LS FTTH Solutions
Highway to the Ubiquitous Life
Leading Solution

LS aims to develop into a company that provides its clients with a Leading Solution, contributes to the overall society, and offers a business environment where the employees can realize their dreams.

Always with our customers

LS Cable is leading the cable, telecommunication industry. It also represents the LS Group. With its company vision, “Always with our customers,” LS Cable continuously strives towards becoming the global leading company providing the technology as required by customers and the solution that others cannot offer.

Towards the global leading company

All employees of LS Cable stand behind the vision of becoming Your No.1 Creative Partner and are doing their best to realize our customers’ satisfaction. Securing and establishing a firm growth engine, LS Cable will be reborn as an enterprise to leap worldwide.
Introduction

LS Cable is proud to carry total FTTH solution products ranged from Network Core, RAS, Media Gateways, G-PON, E-PON, Switching Router, IT Security, IP/VPN Service System, NG SDH/SONET to Home networks solutions as well as diverse Fiber-optic cables, DATA and Coax cables and OSP materials. With a long history of serving customers in the industry worldwide, we have been bringing the total solutions and services to the world by integrating data, voice and video to build the most innovative and reliable networks for world’s Telco Carriers, ISPs, Government and enterprise market. With outstanding performance and value-added services, we are confident in creating the best networking solutions to meet customers’ maximum benefits, and to foster and guarantee a better quality of service.

With the fast development on information and networks infrastructure, broadband applications such as high definition television (HDTV), video on demand (VOD) and etc are getting popular. Compared with other communication media, optical fiber obviously has superiority because of its high bandwidth and tremendously low data loss. Due to these advantageous features, it has been rapidly developed and gradually replacing with copper wire-based transmission system. At present, the WAN and MAN markets have been saturated with optical fiber and now the LAN has also been slowly developed towards the optical fiber transmission. Only the network access speeds between MAN and LAN markets are still slow, which is commonly called the “Last Mile Bottleneck”. To solve this problem, optical fiber has increasingly penetrated to the customer premises. Today, everyone knows that optical fiber is a better solution for increasing network bandwidth.

Thus, now we’re going to propose these value added FTTH solutions to help you to achieve your prospective last mile solution.

In this product literature, we introduce the turn-key solutions from supply, installation to maintenance of the FTTH/FTTB equipment and other elements of networking that is necessary to enable the FTTH network.

We aim to create a “Leading Solution” for our customers.
Realization of FTTx Total Solution by LS Cable
GPON Solution
LS GPON provides downstream capacity of 2.488 Gbps and an upstream capacity of 1.244 Gbps. It is designed to provide high speed internet service for subscribers and optimized environments for service providers.

EPON Solution
LS EPON provides various types of Interfaces and it is designed to fit in any service provider’s plan and/or environments.

VoIP Solution
LS VoIP solution is fully compatible with LS GPON/GPON equipments to complete service provider’s faultless Triple Play Service solutions (VoIP, Video, and Data).

P2P Solution
LS P2P solution provides intelligent networking services like advanced QoS, rate limiting, high availability, and security to enhance network operations while simple network configuration is still maintained.

Broadband Access Network Equipment
Specifications

**General**
- L2/3 wire speed forwarding rate
- Full or half duplex operation
- Max. 40 1000Base-X or 1000Base-T or Max. 2 ports 10Giga interface
- 40 Ports PON interface
- 3 Built-in fans 1000RPM/26.8CFM

**Switching Architecture**
- High speed non-blocking switch fabric
- Store and Forward switching
- 32K MAC address
- 4K Active 802.1Q VLAN support
- 216Gbps switching capacity

**Features**
- ITU-T G. 844 compliant
- 802.1Q VLAN
- 802.1Q tagged VLAN
- Q-in-Q Stacked VLAN
- 802.1d Bridge standard
- 802.3u Fast Ethernet standard
- 802.3z Gigabit Ethernet standard
- 802.3 Flow control standard
- 802.3 X Port trunking

**Protocols and Standards**
- 802.1Q VLAN standard
- 802.1q PTP Interface
- 802.1x Fast Ethernet standard
- 802.3x Flow control standard
- 802.3x Port trunking

**Physical and Environmental**
- Dimension (WxHxD): 482x399x240 (mm)
- Operating Temperature: 0℃ to 50℃
- Storage Temperature: -30℃ to 70℃
- Humidity: 10% to 90% non-condensing
- Power: 110/220VAC 50/60Hz Free Volt, DC -44 ~ 60VDC
- Power Consumption: Max 450W when option modules populated
- ETSI/EN 300-386 V1.3.2
- EN 55022
- EN 61000-4-2, 3, 4, 5, 6
- FCC Part 15B
- CEMIC EMI/EMC compliant
- SHF LST20016 GPON Shelf with 16 slot and FAN
- SCLU Packet switching and CPU management
- GPU 4-port 1000BaseX SFP type
- GEU 4-ports 1000BaseX SFP type
- XEU 1-port 10Gbit Ethernet with XFP type
- TDU Circuit Emulation with 16 E1 ports
- PSU-AC Power conversion from 110/220VAC to 12VDC
- PSU-DC Power conversion from -48VDC to 12VDC

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>SHF</td>
<td>LST20016-GPON Shelf with 16 slot and FAN</td>
</tr>
<tr>
<td>SCU</td>
<td>Packet switching and CPU management</td>
</tr>
<tr>
<td>GPU</td>
<td>4-port GPON ports with SFP type</td>
</tr>
<tr>
<td>GEA</td>
<td>4-ports 1000BaseX SFP type</td>
</tr>
<tr>
<td>GEU</td>
<td>4-ports 1000BaseX SFP type</td>
</tr>
<tr>
<td>XEU</td>
<td>1-port 10Gbit Ethernet with XFP type</td>
</tr>
<tr>
<td>TDU</td>
<td>Circuit Emulation with 16 E1 ports</td>
</tr>
<tr>
<td>PSU-AC</td>
<td>Power conversion from 110/220VAC to 12VDC</td>
</tr>
<tr>
<td>PSU-DC</td>
<td>Power conversion from -48VDC to 12VDC</td>
</tr>
</tbody>
</table>
Specifications

**General**
- L3 wire speed forwarding rate
- Full or half duplex operation
- 24 ports All Fast Ethernet
- Auto MDI/MDIX
- 2 slot for various type of uplink

**Swiching Architecture**
- High speed non-blocking switch fabric
- Store and Forward switching
- 16K MAC address
- 4K Active 802.1Q VLAN support

**Features**
- ITU-T G.984 compliant
- 802.1D STP
- 802.1w RSTP
- 802.1s MSTP
- 802.1Q tagged VLAN
- 802.1ad LACP
- 802.1Q INQ85
- 802.1p Priority and Class of Service standard
- 802.3 Flow control standard
- 802.3ad Port trunking
- RFC 768 UDP
- RFC 783 TFTP
- RFC 791, 905, 919, 922 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 794 ICMPv6
- RFC 3376 ICMPv6
- RFC 1157 SNMP v1, RFC 1905 SNMP v2
- RFC 1213 MIB-II
- RFC 1492 TACACS+
- RFC 2096 IP Forwarding
- RFC 2338 VRRP
- ISO10589 IS-IS
- RFC 1757 RMON MIB (4 groups)
- RFC 2021, 2074 RMON II
- RFC 2271 SNMP Management frameworks
- RFC 1643 Ethernet MIB
- RFC 2233 Interface MIB
- RFC3195 Syslog
- RFC5318 Enterprise MIB
- RFC 4106 Web-based Management

Management
- RFC 854 Telnet
- RFC 959 FTP
- RFC 783 TFTP
- RFC 1157 SNMPv1
- RFC 1213 MIB-II
- RFC 1492 TACACS+
- RFC 2096 IP Forwarding
- RFC 2338 VRRP
- ISO10589 IS-IS
- RFC 1757 RMON MIB (4 groups)
- RFC 2021, 2074 RMON II
- RFC 2271 SNMP Management frameworks
- RFC 1643 Ethernet MIB
- RFC 2233 Interface MIB
- RFC3185 Syslog
- RFC5318 Enterprise MIB
- RFC 4106 Web-based Management

Physical and Environmental
- Dimension (WxHxD): 483x44x240 (mm)
- Operating Temperature: -20°C to 60°C
- Storage Temperature: -30°C to 70°C
- Humidity: 10% to 90% non-condensing
- Power: 100-220VAC, free voltage input (power consumption < 40W)
- Power Consumption: Max 40W when option modules fully loaded

Ordering Information

<table>
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<th>Part Name</th>
<th>Function</th>
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<tbody>
<tr>
<td>LMF</td>
<td>LST2024 Main Frame with 24 FE and 2 uplink slot</td>
</tr>
<tr>
<td>GPM</td>
<td>1-port GPM card for uplink</td>
</tr>
<tr>
<td>GEM</td>
<td>1-port 1000BaseT card for uplink</td>
</tr>
<tr>
<td>GFM</td>
<td>1-port 1000BaseT card for uplink as STP type</td>
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</table>

Descriptions

LST2024 GPON ONU is modular type GPON ONU used in small / medium size business building structures allowing the service provider to select uplink-interface card for each selected service. The uplink-interface contains GPON interface card and Gigabit Ethernet interface card.

Key Features

Flexible architecture for business user
- Rack-mountable main frame with 19” 1RU height
- Modular design with various uplink
  - GPON uplink interface with 2.5G for downstream, 1.25G for upstream
  - Gigabit uplink interface as 1000BaseT or 1000BaseF

Environment-friendly and cost-effective design
- Lower CO2 emission due to minimized power consumption
- 24 Built-in 10/100BaseT ports for subscriber

Fully compatible SW architecture
- Compliant to ITU-T G.984: AES, FEC, DBA, 8 T-cont, 32 Port-ID
- L2 bridge/Switching: 802.1p(VLAN), 802.1q(4Q), IGMP snooping
- Remote OAM: Remote download, Alarm, Optical monitoring

Environment-hardened HW
- 100/220VAC free voltage input (power consumption < 40W)
- Temperature -20°C to 60°C, Humidity 10% to 90% (Non condensing)
**GPON Solution**

**GPON ONT LST402**

**Descriptions**
LST402 GPON ONT is wall-mountable residential equipment supporting the both 4 FE and 2 VoIP interface. This model are adaptive to deliver IP based service such as high speed data, IPTV, and VoIP.

**Specification**
- Simple architecture with user-friendly interface
- • Wall/Desktop mountable indoor ONT (DxWxH): 127x170x40 (mm)
- • Support of triple service
  - 4 x 10/100BaseT ports for subscriber
  - 2 x VoIP ports for subscriber
- • Remote OAM: Remote download, Alarm, Optical monitoring
- ITU-T G.984 GPON fully complying GPON interface
  - • SFF type laser compliant with ITU-T G.984.2 Amd1, Class B+
  - 2.5Gbps downstream, 1.25G upstream (1490nm/1310nm)
  - • Min. 20km length
- • Support single T-CONT mode and multiple T-CONTs mode
- • Support of ASE-128, FEC, DBA and 802.1p mapper service
- • Enhanced GPON performance with max. 40 T-CONT and 256 Port-ID
- • OMCI interface fully meets ITU-T G.984.4 and G.983.2
- • L2 bridge/switching: 802.1q(VLAN), 802.1p(4Q), IGMP snooping
- • VLAN tagging per Ethernet port and VLAN stacking (Q-in-Q)
- • MAC address limit and Rate limit
- • IGMP-v2/v3 snooping for IP-TV multicast service
- • VoIP service connecting to analog telephone with RJ11 connector
  - • Embedded DSP for two VoIP protocol (H.248 or SIP)
  - • Multiple codecs including G.711/G.729/G.723.1
  - • 5-REN per line, balanced ring at 55V RMS and 54ms Echo cancellation
  - • Support various CLASS services - Caller ID, Call Waiting, Call Forwarding, Call Transfer, Three Way Calling, Distinctive Ringing, etc
  - • G.711 for FAX and T.38 FAX
- • Environment-hardened HW
  - • 12V 3A, AC adaptor (Power consumption <15W)
  - • Temperature -5~50℃, Humidity 10~85% (Non condensing)
  - • EN, CE certified

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>LST402</td>
<td>GPON ONT with 4FE and 2VoIP</td>
</tr>
<tr>
<td>LST10G</td>
<td>GPON ONT with 1GE and 1FE</td>
</tr>
<tr>
<td>LST11G</td>
<td>GPON ONT with 1GE, 1FE and 1VoIP</td>
</tr>
</tbody>
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**GPON Solution**

**GPON ONT LST110G/LST111G**

**Descriptions**
LST110G/LST111G GPON ONT is wall-mountable residential equipment supporting the 1 FE and 1GE or 1 FE, 1 GE and 2 VoIP interface, respectively. These model are adaptive to deliver IP based service such as high speed data, IPTV, and VoIP.

**Specification**
- Simple architecture with user-friendly interface
- • Wall/Desktop mountable indoor ONT (DxWxH): 127x170x40 (mm)
- • Support of triple service
  - 1 x 10/100BaseT port and 1 x 10/100/1000BaseT port for subscriber
  - 2 x VoIP ports for subscriber
- • Remote OAM: Remote download, Alarm, Optical monitoring
- ITU-T G.984 standard fully complying GPON interface
  - • SFF type laser compliant with ITU-T G.984.2 Amd1, Class B+
  - 2.5Gbps downstream, 1.25G upstream (1490nm/1310nm)
  - • Min. 20km length
- • Support single T-CONT mode and multiple T-CONTs mode
- • Support of ASE-128, FEC, DBA and 802.1p mapper service
- • Enhanced GPON performance with max. 40 T-CONT and 256 Port-ID
- • OMCI interface fully meets ITU-T G.984.4 and G.983.2
- • L2 bridge/switching: 802.1q(VLAN), 802.1p(4Q), IGMP snooping
- • VLAN tagging per Ethernet port and VLAN stacking (Q-in-Q)
- • MAC address limit and Rate limit
- • IGMP-v2/v3 snooping for IP-TV multicast service
- • VoIP service connecting to analog telephone with RJ11 connector
  - • Embedded DSP for two VoIP protocol (H.248 or SIP)
  - • Multiple codecs including G.711/G.729/G.723.1
  - • 5-REN per line, balanced ring at 55V RMS and 54ms Echo cancellation
  - • Support various CLASS services - Caller ID, Call Waiting, Call Forwarding, Call Transfer, Three Way Calling, Distinctive Ringing, etc
  - • G.711 for FAX and T.38 FAX
- • Environment-hardened HW
  - • 12V 3A, AC adaptor (Power consumption <15W)
  - • Temperature -5~50℃, Humidity 10~85% (Non condensing)
  - • EN, CE certified

**Ordering Information**

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<th>Model</th>
<th>Description</th>
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<td>LST110G</td>
<td>GPON ONT with 1GE and 1FE</td>
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<tr>
<td>LST111G</td>
<td>GPON ONT with 1GE, 1FE and 1VoIP</td>
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</table>
### GPON Solution

#### GPON ONT LST020G/LST022G

**Descriptions**

LST110G/LST111G GPON ONT is wall-mountable residential equipment supporting the 1 FE and 1GE or 1 FE, 1 GE and 2 VoIP interface, respectively. These models are adaptive to deliver IP-based service such as high-speed data, IPTV, and VoIP.

**Specification**

Simple architecture with user-friendly interface

- Wall/Desktop mountable indoor ONT (DxWxH): 110x160x35 (mm)
- Support of triple service
  - 2 x 10/100BaseT ports for subscriber
  - 2 x VoIP ports for subscriber
- Remote OAM: Remote download, Alarm, Optical monitoring

GPON interface fully compliant with ITU-T G.984 standard

- SFF type laser compliant with ITU-T G.984.2 Amd1, Class B+
  - 2.5Gbps downstream/1.25G upstream (1490nm/1310nm)
  - Min. 20Km length
- Support of ASE-128, FEC, DBA and 802.1p mapper service
- Enhanced GPON performance with max. 8 T-cont and 256 Port-ID
- Standard compliant OMCI interface as defined by ITU-T G.984.4 and G.983.2

L2 bridge/switching: 802.1q(VLAN), 802.1p(4Q), IGMP snooping

- Up to 1K MAC address and 4 VLAN group
- VLAN tagging per Ethernet port and VLAN stacking (Q-in-Q)
- IEEE 802.1x port-based and MAC-based network access control
- IGMP v2/v3 snooping/proxy for multicasting IP-TV service
- MAC address flood guard for DoS attack prevention

Environment-hardened HW

- 5V 2A, AC adaptor (Power consumption <10W)
- Temperature 0~50℃, Humidity 5~90% (Non condensing)
- ETSI, CE certified

#### Ordering Information

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<th>Description</th>
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<td>GPON ONT with 2GE</td>
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<tr>
<td>LST022G</td>
<td>GPON ONT with 2GE and 2VoIP</td>
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</table>

### GPON Solution

#### GPON ONT LST400F

**Descriptions**

LST400F GPON ONT is the wall-mountable residential equipment optimized for data only subscribers. It is supporting the both of 4 FE and 2 VoIP interface. This model is adaptive to deliver IP-based service such as high-speed data, IPTV, and VoIP.

**Specification**

Simple architecture with user-friendly interface

- Wall/Desktop mountable indoor ONT (DxWxH): 110x160x35 (mm)
- Support of triple service
  - 4 x 10/100BaseT ports for subscriber
- Remote OAM: Remote download, Alarm, Optical monitoring

GPON interface fully compliant with ITU-T G.984 standard

- SFF type laser compliant with ITU-T G.984.2 Amd1, Class B+
  - 2.5Gbps downstream/1.25G upstream (1490nm/1310nm)
  - Min. 20Km length
- Support of ASE-128, FEC, DBA and 802.1p mapper service
- Enhanced GPON performance with max. 8 T-cont and 256 Port-ID
- Standard compliant OMCI interface as defined by ITU-T G.984.4 and G.983.2

L2 bridge/switching: 802.1q(VLAN), 802.1p(4Q), IGMP snooping

- Up to 1K MAC address and 4 VLAN group
- VLAN tagging per Ethernet port and VLAN stacking (Q-in-Q)
- IEEE 802.1x port-based and MAC-based network access control
- IGMP v2/v3 snooping/proxy for multicasting IP-TV service
- MAC address flood guard for DoS attack prevention

Environment-hardened HW

- 5V 2A, AC adaptor (Power consumption <10W)
- Temperature 0~50℃, Humidity 5~90% (Non condensing)
- ETSI, CE certified

#### Ordering Information

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<td>GPON ONT with 4FE</td>
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<tr>
<td>LST410G</td>
<td>GPON ONT with 4GE</td>
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<tr>
<td>LST422G</td>
<td>GPON ONT with 4GE and 2VoIP</td>
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**GPON Solution**

**GPON ONT LST020G/LST022G**

**GPON ONT LST400F**

**GPON ONT LST410G/LST422G**

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**POTS interface with RJ11 connector for LST022G**

- Embedded DSP for two VoIP protocol (H.248, H.323v4 or MGCP)
- Multiple codecs including G.711G, 729G, 723.1
- 5-64Kbps per line, blanced ring at 55V RMS
- Max of 64mac fixed, adaptive echo cancellation buffer
- CID, DTMF, VAC, CNE, G.168 & T.38 Fax relay
- G.711 for FAX and T.38 FAX

Environment-hardened HW

- 5V 2A, AC adaptor (Power consumption <10W)
- Temperature 0~50℃, Humidity 5~90% (Non condensing)
- ETSI, CE certified
GPON Solution
GPON ONT LST442E/LST422E

Descriptions
As GPON SBU (Single Business Unit) equipment, ONT LST442E/LST422E incorporates interoperability, key customers’ specific requirements and cost-efficiency. Equipped with ITU-T G.984 compliant, supporting both 4FE and VoIP interface including voice, video, and high speed internet access. To serve the business customers, it also supports E1 transmission over the PON network, based on CES (Circuit Emulation) technology.

Specification
Simple architecture with user-friendly interface
- Wall/Desktop mountable indoor ONT (DxWxH): 200x267x66 (mm)
- Support of triple service as well as TDM service
- 4 x 10/100BaseT ports and 2xVoIP ports for subscriber
- 2 or 4 E1 interface for subscriber

ITU-T G.984 fully complying GPON interface
- SFF type laser compliant with ITU-T G.984.2 Amd1, Class B+
- 2.5Gbps downstream/1.25G upstream (1490nm/1310nm)
- Support of ASE-128, FEC, DBA and 802.1p mapper service
- Enhanced GPON performance with max. 8 T-cont and 256 Port-ID

L2 bridge/switching: 802.1q(VLAN), 802.1p(4Q), IGMP snooping
- VLAN tagging per Ethernet port and VLAN stacking (Q-in-Q)
- IGMP snooping v2/v3 for IP-TV multicast service

VoIP service connecting to analog telephone with RJ11 connector
- Embedded DSP for two VoIP protocol (H.248 or SIP)
- Multiple codecs including G.711/G.729/G.723.1
- Supports various CLASS services – CID, CW, CF, CT, Call Toggle, Three Way Calling, etc

E1 TDM interface with RJ48 connector using CES technology
- E1T, MEF and ITU-T standard compliant encapsulation
- Conformance with ITU-T G.703 and G.704
- Multiple timing recovering mode
- Selectable system timing sources when applicable
- Compliant with G.823, ETSI EN 300 912 or G.824 specifications clauses dealing with frequency stability and accuracy

Environment-hardened HW
- 12V 3A, AC adaptor (Power consumption <15W)
- Temperature -5~50°C, Humidity 10~85% (Non condensing)
- ETSI, CE certified

Ordering Information
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<th>LST422E</th>
<th>LST412V</th>
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<tr>
<td>GPON ONT with 4FE, 2VoIP and 4 E1</td>
<td>GPON ONT with 4FE, 2VoIP and 2 E1</td>
<td>GPON ONT with 4FE, 2VoIP and 1 RF video</td>
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</table>

GPON Solution
GPON ONT LST412V

Descriptions
LST412V GPON ONT is wall-mountable residential equipment supporting the 4FE, 2VoIP as well as 1 RF video.

Specification
Simple architecture with user-friendly interface
- Wall/Desktop mountable indoor ONT (DxWxH): 200x267x66 (mm)
- Supports triple and TDM service
- 4 x 10/100BaseT ports and 2xVoIP ports for subscriber
- 2 or 4 E1 interface for subscriber

ITU-T G.984 standard fully complying GPON interface
- SFF type laser compliant with ITU-T G.984.2 Amd1, Class B+
- 2.5Gbps downstream/1.25G upstream (1490nm/1310nm)
- Support of ASE-128, FEC, DBA and 802.1p mapper service
- Enhanced GPON performance with max. 8 T-cont and 256 Port-ID

L2 bridge/switching: 802.1q(VLAN), 802.1p(4Q), IGMP snooping
- VLAN tagging per Ethernet port and VLAN stacking (Q-in-Q)
- IGMP snooping for IP-TV multicast service

VoIP service connecting to analog telephone with RJ11 connector
- Embedded DSP for two VoIP protocol (H.248 or SIP)
- Multiple codecs including G.711/G.729/G.723.1
- Supports various CLASS services – CID, CW, CF, CT, Call Toggle, Three Way Calling, etc

Analog RF video interface with 75Ohm F connector
- Compliant to ITU-T G.984.2 for optical specification
- Wavelength: 1540nm~1560nm and Optical input power: -8 ~ +2dBm
- Full RF range 46MHz~870MHz with 14dBmV
- Stability and accuracy

Environment-hardened HW
- 12V 3A, AC adaptor (Power consumption <15W)
- Temperature -5~50°C, Humidity 10~85% (Non condensing)
- ETSI, CE certified

GPON ONT LST442E/LST422E

GPON Solution
GPON Solution

Outdoor GPON ONT LST204A

Descriptions
LST204 is located on the subscriber side over the GPON network to provide multiple services such as Internet data service, voice service, video service, IPTV, and CATV overlay. This system is adequate for Fiber To The Home (FTTH).

LST204 is outdoor cabinet type, which basically provides Ethernet 2 ports and POTS (VoIP) 4 ports and mainly installed on the outside of a detached house or a townhouse. Additionally, the CATV is available for the option.

Specification
Simple architecture with user-friendly interface
- Wall mountable outdoor ONT
- Support of triple service and optional RF video TDM service
- 2 x 10/100BaseT ports for subscriber
- 4 VoIP interface for subscriber

GPON interface is fully compliant with ITU-T G.984 standard
- SFF type laser compliant with ITU-T G.984.2 Amd1, Class B+
- 2.5Gbps downstream/1.25G upstream (1490nm/1310nm)
- Support of ASE-128, FEC, DBA

L2 bridge switching: 802.1q(vLAN), 802.1p(vQ)
- NAC management and port-based rate limiting
- IGMP v2 snooping for multicasting IP-TV service

VoIP service connecting to analog telephone with RJ11 connector
- Embedded DSP for two VoIP protocol (H.248 or SIP)
- Multiple codecs including G.711A/G.729/G.723.1
- Support various CLASS services – CID, CW, CF, CT, Three Way Calling, etc

Environment-hardened HW
- Water-proof outdoor closure
- Built-in splicing tray
- 12V 2A, AC adapter (Power consumption <12W)
- Temperature -5~50°C, Humidity 10~85% (Non condensing)
- CE certified

Ordering Information
<table>
<thead>
<tr>
<th>LST204A</th>
<th>Outdoor GPON ONT with 2FE and 4VoIP</th>
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<tbody>
<tr>
<td>ODBK</td>
<td>Outdoor closure for GPON ONT</td>
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GPON Solution

GPON EMS

Descriptions
LS EMS will provide the service operator centrally monitoring and management by using fully redundant single application software with the required hardware platform (Unix platform) with high availability capability of software, application, database and hardware to proactively manage and monitor all Active EMS network elements, namely the OLT and the ONU and its services.

Specification
Management and monitoring of all the NE with following functionalities:
- Fault Management
- Performance Management
- Configuration Management
- Security Management

User-friendly GUI interface in unix-based platform.
- Topology Management: physical and logical graphical topology view.
- Resource Management: record the inventory of the network resources and the service creation.
- EMS Log Management: record of all network and EMS activities and the security audit trail.

Centralized operation and maintenance (O&M) of the NE
- Single EMS platform with In-band management
- Interface and integration with other existing or B/OSS (Business/Operation Support EMS)

1+1 active-active server redundancy for high reliability
- High Availability (HA) features in primary and secondary location with its connectivity for southbound and northbound interface.

Web based client access

Ordering Information
| LEMS2000 | LS Element Management System |

1
Descriptions

LSTE9024 EPON OLT is L3 based multi service platform providing flexible number of GEPON ports and GE ports combination up to 24 ports including 2 x 10G uplink ports for future migration.

Key Features

OLT configuration
• 19” rack-mountable main frame: 482mm x 177(mm) x 280(mm), (W x H x D)
• Up to 20 GEPON ports supports for max 640 subscriber accommodation
• Flexible GE(Gigabit Ethernet) uplink interface up to 10GE ports
• FAN is integrated with main shelf, but it is detachable

Switching & routing function
• Non-block 24G L2 bridgeswitching: 802.1q(VLAN), 802.1p(4Q), IGMP snooping
• L3 routing protocol: RIP v1/v2, OSPF v1/v2, BGP+
• IP multicast with PIM-SSM, IGMP v2, IGMP snooping
• 32K MAC address table & 4K 802.1Q VLAN
• 8 ports/group Link aggregation (802.3ad)

Dual mode operation of GEPON and Turbo GEPON
• IEEE802.3ah MPCP, DAM compliant
• 1.25G(1.25G/1.25G) GEPON for 32 splits (max. 30Mbps BW allocation for subscriber)
• State-of-art 2.5G(2.5G/2.5G) GEPON for 64 splits

Network management
• CLI, telnet & SNMP v1/2 based network control
• Remote system upgrade using FTP, TFTP protocol

Environment-hardened HW
• AC 200~240VAC or DC -42.5~-56.5V (power consumption < 700W)
• Temperature 0~40℃, Humidity 20~80% (Non-condensing)

Ordering Information

LSTE9024 EPON OLT with 4FE, 2VoIP and 1 RF video port

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFP</td>
<td>LSTE9024 GEPON shelf with FAN</td>
</tr>
<tr>
<td>PUE1</td>
<td>1-25G GEPON Line card</td>
</tr>
<tr>
<td>PUE2</td>
<td>Turbo3.3 GEPON Line card</td>
</tr>
<tr>
<td>SCU</td>
<td>SCU-PC CPU unit</td>
</tr>
<tr>
<td></td>
<td>SCU-PS Switch unit</td>
</tr>
<tr>
<td>LU</td>
<td>4-ports 10GBase-LP type</td>
</tr>
<tr>
<td>XU</td>
<td>1-port 10GBase-LP Type</td>
</tr>
<tr>
<td>PSU-PA</td>
<td>AC power unit</td>
</tr>
<tr>
<td>PSU-PD</td>
<td>DC power unit</td>
</tr>
</tbody>
</table>

Specifications

General
- L2/3 wire speed forwarding rate
- Full or half duplex operation
- 8 ports All Gig1000Base-X or 1000 Base-T or 100Base-Fx Installed
- Auto MDI/MDI-X
- Auto MDI/MDI-X
- 20 Ports PON interface

Switching Architecture
- High speed non-blocking switch fabric
- Store and Forward switching
- 32K MAC address
- 4K 802.1Q VLAN
- 8 ports/group Link aggregation (802.3ad)

Features
- 802.3ah GEPON
- 802.1D STP
- 802.1w RSTP
- 802.1s MSTP
- 802.1Q tagged VLAN
- Q-in-Q Stacked VLAN
- IGMP snooping
- IGMP report proxy
- Broadcast/Multicast storm filtering
- Port/Flow Base mirroring
- Per-port MAC address limiting
- MAC address filtering
- DHCP Server/Relay/Client
- DHCP Filtering
- NetBIOS, NetBEUI, NBT filtering
- 802.3ad Link aggregation
- IPvv6 3-OSPF-2/6-BGP4/5-LS
- IP Multicast with PIM-SSM, IGMP v2/3

Protocol and Standards
- 802.1Q Bridge standard
- 802.1p Priority and Class of Service standard
- 802.1Q VLAN standard
- 802.1s Multiple STP configuration
- 802.1w Rapid STP configuration
- 802.1x Authentication
- 802.3 10BaseT Ethernet standard
- 802.3ad Link aggregation

Management
- RFC 854 Telnet
- RFC 959 FTP
- RFC 783 TFTP
- RFC 791, 919, 922 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854, 855 Telnet
- RFC 859 FTP
- RFC 1112 IGMP
- RFC 2236 IGMPv2
- RFC 3276 IGMPv3
- RFC 1517 SNMPv1, RFC 1905 SNMPv2
- RFC 1213 MIB
- RFC 1293 Inverse ARP
- RFC 1305 NTPv3
- RFC 1350 TFTP
- RFC 1493 Bridge MIB

Physical and Environmental
- Dimensions (WidthxHeightxDepth): 440x325x44 (mm)
- Operating Temperature: 0℃~50℃
- Storage Temperature: -30℃~70℃
- Humidity: 10% to 90% non-condensing
- Power Consumption: Max 500W when option modules fully loaded
### EPON Solution

#### EPON ONU/ONT LSTE2024FE/LSTE400

**Descriptions**
LSTE2024FE provide the EPON uplink and 24FE.

#### EPON Solution

#### EPON ONU LSTE2024DSL

**Descriptions**
LST2024DSL provide the EPON uplink and 24 VDSL lines, respectively.

---

### Specification

**Architecture**
- 19" Rack mounted ONU: 440mm x 280mm x 44mm
- GEpon uplink interface with 1.25G for down and 1.25G for up
- 24 x 10/100BaseT ports

**Key Feature**
- Compliant to IEEE 802.3ah: AES, FEC, DBA
- L2 bridge/switching: 802.1q(VLAN), 802.1p(4Q), IGMP snooping, STP
- Remote OAM: Remote download, Alarm, Optical monitoring
- QoS: Classification, Marking/Remarking, SPQ, WRR, WFQ
- DHCP relay

**Power Supply**
- 220V AC (Power consumption <100W)
- Dying Gasp

**Operation Environment**
- Temperature -5~50℃, Humidity 10~85% (Non condensing)

---

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSTE2024FE</td>
<td>EPON ONU with 24FE port</td>
</tr>
<tr>
<td>LSTE400</td>
<td>EPON ONU with 4FE port</td>
</tr>
<tr>
<td>LSTE2024DSL</td>
<td>EPON ONU with 24 VDSL port</td>
</tr>
</tbody>
</table>
**Descriptions**

LST3524G Router Switch is the intelligent Ethernet router switch to provide the broadband multimedia service. LST3524G support the carrier-class availability, flexible scalability and strong security function accommodated by the professional experience.

**Key Features**

Flexible architecture for business user  
• Rack-mountable main frame with 19” 1RU height  
• 24 port Gigabit interface with 4-port combo interface

**Switching & routing function**  
• L2 bridge/switching: 802.1p(VLAN), 802.1q(4Q), IGMP snooping  
• L3 routing protocol: RIP, OSPF, BGP  
• IP multicast with PM-SM/SSM, IGMP, IGMP snooping  
• 32K MAC address table & 4K 802.1Q VLAN  
• 8 ports Jumbo Link Aggregation (802.3ad)  
• 802.1x Authentication  
• 802.1Q tagged VLAN  
• 802.1s Multiple STP  
• 802.1w Rapid STP  
• 802.3a Link Aggregation

**Traffic & security management**  
• Bandwidth management for each port  
• Prevention of CPU overflow  
• Broadcast/Multicast storm control  
• MAC, DHCP, NetBIOS, NetBEUI, NBT filtering  
• MAC address learning limiting per port  
• Support of TACACS+

**Network management**  
• CLI & telnet based control  
• SNMP v1/v2c based network control  
• Support of MIB-II, RMOD MB, Bridge MB  
• Remote system upgrade using FTP, TFTP protocol

**Environment-hardened HW**  
• 100~240VAC free voltage input (power consumption < 72W)  
• Temperature (0~50°C), Humidity (10~90%) (Non-condensing)

**Ordering Information**

LST3524G  
24 SFP Ports and 4 Ports combo Uplink

**Specifications**

**General**

- L2/3 wire speed forwarding rate  
- Full or half duplex operation  
- 24 ports All Gigabit(1000Base-X or 1000Base-T or 100Base-Fx) Installed  
- Auto MDI/MDI-X

**Switching Architecture**

- High speed non-blocking switch fabric  
- Store and Forward switching  
- 32K MAC address  
- 4K Active 802.1Q VLAN support

**Features**

- 802.1D STP  
- 802.1w RSTP  
- 802.1s MSTP  
- 802.1Q tagged VLAN  
- Q-in-Q Stacked VLAN  
- IGMP snooping  
- IGMP report proxy  
- Broadcast/Multicast storm filtering  
- Port/Flow Rate limiting  
- MAC, DHCP, NetBIOS, NetBEUI, NBT filtering  
- MAC address learning limiting per port  
- Support of TACACS+

**Protocol and Standards**

- 802.1D Bridge standard/STP1998 edition  
- 802.1p Priority and Class of Service standard  
- 802.1Q VLAN standard  
- 802.1s Multiple STP configuration  
- 802.1w Rapid STP configuration  
- 802.1x Authentication  
- 802.3a 10BaseT Ethernet standard  
- 802.3u Fast Ethernet standard

**Management**

- RFC 854 Telnet  
- RFC 959 FTP  
- RFC 783 TFTP  
- RFC 1157 SNMPv1/v2c  
- RFC 1213 MB-II  
- RFC 1499 Bridge MB

**Physical and Environmental**

- Dimension (WxDxH) :440x325x44 (mm)  
- Operating Temperature : 0℃ to 50℃  
- Storage Temperature : -30℃ to 70℃  
- Humidity : 10% to 90% non-condensing  
- Power Consumption: Max 74W when option modules populated
VoIP Gateway LST320VEF

Descriptions
LST320VEF is the 1.5U rack-mountable voice gateway subsidiary to make phone call over IP network with various signaling protocol such as SIP, MGCP. LST320VEF has 2 slots for pluggable I/O interface card for user interface which is composed of 16 voice port with RJ-11 connector. LST320VEF secures high quality of voice and provides stable performance. For the purpose of expanding voice port LST320VEF is cascaded to LST300U ONU and managed by a GUI based Management System.

Key Features
Flexible architecture for business user
• Rack mountable main frame with 19" 1.5RU height: 193.8mm x 43.7mm x 255.9mm
• Modular design with 2 pl
• 2 pluggable I/O slots for VoIP service (Max. 32 port)
• Internal fan controlled by temperature sensor

Switching & additional function
• VLAN and bridge feature
• User security by IP access list
• Remote software upgrade using FTP & TFTP
• IEEE 802.1p packet prioritization

Voice feature
• Various voice codecs: G.723.1, G.729a, G.729b, G.711
• RFC 3261 SIP protocol, H.248 and MGCP
• CID, DTMF, VAD, CNG, G.168 and T.38 G3 Fax Relay
• Max. 32ms fixed, adaptive jitter buffering
• Echo Cancellation Length – max. 128ms
• Traffic queuing and SNMP MIB v2 for Network Management
• Noise suppression, G.168-2002 Echo cancellation
• Voice quality of over MOS 4.0

Environment-hardened HW
• 200~250VAC free voltage input (power consumption < 80W)
• Temperature 0~50℃, Humidity 10~90% (Non condensing)

Environment-hardened HW
• 100~240VAC free voltage input (power consumption < 72W)
• Temperature 0~50℃, Humidity 10~90% (Non condensing)

Ordering Information
<table>
<thead>
<tr>
<th>Part Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDU</td>
<td>LST320VEF Main Frame with 2 slot</td>
</tr>
<tr>
<td>VC16</td>
<td>Voice Card with 16 VoIP Interfaces</td>
</tr>
</tbody>
</table>
Fiber Optic Cable and Connectivity

Optical Fibers and Cables
- Zero Water Peak Fiber (G652.D)
- Bend Insensitive Fiber (G657)
- Nonzero DSF (G655)
- Laser Optimized Multimode Fiber
- Outdoor Cable/Indoor Cable

Air Blown Solutions
- Air Blown Fiber Unit (EPFU)
- 3.5/5mm Outdoor Micro Duct
- 3.5/5mm Indoor Micro Duct (LSZH)
- Air Blown Cable (Ez Blow® Micro ABC)
- Micro Duct (Direct Install) for Ez Blow® Micro ABC
- Micro Duct (Direct Bury) for Ez Blow® Micro ABC

FTTH Drop Cables
- Flat Type Drop Cable Overview
- Flat Type Drop Cable
- Figure-8 Type Aerial Drop Cable
- Round Type Drop Cable

Connectivity
- Fiber Distribution Hub (FDH)
- Splitter & Panout Splitter
- Mount Splitter on ODF
- Fiber Optic Splice Closure
- Optical Distribution Frame (ODF)
- Optical Termination Box
- Fiber optic Outlet
- Fiber Distribution Rack
- Ez-SC, Field Installable Optical Connector
- Ez-SC Assembly Procedure
- Optical Patch Cords & Adapters
The PMD link design value is a term used to describe the PMD of concatenated lengths of fiber (also known as PMDQ). This value represents a statistical upper limit for total link PMD. Individual PMD values may change when cabled.

### Optical Properties

**Optical Fibers and Cables**

### Zero Water Peak Fiber (G652.D)

- **Key Features**
  - Extremely low water peak
  - Full spectrum from 1260nm to 1625nm
  - Designed to cover the entire wavelength

- **Optical Properties**
  - **Average Attenuation** (dB/km)
    - 1310nm: ≤0.24
    - 1380nm: ≤0.35
    - 1460nm: ≤0.21
    - 1550nm: ≤0.20
    - 1625nm: ≤0.21
  - **Mode Field Diameter** (㎛)
    - 1310nm: 8.9
    - 1550nm: 10.4
  - **Cutoff Wavelength** (nm)
    - 1550nm
  - **Chromatic Dispersion** (ps/(nm·km))
    - 1625nm: ≤0.34
    - 1550nm: ≤0.31
    - 1460nm: ≤0.34
    - 1310nm: ≤0.35
  - **Zero Dispersion Wavelength** (nm)
    - 1310–1324
  - **Slope @ λ₀** (ps/(nm²·km))
    - ≤0.092
  - **Macrobending Attenuation** (dB)
    - 1 turn, ø50mm 1310nm & 1550nm: ≤1.0
    - 1 turn, ø60mm 1625nm: ≤0.2
    - 100 turns, ø50mm 1310nm: ≤0.05
  - **PMD**
    - Link Design Value ≤0.06 ps/√km
    - Maximum Individual Fiber ≤0.2 ps/√km

---

### Bend Insensitive Fiber (G657)

- **Key Features**
  - Bend Insensitivity at 20° bending
  - Low water peak grade attenuation
  - G657.A: Compatible with G652.D
  - G657.B: FTTH optimized bending performance

- **Optical Properties**
  - **Average Attenuation** (dB/km)
    - 1310nm: ≤0.20
    - 1380nm: ≤0.21
    - 1550nm: ≤0.21
    - 1625nm: ≤0.22
  - **Mode Field Diameter** (㎛)
    - 1310nm: 9.2
    - 1550nm: 10.4
  - **Cutoff Wavelength** (nm)
    - 1550nm
  - **Chromatic Dispersion** (ps/(nm·km))
    - 1625nm: ≤0.20
    - 1550nm: ≤0.21
    - 1460nm: ≤0.21
    - 1310nm: ≤0.22
  - **Zero Dispersion Wavelength** (nm)
    - 1310–1324
  - **Slope @ λ₀** (ps/(nm²·km))
    - ≤0.092
  - **Macrobending Attenuation** (dB)
    - 1 turn, ø20mm 1550nm: ≤0.3
    - 1 turn, ø20mm 1625nm: ≤0.2
    - 100 turns, ø20mm: ≤0.05
    - 100 turns, ø60mm: ≤0.2
  - **PMD**
    - Link Design Value ≤0.06 ps/√km
    - Maximum Individual Fiber ≤0.2 ps/√km

---

### Descriptions

- **Optical Fibers and Cables**
  - **Zero Water Peak Fiber (G652.D)**
    - Long term attenuation reliability by absence of hydrogen aging defects
    - Excellent geometrical properties for active alignment splicing technique
    - Extremely low PMD performance

- **Bend Insensitive Fiber (G657)**
  - Germanium doped core and silica cladding
  - Dual protective arylate coating applied over fiber
  - Environmental-proof tested and complying ITU-T Standards
### Optical Properties

**Key Features**

- Provide optimum performance for 10Gb/s 50GHz channel spacing in the C band
- Make it feasible the next generation 40 Gb/s transmission system
- Compatible with future DWDM amplifier regions such as S band
- Wide band design provide CVDIM application
- Enhanced PMD performance

**Optical Properties**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>850nm</th>
<th>1300nm</th>
<th>1550nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation coefficient dB/km</td>
<td>≤2.4</td>
<td>≤2.8</td>
<td>≤2.4</td>
</tr>
<tr>
<td>Bandwidth MHz.km</td>
<td>≥400</td>
<td>≥400</td>
<td>≥2000</td>
</tr>
<tr>
<td>Numerical Aperture (typical)</td>
<td>0.2</td>
<td>0.275</td>
<td>0.2</td>
</tr>
<tr>
<td>DMD ps/m</td>
<td>≤0.10</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Distance m</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

### Descriptions

**LSC DreamLightTM** is designed for long-haul, high data rate and high capacity DWDM systems.

By optimizing dispersion and effective area, the generation of non-linear effects in 50 GHz channel spacing system is successfully surpassed.

**Key Features**

- High performance Laser Optimized MMF produced using a sophisticated MCVD process
- High bandwidth and low attenuation to ensure attenuation margin in LAN/WAN
- Uniform DMD profile for 10Giga data rate

**Optical Fibers and Cables**

**Nonzero DSF (G655)**

- Provides optimum performance for 10Gb/s 50GHz channel spacing in the C band
- Compatible with future DWDM amplifier regions such as S band
- Wide band design provides CWDM application
- Enhanced PMD performance

**Optical Fibers and Cables**

**Laser Optimized Multimode Fiber**

- High performance Laser Optimized MMF produced using a sophisticated MCVD process
- High bandwidth and low attenuation to ensure attenuation margin in LAN/WAN
- Uniform DMD profile for 10Giga data rate
<table>
<thead>
<tr>
<th>Outdoor Cable</th>
<th>Type</th>
<th>Construction</th>
<th>Fiber count</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Loose Tub</td>
<td>2–676</td>
<td>The Loose tube designs from LS Cable meet the needs for customer’s requirements, and provide excellent performance. LS offers various cables with increased fiber density and easy deployment for a wide range of installations, including duct, aerial (lashed and self-supporting), direct buried, and outdoor/indoor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ribbon Central Loose Tube</td>
<td>24–432</td>
<td>The Central Ribbon Cable designs meet the needs of the variety of applications. These cables are available in all dry designs with dielectric and metallic sheath.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ribbon Multi Loose</td>
<td>72–864</td>
<td>The Central Ribbon Cable designs meet the needs of the variety of applications. Ribbon cable can be deployed in a limited space, while streamlining fiber termination and saving time and money with easy mass fusion splicing. These cables are available in all dry designs with dielectric and metallic sheath.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ribbon Slot</td>
<td>4–1000</td>
<td>LS’s ribbon slot cable provides excellent optical transmission and physical performance. Ribbon slot cable is a design that has high tensile strength and flexibility in a compact cable size for use in conduit, direct buried and aerial applications.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micro Unit</td>
<td>2–144</td>
<td>High capacity &amp; fiber density Advanced “dry-water blocking materials” Virtually gel-free design Rapid installation (small &amp; lightweight) Easy break-out of bundles &amp; tubes (QAW)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADSS</td>
<td>2–288</td>
<td>ADSS Optical Cables are all-dielectric, self-supporting aerial cables designed for easy and economical installation. High modulus aramid yarns provide high tensile strength and long term reliability.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indoor Cable</th>
<th>Type</th>
<th>Construction</th>
<th>Fiber count</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplex &amp; Duplex cord</td>
<td>1 or 2</td>
<td>Short Run Office &amp; Computer Room Cabling Patch cords, Pigtails and Jumpers Equipment Interconnects OFNR (riser rated), OFNP (plenum rated) or LSZH (low smoke zero halogen rated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution (single Unit)</td>
<td>2 – 24</td>
<td>TDistribution cables are rugged, high performance optical communication cables for inside plant installations Backbone &amp; Computer Room Cabling Compact design for limited conduit space OFNR (riser rated), OFNP (plenum rated) or LSZH (low smoke zero halogen rated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution (Sub Unit)</td>
<td>24 or 144</td>
<td>The Central Ribbon Cable designs meet the needs of the variety of applications. Ribbon cable can be deployed in a limited space, while streamlining fiber termination and saving time and money with easy mass fusion splicing. These cables are available in all dry designs with dielectric and metallic sheath.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakout</td>
<td>3 – 12</td>
<td>Distribution cables are rugged, high performance optical communication cables for inside plant installations Backbone &amp; Computer Room Cabling Compact design for limited conduit space OFNR (riser rated), OFNP (plenum rated) or LSZH (low smoke zero halogen rated) Direct Termination on 2.0 mm Sub-Units.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2 Fiber Unit (with ripcord)

<table>
<thead>
<tr>
<th>Diameter</th>
<th>1.02 ± 0.06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>0.90 ± 0.05</td>
</tr>
<tr>
<td>Fibers colors</td>
<td>Blue, Orange</td>
</tr>
<tr>
<td>Fiber Type</td>
<td>SM, 50MMF, 62.5MMF</td>
</tr>
</tbody>
</table>

4 Fiber Unit

<table>
<thead>
<tr>
<th>Diameter</th>
<th>1.02 ± 0.06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>0.90 ± 0.05</td>
</tr>
<tr>
<td>Fibers colors</td>
<td>Blue, Orange, Green, Red</td>
</tr>
<tr>
<td>Fiber Type</td>
<td>SM, 50MMF, 62.5MMF</td>
</tr>
</tbody>
</table>

8 Fiber Unit

<table>
<thead>
<tr>
<th>Diameter</th>
<th>1.40 ± 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>1.70 ± 0.05</td>
</tr>
<tr>
<td>Fibers colors</td>
<td>Blue, Orange, Green, Red, Grey, Yellow, Brown, Violet</td>
</tr>
<tr>
<td>Fiber Type</td>
<td>SM, 50MMF, 62.5MMF</td>
</tr>
</tbody>
</table>

12 Fiber Unit

<table>
<thead>
<tr>
<th>Diameter</th>
<th>1.55 ± 0.07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>2.20 ± 0.05</td>
</tr>
<tr>
<td>Fibers colors</td>
<td>Blue, Orange, Green, Red, Grey, Yellow, Brown, Violet, Black, White, Pink, Turquoise</td>
</tr>
<tr>
<td>Fiber Type</td>
<td>SM, 50MMF, 62.5MMF</td>
</tr>
</tbody>
</table>

Optical Properties

<table>
<thead>
<tr>
<th>Wavelength (nm)</th>
<th>Single Mode (62.5/125)</th>
<th>MMF (50/125)</th>
<th>Multi Mode (62.5/125)</th>
<th>Multi Mode (50/125)</th>
</tr>
</thead>
<tbody>
<tr>
<td>850</td>
<td>-</td>
<td>-</td>
<td>3.5</td>
<td>2.6</td>
</tr>
<tr>
<td>1300</td>
<td>0.38</td>
<td>0.36</td>
<td>1.0</td>
<td>0.8</td>
</tr>
<tr>
<td>1380</td>
<td>0.28</td>
<td>0.25</td>
<td>-</td>
<td>-</td>
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<tr>
<td>1550</td>
<td>-</td>
<td>-</td>
<td>200</td>
<td>500</td>
</tr>
<tr>
<td>1300/1310</td>
<td>-</td>
<td>-</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>850nm</td>
<td>Min. Modal</td>
<td>-</td>
<td>200</td>
<td>500</td>
</tr>
<tr>
<td>1300/1310</td>
<td>-</td>
<td>-</td>
<td>600</td>
<td>500</td>
</tr>
</tbody>
</table>

Fibers Colors
- Blue, Orange, Green, Red, Grey, Yellow, Brown, Violet
- Blue, Orange, Green, Red, Grey, Yellow, Brown, Violet, Black, White, Pink, Turquoise
- Blue, Orange, Green, Red, Grey, Yellow, Brown, Violet, Black, White, Pink, Turquoise

Mechanical & Environmental Properties

<table>
<thead>
<tr>
<th>Test</th>
<th>Standard</th>
<th>Condition</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>IEC 60794-1-2 E1</td>
<td>9.81 x W N ≤ 0.4%</td>
<td>PASS</td>
</tr>
<tr>
<td>Crush</td>
<td>IEC 60794-1-2 E3</td>
<td>100N, 60 seconds</td>
<td>No change in Attenuation After test</td>
</tr>
<tr>
<td>Bend</td>
<td>IEC 60794-1-2 E12</td>
<td>40mm (2 &amp; 4 F/F) 60mm (8 F)</td>
<td>No change in Attenuation After test</td>
</tr>
<tr>
<td>Cold Test</td>
<td>BS EN 60068-1-1</td>
<td>≤ -20°C 96hrs</td>
<td>PASS</td>
</tr>
<tr>
<td>Change of Temperature (Conduction)</td>
<td>BS EN 60068-2-28</td>
<td>-10°C to 65°C for 10cycles RH 95% Cycle Duration: 240hrs</td>
<td>PASS</td>
</tr>
<tr>
<td>Temperature Cycle</td>
<td>IEC 60794-1-2 F1</td>
<td>≤ -15°C to 60°C for 5cycles</td>
<td>PASS</td>
</tr>
<tr>
<td>Water Immersion</td>
<td>CW 1500 Pyr4 3.2-4</td>
<td>≤ +20°C to +20°C for 2000hrs</td>
<td>PASS</td>
</tr>
</tbody>
</table>
Features & Benefits

- The tube bundle is protected by a polyethylene sheath with an aluminum water barrier bonded inside.
- No tensile risk to fibers, since they are installed later.
- Can be customized to suit user requirements.
- Low weight, low cost product, with great flexibility.
- DB bundles have all the advantages of the DI design, but with an additional tough sheath that acts like a subduct once buried, with superior resistance to crush, distortion and corrosion.

Product List and Installation Guide Line (Direct Install)

<table>
<thead>
<tr>
<th>No. of Tube</th>
<th>Nom. O.D. (mm)</th>
<th>Min. Bend Radius (mm)</th>
<th>Tube No.</th>
<th>Nom. Weight (kg)</th>
<th>Max. Drum Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.4</td>
<td>85</td>
<td>500</td>
<td>50</td>
<td>4000</td>
</tr>
<tr>
<td>2</td>
<td>8.5 X 13.5</td>
<td>135</td>
<td>800</td>
<td>78</td>
<td>4000</td>
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<tr>
<td>4</td>
<td>15.4</td>
<td>300</td>
<td>1200</td>
<td>121</td>
<td>4000</td>
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<tr>
<td>7</td>
<td>18.5</td>
<td>280</td>
<td>1700</td>
<td>167</td>
<td>4000</td>
</tr>
<tr>
<td>12</td>
<td>23.7</td>
<td>355</td>
<td>2500</td>
<td>247</td>
<td>2000</td>
</tr>
<tr>
<td>19</td>
<td>27.8</td>
<td>420</td>
<td>3500</td>
<td>338</td>
<td>2000</td>
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<tr>
<td>24</td>
<td>33.0</td>
<td>500</td>
<td>3800</td>
<td>440</td>
<td>2000</td>
</tr>
</tbody>
</table>

Product List and Installation Guide Line (Direct Bury)

<table>
<thead>
<tr>
<th>No. of Tube</th>
<th>Nom. O.D. (mm)</th>
<th>Min. Bend Radius (mm)</th>
<th>Tube No. (W)</th>
<th>Nom. Weight (kg)</th>
<th>Max. Drum Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.0</td>
<td>85</td>
<td>600</td>
<td>67</td>
<td>4000</td>
</tr>
<tr>
<td>2</td>
<td>10.5 X 15.5</td>
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<td>800</td>
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<tr>
<td>4</td>
<td>19.4</td>
<td>300</td>
<td>1500</td>
<td>162</td>
<td>4000</td>
</tr>
<tr>
<td>7</td>
<td>22.3</td>
<td>280</td>
<td>1800</td>
<td>208</td>
<td>4000</td>
</tr>
<tr>
<td>12</td>
<td>28.3</td>
<td>355</td>
<td>2700</td>
<td>377</td>
<td>2000</td>
</tr>
<tr>
<td>19</td>
<td>31.1</td>
<td>420</td>
<td>3500</td>
<td>485</td>
<td>2000</td>
</tr>
<tr>
<td>24</td>
<td>36.8</td>
<td>500</td>
<td>4800</td>
<td>560</td>
<td>2000</td>
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</tbody>
</table>

Mechanical Properties

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Test Condition</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile</td>
<td>IEC 60794-1-2 E1</td>
<td>Applied load refer to Tensile above Table 5 minute</td>
<td>PASS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No permanent damage, or localized diameter reductions greater than 7%</td>
<td></td>
</tr>
<tr>
<td>Crush</td>
<td>IEC 60794-1-2 E2</td>
<td>700N/60seconds for Direct In-duct type and 1,000N/60 seconds for Direct In Bury type</td>
<td>PASS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No permanent residual deformation greater than 15%, no splitting, no permanent damage</td>
<td></td>
</tr>
</tbody>
</table>

Features & Benefits

- The tube cables with flame retardant material.
- No tensile risk to fibers, since they are installed later; when required - Low Smoke Emission and no contains halogens- Low installation tension required.
- Can be customized to suit user requirements.

Product List and Installation Guide Line

<table>
<thead>
<tr>
<th>No. of Tube</th>
<th>Nom. O.D. (mm)</th>
<th>Min. Bend Radius (mm)</th>
<th>Tube No. (W)</th>
<th>Nom. Weight (kg)</th>
<th>Max. Drum Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.4</td>
<td>75</td>
<td>100</td>
<td>95</td>
<td>4000</td>
</tr>
<tr>
<td>2</td>
<td>7.4 X 12.4</td>
<td>150</td>
<td>250</td>
<td>80</td>
<td>4000</td>
</tr>
<tr>
<td>4</td>
<td>14.5</td>
<td>290</td>
<td>600</td>
<td>130</td>
<td>4000</td>
</tr>
<tr>
<td>7</td>
<td>17.4</td>
<td>265</td>
<td>600</td>
<td>195</td>
<td>4000</td>
</tr>
<tr>
<td>12</td>
<td>23.8</td>
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<tr>
<td>19</td>
<td>26.7</td>
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<td>440</td>
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<td>24</td>
<td>32.5</td>
<td>490</td>
<td>1800</td>
<td>585</td>
<td>2000</td>
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</table>

Mechanical Properties

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Test Condition</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile</td>
<td>IEC 60794-1-2 E1</td>
<td>Applied load refer to Tensile above Table 5 minute</td>
<td>PASS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No permanent damage, or localized diameter reductions greater than 7%</td>
<td></td>
</tr>
<tr>
<td>Crush</td>
<td>IEC 60794-1-2 E3</td>
<td>300N 60seconds then removed, Wait 1 hour</td>
<td>PASS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No permanent residual deformation greater than 15%, no splitting, no permanent damage</td>
<td></td>
</tr>
<tr>
<td>Flame retardant</td>
<td>IEC60332-1 &amp; 3</td>
<td>PASS</td>
<td></td>
</tr>
<tr>
<td>Smoke emission</td>
<td>IEC61834-1/2</td>
<td>PASS</td>
<td></td>
</tr>
<tr>
<td>Halogen contents</td>
<td>IEC60754-1</td>
<td>PASS</td>
<td></td>
</tr>
<tr>
<td>Acidity</td>
<td>IEC60754</td>
<td>PASS</td>
<td></td>
</tr>
</tbody>
</table>
**Features & Benefits**

- All dielectric Single Jacket Multi Loose Tube cables are UV-stabilized, fully water blocked for Micro duct applications.
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- This lightweight cable offers durability and flexibility required for many outside plant uses.
- RoHS (Restriction of the use of Certain Hazardous Substances Directive)
- Tefcorda GR-20-CORE
- IEC 60793 / IEC 60794

**Specification Sheet**

<table>
<thead>
<tr>
<th>Fiber Counts</th>
<th>Max 24</th>
<th>Max 32</th>
<th>96</th>
<th>144</th>
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</thead>
<tbody>
<tr>
<td>Outer Diameter (mm)</td>
<td>Nom. 4.5</td>
<td>Nom. 5.8</td>
<td>Nom. 6.8</td>
<td>Nom. 8.0</td>
</tr>
<tr>
<td>Cable Weight (kg/km)</td>
<td>19</td>
<td>28</td>
<td>48</td>
<td>67</td>
</tr>
<tr>
<td>Minimum Bending Installation Radius (mm)</td>
<td>90</td>
<td>120</td>
<td>140</td>
<td>180</td>
</tr>
<tr>
<td>Residual</td>
<td>45</td>
<td>60</td>
<td>70</td>
<td>90</td>
</tr>
<tr>
<td>Maximum Tensile Loading (N)</td>
<td>-500</td>
<td>800</td>
<td>900</td>
<td>1000</td>
</tr>
<tr>
<td>Incidental</td>
<td>150</td>
<td>150</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td>Installation Operation</td>
<td>-10°C ~ +40°C</td>
<td>-10°C ~ +40°C</td>
<td>-10°C ~ +40°C</td>
<td>-10°C ~ +40°C</td>
</tr>
<tr>
<td>Storage</td>
<td>-40°C ~ +70°C</td>
<td>-40°C ~ +70°C</td>
<td>-40°C ~ +70°C</td>
<td>-40°C ~ +70°C</td>
</tr>
<tr>
<td>Sheath material</td>
<td>Nylon or HDPE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber Type</td>
<td>G.652b &amp; d, SMF 62.5/125(MP)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>G.653</td>
<td>5.5/7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommendation of Duct Size (ODX2 mm)</td>
<td>6/8</td>
<td>8/10</td>
<td>9/12</td>
<td>10/12</td>
</tr>
<tr>
<td>8/10</td>
<td>10/12</td>
<td>12/14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blowing Distance</td>
<td>2000m</td>
<td>2000m</td>
<td>1000m</td>
<td>1000m</td>
</tr>
<tr>
<td>2000m</td>
<td>2000m</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Shipping Information**

- Standard Reel Length: 4000m
- * Other cable lengths may be available upon request.

**Test Result from Blowing of 96F Ez Blow® Micro ABC in Test Site (Micro duct size O.D/X: 10/8mm)**

- The micro cable was blown the total length of 1100 m in just over 35 minutes in this test.
- The cable comparing with others in the market has excellent blowing performance.

**Schematic Air Blown Cable Installation Route (96F Ez Blow® Micro ABC)**

- Optical Fiber
- Filling Compound
- Loose Buffer Tubes
- Strength Member
- Water Blocking Yarn
- Ripcord
- Jacket

**Graph showing test result from blowing of micro ABC in test site.**

- Equipment: PR-140 from Plumettaz with 6.1~6.5mm steel tire (U-groove)
- Compressor: KAESER M12E
  - Air capacity (m³/min): 0.82 m³/min
  - Working pressure: 13.0 bar (g)
- Installation method: Start to install the cable 100m without any air (120m/min)
  - Gradually increase the airflow as shown in the installation manual.
Air Blown Solutions

Micro Duct (Direct Install) for Ez Blow® Micro ABC

Features & Benefits
• The tube bundle is protected by a polyethylene sheath with an aluminum water barrier bonded inside.
• No tensile risk to fibers, since they are installed later.
• Can be customized to suit user requirements
• Low weight, low cost product, with great flexibility

Product List and Installation Guide Line

<table>
<thead>
<tr>
<th>Tube Size (O.D/I.D.)</th>
<th>No. of Tube</th>
<th>Nom. O.D. (mm)</th>
<th>Min. Bend Radius (mm)</th>
<th>Tensile (N)</th>
<th>Max. Drum length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>13.7</td>
<td>150</td>
<td>800</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>13.7 X 23.7</td>
<td>150</td>
<td>1200</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>27.9</td>
<td>420</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>33.8</td>
<td>510</td>
<td>1200</td>
<td>2000</td>
</tr>
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<td>15.4</td>
<td>160</td>
<td>1100</td>
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<td>15.4 X 27.4</td>
<td>160</td>
<td>1800</td>
<td>2000</td>
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<tr>
<td></td>
<td>4</td>
<td>32.8</td>
<td>500</td>
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<td></td>
<td>7</td>
<td>39.8</td>
<td>600</td>
<td>3500</td>
<td>1000</td>
</tr>
</tbody>
</table>

Mechanical Properties

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Test Condition</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>IEC 60794-1-2 E1</td>
<td>Applied load</td>
<td>PASS No permanent damage, or localized</td>
</tr>
<tr>
<td></td>
<td></td>
<td>refer to Tensile</td>
<td>diameter reductions greater than 7%</td>
</tr>
<tr>
<td>Crush</td>
<td>IEC 60794-1-2 E3</td>
<td>700N 60seconds</td>
<td>PASS No permanent residual deformation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>then removed,</td>
<td>greater than 15%, no splitting, no</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wait 1hour</td>
<td>permanent damage</td>
</tr>
</tbody>
</table>

Air Blown Solutions

Micro Duct (Direct Bury) for Ez Blow® Micro ABC

Features & Benefits
• DB bundles have all the advantages of the DI design, but with an additional tough sheath that acts like a subduct once buried, with superior resistance to crush, distortion and corrosion.
• No tensile risk to fibers, since they are installed later.
• Can be customized to suit user requirements

Product List and Installation Guide Line

<table>
<thead>
<tr>
<th>Tube Size (O.D/I.D.)</th>
<th>No. of Tube</th>
<th>Nom. O.D. (mm)</th>
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<th>Tensile (N)</th>
<th>Max. Drum length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>13.7</td>
<td>170</td>
<td>1000</td>
<td>2000</td>
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<tr>
<td></td>
<td>2</td>
<td>26.6 X 16.6</td>
<td>170</td>
<td>1500</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>30.9</td>
<td>470</td>
<td>2200</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>36.6</td>
<td>560</td>
<td>3000</td>
<td>1000</td>
</tr>
<tr>
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<td>20.8</td>
<td>250</td>
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<td>2000</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>20.8 X 32.8</td>
<td>250</td>
<td>3000</td>
<td>1000</td>
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<tr>
<td></td>
<td>4</td>
<td>37.8</td>
<td>570</td>
<td>4700</td>
<td>1000</td>
</tr>
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<td></td>
<td>7</td>
<td>44.8</td>
<td>680</td>
<td>4700</td>
<td>1000</td>
</tr>
</tbody>
</table>

Mechanical Properties

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Test Condition</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>IEC 60794-1-2 E1</td>
<td>Applied load</td>
<td>PASS No permanent damage, or localized</td>
</tr>
<tr>
<td></td>
<td></td>
<td>refer to Tensile</td>
<td>diameter reductions greater than 7%</td>
</tr>
<tr>
<td>Crush</td>
<td>IEC 60794-1-2 E3</td>
<td>1000N 60seconds</td>
<td>PASS No permanent residual deformation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>then removed,</td>
<td>greater than 15%, no splitting, no</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wait 1hour</td>
<td>permanent damage</td>
</tr>
</tbody>
</table>
**FTTH Drop Cables**

*FTTH Drop Cable Overview*

**Round Type Drop Cable**
- Suitable in/outdoor application (Duct and Aerial Installation is possible)
- Flame Retardant PU or LSZH jacket is available
- Small size and light weight
- Field-installable connector (Ez-SC) is available
- ITU-T G.657A, B fiber is available

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Nominal Diameter (mm)</th>
<th>Nominal Weight (kg/km)</th>
<th>Maximum Tensile Load (N)</th>
<th>Crush Load (N/cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>3.0</td>
<td>8</td>
<td>500</td>
<td>50kg/50mm</td>
</tr>
</tbody>
</table>

**Environmental Characteristics**
- Operation Temperature: -40°C to +70°C
- Storage Temperature: -40°C to +70°C

---

**Flat Type Drop Cable**
- Suitable for indoor & duct application
- Flame Retardant LDH jacket is applied
- Excellent crush and impact resistance
- Field-installable connector (Ez-SC) is available
- It is possible to supply pre-connectorized type
- ITU-T G.657A, B fiber is available

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Nominal Diameter (mm)</th>
<th>Nominal Weight (kg/km)</th>
<th>Maximum Tensile Load (N)</th>
<th>Crush Load (N/cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>1.9 x 3.5</td>
<td>10</td>
<td>150</td>
<td>50kg/50mm</td>
</tr>
</tbody>
</table>

**Environmental Characteristics**
- Operation Temperature: -20°C to +70°C
- Storage Temperature: -30°C to +70°C

---

**Figure-8 Type Aerial Drop Cable**
- Suitable outdoor application (Aerial installation)
- Flame Retardant PU jacket is available
- Metal or dielectric messenger wire is available
- Field-installable connector (Ez-SC) is available
- It is possible to supply pre-connectorized type
- ITU-T G.657A, B fiber is available

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Nominal Diameter (mm)</th>
<th>Nominal Weight (kg/km)</th>
<th>Maximum Tensile Load (N)</th>
<th>Crush Load (N/cm)</th>
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</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>3.0 x 2.8</td>
<td>11</td>
<td>1000</td>
<td>50kg/50mm</td>
</tr>
</tbody>
</table>

**Environmental Characteristics**
- Operation Temperature: -40°C to +70°C
- Storage Temperature: -40°C to +70°C

---

**Termination Box**

---

**Patch cord Drop Cable**

---

**Filed Installable connector**

---

**Closure**

---

**Manhole**

---

**Street Cabinet**

---

**PDF**

---

**Rack**

---

**ODF**

---
Connectivity
Fiber Distribution Hub (FDH)

Descriptions
LS Cable Fiber Distribution Hub is designed to provide a local convergence point for outside plant FTTH application, housing optical splitters that connect feeder cables from the central office to distribution cables serving customer premises. The FDH can accommodate trays for splitter modules, they provide termination and storage functions. The FDH has splitter capacity for 1x32, 1x16 and dual 1x8 modules. All splitter modules are compatible with all sized of FDH. All components of the FDH shall be of high quality design, workmanship and finish.

Features
• Intelligent design
• Simple and clearly arranged cable management
• Integrated slack storage spool
• All Front access
• Accommodates 12 or 24 splitter modules
• IEC 529 IP-54 Protected

Specification

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>FODH-288-A</th>
<th>FODH-432-A</th>
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</thead>
<tbody>
<tr>
<td>Dimension (H x W x D)</td>
<td>1100mm x 720mm x 520mm</td>
<td>990mm x 1320mm x 520mm</td>
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<tr>
<td>Max. Capacity</td>
<td>288</td>
<td>432</td>
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<tr>
<td>No. of Splitter Module</td>
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<td>24</td>
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<tr>
<td>Splitter Module Type</td>
<td>1:4 / 1:8 / 1:16 / 1:32</td>
<td></td>
</tr>
<tr>
<td>Cable port (In/Out)</td>
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<td>2/4</td>
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<tr>
<td>Cable Diameter Max.20 mm</td>
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<td></td>
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<tr>
<td>Adaptor Type</td>
<td>SC / FC</td>
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<tr>
<td>No. of Adaptor</td>
<td>288</td>
<td>432</td>
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<tr>
<td>Input Parking Lot</td>
<td>Max. 12</td>
<td>Max. 24</td>
</tr>
<tr>
<td>Output Parking Lot</td>
<td>Max. 48</td>
<td>Max. 96</td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum</td>
<td></td>
</tr>
<tr>
<td>Mounting Options</td>
<td>Ground / Pedestal / Pole</td>
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</tbody>
</table>
### Connectivity

#### Splitter & Panout Splitter

**Descriptions**

LS Cable supply high performance PLC (Planar Lightwave Circuit) Splitter Modules which are GR-1209-CORE, GR-1221-CORE requirements compliant. A single mode 1 x N Splitter has one input port and output ports (N) for dividing an optical signal.

#### Key Features

- **Low Insertion Loss**
- **Good Uniformity**
- **Wide Operation Wavelength Range**
- **Ultra Small Design**
- **GR-1209 & 1221-CORE Compliant**
- **Fine Tuning of FHD & PECVD**

#### Applications

- **FTTH, FTTB, FTTC**
- **CATV networks**
- **PON (Passive Optical Network) System**
- **Fiber Optic Equipment and System**

### Specification Sheet

<table>
<thead>
<tr>
<th>Model</th>
<th>1x4</th>
<th>1x8</th>
<th>1x16</th>
<th>1x32</th>
<th>2x4</th>
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<td>2xN</td>
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<th>40 x 4 x 4</th>
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<th>50 x 5 x 4</th>
<th>50 x 5 x 4</th>
<th>55 x 7 x 4</th>
<th>55 x 7 x 4</th>
<th>50 x 5 x 4</th>
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<td>40 x 4 x 4</td>
<td>50 x 5 x 4</td>
<td>55 x 7 x 4</td>
<td>50 x 5 x 4</td>
<td>50 x 5 x 4</td>
<td>60 x 7 x 4</td>
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</tr>
</tbody>
</table>

| Return Loss | ≥ 55dB |
| Directivity  | ≥ 55dB |
| Operating Wavelength | 1.26 - 1.60 µm |
| Temperature   | -40 - 80°C |

### Connectivity

#### Mount Splitter on ODF

**Descriptions**

- Rackmount Type Splitter is FTTH-Ready component and useful to set-up at a rack type system in a central office such as Equipment Room (ER) or Telecommunication Room (TR).
- There is no need to handle splitter module or optical fiber because all components are inside the frame.
- It includes a splitter inside the rackmount. (4ch, 8ch, 16ch, 32ch available)

#### Key Features

- **Same as LS’s Panout Splitter**
- **Fiber Termination/Connection Port Option**
- **Optical Splice Capability**
- **Compact Design**
- **Compatible with most cable management system**

#### Applications

- **Same as LS’s Panout Splitter**

### Part Number

<table>
<thead>
<tr>
<th>Model</th>
<th>In x out</th>
<th>Connector Type</th>
<th>Polishing type</th>
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<td>1x4</td>
<td>LC Simplex</td>
<td>SP : PC or SPC (RL w/40dB) for SM</td>
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<td></td>
<td>1x8</td>
<td>DLC : LC Duplex</td>
<td>UP : UPC (RL w/55dB) for SM</td>
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<tr>
<td></td>
<td>1x16</td>
<td>SC : SC Simplex</td>
<td>AP : APC (RL w/60dB) for SM</td>
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<tr>
<td></td>
<td>1x32</td>
<td>DSC : SC Duplex</td>
<td></td>
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<tr>
<td></td>
<td>2x4</td>
<td>ST : ST Simplex</td>
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</tr>
<tr>
<td></td>
<td>2x8</td>
<td>FC : FC Simplex</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2x16</td>
<td>MU : MU Simplex</td>
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<td></td>
<td>2x32</td>
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</tbody>
</table>
Connectivity
Fiber Optic Splice Closure

**Aerial/Manhole/Mounted Closure**

**Descriptions**

LS Cable Fiber Optic Closures are designed for efficient and scalable operation. It is meant to be infrastructure solutions for FTTH networks. The closure simplifies FTTH network installation, maintenance and management from central office to the each outside plants. The Closures provide for connections between fiber optic cables and passive optical splitters in the outside plant. The closure protects fiber optic splicing point and can be mounted to support aerial applications.

The special feature of FOSC-S-XX-YY/B/C is easy installation applying handle-locking structure which is non-bolt system to closure assembly. One-body structure supports easy and fast aerial installation. The cone type gasket allows to adjust the its diameter and completely protect water.

FOSC-T series is designed to terminate, splice and interconnect fiber optic cables in an outdoor environment. This enclosure accommodates FTTH applications by mounting to the exterior surface of a dwelling and connecting between the feeder cable and distribution cable to individual living units.

**Features**

- Qualified to GR-771-CORE for FOSC-S series
- Maximum 16 sc connector can be mounted for FOSC-S series
- Easy installation, specially for FOSC-S-XX-YY/B/C by applying handle-locking structure
- Accommodate any size of cable diameter
- Compact Design and High Strength
- Connector mounting available
- Environmental conservation structure and material

**Specification**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Dimension(LxWxH)</th>
<th>Weight</th>
<th>Max. Capacity</th>
<th>No. of Splice tray</th>
<th>Cable Port (In/Out)</th>
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<tbody>
<tr>
<td>FOSC-S-3.3-72-A</td>
<td>430 x 190 x 100</td>
<td>3.0</td>
<td>72C(144C)</td>
<td>3</td>
<td>3/3(Standard Smooth Gasket)</td>
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<tr>
<td>FOSC-S-3.3-192-C</td>
<td>430 x 190 x 135</td>
<td>4.2</td>
<td>192C(384C)</td>
<td>8</td>
<td>3/3</td>
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<tr>
<td>FOSC-S-3.3-144-A</td>
<td>430 x 190 x 110</td>
<td>3.0</td>
<td>72C(144C)</td>
<td>3</td>
<td>3/3</td>
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<tr>
<td>FOSC-S-3.3-288</td>
<td>375 x 340 x 145</td>
<td>8.5</td>
<td></td>
<td></td>
<td>3/3</td>
</tr>
</tbody>
</table>

**Dome Type Closure**

**Descriptions**

- Fiber Optic Splice Closures FOSC-D are designed for operational efficiency and scalability for FTTx infrastructure network solutions. The closure simplifies FTTH network installation, maintenance and management from central office to the each outside plants.
- FOSC-D provides connections between fiber optic cables and passive optical splitters in the outside plant. The closure protects fiber optic splicing point and can be mounted to support aerial and duct applications. FOSC-D have high mechanical strength against any environmental conditions and allows rapid network installation.

**Features**

- Simple and clearly arranged cable management.
- Engineered fiber routing protects bend radius throughout the unit to ensure signal integrity.
- Enough work space and efficient splicing.
- Double-layered sleeve guide

**Specification**

<table>
<thead>
<tr>
<th>Description</th>
<th>FOSC-D-3.3-72-A</th>
<th>FOSC-D-3.3-144-A</th>
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</thead>
<tbody>
<tr>
<td>Dimension (H*D)</td>
<td>560mm x ø 20mm</td>
<td>710mm x ø 22mm</td>
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<tr>
<td>Weight</td>
<td>3.5kg</td>
<td>7.0kg</td>
</tr>
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<td>Entrance</td>
<td>Single : 5 Oval : 1</td>
<td>Single : 6 Oval : 1</td>
</tr>
<tr>
<td>Suitable cable dia.</td>
<td>Single : less than Ø 20mm</td>
<td>Single : less than Ø 22mm</td>
</tr>
<tr>
<td>Max. No. of Splice tray</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Capacity of tray</td>
<td>Max : 24 cores</td>
<td></td>
</tr>
<tr>
<td>Max. Capacity</td>
<td>144</td>
<td>288</td>
</tr>
<tr>
<td>Splice method</td>
<td>Fusion</td>
<td>Fusion</td>
</tr>
<tr>
<td>Cable Blocking</td>
<td>Heat Shrinkable Tube</td>
<td>Heat Shrinkable Tube</td>
</tr>
<tr>
<td>Material</td>
<td>PP , ABS</td>
<td>PP , ABS</td>
</tr>
</tbody>
</table>

Simple and clearly arranged cable management.
- Engineered fiber routing protects bend radius throughout the unit to ensure signal integrity.
- Enough work space and efficient splicing.
- Double-layered sleeve guide
**Connectivity**

**Optical Distribution Frame (ODF)**

**Descriptions**
- LS ODFs (Optical Distribution Frame) provide efficient cable connections between outside plant cable and equipment in the buildings and communication facilities. ODF integrates fiber splicing, storage, and cable connections together in a single unit. The frontal access and the unique adaptor arrangement design will increase your work speed and maintenance efficiency.

**Application**
- Indoor installation.
- Rack Mountable Type.
- FTTH.
- Data communications.

**Descriptions**
- Durable and rust-free housings
- Efficient distribution capacity per unit space
- Easy identification, distribution and connection
- Low loss variation while operation
- All steel constructions except splice tray that is plastic

**Optical Termination Box**

**Descriptions**
- LS Cable Optical Termination Box is mounted to outside or inside wall of building to distribute and connect optical cable for distribution of subscribers. It is designed with controls that maintain the fiber bend radius throughout the unit on the segregated customer and provider sides. For convenient cable management, they provide termination, splicing and storage functions for fiber optic cable systems.

**Application**
- Outdoor installation.
- Wall / Pole Mountable Type.
- Distribution point for subscriber.
- FTTH.
- Data communications.

**Features**
- Simple and clearly arranged cable management.
- Engineered fiber routing protects bend radius throughout the unit to ensure signal integrity.
- Enough work space and efficient splicing.
- Splice tray has 4 way of in/outlet for easy installation.

**Specifications**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>FODF-R-S-SC-12</td>
<td>FODF-R-F-FC-24</td>
</tr>
<tr>
<td>Dimension (mm)</td>
<td>483x310x44 483x310x133 483x310x220 483x310x176</td>
</tr>
<tr>
<td>Fiber capacity</td>
<td>12 fibers 24 fibers 96 fibers 144 fibers</td>
</tr>
<tr>
<td>Unit</td>
<td>1U 3U 5U 4U</td>
</tr>
<tr>
<td>Cable port</td>
<td>1 2 3 2</td>
</tr>
<tr>
<td>Cable diameter</td>
<td>Ø8-32 Ø8-32 Ø8-32 Ø8-32</td>
</tr>
<tr>
<td>Number of splice tray</td>
<td>1 1 1 1</td>
</tr>
<tr>
<td>Splice tray capacity</td>
<td>12/100x100 24/100x100</td>
</tr>
<tr>
<td>Adaptor type</td>
<td>SC/FC FC SC SC</td>
</tr>
<tr>
<td>Splice method</td>
<td>Fusion Fusion Fusion Fusion</td>
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</tbody>
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**Specifications**

<table>
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<tr>
<td>Splice method</td>
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</tbody>
</table>
Connectivity

Fiber Optic Outlet

Descriptions

- LS Cable Fiber Optic Outlet FOOL-SCX-N-X is mounted to inside wall of building to distribute and connect optical cable for distribution of subscriber. FOOL-SCX-N-X is designed with controls that maintain the fiber bend radius throughout the unit on the segregated customer and provider sides. For convenient cable management, they support termination, splicing and storage functions for fiber optic cable systems. The outlet has a simple design and enough work space to arrange clearly for cable management, and engineered fiber routing protect bend radius through the unit to ensure signal integrity.

Application

- Outdoor installation.
- Wall / Pole Mountable Type.
- Distribution point for subscriber.
- FTTH.
- Data communications.

Specification

<table>
<thead>
<tr>
<th>Part Number</th>
<th>FOOL-SC2-N-A</th>
<th>FOOL-SC2-N-B</th>
<th>FOOL-SC8-N-A</th>
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<tbody>
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<td>Plastic</td>
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<tr>
<td>Color</td>
<td>White / Grey</td>
<td>White / Grey</td>
<td>White / Grey</td>
<td>White / Grey</td>
</tr>
<tr>
<td>Dimension</td>
<td>93mm x 185mm x 28mm</td>
<td>90mm x 150mm x 25mm</td>
<td>135mm x 170mm x 45mm</td>
<td>120mm x 70mm x 16mm</td>
</tr>
<tr>
<td>Capacity</td>
<td>2 FO</td>
<td>8 FO</td>
<td>2 FO / 1 Copper</td>
<td>2 FO / 1 Copper</td>
</tr>
<tr>
<td>Splicing</td>
<td>Fusion splice</td>
<td>Field Assembly Connector</td>
<td>Fusion splice</td>
<td>Field Installable Connector</td>
</tr>
<tr>
<td>Performance</td>
<td>Surplus Fiber Storage: ≥ 30 mm</td>
<td>Radius bending: ≥ 15 mm (G.657 fiber applied)</td>
<td>Surplus Fiber Storage: ≥ 30 mm</td>
<td>Radius bending: ≥ 15 mm (G.657 fiber applied)</td>
</tr>
<tr>
<td>Adapter Capacity</td>
<td>2 SC</td>
<td>8 SC</td>
<td>2 SC</td>
<td>2 SC</td>
</tr>
<tr>
<td>Cable Entry</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2 (Rear and Bottom)</td>
</tr>
<tr>
<td>Applied Cable Dia</td>
<td>3 ~ 6mm</td>
<td>3 ~ 6mm</td>
<td>3 ~ 6mm</td>
<td>3 ~ 6mm</td>
</tr>
<tr>
<td>Installation Type</td>
<td>Wall-flat Type</td>
<td>Wall-flat Type</td>
<td>Wall-flat Type</td>
<td>Wall-flat Type</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-20 ~ +50°C</td>
<td>-20 ~ +50°C</td>
<td>-20 ~ +50°C</td>
<td>-20 ~ +50°C</td>
</tr>
</tbody>
</table>

Cabinet Rack

Description & Application

All standard 19” cabinets generally conform to IEC297-Part1,2,3, (BA RS-310-C), (DIN 41494 100) ” standard. LS SimpleTM Cabinet Rack provides unsurpassed strength, stability and durability for supporting FDF, patch panels, high-density blocks, cabling and other telecommunication equipment.

- ULight Weight
- Material : 6063-T5 Aluminum Construction - 5.0T safety glass front door / slide latch type side door / 1.2T steel rear door / side, rear cable bracket / ground bar / caster and level foot
- UFinish - Ivory Powder Coat

Dimension

<table>
<thead>
<tr>
<th>No.</th>
<th>H (mm)</th>
<th>W (mm)</th>
<th>D (mm)</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,000</td>
<td>18</td>
<td>750</td>
<td>LS-CR-1000</td>
</tr>
<tr>
<td>2</td>
<td>1,200</td>
<td>22</td>
<td>750</td>
<td>LS-CR-1200</td>
</tr>
<tr>
<td>3</td>
<td>1,400</td>
<td>27</td>
<td>750</td>
<td>LS-CR-1400</td>
</tr>
<tr>
<td>4</td>
<td>1,600</td>
<td>31</td>
<td>750</td>
<td>LS-CR-1600</td>
</tr>
<tr>
<td>5</td>
<td>1,800</td>
<td>36</td>
<td>750</td>
<td>LS-CR-1800</td>
</tr>
<tr>
<td>6</td>
<td>2,000</td>
<td>40</td>
<td>750</td>
<td>LS-CR-2000</td>
</tr>
<tr>
<td>7</td>
<td>2,200</td>
<td>45</td>
<td>750</td>
<td>LS-CR-2200</td>
</tr>
</tbody>
</table>

Configuration

[Diagram of LS Fiber Distribution Rack]
Connectivity
Fiber Distribution Rack

Open Rack

Description & Application
All standard 19”, 23” rack generally conform to (IEC297-Part1,2,3), (BA RS-310-C), (DIN 41494 100) 19” standard. LS SimpleTM Open Rack provides unsurpassed strength, stability and durability for supporting FDF, patch panels, high-density blocks, cabling and other telecommunication equipment. Available various accessories.

• ULight weight
  Material : 6063-T5 Aluminum Construction. All 2 post vertical frames / 3.0T insulated plate / ground bar / rear cable bracket
• UOptions
  Rack Support(Min. 600 ~ Max.1200 mm)
  Plinths (H200, 250, 300mm)
  Vertical Cable Management
  Cable Bracket and Panels
• UFinish : Black Powder Coat

Dimensions

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>1,800</th>
<th>2,000</th>
<th>2,200</th>
<th>1,800</th>
<th>2,000</th>
<th>2,200</th>
<th>1,800</th>
<th>2,000</th>
<th>2,200</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Open Rack 19”</td>
<td>35</td>
<td>40</td>
<td>46</td>
<td>35</td>
<td>40</td>
<td>46</td>
<td>35</td>
<td>40</td>
<td>46</td>
</tr>
<tr>
<td>2</td>
<td>Open Rack 19”</td>
<td>36</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
</tr>
<tr>
<td>3</td>
<td>Open Rack 19”</td>
<td>600</td>
<td>360</td>
<td>360</td>
<td>600</td>
<td>360</td>
<td>360</td>
<td>600</td>
<td>360</td>
<td>360</td>
</tr>
<tr>
<td>4</td>
<td>Open Rack 23”</td>
<td>36</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
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</tr>
<tr>
<td>5</td>
<td>Open Rack 23”</td>
<td>700</td>
<td>700</td>
<td>700</td>
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<td>700</td>
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</tr>
<tr>
<td>6</td>
<td>Open Rack 23”</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>7</td>
<td>Vertical Rack</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>8</td>
<td>Vertical Rack</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>9</td>
<td>Vertical Rack</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

Configuration
Connectivity
Ez-SC, Field Installable Optical Connector

Descriptions
- Easy installation in the field without adhesive & polishing
- Compatible with conventional SC connector
- Performance exceeds ANSI/TIA/EIA-568-A
- Telcordia GR-1081-CORE

Key Features
- Easy operation & Quick assembly
- Connector & fiber re-use available
- Neither adhesive nor polishing necessary
- Additional tool does not necessary
- Can be installed to 0.25mm, 0.9mm and 3.0mm cord

Specification

<table>
<thead>
<tr>
<th>Item</th>
<th>Insertion Loss</th>
<th>Return Loss</th>
<th>Cable Retention</th>
<th>Application Cable Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤ Max. 0.5dB</td>
<td>≥ 45</td>
<td>≥ 12N</td>
<td>0.25mm fiber, 0.9mm tight buffer, 3.0mm cord or cable, 2.0mm Flat type cable</td>
</tr>
<tr>
<td></td>
<td>≤ Max. 0.5dB</td>
<td>≥ 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≤ Max. 0.5dB</td>
<td>≥ 60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Standard: IEC61754-4
- Operation Temperature: -40℃ to 70℃

Specification Sheet

1. Connector Type
   - SC : SC connector
   - LC : LC connector

2. Polishing type
   - PC : PC type
   - AS : APC type (Return loss ≤ 50)
   - AB : APC type (Return loss ≤ 60)

3. Cable outer Diameter
   - 0.25 : Fiber
   - 0.90 : 900μm Tight buffer
   - 2.00 : 2.0mm Flat
   - 3.00 : 3.0mm cord

Ez-SC Assembly Procedure

1. Boot: Insert in cable as above picture
2. Stripping coating around 20mm
3. Inserting cord after cleaning alcohol and fiber cutting(10mm) using tool
4. Inserting connector to Assembly tool
5. Inserting cable/fiber until bending occurs (important)
6. Push push-holder toward front
7-1. Connect Ez-SC to patch cord and beaming light (SUCCESS)
7-2. Connect Ez-SC to patch cord and beaming light (FAILUER)
8. Inserting boot
9. Inserting housing
10. Connection completed
Connectivity
Optical Patch Cords & Adaptor

SC type Patch Cord & Adaptor

- The most popular connector with 0.25mm diameter ferrule
- Used in a wide range of application
- Push-on design makes easy to connect or disconnect
- RoHS compliant

LC type Patch Cord & Adaptor

- Small form factor (SFF) connector with 1.25mm diameter ferrule
- Used in a wide range of application
- Simple push-on design same as RJ45 connector
- RoHS compliant

FC type Patch Cord & Adaptor

- Screw-coupled connector
- Used in a wide range of application
- RoHS compliant

Performance requirements for Optical Patch Cord

<table>
<thead>
<tr>
<th>Connector type</th>
<th>Fiber Type</th>
<th>SM (1310/1550nm)</th>
<th>MM (850/1310nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polishing Type</td>
<td>SPC</td>
<td>≤ 0.3 dB</td>
<td>≤ 0.75 dB</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>APC</td>
<td>≤ 0.4 dB</td>
<td>≤ APC</td>
</tr>
<tr>
<td>Return Loss</td>
<td>≥ 55 dB</td>
<td>≥ 25 dB</td>
<td>≥ 25 dB</td>
</tr>
</tbody>
</table>

Part Number Information

- Adapter/Connector Type
- Sleeve Material
- Housing Material
- Cable Type
- Cable Outer Diameter

Note: SPC(Super Physical Contact), UPC(Ultra Physical Contact), APC(Angled Physical Contact)
LS Cable is a proud vendor member of the Full Service Access Network Group, FSAN which is an interest group for the world’s leading telecommunications services providers, independent test labs, and equipment suppliers to work towards a common goal of truly broadband fiber access networks. The Mission of FSAN is to drive applicable standards, where they already exist, into the services and products in the industry, while simultaneously advancing its own specifications into the appropriate standard bodies to provide further definition to the Full Service Access Network. FSAN has more than 50 members representing the leading implementers of Gigabit rate G-PON and B-PON Passive Optical Networking. LS Cable has been actively testing Interoperability and Assessing the Implementation of ITU G.984 Standards, and also participating to establish Standards for FSAN members.

As a proud foundation member of FTTH council Asia Pacific, LS Cable has been enthusiastic board member representing all areas of broadband industries, including telecommunications, computing, networking, system integration, engineering and content-provider companies, as well as traditional telecommunications service providers, utilities and municipalities. Our aim is to educate, promote and accelerate FTTH and resulting economic and quality of life enhancements.
Products & Systems of LS Cable

**Power Transmission & Distribution System**
- Extra High Voltage Cable System
- Overhead Transmission Line System
- OPGW / Busduct System
- Onshore & Offshore Cable System
- Medium & Low Voltage Cable
- Control & Instrumentation Cable

**Telecommunication System**
- Optical Fiber
- Optical Fiber Cable
- RF Feeder Cable
- LAN Cable
- FTTH
- HFC (Hybrid Fiber Coaxial Cable)