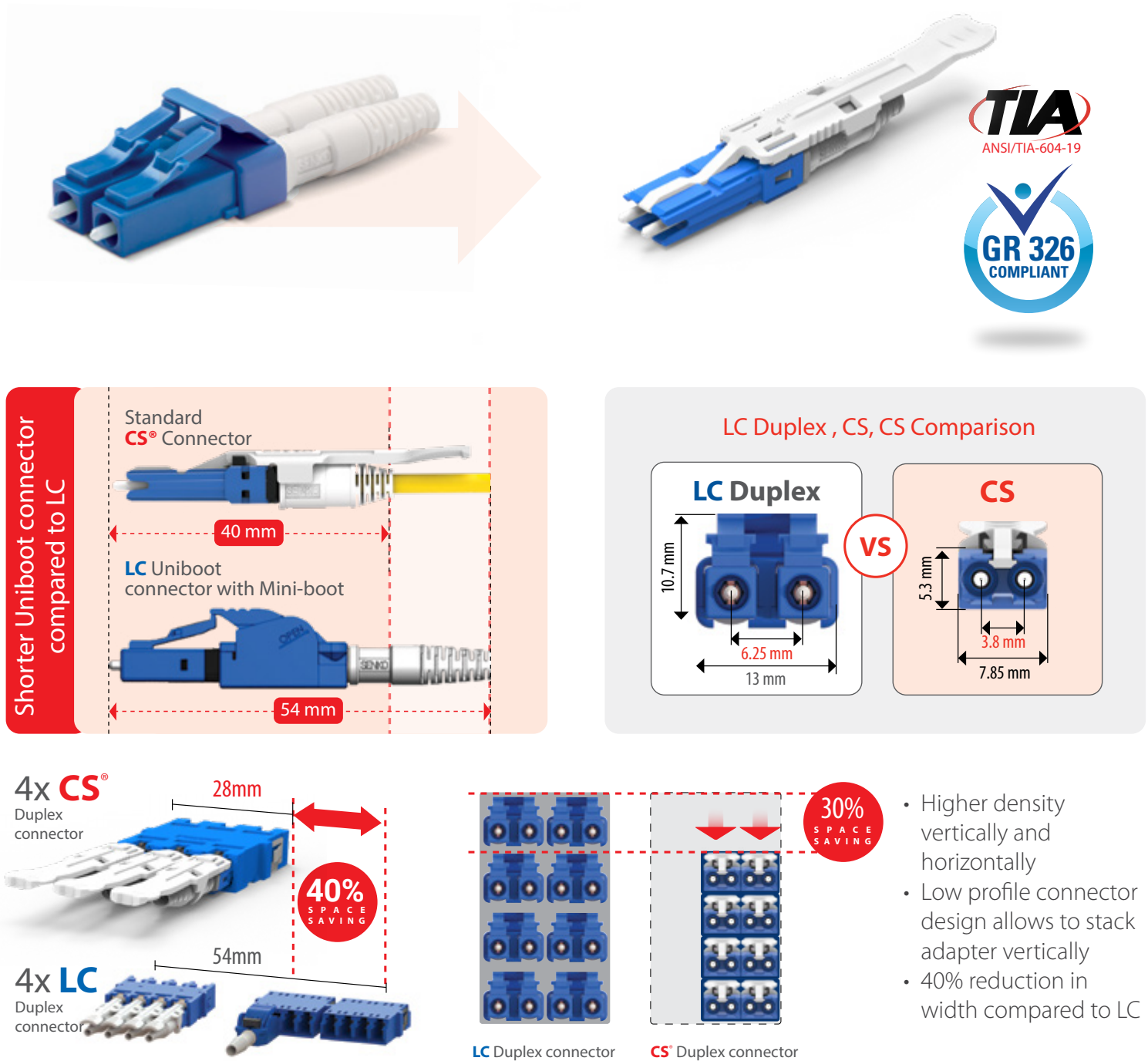
High-density connectors with industry leading low loss MT ferrules



- GR-1435 compliant
- Gender changeable guide pins

CS® Connector

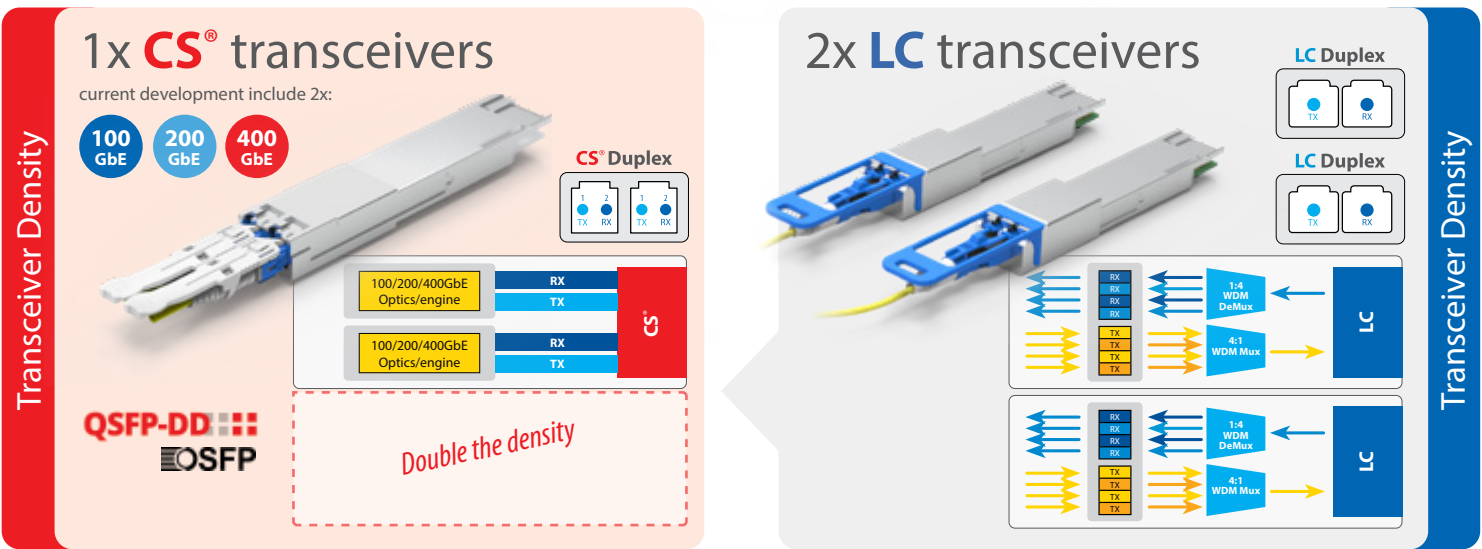
Reach Higher Density/Capacity with CS®



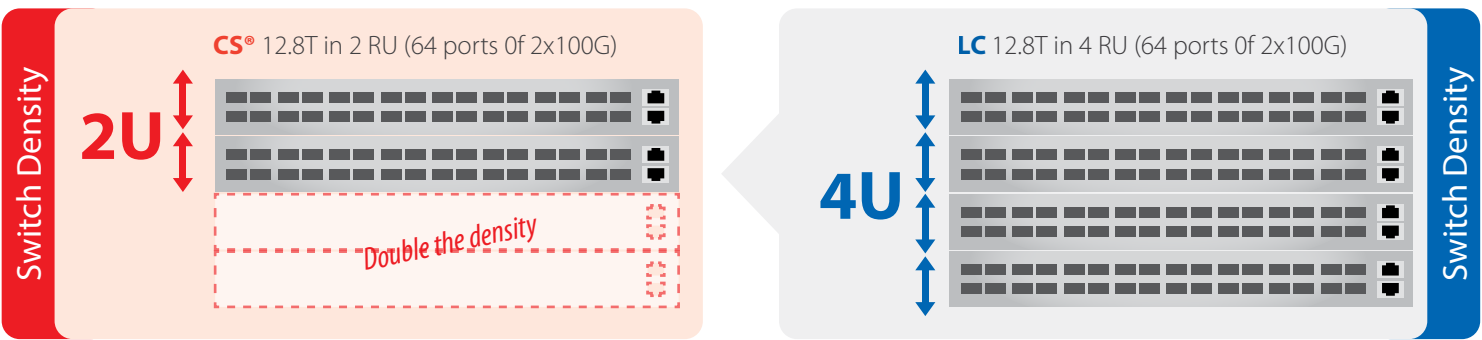
Go with CS and Double the Density from LC

Doubling Density/Capacity in Many Ways

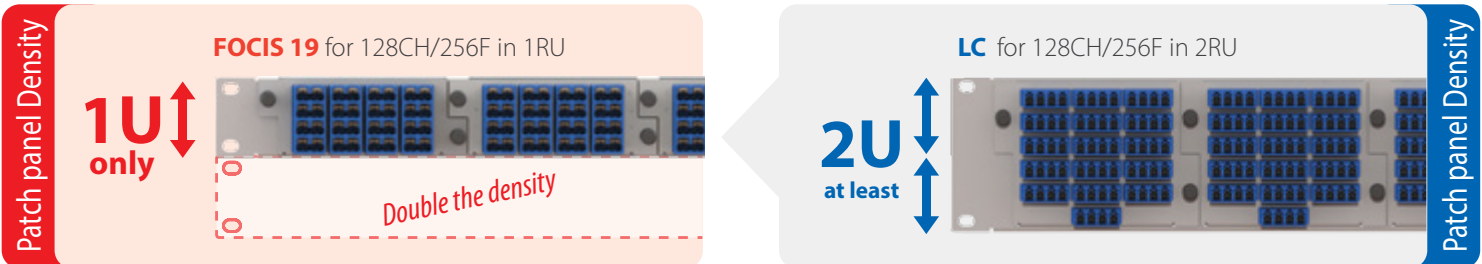
Doubling Transceiver Density/Capacity



Doubling Switch Density/Capacity

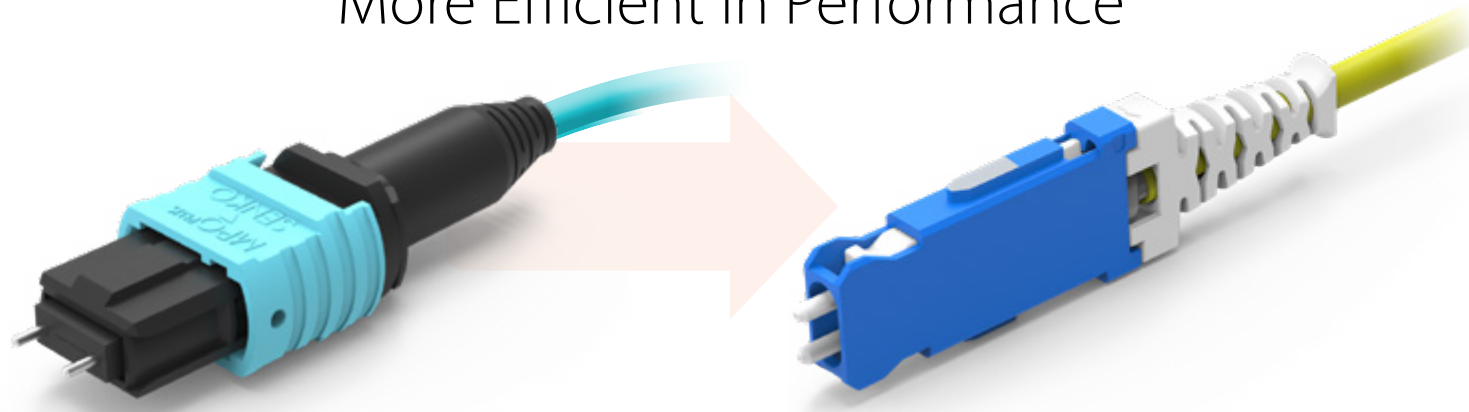


Doubling Patch Panel Density/Capacity

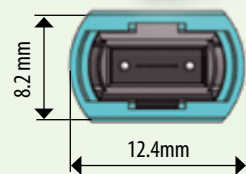


SN® Connector

SN Simplified Cabling
More Efficient in Performance



MPO

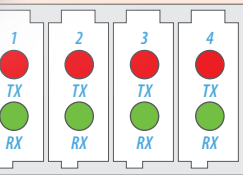
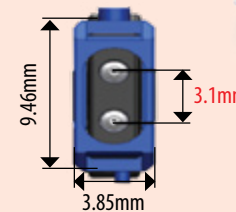


MPO-12

TX RX
1 2 3 4 5 6 7 8 9 10 11 12

MPO QSFP/-DD MDI

SN® EZ-FLIP



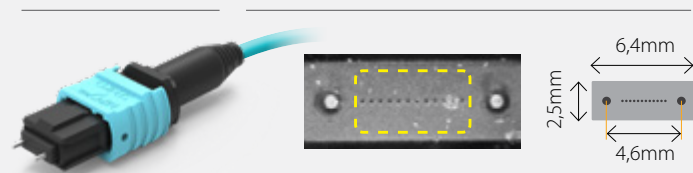
SN QSFP-DD MDI

SN with more stable performance and easier maintenance

MPO

Connector

Ferrule end face

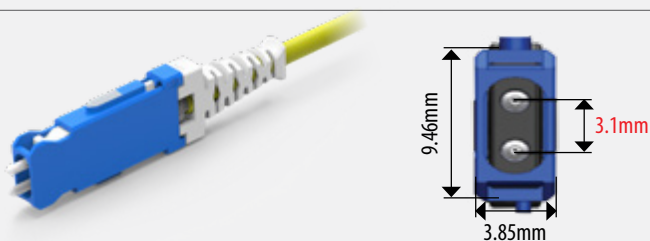


- Multi-fiber ferrules inherently have higher insertion loss when compared to single fiber ferrules
- Multi-fiber ferrules have a large surface area making them challenging to clean

SN® EZ-FLIP

Connector

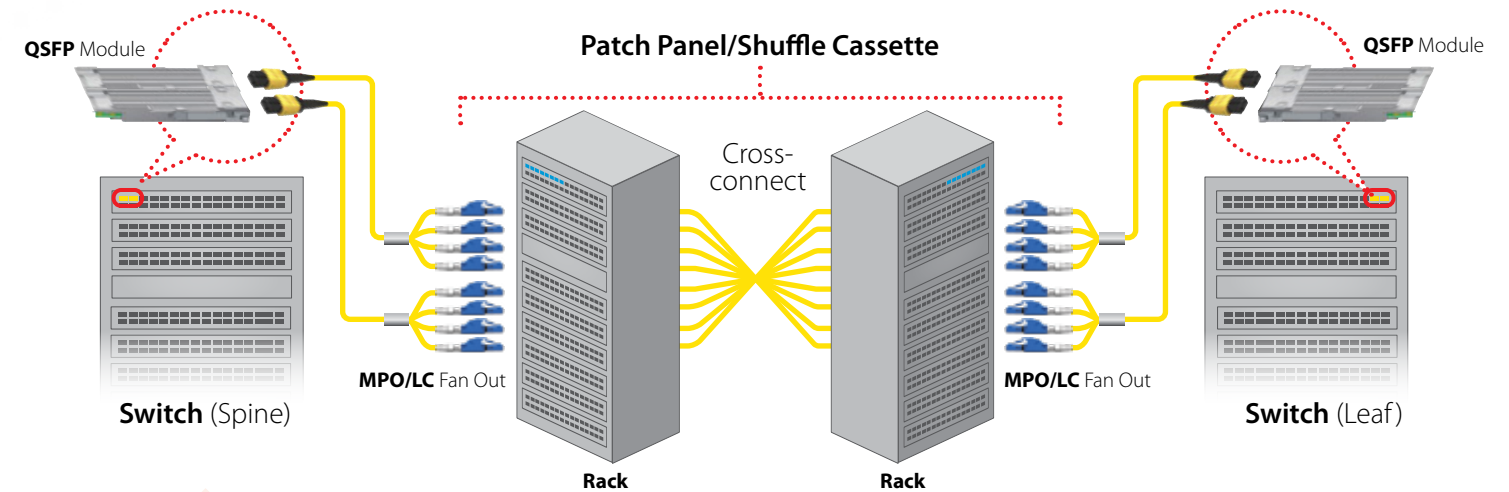
Ferrule end face



- Utilizes proven 1.25 mm ferrule technology for low insertion loss and high return loss
- Single fiber ferrule is easy to clean and maintain

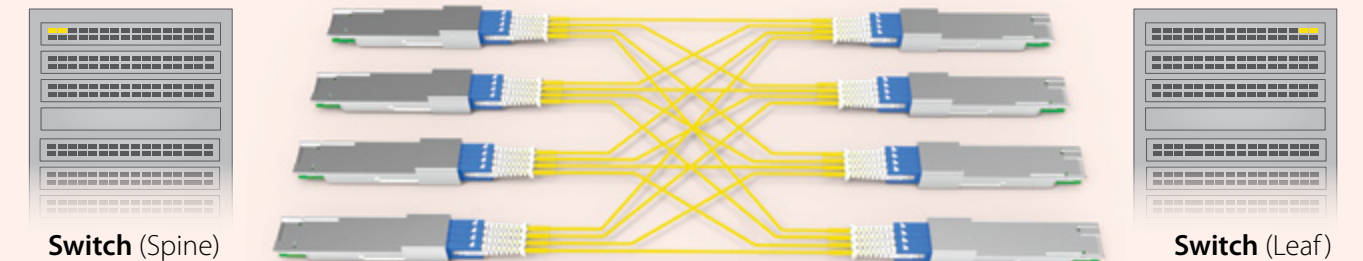
Go with SN and Improve from MPO

Leaf-Spine Cross Connection
Existing solution with MPO 8F based Transceiver



New solution with 4x SN based Transceiver

Less connectivity points required
No fanout or breakout cables are required



Simplified Cabling

- Reduce the number of connection points
- Shuffle or fanout is not required to make cross connection

As you would with your car, choose the right connector for your needs:

Density

What is the density you need?

Durability

What is the environment you are working in?

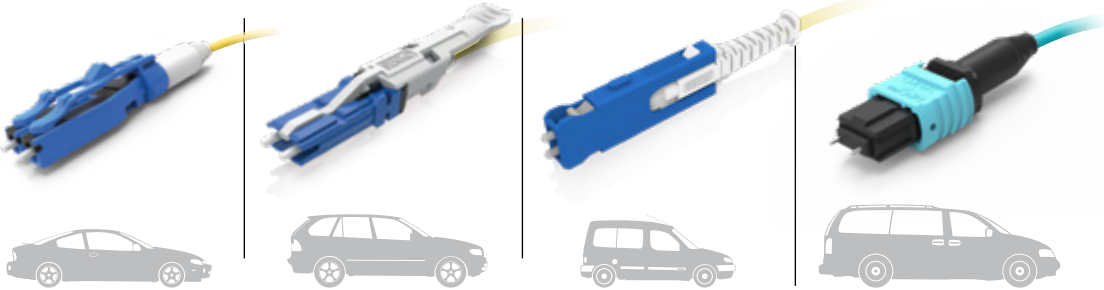
Ease of Use

Who is using it and how often do you need to connect/disconnect?

Ease of Maintenance

What is the skill set & tools available to the maintenance team?

Connector	LC	CS	SN	MPO
Density	●●	●●●	●●●●	●●●●●
Durability	●●●●	●●●●●	●●●●	●●●●
Ease of Use	●●●●	●●●●●	●●●	●●●●
Ease of Maintenance	●●●●●	●●●●●	●●●●●	●●●



Car type	Coupe	SUV	Family	Minivan
Passenger capacity	●●	●●●	●●●●	●●●●●
Durability	●●●●	●●●●●	●●●●	●●●●
Ease of Use	●●●●	●●●●●	●●●	●●●●
Ease of Maintenance	●●●●●	●●●●●	●●●●●	●●●

CONNECTOR COMPARISON

Connector		LC
Density	●●	Large footprint (largest of the 4 connectors) connector for two fibres
Durability	●●●●	Complies to GR-326 SFF requirements
Ease of Use	●●●●	Larger footprint allows space for finger access
Ease of Maintenance	●●●●●	Standard 1.25mm ceramic ferule where cleaning & inspection methodology is convenient

Connector		CS
Density	●●●	Medium footprint connector for 2 fibres
Durability	●●●●●	Complies to GR-326 requirements. Highest durability among the 4 connectors (similar to SC)
Ease of Use	●●●●●	Larger footprint allows space for finger access
Ease of Maintenance	●●●●●	Standard 1.25mm ceramic ferule where cleaning & inspection methodology is convenient

Connector		SN
Density	●●●●	Smallest footprint connector for 2 fibres
Durability	●●●●	Complies to GR-326 SFF requirements (similar to LC)
Ease of Use	●●●	Small footprint with limited space for finger access. Not suitable for glove operation in the field
Ease of Maintenance	●●●●●	Standard 1.25mm ceramic ferule where cleaning & inspection methodology is convenient

Connector		MPO
Density	●●●●●	Large footprint connector but for 12, 16, 24, 32 fibres
Durability	●●●●	Complies to GR-1435 requirements (similar to LC)
Ease of Use	●●●●	Larger footprint allows space for finger access
Ease of Maintenance	●●●	Rectangular non-ceramic ferule where cleaning & inspection methodology is challenging

At SENKO, we are continuously pushing the limits with our ferrule technology to achieve lower losses. When defining your network budget needs, it is important to know what optical losses are required. While using the Single-mode Premium ferrules will help achieve the lowest loss, it may not always be needed. For Connectors like the CS, SN or LC, the following performance can be expected when choosing the right ferrule for your application.

Parameters	Single-mode				Multimode
	UPC		APC		MM
	SM Premium Low Loss	SM Premium	SM Premium Low Loss	SM Premium	Premium
Typical Insertion Loss (dB) Random Mating	0.05	0.08	0.07	0.12	0.05
Maximum Insertion Loss (dB) Random Mating	0.15	0.20	0.15	0.25	0.15
Typical Return Loss (dB)	≥55	≥65	≥25		
Operating Temperature (°C)	-40°C to +75°C				
Durability	<0.2dB typical change, 500 mating's				
Ferrule Ø	125µm				127µm

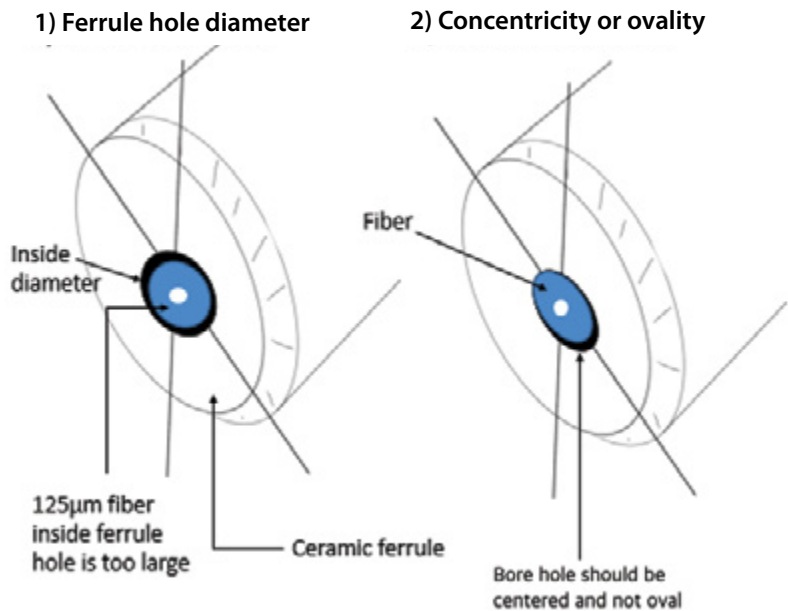
* Per random mating testing IEC 61753-1 For more details about random mating performance, visit: <https://www.senko.com/wp-content/uploads/2022/04/Random-Mating-IL-vs-IL-by-Master-Jumer-110221.pdf>

The two most critical measurements to meet these losses are:

- Ferrule hole diameter – For a minimum Insertion Loss, it is better to use the tightest-tolerance ferrule hole diameter available. As an example, if the typical values for a single-mode fiber glass Outer Diameter (OD) are 124.5um to 124.9um the desirable ferrule Inner Diameter (ID) should be 125.0um to 125.5um. Through multiple studies SENKO ensures
- Ferrule hole concentricity – The shape of the bore hole must be round and in the center of the ferrule. An oval shape instead of perfectly round one will not hold an optical fiber in perfect centered alignment. Additionally, the bore hole should be centered relative to the outside of the ferrule to achieve the best alignment and performance. Ferrule hole concentricity is measured inside diameter to outside diameter (ID to OD).

Therefore, it's important to use ferrules considering the above tolerances for optimum performance.

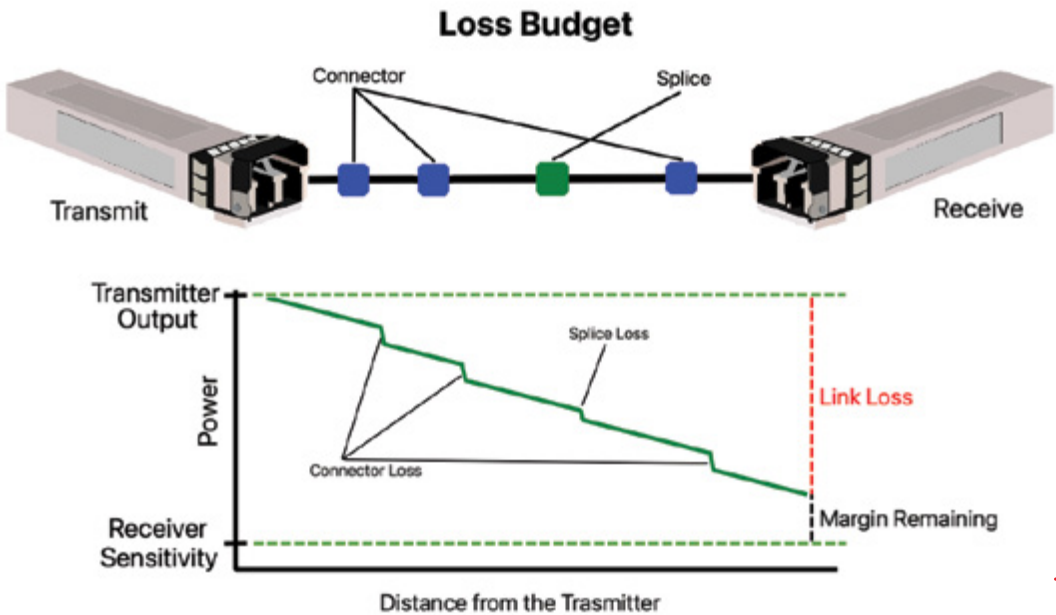
- Ferrule hole diameter
- Ferrule hole concentricity



The manufacturing process of ferrules is focused on making the highest quality ferrule possible with the best possible specifications in terms of ferrule concentricity, and tolerances on the bore hole ID dimensions. However, due to difficulties and complexities of the zirconia ceramic manufacturing process the manufacturers have a secondary operation which is inspection and sorting of produced ferrules. At this stage, 100% of the ferrules are inspected and measured with the state-of-the-art equipment and separated into their respective categories such as SM Premium Low Loss, SM Premium, and Multimode. Typically, the yields for the highest quality ferrules, or Premium Low Loss ferrules are lower when compared to the rest and therefore they command a premium cost.

Is the most expensive Premium Low Loss always better to use over the Premium? The simple answer is, no.

Reasons would include that the Premium Low Loss ferrules typically tighter ID, and if a low-grade fiber is used that has more than typical variation of the cladding OD, it may be difficult to terminate due to potential tolerance overlap and fiber stubbing. In most cases the Premium Low Loss ferrules are used in applications where the optical loss must be the lowest possible. However, the ferrule choice should depend on the end applications optical power loss budget. The optical power loss budget is the allowable amount of loss that a fiber link should have if it is installed properly without external factors such as contamination. The power budget is the determined as the difference between the output power of the transmitter and the minimum input power of the receiver. An average Data Center that utilizes most of the Worlds Interconnect today utilizes transceivers with -18 to -19dBm power output and the receivers with -23 to -24dBm sensitivity. This equates to a dynamic range or data link power budget of about 4 to 6 dB. This means in the typical Data Center deployment the SENKO Premium ferrules would be satisfactory as the average connector loss difference between the SENKO SM Premium Low Loss and SENKO SM Premium is less than 0.1dB which is insignificant for the given power budget.

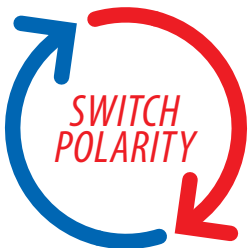


SENKO offers a range of ferrules including Premium Low Loss, Premium, and Standard connectors that offer varying loss specifications. In most cases SENKO Premium grade ferrules achieve the desired results while keeping cost savings in mind. We suggest contacting your SENKO representative if you have any additional questions.

Premium series

CS® EZ-WAY™ CONNECTOR

Increase the packing density of LC-based infrastructure while optimizing the network for next-generation data rates, including 200G, 400G, and 800G.



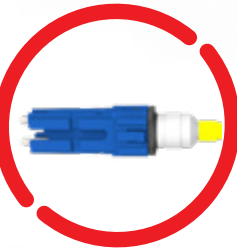
REVERSABLE ALIGNMENT TAB for easy polarity change

PUSH-PULL BOOT easy latch and delatch

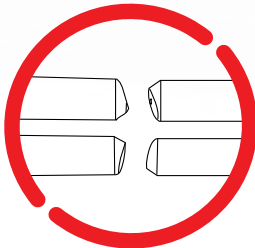
ERGONOMIC

2X LC STYLE FERRULE using proven 1.25 mm ferrule technology

40% HIGHER DENSITY compared to LC Connector



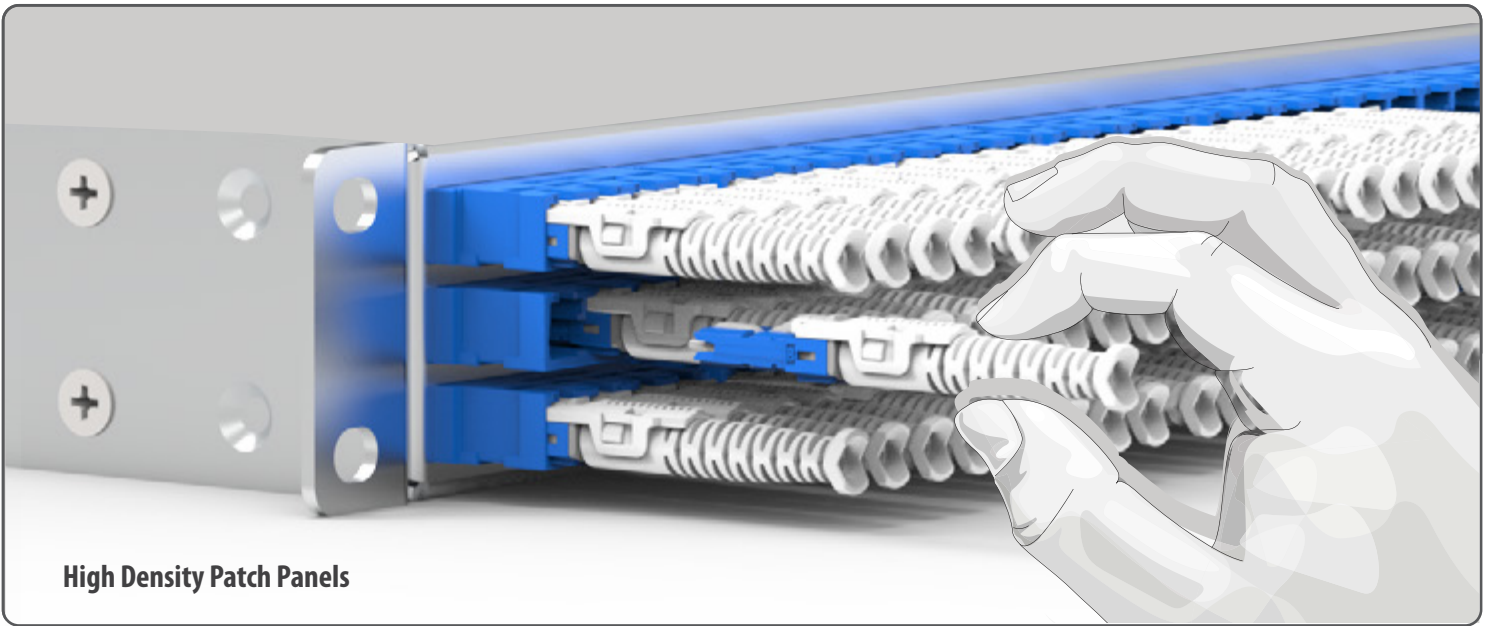
PREASSEMBLED



APC POLISHING



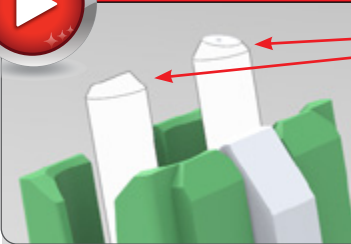
SENKO Products are RoHS, Reach SVHC and UL 94 V-0 compliant.



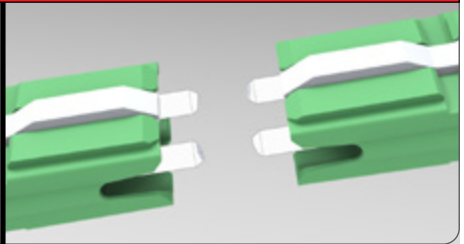
High Density Patch Panels



CS-EZ-Way APC Connector



New opposing APC angle design makes polarity changing possible.
EZ-ily Flip the CS push-pull tab and connect. Angles maintain the same alignment after polarity change!



TIME SAVING PRE-ASSEMBLED CS EZ-FLIP SWITCHABLE CONNECTOR



Just Insert the two fibers into the ferrules

The CS EZ-Flip connector is available in a pre-assembled condition. This offers the user the ability to minimize the assembly operations, reduce the risk for damaging the components during assembly and improve assembly yield while reducing assembly labor time.

TRANSCEIVER READY

FEATURES and BENEFITS

- Solutions for: QSFP-DD and 2 CH adapters
- High-density 1RU patch panels
- Side by Side configuration
- 400/800G transceivers with side by side configuration

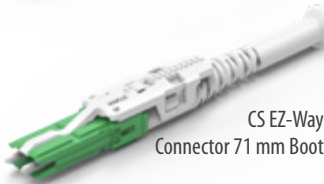


Up to 2 x CS® connectors per transceiver

CS® EZ-WAY™ APC and UPC 2 mm, 3 mm



CS EZ-Way Connector 51 mm Boot



CS EZ-Way Connector 71 mm Boot

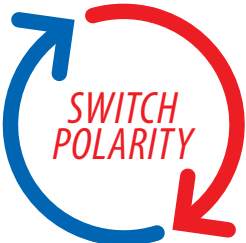
CONNECTOR TYPE	FERRULE TYPE	HOUSING COLOR	CALBE SIZE	BOOT LENGTH	BOOT COLOR
6E5 CS UPC EZ-Way Pre-assembled Connector	151 SM Premium (PRE)	1 Blue	2 2 mm	A 51 mm	1 White
	158 SM Premium Low Loss (SLC)	5 Aqua	3 3 mm	B 63 mm	
6F5 CS UPC EZ-Way Unassembled Connector Kit	251 MM Premium (PRE)	6 Heather Violet		C 71 mm	

CONNECTOR TYPE	FERRULE TYPE	HOUSING COLOR	CALBE SIZE	BOOT LENGTH	BOOT COLOR
6H5 CS APC EZ-Way Unassembled Connector Kit	153 SM Premium (PRE)	3 Green	2 2 mm	A 51 mm	1 White
	158 SM Premium Low Loss (SLC)		3 3 mm	B 63 mm	6 Green
				C 71 mm	

6H5 - 151 - 32A1 ORDER CODE example

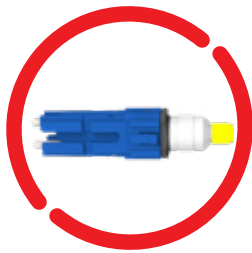
Premium series
CS® EZ-FLIP CONNECTOR

A new duplex connector designed for dual transceivers which allows the polarity to be switched without connector re-termination

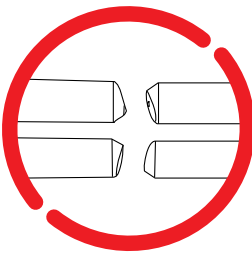


40% HIGHER DENSITY compared to LC Connector

2X LC STYLE FERRULE for increased reliability



PREASSEMBLED

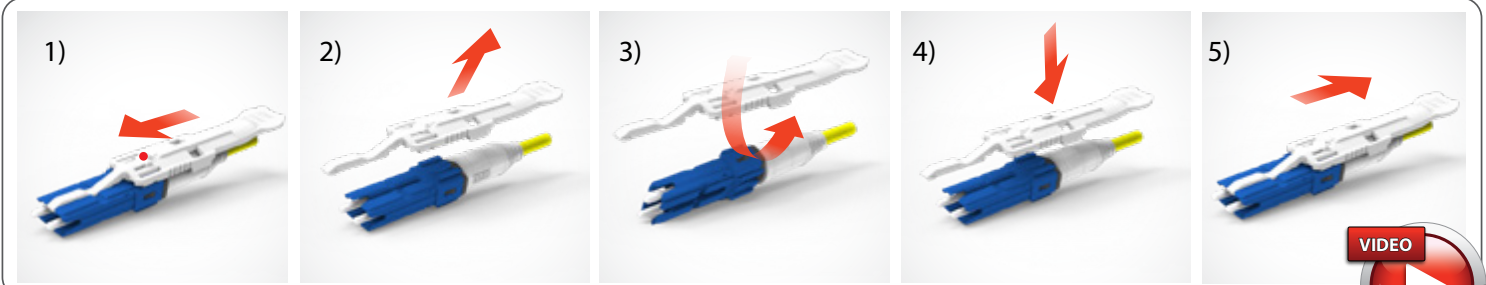


APC POLISHING



GANG CLIP

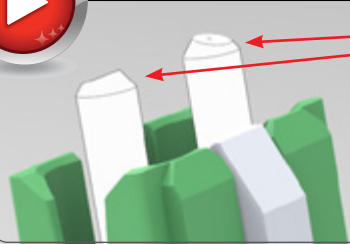
PUSH-PULL TAB for superior usability in high density applications and are available in various lengths and styles



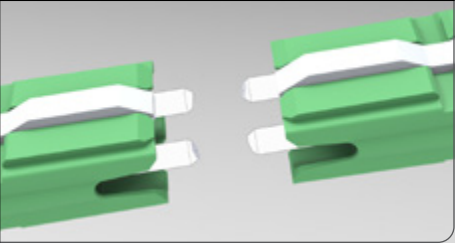
CS EZ-Flip Polarity Switching simply by flipping the tab to the opposite side



CS-EZ-Flip APC Connector



New opposing APC angle design makes polarity changing possible.
EZ-ily Flip the CS push-pull tab and connect. Angles maintain the same alignment after polarity change!



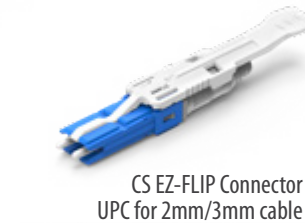
TIME SAVING PRE-ASSEMBLED CS EZ-FLIP SWITCHABLE CONNECTOR



Just Insert the two fibers into the ferrules

The CS EZ-Flip connector is available in a pre-assembled condition. This offers the user the ability to minimize the assembly operations, reduce the risk for damaging the components during assembly and improve assembly yield while reducing assembly labor time.

CS® EZ-FLIP APC and UPC 900 μm, 2 mm, 3 mm



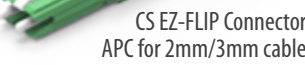
CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR	TAB LENGTH	TAB COLOR
6E4	CS EZ-Flip UPC Connector Pre-assembled for 2 mm/3 mm Cable	151 SM Premium	1 Blue	2 2.0 mm	1 White	47 47 mm
		158 SM Premium Low Loss	5 Aqua	3 3.0 mm		55 55 mm
		251 MM Premium	6 Heather Violet	4 2.0 mm Flex Boot		62 62 mm
				5 3.0 mm Flex Boot		69 69 mm



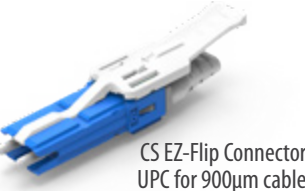
CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR	TAB LENGTH	TAB COLOR
6F4	CS EZ Flip UPC Connector Unassembled Kit for 2 mm/3 mm Cable	151 SM Premium	1 Blue	2 2.0 mm	1 White	47 47 mm
		158 SM Premium Low Loss	5 Aqua	4 2.0 mm Flex Boot		55 55 mm
		251 MM Premium	6 Heather Violet			62 62 mm
						69 69 mm



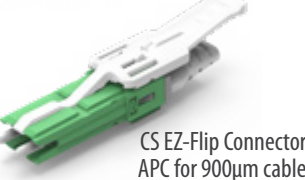
CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR	TAB LENGTH	TAB COLOR
6H4	CS EZ-Flip Connector APC Unassembled Kit for 2 mm/3 mm Cable	153 APC Premium	3 Green (APC)	2 2.0 mm	1 White	47 47 mm
		158 SM Premium Low Loss		4 2.0 mm Flex Boot	6 Green	55 55 mm
						62 62 mm
						69 69 mm



CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR	TAB LENGTH	TAB COLOR
6E4	CS EZ-Flip UPC Connector Pre-assembled for up to 900 μm Cable	151 SM Premium	1 Blue	1 900 μm BTW	1 White	36 36 mm
		158 SM Premium Low Loss	5 Aqua			
		251 MM Premium	6 Heather Violet			
6F4	CS EZ Flip UPC Connector Unassembled Kit for up to 900 μm Cable					



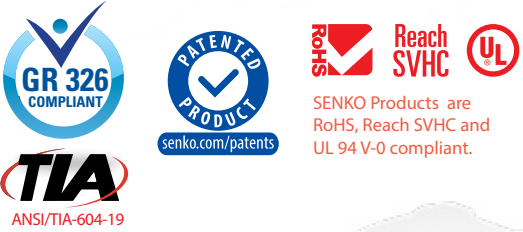
CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR	TAB LENGTH	TAB COLOR
6H4	CS EZ-Flip APC Connector APC Unassembled Kit for up to 900μm Cable	153 APC Premium	3 Green (APC)	1 900 μm BTW	1 White	36 36 mm
		158 APC Premium Low Loss		6 Green		



6E4 - 153 - 311 - 36W ORDER CODE example

Note: Preassembled version is currently offered only in UPC configuration.

Reach higher density with the CS® CONNECTOR



New duplex connector designed for dual transceiver module types

MEETS

GR-326

SC MECHANICAL
LOAD
OBJECTIVES

Double the density overall

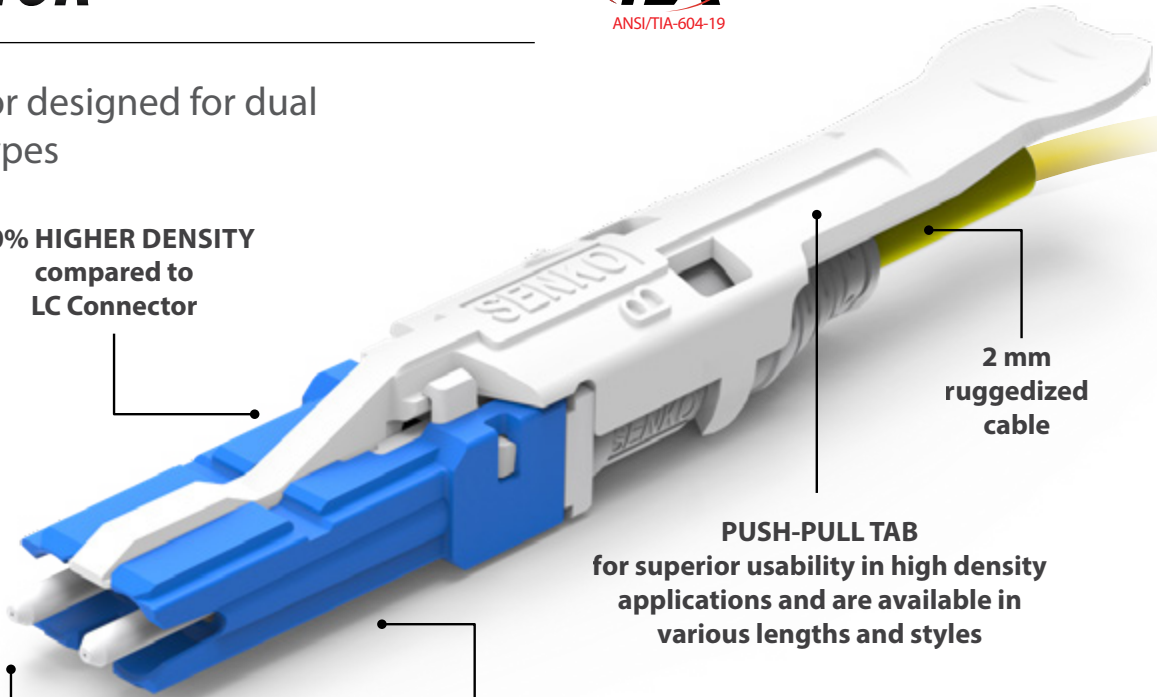
30%

VERTICAL
SPACE
SAVING

40% HIGHER DENSITY compared to LC Connector

2 x LC STYLE FERRULE using proven 1.25 mm ferrule technology

Can achieve IEC random mating Grade B performance



- FEATURES
- 40% size reduction compared to LC duplex
 - Designed for OSFP/QSFP-DD break out application
 - Proven 1.25 mm ferrule technology
 - Push-pull tab
 - Can achieve IEC random mating Grade B

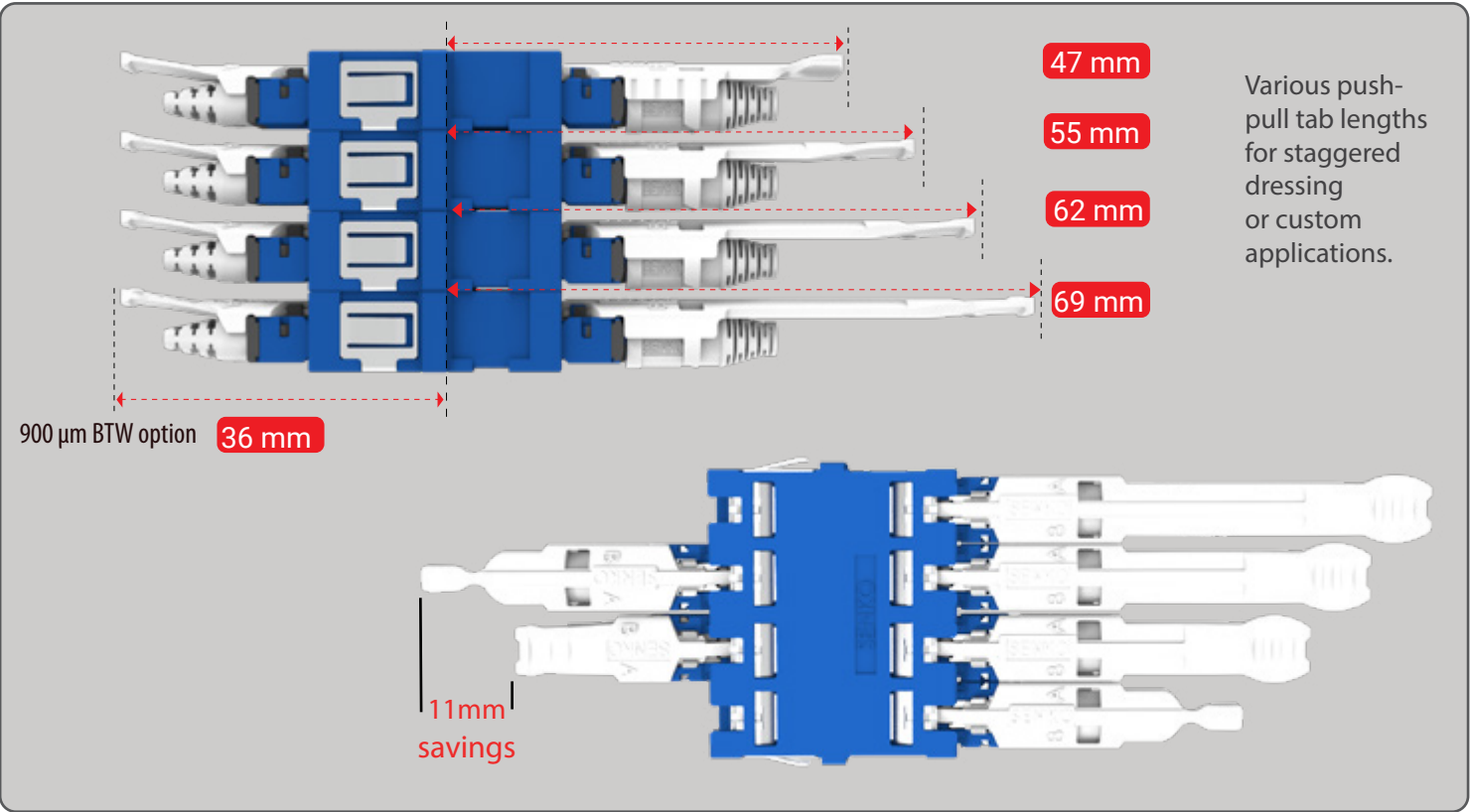
GANG CLIP READY

FEATURES and BENEFITS

- Solutions for: QSFP-DD and 2 CH adapters
- Quick connect/disconnect of ganged connectors
- Easy removal of clip to allow extraction of individual connector
- Fits within transceiver handle footprint

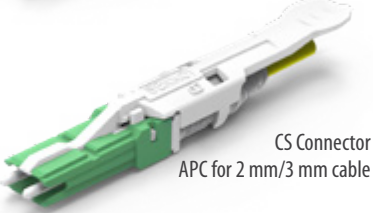
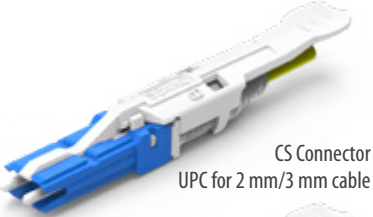
See Accessories page for more details

Gang Clip
P/N 601-CLPP-01-W



CS® CONNECTOR

APC and UPC 900 µm, 2 mm, 3 mm



CONNECTOR TYPE		PERFORMANCE		HOUSING COLOR		BOOT TYPE		BOOT COLOR		TAB LENGTH		TAB COLOR	
601	CS Connector UPC	151	SM Premium	1	Blue	2	2.0 mm	1	White	47	47 mm	W	White
	Unassembled for 2mm/3mm Cable	158	SM Premium	5	Aqua	3	3.0 mm			55	55 mm		
			Low Loss	6	Heather Violet	4	2.0 mm			62	62 mm		
			251	MM Premium				Flex Boot			69	69 mm	

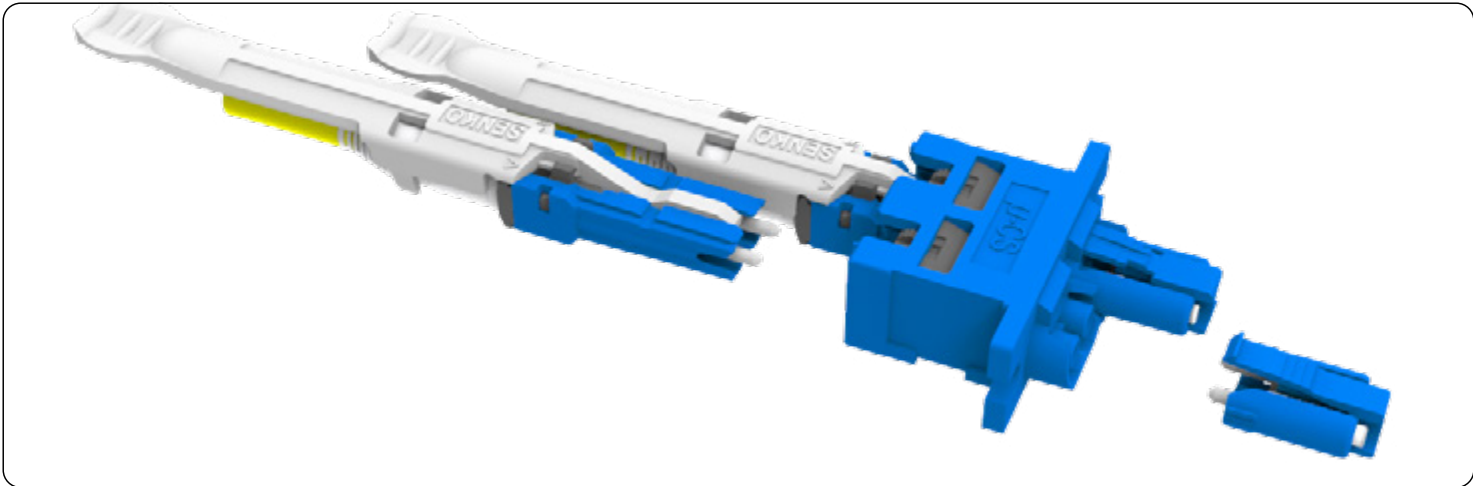
CONNECTOR TYPE		PERFORMANCE		HOUSING COLOR		BOOT TYPE		BOOT COLOR		TAB LENGTH		TAB COLOR	
611	CS Connector APC	153	APC Premium	3	Green (APC)	2	2.0 mm	1	White	47	47 mm	W	White
	Unassembled for 2mm/3mm Cable	158	APC Premium			3	3.0 mm			55	55 mm		
			Low Loss			4	2.0 mm			62	62 mm		
							Flex Boot			69	69 mm		

CONNECTOR TYPE		PERFORMANCE		HOUSING COLOR		BOOT TYPE		BOOT COLOR		TAB LENGTH		TAB COLOR		
601	CS Connector UPC	151	SM Premium	1	Blue	1	900 µm BTW	1	White	36	36 mm	W	White	
	Unassembled for up to 900 µm Cable	158	SM Premium	5	Aqua									
				Low Loss	6	Heather Violet								
			251	MM Premium										

CONNECTOR TYPE		PERFORMANCE		HOUSING COLOR		BOOT TYPE		BOOT COLOR		TAB LENGTH		TAB COLOR	
611	CS Connector APC	153	APC Premium	3	Green (APC)	1	900 µm BTW	1	White	36	36 mm	W	White
	Unassembled for up to 900 µm Cable	158	APC Premium										
			Low Loss										

611 - 153 - 316 - 36W ORDER CODE example

Micro CS®



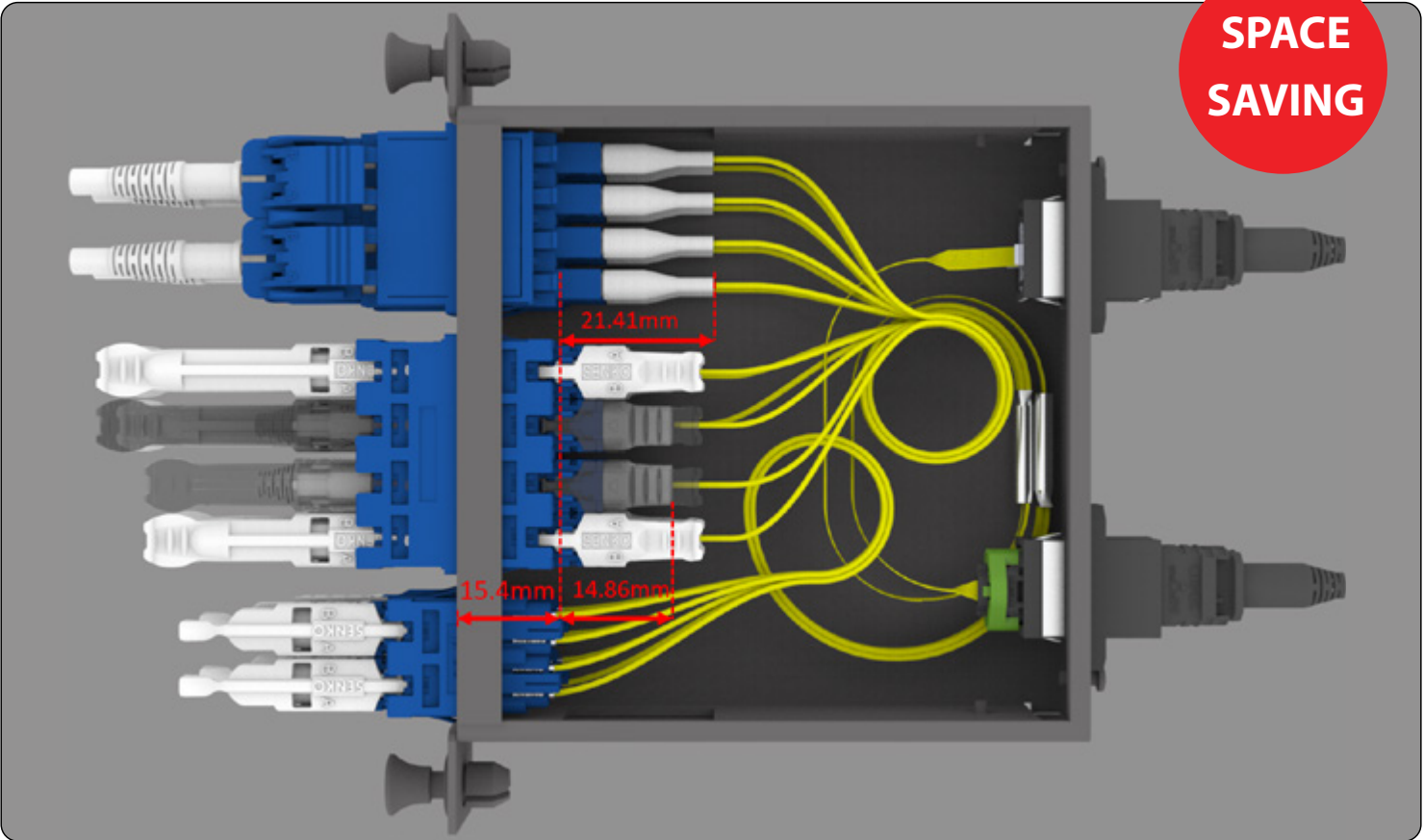
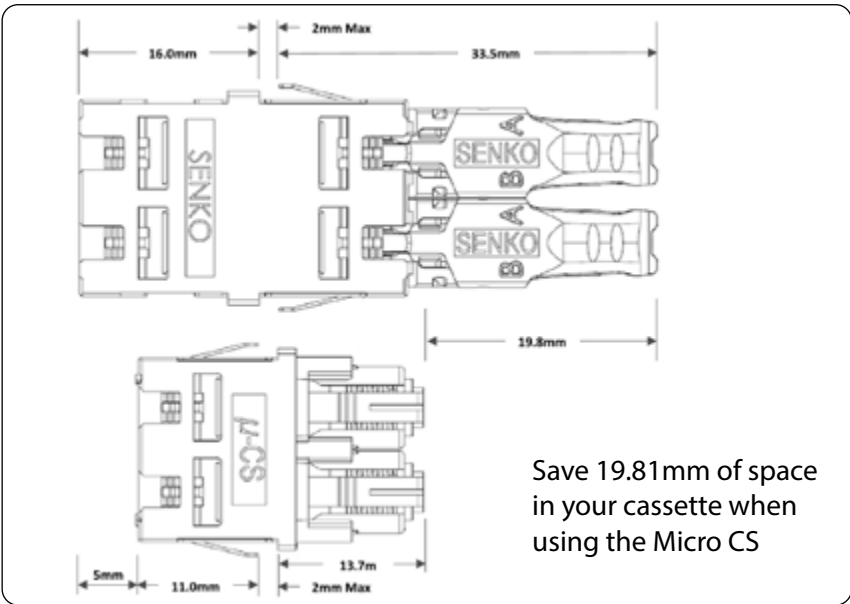
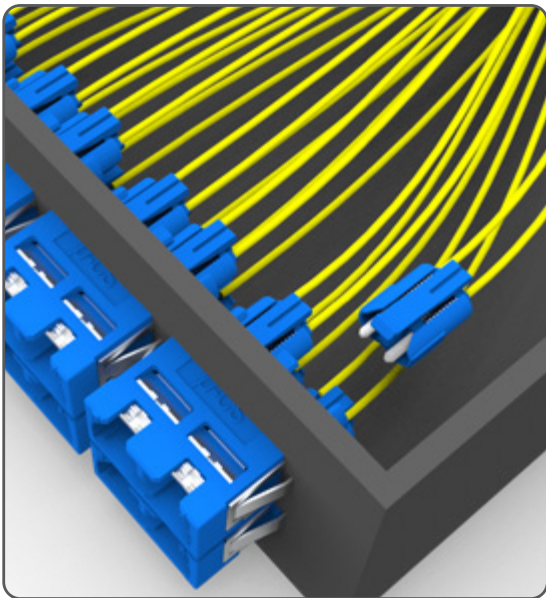
Features

- Significant space saving
- Minimizing behind the wall (btw) side adapter depth
- Cost effective
- IEC Grade B compatible
- Simplifying connector structure
- Available in UPC, MM, and APC configuration

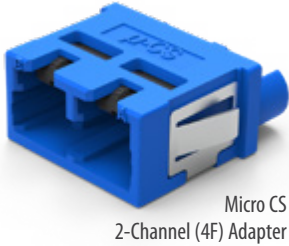
Applications

- Ideal for cassettes, enclosure, on board optics used in plug and play modules
- FTTH, FTTA
- Telecom, Wireless

Standard CS Connector vs Micro CS size comparison



CS® CONNECTOR μCS® Connector and Adapter



Micro CS 2-Channel (4F) Adapter



Micro UPC Connector

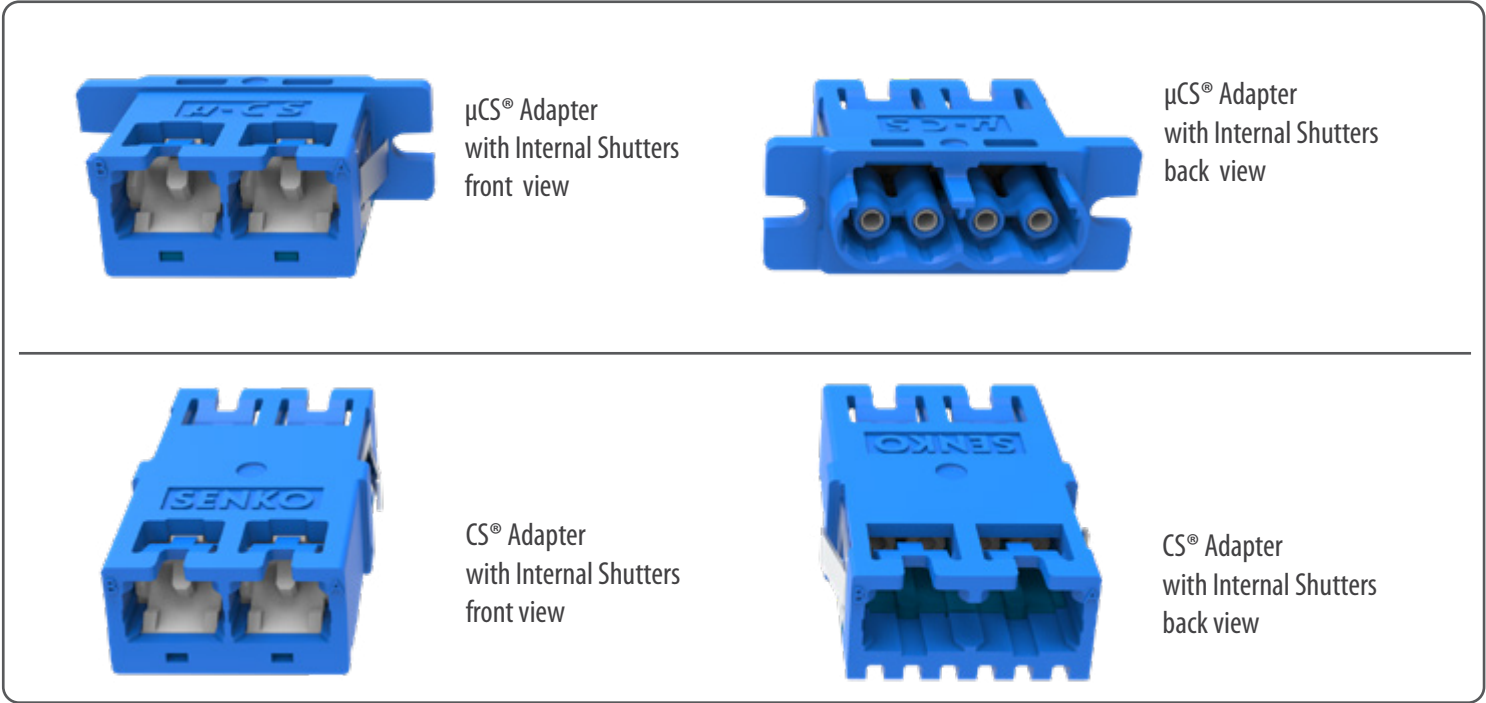
CONNECTOR TYPE		FLANGE		HOUSING COLOR	
682U	Micro CS 2-Channel (4F) Adapter	1	With Flange	1	Blue
		2	Without Flange	3	Green
				7	Heather Violet
				9	Aqua

68B - 11 ORDER CODE example

CONNECTOR TYPE		FLANGE		HOUSING COLOR	
60B	Micro CS 1-Channel (2F) UPC Connector	151	SM Premium	1	Blue
		158	SM Premium Low Loss	7	Heather Violet
		251	MM Premium	9	Aqua

60B - 151 - 1 ORDER CODE example

CS® & μCS® SHUTTER ADAPTERS




- FEATURES
- Automatic shutter action
 - IP5X dust protection
 - Unique twin door shutter closes to prevent any ingress of contamination

- Adapter allows for traceability with Visible Light Source
 - Available for both CS and μCS footprint

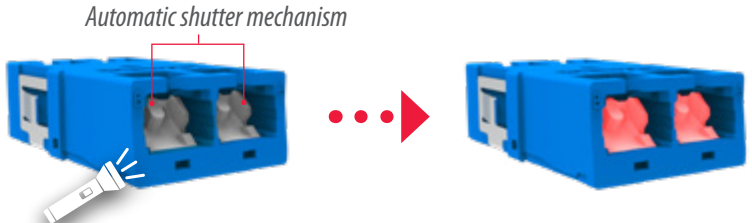
The CS shutter adapter has been developed to meet the evolving requirements of data centers, telecom, and harsh environment solutions by providing automated dust and laser protection through a built in internal shutter. The CS shutter adapter maintains the protection from dust while other solutions offer a dust cap that is easily lost. Whether the port is used often, or only used once in a while, the CS shutter adapter provides protection from the number one leading cause of network failure, contamination. As power increases in networks, the eye safety of installers becomes more of a concern. The CS shutter adapter provides protection from potentially unconnected ports in order to give you peace of mind.

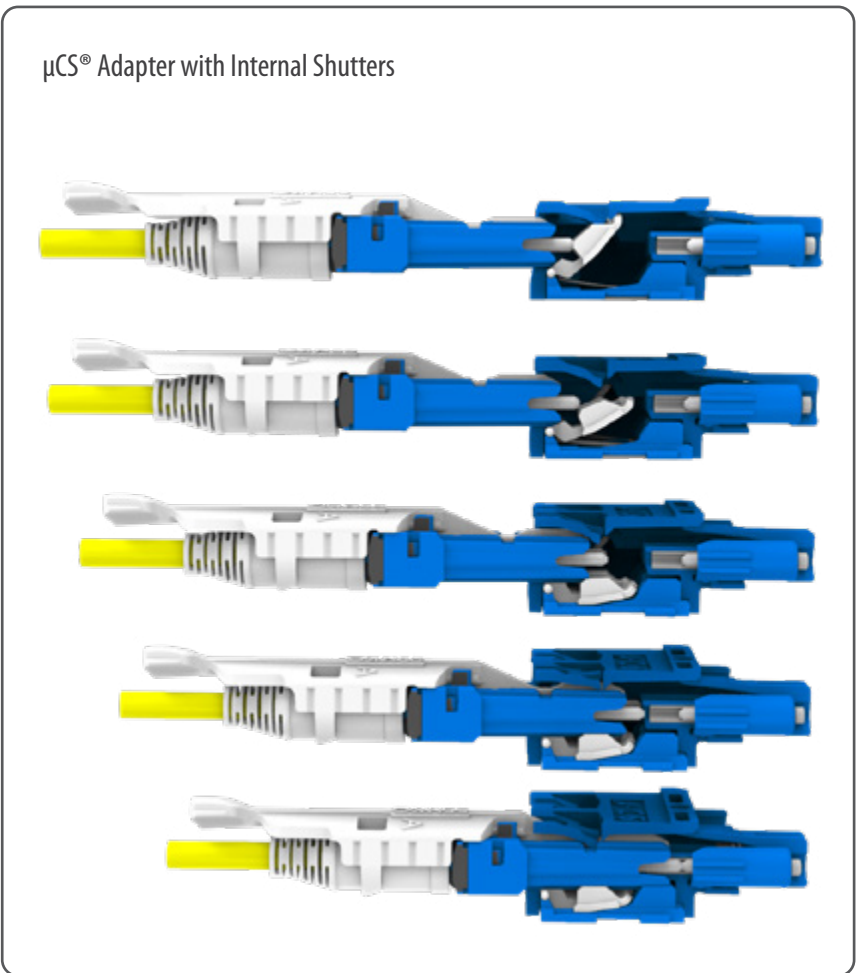
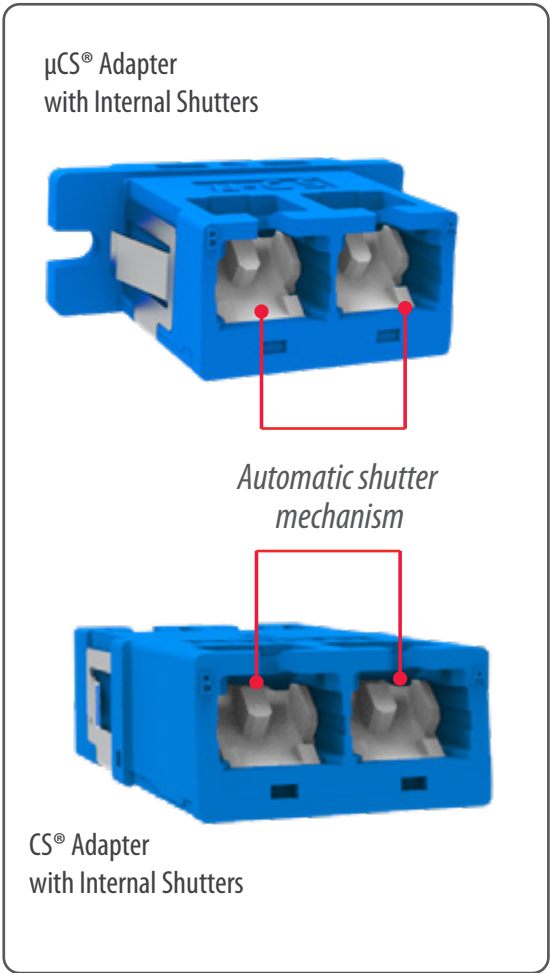
CS Adapter Traceability



When trying to trace the adapter using a visible light source, you can see the red light glowing through the adapter sleeve.

Automatic shutter mechanism





ADAPTER TYPE		FLANGE		HOUSING COLOR	
682S	CS 2-Channel (4F) Shuttered Adapter	1	With Flange	1	Blue
		2	Without Flange	3	Green
				7	Heather Violet OM4
				9	Aqua OM3

682S

11

ORDER CODE example

Note: Adapter supplied with protective dust-cap on both sides



ADAPTER TYPE		FLANGE		HOUSING COLOR	
682U	μCS 2-Channel (4F) Adapter	1	With Flange	1	Blue
		2	Without Flange	7	Heather Violet
				9	Aqua

682U

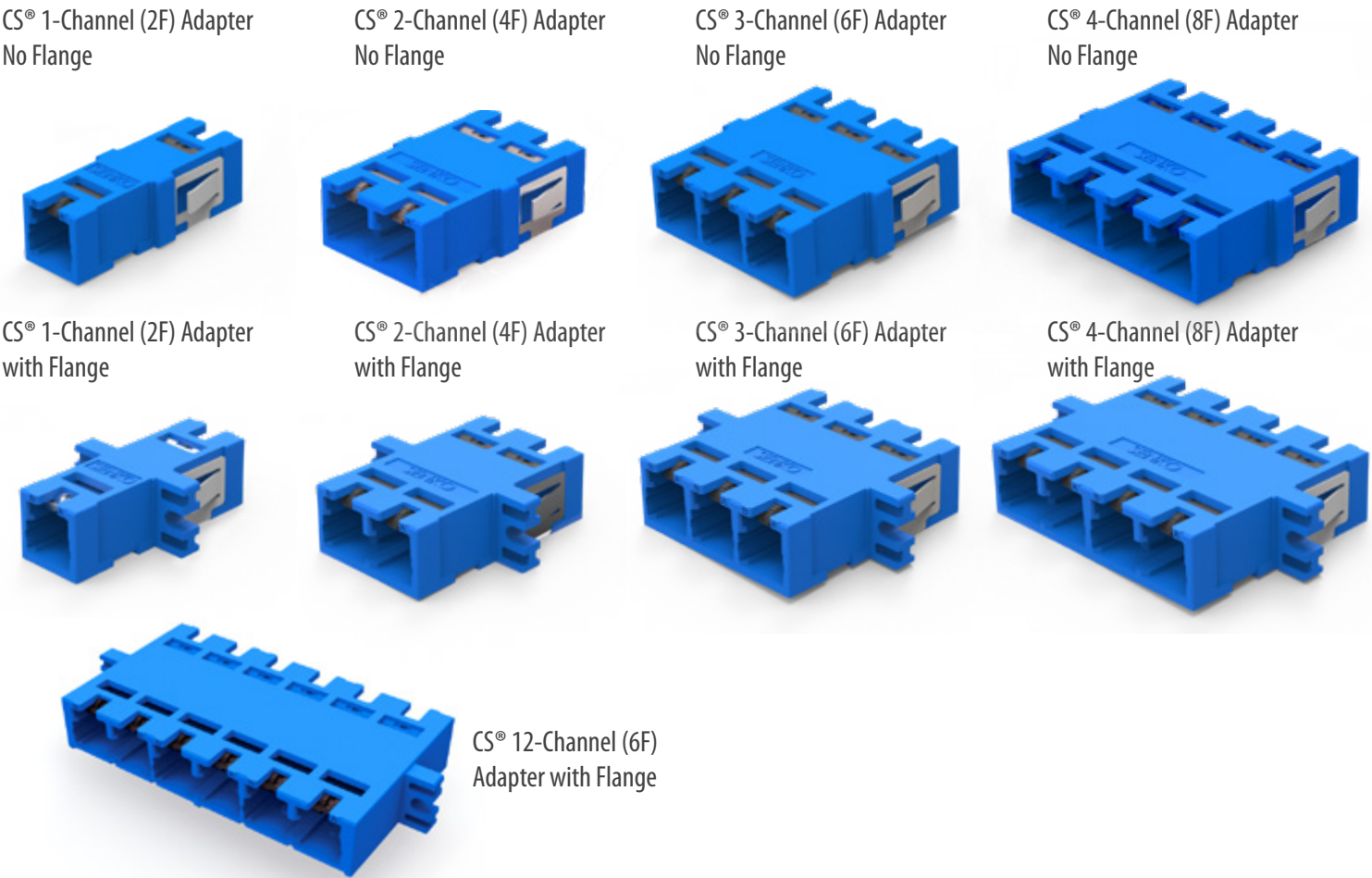
11

ORDER CODE example

Note: Adapter supplied with protective dust-cap on both sides

CS® CONNECTOR

Standard Adapters



CS® ADAPTER Part Number

CONNECTOR TYPE		FLANGE	HOUSING COLOR
681	CS 1-Channel (2F) Adapter	1 With Flange	1 Blue
682	CS 2-Channel (4F) Adapter	2 Without Flange	3 Green
683	CS 3-Channel (6F) Adapter		7 Heather Violet
684	CS 4-Channel (8F) Adapter		9 Aqua
686-1X	CS 6-Channel (12F) Adapter		

681 - 21 ORDER CODE example



CS® Connectivity Solutions



CS® Consortium aims to promote CS® high density connectivity solutions

The CS® Consortium is a group of leading fiber optic component manufacturers that focuses on educating end users and design consultants about the technical advantages of using CS® based high density connectivity solutions. The CS® Consortium represents technology

leaders committed to providing the most current, reliable, and vendor neutral information about fiber optics and related technologies for advancing new and better communications solutions.

Founding Members

The CS® Consortium is a group of leading fiber optic component manufacturers that focuses on educating end users and design consultants about the technical advantages of using CS® based high density connectivity solutions. The CS® Consortium represents technology leaders committed to providing the most current, reliable, and vendor neutral information about fiber optics and related technologies for advancing new and better communications solutions.



CS® ECOSYSTEM

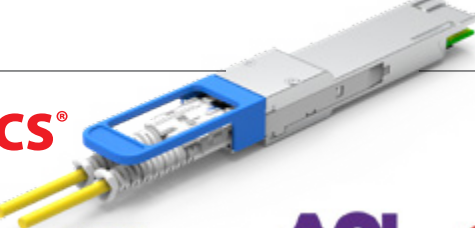
STANDARDIZATION CS®

The CS® connector has been adopted to transceiver specifications such QSFP-DD, OSFP and COBO as one of fiber

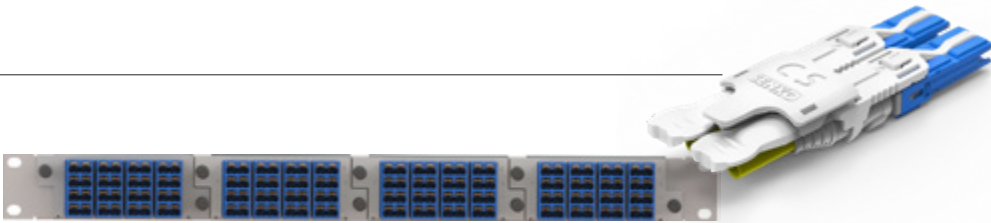


optic connector option. CS® connector interface is being specified by IEC is 61754-36.

TRANSCEIVER CS®

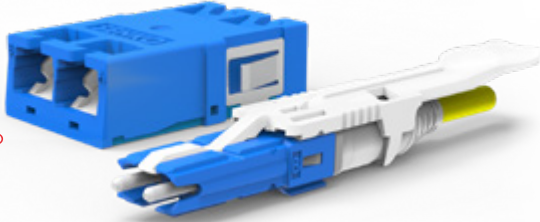


CABLE ASSEMBLY AND PATCH PANEL CS®



* Licensee

CONNECTOR AND ADAPTER LICENSEES CS®



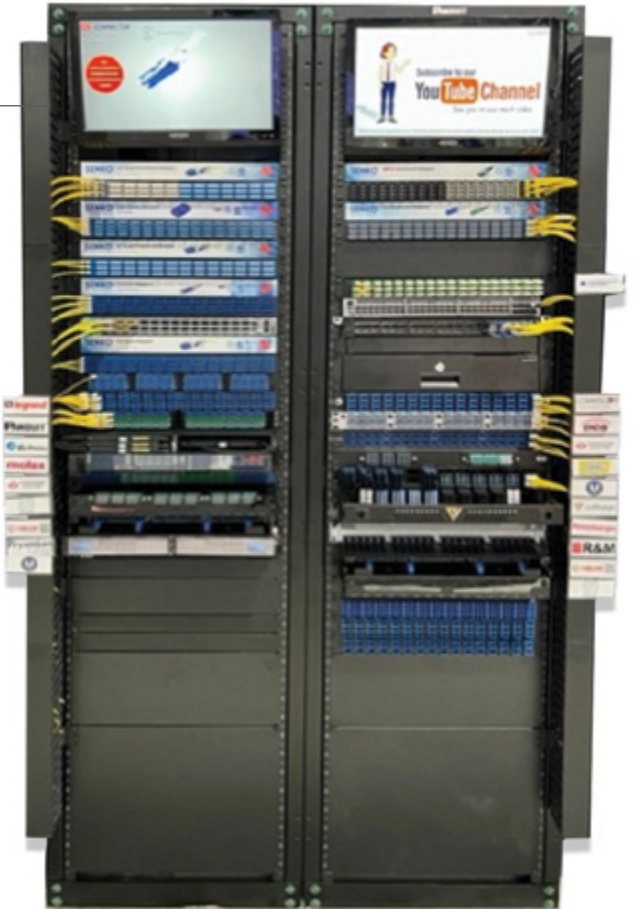
TESTING CS®



POLISHING CS®



RACK DISPLAY AT OFC 2022 CS®



Capture the QR code to receive more information about the CS ecosystem partners



CS® CONNECTOR Patch Panel Examples

128CH/256F Patch Panel in 1RU

- 16 slots x 4 CS Dual (2 fiber) adapter
- Fully silk screened



128CH/256F Cassette Module in 1RU

- 4 x 32CH/6F Cassette Modules
- Silk Screen on each side of cassette



Reach higher density with CS® CONNECTOR

New Duplex connector optimized for 400G new generation Data Center




↑↓

1U only

CS®

128CH/256F
Cassette Module
Patch in 1RU



↑↓

2U at least

LC

128CH/256F
Cassette Panel
in 2RU

Adapters too close to reach your finger to LC connector Latch

45RU Rack Comparison

Double your density with CS® CONNECTOR

Generic LC

CS® CONNECTOR

with LC

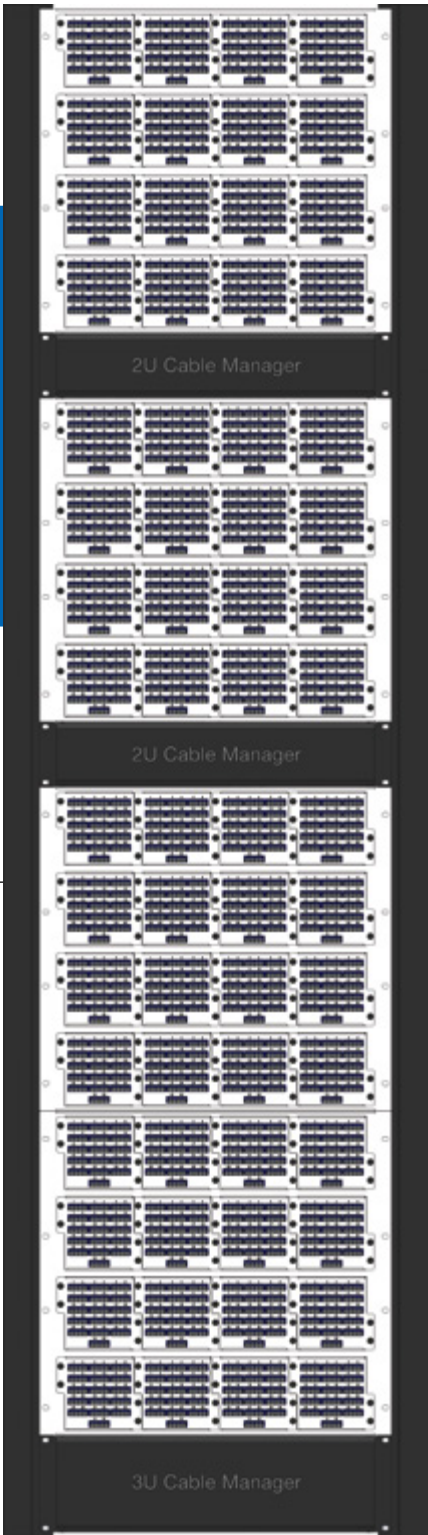
Total Capacity

2048 CH

4096 F

(single sided rack/cabinet)

Total 7RU
Cable
Management
Space



with CS®

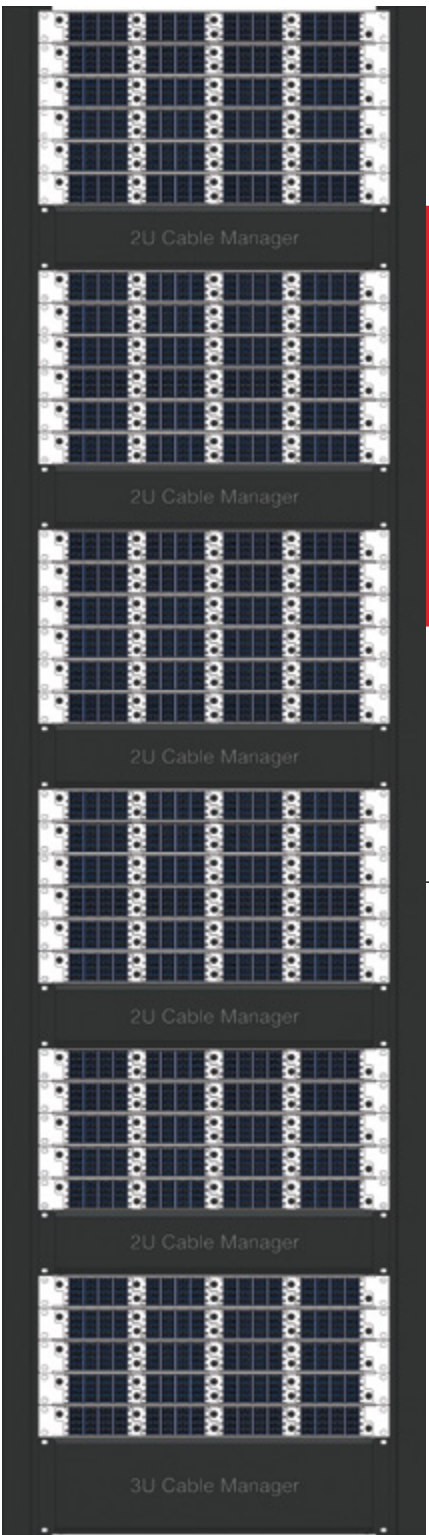
Total Capacity

4352 CH

8704 F

(single sided rack/cabinet)

Total 13RU
Cable
Management
Space



*Note that the 3 RU wire manager is installed on the bottom rack base plate and the remaining 1 RU space at the bottom of the rack.

Premium series

SN®EZ-FLIP CONNECTOR

Simplifying network cabling

A new duplex connector, optimized for 400G which allows the polarity to be switched without connector re-termination



3x HIGHER DENSITY compared to LC Connector

Up to 2.0mm ruggedized cable

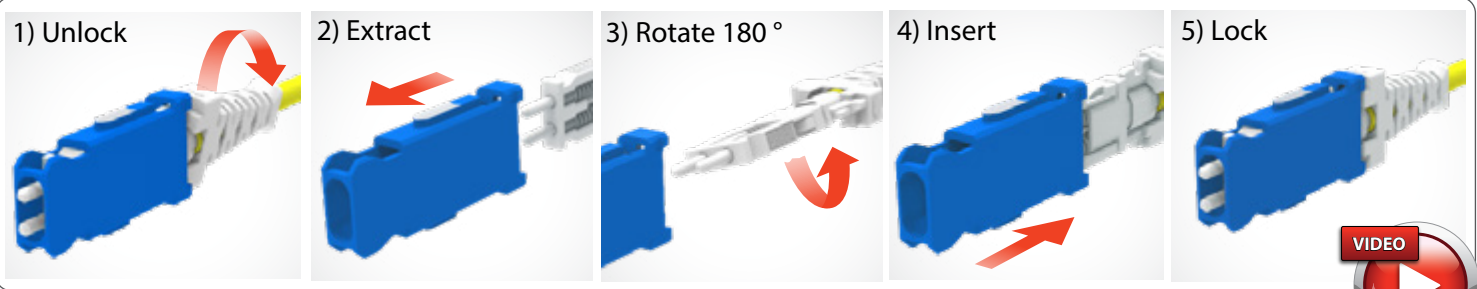
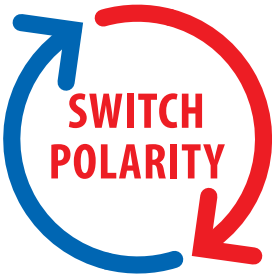
Push-pull on boot design

2X LC STYLE FERRULE for increased reliability

APC OPTION AVAILABLE

GANG CLIP COMPATIBLE

PREASSEMBLED KIT

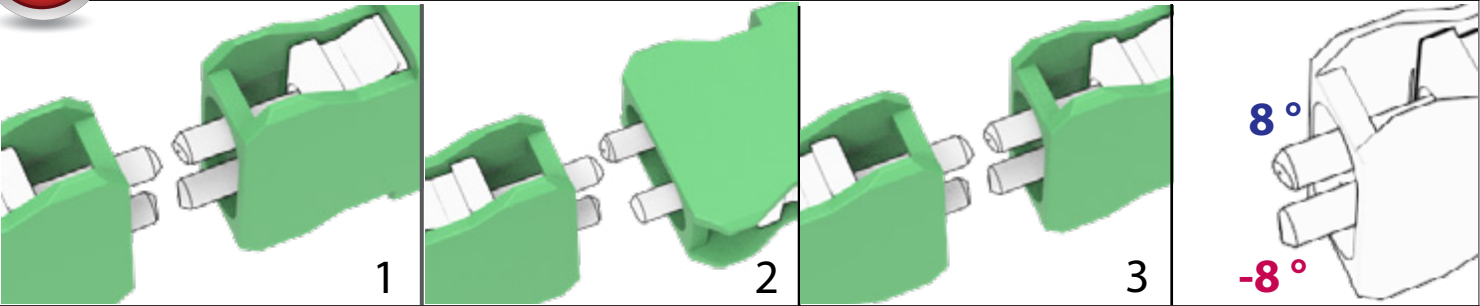


CLICK TO WATCH THE VIDEO



SN-EZ-Flip APC Connector

CLICK TO WATCH THE VIDEO



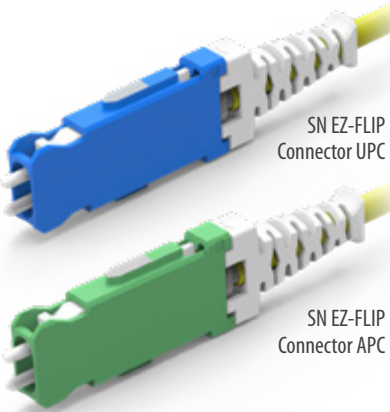
The special design of the ferrule angle allows for perfect alignment of the ferrules after polarity change.

TIME SAVING PREASSEMBLED SN EZ-FLIP SWITCHABLE CONNECTOR



Because the SN® EZ-Flip comes preassembled, there is no need to detach the ferrules from the inner body during termination. This results into an easier termination process and time saving.

SN™EZ-FLIP CONNECTOR



SN-EZ Premium Connector

CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR
6A5 SN EZ-Flip Connector UPC Preassembled for 2 mm Cable	151 SM Premium	1 Blue	4 44mm Boot (44T)	1 White
6A6 SN EZ-Flip Connector UPC Preassembled for 1.6 mm cable	158 SM Premium Low Loss	5 Aqua		
6B5 SN EZ-Flip Connector UPC Unassembled for 2 mm Cable	251 MM Premium	6 Heather Violet		
6B6 SN EZ-Flip Connector UPC Unassembled for 1.6 mm cable				

CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR
6D5 SN EZ-Flip Connector APC Unassembled for 2 mm Cable	153 APC Premium	3 Green	4 44mm Boot (44T)	1 White
6D6 SN EZ-Flip Connector APC Unassembled for 1.6 mm Cable	158 APC Premium Low Loss			

Note: Connector supplied with protective dust-cap

6D5 - 153 - 311 ORDER CODE example

GANG CLIP READY

Features and Benefits

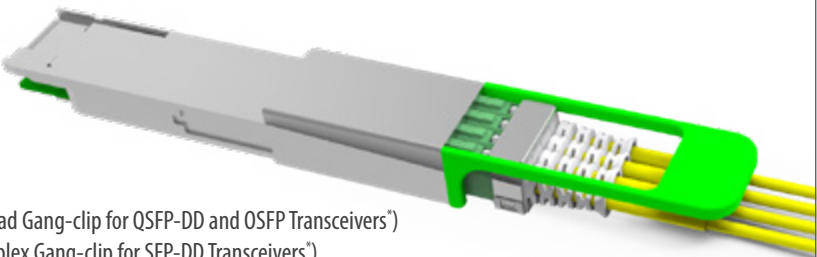
- Solutions for: QSFP-DD and SFP-DD Transceivers
- Quick connect/disconnect of ganged connectors
- Easy removal of clip to allow extraction of individual connector
- Fits within transceiver handle footprint



GANG CLIP

P/N 6A5-CLIP-QD-01 (Metal Quad Gang-clip for QSFP-DD and OSFP Transceivers*)
P/N 6A5-CLIP-DX-01 (Metal Duplex Gang-clip for SFP-DD Transceivers*)
P/N 6A5-CLIP-QD-02 (Plastic Quad Gang-clip for Shuttered Adapters or Adapters with Walls Between Each Port)
*Note: SN EZ-Flip Connectors Only

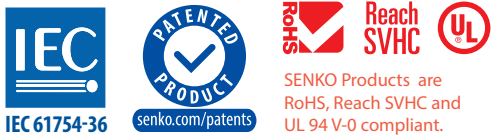
See Accessories page for more details



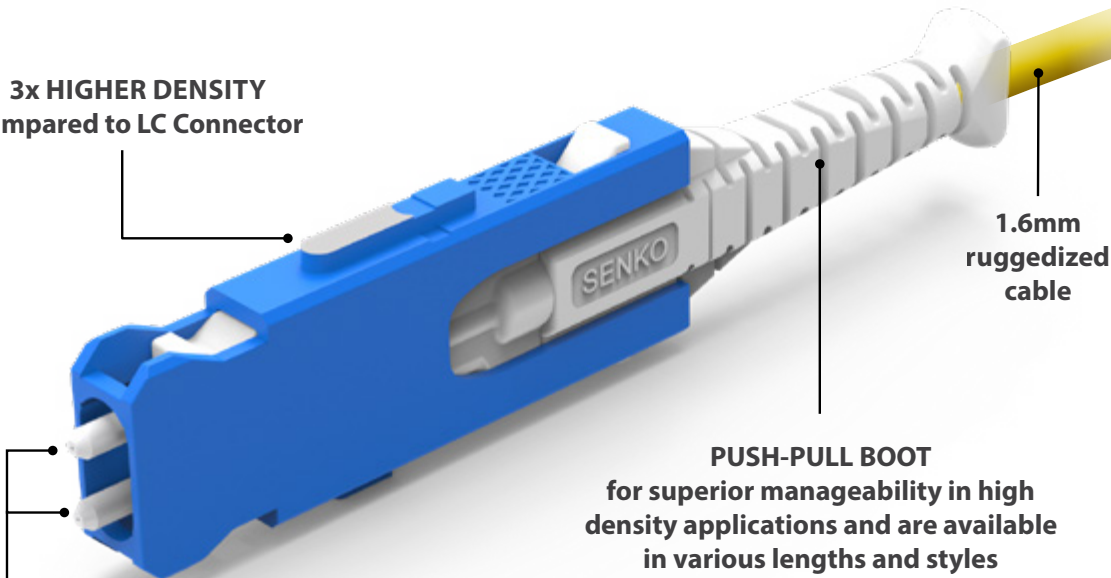
SN® CONNECTOR

Next generation connector

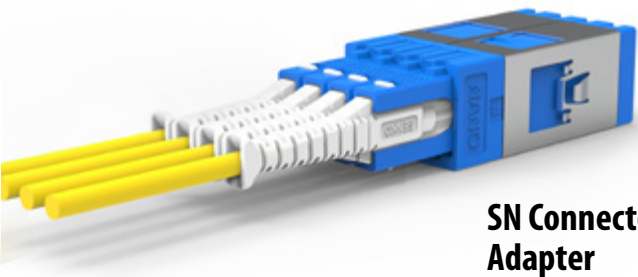
New duplex connector optimized for 400G new generation Data Center



3x HIGHER DENSITY compared to LC Connector



Key Features of SN® connector



Double density compared to LC Duplex

4x SN in 1 Adapter



- Most dense dual ferrule uniboot connector
- Mechanically stronger
- Allows better cable management/routing

SN CONNECTOR

UPC



CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR
602 SN Connector UPC Unassembled for 1.6 mm Cable	151 SM Premium	1 Blue	1 50 mm Boot (50T)	1 White
604 SN Connector UPC Unassembled for 2 mm Cable	158 SM Premium Low Loss	5 Aqua	B Flex-Angled Boot (57T)	
	251 MM Premium	6 Heather Violet	C Flex-Angled Boot (63T)	
			D Flex-Angled Boot (71T)	

602 - 153 - 111 ORDER CODE example

Note: Connector supplied with protective dust-cap

SN® CONNECTOR

APC

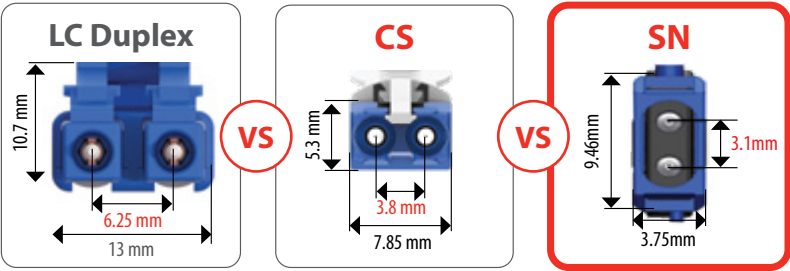


CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR	BOOT TYPE	BOOT COLOR
612 SN Connector APC Unassembled for 1.6 mm Cable	153 APC Premium	3 Green	1 50 mm Boot (50T)	1 White
614 SN Connector APC Unassembled for 2 mm Cable	158 APC Premium Low Loss		B Flex-Angled Boot (57T)	
			C Flex-Angled Boot (63T)	
			D Flex-Angled Boot (71T)	

612 - 153 - 311 ORDER CODE example

Note: Connector supplied with protective dust-cap

LC Duplex , CS, SN Comparison



FEATURES
• LC ferrule base duplex connector
• Ferrule pitch: 3.1mm
• 4x SN® connectors in a QSFP footprint
• 2x SN® connectors in a SFP footprint
• Designed for 4x Duplex break out application
• Push-pull on boot design for better usability

GANG CLIP READY

Features and Benefits

- Solutions for: QSFP-DD and SFP-DD Transceivers
- Quick connect/disconnect of ganged connectors
- Easy removal of clip to allow extraction of individual connector
- Fits within transceiver handle footprint

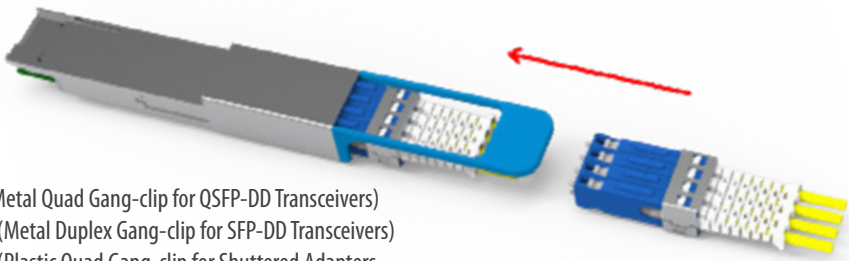
Metal Quad Gang-Clip



Plastic Quad Gang-Clip

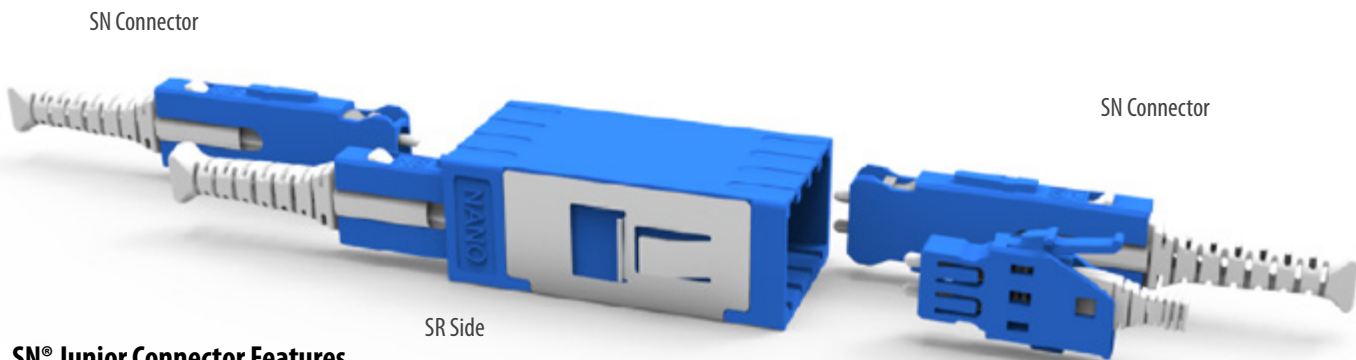
GANG CLIP

- P/N 602-CLIP-QD-02 (Metal Quad Gang-clip for QSFP-DD Transceivers)
- P/N 602-CLIP-DX-01 (Metal Duplex Gang-clip for SFP-DD Transceivers)
- P/N 602-CLIP-DX-02 (Plastic Quad Gang-clip for Shuttered Adapters or Adapters with Walls Between Each Port)



See Accessories page for more details

SN® Adapters



SN Connector

SR Side

JR+ Side

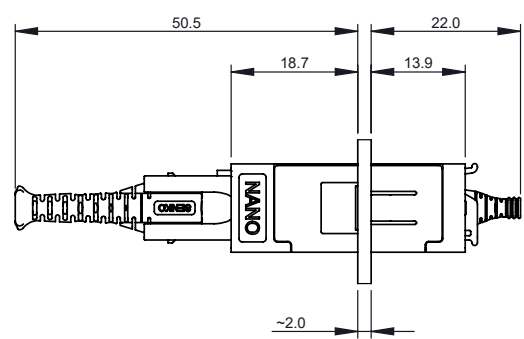
SN Footprint Adapter - 4CH (8F)

SN Junior Connector

SN® Junior Connector Features

- Latch locking mechanism
- Accepts 2 x 900 μm buffered fibers
- Uses proven LC ferrule technology
- Extra small for space limited installations

Note: The JR+ side of the adapter can accept the SN Connector and the SN Junior Connector



50.5

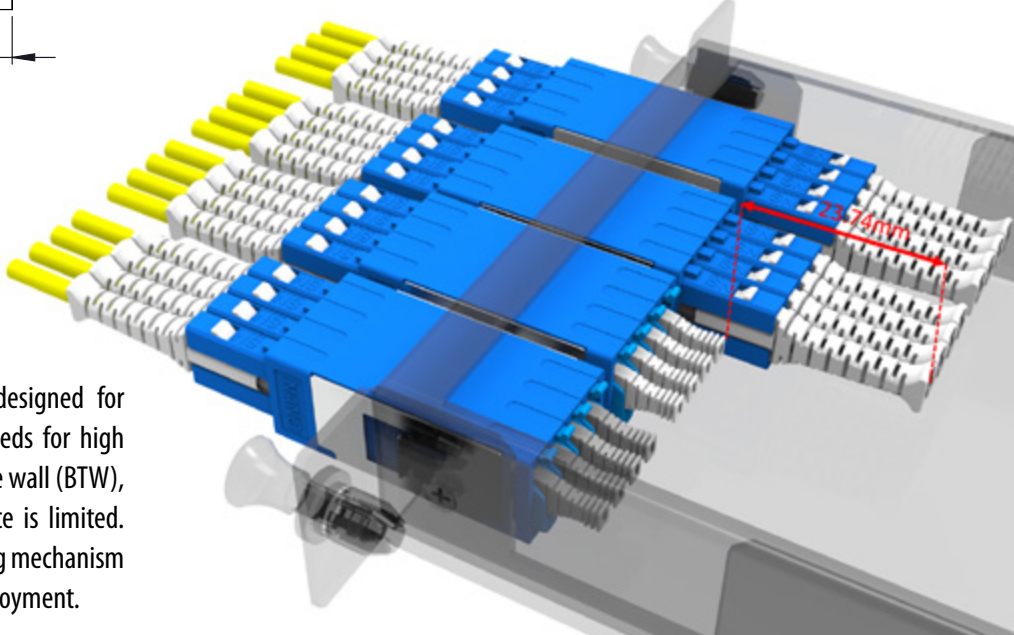
18.7

22.0

13.9

~2.0

SPACE SAVING



23.74mm

SENKO's SN® Junior connector is designed for special small duplex connection needs for high density situations such as behind the wall (BTW), cassettes, and modules where space is limited. The connector features a latch locking mechanism to confirm engagement prior to deployment.

SN® JUNIOR



SN Junior Connector

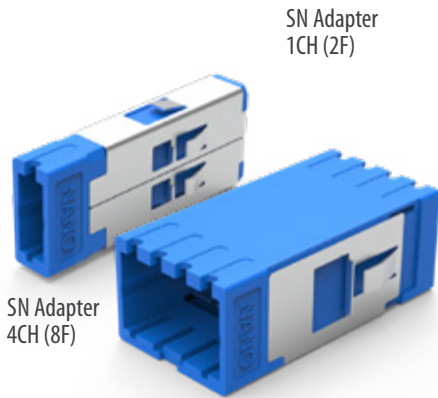
CONNECTOR TYPE		PERFORMANCE	HOUSING COLOR		BOOT COLOR
603	SN Junior Connector UPC	151 SM Premium	1	Blue	1 White
		158 SM Premium Low Loss	5	Aqua	
		251 MM Premium	6	Heather Violet	

CONNECTOR TYPE		FERRULE SIZE	HOUSING COLOR		BOOT COLOR
613	SN Junior Connector APC	153 APC Premium	3	Green	1 White
		158 APC Premium Low Loss			

613 - 153 - 31 ORDER CODE example

Note: 1. The SN Junior Connector was previously called the BTW1 Connector
2. Connector supplied with protective dust-cap

SN® ADAPTER



SN Adapter

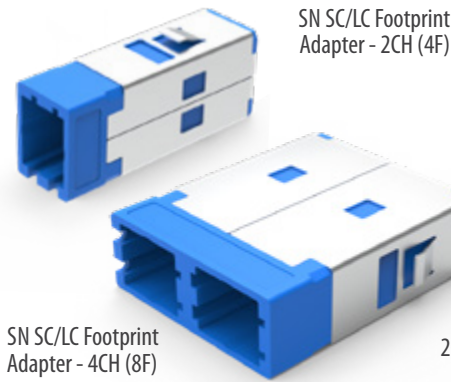
SN FOOT PRINT TYPE		FLANGE		HOUSING COLOR	
691	SN 1-Channel (2F) Non-Shuttered Adapter	1	With flange	1	Blue
694	SN 4-Channel (8F) Non-Shuttered Adapter	2	No flange	3	Green
69A	SN 1-Channel (2F) Shuttered Adapter			7	Heather violet (OM4)
69D	SN 4-Channel (8F) Shuttered Adapter			9	Aqua (OM3)

691 - 1 - 1 ORDER CODE example

Note: Adapter supplied with protective dust-cap on both sides



SC /LC
FOOTPRINT
ADAPTER

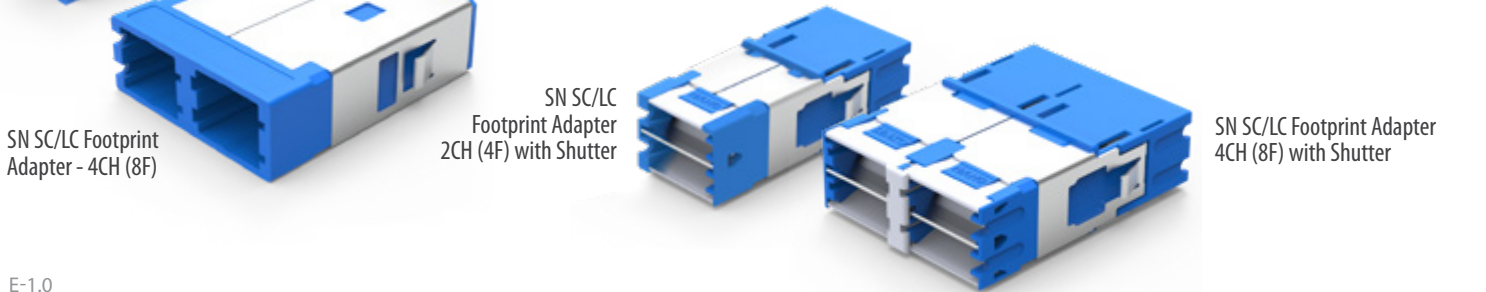


SN Adapter with SC/LC Footprint

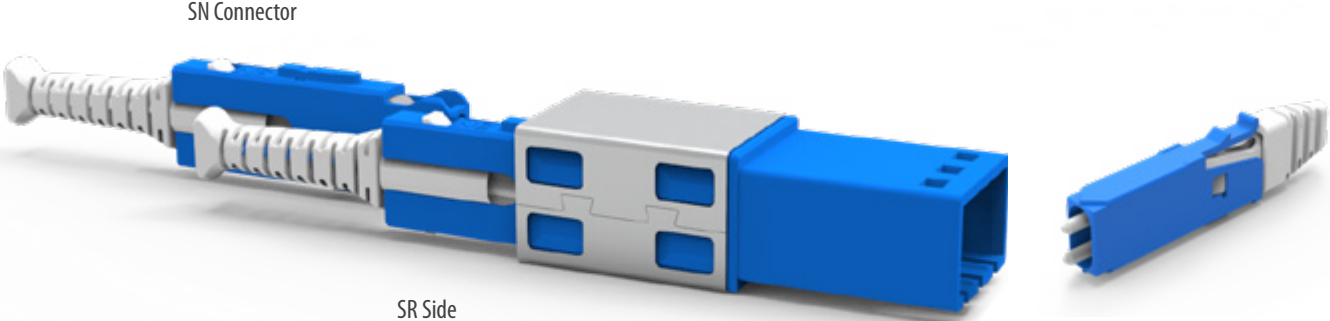
SC FOOT PRINT TYPE		FLANGE		HOUSING COLOR	
672	SN 2 Channel (4F) Adapter	1	With flange	1	Blue
674	SN 4 Channel (8F) Adapter	2	No flange	3	Green
67B	SN 2 Channel (4F) Shuttered Adapter			7	Heather violet (OM4)
67D	SN 4 Channel (8F) Shuttered Adapter			9	Aqua (OM3)

672 - 1 - 1 ORDER CODE example

Note: Adapter supplied with protective dust-cap on both sides



SN® COMPACT Connector and Adapter



SN Connector

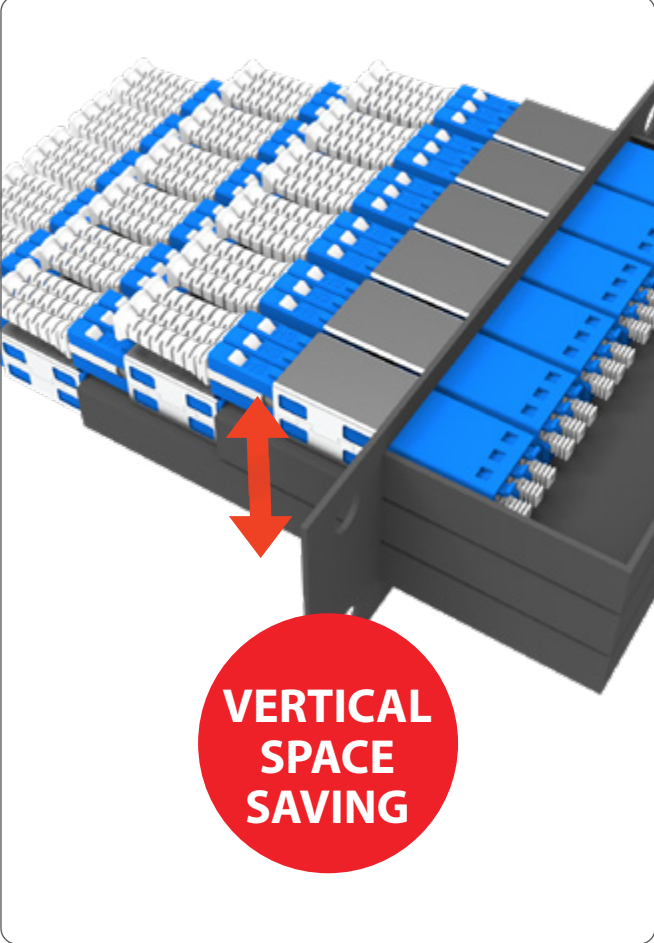
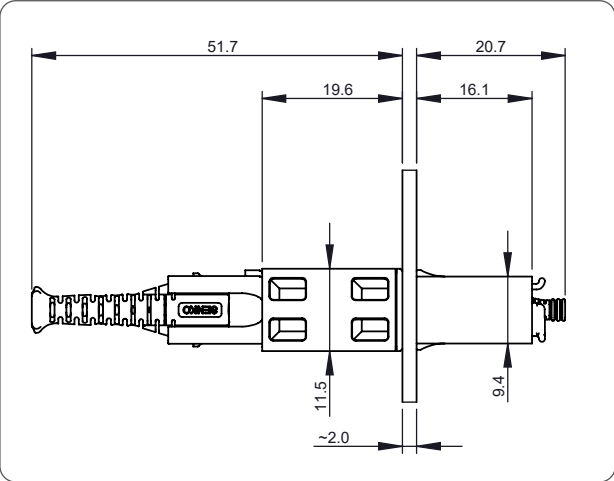
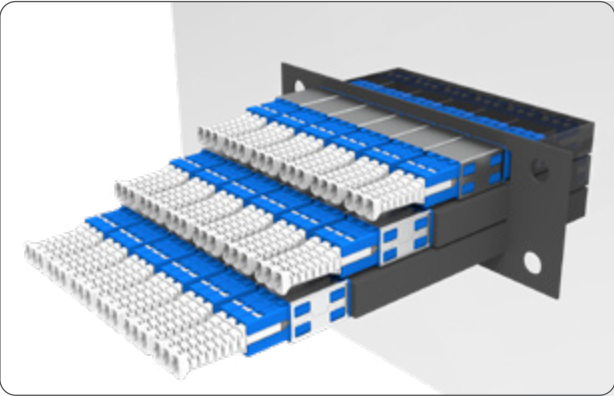
SR Side

JR Side

SN Compact Connector

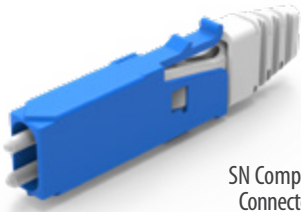
SN® Compact Connector Features

- Latch locking mechanism
- Accepts 2 x 900 μm buffered fibers
- Uses proven LC ferrule technology
- Extra small for space limited installations



SN® COMPACT

SN Compact Connector



CONNECTOR TYPE		PERFORMANCE	HOUSING COLOR		BOOT COLOR
606	SN Compact Connector UPC	151 SM Premium	1	Blue	1 White
		158 SM Premium Low Loss	5	Aqua	
		251 MM Premium	6	Heather Violet	

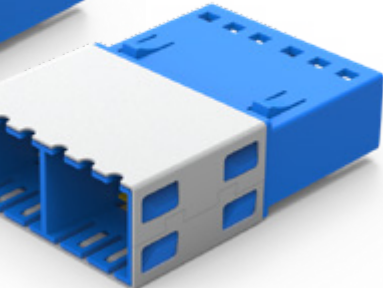
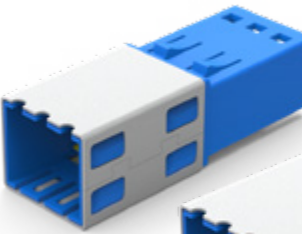
CONNECTOR TYPE		PERFORMANCE	HOUSING COLOR		BOOT COLOR
616	SN Compact Connector APC	153 APC Premium	3	Green	1 White
		158 APC Premium Low Loss			

Note: 1. The SN Compact connector was previously called the BTW2 Connector
2. Connector supplied with protective dust-cap

616 - 153 - 31 ORDER CODE example

SN® 3CH and 6CH

Compact Adapter

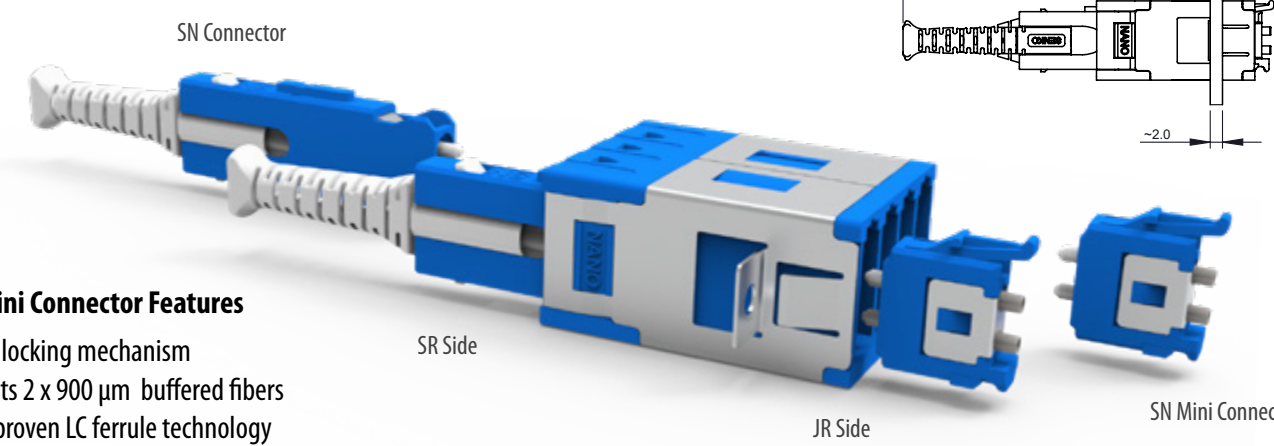


SN FOOTPRINT TYPE		FLANGE TYPE	HOUSING COLOR	
693	SN 3-Channel (6F) Non-Shuttered Adapter	3 Top Mount	1	Blue (SM PC/UPC)
696	SN 6-Channel (12F) Non-Shuttered Adapter		3	Green (SM APC)
			7	Heather Violet (MM OM4)
			9	Aqua (MM OM3)

Note: Adapter supplied with protective dust-cap on both sides

693 - 37 ORDER CODE example

SN® MINI Connector and Shuttered Adapter

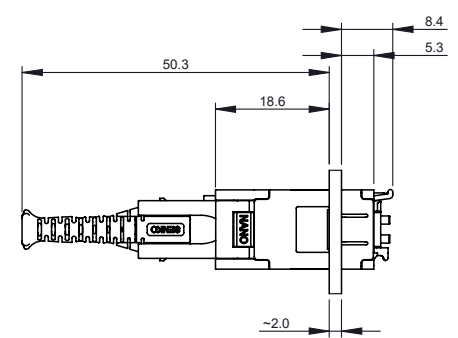


SN Connector

SR Side

JR Side

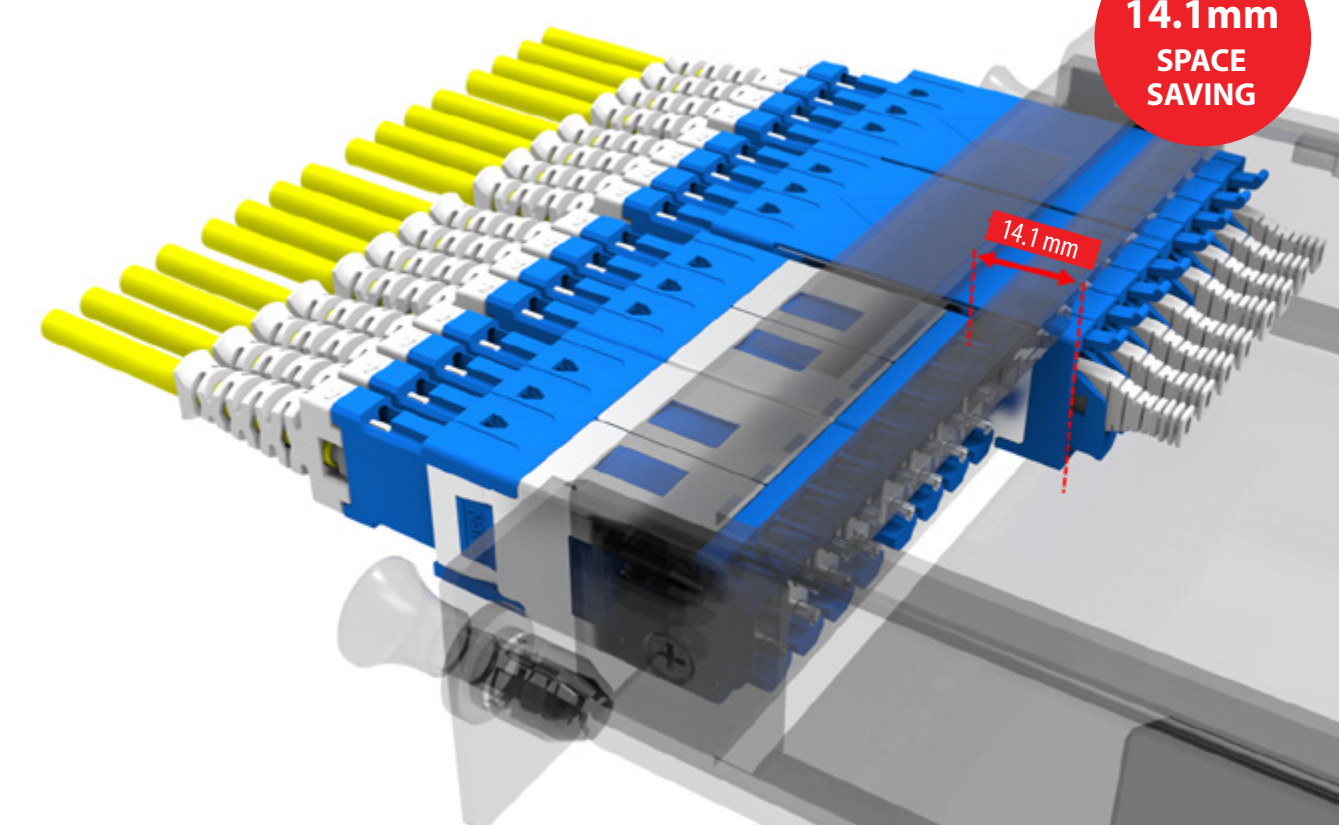
SN Mini Connector



SN® Mini Connector Features

- Latch locking mechanism
- Accepts 2 x 900 µm buffered fibers
- Uses proven LC ferrule technology
- Extra small for space limited installations

SN® MINI Connector and Shuttered Adapter



14.1mm
SPACE
SAVING

14.1mm

SN® MINI



SN Mini Connector

SN MINI Connector

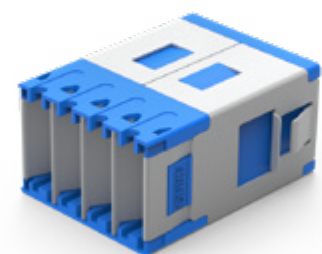
CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR
609 SN Mini Connector	151 SM Premium	1 Blue
	158 SM Premium Low Loss	5 Aqua
	251 MM Premium	6 Heather Violet

CONNECTOR TYPE	PERFORMANCE	HOUSING COLOR
619 SN Mini APC Connector	153 APC Premium	3 Green
	158 APC Premium Low Loss	

619 - 153 - 3 ORDER CODE example

Note: 1. SN Mini Connector has no boot
2. Connector supplied with protective dust-cap

SN® MINI



SN Mini Shuttered Adapter

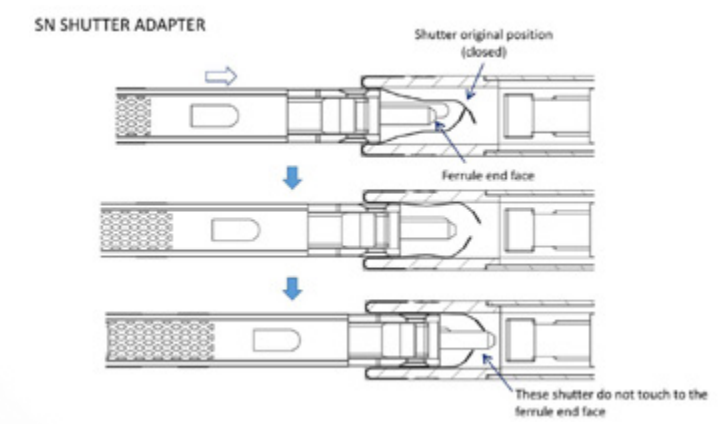
SN MINI Shuttered Adapter

SN FOOTPRINT TYPE	FLANGE TYPE	HOUSING COLOR
6MD SN 4-Channel (8F) Mini Shuttered Adapter	1 With Flange	1 Blue (SM PC/UPC)
	2 Without Flange	3 Green (SM APC)
		7 Heather Violet (MM OM4)
		9 Aqua (MM OM3)

6MD - 27 ORDER CODE example

Note: Adapter supplied with protective dust-cap on both sides

SN® SHUTTER ADAPTER



- SN® Mini Shuttered Adapter Features**
- Metal shutter for eye safety and dust resistance
 - One-handed automatic shutter operation
 - Density's up to 432F (216CH) per 1RU with SN internal shuttered adapters
 - Other footprints coming soon (2CH SC SX and 4CH SC DX cutout)

SN® ECOSYSTEM

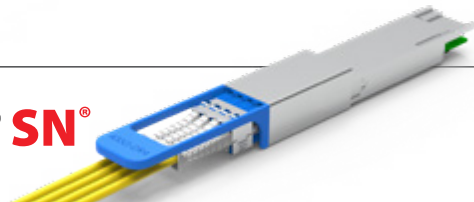
STANDARDIZATION SN®

The SN® connector has been adopted to transceiver specifications such QSFP-DD, OSFP and COBO as one of fiber

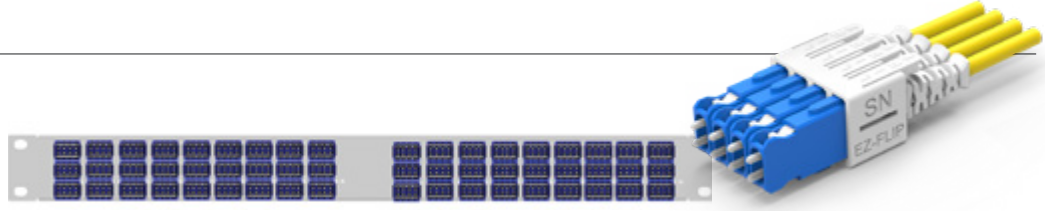


optic connector option. SN® connector interface is being specified by IEC is 61754-36.

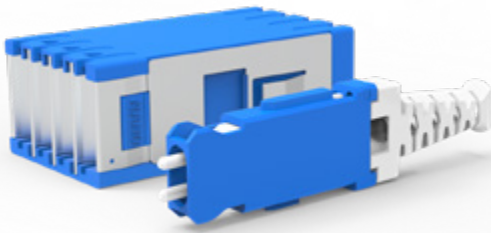
TRANSCEIVER SN®



CABLE ASSEMBLY AND PATCH PANEL SN®



CONNECTOR AND ADAPTER LICENSEES SN®



TESTING SN®



POLISHING SN®



RACK DISPLAY AT OFC 2022 SN®



Capture the QR code to receive more information about the SN ecosystem partners



SN[®]-MT CONNECTOR

The journey to 1.6TB has already begun



Available in 8F and 16F in one row

2.7x
Density Increase
Compared to
MPO-16F

Same
Footprint
as SN
Connector

4x SN-MT
in 1 transceiver

COMPATABILITY
same connector footprint
as SN connector

ACCESSIBLE
push-pull boot for
fast and easy access

SCALABLE
Up to 1.6TB

1.6 TB

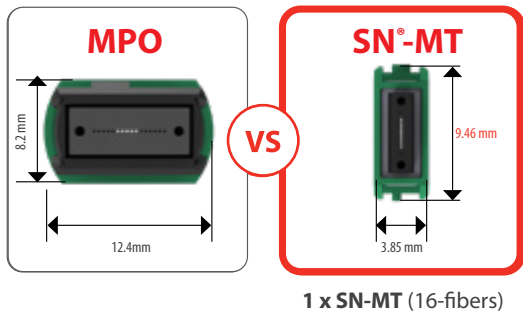
SN-MT8/16 Multi-Port

4x 400G DR4

2x 800G DR8

HYPERSCALE
DENSITY
2.7x denser than
MPO-16F

Footprint size comparison with MPO



- FEATURES
- Carries a maximum of 16-fibers in a row
 - Same connector footprint as SN
 - Carries many features from the SN
 - The industry's highest density connector solution in a QSFP-DD footprint
 - Fiber density per 1RU is improved by
 - 2.7 time over MPO-16F
 - 1.3 time over MPO-32F
 - Insertion loss targeted 0.35dB max for SM

SN[®]-MT Density Comparison with MPO in 1RU Panel

MPO 80-port: total 1280F with MPO-16F, total 2560F with MPO 32F



SN-MT 216-port: total 3456F with SN-MT 16F



SN[®]-MT Product Family

Connectors



SN-MT Connector



SN-MT Bare Ribbon Connector

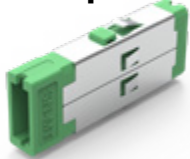


SN-MT Junior Connector

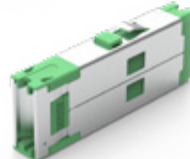


SN-MT Mini Connector

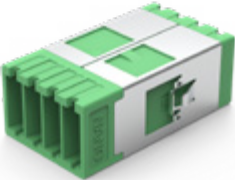
Adapters



SN-MT 1- Port Adapter



SN-MT 1-Port Shuttered Adapter



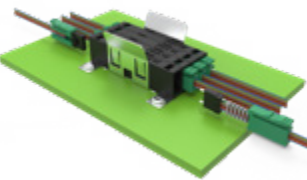
SN-MT 4-Port Adapter



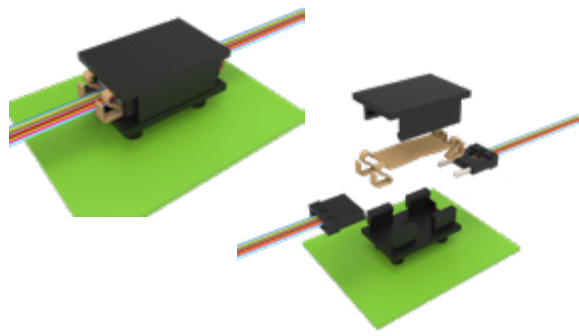
SN-MT 4-Port Shuttered Adapter

Mid-board Interconnect

(Micro Board Mount Connector)



SN-MT Stackable MBMC



MBMC SN-MT Clip

LC Connector Featured Products

LC EZ-FLIP® Polarity Reversible Connector

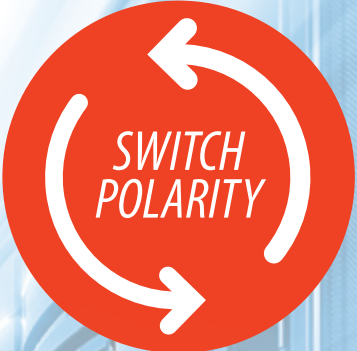


LC Dust Shutter Adapter with *Inner Shutter* 98D SERIES

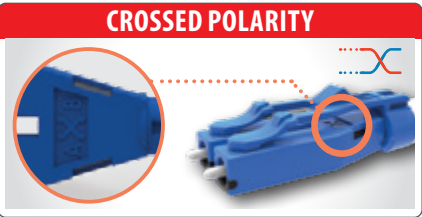
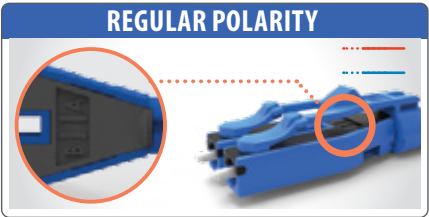
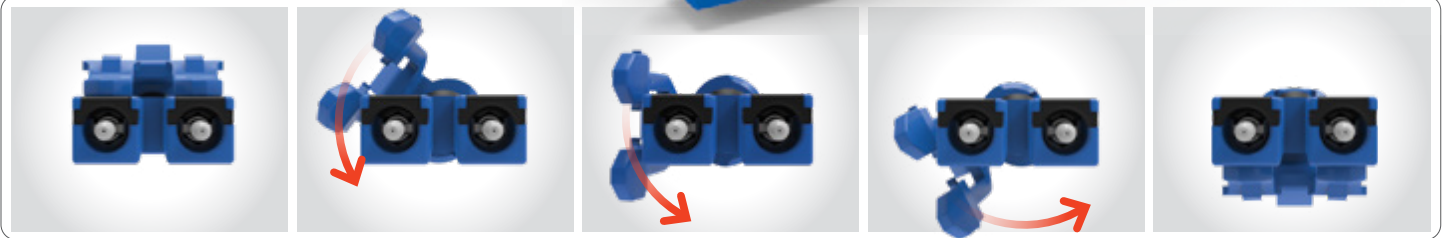


LC EZ-FLIP® Polarity Reversible Connectors

The Duplex LC connector for round cable, which allows the polarity to be switched without connector re-termination or twisting of the fiber



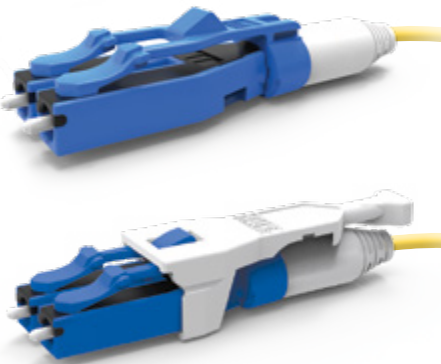
How to switch:



- FEATURES**
- Push/Pull Tab Ready for High Density applications
 - Uniboot Connector aids cable management
 - Polarity Reversal without twisting fiber
 - Visual indication for Polarity Check
 - Short boot design for reduced connector length

LC EZ-FLIP®

PC 2mm, 3mm



CONNECTOR TYPE	FERRULE SIZE	HOUSING COLOR	BOOT TYPE	BOOT COLOR
9AQ EZ Flip LC Uniboot Premium preassembled	151 SM 125.5µm	1 Blue	C 2.0 mm	1 White
	251 MM 127µm	2 Beige	D 3.0 mm	2 Blue
		5 Aqua		3 Black
		6 Heather violet		

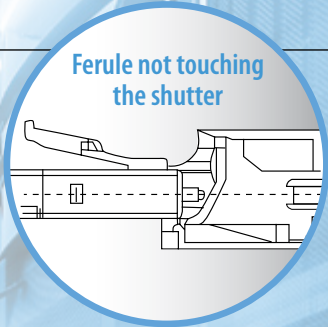
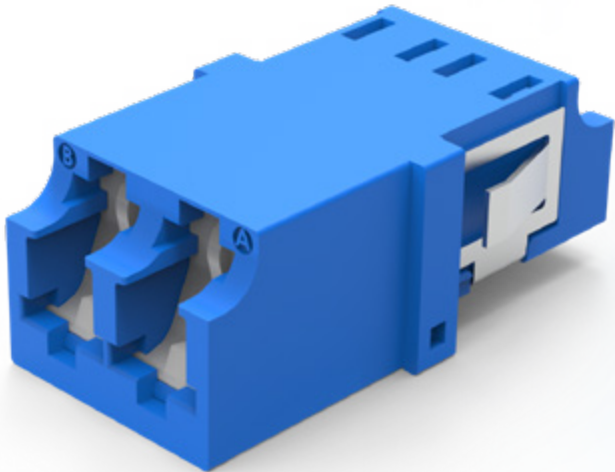
9AQ - 151 - 1C1 ORDER CODE example

TYPE	
94Q-HDPP-34-W	EZ Flip LC Uniboot, Push-Pull tab 34mm
94Q-HDPP-51-W	EZ Flip LC Uniboot, Push-Pull tab 51mm
94Q-HDPP-67-W	EZ Flip LC Uniboot, Push-Pull tab 67mm

94Q-HDPP-34-W ORDER CODE example

*Push pull tab is optional, connector can be used with/without tabs

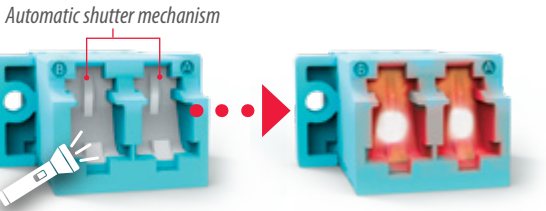
LC Adapter with Dust Shutter



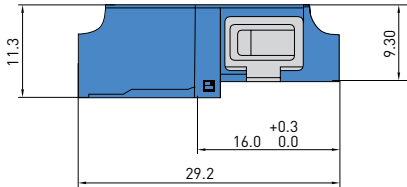
- FEATURES
- 100% automatic shutter action
 - IP5X dust protection
 - SC footprint on non-shuttered side
 - Compatible with standard LC connectors
 - Adapter traceability with Visible Light Source

LC Adapter Traceability

When trying to trace the adapter using a visible light source, you can see the red light glowing through the adapter sleeve.

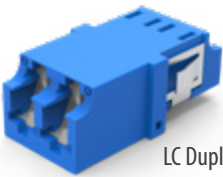


Fits in SC Footprint

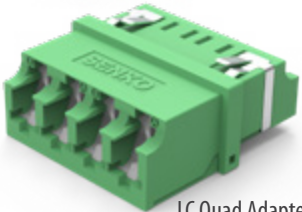


LC ADAPTER

Dust Shutter



LC Duplex Adapter with Dust Shutter



LC Quad Adapter with Dust Shutter

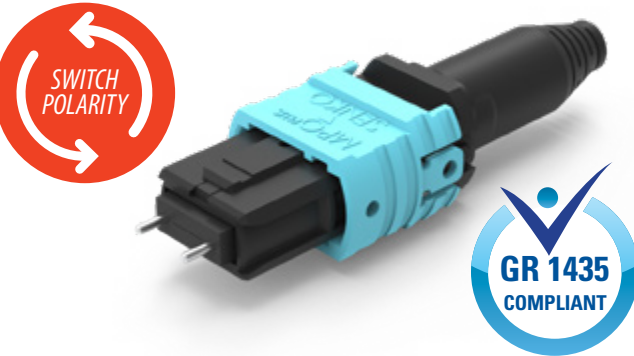
ADAPTER CODE	TYPE	HOUSING COLOR	SLEEVE TYPE	SHUTTER
98D	LC Adapter	3 Duplex with Flange	1 Blue	1 Zirconia
	with Dust Shutter	4 Duplex No Flange	3 Green	A Shutter
		5 Quad with Flange	7 Violet OM4 (MOQ Req)	
		6 Quad No Flange	9 Aqua OM3	

98D - 311 - A ORDER CODE example

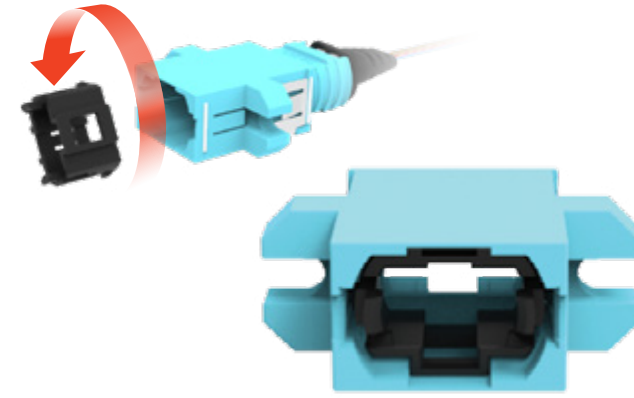
MPO Connector Featured Products

MPO+PLUS[®] Premium Mini Connector

Polarity and Gender change made easy
without opening the housing



MPO+PLUS[®] Polarity Changeable Adapter



AirMT MPO+PLUS[®] Connector

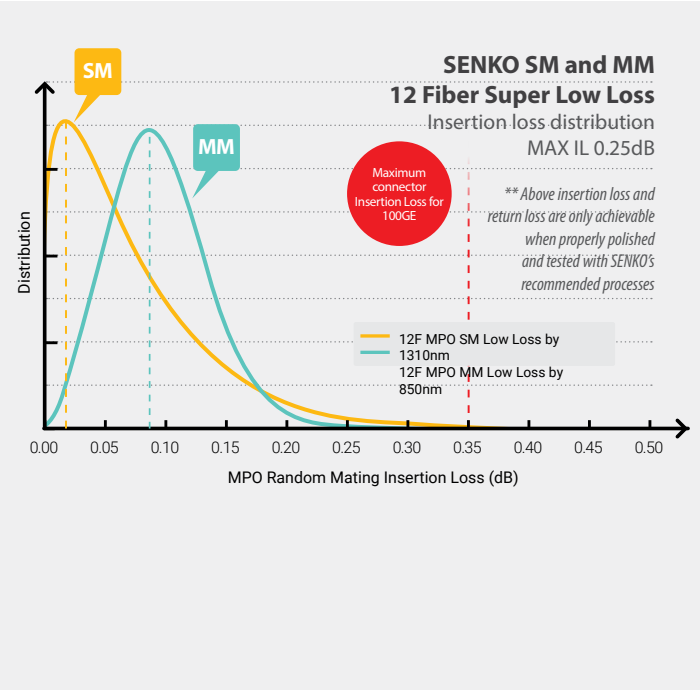
Excellent Connection
Anytime



MPO+PLUS[®] Dust Shutter Adapter DUSTPROOF



SENKO MT Ferrule performance



MPO+PLUS[®] MT Ferrule 8 and 12 Fiber Ferrule



SENKO's MPO Plus MT 12 fiber ferrule are the most common used MT Ferrule in the market which gives the best combination of easy-to-use and low insertion loss. The SM Low Loss and MM Low Loss now guarantees the industry's lowest insertion loss of 0.25dB, with a typical of greater than 0.1dB, which exceeds the IEC 61755-3-31 Grade B Requirement. Quality, Price, durability and ease of assembly makes the 12 fiber your best choice.

SPECIFICATION	SM LOW LOSS	SM STANDARD	MM LOW LOSS	MM STANDARD
IL Typical vs Reference connector	0.10dB	0.20dB	0.08dB	0.15dB
IL Max vs Reference connector	0.25dB	0.70dB	0.25dB	0.50dB
IL Typical Random Mating	0.12dB	0.20dB	0.10dB	0.15dB
Random Mating IEC Spec: IEC61755-3-31	Grade B (0.25)	Grade C (0.5)	n/a	n/a
Return Loss	60dB	60dB	25dB	25dB
Recommended PIN Used	SM Low loss Pin	SM Pin	SM Pin	MM Pin

* Above number is only achievable when using SENKO Recommended Reference Jumper, Polishing process and testing method
* SM Low loss and MM Low loss Max IL 0.25dB to be 95% of all fiber

MPO+PLUS[®] MT Ferrule 24 Fiber Ferrule

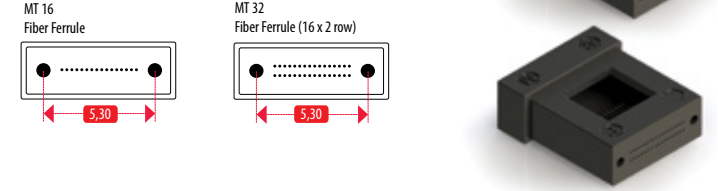


SENKO's MPO Plus 24 fiber MT Ferrule consists of 2 rows of 12 high precision fiber holes, yielding a high density connection with industry leading insertion loss values. Versions available in SM, MM and Low Loss MM make it the ideal choice for super high density connections and high speed 100G and 400G parallel optics platforms. SM 24 fiber is recommended to be used with a 10N Spring, and the MM 24 fiber is recommended to be used with a 20N High force spring.

SPECIFICATION	SM	MM LOW LOSS	MM
IL Typical vs Reference connector	0.25dB	0.15dB	0.20dB
IL Max vs Reference connector	1.00dB	0.35dB	0.50dB
IL Typical Random Mating	0.50dB	0.20dB	0.25dB
Return Loss	60dB	25dB	25dB
Recommended PIN Used	SM Pin	SM Pin	MM Pin

* Above number is only achievable when using SENKO Recommended Reference Jumper, Polishing process and testing method
* For SM 24 ferrule standard 10N Spring to be used
* For MM 24 Ferrule High pressure 20N Spring to be used

MPO+PLUS[®] MT Ferrule 16 and 32 Fiber Ferrule



SENKO's MPO Plus MT 16 and 32 fiber ferrules are designed to meet TIA 604-18 standard which addresses 16 fiber hole width MPO requirements and are available in single row 16 fiber and 2x16 row 32 fiber configurations. Industry leading 16F SM Low Loss ferrules meet the most demanding insertion loss and return loss requirements for high speed 100G, 400G and beyond parallel optical networks.

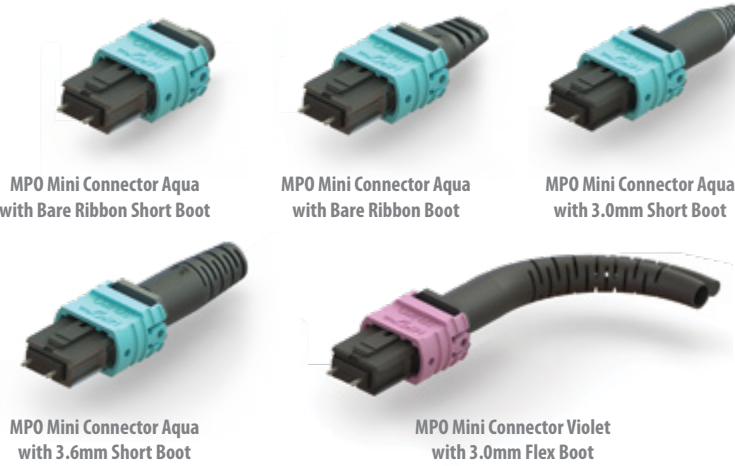
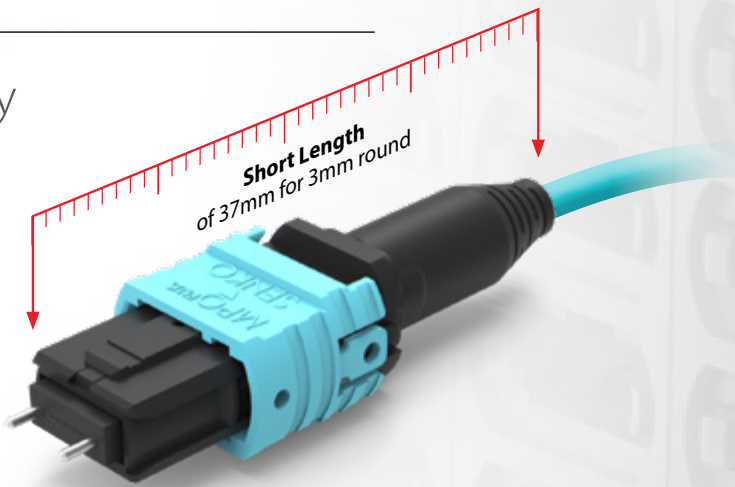
	16 SM LOW LOSS	16F MM	32F MM
IL Typical vs Reference connector	0.15dB	0.25dB	0.25dB
IL Max vs Reference connector	0.35dB	0.60dB	0.60dB
Random Mating Grade IEC 61755-3-31	Grade B 0.25dB	n/a	n/a
Return Loss	60dB	25dB	25dB
Recommended PIN Used	SM Low Loss Pin	MM Pin	MM Pin

*Meets the current IEC Grade B performance requirement for 12F MT Ferrule. The grade specification for 16F MT is underdevelopment in IEC
**Above number is only achievable when using SENKO Recommended Reference Jumper, Polishing process and testing method

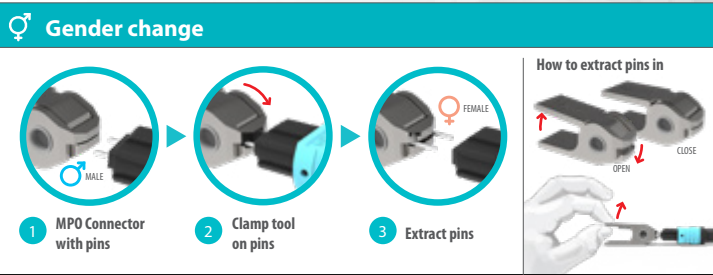
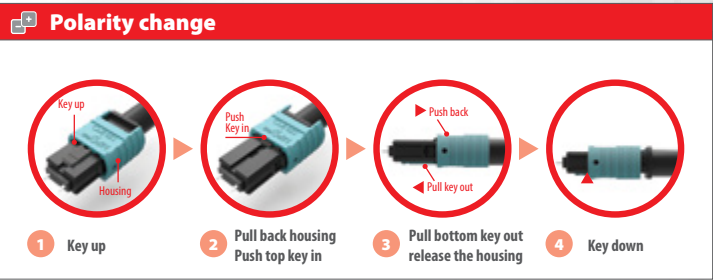
MPO+PLUS[®]

Premium Mini Connector

Polarity & Gender change made easy without opening the housing



- FEATURES
- SENKO Patent pending design
 - All the benefit of the MPO Plus and more.
 - Industries shortest overall length of 37mm for 3mm round
 - Polarity change in the field without any tool
 - Simple gender change without taking off the housing
 - Various boot types available
 - Complies with MPO IEC and TIA/EIA Requirements



Push Pull Tab

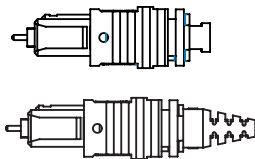


TYPE	
703-HDPP-34-W	MPO Plus Premium Mini Push Pull Tab 34mm White
703-HDPP-50-W	MPO Plus Premium Mini Push Pull Tab 50mm White
703-HDPP-64-W	MPO Plus Premium Mini Push Pull Tab 64mm White

703-HDPP-50-W ORDER CODE example

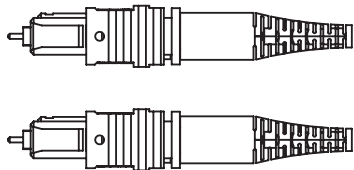
Ribbon Boots

00	Bare Ribbon
01	Bare Ribbon Short



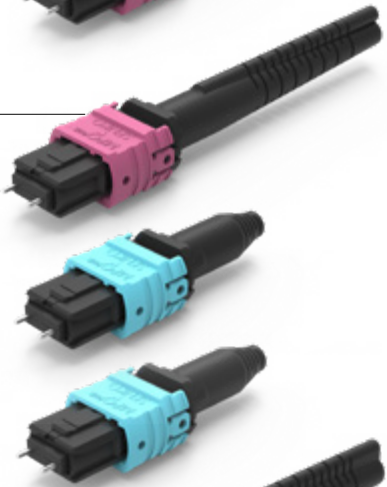
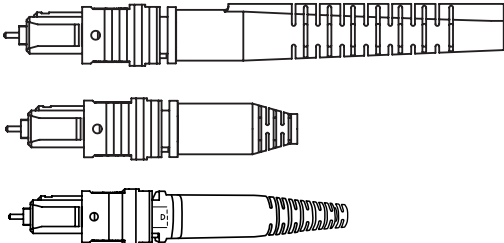
2.0mm Round Boots

21	2.0mm Boot with Crimp
22	2.0mm Boot without Crimp



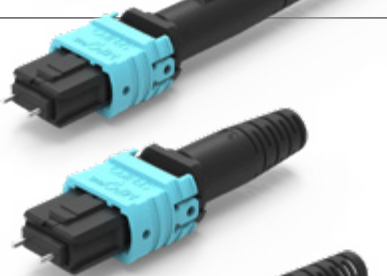
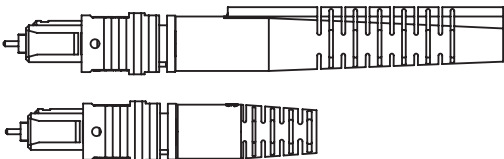
3.0mm Round Boots

32	3.0mm Flex Angle
33	3.0mm Short
A1	3.0mm Boot



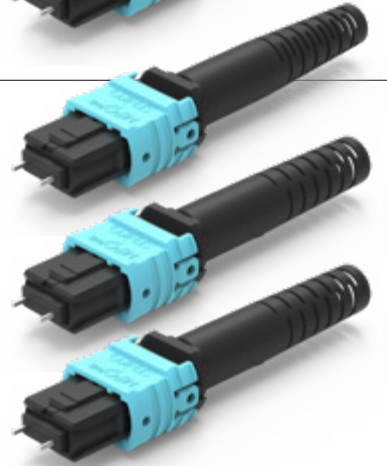
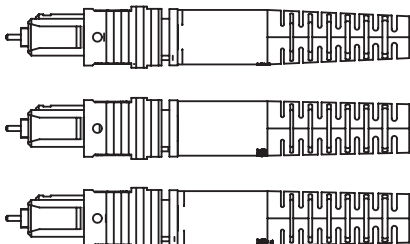
3.6mm Round Boots

42	3.6mm Flex Angle
46	3.6mm Short



4.5/5.0/5.5 Round

51	4.5mm Boot
52	5.0mm Boot
53	5.5mm Boot

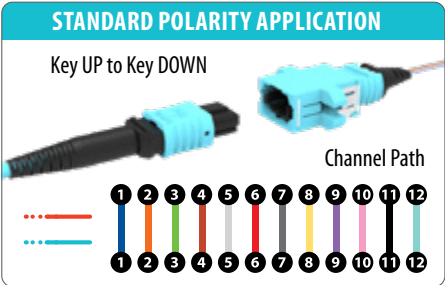
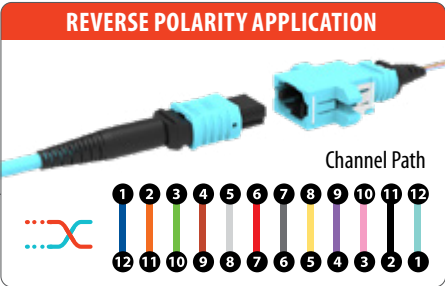


Note: When using Flex Angle Boot, always maintain the proper bend radius per the cable manufacturer's specification.

MPO+PLUS[®] Polarity Changeable Adapter

Polarity change made easy without modifying the connector

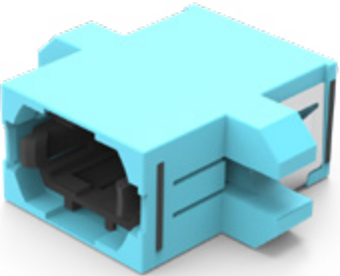
Scan the QR Code to see the video



- FEATURES**
- SENKO Patented Design
 - Compatible with all MPO connectors
 - Standard MPO Foot Print
 - Available in Black, Aqua, Heather Violet and Gray
 - Flanged and Non-Flanged versions available



Polarity Changeable Adapter

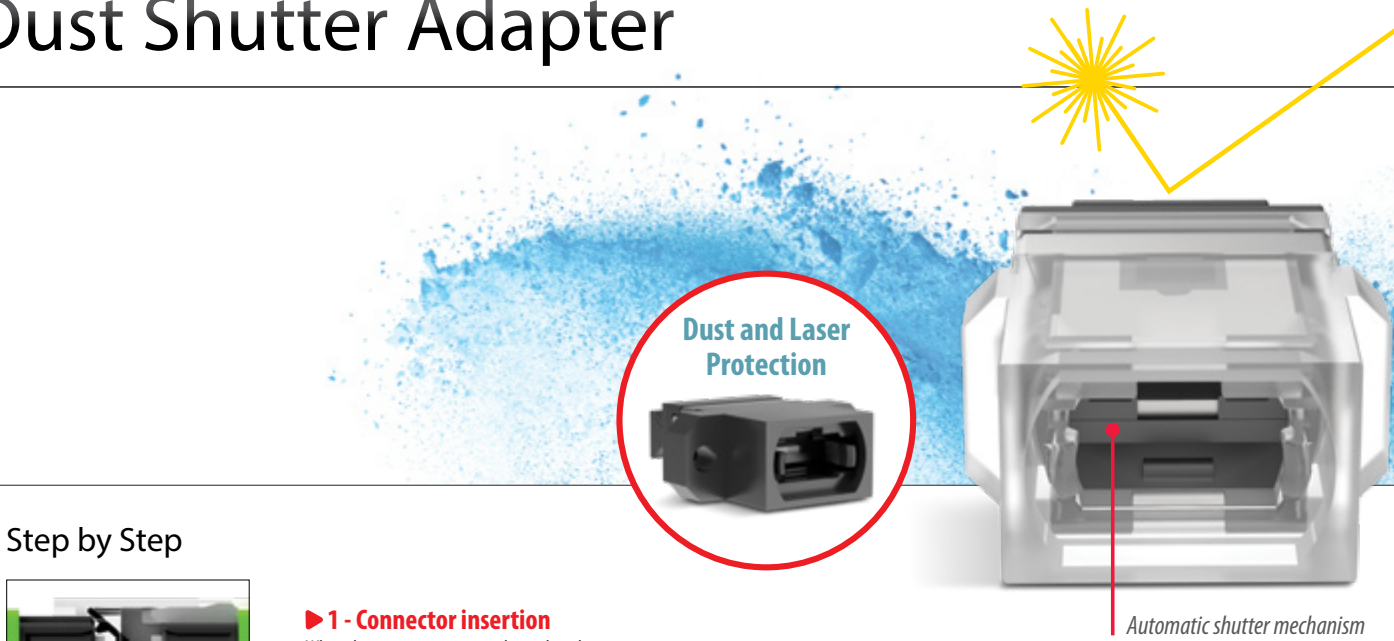


ADAPTER FLANGE		ADAPTER COLOR	
773	Flange	1	Black
774	No Flange	2	Aqua
		3	Heather Violet
		K	Gray, Aligned Key

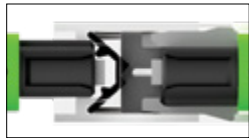
774 - 1 ORDER CODE example

Note: Polarity changeable feature recommended for non-angled ferrules only

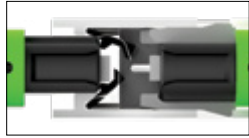
MPO+PLUS[®] Dust Shutter Adapter



Step by Step



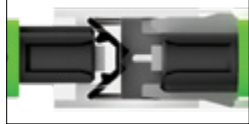
- **1 - Connector insertion**
- When the connector is inserted into the adapter it compress the springs, opening the internal shutter.



- **2 - Shutter opening**
- The internal shutter opens, and due to the special design of the shutter, it will not touch the ferrule end face.



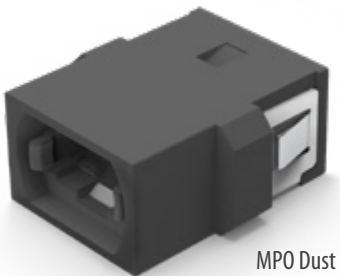
- **3 - Connector mated with adapter**
- The opening of the shutter allows for the ferrule to be inserted inside the adapter sleeve.



- **4 - Connector removal**
- As the connector is removed from the adapter, the shutter spring automatically returns the internal shutter to the closed position.

- BENEFITS**
- Unique twin door shutter closes to prevent any ingress of contamination can be "installed and forgotten" at sites with poor dust control
 - 100% automatic shutter mechanism means one handed connection
 - No dust cap required on shutter side - reduced waste
 - Standard MPO adapter footprint
 - Available in Black, Violet, Aqua, Lime, Green, and Gray colours
 - Designed to meet GR-1435 requirements
 - Can be used in combination with the LC and SC Inner shutter adapter to create a fully dust protected plug and play solution
 - Harsh Environment ready
 - Fully compliant with IEC dust testing standards
 - Compatible with all Senko MPO+ connectors including HD

Dust Shutter Adapter



MPO Dust Shutter Adapter No Flange

ADAPTER FLANGE		ADAPTER COLOR		SHUTTER
7D7	Flange	1	Black	A with Shutter
7D8	No Flange	2	Aqua	
7WA	16 fiber Adapter with Flange	3	Heather Violet	
7WB	16 fiber Adapter no Flange	8	Lime	
		K	Gray, Aligned Key	

7D7 - 1A ORDER CODE example

Note: Front shuttered side is compliant with female MPO connectors only

AirMT MPO^{PLUS}

Non-Contact Dust Insensitive Multi-Fiber Solution

Excellent connection anytime

Non Contact

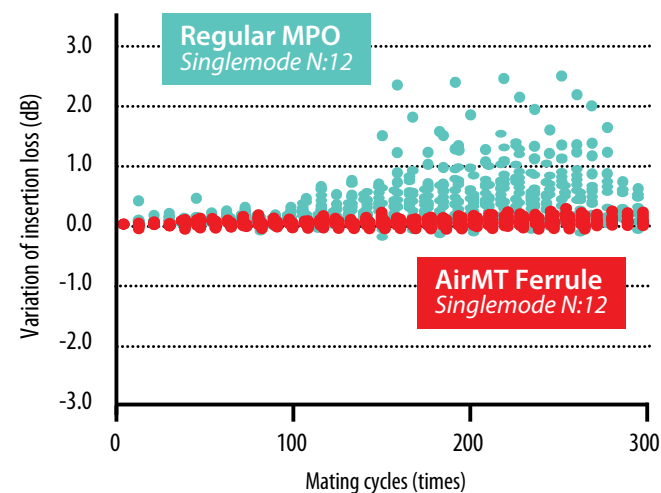
MT Ferrule

Spacer

APPLICATION EXAMPLES

- Data center
- On-board optics
- Telecommunications

MPO connectors are highly sensitive to all forms of contamination - with such a large end-face and so many fibers, it is very difficult to ensure pristine condition over the entire surface area of the ferrule. Secondly, the standard MPO connector requires high spring force to achieve physical contact for MT to MT ferrules. The non-contact design of the AirMT™ reduces the sensitivity to contamination and allows for a lower spring force for a repeatable Insertion loss over multiple connections.



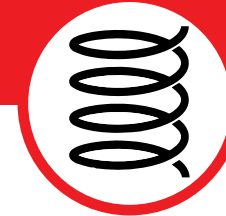
Repeated Mating Test

300 cycles without cleaning

Key Features of AirMT MPO Plus connector

Lower Spring Force

Consistent optical performance with reduced spring force



High Density

40% higher density by FACT footprint



Stable Performance

Excellent stable optical performance



High Repeatability

Repeatable optical performance



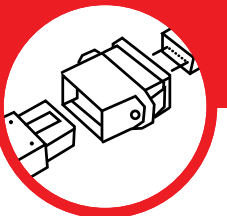
Easy Cleaning

Air blow cleaning capable



Intermateability with MT Ferrule

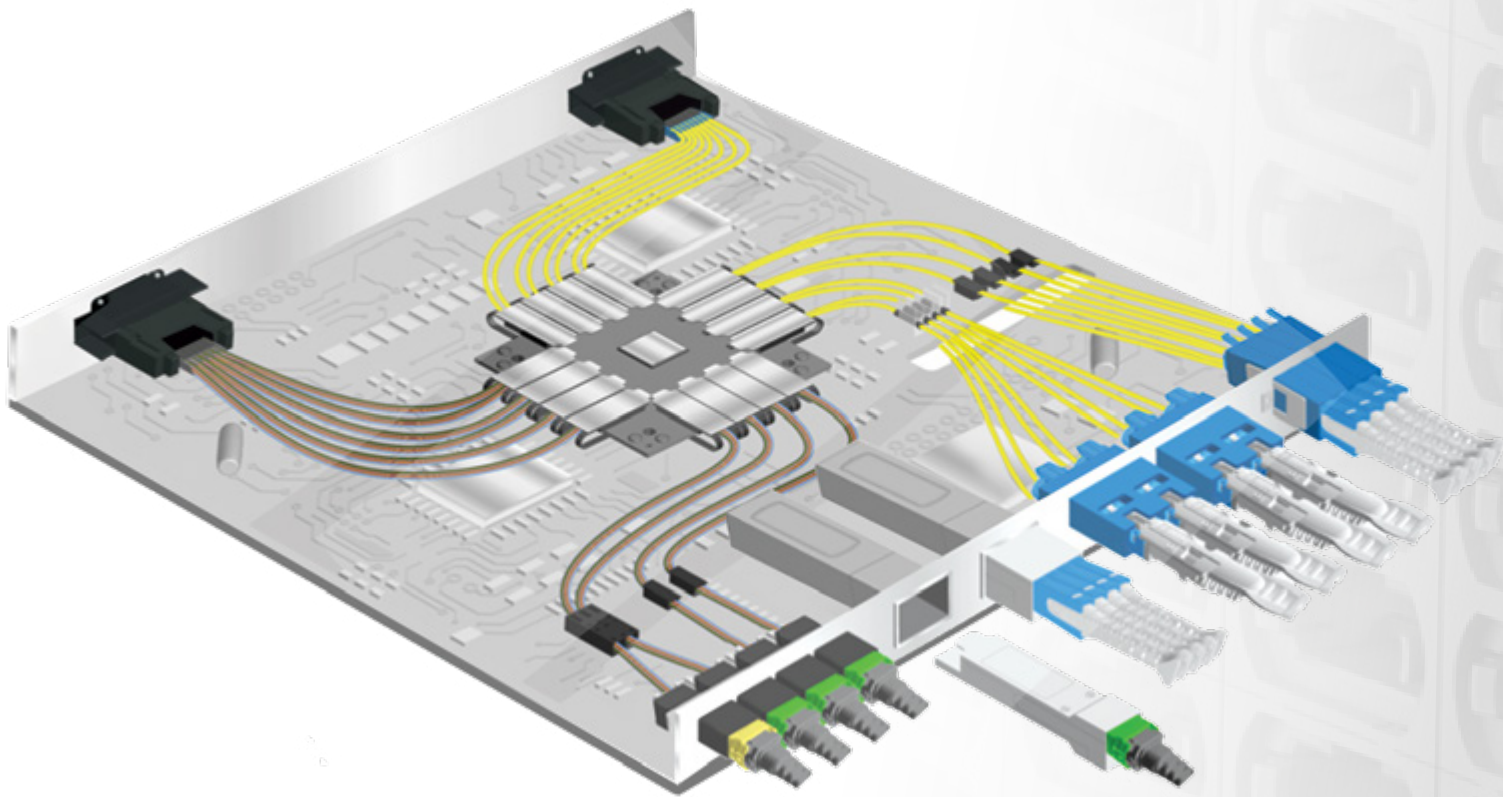
Retro-fit with conventional MPO Connector



*AirMT™ technology is licensed by Sumitomo Electric Industries, LTD.
Trademark of AirMT™ is jointly owned by
SENKO ADVANCED COMPONENTS, INC and Sumitomo Electric Industries, LTD

AirMT MPO+PLUS

Use Case



Parameters	Single-mode	Multimode ¹
	APC	MM
	Low Loss	Low Loss
Typical Insertion Loss (dB)	0.20	0.20
Maximum Insertion Loss (dB)	0.50	0.25
Typical Return Loss (dB)	≥55	≥23
Operating Temperature (°C)	-40°C to +75°C	
Durability	500 matings	

NOTES

1. Parameters listed for Multimode are target values.

2. AirMT technology is licensed by Sumitomo Electric Industries, LTD.

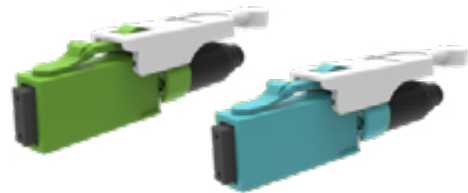
3. Trademark of AirMT is jointly owned by Senko Advanced Components, Inc. and Sumitomo Electric Industries, LTD.

APPLICATIONS
• Telco/DC front panel
• Midboard/backplane Interconnect
• Outdoor high density cabling
• Reliable splicing MPO connectivity

Indoor – Front Panel

AirMT MPO+PLUS

EZ-Flip Connector



- Polarity reversible in multimode
- 12/24 compatible
- Higher density MPO connectivity

AirMT MPO+PLUS

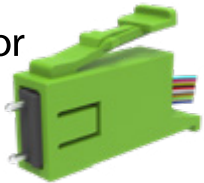
Dust Shutter Adapter



- Dust protection IP5x
- 100% automatic shutter action
- Visual light inspection compatible

AirMT MPO+PLUS

BTW Connector

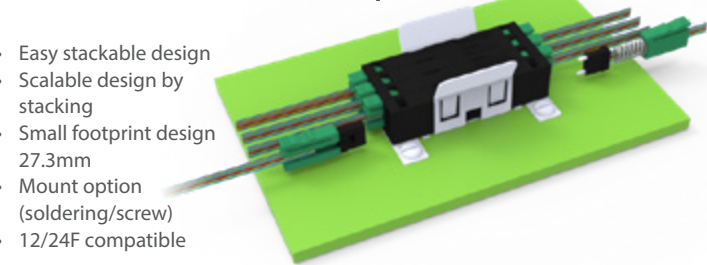


- Behind the Wall connector
- No boot, no spring needed
- Easy latch operation for extraction
- 12/24 compatible

Onboard Interconnect

AirMT MPO+PLUS

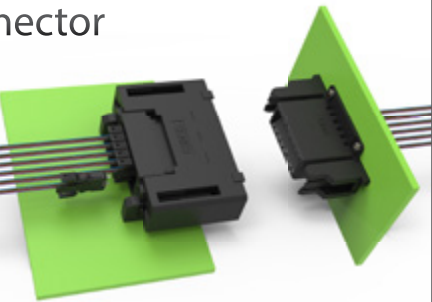
MBMC Stackable Adapter



- Easy stackable design
- Scalable design by stacking
- Small footprint design 27.3mm
- Mount option (soldering/screw)
- 12/24F compatible

AirMT MPO+PLUS

Backplane Connector



- Blind mating
- High density
- High mechanical durability
- Excellent connection anytime with AirMT™
- Integrated shutter

Outdoor High Density Cabling

AirMT MPO+PLUS

IP21



- Factory terminated connector
- High fiber count - up to 96F (MT Ferrule x4)
- Higher durability
- IP68 rated

AirMT MPO+PLUS

IP25



- Factory terminated connector
- High fiber count - up to 192F (MT Ferrule x8)
- Higher durability
- IP68 rated



MPO-PLUS
Removal Tool

Removal tool
P/N: RMT-603



- Removes Outer housing for gender change and ferrule cleaning

MPO-PLUS
Loopback



- Available for 12ch & 24ch
- Standard and QSFP Applications
- Solid Body
- Attenuated and 0dB version

MPO-PLUS
Quality Master Jumper

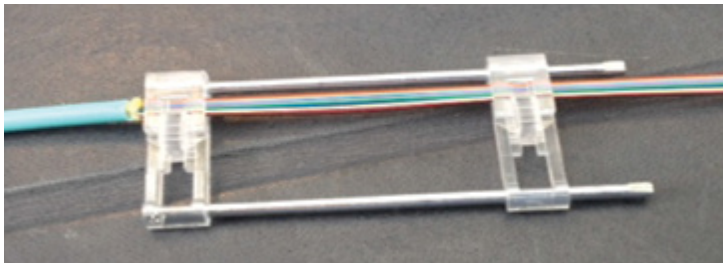


MPO-PLUS
Ribbon stripper

Ribbon Stripper
P/N: RBN-601



MPO Ribbonizer



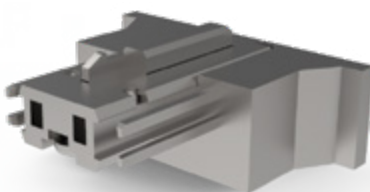
MPO-PLUS Mini
PIN Remover

Pin removal tool
P/N: RMT-604



MPO-PLUS
Polarity Changeable Adapter
Extraction Tool

Polarity Changeable
Extraction Tool
P/N: RMT-609



Smart Cleaner
for Fiber Cleaning

The Smart Cleaner is a dry cloth cleaner specifically designed to clean connections residing in an adapter, faceplate or bulkhead.



for MPO Connector



for MPO Port

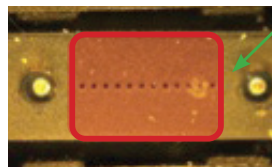


MPO-PLUS
Cleaning Pad

Clean the entire surface of both Male and Female connectors

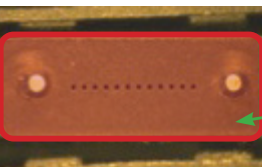


Conventional cleaner
cleaning area



Particles around the pin area can remain which could cause "air gap."

NEW "Pad" Cleaner Cleaning Zone will clean the full end face



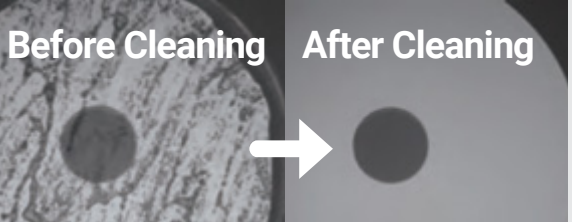
Full surface will be cleaned

Senko's Optical Connector
Lineup creates reliability in
telecommunications service

The cause of numerous problems in optical communication equipment is contamination of the end face of optical connectors. Senko has developed optical fiber cleaners with fiber specifically for optical connectors to help create a reliable telecommunications service. Senko's optical connector cleaners eliminate even the smallest contaminants that are visible only through magnification.

Why is cleaning optical
connectors so important?

Contamination of the optical connector end face can easily occur. The transmission quality will be affected once the contaminants adhere to the 10µm diameter optical fiber core, and there is increased danger that the fiber end face will be damaged by any high powered light. Cleaning the optical connector end face is extremely important before making a connection.



Cleaning Tool Options for in Adapter and Unmated

	SN	CS	LC	MPO
NE-CLICK DUPLEX SN Duplex Cleaning SCK-DC-SN	X			
ONE-CLICK DUPLEX CS Duplex Cleaning SCK-DC-CS		X		
SMART CLEANER CS-LC Refillable Dual Purpose Cleaning SCK-SS-CS (Refills SCK-SS-CS-R)		X	X	
SMART CLEANER MINI 1.25MM Tight Spaces Cleaning SCK-SS-M-C125	X	X	X	
OPTRES HANDY MPO Gel Cleaning SCK-PT-MPO-CTR				X
SMART CLEANER MPO 8, 12, 24, 48, 72 F Cleaning SCK-SS-MPO				X
SMART CLEANER MPO 16, 32 F cleaning SCK-SS-MPO-02				X



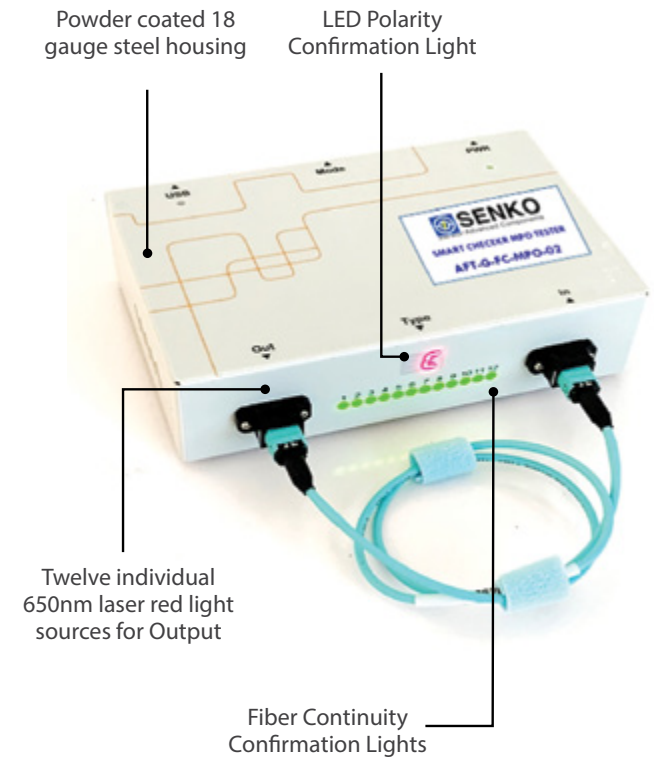
Cleaning Cassettes, Wipes, Sticks and Solvents

	SN	CS	LC	MPO
SMART CLEANER CASSETTE Unpinned MT and Single Fiber SCK-CC-100	X	X	X	X
SMART CLEANER CASSETTE Male MT SCK-CC-200				X
OPTIPOP R Single Slot Unpinned MT and Single Fiber CRE-01 (Refill CRC-RS-01)	X	X	X	X
OPTIPOP R Male MT CRE-03 (Refill CRC-RS-01)				X
OPTIPOP R LC Duplex Dual slots for LC Duplex CRE-02 (Refill CRC-RS-01)			X	
OPTRES GEL PAD CLEANER Gel Cleaning SCK-PT-MPO-01	X	X	X	X
1.25MM NEOCLEAN Sticks Fabric Cleaning Tip CSK-01	X	X	X	
Non-Flammable Solvent Pen Air Ship Safe AFT-A-WEP	X	X	X	X
4X4 Optical Wipes 100 wipes/bag AFT-A-NW	X	X	X	X



SMART CHECKER
MPO Tester

P/N AFT-G-FC-MPO-02



- Ideal for use in field or in production
- Check continuity and Method A, B or C polarity for 12 fiber MPO assemblies
- 5 Hour battery life

SMART CHECKER
Visual Fault Locator (VFL)

P/N AFT-G-FC



What can the VFL be used for?

1 **Polarity**
Use it to check the polarity of a connector assembly.

2 **Light continuity**
Use to quickly check light continuity and locate broken fibers.

3 **Microbend points**
Find the microbend points that are causing loss.

4 **Macrobend points**
Find the macrobend points that are causing loss.

5 **Cross connections**
Use it to check for cross connect.

SETTINGS FOR THE VFL LASERS:

CW = Continuous Wave for a continuous light

Pulse = Intermittent on/off for a flashing light

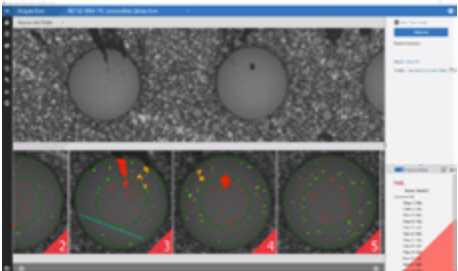
Benchtop Inspection, Interferometry and Test

SUMIX Manta W+ Benchtop Inspection Scope

P/N SMX-MANTA-W+



- Inspects 12 fiber in 2.6 seconds, 24 fiber in 4.5 seconds
- 0.5µm defect detection
- Inspection tips for MPO, CS, SN, LC available



SMX-Manta-W+ Benchtop Holder

P/N MNT-W-STAND



Inspection Tip Guide

Unmated Inspect Tip	SN/UPC	SN/APC	CS/UPC	CS/APC	LC/UPC	LC/APC	MPO Flat	MPO Angled
SMX-T-1.25/PC-M	X		X		X			
SMX-T-1.25/APC-M		X		X		X		
MNT-W-MPO-PC-M-V2-L	X		X		X			
MNT-W-MPO-APC-M-V2-L								

In Adapter Inspect Tip	SN/UPC	CS/UPC	LC/UPC	LC/APC	MPO Flat	MPO Angled
MNT-SN-PC-F-A	X					
MNT-CS-LC-PC-F-A		X	X			
SMX-T-LC/PC-F-K			X			
SMX-T-LC/APC-F-K				X		
MNT-W-MPO-PC-F-V2					X	
MNT-W-MPO-APC-F-V2						X

SMX-Manta-W+ MPO Polarity & Continuity Modul

P/N MPO-VERIFIER



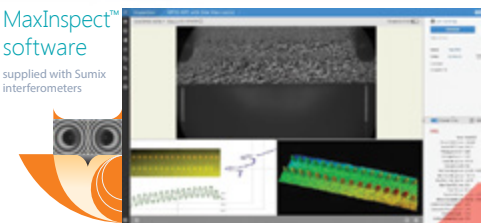
- Works for 8, 12, 24, 48 and 16, 32 fiber MPO
- Auto test and analysis

SUMIX MAX Quantum Interferometer

P/N MAX-QUANTUM



- Inspects 12 fiber in 2.6 seconds, 24 fiber in 4.5 seconds
- 0.5µm defect detection



SN® Tools



APC FERRULE
Alignment Tool
P/N TL-611-APC-1 APC

SN® CRIMP TOOL
P/N CRT-201

CS® Tools



APC FERRULE
Alignment Tool
P/N TL-611-APC-1 APC

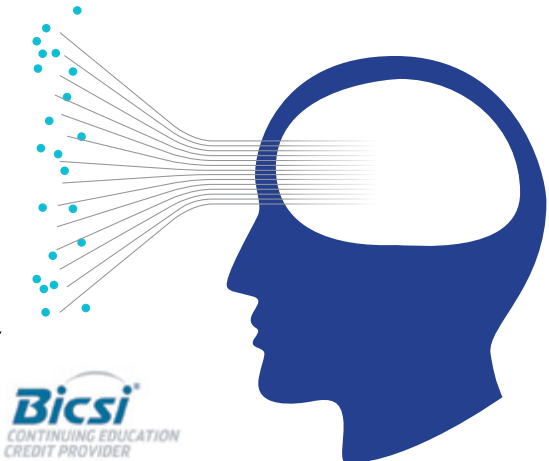
CS® CRIMP TOOL
P/N CRT-708

SN EZ-FLIP® Tools



SN EZ-FLIP® CRIMP TOOL
P/N CRT-202

TRAINING
ACADEMY



Connect theory with hands-on experience

We can help you set-up and enhance your fiber optic interconnect production line

- Content tailored to your needs
- All experience levels welcome
- New or existing product training
- Witness best practices
- Improve company efficiency
- Learn process improvement
- Discover new troubleshooting techniques
- Expand your portfolio

- Available in:
- ✓ Americas
 - ✓ Europe
 - ✓ China
 - ✓ United Kingdom



COURSES
AVAILABLE NOW



COURSE NAME	CEC CREDITS
Foundation of Fiber Optics	4
Fiber Optic Connectorization and Polishing	5
Fiber Optic Testing	5

Contact your SENKO account representative for more details

More levels coming soon...

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