LS Cable & System
Leading Solution

Simple™

Structured Cabling System


Energy Cables & Systems
LS Cable & System-setting the standards in power solution business
Industrial Materials
Realizing a convenient future with cutting-edge materials
Telecommunications
Providing cutting-edge, innovative technologies for a ubiquitous network
Integrated Modules & Cable Systems
Providing the best customized cable solutions for all environments

Total Solution Provider for Electric Power and Telecommunication Industries

LS Cable & System, the longtime de facto holding company of LS Group, officially transformed into a holding company in July of 2008. The company's operations now encompass a total solution for electric power and telecommunication industries.

The latest change in corporate structure comes as the company is accelerating efforts to improve management efficiency in rapidly expanding markets. The move also results from efforts to effect a more responsible and transparent management structure. Management is now prepared to take more aggressive action to enhance our businesses and to identify new growth engines. The holding company will take the lead in fostering new growth engines and in identifying lucrative investment opportunities, while the company's other business units will focus on improving management and on making operations more efficient. With the continued support of the holding company, LS Cable & System will spearhead efforts to strengthen our business expertise, corporate competitiveness and management.

Toward the Global Leading Cable Company

In August of 2008 LS Cable & System acquired Superior Essex, North America's largest cable company, making LS Cable & System the third-largest player in the global cable industry. Superior Essex's flagship line of magnet wires and telecommunication cables further strengthened LS Cable & System's product lineup, which had focused on power cables, fiber optic cables and industrial materials. Superior Essex's extensive North America and European production and distribution networks will help LS Cable & System cement a presence in the region and bring the company one step closer to becoming a full-fledged global enterprise.

Superior Essex

Superior Essex Inc., a FORTUNE 1,000 company, is one of the largest wire and cable manufacturers in the world. The company manufactures and supplies a broad portfolio of wire and cable products for the communications, energy, automotive, industrial, and commercial & residential end-markets. It is a leading manufacturer of magnet wire, fabricated insulation products, and copper and fiber optic communications wire and cable. It is also a leading distributor of magnet wire, insulation and related products.

LS Inbuilding Solution

System List

Structured Cabling System


01 Shield/Unshield 4pr Cable


02 Multi-pair Cable


03 Patch Panel


04 Modular Jack


05 Patch Cord


06 110 Block


07 Face Plate


08 Indoor FO Cable


09 ODF


10 Fiber Jumper Cord


11 Fiber Fl Connector


12 Rack


13 Multiplexer


14 Intelligent System

In-Building RF Solution


15 Yagi Antenna


16 Patch Antenna


17 Omni Antenna


18 Tapper


19 Splitter


20 Combiner


21 Repeater


22 RF Feeder Cable


23 RF Radiating Cable


24 RF Connector


25 RF Jumper Cord

LS U-IBS Solution

Product List

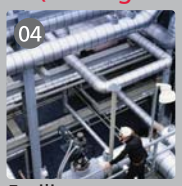
Total System Integration

SI
Integrated
Management

Center
Situational
Control

FMS
Facilities
Management

BA(Building Automation)



Facility
Facilities Control

Power
Power Control

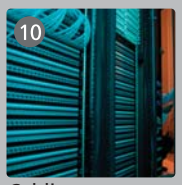
Light
Light Control

CCTV
Emergency Alarm

Entry
Entry Management

Parking
Parking
Management

TC(Telecommunication)



Cabling
Cabling
Management

Audio
Broadcasting
Management

Pos LAN
Non-stop Service

OA(Office Automation)

Guide
Building
Information

Station
Content Creation

Simple™

Structured Cabling System

Business should be simple, so keep it "Simple" with LS

Every organization around the world requires a reliable and fast IT network. Providing world-class performance, allowing them to stay ahead of their competitors and growing their business. Over the past two decades we have made massive advancements in technology, pushing the industries knowledge to the limit, giving our clients the best solutions for today and meeting tomorrow's requirements.

As the industry standard committees have developed and defined structured cabling standards, it has become even more important for end users to understand what solution best supports their requirements. Their networks are now required to carry traditional data at faster speeds and increasing volumes, voice using VoIP and video as well as information from building management systems. IP has become the language of the world, and is being used in more and more applications.

Having this vast array of information travelling across your network by wireless, optical or copper mediums can be extremely confusing for end users. Knowing exactly what to use and where, will maximize the return on your budget expenditure.

LS Cable & System has developed a range of solutions to make it simple for end users to know what they need and where they need it to meet their requirements. LS Simple™ provides a key platform for all involved in an IT network, from the end user, through to the system integrator and distributor. LS Cable & System has simplified the decision making process, on which IT network best meets your needs. This network is fully supported by a comprehensive warranty giving complete peace on mind for 25 years. This coupled with LS Cable & System's strict LS approved SI program, means the end users can be assured of receiving industry-leading networks anywhere in the world.

LS Cable & System has now simplified the decision of which structured cabling solution you require, giving our clients world class networks, with world-class support - Simple™.

Making it easier for our existing and potential clients to choose the right system for their requirements has never been more Simple.

LS Make It Simple

- **Simple™ solutions in copper and fiber**
- **Supported by Simple™ product designs**
- **Manufactured to the Simple™ highest level of quality**
- **Simple™ comprehensive warranty**
- **Simple™ approved SI's**
- **Simple™ distribution partners**

Contents

Simple™ Category 6A Solutions

Category 6A Channel

Category 6A U/UTP Cable 4 Pair

Category 6A F/UTP Cable 4 Pair

Category 6A Patch Panel

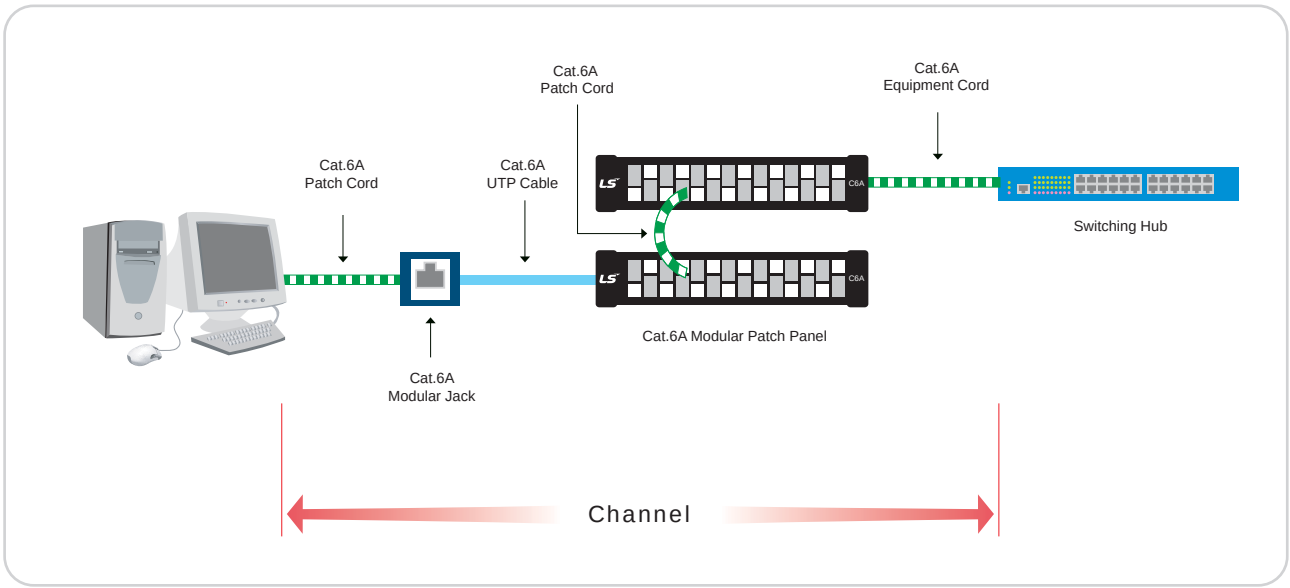
Category 6A Modular Jack

Category 6A Patch Cord

Third Party Accreditation (Category 6A)

Category 6A Channel

Diagram



Guaranteed Channel Performances

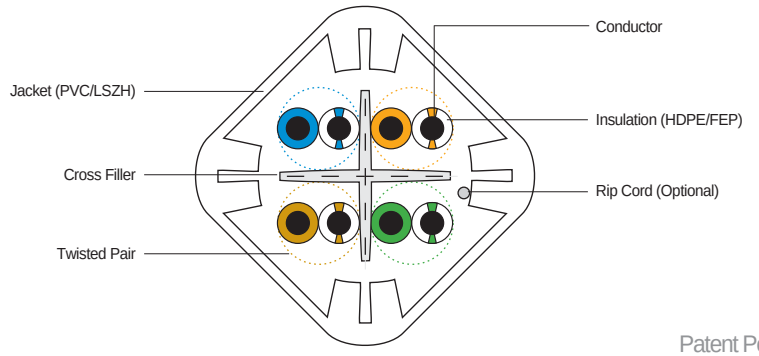
Frequency (MHz)	Attenuation (dB / 100m)	NEXT (dB)	PSNEXT (dB)	ELFEXT (dB / 100m)	PSELFEXT (dB / 100m)	Return Loss (dB)	PSANEXT (dB / 100m)	PSAELFEXT (dB / 100m)
1.00	2.3	65.0	62.0	63.3	60.3	19.0	82.0 *	77.9 *
4.00	4.2	63.0	60.5	51.2	48.2	19.0	76.0 *	65.9
8.00	5.9	58.2	55.6	45.2	42.2	19.0	73.0 *	59.8
10.00	6.6	56.6	54.0	43.3	40.3	19.0	72.0 *	57.9
16.00	8.3	53.2	50.6	39.2	36.2	18.0	70.0 *	53.8
20.00	9.3	51.6	49.0	37.2	34.2	17.5	69.0 *	51.9
25.00	10.5	50.0	47.3	35.3	32.3	17.0	68.0 *	49.9
31.25	11.7	48.4	45.7	33.4	30.4	16.5	67.1 *	48.0
62.50	16.9	43.4	40.6	27.3	24.3	14.0	64.0	42.0
100.00	21.7	39.9	37.1	23.3	20.3	12.0	62.0	37.9
200.00	31.7	34.8	31.9	17.2	14.2	9.0	57.5	31.9
250.00	35.9	33.1	30.2	15.3	12.3	8.0	56.0	29.9
300.00	39.8	31.7	28.8	13.7	10.7	7.2	54.8	28.4
400.00	46.9	26.8	23.8	11.2	8.2	6.0	53.0	25.9
500.00	53.4	22.0	19.0	9.3	6.3	6.0	51.5	23.9

* The figures larger than 67dB for PSANEXT and PSAELFEXT are information only.

Typical Channel Performance

Attenuation (dB / 100m)	NEXT (dB)	PSNEXT (dB)	ELFEXT (dB)	PSELFEXT (dB)	Return Loss (dB)	PSANEXT (dB / 100m)	PSAELFEXT (dB / 100m)
-10%	+8	+8	+10	+10	+8	+8	+10

Category 6A U/UTP Cable 4 Pair



Patent Pending

Description

- ETL Channel certification
- Capable of handling full broadband and baseband video signals
- High flame retardant grade of the cable is protected propagation of fire (Plenum Cable)
- Addition of balance requirements improves cable performance
- Electrical performances comply with TIA/EIA-568B.2-10
- Specialized print legend contains footage marking from 1000 'to 0', metric from 305 to 0m and dual marking footage and metric
- Wooden Reel is standard, so wire pulls through reel for easy access
- Alien Crosstalk and RoHS compliant

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000/10G BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- ATM LAN 1.2G

Part Numbers

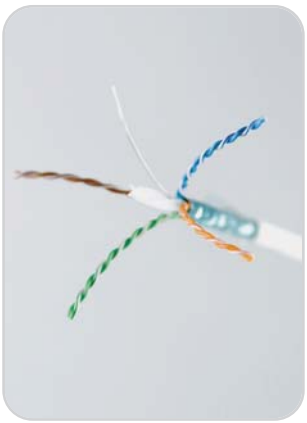
Description	Category 6A UTP Cable, 4-Pair				
Flame Retardant Grade	CMX	CM	CMR	CMP	LSZH
Part Numbers	UTP-A-C6G-E1VI-X 0.5 X 004P/(1)	UTP-A-C6G-E1VI-M 0.5X004P/(1)	UTP-A-C6G-E1VI-R 0.5X004P/(1)	UTP-A-C6G-F1VI-P 0.5X004P/(1)	UTP-A-C6G-E1ZI-X 0.5X004P/(1)

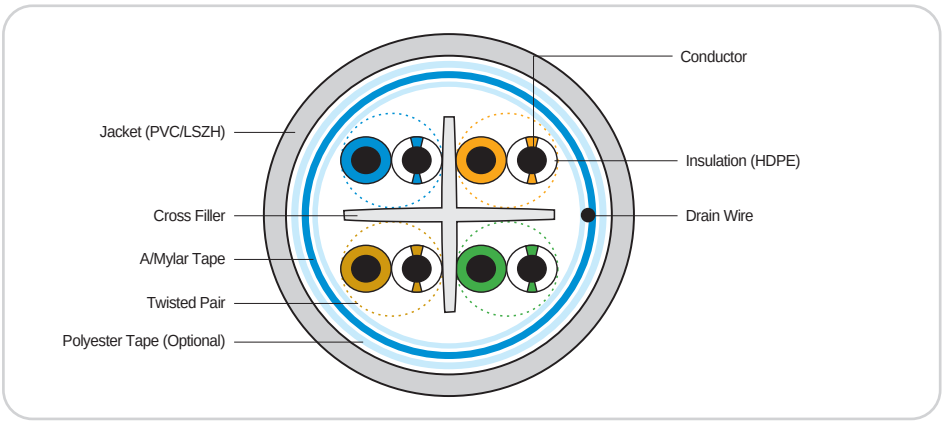
Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC / LSZH	Plenum
Conductor DC Resistance	Ohms/100 m	9.38	9.38
Resistance Unbalance	%	5	5
Mutual Capacitance	nF/100 m	5.6	5.6
Capacitance Unbalance	pF/100 m	330	330
Characteristic Impedance	Ohms	100 ±15%	100 ±15%
Propagation Delay	ns/100 m	536 @ 500MHz	536 @ 500 MHz
Delay Skew	ns	45	45
Nominal Velocity of Propagation	%	67	69
Operating Temperature	℃/ ℉	-20 ~ 60 / -4 ~ 140	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃/ ℉	-20 ~ 80 / -4 ~ 176	-20 ~ 80 / -4 ~ 176
Bending Radius		4 x Cable Diameter	4 x Cable Diameter
Packaging Type	305 m (1000ft)	Reel	Reel
Packaging Weight	lb/kft (kg/km)	37 (55)	43 (65)
Conductor Diameter / Material		23 AWG, Solid Copper	23 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.041 (1.05) ϕ, HDPE	0.041 (1.05) ϕ, FEP
Jacket Diameter / Material	inch (mm)	0.3543 (9.0) ϕ, PVC or LSZH (Low Smoke Zero Halogen)	0.3543 (9.0) ϕ, PVC (Plenum Rated)
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666 / CMP - UL910 / LSZH - IEC61034, IEC60754		
Approvals Performance	TIA/EIA-568-B.2-10 / ISO 11801 "Performance specifications for 100 Ohm Category 6A / EA Cabling"		

Category 6A F/UTP Cable 4 Pair





Description

- ETL Channel and UL Cable certification
- Capable of handling full broadband and baseband video signals
- High flame retardant grade of the cable is protected propagation of fire
- Addition of balance requirements improves cable performance
- Electrical performances comply with TIA/EIA-568B.2-10
- Specialized print legend contains footage marking from 1000 'to 0', metric from 305 to 0m and "DUAL MARKING" footage and metric
- Wooden Reel is standard, so wire pulls through reel for easy access
- RoHS Compliant

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000/10G BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- ATM LAN 1.2G

Part Numbers

Description	Category 6A FTP Cable, 4-Pair			
Flame Retardant Grade	CMX	CM	CMR	LSZH
Part Numbers	FTP-A-C6G-E1VN-X 0.5X004P/(1)	FTP-A-C6G-E1VN-M 0.5X004P/(1)	FTP-A-C6G-E1VN-R 0.5X004P/(1)	FTP-A-C6G-E1ZN-X 0.5X004P/(1)

Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC / LSZH
Conductor DC Resistance	Ohms/100 m	9.38
Resistance Unbalance	%	5
Mutual Capacitance	nF/100 m	5.6
Capacitance Unbalance	pF/100 m	330
Characteristic Impedance	Ohms	100 ±15%
Propagation Delay	ns/100 m	536 @ 500MHz
Delay Skew	ns	45
Nominal Velocity of Propagation	%	67
Operating Temperature	℃	-20 ~ 60
Storage Temperature	℃	-20 ~ 80
Bending Radius		4 x Cable Diameter
Packaging Type	305 m (1000ft)	Reel
Packaging Weight	lb/kft (kg/km)	43 (65)
Conductor Diameter / Material		23 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.045 (1.15) ϕ, HDPE
Jacket Diameter / Material	inch (mm)	0.307 (7.8)ϕ, PVC or LSZH (Low Smoke Zero Halogen)
Safety Standard, Performance Standard	CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666 / LSZH - IEC61034, IEC60754	
Approvals Performance	TIA/EIA-568-B.2-10 / ISO 11801 "Performance specifications for 100 Ohm Category 6A Cabling"	

Category 6A Patch Panel

Description

This PCB 1U patch panel comes complete with cable management, accessories and full installation instructions. It fully complies with the requirements set out in ANSI/TIA/EIA-568-B.2-10.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000/10G BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Dimension (H x W)	Part Number
24-Port Category 6A Unshielded Patch Panel of slim IDC with Wire Management	1.75″x 19″(1U)	LS-PP-UC6A-24P-WM-SI
24-Port Category 6A Shielded Patch Panel with Wire Management	1.75″x 19″(1U)	LS-PP-SC6A-24P-WM

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Insulation Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃~68℃ (-40℉~154℉)
- Humidity : 10%~90%RH
- IDC Accept : 22~26 AWG Solid Wire

Approvals

- Category : TIA/EIA-568-B.2-10
  Category 6A / ISO 11801 Category EA
- Meet : FCC CFR 47 Parts 68
- Wiring Scheme : T568A/T568B

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 30 or 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with100 Micro-inch (2.54 microns) Minimum Thick Tin
- Panel : Steel with Black Painting

Category 6A Modular Jack

Description

LS Simple™ Category 6A modular jacks are designed and manufactured to meet today's and tomorrow's demanding international standards. They take into consideration the need for reliable and quick installations. The Jack is individually terminated using Insulation Displacement Connectors (IDC) giving assurance of wire connection when using a punch down tool and handing tool for easy installation.
User instructions and basic wiring layout for standard configuration are included.
The LS Simple™ Modular Jack comes with the ability to wire to a T568A or T568B configuration and fully complies with TIA/EIA-568-B.2-10-Augmented Category 6 transmission Performance.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000/10G BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Part Number
90° Category 6A Unshielded Modular Jack of Slim IDC with T568A/B Label	LS-MJ-UC6A-XX-SI
90° Category 6A Shielded Modular Jack with T568A/B Label, Tool Less	LS-MJ-SC6A-XX-TL
180° Category 6A Shielded Modular Jack of RIDC with T568A/B Label, Tool less	LS-MJ-SC6A-XX-TL-RIDC

* XX Denotes Color : WH=White, BL=Blue * Fit with Empty Patch Panel

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Insulation Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max.
- Voltage :150 VAC Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃ ~ 68 ℃(-40 ℉ ~ 154 ℉)
- Humidity : 10% ~ 90%RH
- IDC Accept : 22~26 AWG Solid Wire

Approvals

- Category : TIA/EIA-568-B.2-10
  Category 6A / ISO 11801 Category EA
- Meet : FCC CFR 47 Parts 68
- Wiring Scheme : T568A/T568B

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with100 Micro-inch (2.54 microns) Minimum Thick Tin

Category 6A Patch Cord

Description

LS Simple™ Category 6A patch cords are factory terminated, providing the quality required to support your channel requirements. They are fully booted and have clip protection for simple removal. They offer a high performance alternative to satin modular line cords where crosstalk, EMI, or distance may be considerations. Cable consists of 24 AWG (0.51mm) wire, each four pair twisted at a different lay length.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000/10G BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Part Number
Unshielded Category 6A Patch Cord with T568B Wiring	LS-PC-UC6AX-YY-ZZZ
Shielded Category 6A Patch Cord with T568B Wiring	LS-PC-SC6AX-YY-ZZZ

X denotes jacket material : V=PVC, Z=LSZH
YY denotes color : WH=White, BL=Blue, YL=Yellow, RD=Red, GN=Green, GY=Grey
ZZZ denotes meter : 005(0.5m), 010(1m), 050(5m), etc

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Insulation Resistance : 500 Megohm Min.
- Contact Resistance : 20 Milli-ohm Max.
- Dielectric Strength : 1000 VAC (RMS)
- Voltage : 30 VAC Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -20℃ ~ 68℃ (-4℉ ~ 154℉)
- Humidity : 10% ~ 90%RH
- Contact Accept : 24~26 AWG Standard Wire

Approvals

- Category : TIA/EIA-568-B.2-10
  Category 6A / ISO 11801 Category EA
- Meet : FCC CFR 47 Part 68 and IEC 603-7
- Wiring Scheme : T568B

Materials

- Plug Housing : Polycarbonate (PC), UL 94V-2 Rated
- Contact Blade : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- Cable Jacket : PVC, LSZH

Third Party Accreditation (Category 6A)

Intertek ETL SEMKO

CERTIFICATE OF CONFORMANCE

This authorizes the application of the ETL Verified Mark shown below to the models described in the Product Description section when made in accordance with the conditions set forth in the Verification Agreement and Qualification Testing Report.

Certificate Number: 3121209CRT-002

Applicant:
LS Cable Ltd.
190 Gongdan-dong
Gumi-si, Gyeongbuk 730-708, Korea

Contact: Mr. Tae-Seong Yoo

Manufacturer:
LS Cable Ltd.
190 Gongdan-dong, Gumi,
Gyongsangbukdo, Korea

Mfg. Contact: Mr. Sang-Cheol Yeo

Product Description:

3 Connector Channel

Component ID	Manufacturer	Description	Part Number
1	LS Cable	Equipment Cord	LS-PC-SC6A-GY-003
2	LS Cable	Wall Outlet	LS-MJ-UCGA-WH
3	LS Cable	Horizontal Cable	486A 664-MGX
4	LS Cable	Patch Panel	LS-PP-UC6A-24P
1	LS Cable	Cross Connect	LS-PC-SC6A-GY-003

The components identified above have been tested and found to comply with the applicable electrical transmission characteristics specified in ANSI/TIA-568-B.2-10 Category 6A Draft 6.0.

This certificate, supported by your participation in the ETL Channel Verification Program, is authorization to apply the ETL Verification Mark to the Channel consisting of the components specified above. The marking shall include: ETL Verified Channel to ANSI/TIA-568-B.2-10 Category 6A Draft 6.0.

Continuing compliance to this specification is monitored through production testing, quarterly inspections by Intertek at the production facility and random sample testing.

Date ETL Verified: 4/19/2007 **Revised Date:** **Follow-up Test Date:**

Certificate Issued By: Kathy Heath
Kathy Heath, Program Administrator

This document is the property of Intertek ETL SEMKO and is not transferable. Only the Applicant may reproduce this document. The ETL Verified Mark may be applied only at the above noted location of the Party Authorized to Apply the Mark.

This document supersedes all previous ETL Verified Certificates of Conformance for the noted Certificate Number.

Intertek ETL SEMKO
3933 U.S. Route 11, Cortland, NY 13405
Telephone (607) 758-6641 or (800) 345-3851 Fax (607) 758-6637

Intertek

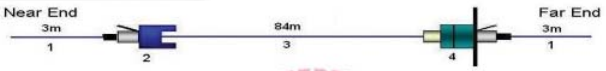
ATE OF CONFORMANCE

ETL Verified Mark shown below to the models described in the Product
cordance with the conditions set forth in the Verification Agreement and

ate Number: 3185300CRT-001a

Manufacturer:
LS Cable Ltd.
190 Gongdan-dong, Gumi,
Gyongsangbukdo, Korea

Mfg. Contact: Mr. Jin-Cheol Ahn



Product Description:

2 Connectors Channel

Component ID	Manufacturer	Description	Part Number
1	LS Cable	Equipment Cords	LS-PC-SC6AL-XX-030-SPLUG
2	LS Cable	Wall Outlet	LS-MJ-SC6A-XX-TL
2	LS Cable	Wall Mount Faceplate	LS-FP-US-6PORT
3	LS Cable	Horizontal Cable	FTP-A-C6G-E1VN-R
4	LS Cable	Outlet	LS-MJ-SC6A-XX-TL
4	LS Cable	Patch Panel	LS-PP-24P-E

The channel configuration identified above has been tested and found to comply with the applicable electrical transmission characteristics specified in ANSI/TIA-568-B.2-10 Category 6A Tested for all transmission parameters also including PSANEXT and PSAACRF Measurements.

This certificate, supported by your participation in the ETL Channel Verification Program, is authorization to apply the ETL Verification Mark to the Channel consisting of the components specified above. The marking shall include: ETL Verified Channel to ANSI/TIA-568-B.2-10 Category 6A Tested for all transmission parameters also including PSANEXT and PSAACRF Measurements.

Continuing compliance to this specification is monitored through production testing, quarterly inspections by Intertek at the production facility and random sample testing.

Date ETL Verified: 9/17/2009

Certificate Issued By: Kathy Heath
Kathy Heath, Program Administrator

Antoine Pelletier
Antoine Pelletier, Engineer

This document supersedes all previous ETL Verified Certificates of Conformance for the noted Certificate Number.

NOTE: This verification is part of the full test report(s) and should be read in conjunction with it.

This Verification is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to copy or distribute this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this Verification are relevant only to the sample tested. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Simple™ Category 6+ Solutions

Category 6+ U/UTP Cable 4 Pair

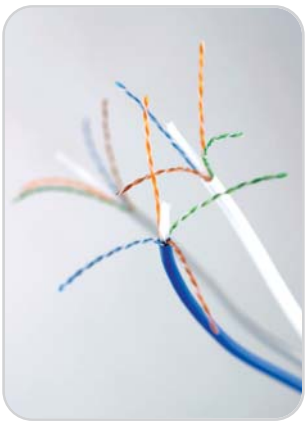
Category 6+ Unshielded Patch Panel

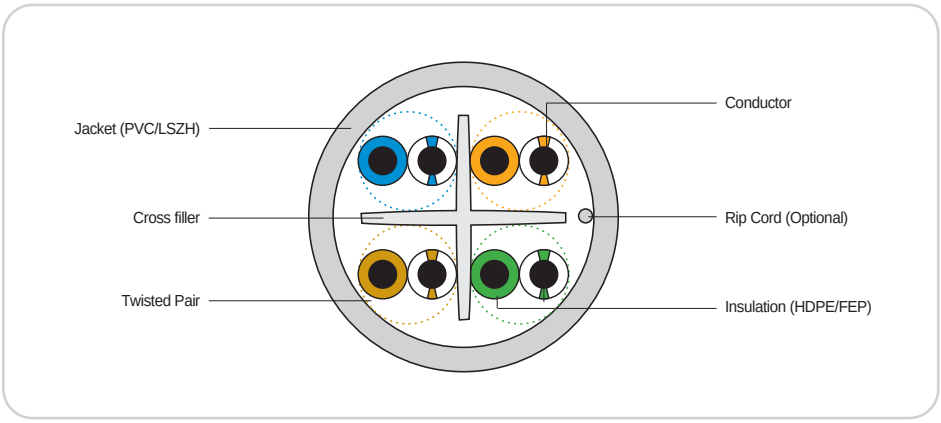
Category 6+ Modular Jack

Guaranteed Channel Performance

- The additional +3dB margin of NEXT, ELFEXT in channel performance (compared to standard Cat6 level) is guaranteed by the enhancement of cable and jack, even using standard Cat6 patch cord application.
- Supporting stabilization of communication environment, this solution is suited to high profile application for data center and bank.

Category 6+ U/UTP Cable 4 Pair





Description

- ETL, EC Verified, UL Listed
- Capable of handling full broadband and baseband video signals
- High flame retardant grade of the cable is protected propagation of fire
- Addition of Near End Crosstalk requirements improves cable performance
- Electrical performances comply with TIA/EIA-568B.2-1
- Specialized print legend contains footage marking from 1000 ' to 0 ', metric from 305 to 0m and "Dual Marking" footage and metric
- Reel in a box is standard, so wire pulls through box opening for easy access
- RoHS Compliant
- The Crosstalk performance is specified 3dB higher than standard Category 6 cable

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- ATM LAN 1.2G

Part Numbers

Description	Category 6+ UTP Cable, 4-Pair			
Flame Retardant Grade	CMX	CM	CMR	LSZH
Part Numbers	UTP-G-C6E-E1VN-X 0.5X004P/(1)	UTP-G-C6E-E1VN-M 0.5X004P/(1)	UTP-G-C6E-E1VN-R 0.5X004P/(1)	UTP-G-C6E-E1ZN-X 0.5X004P/(1)

Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC & LSZH
Conductor DC Resistance	Ohms/100 m	9.38
Resistance Unbalance	%	5
Mutual Capacitance	nF/100 m	5.6
Capacitance Unbalance	pF/100 m	330
Characteristic Impedance	Ohms	100 ±15%
Propagation Delay	ns/100 m	536 @ 250MHz
Delay Skew	ns	45
Nominal Velocity of Propagation	%	67
Operating Temperature	℃/ ℉	-20 ~ 60
Storage Temperature	℃/ ℉	-20 ~ 80
Bending Radius		4 x Cable Diameter
Packaging Type	305 m (1000ft)	Reel in a box
Packaging Weight	lb/kft (kg/km)	23 (35)
Conductor Diameter / Material		24 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.037 (0.95) ϕ, HDPE
Jacket Diameter / Material	inch (mm)	0.244 (6.2) ϕ, PVC or LSZH(Low Smoke Zero Halogen)
Safety Standard, Performance Standard	CMX - UL1581, IEC332-1/ CM - UL1685, IEC332-3 / CMR - UL1666 / LSZH - IEC61034, IEC60754	
Approvals Performance	TIA/EIA-568-B.2-1 / ISO 11801 "Performance specifications for 100 Ohm Category 6 Cabling"	

Category 6+ Unshielded Patch Panel

Description

This PCB 1U 24 way patch panel comes complete with cable management, accessories and full installation instructions. They fully comply with the requirements set out in ANSI/TIA/EIA-568-B.2-1.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Dimension (H x W)	Part Number
24-Port Category 6 Unshielded Patch Panel of Slim IDC with Wire Management	1.75″ x 19″ (1U)	LS-PP-UC6-24P-WM-SI

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Insulation Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃ ~ 68℃ (-40℉ ~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 22 ~ 26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2-1 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A/T568B
- Korean Ministry of Information and Communication Approved

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with 100 Micro-inch (2.54 microns) Minimum Thick Tin
- Panel : Steel with Black Painting

Category 6+ Modular Jack

Description

90℃ Category 6+ Unshielded Modular Jack with slim IDC, The LS Simple™ Category 6+ Modular Jack are designed and manufactured to meet today's and tomorrow's demanding international standards. They take into consideration the need for reliable and quick installations. The Jack is individually terminated using Insulation Displacement Connectors(IDC) giving assurance of wire connection when using a punch down tool. User instructions and basic wiring layout for standard configuration are included.
The LS Simple™ Modular Jack comes with the ability to wire to a T568A or T568B configuration and fully complies with RJ-45 of 47 CFR part 68, TIA/EIA 568-B.2-1(Category 6) and ISO/IEC 11801(Class E) component performance.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000/10G BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- Analog & digital voice(VOIP) and video
- Full broadband and baseband video
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Part Numbers
90℃ Category 6 Unshielded Modular Jack of slim IDC	LS-MJ-UC6-XX-SI

*Fit with Empty Patch Panel

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Insulation Resistance : 500 Megohm
- Contact Resistance : 0.1 ohm Max.
- Voltage : 150 VAC Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃~ 68℃(-40℉~ 154℉)
- Humidity : 10% ~ 90%RH
- Contact Accept : 22~26 AWG Standard Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2-1 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A / T568B
- Korean Ministry of Information and Communication Approved

Materials

- Plug Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns)
- IDC Plastic : Polycarbonate or ABS, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with 100 Micro-inch (2.54 microns) Minimum Thick Tin

Simple™ Category 6 Solutions

Category 6 Channel

Category 6 U/UTP Cable 4 Pair

Category 6 F/UTP Cable 4 Pair

Category 6 SF/UTP Cable 4 Pair

Category 6 Unshielded Patch Panel

Category 6 Shielded Patch Panel

Category 6 Feed-Through Patch Panel

Category 6 Modular Jack

Category 6 Euro & 6C RJ45 Module

Category 6 Patch Cord (Unshielded / Shielded)

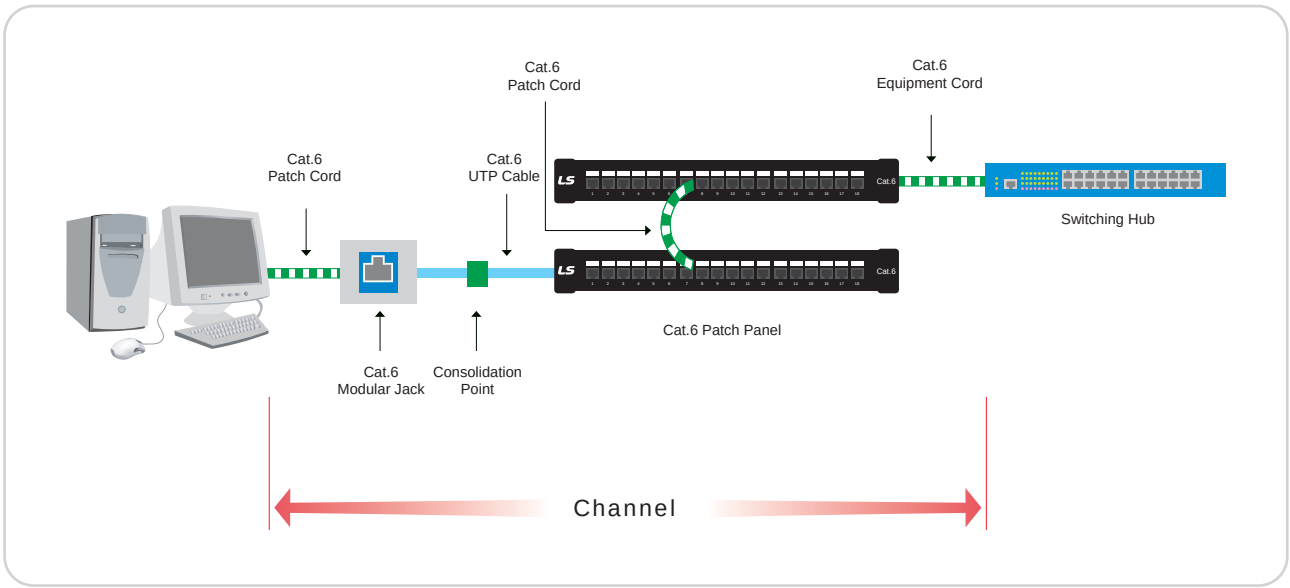
Category 6 GXC Patching System

GXC Patching System / Cat.6 110 Patch Cord

Third Party Accreditation (Category 6)

Category 6 Channel

Diagram



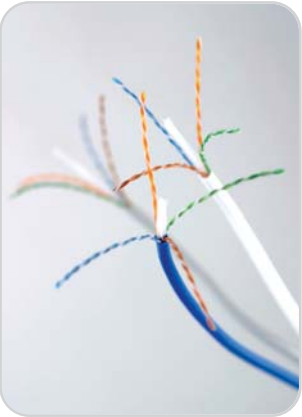
Guaranteed Channel Performances

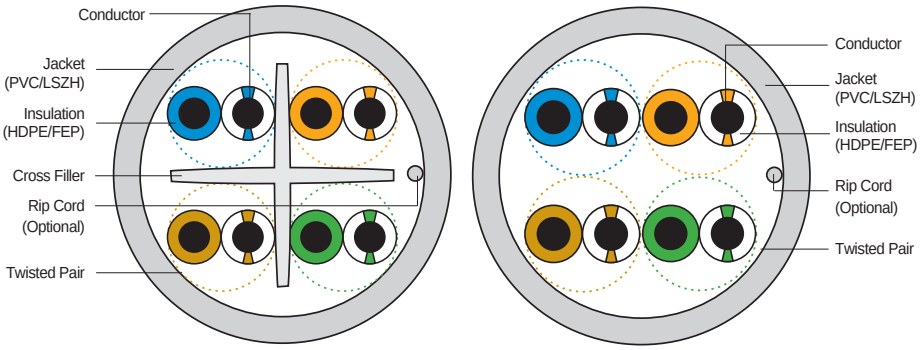
Frequency (MHz)	Attenuation (dB / 100m)	NEXT (dB)	PSNEXT (dB)	ACR (dB)	PSACR (dB)	ELFEXT (dB)	PSELFEXT (dB)	Return Loss (dB)
1.00	2.1	65.0	62.0	62.9	59.9	63.3	60.3	19.0
4.00	4.0	63.0	60.5	59.0	56.5	51.2	48.2	19.0
8.00	5.7	58.2	55.6	52.5	49.9	45.2	42.2	19.0
10.00	6.3	56.6	54.0	50.2	47.7	43.3	40.3	19.0
16.00	8.0	53.2	50.6	45.2	42.6	39.2	36.2	18.0
20.00	9.0	51.6	49.0	42.6	39.9	37.2	34.2	17.5
25.00	10.1	50.0	47.3	39.9	37.2	35.3	32.3	17.0
31.25	11.4	48.4	45.7	37.0	34.3	33.4	30.4	16.5
62.50	16.5	43.4	40.6	26.9	24.1	27.3	24.3	14.0
100.00	21.3	39.9	37.1	18.6	15.8	23.3	20.3	12.0
200.00	31.5	34.8	31.9	3.3	0.3	17.2	14.2	9.0
250.00	35.9	33.1	30.2	(-)	(-)	15.3	12.3	8.0

Typical Channel Performance

Attenuation (dB / 100m)	NEXT (dB)	PSNEXT (dB)	ELFEXT (dB)	PSELFEXT (dB)	Return Loss (dB)
-10%	+8	+8	+10	+10	+8

Category 6 U/UTP Cable 4 Pair





Description

- ETL, EC Verified, UL Listed
- Capable of handling full broadband and baseband video signals
- High flame retardant grade of the cable is protected propagation of fire (Plenum Cable)
- Addition of balance requirements improves cable performance
- Electrical performances comply with TIA/EIA-568B.2-1
- Specialized print legend contains footage marking from 1000 'to 0', metric from 305 to 0m and dual marking footage and metric
- Reelex & Reel in a box is standard, so wire pulls through box opening for easy access
- RoHS Compliant

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- ATM LAN 1.2G

Part Numbers

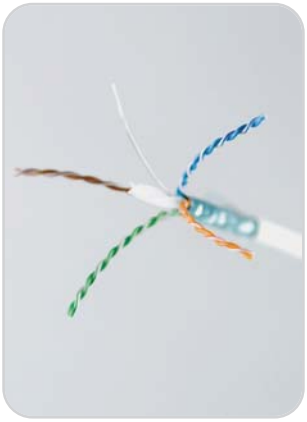
Description	Category 6 UTP Cable, 4-Pair				
Flame Retardant Grade	CMX	CM	CMR	CMP	LSZH
Part Numbers (Cross Filler)	UTP-G-C6G-E1VN-X 0.5X004P/(1)	UTP-G-C6G-E1VN-M 0.5X004P/(1)	UTP-G-C6G-E1VN-R 0.5X004P/(1)	UTP-G-C6G-F1VN-P 0.5X004P/(1)	UTP-G-C6G-E1ZN-X 0.5X004P/(1)
Part Numbers (Non Filler)	UTP-G-C6G-E1VX-X 0.5X004P/(1)	UTP-G-C6G-E1VX-M 0.5X004P/(1)	UTP-G-C6G-E1VX-R 0.5X004P/(1)	UTP-G-C6G-F1VX-P 0.5X004P/(1)	UTP-G-C6G-E1ZX-X 0.5X004P/(1)

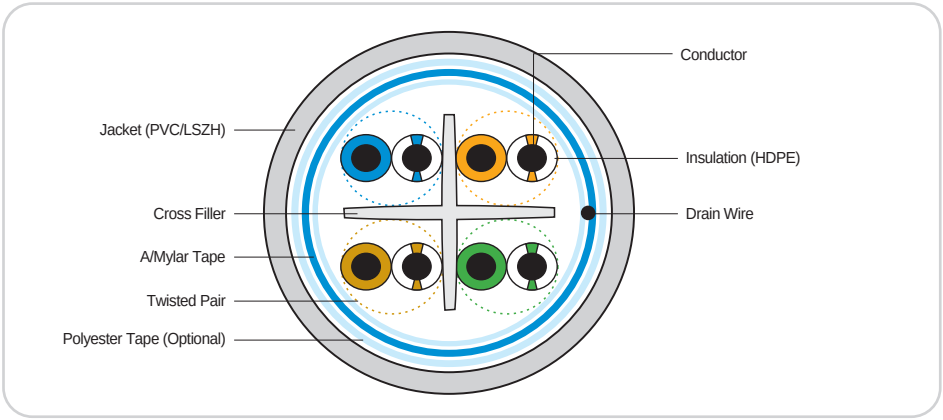
Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC & LSZH / Plenum (Cross Filler)	PVC & LSZH / Plenum (Non Filler)
Conductor DC Resistance	Ohms/100 m	9.38	9.38
Resistance Unbalance	%	5	5
Mutual Capacitance	nF/100 m	5.6	5.6
Capacitance Unbalance	pF/100 m	330	330
Characteristic Impedance	Ohms	100 ±15%	100 ±15%
Propagation Delay	ns/100 m	536 @ 250MHz	536 @ 250 MHz
Delay Skew	ns	45	45
Nominal Velocity of Propagation	%	67 / 69	67 / 69
Operating Temperature	℃/ ℉	-20 ~ 60 / -4 ~ 140	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃/ ℉	-20 ~ 80 / -4 ~ 176	-20 ~ 80 / -4 ~ 176
Bending Radius		4 x Cable Diameter	4 x Cable Diameter
Packaging Type	305 m (1000ft)	Reelex / Reel in a box	Reelex / Reel in a box
Packaging Weight	lb/kft (kg/km)	21 (32) / 27 (42)	19 (29) / 25 (38)
Conductor Diameter / Material		24 AWG, Solid Copper	24 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.037 (0.95) ϕ, HDPE / FEP	0.037 (0.95) ϕ, HDPE / FEP
Jacket Diameter / Material	inch (mm)	0.228 (5.8) / 0.220(5.6)ϕ, PVC or LSZH	0.205 (5.2) / 0.200(5.1) ϕ, PVC or LSZH
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1/ CM - UL1685, IEC332-3 / CMR - UL1666 / CMP - UL910 / LSZH - IEC61034, IEC60754		
Approvals Performance	TIA/EIA-568-B.2-1 / ISO 11801 "Performance specifications for 4-Pairs 100 Ohm Category 6 / E Cabling"		

Category 6 F/UTP Cable 4 Pair





Description

- Capable of handling full broadband and baseband video signals
- Addition of balance requirements improves cable performance
- Electrical performances comply with TIA/EIA-568B.2-1
- Specialized print legend contains footage marking from 1000 to 0, metric from 305 to 0m and dual marking footage and metric
- Wooden reel is standard, so wire pulls through reel for easy access
- RoHS Compliant

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- ATM LAN 1.2G

Part Numbers

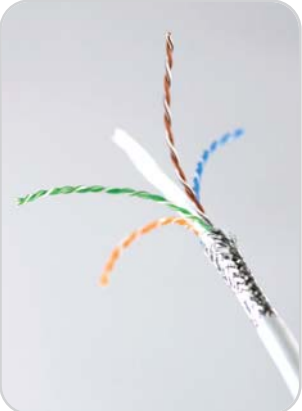
Description	Category 6 FTP Cable, 4-Pair			
Flame Retardant Grade	CMX	CM	CMR	LSZH
Part Numbers	FTP-G-C6G-E1VN-X 0.5X004P/(1)	FTP-G-C6G-E1VN-M 0.5X004P/(1)	FTP-G-C6G-E1VN-R 0.5X004P/(1)	FTP-G-C6G-E1ZN-X 0.5X004P/(1)

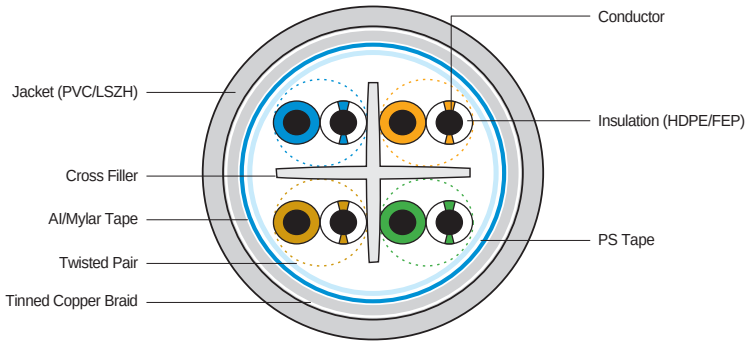
Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC / LSZH
Conductor DC Resistance	Ohms/100 m	9.38
Resistance Unbalance	%	5
Mutual Capacitance	nF/100 m	5.6
Capacitance Unbalance	pF/100 m	330
Characteristic Impedance	Ohms	100 ±15%
Propagation Delay	ns/100 m	536 @ 250MHz
Delay Skew	ns	45
Nominal Velocity of Propagation	%	67
Operating Temperature	℃/ ℉	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃/ ℉	-20 ~ 80 / -4 ~ 176
Bending Radius		4 x Cable Diameter
Packaging Type	305 m (1000 ft) / 500 m	Reel
Packaging Weight	lb/kft (kg/km)	36 (54)
Conductor Diameter / Material		23 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.043 (1.10) ф, HDPE
Jacket Diameter / Material	inch (mm)	0.287 (7.3) ф, PVC or LSZH (Low Smoke Zero Halogen)
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666 / LSZH - IEC61034, IEC60754	
Approvals Performance	TIA/EIA-568-B.2-1 / ISO 11801 "Performance specifications for 4-Pairs 100 Ohm Category 6 / E Cabling"	

Category 6 SF/UTP Cable 4 Pair





Description

- Capable of handling full broadband and baseband video signals
- Addition of balance requirements improves cable performance
- Every master reel is tested for electrical performance compliance.
- Specialized print legend contains footage marking from 1000 'to 0', metric from 305 to 0m and dual marking footage and metric
- Wooden Reel is standard, so wire pulls through reel for easy access
- RoHS Compliant

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL

Part Numbers

Description	Category 6 FTP Cable, 4-Pair			
Flame Retardant Grade	CMX	CM	CMR	LSZH
Part Numbers	SFP-G-C6G-E1VN-X 0.5X004P/(1)	SFP-G-C6G-E1VN-M 0.5X004P/(1)	SFP-G-C6G-E1VN-R 0.5X004P/(1)	SFP-G-C6G-E1ZN-X 0.5X004P/(1)

Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC / LSZH
Conductor DC Resistance	Ohms/100 m	9.38
Resistance Unbalance	%	5
Mutual Capacitance	nF/100 m	5.6
Capacitance Unbalance	pF/100 m	330
Characteristic Impedance	Ohms	100 ± 15%
Propagation Delay	ns/100 m	536 @ 250MHz
Delay Skew	ns	45
Nominal Velocity of Propagation	%	67
Operating Temperature	℃ / ℉	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃ / ℉	-20 ~ 80 / -4 ~ 176
Bending Radius		4 x Cable Diameter
Packaging Type	300 m / 500 m	Wooden Reel
Packaging Weight	lb/kft (kg/km)	45 (68)
Conductor Diameter / Material		23 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.044 (1.12) Φ, HDPE
Jacket Diameter / Material	inch (mm)	0.311 (7.9) Φ, PVC or LSZH (Low Smoke Zero Halogen)
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666 / LSZH - IEC61034, IEC60754	
Approvals Performance	TIA/EIA-568-B.2-1 / ISO 11801 "Performance specifications for 4-Pairs 100 Ohm Category 6 / E Cabling"	

Category 6 Unshielded Patch Panel

Description

These PCB 1U 24 way patch panel and 2U 48 way patch panel come complete with cable management, accessories and full installation instructions. They fully comply with the requirements set out in ANSI/TIA/EIA-568-B.2-1.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Dimension (H x W)	Part Number
90° 24-Port Category 6 Unshielded Patch Panel with Wire Management	1.75″x 19″(1U)	LS-PP-UC6-24P-WH
90° 24-Port Category 6 Unshielded Patch Panel with Horizontal PCB	1.75″x 19″(1U)	LS-PP-UC6-24PH-WH
90° 48-Port Category 6 Unshielded Patch Panel with Wire Management	3.50″x 19″(2U)	LS-PP-UC6-48P-WH
180° 24-Port Category 6 Unshielded Patch Panel of RIDC with Wire Management	1.75″x 19″(1U)	LS-PP-UC6-24P-WH-RI
180° 48-Port Category 6 Unshielded Patch Panel of RIDC with Wire Management	3.50″x 19″(2U)	LS-PP-UC6-48P-WH-RI

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Insulation Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃~ 68℃(-40℉ ~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 22 ~ 26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2-1 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A/T568B
- Korean Ministry of Information and Communication Approved

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with 100 Micro-inch (2.54 microns) Minimum Thick Tin
- Panel : Steel with Black Painting

Category 6 Shielded Patch Panel

Description

This PCB 1U 24 way patch panel comes complete with cable management, accessories and full installation instructions. They fully comply with the requirements set out in ANSI/TIA/EIA-568-B.2-1.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Dimension (H x W)	Part Number
24-Port Category 6 Shielded Patch Panel with Wire Management	1.75″x 19″(1U)	LS-PP-SC6-24P-WM

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Insulation Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max.
- Dielectric Withstanding Voltage : 1000 V
- Data Transmission Rates : 100 Mbps
- Plug Insertion Life : 750 Cycles
- Plug Retention Force : 30 lbs (133N)
- Temperature : -20℃ ~ 50℃ (-4℉ ~ 122℉)
- Humidity : 10% ~ 90%RH
- IDC Accept : 22~26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2-1 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A/T568B

Materials

- Housing : ABS, UL 94V-0 Rated
- Jack Spring Wire : Phosphor Bronze with 50 Micro-inch (1.27 microns) Thick Gold Over 80 Micro-inch (2.03 microns) Thick Nickel Undercoat
- IDC Plastic : PC or ABS, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze with 100 Micro- inch (2.54 microns) Minimum Thick Tin
- Panel : Powder Coated Steel with Gray Color

Category 6 Feed-Through Patch Panel

Description

These PCB 1U 48 way patch panels come complete with cable management, accessories and full installation instructions. They are compatible for 48-port application in 1 unit height, 12-in-1 modular frames suitable for unshielded or shielded coupler, double-sided station ID designed for easy identification and ideal for Data center application. They fully comply with the requirements set out in TIA/EIA-568-B.2-1.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Dimension (H x W)	Part Number
48-Port Category 6 Unshielded Feed-Through Patch Panel with Wire Management	1.75″x 19″(1U)	LS-PP-UC6DC-48P-WM
48-Port Category 6 Shielded Feed-Through Patch Panel with Wire Management	1.75″x 19″(1U)	LS-PP-SC6DC-48P-WM

* Note : Category 5e patch panels are available

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Insulation Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃ ~ 68℃ (-40℉~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 22 ~ 26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2-1 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A/T568B
- Korean Ministry of Information and Communication Approved

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns)
- IDC Plastic : Polycarbonate or ABS, UL94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with 100 Micro-inch (2.54 microns) Minimum Thick Tin
- Panel : Steel with Black Painting

Category 6 Modular Jack

Tool-less type

Description

LS Simple™ Category 6 modular jacks are designed and manufactured to meet today's and tomorrow's demanding international standards. They take into consideration the need for reliable and quick installations. The jack is individually terminated using Insulation Displacement Connectors (IDC) giving assurance of wire connection when using a punch down tool and tool-less for Installation.
User instructions and basic wiring layout for standard configuration are included.
The LS Simple™ modular jack comes with the ability to wire to a T568A or T568B configuration and fully complies with TIA/EIA-568-B.2-1(Category 6) and ISO/IEC 11801(Class E) component performances.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Part Number
90° Category 6 Unshielded Modular Jack with T568A/B Label	LS-MJ-UC6-XX
90° Category 6 Shielded Modular Jack with T568A/B Label	LS-MJ-SC6-XX
90° Category 6 Unshielded Modular Jack with T568A/B Label and Shutter	LS-MJ-UC6-XX-S
90° Category 6 Unshielded Modular Jack with T568A/B Label, Tool-Less	LS-MJ-UC6-XX-TL
180° Category 6 Unshielded Modular Jack of RIDC with T568A/B Label	LS-MJ-UC6-XX-RIDC
180° Category 6 Shielded Modular Jack of RIDC with T568A/B Label	LS-MJ-SC6-XX-RIDC

XX denotes color : WH=White, IV=Ivory, BK=Black, BL=Blue, RD=Red
* Note : Shielded modular jack is available in white color only

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃ ~ 68℃ (-40℉ ~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 22 ~ 26 AWG Solid Wire

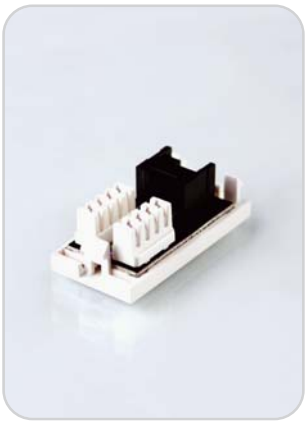
Approvals

- Category : UL Listed, TIA/EIA-568-B.2-1 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A/T568B
- Korean Ministry of Information and Communication Approved

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate or ABS, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with100 Micro-inch (2.54 microns) Minimum Thick Tin
- Shielded : Copper Zinc Alloy, Pre-Plated with Bright Nickel

Category 6 Euro & 6C RJ45 Module



Description

The Category 6 compact module is designed to provide a shallow solution for wall outlets. They are the ideal solution wherever back-box depth is an issue.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Dimension (L x W) (mm)	Part Number
Shuttered Low Profile Cat.6 Euro Module RJ45 (8P8C) T568A/T568B	50 x 25	LS-MJ-EU-UC6-WH
Shuttered Low Profile Cat6 6C Module RJ45 (8P8C) T568A/T568B	38.5 X 25	LS-MJ-6C-UC6-WH

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Contact Resistance : 20 Milli-ohm
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃~ 68℃ (-40℉~154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 23 ~ 26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2-1 / ISO 11801
- Meet : FCC Parts 68
- Wiring Scheme : T568A/T568B

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated

Category 6 Patch Cord (Unshielded / Shielded)

Description

LS Simple™ Category 6 patch cords are factory terminated, providing the quality required to support your channel requirements. They are fully booted and have clip protection for simple removal. They offer a high performance alternative to satin modular line cords where crosstalk, EMI, or distance may be considerations. Cable consists of 24 AWG (0.51mm) wire, each four pair twisted at a different lay length.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100 Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant
- ATM LAN 1.2G

Part Numbers

Description	Part Number
Category 6 Unshielded Patch Cord with T568B Wiring	LS-PC-UC6-X-YY-ZZZ
Category 6 Shielded Patch Cord with T568B Wiring	LS-PC-SC6-X-YY-ZZZ

X denotes jacket material : V=PVC, Z=LSZH
YY denotes color : WH=White, BL=Blue, YL=Yellow, RD=Red, GN=Green, GY=Grey
ZZZ denotes meter : 005(0.5m), 010(1m), 050(5m), etc

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Contact Resistance : 20 Milli-ohm
- Insertion Resistance : 500 Megaohm
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -20℃ ~ 68℃ (-4℉ ~154℉)
- Humidity : 10% ~ 90% RH

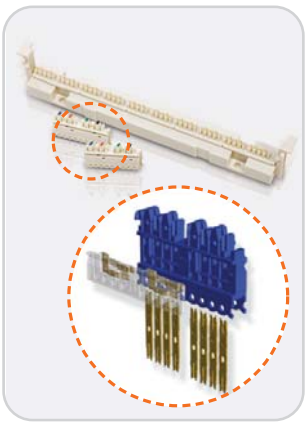
Materials

- Housing : Polycarbonate (PC), UL 94V-2 Rated
- Cable Jacket : PVC, LSZH

Approvals

- Category : UL Listed, TIA/EIA-568-B.2-1 / ISO 11801
- Meet : FCC CFR 47 Part 68 and IEC 603-7
- Wiring Scheme : T568B

Category 6 GXC Patching System



Description

LS C&S has developed the GXC(Giga Cross Connect) Patching Block for Category 6 grade to meet the electrical requirements of TIA/EIA 568B.2-1 by coupling-pin technology and improve workability.
The Simple GXC(Giga Cross Connect) Patching system are available 20, 40 and 80-pair sizes for backboard mounting variously.
LS C&S designed and developed Category 6 GXC Patching Block same IDCs distance as Category 5E that means operators at installation site can use same Multi-Pin punch down tool as conventional.
Blocks can be easily expanded because of satisfying with Category 6 component level performance and using coupling-pin.
The simple GXC(Giga Cross Connect) Patching Block are ideal for use in cross connects, consolidation point (CP), and 19" rack mount panel.
The Simple GCX patching Block fully comply with the requirements set out in TIA/EIA 568-B.2-1(Cat.6), ISO/IEC 11801. The Patch panel come with the ability to wire to a T568B or T568A configuration.
It includes base 110 Terminal Block, Wiring Base Block, Wiring Label, label holders .

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000,10G BASE-T (IEEE 802.3)
- 155 Mbps
- 100Mbps TP-PMD
- 1Gbps LAN
- ISDN, ADSL
- Analog & digital voice (VOIP) and video
- Full broadband and baseband video
- RoHS Compliant

Part Numbers

Description	Dimension (W x L x H) (mm)	Part Number
C6 GXC Patching Block 20-pair without leg	23.5 x 206 x 40	LS-110WB-UC6-20P-W/O
C6 GXC Patching Block without leg	41.5 x 206 x 40	LS-110WB-UC6-40P-W/O
C6 GXC Patching Block without leg	86.5 x 206 x 40	LS-110WB-UC6-80P-W/O
C6 GXC Patching Block with leg	41.5 x 206 x 80	LS-110WB-UC6-40P-W
C6 GXC Patching Block with leg	86.5 x 206 x 80	LS-110WB-UC6-80P-W

* XX Denotes Color : WH=White, BL=Blue * Fit with Empty Patch Panel

Technical Details

Electrical / Mechanical Characteristics

- Current Rating: 1.5Amps
- Contact Resistance: 5Milliohm
- Insulation Resistance:500 Megaohm
- Temperature: -20℃~68℃(-4℉~154℉)
- Humidity:10%~90%RH

Materials

- Block & IDC housing : Polycarbonate, UL 94V-0 Rated

Approvals

- Category : UL Listed

GXC Patching System / Cat.6 110 Patch Cord

Description

The Simple GXC(Giga Cross Connect) Patching system are available 40, 80 and 160-pair sizes for mount to standard TIA/EIA 19" racks With wire management or not.
The simple GXC(Giga Cross Connect) Patching Block are ideal for use in cross connects, consolidation point (CP), and 19" rack mount panel.
The Simple GCX patching Block fully comply with the requirements set out in TIA/EIA 568-B.2-1(Cat.6) ,ISO/IEC 11801.
The Patch panel come with the ability to wire to a T568B or T568A configuration.
It includes base 110 Terminal Block, Wiring Base Block, Wiring Label, label holders .

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000,10G BASE-T (IEEE 802.3)
- 155 Mbps
- 100Mbps TP-PMD
- 1Gbps LAN
- ISDN, ADSL
- Analog & digital voice (VOIP) and video
- Full broadband and baseband video
- RoHS Compliant

Part Numbers

Description	Part Number
C6 GXC Patching Block for mount to 19" racks	LS-110WB-UC6-XXP-YY-ZZ

XX denotes the number of pair: 40P,80P,160P etc.
YY denotes total size of U(1U,2U,4U etc.)
ZZ denotes Wire Management(WM1U)

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5Amps
- Contact Resistance : 5Milliohm
- Insulation Resistance : 500 Megaohm
- Temperature : -20℃~68℃(-4℉~154℉)
- Humidity : 10%~90%RH

Materials

- Block & IDC housing : Polycarbonate, UL 94V-0 Rated
- Entry panel : steel

Approvals

- Category : UL Listed

Description

The 110 patch cords are utilized for connecting with 110 crossconnect system used as jumper or end-user patch cords.

Part Numbers

Description	Part Number
Cat.6 110 Patch Cord, 4-Pair	LS-110PCC-UC6-4-XX-YYY

XX denotes color : WH=White, BL=Blue, YL=Yellow, RD=Red, GN=Green, GY=Grey
YYY denotes meter : 005(0.5m), 010(1m), 050(5m), etc.

Third Party Accreditation (Category 6)

Intertek ETL SEMKO

CERTIFICATE OF CONFORMANCE

This authorizes the application of the ETL Verified Mark shown below to the models described in the Product Description section when made in accordance with the conditions set forth in the Verification Agreement and Qualification Testing Report.

Certificate Number: 3097817CRT-005

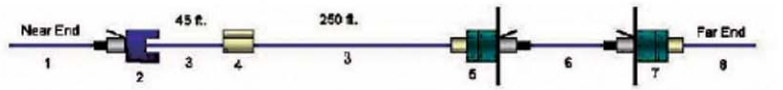
Applicant:
LS Cable
19-20F ASEM Tower
159 Samsung-dong Gangnam-gu
Seoul 135-798, Korea

Manufacturer:
LS Cable Ltd.
190 Gongdan-dong, Gumi,
Gyongsangbukdo, Korea

Contact: Mr. Tae-Seong Yoo

Mfg. Contact: Mr. Sang-Cheol Yeo

Report No.: 3097817



Product Description:

4 Connector Channel

Component ID	Manufacturer	Description	Part Number
1, 8	LS Cable	Equipment Cord, 3m	LS-PC-UC6-XX-03
2	LS Cable	Wall Outlet	LS-MJ-UC6-XX
3	LS Cable	Horizontal Cable	UTP-G-C6G-E1VN-R 0.5X004P/XX
4	LS Cable	110 Block	LS-110WB-25P-W/O
5, 7	LS Cable	Patch Panel	LS-PP-UC6-24P-WM
6	LS Cable	Cross Connect	LS-PC-UC6-XX-03

The components identified above have been tested and found to comply with the applicable electrical transmission characteristics specified in ANSI/TIA-568-B.2-1 Category 6.

This certificate, supported by your participation in the ETL Channel Verification Program, is authorization to apply the ETL Verification Mark to the Channel consisting of the components specified above. The marking shall include: ETL Verified Channel to ANSI/TIA-568-B.2-1 Category 6.

Continuing compliance to this specification is monitored through production testing, quarterly inspections by Intertek at the production facility and random sample testing.

Date ETL Verified: 6/27/2006

Certificate Issued By: Kathy Heath

Kathy Heath, Program Administrator

This document is the property of Intertek ETL SEMKO and is not transferable. Only the Applicant may reproduce this document. The ETL Verified Mark may be applied only at the above noted location of the Party Authorized to Apply the Mark.

This document supersedes all previous ETL Verified Certificates of Conformance for the noted Certificate Number.

Intertek ETL SEMKO
3933 U.S. Route 11, Cortland, NY 13405
Telephone (607) 758-6641 or (800) 345-3851 Fax (607) 758-6637

Simple™ Category 5e Solutions

Category 5e Channel

Category 5e U/UTP Cable 4 Pair

Category 5e U/UTP Cable 25 Pair

Category 5e F/UTP Cable 4 Pair

Category 5e SF/UTP Cable 4 Pair

Category 5e Unshielded Patch Panel

Category 5e Shielded Patch Panel

Category 5e UTP Mini Patch Panel

Category 5e Modular Jack

Category 5e Euro & 6C RJ45 Module

Category 5e Patch Cord (Unshielded / Shielded)

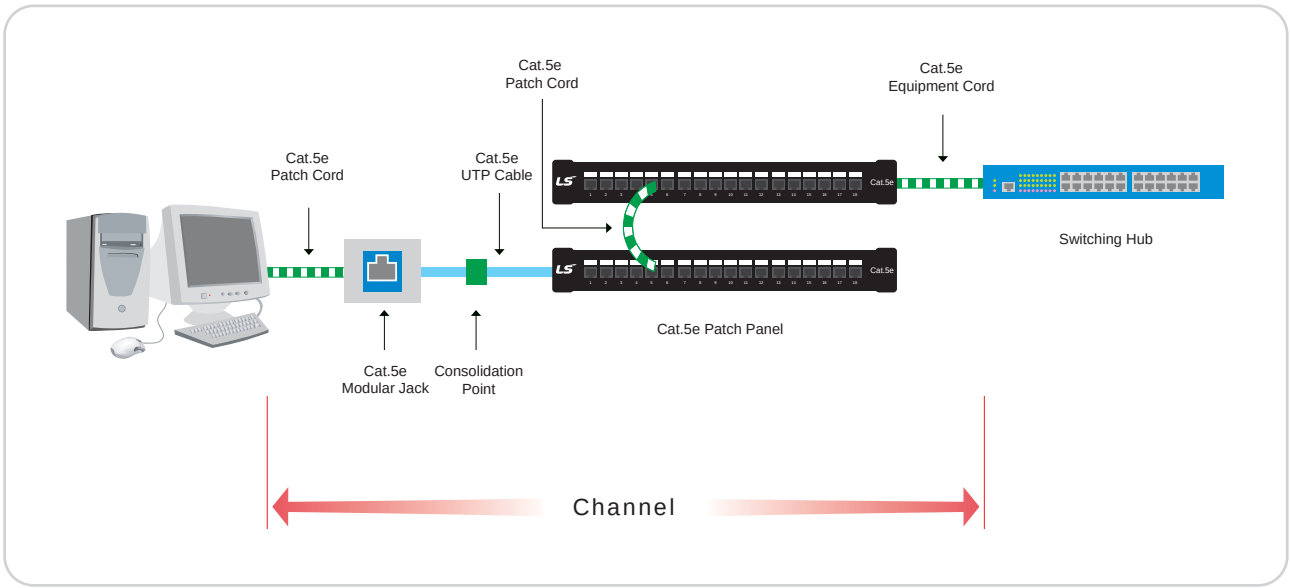
Category 5e 110 Block / Connecting Block

110 Patch Cord / Jumper Trough

Third Party Accreditation (Category 5e)

Category 5e Channel

Diagram



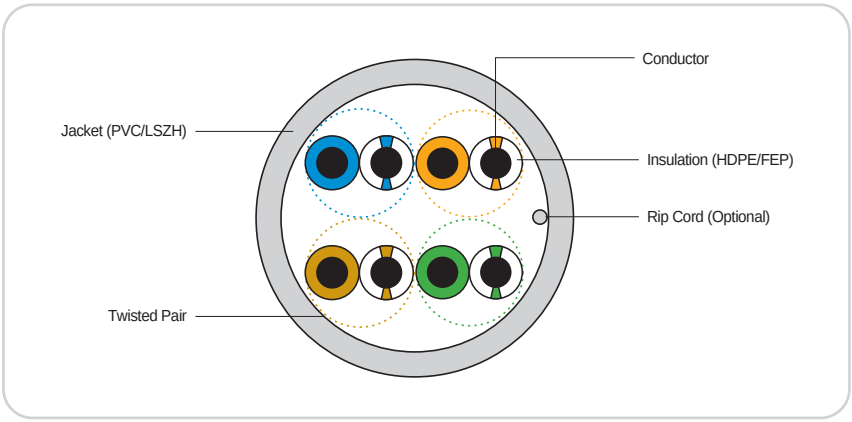
Guaranteed Channel Performances

Frequency (MHz)	Attenuation (dB / 100m)	NEXT (dB)	PSNEXT (dB)	ACR (dB)	PSACR (dB)	ELFEXT (dB)	PSELFEXT (dB)	Return Loss (dB)
1.00	2.4	60.0	57.0	57.6	54.6	57.4	54.4	17.0
4.00	4.5	53.5	50.5	49.0	46.0	45.4	42.4	17.0
8.00	6.4	48.6	45.6	42.2	39.2	39.3	36.3	17.0
10.00	7.2	47.0	44.0	39.8	36.8	37.4	34.4	17.0
16.00	9.1	43.6	40.6	34.5	31.5	33.3	30.3	17.0
20.00	10.2	42.0	39.0	31.8	28.8	31.4	28.4	17.0
25.00	11.5	40.3	37.3	28.9	25.9	29.4	26.4	16.0
31.25	12.9	38.7	35.7	25.8	22.8	27.5	24.5	15.1
62.50	18.6	33.6	30.6	15.0	12.0	21.5	18.5	12.0
100.00	24.0	30.1	27.1	6.1	3.1	17.4	14.4	10.0
155.00	30.6	26.8	23.8	(-)	(-)	13.6	10.6	8.1

Typical Channel Performance

Attenuation (dB / 100m)	NEXT (dB)	PSNEXT (dB)	ELFEXT (dB)	PSELFEXT (dB)	Return Loss (dB)
-10%	+8	+8	+10	+10	+8

Category 5e U/UTP Cable 4 Pair



Description

- ETL, EC Verified, UL Listed
- Supports Fast Ethernet, Gigabit Ethernet, 155 Mb/s ATM, Multimedia
- All accepted design for global commercial network installation
- Simplified structured cabling solution preserving long-term network investment
- Electrical performances comply with TIA/EIA-568B.2
- Specialized print legend contains footage marking from 1000 'to 0', metric from 305 to 0m and dual marking footage and metric
- RoHS Compliant

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL

Part Numbers

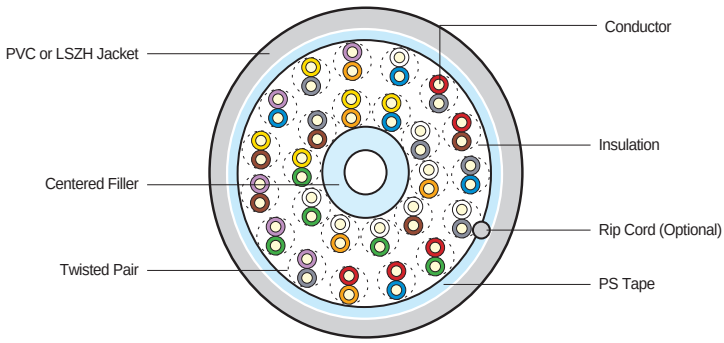
Description	Category 5E UTP Cable, 4-Pair				
Flame Retardant Grade	CMX	CM	CMR	CMP	LSZH
Part Numbers	UTP-E-C5G-E1VN-X 0.5X004P/(1)	UTP-E-C5G-E1VN-M 0.5X004P/(1)	UTP-E-C5G-E1VN-R 0.5X004P/(1)	UTP-E-C5G-F1VN-P 0.5X004P/(1)	UTP-E-C5G-E1ZN-X 0.5X004P/(1)

Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC / LSZH	Plenum
Conductor DC Resistance	Ohms/100 m	9.38	9.38
Resistance Unbalance	%	5	5
Mutual Capacitance	nF/100 m	5.6	5.6
Capacitance Unbalance	pF/100 m	330	330
Characteristic Impedance	Ohms	100 ±15%	100 ±15%
Propagation Delay	ns/100 m	538 @ 100 MHz	538 @ 100 MHz
Delay Skew	ns	45	45
Nominal Velocity of Propagation	%	67	68
Operating Temperature	℃/ ℉	-20 ~ 60 / -4 ~ 140	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃/ ℉	-20 ~ 80 / -4 ~ 176	-20 ~ 80 / -4 ~ 176
Bending Radius		4 x Cable Diameter	4 x Cable Diameter
Packaging Type	305 m (1000ft)	Reelex	Reelex
Packaging Weight	lb/kft (kg/km)	17 (25)	20 (30)
Conductor Diameter / Material		24 AWG, Solid Copper	24 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.035 (0.90) ϕ, HDPE	0.034 (0.86) ϕ, FEP
Jacket Diameter / Material	inch (mm)	0.189 (4.8) ϕ, PVC or LSZH (Low Smoke Zero Halogen)	0.181 (4.6) ϕ, LS-PVC (Plenum)
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666 / CMP - UL910 / LSZH - IEC61034, IEC60754		
Approvals Performance	TIA/EIA-568-B.2 / ISO 11801 "Performance specifications for 4-Pair 100 Ohm Category 5E / D Cabling"		

Category 5e U/UTP Cable 25 Pair



Description

- UL Listed
- Supports Fast Ethernet, Gigabit Ethernet, 155 Mb/s ATM, Multimedia
- All accepted design for global commercial network installation
- Simplified structured cabling solution preserving long-term network investment
- Electrical performances comply with TIA/EIA-568B.2
- RoHS Compliant

Application

- Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL

Part Numbers

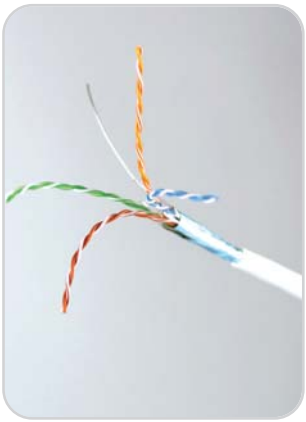
Description	Category 5E UTP Cable, 25-Pair			
Flame Retardant Grade	CMX	CM	CMR	LSZH
Part Numbers	UTP-E-C5G-E1VN-X 0.5X025P/(1)	UTP-E-C5G-E1VN-M 0.5X025P/(1)	UTP-E-C5G-E1VN-R 0.5X025P/(1)	UTP-E-C5G-E1ZN-X 0.5X025P/(1)

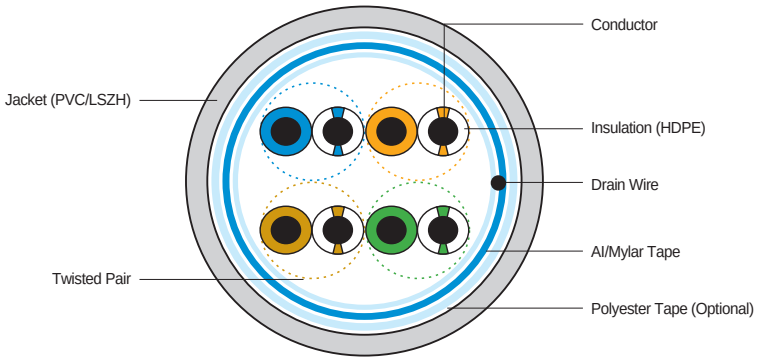
Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC / LSZH
Conductor DC Resistance	Ohms/100 m	9.38
Resistance Unbalance	%	5
Mutual Capacitance	nF/100 m	5.6
Capacitance Unbalance	pF/100 m	330
Characteristic Impedance	Ohms	100 ±15%
Propagation Delay	ns/100 m	538 @ 100 MHz
Delay Skew	ns	45
Nominal Velocity of Propagation	%	70
Operating Temperature	℃/℉	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃/℉	-20 ~ 80 / -4 ~ 176
Bending Radius		10 x Cable Diameter
Packaging Type	305 m (1000 ft) / 1000m	Reel / Drum
Packaging Weight	lb/kft (kg/km)	124 (185)
Conductor Diameter / Material		24 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.037 (0.95) ф, HDPE
Jacket Diameter / Material	inch (mm)	0.5 (12.7) ф, PVC or LSZH (Low Smoke Zero Halogen)
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666 / LSZH - IEC61034, IEC60754	
Approvals Performance	TIA/EIA-568-B.2 / ISO 11801 "Performance specifications for 4-Pair 100 Ohm Category 5E / D Cabling"	

Category 5e F/UTP Cable 4 Pair





Description

- Supports Fast Ethernet, Gigabit Ethernet, 155 Mb/s ATM, Multimedia
- All accepted design for global commercial network installation
- Simplified structured cabling solution preserving long-term network investment
- Electrical performances comply with TIA/EIA-568B.2
- Specialized print legend contains footage marking from 1000 'to 0', metric from 305 to 0m and dual marking footage and metric
- Reel in a Box is standard, so wire pulls through box opening for easy access
- RoHS Compliant

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL

Part Numbers

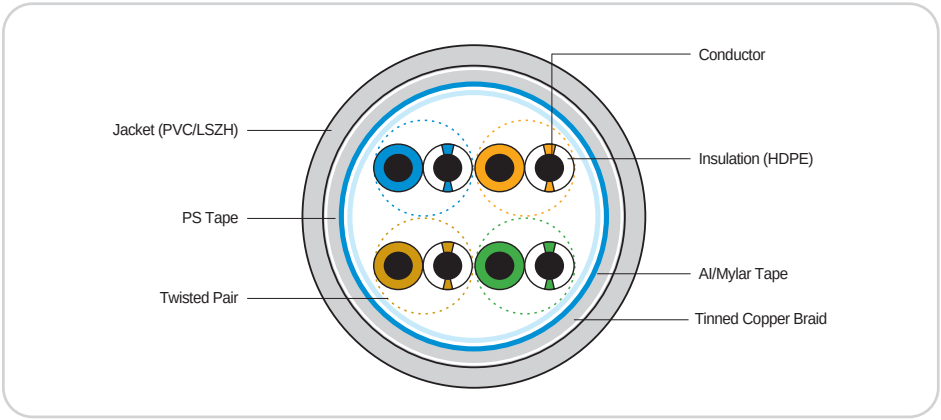
Description	Category 5E FTP Cable, 4-Pair			
Flame Retardant Grade	CMX	CM	CMR	LSZH
Part Numbers	FTP-E-C5G-E1VN-X 0.5X004P/(1)	FTP-E-C5G-E1VN-M 0.5X004P/(1)	FTP-E-C5G-E1VN-R 0.5X004P/(1)	FTP-E-C5G-E1ZN-X 0.5X004P/(1)

Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC / LSZH
Conductor DC Resistance	Ohms/100 m	9.38
Resistance Unbalance	%	5
Mutual Capacitance	nF/100 m	5.6
Capacitance Unbalance	pF/100 m	330
Characteristic Impedance	Ohms	100 ±15%
Propagation Delay	ns/100 m	538 @ 100 MHz
Delay Skew	ns	45
Nominal Velocity of Propagation	%	67
Operating Temperature	℃/ ℉	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃/ ℉	-20 ~ 80 / -4 ~ 176
Bending Radius		4 x Cable Diameter
Packaging Type	305 m (1000ft)	Reel / Reel in a Box
Packaging Weight	lb/kft (kg/km)	30 (46)
Conductor Diameter / Material		24 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.043 (1.08) ϕ, HDPE
Jacket Diameter / Material	inch (mm)	0.248 (6.3) ϕ, PVC or LSZH (Low Smoke Zero Halogen)
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666 / LSZH - IEC61034, IEC60754	
Approvals Performance	TIA/EIA-568-B.2 / ISO 11801 "Performance specifications for 4-Pair 100 Ohm Category 5E / D Cabling"	

Category 5e SF/UTP Cable 4 Pair



Description

- Supports Fast Ethernet, Gigabit Ethernet, 155 Mb/s ATM, Multimedia
- All accepted design for global commercial network installation
- Simplified structured cabling solution preserving long-term network investment
- Electrical performances comply with TIA/EIA-568B.2
- Specialized print legend contains footage marking from 1000 ' to 0 ', metric from 305 to 0m and dual marking footage and metric
- Wooden Reel is standard, so wire pulls through reel for easy access
- RoHS Compliant

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL

Part Numbers

Description	Category 5E S-FTP Cable, 4-Pair			
Flame Retardant Grade	CMX	CM	CMR	LSZH
Part Numbers	SFP-E-C5G-E1VN-X 0.5X004P/(1)	SFP-E-C5G-E1VN-M 0.5X004P/(1)	SFP-E-C5G-E1VN-R 0.5X004P/(1)	SFP-E-C5G-E1ZN-X 0.5X004P/(1)

Denote : (1) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black

Technical Details

Item	Unit	PVC / LSZH
Conductor DC Resistance	Ohms/100 m	9.38
Resistance Unbalance	%	5
Mutual Capacitance	nF/100 m	5.6
Capacitance Unbalance	pF/100 m	330
Characteristic Impedance	Ohms	100 ±15%
Propagation Delay	ns/100 m	538 @ 100 MHz
Delay Skew	ns	45
Nominal Velocity of Propagation	%	67
Operating Temperature	℃/ ℉	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃/ ℉	-20 ~ 80 / -4 ~ 176
Bending Radius		4 x Cable Diameter
Packaging Type	305 m (1000 ft) / 500 m	Reel
Packaging Weight	lb/kft (kg/km)	38 (57)
Conductor Diameter / Material		24 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.043 (1.08) ф, HDPE
Jacket Diameter / Material	inch (mm)	0.248 (6.3) ф, PVC or LSZH (Low Smoke Zero Halogen)
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666 / LSZH - IEC61034, IEC60754	
Approvals Performance	TIA/EIA-568-B.2 / ISO 11801 "Performance specifications for 4-Pair 100 Ohm Category 5E / D Cabling"	

Category 5e Unshielded Patch Panel

Description

These PCB 1U patch panel and 2U patch panel come complete with cable management, accessories and full installation instructions. They fully comply with the requirements set out in ANSI/TIA/EIA-568-B.2.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant

Part Numbers

Description	Dimension (H x W)	Part Number
24-Port Category 5e Unshielded Patch Panel	1.75″x 19″(1U)	LS-PP-UC5E-24P
48-Port Category 5e Unshielded Patch Panel	3.50″x 19″(2U)	LS-PP-UC5E-48P

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Contact Resistance : 20 milli-ohm
- Insertion Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃ ~ 68℃ (-40℉ ~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 22 ~ 26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A/T568B
- Korean Ministry of Information and Communication Approved

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate or ABS, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with 100 Micro-inch (2.54 microns) Minimum Thick Tin
- Panel : Steel with Black Painting

Category 5e Shielded Patch Panel

Description

This PCB 1U patch panel comes complete with cable management, accessories and full installation instructions. They fully comply with the requirements set out in ANSI/TIA/EIA-568-B.2.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant

Part Numbers

Description	Dimension (H x W)	Part Number
24-Port Category 5e Shielded Patch Panel	1.75″x 19″(1U)	LS-PP-SC5E-24P

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Contact Resistance : 20 Milli-ohm
- Insulation Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max
- Dielectric Withstanding Voltage : 1000 V
- Data Transmission Rates : 100 Mbps
- Plug Insertion Life : 750 Cycles
- Plug Retention Force : 30 lbs (133N)
- Temperature : -20℃ ~ 50℃ (-4℉ ~ 154℉)
- Humidity : 10% ~ 90%RH
- IDC Accept : 22~26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2 / ISO 11801
- Category 5e Transmission Performance
- Wiring Scheme : T568A/T568B

Materials

- Housing : ABS, UL 94V-0 Rated
- Jack Spring Wire : Phosphor Bronze with 50 Micro-inch (1.27 microns) Thick Gold Over 80 Micro-inch (2.03 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate or ABS, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze with 100 Micro-inch (2.54 microns) Thick Tin
- Panel : Powder Coated Steel with Gray Color

Category 5e UTP Mini Patch Panel

Description

This PCB 1U 12Port Mini Patch Panel comes complete with cable management, accessories and full installation instructions. It is half size of general Patch Panel for compact and flexible arrangement on system Rack. It fully complies with the requirements set out in TIA/EIA 568-B.2(Category5e), ISO/IEC 11801(Class D) & RJ-45 of 47 CFR part 68, TIA/EIA. The Patch Panel comes with the ability to wire to a T568B or T568A configuration.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps
- ISDN, ADSL
- Analog & digital voice (VOIP) and video
- Full broadband and baseband video
- RoHS Compliant
- 100Mbps TP-PMD

Part Numbers

Description	Dimension (L x W) (mm)	Part Number
180° 12-Port Category 5e Unshielded Mini Patch Panel with wire management	1.75" X 9.5" (1U)	LS-PPM-UC5E-12P

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Contact Resistance : 20 milli-ohm
- Insertion Resistance : 500 Megaohm
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃ ~ 68℃ (-40℉ ~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 22 ~ 26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A/T568B
- Korean Ministry of Information and Communication Approved

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate or ABS, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with 100 Micro-inch (2.54 microns) Minimum Thick Tin
- Panel : Steel with Black Painting

Category 5e Modular Jack

Description

LS Simple™ Category 5e modular jacks are designed and manufactured to meet today's and tomorrow's demanding international standards. They take into consideration the need for reliable and quick installations. The jack is individually terminated using Insulation Displacement Connectors (IDC) giving assurance of wire connection when using a punch down tool.
User instructions and basic wiring layout for standard configuration are included.
The LS Simple™ Modular Jack comes with the ability to wire to a T568A or T568B configuration and fully complies with TIA/EIA-568-B.2 (Category 5e) and ISO/IEC 11801(Class D) component performances

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant

Part Numbers

Description	Part Number
90° Category 5e Unshielded Modular Jack with T568A/B Label	LS-MJ-UC5E-XX
90° Category 5e Shielded Modular Jack with T568A/B Label	LS-MJ-SC5E-WH
90° Category 5e Unshielded Modular Jack with T568A/B Label and Shutter	LS-MJ-UC5E-XX-S
90° Category 5e Unshielded Modular Jack with T568A/B Label, Tool-Less	LS-MJ-UC5E-XX-TL
180° Category 5e Unshielded Modular Jack of RIDC with T568A/B Label	LS-MJ-UC5E-XX-RIDC
180° Category 5e Shielded Modular Jack of RIDC with T568A/B Label	LS-MJ-SC5E-WH-RIDC

XX denotes color : WH=White, IV=Ivory, BK=Black, BL=Blue, RD=Red
* Note : Shielded modular jack is available in white color only
Wall plate type is available in white and ivory color only

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃ ~ 68 ℃(-40℉ ~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 22 ~ 26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2 / ISO 11801
- Meet : FCC CFR 47 Part 68
- Wiring Scheme : T568A/T568B
- Korean Ministry of Information and Communication Approved

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Spring Wire : Phosphor Bronze Plated with 50 Micro-inch (1.27 microns) Thick Gold Over 100 Micro-inch (2.54 microns) Thick Nickel Undercoat
- IDC Plastic : Polycarbonate or ABS, UL 94V-0 Rated
- IDC Contact : Phosphor Bronze Plated with 100 Micro-inch (2.54 microns) Minimum Thick Tin
- Shielded : Copper Zinc Alloy, Pre-Plated with Bright Nickel

Category 5e Euro & 6C RJ45 Module

Description

The Enhanced Category 5e compact module is designed to provide a shallow solution for wall outlets. They are the ideal solution wherever back-box depth is an issue.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant

Part Numbers

Description	Dimension (L x W) (mm)	Part Number
Shuttered Low Profile Cat.5e Euro Module. RJ45 (8P8C) T568A/T568B	50 x 25	LS-MJ-EU-UC5E-WH
Shuttered Low Profile Cat.5e 6C Module. RJ45 (8P8C) T568A/T568B	38.5 X 25	LS-MJ-6C-UC6-WH

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Contact Resistance : 20 Milli-ohm
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃ ~ 68℃ (-40℉ ~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 24 ~ 26 AWG Solid Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2 / ISO 11801
- Meet : FCC Part 68
- Wiring Scheme : T568A/T568B

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated

Category 5e Patch Cord (Unshielded / Shielded)

Description

LS Simple™ Category 5e patch cords are factory terminated, providing the quality required to support your channel requirements. They are fully booted and have clip protection for simple removal. They offer a high performance alternative to satin modular line cords where crosstalk, EMI, or distance may be considerations. Cable consists of pairs of 24 AWG (0.51mm) wire, each four pair twisted at a different lay length.

Application

- Horizontal Distribution & Backbone Cabling
- 4/16 Mbps Token Ring (IEEE 802.5)
- 10/100/1000 BASE-T (IEEE 802.3)
- 155 Mbps ATM
- 100Mbps TP-PMD
- ISDN, ADSL
- RoHS Compliant

Part Numbers

Description	Part Number
Category 5e Unshielded Patch Cord with T568B Wiring	LS-PC-UC5E-X-YY-ZZZ
Category 5e Shielded Patch Cord with T568B Wiring	LS-PC-SC5E-X-YY-ZZZ

X denotes jacket material : V=PVC, Z=LSZH
YY denotes color : WH=White, BL=Blue, YL=Yellow, RD=Red, GN=Green, GY=Grey
ZZZ denotes meter : 005(0.5m), 010(1m), 050(5m), etc

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Contact Resistance : 20 Milliohm
- Insertion Resistance : 500 Megaohm
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -20℃~ 68℃(-4℉ ~ 154℉)
- Humidity : 10% ~ 90% RH

Materials

- Housing : Polycarbonate, UL 94V-2 Rated
- Cable Jacket : PVC, LSZH

Approvals

- Category : UL Listed, TIA/EIA-568-B.2 / ISO 11801
- Meet : FCC CFR 47 Part 68 and IEC 603-7
- Wiring Scheme : T568B

Category 5e 110 Block / Connecting Block

110 Block

Description

The 110 wiring blocks accept 22~26 AWG conductors. Blocks are available in 25, 50 and 100 pair sizes for backboard mounting.

Part Numbers

Description	Dimension (W x L x H) (mm)	Part Number
25-Pair, without Mounting Legs & Label Holders	214 x 38 x 40	LS-110WB-25P-W/O
50-Pair, without Mounting Legs & Label Holders	214 x 42 x 40	LS-110WB-50P-W/O
100-Pair, without Mounting Legs & Label Holders	214 x 88 x 40	LS-110WB-100P-W/O
50-Pair, with Mounting Legs & Label Holders	272 x 47 x 87	LS-110WB-50P-W
100-Pair, with Mounting Legs & Label Holders	272 x 92 x 87	LS-110WB-100P-W

Technical Details

- Material : PC, UL 94V-0 Rated

Connecting Block

Description

The 110 connecting blocks utilize double-ended insulation displacement contacts (IDC) that terminate 22-26 AWG solid or stranded conductors. The blocks are availabel in 3, 4, and 5-pair sizes with the appropriate color-coding. The connecting Blocks are complete with TIA/EIA 568B.2 (Category5e) and ISO/IEC 11801(Class D) performances.

Part Numbers

Part	Number	Part Number
3-Pair	Blue / Orange / Green	LS-110CB-3
4-Pair	Blue / Orange / Green / Brown	LS-110CB-4
5-Pair	Blue / Orange / Green / Brown / White	LS-110CB-5

Technical Details

- Material : PC, UL 94V-0 Rated

110 Patch Cord / Jumper Trough

110 Patch Cord

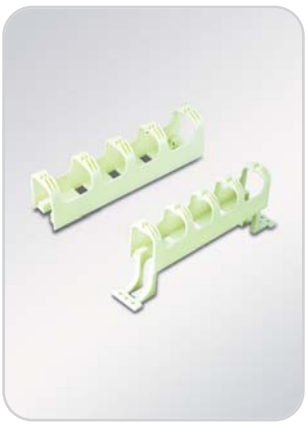
Description

The 110 patch cords are utilized for connecting with 110 cross-connect system used as jumper or end-user patch cords.

Part Numbers

Description	Part Number
110 Patch Cord, 1-Pair	LS-110PCC-1-XX-YYY
110 Patch Cord, 2-Pair	LS-110PCC-2-XX-YYY
110 Patch Cord, 3-Pair	LS-110PCC-3-XX-YYY
110 Patch Cord, 4-Pair	LS-110PCC-4-XX-YYY

YY denotes color : WH=White, BL=Blue, YL=Yellow, RD=Red, GN=Green, GY=Grey
ZZZ denotes meter : 005(0.5m), 010(1m), 050(5m), etc



Jumper Trough

Description

The 110 Jumper troughs are fire-retardant molded plastic frame, which serves as a horizontal cable management for routing of patch cords and cross-connect wire.

Part Numbers

Description	Part Number
110 Jumper Trough, 5 Wire Hangers without Legs	LS-JT-T1-W/O
110 Jumper Trough, 5 Wire Hangers with Legs	LS-JT-T2-W

Technical Details

- Material : PC, UL 94V-0 Rated

Third Party Accreditation (Category 5e)

Intertek ETL SEMKO

CERTIFICATE OF CONFORMANCE

This authorizes the application of the ETL Verified Mark shown below to the models described in the Product Description section when made in accordance with the conditions set forth in the Verification Agreement and Qualification Testing Report.

Certificate Number: 3097825CRT-005

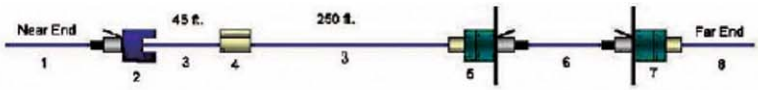
Applicant:
LS Cable
19-20F ASEM Tower
159 Samsung-dong Gangnam-gu
Seoul 135-798, Korea

Manufacturer:
LS Cable Ltd.
190 Gongdan-dong, Gumi,
Gyongsangbukdo, Korea

Contact: Mr. Tae-Seong Yoo

Mfg. Contact: Mr. Sang-Cheol Yeo

Report No.: 3097825



Product Description:

4 Connector Channel

Component ID	Manufacturer	Description	Part Number
1, 8	LS Cable	Equipment Cord, 3m	LS-PC-UC5E-XX-03
2	LS Cable	Wall Outlet	LS-MJ-UC5E-XX
3	LS Cable	Horizontal Cable	UTP-E-C5G-E1VN-R 0.5X0049/XX
4	LS Cable	110 Block	LS-110WB-25P-W/O
5, 7	LS Cable	Patch Panel	LS-PP-UC5E-24P
6	LS Cable	Cross Connect	LS-PC-UC5E-XX-03

The components identified above have been tested and found to comply with the applicable electrical transmission characteristics specified in ANSI/TIA-568-B.2 Category 5e.

This certificate, supported by your participation in the ETL Channel Verification Program, is authorization to apply the ETL Verification Mark to the Channel consisting of the components specified above. The marking shall include: ETL Verified Channel to ANSI/TIA-568-B.2 Category 5e.

Continuing compliance to this specification is monitored through production testing, quarterly inspections by Intertek at the production facility and random sample testing.

Date ETL Verified: 6/27/2006

Certificate Issued By: Kathy Heath

Kathy Heath, Program Administrator

This document is the property of Intertek ETL SEMKO and is not transferable. Only the Applicant may reproduce this document. The ETL Verified Mark may be applied only at the above noted location of the Party Authorized to Apply the Mark.

This document supersedes all previous ETL Verified Certificates of Conformance for the noted Certificate Number.

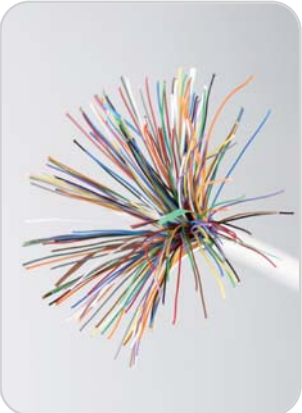
Intertek ETL SEMKO
3933 U.S. Route 11, Cortland, NY 13405
Telephone (607) 758-6641 or (800) 345-3851 Fax (607) 758-6637

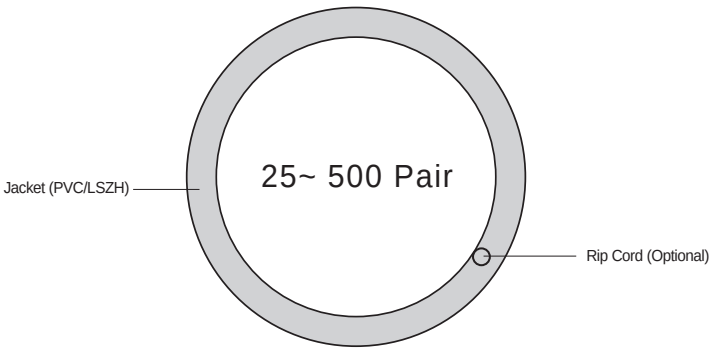
Simple™ Voice & Telephone

Category 3 U/UTP Cable 25 ~ 500 Pair

Unshielded Voice Patch Panel

Category 3 U/UTP Cable 25 ~ 500 Pair





Description

- All accepted design for global commercial network installation
- Simplified structured cabling solution preserving long-term network investment
- Electrical performances comply with TIA/EIA-568B.2

Application

- Backbone Cabling
- 4 Mbps Token Ring (IEEE 802.5)
- 10 BASE-T (IEEE 802.3)

Part Numbers

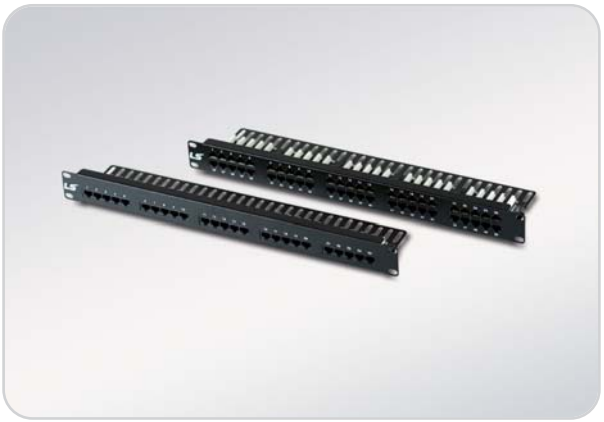
Description	Category 3 UTP Cable, 25-Pair		
Flame Retardant Grade	CMX	CM	CMR
Part Numbers	UTP-G-C3G-(1)1VN-X 0.5X(2)P/(3)	UTP-G-C3G-(1)1VN-M 0.5X(2)P/(3)	UTP-G-C3G-(1)1VN-R 0.5X(2)P/(3)

Denote : (1) E: PE, S: Foamskin
(2) ###: #Pair(004-500Pair)
(3) WH: White, BL: Blue, GY: Gray, VI: Violet, OR: Orange, RD: Red, GN: Green, YL: Yellow, BK: Black,

Technical Details

Item	Unit	PVC / LSZH
Conductor DC Resistance	Ohms/100 m	9.38
Resistance Unbalance	%	5
Mutual Capacitance	nF/100 m	6.6
Capacitance Unbalance	pF/100 m	330
Characteristic Impedance	Ohms	100 ±15%
Delay Skew	ns	45
Nominal Velocity of Propagation	%	70
Operating Temperature	℃/ ℉	-20 ~ 60 / -4 ~ 140
Storage Temperature	℃/ ℉	-20 ~ 80 / -4 ~ 176
Bending Radius		10 x Cable Diameter
Packaging Type	Option	Reel / Drum
Conductor Diameter / Material		24 AWG, Solid Copper
Insulation Diameter / Material	inch (mm)	0.031 (0.80) ϕ, HDPE
Jacket Diameter / Material	inch (mm)	0.39 (10.0) ϕ, PVC
Safety Standard, Performance Standard	UL 444 / CMX - UL1581, IEC332-1 / CM - UL1685, IEC332-3 / CMR - UL1666	
Approvals Performance	TIA/EIA-568-B.2 "Performance specifications for multi-pairs 100 Ohm Category 3 Cabling"	

Unshielded Voice Patch Panel



Description

These PCB 1U Voice Patch Panels are offered with 8 contact inserts wired to KRONE IDC or 110 terminal blocks. It meets all requirements set forth in ANSI/TIA/EIA-568-B.2 when using UTP cabling rated to 16MHz.

Part Numbers

Description	Dimension (H xW)	Part Number
25-Port Category 3 Unshielded Voice Patch Panel	1.75″x 19″(1U)	LS-TPP-25P
50-Port Category 3 Unshielded Voice Patch Panel	1.75″x 19″(1U)	LS-TPP-50P

Technical Details

Electrical / Mechanical Characteristics

- Current Rating : 1.5 Amps
- Contact Resistance : 20 Milli-ohm Max.
- Insertion Resistance : 500 Megaohm Min.
- DC Resistance : 0.1 ohm Max.
- Voltage : 150 Vac Max.
- Insertion Life : 750 Mating Cycles
- Plug Retention Force : 20 lbs (89N)
- Temperature : -40℃~ 68℃(-40℉~ 154℉)
- Humidity : 10% ~ 90% RH
- IDC Accept : 24 ~ 26 AWG Standard Wire

Approvals

- Category : UL Listed, TIA/EIA-568-B.2
- Meet : FCC Parts 68
- Wiring Scheme : USOC

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- IDC Plastic : Polycarbonate, UL 94V-0 Rated
- Panel : Steel with Black Painting

Faceplate

Empty Patch Panel / Faceplate / Back Box

Adaptor Insert

Surface Mount Box / Modular Plug

Simple™ Outlet

Faceplate

Description

These faceplates attractively house keystone jacks, in addition "F" TV connectors or LC, SC, ST fiber optic connectors that you can select and snap in according to your needs.

Euro RJ45 Faceplate & Bezel

Part Numbers

Description	Outer Dimension (L x W) (mm)	Inner Dimension (L x W) (mm)	Part Number
Single Gang Bevelled Frame	86 x 86	50 x 50	LS-FP-EU-BF-2
Single Gang Flat Frame	86 x 86	50 x 50	LS-FP-EU-FF-2
Double Gang Bevelled Frame	86 x 146	50 x 100	LS-FP-EU-BF-4
Double Gang Flat Frame	86 x 146	50 x 100	LS-FP-EU-FF-4
1/2 Blank Bezel	50 x 25	-	LS-FP-EU-BB-1/2
1/4 Blank Bezel	50 x 12.5	-	LS-FP-EU-BB-1/4

** Fit with Euro Module

Square Faceplate

Part Numbers

Description	Outer Dimension (L x W) (mm)	Inner Dimension (L x W) (mm)	Part Number
1-Port British Faceplate W/Shutter & Station ID	86 x 86	50 x 50	LS-FP-SF-1
2-Port British Faceplate W/Shutter & Station ID	86 x 86	50 x 50	LS-FP-SF-2
4-Port British Faceplate W/Shutter & Station ID	86 x 86	50 x 50	LS-FP-SF-4
1-Port Square Faceplate W/Station ID, Angled Shutter	86 x 86	50 x 50	LS-FP-SA-1
2-Port Square Faceplate W/Station ID, Angled Shutter	86 x 86	50 x 50	LS-FP-SA-2

** Fit with RJ45 Modular Jack

LJ6C RJ45 Faceplate & Bezel

Part Numbers

Description	Outer Dimension (L x W) (mm)	Inner Dimension (L x W) (mm)	Part Number
Single Gang British Bevelled 6C Frame	86 x 86	38.5 x 50	LS-FP-6C-BF-2
Double Gang British Bevelled 6C Frame	86 x 146	38.5 x 100	LS-FP-6C-BF-4
1/2 6C Blank Bezel	38.5 x 25	-	LS-FP-6C-BB-1/2
1/4 6C Blank Bezel	38.5 x 12.5	-	LS-FP-6C-BB-1/4

** Fit with 6C Module

Technical Details

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated

Empty Patch Panel / Faceplate / Back Box

Empty Patch Panel

Description

These unshielded/shielded empty patch panels come complete with cable management accessories and full installation instructions. Empty Panel holds the Shield Modular Jack, un-shield Modular Jack, Fiber Adaptor & coupler etc.

Part Numbers

Description	Dimension (L x W) (mm)	Part Number
24-Port Empty Patch Panel	1.75 X 19(1U)	LS-PP-24P-E
24-Port Empty Patch Panel with Wire Management	1.75 X 19(1U)	LS-PP-24P-E-WM
48-Port Empty Patch Panel	3.50 X 19(2U)	LS-PP-48P-E
48-Port Empty Patch Panel with Wire Management	3.50 X 19(2U)	LS-PP-48P-E-WM

It is used for keystone & SI type MJ, Shielded & Unshielded

Faceplate

Description

These faceplates are ideal for the installation of keystone jacks, available in 1, 2, 4 and 6 port or blank. Insert the units into plastic inserts before snap in the faceplates.

Part Numbers

Description	Dimension (L x W) (mm)	Part Number
1-Port Single Gang Faceplate	L113 x W70	LS-FP-US-1PORT
2-Port Single Gang Faceplate	L113 x W70	LS-FP-US-2PORT
4-Port Single Gang Faceplate	L113 x W70	LS-FP-US-4PORT
6-Port Single Gang Faceplate	L113 x W70	LS-FP-US-6PORT

Back Box

Description

The back box is designed to mount into a wall, floor, or other flat surface. Convenient "molded-in" rear and side cable entries easily accommodate Cat5e or Cat6 Cable or optical fiber. Unit includes screws and double-sided tape for mounting, rubber-door and cable tie.

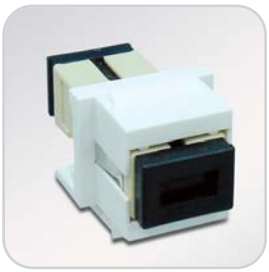
Part Numbers

Description	Dimension (L x W) (mm)	Part Number
Single Gang Mounted Box, H27mm	86 x 86	LS-BB-8686-27
Single Gang Mounted Box, H37mm	86 x 86	LS-BB-8686-37
Single Gang Mounted Box, H47mm	86 x 86	LS-BB-8686-47
Double Gang Mounted Box, H27mm	86 x 147	LS-BB-86147-27
Double Gang Mounted Box, H37mm	86 x 147	LS-BB-86147-27
Single Gang Mounted Box (US), H38mm	115 x 72	LS-BB-11572-38

Technical Details

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated

Adaptor Insert



Description

These adapter inserts are ideal for the installation of “F” NTSC-TV connectors or LC, SC, ST fiber optic connectors. Insert the units into plastic inserts before snap in the faceplates.

Application

Telecommunication Networks, Fiber To The Home (FTTH), Instrumentation, Fiber optic sensors, LANs, and CATV.

Part Numbers

Description	Part Number
Duplex LC/PC Insert Assembly, S.M., Ceramic (Zirconia) Sleeve	LS-AI-US-LC-SM
Duplex LC/PC Insert Assembly, M.M., Phosphor Bronze Sleeve	LS-AI-US-LC-MM
Simplex SC/PC Insert Assembly, S.M., Ceramic (Zirconia) Sleeve	LS-AI-US-SC-SM
Simplex SC/PC Insert Assembly, M.M., Phosphor Bronze Sleeve	LS-AI-US-SC-MM
Simplex ST/PC Insert Assembly, S.M., Ceramic (Zirconia) Sleeve	LS-AI-US-ST-SM
Simplex ST/PC Insert Assembly, M.M., Phosphor Bronze Sleeve	LS-AI-US-ST-MM

Technical Details

Electrical / Mechanical Characteristics

- Insertion Loss : ≦0.15dB Typical
- Durability : Max. 0.15dB Increase After 500-Cycle
- Retention Force : 200 ~ 600g
- Temperature : -20℃~ 70℃(-4℉ ~ 158℉)
- High-Performance Interconnections Offer Very Low Insertion Loss
- Ceramic (Zirconia) or Low-cost Phosphor Bronze Alignment Sleeves
- Adapters are Supplied with Dust Caps
- Environmental Stable

Materials

- Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated
- Sleeve : Ceramic (Zirconia) or Singlemode / Phosphor Bronze for Multimode
- Spring Plate : Stainless Steel

Part Numbers

Description	Part Number
Simplex “F” NTSC-TV Insert Assembly	LS-AI-US-TV-1
Blank Insert	LS-AI-US-BI-1
System Box Housing	LS-Housing

Surface Mount Box / Modular Plug

Surface Mount Box

Description

These surface mount boxes accommodate telecommunication ports & color icons. It is available in 8-conductor Keystone Jacks. The unit comes with mounting screws and double-sided adhesive tape for quick installation.

Part Numbers

Description	Dimension (L x W x H) (mm)	Part Number
1-Port Surface Box with Station ID & Shutter	65.2 x 48.2 x 26.8	LS-SMB-1PORT
2-Port Surface Box with Station ID & Shutter	65.2 x 76.0 x 26.8	LS-SMB-2PORT
4-Port Surface Box with Station ID & Shutter	65.2 x 131.8 x 30.0	LS-SMB-4PORT
6-Port Surface Box with Station ID & Shutter	65.2 x 189.0 x 30.0	LS-SMB-6PORT
Cat. 5e Assembled		
1-Port Surface Box with Station ID & Shutter	65.2 x 48.2 x 26.8	LS-SMB-UC5E-1PORT
2-Port Surface Box with Station ID & Shutter	65.2 x 76.0 x 26.8	LS-SMB-UC5E--2PORT
4-Port Surface Box with Station ID & Shutter	65.2 x 131.8 x 30.0	LS-SMB-UC5E--4PORT
6-Port Surface Box with Station ID & Shutter	65.2 x 189.0 x 30.0	LS-SMB-UC5E--6PORT
Cat. 6 Assembled		
1-Port Surface Box with Station ID & Shutter	65.2 x 48.2 x 26.8	LS-SMB-UC6-1PORT
2-Port Surface Box with Station ID & Shutter	65.2 x 76.0 x 26.8	LS-SMB-UC6-2PORT
4-Port Surface Box with Station ID & Shutter	65.2 x 131.8 x 30.0	LS-SMB-UC6-4PORT
6-Port Surface Box with Station ID & Shutter	65.2 x 189.0 x 30.0	LS-SMB-UC6-6PORT

Technical Details

- Material : High Impact Flame Retardant Plastic, UL 94V-0 Rated

Modular Plug

Part Numbers

Description	Part Number
8P8C for Round Cable, Stranded & Solid Wires Used (Category 5e)	LS-MP-UC5E-RJ45
8P8C for Round Cable, Stranded & Solid Wires Used (Category 6)	LS-MP-UC6-RJ45
6P4C for Round Cable, Stranded & Solid Wires Used	LS-MP-RJ11-CR
6P4C for for Flat Cable, Stranded Wire	LS-MP-RJ11-CF

Technical Details

Electrical / Mechanical Characteristics

- Rated Voltage, Current : 30V AC at 1.5A
- Contact Resistance : 20 Milli-ohm Max.
- Dielectric Strength : 1000V AC (RMS)
- Insulation Resistance : 500 Megaphm Min.
- Cable-to-Plug, Tensile Strength : 20 lbs (89N) Min.
- Durability : 750-Cycle Min.
- Temperature : -20℃ ~ 80℃ (-4℉~176℉)

Materials

- Housing : Polycarbonate (PC)
- Conacts : Copper Alloy Selective Gold Over Nickel Plating

Specification

- Meet : FCC CFR 47 Part 68 and IEC 603-7

Indoor Fiber Optic Cables

All Dielectric Single Jacketed Central Tube

900um 2fiber buffered Aramid yarn strength member

900um tight buffered Glass yarn strength member

900um tight buffered Aramid yarn strength member

ONFR(riser rated), OFNP(plenum rated) or LSZH rated

Micro Distribution Cable

Outdoor Fiber Optic Cables

All Dielectric Single Jacket Non-Armor Loose Tube Cable

All Dielectric Single Jacketed Multi Loose Tube with Polyamide Sheath for Insect-resistant

Fiber Optic Connectivit

Optical Fiber Distribution / Adaptor & Connector

LS Fiber Distribution Frame with Module Panel & Gland

LS-SC Field Installable Optical Connector

Installation Manual for Field Installable Optical Connector

Fiber Optic Jumper Cord & Fiber Optic Pigtail

Simple™ Fiber Solutions

Part Numbers (Indoor)

① Select Fiber Type
- SC = 9/125 ㎛ (ITU-T G652A,B)
- SE = 9/125 ㎛ (ITU-T G652C,D)
- HC = 62.5/125 ㎛ Standard
- HG = 50/125 ㎛ 1 Gbe
- MC = 50/125 ㎛ Standard
- MG = 50/125 ㎛ 1 Gbe
- MX = 50/125 ㎛ 10 Gbe 300 meter Link Length

② Fiber Count : 2 digit No.
- Ex. 6 Fiber Count : 06, 24Fiber Count : 24
- R = UL TYPE OFNR
- P = UL TYPE OFNP
- Z = LSZH TYPE

③ Sheath Color
- YL = Yellow
- OR = Orange
- AQ = Aqua
- BK = Black

④ 16 = 1.6 mm Diameter
- 18 = 1.8 mm Diameter
- 20 = 2.0 mm Diameter
- 24 = 2.4 mm Diameter
- 29 = 2.9 mm Diameter

Part Numbers (Outdoor)

① Select Central Strength Member
- D: FRP
- M: Steel wire

② Select Outer Strength Member
- G: Glass yarn
- K: Aramid

③ Select Jacket Type
- E..E: Polyethylene
- Z..Z: LSZH

④ Select Core Type
- B: Dry Core
- J: Jelly Filled

⑤ Select Fiber Type
- SC = 9/125 ㎛ (ITU-T G652A,B)
- SE = 9/125 ㎛ (ITU-T G652C,D)
- HC = 62.5/125 ㎛ 1 Gbe
- HG = 50/125 ㎛ Extended Distance
- MC = 50/125 ㎛ 1 Gbe
- MG = 50/125 ㎛ 10 Gbe 300 meter Link Length
- MX = 50/125 ㎛ 10 Gbe 300 meter Link Length

⑥ Select Fiber Count

❶ Select Fiber Type
- SE = 9/125 ㎛

❷ Max. Span(m)

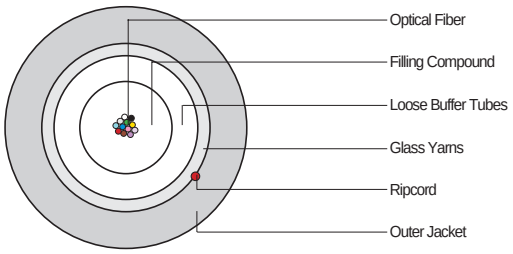
❸ Select Fiber Type
- SC = 9/125 ㎛ (ITU-T G652A,B)
- SE = 9/125 ㎛ (ITU-T G652C,D)

LS Fiber Optic Loose Tube Cable (Indoor)

All Dielectric Single Jacketed Central Tube

Description / Applications

- All dielectric Single Jacket Central Loose Tube cable is a UV-stabilized, fully water blocked cable for outdoor duct applications (PE outer jacket) or Indoor/Outdoor applications (LSZH outer jacket)
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- Compact design for limited conduit space
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied



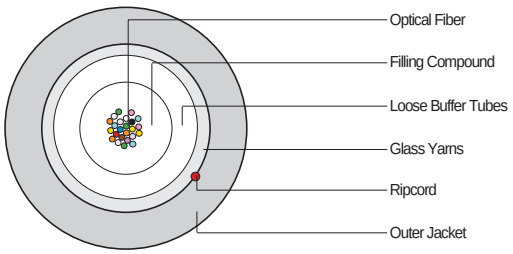
12-Fiber Cable

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- ITU-T G652

Options

- Fiber - Single mode, 50㎛, 62.5㎛multi mode available
- Sequential meter or footage markings
- Outer jacket : Black UV- and moisture-resistant Polyethylene or LSZH (Low Smoke Zero Halogen)



24-Fiber Cable

Color Identification

01 - Blue	07 - Red	13 - Blue / Single stripe	19 - Red / Single stripe
02 - Orange	08 - Black	14 - Orange / Single stripe	20 - Natural
03 - Green	09 - Yellow	15 - Green / Single stripe	21 - Yellow / Single stripe
04 - Brown	10 - Violet	16 - Brown / Single stripe	22 - Violet / Single stripe
05 - Slate	11 - Rose	17 - Slate / Single stripe	23 - Rose / Single stripe
06 - White	12 - Aqua	18 - White / Single stripe	24 - Aqua / Single stripe

Mechanical Characteristics

Storage Temperature : -20 to + 70℃ / Operating Temperature : -10 to + 60℃

Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load Short Term	Maximum Tensile Load Long Term	Crush Load Short Term	Crush Load Long Term	Minimum Bend Radius Loaded		Minimum Bend Radius Installed	
	[mm]	[inch]	[kg/km]	[lb/kft]	[N]	[N]	[N/cm]	[N/cm]	[mm]	[inch]	[mm]	[inch]
2	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
4	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
6	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
8	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
10	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
12	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
16	6.8	0.27	55	0.12	1200	600	220	110	136	5.35	68	2.71
18	6.8	0.27	55	0.12	1200	600	220	110	136	5.35	68	2.71
24	6.8	0.27	55	0.12	1200	600	220	110	136	5.35	68	2.71

Part Numbers

LSZH RATED : CT ☐☐ ZSJNA ☐☐
RISER RATED : CT ☐☐ RSJNA ☐☐
PLENUM RATED: CT ☐☐ PSJNA ☐☐
① ②

Transmission Performance

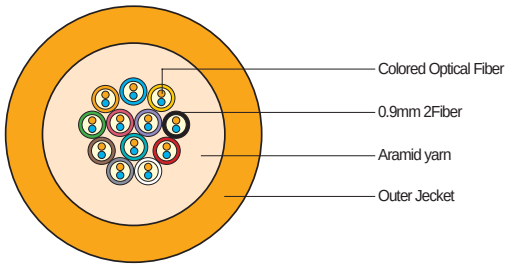
		9/125㎛ (1310/1550nm)	50/125㎛ Standard (850/1300nm)	50/125㎛ Gigabit (850/1300nm)	50/125㎛ 10Gigabit (850/1300nm)	62.5/125㎛ Standard (850/1300nm)	52.5/125㎛ Gigabit (850/1300nm)
Attenuation(dB/km) Typical values		0.4/0.3	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz •km)		-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps	-	-	-	300	-	-
	1Gbps	-	-	550/550	-	-	250/550

LS Fiber Optic Distribution Cable (Indoor)

900um 2fiber buffered Aramid yarn strength member

Description / Applications

- Fiber to the desk cable for very high speed multimedia application
- Rugged construction : 2 fiber buffer structure with individually protected tubes
- Color coded tubes to identify transmitting and receiving fibers
- Small size and light weight
- Simplify pulling and installation work



Specification

- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ ICEA S-83-596

Options

- Fiber - Single mode, 50㎛, 62.5㎛multi mode available
- Outer Jacket color
  - Single Mode : Yellow
  - 62.5/125μm 1Gbe : Orange
  - 50/125 ㎛1Gbe : Orange
  - 50/125 ㎛10Gbe : Aqua
- Outer jacket : PVC or LSZH (Low Smoke Zero Halogen)

Color of Buffer

01 - Blue	07 - Red
02 - Orange	08 - Black
03 - Green	09 - Yellow
04 - Brown	10 - Violet
05 - Grey	11 - Pink
06 - White	12 - Aqua

Color of Fiber

01 - Blue
02 - Orange

Mechanical Characteristics

Storage Temperature : -10 to + 70℃ / Operating Temperature : 0 to + 60℃

Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load		Crush Load		Minimum Bend Radius			
					Short Term	Long Term	Short Term	Long Term	Loaded		Installed	
	[mm]	[inch]	[kg/km]	[lb/kft]	[N]	[N]	[N/cm]	[N/cm]	[mm]	[inch]	[mm]	[inch]
2	2.9	0.11	10	0.02	300	150	35	13	58	2.28	29	1.15
4	4.5	0.18	20	0.04	660	300	35	13	90	3.54	45	1.79
6	5.2	0.20	23	0.05	660	300	35	13	104	4.09	52	2.07
8	5.3	0.21	25	0.06	660	300	35	13	106	4.17	53	2.11
12	5.7	0.22	30	0.07	660	300	35	13	114	4.49	57	2.27
16	6.0	0.24	35	0.08	660	300	35	13	120	4.72	60	2.39
24	6.7	0.26	40	0.09	660	300	35	13	134	5.28	67	2.67

Part Numbers

LSZH RATED : 2DT□□Z□□ □□
RISER RATED : 2DT□□R□□ □□
PLENUM RATED: 2DT□□P□□ □□
① ② ③

Transmission Performance

		9/125㎛ (1310/1550nm)	50/125㎛ Standard (850/1300nm)	50/125㎛ Gigabit (850/1300nm)	50/125㎛ 10Gigabit (850/1300nm)	62.5/125㎛ Standard (850/1300nm)	52.5/125㎛ Gigabit (850/1300nm)
Attenuation(dB/km) Typical values		0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz • km)		-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps	-	-	-	300	-	-
	1Gbps	-	-	550/550	-	-	250/550

LS Fiber Optic Distribution Cable (Indoor)

900um tight buffered Glass yarn strength member

Description / Applications

- Distribution cables are rugged, high performance optical communication cables for inside plant installations
- Backbone & Computer Room Cabling
- Compact design for limited conduit space
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied

Specification

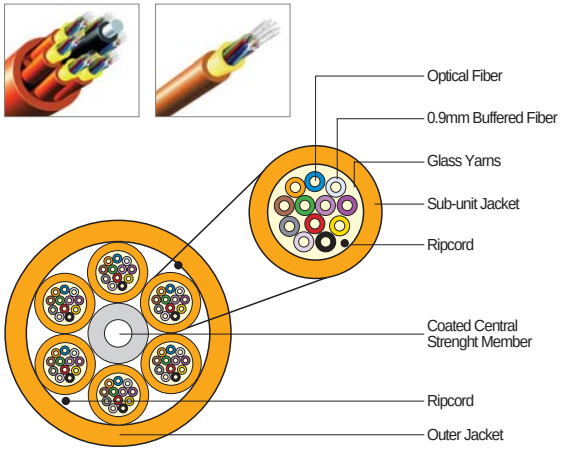
- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ ICEA S-83-596

Options

- Fiber - Single mode, 50㎛, 62.5㎛multi mode available
- Sub-unit & Outer Jacket color
  - Single Mode : Yellow
  - 62.5/125㎛1Gbe : Orange
  - 50/125㎛1Gbe : Orange
  - 50/125㎛10Gbe : Aqua
- If the cable will be used indoor/outdoor applications, outer cable jacket shall be black
- Outer jacket : PVC or LSZH (Low Smoke Zero Halogen)

Subunit Identification

The identification code & number is printed on the sub-unit jacket every 10 cm (eg. SM#1, SM#2)



Sub-Unit Construction Single Unit Construction

Color of Buffer

01 - Blue	07 - Red	13 - Blue / Black dash	19 - Red / Black dash
02 - Orange	08 - Black	14 - Orange / Black dash	20 - Black / White dash
03 - Green	09 - Yellow	15 - Green / Black dash	21 - Yellow / Black dash
04 - Brown	10 - Violet	16 - Brown / Black dash	22 - Violet / Black dash
05 - Grey	11 - Pink	17 - Grey / Black dash	23 - Pink / Black dash
06 - White	12 - Aqua	18 - White / Black dash	24 - Aqua / Black dash

Mechanical Characteristics

Storage Temperature : -20 to + 70℃ / Operating Temperature : -10 to + 60℃

Constuction	Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load Short Term	Maximum Tensile Load Long Term	Crush Load Short Term	Crush Load Long Term	Minimum Bend Radius Loaded		Minimum Bend Radius Installed	
		[mm]	[inch]	[kg/km]	[lb/kft]	[N]	[N]	[N/cm]	[N/cm]	[mm]	[inch]	[mm]	[inch]
Single Unit	2	4.5	0.18	25	0.06	660	300	35	13	90	3.54	45	1.79
	4	5.3	0.21	30	0.07	660	300	35	13	106	4.17	53	2.11
	6	5.7	0.22	35	0.08	660	300	35	13	114	4.49	57	2.27
	8	6	0.24	40	0.09	660	300	35	13	120	4.72	60	2.39
	12	6.7	0.26	50	0.11	660	300	35	13	134	5.28	67	2.67
	16	8.5	0.33	80	0.18	1320	660	50	13	170	6.69	85	3.38
	18	8.9	0.35	82	0.18	1320	660	50	25	178	7.01	89	3.54
	24	9.8	0.39	95	0.21	1320	660	50	25	196	7.72	98	3.90
6 Fiber Subunits	24*	13.9	0.55	180	0.40	1320	660	50	25	278	10.94	139	5.53
12 Fiber Subunits	48	18.3	0.72	295	0.65	1320	660	50	25	366	14.41	183	7.28

*Single mode 24fiber cable is subunit Construction only

Part Numbers

LSZH RATED : DT□□ GZ □□ □□
RISER RATED : DT□□ GR □□ □□
PLENUM RATED: DT□□ GP □□ □□
① ② ③

Transmission Performance

		9/125㎛ (1310/1550nm)	50/125㎛ Standard (850/1300nm)	50/125㎛ Gigabit (850/1300nm)	50/125㎛ 10Gigabit (850/1300nm)	62.5/125㎛ Standard (850/1300nm)	52.5/125㎛ Gigabit (850/1300nm)
Attenuation(dB/km) Typical values		0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz •km)		-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps	-	-	-	300	-	-
	1Gbps	-	-	550/550	-	-	250/550

LS Fiber Optic Distribution Cable (Indoor)

900um tight buffered Aramid yarn strength member

Description / Applications

- Distribution cables are rugged, high performance optical communication cables for inside plant installations
- Backbone & Computer Room Cabling
- Compact design for limited conduit space
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) optional

Specification

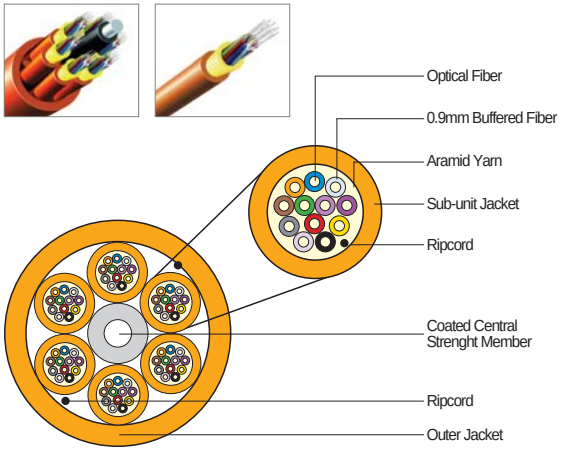
- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ ICEA S-83-596

Options

- Fiber - Single mode, 50㎛, 62.5㎛ multi mode available
- Sub-unit & Outer Jacket color
  - Single Mode : Yellow
  - 62.5/125 ㎛1Gbe : Orange
  - 50/125 ㎛1Gbe : Orange
  - 50/125 ㎛10Gbe : Aqua
- If the cable will be used indoor/outdoor applications, outer cable jacket shall be black
- Outer jacket : PVC or LSZH (Low Smoke Zero Halogen)

Subunit Identification

The identification code & number is printed on the sub-unit jacket every 10 cm (eg. SM#1, SM#2)



Sub-Unit Construction Single Unit Construction

Color of Buffer

01 - Blue	07 - Red	13 - Blue / Black dash	19 - Red / Black dash
02 - Orange	08 - Black	14 - Orange / Black dash	20 - Black / White dash
03 - Green	09 - Yellow	15 - Green / Black dash	21 - Yellow / Black dash
04 - Brown	10 - Violet	16 - Brown / Black dash	22 - Violet / Black dash
05 - Grey	11 - Pink	17 - Grey / Black dash	23 - Pink / Black dash
06 - White	12 - Aqua	18 - White / Black dash	24 - Aqua / Black dash

Mechanical Characteristics

Storage Temperature : -20 to + 70℃ / Operating Temperature : -10 to + 60℃

Constuction	Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load Short Term	Maximum Tensile Load Long Term	Crush Load Short Term	Crush Load Long Term	Minimum Bend Radius Loaded		Minimum Bend Radius Installed	
		[mm]	[inch]	[kg/km]	[lb/kft]	[N]	[N]	[N/cm]	[N/cm]	[mm]	[inch]	[mm]	[inch]
Single Unit	2	4.5	0.18	20	0.04	660	300	50	25	90	3.54	45	1.79
	4	5.3	0.21	25	0.06	660	300	50	25	106	4.17	53	2.11
	6	5.7	0.22	30	0.07	660	300	50	25	114	4.49	57	2.27
	8	6	0.24	35	0.08	660	300	50	25	120	4.72	60	2.39
	12	6.7	0.26	40	0.09	660	300	50	25	134	5.28	67	2.67
	16	8.5	0.33	70	0.15	1320	660	100	50	170	6.69	85	3.38
	18	8.9	0.35	75	0.17	1320	660	100	50	178	7.01	89	3.54
	24	9.8	0.39	90	0.20	1320	660	100	50	196	7.72	98	3.90
6 Fiber Subunits	24*	13.9	0.55	160	0.35	1320	660	100	50	278	10.94	139	5.53
12 Fiber Subunits	48	18.3	0.72	275	0.61	1320	660	100	50	366	14.41	183	7.28

*Single mode 24fiber cable is subunit Construction only

Part Numbers

LSZH RATED : DT□□ KZ □□ □□
RISER RATED : DT□□ KR □□ □□
PLENUM RATED: DT□□ KP □□ □□
① ② ③

Transmission Performance

		9/125㎛ (1310/1550nm)	50/125㎛ Standard (850/1300nm)	50/125㎛ Gigabit (850/1300nm)	50/125㎛ 10Gigabit (850/1300nm)	62.5/125㎛ Standard (850/1300nm)	52.5/125㎛ Gigabit (850/1300nm)
Attenuation(dB/km) Typical values		0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz •km)		-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps	-	-	-	300	-	-
	1Gbps	-	-	550/550	-	-	250/550

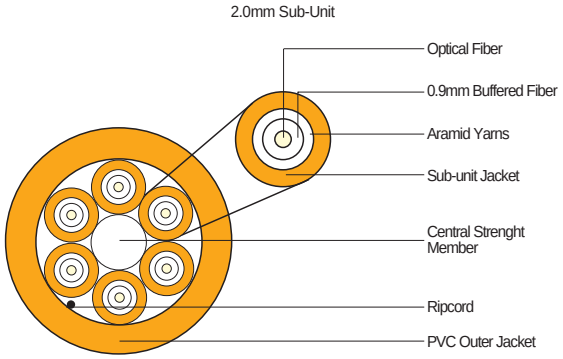
Simple™ Fiber Solutions

LS Fiber Optic Breakout Cable (Indoor)

ONFR(riser rated), OFNP(plenum rated) or LSZH rated

Description / Applications

- Breakout cables are rugged, high performance optical communication cables for inside plant installations
- OFNR(riser rated), OFNP(plenum rated) or LSZH (low smoke zero halogen rated)
- Backbone & Computer Room Cabling
- Direct Termination on 2.0 mm Sub-Units
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied



Specification

- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ ICEA S-83-596

Options

- Fiber - Single mode, 50㎛, 62.5㎛multi mode available
- Higher fiber counts available upon request
- Other Sub-Unit Diameters Available (1.8mm, 2.4 mm, 2.9mm etc.)
- Buffered fiber : Natural (white)
- Sub-unit & Outer Jacket color
  - Single Mode : Yellow
  - 62.5/125 ㎛1Gbe : Orange
  - 50/125 ㎛1Gbe : Orange
  - 50/125 ㎛10Gbe : Aqua

Subunit Identification

The identification code & number is printed on the sub-unit jacket every 10 cm (eg. 62.5MM#1, 62.5MM#2)

Mechanical Characteristics

Storage Temperature : -20 to + 70℃ / Operating Temperature : -10 to + 60℃

Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load		Crush Load		Minimum Bend Radius			
					Short Term	Long Term	Short Term	Long Term	Loaded		Installed	
	[mm]	[inch]	[kg/km]	[lb/kft]	[N]	[N]	[N/cm]	[N/cm]	[mm]	[inch]	[mm]	[inch]
2	7.5	0.30	50	0.11	660	300	35	13	150	5.91	75	2.98
4	7.7	0.30	55	0.12	660	300	35	13	154	6.06	77	3.06
6	8	0.31	65	0.14	660	300	35	13	160	6.30	80	3.18
8	9.5	0.37	85	0.19	660	300	35	13	190	7.48	95	3.78
12	10.5	0.41	95	0.21	1320	660	35	13	210	8.27	105	4.18

Part Numbers

LSZH RATED : BT□□KZ □□ □□
RISER RATED : BT□□KR □□ □□
PLENUM RATED: BT□□KP □□ □□
① ② ③

Transmission Performance

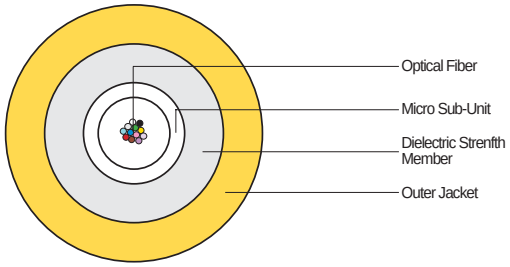
		9/125㎛ (1310/1550nm)	50/125㎛ Standard (850/1300nm)	50/125㎛ Gigabit (850/1300nm)	50/125㎛ 10Gigabit (850/1300nm)	62.5/125㎛ Standard (850/1300nm)	52.5/125㎛ Gigabit (850/1300nm)
Attenuation(dB/km) Typical values		0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz •km)		-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps	-	-	-	300	-	-
	1Gbps	-	-	550/550	-	-	250/550

LS Fiber Optic Distribution Cable (Indoor)

Micro Distribution Cable

Description

- Colored fiber, Micro sub-unit, dielectric strength member, Outer jacket
- Micro Sub-unit cable containing Max. 12 optical fibres
- Outer sheath: PVC OFNR(riser rated), PVC OFNP(plenum rated) or LSZH(low smoke zero halogen rated)
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied



Color of Fiber

01 - Blue	05 - Grey	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua

Color of Micro Sub-unit

Natural or white

Color of Sheath

SM-Yellow

MM-Orange

Mechanical Characteristics

Storage Temperature : -20 to + 70℃ / Operating Temperature : -10 to + 60℃

Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load Short Term	Maximum Tensile Load Long Term	Crush Load Short Term	Crush Load Long Term	Minimum Bend Radius Loaded		Minimum Bend Radius Installed	
	[mm]	[inch]	[kg/km]	[lb/kft]	[N]	[N]	[N/cm]	[N/cm]	[mm]	[inch]	[mm]	[inch]
2	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51
4	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51
6	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51
8	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51
12	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51

Part Numbers

LSZH RATED : MD□□ KZ□□ □□
RISER RATED : MD□□ KR□□ □□
PLENUM RATED: MD□□ KP□□ □□
① ② ③

Transmission Performance

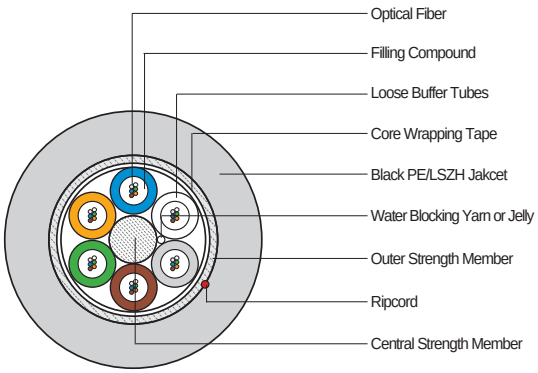
		9/125㎛ (1310/1550nm)	50/125㎛ Standard (850/1300nm)	50/125㎛ Gigabit (850/1300nm)	50/125㎛ 10Gigabit (850/1300nm)	62.5/125㎛ Standard (850/1300nm)	52.5/125㎛ Gigabit (850/1300nm)
Attenuation(dB/km) Typical values		0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz •km)		-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps	-	-	-	300	-	-
	1Gbps	-	-	550/550	-	-	250/550

LS Fiber Optic Multi Loose Tube Cable (Outdoor)

All Dielectric Single Jacket Non-Armor Loose Tube Cable

Description / Applications

- All dielectric Single Jacket Multi Loose Tube cable is a UV-stabilized, fully water blocked cable for In/Outdoor 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) Complied



36-Fiber Cable

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- IEC 60332-1,3
- IEEE 383

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua

Mechanical Characteristics

Storage Temperature : -40 to + 70℃ / Operating Temperature : -40 to + 70℃

Fiber Count	LS C&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load Short Term		Maximum Tensile Load Long Term		Crush Load Short Term		Crush Load Long Term		Minimum Bend Radius Loaded		Minimum Bend Radius Installed	
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	[N]	[lb]	[N]	[lb]	[N/cm]	[lb/inch]	[N/cm]	[lb/inch]	[cm]	[inch]	[cm]	[inch]
6	LT-DJB□□/□/□□-06	10.5/11.2	0.41/0.44	86/115	58/77	2,700	125	1,000	46	110	63	55	31	21/22.4	8.27/8.82	10.5/11.2	4.13/4.41
12	LT-DJB□□/□/□□-12	10.5/11.2	0.41/0.44	86/115	58/77	2,700	125	1,000	46	110	63	55	31	21/22.4	8.27/8.82	10.5/11.2	4.13/4.41
24	LT-DJB□□/□/□□-24	10.5/11.2	0.41/0.44	86/115	58/77	2,700	125	1,000	46	110	63	55	31	21/22.4	8.27/8.82	10.5/11.2	4.13/4.41
36	LT-DJB□□/□/□□-36	10.5/11.2	0.41/0.44	86/115	58/77	2,700	125	1,000	46	110	63	55	31	21/22.4	8.27/8.82	10.5/11.2	4.13/4.41
48	LT-DJB□□/□/□□-48	11.0/11.7	0.43/0.46	92/130	62/87	2,700	125	1,000	46	110	63	55	31	22/23.4	8.66/9.21	11.0/11.7	4.33/4.61
72	LT-DJB□□/□/□□-72	11.0/11.7	0.43/0.46	92/130	62/87	2,700	125	1,000	46	110	63	55	31	22/23.4	8.66/9.21	11.0/11.7	4.33/4.61
96	LT-DJB□□/□/□□-96	12.1/13.7	0.48/0.54	113/167	76/112	2,700	125	1,000	46	110	63	55	31	24/27.4	9.53/10.79	12.1/13.7	4.76/5.39
120	LT-DJB□□/□/□□-120	13.6	0.54	139	93	2,700	125	1,000	46	110	63	55	31	27	10.71	13.6	5.35
144	LT-DJB□□/□/□□-144	15.0	0.59	167	112	2,700	125	1,000	46	110	63	55	31	30	11.81	15	5.9
228	LT-DJB□□/□/□□-228	15.8	0.62	178	120	2,700	125	1,000	46	110	63	55	31	32	12.44	15.8	6.22
276	LT-DJB□□/□/□□-276	17.0	0.67	212	142	2,700	125	1,000	46	110	63	55	31	34	13.39	17	6.69
300	LT-DJB□□/□/□□-300	17.7	0.70	228	153	2,700	125	1,000	46	110	63	55	31	35	13.94	17.7	6.97

*denotes norminal value for PE / LSZH Jacketed Cable.

Part Numbers

LT-DJB□ □ / □ / □□ - □□
② ③ ④ ⑤ ⑥

Shipping Information

Standard Reel Length	4000m

*Other Cable lengths may be available upon request

LS Fiber Optic Multi Loose Tube Cable (Outdoor)

All Dielectric Single Jacketed Multi Loose Tube with Polyamide Sheath for Insect-resistant

Description / Applications

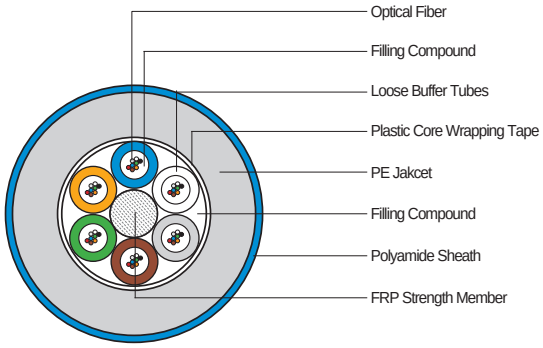
- All dielectric Single Jacket Multi Loose Tube cable is a UV-stabilized, fully water blocked cable for outdoor duct applications.
- Polyamide sheath construction provides resistance against insects.
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- This lightweight cable offers durability and flexibility required for many outside plant uses.

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- ITU-T G652

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



48-Fiber Cable

Mechanical Characteristics

Storage Temperature : -40 to + 80℃ / Operating Temperature : -30 to + 70℃

Fiber Count	LS C&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load Short Term		Maximum Tensile Load Long Term		Crush Load Short Term		Crush Load Long Term		Minimum Bend Radius Loaded		Minimum Bend Radius Installed	
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	[N]	[lb]	[N]	[lb]	[N/cm]	[lb/inch]	[N/cm]	[lb/inch]	[cm]	[inch]	[cm]	[inch]
4	LT□□SJNA04-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
8	LT□□SJNA08-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
16	LT□□SJNA16-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
24	LT□□SJNA24-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
32	LT□□SJNA32-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
48	LT□□SJNA48-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13

Part Numbers

LT□□SJNA □□-N
① ②

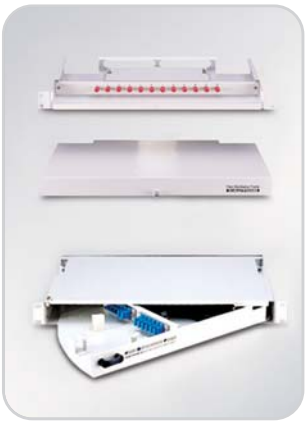
Shipping Information

Standard Reel Length	4000m

*Other Cable lengths may be available upon request

Optical Fiber Distribution / Adaptor & Connector





Optical Fiber Distribution

Part Numbers

Description	Part Number
FDF LC 19" Rack (Fiber Adaptors Outer Type)	LS-FDF-WW-XX-YYY-ZZ
FDF LC 19" Rack (Fiber Adaptors Inner Type)	LS-FDF-WW-XX-YYY-ZZ-I
FDF LC 19" Rack (Swing Type)	LS-FDF-WW-XX-YYY-ZZ-S

WW denotes SC,LC or ST etc / XX denotes SM(Single Mode) or MM(Multi Mode)
YYY denotes number of core / ZZ denotes SP(Simplex) or DP(Duplex)



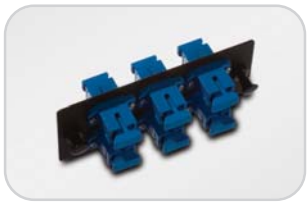
Adaptor & Connector

Part Numbers

Description	Part Number
LC Adaptor	LS-FA-LC-XX-Y-ZZ
SC Adaptor	LS-FA-SC-XX-Y-ZZ
ST Adaptor	LS-FA-ST-XX-Y-ZZ
LC Connector	LS-FC-LC-XX-Y-ZZ
SC Connector	LS-FC-SC-XX-Y-ZZ
ST Connector	LS-FC-ST-XX-Y-ZZ

XX denotes SM (Single Mode) or MM (Multi Mode)
Y denotes 1 or 2 Core
ZZ denotes Color : BL (Blue)-SM/PC, BG (Beige)-MM/PC, GN (Green)-SM/APC

LS Fiber Distribution Frame with Module Panel & Gland



Description

These Patch panels come complete with fiber cable wire management, Tray, accessories and full installation instructions. They fully comply with the requirements set out in TIA 19" Rack type. This holds the FDP(FDF Adaptor Panel) items.

Part Numbers

Description	Part Number
FDF without module panel	LS-FDF-EP-XX-YYY-A

XX Denotes U : 1U, 2U, 4U, 8U
YYY Denotes number of tray :E24(24core), E48(48Core), E72(P2Core), E96(96Core)

Part Numbers

Description	Part Number
FDF module panel (SC type)	LS-FDF-SC-XX-YYY-A
FDF module panel (LC type)	LS-FDF-LC-XX-YYY-A
FDF module panel (ST type)	LS-FDF-ST-XX-YYY-A
FDF Blank Panel	LS-FDF-BK-A

XX denotes SM (Single Mode) or MM (Multi Mode)
YYY denotes the Number of Cores

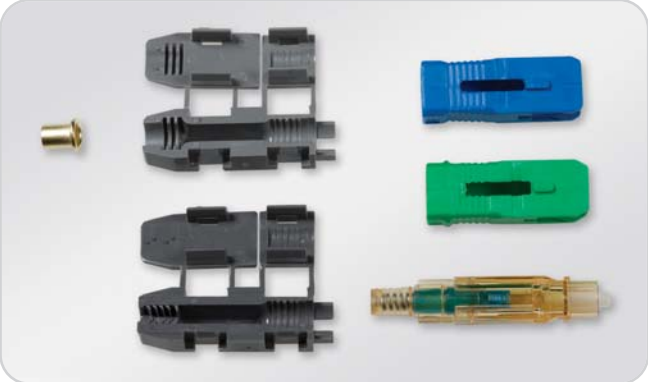
Description

These Glands are used as fiber cable holder in rear side of FDF.

Part Numbers

Description	Part Number
FDF Gland ϕ7	LS-GLAND-D7
FDF Gland ϕ9	LS-GLAND-D9
FDF Gland ϕ11	LS-GLAND-D11
FDF Gland ϕ13.5	LS-GLAND-D13.5
FDF Gland ϕ16	LS-GLAND-D16

LS-SC Field Installable Optical Connector



Description

- 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

Item	PCA	SM(1310/1550nm)	MM(850/1310nm)
Insertion Loss (against master plug)	≤ Max. 0.5dB	≤ Max. 0.5dB	≤ Max. 0.5dB
Return Loss	≥45	≥50	≥60
Cable retention		≥ 10N	
Application cable diameter		0.25mm fiber, 0.9mm tight buffer, 3.0mm cord or cable, 2.0mm Flat type cable	
Standard		IEC61754-4 GR-1081-CORE	
Operation Temperature		-40℃ ~ 70℃	

APC : 3.5° angled cleaving

Part Numbers

Description	Part Numbers
Fiber Optic Field Installable connector SC Type	FOSC-SC-WW-XXX-YY-ZZ
Fiber Optic Field Installable connector LC Type	FOSC-LC-WW-XXX-YY-ZZ

WW denotes polishing - PC : Physical Contact (SPC, UPC)
A5 : Angled Physical Contact (Return loss ≥50)
A6 : Angled Physical Contact (Return loss ≥60)

XXX denotes using cable diameter - 025 : 0.25mm Coated Fiber
(Boot inner size) 090 : 0.9mm Tight Buffer
200 : 2.0mm Flat
300 : 3.0mm cord

YY denotes housing color - BL : SM PC type (Blue)
GN : SM APC type (Green)
BG : MM PC type (Beige)

ZZ denotes boot color - BL : Blue, RD : RED, GN : Green
BK : Black, BG : Beige, GY : Grey

Installation Manual for Field Installable Optical Connector

LS-SC Assembly Procedure

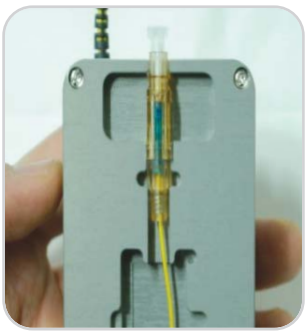
1. Boot insert in cable as above picture

2. Stripping coating around 20mm

3. Inserting cord after cleaning alcohol and fiber cutting(10mm) using tool

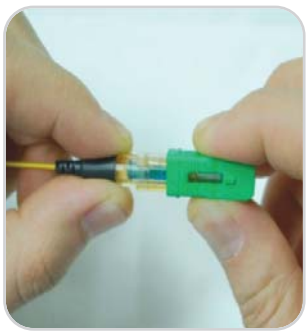
4. Inserting connector to Assembly tool

5. Inserting cable(fiber) until bending occurs(important)



6. Push push-holder toward front

7-1. Connect Ez-Sc to patch cord and beamig light (SUCCESS)
7-2. Connect Ez-Sc to patch cord and beamig light (FAILUER)



8. Inserting boot & housing

9. Connection completed

Fiber Optic Jumper Cord & Fiber Optic Pigtail





Description

- Pull Proof
- Very easy to Connect or Disconnect
- Low Insertion loss / Low Back Reflection
- Small & High Density
- Stable, Reliable, Excellent in severe Environment

Application

- Telecommunication networks
- Data Processing Systems
- Instrumentation
- CATV
- LANs and WANs
- Fiber Optic Test & Measurement System

Part Numbers

Description	Part Number
Fiber Optic Jumper Cord	LS-JC-A/B-C-D-E (-F-G-H)
Fiber Optic Pigtail	LS-PIG-A-C-D-E (-F-G-H)

A/B Denotes Connector type : SC, FC, ST, LC, MU, MTRJ, E2000 etc.
C Denotes Fiber type : SM, MM1(OM1), MM2(OM2), MM3(OM3)
D Denotes Cable type : SP (Simplex Cord), DP (Duplex Cord)
E Denotes Meter : 005(0.5m), 010(1m), 050(5m), 100(10m) etc.
* Option
F Denotes Boot color : BL (Blue), RD (Red), GN (Green), GY (Grey) - (*Unmarked type is as standard)
G Denotes Polishing : PC, UPC, APC (*Unmarked type is PC)
H Denotes Cable Outer Diameter : 0.9(ϕ0.9), 2.0(ϕ2.0), 3.0(ϕ3.0) - (*Unmarked type is 0.9)

General Specification

Fiber Type	SM(1310/1550nm)			MM(850/1310nm)
Polishing Type	PC	UPC	APC	PC
Insertion Loss	≤0.3dB			≤0.5dB
Return Loss	≥40dB	≥55dB	≥60dB	≥30dB

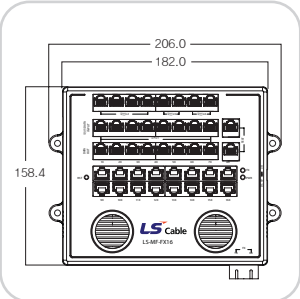
Note : PC (Physical Contact), UPC (Ultra Physical Contact), APC (Angled Physical Contact)

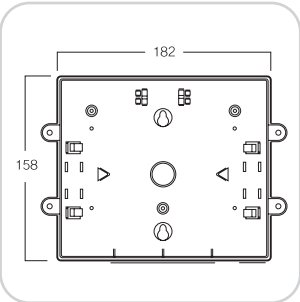
FTTx System

Switching Hub Series

Simple™ Multiplexer

FTTx System





Optical Switching Hub

Description

- Max transmission speed: 100 Mbps
- Stable switching hub module
- Telecommunication distribution equipment for the integrated IT sites
- 8 and 16 data ports
- Optical 100Base-FX 2 ports
- 10/100 Mbps switching hub
- Frontal connection access
- Auto reset in case of power emergency
- Compliant with IEEE802.3 10/100Base-TX and 100Base-FX
- Link test ports: 2 ports (Link-In/Link-Out)
- DIP switch adopted for outside line, accommodating four outside lines, which can be added
- Power fuse adopted, which prevents overcurrent
- Lightning protection for outside lines
- 24 ports for voice and four outside lines
- Voice support in case of black out

Application

- Ultra high speed broadband top grade service
- Cyber (fiber) apartment application
- FTTH, FTTO, FTTC

Technical Details

Class	Characteristics	Unit	Remarks
Data Port	10/100Mbps Switching Hub	-	
	IEEE802.3 / 802.3U Swap	-	
	Half-Duplex : Back Pressure Flow Control	-	
	Full-Duplex : IEEE802.3x Flow Control	-	
	Broadcast Storming Filter Function	-	
	1024 MAC Address	-	
	Auto Negotiation (10/100 Mbps Auto Sensor)	-	
	Auto MDI-X Function (Plug-and-Play Cable)	-	
	Auto Polarity (Cable +/- Auto Sensor)	-	
	Auto Power Reset (Auto-Reset)	-	
	LED Display (Power / Link / Act)	-	
Optical Port	Optical : Input 1310 ±10 / Output 1310 ±10	Nm	
	Level : Input -31dBm ~ -14dBm / Output -19dBm ~ -14dBm	dBm	
	Optical Cable : Multimode		
	Connector : SC-PC		
Voice Port	Max 4 outside lines (EIA/TIA 568A and 568B compliant)		
	Outside line 1: 14 voice ports; Outside line 2: 4 voice ports;		
	Outside line 3: 3 voice ports; Outside line 4: 2 voice ports		
	Voice support in case of black out		
Test Port	Cat. 5e linkage support		
	RJ45 Type containing 1 to 1 serial port		
Port	RJ45 4P8C Modular Jack	-	
Power	Input AC220 / Output DC 12/500	V , V/mA	
Temperature	-10 ~ 70 / 14 ~ 158	℃ / ℉	

Part Numbers

Description	Dimension (L x W x H) (mm)	Part Number
FTTx Switch Hub 16 Port	158 x 182 x 15	LS-MF-FX16
FTTx Switch Hub 8 Port	129 x 169 x 47	LS-MF-FX08
FDF SC Type (4Port)	158 x 182 x 19	LS-FDF-SC-MM-4(FTTx)

Switching Hub Series

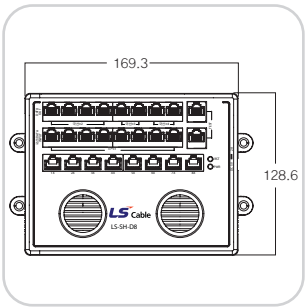
Switching Hub

Description

- Max transmission speed: 100 Mbps
- Stable switching hub module
- Telecommunication distribution equipment for the integrated IT sites
- 8 and 16 data ports
- 10/100 Mbps switching hub
- Frontal connection access
- Auto reset in case of power emergency
- Compliant with IEEE802.3 10/100Base-TX and 100Base-FX
- Link test ports: 2 ports (Link-In/Link-Out)
- DIP switch adopted for outside line, accommodating four outside lines, which can be added
- Power fuse adopted, which prevents overcurrent
- Lightning protection for outside lines
- 24 ports for voice and four outside lines
- Voice support in case of black out

Application

- Ultra high speed broadband first grade service



Technical Details

Class	Characteristics	Unit
Data Port	10/100Mbps Switching Hub	-
	IEEE802.3 / 802.3U	-
	Half-Duplex : Back Pressure Flow Control	-
	Full-Duplex : IEEE802.3x Flow Control	-
	Broadcast Storming Filter Function	-
	1024 MAC Address	-
	Auto Negotiation (10/100Mbps Auto sensor)	-
	Auto Polarity (Cable +/- Auto recognition)	-
	Auto Power Reset (Automatic Recovery Under Power Shortage)	-
	LED Display (Power / Link / Act)	-
Voice Port	Max 4 outside lines (EIA/TIA 568A and 568B compliant)	-
	Outside line 1: 14 voice ports; Outside line 2: 4 voice ports;	-
	Outside line 3: 3 voice ports; Outside line 4: 2 voice ports	
	Voice support in case of black out	
Test Port	Cat. 5e linkage support	
	RJ45 Type containing 1 to 1 serial port	
Port	RJ45 4P8C Modular Jack	
Power	Input AC220 / Output DC 5V/2A	V , V/mA
Temperature	-10 ~ 70 / 14 ~158	℃/ ℉

Part Numbers

Description	Dimension (L x W x H) (mm)	Part Number
Ethernet Switch Hub 16 Port	158 x 182 x 15	LS-SH-D16
Ethernet Switch Hub 8 Port	129 x 169 x 47	LS-SH-D08

ECX Series 75Ω Coaxial Cable

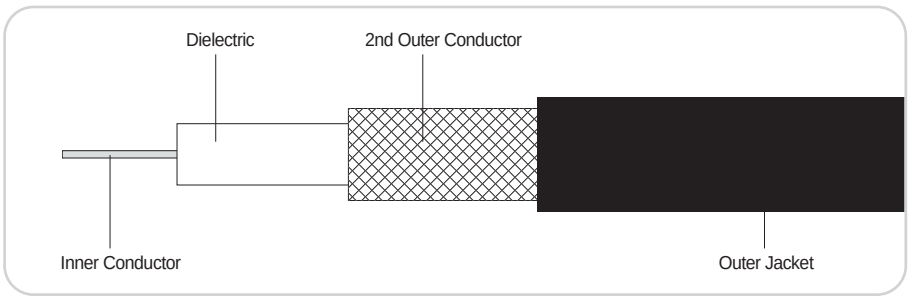
RG Series6 Coaxial Cable

RG Series6/11 Coaxial Cable

HFBT Series Coaxial Cable

Simple™ CATV Cable

ECX Series 75Ω Coaxial Cable



Description / Applications

- Bare Copper Conductor
- Solid Polyethylene Dielectric
- Bare Copper Braid
- Black PVC Jacket

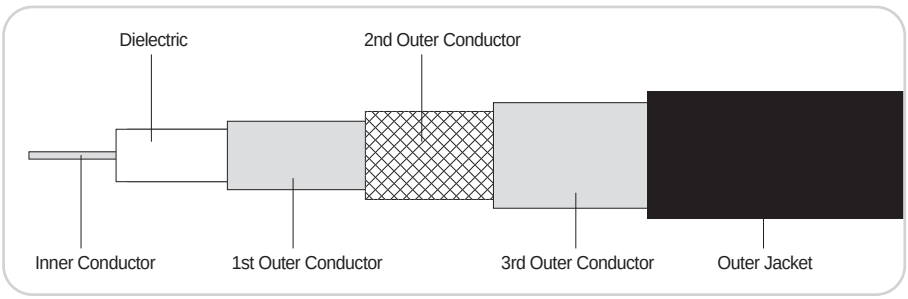
Characteristics

Material	Characteristics	3C-2V	5C-2V	7C-2V	10C-2V
		mm (inch)	mm (inch)	mm (inch)	mm (inch)
Inner Conductor	Bare Copper	0.40 (0.016)	0.80 (0.031)	7/0.40 (7/0.016)	7/0.50 (7/0.020)
Dielectric	Solid PE	2.40 (0.094)	4.90 (0.193)	7.30 (0.287)	9.40 (0.370)
1st Outer Conductor	-	-	-	-	-
2nd Outer Conductor	Copper Braid	3.00 (0.118)	5.60 (0.220)	8.20 (0.323)	10.40 (0.409)
3rd Outer Conductor	-	-	-	-	-
4th Outer Conductor	-	-	-	-	-
Floodant	-	-	-	-	-
Jacket	PVC	4.00 (0.157)	7.40 (0.291)	10.40 (0.409)	13.00 (0.512)

Electrical Specifications

Characteristic Impedance (Ω)	75 ±3	75 ±3	75 ±3	75 ±3
Velocity of Propagation (%)	66	66	66	66
Capacitance, Nominal (pF/m)	67	67	67	67
DC Resistannce (Ω/km) - Inner Conductor	91.40	35.90	20.70	13.10
Attenuation	Nominal@68 °F(20℃)			
Frequency (MHz)	dB/100m			
10	4.20	2.70	2.20	1.80

RG Series6 Coaxial Cable



Description / Applications

- Copper Covered Steel Conductor
- Foamed Polyethylene Dielectric
- Bonded AP Laminate Tape Shield
- 56% Aluminum Braid
- AP Laminate Tape Shield
- Black PVC Jacket

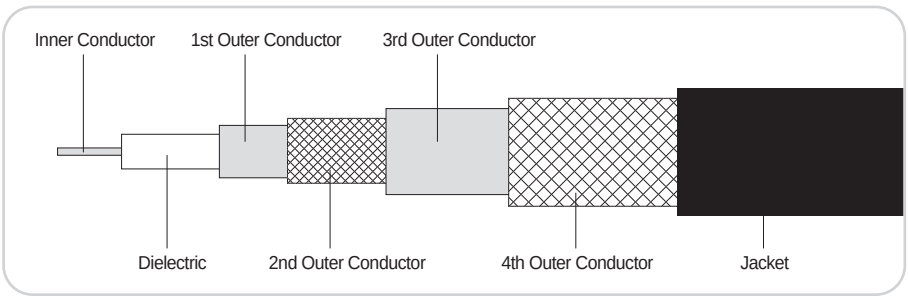
Characteristics

Material	Characteristics	5C
		mm (inch)
Inner Conductor	Copper Covered Steel	1.02 (0.0403)
Dielectric	Foamed Polyethylene	4.57 (0.18)
1st Outer Conductor	Sealed APA Tape	4.70 (0.185)
2nd Outer Conductor	56% Aluminum Braid	5.30 (0.209)
3rd Outer Conductor	Unsealed AP Tape	5.45 (0.215)
4th Outer Conductor	-	-
Floodant	-	-
Jacket	PVC	6.95 (0.274)

Electrical Specifications

Characteristic Impedance (Ω)	75±3
Velocity of Propagation (%)	85
Capacitance, Nominal (pF/m)	53.2
DC Resistannce (Ω/km) - Inner Conductor	100
Attenuation,	Nominal@68 ℉(20℃)
Frequency (MHz)	dB/100m
10	2.38
50	4.72
150	7.72
250	9.89
350	11.71
450	13.70
750	17.80
864	19.50
1000	21.53

RG Series6/11 Coaxial Cable



Description / Applications

- Copper Covered Steel Conductor
- Bonded AP Laminate Tape Shield
- APA Laminate Tape Shield
- Foamed Polyethylene Dielectric
- Aluminum Braid
- Black PVC Jacket

Characteristics

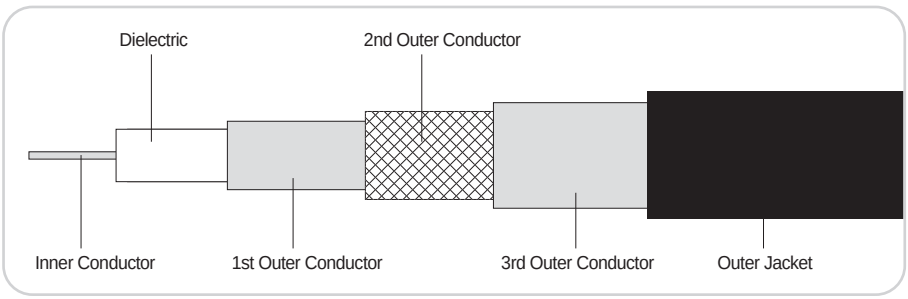
Material	Characteristics	Standard		Trishield		Quadshield	
		Series6	Series11	Series6	Series11	Series6	Series11
		mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
Inner Conductor	Copper Covered Steel	1.02 (0.0403)	1.63 (0.0641)	1.02 (0.0403)	1.63 (0.0641)	1.02 (0.0403)	1.63 (0.0641)
Dielectric	Foamed Polyethylene	4.57 (0.180)	7.11 (0.280)	4.57 (0.180)	7.11 (0.280)	4.57 (0.180)	7.11 (0.280)
1st Outer Conductor	Sealed APA Tape	4.70 (0.185)	7.32 (0.288)	4.70 (0.185)	7.32 (0.288)	4.70 (0.185)	7.32 (0.288)
2nd Outer Conductor	Aluminum Braid	5.30 (0.209)	7.92 (0.312)	5.30 (0.209)	7.92 (0.312)	5.30 (0.209)	7.92 (0.312)
	Coverage (%)	60	60	60/40	60	60	60/40
3rd Outer Conductor	Unsealed APA Tape	-	-	5.45 (0.215)	8.03 (0.316)	5.45 (0.215)	5.45 (0.215)
4th Outer Conductor	-	-	-	-	-	6.12 (0.241)	8.66 (0.341)
Jacket	PVC	6.95 (0.274)	10.20 (0.400)	7.06 (0.278)	10.20 (0.400)	7.54 (0.297)	10.30 (0.407)

Electrical Specifications

	Standard		Trishield		Quadshield	
	Series6	Series11	Series6	Series11	Series6	Series11
Characteristic Impedance (Ω)		75±3		75±3		75±3
Velocity of Propagation (%)		85		85		85
Capacitance, Nominal (pF/m)		53.2		53.2		53.2
DC Resistannce (Ω/km) - Inner Conductor	100.00		40.0 100.00		40.0 100.00	
40.0 - Outer Conductor	30.00	24.00	21.00	15.00	16.00	12.00
Attenuation,	Nominal@68 °F(20°C)					
Frequency (MHz)	dB/100m					
5	2.66	1.25	2.66	1.25	2.66	1.25
55	5.25	3.38	5.25	3.38	5.25	3.38
211	10.10	6.59	10.10	6.59	10.10	6.59
250	11.02	7.22	11.02	7.22	11.02	7.22
270	11.48	7.55	11.48	7.55	11.48	7.55
300	12.14	7.97	12.14	7.97	12.14	7.97
330	12.76	8.37	12.76	8.37	12.76	8.37
350	13.16	8.66	13.16	8.66	13.16	8.66
400	14.11	9.28	14.11	9.28	14.11	9.28
450	15.88	9.91	15.88	9.91	15.88	9.91
500	15.88	10.47	15.88	10.47	15.88	10.47
550	16.70	11.02	16.70	11.02	16.70	11.02
600	17.52	11.61	17.52	11.61	17.52	11.61
750	19.69	13.09	19.69	13.09	19.69	13.09
870	21.33	14.21	21.33	14.21	21.33	14.21
1000	22.97	15.32	22.97	15.32	22.97	15.32

HFBT Series Coaxial Cable

5C, 7C, 10C



Description / Applications

- Bare Copper Conductor
- Foamed Polyethylene Dielectric
- Non-Bonded APA Laminate Shield
- 60% Tinned Copper Braid
- AP Laminate Shield
- Black PVC Jacket

Characteristics

Material	Characteristics	5C	7C	10C
		mm (inch)	mm (inch)	mm (inch)
Inner Conductor	Bare Copper	1.20 (0.0470)	1.80 (0.071)	2.40 (0.094)
Dielectric	Foamed Polyethylene	5.00 (0.197)	7.30 (0.287)	9.40 (0.37)
1st Outer Conductor	Unsealed APA Tape	5.10 (0.201)	7.40 (0.291)	9.50 (0.374)
2nd Outer Conductor	60% Tinned Copper Braid	5.60 (0.22)	7.95 (0.313)	10.05 (0.395)
3rd Outer Conductor	Unsealed AP Tape	5.65 (0.222)	8.00 (0.315)	10.10 (0.398)
4th Outer Conductor	-	-	-	-
Floodant	-	-	-	-
Jacket	PVC	7.40 (0.291)	10.00 (0.394)	12.30 (0.484)

Electrical Specifications

Characteristic Impedance (Ω)	75±3
Velocity of Propagation (%)	85
Capacitance, Nominal (pF/m)	53.2
DC Resistannce (Ω/km) - Inner Conductor	16.6
Attenuation,	Nominal@68 ℉(20℃)
Frequency (MHz)	dB/100m
10	2.38
50	4.72
150	7.72
250	9.89
350	11.71
450	13.70
750	17.80
864	19.50
1000	21.53

Cabinet Rack

Open Rack

Rack Accessory

Overhead Routing System

Simple™ Rack & Cable Management

Cabinet Rack

Description & Application

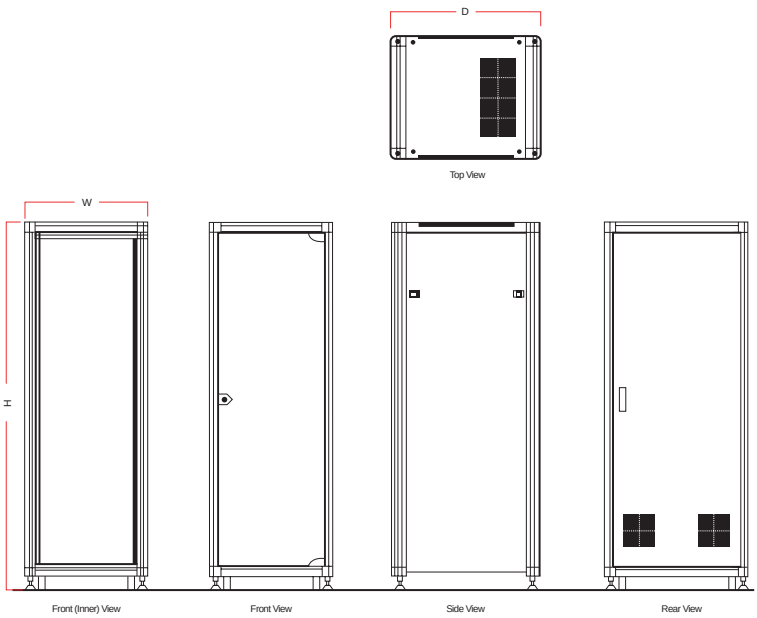
All standard 19″cabinets generally conform to (IEC297-Part1,2,3), (EIA RS-310-C), (DIN 41494 100) 19″ standard. LS Simple™ Cabinet Rack provides unsurpassed strength, stability and durability for supporting FDF, patch panels, high-density blocks, cabling and other telecommunication equipment.

- Light 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
- Finish : Ivory Powder Coat

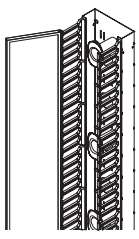
Dimension

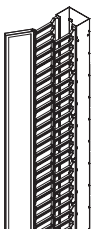
No.	Dimension (H x D x W), mm				Part Number
	H	U	D	W	
1	1,000	18	750	600 (19″)	LS-CR-1000
2	1,200	22	750	600 (19″)	LS-CR-1200
3	1,400	27	750	600 (19″)	LS-CR-1400
4	1,600	31	750	600 (19″)	LS-CR-1600
5	1,800	36	750	600 (19″)	LS-CR-1800
6	2,000	40	750	600 (19″)	LS-CR-2000
7	2,200	45	750	600 (19″)	LS-CR-2200

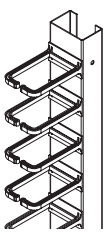
Configuration



Open Rack


Spool Kit


Finger Kit


D-ring Kit

Description & Application

All standard 19" rack generally conform to (IEC297-Part1,2,3), (EIA RS-310-C), (DIN 41494 100) 19" Standard. LS Simple™ Data Open Rack provides unsurpassed strength, stability and durability for supporting FDF, patch panels, high-density blocks, telecommunication equipment and data center cabling. Available various accessories.

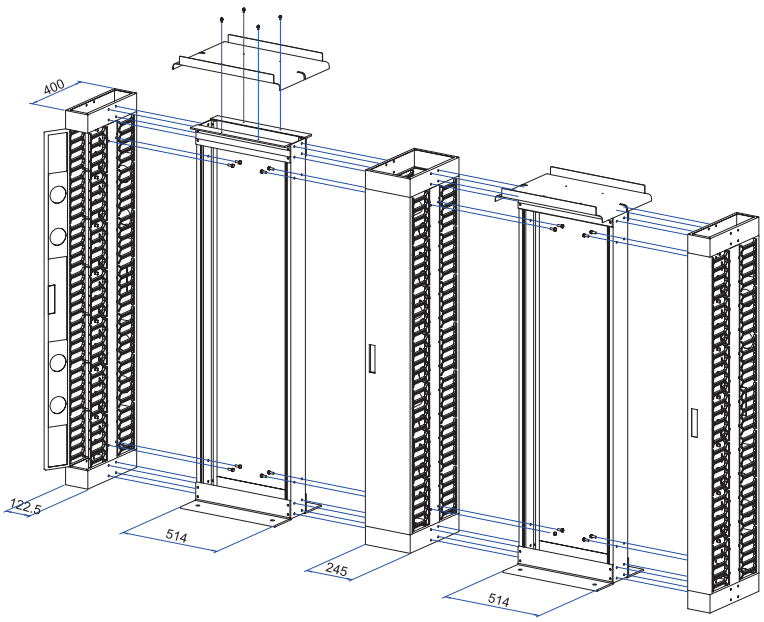
- Light Weight
- Material : 6063-T5 Aluminum Construction / 3.0T insulated plate / ground bar / 1.0T END Cover
- Options
  Upper tray / Finger Kit / Spool Kit
- Finish : Black Powder Coat

Dimension

No.	Description	Dimension (H x D x W), mm				Part Number
		H	U	D	W	
1	Open Rack	1,800	36	360	31	LS-OR-1800
2	Open Rack	2,000	41	360	35	LS-OR-2000
3	Open Rack	2,200	46	360	40	LS-OR-2200
4	Spool Kit	1,800 ~ 2,200	-	-	-	LS-OR-SK-XXXX
5	D-ring Kit	1,800 ~ 2,200	-	-	-	LS-OR-DK-XXXX
6	Finger Kit	1,800 ~ 2,200	-	-	-	LS-OR-FK-XXXX

* XXXX denotes H (height) : 1800 ~ 2200

Configuration



Rack Accessory

Entry Panel
19″, 1U (2Hole, 4Hole)

Blank Panel (1, 2, 3, 4, 5, 6U)

Rear Cable Bracket(Aluminium)
Rear Cable Arrangement(Steel)

Jumper Trough Panel
19″Rack Type

110 Block Panel
19″Rack Type (2U, 4U, 6U)

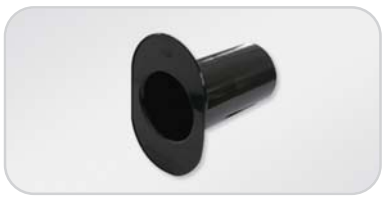
Surge Protector BRT
19″, 23″Rack Type

Ringrun Panel
19″, 23″Rack Type (1U, 2U)

Organizer Panel
19″23″ Rack Type (1U, 2U)

Wire Cable Bracket
19″Rack Type 1U

D-ring Cable Arrange



Spool Cable Arrange

Finger Bracket Cable Arrange

Ringrun Panel
19″, 23″Rack Type (1U, 2U)

Organizer Panel
19″23″ Rack Type (1U, 2U)

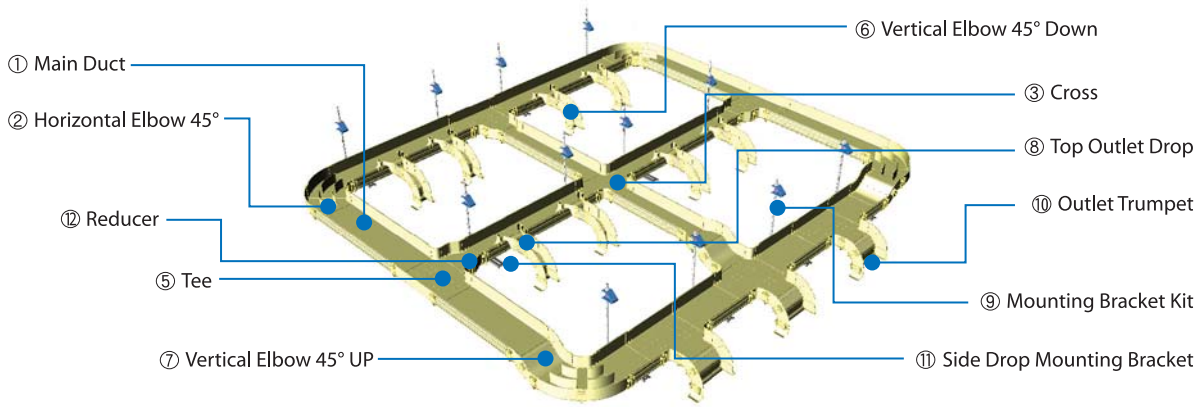
Wire Cable Bracket
19″Rack Type 1U

Rack Supporter
Open Rack Supporter
Min. 600 ~ Max. 1200 mm

Plinth
Open Rack Plinth
(H200, 250, 300 mm)

Power Strip
(4,6,8,10,14,20 outlets)
15A, 110/220V

Overhead Routing System



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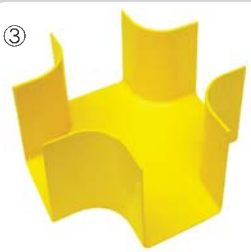
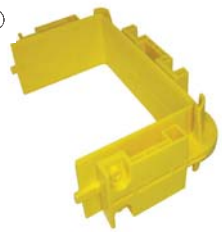


④



Description & Application

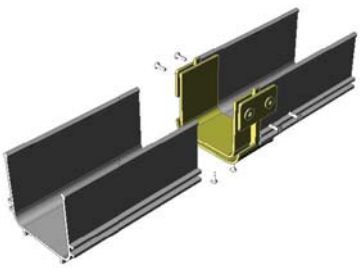
- Non-Toxic Material (RoHS, Halogen-Free)
- VO Flame retardant-UL 94
- Reliable Strength
- Provide Various Size
- UV resistant material
- Speedy installation-save time & manpower
- Effective protection for fiber optic cables inside
- No need special tools for installation
- Accommodate various raceway applications

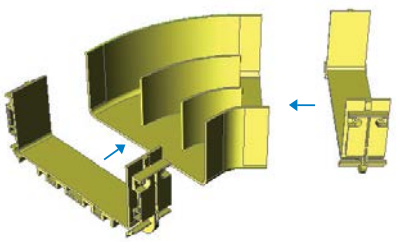
Dimension

Description	Dimension (W x H)	Part Number
①Main duct	• 300mm X 100mm • 220mm X 100mm • 160mm X 100mm • 100mm X 100mm • 50mm X 50mm	LS-DS-MD-XX-YY
②Horizontal Elbow 45°		LS-DS-HA-XX-YY
③Cross		LS-DS-CA-XX-YY
④Joiners		LS-DS-JI-XX-YY

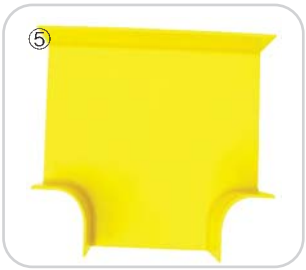
XX Denotes Size of Width : 05(50mm), 10(100mm), 16(160mm), 22(220mm), 30(300mm)
YY Denotes Color : YL(Yellow/Fiber), GY(Grey/Copper)
Standard length (Main duct) : 2m

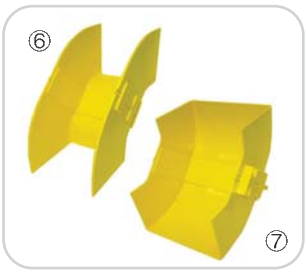
Installation

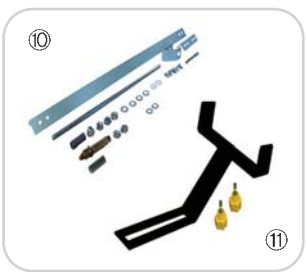




Overhead Routing System





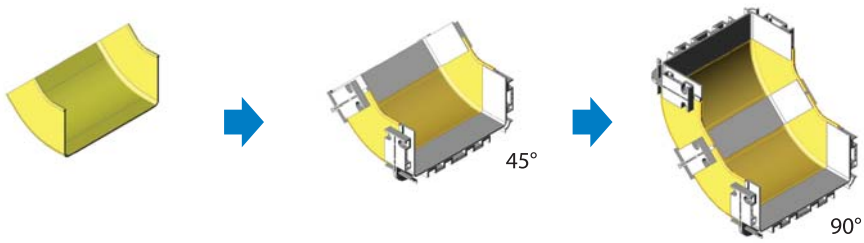


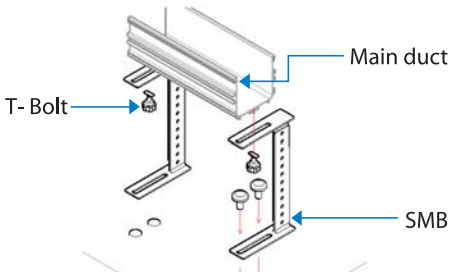
Dimension

Description	Dimension (W x H)	Part Number
⑤ Tee	• 300mm X 100mm • 220mm X 100mm • 160mm X 100mm • 100mm X 100mm • 50mm X 50mm	LS-DS-TA-XX-YY
⑥ Vertical Elbow 45° Down		LS-DS-DA-XX-YY
⑦ Vertical Elbow 45° Up		LS-DS-UA-XX-YY
⑧ Top Outlet Drop		LS-DS-DR-XX-YY
⑨ Outlet Trumpet		LS-DS-TP-XX-YY
⑩ Mounting Bracket Kit		LS-DS-MB-XX-YY
⑪ Side Drop Mounting Bracke	• 100mm X 100mm • 50mm X 100mm	LS-DS-SMB-XX-YY
⑫ Reducers	Step down	LS-DS-RD-XX-YY

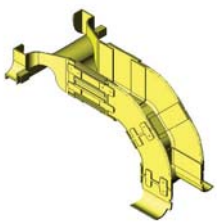
XX Denotes Size of Width : 05(50mm), 10(100mm), 16(160mm), 22(220mm), 30(300mm)
YY Denotes Color : YL(Yellow/Fiber), GY(Grey/Copper)
'Reducers' Part Number at XX (W) : 30 (300mm → 220mm), 22 (220mm → 160mm), 16 (160mm → 100mm), 10 (100mm → 50mm)

Installation





Configuration



Simple™ Intelligent Power Management Solutions

Intelligent Power Management Solutions

Monitoring Unit

Intelligent Power Distribution Unit (i-PDU)

Remote Monitoring Link Box

Sensors

Intelligent Power Management Software

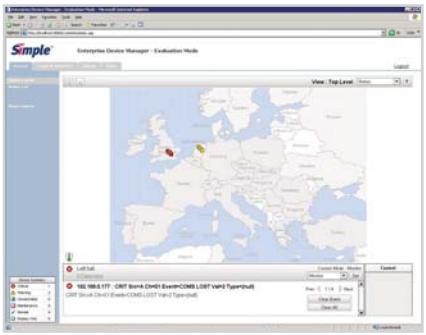
CL-Amp Kit Solution

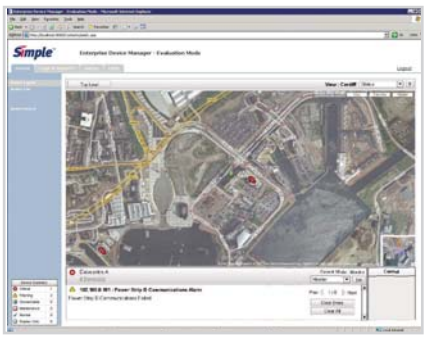
Simple™ Intelligent Power Management Solutions

One of the major concerns facing data centre planning & implementation is providing and controlling sufficient power. Technology, such as blade servers, require greater capacity, which also has an impact on ensuring continuity of supply. Add to this, the escalating cost of energy, and the requirement to have management information and control becomes ever more critical.

Why should you monitor (and manage) power?

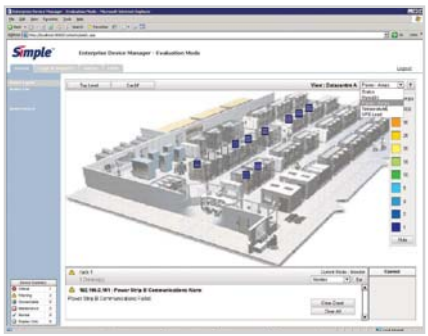
- Monitoring power usage
- Trending analyses
- Control of power, reducing wasted power
- Create a detailed picture of interdependent factors
- Early warning
- Enables automation
- Increase ROI
- Reduce risk
- Capacity and heat location Planning
- Phase balancing
- Remote rebooting / switching





A reliable and robust power supply to the network environment has to address:

- Adequate capacity for existing & future needs
- Monitoring, measuring & reporting power usage via multiple clients
- Billing stream capability for hosted clients
- Unauthorised use of power outlets / equipment deployment
- System load management (phase balancing, capacity planning etc)
- Recovery of locked servers via remote IP power cycling
- Alarming & trending of system/rack/PDU/outlet level overload conditions
- Status information can be gathered locally or remotely via secure authenticated IP access (LDAP) with RMS voltage, amps & kWh being easily visible or trended and displayed graphically.



Simple™ Intelligent Power Management Solutions

In addition to monitoring power, the need for environmental monitoring & control give today's modern data centre an environment that is monitored and controlled accurately, as stable environmental conditions are vital to ensure reliable and constant operation.

With environmental failures being one of the major causes of unplanned downtime and data loss, IT professionals responsible for delivering high availability networks are becoming increasingly aware of the need to protect networks at the physical level, i.e. the very environment that houses their computer equipment.

Areas of primary concern to the data centre and computer room manager are:

- temperature
- power
- access control

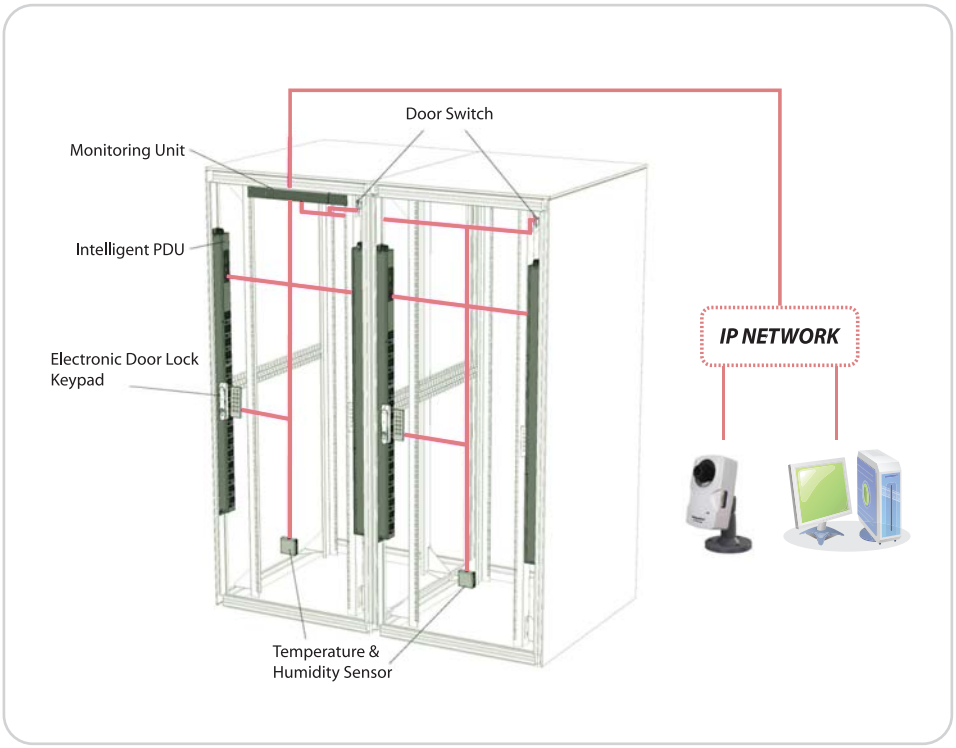
Temperature control is often top of the list, as all equipment has an optimum operating range and damage caused by exceeding this may invalidate manufacturers' warranties. The increase in data centre hot-spots has only exacerbated this problem, with increased power loads within the rack enclosures raising temperatures.
UPS, HVAC, fans and motion sensors can also be monitored remotely with an integrated system - thus from the micro-environment within the rack to the data centre or computer room in general, all aspects can be integrated & controlled with the high level of flexibility demanded by such a complex environment.

Benefits of IPM

- Reduced energy costs / wastage
- Lower Carbon usage
- Improved Security, linking with BMS
- Notification of key issues in real time
- Billing of power usage to internal or external clients
- Communication to your PDU's via IP over your structured cabling

Simple™ Intelligent Power Management Solutions

New Build Data Center Schematic



Alongside the delivery of reliable power to the network environment, issues of power management are also a key concern to the network manager: unauthorized use of power outlets, locked-up equipment, in-rush current, overloaded circuits, and the need of remote access to power outlets within a rack.

LS addresses these concerns with a range of intelligent power strips that coupled with LS's Power monitoring products can provide remote power control and remote power monitoring over IP, providing the benefits of

• SNMP management (gets / sets / traps) • Inbuilt web server • Telnet communications.

Additionally, the power strips have terminal emulation, which is accessible via a KVM switch. Uses of the intelligent power strip solutions include:

Power balancing

IT infrastructure managers can ensure that the individual phases available within the data center are correctly balanced.
This helps prevent infrastructure failure and makes more efficient used of power delivery components such as UPS, generator, harmonic filters etc.
This also enables the infrastructure to be matched to actual enterprise needs.

Power Availability check

Power is provided to the load point using normal power delivery equipment. This usually has a finite limit before a circuit breaker cuts in to prevent overloading and dropping the load (maybe your application servers!). This can be avoided by monitoring power closely.

Billing Stream

Monitoring KWhr enables certain organizations to bill their customers (Web hotels, hosting companies etc.) for consumed power thereby adding to their income revenues.

Remote Reboot & Power Control

Locked up or unresponsive equipment can be rebooted remotely, saving on site visits. In addition, the power strips can be used for sequenced start up of devices.

Simple™ Intelligent Power Management Solutions

Power Strip Features

- Individual fuses for each outlet-so one faulty load device won't take out an entire strip.
- Power is measured 4000 times per second-true RMS readings allow accurate KWhr readings.
- CE approved by an independent body.
- Each unit is PAT tested.
- Each unit is soak tested for a minimum 3 hours at load.
- 6mm sq cables which are better suited to the IT environment.

Monitoring Unit Features

- Individual outlet control (with individual password protection).
- Monitor RMS Volts / RMS Amps and KW/hr.
- Threshold alarms for Amps, Volts and KW / hr (LCL, LWL, UWL, UCL).

Operating and Physical Data for Power Strip Controllers

Communication	SNMP monitoring / management Telnet management
	JAVA monitoring / management applet ("Viewer ")
	WEB monitoringTerminal configuration
RS232 Port	RS232 for local configuration
Security	Telnet and WEB access password protection
Upgradeability	Firmware upgradeable using serial download
	or TFTP download
Standards and Certifications	CE

Kit Contents	Unit, config cable, CD, mains adaptor PSU, carton	
	Monitoring Unit	Monitoring Unit 2
Enclosure	Steel case with epoxy powder coating 75mm wide x 149mm	Aluminium case with epoxy powder coating 90mm wide x
	deep and 28mm high 0.32 kg weight	190mm deep and 32mm high 0.46 kg weight
LED Indicators	Status Network traffic	DC Power ON Status DC Network traffic RS232
PDU Port	2 x D9 male port	2 x RJ 6/4
Temperature Port	N/A	2 x RJ 4/4
Power	Input 1 x jack plug +12v DC	
LAN port	RJ45 way socket 10 BaseT	
Normal Power Usage	300mA	
Maximum Power	400mA	
Operating Range	0 ~ 40℃	
Operating Humidity	5 ~ 90%	
Storage Temperature	-10 ~ 70℃	
Storage Humidity	5 ~ 100%	

Monitoring Unit

Description & Application

Web and html based environmental monitoring and control unit.
The new generation Monitoring Unit answers the remote monitoring demands of data center managers with a focus on security, ease of use and increased monitoring support.
Access for configuration, monitoring and control is made both easy and secure with a new web based (https) interface. Along with an increase in basic functionality and overall flexibility, secure ease of use has been a main focus behind the Monitoring Unit. The intuitive web interface eliminates the need for complex serial set up processes completely.
Additionally, the Monitoring Unit delivers a unified, enterprise-wide view and access, via a single IP address, to all the attached devices, providing significant cost saving over other IP based monitoring offerings.
The Monitoring Unit combines with intelligent, switchable power strips to provide a complete and powerful remote power management and monitoring system over IP.

Features

- 12 x ports for sensors (combination of temperaturehumidity / Open, Close contacts).
- Auto detection on supported sensors.
- Support for 6 intelligent power strips.
- 4 x digital outputs.
- 2 x key pad input and door control.
- Secure Web Management and Control Interface (HTTPS).
- Optical Remote LCD display unit (for front of cabinet).

Operating Data

Power Supply	
Input Power	100 ~ 240 VAC
Input Connector	IEC Inlet C14
Power Consumption	(Max) 45W
Additional Information	Isolated supply and chassis ground
Power Supply Options	48V VDC power input
Dual Power Supply	

Operating Environment

Operating Temperature	0°ΔC to 45°ΔC -15°ΔC to 50°ΔC (Optional
	extended range)
Storage Temperature	-10°ΔC to 70°ΔC -40°ΔC to 70°ΔC (Optional
	extended range)
Operating Humidity	15% to 85% RH
Storage Humidity	5% to 90% RH
MTBF	> 100,000 Hrs

Features

Connectivity and Networking	
Network Type	Fast Ethernet (802.3u)
Network Connection	RJ45
Link Speeds	10/100 Mbps with auto negotiation
Network Indications	Network Link LED (Green),
	10/100 Mbps LED(Yellow)
Sensors	
Number of Inputs	12
Input Connector	RJ11-6/4
Parameters Monitored	Temperature, humidity,
	Open/Close contacts
Temperature Monitoring Range	0℃ to 60℃
Temperature Monitoring Accuracy	±5%RH @ 25℃
Temperature Hysteresis	Programmable 0.1℃ to 9.9℃ in 0.1
	increments
Humidity Monitoring Range	30% to 90% Relative humidity
Humidity Monitoring Accuracy	±5% RH @ 25℃
Humidity Hysteresis	Programmable 0.1%RH to 9.9%RH in
	0.1 increments
Analog Resolution	12 bit A/D
Additional Information	inputs are not isolated. Auto detection of
	supported LS sensors

Monitoring Unit

PDU Monitoring and Control

Number of Inputs	6
PDU Input Connector	Rj11 - 6/6
Parameters Monitored	Voltage, Current, kilo-watt hours(kWh),
	kilo volt-ampere (kVA)
Voltage Monitoring Range	0 V to 500 V
Voltage Monitoring Accuracy	± 2%
Current Monitoring Range	0 A to 65 A
Current Monitoring Accuracy	± 2%
Kilo-watt hours Monitoring Range	0 kWh to 429496729 kWh
Kilo-watt hours Monitoring Accuracy	Dependent on PDU
Kilo volt-ampere Monitoring Range	0 kWh to 429496729 kVA
Kilo volt-ampere Monitoring Accuracy:	N/A
Output Relays	
Number of outputs	4
Output Connectors	Screw lock WeidMuller (Outputs 1 and 2),
	Screw lock Phoenix Contact
	(Output 3 and 4)
Output modes	Normally Open, normally Closed
Maximum switching	48 V at 1 A (Resistive load)
Additional information	Outputs 1 and 2 offer a 12+ V DC
	supply fused at 1amp
Monitoring and Configuration	
The following monitoring	Web management interface via HTTP
and configuration methods	or HTTPS (Secure)
are provided	SNMP

LCD Status Monitor	
The optional backlit LCD	Summary page displaying configured
status monitor can display	PDUs and Inputs 1 and 2.
the following:	All 12 Digital Inputs.
	All 6 PDUs.
The following system	Firmware Version
information is also available	IP Address
	Subnet Mask
	Gateway
	MAC Address
Additional information	Backlit
	Powered from unit (no additional
	power source required)
Status indicators	
Units front panel provides	Power (Green)
the following LED	Status (Green)
indications	Network Link (Green)
	Network Speed (Yellow)
	Digital Output (Yellow)
	Analogue Input (Red)
	Digital Input (Red)

Intelligent Power Distribution Unit (i-PDU)

Description

The i- PDU's provides a modular and flexible solution for the Remote Monitoring, Control and Management of today's power needs to mission critical and remote equipment, where zero down time and maximisation of operations is a pre-requisite. The i-PDU's are available in 10, 13, 16 and 32 Amp load ratings. Used with the Link Box Distribution Units, a total Power Monitoring and Control solution, is provided, meeting all Data Center, and Computer Room applications. The i-PDU's offer a wide range of options, including, a range of socket outlet types, 13A UK, International and C13, C19, [individually fused with Power on indicators], Vertical and 19" Horizontal mount, Ideal for large Servers, Disk Storage Arrays, Blade server enclosures and Network switches. As an Integral part of the LS Integrated solution, the i-PDU's can sequentially Power up socket outlets to protect against Current inrush, Remotely Power on/off individual socket outlets, accurately Measures critical Power information via secure polling and real time SNMP. The Intelligent Management Software, can be used to Monitor, Control, Generate out of norm and critical Alarms, Management Reports and Trend Analysis, to provide truly Integrated and tailored solutions, meeting customer specific requirements.

Standard Features include

- Integrated, Scalable, Modular solution
- Economical, cost effective
- Range of Socket outlet types
- Up to 24 socket outlets
- Sequential Power up
- Remote Power on/off of individual sockets
- 10, 16 and 32Amp load rating options
- Single or multi site applications
- Fully featured Management Platform
- Set alarm thresholds provide Management, Trend analysis Reporting
- Local LCD display of Voltage, Current and kWhr
- CE Approved
- Remote Current, Voltage and kWhr monitoring
- Vertical and 19", Horizontal rack mounting options
- Easy to use
- Secure real time SNMP and Polling

Specification

Connectivity	EIA RS232 or RS485 Modbus
Rated Voltage	230V, AC Nominal
Rated Current	Up to 32A, AC
Rated Frequency	48 Hz to 62 Hz.
Operating Temperature	-10 to +85 degrees Celsius
Measuring Accuracy	+/-2%, kWhr to EN61036, IEC1036, EN1010-1
Local Display	LCD of current, Voltage and kWhr
Display Resolution	1 Volt, 0.01 Amp, 0.1 kWhr
Max socket rated Current	16A
Breaking Voltage	230v AC/440V AC
Max Breaking Capacity	4000VA
Max socket Current	30A, at 4 sec at duty cycle 10%
Peak inrush Current	80A [20 ms]
Input Cable length	3 Metres
Mechanical Dimensions:	Please refer to Data Sheet Drawings
Material	Metal, Colour Black

Please note

Other options are available on request. Please contact LS's Sales office

Intelligent Power Distribution Unit (i-PDU)

Part Numbers

Item	Part Description Code	Part No	Description
i-PDU's	PDU-H-16-RMC-COM16-N3-8C13-IF-P	LS-IPDU-2215	Mon + Cont, 16A, 8 10A IEC's Horizontal ind fuse/neon, Com plug
10A IEC [C13's]	PDU-H-32-RMC-COM32-N3-8C13-IF-P	LS-IPDU-2225	Mon + Cont, 32A, 8 10A IEC's Horizontal ind fuse/neon, Com plug
	PDU-H-16-RMC-COM16-N3-12C13-IF-P	LS-IPDU-2235	Mon + Cont, 16A, 12 10A IEC's Horizontal ind fuse/neon, Com plug
	PDU-H-32-RMC-COM32-N3-12C13-IF-P	LS-IPDU-2245	Mon + Cont, 32A, 12 10A IEC's Horizontal ind fuse/neon, Com plug
	PDU-V-16-RMC-COM16-T3-12C13-IF-P	LS-IPDU-2315	Mon + Cont, 16A, 12 10A IEC's Vertical ind fuse/neon Com plug
	PDU-V-16-RMC-COM16-T3-16C13-IF-P	LS-IPDU-2325	Mon + Cont, 16A, 16 10A IEC's Vertical ind fuse/neon Com plug
	PDU-V-16-RMC-COM16-T3-24C13-IF-P	LS-IPDU-2335	Mon + Cont, 16A, 24 10A IEC's Vertical ind fuse/neon Com plug
	PDU-V-32-RMC-COM32-T3-12C13-IF-P	LS-IPDU-2345	Mon + Cont, 32A, 12 10A IEC's Vertical ind fuse/neon Com plug
	PDU-V-32-RMC-COM32-T3-16C13-IF-P	LS-IPDU-2355	Mon + Cont, 32A, 16 10A IEC's Vertical ind fuse/neon Com plug
	PDU-V-32-RMC-COM32-T3-24C13-IF-P	LS-IPDU-2365	Mon + Cont, 32A, 24 10A IEC's Vertical ind fuse/neon Com plug
i-PDU's	PDU-V-16-RMC-COM16-T3-8UK-NF-P	LS-IPDU-3115	Mon + Cont,16A,8UK,Vertical, Com plug
PDU's 13A UK	PDU-V-16-RMC-COM16-T3-12UK-NF-P	LS-IPDU-3125	Mon + Cont,16A,12UK,Vertical, Com plug
	PDU-V-16-RMC-COM16-T3-16UK-NF-P	LS-IPDU-3135	Mon + Cont,16A,16UK,Vertical, Com plug
	PDU-V-32-RMC-COM32-T3-8UK-NF-P	LS-IPDU-3145	Mon + Cont,32A,8UK,Vertical, Com plug
i-PDU's	PDU-V-16-RMC-COM16-T3-4C19 20C13-IF-P	LS-IPDU-4115	Mon + Cont,16A, 4 16A 20 10AIEC'sVertical indfuse/neon Com plug
MIXED SOCKETS	PDU-V-32-RMC-COM32-T3-4C19 20C13-IF-P	LS-IPDU-4125	Mon + Cont,32A,4 1 6A,20 10AIEC'sVertical indfuse/neon Com plug
	PDU-V-16-RMC-COM16-T3-4UK 20C13-IF-P	LS-IPDU-4115	Mon + Cont,16A, 4UK, 20 10AIEC's Vertical indfuse/neon Com plug
	PDU-V-32-RMC-COM32-T3-4UK 20C13-IF-P	LS-IPDU-4125	Mon + Cont,32A, 4UK, 20 10AIEC's Vertical indfuse/neon Com plug

Customer Specific i-PDU's are available on request, as defined by the product Coding Matrix and allocated a PDU 7000 series Part No

Please note

Other options are available on request. Please contact LS's Sales office

Remote Monitoring Link Box

Description

The LS Link Box provides a modular and flexible solution for the Remote Monitoring and Management of today's power needs to mission critical and remote equipment, where zero down time and maximisation of operations is a pre-requisite.

The LS Link Box is available in 16 Amp, 32 Amp Single phase and 32 Amp, 63 Amp Three phase options. Used with The LS Power Distribution Units, a total Power Monitoring and Control solution, is provided, meeting all Data Center, and Computer Room applications.

The LS Link Box is specifically designed for devices requiring one or more direct power feeds. Ideal for large Servers, Disk Storage Arrays, Blade server enclosures and Network switches. The devices can be free standing or installed in Server cabinets for New Build and Retrofit fit applications.

As an Integral part of the LS Integrated solution, The LS Link Box accurately Measures critical Power information via secure polling and real time SNMP.

The LS Intelligent Management Software, can be used to Monitor, Control, Generate out of norm and critical Alarms, Management Reports and Trend Analysis, providing truly Integrated and tailored solutions, to meet customer specific requirements.

Standard Features include

- Integrated, Scalable, Modular solution
- Economical, Cost effective
- New build and Retro fit applications
- Single or multi site applications
- Range of load rating options
- Fully featured Management Platform
- Set alarm thresholds provide Management, Trend analysis Reporting
- Single and Three phase solutions
- CE Approved
- Remote Current, Voltage and kWh monitoring
- 19", ETSI Horizontal rack mounting
- Easy to use
- Simple to install
- Secure real time SNMP and Polling

Specification

Connectivity	EIA RS232 or RS485 Modbus
Rated Voltage	230V, AC Nominal Single Phase, 415V, AC Nominal Three Phase
Rated Current	Up to 32A, Single Phase, Up to 63A, Three Phase
Rated Frequency	48 Hz to 62 Hz.
Operating Temperature	-10 to +85 degrees Celsius
Measuring Accuracy	+/-2%, kWhr to EN61036.IEC1036
Local Display	LCD of current, Voltage and kWhr
Display Resolution	1 Volt, 0.01 Amp, 0.1 kWhr
Input Plug/Cable length	IEC 309, 2 Metres
Output Plug/Cable length	IEC 309, 2 Metres
Mechanical Dimensions:	1U, 19" [Single Phase] Lxxx mm, W xxx, H xx mm
Material	Metal, Colour Black [Single Phase]
	Rugged Plastic [Three Phase]
Safety Standards	EN 60950-2000, EN 61010-1

Part Numbers

AA	Description	Part No	Description
Link Box	PDU-SLB-16	LS-IPDU-1110	Single supply Link Box 16A IEC 309 Plugs and Sockets
Single Phase	PDU-SLB-32	LS-IPDU-1120	Single supply Link Box 32A IEC 309 Plugs and Sockets
	PDU-DLP-16	LS-IPDU-1210	Dual supply Link Box 16A IEC 309 Plugs and Sockets
	PDU-DLP-32	LS-IPDU-1220	Dual supply Link Box 32A IEC 309 Plugs and Sockets
Link Box	PDU-SLB-32T	LS-IPDU-1110T	Single supply Link Box 32A IEC 309 Plugs and Sockets
Three Phase	PDU-SLB-63T	LS-IPDU-1120T	Single supply Link Box 63A IEC 309 Plugs and Sockets

Please note

Other options are available on request. Please contact LS's Sales office

Sensors

Temperature Sensor Part No : LS-IPM-H2-S-T

Technical Details

Temperature Monitoring Range: 0℃ to 60℃
Temperature Monitoring Accuracy: ± 5% Standard Transducer @ 20℃
Temperature Hysteresis: Programmable 0.1oC to 9.9℃ in 0.1℃ increments
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the Monitoring Unit sensor ports

Humidity Sensor Part No : LS-IPM-H2-S-H

Technical Details

Humidity Monitoring Range: 30% to 90% Humidity
Humidity Monitoring Accuracy: ± 5% RH @ 25℃
Humidity Hysteresis: Programmable 0.1%RH to 9.9%RH in 0.1 increments
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the Monitoring Unit sensor ports.
The Sensor is housed in a plastic enclosure for protection.

Keypad Part No : LS-IPM-H2-S-KM

Technical Details

5x2 Matrix Type
No Additional Power Source Required – Directly Powered from Keypad Port on Monitoring Unit unit
Supplied with 2m of Ribbon Cable with 450mm of Plastic Flexible conduit for Protection within the cabinet

Water Sensor – Rope Type Part No : LS-IPM-H2-S-WR

Technical Details

Control Housing is made from tough ABS plastic
Control Housing Dimensions: 74mm Wide x 50mm High x 27mm Deep
Standard Rope Length: 5m
Standard Control Cable Length: 2m (Terminated by RJ10 Connector)
Power Supply (5v – Powered by Monitoring Unit)
Supply Current: 20mA

Door Contact (MicroSwitch) Part No : LS-IPM-H2-S-D

Technical Details

MicroSwitch Type Contact
Simple Installation (No Fixings Supplied)
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the Monitoring Unit sensor ports.

Door Contact (Magnetic) Part No : LS-IPM-H2-S-DM

Technical Details

Magnetic Type Contact
Simple Installation (No Fixings Supplied)
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the Monitoring Unit sensor ports.

Sensors

Water Sensor (Contact Type) Part No : LS-IPM-H2-S-WC

Technical Details

Compact Unit suitable for multiple installation locations
Contact Type
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the monitoring unit sensor ports.

Smoke Detector Part No : LS-IPM-H2-S-S

Technical Details

Contact Type
Test Button
Easy Installation – Standard Fixings Supplied
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the monitoring unit sensor ports.

PIR Sensor Part No : LS-IPM-H2-S-P

Technical Details

Contact Type
Can be powered directly from monitoring unit or external power supply
Simple Installation (Fixings Supplied)
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the Monitoring sensor ports.

Beacon (No Sounder) Part No : LS-IPM-H2-S-B1

Technical Details

Flashing Strobe Light (Standard Colour: Red)
Simple Installation (Fixings Supplied)
Powered directly from the Monitoring unit
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the Monitoring Unit sensor ports.

Beacon (With Sounder) Part No : LS-IPM-H2-S-B2

Technical Details

Flashing Strobe Light (Standard Colour: Red)
Configurable Alert Sounds (Switch Settings)
Volume Control
Simple Installation (Fixings Supplied)
Powered directly from the Monitoring unit
The Sensor is supplied with 2m of cable terminated with an RJ10 for direct connection to one of the Monitoring Unit sensor ports.

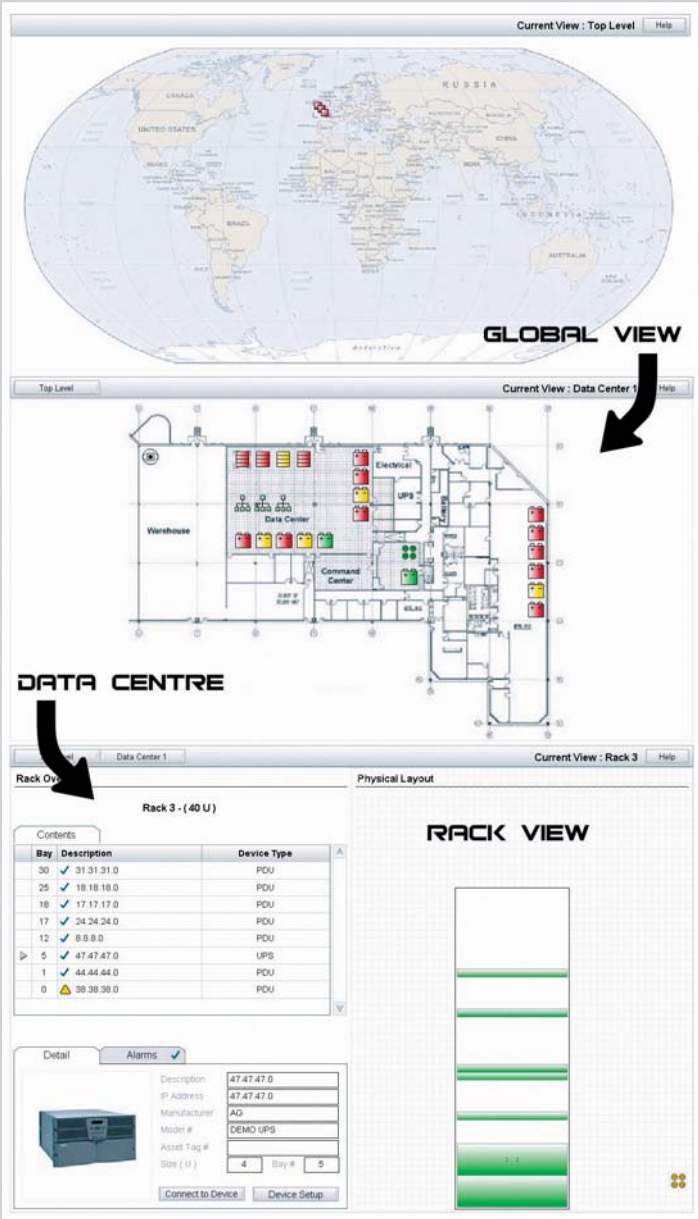
Please note

Other options are available on request. Please contact LS's Sales office

Intelligent Power Management Software

Description

As a web-based application allows users to monitor and control hundreds or even thousands of devices from a single console. Through our secure web interface, you can view the infrastructure from any browser within the company intranet.



Attractive, Intuitive Layout

- Real-world representation of your infrastructure
- Import your own data center layout
- Drill down to the rack level

Easy to use

- Clear, easy to read intuitive screens using Macromedia Flash with real-time updating
- Automatically discovers supported devices
- Minimal SNMP knowledge required (no MIB compilation)
- Configurable hierarchy allows you to easily group devices by location, type or function

Logging

- Provides individual device log files for trending and event logging purposes
- Users can easily manage inventory and create and save custom reports

Intelligent Alarm Processing

- Only active alarms are displayed in the alarm viewer (all alarms are saved to log file)
- Recognizes when an alarm condition has cleared and automatically updates the alarm display and event log

Global sets

- Configure multiple devices with a single click

Multi-protocol Support

- SNMP
- Telnet
- Web (secure and non-secure)
- XML
- Modbus

Intelligent Power Management Software

Technical Details

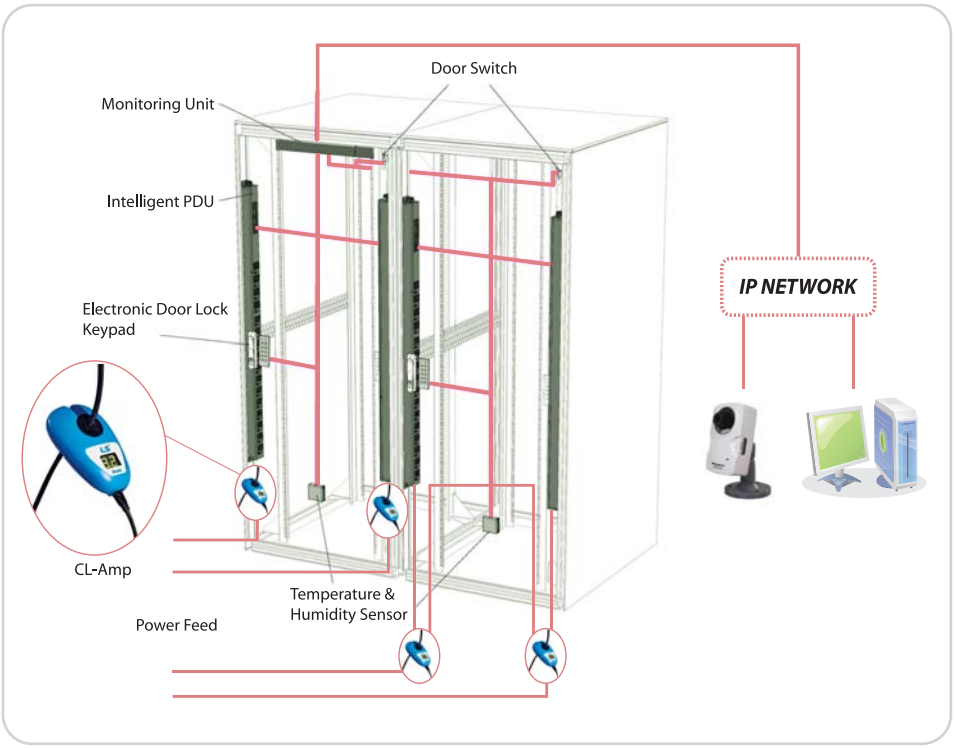
Device Discovery	Automatically discovers SNMP devices, Business Edition UPS software, secure and non-secure Web servers, Telnet devices and more. Support is also included for manually adding non-discoverable devices
Topology Layout	Configurable hierarchy structure allows you to easily group devices by location, type or function. Support for nested groups allows you to design a topology that fits your needs
Advanced Layout View	Create customized layouts by choosing the size and position of device icons. Import your own background images to fully customize your layout
Detailed Rack View	Drill down to the rack level to view rack contents and status of all rack devices
Real-Time Alarm Monitoring	Macromedia Flash interface provides real-time updating without screen refresh
Accessible from any Browser	View the status of your infrastructure from any browser on your company intranet
Security	Secure Socket Layer (SSL) support for web security
Extensive Reporting	View summary and detailed event logs, inventory reports, and device parameters. Create and save custom reports. Configure recurring reports to be sent automatically via email
Intelligent Alarm Processing	When an alarm condition clears, the active alarm will be automatically removed from the alarm viewer. There is no need to manually clear every alarm as is required for many network management systems
SNMP	Notification Send SNMP traps to multiple trap receivers when events occur
Broadcast Notification	Send broadcast messages to multiple recipients when events occur
Email/Pager Notification	Send email or alphanumeric pages to multiple recipients when events occur. Select working days and hours for email/pager recipients so they will only receive notification when it is appropriate
Alarm Escalation	Escalate alarms if not resolved after a selected period of time
Centralized Configuration	Configure hundreds of devices at the same time using Enterprise

System Requirements

Operating Systems	Supported Windows 2000 (service pack 4 or higher), Windows XP Professional (service Pack 1 or higher), Windows 2003 Server Enterprise Edition
Web Browsers Supported	Internet Explorer 6.0 (Service Pack 1), Macromedia Flash 7.0
Database	MSDE 2000 (Service Pack 3) - included with the software

CL-Amp Kit Solution

Non-Invasive retrofit Data Center Schematic



'Out of the Box' CL-Amp Kit Overview

With legacy data centres known to be operating at the extremes of their design capability and beyond, there is an urgent need to provide a 'non-invasive' current monitoring solution to retrofit, legacy and new build data centres, in order to monitor and increase visibility of power usage, help regain power and cooling capacity and ultimately enable clients to benefit from attendant cost savings, without the scheduled power downtime associated with traditional monitoring technologies.

To facilitate deployments, LS has configured a simple, cost effective, 'out of the box' kit solution, specifically designed for a single cabinet installation, removing the need to setup complex SNMP based network management systems. The kit comprises of all the necessary constituent component parts required for your 'non-invasive' current monitoring solution and consists of the following:

- 2 x CL-Amp devices.
- 2 x sets of cable collars supplied to support: 8mm to 18mm diameter cables.
- 1 x PowerHawk².
- 1 x Temperature sensor.
- 1 x spare sensor port.
- 1 x CD copy of Env-U, a client based application.
- 1 x set of 2m interconnecting patch cables from the CL-Amp to the PowerHawk².
- 1 x instruction manual.

CL-Amp Kit Solution

What the 'Out of Box' Kit Provides

The CL-Amp kit is intended to supply an all in, one easy to install, solution providing 'non-invasive', real-time current monitoring functionality to non-intelligent power strips and measurement of A.C. currents on typical data centre power supply feeds rated up to 32A.

The PowerHawk², as an ideal product that supports single cabinet power and environmental monitoring solutions using a single IP address, is the monitoring device of choice within the kit to provide the CL-Amp with power and a communication link. The 'out of the box' kit solution also provides, as standard, temperature monitoring, with the inclusion of a temperature sensor.
The second sensor port on the PowerHawk² has been left spare for the client to decide, which additional sensor monitoring is most suitable for their application, i.e. humidity, or an additional temperature sensor. The additional sensor can be retrofit at any time.

To further enhance the 'out of the box' kit solution, a simple client software application, has been provided, known as Env-U. This desktop application will provide both a live and historical view of current, temperature and humidity data readings, in addition to providing simple trending information of the parameters monitored where basic management reports can be easily created and exported into Excel or CSV formats.

Component Parts of the Kit

CL-Amp

The CL-Amp is a unique innovative new product, designed and manufactured by LS, to provide the urgently needed 'non-invasive' current monitoring solution into retrofit, legacy and new build data centres.

For the purpose of the 'out of the box' CL-Amp kit solution, the CL-Amp is powered by the PowerHawk², which also provides the necessary communication link to the CL-Amp, allowing the measured electrical current to be read.

The CL-Amp enables the 'non-invasive' real-time monitoring of current for any device or power strip, rated up to 32A. Devised with an open fork in the high quality and robust plastic, it is placed directly over a power cable with a choice of locking-ring collars to suit most international 13A, 16A and 32A cable sizes provided. Each locking ring separates into two halves and is placed around the power cable and pushed into the CL-Amp clamping bore, retaining the cable with a neat twist and lock action. A very lightweight device, it is designed to be installed at any convenient location on the cable.

Local and remote monitoring is achieved by connecting the CL-Amp to the PowerHawk² monitoring device, with local monitoring via an integral LED display on the CL-Amp.

Product Features

- 'Non-invasively' monitors standard 3 core single phase AC power cables [L, N & E], without the need to specifically identify and measure the live conductor only.
- Current measuring range 1.0 Ampere to 60 Amperes.
- Measured supply range: 90VAC ~ 250VAC. Frequency : 50Hz ~ 60Hz A.C.
- Size : 134mm x 88.5mm x 41mm, Weight : 135gm
- RS232 / RS485 communication link to the PowerHawk² monitoring device, to provide SNMP data collection, monitoring, and configuration of the CL-Amp.
- RJ45 connector for direct connection to the PowerHawk².
- 12V DC power supply @60mA (typically supplied direct from the PowerHawk²).
- Cable collars supplied to support : 8mm to 18mm diameter cables.
- Local LED display provides two digit readout.
- Can be calibrated to cable types to provide typically ±3% accuracy Ampere current readings.

CL-Amp Kit Solution

PowerHawk²

As part of the 'out of the box' kit solution, it is the PowerHawk² that is used to power the CL-Amp and read the associated data. The PowerHawk² is a cost effective monitoring and control solution, which enhances LS family of other product portfolio.

The PowerHawk² has specifically been designed with simplicity in mind, to provide single rack level power and environmental monitoring, using a single IP address.

Ideal for single cabinet installations, the PowerHawk² supports up to two CL-Amps, monitoring amps.

In addition, two environmental input sensors are supported, which can be any combination of temperature and/or humidity.

The PowerHawk² allows up to 5 SNMP Network Management Station (NMS) addresses to access the unit. Alarm conditions will generate trap messages, which can be directed to a maximum of 10 specified management stations. SNMP alarm trap thresholds may be set on any of the input measured parameters, i.e. amps, temperature and humidity.

Product Features

- SNMP agent optimised for rack management.
- HTTP/HTTPS web interface for management and power strip control.
- Support for 5 Network Management Stations (NMS) to access the unit.
- Allows up to two CL-Amps, monitoring amps.
- Allows up to two auto sense analogue input channels per cabinet, which can be any combination of temperature or humidity.
- All alarm thresholds can be user defined and configured through an easy to use web interface or managed via SNMP for configuration and monitoring.
- Optional display unit for monitoring sensor and power information outside the rack environment
- LDAP login support.
- Real Time Clock (RTC) with battery backup.

Env-U Client Application

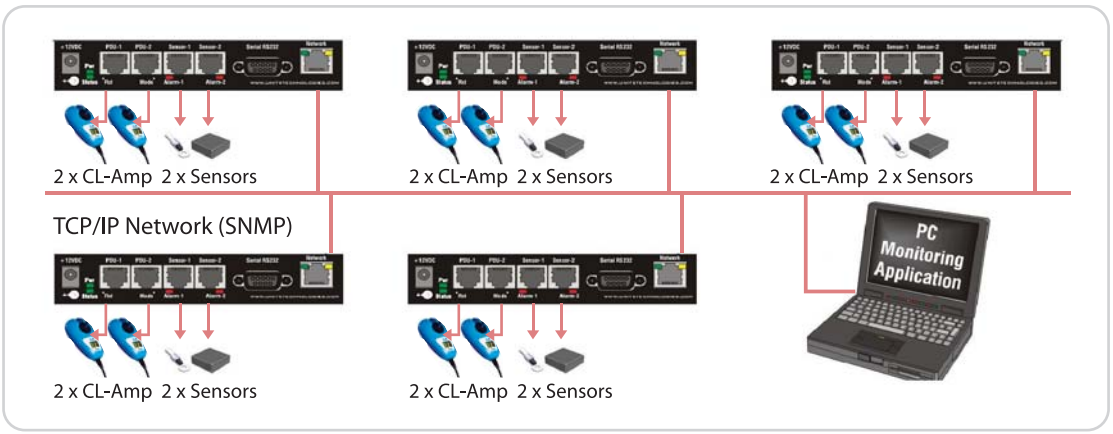
Env-U is an 'in-house' developed client application, included as part of the 'out of the box' kit solution to provide both a live and historical view of current, temperature and humidity data readings, coupled with simple trending information of the parameters monitored, allowing basic management reports to be easily created and exported into Excel or CSV formats.

Product Features

- Simple client based application.
- Uses standard SNMP protocol to support the PowerHawk² device.
- Supports up to a maximum of 25 nodes. 1 PowerHawk² = 1 node.
- Supports three types of sensor; 2 x CL-Amps and 2 x sensors.
- Polls devices and creates and logs SNMP traps as alerts.
- Live and historical view of data.
- Simple trending information and management reports.

CL-Amp Kit Solution

Figure 1.0 Application Overview

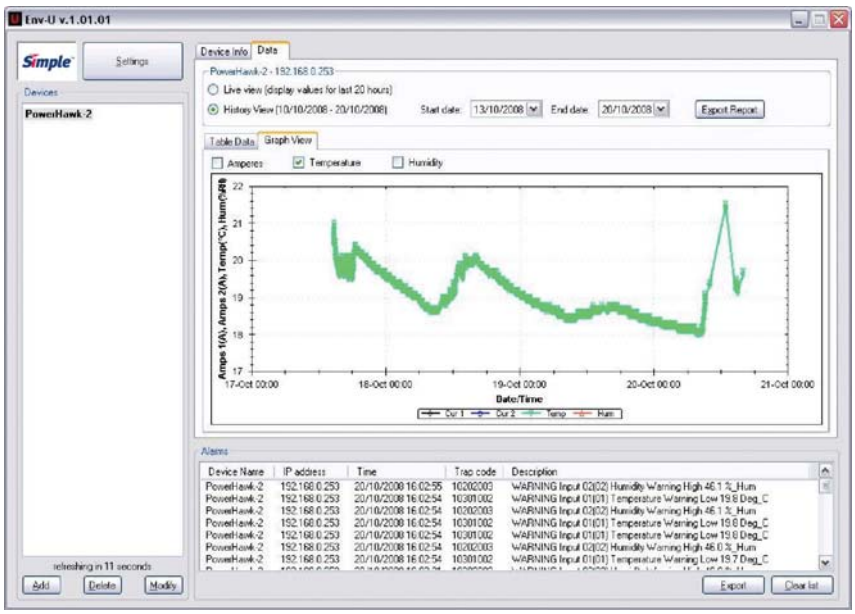


The Env-U application is intended to collect the CL-Amp electrical current data and the temperature/humidity readings from the PowerHawk² device. Using standard SNMP protocol, Env-U will monitor up to a maximum of 25 networked PowerHawk² agents. Three types of sensor are supported, namely :

- 2 x electrical current data readings from the CL-Amp.
- 1 x temperature sensor.
- 1 x spare sensor port for a humidity or second temperature sensor.

Figure 2.0 Env-U shows a historical view of temperature changes over a given time period.

Based on Microsoft .NET framework version 2.0, Env-U is capable of logging any SNMP alarms that are generated by the agent devices. The agent devices will be polled at regular intervals and the read data collected and stored in the applications database at one minute intervals, for a maximum of 186 days. In addition to the polling and capture of data, it is important for Env-U to provide and log alarm messages as SNMP traps when user defined thresholds are exceeded.
Env-U is not a full SNMP Network Management Station. For large installations or if further feature sets are required, clients may upgrade to our Enterprise Device Management software application.



SimpleView™
Intelligent Cabling Management Solutions

SimpleView™
Intelligent Cabling Management Solutions

SimpleView™, is a management tool that enables network & facilities personnel from various groups, such as Infrastructure, IT, Operations and management to keep the business running smoothly by tracking key performance indicators (KPI's). It is a user personalized application that provides up-to-date information and instant notifications based on flexible event policies.

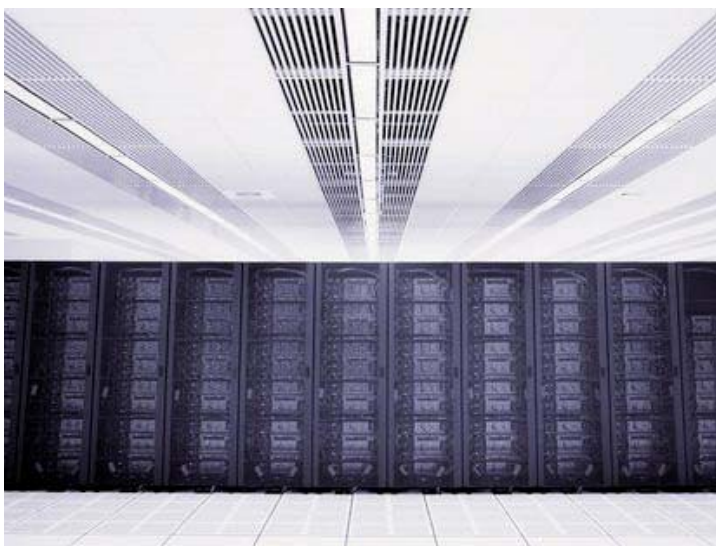
Manage and control your network infrastructure through:

- Real-time user configurable KPI's
- Early-warning indicators
- Real-time analysis
- Highly intelligent personalized alert policies and real-time alerts
- Graphical reports, graphs and gauges
- Guided drill-down capabilities to pinpoint the root cause of a problem

SimpleView™ takes the guesswork and legwork out of managing the infrastructure and physical layer of your network.

Control over infrastructure and networked devices.

SimpleView™, drastically speeds up and simplifies site planning and daily network provisioning, maintenance and security and provides comprehensive visibility into datacenter and work space facilities, keeping an accurate inventory of all assets - whether located across a campus or an ocean.



SimpleView™
Intelligent Cabling Management Solutions

Description

SimpleView™ is an intelligent cabling system that uses SNMP to monitor the network cabling connectivity in real time. Combined with Layer 2 & 3 information it provides accurate, real-time, end-to-end connectivity information for every network device

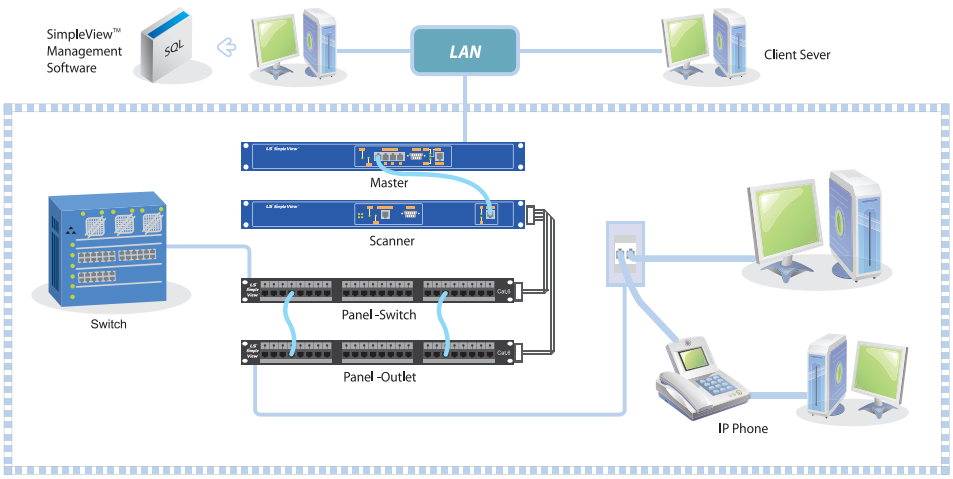
Features

- Real-time management using SimpleView™ technology
- Web-based application allows unlimited concurrent users logins via MS browser from anywhere on the network
- Unlimited number of managed sites in one central database
- Complete cabling system solution
- All components are qualified to latest industry standards by independent testing laboratories
- 25-year warranty on installations

Benefits

- SimpleView™ delivers automated analytics across the network physical infrastructure:
- Capture and discover real-life information from all connections, network devices & elements
- Analyze connection status across locations & users
- Respond to multiple events & operational criteria for full visibility & centralized connection-based management

Structure



SimpleView™ Hardware

Description

SimpleView™ hadrware is configured in a hierchical layout and is the interface between the SimpleView™ Patch Panels, providing the management software with all relevant data to scan connectivity changes within the physical layer.

Products

Master

- Collects the connectivity data from the system
- Capable of monitoring up to 8 Communicaton rooms

Expander

- Connects to one port on the Master via the uplink port
- Can connect to 8 scanners or 8 Expanders or any combination of scanners/expanders
- Multiple levels of Expanders can be cascaded

Master Expander

- Master and Expander packaged together
- Supports 1 Communication room

Scanner

- Can monitor up to 24 panels
- The SimpleView™ patch panels are connected to the Scanner at the back with flat cables (attachment cords)

Mini Scanner

- Can monitor up to 12 panels
- Suitable for small Comm. rooms
- The SimpleView™ patch panels are connected to the Mini-Scanner with flat cables (attachment cords)

Indicator Controller

- Controls and activates the Rack Indicators (Chakalaka) in conjunction with any LED on the SimpleView™ Patch Panels in the rack/s
- Connects to any port on a Master
- Can be connected to 8 racks

SimpleView™ Hardware

Products

Security Controller

- Can monitor up to 24 panels
- The SimpleView™ patch panels are connected to the Scanner at the back with flat cables (attachment cords)

Local Master

- An excellent cost - effective solution for small and medium IT organizations
- Able to monitor up to 24 panel (576ports)
- Collects, saves, and transmits connectivity data from the SimpleView™ Patch Panels
- Built-in control button capabilities

Local Scanner

- An excellent cost - effective solution for organizations with remote branches
- Able to monitor up to 6 panels (144ports)
- Collects, saves, and transmits connectivity data from the SimpleView™ Patch Panels

Inter-Connection

- A robust solution to the interconnect environment for both existing and new installations
- Simple and fast installation with minimum interference to the network operation
- LED guidance for management
- Modular - special design enables rapid customization for any switch

Part Numbers & Physical Chracteristic

Description	Dimensions (mm)	Part Number
SimpleView™ Master (4 port)	44.4(H) x 482.6(W) x 159.3(D)	LS-Master-4Port
SimpleView™ Expander	44.4(H) x 482.6(W) x 159.3(D)	LS-Expander
SimpleView™ Master Expander	44.4(H) x 482.6(W) x 159.3(D)	LS-Master Expander
SimpleView™ Scanner	44.4(H) x 482.6(W) x 191.7(D)	LS-Scanner
SimpleView™ Mini Scanner	44.4(H) x 482.6(W) x 191.7(D)	LS-Mini Scanner
SimpleView™ Indicator Controller	44.4(H) x 482.6(W) x 159.3(D)	LS-Indicator Controller
SimpleView™ Security Controller	44.4(H) x 482.6(W) x 159.3(D)	LS-Security Controller
SimpleView™ Local Master	44.4(H) x 482.6(W) x 159.3(D)	LS-Local Master
SimpleView™ Local Scanner	44.4(H) x 482.6(W) x 191.7(D)	LS-Local Scanner
SimpleView™ Inter-Connection Solution	88.0(H) x 482.6(W) x 159.3(D)	LS-Inter-Connection

SimpleView™ Hardware

Specifications(Excludes 6527 1736-00)

Panel rack mounting	1U 19″ (IEC 60297)
Product weight	2.0 Kg / 4.4 lb

Interfaces

Up/down links	Standard RS-485, Full-duplex connector shielded RJ-45 socket
Serial	Data rate up to 115.2 Kbps
	RS-232
	Connector 9-pin D-type male
	Data rate up to 115.2 Kbps
	Protocol UART, start bit 1,
	Stop bit 1, non-parity
	RJ-45 socket, Ethernet IEEE 802.3, 100BASE-Tx / 10BASE-T,
	100/10 Mbps industry standard for connection to local area network
Control pad	Connector RJ-45 socket, 8 pins

LED Indicators (Where used)

Patch panel connections	Connectors 6 or 12 headers, 26-pin
PWR	On when scanner is powered
CPU	Blinking to indicate master heartbeat
DOWN LINKYELLOW	On during transmission of each of the DOWN LINK ports
DOWN LINKGREEN	On during reception of each of the DOWN LINK ports
100BASE-Tx - Rx	On during reception from local area network
100BASE-Tx - Tx	On during transmission to local area network

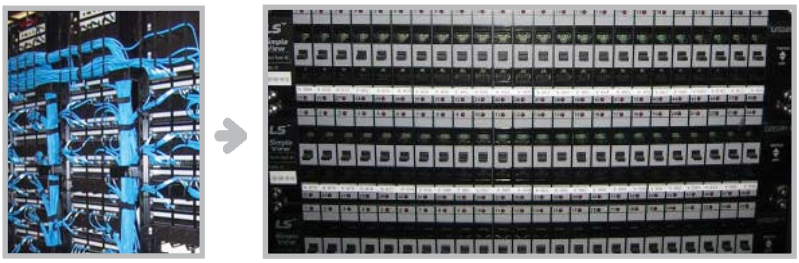
Environmental and Safety

100BASE-Tx LINK	On when link is active
Operating temperature range	0℃ - +50℃
Operating humidity range	≤90% relative humidity non-condensing
Safety	UL 60950, EN 60950
EMC	EN 55022, FCC part 15 Class A, EN 55024
Power	100 ~ 240 VAC, 47 ~ 63 Hz, 30W maximum

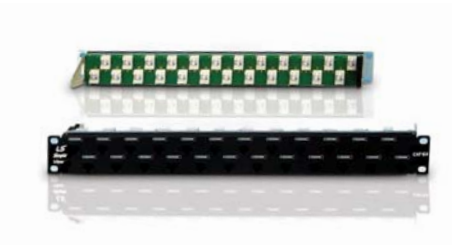
SimpleView™ Copper Patch Panel

Description

SimpleView™'s large selection of Category 6A, Category 6, enhanced Category 5 and Category 5 patch panels cover all LAN cabling requirements. SimpleView™ Patch Panels incoporate pair-balancing technology for optimum performance and LED indicators on the panels identify any two ports patched together and enable 100% accurate Moves, Adds an Changes. Patch panels with “Patching Switches” offer a robust system that significantly reduces the need for patch cords.

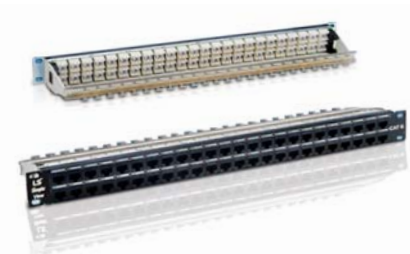


Products



Category 6A Patch Panel

- 24 port 1U high
- Fully tested to 500 MHz
- Exceeds requirements of latest draft for CAT6a °© EIA/TIA 568-B.2-10
- Unique printed circuit design and pair-balancing technology for optimum performance
- Backward compatibility with CAT6 components
- STP models feature sealed casing for superior EMI/RFI protection

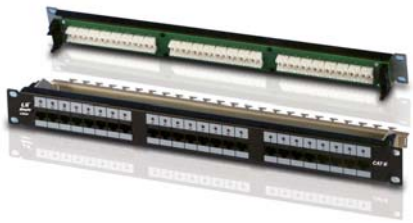


Category 6(High-Density)

- Superior CAT 6 performance up to 250 MHz
- Full SimpleView support
- UTP models feature CAT 6 performance up to 250 MHz
- STP models feature sealed casing for superior EMI/RFI protection

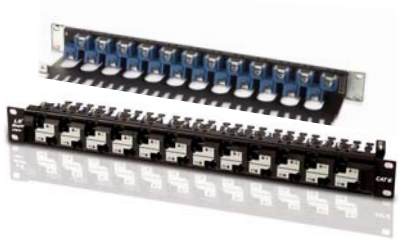
SimpleView™ Copper Patch Panel

Products



Category 6 Patch Panel

- This 24 Patch Panels models, when used in conjunction with SimpleView™ System, are able to scan the wiring center configuration and subsequently report the connectivity status
- Patching information is displayed on the management station for cabling management applications
- LED indicators on panels identify any two ports patched together
- Computerized LED displays guide the technician when performing Moves, Adds and Changes (MACs)



Category 6 Modular Jack Panel

- 1U 24ports Modular Patch Panel
- LED indicators on panels identify any two ports patched together
- Computerized LED displays guide the technician when performing Moves, Adds and Changes (MACs)

UTP & STP RJ to RJ Patch Panel

- A rear RJ-45 modular jack for simple connection makes the panel a labor-saving device that does not require a termination tool
- Available in UTP and STP options
- Available in Cat5e and Cat6 options

SimpleView™ Copper Patch Panel

Part Numbers & Physical Chracteristic

Description	Dimensions (mm)	Part Number
SimpleView™ 10G Category 6A Unshielded Patch Panel	44.0(H) x 482.6(W) x 35.0(D)	LS-IPP-UC6A-XX
SimpleView™ 10G Category 6A Shielded Patch Panel	44.0(H) x 482.6(W) x 35.0(D)	LS-IPP-SC6A-XX
SimpleView™ Category 6 Unshielded Patch Panel(With Switch Ports)	88.0(H) x 482.6(W) x 35.0(D)	LS-IPP-UC6-48P-W/S
SimpleView™ Category 6 Unshielded Patch Panel	44.0(H) x 482.6(W) x 35.0(D)	LS-IPP-UC6-XX
SimpleView™ Category 6 Shielded Patch Panel	44.0(H) x 482.6(W) x 35.0(D)	LS-IPP-SC6-XX
SmpleView™ UTP & STP RJ to RJ Patch Panel	44.0(H) x 482.6(W) x 35.0(D)	LS-IPP-RJ-XX

XX Denotes Ports : 24=24Ports, 48=48Ports

Specifications

Panel rack mounting	1U 19″ (IEC 60297)
Plug / jack mating cycles	≥ 750 (IEC / EN 60603-7 Series)
Plug / jack insertion / withdrawal force	≤ 20N(UTP), 30N(STP) (IEC / EN 60603-7 Series)
Product weight	0.9 Kg / 1.9 lb including jacks (UTP), 2.2 Kg / 4.8 lb (S/FTP)

Electrical

Insulation resistance	≥ 500MΩ
Dielectric strength	Contact / contact 1.0 kV
Current carrying capacity	≥ 1A / contact
Typical plug / jack resistance	≥ 20mΩ
Conductor terminations of LSA-PLUS£ó contacts	≥ 30
Conductor diameter	0.5 - 0.65 mm (AWG 22-24)

Panel

Signal voltage	5V dc
Signal current	2 mA max (EN60950:2000)
Testing requirements of connection technology according to ISO / IEC 11801 2nd edition	ANSI/TIA-568-B.2.1 and EN50173-1:2002

Environmental and Safety

Operating temperature range	-10℃ - +60℃
Operating humidity range	≤ 95% relative humidity non-condensing

SimpleView™ Fiber Optic Patch Panel

Description

Fiber optic patch panels, supporting both multi mode and single mode applications, offers 96, 48 and 12 fiber models. In addition, a complete line of accessories for securing, organizing and protecting fusion spliced fibers is available. LED indicators on the panels identify any two ports patched together and enable 100% accurate Moves, Adds an Changes.

Products

Fiber Patch Panel(LC)

- F/O Modular Patch Panel
- Very high density, 1U
- Up to 24 duplex LC adapters
- Up to 24 MT-RJ adapters
- Up to 24 simplex SC adapters
- Single Mode and Multi mode
- Pullout drawer for easy access
- Rear and side cable entries
- Blank covers for unused ports
- High-end performance and reliability

Fiber Patch Panel(SC)

- High density, 24 duplex adapters (48 fibers) in a 2U rack space
- Preassembled SC to SC or SC to ST adapter options
- Pull out drawer for easy access
- Large work area for comfortable installation
- Rear and side cable entries
- Innovative SNMP real-time management of patch cord connections

Fiber Patch Panel-LC 8 x 8

- LC 16 Patch Panel
- Up to 16 duplex LC adapters
- Single Mode and Multi mode
- Pullout drawer for easy access

SimpleView™ Fiber MPO Patch Panel

Description

The SimpleView™ LC-MPO 48 Patch Panel is an intelligent, high-density fiber optic patch panel offering the option of real-time physical network management with LS SimpleView™ system. With a footprint equivalent to one-half that of standard SC connectors, the LC connector is fast becoming the answer to the market's demand for increased optical port density. Utilizing the connector's small size and rugged design, the SMART LC-MPO 48 patch panel supports up to 48 fibers in just 1U of rack space. LS SimpleView™ patch cords must be used in order to benefit from the advantages of the SimpleView system. These cords, described in greater detail in the Fiber Optic Cables and Cords section, feature a duplex fiber cable and single copper wire in a common jacket, and an LC duplex connector with an extra spring-loaded copper contact. Regular LC patch cords can be used when SimpleView™ scanning is not desired.

Products

Fiber Patch Panel - LC MPO 96(High Density)

- Ultra high density – 96 fiber strands in 1U
- Can be assembled with 1,2,3 or 4 cassettes
- Cassettes sold separately
- Supports OM-3 Multi-Mode applications

Fiber Patch Panel - LC MPO 48

- Comprises 24 duplex LC adapters at the front and 4 MPO adapters at the back
- Fits 1U of rack space
- Preassembled 24 MM LC adapters, 4 LC-MPO fan-outs (see below for additional polarity information) and 4 MPO adapters
- Rear metal MPO protective bracket
- External 14-pins PatchView connector – offering real a 'plug-and-play' panel
- Pullout drawer enable ease of access to the fiber cables
- Configurable rack mounting brackets allow for recessed panel mounting, enhancing cable protection

SimpleView™ Fiber MPO Patch Panel

Part Numbers & Physical Chracteristic

Description	Dimensions (mm)	Part Number
SimpleView™ LC Fiber Patch Panel	44.0(H) x 482.6(W) x 240.0(D)	LS-IFPP-LC-XXX-YY
SimpleView™ SC Fiber Patch Panel	88.0(H) x 482.6(W) x 320.0(D)	LS-IFPP-SC-XXX-YY
SimpleView™ LC 8 x 8 Fiber Patch Panel	44.0(H) x 482.6(W) x 240.0(D)	LS-IFPP-LC 8 x 8-XXX
SimpleView™ LC MPO Fiber Patch Panel	44.0(H) x 482.6(W) x 240.0(D)	LS-IFPP-LC-MPO-XXX-YY

XXX Denotes SM(Single Mode), MM1(Multi Mode OM1), MM3(Multi Mode OM3)
YY Denotes Cores : 24=24cores, 48=48cores, 96=96cores

Specifications

Panel rack mounting	1U 19″ (IEC 60297)
Product weight	3.7 Kg / 8.1 lb
Materials	Zintec - powder coated black RAL 9011
Number of trays	2 discrete (1U total height)
Capacity	48 fibers max (LC)
Connector system	LC, MT-RJ, SC
Cable management	Internal
Signal voltage	5V dc
Signal current	2 mA max (EN60950:2000)

Connector Specification

Sleeve material	Singlemode - ceramic / Multimode-phosphor bronze
Typical insertion loss, dB	Singlemode-0.2 / Multimode-0.3

Environmental

Operating temperature range	-10℃ - +60℃
Operating humidity range	≤ 95% relative humidity non-condensing
Standards	EN 6008-2-2, IEC 68-2-27, IEC 68-2-6, IEC 68-2-14, IEC 68-2-3, ISO/IEC11801:2002

SimpleView™ Patch Cord (Copper & Fiber)

Products

Fiber MPO Patch Cord

- Nine-wire, 100, patch cords for SimpleView™ applications
- Data signals transferred over four pairs, 9th wire transfers SimpleView™ scanning signals
- 10-position RJ-45 plugs. Pins 1 to 8 used for data,
- pin 0 unused, pin 9 used for the SimpleView™ scanning signal
- Compatible with all RJ-45 jack models (8 or 10 pins)
- Full Category 5e, and CAT 6 performance
- STP, SFTP, FTP and UTP models
- 100% tested at factory
- The system is designed to conform to ANSI/TIA/EIA-568-B.2, ISO/IEC 11801 2nd edition (2002) and CENELEC EN50173 (2002) for Category 6/Class E.
- The system is designed to support protocols running at up to 1000 Mbps, such as ATM 622 Mbps and Gigabit Ethernet.

Fiber Patch Cord(LC) / Fiber Patch Cord(SC)

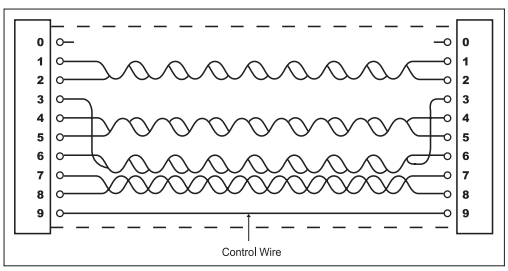
- MT-RJ duplex patch cords with a SimpleView™ scanning wire for SMART MT-RJ 48 and 96 panels
- Available in MM 50/125 OM3, MM 50/125, MM 62.5/125 and SM 9.3/125

Part Numbers

Description	Part Numbers
SimpleView™ Unshielded Patch Cord	LS-IPC-UCXX-ZZZ
SimpleView™ Shielded Patch Cord	LS-IPC-SCXX-ZZZ
SimpleView™ LC Fiber Patch Cord	LS-IFPC-LC-YYY-ZZZ
SimpleView™ SC Fiber Patch Cord	LS-IFPC-SC-YYY-ZZZ
SimpleView™ MT-RJ Fiber Patch Cord	LS-IFPC-MTRJ-YYY-ZZZ

XX Denotes 5e(Cat.5e), 6(Cat.6), 6A(Cat.6A) / YYY Donotes SM(Single Mode), MM1(Multi Mode OM1), MM3(Multi Mode OM3) /
ZZZ Denotes 005(0.5m), 030(3m), 050(5m), 100(10m) etc

Technical Details-Copper



Environmental-Fiber

Cable Dimensions	2.6 × 3.7 mm (+0/0.1) mm
Cable Weight	14.8 kg/km
Min Bending Radius - Short Team	Loaded : 45mm Installed : 35mm
Maximum Tensile Strength	300 N
Maximum Compressive Load	100 N/cm
Flexing	1,000 cycles
Operating Temperature	-25℃ to +75℃
Storage Temperature	-25℃ to +75℃

SimpleView™ Accessories

Products

Scanner Attachment Cords

Scanners are connected to patch panels with Scanner Attachment Cords.

- Supplied in various lengths
- Scanner Attachment Cords needed depend on the type of SimpleView™ Patch Panels to be connected and whether the Splitter is used
- Round Flat Attachment Cords are available in UTP and STP models
- Flat Attachment Cords are available in UTP models

Control Pad

SimpleView™ Control Pad is connected to a SimpleView™ Scanner via the Control Pad Port. Using the Control Pad the technician is guided through the process of connecting and disconnecting the cables to complete the links defined in the system. The three functions that are activated by the Control Pad are:

- LED SCAN : This is an automatic LED SCAN that causes the LEDs of the ports to light in the sequence that they are connected
- Reconfiguration on /pending: When a work order or link task is sent to a scanner, the Reconfiguration LED on the connected Control Pad/s starts to blink, indicating that there is a link task pending
- Manual Scan : The ports on the Patch Panels can be manually scanned or browsed by first activating the Manual Scan buttons on the Control Pad and then moving to the required port using the directional buttons

Part Numbers

Description	Part Numbers
Scanner Attachment Cords - Round Type	LS-AC-Round-XXX
Scanner Attachment Cords - Flat Type	LS-AC-Flat-XXX
SimpleView™ Control Pad	LS-Control Pad

XXX Denotes 010(1m), 025(2.5m), 050(5m) etc

Technical Details

Standards compliance	Safety	UL 60950, EN 60950
	EMC	EN-55022, FCC Part 15 Class A, EN-55024
	Scanner	Connector RJ-45 socket
Interface		Cable with two RJ-45 connectors on either side.
		One connects to the Control Pad and one to the
		CONTROL PAD PORT on the Front Panel of
		the Scanner
LEDs	LED SCAN	Stays lit while Automatic Scan is in process
	RECONFIG ON / PENDING	Blinks when Reconfig. Is pending. Stays lit while work is in progress
	MANUAL SCAN	Stays lit while Manual Scan is in process

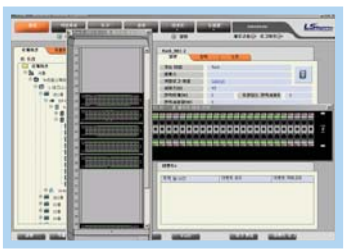
SimpleView™ Management Software

Description

The SimpleView™ Software forms the user interface and is accessed by System Administrators and Network Technicians via the web. The system automatically provides complete link information in a graphical format, providing full end-to-end visibility, automatically updation in real time as changes occur SimpleView™ drastically speeds up and simplifies daily network provisioning, maintenance and security providing Network Managers with full visibility and control of the network and its assets.

Structure



Technical Details

- Real-time connection troubleshooting
- Reduced connection mean-time-to-repair and disaster recovery
- Network infrastructure utilization and optimization
- Maintaining reporting and forensics
- Physical infrastructure visibility
- Location-based deployment and provisioning
- Remote moves, adds and changes
- On-site connection security compliance
- Secure VLAN access
- Physical infrastructure anti-tampering

Part Numbers

Description	Part Number
SimpleView™ Software	LS-CMS-XXXXX
SimpleView™ Software + SQL	LS-CMS-SQL-XXXXX
SimpleView™ Software Additional	LS-CMS-ADD-XXXXX
SimpleView™ Software CAD Module (Without MapGuide)*	LS-CMS-CAD-MapGuide

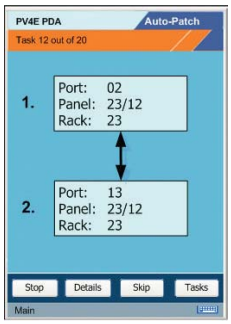
XXXXX Denotes 01000 (1,000Port), 05000(5,000port), 10000(10,000Port) etc
* CAD Module requires Autodesk MapGuide®

SimpleView™ Site Pro

Description

LS's application for installation on PDA devices, is a vital tool for IT professionals and infrastructure engineers on the move, bringing the SimpleView™, advanced capabilities and an array of other essential tools out into the field.

Application



Features

- Display of user's specific tasks in specific location
- Automatic guidance through user's assigned tasks
- Online connection with LS's SimpleView™ scanning devices
- Task management including the 'Skip' function
- Accurate display of devices and their complete links (from switch to server) affected by any work done
- Real-time error tracking, resolution and documentation
- Online messaging - receiving / sending notes

Server Requirements

Minimum Hardware	Pentium processor running at least 800 MHz
	1000 MB + RAM
	20 GB hard disk space
Recommended Hardware	Dual Pentium 4 processor running at 2600 MHz
	1024 MB RAM(or more)
	40 GB+ hared disk space
Software	Windows 2000 family(Windows 2003 server family recommended)
	(Microsoft Internet Explorer 6 recommended)
	Microsoft SQL 2000(standard/Enterprise edition recommended)
	IIS 5(or higher)
	MSMQ - Microsoft message queing system
Client Minimum Requirements - Software	Any Microsoft based system(Win 95, 98, ME, NT, 2000, XP etc.)
	Microsoft Internet Explorer 5.5 with service pack1 (with signed ActiveX and cookie support)

Simple™ Warranty

Installation Manual for the tool-less M/J

Reference

LS Simple™ Warranty

LS Simple™ Warranty

The Simple™ range of solutions is supported by a Simple™ comprehensive warranty

- 25 Year Application and product warranty
- Product replacement for any approved claims, installed and re-tested, with all field labour costs included under warranty
- Installed and registered by an approved SI
- Warranty applied to the project / location can be sold with the building by the end user

LS Simple™ Warranty Process

LS Simple™ Warranty

LS Simple™ Warranty

LS C&S warrants to the End User that the System in its installed state will meet the Specifications in force at the time of installation for the duration of the Warranty Period.

LS C&S warrants to the End User that the Products, which comprise thd System, will be free from defects in materials and workmanshio design for the duration of the Warranty Period.

Applications Assurance Warranty

LS C&S warrants to the End User that, for the duration of the Warranty Period, the System will be free from defects, which prevent a full stop after operation.

Applications specified by recognised standards or user forums that use the Applicable Structured Cabling Srandards;

Applications introduced in the future by recognised standards or user forums that use the Applicable Structured Cabling Standards; and any other applications Specified in writing by LS C&S.

How to Apply for the Warranty

The Registration document must be completed by both the LSI and the End User and sent to LS C&S within 30 days of completion of the installation of the System.

Installation of the System

The warranty shall only apply if the Sysem has been properly installed and tested by LSI.

Alterations to the System

Any alteration, repair, modification and/or addition to a warranted System will invalidate the warranty, unless it is tested and registered with LS C&S by LSI.

Any replacement or additional Product used is warranted free from defects in materials and workmanship for the remainder of the Warranty Period applicable to the System unless a new System is installed in which case a new LS System warranty will be raised.

Claims Procedure

The End User shall notify LS C&S or LSI that originally installed System within five working days of the discovery of any alleged defect in the System or Product, but in no event later than the expiration of the Warranty Period. The LSI shall ascertain the nature of the alleged defect.

The End User, if so requested, should allow LS C&S, LSI or their authorised representatives free access to the premises on which the allegedly defective System of Product is located for the purpose of inspection. No Product may be removed from the System without LS C&S's prior authorisation.

The End User shall, on request, make available to LS C&S copies of the test reports.

What LS C&S will do

If LS C&S is satisfied, after inspection or otherwise, that the System and/or Products do not comlpy with the warranty then, at LS C&S's discretion

- The defective Products will be replaced and installed free of charge
- The defective Products will be repaired at the premises at which they are located or at the manufacturer's premises (as necessaty); or
- The purchase price of the defective Products will be refunded.

If any Product has been upgraded, LS C&S shall have the option to use such a product to satisfy its obligations providing that the functionality and performance of the upgraded product is at least equal to that set out in the specification for the replaced Product.

LS C&S's Liability to you under this Warranty

The warranty shall only be applicable if;

- New Products were used in the System at the time of installation
- The defect was not caused by incorrect of negligent handling, disregard of any reasonable instruction given by LS C&S, any abnormal use (including the use of unsuitable of defective equipment in connection with the Products), over-loading, unreasonable wear and tear or any other fault by End User, its subcontractors, servants or agents; and
- The defect was not caused by any other external act or omission or circumstance beyond LS C&S's control (including but not limited to Act of God) occurring after delivery.

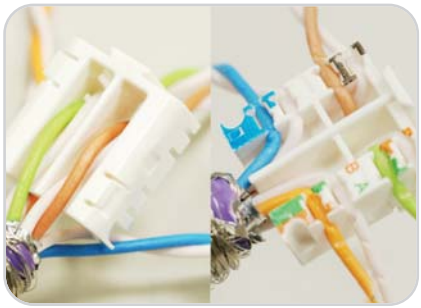
LS C&S will not be liable for special, indirect, incidental or consequential damages (regardless of the form of action), including but not limited to damages for loss of profits, data, time, revenues of the like, nor shall LS C&S be liable for any claims or damages arising out of or connected with the warranty of the manufacture, sale, delivery or use of the defective products. This clause shall survive failurer of an exclusive remedy.

THE WARRNATIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OF IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

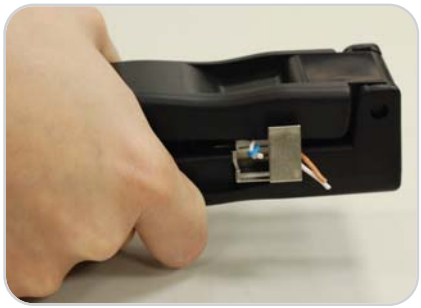
Nothing in these conditions shall purport to exclude or restrict any liability, the exclusion or restriction of which is prohibited by law.

Nothing in these conditions shall affect the statutoty rights of the consumer.

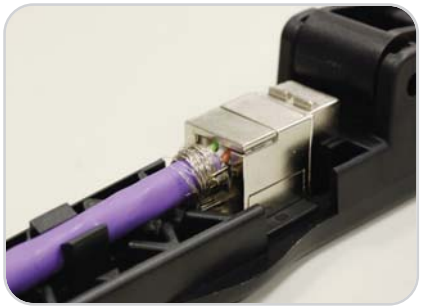
Installation Manual for the tool-less M/J



Seat the wires into the wire slots according to the wiring code

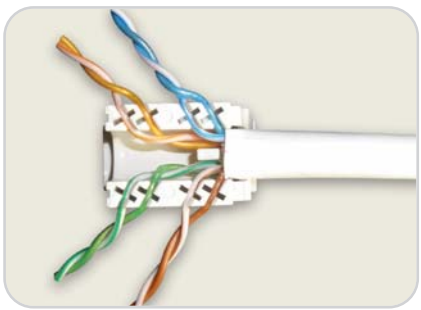


Slide the wiring block down the Jack housing guide, covering the IDC terminals. Then push the cable into the cable holder

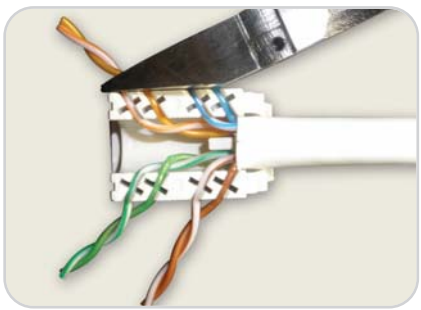


Trim the excess wires by using a diagonal cutter. Close the wings

Please tie the around the shielding base and cut the excess after tighten up



Seat the wires into the wire slots according to the wiring code



Trip the excess wires by using a diagonal cutter

Push down the cap using fingers

Products & Systems of LS Cable & System

A Convenient World through the Use of Cable

Energy Cables & Systems

LS Cable & System-setting the standards in power solution business

LS Cable & System provides highly customized electric power systems from power transmission & distribution solutions to marine, ship vessels, nuclear power and wind power systems.
Our turnkey solutions encompass the entire power transmission & distribution system from architecture, provision of raw materials, and installation, to maintenance and repair. We also lead the industry in developing cutting-edge products, such as superconducting cables, submarine cables and IT solutions for electric power.
We provide customized total solutions for a wide array of industries from nuclear power plants, manufacturing plants, railways, marine and ship vessel systems to wind power generation systems. Busduct system, which efficiently and effectively delivers high-capacity electricity, and the fire-retardant low toxic cables are a result of our decades-long commitment to creating eco-friendly products.

• Extra High Voltage Cable • Overhead Transmission Line • Submarine Cable • Medium & Low Voltage Cable
• Industrial & Speciality Cable • Bus duct

Telecommunications

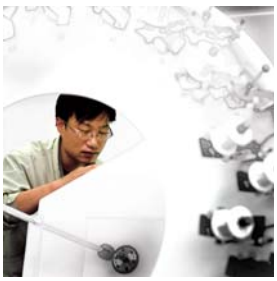
Providing cutting-edge, innovative technologies for a ubiquitous network

Amid the convergence of broadcasting and telecommunications, and accelerating growth of broadband and wireless networks, the telecommunications industry is undergoing a major transformation. In this rapidly evolving landscape, LS Cable & System leads the industry with customized solutions and services that meets the demanding needs of our clients worldwide. We have developed the following solutions with the scalability to serve both the private and public sector: ① NI (Network Integration) / SI (System Integration), ② ITS (Intelligent Transport Solution), and ③ UTS (Ubiquitous Total Solution).
Our quest to remain at the forefront of network technology and trends has led us to develop the following cutting-edge products: fiber-optic telecom solution, 10G Ethernet-level converged integrated cabling system, RF coaxial cable system, G-PON-based FTTH solution and LS-HFC (Hybrid Fiber Coaxial), which is 200-Mbps high-speed cable TV network system. Our broad product portfolio and technical prowess have made us a market leader in the global telecommunications industry.

• Optical Cable • LAN Cable • RF Feeder System • FTTH(Fiber To The Home) • SI(System Integration) • LS HFC

Integrated Modules & Cable Systems

Providing the best customized cable solutions for all environments



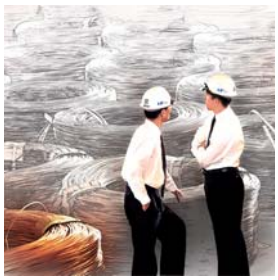
Our dedication to meeting our clients need for faster, smaller, safer and more convenient products has kept us ahead of our peers on the technology curve. As such, our cables and modules are widely used in industrial installations, electronic devices, automobiles, aircrafts, and even military equipments and installations.
We have also maintained our commitment to developing a wide array of eco-friendly products that are safer, more efficient, and produce fewer pollutants.
Our technological breakthroughs have led us to the development of the following innovative products: MCX (Micro-Coaxial cables) for internal wiring of mobile phones, FA (Factory Automation) cables for plant automation systems, eco-friendly cables for LCDs, eco-friendly PP (Polypropylene) cables for automobiles, electric solutions for hybrid vehicles, and heat shrinkable tubes that can endure temperatures up to 135℃

• Industrial Cable & Module • Automotive Wire & Cable Solution • Tube Components

Industrial Materials

Realizing a convenient future with cutting-edge materials

Based on LS Cable & System's production know-how and technologies in copper, aluminum and rubber treatment, the company is ramping up production of high value-added products, such as high-purity 8mm copper rods for vehicle wires and 0.03mm copper rod for ultra-fine wires.
The cutting-edge technologies of our precision rectangular winding wires, suitable for hybrid vehicle motors and car generators, and eXtra Thermal Aluminum Alloy (XTAL) are bolstering LS Cable & System's brand power here and abroad. Our continuous efforts to develop innovative new materials have also led us to produce oxide free copper (OFC), alternative to copper alloy, and so on. Furthermore, all these new developments are coming about as the company makes inroads in the global cable market through its localization efforts.
With years of experience and technologies in compounding treatment, LS Cable & System produces industrial rubber products and rubber tiles, the flooring material used in construction. Global demand for our flocking-based carpet tiles, featuring excellent convenience and sanitary engineering, is booming.



• Copper Rod • Magnet Wires • Aluminum Materials • Industrial Rubber

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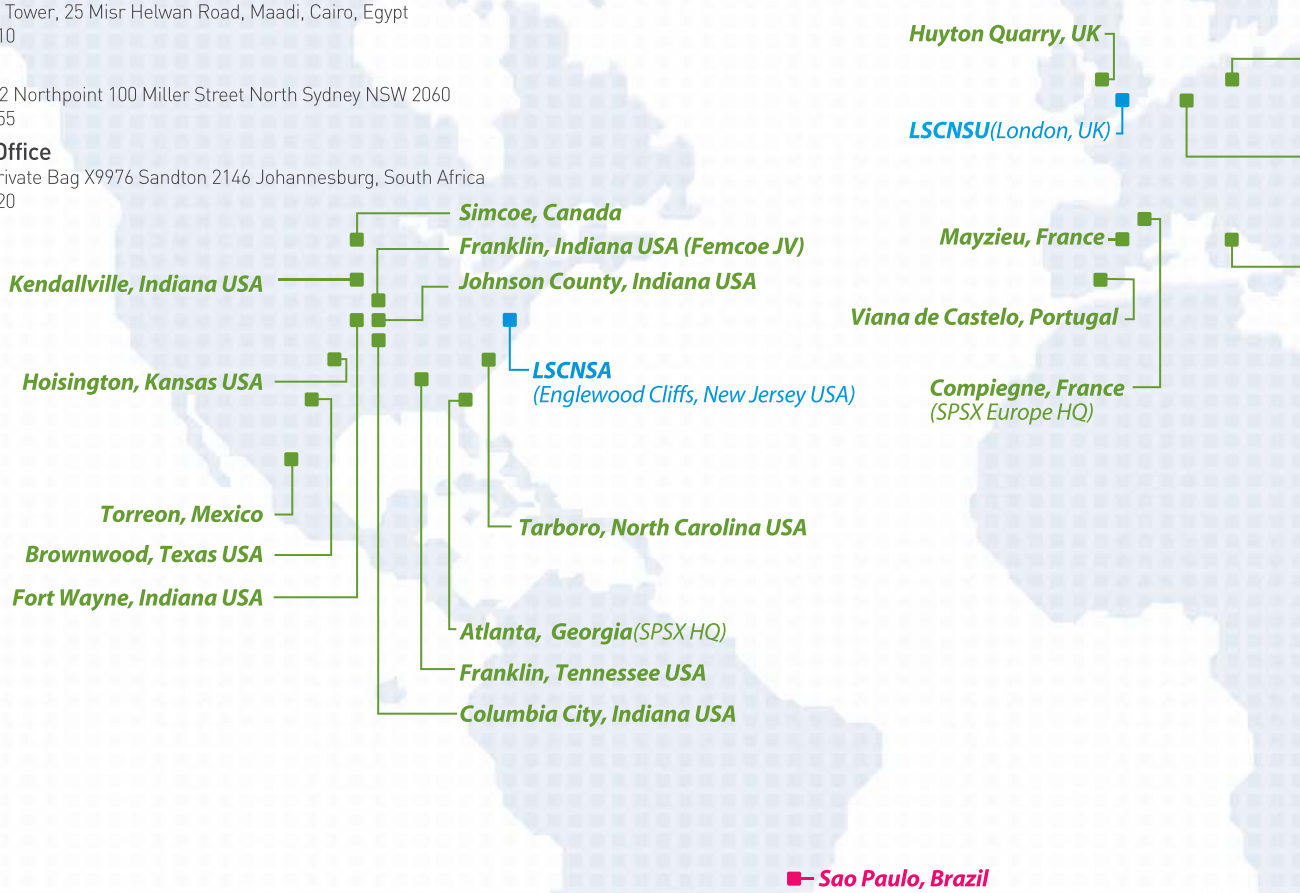

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Arolsen, Germany
Quattordio, Italy (2 Facilities)
Cairo, Egypt
Dubai, U.A.E
Riyadh, Saudi Arabia
Mumbai, India
Bangalore, India
Singapore
Jakarta, Indonesia
Johannesburg, South Africa
Sydney, Australia
LSIC(Beijing, China HQ)
Tianjin, China
LSCNST(Tianjin, China)
LSHQCNS(Yichang, China)
Korea
LSCNSJ(Tokyo, Japan)
LSIC(Xian, China)
Suzhou, China
LSCNSW(Wuxi, China)
LSIC(Shanghai, China)
LSCNSI(Haryana)
New Delhi, India
LSIC(Guangzhou, China)
LS-VINA(Haiphong, Vietnam)
LSCNSV(Hochiminh, Vietnam)
LSCNSM(Penang, Malaysia)

- LS Cable & System Branches
- LS Cable & System Subsidiaries
- Superior Essex
- LS HongQi Cable & System