24 Way SC Duplex / LC Quad Fibre Optic Panel – Empty, LIIN-25

Standards of reference and applications

EIA19"  
Data centers  
LAN/SAN  
CATV networks  
Fiber-to-the-home (FTTH) applications

Installation Features

Store at  
-0 to +70 °C

Install at  
-0 to +50 °C

Operate at  
-20 to +60 °C

Fitting  
designed for 24 adapters (SC Simplex or LC Duplex)
**Design**

**Material:** powder painted steel  
**Colour:** black  
**Features:** built-in splice management  
**Number of adaptors:** 24  
**Type of adaptors:** SC Duplex or LC Quad  
**Number of cores:** up to 48 with SC DX or up to 96 with LC QD  
**Size:** 19”, 1 Unit / Width: 483mm x Height 44mm x Depth 205mm

**Ordering and delivery information**

<table>
<thead>
<tr>
<th>P/N</th>
<th>Weight (kg/km)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODF124SCD</td>
<td>2.1</td>
<td>1 pc / ctn</td>
</tr>
</tbody>
</table>

**Recommended connectivity**

**Adaptors:** all LIIN-25 adaptors SC and LC, SM and MM  
**Pigtails:** all LIIN-25 pigtails SC and LC, SM and MM  
**Patchcords:** all LIIN-25 patchcords SC and LC, SM and MM

**Extended System Warranty**

The APS System Warranty assures the compliance of the system performance to the applicable class of cabling for a period of 25 years. The warranty may be applied for by an accredited APS Partner who has designed and/or installed the entire system.

Every effort has been put so that this document is most reliable and free from errors. However, AP Solutions Oy
LIIN-25 24 Way SC Simplex / LC Duplex Fibre Optic Panel - Empty

Standards of reference and applications

EIA19"  
Data centers  
LAN/SAN  
CATV networks  
Fiber-to-the-home (FTTH) applications
Installation Features

**Store at**: -0 to +70 °C
**Install at**: -0 to +50 °C
**Operate at**: -20 to +60 °C
**Fitting**: designed for 24 adapters (SC Simplex or LC Duplex)

Design

**Material**: powder painted steel
**Colour**: black
**Features**: built-in splice management

- **Number of adaptors**: 24
- **Type of adaptors**: SC Simplex or LC Duplex
- **Number of cores**: up to 24 with SC SX or up to 48 with LC DX
- **Size**: 19", 1 Unit / Width: 483mm x Height 44mm x Depth 205mm

Ordering and delivery information

<table>
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<tr>
<th>P/N</th>
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<tr>
<td>ODF124SCS</td>
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<td>1 pc / ctn</td>
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</tbody>
</table>

Recommended connectivity

- **Adaptors**: all LIIN-25 adaptors SC and LC, SM and MM
- **Pigtails**: all LIIN-25 pigtails SC and LC, SM and MM
- **Patchcords**: all LIIN-25 patchcords SC and LC, SM and MM

Extended System Warranty

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LIIN-25 Adaptor LC Duplex and Quad

Features

- Single Mode and Multi Mode
- Test Certificate on each package
- ISO9001, RoHS Compliant
- Batch number tracking
Dust cover
25 years system warranty

Standards of reference and applications
Telecommunication, LAN, FTTx Cabling, CCTV

Installation Features
Store at +10 to +50 °C
Install at 0 to +50 °C
Operate at: -10 to +70 °C

Design
Material: plastic
Connection A: LC
Connection B: LC
Fastening: clip
SM UPC colour: blue
SM APC colour: green
MM UPC colour: OM1 and OM2 = beige, OM3 = turquoise, OM4 = purple.

Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM</th>
<th>SM PC</th>
<th>SM UPC</th>
<th>SM APC</th>
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<tbody>
<tr>
<td>Insertion Loss dB (typical)</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
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<tr>
<td>Return Loss dB (typical)</td>
<td>≥ 35</td>
<td>≥ 45</td>
<td>≥ 45</td>
<td>≥ 55</td>
</tr>
<tr>
<td>Repeatability dB (typical)</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
</tr>
<tr>
<td>Changeability dB (typical)</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
<td>≤ 0,2</td>
</tr>
</tbody>
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Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplex UPC</td>
<td>AD xxx LC U DX</td>
<td>25 pcs / box</td>
</tr>
<tr>
<td>Duplex APC</td>
<td>AD xxx LC A DX</td>
<td>25 pcs / box</td>
</tr>
<tr>
<td>Quad UPC</td>
<td>AD xxx LC U QD</td>
<td>25 pcs / box</td>
</tr>
<tr>
<td>Quad APC</td>
<td>AD xxx LC A QD</td>
<td>25 pcs / box</td>
</tr>
</tbody>
</table>

xxx = fiber type = OS2, OM1, OM2, OM3, OM4.

Recommended connectivity

Cables: APS LIIN-25 series
Patch cords: APS LIIN-25 series
Pigtails: APS LIIN-25 series
Patch Panels: APS LIIN-25 series

Extended System Warranty

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LIIN-25 Adaptor SC Simplex and Duplex

Features

- Single Mode and Multi Mode
- Test Certificate on each package
- ISO9001, RoHS Compliant
- Batch number tracking
- Dust cover
- 25 years system warranty

Standards of reference and applications

Telecommunication, LAN, FTTx Cabling, CCTV
Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C
Operate at : -10 to +70 °C

Design

Material : plastic
Connection A : SC
Connection B : SC
Fastening : clip and screw
SM UPC colour : blue
SM APC colour : green
MM UPC colour : beige

Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM</th>
<th>SM PC</th>
<th>SM UPC</th>
<th>SM APC</th>
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<th>Packaging</th>
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</thead>
<tbody>
<tr>
<td>Simplex UPC</td>
<td>AD xxx SC U SX</td>
<td>25 pcs / box</td>
</tr>
<tr>
<td>Simplex APC</td>
<td>AD xxx SC A SX</td>
<td>25 pcs / box</td>
</tr>
<tr>
<td>Duplex UPC</td>
<td>AD xxx SC U DX</td>
<td>25 pcs / box</td>
</tr>
<tr>
<td>Duplex APC</td>
<td>AD xxx SC A DX</td>
<td>25 pcs / box</td>
</tr>
</tbody>
</table>

xxx = fiber type = OS2, OM1, OM2, OM3, OM4.
oo = connector type = SC, LC, FC, ST.
a = U for UPC, A for APC.
bb = SX, DX or QU (for QUAD)
Recommended connectivity

**Cables**: APS LIIN-25 series  
**Patch cords**: APS LIIN-25 series  
**Pigtails**: APS LIIN-25 series  
**Patch Panels**: APS LIIN-25 series

Extended System Warranty

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LIIN-25 Fiber Optic Preterminated cables

Features

- 70% faster to install
- Very Low Installation Cost
- No termination failures.
- No waste of cables and connectors and termination materials.
- Better attenuation values.
- Pre-tested and test reports available for each single fiber.
- Made after the customer's requirements, tailored to the specific case.
- Pulling socks, strength elements and protection tubes available.
- Different cables design available
- SC, LC, MU, ST, FC, MT-RJ, and MTP connectors available.
- Halogen Free Fire Retardant / Low Smoke Zero Halogen available.

Maximise your project with the APS failure-free, installation-ready preterminated fiber optic cables.

APS designs and delivers factory terminated fiber optic cables for various projects, from the biggest data center to the smaller LAN or industrial networks, with no minimum quantity required. Cables are made from high quality components, according the latest editions of the applicable standards or customer’s requirements, with each single terminated fiber tested. The use of APS factory terminated cables minimizes the risks of the installation failures that might happen when terminating cables on site, due to the often non-optimal conditions at the site. Our pre terminated cables are available with both modular connectors than with MTP connectors and they are always done in accordance to the customer’s specification or requirements, to answer fully to the needs of each specific installation.
Prime quality and long lasting reliability

The high standards of our manufacturing and testing processes ensure the installation will benefit from products of the highest quality. At APS we are very strict with the quality of our polishing process and with the compliance of each single terminated fiber with our own internal as well as with the applicable standards. In fact, we pay a lot of attention that the mechanical connections, the reflection coefficient, the attenuation values and the geometry of the connector’s head are up to the standards and requirements. Tests are done in accordance with ISO standards. The geometry of the fiber is tested with interferometer.

The largest scope, tailored to you

APS is offering a range of options that are virtually covering all requirements and applications. Our scope of supply includes both silica fiber SM (G652, G657, G655) and MM (50 and 62.5 OM1, OM2, OM3, OM4, OM5) than Plastic Fibers (POF) while the cable used are as much as possible tailored to the customers’ or project requirements, be for indoor, indoor/outdoor or outdoor applications.

Product configurator: for a faster response please download APS “Preterm Configurator”, fill it in with your requirements and email it to your sales representative.

Optical cables innovation

Always up to date with the latest trends and technologies, APS keeps designing optical fiber cables to meet the new challenges of the telecommunication and data industries. Being space and growing data traffic being these days the main issue others, we have designed cables like MCHF and MIFFE for the installation of high fiber counts in packed indoor environments like datacenters. These cables are available in range from 4 to 288 cores. These cables save significant amount of the space that cables are taking in the group of typical sisä- ulkocables. These valmiskaapelit can be used also for the teollisuus standard MPO (MTP®). This way we are making sure of the highest kuitutiheyden and joustavimman runkoverkon liitettävyyden
Fiber Optic characteristics

See detailed specification of optical fibers.

Recommended connectivity

- **Pigtails**: APS LIIN-25 series
- **Patch cords**: APS LIIN-25 series
- **Adapters**: APS LIIN-25 series
- **Patch Panels**: APS LIIN-25 series

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LIIN-25 FO Distribution cable TB FTMS 2-24 Universal

Features

Easy to Strip, Direct Termination
Non-Metallic Strength Members
Dry, All Dielectric Non-Metallic design
Halogen Free Fire Retardant / Low Smoke Zero Halogen
Flexible
Low Installation Cost

Standards of reference and applications

DIN VDE 0888 Part 6; IEC 61034; IEC 60332-1&2; IEC 60754-2; IEC 60794-1&2
Inter Building and Intrabuilding Voice and Data/LAN Communication Networks
Interconnection of Distribution Boxes, Distribution Frames and Customer Equipment and between the floors
Direct Connection to Terminal Equipments
Installation in Ducts & Conduits
Vertical Riser and General Horizontal Applications
FTTx Cabling

Installation Features

Store at: -5 to +50 °C
Install at: -0 to +50 °C
Operate at: -10 to +70 °C
Bend minimum: 10 times O.D.
Bend minimum: 10 times O.D.

Design

Optical fiber: 125/250μm Single Mode or Multi Mode
Buffer: 900μm tight, colour coded (see table 1)
Cable core: 2 to 24 optical fibers
Protection: glass or aramide yarns
Outer jacket: fire retardant LSZH material, UV resistant
Marking: APS Finland - ww/yy - Fiber Optic Cable TB FTMS fiber count x fiber type - LSZH-FR UVR IEC60332-3-24 - /lot + meter

Environmental properties and Fire Performances

Degree of acidity of gases: IEC 60754-1, IEC 60754-2 (pH arvo ≥ 4,3 ja sähkönjohtavuus ≤10μS/mm)
Halogen acid gas: IEC 60754-1, IEC 60754-2 (≤ 0.3%)
Smoke Emission: IEC 61034-2, EN 50268-2 (≥ 60%)
Toxicity of evolved gas: NES 713, CEI 20-37/7
Flame retardant: IEC 60332-1-2
Fire retardant: IEC 60332-3-24 Cat.C
UV resistant: UL1581, IEC11801

Fiber Optic characteristics

See detailed specification of optical fibers.

Colour code of fibers

<table>
<thead>
<tr>
<th>Fiber</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blue</td>
</tr>
<tr>
<td>2</td>
<td>Orange</td>
</tr>
<tr>
<td>3</td>
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</tr>
<tr>
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<td>5</td>
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<tr>
<td>6</td>
<td>White</td>
</tr>
<tr>
<td>7</td>
<td>Red</td>
</tr>
<tr>
<td>8</td>
<td>Black</td>
</tr>
<tr>
<td>9</td>
<td>Yellow</td>
</tr>
<tr>
<td>10</td>
<td>Violet</td>
</tr>
<tr>
<td>11</td>
<td>Pink</td>
</tr>
<tr>
<td>12</td>
<td>Aqua</td>
</tr>
</tbody>
</table>

Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>O.D [mm]</th>
<th>Pulling tension (perm/inst)</th>
<th>Crush (N)</th>
<th>Impact</th>
<th>Weight (kg/km)</th>
<th>Packaging</th>
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<tbody>
<tr>
<td>2</td>
<td>FTMS02xxc</td>
<td>4.5</td>
<td>400/600</td>
<td>1000</td>
<td>3J</td>
<td>26</td>
<td>2000m / 6561ft</td>
</tr>
<tr>
<td>4</td>
<td>FTMS04xxc</td>
<td>5.5</td>
<td>400/600</td>
<td>1000</td>
<td>3J</td>
<td>31</td>
<td>2000m / 6561ft</td>
</tr>
<tr>
<td>6</td>
<td>FTMS06xxc</td>
<td>6.0</td>
<td>600/1000</td>
<td>1000</td>
<td>5J</td>
<td>42</td>
<td>2000m / 6561ft</td>
</tr>
<tr>
<td>8</td>
<td>FTMS08xxc</td>
<td>6.8</td>
<td>600/1000</td>
<td>1000</td>
<td>5J</td>
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<tr>
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<td>FTMS12xxc</td>
<td>7.2</td>
<td>800/1200</td>
<td>1000</td>
<td>5J</td>
<td>54</td>
<td>2000m / 6561ft</td>
</tr>
<tr>
<td>Fiber count</td>
<td>P/N</td>
<td>O.D [mm]</td>
<td>Pulling tension (perm/inst)</td>
<td>Crush (N)</td>
<td>Impact</td>
<td>Weight (kg/km)</td>
<td>Packaging</td>
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<tr>
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<td>FTMS16xxc</td>
<td>8.0</td>
<td>1000/1600</td>
<td>1000</td>
<td>5j</td>
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<tr>
<td>24</td>
<td>FTMS24xxc</td>
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<td>1200/2000</td>
<td>1000</td>
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<td>85</td>
<td>2000m / 6561ft</td>
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</tbody>
</table>

xx = fiber type  ex. OS2=S2, OM1=M1, OM2=M2, OM3=M3, OM4=M4

c = colour  ex. White=W, Yellow=Y, Orange=O, Grey=G, Turquoise=T, Purple=P

Recommended connectivity

- **Pigtails**: APS LIIN-25 series
- **Patch cords**: APS LIIN-25 series
- **Adapters**: APS LIIN-25 series
- **Patch Panels**: APS LIIN-25 series

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LIIN-25 FO Distribution cable TB FTMS 48-96 cores
Universal

**Features**

- Easy to Strip, Direct Termination
- Non-Metallic Strength Members
- Dry, All Dielectric Non-Metallic design
- Halogen Free Fire Retardant / Low Smoke Zero Halogen
- Flexible
- Low Installation Cost

**Standards of reference and applications**

DIN VDE 0888 Part 6; IEC 61034; IEC 60332-1&2; IEC 60754-2; IEC 60794-1&2, EN 187000

Inter Building and Intrabuilding Voice and Data/LAN Communication Networks

Interconnection of Distribution Boxes, Distribution Frames and Customer Equipment and between the floors

Direct Connection to Terminal Equipments

Installation in Ducts & Conduits

Vertical Riser and General Horizontal Applications

FTTx Cabling

**Installation Features**

**Store at** -5 to +50 °C

**Install at** -0 to +50 °C, **Bend minimum** : 15 times O.D.

**Operate at** : -10 to +70 °C, **Bend minimum** : 12 times O.D.

**Design**

- **Optical fiber** : 125/250μm Single Mode or Multi Mode
- **Buffer** : 900μm tight, colour coded (see table 1)
- **Cable core** : 12 or 24 optical fibers
- **Protection** : glass or aramide yarns
- **Sub-unit jacket** : fire retardant LSZH material, UV resistant
Marking: numbering 1 to 8
Assembling: from 4 up to 8 sub-units assembled together into a compact core
Wrapping: polyester tape
Outer jacket: fire retardant LSZH material, UV resistant (nominal thickness 1.2mm)
Marking: APS Finland - ww/yy - Fiber Optic Cable TB FTMS “fiber count and type” - LSZH IEC60332-3-24 Cat.C – lot no – meter

Environmental properties and Fire Performances

Degree of acidity of gases: IEC 60754-1, IEC 60754-2 (pH arvo ≥ 4.3 ja sähköntojauvuus ≤10μS/mm)
Halogen acid gas: IEC 60754-1, IEC 60754-2 ( ≤ 0.5%)
Smoke Emission: IEC 61034-2, EN 50268-2 ( ≥ 60%)
Toxicity of evolved gas: NES 713, CEI 20-37/7
Flame retardant: IEC 60332-1-2
Fire retardant: IEC 60332-3-24 Cat.C
UV resistant: UL1581, IEC11801

Fiber Optic characteristics

See detailed specification of optical fibers.

Colour code of fibers

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td></td>
<td>Blue</td>
<td>Orange</td>
<td>Green</td>
<td>Brown</td>
<td>Grey</td>
<td>White</td>
<td>Red</td>
<td>Black</td>
<td>Yellow</td>
<td>Violet</td>
<td>Pink</td>
<td>Aqua</td>
</tr>
<tr>
<td>13</td>
<td>Blue/Black</td>
<td>Orange/Black</td>
<td>Green/Black</td>
<td>Brown/Black</td>
<td>Grey/Black</td>
<td>White/Black</td>
<td>Red/Black</td>
<td>Natural</td>
<td>Yellow/Black</td>
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<td>Pink/Black</td>
<td>Aqua/Black</td>
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Ordering and delivery information

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<tr>
<th>Fiber count</th>
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<th>O.D [mm] Subcable</th>
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<th>Pulling tension (perm/inst)</th>
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<th>Impact</th>
<th>Weight (kg/km)</th>
<th>Packaging</th>
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<tbody>
<tr>
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<td>FTMS48xxc</td>
<td>6.5</td>
<td>18.0</td>
<td>1500</td>
<td>1500</td>
<td>4J</td>
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<td>22.0</td>
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<td>1500</td>
<td>4J</td>
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<td>500m / 1640ft</td>
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<td>22.0</td>
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<td>1500</td>
<td>4J</td>
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<td>500m / 1640ft</td>
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<tr>
<td>96 (4x24)</td>
<td>FTMS964xxc</td>
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<td>1500</td>
<td>1500</td>
<td>4J</td>
<td>550</td>
<td>500m / 1640ft</td>
</tr>
</tbody>
</table>
Recommended connectivity

- **Pigtails**: APS LIIN-25 series
- **Patch cords**: APS LIIN-25 series
- **Adapters**: APS LIIN-25 series
- **Patch Panels**: APS LIIN-25 series

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**LIIN-25 FO Pigtail FC (0.9mm)**

**Features**
- Single and Multi Mode
Standards of reference and applications

Telecommunication, LAN, FTTx Cabling, CCTV, Industrial.

Installation Features

Store at +10 to +50 °C
Install at 0 to +75 °C and bend minimum : 15 times O.D.
Operate at : -30 to +85 °C and bend minimum : 10 times O.D.
Short term max. pulling tension : 6.0N
Long term max. pulling tension : 3.0N

Design

Optical fiber : 125/250 Single and Multi Mode
Buffer : 900μm tight, colour coded
Fiber count : 1
Outer diameter : 0.9mm
Assembly : glue and polish
Connection : physical contact

Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM PC</th>
<th>SM PC</th>
<th>SM UPC</th>
<th>SM APC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss dB (typical)</td>
<td>≤ 0.2</td>
<td>≤0.3</td>
<td>≤0.2</td>
<td>≤0.3</td>
</tr>
<tr>
<td>Return Loss dB (typical)</td>
<td>≥ 30</td>
<td>≥ 45</td>
<td>≥ 50</td>
<td>≥ 60</td>
</tr>
<tr>
<td>Repeatability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Changeability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Vibration dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Durability (typical)</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
</tr>
</tbody>
</table>
Colour code of fibers

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
<th>8</th>
<th>9</th>
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<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Green</td>
<td>Pink</td>
<td>Purple</td>
<td>Yellow</td>
<td>Black</td>
<td>Red</td>
<td>White</td>
<td>Grey</td>
<td>Brown</td>
<td>Green</td>
<td>Orange</td>
<td>Blue</td>
</tr>
</tbody>
</table>

Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Weight (kg/km)</th>
<th>Length (m)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PT xxx LC a 02</td>
<td>0.9</td>
<td>2.0</td>
<td>12 pcs / ctn</td>
</tr>
<tr>
<td>1</td>
<td>PT xxx LC a 00</td>
<td>0.9</td>
<td>custom</td>
<td>custom</td>
</tr>
</tbody>
</table>

xx = fiber type = G652S=S2, G657A1=71, OM1=M1, OM2=M2, OM3=M3, OM4=M4, OM5=M5.

a = U for UPC, A for APC

00 = length (standard 1.5m)

Recommended connectivity

Cables : APS LIIN-25 series
Patch cords : APS LIIN-25 series
Adapters : APS LIIN-25 series
Patch Panels : APS LIIN-25 series

Extended System Warranty

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LIIN-25 FO Pigtail LC

Features

- G.652.D OS2 Single and Multi Mode
- Simplex and duplex
- ISO9001, RoHS Compliant
- Test Certificate for each item
- Batch number tracking

Standards of reference and applications

ITU.T G652.D, ISO/IEC 11801, EIA/TIA 568 B.3, IEC60874, IEC EN 61754-20, EN 61755-3-2, EN 61755-2-2/B, EN 61755-2-2/1
Telecommunication, LAN, FTTx Cabling, CCTV
Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C and bend minimum : 20 times O.D.
Operate at  -10 to +70 °C and bend minimum : 10 times O.D.
Short term max. pulling tension :  6.0N
Long term max. pulling tension :  3.0N

Design

Optical fiber : 125/250 Single and Multi Mode
Buffer : 900μm tight, colour coded
Fiber count : 1
Outer diameter : 0.9mm
UPC connector colour : blue
APC connector colour : green
Assembly : glue and polish
Connection : physical contact

Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM PC</th>
<th>SM PC</th>
<th>SM UPC</th>
<th>SM APC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss dB (typical)</td>
<td>≤ 0.2</td>
<td>≤0.3</td>
<td>≤0.2</td>
<td>≤0.3</td>
</tr>
<tr>
<td>Return Loss dB (typical)</td>
<td>≥ 30</td>
<td>≥ 45</td>
<td>≥ 50</td>
<td>≥ 60</td>
</tr>
<tr>
<td>Repeatability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Changeability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Vibration dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Durability (typical)</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
</tr>
</tbody>
</table>

Colour code of fibers

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
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<td>White</td>
<td>Grey</td>
<td>Brown</td>
<td>Green</td>
<td>Orange</td>
<td>Blue</td>
</tr>
</tbody>
</table>
Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Weight (kg/km)</th>
<th>Length (m)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PT xxx LC a 02</td>
<td>0.9</td>
<td>2.0</td>
<td>12 pcs / ctn</td>
</tr>
<tr>
<td>1</td>
<td>PT xxx LC a 00</td>
<td>0.9</td>
<td>custom</td>
<td>custom</td>
</tr>
</tbody>
</table>

oo = connector type = SC, LC, FC, ST
a = U for UPC, A for APC
oo = connector type = SC, LC, FC,
ST 00 = length (standard 2.0mm)

Recommended connectivity

**Cables**: APS LIIN-25 series
**Patch cords**: APS LIIN-25 series
**Adapters**: APS LIIN-25 series
**Patch Panels**: APS LIIN-25 series

Extended System Warranty

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LIIN-25 FO Pigtail MU (0.9mm)

Features

- Single and Multi Mode
- ISO9001, RoHS Compliant
- Test Certificate for each item
- Batch number tracking

Standards of reference and applications

Telecommunication, LAN, FTTx Cabling, CCTV, Industrial.

Installation Features

Store at  +10 to +50 °C
Install at  0 to +75 °C and bend minimum : 15 times O.D.
Operate at : -30 to +85 °C and bend minimum : 10 times O.D.
Short term max. pulling tension :  6.0N
Long term max. pulling tension :  3.0N
Design

**Optical fiber**: 125/250 Single and Multi Mode  
**Buffer**: 900μm tight, colour coded  
**Fiber count**: 1  
**Outer diameter**: 0.9mm  
**Assembly**: glue and polish  
**Connection**: physical contact

Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM PC</th>
<th>SM PC</th>
<th>SM UPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Return Loss dB (typical)</td>
<td>≥ 30</td>
<td>≥ 45</td>
<td>≥ 50</td>
</tr>
<tr>
<td>Repeatability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Changeability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Vibration dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Durability (typical)</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
</tr>
</tbody>
</table>

Colour code of fibers

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>Blue</td>
</tr>
</tbody>
</table>

Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Weight (kg/km)</th>
<th>Length (m)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PT9 xx MU a 15</td>
<td>0.9</td>
<td>1.5</td>
<td>12 pcs / ctn</td>
</tr>
<tr>
<td>1</td>
<td>PT9 xx MU a 00</td>
<td>0.9</td>
<td>custom</td>
<td>custom</td>
</tr>
</tbody>
</table>

xx = fiber type = G652D=S2, G657A1=71, OM1=M1, OM2=M2, OM3=M3, OM4=M4, OM5=M5.  
a = 0 for PC, U for UPC  
00 = length (standard 1.5m)
Recommended connectivity

**Cables** : APS LIIN-25 series  
**Patch cords** : APS LIIN-25 series  
**Adapters** : APS LIIN-25 series  
**Patch Panels** : APS LIIN-25 series

Extended System Warranty

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LIIN-25 FO Pigtail ST (0.9mm)

Features

- Single and Multi Mode
- ISO9001, RoHS Compliant
- Test Certificate for each item
- Batch number tracking

Standards of reference and applications

Telecommunication, LAN, FTTx Cabling, CCTV, Industrial.
### Installation Features

**Store at** +10 to +50 °C  
**Install at** 0 to +75 °C and **bend minimum** : 15 times O.D.  
**Operate at** : -30 to +85 °C and **bend minimum** : 10 times O.D.  
**Short term max. pulling tension** : 6.0N  
**Long term max. pulling tension** : 3.0N

### Design

**Optical fiber** : 125/250 Single and Multi Mode  
**Buffer** : 900μm tight, colour coded  
**Fiber count** : 1  
**Outer diameter** : 0.9mm  
**Assembly** : glue and polish  
**Connection** : physical contact

### Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM PC</th>
<th>SM PC</th>
<th>SM UPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss dB (typical)</td>
<td>≤ 0.2</td>
<td>≤0.2</td>
<td>≤0.2</td>
</tr>
<tr>
<td>Return Loss dB (typical)</td>
<td>≥ 30</td>
<td>≥ 45</td>
<td>≥ 50</td>
</tr>
<tr>
<td>Repeatability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Changeability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Vibration dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Durability (typical)</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
</tr>
</tbody>
</table>

### Colour code of fibers

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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<td>Orange</td>
<td>Blue</td>
</tr>
</tbody>
</table>

### Ordering and delivery information
<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Weight (kg/km)</th>
<th>Length (m)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PT9 xx ST a 15</td>
<td>0.9</td>
<td>1.5</td>
<td>12 pcs / ctn</td>
</tr>
<tr>
<td>1</td>
<td>PT9 xx ST a 00</td>
<td>0.9</td>
<td>custom</td>
<td>custom</td>
</tr>
</tbody>
</table>

xx = fiber type = G652D=S2, G657A1=A1, OM1=M1, OM2=M2, OM3=M3, OM4=M4, OM5=M5.
a = 0 for PC, U for UPC
00 = length (standard 1.5m)

**Recommended connectivity**

**Cables**: APS LIIN-25 series

**Patch cords**: APS LIIN-25 series

**Adapters**: APS LIIN-25 series

**Patch Panels**: APS LIIN-25 series

**Extended System Warranty**

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SFP Transceiver 155Mb/s, 2-120km, 1310/1550nm

Features
- Up to 155Mb/s Data Links
- Hot-Pluggable
- Duplex LC connector
- Transmission distance up to 20km on 9/125μm SMF
- 1310nm FP laser transmitter
- Single +3.3V Power Supply
- Monitoring Interface Compliant with SFF-8472
- Maximum Power <1W
- Duplex LC interface
Standards of reference and applications

- SONET/SDH
- xWDM,
- Ethernet
- Metro Network
- Wireless and Transmission network

Specifications

Absolute maximum ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typical</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Temperature</td>
<td>T S</td>
<td>-40</td>
<td>85</td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>V CC</td>
<td>-0.5</td>
<td>4</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>RH</td>
<td>0</td>
<td>85</td>
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</tbody>
</table>

Recommended Operating Environment

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Symbol</th>
<th>Min.</th>
<th>Max.</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Operating temperature</td>
<td>Industrial</td>
<td>Tc</td>
<td>-40</td>
<td>+85</td>
<td>°C</td>
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<tr>
<td>Operating temperature</td>
<td>Extended</td>
<td>Tc</td>
<td>-5</td>
<td>+85</td>
<td>°C</td>
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<tr>
<td>Operating temperature</td>
<td>Commercial</td>
<td>Tc</td>
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<td>+70</td>
<td>°C</td>
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<td>Supply voltage</td>
<td>Vcc</td>
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<td>3.465</td>
<td></td>
<td>V</td>
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<td>Supply Current</td>
<td>Icc</td>
<td>300</td>
<td></td>
<td></td>
<td>mA</td>
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<td>Inrush Current</td>
<td>I surge</td>
<td>I cc+30</td>
<td></td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>Maximum Power</td>
<td>P max</td>
<td>1</td>
<td></td>
<td></td>
<td>W</td>
</tr>
</tbody>
</table>

Electrical characteristics

<table>
<thead>
<tr>
<th>Electrical Characteristics(T OS = -40 to 85 °C, V CC = 3.135 to 3.465 Volts)</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typical</th>
<th>Max.</th>
<th>Unit</th>
<th>Note(s)</th>
</tr>
</thead>
</table>
### Electrical Characteristics (TOP = -40 to 85 °C, VCC = 3.135 to 3.465 Volts)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typical</th>
<th>Max.</th>
<th>Unit</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmitter Section:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Input differential impedance</td>
<td>R in</td>
<td>90</td>
<td>100</td>
<td>110</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Single ended data input swing</td>
<td>V in PP</td>
<td>250</td>
<td>1200</td>
<td>mVp-p</td>
<td>-</td>
<td></td>
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<tr>
<td>Transmit Disable Voltage</td>
<td>V D</td>
<td>Vcc - 1.3</td>
<td>Vcc</td>
<td>V</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Transmit Enable Voltage</td>
<td>V EN</td>
<td>Vee</td>
<td>Vee + 0.8</td>
<td>V</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Transmit Disable Assert Time</td>
<td>T dassert</td>
<td>10</td>
<td>us</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receiver Section:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single ended data output swing</td>
<td>Vout,pp</td>
<td>300</td>
<td>800</td>
<td>mv</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Data output rise time</td>
<td>t r</td>
<td>500</td>
<td>ps</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data output fall time</td>
<td>t f</td>
<td>500</td>
<td>ps</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOS Fault</td>
<td>V losfault</td>
<td>Vcc - 0.5</td>
<td>V CC_host</td>
<td>V</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>LOS Normal</td>
<td>V los norm</td>
<td>V ee</td>
<td>V ee + 0.5</td>
<td>V</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Power Supply Rejection</td>
<td>PSR</td>
<td>100</td>
<td>mVpp</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note(s):**

1. AC coupled.
2. Or open circuit.
3. Into 100 ohm differential termination.
4. 20 – 80 %
5. LOS is LVTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. All transceiver specifications are compliant with a power supply sinusoidal modulation of 20 Hz to 1.5MHz up to specified value applied through the power supply filtering network shown on page 23 of the Small Form factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 14, 2000.

### Optical Parameters (TOP = -40 to 85 °C, VCC = 3.135 to 3.465 Volts)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typical</th>
<th>Max.</th>
<th>Unit</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmitter Section:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectral Width</td>
<td>σ</td>
<td>-</td>
<td>-</td>
<td>1.1970</td>
<td>nm</td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Symbol</td>
<td>Min.</td>
<td>Typical</td>
<td>Max.</td>
<td>Unit</td>
<td>Note</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------</td>
<td>------</td>
<td>---------</td>
<td>------</td>
<td>------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Optical Output Power</td>
<td>P out</td>
<td>-15</td>
<td>-</td>
<td>-8</td>
<td>dBm</td>
<td>1</td>
</tr>
<tr>
<td>Optical Rise/Fall Time</td>
<td>t r / t f</td>
<td>-</td>
<td>-</td>
<td>500</td>
<td>ps</td>
<td>2</td>
</tr>
<tr>
<td>Extinction Ratio</td>
<td>ER</td>
<td>1.1.1970</td>
<td>-</td>
<td>-</td>
<td>dB</td>
<td>-</td>
</tr>
<tr>
<td>Generated Jitter (peak to peak)</td>
<td>J TX p-p</td>
<td>-</td>
<td>-</td>
<td>1.1.1970</td>
<td>UI</td>
<td>3</td>
</tr>
<tr>
<td>Generated Jitter (rms)</td>
<td>J TX rms</td>
<td>-</td>
<td>-</td>
<td>1.1.1970</td>
<td>UI</td>
<td>3</td>
</tr>
<tr>
<td>Eye Mask for Optical Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receiver Section:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optical Input Wavelength</td>
<td>λ c</td>
<td>1260</td>
<td>-</td>
<td>1600</td>
<td>nm</td>
<td>-</td>
</tr>
<tr>
<td>Receiver Overload</td>
<td>P ol</td>
<td>-8</td>
<td>-</td>
<td>-</td>
<td>dBm</td>
<td>4</td>
</tr>
<tr>
<td>RX Sensitivity</td>
<td>Sen</td>
<td>-</td>
<td>-</td>
<td>-34</td>
<td>dBm</td>
<td>4</td>
</tr>
<tr>
<td>RX_LOS Assert</td>
<td>LOS A</td>
<td>-45</td>
<td>-</td>
<td>-</td>
<td>dBm</td>
<td>-</td>
</tr>
<tr>
<td>RX_LOS De-assert</td>
<td>LOS D</td>
<td>-</td>
<td>-</td>
<td>-35</td>
<td>dBm</td>
<td>-</td>
</tr>
<tr>
<td>RX_LOS Hysteresis</td>
<td>LOS H</td>
<td>1.1.1970</td>
<td>-</td>
<td>-</td>
<td>dB</td>
<td>-</td>
</tr>
<tr>
<td>General Specifications:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Rate</td>
<td>BR</td>
<td>-</td>
<td>155</td>
<td>-</td>
<td>Mb/s</td>
<td>-</td>
</tr>
<tr>
<td>Bit Error Rate</td>
<td>BER</td>
<td>-</td>
<td>-</td>
<td>10-12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Max. Supported Link Length on 9/125μm SMF@155Mb/s</td>
<td>L MAX</td>
<td>-</td>
<td>20</td>
<td>-</td>
<td>km</td>
<td>-</td>
</tr>
<tr>
<td>Total System Budget</td>
<td>LB</td>
<td>19</td>
<td>-</td>
<td>-</td>
<td>dB</td>
<td>-</td>
</tr>
</tbody>
</table>

Note(s)

1. The optical power is launched into SMF.
2. 20-80%.
4. Measured with PRBS 27-1 at 10-12 BER
Ordering and delivery information

<table>
<thead>
<tr>
<th>Type</th>
<th>Distance</th>
<th>Data Rate</th>
<th>Wavelength</th>
<th>Fiber</th>
<th>Connector</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFPT13155LD2</td>
<td>2km</td>
<td>155 Mb/s</td>
<td>1310nm</td>
<td>SMF</td>
<td>Duplex LC</td>
<td>0 ~ 70°C</td>
</tr>
<tr>
<td>SFPT13155LD10</td>
<td>10km</td>
<td>155 Mb/s</td>
<td>1310nm</td>
<td>SMF</td>
<td>Duplex LC</td>
<td>0 ~ 70°C</td>
</tr>
<tr>
<td>SFPT13155LD20</td>
<td>20km</td>
<td>155 Mb/s</td>
<td>1310nm</td>
<td>SMF</td>
<td>Duplex LC</td>
<td>0 ~ 70°C</td>
</tr>
<tr>
<td>SFPT13155LD40</td>
<td>40km</td>
<td>155 Mb/s</td>
<td>1310nm</td>
<td>SMF</td>
<td>Duplex LC</td>
<td>0 ~ 70°C</td>
</tr>
<tr>
<td>SFPT13155LD80</td>
<td>80Km</td>
<td>155 Mb/s</td>
<td>1310nm</td>
<td>SMF</td>
<td>Duplex LC</td>
<td>0 ~ 70°C</td>
</tr>
<tr>
<td>SFPT13155LD100</td>
<td>120km</td>
<td>155 Mb/s</td>
<td>1310nm</td>
<td>SMF</td>
<td>Duplex LC</td>
<td>0 ~ 70°C</td>
</tr>
</tbody>
</table>

Extended System Warranty

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LGX Series: Optical Distribution Frame 3U and modules 12 ports, LIIN25

Features

- EIA/TIA 19” standard rack mount
- 3U chassis, 12 modules
- Up to 144 cores
- Indoor use
- Adapter plates available: SC, LC, FC, ST.

Standards of reference and applications

- FTTx and Access Networks
- Telecommunication Networks
- CATV Networks
- Local Area Networks
- Passive Optical Networks (PON)
Installation Features

Store at  +10 to +50 °C  
Install at  0 to +50 °C  
Operate at : -40 to +85 °C

Design

Chassis

Material : cold-roll steel, painted (electrostatic)  
Colour : white (other colours available upon request )  
Number of modules :  12  
Max capacity :  144 (by SC SX) or 288 (by LC DX)  
Dimension :  483*225*134 mm

Module

Material (frame) :  cold-roll steel, white painted (electrostatic)  
Material (tray) :  ABS plastic, grey colour  
Number of ports :  12  
Max capacity :  12 (by SC SX) or 24 (by LC DX)  
Dimension :  225*129*35 mm
Ordering and delivery information

<table>
<thead>
<tr>
<th>Item</th>
<th>P/N</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGX Chassis 3U Rack Mount, 12 LGX modules, unloaded</td>
<td>LGX3RUPU</td>
<td>483×225×134 mm</td>
</tr>
<tr>
<td>LGX Module 12 adapters, unloaded</td>
<td>LGXMO12U</td>
<td>225×129×35 mm</td>
</tr>
</tbody>
</table>

For chassis and modules loaded with pigtails and adaptors, please contact the nearest representative.

Recommended connectivity

- **Cables**: APS LIIN-25 series
- **Adapters**: APS LIIN-25 series
- **Patch Panels**: APS LIIN-25 series

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LIIN-25 FO Pigtail SC

Features

- Single Mode and Multi Mode
- Easy to strip 900μm
- Easy unpack and identification with 12-colours blister bag
- Test Certificate on each blister bag
- ISO9001, RoHS Compliant
- Batch number tracking
- Dust cover
- Choice of connectors

Standards of reference and applications

Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C and bend minimum : 10 times O.D.
Operate at  -10 to +70 °C and bend minimum : 10 times O.D.
Short term max. pulling tension : 6.0N
Long term max. pulling tension : 3.0N

Design

Optical fiber  : 125/250 Single or Multi Mode
Buffer  : 900μm tight, colour coded
Fiber count  : 1
Outer diameter  : 0.9mm
SM UPC connector colour  : blue
SM APC connector colour  : green
MM UPC connector colour  : beige
Assembly  : glue and polish
Connection  : physical contact

Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM PC</th>
<th>SM PC</th>
<th>SM UPC</th>
<th>SM APC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss dB (typical)</td>
<td>≤ 0.2</td>
<td>≤0.3</td>
<td>≤0.2</td>
<td>≤0.3</td>
</tr>
<tr>
<td>Return Loss dB (typical)</td>
<td>≥ 30</td>
<td>≥ 45</td>
<td>≥ 50</td>
<td>≥ 60</td>
</tr>
<tr>
<td>Repeatability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Changeability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Vibration dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Durability (typical)</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
<td>&gt; 1000 cycles</td>
</tr>
</tbody>
</table>

Colour code of fibers
Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Weight (kg/km)</th>
<th>Length (m)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PT xxx oo a 02</td>
<td>0.9</td>
<td>2.0</td>
<td>12 pcs / ctn</td>
</tr>
<tr>
<td>1</td>
<td>PT xxx oo a 00</td>
<td>0.9</td>
<td>custom</td>
<td>custom</td>
</tr>
</tbody>
</table>

xxx = fiber type = OS2, OM1, OM2, OM3, OM4  
00 = connector type = SC, LC, FC, ST  
a = U for UPC, A for APC  
00 = length (standard 2.0mm)

Recommended connectivity

Cables : APS LIIN-25 series  
Patch cords : APS LIIN-25 series  
Adapters : APS LIIN-25 series  
Patch Panels : APS LIIN-25 series

Extended System Warranty

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LIIN25 FO Patch cords FC

Features

- Single Mode and Multi Mode
- Simplex and Duplex
- Test Certificate on each single bag
- ISO9001, RoHS Compliant
- Batch number tracking
- Pull proof
- Dust cover

Standards of reference and applications

- Telecommunication, FTTx
- LAN
- CCTV
- Industrial

Installation Features

Store at  +10 to +50 °C  
Install at  0 to +50 °C and bend minimum : 10 times O.D.  
Operate at  -40 to +70 °C and bend minimum : 10 times O.D.  
Short term max. pulling tension : 6.0N  
Long term max. pulling tension : 3.0N

Fiber Cable

Optical fiber : 125/250 Single or Multi Mode  
Buffer : 900μm tight, colour coded  
Fiber count : Simplex (round) or Duplex (figure-8)  
Outer jacket material : PVC or LSZH  
Outer diameter : 2.0mm standard (2.8mm or 3.0mm upon demand)

Connector type FC

Durability : min 1000 cycles  
Assembly procedure : glue and polish  
Connection : physical contact  
Lock mechanism : coupling nut  
Coupling nut : zinc alloy, nickel plated  
Rear body : zinc alloy, nickel plated  
Ferrule Material : full ceramic zirconia  
Polishing type : PC  
Crimp sleeve : aluminium  
Boot and dust cover : thermoplastic rubber (flame retardant)

Colour code

<table>
<thead>
<tr>
<th></th>
<th>SM UPC</th>
<th>MM OM1</th>
<th>MM OM2</th>
<th>MM OM3</th>
<th>MM OM4</th>
<th>MM OM5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable colour</td>
<td>Yellow</td>
<td>Orange</td>
<td>Orange</td>
<td>Aqua</td>
<td>Purple</td>
<td>Lime Green</td>
</tr>
<tr>
<td>Connector colour</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver</td>
</tr>
</tbody>
</table>
### Insertion Loss dB (typical)

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>MM</th>
<th>SM UPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplex</td>
<td>0.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>

### Return Loss dB (typical)

- Simplex: $\geq 35$
- Duplex: $> 55$

### Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Simplex</td>
<td>PC xxx S oo a oo a 000</td>
<td>1 pc / bag</td>
</tr>
<tr>
<td>2 - Duplex</td>
<td>PC xxx D oo a oo a 000</td>
<td>1 pc / bag</td>
</tr>
</tbody>
</table>

- $xxx =$ fiber type = OS2 (for G652D), 7A1 (for G657A1), OM1, OM2, OM3, OM4, OM5
- $oo =$connector type = SC, LC, FC, ST, MU, E2 (for E2000)
- $a =$ U for UPC, A for APC
- $000 =$ length

### Recommended connectivity

- **Cables**: APS LIIN-25 series
- **Pigtails**: APS LIIN-25 series
- **Adapters**: APS LIIN-25 series
- **Patch Panels**: APS LIIN-25 series

### Extended System Warranty

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---

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LIIN25 FO Patch cords LC

Features

- Single Mode and Multi Mode
- Simplex and Duplex
- UPC and APC polishing
- Test Certificate on each single bag
- ISO9001, RoHS Compliant
- Batch number tracking
- Pull proof
Dust cover

Standards of reference and applications
Telecommunication, LAN, FTTx Cabling, CCTV

Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C and bend minimum : 10 times O.D.
Operate at : -10 to +70 °C and bend minimum : 10 times O.D.
Short term max. pulling tension  :  6.0N
Long term max. pulling tension  :  3.0N

Fiber Cable

Optical fiber  :  125/250 Single or Multi Mode
Buffer  :  900μ tight, colour coded
Fiber count  :  Simplex (round) or Duplex (figure-8)
Outer jacket material  :  PVC or LSZH
Outer diameter  :  2.0mm standard (2.8mm or 3.0mm upon demand)

Connector type LC

Durability  :  min 1000 cycles
Assembly procedure  :  glue and polish
Connection  :  physical contact
Lock mechanism  :  snap-on
Ferrule Material  :  full ceramic zirconia
Polishing type  :  UPC or APC
Connector material  :  thermoplastic
Adapter material  :  polymer composite, zirconia sleeve

Colour code
### Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM</th>
<th>SM PC</th>
<th>SM UPC</th>
<th>SM APC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss dB</td>
<td>0.2</td>
<td>0.2</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>Return Loss dB</td>
<td>≥ 35</td>
<td>≥ 45</td>
<td>&gt; 55</td>
<td>&gt; 60</td>
</tr>
<tr>
<td>Repeatability dB</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Changeability dB</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
</tbody>
</table>

### Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Simplex</td>
<td>PC xxx S oo a a a 000</td>
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<td>2 - Duplex</td>
<td>PC xxx D oo a a a 000</td>
<td>1 pc / bag</td>
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xxx = fiber type = OS2 (for G652D), 7A1 (for G657A1), OM1, OM2, OM3, OM4, OM5  
 oo = connector type = SC, LC, FC, ST, MU, E2 (for E2000)  
a = U for UPC, A for APC  
000 = length

### Recommended connectivity

- **Cables**: APS LIIN-25 series  
- **Pigtails**: APS LIIN-25 series  
- **Adapters**: APS LIIN-25 series  
- **Patch Panels**: APS LIIN-25 series
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LIIN25 FO Patch cords SC
Features

- Single Mode and Multi Mode
- Simplex and Duplex
- UPC and APC polishing
- Test Certificate on each single bag
- ISO9001, RoHS Compliant
- Batch number tracking
- Pull proof
- Dust cover

Standards of reference and applications

Telecommunication, LAN, FTTx Cabling, CCTV

Installation Features

Store at +10 to +50 °C
Install at 0 to +50 °C and bend minimum : 10 times O.D.
Operate at -10 to +70 °C and bend minimum : 10 times O.D.
Short term max. pulling tension : 6.0N
Long term max. pulling tension : 3.0N

Fiber Cable

Optical fiber : 125/250 Single or Multi Mode
Buffer : 900μ tight, colour coded
Fiber count : Simplex (round) or Duplex (figure-8)
Outer jacket material : PVC or LSZH
Outer diameter : 2.0mm standard (2.8mm or 3.0mm upon demand)

Connector type SC

Assembly procedure : glue and polish
Connection : physical contact
Lock mechanism : coupling nut
Standards: JIS 5970, EIA/TIA FOCIS, CENELEC

Coupling nut: zinc alloy, nickel plated
Rear body: zinc alloy, nickel plated
Ferrule Material: full ceramic zirconia
Crimp sleeve: aluminium
Boot and dust cover: thermoplastic rubber (flame retardant)
Durability: min 1000 cycles
Polishing type: UPC or APC

Colour code

<table>
<thead>
<tr>
<th></th>
<th>SM UPC</th>
<th>SM APC</th>
<th>MM OM1</th>
<th>MM OM2</th>
<th>MM OM3</th>
<th>MM OM4</th>
<th>MM OM5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable colour</td>
<td>Yellow</td>
<td>Yellow</td>
<td>Orange</td>
<td>Orange</td>
<td>Aqua</td>
<td>Purple</td>
<td>Lime Green</td>
</tr>
<tr>
<td>Connector colour</td>
<td>Blue</td>
<td>Green</td>
<td>Beige</td>
<td>Beige</td>
<td>Aqua</td>
<td>Purple</td>
<td>Lime Green</td>
</tr>
</tbody>
</table>

Fiber Optic characteristics

<table>
<thead>
<tr>
<th></th>
<th>MM</th>
<th>SM PC</th>
<th>SM UPC</th>
<th>SM APC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss dB (typical)</td>
<td>0.2</td>
<td>0.2</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>Return Loss dB (typical)</td>
<td>≥ 35</td>
<td>≥ 45</td>
<td>&gt; 55</td>
<td>&gt; 60</td>
</tr>
<tr>
<td>Repeatability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td>Changeability dB (typical)</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
<td>≤ 0.2</td>
</tr>
</tbody>
</table>

Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Simplex</td>
<td>PC xxx S oo a oo a 000</td>
<td>1 pc / bag</td>
</tr>
<tr>
<td>2 - Duplex</td>
<td>PC xxx D oo a oo a 000</td>
<td>1 pc / bag</td>
</tr>
</tbody>
</table>

xxx = fiber type = OS2 (for G652D), 7A1 (for G657A1), OM1, OM2, OM3, OM4, OM5
oo = connector type = SC, LC, FC, ST, MU, E2 (for E2000)
a = U for UPC, A for APC
000 = length
Recommended connectivity

**Cables**: APS LIIN-25 series  
**Pigtails**: APS LIIN-25 series  
**Adapters**: APS LIIN-25 series  
**Patch Panels**: APS LIIN-25 series

Extended System Warranty

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LIIN25 FO Patch cords ST

Features

- Single Mode and Multi Mode
- Simplex and Duplex
- Test Certificate on each single bag
- ISO9001, RoHS Compliant
- Batch number tracking
- Pull proof
- Dust cover

Standards of reference and applications

- Telecommunication
- CCTV
- Industrial applications

Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C and bend minimum : 10 times O.D.
Operate at  -40 to +70 °C and bend minimum : 10 times O.D.
Short term max. pulling tension : 6.0N
Long term max. pulling tension : 3.0N

Fiber Cable

Optical fiber : 125/250 Single or Multi Mode
Buffer : 900μm tight, colour coded
Fiber count: Simplex (round) or Duplex (figure-8)
Outer jacket material: PVC or LSZH
Outer diameter: 2.0mm standard (2.8mm or 3.0mm upon demand)

**Connector type ST**

- **Durability**: min 500 cycles
- **Assembly procedure**: glue and polish
- **Connection**: physical contact
- **Lock mechanism**: bayonet cap
- **Ferrule material**: full ceramic zirconia
- **Connector material**: zinc alloy, nickel plated
- **Boot and dust cover**: thermoplastic rubber (flame retardant)

**Colour code**

<table>
<thead>
<tr>
<th></th>
<th>SM UPC</th>
<th>MM OM1</th>
<th>MM OM2</th>
<th>MM OM3</th>
<th>MM OM4</th>
<th>MM OM5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable colour</td>
<td>Yellow</td>
<td>Orange</td>
<td>Orange</td>
<td>Aqua</td>
<td>Purple</td>
<td>Lime Green</td>
</tr>
<tr>
<td>Connector colour</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver</td>
</tr>
</tbody>
</table>

**Fiber Optic characteristics**

<table>
<thead>
<tr>
<th></th>
<th>MM</th>
<th>SM UPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss dB (typical)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Return Loss dB (typical)</td>
<td>≥ 35</td>
<td>&gt; 55</td>
</tr>
</tbody>
</table>

**Ordering and delivery information**

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Simplex</td>
<td>PC xxx S oo a oo a 000</td>
<td>1 pc / bag</td>
</tr>
<tr>
<td>Fiber count</td>
<td>P/N</td>
<td>Packaging</td>
</tr>
<tr>
<td>-------------</td>
<td>-----</td>
<td>-----------</td>
</tr>
<tr>
<td>2 - Duplex</td>
<td>PC xxx D oo a oo a 000</td>
<td>1 pc / bag</td>
</tr>
</tbody>
</table>

xxx = fiber type = OS2 (for G652D), 7A1 (for G657A1), OM1, OM2, OM3, OM4, OM5
oo = connector type = SC, LC, FC, ST, MU, E2 (for E2000)
a = U for UPC, A for APC
000 = length

**Recommended connectivity**

- **Cables**: APS LIIN-25 series
- **Pigtails**: APS LIIN-25 series
- **Adapters**: APS LIIN-25 series
- **Patch Panels**: APS LIIN-25 series

**Extended System Warranty**

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LIIN25 Mechanical Splice

Features

- Quick and easy to install, a splice takes less than 30 seconds once the fiber is stripped and cleaned
- No special tools required, installers only need a standard FO toolkit.
- One Single solution for both 250 and 900μm.
- Available for both Singlemode and Multimode fiber.
- Insertion losses are comparable to fusion splicing (typically less than 0.1dB)
- RoHS and UL-94-V0 compliant
- Environmentally friendly, adhesive free solution (V-groove technology)
- Reliable and easy to install due to a unique and accurate, fiber centering feature.
- Best alternative for quick repairs and where fusion splicing is un-economical.
- Indispensable in situations where fusion splicing cannot be used (risk of explosion and combustion).
Standards of reference and applications

- Telecommunication, LAN, WAN, FTTx Cabling, CCTV

Installation Features

**Store at**  +10 to +50 °C  
**Install at**  0 to +50 °C  
**Operate at**  -40 to +70 °C  
**Short term max. pulling tension**  6.0N  
**Long term max. pulling tension**  3.0N  
**Installation manual**  click here to download the installation manual

Specification

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>(HxWxD) mm</td>
<td>40x5x4</td>
</tr>
<tr>
<td>Cable type</td>
<td>-</td>
<td>Singlemode and multimode, 250/ 900μm</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>db</td>
<td>Typical ≤ 0.1, Maximum ≤ 0.3</td>
</tr>
<tr>
<td>Return loss</td>
<td>db</td>
<td>&gt;50</td>
</tr>
<tr>
<td>Splice method</td>
<td>-</td>
<td>V-groove adhesive free</td>
</tr>
<tr>
<td>Materials used</td>
<td>-</td>
<td>UL rated plastics and index matching gel</td>
</tr>
<tr>
<td>Colour</td>
<td>-</td>
<td>Black</td>
</tr>
<tr>
<td>Packaging</td>
<td>-</td>
<td>5 pieces/ pack</td>
</tr>
<tr>
<td>Product life</td>
<td>-</td>
<td>Over 25 years</td>
</tr>
</tbody>
</table>

Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Simplex 250/900μm</td>
<td>FMS1</td>
<td>5 pcs / bag</td>
</tr>
</tbody>
</table>
Recommended connectivity

Cleaver: APS type CLEA01F  
Cables: APS LIIN-25 series  
Adapters: APS LIIN-25 series  
Patch Panels: APS LIIN-25 series  

Extended System Warranty

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LIIN25 Optical Attenuator Single Mode SC

Description
APS attenuators are built for an accurate attenuation over a wide range of wavelengths. The functional configuration allows easy connection directly to the fibre patch cord, for insertion onto the adaptor.

Features
- Compact Design
- Easy to connect/ disconnect
- SC/APC, SC/UPC, LC/UPC and LC/APC
- Fixed Attenuation Values 1-5 and 6-30 dB
- RoHS, Reach compliant

Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Wavelength</td>
<td>1310/1550 ± 10 nm</td>
</tr>
<tr>
<td>Tolerance for 1 – 5 dB Attenuation</td>
<td>± 0.5 dB</td>
</tr>
<tr>
<td>Tolerance for 6 – 30 dB Attenuation</td>
<td>± 10 dB</td>
</tr>
<tr>
<td>Return Loss</td>
<td>≥ 50dB</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40 – 75 °C</td>
</tr>
<tr>
<td>Polarization Dependent</td>
<td>&lt; 0.1dB</td>
</tr>
<tr>
<td>Fiber type</td>
<td>Single Mode 9/125</td>
</tr>
<tr>
<td>Type of connector</td>
<td>SC/APC</td>
</tr>
<tr>
<td>Mating Durability</td>
<td>&gt;1000 cycles</td>
</tr>
</tbody>
</table>
Ordering and delivery information

<table>
<thead>
<tr>
<th>Model</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical Fiber Attenuator, Single Mode, SC/UPC</td>
<td>ATT0913SCU</td>
<td>PE bag (10 pc)</td>
</tr>
<tr>
<td>Optical Fiber Attenuator, Single Mode, SC/APC</td>
<td>ATT0913SCA</td>
<td>PE bag (10 pc)</td>
</tr>
</tbody>
</table>

Recommended connectivity

**Pigtails**: APS LIIN-25 series  
**Adapters**: APS LIIN-25 series  
**Patch Panels**: APS LIIN-25 series

Extended System Warranty

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LIIN25 Quick Assembly Connectors, Embedded type (YFE)

Features

- Single Mode and Multi Mode
- SC and LC interfaces
- UPC and APC end face finish
- Less than a minute on-site installation, no splice equipment needed
- Available for cable up to 3.0mm
- Provides a reliable and durable optical connection
- Can be reassembled
- Especially suitable for advanced fibre optic systems requiring stability and low back reflections.
Standards of reference and applications

- Telecommunication, LAN, FTTx Cabling, CCTV

Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C
Operate at  -40 to +70 °C
Short term max. pulling tension : 20N
Long term max. pulling tension : 20N
Installation manual : Click here to download the installation manual for SC interface.

Specification

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>SC connector</th>
<th>LC connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection type</td>
<td>-</td>
<td>V-groove technology</td>
<td>V-groove technology</td>
</tr>
<tr>
<td>Ferule polishing type</td>
<td>-</td>
<td>PC/UPC/APC</td>
<td>PC/UPC/APC</td>
</tr>
<tr>
<td>Fibre type</td>
<td>-</td>
<td>Single and Multi mode</td>
<td>Single and Multi mode</td>
</tr>
<tr>
<td>Cable diameter</td>
<td>mm</td>
<td>2.0 / 3.0mm</td>
<td>2.0 / 3.0mm</td>
</tr>
<tr>
<td>Insertion loss (typical)</td>
<td>dB</td>
<td>≤0.3</td>
<td>≤0.3</td>
</tr>
<tr>
<td>Insertion loss (maximum)</td>
<td>dB</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Return loss (typical)</td>
<td>dB</td>
<td>≥50</td>
<td>≥50</td>
</tr>
<tr>
<td>Temperature Alteration Ratio</td>
<td>dB</td>
<td>≤0.5 (-40/+70°C)</td>
<td>≤0.5 (-40/+70°C)</td>
</tr>
</tbody>
</table>

Colour code
<table>
<thead>
<tr>
<th>Connector colour</th>
<th>SM UPC</th>
<th>SM APC</th>
<th>MM OM1</th>
<th>MM OM2</th>
<th>MM OM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>Green</td>
<td>Beige</td>
<td>Beige</td>
<td>Aqua</td>
<td></td>
</tr>
</tbody>
</table>

### Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Simplex</td>
<td>FQC xxx oo a YFE</td>
<td>10 pcs / bag</td>
</tr>
</tbody>
</table>

- xxx = fiber type = OS2 (for G652D), 7A1 (for G657A1), OM1, OM2, OM3
- oo = connector type = SC, LC
- a = U for UPC, A for APC
- ca = 09 for 0.9mm fiber, 20 for 2.0mm cable, 30 for 2.0mm cable, FA for flat cable,

### Recommended connectivity

- **Cleaver**: APS type CLEA01F
- **Cables**: APS LIIN-25 series
- **Adapters**: APS LIIN-25 series
- **Patch Panels**: APS LIIN-25 series

### Extended System Warranty

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LIIN25 Quick Assembly Connectors, Straight type (OPS)

Features

- Single Mode and Multi Mode
- SC and LC interfaces
- UPC and APC end face finish
- Less than a minute on-site installation, no splice equipment needed
- Available for 250 or 900um fibre, 2.0 3.0mm or flat cable
- can be installed in under a minute and re-used several times
- provides a reliable and durable optical connection
- especially suitable for advanced fibre optic systems requiring stability and low back reflections.
Standards of reference and applications

- Telecommunication, LAN, FTTx Cabling, CCTV

Installation Features

Store at +10 to +50 °C
Install at 0 to +50 °C
Operate at -40 to +70 °C
Short term max. pulling tension : 6.0N
Long term max. pulling tension : 3.0N
Installation manual : Click here to download the installation manual for SC interface.

Specification

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>SC connector</th>
<th>LC connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection type</td>
<td>-</td>
<td>V-groove technology</td>
<td>V-groove technology</td>
</tr>
<tr>
<td>Ferule polishing type</td>
<td>-</td>
<td>PC/UPC/APC</td>
<td>PC/UPC/APC</td>
</tr>
<tr>
<td>Fibre type</td>
<td>-</td>
<td>Single and Multi mode</td>
<td>Single and Multi mode</td>
</tr>
<tr>
<td>Cable diameter</td>
<td>mm</td>
<td>Round - 900μm, 2.0mm, 3.0mm, flat cable</td>
<td>Round - 900μm, 2.0mm, 3.0mm, flat cable</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>dB</td>
<td>Typical 0.3</td>
<td>Typical 0.1</td>
</tr>
<tr>
<td>Return loss (typical)</td>
<td>dB</td>
<td>UPC = 50, APC = 55</td>
<td>UPC = 50, APC = 55</td>
</tr>
</tbody>
</table>

Colour code

<table>
<thead>
<tr>
<th></th>
<th>SM UPC</th>
<th>SM APC</th>
<th>MM OM1</th>
<th>MM OM2</th>
<th>MM OM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector colour</td>
<td>Blue</td>
<td>Green</td>
<td>Beige</td>
<td>Beige</td>
<td>Aqua</td>
</tr>
</tbody>
</table>

Ordering and delivery information
### Fiber count

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Simplex</td>
<td>FQC xxx oo a cc OPS</td>
<td>10 pcs / bag</td>
</tr>
</tbody>
</table>

- xxx = fiber type = OS2 (for G652D), 7A1 (for G657A1), OM1, OM2, OM3
- oo = connector type = SC, LC
- a = U for UPC, A for APC
- ca = 09 for 0.9mm fiber, 20 for 2.0mm cable, 30 for 2.0mm cable, FA for flat cable,

### Recommended connectivity

**Cleaver:** APS type CLEA01F  
**Cables:** APS LIIN-25 series  
**Adapters:** APS LIIN-25 series  
**Patch Panels:** APS LIIN-25 series

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PLC Splitter, Blockless Type 1xN, LIIN25

Features

- Good channel-to-channel uniformity
- High reliability and small size
- Low Insertion loss and Low PDL
- Compact Design
- Good channel-to-channel uniformity
- Wide Operating Wavelength: from 1260nm to 1650nm
- High Reliability and Stability
- Available in various fan-out configurations, with pre-terminated fiber optic connectors (ex. SC/PC, SC/APC, FC/PC, FC/APC).

Standards of reference and applications

- Telcordia GR-1209-CORE-2001
- Telcordia GR-1221-CORE-1999
- YD/T1117-2001
- FTTX Systems
- PON (GPON, EPON, BPON etc) Networks
- CATV Links
- Optical Signal Distribution

Installation Features

Store at +10 to +50 °C
Install at 0 to +50 °C
Operate at -40 to +85 °C

Specification

<table>
<thead>
<tr>
<th>Type</th>
<th>1×2</th>
<th>1 x 4</th>
<th>1 x 8</th>
<th>1 x 16</th>
<th>1 x 32</th>
<th>1 x 64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Wavelength (nm)</td>
<td>1260-1650</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss (dB)</td>
<td>Typical</td>
<td>3.7</td>
<td>7.0</td>
<td>10.2</td>
<td>13.2</td>
<td>16.2</td>
</tr>
<tr>
<td>Insertion Loss (dB)</td>
<td>Max.</td>
<td>4.0</td>
<td>7.3</td>
<td>10.5</td>
<td>13.7</td>
<td>16.8</td>
</tr>
<tr>
<td>Loss Uniformity (dB)</td>
<td>Max.</td>
<td>0.6</td>
<td>0.6</td>
<td>0.8</td>
<td>1.2</td>
<td>1.5</td>
</tr>
<tr>
<td>PDL (dB) Max</td>
<td></td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>TDL (dB) Max</td>
<td></td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Type</td>
<td>1×2</td>
<td>1 x 4</td>
<td>1 x 8</td>
<td>1 x 16</td>
<td>1 x 32</td>
<td>1 x 64</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----</td>
<td>-------</td>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Return Loss (dB) Min</td>
<td>UPC Connector</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return Loss (dB) Min</td>
<td>APC Connector</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directivity (dB)</td>
<td></td>
<td></td>
<td></td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Handling (mW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Pigtail Length (m)</td>
<td>1.0 (±0.1) or custom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>ITU G652. A1 or custom</td>
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</tbody>
</table>

Note (a) : all figures are at room temperature and exclude connector loss.
Note (b) : for devices with connectors, insertion loss will be approximately 0.3dB higher, Return Loss >55dB (APC), >50dB (UPC).

**Drawing**
Ordering and delivery information

Please contact your sales representative.

Recommended connectivity

Cables: APS LIIN-25 series
Adapters: APS LIIN-25 series
Patch Panels: APS LIIN-25 series

Extended System Warranty

The APS System Warranty assures the compliance of the system performance to the applicable class of cabling for a period of 25 years. The warranty may be applied for by an accredited APS Partner who has designed and/or installed the entire system. Learn about APS System Warranty from here.
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**PLC Splitter, Fanout Type 1xN, LIIN25**

**Features**

- Good channel-to-channel uniformity
- High reliability and small size
- Low Insertion loss and Low PDL
- Compact Design
- Good channel-to-channel uniformity
- Operating Wavelength: from 1260nm to 1650nm
- High Reliability and Stability
- Available as 1xN
- Available in various fan-out configurations, with pre-terminated fiber optic connectors (ex. SC/PC, SC/APC, FC/PC, FC/APC).

**Standards of reference and applications**

- Telcordia GR-1209-CORE-2001
- Telcordia GR-1221-CORE-1999
- YD/T1117-2001
- FTTX Systems
- PON (GPON, EPON, BPON etc) Networks
- CATV Links
- Optical Signal Distribution

**Installation Features**

*Store at*  +10 to +50 °C  
*Install at*  0 to +50 °C  
*Operate at*  -40 to +85 °C

**Specification**

<table>
<thead>
<tr>
<th>Type</th>
<th>1x2</th>
<th>1 x 4</th>
<th>1 x 8</th>
<th>1 x 16</th>
<th>1 x 32</th>
<th>1 x 64</th>
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<td>Insertion Loss (dB) Typical</td>
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<td>Fiber Type</td>
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Note (a) : all figures are at room temperature and exclude connector loss.
Note (b) : for devices with connectors, insertion loss will be approximately 0.3dB higher, Return Loss >55dB (APC), >50dB (UPC).

Configuration drawing
1x16, 2x2, 2x4 fanout fiber splitters: 30mm x 4mm x 4mm

1x32 fanout fiber splitters: 45mm x 7mm x 4mm

1x16, 2x2, 2x4 fanout fiber splitters: 40mm x 4mm x 4mm

1x16, 2x2, 2x4 fanout fiber splitters: 50mm x 4mm x 4mm
Ordering and delivery information

Please contact your sales representative.

Recommended connectivity

- **Cables**: APS LIIN-25 series
- **Adapters**: APS LIIN-25 series
- **Patch Panels**: APS LIIN-25 series

Extended System Warranty

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PLC Splitter, LGX/ABS Type, LIIN25

Features

- Good channel-to-channel uniformity
- High reliability and small size
- Low Insertion loss and Low PDL
- Compact Design
- Good channel-to-channel uniformity
- Wide Operating Wavelength: from 1260nm to 1650nm
- High Reliability and Stability
- Standard LGX Metal/Plastic Box
- Protective Package
- Suitable for Outdoor Use

Standards of reference and applications

- Telcordia GR-1209-CORE-2001
- Telcordia GR-1221-CORE-1999
- YD/T1117-2001
- FTTX Systems
- PON (GPON, EPON, BPON etc) Networks
- CATV Links
- Optical Signal Distribution

Installation Features

Store at +10 to +50 °C
Install at 0 to +50 °C
Operate at : -40 to +85 °C

Specification

<table>
<thead>
<tr>
<th>Type</th>
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<td>10.5</td>
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<td>16.8</td>
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<td>1.2</td>
<td>1.5</td>
<td>2.0</td>
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<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
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<td>Power Handling (mW)</td>
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Ordering and delivery information

Please contact your sales representative.

Recommended connectivity

Cables : APS LIIN-25 series
Adapters : APS LIIN-25 series
Patch Panels : APS LIIN-25 series

Extended System Warranty

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PLC Splitter, Mini Module, Bare Fiber Type 1xN, with connectors, LIIN25

Features

- Good channel-to-channel uniformity
- High reliability and small size
- Low Insertion loss and Low PDL
- Compact Design
- Good channel-to-channel uniformity
- Operating Wavelength: from 1260nm to 1650nm
- High Reliability and Stability
- Available as 1xN
- Available in various fan-out configurations, with pre-terminated fiber optic connectors (ex. SC/UPC, SC/APC, FC/UPC, FC/APC).
Standards of reference and applications

- Telcordia GR-1209-CORE-2001
- Telcordia GR-1221-CORE-1999
- YD/T1117-2001
- FTTX Systems
- PON (GPON, EPON, BPON etc) Networks
- CATV Links
- Optical Signal Distribution

Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C
Operate at : -40 to +85 °C

Specification

<table>
<thead>
<tr>
<th>Type</th>
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<td>UPC Connector</td>
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<tr>
<td>Return Loss (dB) Min</td>
<td>APC Connector</td>
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<td>Directivity (dB)</td>
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<td>Power Handling (mW)</td>
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<tr>
<td>Pigtail Length (m)</td>
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### Type

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### Configuration drawing

![Configuration drawing](image)

### Ordering and delivery information

<table>
<thead>
<tr>
<th>Item</th>
<th>Steel Tube (LxWxH) mm</th>
<th>P/N</th>
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<tr>
<td>1x2 G657A</td>
<td>60x7x4</td>
<td>SPLMM127A aa bb</td>
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<td>1x4 G657A</td>
<td>60x7x4</td>
<td>SPLMM147A aa bb</td>
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<td>1x8 G657A</td>
<td>60x7x4</td>
<td>SPLMM187A aa bb</td>
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<tr>
<td>1x16 G657A</td>
<td>60x12x4</td>
<td>SPLMM1167A aa bb</td>
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<td>1x32 G657A</td>
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<td>1x64 G657A</td>
<td>100x40x6</td>
<td>SPLMM1647A aa bb</td>
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</tbody>
</table>

aa = INPUT / bb=OUTPUT: SC/UPC=SU, SC/APC=SA, LC/UPC=LU, LC/APC=LA, FC/UPC=FU, FC/APC=FA
Recommended connectivity

**Cables**: APS LIIN-25 series  
**Adapters**: APS LIIN-25 series  
**Patch Panels**: APS LIIN-25 series

---

Extended System Warranty

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PLC Splitter, Mini Module, Bare Fiber Type 1xN, without connector, LIIN25

Features

- Good channel-to-channel uniformity
- High reliability and small size
- Low Insertion loss and Low PDL
- Compact Design
- Good channel-to-channel uniformity
- Operating Wavelength: from 1260nm to 1650nm
- High Reliability and Stability
- Available as 1xN
- Available in various fan-out configurations, with pre-terminated fiber optic connectors (ex. SC/PC, SC/APC, FC/PC, FC/APC).

Standards of reference and applications

- Telcordia GR-1209-CORE-2001
- Telcordia GR-1221-CORE-1999
- YD/T1117-2001
- FTTH Systems
- PON (GPON, EPON, BPON etc) Networks
- CATV Links
- Optical Signal Distribution

Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C
Operate at  -40 to +85 °C

Specification

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Note (a) : all figures are at room temperature and exclude connector loss.
Note (b) : for devices with connectors, insertion loss will be approximately 0.3dB higher, Return Loss >55dB (APC), >50dB (UPC).

Configuration drawing
Fiber input: 0.9mm, 250µm bare fiber

1x2, 1x4, 1x8 bare fiber splitter: 40mm×4mm×4mm

Fiber output: 250µm bare fiber

Fiber input: 0.9mm loose tube/250µm bare fiber

1x16, 2x2, 2x4 bare fiber splitter: 50mm×4mm×4mm

Fiber output: 250µm bare fiber

Fiber input: 0.9mm, 250µm bare fiber

1x32 bare fiber splitter: 55mm×7mm×4mm

Fiber output: 250µm bare fiber

Fiber input: 0.9mm, 250µm bare fiber

1x64, 2x64 bare fiber splitter: 60mm×12mm×4mm

Fiber output: 250µm bare fiber
Ordering and delivery information
For details, please contact the nearest representative.

Recommended connectivity
Cables : APS LIIN-25 series
Adapters : APS LIIN-25 series
Patch Panels : APS LIIN-25 series

Extended System Warranty
The APS System Warranty assures the compliance of the system performance to the applicable class of cabling for a period of 25 years. The warranty may be applied for by an accredited APS Partner who has designed and/or installed the entire system. Learn about APS System Warranty from here.

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PLC Splitter, Module/Cassette Type, LIIN25

Features

- Wide operating wavelength range
- Good channel-to-channel uniformity
- High reliability and small size
- Low Insertion loss and Low PDL
- Compact Design
- Good channel-to-channel uniformity
- Wide Operating Wavelength: from 1260nm to 1650nm
- High Reliability and Stability
- Available as 1xN and 2xN, from 1×2 to 1×128
- Available in various fan-out configurations, with pre-terminated fiber optic connectors (ex. SC/PC, SC/APC, FC/PC, FC/APC).

Standards of reference and applications

- Telcordia GR-1209-CORE-2001
- Telcordia GR-1221-CORE-1999
- YD/T1117-2001
- FTTX Systems
- PON (GPON, EPON, BPON etc) Networks
- CATV Links
- Optical Signal Distribution

Installation Features

Store at  +10 to +50 °C
Install at  0 to +50 °C
Operate at : -40 to +85 °C

Specification

General Parameters

<table>
<thead>
<tr>
<th>Product type</th>
<th>1x2</th>
<th>1x4</th>
<th>1x8</th>
<th>1x16</th>
<th>1x32</th>
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<td>Fiber Type</td>
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<td>G.657A</td>
<td>G.657A</td>
<td>G.657A</td>
<td>G.657A</td>
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<tr>
<td>Product Type</td>
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<td>1x4</td>
<td>1x8</td>
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<tr>
<td>Working Wave Length (nm)</td>
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<td>1260nm~1650nm</td>
<td>1260nm~1650nm</td>
<td>1260nm~1650nm</td>
<td>1260nm~1650nm</td>
<td>1260nm~1650nm</td>
</tr>
<tr>
<td>IL (dB)</td>
<td>≤4.1</td>
<td>≤7.4</td>
<td>≤10.5</td>
<td>≤13.8</td>
<td>≤17.1</td>
<td>≤20.4</td>
</tr>
<tr>
<td>Uni (dB)</td>
<td>≤0.5</td>
<td>≤0.8</td>
<td>≤0.8</td>
<td>≤1.0</td>
<td>≤1.5</td>
<td>≤2.0</td>
</tr>
<tr>
<td>PDL (dB)</td>
<td>≤0.2</td>
<td>≤0.2</td>
<td>≤0.2</td>
<td>≤0.3</td>
<td>≤0.3</td>
<td>≤0.3</td>
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<tr>
<td>WDL(dB)</td>
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<td>≤0.8</td>
<td>≤0.8</td>
<td>≤1.0</td>
<td>≤1.0</td>
<td>≤1.0</td>
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<td>Directivity (dB)</td>
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<td>≥55</td>
<td>≥55</td>
<td>≥55</td>
<td>≥55</td>
<td>≥55</td>
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### Environmental tests

<table>
<thead>
<tr>
<th>Item</th>
<th>Test</th>
<th>Performance</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Humidity-heat test</td>
<td>75°C±2°C, 95%±5%RH, 96h</td>
<td>1. IL variation ΔIL≤0.5dB; 2. Appearance checking.</td>
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<tr>
<td>2</td>
<td>Temperature cycle</td>
<td>-40°C~+85°C, 8h/Cycle, 21times</td>
<td>1. IL variation ΔIL≤0.5dB; 2. Appearance checking.</td>
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<td>3</td>
<td>High-temperature test</td>
<td>85°C±2°C, 96h</td>
<td>1. IL variation ΔIL≤0.5dB; 2. Appearance checking.</td>
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<tr>
<td>4</td>
<td>Low-temperature test</td>
<td>-40°C±2°C, 96h</td>
<td>1. IL variation ΔIL≤0.5dB; 2. Appearance checking.</td>
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<tr>
<td>5</td>
<td>Soaking test</td>
<td>Indoor, tap water, 168h</td>
<td>1. IL variation ΔIL≤0.5dB; 2. Appearance checking.</td>
</tr>
<tr>
<td>6</td>
<td>Salt spray test</td>
<td>5%NaCl, 6.5±PH7.2, 35°C, 96h</td>
<td>1. IL variation ΔIL≤0.5dB; 2. Appearance checking.</td>
</tr>
</tbody>
</table>

### Mechanical tests

<table>
<thead>
<tr>
<th>Item</th>
<th>Test</th>
<th>Performance</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drop Test</td>
<td>1.8m, 3 directions, 8 times/direction, 5 cycle times</td>
<td>1. IL variation ΔIL≤0.5dB; 2. Appearance checking</td>
</tr>
</tbody>
</table>
### Vibration Test
- **Performance**
  - Frequency: 10–55 HZ
  - Scan: 45 times/min
  - Amplitude: 0.75 mm
  - Time: X, Y, Z direction/30 min

- **Results**
  - 1. IL variation ΔIL \( \leq 0.5 \text{dB} \);
  - 2. Appearance checking

### Cable Torsion Test
- **Performance**
  - Burden: Ø2.0 mm Cable, 15 N
  - Method: 22~28 cm, ±180°, 10 times/Min, 25 times

- **Results**
  - 1. IL variation ΔIL \( \leq 0.5 \text{dB} \);
  - 2. Appearance checking

### Cable Tension Test
- **Performance**
  - Burden: Ø2.0 mm Cable, 50 N
  - Method: 22~28 cm

- **Results**
  - 1. IL variation ΔIL \( \leq 0.5 \text{dB} \);
  - 2. Appearance checking

### Reliability tests
#### High temperature storage (dry)
- **Performance**
  - \(-40^\circ\text{C} \pm 5^\circ\text{C}, 2000\text{h}\)

- **Results**
  - 1. IL variation ΔIL \( \leq 0.5 \text{dB} \);
  - 2. Appearance checking

#### Low temperature storage
- **Performance**
  - \(75^\circ\text{C} \pm 2^\circ\text{C}, 90\% \pm 5\%\text{RH or } 85^\circ\text{C} \pm 2^\circ\text{C}\), \(85 \pm 5\%\text{RH} 500\text{h (CO)\text{,} 2000h (UNCb)}\)

- **Results**
  - 1. IL variation ΔIL \( \leq 0.5 \text{dB} \);
  - 2. Appearance checking

#### High temperature storage (humid-heat)
- **Performance**
  - \(-40^\circ\text{C} \sim +85^\circ\text{C}, 8\text{h/Cycle, } 500\text{ cycles}\).

- **Results**
  - 1. IL variation ΔIL \( \leq 0.5 \text{dB} \);
  - 2. Appearance checking

#### Temperature Cycle
- **Performance**
  - \(-40^\circ\text{C} \sim +85^\circ\text{C}, 8\text{h/Cycle, } 500\text{ cycles}\).

- **Results**
  - 1. IL variation ΔIL \( \leq 0.5 \text{dB} \);
  - 2. Appearance checking

**Note (a)**: all figures are at room temperature and exclude connector loss.
**Note (b)**: for devices with connectors, insertion loss will be approximately 0.3 dB higher, Return Loss >55 dB (APC), >50 dB (UPC).

### Drawing

![Drawing Image]
## Ordering and delivery information

<table>
<thead>
<tr>
<th>Item</th>
<th>Cables diameter (mm)</th>
<th>Cables length (m)</th>
<th>P/N</th>
<th>Module/Cassette size</th>
<th>Cardboard box (cm) Retail</th>
<th>Cardboard box (pcs) Retail</th>
<th>Cardboard box (cm) Bulk</th>
<th>Cardboard box (pcs) Bulk</th>
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</thead>
<tbody>
<tr>
<td>1x2 (with connectors)</td>
<td>2.0</td>
<td>10</td>
<td>SPLMO122WC</td>
<td>100 x 80 x 10 mm</td>
<td>37 * 19 * 4</td>
<td>2</td>
<td>264 * 39 * 43</td>
<td>60</td>
</tr>
<tr>
<td>1x2 (with connectors)</td>
<td>3.0</td>
<td>10</td>
<td>SPLMO123WC</td>
<td>100 x 80 x 10 mm</td>
<td>37 * 19 * 4</td>
<td>2</td>
<td>264 * 39 * 43</td>
<td>60</td>
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<tr>
<td>1x4 (with connectors)</td>
<td>2.0</td>
<td>10</td>
<td>SPLMO142WC</td>
<td>100 x 80 x 10 mm</td>
<td>37 * 19 * 4</td>
<td>2</td>
<td>264 * 39 * 43</td>
<td>60</td>
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<tr>
<td>1x4 (with connectors)</td>
<td>3.0</td>
<td>10</td>
<td>SPLMO143WC</td>
<td>100 x 80 x 10 mm</td>
<td>37 * 19 * 4</td>
<td>2</td>
<td>264 * 39 * 43</td>
<td>60</td>
</tr>
<tr>
<td>1x8 (with connectors)</td>
<td>2.0</td>
<td>10</td>
<td>SPLMO182WC</td>
<td>100 x 80 x 10 mm</td>
<td>37 * 19 * 4</td>
<td>2</td>
<td>264 * 39 * 43</td>
<td>60</td>
</tr>
<tr>
<td>1x8 (with connectors)</td>
<td>3.0</td>
<td>10</td>
<td>SPLMO183WC</td>
<td>100 x 80 x 10 mm</td>
<td>37 * 19 * 4</td>
<td>2</td>
<td>264 * 39 * 43</td>
<td>60</td>
</tr>
<tr>
<td>1x16 (with connectors)</td>
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<td>10</td>
<td>SPLMO1162WC</td>
<td>100 x 80 x 18 mm</td>
<td>37 * 19 * 4</td>
<td>1</td>
<td>264 * 39 * 43</td>
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<tr>
<td>1x16 (with connectors)</td>
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<td>10</td>
<td>SPLMO1163WC</td>
<td>100 x 80 x 18 mm</td>
<td>37 * 19 * 4</td>
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<tr>
<td>1x32 (with connectors)</td>
<td>2.0</td>
<td>10</td>
<td>SPLMO1322WC</td>
<td>100 x 80 x 18 mm</td>
<td>37 * 31 * 4</td>
<td>1</td>
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<td>100 x 80 x 18 mm</td>
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<td>100 x 80 x 18 mm</td>
<td>37 * 31 * 4</td>
<td>1</td>
<td>264 * 39 * 43</td>
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</tbody>
</table>
Recommended connectivity

**Cables**: APS LIIN-25 series  
**Adapters**: APS LIIN-25 series  
**Patch Panels**: APS LIIN-25 series

Extended System Warranty

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PLC Splitter, Rack Chassis Type, LIIN25

Features

- Good channel-to-channel uniformity
- High reliability and small size
- Low Insertion loss and Low PDL
- Compact Design
Good channel-to-channel uniformity
Wide Operating Wavelength: from 1260nm to 1650nm
High Reliability and Stability
Available as 1xN and 2xN, from 1x2 to 1x128
Available in various fan-out configurations, with pre-terminated fiber optic connectors (ex. SC/PC, SC/APC, FC/PC, FC/APC).

Standards of reference and applications

- Telcordia GR-1209-CORE-2001
- Telcordia GR-1221-CORE-1999
- YD/T1117-2001
- FTTX Systems
- PON (GPON, EPON, BPON etc) Networks
- CATV Links
- Optical Signal Distribution

Installation Features

Store at +10 to +50 °C
Install at 0 to +50 °C
Operate at : -40 to +85 °C

Specification

<table>
<thead>
<tr>
<th>Type</th>
<th>1x2</th>
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<th>1 x 16</th>
<th>1 x 32</th>
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<td>Operating Wavelength (nm)</td>
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<td>Insertion Loss (dB)</td>
<td>Typical</td>
<td>3.7</td>
<td>7.0</td>
<td>10.2</td>
<td>13.2</td>
<td>16.2</td>
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<td>Insertion Loss (dB)</td>
<td>Max.</td>
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<td>7.3</td>
<td>10.5</td>
<td>13.7</td>
<td>16.8</td>
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<td>Loss Uniformity (dB) Max</td>
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<td>0.6</td>
<td>0.8</td>
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<td>1.5</td>
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<td>PDL (dB) Max</td>
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<td>0.2</td>
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<td>0.3</td>
<td>0.3</td>
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<tr>
<td>Type</td>
<td>1×2</td>
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<td>0.5</td>
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<td>Return Loss (dB) Min</td>
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<td>UPC Connector</td>
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<td>Return Loss (dB) Min</td>
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<td>APC Connector</td>
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<tr>
<td>Fiber Type</td>
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<td></td>
<td></td>
<td></td>
<td>ITU G652, A1 or custom</td>
</tr>
</tbody>
</table>

Note (a) : all figures are at room temperature and exclude connector loss.  
Note (b) : for devices with connectors, insertion loss will be approximately 0.3dB higher, Return Loss >55dB (APC), >50dB (UPC).

Ordering and delivery information

Please contact your sales representative.

Recommended connectivity

**Cables** : APS LIIN-25 series  
**Adapters** : APS LIIN-25 series  
**Patch Panels** : APS LIIN-25 series

Extended System Warranty

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FIRECA Fiber Optic cable UT12G9H, Loose Tube, 2-24 cores, LSZH & Fire Retardant

Features

- Loose Tube, jelly filled
- Compact, and Robust
- Waterproof, UV- Resistant
- Metallic armored, Moisture barrier and rodent protection
- Fire Retardant Outer Sheath, Low Smoke Zero Halogen
- Enforcement with Non-Metallic Strength Members
Applications

- Inter Building Voice or Data Communication Networks
- FTTC, FTTB, Campus Cabling
- Outside Plant
- Installed in ducts & conduits
- Secondary Distribution
- LAN & WAN
- Telecommunication Data Trunk Systems
- CCTV, surveillance and emergency networks

Standards of reference

IEC 70793, IEC 60794, UL1581, IEC11801, IEC 60754-1/2, IEC 61034-1/2, IEC60794-162, IEC60332-1, IEC60332-3-24

Installation Features

Store at: -30 to +50 °C
Install at: -0 to +50 °C, Bend minimum: 20 times O.D.
Operate at: -30 to +70 °C, Bend minimum: 20 times O.D.

Design

Optical fiber: 125/250μm Single Mode or Multi Mode
Buffer: special PBTP loose tube, typical diam. 3.0mm, filled with jelly
Fiber count: 2 to 24
Protection: waterblocking glass yarns
Armour: corrugated steel tape
Outer jacket: LSZH Fire Retardant material, UV resistant (colour according to customer’s requirements)
Marking: APS Finland – ww/yy – FIRECA Fiber Optic Cable UT12G9H fiber count x fiber type – LSZH-UVR – P/N – lot – meter

Environmental properties and Fire Performances

Degree of acidity of gases : IEC 60754-1, IEC 60754-2
Halogen acid gas corrosiveness: IEC 60754-1, IEC 60754-2
Smoke Emission: IEC 61034-2
Flame retardant: IEC 60332-1
Fire retardant: IEC 60332-3-24
Fire resistant: IEC 60331-25
UV resistant: UL1581, IEC11801

Fiber Optic characteristics
See detailed specification of optical fibers.

Colour code of fibers

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<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>9</th>
<th>10</th>
<th>11</th>
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<tbody>
<tr>
<td>A</td>
<td>Blue</td>
<td>Orange</td>
<td>Green</td>
<td>Brown</td>
<td>Grey</td>
<td>White</td>
<td>Red</td>
<td>Black</td>
<td>Yellow</td>
<td>Violet</td>
<td>Pink</td>
<td>Aqua</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
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<tr>
<td>B</td>
<td>Blue</td>
<td>Orange</td>
<td>Green</td>
<td>Brown</td>
<td>Grey</td>
<td>White</td>
<td>Red</td>
<td>Black</td>
<td>Yellow</td>
<td>Violet</td>
<td>Pink</td>
<td>Aqua</td>
</tr>
</tbody>
</table>

Ordering and delivery information

<table>
<thead>
<tr>
<th>Fiber count</th>
<th>P/N</th>
<th>O.D [mm]</th>
<th>Pulling tension (perm/inst)</th>
<th>Crush (N)</th>
<th>Impact</th>
<th>Weight (kg/km)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>UT12G9H02xxc</td>
<td>8.5</td>
<td>800/1200</td>
<td>1000</td>
<td>1J</td>
<td>110</td>
<td>2000m</td>
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<td>UT12G9H04xxc</td>
<td>8.5</td>
<td>800/1200</td>
<td>1000</td>
<td>1J</td>
<td>110</td>
<td>2000m</td>
</tr>
<tr>
<td>6</td>
<td>UT12G9H06xxc</td>
<td>8.5</td>
<td>800/1200</td>
<td>1000</td>
<td>1J</td>
<td>110</td>
<td>2000m</td>
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<tr>
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<td>UT12G9H08xxc</td>
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<td>800/1200</td>
<td>1000</td>
<td>1J</td>
<td>110</td>
<td>2000m</td>
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<tr>
<td>12</td>
<td>UT12G9H12xxc</td>
<td>8.5</td>
<td>800/1200</td>
<td>1000</td>
<td>1J</td>
<td>110</td>
<td>2000m</td>
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<td>UT12G9H16xxc</td>
<td>8.5</td>
<td>800/1200</td>
<td>1000</td>
<td>1J</td>
<td>110</td>
<td>2000m</td>
</tr>
<tr>
<td>24</td>
<td>UT12G9H24xxc</td>
<td>8.5</td>
<td>800/1200</td>
<td>1000</td>
<td>1J</td>
<td>110</td>
<td>2000m</td>
</tr>
</tbody>
</table>

xx = fiber type ex. OS2=S2, OM1=M1, OM2=M2, OM3=M3, OM4=M4, OM5  

Recommended connectivity

Pigtails: APS LIIN25 series  
Patch cords: APS LIIN25 series
Adapters: APS LIIN25 series
Patch Panels: APS LIIN25 series

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