

Harsh Environment Interconnect

Catalogue Edition 2.1



Smart Solutions for the Fiber Optic Industry



HARSH ENVIRONMENT PRODUCTS

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HARSH **ENVIRONMENT** PRODUCTS

HARSH ENVIRONMENT ACCESSORIES

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Senko's Harsh Environment IP Product Range







Low

Insertion Loss

SENKO



The SENKO harsh environment (IP) range of connectors are designed to be used outdoor and provide many years of reliable service. They incorporate a bayonet system which enables quick and reliable installation even when engineers are wearing gloves.





Simple connectivity solution with fiber for LTE, DAS, and Mobile Cell tower

CTJ Distribution Box **Fan Out** Kits

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Simple bayonet

locking system

-ݢ҉ IP-68

Exceed ODVA

requirements

Plug and Play **Fan Out**

IP-Series GOES HYBRID



- · Cost effective solution for in house termination
- IP water immersion and dust protection for harsh environment
- Wide range of operational temperature for outside plant --40°C/70°C
- · Compatible with a wide range of cables, 5-8mm OD cable with two 2.0mm to 3.0mm jacketed subunits
- Chemical Resistance

- adaptor per IEC 60603-7 Simple assembly requiring no special tools
- Durable mechanical mating The XP versions allow installers to
- terminate connectors in the field
- ODVA Compatible
 - Patent design Feed-through
- **TYPICAL CHARACTERISTICS** IP-LC SM MM Insertion Loss (Max) 0.2 dB 0.2 dB 0.2 Insertion Loss (Average) 0.08 dB 0.1 dB 0.08 **Return Loss** 55 dB Durability **Operating Temperature IP Rating** Pull Force Material

Note: SENKO LC and SC connectors are designed and tested to meet IEC Random Mating Grade B (≤ 0.12 dB mean, ≤ 0.25 dB max for > 97% of sample IP-MPO is avaliable up to 24 Fibers Loss value is based on 12F low loss ferrule





• Intermateable to other Industrial LC

ELECTRICAL

- 100lbs Superior pull force

APPLICATIONS

- Telecoms
- Broadcast
- Commercial
- Domestic
- Education
- Medical
- Maritime
- Military
- Oil and Gas
- Transport
- Renewable Energy

IP	-SC	IP-MPO	Low Loss	IP-N	ЛРО
М	MM	SM (Low loss)	MM (Low loss)	SM	MM
dB	0.2 dB	0.35 dB	0.3 dB	0.7 dB	0.5 dB
3 dB	0.1 dB	0.1 dB	0.08 dB	0.2 dB	0.1 dB
dB	NA	60 dB (Angle)	25 dB (Flat)	60 dB (Angle)	25 dB (Flat)
	50 m	atings			
	- 40	°+70°			
	IP-	-68			
	100) lbs			
	UV res	sistant			
					51
Ο	PTICAL	_	-		







SENKO's Simple Maths:

ONE connector makes installation Simple, Quick, and Cost effective



Tamper Proof your Connectivity with **IP-Safe Lock**



Anywhere you need fiber and power

Safe Lock Ring **Connection Safely** Locked





One single connector providing power and optical connectivity to your equipment.

FEATURES

- Combined power and fiber in ONE connector
- Simplify your connectivity with reduced cable and connectors
- Minimize interface footprint of your equipment
- Provide reliable protection in outside plant, Rating IP-68
- Cost effective with easy termination

• Tamper proof with SENKO Safe Lock

- Reduced and simplified connectivity
- DC Power distance 1Km (-48V, 40W over 12 AWG cable)

TYPICAL CHARACTERISTICS	IP-ONE LC		IP-ONE MP	O Low Loss	IP-ONE MPO		
	SM	MM	SM (Low loss)	MM (Low loss)	SM	MM	
Insertion Loss (Max)	0.2 dB	0.2 dB	0.35 dB	0.3 dB	0.7 dB	0.5 dB	
Insertion Loss (Average)	0.08 dB	0.1 dB	0.1 dB	0.08 dB	0.2 dB	0.1 dB	
Return Loss	55 dB	NA	60 dB (Angle)	25 dB (Flat)	60 dB (Angle)	25 dB (Flat)	
Durability		50 m	atings				
Operating Temperature		- 40	°+70°				
IP Ratings		IP-	-68				
Pull Force		100) lbs				
Material		UV re	sistant				
Power Rating							
DC		100V 9.3A 930	Watts (12AWG)				
AC		Max AC 240V 4.8A 1	1.15Kwatts (12AWG)				



IP-ONE LC Connector

CODE	TYPE		POW	/ER CONTACT	CON	NECTOR BODY	SAFE LOCK	
IP1-LC	LSM	Blue 125µm	Р	Pin <i>(Male)</i>	Х	4.5-7.2mm	00	wi
	LAPC	Green 125µm	S	Socket (Female)	Ε	7.5-11mm	01	wit
	LMM	Beige 127µm						
L	IP1-LC - LSM - P - X - 00 - (

IP-ONE LC Adapter



IP-ONE MPO Connector



IP-ONE MPO Adaptor

ADAPTER CODE	ТҮРЕ		DUST CAP	S
IP1-MP0	AP	Pin (Male)	D	wi
	AS	Socket (Female)	None	wi
			- IP1-MP0	-
			→ IP1-MP0	



















IP-Series with Safe LOCK Weatherproof Connector



With all the benefits of the SENKO IP Connector range this new addition to the IP connectivity family with its secondary lockable ring provides extra security and reduces the opportunity for tampering.

Option:





Safe Lock ready Connector body without ring

Retro Fit Safe Lock Add Safe Lock ring as needed in field

TYPICAL CHARACTERISTICS	IP-LC		IP	-SC	IP-MPO Low Loss		IP-MPO			
	SM	MM	SM	MM	SM (Low loss)	MM (Low loss)	SM	MM		
Insertion Loss (Max)	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.35 dB	0.3 dB	0.7 dB	0.5 dB		
Insertion Loss (Average)	0.08 dB	0.1 dB	0.08 dB	0.1 dB	0.1 dB	0.08 dB	0.2 dB	0.1 dB		
Return Loss	55 dB	NA	55 dB	NA	60 dB (Angle)	25 dB (Flat)	60 dB (Angle)	25 dB (Flat)		
Durability				50 m	atings					
Operating Temp.				- 40	°+70°					
IP Rating				IP.	-68					
Pull Force		100 lbs								
Material		UV resistant								
Nata: CENKO LC and CC					C 1 D (.0.4	2.10	25.10	070/ 6 1		

Note: SENKO LC and SC connectors are designed and tested To meet IEC Random Mating Grade B (≤0.12dB mean, ≤0.25dB max for >97% of sample IP-MPO is available up to 24 Fibers Loss value is based on 12F low loss ferrule



Multiple colors for Identification

Safe Lock Ring

RETRO FIT RING	COLOR	
IP-LRR	01	Blue
	02	Black
	03	Green
	04	Red
	05	Yellow
IP-LRR	- 01	Order Code Example



IP-LC^{+LUS}

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CONNECTOR CODE	ТҮРЕ		CRIMP	SET	DUST CAPS		
IP-SC	LSM Blue 125 µm		4.8	4.5-4.9mm	D	with	
	LAPC Green 125 µm		5.x	5.3-5.7mm	None	without	
	LMM Beige 127 µm		6.0	5.8-6.2mm			
			7.0	6.8-7.2mm			
			E	7.5mm-11m			

IP-MPO

CODE	ТҮРЕ		TYPE GENDER N. OF FIBERS CRIMP SET		SAFE LOCK RING		DUST CAPS					
IP-MPO	LMLL	MM Low Loss	F	Female	1	12F	4.8	4.5-4.9mm	00	with	D	with
	LMM	MM Standard	М	Male	2	24F	5.x	5.3-5.7mm	01	w/o	None	w/o
	LSLL	SM Low Loss					6.0	5.8-6.2mm				
	LSM	SM Standard					7.0	6.8-7.2mm				
							Е	7.5mm-11m				

IP-LC^{+LUS} Adapter

CODE	ADAPTOR T	DUST CAP	ps			
IP-LC	LA	Bulk Head	4S11	SM BLUE	D	with
	LAI	In-line	4S31	APC Green	None	with
	SLAI	Streamline Inline	4581	MM Beige		

IP-SC^{+LUS} Adapter

CODE	ADAPTOR T	DUST CAP	ps			
IP-SC	LA	Bulk Head	131	Black Universal	D	with
	LAI	In-line			None	with
	SLAI	Streamline Inline				

MPO^{+LUS} Adapter

CODE	ADAPTOR T	YPE	DUST CAPS			
IP-MP0	LA	Bulk Head	779	Black Universal	D	with
	LAI	In-line			None	with
	SLAI	Streamline Inline				

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Installation KIT



Premium Cleaver Flat





XP Fit Plus Field Installable Connector

Easy installation in under 2 minutes

CONNECTOR TY

XPFit Plus

CONNECTOR TYP

XPFit Plus

Maximize your saving

IP-LC XP

IP-SC XP

IP-SCFT

IP-LCFT



LSM

Easy



4.8 4.5-4.9mm

6.0 5.8-6.2mm 7.0 6.8-7.2mm E 7.5-11mm

5.3-5.7mm

CABLE

4.8 4.5-4.9mm

5.X 5.3-5.7mm

6.0 5.8-6.2mm

7.0 6.8-7.2mm

E 7.5-11mm

F 2X3mmDC

IP-LCFT - 1 - LSM - E - 00 Order Code Example

5.X

IP-LCFT - 1

LSM

Blue

LAPC Green

LMO1 Beige

LM02 Blac

LMO3 Aqua









































00





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SAFF LOCK RING









compliant

UST CAPS

D Order Code Example

SAFE LOCK RING

00 with

01 without

with

withou

RoHS and

UL 94 V-0

Perfect Performance

FEATURES

Compact Package

• Highly Stable & Reliable

RoHS Compliant

 Connector meets UL94-V0 Flammability Rated

Mechanical Splice (index matching gel)











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XP Fit Installation KIT

Standard Cleaver Flat



Precision Cleaver Angled











* Note: using MPO connector only



Typical Application



CTJ



SENKO's integrated Plug and Play IP Fan-Out kits benefit from up to 24 Fiber MPO. They allow quick and repeatable connectivity between the Fan-Out, main feeder and jumper leads. This enables maximum on-site flexibility and /or future expandability. These Fan-Out kits are particularly useful for networks with a range of site configurations, Multi Operator and/or Multi Technology applications. (See page 23)

Distribution Box

The SENKO CTJ Distribution Box range caters for a number of applications providing clear demarcation. Ideal for either combined or separate Fiber / Power applications these Boxes can also house additional functionality such as Surge Protection and DC breakers. A range of labeling and mounting brackets complete the package..

(See page 20-22)



Fan Out Kits

- SENKO's wide range of harsh environment (IP) Fan-Out kits are ideal for large repeatable rollout programs. These kits enable factory assembly of your fiber
- connectivity ensuring low loss high
- performance together with minimum on-site installation activity. The configurations range from simple 3 lead fan-outs to complex
- multi-bundled fiber cables. Fan-out furcation tubes can be
- adapted to your unique requirement.

(See page 16-17)



Fan Out





IP-Distribution Boxes Weatherproof junction boxes

The SENKO harsh environment (IP) Distribution/ Demarcation boxes are a flexible range designed to be used either indoor or outdoor providing many years of reliable service. They interwork with the SENKO IP Connector and Adaptors and can be configured to cater for many combinations of fiber connectivity. On-site or factory pre-configured options are available.



Weather

proof





Simple

connection









Junction



Maximum

• Light and easy to install

Maximize your saving

FEATURES

- A wide range of sizes and configurations
- Fibre only or combined Power and Fibre variants Pole or wall mounted
- Durable
- Plug and Play
- IP rated



They incorporate the SENKO IP range of connectors/adapters and can be configured to accommodate many types of fibre connectivity.



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CTJ-F Box

The IP-Distribution junction box provides flexible connectivity and demarcation for your harsh environment applications.



2 ASSEMBLY OPTIONS: "Direct mate" and "Feed Through"







Plug & Play Fan-Out Fan-Out Assembly



The SENKO integrated Plug & Play assembly is our latest IP Fan-Out solution, that allows the use of a Pre-Terminated feeder cable fitted with the SENKO IP-MPO connector with up to 24 fibers. This provides a quick connection of the main feeder cable to the Pre-terminated fan-out. This ensures maximum configuration flexibility for complex inconsistent network rollout programmes and future upgrades.

SPECIFICATIONS				
Mounting	Hose Clip / Cable Tie	IP Rating		IP-68
Number of Fibers	4 to 24 *	Tensile Rating	Fan-Out Side:	50 lbs (222N)
Suitable for Connector Types	IP-LC, IP-SC, IP-MPO			
Temperature Range	-40°C to +85°C			



SPECIFICATIONS	DIMENSIONS (L X H X	W)	WEIGHT	
	mm	Inches	Kg	lb
3 - Fiber Port Terminals (up to 6 fiber outputs total)	500x190x13	19.7x7.5x5.1	2.9 Unloaded	6.5 Unloaded
6 - Fiber Port Terminals (up to 12 fiber outputs total)	700x190x13	27.5x7.5x5.1	3.75 Unloaded	8.25 Unloaded





APPLICATIONS

- Telecoms
- Broadcast



Simple connection

Maximize your saving



Maximum Fan-Outs

* Note: According to Media Type

FEATURES & BENEFITS

- Pre-Terminated Assembly
- Various Output configurations (IP-LC, IP-SC)
- True Plug and Play connectivity
- IP-68 rated
- Maximum flexibility and expandability
- Smallest footprint :100x 40mm
- 4 24 fiber MPO

CONFIGURATIONS

Available in a range of configurations from 3 - 12 leads catering for 6 to 24 fibers in LC Duplex or 3 to 12 fibers in SC simplex.

HARSH **ENVIRONMENT ACCESSORIES**



Manage your connectivity with SENKO's specially designed Fan-Out brackets and mounting accessories. These brackets logically structure your Fan-Outs and include clear color-coded labelling. They provide fast and effective installation, ongoing maintenance and future expansion.

Fan out Distribution & Demarcation Bracket

APPLICATIONS

- Telecoms
- Broadcast
- Commercial
- Medical Maritime
- Military
- Oil and Gas
- Transport
- Renewable Energy





Complete your end to end connectivity path with SENKO's range of Fan-Out kits from Outside plant environment to indoor/in cabinet connection.

PSA (Pulling Sock Assembly) Pre-Termination Kit



SPECIFICATIONS			
Mounting	Hose Clip/Cable Tie - U Slot panel mount	Feeder Cable OD Range	2 - 7mm
Number of Fibers	12 to 24 *	Temperature Range	-40°C to +85°C
Suitable for Connector Types	LC, SC, FC, ST, MU	Fan-out cable Retention	>15lbs (>66N)
Dimensions	65mm x 24mm (Excluding cable gland)	Feeder Cable Retention	100lbs (450N)
		* Note: According to Media	Tvpe 2.0mm or 900un

APPLICATIONS

- Telecom
- Datacenter
- Broadcast
- FTTXEnterprise
- Renewable Energy



Easy assembly

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FEATURES & BENEFITS

- Metal Body Construction
- Easy assembly
- U-Slot Panel Mount
- Fan-Out Tubing size:
- 12 x 2.0mm, 24 x 2.0mm options • Optional Pulling Sock
- IP-68 rated with pulling sock installed
- Outdoor/Indoor





SPECIFICATIONS		
Mounting	Hose Clip / Cable Tie	
Number of Fibers	12 to 24 (Note: According to Media Type 2.0mm or 90	
Suitable for Connector Types	LC, SC, FC, ST, MU	
Dimensions	56mm x 15mm (Excluding cable gland)	
Feeder Cable OD range	2 - 6mm	
Temperature Range	-40°C to +85°C	
Fan-out cable Retention	>15lbs (>66N)	
Feeder Cable Retention	100lbs (450N)	
Dimensions Feeder Cable OD range Temperature Range Fan-out cable Retention	56mm x 15mm (Excluding cable gland) 2 - 6mm -40°C to +85°C >15lbs (>66N)	

Ruggedized Small Fan-Out Kit



SPECIFICATIONS	PECIFICATIONS					
Mounting	Hose Clip / Cable Tie	Feeder Cable OD Range	2 - 7mm			
Number of Fibers	12 to 24 *	Temperature Range	-40°C to +85°C			
Suitable for Connector Types	LC, SC, FC, ST, MU	Fan-out cable Retention	>15lbs (>66N)			
Dimensions	65mm x 24mm (Excluding cable gland)	Feeder Cable Retention	100lbs (450N)			

* Note: According to Media Type 2.0mm or 900µm

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APPLICATIONS

- Telecoms
- Broadcast
- Commercial
- Domestic
- Education
- MedicalMaritime
- Manume
 Military
- Military
- Oil and Gas
- Transport
- Renewable Energy

FEATURES & BENEFITS



Indoor applications



Compact size



- Maximum Fan-Outs According to Media Type
- Light Weight, Snap-together Molded Construction
- Easy Assembly
- Compact Size
- High performance low loss
- Fan-Out Tubing size: 12 x 2.0mm, 6 x 3mm, 12 x 900µ & 24 x 900µ Options

The SENKO Indoor fan-out range offer a variety of different layout options for most indoor applications. They are cost effective, time saving solution that eliminates the need for splicing on-site.

APPLICATIONS

- Telecom
- Datacenter
- Broadcast
- FTTX
- Enterprise
- Renewable Energy



Easy assembly



Maximize your saving



Maximum Fan-Outs According to Media Type

FEATURES & BENEFITS

- Metal Body Construction
- Easy assembly
- Small Size
- Fan-Out Tubing size:
- 12 x 2.0mm, 12 x 900µm, 24 x 900µm options • Optional Pulling Sock
- Optional Pulling Sock
- IP-68 rated with Pulling sock installed
- Upgradable to IP-68 (without pulling sock)







What happens if the optical connector end face becomes contaminated?

Examples of common contaminants adhering to end face:



Hand Lotion

Fiber Residue Dirt and Dust

Optical connector must have no contamination prior to mating.





Clean connector



Light is transmitted poorly or not at all



*returning to the transmission point, causing equipment breakdown or bit errors.





Specifically designed to work with the LC/MU and SC/FC/ST/E-2000 connectors, this instrument cleans the ferrule end faces removing dust, oil, and other debris without nicking or scratching the end face. The SENKO Fiber Optic Cleaner for simplex connections is a dry cloth cleaner specially designed to clean single fiber connectors. The dust cap of the cleaner acts as an adapter for cleaning unmated connectors.

Smart Cleaner for MPO



Designed to work with MPO connectors, this instrument cleans the ferrule end faces removing dust, oil, and other debris without nicking or scratching the end face. The SENKO Smart Cleaner for MPO is a dry cloth cleaner with a push and click mechanism. Like other Smart Cleaners in the series the dust cap acts as an adaptor for cleaning unmated connectors.

		Smart Cleaner		
600+ CLEANINGS FOR EACH CLEANER				
ORDER CODE DE	SCRIP	TION		
SCK-SS-MPO Sm	nart Cle	eaner MPO		
SPECIFICATIONS				
Product Name		Smart Cleaner MPO		
Compatible Connec	tors	MPO, MTP		
Compatible End Face		Compatible with flat and 8 degree angled endface with or without guide pins		
 Designed for all types of multifiber connectors Cleans jumper end face both male and female Compact size for easy hand-held operations Dry-clean without the use of harmful substances Cleaning micro fibers are densely stranded and debris free Constructed with anti-static material 				

- · 600+ cleanings per unit
- Easy pushing motion engages connector and initiates cleaner





ANDROID APP ON Google play

An embedded record of operational data including probe number, control and sensivity settings, date and time confirmation and geographical location.



Fiber Checker

Adapter

Refraction of the 650nm red light caused by any breaks and or cracks in the fiber will glow red, thus giving an exact visual location of the fault in the fiber.

MPO 12 Smart Checker VISIBLE FAULT LOCATOR



The MPO Visible light source is a useful tool designed for checking the Fiber ports in both MM and SM assemblies, or checking for defects in an MPO array. It emits a visible 650nm wavelength red laser light through fiber optic cables; if there are breaks or defects in the fiber then the light will refract, creating a bright glow around the faulty area. The Laser Diode output signal can be switched from all fibers at the same time or sequentially through each individual fiber in either Continuous Wave Mode or Flashing Mode to obtain different visual effects.







2.5 mm to 1.25 mm



ORDER CODE	DESCRIPTION
AFT-G-FC	Fiber Checker
AFT-G-CAC	Fiber Checker 2.5mm to 1.25 mm Adapter

SPECIFICATIONS	
Laser Class	Class 2M
Wavelength	650 nm +/-10 nm@ 25
Spectral Width	< 10 nm
Output Power	>0.5 mW@ 25 into singlemode fiber
Mode	CW/ Pulse
Battery Type	AAA 1.5Vx2
Output Power Reliable	+/-0.2 mW
Transmitting Range	Visibility to 3 Km
Operating Temp.	0~ 50°C
Storage Temp.	0~ 70°C

FEATURES

- Robust & handy design
- Dust-free cap to protect LD
- Continuous / Pulse Mode options
- Emitting LD 650 nm visible red light
- Auto Power Control circuit design to provide a stable LD output power
- Low Voltage Battery warning signal in LED
- Universal 2.5 mm ferrule to 1.25 mm adaptor
- Compatible to SC / ST / FC / LC Connectors
- Visibility to 3 Km

ORDER CODE	DESCRIPTION
AFT-G-FC-MPO	MPO 12 Smart Checker
SPECIFICATIONS	
Cable Compatibility	4, 8 and 12 channel MPO Single Mode and Multi-Mode
Measurement	Fibre continuity by Visible Fault Location
Functions	Individual fibre channels selected using rotary switch and two digit LED display Select mode for all channels: continuous wave or pulsed
Light Source and Detector	Red laser on each output channel
Power	Internal lithium battery, re-chargeable via USB port Capacity: 1400mAh, min. Battery life: 5 hours
Laser Class	Class 2B
Wavelength	650 nm \pm 10 nm @ 25 degC
Spectral Width	< 10 nm
Optical Output Powe	r > 0.4 mW @ 25 degC into 9 μm fiber
Light Emitting Rang	e > 3 km
Operating Temperatu	re 0~ 50°C
Storage Temperature	e 0~70°C
Weight	0.65 kg
Dimensions	168mm (W), 128mm (D), 35mm (H)



Smart Solutions for the Fiber Optic Industry



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