



# DATA CENTER SOLUTION

Structured Cabling System



# LS Simple™ Data Center Solution

Traditional concerns of data center stakeholders are keeping their applications running and their networks scalable, available, and secure. However, over the last five years, demand for processing power has surged and server/storage equipment densities have increased dramatically. It has become increasingly difficult to specify cost-efficient power and cooling solutions that keep up with new applications.

Technology evolution in the data center is challenging IT managers to effectively budget and develop reliable, high-performance, secure, and scalable network infrastructure. Server consolidation through virtualization, the growing density of network storage systems, and the bigger and multiple workloads allowed by multicore architectures all drive demand for higher-bandwidth network connections.

Leading-edge LS Simple™ Data Center Solution makes your mission-critical complicated business simple to superior performance and trouble free networks.

LS Simple™ provides the data center solution fulfilling efficient cabling management and Green-IT infra by optimized deployment of rack & cabling, which leads to reliable and stable network service.



## Major Requirements on Global Data Center

**Performance**

- World Slimmest Copper Category 6A cable solution
- Superior transmission in 6 high-connection system configuration
- 10Gbps above with OM3, OM4 fiber solution Low-loss MTP solution
- 100% assured transmission performance in factory site by Pre-terminated solution
- Easy installation & Save time

**Reliability**

- 25-Year Warranty Program by cabling business for decades (Technical Support & Certified Installer Training)
- Design/Installation/Operation in accordance with International Std. (TIA-942)
- Optimized Cabling Infra with Intelligent Infrastructure Management System (I2MS)

**Flexibility**

- Module type products which are convenient to MAC (Move, Add, Change)
- Optimized HD racks safely accommodating Network Equipment with various accessories
- Raceway supporting quick installation & stability of cabling
- Modular type rack package enables flexible expansion and high energy efficiency



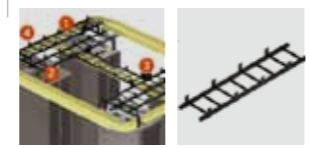
01. LS Copper Cabling System



02. LS Environmental Management Solution



03. LS Copper Tray System



04. LS Simple Path™



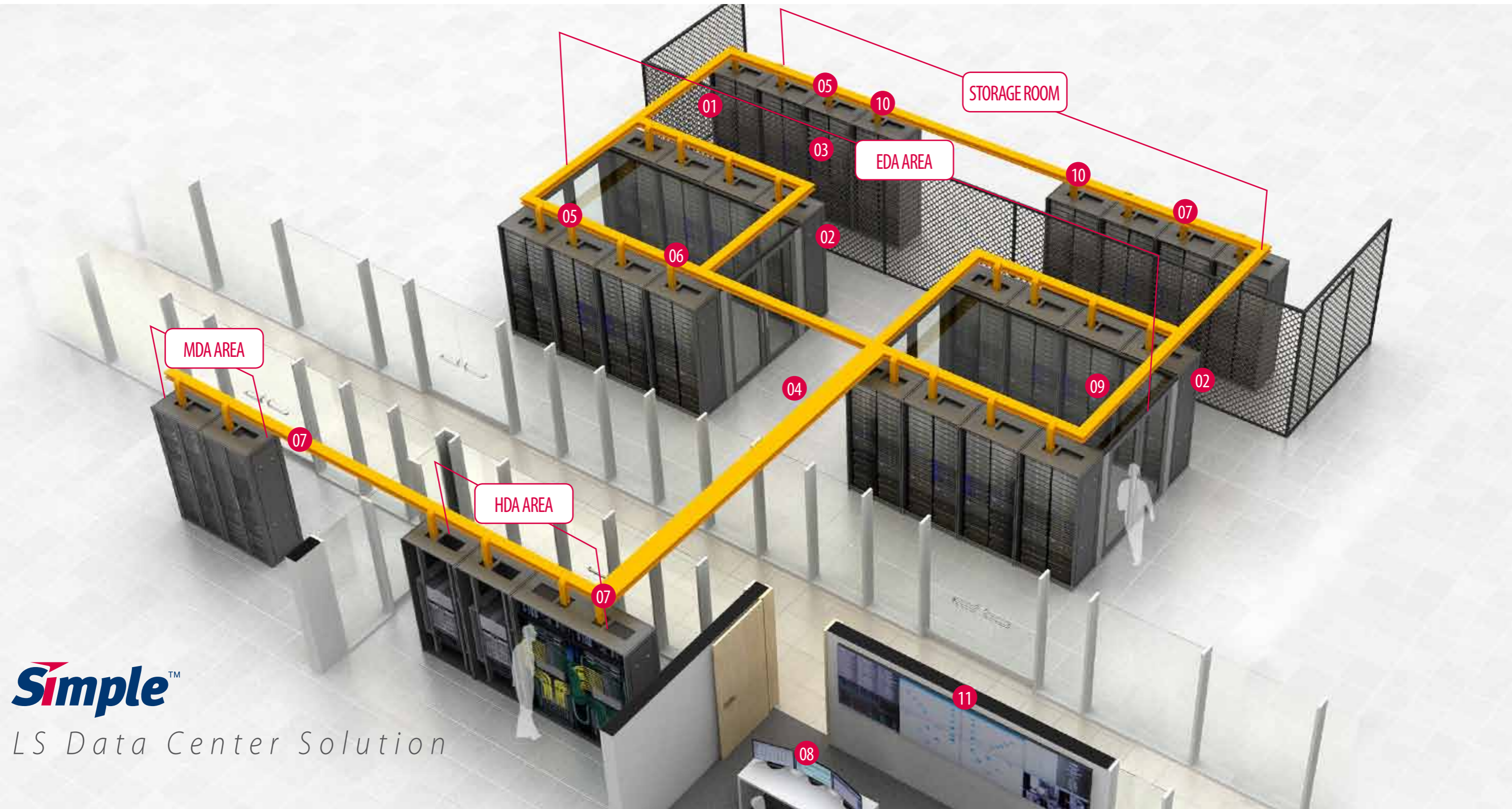
05. LS Fast-Net™ Copper Solution



06. LS HD Copper Patching



07. LS HD Fiber Patching



**Simple™**

*LS Data Center Solution*

07. LS Fast-Net™ 40G/100G MPO/MTP Solution



08. LS SimpleWin™ Software



09. LS Security Patch Cord Solution



10. LS SimpleWin™ Hardware



11. LS SimpleWin™ Dashboard



# Copper Cabling System

Slim Category6A Cable for High Density



## Overview

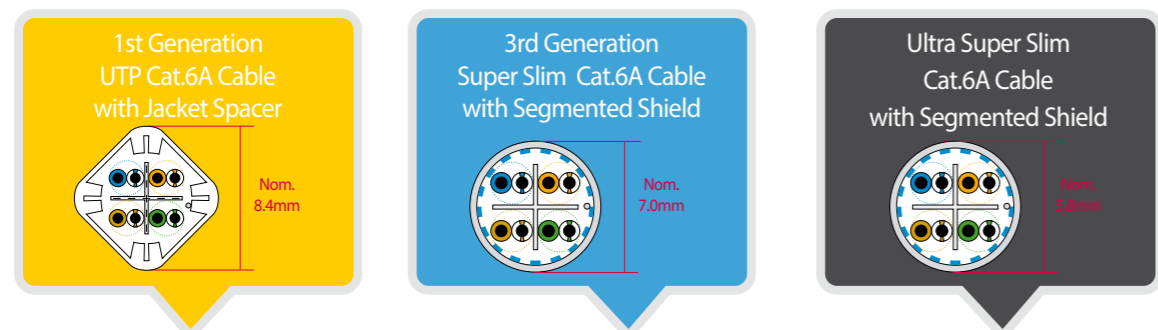
LS Simple™ Category 6A Copper Cable is designed for high performance data transmission. This enables user to transmit 10Gbps above data and suit to design on cabling to cover from equipment zone to patching zone.

LS Simple™ Ultra-Super Slim U/UTP Category 6A cable is a special development to support 10Gbps networking within dense and short length environments of data center. It complies with ANSI/TIA-568-C.2 and ISO/IEC 11801 for channels of Max. 70m or permanent links of max 60m when used in combination with LS Simple™ Category 6A connectors.

## Features & Benefits

- LS unique Segmented Shield Technology applied to mitigate Alien Noise.
- Support Max. 70m channels or permanent link of max 60m (Ultra Super Slim Cable)

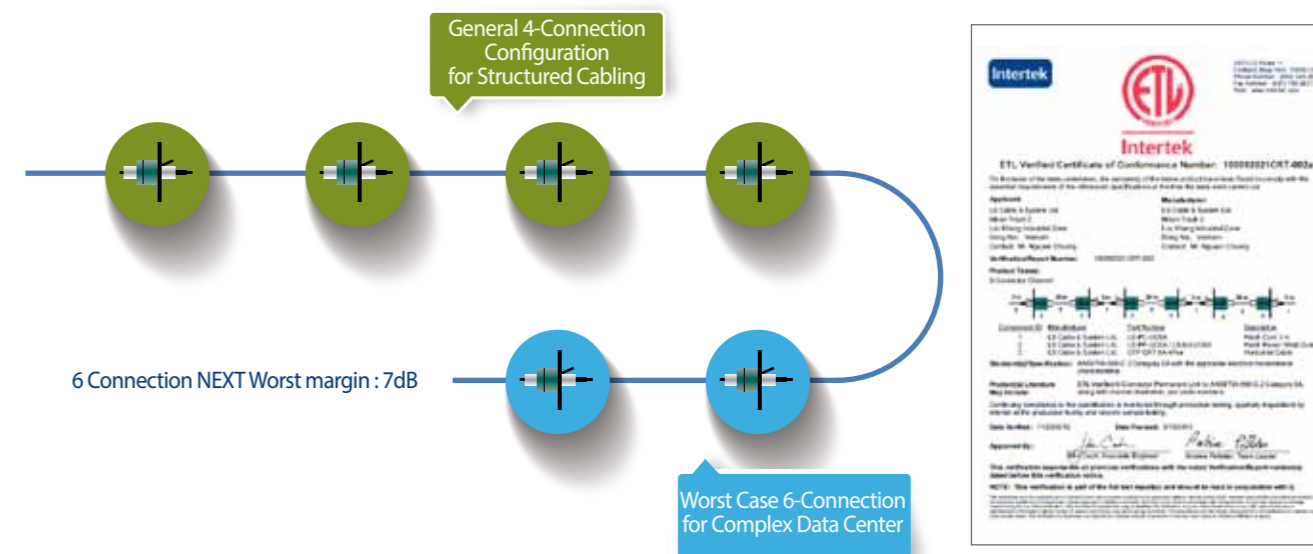
## Space Efficiency & Mitigation from Alien Noise



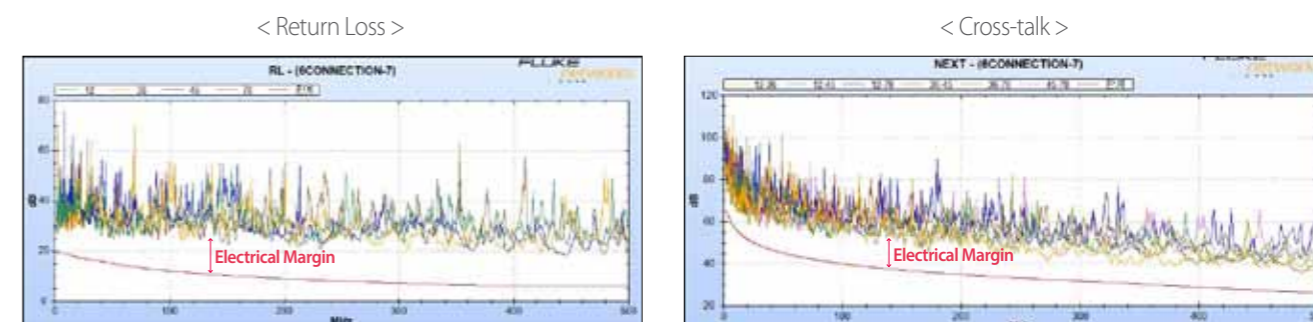
6 Bundle Diameter	27mm	21mm	17.4mm
Surface	100%	60%	42%
Channel Length	100m	100m	70m

## Stable Performance & Sufficient Electrical Margin

- Extended 6-Connection Channel Performance, 3rd Party Certification of Super Slim Cat.6A



- Stable 70m channel performance of ultra super slim C6A cable with mini patch cord



- The 70m channel link of ultra-super slim Cat.6a and 30AWG slim patch cords have a sufficient headroom performance for stable service of data center

## Product Details

Item	Model	Part Number	Description
	Super Slim UTP Category 6A Cable	UTP-A-C6G-E1VF-X(M or R) 0.5X004P/## (PVC, CMX or CM or CMR Grade)	Nominal 7.0mm Super Slim 23AWG Category 6A U/UTP Cable with LS Segmented Shield
		UTP-A-C6G-E1ZF-X(M) 0.5X004P/## (LSZH 60332-1 or 60332-3 Grade)	
	Ultra Super Slim Category 6A Cable	UTP-A-C6G-E1VL-X(M or R) 26AWGX004P/## (PVC, CMX or CM or CMR Grade)	Nominal 5.8mm Ultra Super Slim 26AWG Category 6A U/UTP Cable with LS segmented shield
		UTP-A-C6G-E1ZF-X(M) 0.5X004P/## (LSZH 60332-1 or 60332-3 Grade)	

# Copper Cabling System

High-Density Patch Panel



## Overview

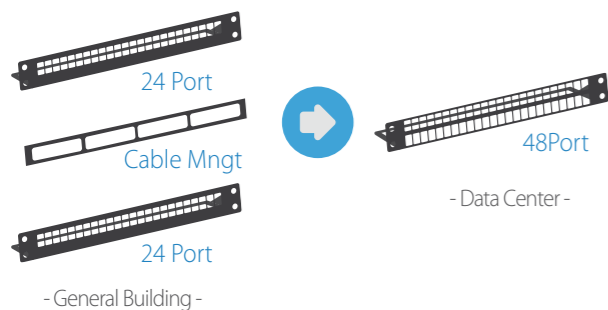
LS Simple™ High-Density 48-port per 1RU Horizontal or Angled Empty Panel are optimized solution for high-density data center application.

It's cost-effective way to increase rack space utilization by eliminating the needs of accessories such that horizontal management etc. and is conveniently manageable by reduced bend radius specification.

## Features & Benefits

- Two types 48-port/1RU patch panel supports(Flat/Angled)
- Efficient maintenance by individual jack type panel installation
- Various environment supports by jack with dust proof slide door
- Exact & Fast IDC termination by Easy Tool

### Space Saving



### Easy & Reliability IDC Connection



Easy tool enables installers to not only reduce installation time but also increase performance reliability with precise IDC punching.

## Product Details

Item	Model	Part Number	Description
	HD Flat Patch Panel	LS-PP-48P-E-WM-1U	Flat Individual Jack type Empty Patch Panel 1U 48Port
	HD Angled Patch Panel	LS-APP-48P-E-WM-1U	Angled Individual Jack type Empty Patch Panel 1U 48Port
	Modular Jack	LS-MJ-UC6A-XX-ERI LS-MJ-UC6A-XX-ERD (Slide door type)	(Door Type) Enhanced Slim Modular Jack for Patch Panel
	Tool	LS-EZT-TOOL-ER	Easy Termination Tool for Modular Jack

# Copper Cabling System

Mini Turn Boot Patch Cord



## Overview

LS Simple™ Category 6 or Category 6A mini patch cords are optimized solution for dense and short data center patching environment with 2.8mm(32AWG) & 3.7mm(28AWG). Of course this solution also meets the ANSI/TIA-568-C.2 and ISO/IEC 11801 standard up to 5m length.

LS Simple™ Mini Patch Cord reduces rack vertical cable management capacity and don't obstruct air flow in rack. It maximizes the energy efficiency.

## Features & Benefits

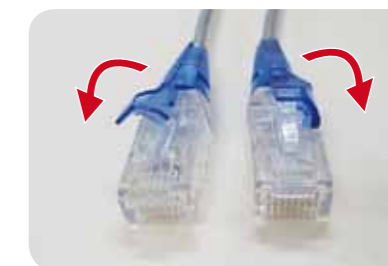
- 26AWG(General) & 30AWG (Mini) Stranded Wire
- Superior transmission performance in limited distance
- Factory terminated and 100% tested
- Security enhancement & easy-plug in/out by dedicated turning boot technology
- Easy Handling by Out-Diameter

### Small Bending Radius



AWG	Cord O.D(mm)	Bend Radius(R, min)
26AWG	6.0mm	24mm
28AWG	Nom.3.7mm	14.8mm
32AWG	Nom.2.8mm	12mm

### Easy Plug Out By Turn Boot



LS turn boot plug technology makes easy plug in and out case of high density zone

## Product Details

Item	Model	Part Number	Description
	Category 6A Patch Cord	LS-PC-UC6-xx-yyy LS-PC-UC6A-xx-yyy (xx: Color, yyy: length)	UTP Category 6/6A 26AWG Patch Cord
	Mini Patch Cord	LS-MTPC-UC6-xx-yyy LS-MTPC-UC6A-xx-yyy (xx: Color, yyy: length)	Mini Turn Boot UTP Category 6/6A 32AWG Patch Cord

# Fast-Net™ Solution

40G/100G Pre-terminated Fiber Cabling



## Overview

LS Simple Fast-Net™ MPO/MTP solution is pre-terminated solution which means it can easily expand or relocate systems without relocating patch cords and cassette. Therefore it can be applied to maintenance of currently operating solution to respond flexibility to the customers who consider physical configuration, space-efficiency and future scalability.

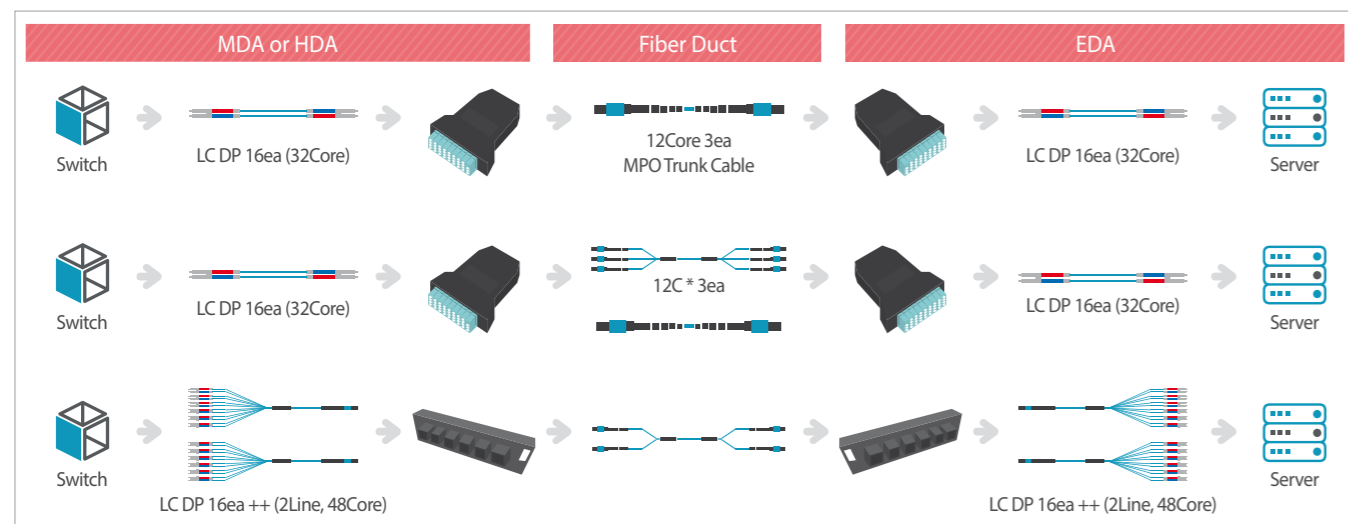
By providing pre-terminated product in the factory, LS Simple Fast-Net™ MPO/MTP solution can guarantee high performance & long link length as a result of enhanced insertion loss and decrease of resistance. Also it can reduce human effort when terminating on site with no needs of special tools to terminate optical cables.

## Features & Benefits

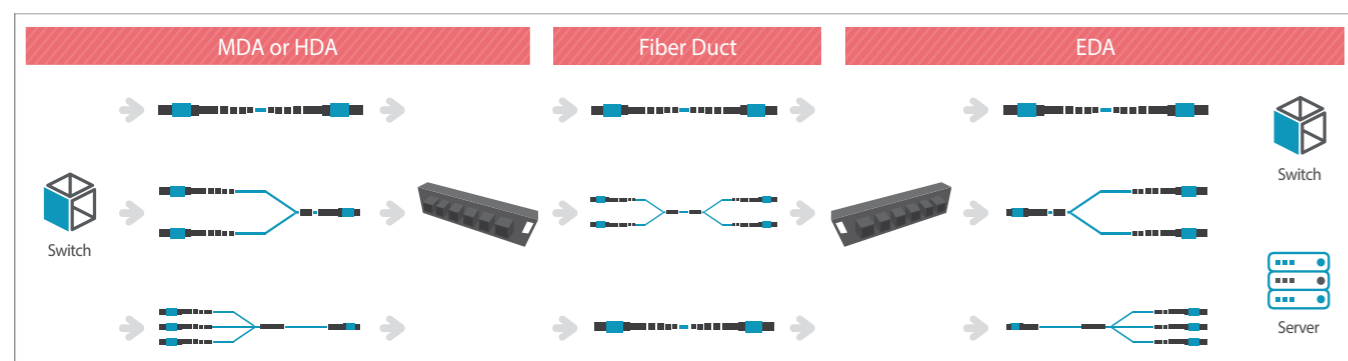
- High-density connection with multi-core (up to 24-core) support
- Class OF-300 channel support
- Push-pull type connecting for easy & fast installation
- 40/100Gbps parallel transmission (IEEE 802.3ba) support solution

## Fiber System Configuration

### 1G/10G System



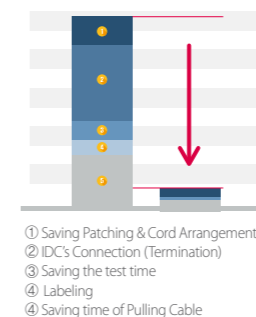
### 40G/100G System



## Benefits

### Time Save & Easy Install

Fast-Net™ Solution saves installation time drastically compare to traditional cabling way



### Maintenance Price down

Fast-Net™ FFiber Solution saves cabling duct space and doesn't need fiber connection so decrease human resources and fault

## Product Details

Item	Model	Part Number	Description
	Drawer Closure	LS-FDF-MC1U-EP4M-D	Fiber Distribution Frame 1U, Empty Closure body, 4 empty holes for FDM module or MCF cassette, slide type
	Outer Closure	LS-FDF-MC4U-EPyM-O (x:1U~4U, y: 4/8/12/16)	1U~4U Fiber Distribution Frame, Empty Closure body, 4~16 holes for MCM cassette or adaptor panel
	Vertical Type Outer Closure	LS-FDF-MC4U-EP10M-VI	FDF 4U, Empty enclosing body, 10 empty vertical holes for FDM module or MCF cassette, inner type
	Empty Panel	LS-PPP-UC-24P-EP4-WM-C LS-APP-UC-24P-EP4-WM-C	Flat/Angled 4 Module Empty Front Patch Panel
	MCM Cassette Module	LS-MCM-LC-DP(or 4M)-xx-SM (or M3 or M4) (xx: 12~36 core)	MTP Pre-term. Cassette, LC type 12~36 core
	MTP Adaptor Panel	LS-MCM-MCC6	MTP 6-port Adaptor Panel for cross-connection
	Blank Panel	LS-FDM-BLK	Blank Module For Empty Front Panel
	Trunk Cable (MTP-MTP)	LS-MTC-FF(or MF)-xx-12Z(or 24Z)-yyy (cf. FF : Female, MF : Male)	MTP connector Trunk Cable with 12-core/24-core Micro Distri. Cable, LSZH
	Fan-Out Cord	LS-MFC-FLC-xx-12Z(or 24Z)-yyy LS-MFC-MLC-xx-12Z(or 24Z)-yyy (cf. FLC : Female LC type, MLC: Male LC type)	MTP to 12/24-core LC Fan-out Cord, LSZH
	Fiber LC Jumper Cord	LS-JC-LC/LC-xx-20DPZ-yyy (xx:SM/M3/M4, LSZH) LS-JC-LC/LC-xx-20DPV-yyy (xx:SM/M3/M4, PVC)	Fiber Jumper Cord LC Duplex, LSZH or PVC

## Fast-Net™ Solution

Pre-terminated Copper Cabling



### Overview

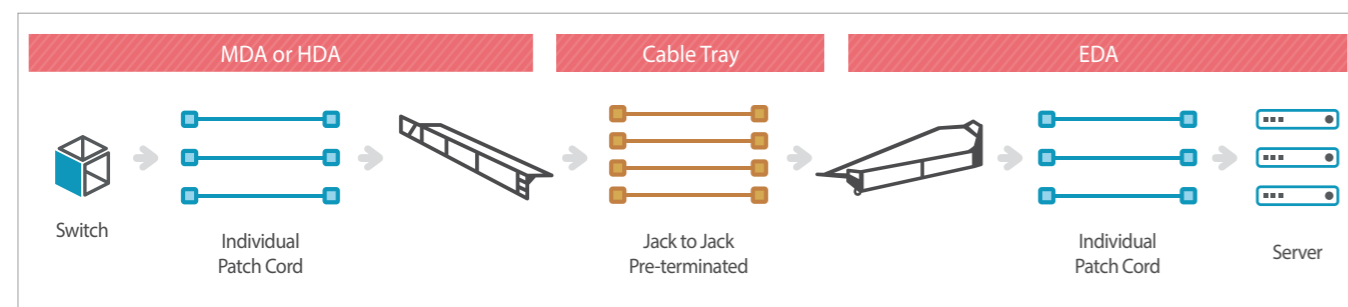
Simple Fast-Net™ copper pre-terminated solution is factory terminated, providing the quality required to support your channel requirements. It offers a high performance & stable six bundle cabling.

Simple Fast-Net™ is ideal solution for IBS or Data Center building because it doesn't need to punch down for IDC connection and is easily maintained by detachable module type solution. So it's possible for quick cabling and saves the installation time up to 80%.

### Features & Benefits

- Easy Installation by 6 bundle All-In-One structure
- Customized cable manufacturing & labeling
- 100% factory terminated & tested
- Design to prevent kink with central filler

### Copper System Configuration

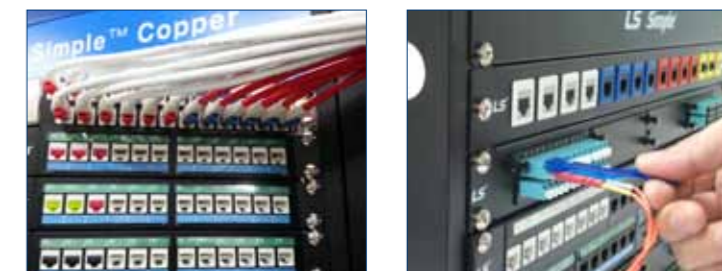


### Product Details

Item	Model	Part Number	Description
	Empty front Panel	LS-PPP-UC-24P-EP4-WM-C LS-APP-UC-24P-EP4-WM-C	Flat/Angled 4 Module Empty Front Panel
	6 Bundle Pre-terminated Cord	LS-PC6-UC6A(USC6A)-wxx-JJ(JP)yy-zzz-ERI (w - cable flame retardant rate: M(CM), L(LSZH) xx - cable color, yy - connector color zzz - cable length: 005(0.5m), 010(1m), 050(5m)	Pre-terminated Category 6/6a 6 Bundle Cord Jack to Jack & Jack to Plug UC6A : 7.0mm Cable USC6A : 5.8mm Cable

## Security Solution

Security Copper/Fiber Cord



### Overview

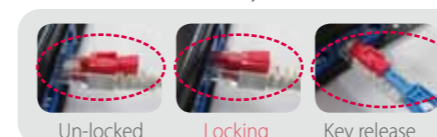
LS Simple™ Security patching solution supplies two security functions, restriction to port-connection from the unauthorized, prevention of dis-connection for port carrying the important mission.

### Features & Benefits

- Tamper Resistance**
  - Security key locks in the plug for added physical security
- Versatility**
  - Designed for pre-terminated and field terminated applications
- Flexibility**
  - Compatible with industry-standard copper/fiber connectors
  - Slim-line and compact design ideal for high-density applications in mission critical facilities

### Protect Connection

Instruction for security Patch Cord



### Protect Empty Port



Stopper blocking port from anonymous connection and open by using stopper key

### Product Details

Item	Model	Part Number	Description
	Security Patch Cord	LS-SPC-UC6(A)-xx-yyy (xx : color, yyy : length)	Security Enhanced Copper Patch Cord
	Copper Key	LS-TOOL-SPC	Security Key
	RJ45 Stopper	LS-SRS-BL	Security Stopper For RJ45 Modular
	Stopper Key	LS-TOOL-SRS	Security Stopper Key For RJ45 Modular
	Security Jumper Cord	LS-SJC-SM(M3)-20DPV-yyy (yyy: Length)	Security Enhanced Fiber Jumper Cord
	Fiber Key	LS-TOOL-SPC/SLS	Security unlock/lock key for Cord & Stopper
	LC Stopper	LS-SLS-BL	Security Stopper for LC module

# Data Center Rack

Network & Server Rack



## Overview

Data Center needs an optimized cabling environment for services. Network rack packages are designed for high density cable data circumstances by providing special VCM. The LS Simple™ meet TIA/EIA 310-D standard and 19 inch rack type standard

## Features & Benefits

- Steel Frame, 70% Above Perforation
- Dual Door(Customized doors are available)
- Mounting bar: Al
- Load Capability Maximum 1200kg
- 19inch Rack and TIA/EIA 310-D Compliant
- Cage Nut M5/M6 Screw Used.

## Server & Network Rack Details

Item	Model	Part Number	Description
	Server HD Rack	LS-HDR-SVR31A-EX (31U)	1600*600*1000
		LS-HDR-SVR36A-EX (36U)	1800*600*1000
		LS-HDR-SVR40A-EX (40U)	2000*600*1000
		LS-HDR-SVR42A-EX (42U)	2100*600*1000
		LS-HDR-SVR42D-EX (42U)	2100*600*1100
		LS-HDR-SVR45A-EX (45U)	2200*600*1000
	Network HD Rack	LS-HDR-NWK36A-EX (36U)	1800*800*1000
		LS-HDR-NWK40A-EX (40U)	2000*800*1000
		LS-HDR-NWK42A-EX (42U)	2100*800*1000
		LS-HDR-NWK45A-EX (45U)	2200*800*1000
	HD Rack Accessory	LS-FG-A-EX (10U)	VCM Finger Kit For High Density Rack

## Individual Rack Details

Item	Model	Part Number	Description
	Rack Frame	LS-HVF-xxS-EX (xx: 36/42/45)	4 Post Rack Frame (36U, 42U, 45U)
	VCM	LS-VCM-xxS-EX (xx: 36/42/45)	VCM For Separation Rack
	Side Door	LS-SD-xxS-EX (xx: 36/42/45)	Side Door For Separation Rack
	Door	LS-FD-xxS-EX (xx: 36/42/45)	Front Door For Separation Rack Perforated ratio 70%

# Containment System

Customized Module Type Rack




## Overview

Proposed customized module type rack PKG solution enable data center to save energy and maintaining proper temperature and humidity therefore, best cooling and minimizing consumption of power is feasible. Also LS containment system provides for scalable and flexible modular rack package system to meet data center future expansion.


## Features & Benefits

### Customized Modular Way



Containment Curtain Design

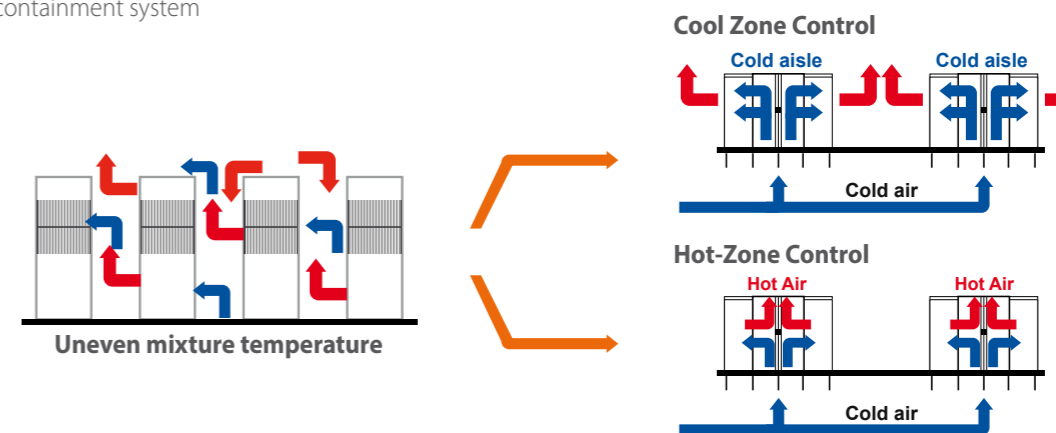
- 6 Racks (2 by 3), 8 Racks (2 by 4), 10Racks (2 by 5) etc. Available on Direction Module type
- Physical Hardware Infrastructure enable to separate on Cold Aisle & Hot Aisle in internal data center for optimized cooling.



One Way Module type Design

### Air-Flow Control

The containment provides the maximum efficiency of air condition by deploying racks in most-optimized way in line with LS containment system



## Product Details

Item	Model	Part Number	Description
	Modular Type Rack Package	LS-ECU Series (Contain Efficient Cooling System)	6 Racks (2 by 3), 8 Racks (2 by 4), 10 Racks (2 by 5) etc
	Cool-Zone Structured Kit CM Series	LS-CM Series (Structured Cool Zone)	Cool zone kit



# Simple Path™ System

Fiber Tray System



## Overview

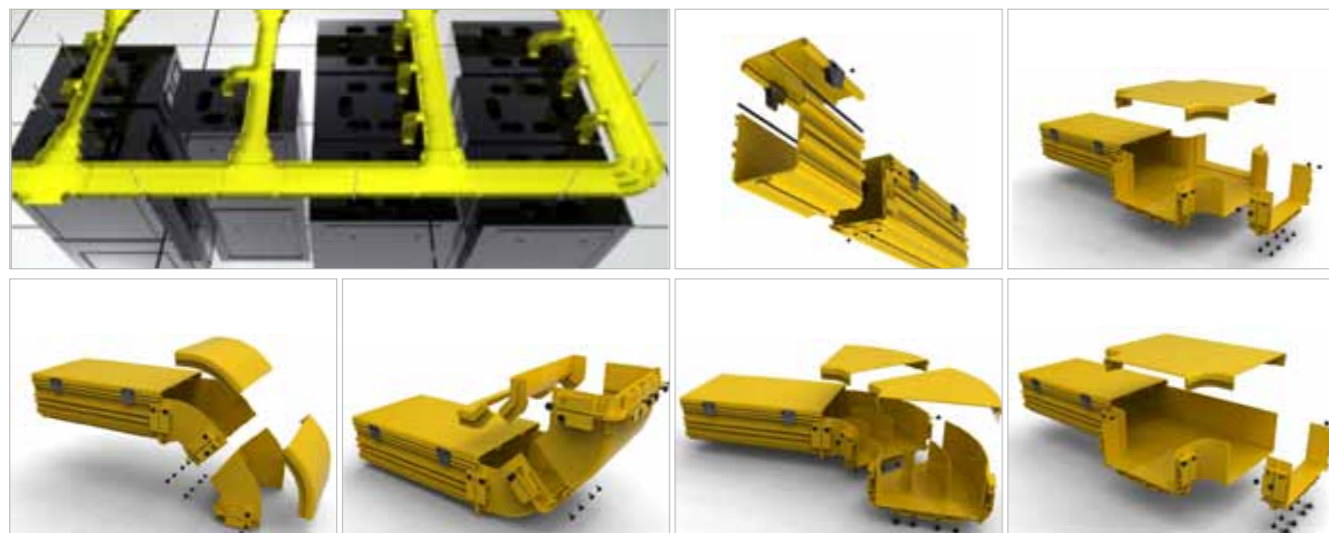
LS Simple Path™ fiber optic raceway system is designed perfectly that routes, isolates and protects fiber optic jumper cords, optical cables from the point of building entry to fiber distribution frames, fiber optic terminal device in safety as well as fiber optic raceway system made of PC/ABS that provides excellent heat stability, weather resistance, halogen free, heat resistance, dimensional stability and flame retardant for environmentally safe products.

LS Simple Path™ fiber optic raceway system adopts snap-fit connecting way that provide simple easily, compact and quick installation for a various applications without special tools, so it guarantee to save a time, expense and working force of installers.


## Features & Benefits

- No need a special tools
- Provides excellent durability
- Easy drop arrangement
- Compatibility with other brand

### Easy and speedy installation (assemble type)



## Product Details

Item	Model	Part Number	Description
	Fiber Duct Package	LS-DS-Series	Fiber optic raceway system package for data center

# Simple Path™ System

Copper Tray System



## Overview

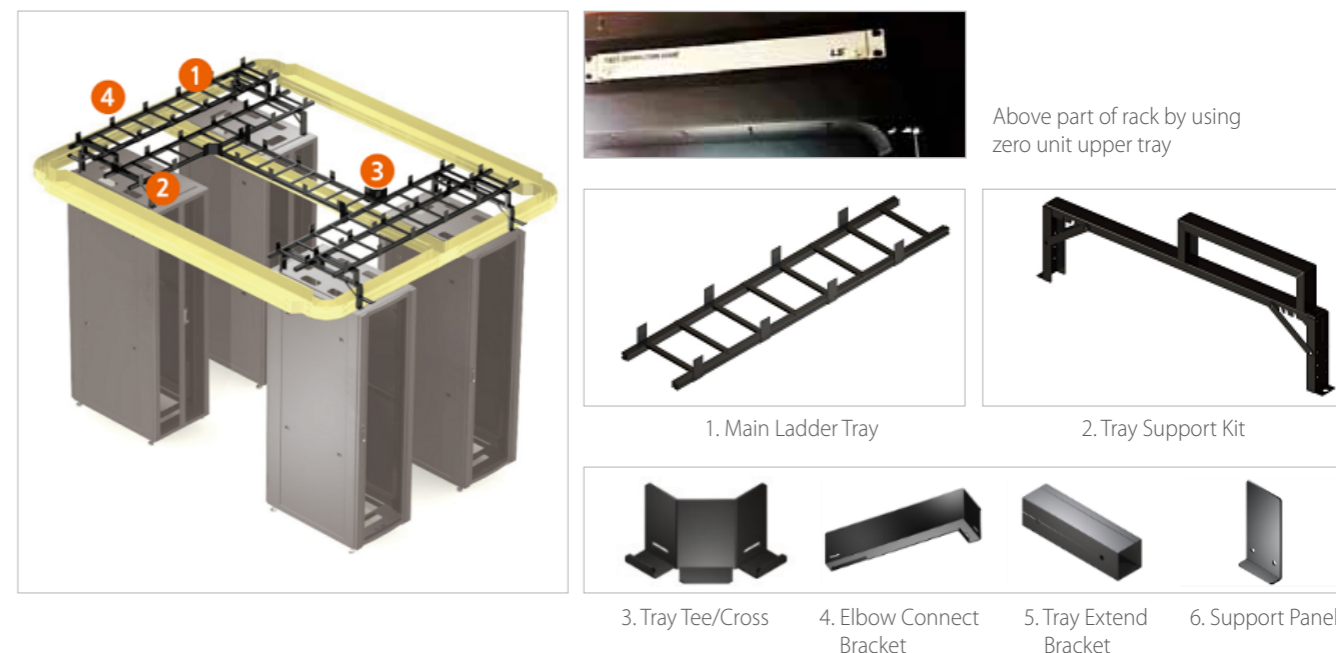
Copper Ladder Tray provides optimized cabling solution on location and drop point of rack can be combined with fiber raceway to make manageable circumstances.

Circumstances on patching for top of rack can be minimized, and location of rack can be convenient by providing Zero Unit Upper Tray. FDF and copper panel can be installed by installing Upper Tray.


## Features & Benefits

- Tray as per location of Rack
- Ceiling and bottom of flooring work
- Non Toxic Materials (RoHS, Halogen-Free)
- Steel and Aluminum Materials
- Zero-U type 19inch installable frame function provide

### Easy and speedy installation



## Product Details

Item	Model	Part Number	Description
	Fiber Duct Package	LS-LT- Series	Copper tray system package for data center management

# Intelligent Infrastructure Management System

SimpleWin™ Data Center Management



## Overview

The LS SimpleWin™ Intelligent Infrastructure Management System drastically speeds up and simplifies site planning, daily network provisioning, as well as maintenance and security. With the ability to keep an accurate inventory of all assets anyplace and anytime, comprehensive visibility is added into the datacenter and workspace facilities providing increased power and flexibility

## Features & Benefits

- Real-time error management
- Capture and discover error point and port
- Analyze connection status across
- Helps to track on IP and MAC address
- Work order by portable electronics
- CAD drawing is available

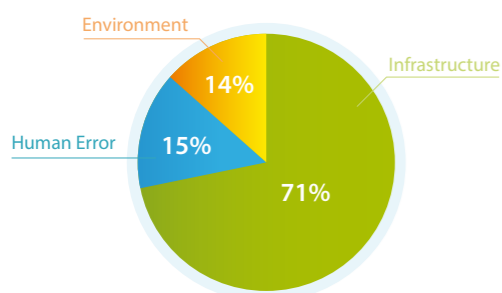
## Long-term Operating Cost Saving



It's important not only build a optimized network but also maintain network status optimized because of it's mission critical network system and various function contained server.

SimpleWin™ offers a system platform how to manage network assets and connection in the data-center. The system support plan, modifying, recovery, documentation and suggest best way to manage data-center optimized for a long time.

## Minimized Down Time & Enhanced Physical Layer Security



[Main reason of network down]

Almost 70% whole network errors come from improper network infra management and among these 46% are considered as physical connection management faults.

It's a almost impossible to find a fault network port if network infrastructure have been unmanaged. It causes long-delayed service break-down and generates extra costs.

SimpleWin™ offers a management methodology of network infrastructure with various software functions and real time detecting technology of SimpleWin™

## Efficient Management with real-time software



SimpleWin™ Software offers easy to use software function by 3D drawing based eidetic UI design.

And SimpleWin™ Software monitors network connection status in the real time and dealing with emergency situation by using smart device.

## Product Details

Item	Model	Part Number	Description
	SimpleWin Controller	LS-IC960-PS1A (40 Panel) LS-IC960-PS2A (40 Panel, 2 Power) LS-IC384-PS1A (16 Panel)	Control & monitor Intelligent Patch Panel & FDF
	SimpleWin IPP Cable	LS-ICPC960-xxx-A (xxx : cable length)	Support 4 Panel to connect controller and patch panel
	SimpleWin Patch Panel	LS-IPPx-UC-24P [x : I (inter), C (Cross)]	Flat type 24Port Intelligent Patch Panel
	SimpleWin Patch Panel	LS-IAPx-UC-24P [x : I (inter), C (Cross)]	Angled type 24Port Intelligent Patch Panel
	SimpleWin Patch Cord	LS-IPCx-UC6A-yy-zzz [x : I (inter), C (Cross)] (yy : color) (zzz : cord length)	Intelligent Copper Patch Cord C6/C6A Support
	SimpleWin Security Patch Cord	LS-IPCS-UC6A(L)-xx-yyy (xx : cable color) (yyy : cable length)	Intelligent Security Copper Patch Cord C6/C6A Support for inter-connection
	SimpleWin FDF	LS-IFDC-LC-M3-C-048-DP-D	Intelligent Fiber Distribution Panel
	SimpleWin FDF	LS-IFDC-LC/MPO-M3-C-048-DP-D	Intelligent Fiber Distribution Panel MTP Fan-out Type
	SimpleWin Jumper Cord	LS-IFCC-IL/IL-M3-XXXX-YYY series	Intelligent Fiber Distribution Panel MTP Fan-out Type
	SimpleWin Management Software	LS-IMSW-W-xxxx (xxxx : Port License)	SimpleWin Management Software for PC
	SimpleWin Mobile Software	LS-IMSW-M-xxxx	SimpleWin Software for Android Mobile

# LS Simple™ Data Center Support Program

Design, Install, Warranty Service

## Program Overview

LS Cable & System provides three support services to provide the best customer value in a rapidly changing data center environment.

We supports the latest data center design at the design stage and suggests the optimum data center design. In order to ensure the reliability of the installation stage, we train and test installation experts through the LSI training program. Through the warranty program of LS Cable & System, we provide high quality cabling calibration and quality assurance for the installed field.

## 3 Key Point Service for Data Center Project

• Design Consulting (Design)

Provide the latest data center design and consulting service through RCDD experts of LS Cable & System



• LS Certified Installer Program (Install)

Installer training program for reliable installation through LS Cable & System.



• Warranty (Quality Guarantee)

Provides verification of installation quality and warranty service.



# LS Simple™ Warranty Program

Structured Cabling System



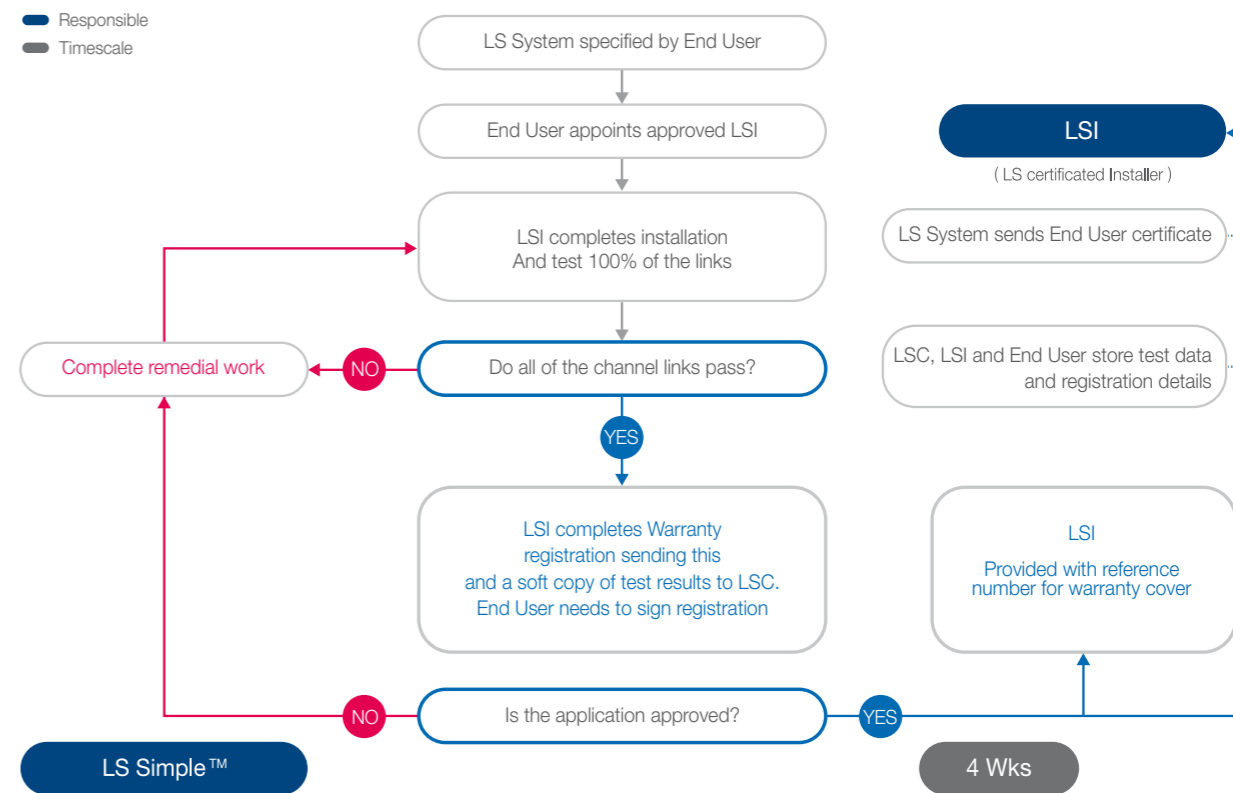
## Program Overview

LS Cable & System has a maximum 25 year warranty program to meet the customer's reliability for high quality telecommunication system of enterprise buildings.

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

- Unique 25 year application and product warranty.
- The warranty applied to the network and can be sold as an asset.
- The warranty is only offered by fully trained LS Integrators.
- The system is independently inspected by a third party.

## Warranty Process




# GLOBAL NETWORK

More than 60 Factories,  
Sales and Production Sites  
in 20 Countries.


- Factory
- Sales office
- Branch office




**KOREA**



**Gumi Plant**  
EHV / MV / LV cable  
UTP, Coaxial cable  
SCR, Magnet wire  
Overhead cable, Bus duct



**Indong Plant**  
Optical fiber  
Optical cable



**Donghae Plant**  
Submarine cable  
Industrial specialty cable

**CHINA**




**LSHQ(Yichang)**  
EHV / MV / LV cable  
Industrial specialty cable




**LSCW(Wuxi)**  
Industrial devices cable  
Automotive cable  
Harness & module  
Aluminum, Bus duct

**VIETNAM**



**LS-VINA(Haiphong)**  
EHV / MV / LV cable  
SCR, ACSR  
Overhead cable



**LSCV(HO Chi Minh)**  
MV / LV cable  
UTP, Optical cable  
Overhead cable

**INDIA**



**LSCI(Bawal)**  
EHV / MV / LV cable  
Coaxial cable  
Overhead cable

**USA**



**LSCUS(Tarboro)**  
MV / LV cable  
Control, Instrument cable

**POLAND**



**LS EV Poland./LSCP (Dzierzoniow)**  
Automotive battery components  
Optical cable



[www.lssimple.com](http://www.lssimple.com)  
Data Center Solution

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