Fibre Products

www.castlemicrowave.com
www.castlecables.co.uk
Interconnect Products
Global No 1 supplier in quantity for LC Product.

Standard Connectors & Adapters
Small Form Factor
Attenuators

Industry Leading Offering of Interconnect Products
High Volume Deployment to FTTH Application globally
- Over 100 Million SC APC Connectors / SC Adapters deployed.

Abundant Capacity
- SC Connector: 2.5 Million per month
- LC Connector: 1.5 million per month
- SC Simplex Adapter: 1.5 million per month
- LC Duplex Adapter: 1 million per month

High Reliable Product verified by Independent test lab
- Telcordia GR-326-CORE Level 3 (For outside plant application) Level 3 to include Extended Thermal Age, Humidity, Thermal Cycle to 2,000 hours
- The SC adapter hook has to have a Tg rating of 100 degrees C or above
- All materials must meet Anti-Fungus Zero rating of the ASTM standard
- All materials must pass 7 days of salt-spray testing
- All materials must pass UL94V-0 flammability rating

Shuttered Adapter for Laser Eye Safety
- Outer and Inner Type
Patch-Cord Assembly Capability

**Connector Termination as OEM**
- 1 million + pieces per month
- Design, test, manufacture

**Verizon FOC Level Assembly**
- TPR-9409 Certified SC APC 2mm/900Um

**Custom Cable Assembly**
- Low Insertion loss Products
- Multi Fiber Fan-out
- SUS Assembly
Passive device
PLC Splitters, Filter WDM, FBT Coupler

- Verizon FOC Approved PLC Splitters
- Filter WDM (CWDM / DWDM)
- FBT Coupler, FBT WDM
- Circulator / Isolator

- PLC Cassette with Connector
- CWDM / DWDM cassette box
- Device or module
- Various Configuration available
Ongoing products advancement

- Flex-Angled boots
- MPO with Flex Angle Boot
- SC & LC 1.2 Cable
- SC & LC Top Adapter
- LC Switchable connector
- “Mini” Boot
- MPO-HD
- Q-XP
- LC Keyed
## SENKO LC Connector
### New specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Connector</th>
<th>I L against master</th>
<th>IL random mating</th>
<th>Comply IEC 61753-1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IL Max (dB)</td>
<td>IL Mean(dB)</td>
<td>IL Max (dB)</td>
</tr>
<tr>
<td>LC/PC low loss</td>
<td>UNIBODY</td>
<td>0.15</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>LC/PC SM Standard</td>
<td>2-pc</td>
<td>0.30</td>
<td>0.12</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### IEC Random mating spec (IEC 61753-1)

<table>
<thead>
<tr>
<th>RANDOM MATING IEC VALUE</th>
<th>Grade A spec is not fully released yet. Attach is a suggestion Max IL against Master and Max IL Random mating to pass more than 97%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC Random Mating Grade A</td>
<td>≤ 0.07dB Mean*</td>
</tr>
<tr>
<td></td>
<td>≤ 0.15dB Max*</td>
</tr>
<tr>
<td>IEC Random Mating Grade B</td>
<td>≤ 0.12dB Mean</td>
</tr>
<tr>
<td></td>
<td>≤ 0.25dB Max</td>
</tr>
<tr>
<td>IEC Random Mating Grade C</td>
<td>≤ 0.25dB Mean</td>
</tr>
<tr>
<td></td>
<td>≤ 0.50dB Max</td>
</tr>
<tr>
<td>IEC Random Mating Grade D</td>
<td>≤ 0.50dB Mean</td>
</tr>
<tr>
<td></td>
<td>≤ 1.00dB Max</td>
</tr>
</tbody>
</table>

SENKO Unibody Low Loss Spec
SENKO Unibody SM Spec
SENKO 2pc LC or Typical High quality Competitor
Low Cost Competitor

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No polish, No Epoxy
Field installable Connector

Verizon approved mechanical style Field installable connector

- Typical IL: 0.25
- Typical RL: -65dB
- Yield rate: 92% or more
- Installation time: 3min (typical)

Diagram showing:
- Index Matching Gel
- Pressure Plate
- Clamp
- Pre-Polished Fiber Stub
- V-Groove Plate
- V-Groove Open
- Inserted Wedge
- V-Groove Clamped Closed
- Extracted Wedge
New LC-HD connector for super high density rack

The SENKO LC-HD, is a totally unique design which can increase panel density to its highest possible

- Easy to release trigger connector
- 60% increase in density
- Stackable adaptors

Patent Pending
LC Standard VS LC-HD Connector

LC-HD
10 Pack spacing

Standard panel 10-pack LC-HD spacing

Patent Pending

LC Standard
6 Pack spacing

Standard panel 6-pack spacing
LC-HD Application
192 Port in 1 U 19 inch rack

Max 192 ports can be installed with the LC-HD
LC-HD Product Line

LC-HD SERIES

LC-HD SIMPLEX
PULL TAB

LC-HD DUPLEX
PULL TAB

LC-HD DUPLEX
PUSH-PULL TAB

LC-HD 900μM
MINI BOOT

LC-HD BTW
PUSH-PULL TAB

LC-HD 2mm DUPLEX
MINI BOOT

LC-HD DUPLEX
FINGER CLIP

New product development
Upgraded SENKO MPO Connector
Better connector, easier assembly

NEW FEATURES
› 20N Spring available for 24 fiber ferrule
› Metal Pin Holder
› Shorter Oval spring for easier assembly
› New Ribbon back post design for easier assembly
› Better designed boot, stronger and shorter
› New Ribbonize tool
› New Crimp tool for Ribbon Cable

Other Cable boots Available
| 3.6 | 4.5 | 5.0 | 5.5 |

Ribbon CABLE
› Better Cable support than before
› New back post makes assembly Easier

Ribbon Fiber MINI
› Shorter length than before
› Flexible boot gives better Cable Support than before

Ribbon Fiber SHORT
› Shortest MPO Ribbon fiber boot in the market
› Ideal for inside module

3mm Round MINI BOOT
› For 3mm Cable type
› Mini boot, has TWAL data

3mm Round FLEX ANGLE BOOT
› SENKO Painted Flex angle boot in 3mm round

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### MT Ferrule

#### Types of availability and Loss

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>IL Max</th>
<th>IL Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SM</strong></td>
<td>Super Low Loss MT Ferrule</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLS-12</td>
<td>Super Low Loss SM 12 Fiber</td>
<td>0.35dB</td>
<td>0.1dB</td>
</tr>
<tr>
<td>SLS-8</td>
<td>Super Low Loss SM 8 Fiber</td>
<td>0.35dB</td>
<td>0.1dB</td>
</tr>
</tbody>
</table>

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<tr>
<th>Type</th>
<th>Description</th>
<th>IL Max</th>
<th>IL Typical</th>
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<tbody>
<tr>
<td><strong>MM</strong></td>
<td>Super Low Loss MT Ferrule</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLM-12</td>
<td>Super Low Loss MM 12 Fiber</td>
<td>0.25dB</td>
<td>0.08dB</td>
</tr>
<tr>
<td>SLM-8</td>
<td>Super Low Loss MM 8 Fiber</td>
<td>0.25dB</td>
<td>0.08dB</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>IL Max</th>
<th>IL Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SM</strong></td>
<td>Standard MT Ferrule</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM 24</td>
<td>SM MT Ferrule 24 Fiber</td>
<td>1.0dB</td>
<td>0.50dB</td>
</tr>
<tr>
<td>SM 12</td>
<td>SM MT Ferrule 12 Fiber</td>
<td>0.7dB</td>
<td>0.25dB</td>
</tr>
<tr>
<td>SM 8</td>
<td>SM MT Ferrule 8 Fiber</td>
<td>0.7dB</td>
<td>0.25dB</td>
</tr>
<tr>
<td>SM 4</td>
<td>SM MT Ferrule 4 Fiber</td>
<td>0.7dB</td>
<td>0.25dB</td>
</tr>
</tbody>
</table>

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<tr>
<th>Type</th>
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</tr>
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<tbody>
<tr>
<td><strong>MM</strong></td>
<td>Standard MT Ferrule</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM 24</td>
<td>MM MT(+20N Spring)</td>
<td>0.6dB</td>
<td>0.2dB</td>
</tr>
<tr>
<td>MM 12</td>
<td>MM MT Ferrule 12 Fiber</td>
<td>0.5dB</td>
<td>0.2dB</td>
</tr>
<tr>
<td>MM 8</td>
<td>MM MT Ferrule 8 Fiber</td>
<td>0.5dB</td>
<td>0.2dB</td>
</tr>
<tr>
<td>MM 4</td>
<td>MM MT Ferrule 4 Fiber</td>
<td>0.5dB</td>
<td>0.2dB</td>
</tr>
</tbody>
</table>

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Fibre Optics – Inspection & Test

Senko Smart Probe

- Simple yet innovative tool for video inspection of Ferrule end faces.
- Connects wirelessly to smart phone or tablet via the Senko VUE app.
- Windows (All platforms), Android and iOS Apps available.
- High quality optical lens array with High Definition CMOS Sensor
- User replaceable, rechargeable batteries
- Globally Qualified Wi-Fi Module
- Image Display, capture and Report via the Senko VUE App.
- Comes with Probe, 1.25mm UPC male Tip, 2.50mm UPC, female tip, USB charger cable, Batteries.

Ferrule end face inspection for connectors - All industry standard male tips
Panel Mounted, In adaptor inspection, - All industry standard female tips
Fibre Optics – Cleaning

- The Senko Fibre Optic Cleaners are dry cloth cleaners specially designed to clean connections residing in an adapter, faceplate or bulkhead. The Senko Fibre Optic Cleaners are simple to use and highly effective at removing oil and dust contaminants that can negatively impact optical performance.

- Proven effectiveness at removing All common contaminants

- Fibre network panels and assemblies
- Outdoor FTTX applications
- Cable assembly production facility
- Testing laboratories
- Servers, switches, routers and OADMS with SC, FC, ST, MU and LC interface
- Easy pushing motion engages connector and initiates cleaner
MPO Fiber Shuffle Assemblies

SHUFFLE ASSY with

12x 8F MPO to 8x 12F MPO

Super Compact High Density

FIBER SHUFFLE P&P Module

NEW CONCEPT TO MAKE A COMPACT FIBER SHUFFLE SOLUTION IN A P&P MODULE BOX

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EZ-T Multi Fiber Crush Resistant Cable

EZ-T Cable & Assembly

- Small, Flexible, Strong
- Crush Resistant Round Cable
- 12 fiber in a OD of 3.5mm
- Ideal for a MPO Assembly

HIGH CRUSH RESISTANCE
LC and SC Connector for 1.2mm Cable
Strong as 3mm cable, 1/6 the size

- Meets GR-326 Mechanical as media 1 (Media 1 means cable type cord)
- 1.2 mm Cable is 1/6 in size compared to 3mm cable
- Available UPC and APC
SC & LC Mini Boot
Short, Flexible and Compact

2mm LC Mini Boot with R7.5 Fiber TWAL Test Average Loss Increase

- 1310
- 1490
- 1550
- 1625

World First BTW Boot GR-326 Compliant

Super Strength Bending

Reduction in Size -30%

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Right Angle CLIP for LC Connector
Helps manage cable better

Features
› Fits with SENKO LC Mini boot
› Works for both LC Unibody and LC 2PC
› Can attach after made to a jumper
Cable Management; made better

- Conventional LC Connector boot
- LC Connector with Mini boot
- LC Connector with Flex angle boot
- LC Connector with 90 degree boot
- LC Connector with 50 degree boot
- LC with Mini Boot+Right angle clip
TOP SC and LC

True One Piece adapter

Top SC Duplex Adapter

A Rattle Free
B One Piece Solid Body
C Shutter Ready
D High TG Hook
E Integrated Mount Clip
F Anti Fungus Plastic

Top LC Adapter

› ONE Piece housing design
› Plastic Clip for panel mounting
› 4 x wing to reduce panel rattling
› High TG hook
› Outer and Inner Shutter ready
› NO Welding easy assembly
The XP-MT Ferrule is a field installable MT/MM Ferrule that allows you to terminate a MT ferrule on a ribbon fiber in less than 3 minutes. Typical insertion loss is less than 0.3db. The XP-MT Ferrule can be used in conventional MPO/MTP style connectors.
Composite Connector
1x Fiber  2xCopper Hybrid

› Composite Connector for 2 copper line (18awg) and one Fiber (1.25mm ferrule)
› Over all dimension to be identical to RJ45
› Designed for POE (Power over Ethernet)
› Various other configuration available
MPO Flex Board Assemblies

Feature
• Material: Polymer Film + Silicone Rubber
• Thickness 0.35mm
• Temp: -40 to 85°C
• GR-326 Service Life
Contact Us

+44 (0) 1635 271300

sales@castlemicrowave.com

www.castlemicrowave.com
www.castlecables.co.uk

@CastleMicrowave