"State-of-the-art Data Center Solutions"

UPTIME

FUTURE PROOF

FLEXIBILITY

EFFICIENCY

HIGH DENSITY

DATA CENTER Challenge

Data Centers have evolved as a secure storage place for the rapidly expanding volume of information a company needs to function.

The dramatic growth of "IT Dependency" in all businesses has increased significantly demand for Data Centers all over the world.

Guidelines to design, build and operate a Data Center are provided by different standarts' for different products and services. Some commonly Data Center standarts are formed by organisations such as ASHREA, CENELEC, ISO/IEC, TIA, BICSI, UPTIME, IEEE, NEB.

Today's real challanges in a Data Center can be summarised as :

- Energy Efficiency for Power&Cooling (PUE-DCIE)

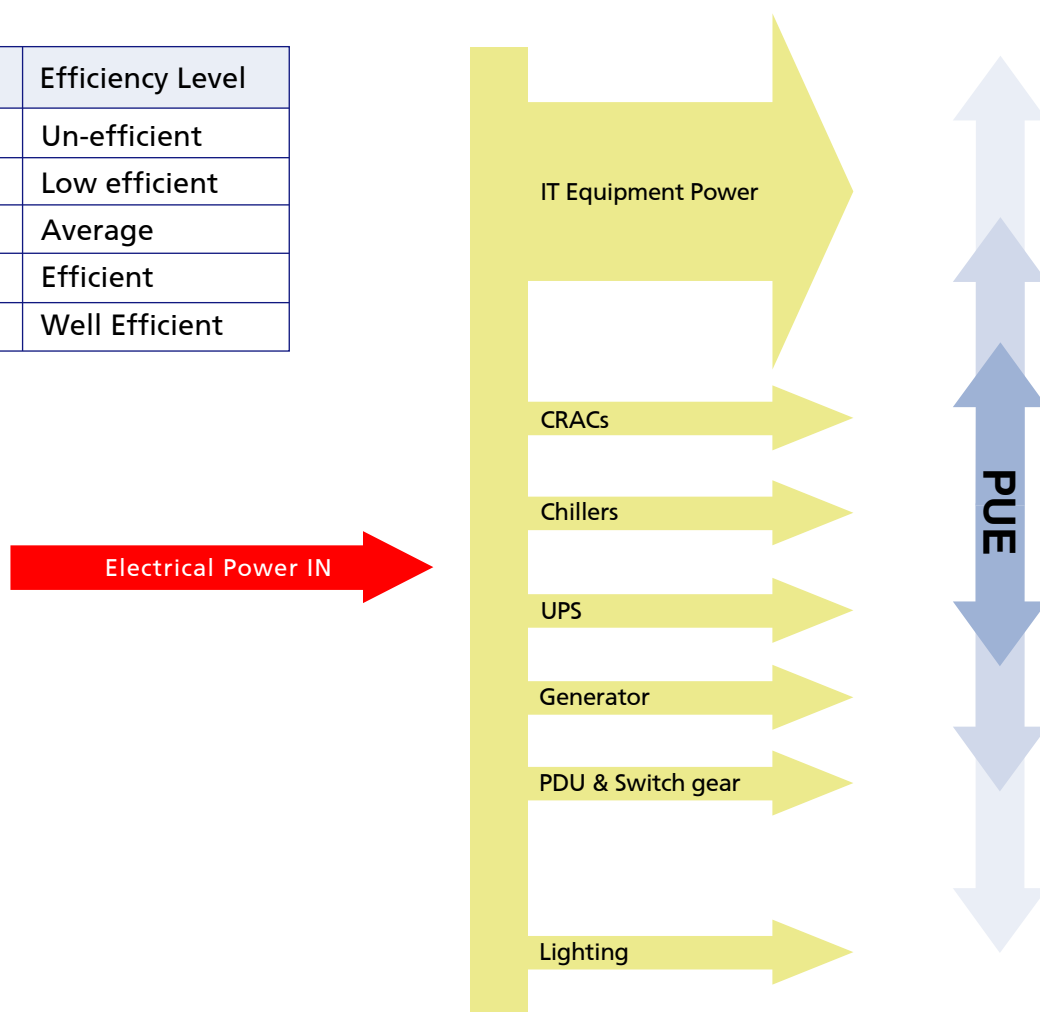- High Density Servers ; Storage Servers

- Co-location

- Refurbishment

POWER

As the main continous need to run all systems, power is the major element for all Data Centers. Data center designers sh consider carefully in order to build efficient and effective Data Center power infrastructure.

Definitions of PUE (Power Usage Effectiveness) and DCIE (Data Center Infrastructure Efficiency):
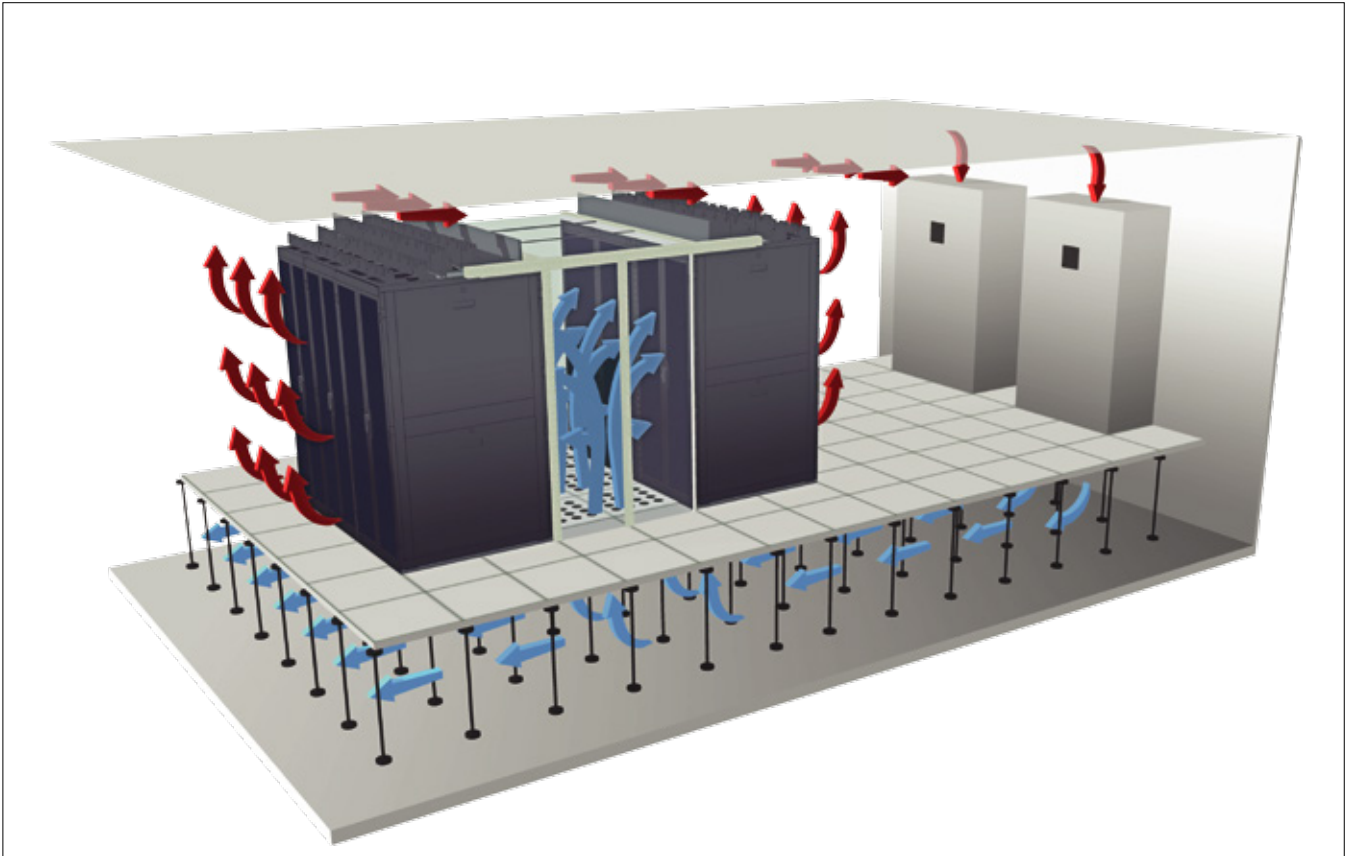
PUE = Total Facility Power / IT Equipment Power

DCiE = IT Equipment Power / Total Facility Power

PUE	DCiE	Efficiency Level
3.0	%33	Un-efficient
2.5	%40	Low efficient
2.0	%50	Average
1.5	%67	Efficient
1.2	%83	Well Efficient

IT Equipment Power

Electrical Power IN

CRACs

Chillers

UPS

Generator

PDU & Switch gear

Lighting

PUE

HCS Data Center Çözümleri

COOLING

Proper Data Center cooling is the key factor for operational life of hardware, shortening downtime of Data Center, saving on operational costs and accessing to green IT.

ENVIROMENTAL MONITORING & MANAGEMENT

Enviromental monitoring and management in your Data Center provides you visibility and control of vital parameters which ensures your uptime and efficiency.

RACKS & CABLING

The physical infrastructure of Data Centers are generated from racks and cabling.
High-density, future-proof structured cabling systems are first choice for Data Center cabling projects.

Racks provide efficient housing solutions for valuable active and also passive equipments. The correct rack deployment strategy leads to efficient cooling and capacity management; helping significant savings on operation costs.

## HCS DATA CENTER SOLUTIONS - RACKS & CONTAINMENTS

Data Centers are very dynamic environments demanding high density, scaleable and flexible solutions to cope up with the rising IT applications: cabinets take an important part on answering those needs. Although cabinets are not the most expensive portion of the Data Center investment, their housing function for the valuable active and passive equipment and contribution to efficient cooling, make cabinets one of the key section for each Data Center.

Based on this awareness, HCS presents future-proof and feature-rich Data Center cabinet solutions, HCS Data Center Cabinet product portfolio is covering large variety of server cabinets and accessories, hot&cold corridor cabinet containment, overhead cabling management and open frames.

Ergonomically designed and aesthetic looking HCS DataLine 16 Data Center cabinets are designed in order t meet varios needs of secure housing for existing and new generation servers and other active equipments. Thanks its solid and stable construction, many heavy equipments can easily be deployed. Adjustable mounting vertical flanges allow installing additional data and power cables and equipment, even by pre-installed hardware.

Cabinet top cable management accessories and top&bottom cable entries provide neat & clean cable management.
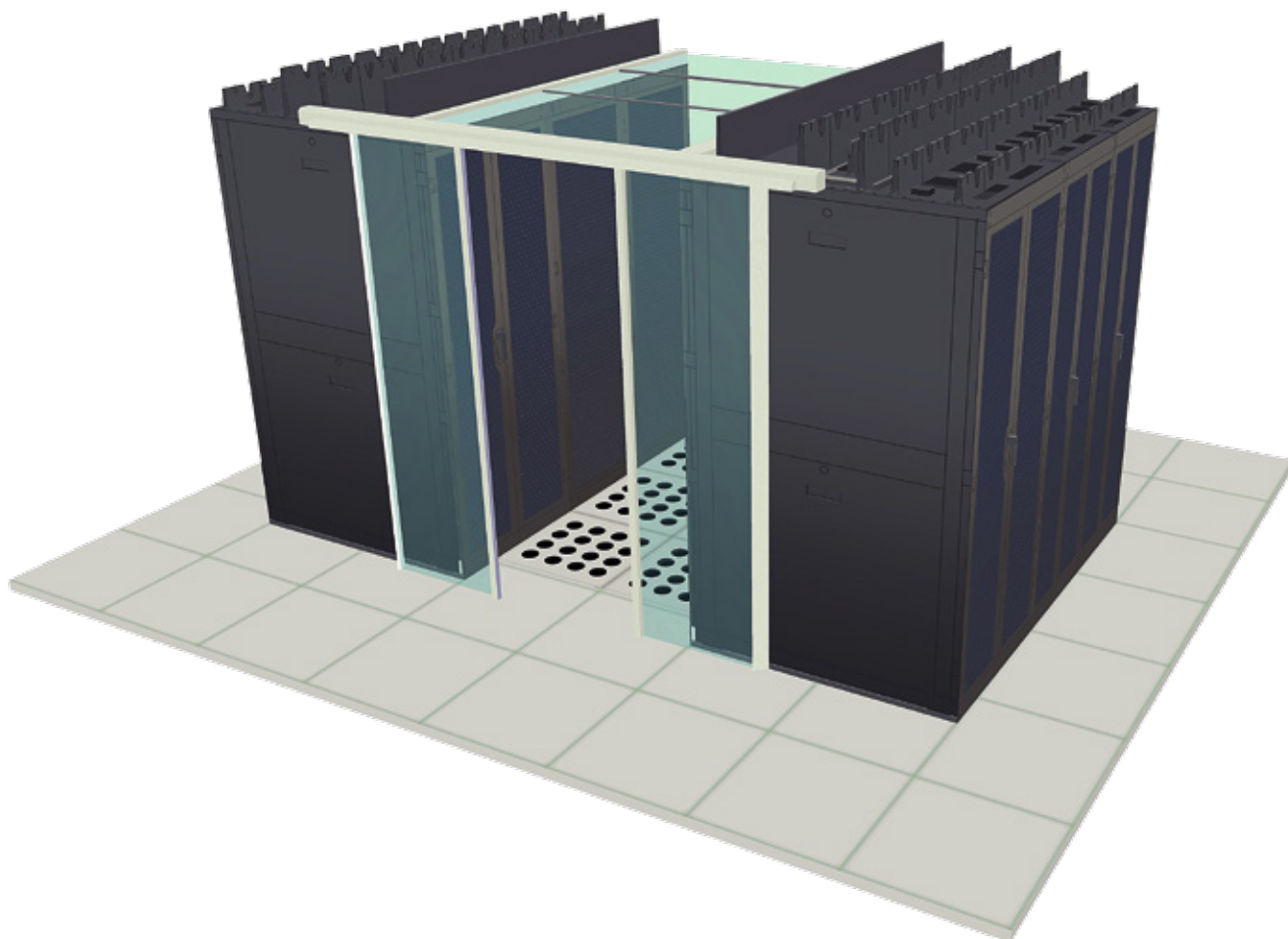
Cold Corridor Containment serves for energy savings in Data Center cooling. The sliding doors are self-closing with-mech cal lock. If required, doors can be electrically closed and integrated to the building management system.

HCS DATA CENTER SOLUTIONS - STRUCTURED CABLING

Cabling as the physical layer is the transmission media of the data which shall be choosen according to the network application requirements to be implemented today and shall be future-proof for the Data Centers.

Cabling design and installation should answer high MAC (Moves, adds and changes) needs of the Data Center. Monitoring and managing the physical layer and the network status shall ensure better uptime.

HCS cabling solution is applicable on Data Centers including a mix of copper and fibre components having high density, high reliability and high performance, enabling flexible design guide-lines, speed of installation, future readiness and ease of use.

HCS solution includes all the components needed (i.e cables, patch-panels, CP and CC patching, outlets and patch cords) tested and verified at the component-level based on the most recognised standarts and drafts such as ;

• ANSI/TIA-568-C (all parts)
• CENELEC EN 50173 & EN 50228 (all sections)
• ISO/IEC 11801 & IEC 61156 (all sections)

HCS Data-Center Solutions include the following:

HCS DataLink 100e Category 5e components specified up to 100MHz
• 24-Port & 48-Port Telco (RJ-21) and iPass Panels.
• 24-Pair RJ-45 to RJ-21, RJ-45 to RJ-21 Cords.

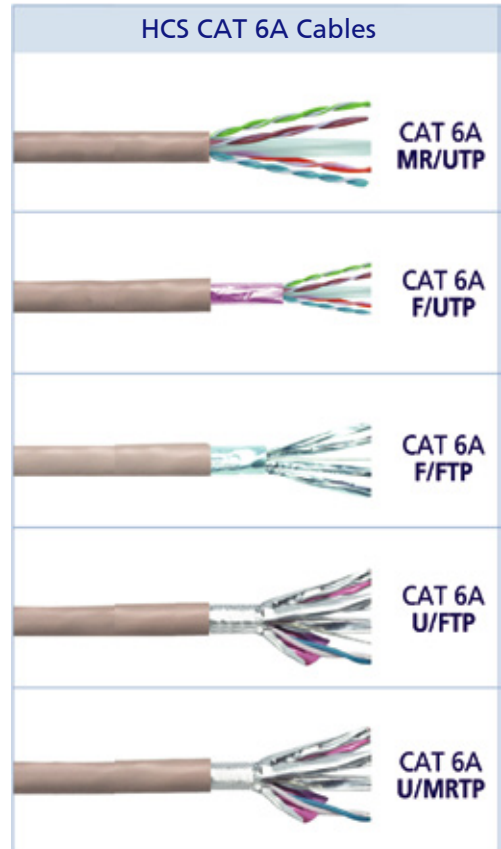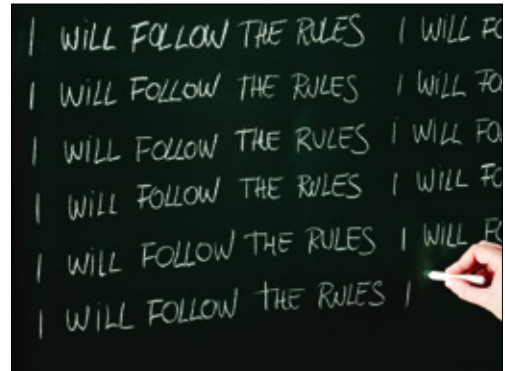**HCS DataLink 250 Category 6 components specified up to 250MHz**
• UTP and shielded horizontal cables.
• Shielded and unshielded modular cords, CC and CP pre-terminated cords.
• Shielded and unshielded connectors.
• Unshielded module patch panels of 24 Port-1U & 48 Port-2U.
• Blank KSJ Panels up to 48 ports in 1U.
• Wall Mount & Rack Mount 110 Wiring Blocks.

HCS DataLink 500A Augmented Category 6 components specified up to 500MHz
• UTP and shielded horizontal cables.
• Shielded and unshielded modular cords, CC and CP pre-terminated cords.
• Shielded and unshielded connectors.
• Blank & staggered KSJ Panels up to 48 ports in 1U.

HCS CAT 6 angled patch panels

HCS CAT 6A Cables

CAT 6A MR/UTP

CAT 6A F/UTP

CAT 6A F/FTP

CAT 6A U/FTP

CAT 6A U/MRTP

HCS DataLink 600

Category 7/Class F components specified up to 600 MHz

• Shielded horizontal cable

• Special HCS Cat7 Connector for Class F links/channels

• Shielded modular cords, CC and CP pre-terminated cords.

• Blank shielded Panels up to 24 ports in 1U

• True Class F performance on component base
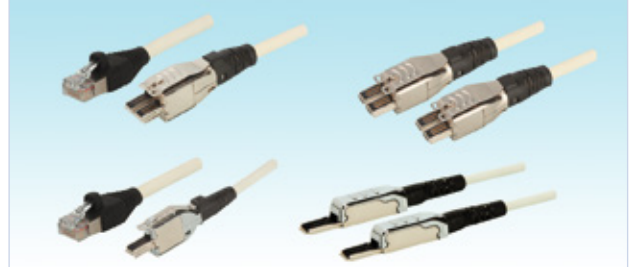
HCS DataLink 1200

Category 7A / Class Fa components specified up to 1000 MHz

• Shielded 22AWG horizontal cable

• Special HCS Cat7 Connector for Class Fa links/channels

• Shielded & unshielded modular cords, CC and CP preterminated cords.

• Blank shielded Panels up to 24 ports in 1U.

• Expected to supports 40 GBASE-T on 100 meter distance
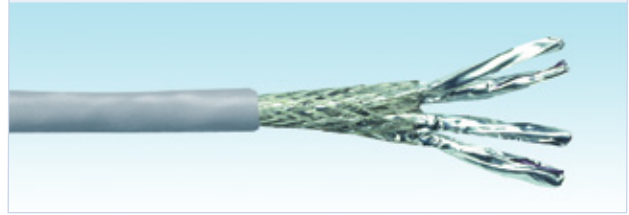
• True CAT7A / Class Fa performance

HCS CAT 7 Connector

HCS CAT 7 patch cord

HCS CAT 7 S/FTP 23AWG cable

HCS CAT 7 patch panel
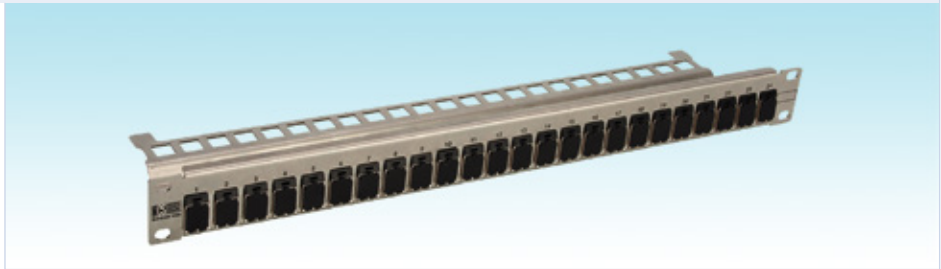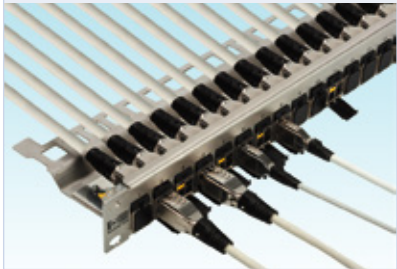
HCS Datalink Fiber-Optic components

• Single mode standart fibers (most ITU standards), including bend-insensitive types.

• Multi mode fibers including OM1, OM2, OM3 and OM4;
  bend-insensitive for OM2,OM3 and OM4.

• MTD, Ribbon & Ruggedized Ribbon Trunk cables.

• Modular pre-terminated cables.

• MPO Panels, Connectors & Adapters.

• MPO Hybrid Fan-out modular cords (4 to 24 Fibers).

• Modular optical cords and pigtails.

• Fiberoptic 19" panels.

• Fiberoptic wall-mount patch panels and distribution boxes.

• Fiberoptic high-Capacity Fiber-Optic Rack-Mount Cabinets up to 288 ports.

HCS DataLight Data-Center FO Cables

	Breakout Cables
	MTD Cables
	Ribbon Ruggedized (Trunk) Cables

HCS DataLight patch panels & Rack Mount Cabinets
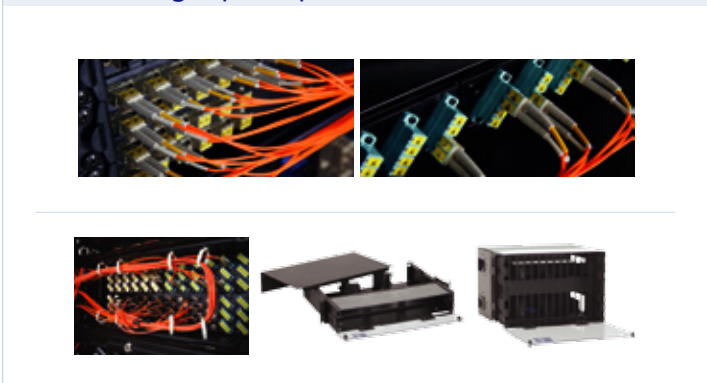
MPO Connectors, Adapters & Assemblies

HCS DATA CENTER SOLUTIONS - STRUCTURED CABLING

Phy-Fixx Real Time Physical Layer Monitoring and Management System

HCS physical layer monitoring and management ensures your Data Center cabling infrastructure reliability and gives you high flexibility in your MACs with a compatibility to other network management tools.
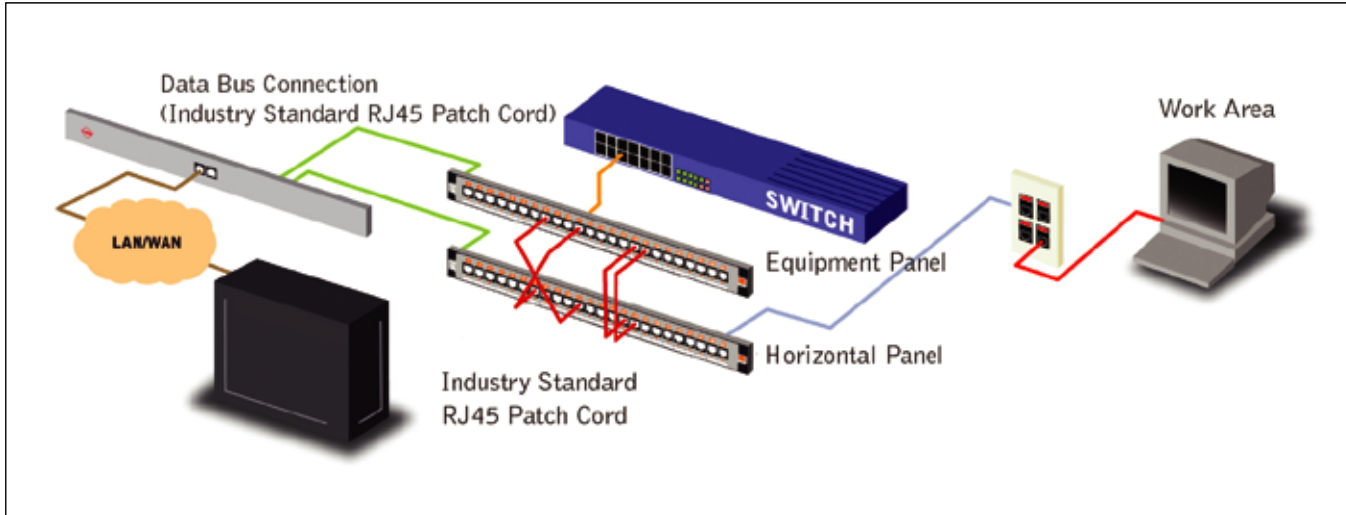
Rack Cabling Management

• Cable and Outlet Management
• Remote Site Management including network attached devices and reporting
• MACs and Work Order Management
• Compatibility with other network management tools

Cable routing for power and copper cables

Cable tray and mesh cable tray systems run power and data cabl either in ceilings or in raised floors. The variety of our solutions guarantee the right solution for any conceivable application.

Cable routing for fibre optic cables

The modular system ensures a flexible,secure connection of sensitive fibre optic cables to the computer infrastructure. With various routing duct variants, fittings, end pieces, reductions and exits, you can match the system exactly to local requirements. Th cable routing duct requires non metallic components and is completely halogen-free (PPO, ROHS-compliant, UL2024A stand: certified).

Mounting systems

Cable routing duct for fibre optic cables, mesh cable trays or cable trays have common requirement: Universally applicab mounting systems. They ensure secure fixing beneath the ceiling, on the wall or in the floor, and are available in many d ent varieties.
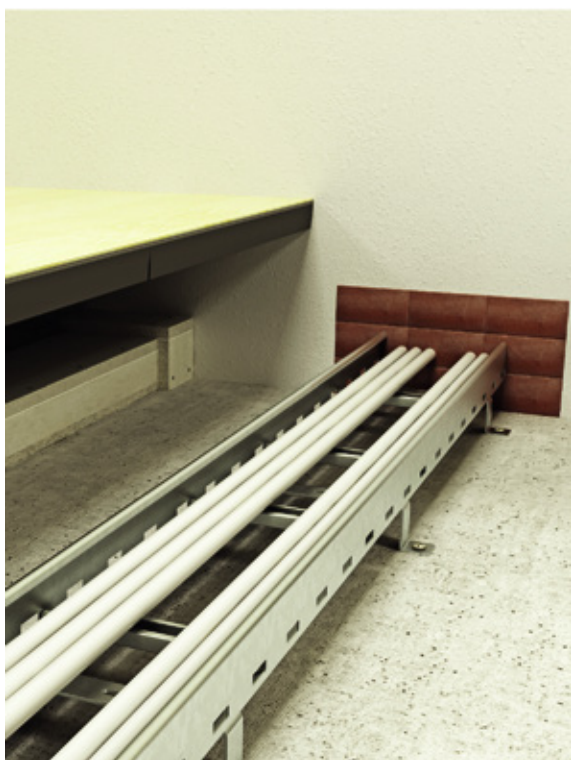
Fire protection

In case of fire, extinguishing process is the most important issue which also prevents spread of the fire. Cables, which are running alongside the building can cause fire spreading out the whole facility. HCS fire protection systems work as a barrier to the fire v cable penetrations preventing the spread of fire and smoke into the next rooms.

HCS DATA CENTER SOLUTIONS - ENVIRONMENTAL MONITORING & MANAGEMENT
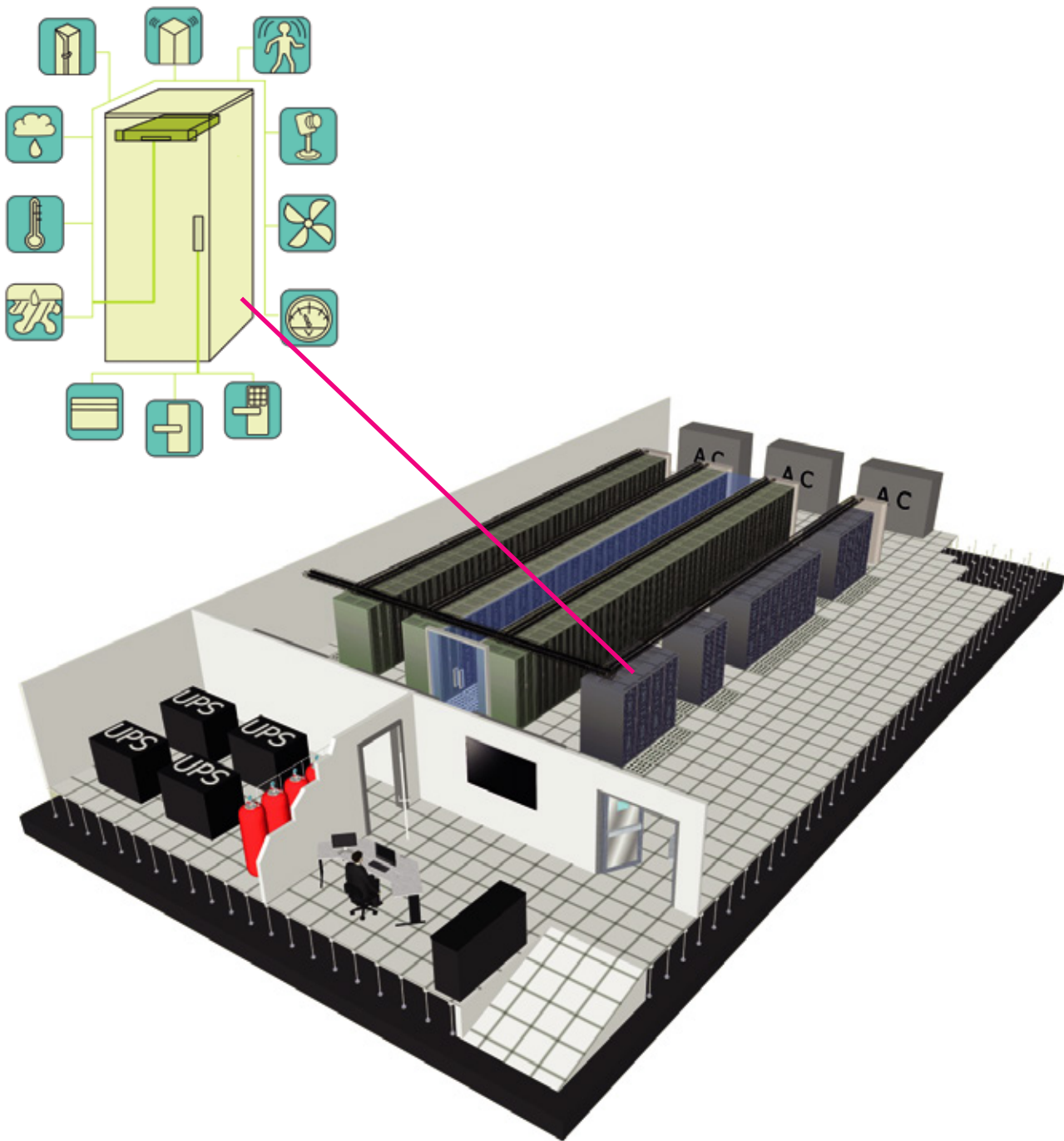
Data Center Environmental Monitoring and Management is the key to ensure maximum uptime. All the critical parameters either rack-based or room based such as temperature, humidity, water flooding, pressure control, smoke, door access, movement, light intensity, IP camera recording, electrical parameters and also 3rd party hardware parameters such as cooling systems, ups systems and other required parameters shall be real time and centrally monitored, recorded and archieved.

In case the measured values exceed pre-defined levels, alarming procedures shall take place and required actions shall be taken on time either by the system itself or by the responsible managers to avoid any downtime in the operation of the datacenter.

All these operations are applicable for any number of Data Centers even spread globally, on a centralised software solution.

HCS DATA CENTER SOLUTIONS - POWER DISTRIBUTION UNITS

Power consumption cost is extremely important for Data Center operation - this is pushing Data Center designers and m
ers to focus this area specifically.
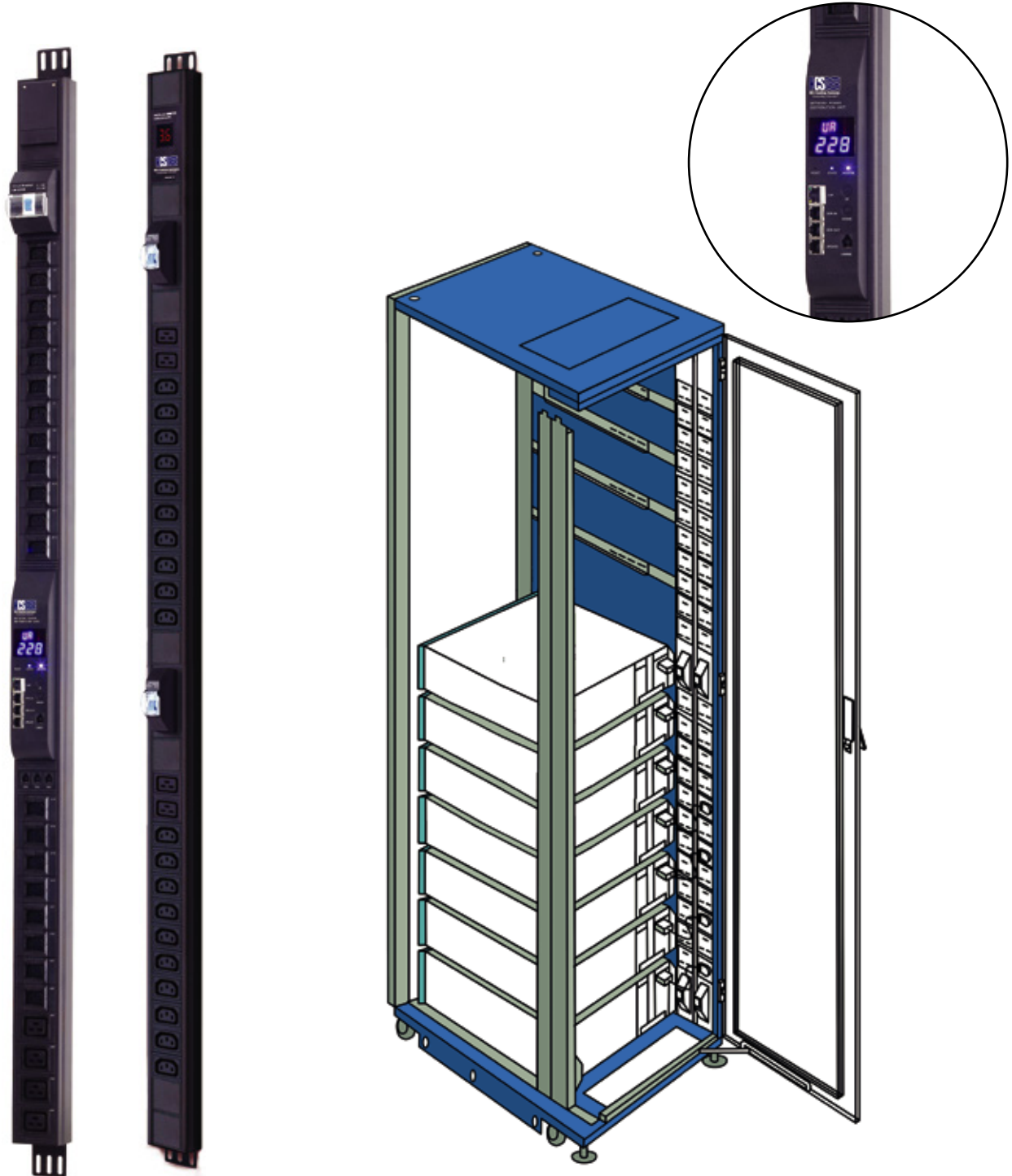
The main reason of the poor power efficiency in the most of the existing Data Centers arise from the old power compor
such as UPS, PDU and server power supplies rather than the incoming power distribution (transformer-switchgears etc.).

HCS offers metered-monitored and managed&switched Power Distribution Units to monitor and manage your real-time
consumption and to review and plan your power budgets.

Equipped with C13 and/or C19 outlets and 32A IEC 60309 plug, and circuit breakers, the professional HCS PDUs enable you to measure and display current, voltage, power and power consumption, temperature and humidity in real time. Web Access, SNMP Telnet/SSH, e-mail alarming are other important features that HCS PDUs provide in order to monitor and manage your Data Center power.

IEC 60320 C13   **IEC 60320 C19**   **IEC 60309**

HCS DATA CENTER SOLUTIONS - LCD CONSOLES

HCS 17' LCD KVM Console drawer provides easy access to your servers in your Data Centers with a superior video quality enabling an optional remote console over-IP and multi-platform support, based on a robust metal case.

SECTION A: Free Standing Data Center Cabinets

"State of the art Data Center Solutions"

DATALINE 16 DATA CENTER SERVER CABINETS

Description

HCS DataLine 16 Data Center Server Cabinets are specially designed for new generation Data Centers, in order to provide best possible housing for your valuable equipments.

HCS DataLine 16 Server Cabinets are having an attractive design combined with a long-lasting, solid & stable construction, guaranteed by the HCS DataLine Logo & Trademark.

Applications

The special design of HCS DataLine 16 Data Center Server Cabinets allow the use of a large variety and types of accessories, including 19" panels, hubs and active equipment, fixed and/or sliding shelves, fan units, power strips, pulleys, grounding and potential equalization bus bars, lighting units, stacking kits, floor fixing kits, cable management panels, and many other 19" devices and accessories.

Qualifications and Approvals

HCS DataLine 16 Server Cabinets are supported by HCS DoubleSafe™ QA Program and they comply to the following standards:

General	Steel Sheets	Powder Coating	Mechanical	Assembly	IT equipment safety	Fan Unit & Power Strips
❑ TS EN 60297-3-100/101/102 ❑ DIN 41494 ❑ TS EN 60529-1 ❑ IP20 (Optional IP 42)	❑ DIN EN 10130-91 ❑ DIN EN 10327 ❑ EREGLI 6112	❑ DIN 67530 ❑ ASTM D 2796 ❑ ASTM D 3451	❑ TS EN 61587-1	❑ TS EN 60917-2-1/-2	❑ TS EN 60950-1 ❑ IEC 60364-7-707	❑ TS EN 60439-1 ❑ TS EN 62208

Benefits & Features

✓ Solid and stable construction - providing support for large loads upto 1500 kg

✓ Light cabinet weight - allowing more equipment housing

✓ Adjustable profile positioning inside the cabinets (while there are servers and other active equipments)-

   enabling efficient installation of different size devices and maximise uptime

✓ Aesthetic & attractive design - can be used in open office environments.

✓ Flat packed design option- providing minimal storage space and saving transportation costs.

✓ 1100 & 1200 mm depth - enabling easy and comfortable installation of new generation deep servers (blade servers).

✓ Sophisticated cable channeling - enabling concealed cords routing.

✓ Clear u-marking inside the cabinets (both front and rear 19" profile) - enabling easy & simple equipment installation planning.

✓ Removable side panels via handles - enabling fast & easy cabinet stacking.

✓ Removable side, front and rear doors- allows using cabinet event as relay rack, if needed.

✓ Various cable entry holes - providing comfortable multiple cable entry.

✓ Toolless adjustable top cable organizers - enabling neat cabling for power & data.

✓ Stackable construction - allows to proper installation many cabinets side to side

✓ PVC stoppers - avoid metal surface noise while side panels are mounted

✓ Top & bottom fixing points - Providing fixing to floor and/or overhead cable tray

DATALINE 16 DATA CENTER SERVER CABINETS

General Properties

Material of Construction	Sheet & Galvanized steel. 1.0/1.2/1.5/2.0 mm thickness.
Paint and Color	Special steel finish with electrostatic powder coat, RAL 9005 black. Other colors available upon request.
Front Door	Solid metal, Oval shaped, nominal 85% perforated, one part. Opening left & right. 180 degree opening (135 degree when used in a row). Interchangable door hinges.
Side Panels	2 parts, Removable with handles & lockable with slim latch.
Rear Door	Solid metal, flat, nominal 85% perforated, two parts. Opening left & right. 180 degree opening (135 degree when used in a row). Interchangable door hinges.
Top Chasis & Cover	Monoblock, welded, CDFx form construction. Fan tray mountable. 2x(150x85 mm) + 2x (150x150 mm) cable entry spaces, all brush mountable. Fixing possiblity to ceiling (with fixing accessory).
Bottom Chasis	Monoblock, welded, CDFx form construction. Fixing points either fixing to floor or raised floor. 150x300 mm cable entry hole (brush mountable) + 400x 680 mm ventilation hole (filter mountable).
19" profiles	Adjustable, 4 units (2 front, 2 rear). U-marked.
Vertical Cable Organizer	Mountable on sides & rear vertically (optional).
Front Door Lock	High quality, three-point lockable cylindrical mechanism with handle.
Levelling feet & Pulleys	Available (optional).
Loading Capacity	1500 kg max. (42U, TS EN 61587-1).

600mm(23,5") width

1100mm(43,5") depth
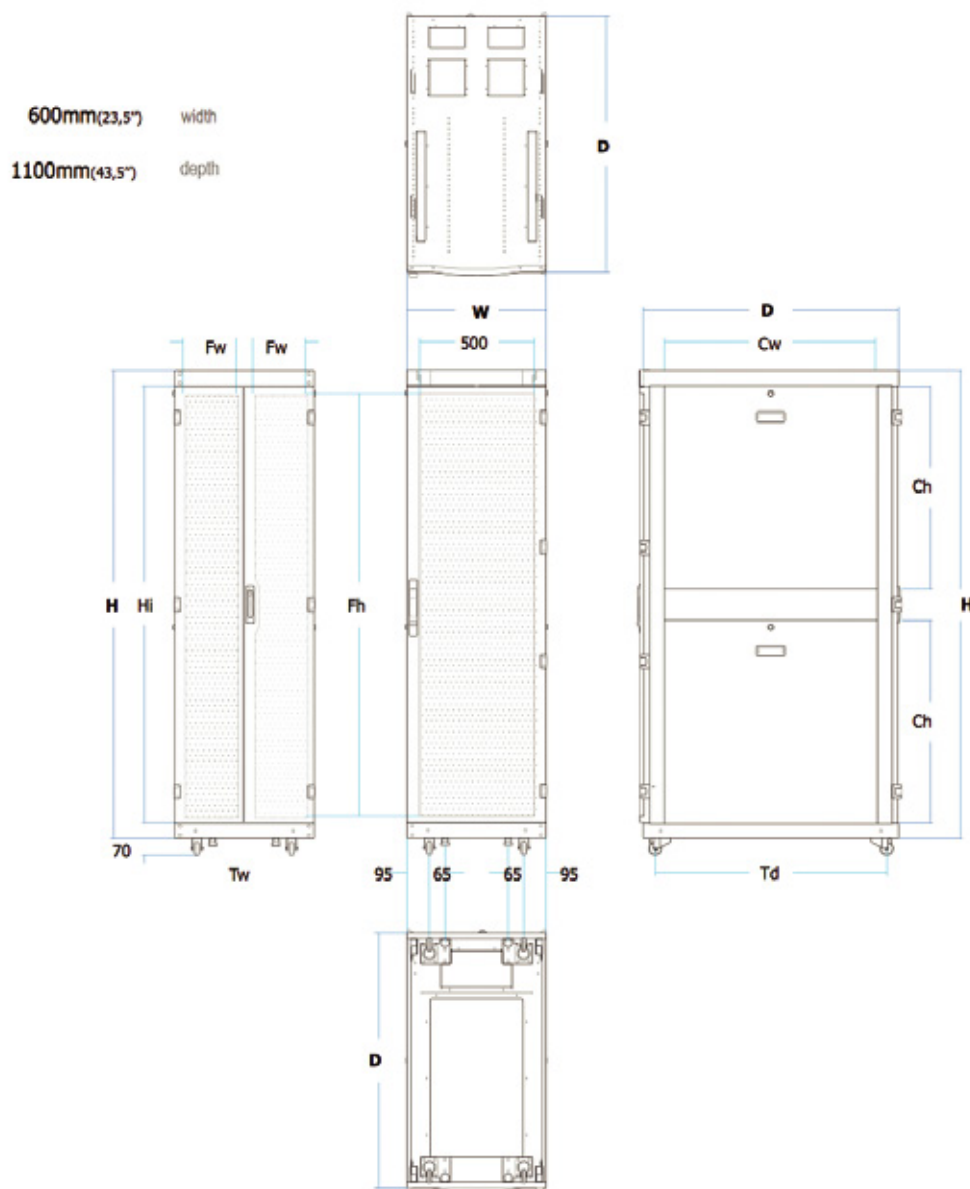
Dimensions in mm.

Ordering Information

HCS P/N	Description	Internal Height mm	Dimensions			Net Weight Kg	Notes
			Width mm	Depth mm	Height mm		
C16-04261	42U19" (600x1100) mm DataLine™16 Data Center Server Cabinet	1880	600	1100	2028	117	
C16-04761	47U19" (600x1100) mm DataLine™16 Data Center Server Cabinet	2102	600	1100	2250	132	
C16-04262	42U19" (600x1200) mm DataLine™16 Data Center Server Cabinet	1880	600	1200	2028	134	
C16-04762	47U19" (600x1200) mm DataLine™16 Data Center Server Cabinet	2102	600	1200	2250	155	

DATALINE 16 DATA CENTER NETWORK CABINETS

Description

HCS DataLine 16 Data Center Network Cabinets are specially designed for new generation Data Centers, in order to provide high density backbone cabling and networking for your valuable equipments.

HCS DataLine 16 Server Cabinets are having an attractive design combined with a long-lasting, solid & stable construction, guaranteed by the HCS DataLine Logo & Trademark.

Applications

The special design of HCS DataLine 16 Data Center Network Cabinets allow the use of a large variety and types of accessories, including 19" panels, hubs and active equipment, fixed and/or sliding shelves, fan units, power strips, pulleys, grounding and potential equalization bus bars, lighting units, stacking kits, floor fixing kits, cable management panels, and many other 19" devices and accessories.

Qualifications and Approvals

HCS DataLine 16 Network Cabinets are supported by HCS DoubleSafe™ QA Program and they comply to the following standards:

General	Steel Sheets	Powder Coating	Mechanical	Assembly	IT equipment safety	Fan Unit & Power Strips
❏ TS EN 60297-3-100/101/102	❏ DIN EN 10130-91	❏ DIN 67530	❏ TS EN 61587-1	❏ TS EN 60917-2-1/-2	❏ TS EN 60950-1	❏ TS EN 60439-1
❏ DIN 41494	❏ DIN EN 10327	❏ ASTM D 2796			❏ IEC 60364-7-707	❏ TS EN 62208
❏ TS EN 60529-1	❏ EREGLI 6112	❏ ASTM D 3451				
❏ IP20 (Optional IP 42)						

Benefits & Features

✓ Solid and stable construction - providing support for large loads upto 1500 kg

✓ Light cabinet weight - allowing more equipment housing

✓ Adjustable profile positioning inside the cabinets (while there are servers and other active equipments)

  enabling efficient installation of different size devices and maximise uptime.

✓ Aesthetic & attractive design - can be used in open office environments.

✓ Flat packed design option- providing minimal storage space and saving transportation costs.

✓ 1100 & 1200 mm depth - enabling easy and comfortable installation of new generation deep servers (blade servers).

✓ Sophisticated cable channeling - enabling concealed cords routing.

✓ Clear u-marking inside the cabinets (both front and rear 19" profile) - enabling easy & simple equipment installation planning.

✓ Removable side panels via handles - enabling fast & easy cabinet stacking.

✓ Removable side, front and rear doors- allows using cabinet event as relay rack, if needed.

✓ Various cable entry holes - providing comfortable multiple cable entry.

✓ Toolless adjustable top cable organizers - enabling neat cabling for power & data.

✓ Stackable construction - allows to proper installation many cabinets side to side

✓ PVC stoppers - avoid metal surface noice while side panels are mounted

✓ Top & bottom fixing points - Providing fixing to floor and/or overhead cable tray.

DATALINE 16 DATA CENTER NETWORK CABINETS

General Properties

Material of Construction	Sheet & Galvanized steel. 1.0/1.2/1.5/2.0 mm thickness.
Paint and Color	Special steel finish with electrostatic powder coat, RAL 9005 black. Other colors available upon request.
Front Door	Solid metal, Oval shaped, nominal 85% perforated, one part. Opening left & right. 180 degree opening (135 degree when used in a row). Interchangable door hinges.
Side Panels	2 parts, Removable with handles & lockable with slim latch.
Rear Door	Solid metal, flat, nominal 85% perforated, two part. Opening left & right. 180 degree opening (135 degree when used in a row). Interchangable door hinges.
Top Chasis & Cover	Monoblock, welded, CDFx form construction. Fan tray mountable. 2x(150x85 mm) + 2x (150x150 mm) + 2x(300x65 mm) + 2x(65x65 mm) cable entry spaces, all brush mountable. Fixing possiblity to ceiling (with fixing accessory).
Bottom Chasis	Monoblock, welded, CDFx form construction. Fixing points either fixing to floor or raised floor. 2x(150x85 mm) + 2x (150x150 mm) cable entry hole (brush mountable) + 400x 680 mm ventilation hole (filter mountable).
19" profiles	Adjustable, 4 units (2 front, 2 rear). U-marked.
Vertical Cable Organizer	Mountable on sides & rear vertically (optional).
Front Door Lock	High quality, three-point lockable cylindrical mechanizm with handle.
Levelling fit & Pulleys	Available (optional).
Loading Capacity	1500 kg max. (42U, TS EN 61587-1).

800mm(31,5") width

1100mm(43,5") depth
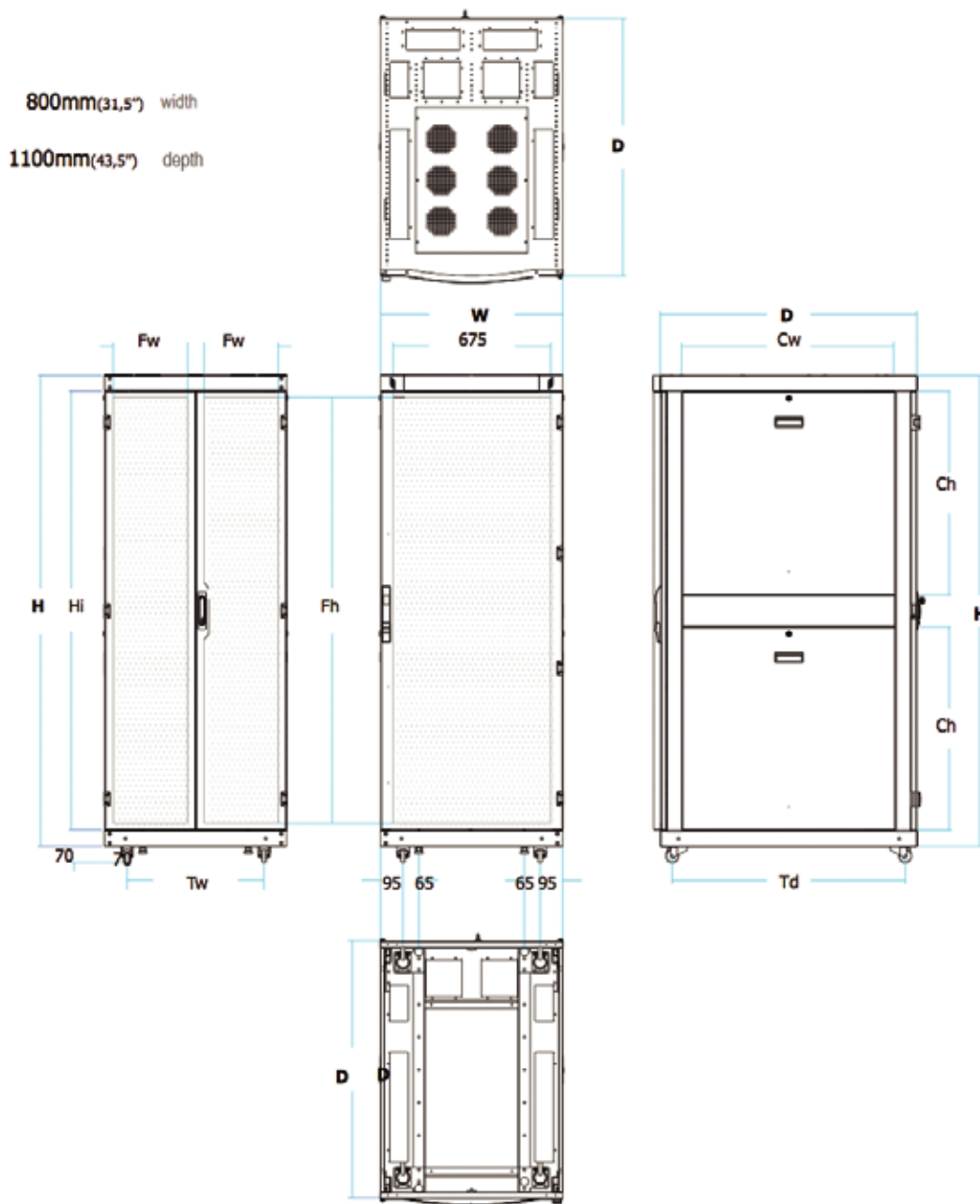
Dimensions in mm.

Ordering Information

HCS P/N	Description	Internal Height mm	Dimensions			Net Weight Kg	Notes
			Width mm	Depth mm	Height mm		
C16-04281	42U19" (800x1100) mm DataLine™16 Data Center Network Cabinet	1880	800	1100	2028	130	
C16-04781	47U19" (800x1100) mm DataLine™16 Data Center Network Cabinet	2102	800	1100	2250	146	
C16-04282	42U19" (800x1200) mm DataLine™16 Data Center Network Cabinet	1880	800	1200	2028	148	
C16-04782	47U19" (800x1200) mm DataLine™16 Data Center Network Cabinet	2102	800	1200	2250	167	

Data Center

HCS Data Center Çözümleri

DATALINE 13 OPEN FRAMES

Description

HCS DataLine 13 Open Frames are specially designed for new generation Data Centers, in order to provide best possible housing for high-density cabling. HCS DataLine 13 Open Frames are having an attractive design combined with a long-lasting, solid & stable construction, guaranteed by the HCS DataLine Logo & Trademark.

Applications

The special design of HCS DataLine 13 Open Frames allow the use of a large variety and types of accessories, including 19" high-density patch panels, pulleys, floor fixing kits, cable management panels, and many other 19" devices and accessories.

Qualifications and Approvals

HCS DataLine 13 Open Frames are supported by HCS DoubleSafe™ QA Program and they comply to the following standards:

Benefits & Features

✓ Solid and stable construction - providing support for large loads upto 500 kg

✓ Aesthetic & attractive design - can be used in open office environments.

✓ Flat packed design option- providing minimal storage space and saving transportation costs.

✓ Sophisticated cable channeling - enabling concealed cords routing.

✓ Top & bottom fixing points - providing fixing to floor and/or overhead cable tray.

✓ User-friendly design - easy to install and operate.

General	Steel Sheets	Powder Coating	Mechanical	Assembly	IT equipment safety	Fan Unit & Power Strips
❏ TS EN 60297-3-100/101/102 ❏ DIN 41494 ❏ TS EN 60529-1 ❏ IP20 (Opsiyonel IP 42)	❏ DIN EN 10130-91 ❏ DIN EN 10327 ❏ EREGLI 6112	❏ DIN 67530 ❏ ASTM D 2796 ❏ ASTM D 3451	❏ TS EN 61587-1	❏ TS EN 60917-2-1/-2		

Main Dimension

Main Structure

Mounting dimension
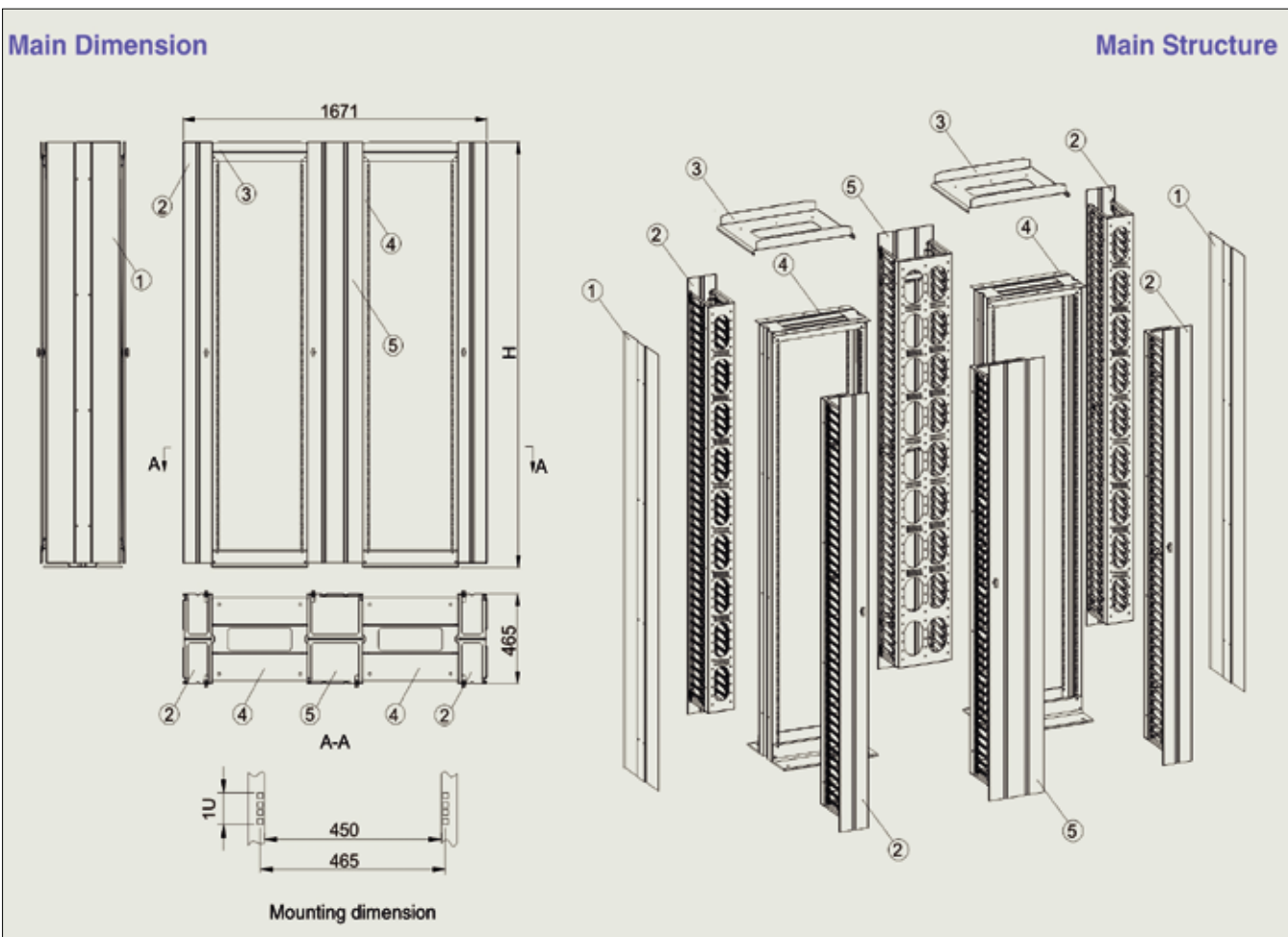
General Properties

Material of Construction	Sheet & Galvanized steel. 1.0/1.2/1.5/2.0 mm thickness.
Paint and Color	Special steel finish with electrostatic powder coat, RAL 9005 black. other colors available upon request.
Side&Top Cover	Cold rolled steel thickness : 1,2 mm ; (2 pcs) - powder coated
Finger ducts	Plastic and cold rolled steel cable management slots thickness 1,5 mm ; (4 pcs) - powder coated, 150 mm width.
Top Cover	Cold rolled steel thickness : 1,2 mm ; (2 pcs) - powder coated

Ordering Information

HCS P/N	Description	Dimensions			Net Weight Kg	Notes
		Width mm	Depth mm	Height mm		
C13-04214	42U 19" (1671x465)mm DataLine™13 Open Frame	1671	465	2073		
C13-04514	45U 19" (1671x465)mm DataLine™13 Open Frame	1671	465	2206		
C13-04714	47U 19" (1671x465)mm DataLine™13 Open Frame	1671	465	2296		

SECTION B: Free Standing Data Center Cabinet Accessories

"State of the art Data Center Solutions"

DATALINE DATA CENTER CABINETS' ACCESSORIES

Description

HCS DataLine series includes a wide range of high quality racks, cabinets and enclosures, specially designed for structured premise cabling in local area networks (LANs), Data Center environments, including distribution and equipment, cross connect cabinets and racks, splice boxes, climate control and many more components for both copper and fiber optic cabling systems.
HCS DataLine Accessories are compatible with all HCS DataLine Cabinets, providing an extensive range of accessories making HCS DataLine Cabinets extremely versatile, user-friendly and efficient.
All HCS DataLine Accessories have an attractive design combined with a long-lasting, solid&stable construction, guaranteed by HCS DataLine Logo & Trademark.

Applications

The large variety of HCS DataLine Cabinet Accessories for endless applications, including cabling, network and Data Center applications.

CORRIDOR CONTAINMENT

Cold Corridor Roof

Cold Corridor Doors
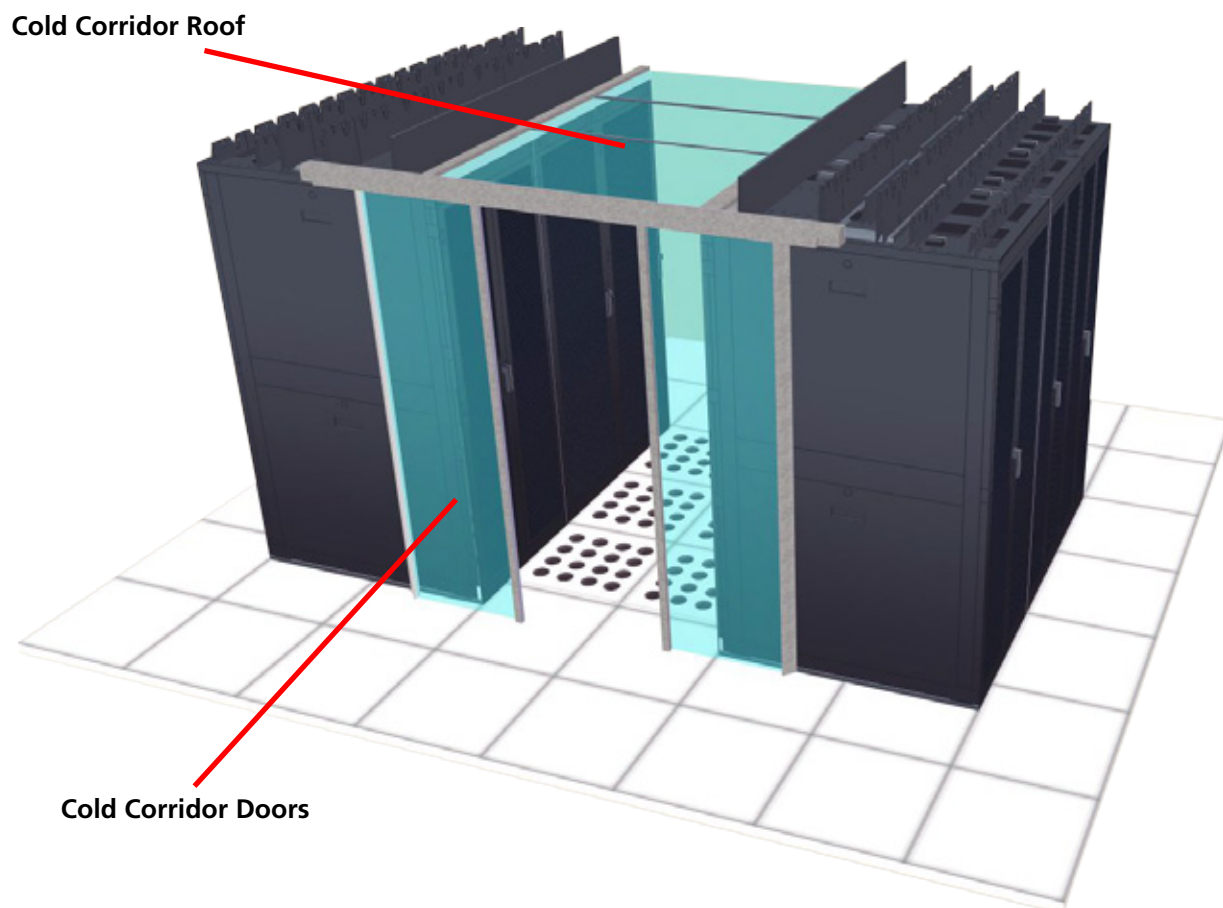
Ordering Information

HCS P/N	Description	Dimensions	
		Width mm	Height mm
C00-012E01	Containment Door System, double doors with secure glass, manual operated	1200	2000
C00-012E02	Containment Roof System, transparent roof reinforced with metal frame (600 mm)	1200	600
C00-012E03	Containment Roof System, transparent roof reinforced with metal frame (800 mm)	1200	800

Data Center

HCS Data Center Çözümleri

OVERHEAD CABLING MANAGEMENT

Cable Organizer
(Pover Cables)

Cable Organizer
(Data Cables)

Front Label
Panel
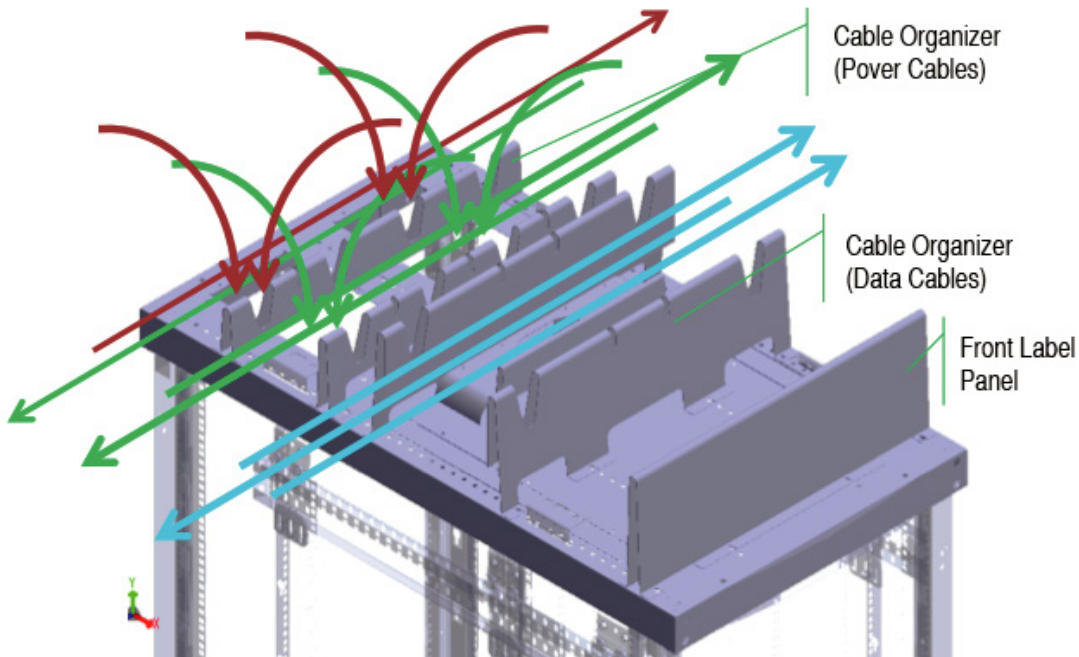
Ordering Information

HCS P/N	Description	Dimensions		Notes
		Width mm	Height mm	
C00-10E01	U-shaped cable path,h:85. for w600 DC Cabinets	600	85	
C00-10E02	U-shaped cable path,h:130. for w600 DC Cabinets	600	130	
C00-10E03	W-shaped cable path,h:200. for w600 DC Cabinets	600	200	
C00-10E04	U-shaped cabinet front label panel,h:200. for w600 DC Cabinets	600	200	
C00-10E05	U-shaped cable path,h:85. for w800 DC Cabinets	800	85	
C00-10E06	U-shaped cable path,h:130. for w800 DC Cabinets	800	130	
C00-10E07	W-shaped cable path,h:200. for w800 DC Cabinets	800	200	
C00-10E08	U-shaped cabinet front label panel,h:200. for w800 DC Cabinets	800	200	
C00-10G01	Top chasis cable routing organiser, for DC cabinets w600, 6 pcs/set			
C00-10G02	Top chasis cable routing organiser, for DC cabinets w800, 10 pcs/set			

Connecting Networks.™

Data Center

HCS Data Center Çözümleri

CABLE ORGANIZER RINGS
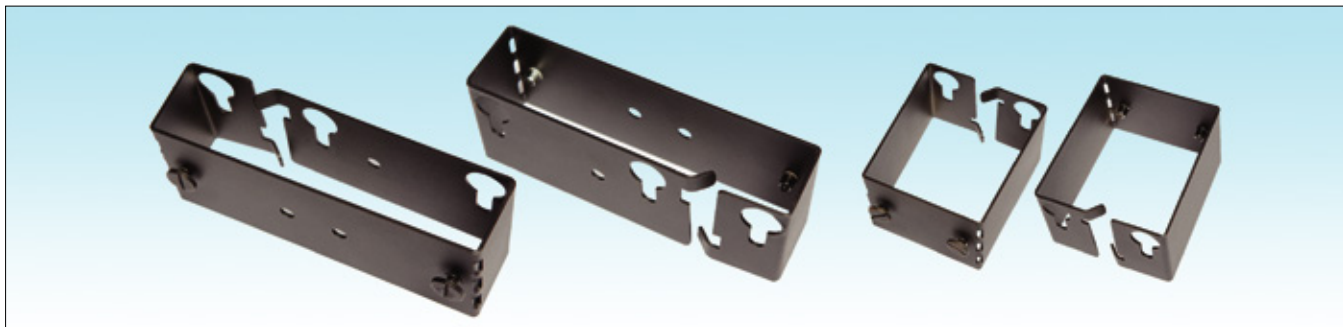
Ordering Information

HCS P/N	Description	Dimensions		Notes
		Width mm	Depth mm	
C00-09D01	Cable organizer ring, modular, 35x60 mm.	35	60	
C00-09D02	Cable organizer ring, modular, 60x88 mm.	60	88	DataLine 16, W=800 cabinets only
C00-09D02	Cable organizer ring, modular, 60x100 mm.	60	100	DataLine 16, W=800 cabinets only
C00-09D03	Cable organizer ring, modular, 35x120 mm.	35	120	

PDU BRACKETS
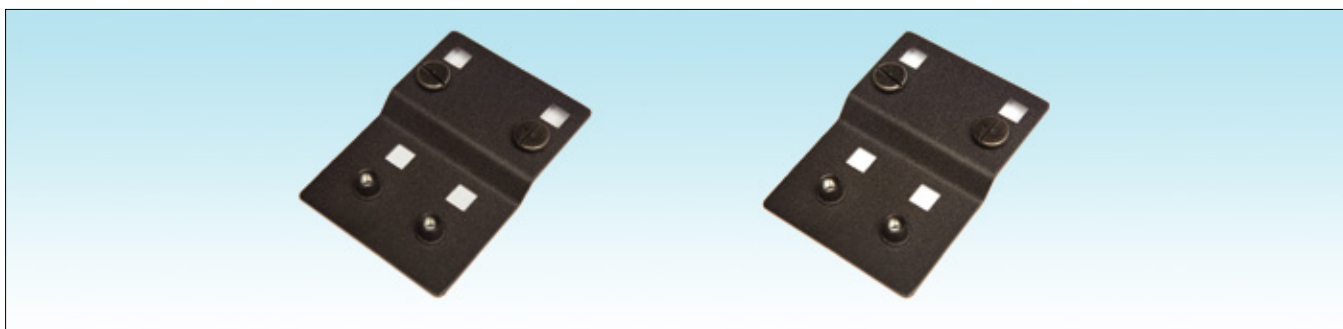
Ordering Information

HCS P/N	Description	Notes
C00-03G02	fixing ring for Vertical power strips, for DC cabinets (1 set: 2 pcs)	

GROUNDING KITS
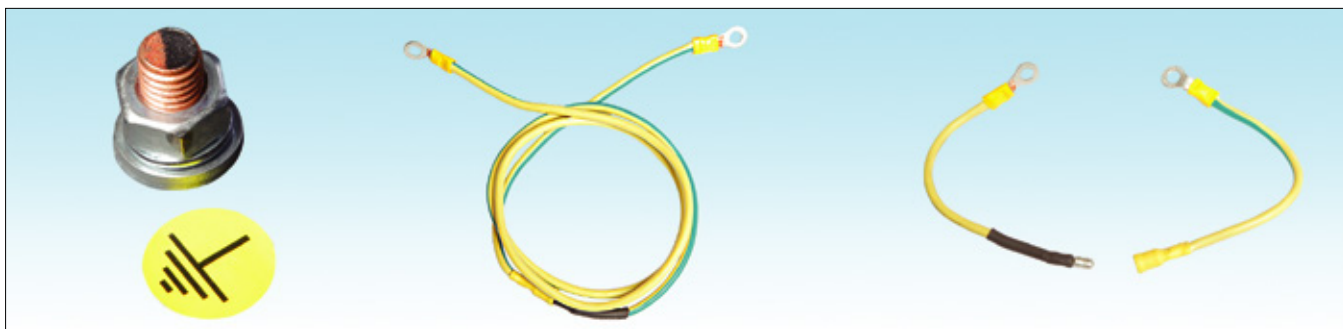
Ordering Information

HCS P/N	Description	Dimensions	
		Width mm	Height mm
C00-06A04	6 mm² Door grounding kit for DataLine 16 cabinets		
C00-06A05	16/25 mm² Cabinet Body Grounding Kit fpr DataLine 16 cabinets		

BRUSH KITS & LEVELLING FEET & CASTOR GROUP & FIXING KITS

Ordering Information

HCS P/N	Description	Dimensions	
		Width mm	Height mm
C00-10F01	Brush kit for DataLine 16 cabinets (600x1100)		
C00-10F02	Brush kit for DataLine 16 cabinets, (800x1100)		
C00-04G01	Set of 4, adjustable levelling feet for DataLine 16 cabinets, h: 150 mm		
C00-04G02	Set of 4 castor group for DataLine 16 cabinets - without breaking system		
C00-12C05	DataLine 16 cabinets w600 floor L-form fixing kit (1 set=2 pcs).		
C00-12C06	DataLine 16 cabinets w600 raised floor 3D fixing kit (1 set=4 pcs).		
C00-12C07	DataLine 16 cabinets w600 raised floor 2D fixing kit (1 set=2 pcs).		
C00-012F01	DataLine 16 cabinets w600/800 bottom chasis 3D-vibration absorption set (1 set: 4 pcs).		
C00-012F02	DataLine 16 cabinets w600/800 bottom chasis 2D-vibration absorption set (1 set: 4 pcs).		
C00-012F03	DataLine 16 cabinets w600/800 top chasis 2D-vibration absorption set (1 set: 4 pcs).		

BAYING KIT
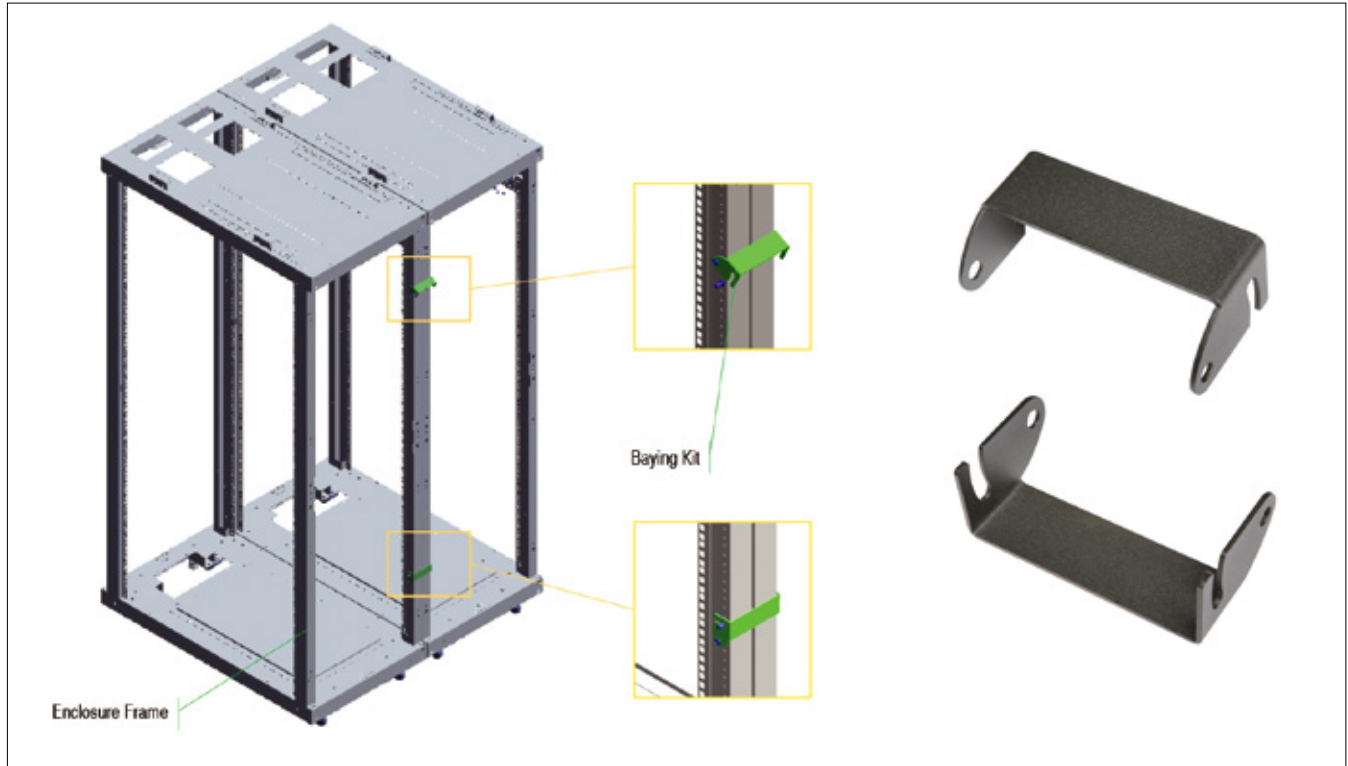
Ordering Information

HCS P/N	Description	Dimensions	
		Width mm	Height mm
C00-012D01	DataLine 16 cabinets baying kit, 4 pcs/set		

SHELVES
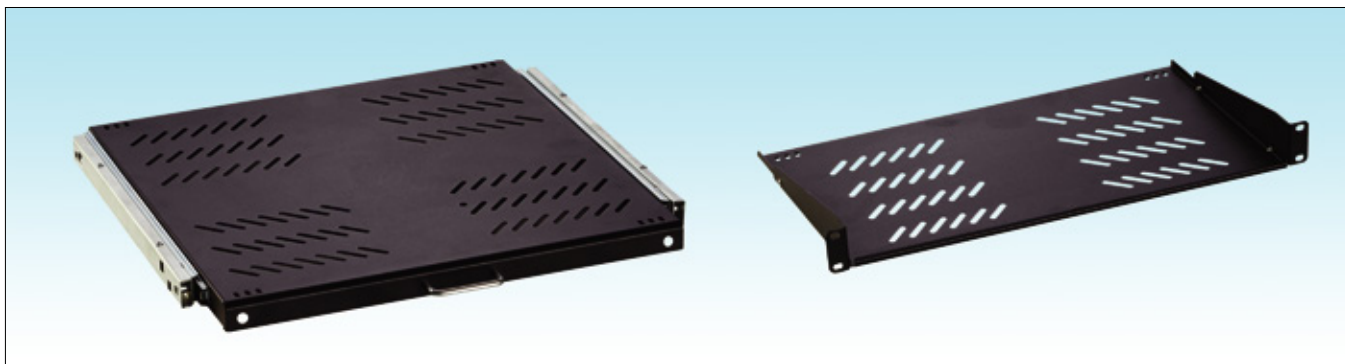
Ordering Information

HCS P/N	Description	Depth mm	Load Capacity	Additional Items Included	Notes
C00-01B04	Fixed Shelf, Vented Steel Sheet, 1/2U,19", 4 Fixing Points	1000 mm	30 Kg max.	Mounting Kit	
C00-01B08	Fixed Shelf, Vented Steel Sheet, 1/2U,19", 4 Fixing Points, with Support Profile	1000 mm	60 Kg max.	Mounting Kit	
C00-01B11	Fixed Shelf, Vented Steel Sheet, Heavy Duty, 1U,19", 4 Fixing Points, with Support Profile	1000 mm	100 Kg max.	Mounting Kit	
C00-01C04	Sliding Shelf, Vented Steel Sheet, 1/2U,19", 4 Fixing Points, Rail Locked	1000 mm	35 Kg max.	Mounting Kit	
C00-01C07	Sliding Shelf, Vented Steel Sheet, Heavy Duty, 1U,19", 8 Fixing Points	1000 mm	100 Kg max.	Mounting Kit	Depth Adjustable
C00-01C08	Sliding Shelf, Vented Steel Sheet, 1U,19", Teleskobic Cable Carry Mechanizm	-	-	Mounting Kit	750mm ope Depth Adjustable

Drawers					
C00-01D01	1U, 19", lockable drawer	350 mm	-	Mounting Kit	
C00-01D02	2U, 19", lockable drawer	550 mm	-	Mounting Kit	Depth Adjustable
C00-01D03	3U, 19", lockable drawer	550 mm	-	Mounting Kit	Depth Adjustable

BLANK PANELS
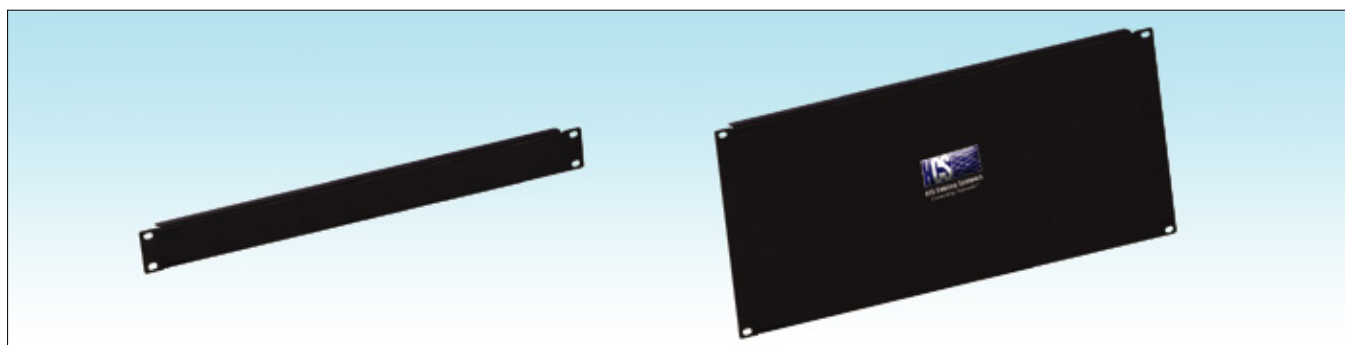
Ordering Information

HCS P/N	Description	Material	Color	Additional Items Included	Notes
C00-10A01	1U 19" Blank Panel	Steel Sheet	Black RAL 9005	-	-
C00-10A02	2U 19" Blank Panel	Steel Sheet	Black RAL 9005	-	-
C00-10A04	4U 19" Blank Panel	Steel Sheet	Black RAL 9005	-	-
C00-10A08	8U 19" Blank Panel	Steel Sheet	Black RAL 9005	-	-
C00-10A16	16U 19" Blank Panel	Steel Sheet	Black RAL 9005	-	-
C00-10A24	24U 19" Blank Panel	Steel Sheet	Black RAL 9005	-	-
C00-10H01	Fan Tray Blank Panel for DataLine 16 cabinets	Steel Sheet	Black RAL 9005	-	
C00-10H02	Ventilation hole blank panel for DataLine 16 cabinets	Steel Sheet	Black RAL 9005	-	

HORIZONTAL CABLE ORGANIZER
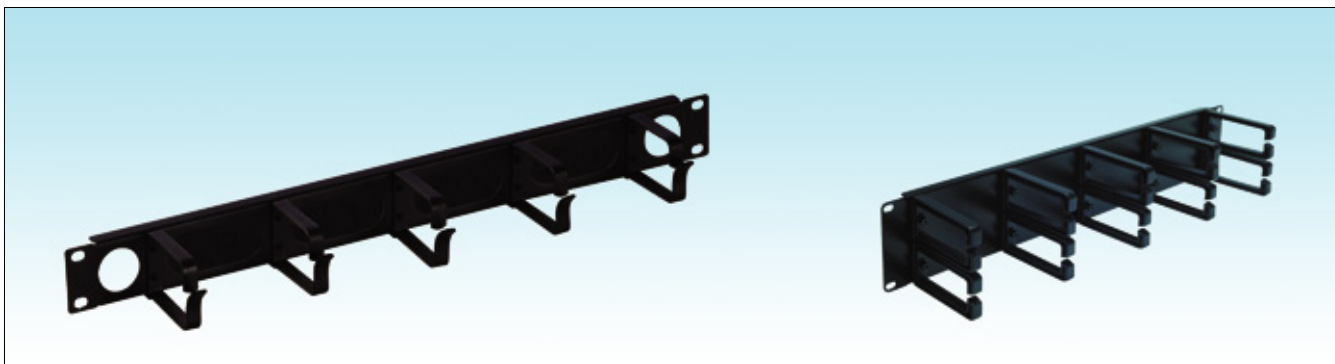
Ordering Information

HCS P/N	Description	Hook & Ring	Color	Hook & Ring Size	Notes
C00-09C01	1U 19" cable organizer ring, metal hook	1 pcs	Black RAL 9005	44x44 mm	-
C00-09C02	1U 19" cable organizer ring, metal hook	1 pcs	Black RAL 9005	44x88 mm	-
C00-09C03	2U 19" cable organizer ring, metal hook	10 pcs	Black RAL 9005	88x88 mm	-
C00-09C04	1U 19" cable organizer ring, plastic hook	1 pcs	Black RAL 9005	44x88 mm	-
C00-09A08	1U 19" cable organizer, plastic rings	5 pcs	Black RAL 9005	44x44 mm	-
C00-09A01	1U 19" cable organizer, plastic rings	5 pcs	Black RAL 9005	44x88 mm	-
C00-09A09	1U 19" cable organizer, metal rings	5 pcs	Black RAL 9005	44x44 mm	-
C00-09A02	1U 19" cable organizer, metal rings	5 pcs	Black RAL 9005	44x88 mm	-
C00-09A03	2U 19" cable organizer, plastic rings	10 pcs	Black RAL 9005	88x88 mm	-
C00-09A10	2U 19" cable organizer, plastic rings	5 pcs	Black RAL 9005	44x88 mm	-
C00-09A11	1U 19" cable organizer, metal rings and closing cover	5 pcs	Black RAL 9005	44x44 mm	-
C00-09A04	1U 19" cable organizer, metal rings and closing cover	5 pcs	Black RAL 9005	44x88 mm	-
C00-09A05	2U 19" cable organizer, metal rings and closing cover	10 pcs	Black RAL 9005	88x88 mm	-
C00-09A13	1U 19" cable organizer, metal rings and brush	5 pcs	Black RAL 9005	44x88 mm	-
C00-09A14	2U 19" cable organizer, metal rings and brush	10 pcs	Black RAL 9005	88x88 mm	-
C00-09A07	1U 19" cable organizer, metal, with brush	-	Black RAL 9005	-	-
C00-09A06	1/2U 19" cable organizer, metal, with brush and clamping	-	Black RAL 9005	-	-
C00-09A12	1U 19" cable organizer, metal, with brush and clamping	-	Black RAL 9005	-	-
C00-09B01	1U d=400 mm Depth cable organizer, metal	-	Black RAL 9005	-	-
C00-09B02	1U d=600 mm Depth cable organizer, metal	-	Black RAL 9005	-	-
C00-09B03	1U d=800 mm Depth cable organizer, metal	-	Black RAL 9005	-	-
C00-09B04	1U d=1000 mm Depth cable organizer, metal	-	Black RAL 9005	-	-

SECTION C: Data Center Accessories

"State of the art Data Center Solutions"

ENVIRONMENTAL MONITORING & MANAGEMENT SOLUTION
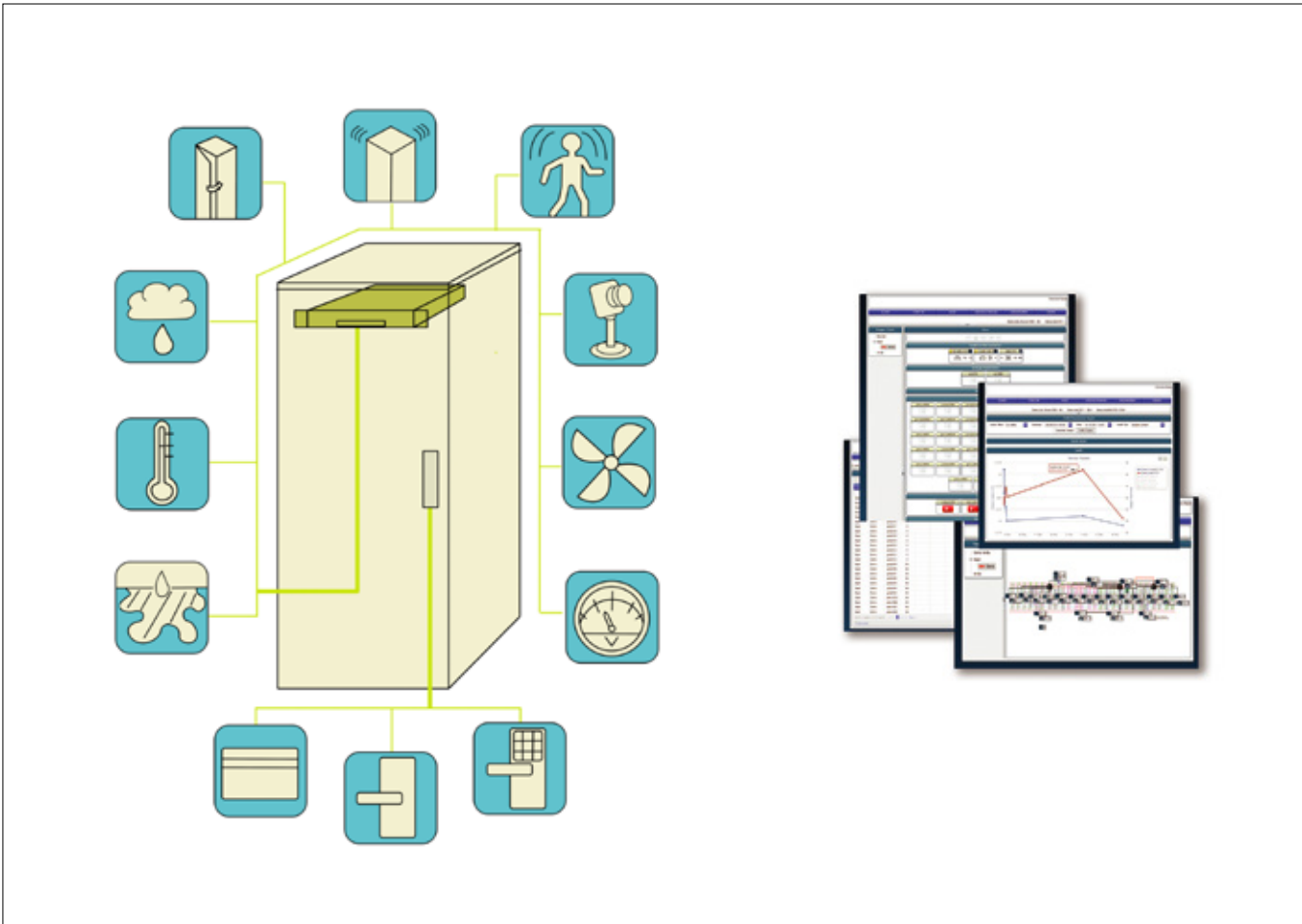
Description

HCS DataLine Environmental Monitoring & Management tool is specially designed for new generation Data Centers, in order to provide best possible uptime.

Applications

The special design of HCS DataLine Environmental Monitoring & Management Tool allows centralised monitoring, management, storing and archiving of vital parameters in a Data Center such as temperature-humidity-water flooding-pressure control -smoke-door access-movement-light intensity-IP camera recording-electrical parameters.

Qualifications and Approvals

CE

Benefits & Features

✓ Large variety of monitoring parameters - providing management from single source.

✓ Professional and Centralised Management including IP cams recording - support best possible uptime for Data Center

✓ Ultimate report & archive tool - provide excellent back-up utility

✓ Third party hardware integration - providing simple and efficient management tool

✓ Power and Network Access Redundancy - ensures management tool is online all the time.

General Properties

Mounting Size	1U, 19" adaptable main unit
Feeding Voltage	12V DC
Storage Temperature &Humidity Range	-40…..+ 85 C ; 0……%85 Rh
Operational Temperature &Humidity Range	-10…..+ 70 C ; 0……%70 Rh
Dimensions (WxDxH)	260x105x25 mm
Weigth	500 g.
Colour	Black
External Device Input	8 (supports up to 128 sensors)
Access Ports	1x10/100 Ethernet, 2xUSB, 1xRS323
Monitoring	Temperature-humidity-water flooding-air flow-pressure control-smoke-fire-air quality-door access-movement light intensity-IP camera recording-eletrcial parameters, voltage frequency
Alarming	WEB, E-Mail, SMS, Voice Calling, Buzzer, LCD Module, SNMP Traps
Management	All the sensors as well as all 3rd party hardware such as air-conditioning systems-UPS- IPcams- eLectrical infrastructure over professional centralised software (optional) via RS232, RS485, TCP/IP, SNMP,XML, MODBUS)

Ordering Information

HCS P/N	Description
C00-13A02	Main Unit + Web pack
C00-13A03	Combo Sensor
C00-13A04	Humidity & Temperature High Sensitivity
C00-13A05	Humidity & Temperature Standart
C00-13A06	Temperature Sensor Standart
C00-13A07	Flood Sensor
C00-13A08	Water Detect Cable 1 meter
C00-13A09	Water Detect Cable 5 meter
C00-13A10	3-phase VF Module
C00-13A11	3-phase Energy M‹odule
C00-13A12	UPS RS-232 Module
C00-13A13	LCD Module
C00-13A14	Expansion Module
C00-13A15	Dry Contact Module 1 port
C00-13A16	Dry Contact Module 8 port
C00-13A17	Dry Contact Module 24 port
C00-13A18	Relay Output Module 4 port - 0.5A
C00-13A19	Relay Output Module 12 port - 0.5A
C00-13A20	Alarm Signal Input Module
C00-13A21	Integration Module (SNMP/RS232/RS485)
C00-13A22	Server Integration Module (SNMP)
C00-13A23	Analog Module 1 Port - 4-20mA or 0-10V
C00-13A24	Analog Module 24 Port
C00-13A25	Proximity Module

Ordering Information

HCS P/N	Description
C00-13A26	Resetter Module
C00-13A27	Voice Calling Module
C00-13A28	Air Flow Module
C00-13A29	Air Quality Module
C00-13A30	Light Sensor
C00-13A31	Battery Pack (12V - 55W)
C00-13A32	GSM Module
C00-13A33	3G Router Module (Reduntant DSL 3G)
C00-13A34	Smoke Detector
C00-13A35	Door Detector
C00-13A36	Movement Detector
C00-13A37	Vibration Detector
C00-13A38	Proximity Reader
C00-13A39	Proximity Card
C00-13A40	Cabinet Door Lock
C00-13A41	Room Entrance Lock
C00-13A42	Power Adapter
C00-13A43	Signal Tower with Buzzer
C00-13A44	Buzzer
C00-13A45	Centralised Software for 1-5 Nods
C00-13A46	Centralised Software for 1-15 Nods
C00-13A47	Centralised Software for 15+ Nods
C00-13A48	IP Cam - Indoor

VERTICAL POWER DISTRIBUTION UNITS - BASIC

**DIN 49440 16A
Outlet Socket**

**IEC 60309 32A (2P+E)
Plug**

Description

HCS DataLine Vertical PDUs are specially designed for new generation Data Centers, in order to supply high-quality & clean power to your valuable active equipment and servers.

Applications

The special design of HCS DataLine Vertical PDUs helps for high-quality & clean power to the servers in Data Center cabinets.

Qualifications and Approvals

ROHS, CE

Benefits & Features

✓ ZeroU, Single Phase 32A

✓ Schuko DIN 49440 16A outlets

✓ IEC 60309 plug

✓ 2x16A Circuit Breaker with Cover

✓ 8/24 way outlet alternatives

Data Center

General Properties

Output socket type&quantity	18 or24 way DIN 49440 16A Schuko type
Plug Type	IEC60309 plug (32A 2P+E)
Rating Voltage	250VAC 50/60 Hz
Max.Power	8000 Watts
Safety Authentication	CE
Rating Current	32A
Protection	2x16A circuit breaker with cover
Product Size	L x W x H = 1612 x 44.4 x 66 mm
Mounting Length	Zero U, 1584 mm
Case Colour	Black
Cable dimension	3x6.0mm²
Cable Length	3 metres

Ordering Information

HCS P/N	Description
C00-03D03	Vertical mounting, 18 way power strip, european (schuko) type, 18xschuko (din 49440 16a) sockets, iec60309 32a (2P+E) plug, aluminium housing, with 2 ways circuit breaker (250vac, 1x20a, 3x6.0mm_x3.0m)
C00-03D04	Vertical mounting, 24 way power strip, european (schuko) type, 18xschuko (din 49440 16a) sockets, iec60309 32a (2P+E) plug, aluminium housing, with 2 ways circuit breaker (250vac, 1x20a, 3x6.0mm_x3.0m)

VERTICAL POWER DISTRIBUTION UNITS - METERED

DIGITAL AC AMMETER
OVERLOAD ALARM

3.6

IEC 60320 C13 10A Outlet Socket (with anti-fall device)

IEC 60320 C19 16A Outlet Socket

IEC 60309 32A (2P+E) Plug

Description

HCS DataLine Vertical Metered PDUs are specially designed for new generation Data Centers, in order to supply high-quality & clean power to your valuable active equipment and servers.

Applications

The special design of HCS DataLine Vertical Metered PDUs helps for high-quality & clean power to the servers in Data Center cabinets.

Qualifications and Approvals

ROHS, CE

Benefits & Features

✓ ZeroU, Single Phase 32A

✓ IEC C13&C19 outlets

✓ IEC 60309 plug

✓ 2x16A Circuit Breaker with Cover

✓ Digital AC Ampermeter - Total PDU Current Load Monitoring

✓ Voice alarm

General Properties

Output socket type&quantity	24 way IEC320 C13 10A and 4 way IEC320 C19 16A
Plug Type	IEC60309 plug (32A 2P+E)
Rating Voltage	250VAC 50/60 Hz
Max.Power	8000 Watts
Safety Authentication CE	
Rating Current	32A
Protection	2x16A circuit breaker with cover
Product Size	L x W x H = 1645x 44.4 x 66 mm
Mounting Length	Zero U, 1618,5 mm
Case Colour	Black
Cable dimension	3x6.0mm²
Cable Length	3 metres
Monitoring Functions	Total PDU load current
Alarm Functions	Max value of PDU total load current
Alarming Method	Total PDU load current on the LCD display with voice alarm.

Ordering Information

HCS P/N	Description
C00-03D05	20 way C13 & 4 way C19 IEC 320 power strip with ampermeter display, 0U, 32 Amp EN60309 Input Plug - 3M lead, 2 x 16A MCB

VERTICAL IP MONITORED POWER DISTRIBUTION UNITS

IEC 60320 C13 10A Outlet Socket (with anti-fall device)

IEC 60320 C19 16A Outlet Socket

IEC 60309 32A (2P+E) Plug

Description

HCS DataLine Vertical Managed & IP Monitored PDUs are specially designed for new generation Data Centers, in order to supply high-quality & clean power to your valuable active equipment and servers.

Applications

The special design of HCS DataLine Vertical Managed & IP Monitored PDUs helps for high-quality & clean power to the servers in Data Center cabinets.

Qualifications and Approvals

ROHS, CE

Benefits & Features

✓ ZeroU, Single Phase 32A PDU with IEC C13&C19 outlets and IEC 60309 plug

✓ Total load current, voltage, power(kW), energy consumption(kWh) and power factor monitoring

✓ Total energy consumption (kWh) recording

✓ Temperature/Humidity Sensors

✓ Max/Min alarming values setup via snmp and e-mail

✓ Web, SNMP and Telnet Access with SSH as option

✓ User Authorisation

General Properties

Output socket type&quantity	20 way IEC320 C13 10A and 4 way IEC320 C19 16A
Plug Type	IEC60309 plug (32A 2P+E)
Rating Voltage	250VAC 50/60 Hz
Max.Power	8000 Watts
Safety Authentication	CE
Rating Current	32A
Protection	32A circuit breaker with cover
Product Size	L x D x W = 1528 x 44.4 x 68 mm
Mounting Length	Zero U, 1495 mm
Case Colour	Black
Cable dimension	3x6.0mm²
Cable Length	3 metres
Sensor Ports	3 x Temperature&Humidity
Monitoring Functions	Total load current, voltage, power(kW), energy consumption(kWh) and power factor, Operation state of the PDU, Temperature/Humidity state
Alarm Functions	Max./Min. value of total load current, Max./Min. value of Temperaturea/Humidity, When total load current exceeds preset limited value (system default)
Alarming Method	State indicator on NPDU control interface flashes, and NPDU buzzer rings, State indicator on Web interface flashes, and PC buzzer rings, E-mail automatically sent to system administrator, SNMP trap and Level signal sent by LOGIC port
Energy Consumption Functions	Recording total energy consumption (kWh) in per unit time
Linking Functions	Supporting to cascade and radial connected of up to 10pcs NPDUs
Event Log Record	Recording and saving alarm and operation information
User Management	User authority definition
Access Method	Accessing through Web browser, such as IE Accessing through Standard Network Management Protocal, SNMP(V1/V2) Telnet SSH (optional)
System Supporting	Supporting multi-user operation, and software updating

Ordering Information

HCS P/N	Description
C00-03D06	20 way C13 & 4 way C19 IEC 320 power strip, IP MONITORED, 0U, 32 Amp EN60309 Input Plug - 3M lead, 1x32A M

VERTICAL MANAGED & IP SWITCHED POWER DISTRIBUTION UNITS

**IEC 60320
C13 10A
Outlet Socket
(with anti-fall
device)**

**IEC 60320
C19 16A
Outlet Socket**

**IEC 60309 32A
(2P+E)
Plug**

Description

HCS DataLine Vertical Managed & IP Switched PDUs are specially designed for new generation Data Centers, in order to supply high-quality & clean power to your valuable active equipment and servers.

Applications

The special design of HCS DataLine Vertical Managed & IP Switched PDUs helps for high-quality & clean power to the servers in Data Center cabinets.

Qualifications and Approvals

ROHS, CE

Benefits & Features

✓ ZeroU, Single Phase 32A PDU with IEC C13&C19 outlets and IEC 60309 plug

✓ Total load current, voltage, power(kW), energy consumption(kWh) and power factor monitoring

✓ Outlet based load current, power(kW) and energy consumption(kWh) monitoring

✓ Outlet based on/off switching

✓ Total energy consumption (kWh) recording

✓ Temperature/Humidity Sensors

✓ Max/Min alarming values setup via snmp and e-mail

✓ Web, SNMP and Telnet Access with SSH as option

✓ User Authorisation

General Properties

Output socket type&quantity	16 way IEC320 C13 10A and 4 way IEC320 C19 16A
Plug Type	IEC60309 plug (32A 2P+E)
Rating Voltage	250VAC 50/60 Hz
Max.Power	8000 Watts
Safety Authentication	CE
Rating Current	32A
Protection	32A circuit breaker with cover
Product Size	L x D x W = 1848 x 66.6 x 44.4 mm
Mounting Length	Zero U, 1798 mm
Case Colour	Black
Cable dimension	3x6.0mm²
Cable Length	3 metres
Sensor Ports	3 x Temperature&Humidity
Monitoring Functions	Total load current, voltage, power(kW), energy consumption(kWh) and power factor, Outlet load current, power(kW) and energy consumption(kWh) Outlet on/off state System running state, Logical port output, Temperature/Humidity state
Controlling Functions	Outlet switch on/off (also on LCD), Set the delay of outlet sequential switching, Set the automatic switching time of outlet, Set whether to immediately cut off power or not when it exceeds limited value, Keep the former state of individual outlet after reset
Alarm Functions	Max./Min. value of total load current, Max./Min. value of Temperaturea/Humidity, When total load current exceeds preset limited value (system default), When outlet load current exceeds preset limited value
Alarming Method	State indicator on NPDU control interface flashes, and NPDU buzzer rings, State indicator on Web interface flashes, and PC buzzer rings, E-mail automatically sent to system administrator, SNMP trap and Level signal sent by LOGIC port
Energy Consumption Functions	Recording total energy consumption (kWh) in per unit time
Linking Functions	Supporting to cascade and radial connected of up to 10pcs NPDUs
Event Log Record	Recording and saving alarm and operation information
User Management	User authority definition
Access Method	Accessing through Web browser, such as IE Accessing through Standard Network Management Protocal, SNMP(V1/V2) Telnet SSH (optional)
System Supporting	Supporting multi-user operation, and software updating

Ordering Information

HCS P/N	Description
C00-03D07	16 way C13 & 4 way C19 IEC 320 power strip, IP SWITCHED, 0U, 32 Amp EN60309 Input Plug - 3M lead, 1x32A MC

LCD CONSOLES

Description

HCS DataLine LCD Consoles are specially designed for new generation Data Centers, in order to provide easy access to the servers.

Applications

HCS DataLine LCD Console acts as a single LCD drawer or LCD KVM drawer. HCS DataLine LCD Consoles can be equipped with 8 or 16 KVM ports and/or with optional IP port to access your servers with a superior video quality by offering multiplatform and combo connection features.

Qualifications and Approvals

ROHS, CE

Benefits & Features

✓ 17' LCD display

✓ Turkish or English keyboard

✓ Optional Integrated 8 or16 Port KVM Switch

✓ Supports an optional remote console (CAT5 based or Over-IP)

✓ CAT5 Console upto 300 metres away from KVM switch

✓ Supports multiplatform - PS/2 or USB computers (SUN and MAC)

✓ Supports DOS, Windows, Netware, Unix, Linux, MacOS

✓ Hot pluggable - Add or remove connected PCs without having to power down the KVM switch or PCs

✓ Superior video quality - Up to 1280x1024, DDC2B

✓ No software required - easy PC selection via push buttons hot keys or OSD (on screendisplay)

✓ Supports daisy-chaining up to 7 units

✓ Auto scan mode

✓ Metal case, rack mountable

General Properties

LCD Size	17"
Computer Connections (Maximum)	Single / 8 (64) / 16 (128)
Computer Connectors	DB 15 Female
Console Ports	1 (One Local), plus 1 Optional Modules : Selectable CAT5-Based or IP-Based Remote Console
CAT5-Based Remote Console	RJ-45 Connector Console up to 300 metres away from KVM switch with superior auto-adjust RGB gain/delay control capability
IP-Based Remote Module	RJ-45 8P8C for 10/100M Ethernet DB-9 pin mal efor Modem, Null modem and serial power Control Mini USB 2.0 receptacle
Daisy Chaining	Daisy Chainable upto 8 levels ; Connector : DB15 (Female Type)
Computer Selection	On Screen Display (OD), Hot Key, Push Button
Hotkey	Provides various Hotkeys (Scroll-Lock/ Caps-Lock/ Num-Lock/ Ctrl/ Alt/ Win)
Auto-Scan Intervals	5 - 99 s.
Keyboard / mouse Emulation	PS/2
Video Resolution (Local Console)	1280x1024
Video Resolution (Remote Console)	1600x1200 for CAT5-Based 150 metres remote console, 1024x768 for CAT5-Based 300 metres remote console, 1600x1200 for IP-Based remote console
Power Adapter	DC 12V
Power Adaptor for CAT5	DC 9V, 500mA
Remote Console Dongle	
Housing	Heavy-Duty Metal
Size	19" Rack mount, 1U
Weight	20,9/21,1kg / 21,5kg
Dimensions (LxWxH)	600x450x44 mm.
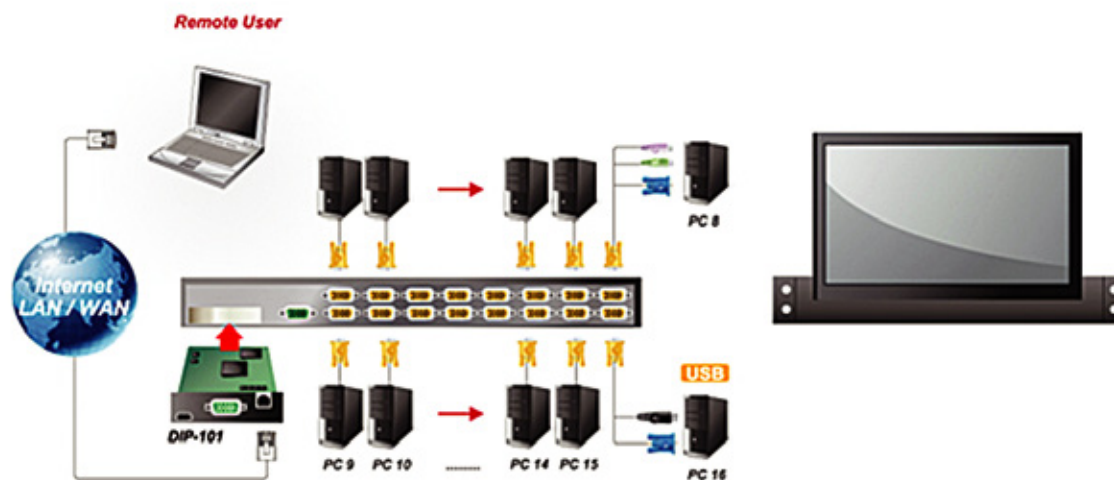
Ordering Information

HCS P/N	Description
C00-13B01	17" Rack Mountable LCD Drawer
C00-13B02	17" Rack Mountable LCD Drawer with 8 port KVM
Switch	
C00-13B03	17" Rack Mountable LCD Drawer with 16 port KVM

SECTION D: Data Center Copper & Fiber Optic Cabling Solutions

Note: For all cable alternatives, please refer to the "HCS Product Catalog"

HCS "State of the art Data Center Solutions"

Category 6 U/UTP 100 Ohm Horizontal LAN Cables

Description

HCS DataLink 250 cable series consists of 100 Ohm impedance, 4-pair and 8-pair U/UTP cables for horizontal installations in local area networks (LANs). All cables fully conform to and provide a substantial margin above all Category 6 requirements of ANSI/TIA/568-C.2 and IEC 61156-5.

Applications

HCS DataLink 250 Horizontal cables support all relevant LAN applications, including the following protocols:

- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52

- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 250 Cables are tested and verified for full compliance with the following standards:

- ❏ ANSI/TIA/568-C.2
- ❏ IEC 61156-5 (ISO/IEC-11801 2nd Edition).
- ❏ CENELEC EN 50288-5

Benefits & Features

- ✓ Testing every box or reel of cable prior to shipment - providing the highest degree of quality assurance.
- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ High ACR values - providing low BER (Bit-Error-Rate) in all applications.
- ✓ Extremely high pair-balance - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
- ✓ Revolutionary pair lay scheme - providing an extremely low delay skew.
- ✓ Co-extruded crisp and clear spiral color coding of wires - providing positive wire identification and ease of installation.
- ✓ Descending sequential meter mark - providing easy stock and left-over handling.
- ✓ Smooth and rigid jacket - proving fast and easy cable pulling and installation.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ A comprehensive product range - providing all state-of-the-art cable constructions.
- ✓ Large variety of packaging options - providing minimum scrap and left-over cable sections.
- ✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

Physical and Mechanical Properties

4 color-coded, unshielded twisted pairs cabled together around a star-shaped filler and overall jacketed. Siamese (Figure-8) cables are made of two identical 4-pair cables connected in a zip-cord formation, one cable identified with two raised ribs on the jacket surface.

Basic Conductor	Solid, 23AWG, 0.57 mm, bare annealed copper
Insulation	Polyolefin
Number of insulated conductors	8, twisted in 4 pairs. (8 pairs in FIG-8 cables)
Color Code of Pairs	Blue x White/Blue, Orange x White/Orange, Green x White/Green, Brown x White/Brown.
Overall Tape Wrap	None.
Overall shield	None.
Drain wire	None.
Outer Jacket	LS0H Halogen free flame retardant or PVC compound.
Standard Jacket Color	Light Gray RAL 7035. Other colors available upon request.
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number.
Pulling force	50 N/mm² max.
Short Term Bend Radius	8xOD mm
Long Term Bend Radius	4xOD mm
Storage Temperature	-20 to +80C
Temperature operating range	-20 to +60C
Installation temperature range	0 to +50C
Flame Test	IEC 60332-1
Halogen content in LS0H cables	Null.

Category 6 U/UTP 100 Ohm Horizontal LAN Cables

Transmission Properties and Electrical Specifications

FREQ.	Insertion Loss			NEXT			PS NEXT			EL FEXT			PS EL FEXT			RL			TCL	EL-TCL	
MHz	dB/100m			dB			dB			dB/100m			dB/100m			dB			dB	dB	
	Max	Nom	Std	Min	Nom	Std	Min	Nom	Std	Min	Nom	Std	Min	Nom	Std	Min	Nom	Std	Min	Min	
1.00	2.0	1.65	2.0	77.3	84.3	74.3	75.3	82.3	72.3	70.8	80	67.8	68.8	77	64.8	20.0	25	20.0	40	35
10.00	5.9	5.6	6.0	61.3	69.3	59.3	60.3	67.3	57.3	50.8	65	47.8	48.8	62	44.8	26.0	30	25.0	40	15
25.00	9.4	9.0	9.5	56.3	63.3	53.3	54.3	61.3	51.3	42.8	57	39.8	40.8	54	36.8	25.3	30	24.3	36	7.0
31.25	10.6	10.2	10.7	54.9	61.9	51.9	52.9	59.9	49.9	40.9	53	37.9	38.9	50	34.9	24.6	28	23.6	35.1	5.5
62.50	15.2	14.9	15.4	50.4	57.4	47.4	48.4	55.4	45.4	34.9	45	31.9	32.9	43	28.9	22.5	27	21.5	32	NS
100.00	19.6	19.2	19.8	47.3	54.3	44.3	45.3	52.3	42.3	30.8	43	27.8	28.8	40	24.8	21.1	26	20.1	30	NS
200.00	28.7	27.5	29.0	42.8	49.8	39.8	40.8	47.8	37.8	24.8	40	21.8	22.8	37	18.8	19.0	25	18.0	27	NS
250.00	32.6	31.0	32.8	41.3	48.3	38.3	39.3	46.3	36.3	22.8	37	19.8	20.8	34	16.8	18.3	25	17.3	26	NS
300.00	36.1	34.6	NS	40.1	43.0	NS	38.1	40.0	NS	21.3	32	NS	19.3	29	NS	17.8	25	NS	NS	NS	NS

Characteristic Impedance	100±6 Ohm @ 1-300 MHz
DC Resistance	72 Ohm/Km max.
Resistance unbalance	2% max.
Capacitance	45 pF/m nom. @ 1 KHz
Cap. Unbalance (wire to ground)	1500 pF/Km max. @ 1 KHz.
Voltage rating	72 Vdc max.
Dielectric strength	1500 Volts/1 minute min rms
Velocity of Propagation (NVP)	67-69%
Propagation Delay	514 + 36/f1/2 nS/100m max @ 1-300 MHz
Propagation Delay Skew	35 nS/100m max @ 1-300 MHz
Insulation Resistance	5000 MegaOhm•Km min. @ 500 Vdc
Coupling attenuation	40 dB min @ 30-100 MHz 40-20Log(f/100) @100-300 MHz
Transfer Impedance	N/A
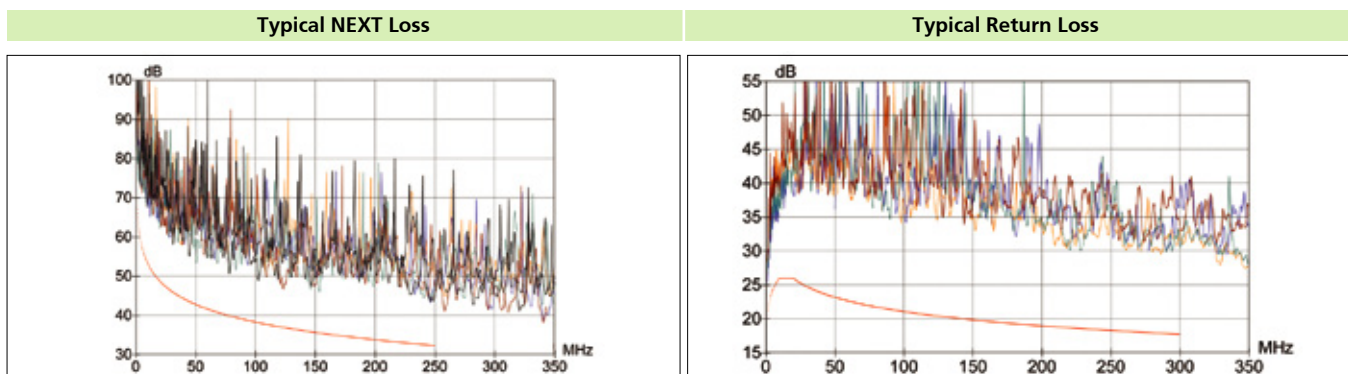
Typical NEXT Loss	Typical Return Loss

Ordering Information

HCS P/N	Description	OD mm	Weight Kg/Km	Cal. Value Kj/m	Packaging	Notes
H06-00401-BK	4x2x23# U/UTP CAT 6 PVC Grey	5.6	36	580	1000ft Reelex II™	-
H06-00401-DP	4x2x23# U/UTP CAT 6 PVC Grey	5.6	36	580	500m Drum	-
H06-00401-DM	4x2x23# U/UTP CAT 6 PVC Grey	5.6	36	580	1000m Drum	-
H06-00402-FK	4x2x23# U/UTP CAT 6 LS0H Grey	5.6	36	585	1000ft Reelex II™	-
H06-00402-DP	4x2x23# U/UTP CAT 6 LS0H Grey	5.6	36	585	500m Drum	-
H06-00402-DM	4x2x23# U/UTP CAT 6 LS0H Grey	5.6	36	585	1000m Drum	-
H06-00803-DP	2x(4x2x23#) CAT 6 U/UTP PVC Grey	5.6x11.3	72	1180	500m Drum	FIG-8
H06-00803-DM	2x(4x2x23#) CAT 6 U/UTP PVC Grey	5.6x11.3	72	1180	1000m Drum	FIG-8
H06-00804-DP	2x(4x2x23#) CAT 6 U/UTP LS0H Grey	5.6x11.3	72	1190	500m Drum	FIG-8
H06-00804-DM	2x(4x2x23#) CAT 6 U/UTP LS0H Grey	5.6x11.3	72	1190	1000m Drum	FIG-8

Note: Standard jacket color: Light Gray RAL 7035. Other colors available upon request.

Category 6 U/FTP 100 Ohm Horizontal LAN Cables

Description

HCS DataLink 250 cable series consists of 100 Ohm impedance, 4-pair and 8-pair U/FTP cables for horizontal installations in local area networks (LANs). All cables fully conform to and provide a substantial margin above all Category 6 requirements of ANSI/TIA/568-C.2 and IEC 61156-5.

Applications

HCS DataLink 250 Horizontal cables support all relevant LAN applications, including the following protocols:

- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52

- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 250 Cables are tested and verified for full compliance with the following standards:

- ❏ ANSI/TIA/568-C.2
- ❏ IEC 61156-5 (ISO/IEC-11801 2nd Edition)
- ❏ CENELEC EN 50288-5

Benefits & Features

- ✓ Testing every reel of cable prior to shipment - providing the highest degree of quality assurance.
- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ High ACR values - providing low BER (Bit-Error-Rate) in all applications.
- ✓ Extremely high pair-balance and individual pair shield - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
- ✓ Revolutionary pair lay scheme - providing an extremely low delay skew.
- ✓ Descending sequential meter mark - providing easy stock and left-over handling.
- ✓ Smooth and rigid jacket - proving fast and easy cable pulling and installation.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

Physical and Mechanical Properties

4 color-coded, individually foil-shielded twisted pairs cabled together with a tin-coated drain-wire, overall wrapped with a polyester tape and overall jacketed. Siamese (Figure-8) cables are made of two identical 4-pair cables connected in a zip-cord formation, one cable identified with two raised ribs on the jacket surface.

Basic Conductor	Solid, 23AWG, 0.57 mm, bare annealed copper
Insulation	Polyolefin
Number of insulated conductors	8, twisted in 4 pairs. (8 pairs in FIG-8 cables)
Color Code of Pairs	Blue x White, Orange x White, Green x White, Brown x White.
Individual pair shield	Laminated aluminum foil (foil face outward) providing 100% coverage.
Drain wire	Solid, 24AWG, 0.51 mm, tin-coated annealed copper
Overall Tape Wrap	Polyester tape, providing 100% coverage.
Outer Jacket	LS0H Halogen free flame retardant or PVC compound.
Standard Jacket Color	Light Gray RAL 7035. Other colors available upon request.
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number.
Pulling force	50 N/mm² max.
Short Term Bend Radius	8xOD mm
Long Term Bend Radius	4xOD mm
Storage Temperature	-20 to +80C
Temperature operating range	-20 to +60C
Flame Test	IEC 60332-1
Halogen content in LS0H cables	Null.

Category 6 U/FTP 100 Ohm Horizontal LAN Cables

Transmission Properties and Electrical Specifications

FREQ.	Insertion Loss			NEXT			PS NEXT			EL FEXT			PS EL FEXT			RL			TCL	EL-TCL	
MHz	dB/100m			dB			dB			dB/100m			dB/100m			dB			dB	dB	
	Max	Nom	Std	Min	Nom	Std	Min	Nom	Std	Min	Nom	Std	Min	Nom	Std	Min	Nom	Std	Min	Min	
1.00	2.0	1.65	2.0	77.3	84.3	74.3	75.3	82.3	72.3	70.8	80	67.8	68.8	77	64.8	20.0	25	20.0	40	35
10.00	5.9	5.6	6.0	61.3	69.3	59.3	60.3	67.3	57.3	50.8	65	47.8	48.8	62	44.8	26.0	30	25.0	40	15
25.00	9.4	9.0	9.5	56.3	63.3	53.3	54.3	61.3	51.3	42.8	57	39.8	40.8	54	36.8	25.3	30	24.3	36	7.0
31.25	10.6	10.2	10.7	54.9	61.9	51.9	52.9	59.9	49.9	40.9	53	37.9	38.9	50	34.9	24.6	28	23.6	35.1	5.5
62.50	15.2	14.9	15.4	50.4	57.4	47.4	48.4	55.4	45.4	34.9	45	31.9	32.9	43	28.9	22.5	27	21.5	32	NS
100.00	19.6	19.2	19.8	47.3	54.3	44.3	45.3	52.3	42.3	30.8	43	27.8	28.8	40	24.8	21.1	26	20.1	30	NS
200.00	28.7	27.5	29.0	42.8	49.8	39.8	40.8	47.8	37.8	24.8	40	21.8	22.8	37	18.8	19.0	25	18.0	27	NS
250.00	32.6	31.0	32.8	41.3	48.3	38.3	39.3	46.3	36.3	22.8	37	19.8	20.8	34	16.8	18.3	25	17.3	26	NS

Characteristic Impedance	100±6 Ohm @ 1-250 MHz
DC Resistance	72 Ohm/Km max.
Resistance unbalance	2% max.
Capacitance	45 pF/m nom. @ 1 KHz
Cap. Unbalance (wire to ground)	1500 pF/Km max. @ 1 KHz.
Voltage rating	72 Vdc max.
Dielectric strength	1500 Volts/1 minute min rms
Velocity of Propagation (NVP)	78-80%
Propagation Delay	$514 + 36/f1/2$ nS/100m max @ 1-250 MHz
Propagation Delay Skew	25 nS/100m max @ 1-250 MHz
Insulation Resistance	5000 MegaOhm•Km min. @ 500 Vdc
Coupling attenuation	85 dB min @ 30-100 MHz 55-20Log(f/100) @100-250 MHz
Transfer Impedance	10 mOhm/m max @ 1-10 MHz 30 mOhm/m max @ 30 MHz
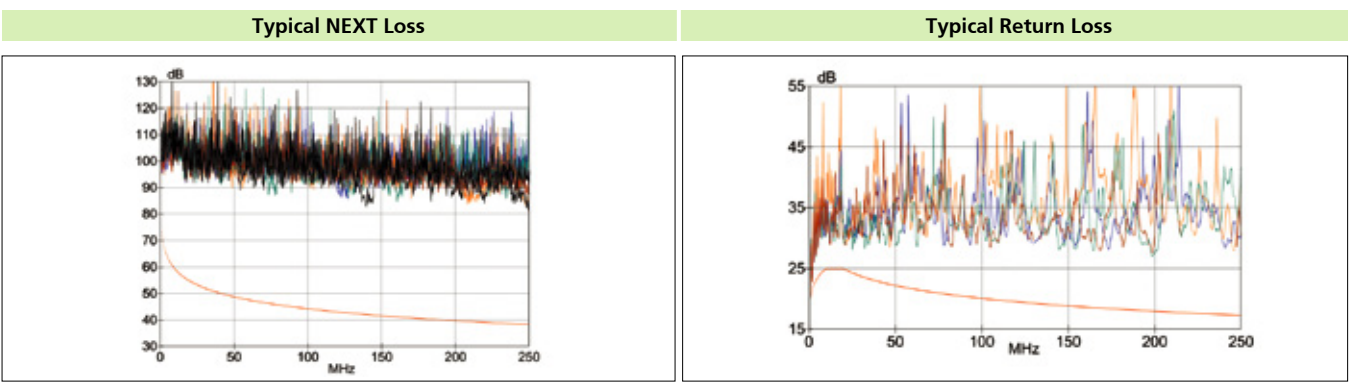
Typical NEXT Loss	Typical Return Loss

Ordering Information

HCS P/N	Description	OD mm	Weight Kg/Km	Cal. Value Kj/m	Packaging	Notes
H06-00431-DP	4x2x23# U/FTP CAT 6 PVC Grey	6.8	47	600	500m Drum	-
H06-00431-DM	4x2x23# U/FTP CAT 6 PVC Grey	6.8	47	600	1000m Drum	-
H06-00432-DP	4x2x23# U/FTP CAT 6 LS0H Grey	6.8	47	605	500m Drum	-
H06-00432-DM	4x2x23# U/FTP CAT 6 LS0H Grey	6.8	47	605	1000m Drum	-
H06-00833-DP	2x(4x2x23#) U/FTP CAT 6 PVC Grey	6.8x13.7	94	1200	500m Drum	FIG
H06-00833-DM	2x(4x2x23#) U/FTP CAT 6 PVC Grey	6.8x13.7	94	1200	1000m Drum	FIG
H06-00834-DP	2x(4x2x23#) U/FTP CAT 6 LS0H Grey	6.8x13.7	94	1210	500m Drum	FIG
H06-00834-DM	2x(4x2x23#) U/FTP CAT 6 LS0H Grey	6.8x13.7	94	1210	1000m Drum	FIG

Note: Standard jacket color: Light Gray RAL 7035. Other colors available upon request.

Category 6E U/UTP 100 Ohm Horizontal LAN Cables
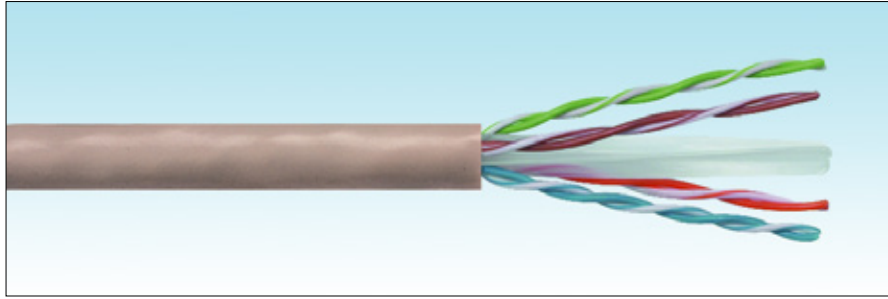
Description

HCS DataLink 250E cable series consists of 100 Ohm impedance, 4-pair and 8-pair U/UTP cables for horizontal installations in local area networks (LANs). All cables fully conform to and provide a substantial margin above all Category 6 requirements of ANSI/TIA/568-C.2 and IEC 61156-5.

Applications

HCS DataLink 250E UTP yatay kablolar, ilgili tüm LAN uygulamalar‹n‹ aşağ‹daki protokoller de dahil olmak üzere desteklemektedir:

- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps ve 16 Mbps
- Broadband ve Baseband Video
- ISDN Basic ve Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 250E Cables are tested and verified for full compliance with the following standards:

- ❏ ANSI/TIA/568-C.2
- ❏ IEC 61156-5 (ISO/IEC-11801 2nd Edition).
- ❏ CENELEC EN 50288-5

Benefits & Features

- ✓ Testing every box or reel of cable prior to shipment - providing the highest degree of quality assurance.
- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ High ACR values - providing low BER (Bit-Error-Rate) in all applications.
- ✓ Extremely high pair-balance - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
- ✓ Revolutionary pair lay scheme - providing an extremely low delay skew.
- ✓ Co-extruded crisp and clear spiral color coding of wires - providing positive wire identification and ease of installation.
- ✓ Descending sequential meter mark - providing easy stock and left-over handling.
- ✓ Smooth and rigid jacket - proving fast and easy cable pulling and installation.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ A comprehensive product range - providing all state-of-the-art cable constructions.
- ✓ Large variety of packaging options - providing minimum scrap and left-over cable sections.
- ✓ Unique DoubleSafe™ Quality Assurance Program   providing lowest rejection rate available.

Physical and Mechanical Properties

4 color-coded, unshielded twisted pairs cabled together around a star-shaped filler and overall jacketed.
Siamese (Figure-8) cables are made of two identical 4-pair cables connected in a zip-cord formation, one cable identified with two raised ribs on the jacket surface.

Basic Conductor	Solid, 23AWG, 0.57 mm, bare annealed copper
Insulation	Polyolefin
Number of insulated conductors	8, twisted in 4 pairs. (8 pairs in FIG-8 cables)
Color Code of Pairs	Blue x White/Blue, Orange x White/Orange, Green x White/Green, Brown x White/Brown.
Overall Tape Wrap	None.
Overall shield	None.
Drain wire	None.
Outer Jacket	LS0H Halogen free flame retardant or PVC compound.
Standard Jacket Color	Light Gray RAL 7035. Other colors available upon request.
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number.
Pulling force	50 N/mm2 max.
Short Term Bend Radius	8xOD mm
Long Term Bend Radius	4xOD mm
Storage Temperature	-20 to +80C
Temperature operating range	-20 to +60C
Installation temperature range	0 to +50C
Flame Test	IEC 60332-1
Halogen content in LS0H cables	Null.

Category 6E U/UTP 100 Ohm Horizontal LAN Cables

Transmission Properties and Electrical Specifications

FREQ.	Insertion Loss		NEXT		PS NEXT		EL FEXT		PS EL FEXT		RL		SKEW	Delay	TCL	EL-TCTL
MHz	dB/100m		dB		dB		dB/100m		dB/100m		dB		nS/100m	nS/100m	dB	dB
	Max	Nom	Min	Nom	Min	Nom	Min	Nom	Min	Nom	Min	Nom	Max	Max	Min	Min
1.00	2.0	1.7	74.3	82	72.3	79	67.8	75	64.8	72	20.0	28	30	570	40.0	35.0
10.00	5.9	5.4	59.3	79	57.3	76	47.8	70	44.8	67	25.0	32	30	545	40.0	15.0
20.00	8.3	7.5	54.8	75	52.8	72	41.8	60	38.8	57	25.0	33	30	542	37.0	9.0
25.00	9.3	8.4	53.3	73	51.3	70	39.8	58	36.8	55	24.3	33	30	541	36.0	7.0
30.00	10.2	9.5	52.1	72	50.1	69	38.3	55	35.3	52	23.8	33	30	541	35.2	5.5
62.50	14.9	13.5	47.4	70	45.4	67	31.9	48	28.9	45	21.5	35	30	539	32.0	NS
100.00	19.0	17.5	44.3	65	42.3	62	27.3	46	24.3	43	20.1	34	30	538	30.0	NS
200.00	27.5	25.1	39.8	58	37.8	55	21.3	40	18.3	37	18.0	30	30	537	27.0	NS
250.00	31.0	28.3	38.3	55	36.3	52	19.3	38	16.3	35	17.3	25	30	536	26.0	NS
300.00	34.2	31.0	37.1	52	35.1	49	18.3	32	15.3	29	16.8	23	30	536	25.2	NS
400.00	40.0	36.0	35.3	48	33.3	45	15.3	28	12.3	25	15.9	22	30	536	24.0	NS
500.00	45.3	41.1	33.8	47	31.8	44	13.3	25	10.3	22	15.2	21	30	536	23.0	NS
600.00	50.1	45.0	32.6	46	30.6	43	12.2	22	9.2	19	14.7	20	30	535	22.2	NS

Characteristic Impedance	100±6 Ohm @ 1-600 MHz
DC Resistance	72 Ohm/Km max.
Resistance unbalance	2% max.
Capacitance	45 pF/m nom. @ 1 KHz
Cap. Unbalance (wire to ground)	1500 pF/Km max. @ 1 KHz.
Voltage rating	72 Vdc max.
Dielectric strength	1500 Volts/1 minute min rms
Velocity of Propagation (NVP)	67-69%
Propagation Delay	514 + 36/f1/2 nS/100m max @ 1-600 MHz
Propagation Delay Skew	35 nS/100m max @ 1-600 MHz
Insulation Resistance	5000 MegaOhm•Km min. @ 500 Vdc
Coupling attenuation	40 dB min @ 30-100 MHz 40-20Log(f/100) @100-600 MHz
Transfer Impedance	N/A
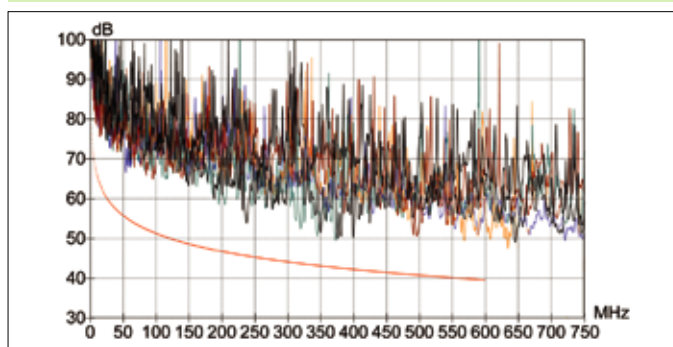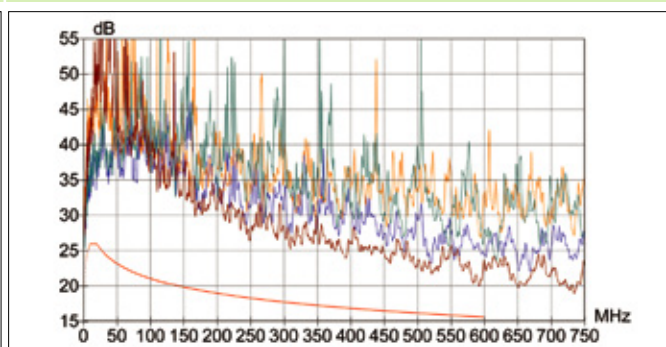
Typical NEXT Loss	Typical Return Loss

Ordering Information

HCS P/N	Description	OD mm	Weight Kg/Km	Cal. Value Kj/m	Packaging	Notes
H6E-00401-DP	4x2x23# U/UTP CAT 6E PVC Grey	5.6	36	580	500m Drum	-
H6E-00401-DM	4x2x23# U/UTP CAT 6E PVC Grey	5.6	36	580	1000m Drum	-
H6E-00402-DP	4x2x23# U/UTP CAT 6E LS0H Grey	5.6	36	585	500m Drum	-
H6E-00402-DM	4x2x23# U/UTP CAT 6E LS0H Grey	5.6	36	585	1000m Drum	-

Note: Standard jacket color: Light Gray RAL 7035. Other colors available upon request.

Augmented Category 6 U/MRTP 100 Ohm Horizontal LAN Cables
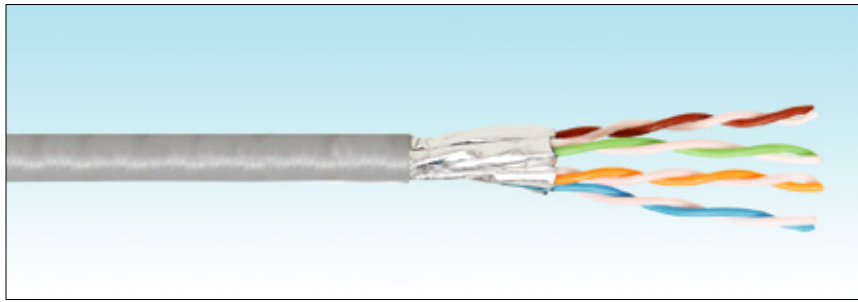
Description

HCS DataLink 500A cable series consists of 100 Ohm impedance, 4-pair and 8-pair U/MRTP cables for horizontal installations in local area networks (LANs). All cables fully conform to and provide a substantial margin above all Augmented Category 6 UTP requirements of TIA/EIA 568-C.2 and Category 6A of IEC 61156-5.

Applications

HCS DataLink 500A Horizontal cables support all presently available and future LAN applications, including the following protocols:

- 10GBASE-T 10 Gigabit Ethernet
- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps

- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 500A Cables are tested and verified for full compliance with the following standards::

- ❏ Augmented Category 6 UTP according to ANSI/TIA/EIA-568-C.2
- ❏ Category 6A according to IEC 61156-5.

Benefits & Features

- ✓ Exceptional transmission properties - suitable for 10GBE applications on 100m channels.
- ✓ Testing every reel of cable prior to shipment - providing the highest degree of quality assurance.
- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ High ACR values - providing low BER (Bit-Error-Rate) in all applications.
- ✓ Extremely high pair-balance - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
- ✓ Revolutionary pair lay scheme - providing an extremely low delay skew.
- ✓ Descending sequential meter mark - providing easy stock and left-over handling.
- ✓ Smooth and rigid jacket - proving fast and easy cable pulling and installation.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ Unique DoubleSafe™ Quality Assurance Program   providing lowest rejection rate available.

Physical and Mechanical Properties

4 color-coded twisted pairs, each covered by a metal-reflector, cabled together, overall wrapped with a polyester tape and overall jacketed.
Siamese (Figure-8) cables are made of two identical 4-pair cables connected in a zip-cord formation, one cable identified with two raised ribs on the jacket surface.

|	
Basic Conductor	Solid, 23AWG, 0.57 mm, bare annealed copper
Insulation	Polyolefin
Number of insulated conductors	8, twisted in 4 pairs. (8 pairs in FIG-8 cables)
Color Code of Pairs	Blue x White, Orange x White, Green x White, Brown x White.
Overall Tape Wrap	Plastic tape, providing 100% coverage.
Drain wire	None.
Metal Reflector	Laminated aluminum foil (foil face in) providing 100% coverage.
Outer Jacket	LS0H Halogen free flame retardant or PVC compound.
Standard Jacket Color	Light Gray RAL 7035. Other colors available upon request.
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number.
Pulling force	50 N/mm²max.
Short Term Bend Radius	8xOD mm
Long Term Bend Radius	4xOD mm
Storage Temperature	-20 to +80C
Temperature operating range	-20 to +60C
Flame Test	IEC 60332-1
Halogen content in LS0H cables	Null.

Augmented Category 6 U/MRTP 100 Ohm Horizontal LAN Cables

Transmission Properties and Electrical Specifications

FREQ.	Insertion Loss	NEXT Loss	PS NEXT Loss	ELFEXT	PS ELFEXT	RL	Delay	TCL	EL-TCL	PS ANEXT	PS AACR-F
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB	nS/100m	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Max	Min	Min	Min	Min
1	2.0	74.3	72.3	67.8	64.8	20.0	570	40.0	35.0	67.0	67.0
10	5.9	59.3	57.3	47.8	44.8	25.0	545	40.0	15.0	67.0	58.2
20	8.3	54.8	52.8	41.8	38.8	25.0	542	37.0	9.0	67.0	52.2
25	9.3	53.3	51.3	49.8	36.8	24.3	541	36.0	7.0	67.0	50.2
30	10.2	52.1	50.1	38.3	35.3	23.8	541	35.2	5.5	67.0	48.7
62.5	14.9	47.4	45.4	31.9	28.9	21.5	539	32.0	NS	65.6	42.3
100	19.0	44.3	42.3	27.8	24.8	20.1	538	30.0	NS	62.5	38.2
200	27.5	39.8	37.8	21.8	18.8	18.0	537	27.0	NS	58.0	32.2
250	31.0	38.3	36.3	19.8	16.8	17.3	536	26.0	NS	56.5	30.2
300	34.2	37.1	35.1	18.3	15.3	16.8	536	25.2	NS	55.3	28.7
400	40.0	35.3	33.3	15.8	12.8	15.9	536	24.0	NS	53.5	26.2
500	45.3	33.8	31.8	13.8	10.8	15.2	536	23.0	NS	52.0	24.2

Characteristic Impedance	100±6 Ohm @ 1-500 MHz
DC Resistance	72 Ohm/Km max.
Resistance unbalance	2% max.
Capacitance	45 pF/m nom. @ 1 KHz
Cap. Unbalance (wire to ground)	1500 pF/Km max. @ 1 KHz.
Voltage rating	72 Vdc max.
Dielectric strength	1500 Volts/1 minute min rms
Velocity of Propagation (NVP)	67-69%
Propagation Delay Skew	45 nS/100m max @ 1-500 MHz
Insulation Resistance	5000 MegaOhm•Km min. @ 500 Vdc
Coupling attenuation	40 dB min @ 30-100 MHz 40-20Log(f/100) @100-500 MHz
Transfer Impedance	NA

Typical NEXT Loss

Typical Return Loss

Ordering Information

HCS P/N	Description	OD mm	Weight Kg/Km	Cal. Value Kj/m	Packaging	Notes
H6A-00405-DK	4x2x23# U/MRTP CAT 6A PVC Grey	6.8	46	600	305m Drum	-
H6A-00405-DP	4x2x23# U/MRTP CAT 6A PVC Grey	6.8	46	600	500m Drum	-
H6A-00405-DM	4x2x23# U/MRTP CAT 6A PVC Grey	6.8	46	600	1000m Drum	-
H6A-00406-DK	4x2x23# U/MRTP CAT 6A LS0H Grey	6.8	46	605	305m Drum	-
H6A-00406-DP	4x2x23# U/MRTP CAT 6A LS0H Grey	6.8	46	605	500m Drum	-
H6A-00406-DM	4x2x23# U/MRTP CAT 6A LS0H Grey	6.8	46	605	1000m Drum	-
H6A-00805-DP	2x(4x2x23#) U/MRTP CAT 6A PVC Grey	6.8x13.7	92	1200	500m Drum	FIG-8
H6A-00805-DM	2x(4x2x23#) U/MRTP CAT 6A PVC Grey	6.8x13.7	92	1200	1000m Drum	FIG-8
H6A-00806-DP	2x(4x2x23#) U/MRTP CAT 6A LS0H Grey	6.8x13.7	92	1210	500m Drum	FIG-8
H6A-00806-DM	2x(4x2x23#) U/MRTP CAT 6A LS0H Grey	6.8x13.7	92	1210	1000m Drum	FIG-8

Note: Standard jacket color: Light Gray RAL 7035. Other colors available upon request.

Data Center

HCS Data Center Çözümleri

Augmented Category 6 U/FTP 100 Ohm Horizontal LAN Cables

Description

HCS DataLink 500A cable series consists of 100 Ohm impedance, 4-pair and 8-pair U/FTP cables for horizontal installations in local area networks (LANs). All cables fully conform to and provide a substantial margin above all Augmented Category 6 ScTP requirements of ANSI/TIA/568-C.2 and Category 6A of IEC 61156-5.

Applications

HCS DataLink 500A Horizontal cables support all presently available and future LAN applications, including the following protocols:

- 10GBASE-T 10 Gigabit Ethernet
- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps

- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 500A Cables are tested and verified for full compliance with the following standards:

- ❏ Augmented Category 6 ScTP according to ANSI/TIA/568-C.2
- ❏ Category 6A according to IEC 61156-5.

Benefits & Features

- ✓ Exceptional transmission properties - suitable for 10GBE applications on 100m channels.
- ✓ Testing every reel of cable prior to shipment - providing the highest degree of quality assurance.
- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ High ACR values - providing low BER (Bit-Error-Rate) in all applications.
- ✓ Extremely high pair-balance and individual foil shields - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
- ✓ Revolutionary pair lay scheme - providing an extremely low delay skew.
- ✓ Descending sequential meter mark - providing easy stock and left-over handling.
- ✓ Smooth and rigid jacket - proving fast and easy cable pulling and installation.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ Unique DoubleSafe™ Quality Assurance Program   providing lowest rejection rate available.

Physical and Mechanical Properties

4 color-coded, individually foil-shielded twisted pairs cabled together with a tin-coated drain-wire, overall wrapped with a polyester tape and overall jacketed. Siamese (Figure-8) cables are made of two identical 4-pair cables connected in a zip-cord formation, one cable identified with two raised ribs on the jacket surface.

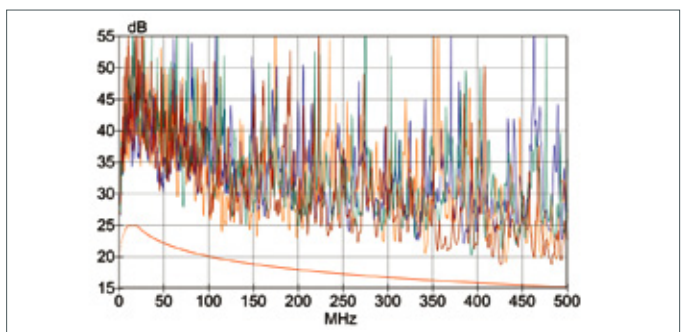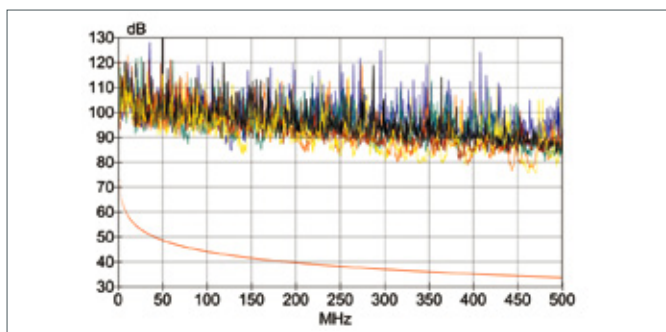|	
Basic Conductor	Solid, 23AWG, 0.57 mm, bare annealed copper
Insulation	Polyolefin
Number of insulated conductors	8, twisted in 4 pairs. (8 pairs in FIG-8 cables)
Color Code of Pairs	Blue x White, Orange x White, Green x White, Brown x White.
Individual pair shield	Laminated aluminum foil (foil face outward) providing 100% coverage.
Drain wire	Solid, 24AWG, 0.51 mm, tin-coated annealed copper
Overall tape	Polyester tape providing 100% coverage.
Outer Jacket	LS0H Halogen free flame retardant or PVC compound.
Standard Jacket Color	Light Gray RAL 7035. Other colors available upon request.
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number.
Pulling force	50 N/mm2 max.
Short Term Bend Radius	8xOD mm
Long Term Bend Radius	4xOD mm
Storage Temperature	-20 to +80C
Temperature operating range	-20 to +60C
Flame Test	IEC 60332-1
Halogen content in LS0H cables	Null.

Augmented Category 6 U/FTP 100 Ohm Horizontal LAN Cables

Transmission Properties and Electrical Specifications

FREQ.	Insertion Loss	NEXT Loss	PS NEXT Loss	ACR- F	PS ACR-F	RL	Delay	TCL	EL-TCL	PS ANEXT	PS AACR-F
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB	nS/100m	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Max	Min	Min	Min	Min
1	2.08	75.30	73.30	68.00	65.00	20.00	570.00	40.00	35.00	67.00	67.00
10	5.93	60.30	58.30	48.00	45.00	25.00	545.38	40.00	15.00	67.00	58.20
20	8.38	55.78	53.78	41.98	38.98	25.00	542.05	36.99	8.98	67.00	52.18
25	9.38	54.33	52.33	40.04	37.04	24.32	541.20	36.02	7.04	67.00	50.24
30	10.29	53.14	51.14	38.46	35.46	23.77	540.57	35.23	5.46	67.00	48.66
62.5	14.99	48.36	46.36	32.08	29.08	21.54	538.55	32.04	NS	65.56	42.28
100	19.14	45.30	43.30	28.00	25.00	20.11	537.60	30.00	NS	62.50	38.20
200	27.58	40.78	38.78	21.98	18.98	18.00	536.55	26.99	NS	57.98	32.18
250	31.07	39.33	37.33	20.04	17.04	17.32	536.28	26.02	NS	56.53	30.24
300	34.27	38.14	36.14	18.46	15.46	17.30	536.08	25.23	NS	55.34	28.66
400	40.05	36.27	34.27	15.96	12.96	17.30	535.80	23.98	NS	53.47	26.16
500	45.26	34.82	32.82	14.02	11.02	17.30	535.61	23.01	NS	52.02	24.22

Characteristic Impedance	100±6 Ohm @ 1-500 MHz
DC Resistance	72 Ohm/Km max.
Resistance unbalance	2% max.
Capacitance	45 pF/m nom. @ 1 KHz
Cap. Unbalance (wire to ground)	1500 pF/Km max. @ 1 KHz.
Voltage rating	72 Vdc max.
Dielectric strength	1500 Volts/1 minute min rms
Velocity of Propagation (NVP)	78-80%
Propagation Delay Skew	45 nS/100m max @ 1-500 MHz
Insulation Resistance	5000 MegaOhm•Km min. @ 500 Vdc
Coupling attenuation	55 dB min @ 30-100 MHz 55-20Log(f/100) @100-500 MHz
Transfer Impedance	10 mOhm/m max @ 1-10 MHz 30 mOhm/m max @ 30 MHz
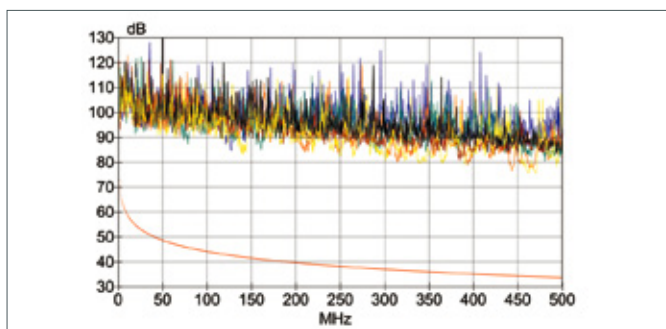
Typical NEXT Loss	Typical Return Loss
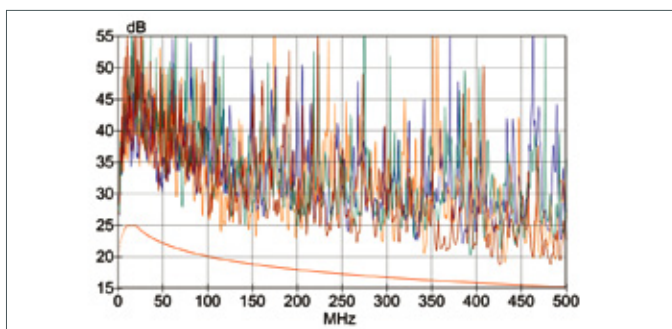
Ordering Information

HCS P/N	Description	OD mm	Weight Kg/Km	Cal. Value Kj/m	Packaging	Notes
H6A-00431-DK	4x2x23# U/FTP CAT 6A PVC Grey	6.8	47	600	305m Drum	-
H6A-00431-DP	4x2x23# U/FTP CAT 6A PVC Grey	6.8	47	600	500m Drum	-
H6A-00431-DM	4x2x23# U/FTP CAT 6A PVC Grey	6.8	47	600	1000m Drum	-
H6A-00432-DK	4x2x23# U/FTP CAT 6A LS0H Grey	6.8	47	605	305m Drum	-
H6A-00432-DP	4x2x23# U/FTP CAT 6A LS0H Grey	6.8	47	605	500m Drum	-
H6A-00432-DM	4x2x23# U/FTP CAT 6A LS0H Grey	6.8	47	605	1000m Drum	-
H6A-00833-DP	2x(4x2x23#) U/FTP CAT 6A PVC Grey	6.8x13.7	94	1200	500m Drum	FIG-8
H6A-00833-DM	2x(4x2x23#) U/FTP CAT 6A PVC Grey	6.8x13.7	94	1200	1000m Drum	FIG-8
H6A-00834-DP	2x(4x2x23#) U/FTP CAT 6A LS0H Grey	6.8x13.7	94	1210	500m Drum	FIG-8
H6A-00834-DM	2x(4x2x23#) U/FTP CAT 6A LS0H Grey	6.8x13.7	94	1210	1000m Drum	FIG-8

Note: Standard jacket color: Light Gray RAL 7035. Other colors available upon request.

Augmented Category 6 S/FTP 100 Ohm Horizontal LAN Cables
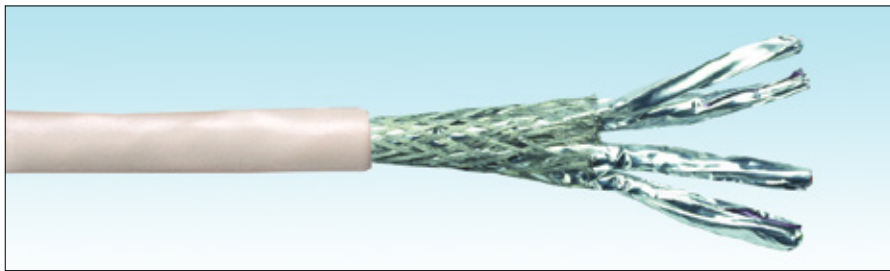
Description

HCS DataLink 500A cable series consists of 100 Ohm impedance, 4-pair and 8-pair S/FTP cables for horizontal installations in local area networks (LANs). All cables fully conform to and provide a substantial margins above all Augmented Category 6 ScTP requirements of ANSI/TIA/568-C.2 and Category 6A of IEC 61156-5.

Applications

HCS DataLink 500A Horizontal cables support all presently available and future LAN applications, including the following protocols:

- 10GBASE-T 10 Gigabit Ethernet
- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T "Fast Ethernet"
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps

- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 500A Cables are tested and verified for full compliance with the following standards:

- ❏ Augmented Category 6 ScTP according to ANSI/TIA/568-C.2
- ❏ Category 6A according to IEC 61156-5.

Benefits & Features

- ✓ Exceptional transmission properties - suitable for 10GBE applications on 100m channels.
- ✓ Testing every reel of cable prior to shipment - providing the highest degree of quality assurance.
- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ High ACR values - providing low BER (Bit-Error-Rate) in all applications.
- ✓ Extremely high pair-balance, individual and overall foil shields - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
- ✓ Revolutionary pair lay scheme - providing an extremely low delay skew.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ Unique DoubleSafe™ Quality Assurance Program providing lowest rejection rate available.

Physical and Mechanical Properties

4 color-coded, individually foil-shielded twisted pairs cabled together, overall shielded with tin-coated copper braid and overall jacketed.
Siamese (Figure-8) cables are made of two identical 4-pair cables connected in a zip-cord formation, one cable identified with two raised ribs on the jacket surface.

Basic Conductor	Solid, 23AWG, 0.57 mm, bare annealed copper
Insulation	Polyolefin
Number of insulated conductors	8, twisted in 4 pairs. (8 pairs in FIG-8 cables)
Color Code of Pairs	Blue x White, Orange x White, Green x White, Brown x White.
Individual pair shield	Laminated aluminum foil (foil face outward) providing 100% coverage.
Drain wire	None.
Overall shield	Tin coated copper braid laid in close contact over the inner foils.
Outer Jacket	LS0H Halogen free flame retardant or PVC compound.
Standard Jacket Color	Light Gray RAL 7035. Other colors available upon request.
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number.
Pulling force	50 N/mm2 max.
Short Term Bend Radius	8xOD mm
Long Term Bend Radius	4xOD mm
Storage Temperature	-20 to +80C
Temperature operating range	-20 to +60C
Flame Test	IEC 60332-1
Halogen content in LS0H cables	Null.

Augmented Category 6 S/FTP 100 Ohm Horizontal LAN Cables

Transmission and Electrical Specifications

FREQ.	Insertion Loss	NEXT Loss	PS NEXT Loss	ACR- F	PS ACR-F	RL	Prop. Delay	TCL	EL-TCL	PS ANEXT	PS AACR-F
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB	nS/100m	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Max	Min	Min	Min	Min
1	2.08	75.30	73.30	68.00	65.00	20.00	570.00	40.00	35.00	67.00	67.00
10	5.93	60.30	58.30	48.00	45.00	25.00	545.38	40.00	15.00	67.00	58.20
20	8.38	55.78	53.78	41.98	38.98	25.00	542.05	36.99	8.98	67.00	52.18
25	9.38	54.33	52.33	40.04	37.04	24.32	541.20	36.02	7.04	67.00	50.24
30	10.29	53.14	51.14	38.46	35.46	23.77	540.57	35.23	5.46	67.00	48.66
62.5	14.99	48.36	46.36	32.08	29.08	21.54	538.55	32.04	NS	65.56	42.28
100	19.14	45.30	43.30	28.00	25.00	20.11	537.60	30.00	NS	62.50	38.20
200	27.58	40.78	38.78	21.98	18.98	18.00	536.55	26.99	NS	57.98	32.18
250	31.07	39.33	37.33	20.04	17.04	17.32	536.28	26.02	NS	56.53	30.24
300	34.27	38.14	36.14	18.46	15.46	17.30	536.08	25.23	NS	55.34	28.66
400	40.05	36.27	34.27	15.96	12.96	17.30	535.80	23.98	NS	53.47	26.16
500	45.26	34.82	32.82	14.02	11.02	17.30	535.61	23.01	NS	52.02	24.22

|	
Characteristic Impedance	100±6 Ohm @ 1-500 MHz
DC Resistance	72 Ohm/Km max.
Resistance unbalance	2% max.
Capacitance	45 pF/m nom. @ 1 KHz
Cap. Unbalance (wire to ground)	1500 pF/Km max. @ 1 KHz.
Voltage rating	72 Vdc max.
Dielectric strength	1500 Volts/1 minute min rms
Velocity of Propagation (NVP)	78-80%
Propagation Delay Skew	45 nS/100m max @ 1-500 MHz
Insulation Resistance	5000 MegaOhm•Km min. @ 500 Vdc
Coupling attenuation	85 dB min @ 30-100 MHz 85-20Log(f/100) @100-500 MHz
Transfer Impedance	50 mOhm/m max @ 1 MHz.
	100 mOhm/m max @ 10 MHz.
	200 mOhm/m max @ 30 MHz.
	1000 mOhm/m max @ 100 MHz.

Typical NEXT Loss	Typical Return Loss
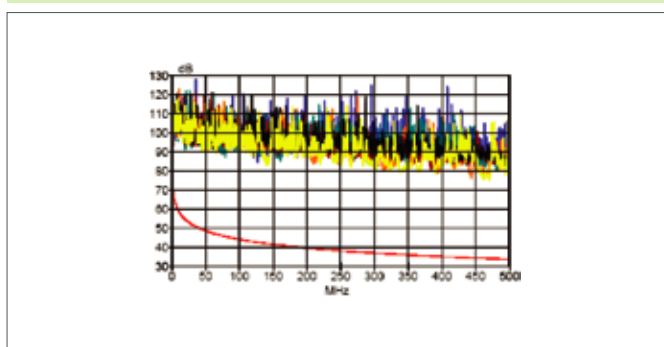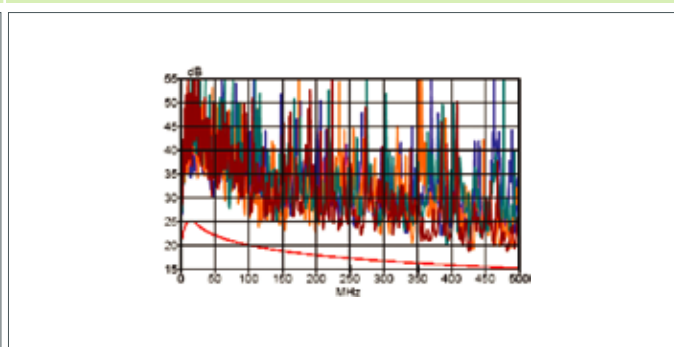
Ordering Information

HCS P/N	Description	OD mm	Weight Kg/Km	Cal. Valeue Kj/m	Packaging	Notes
H6A-00451-DK	4x2x23# S/FTP CAT 6A PVC Grey	7.0	50	650	305m Drum	-
H6A-00451-DP	4x2x23# S/FTP CAT 6A PVC Grey	7.0	50	650	500m Drum	-
H6A-00451-DM	4x2x23# S/FTP CAT 6A PVC Grey	7.0	50	650	1000m Drum	-
H6A-00452-DK	4x2x23# S/FTP CAT 6A LS0H Grey	7.0	50	655	305m Drum	-
H6A-00452-DP	4x2x23# S/FTP CAT 6A LS0H Grey	7.0	50	655	500m Drum	-
H6A-00452-DM	4x2x23# S/FTP CAT 6A LS0H Grey	7.0	50	655	1000m Drum	-
H6A-00853-DP	2x(4x2x23#) S/FTP CAT 6A PVC Grey	7.0x14.1	100	1300	500m Drum	FIG-8
H6A-00853-DM	2x(4x2x23#) S/FTP CAT 6A PVC Grey	7.0x14.1	100	1300	1000m Drum	FIG-8
H6A-00854-DP	2x(4x2x23#) S/FTP CAT 6A LS0H Grey	7.0x14.1	100	1310	500m Drum	FIG-8
H6A-00854-DM	2x(4x2x23#) S/FTP CAT 6A LS0H Grey	7.0x14.1	100	1310	1000m Drum	FIG-8

Note: Standard jacket color: Light Gray RAL 7035. Other colors available upon request.

Category 7+ S/FTP 100 Ohm Horizontal LAN Cables
Tested to 1000 MHz
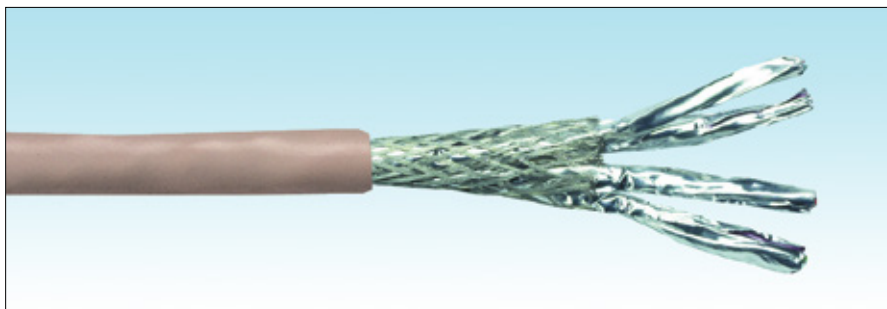
Description

HCS DataLink 600 CAT 7+ cable series consists of 100 Ohm impedance, 4-pair and 8-pair S/FTP cables for horizontal installations in local area networks (LANs). All cables fully conform to and provide a substantial margin above all Category 7 requirements of IEC 61156-5 (Specified in ISO/IEC 11801) and are tested up to 1000MHz.

Applications

HCS DataLink 600 CAT 7+ Horizontal cables support all presently available and future LAN applications, including the following protocols:

- Broadband Digital and Analog CATV signals up to 1000 MHz
- SOHO and multiple simultaneous applications on all 4 pairs
- 10GBASE-T 10 Gigabit Ethernet
- 1000BASE-T 1 Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX

- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 600 CAT 7+ Cables are tested and verified for full compliance with the following standards:

- ❏ IEC 61156-5 (ISO/IEC-11801)
- ❏ CENELEC EN 50288-4

Qualifications and Approvals

- ✓ Exceptional transmission properties - suitable for 10GBE applications on 100m channels.
- ✓ Testing every reel of cable prior to shipment - providing the highest degree of quality assurance.
- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ High ACR values - providing low BER (Bit-Error-Rate) in all applications.
- ✓ Extremely high pair-balance and double shield - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation, maximizing noise immunity and preventing any alien-crosstalk (AXT).
- ✓ Revolutionary pair lay scheme - providing an extremely low delay skew.
- ✓ Descending sequential meter mark - providing easy stock and left-over handling.
- ✓ Smooth and rigid jacket - proving fast and easy cable pulling and installation.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ A comprehensive product range - providing all state-of-the-art cable constructions.
- ✓ Large variety of packaging options - providing minimum scrap and left-over cable sections.
- ✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.
- ✓ Full compliance with EU Directive 2002/95/CE (RoHS).

Physical and Mechanical Properties

4 color-coded, individually foil shielded twisted pairs cabled together, overall shielded with a tin-coated copper braid and overall jacketed. Siamese (Figure-8) cables are made of two identical 4-pair cables connected in a zip-cord formation, one cable identified with two raised ribs on the jacket surface.

Basic Conductor	Solid, 23AWG, bare annealed copper
Insulation	Polyolefin
Number of insulated conductors	8, twisted in 4 pairs. (8 pairs in FIG-8 cables)
Color Code of Pairs	Blue x White, Orange x White, Green x White, Brown x White.
Individual pair shield	Polyester-aluminum foil (foil face out), providing 100% coverage.
Overall shield	Tin coated copper braid laid in close contact over the inner foils.
Outer Jacket	LS0H Halogen free flame retardant or PVC compound.
Standard Jacket Color	Light Gray RAL 7035. Other colors available upon request.
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number.
Pulling force	50 N/mm2 max.
Short Term Bend Radius	8xOD mm
Long Term Bend Radius	4xOD mm
Storage Temperature	-20 to +60C
Temperature operating range	-20 to +60C
Installation temperature range	0 to +50C
Flame Test	IEC 60332-1, IEC 60332-3-24 or IEC 60332-3-25.
Halogen content in LS0H cables	IEC 60754 (gas) & IEC 61034 (smoke)

Category 7+ S/FTP 100 Ohm Horizontal LAN Cables Tested to 1000 MHz

Transmission Properties and Electrical Specifications

FREQ.	Insertion Loss	NEXT Loss	PS NEXT Loss	ELFEXT	PS ELFEXT	RL	TCL	EL-TCTL	PS ANEXT	PS AFEXT
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Min	Min	Min	Min
1	NS	78.0	75.0	78.0	75.0	20.0	40.0	35.0	67.0	67.0
4	3.74	78.0	75.0	83.3	80.3	23.0	40.0	23.0	67.0	67.0
8	5.24	78.0	75.0	77.2	74.2	24.5	40.0	16.9	67.0	67.0
10	5.86	78.0	75.0	75.3	72.3	25.0	40.0	15.0	67.0	67.0
16	7.41	78.0	75.0	71.2	68.2	26.0	38.0	10.9	67.0	67.0
20	8.29	78.0	75.0	69.3	66.3	25.0	37.0	9.0	67.0	67.0
25	9.29	78.0	75.0	67.3	64.3	24.3	36.0	7.0	67.0	65.2
31.25	10.41	78.0	75.0	65.4	62.4	23.6	35.1	5.1	67.0	63.3
62.5	14.88	75.5	72.5	59.4	56.4	21.5	32.0	NS	67.0	57.3
100	19.02	72.4	69.4	55.3	52.3	20.1	30.0	NS	67.0	53.2
150	23.56	69.8	66.8	51.8	48.8	18.9	28.2	NS	67.0	49.7
200	27.47	67.9	64.9	49.3	46.3	18.0	27.0	NS	67.0	47.2
250	30.97	66.4	63.4	47.3	44.3	17.3	26.0	NS	67.0	45.2
300	34.19	65.2	62.2	45.8	42.8	17.3	NS	NS	67.0	43.7
400	40.01	63.4	60.4	43.3	40.3	17.3	NS	NS	67.0	41.2
500	45.26	61.9	58.9	41.3	38.3	17.3	NS	NS	67.0	39.2
600	50.10	60.7	57.7	39.7	36.7	17.3	NS	NS	65.8	37.6
700	54.63	59.7	56.7	38.4	35.4	16.6	NS	NS	64.8	36.3
800	58.92	58.9	55.9	37.2	34.2	16.1	NS	NS	64.0	35.1
1000	66.93	57.4	54.4	35.3	32.3	15.1	NS	NS	62.5	33.2

Note: Values above 600Mhz are nominal, for reference only

Characteristic Impedance	100±5 Ohm @ 1-1000 MHz
DC Resistance	72 Ohm/Km max.
Resistance unbalance	2% max.
Capacitance	45 pF/m nom. @ 1 KHz
Cap. Unbalance (wire to ground)	1500 pF/Km max. @ 1 KHz.
Voltage rating	72 Vdc max.
Dielectric strength	700 Volts/1 minute min rms
Velocity of Propagation (NVP)	77-80%
Propagation delay	$500 + 36/f_{1/2}$ @ 1-1000 MHz.
Delay Skew	25 nS/100m max @ 1-1000 MHz.
Insulation Resistance	5000 MegaOhm•Km min. @ 500 Vdc
Coupling attenuation	85 dB min @ 30-100 MHz 85-20Log(f/100) @100-600 MHz
Screening Attenuation	60 dB min @ 30-600 MHz
Transfer Impedance	10 mOhm/m max @ 1-30 MHz 30 MOhm/m max @ 30-100 MHz

Ordering Information

| HCS P/N	Description	OD mm	Weight Kg/Km	Cal. Value Kj/m	Packaging	Notes
H07-F0411-DP	4x2x23# S/FTP CAT 7+ PVC Grey, Tested to 1000 MHz	7.0	48	660	500m Drum	
H07-F0411-DM	4x2x23# S/FTP CAT 7+ PVC Grey, Tested to 1000 MHz	7.0	48	660	1000m Drum	
H07-F0412-DP	4x2x23# S/FTP CAT 7+ LS0H Grey, Tested to 1000 MHz	7.0	48	660	500m Drum	
H07-F0412-DM	4x2x23# S/FTP CAT 7+ LS0H Grey, Tested to 1000 MHz	7.0	48	660	1000m Drum	
H07-F0813-DP	2x(4x2x23#) CAT 7+ S/FTP PVC Grey, Tested to 1000 MHz	7.0x14.2	100	1320	500m Drum	FIG-8
H07-F0813-DM	2x(4x2x23#) CAT 7+ S/FTP PVC Grey, Tested to 1000 MHz	7.0x14.2	100	1320	1000m Drum	FIG-8
H07-F0814-DP	2x(4x2x23#) CAT 7+ S/FTP LS0H Grey, Tested to 1000 MHz	7.0x14.2	100	1320	500m Drum	FIG-8
H07-F0814-DM	2x(4x2x23#) CAT 7+ S/FTP LS0H Grey, Tested to 1000 MHz	7.0x14.2	100	1320	1000m Drum	FIG-8

Flame Test conformance   F=0: IEC 60332-1   F=C: IEC 60332-3-24   F=D: IEC 60332-3-25

Note: Standard jacket color: Light Gray RAL 7035. Other colors available upon request.

Category 7+ S/FTP 100 Ohm Horizontal LAN Cables Tested to 1200 MHz
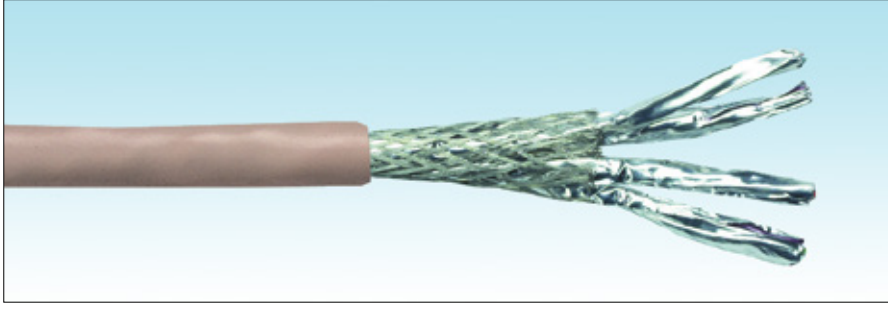
Description

HCS DataLink 600 CAT 7+ kablo serisi; 100 Ohm empedansda, yatay yapısal kablolama sistemleri için kulanılmakta olan 4 ve 8 perli S/FTP kabloları kapsamaktadır. Tüm DataLink 600 serisi kablolar, IEC 61156-5 (ISO/IEC 11801) standardının gereksinimlerinin çok üzerinde bir performans sergilemekte ve 1200 MHz'e kadar test edilmektedirler.

Applications

HCS DataLink 600 CAT 7+ yatay kablolar, günümüzde mevcut ve gelecekteki muhtemel LAN uygulamalarını aşağıdaki protokoller de dahil olmak üzere desteklemektedir:

- 1200 MHz'e kadar Broadband Dijital ve Analog CATV sinyalleri
- SOHO ve tüm 4 perde çift simultane uygulama
- 10GBASE-T 10 Gigabit Ethernet
- 1000BASE-T 1 Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX

- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps ve 16 Mbps
- Broadband ve Baseband Video
- ISDN Basic ve Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 600 CAT 7+ yatay kablolar aşağıdaki standartlara göre tamamen test edilip onaylanmıştır:

- ❏ IEC 61156-5 (ISO/IEC-11801)
- ❏ CENELEC EN 50288-4

Benefits & Features

- ✓ Olağanüstü iletim değerleri - 100 metre uç tan uca kanal (Channel) uygulamalarında 10GBE'yi destekler.
- ✓ Sevkiyat öncesi her makara veya kutu kablonun tek tek test edilmesi - En üst düzey kalite güvencesini sağlar.
- ✓ Olağanüstü malzeme özellikleri ve kablo dizaynı - Benzersiz Century™ Ömür Boyu Garanti sağlar.
- ✓ Yüksek ACR değerleri - Tüm uygulamalarda en düşük veri kayıp oranını sağlar.
- ✓ Oldukça yüksek per dengesi ve çift folyolu yapı - kablodan dışarı sızan ışımayı minimize, gürültü bağışıklığını maksimize ederek mükemmel Elektro Manyetik Uyumluluk (EMC) sağlar. Aynı zamanda Alien Crosstalk (AXT)'un da oluşmasına engel olur.
- ✓ Benzersiz per yayma dizaynı - perler arasındaki sinyal gecikmesini minimize eder.
- ✓ Kolay anlaşılabilen ve ayırdedilebilen renk kodlaması - perlerin kolayca ayrıştırılabilmesini sağlar ve kablonun sonlandırılmasını kolaylaştırır.
- ✓ Aşağı doğru azalan ardışık metraj bilgisi- Kolay stok ve kablo kalan miktarı takibi sağlar.
- ✓ Pürüzsüz ve rijit dış kılıf- Kablonun kutusundan kolay ve hızlı çekilmesi ve kurulmasına yardımcı olur.
- ✓ Metraj bilgisinde yer alan parti numarası- Kabloya ait test sonucuna veri tabanımızdan ulaşılmasını sağlar.
- ✓ Oldukça geniş ürün yelpazesi - En son teknoloji ürünü tüm kablo konstrüksiyonlarını mevcut kılar.
- ✓ Alternatifli paketleme imkanı - kablonun en verimli kullanılması ve atık kablo oranının en az olmasını sağlar.
- ✓ Benzersiz DoubleSafe™ Kalite Güvence Programı - ürün iade oranının minimize edilmesini sağlar.
- ✓ 2002/95/CE (RoHS) AB Direktiflerine tam uyumludur.

Physical and Mechanical Properties

4 adet renk kodlu, ayrı ayrı folyolanmış bükümlü perler birlikte kablolaştırılmış, kalay kaplı bakır saç örgü ile kaplanmış ve kılıflanmıştır. Siamese (Fig-8) kablolar iki özdeş kablonun "fermuar" şeklinde birleştirilmesiyle imal edilmektedirler.Kabloların bir tanesinde dış kılıf üzerinde yer alan çıkıntı ile kablonun sonlandırma yapılırken doğru tarafta sonlandırılması sağlanmış olur.

Temel İletken	Katı, 23AWG, tavlı çıplak bakır.
İzolasyon	Polyolefin
İzole İletken Sayısı	8, bükülmüş 4 per halinde (Fig-8 kablolarda 16 izole iletken, 8 per halinde).
Perlerin Renk Kodları	Mavi x Beyaz, Turuncu x Beyaz, Yeşil x Beyaz, Kahverengi x Beyaz.
Per folyosu	Polyester-alüminyum folyo (folyo yüzü dış tarafa), %100 koruma sağlar.
Dış Folyo (Blendaj)	Per folyolarıyla yakın temasta kalay kaplı bakır saç örgü.
Dış Kılıf	LS0H (Halogen free) alev geciktirmeli veya PVC bileşen.
Standart Dış Kılıf Rengi	Açık Gri RAL 7035. İstenirse diğer renkler mevcuttur.
Standart kablo yazı bilgisi	HCS Ürün kodu, kablo tanımlaması, metraj bilgisi ve parti numarası.
Çekme kuvveti	50 N/mm^2 maks.
Bükülme yarıçapı (kurulum (kısa dönem))	8xKablo dış çapı (mm).
Bükülme yarıçapı (kullanım (uzun dönem))	4xKablo dış çapı (mm).
Depolama Sıcaklığı	-20 / +80C
Çalışma Sıcaklığı	-20 / +60C
Kurulum (Enstelasyon) Sıcaklığı	0 / +50C
Alev Testi	IEC 60332-1, IEC 60332-3-24 veya IEC 60332-3-25
LS0H kablolarda halojen miktarı	IEC 60754 (gaz) & IEC 61034 (duman)

HCS Data Center Çözümleri

Category 7+ S/FTP 100 Ohm Horizontal LAN Cables Tested to 1200 MHz

Transmission Properties and Electrical Specifications

FREQ.	Insertion Loss	NEXT Loss	PS NEXT Loss	ELFEXT	PS ELFEXT	RL	TCL	EL-TCTL	PS ANEXT	PS AFEXT
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Min	Min	Min	Min
1	NS	78.0	75.0	78.0	75.0	20.0	40.0	35.0	67.0	67.0
4	3.75	78.0	75.0	83.1	80.1	23.0	40.0	23.0	67.0	67.0
10	5.82	78.0	75.0	75.1	72.1	25.0	40.0	15.0	67.0	67.0
20	8.21	78.0	75.0	69.1	66.1	25.0	37.0	9.0	67.0	67.0
25	9.18	78.0	75.0	67.1	64.1	24.3	36.0	7.0	67.0	65.2
31.25	10.26	78.0	75.0	65.2	62.2	23.6	35.1	5.1	67.0	63.3
62.5	14.57	78.0	75.0	59.2	56.2	21.5	32.0	NS	67.0	57.3
100	18.53	75.4	72.4	55.1	52.1	20.1	30.0	NS	67.0	53.2
200	26.47	70.9	67.9	49.1	46.1	18.0	27.0	NS	67.0	47.2
250	29.73	69.4	66.4	47.1	44.1	17.3	26.0	NS	67.0	45.2
300	32.69	68.2	65.2	45.6	42.6	17.3	NS	NS	67.0	43.7
400	38.01	66.4	63.4	43.1	40.1	17.3	NS	NS	67.0	41.2
500	42.76	64.9	61.9	41.1	38.1	17.3	NS	NS	67.0	39.2
600	47.10	63.7	60.7	39.5	36.5	17.3	NS	NS	65.8	37.6
700	51.13	62.7	59.7	38.2	35.2	16.6	NS	NS	64.8	36.3
800	54.92	61.9	58.9	37.0	34.0	16.1	NS	NS	64.0	35.1
1000	61.93	60.4	57.4	35.1	32.1	15.1	NS	NS	62.5	33.2
1200	68.36	59.2	56.2	33.5	30.5	14.3	NS	NS	61.3	31.6

Not: 600 MHz üzerindeki değerler referans için verilmiştir.

Empedans Karakteristiği	100±5 Ohm @ 1-1200 MHz
DC Direnci	72 Ohm/Km maks.
Direnç Dengesizliği	2% maks.
Kapasitans	45 pF/m nom. @ 1 KHz
Kapasitans Dengesizliği (toprağa göre)	1500 pF/Km maks. @ 1 KHz.
Voltaj	72 Vdc maks.
Dielektrik Kuvvet	700 Volt/1 dakika min rms
Sinyal Hızı (NVP)	77-80%
Sinyal İletim Süresi (Prop. Delay)	500+36/f1/2 @ 1-1200 MHz.
Perler Arası Sinyal Gecikmesi (Skew)	25 nS/100m maks @ 1-1200 MHz.
İzolasyon Direnci	5000 MegaOhm•Km min. @ 500 Vdc
Birleşim Zayıflaması	85 dB min @ 30-100 MHz 85-20Log(f/100) @100-600 MHz
Ekranlama Zayıflaması	60 dB min @ 30-600 MHz
Transfer Empedansı	10 mOhm/m maks @ 1-30 MHz 30 MOhm/m maks @ 30-100 MHz.

Ordering Information

| HCS P/N	Description	OD mm	Weight Kg/Km	Cal. Value Kj/m	Packaging	Notes
H07-F0421-DP	4x2x23# S/FTP CAT 7+ PVC Gri, 1200 MHz	7.0	48	660	500m Makara	
H07-F0421DM	4x2x23# S/FTP CAT 7+ PVC Gri, 1200 MHz	7.0	48	660	1000m Makara	
H07-F0422-DP	4x2x23# S/FTP CAT 7+ LS0H Gri, 1200 MHz	7.0	48	660	500m Makara	
H07-F0422-DM	4x2x23# S/FTP CAT 7+ LS0H Gri,1200 MHz	7.0	48	660	1000m Makara	
H07-F0823-DP	2x(4x2x23#) S/FTP CAT 7+ PVC Gri, 1200 MHz	7.0x14.2	100	1320	500m Makara	FIG-8
H07-F0823-DM	2x(4x2x23#) S/FTP CAT 7+ PVC Gri,1200 MHz	7.0x14.2	100	1320	1000m Makara	FIG-8
H07-F0824-DP	2x(4x2x23#) S/FTP CAT 7+ LS0H Gri, 1200 MHz	7.0x14.2	100	1320	500m Makara	FIG-8
H07-F0824-DM	2x(4x2x23#) S/FTP CAT 7+ LS0H Gri,1200 MHz	7.0x14.2	100	1320	1000m Makara	FIG-8

Flame Test Conformance   F=0: IEC 60332-1   F=C: IEC 60332-3-24   F=D: IEC 60332-3-25

Not: Standart dış kılıf rengi: Açık Gri RAL 7035. Diğer renkler isteğe bağlı olarak sağlanabilir.

4-Pair and 2-Pair Category 5e Unshielded RJ-45 to TELCO Copper Patch Panels
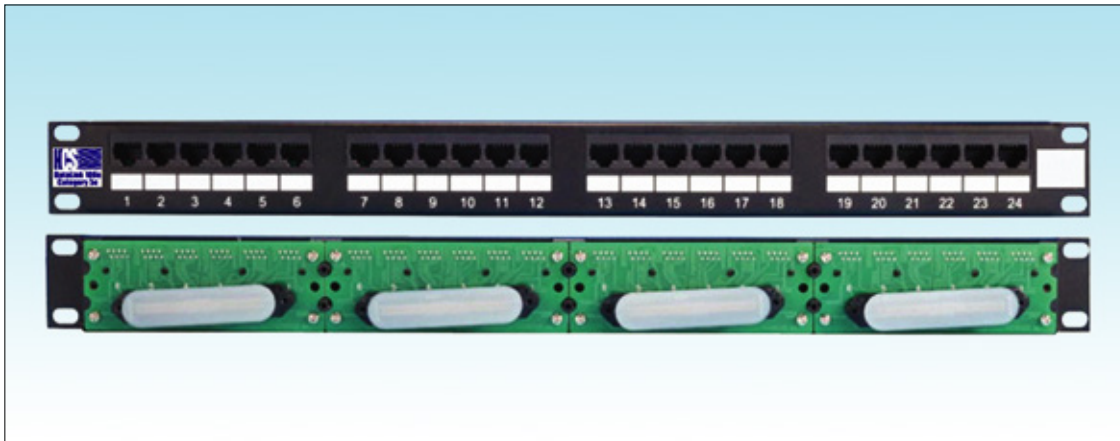
Description

HCS DataLink unshielded copper RJ-45 to TELCO patch panel series includes high performance 24-Port and 48-Port Category 5e panels specially designed for data-centers for structured premise cabling in local area networks (LANs).

HCS RJ-45 to TELCO patch panels are available in two optional configurations:
- 4-Pair CAT 5e RJ-45 to TELCO panels provide one TELCO back interconnection 25 Pair block for each module of 6 RJ-45 ports, ready for 25 Pair TELCO patch-cords (RJ-21). This configuration supports all CAT 5e applications, including 1GBASE-T.
- 2-Pair CAT 5e RJ-45 to TELCO panels provide one TELCO back interconnection 25 Pair block for each two modules of 6 RJ-45 ports, ready for 25 Pair TELCO patch-cords (RJ-21). In this configuration, only two pairs in each RJ-45 port are terminated:
Pins 1-2 and 3-6, providing 10BASE-T and 100BASE-TX support only.All panels fully conform to and provide a substantial margin above all ANSI/TIA/568-C.2 Category 5e, CENELEC EN 50173 and ISO/IEC-11801 (2nd Edition) requirements.

The HCS Logo and the DataLink 100e Trademark ensure long lasting high-performance and full support of all relevant applications, including 1000BASE-T (Gigabit-Ethernet).

Applications

HCS DataLink 100e unshielded copper RJ-45 to TELCO patch panels are used mainly in data-centers and telecommunications rooms and they fully support all relevant LAN applications, including the following protocols:

- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 and X.11

Qualifications and Approvals

HCS DataLink 100e panels are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling system.

HCS DataLink 100e panels comply to the following standards:

Transmission	EMC	Safety
❏ ANSI/TIA/568-C.2	❏ EN-55022, Class B (Europe)	❏ UL94 V-0 rated plastic materials
❏ ISO/IEC-11801 (2nd Edition)	❏ FCC Part 15, Subpart J, Class A (USA)	❏ Zero-halogen in LS0H constructions.

Benefits & Features

✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
✓ Detailed installation manual in English and Turkish - providing clear and comprehensive instructions.
✓ Exceeding Category 5e performance - providing full support to Gigabit Ethernet.
✓ High quality metal casing - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
✓ Robust and installer-friendly design and Printed labels for port identification - providing reduced installation and operating costs.
✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

General Properties

Material of construction	Galvanized Steel.
Paint and standard color	Black, Powder paint finish or plastic front.
Connector module holder	High impact, Flame-retardant plastic compound, UL 94 V-0.
Housing material - Jack & IDC	High impact FR plastic rated UL 94 V-0.
Jack spring contact coating	1.27⌀m (50⌀-Inch) hard Gold over 2.54⌀m (100⌀-Inch) Nickel plating.
Plug Retention Force	14 Kgf (140N) min.
Plug to jack contact force	100 grams min. (using HCS approved plug).
Plug insertion durability	750 mating cycles
Storage temperature range	-40 to +70C
Operation conditions	-20 to +60C at 0-90% RH (Non condensing)
Packaging	One unit per box.

4-Pair and 2-Pair Category 5e Unshielded RJ-45 to TELCO Copper Patch Panels

Transmission and Electrical Specifications

Frequency	Insertion Loss		NEXT		FEXT		RL	
MHz	dB		dB		dB		dB	
	Nom	Max	Nom	Min	Nom	Min	Nom	Min
1.00	0.02	0.10	85.0	65.0	77.0	65.0	55.0	30.0
4.00	0.03	0.10	75.0	65.0	65.0	63.1	50.0	30.0
8.00	0.04	0.11	70.0	64.9	60.0	57.0	48.0	30.0
10.00	0.04	0.13	68.0	63.0	58.0	55.1	42.0	30.0
16.00	0.05	0.16	64.0	58.9	54.0	51.0	40.0	30.0
25.00	0.06	0.20	60.0	55.0	50.0	47.1	35.0	30.0
31.25	0.07	0.22	58.0	53.1	48.0	45.2	33.0	30.0
62.50	0.11	0.32	52.0	47.1	42.0	39.1	28.1	24.1
100.00	0.15	0.40	45.0	43.0	38.0	35.1	24.0	20.0

Typical Return Loss (Forward, Component Level)

Propagation Delay	2.5 nS max @ 1-100 MHz
Propagation Delay Skew	1.25 nS max @ 1-100 MHz
Akım	1.5 A max.
Contact resistance	20 mOhm max (per contact)
Input/Output resistance	200 mOhm max
Input/Output resistance Unbalance	50 mOhm max
Voltage rating	72 Vdc max
Dielectric strength	1000 Volts rms for 1 minute
Insulation Resistance	500 MegaOhm min @ 500 Vdc
DC Resistance	0.1 Ohm max @ 20C
TCL	28-20·Log(f/100) dB min @ 1-100 MHz
Transfer Impedance	N/A

Typical Test Results at the Component Level

Typical NEXT Loss

Typical Return Los

Ordering Information

HCS P/N	Panels Description	TELCO Blocks	Units	Size mm	inch	Notes
P5E-T2401-1U	24 port RJ-45 to TELCO Unshielded CAT5e 19" Panel	4	1u	43.7x482.6	1.75x19	-
P5E-T4801-2U	48 port RJ-45 to TELCO Unshielded CAT5e 19" Panel	8	2u	87.4x482.6	3.44x19	-
P5E-T2402-2U	24 port RJ-45 to TELCO Unshielded 2P 19" Panel	2	2u	43.7x482.6	3.44x19	-
P5E-T4802-2U	48 port RJ-45 to TELCO Unshielded 2P 19" Panel	4	2u	87.4x482.6	3.44x19	-

HCS P/N	Modular Cords Description	Plugs	Length		Notes
T5E-T02510-XX	25x2x24# UTP CAT 5e PVC RJ21 modular Cord Grey	TELCO 180° to 180°	XXm		
T5E-T02520-XX	25x2x24# UTP CAT 5e LS0H RJ21 modular Cord Grey	TELCO 180° to 180°	XXm		
T5E-T02530-XX	25x2x24# UTP CAT 5e PVC RJ21 modular Cord Grey	TELCO 110° to 180°	XXm		
T5E-T02540-XX	25x2x24# UTP CAT 5e LS0H RJ21 modular Cord Grey	TELCO 110° to 180°	XXm		
T5E-T02550-XX	25x2x24# UTP CAT 5e PVC RJ21 modular Cord Grey	TELCO 110° to 110°	XXm		
T5E-T02560-XX	25x2x24# UTP CAT 5e LS0H RJ21 modular Cord Grey	TELCO 110° to 110°	XXm		

Category 5e Unshielded RJ-45 to iPass Pre-Terminated Copper Patch Panels

Açıklama

HCS DataLink unshielded copper RJ-45 to iPass patch panel series includes high performance 24-Port and 48-Port Category 5e panels specially designed for data-centers and structured premise cabling in local area networks (LANs). HCS iPass to RJ-45 patch panels consist of 12-port (4 x 6) or 12-port preterminated cassettes loaded into a 1U Rack Mount Enclosure. The cassettes slide easily in and out of the panels, allowing fast installation. The Simple cassette design allows for fast upgrades or expansion of systems with minimum installation time. All cassettes are 100% factory tested, enabling flexible configuration and cost effective installation, while minimizing the need for on-site testing. 6-port cassettes have one iPass port, 12-port cassettes have two iPass Ports. Pre-terminated iPass to iPass 25 pair Category 5e cables (1-90 meter length) can be connected to iPass ports at the back side of cassettes. All panels fully conform to and provide a substantial margin above all ANSI/TIA-568-C.2 Category 5e, CENELEC EN 50173 and ISO/IEC-11801 (2nd Edition) requirements. The HCS Logo and the DataLink 100e Trademark ensure long lasting high-performance and full support of all relevant applications up to 1000BASE-T (Gigabit-Ethernet).

Uygulamalar

HCS DataLink 100e unshielded copper RJ-45 to iPass patch panels are used mainly in data-centers and telecommunications rooms and they fully support the following protocols

- 1000BASE-T (Gigabit-Ethernet)
- ATM 155
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4

- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps

- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 and X.11

Nitelikler ve Onaylar

HCS DataLink 100e panels are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling system. HCS DataLink 100e panels comply to the following standards:

Transmission	EMC	Safety
❏ ANSI/TIA-568-C.2	❏ EN-55022, Class B (Europe)	❏ UL94 V-0 plastic materials
❏ ISO/IEC-11801 (2nd Edition)	❏ FCC Part 15, Class A (USA)	❏ Zero-halogen in LS0H constructions.

Benefits & Features

- ✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
- ✓ Detailed installation manual in English and Turkish - providing clear and comprehensive instructions.
- ✓ Exceeding Category 5e performance - providing full support to Gigabit Ethernet.
- ✓ High quality metal casing - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
- ✓ Robust and installer-friendly design - providing reduced installation and operating costs
- ✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

General Properties : Panel & Cassettes

Material of construction	Cold rolled steel, 1.5 mm thickness
Paint and standard color	Black, Powder paint finish or plastic front.
Storage temperature range	-40 to +70C
Operation conditions	-20 to +60C at 0-90% RH (Non condensing)
Packaging	One unit per box.

General Properties: Cassettes RJ-45 receptables

Housing material	Thermoplastic Rated UL94 V-0.
Jack spring contact coating	1.27∃<m (50∃<-Inch) hard Gold over 2.54∃<m (100∃<-Inch) Nickel plating
Plug Retention Force	49N minimum.
Plug to jack contact force	100 grams min. (using HCS approved plug).
Plug insertion durability	750 mating cycles

General Properties: Cassettes iPass receptables

Housing material	Zinc Alloy
Contact Material	Copper Alloy
Contact Plating	1.27∃<m (50∃<-Inch) hard Gold over 2.54∃<m (100∃<-Inch) Nickel plating
Insertion Force	60 N

General Properties – Distribution Cable Assembly

Conductor size	24AWG solid bare copper
MAX OD	12.7mm
Jacket	PVC or LS0H
Temperature range	-20 to +60C at 0-90% RH (Non condensing)
Flame Performance	Conforming to IEC 60332-1

General Properties – iPass Plug Connector
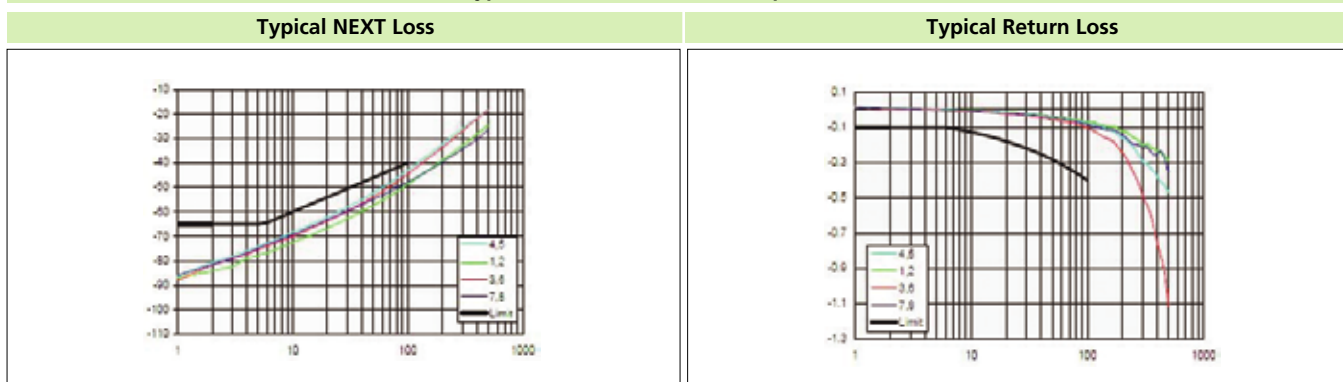
Housing	Zinc Alloy
Contact Material	FR4 PCB
Contact Pad Plating	PVC or LS0H
Insertion Force	1.27∃<m (50∃<-Inch) hard Gold over 2.54∃<m (100∃<-Inch) Nickel plating
Flame Performance	60 N

Category 5e Unshielded RJ-45 to iPass Pre-Terminated Copper Patch Panels

Transmission and Electrical Specifications

Frequency	Insertion Loss		NEXT		FEXT		RL	
MHz	dB		dB		dB		dB	
	Nom	MaX	Nom	Min	Nom	Min	Nom	Min
1.00	0.02	0.10	85.0	65.0	77.0	65.0	55.0	30.0
4.00	0.03	0.10	75.0	65.0	65.0	63.1	50.0	30.0
8.00	0.04	0.11	70.0	64.9	60.0	57.0	48.0	30.0
10.00	0.04	0.13	68.0	63.0	58.0	55.1	42.0	30.0
16.00	0.05	0.16	64.0	58.9	54.0	51.0	40.0	30.0
25.00	0.06	0.20	60.0	55.0	50.0	47.1	35.0	30.0
31.25	0.07	0.22	58.0	53.1	48.0	45.2	33.0	30.0
62.50	0.11	0.32	52.0	47.1	42.0	39.1	28.1	24.1
100.00	0.15	0.40	45.0	43.0	38.0	35.1	24.0	20.0

Typical Return Loss (Forward, Component Level)

|	
Propagation Delay	2.5 nS max @ 1-100 MHz
Propagation Delay Skew	1.25 nS max @ 1-100 MHz
Current rating	1.5 A max.
Contact resistance	20 mOhm max (per contact)
Input/Output resistance	200 mOhm max
Input/Output resistance Unbalance	50 mOhm max
Voltage rating	72 Vdc max
Dielectric strength	1000 Volts rms for 1 minute
Insulation Resistance	500 MegaOhm min @ 500 Vdc
DC Resistance	0.1 Ohm max @ 20C
TCL	28-20.Log(f/100) dB min @ 1-100 MHz
Transfer Impedance	N/A

Typical Test Results at the Component Level

Typical NEXT Loss

Typical Return Loss

Ordering Information

HCS P/N	Panels Description	TELCO Blocks	Units	Notes
P00-P0401-1U	Unshielded empty patch panel, 19", 1U, for 4xiPass cassettes insert	-	1u	-
P5E-P0602-1U	6 port RJ-45 to iPass Unshielded 1000BASE-T 19" cassette	1	1u	-
P5E-P1202-1U	12 port RJ-45 to iPass Unshielded 1000BASE-T 19" cassette	2	1u	-

HCS P/N	Modular Cords Description	Plugs	Length	Notes
T5E-P02510-XX	25x2x24# UTP CAT 5e PVC iPass modular Cord Grey	iPass	XX m	
T5E-P02520-XX	25x2x24# UTP CAT 5e LS0H iPass modular Cord Grey	iPass	XX m	

Category 6E Unshielded RJ-45 Copper Angled Patch Panels (Jacks)
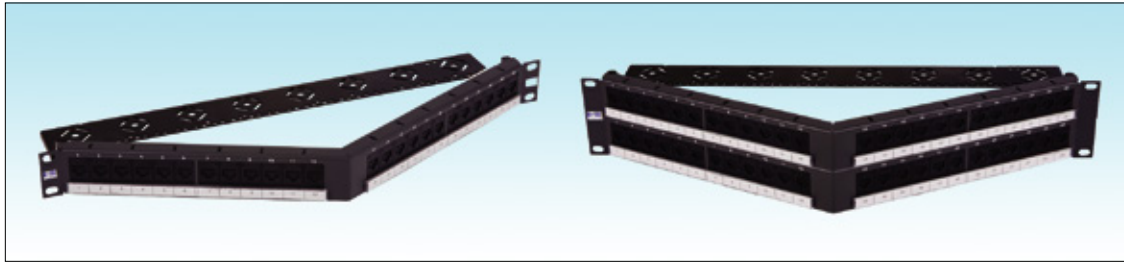
Description

HCS DataLink 250E unshielded copper RJ-45 patch panel series includes high performance Enhanced Category 6 panels specially designed for structured premise cabling in local area networks (LANs).
HCS DataLink 250E Angled Patch Panels are ideal for data-centers and installations of high density or which utilize extensive side and end-of-the-rack cable management.The angled feature provides enhanced port access and minimizes patch cord bend radius to the rack. The IDC section consists of V-shaped contacts that flex (not fatigue) when terminated. Each RJ45 port features a patented spring-loaded shutter and can be color coded to match jack outlets with the use of optional port icons. Offering both front and rear labeling options, the patch panel is constructed of cold-rolled steel for additional strength and durability.
All panels fully conform to and provide a substantial margin above all ANSI/TIA/568-C.2 and ISO/IEC-11801 (2nd Edition) Category 6 component requirements, tested at the component level.
The HCS Logo and the DataLink 250E Trademark ensure long lasting high-performance and full support of all relevant applications.

Applications

HCS DataLink 250E unshielded copper RJ-45 Angled patch panels are mainly used for horizontal distribution or equipment terminations in data-centers, dense telecommunications rooms and for interconnection terminations in consolidation points, and they fully support all relevant LAN applications, including the following protocols:

- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T "Fast Ethernet"
- 100BASE-T2
- 100BASE-T4

- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet
- ISDN Basic ve Primary Access
- 1BASE-5 Starlan

- Token Ring 4 Mbps ve 16 Mbps
- Broadband & Baseband Video
- ISALAN
- ITU V.21 ve X.11
- 100BASE-TX

Qualifications and Approvals

HCS DataLink 250E panels are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling system.HCS DataLink 250 panels are tested at the component level and they comply to the following standards:

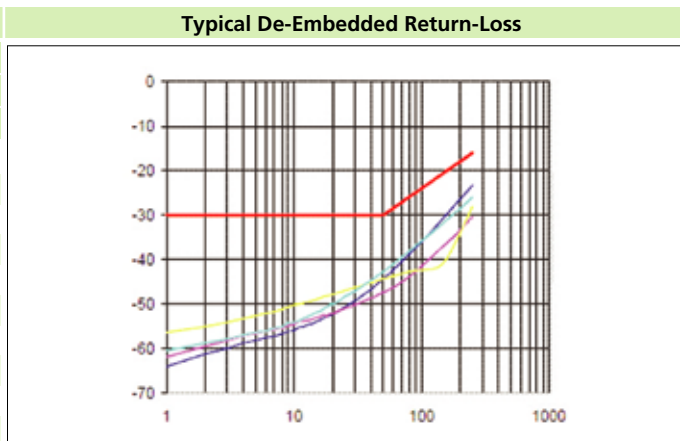| Transmission	EMC	Safety
❏ ANSI/TIA/568-C.2	❏ EN-55022, Class B (Europa)	❏ UL94 V-0 rated plastic materials
❏ ISO/IEC-11801	❏ FCC Part 15, Subpart J, Class A (US)	❏ Zero-halogen in LS0H constructions.

Benefits & Features

- ✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
- ✓ Detailed installation manual in English and Turkish - providing clear and comprehensive instructions.
- ✓ Exceeding Category 6 performance - providing full support to Gigabit Ethernet over Category 5e and Category 6 cabling systems.
- ✓ Robust and installer-friendly design - providing reduced installation and operating costs
- ✓ Compatible with 22-24 AWG solid conductors - providing support to a wider range of cabling types.
- ✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.
- ✓ Each port features the patented spring-loaded shutter prevents incomplete mating & protects from dust and contaminants.
- ✓ Patented IDC V-shaped contacts that flex (not fatigue) when terminated.
- ✓ Features pointed IDC towers to speed termination and enhance cable retention.
- ✓ Dual color-coding allows for 568 A/B wiring configuration.
- ✓ Front and rear port labeling (port sequence 1–48) as well as panel identification label.
- ✓ 4 x 6 ganged jack configuration.
- ✓ Individually removable patch panel ports.
- ✓ Removable cable management shelves ensure bend radius compliance.
- ✓ Can be terminated using industry standard punch-down tools.
- ✓ RJ45 port which is RJ-11 compatible.
- ✓ Molded category identification on each port face as well as optional port identification icons.

General Properties

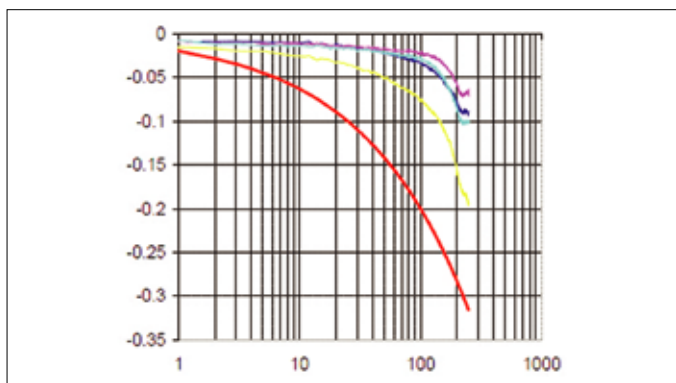|	
Wire size range	22 to 24 AWG, Solid conductors.
Material of construction	CRS (Cold rolled steel), 1.5mm thickness.
Paint and standard color	Black or Grey.
Plastic parts	High impact, Flame-retardant plastic compound, UL 94 V-0.
Housing material - Jack & IDC	High impact FR plastic rated UL 94 V-0.
Jack spring contact	Phosphor Bronze with 50G" hard Gold over 100G" Nickel plating
Plug Retention Force	50N min.
Plug to jack contact force	100 grams min. (using HCS approved plug).
IDC terminations cycles	200 min.
IDC type	Gas tight
Plug insertion durability	750 mating cycles
Storage temperature range	-40 to +70C
Operation conditions	-20 to +60C at 0-90% RH (Non condensing)
Packaging	One unit per box.

Category 6E Unshielded RJ-45 Copper Angled Patch Panels (Jacks)

Transmission and Electrical Specifications

FREQ.	Insertion Loss	NEXT	FEXT	RL
MHz	dB	dB	dB	dB
	Maks	Min	Min	Min
1.00	0.02	85.0	84.0	53.0
4.00	0.02	81.0	75.0	54.0
8.00	0.02	78.0	70.0	56.0
10.00	0.03	77.0	68.0	57.0
16.00	0.03	73.0	58.0	58.0
25.00	0.04	70.0	60.1	60.0
31.25	0.04	68.0	59.0	57.0
62.50	0.05	64.0	53.0	44.0
100.00	0.06	60.0	49.0	34.0
200.00	0.06	55.0	43.0	23.0
250.00	0.08	52.0	41.0	20.0

Typical De-Embedded Return-Loss
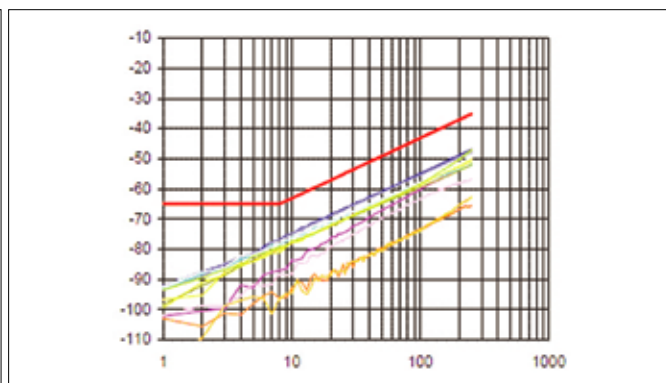

Propagation Delay	2.5 nS max @ 1-250 MHz
Propagation Delay Skew	1.25 nS max @ 1-250 MHz
Current rating	1.5 A max.
Contact resistance	20 mOhm max (per contact) Initial Contact resistance: 2.5 mOhm.
Input/Output resistance	200 mOhm max
Input/Output resistance Unbalance	50 mOhm max
Voltage rating	72 Vdc max
Dielectric strength	1000 Volts rms for 1 minute
Insulation Resistance	100 MegaOhm min @ 500 Vdc
DC Resistance	0.1 Ohm max @ 20C
TCL	28-20·Log(f/100) dB min @ 1-250 MHz
Transfer Impedance	N/A

Typical De-Embedded Insertion-Loss

Typical De-Embedded FEXT-Loss

Ordering Information

HCS P/N	Description	Blocks	Units	Size		T568
				mm	Inch	
P6E-02404-1U	24 port RJ-45 Unshielded Angled CAT 6E 19" Patch Panel 110 IDC	1U	44.5x483	1.75x19	UNI
P6E-04804-2U	48 port RJ-45 Unshielded Angled CAT 6E 19" Patch Panel 110 IDC	2U	89x483	3.5x19	UNI

Blank Keystone-Jack Copper Patch Panels
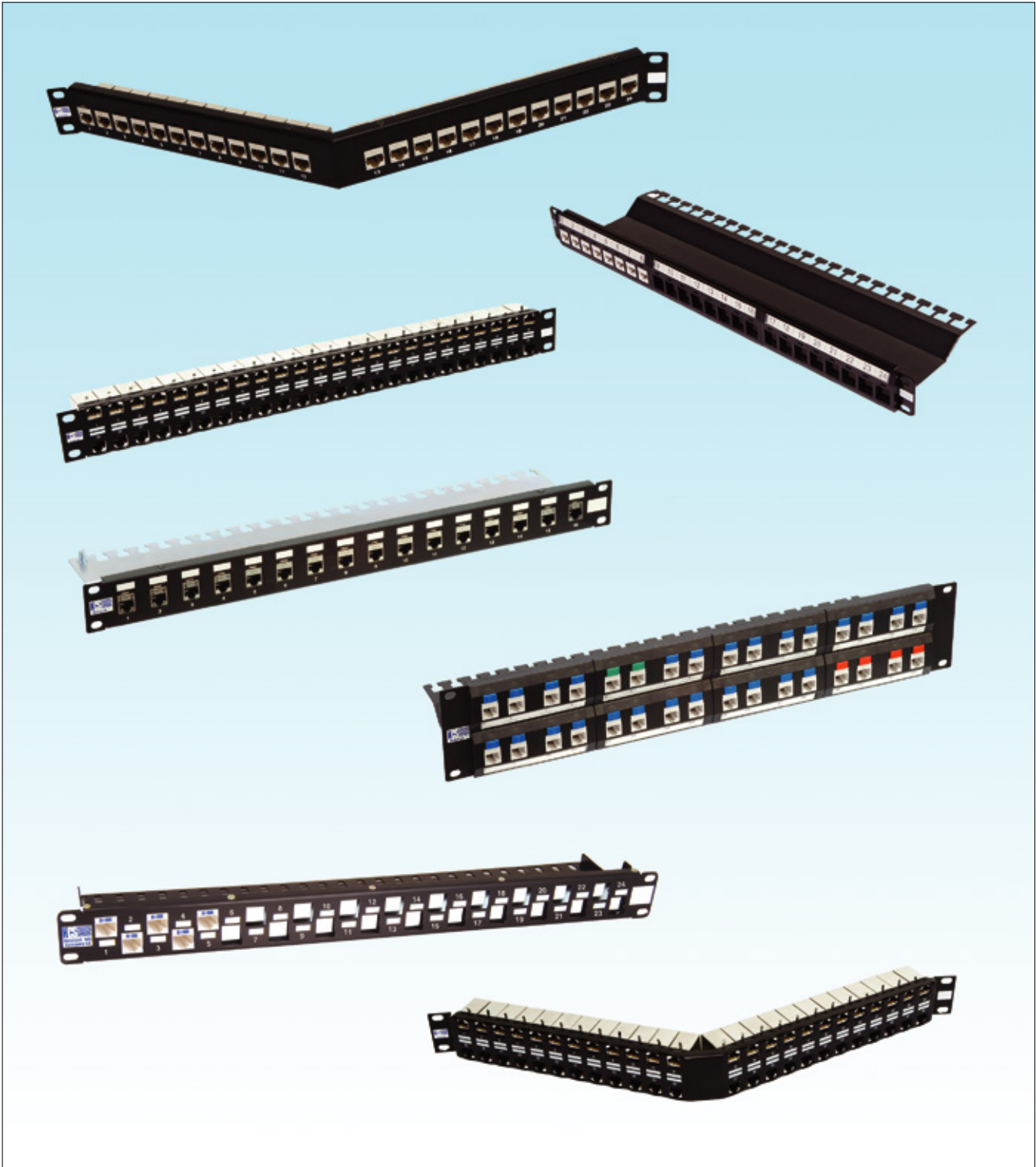
Description

HCS DataLink Blank RJ-45 Keystone-Jack Copper Patch Panels series includes high quality empty multi-port panels specially designed for structured premise cabling in local area networks (LANs).

HCS DataLink blank panels are available with plastic or metal frames, with up to 48 ports and with standard or staggered form.

The plastic-frame panels are recommended for use with unshielded jacks, while the metal-frame panels are recommended for use with shielded jacks, in order to provide continuous ground connection even when non-shielded cords are used.

The HCS Logo and the DataLink Trademark ensure long lasting high-performance and full compatibilty with all HCS components.

Applications

Installation of copper cabling systems in horizontal or vertical environments.

Blank Keystone-Jack Copper Patch Panels

Benefits & Features

✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
✓ Integrated full installation accessories (supplied free of charge), including labels and icons, clip organizers and T-raps- providing a simple and elegant cable termination and identification.
✓ Optional plastic front panels - providing custom color selection.
✓ Detailed installation manual in English and Turkish - providing clear and comprehensive instructions.
✓ Optional back-side cable management with clip organizer and trap connection - providing simple and easy cable handling.
✓ High quality metal casing - providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
✓ Robust and installer-friendly design - providing reduced installation and operating costs
✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

General Properties

Material of construction - Metal Frame	Steel, Aluminum, Aluminum Alloy or Anodized Aluminum.
Paint and Color - Metal Frame	Powder paint finish, Black (Grey available upon request)
Connector module holder	High impact, Flame-retardant plastic compound, UL 94 V-0.
Material of construction - Plastic Frame	High impact, Flame-retardant plastic compound, UL 94 V-0.
Packaging	One unit per box.
Environmental conditions	-40 to +60C at 0-90% RH (Non condensing)
Storage Temperature	-20 to +80C
Non Halogen constructions	Available upon request.

Ordering Information

HCS P/N	Description	Units	Jack Compatibilty		Size	
			Unshielded	Shielded	mm	Inch
P00-01610-1U	16 port Keystone Jack Boş 19" Plastik Patch Panel	1u	Evet	Hayır	44.5x483	1.75x19
P00-01620-1U	16 port Keystone Jack Boş 19" Metal Patch Panel	1u	Evet	Evet	44.5x483	1.75x19
P00-02410-1U	24 port Keystone Jack Boş 19" Plastik Patch Panel	1u	Evet	Hayır	44.5x483	1.75x19
P00-02420-1U	24 port Keystone Jack Boş 19" Metal Patch Panel	1u	Evet	Evet	44.5x483	1.75x19
P00-02430-1U	24 port Keystone Jack Boş 19" Metal Patch Panel	1u	Evet	Hayır	44.5x483	1.75x19
P00-02450-1U	24 port Keystone Jack Boş 19" Metal Patch Panel	1u	Evet	Hayır	44.5x483	1.75x19
P00-02460-1U	24 port Keystone Jack Boş 19" Açılı Metal Patch Panel	1u	Evet	Hayır	44.5x483	1.75x19
P00-02470-1U	24 port Keystone Jack Boş 19" Açılı Metal Patch Panel	1u	Evet	Evet	44.5x483	1.75x19
P00-03210-2U	32 port Keystone Jack Boş 19" Plastik Patch Panel	2u	Evet	Hayır	89x483	3.5x19
P00-04810-2U	48 port Keystone Jack Boş 19" Plastik Patch Panel	2u	Evet	Hayır	89x483	3.5x19
P00-04810-1U	48 port Keystone Jack Boş 19" Plastik Patch Panel	1u	Evet	Hayır	44.5x483	1.75x19
P00-04820-1U	48 port Keystone Jack Boş 19" Plastik Patch Panel	1u	Evet	Evet	44.5x483	1.75x19
P00-04860-1U	48 port Keystone Jack Boş 19" Açılı Metal Patch Panel	1u	Evet	Hayır	44.5x483	1.75x19
P00-04870-1U	48 port Keystone Jack Boş 19" Açılı Metal Patch Panel	1u	Evet	Evet	44.5x483	1.75x19

Augmented Category 6 Cable Assemblies

Description

HCS DataLink 500A cable assemblies consist of custom-made LS0H pre-terminated 100 Ohm 4-pair LAN cables bundled together, designed for fast and easy installation in data-centers and other high-density locations.Full conformance to TIA-568-C Category 6A and ISO/IEC 11801 Class EA is guaranteed by the selection of Category 6A officially verified components and by 100% testing of each permanent link inside the bundle prior to shipment. HCS DataLink 500A cable assemblies are bundled with special halogen-free and flame-retardant semi-loose sleeves providing limp and easy-tobend, re-shapeable bundles, which are ideal for tight places and high-density locations. The bundles are marked on both sides with numbered labels for fast and easy identification. HCS DataLink 500A cable assemblies are available in shielded or unshielded versions, in lengths ranging from 5 to 90 meters and with Category 6A, Category 7 or Category 7A cables and are in full compliance with TIA-942, ISO/IEC 24764 and EN 50173-5. The standard cable jacket color is gray (RAL 7035) but other colors available upon request.

Applications

HCS DataLink 500A cable assemblies support all presently available LAN applications, including the following protocols:

- 10GBASE-T 10 Gigabit Ethernet
- 1000BASE-T 1 Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T "Fast Ethernet"
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps

- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Qualifications and Approvals

HCS DataLink 500A Cable assemblies are 100% tested and verified for full compliance with the following standards:

- ❏ Augmented Category 6 Permanent Link according to ANSI/TIA-568-C.2
- ❏ Class EA Permanent Link according to ISO/IEC-11801 (2nd Edition)
- ❏ Class EA Permanent Link according to CENELEC EN 50173.

Benefits & Features

- ✓ Testing every assembly prior to shipment -providing the highest degree of quality assurance.
- ✓ Custom-made designs -providing the exact assembly needed for every job and location.
- ✓ Unique LS0H sleeves -providing limp, easy to re-shape and install assemblies, ideal for data-centers.
- ✓ Exceptional material properties and cable design -providing the highest degree of reliability.
- ✓ High Return Loss and NEXT Loss values -providing low BER (Bit-Error-Rate) in all applications.
- ✓ Extremely high pair-balance and overall cable shield -providing excellent alien crosstalk loss and noise immunity.
- ✓ Revolutionary pair lay scheme -providing an extremely low delay skew.
- ✓ All Category 6A verified components -providing full backward compatibility and interoperability.
- ✓ 100% LS0H assemblies -providing safe usage in high-density and closed location.
- ✓ Unique DoubleSafe™ Quality Assurance Program providing lowest rejection rate available.

Physical and Mechanical Properties

Horizontal CAT 6A, CAT 7 or CAT 7A cables terminated with shielded or unshielded keystone jacks conforming to IEC 60603-7-5.

|	
Basic Cable Conductor	Solid bare annealed copper
Wire Insulation Polyolefin Number of insulated conductors	8, twisted in 4 pairs.
Outer Jacket	LS0H Halogen free flame retardant compound.
Standard Jacket Color	Light Gray RAL 7035. Other colors available upon request.
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number.
Cable to jack tensile strength	1 Kgf (10N) min.
Pulling force	1 Kgf (10N) max.
Storage Temperature	-20 to +80C
Durability	750 mating cycles
Bend radius	8xD.
Temperature operating range	-20 to +60C
Flame Tests	IEC 60332-1 or IEC 60332-3-24 (flame), IEC 60754 (gas) & IEC 61034 (smoke)

Augmented Category 6 Cable Assemblies
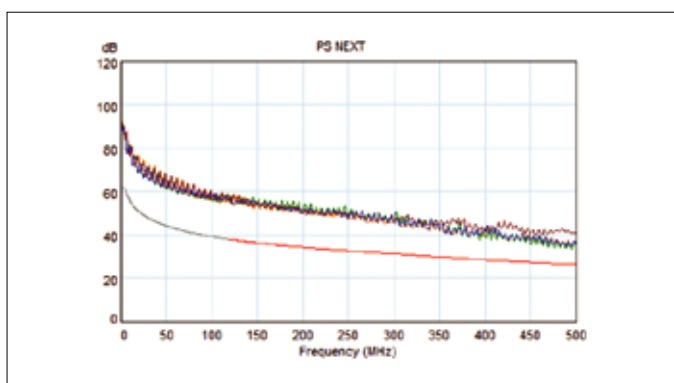
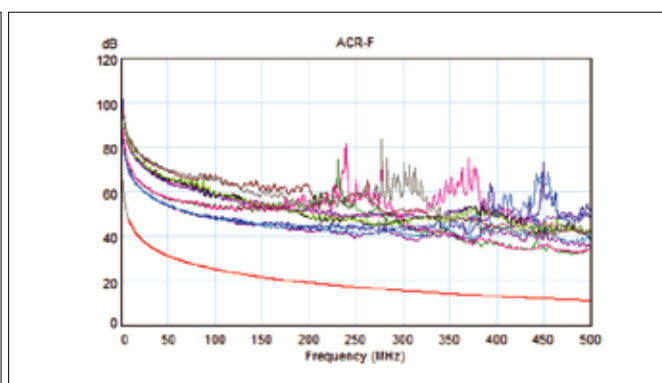## Typical Transmission Properties
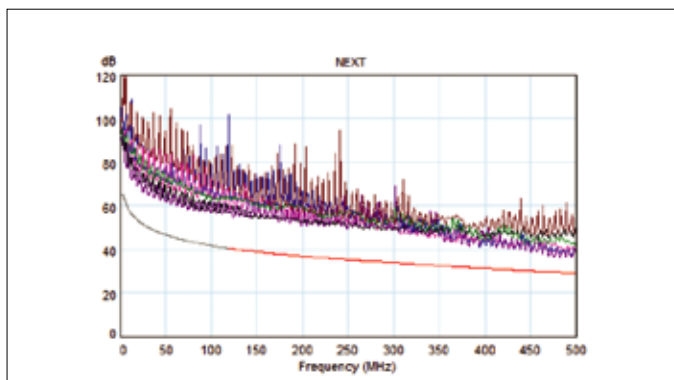
Typical NEXT Loss	Typical Return Loss
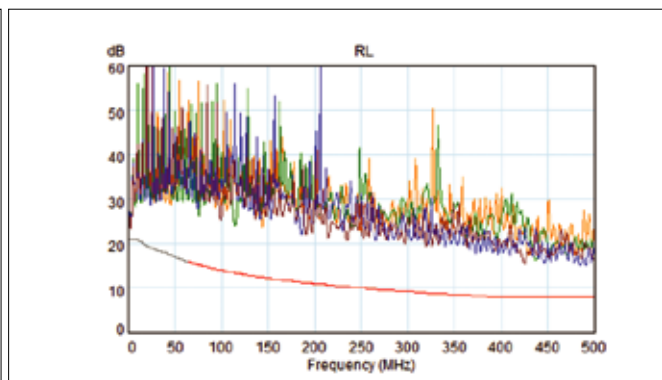
Typical PS-NEXT Loss	Typical ACR-F

Ordering Information

HCS P/N	Basic Cables	FR	Number of Cables	Length (m)	Shild
T6A-HNN3C-LLX	Pre-terminated 4x2x23# U/FTP or U/MRTP CAT 6A LSOH cables	A	NN	LL	S/U
T6A-HNN4C-LLX	Pre-terminated 4x2x23# S/FTP CAT 7 LSOH cables	A	NN	LL	S
T6A-HNN5C-LLX	Pre-terminated 4x2x22# S/FTP CAT 7A LSOH cables	A	NN	LL	S
T6A-HNN6C-LLX	Pre-terminated 4x2x23# U/FTP or U/MRTP CAT 6A LSOH cables	B	NN	LL	S/U
T6A-HNN7C-LLX	Pre-terminated 4x2x23# S/FTP CAT 7 LSOH cables	B	NN	LL	S
T6A-HNN8C-LLX	Pre-terminated 4x2x22# S/FTP CAT 7A LSOH cables	B	NN	LL	S

Examples					
T6A-HO63O-5OS	Pre-terminated 4x2x23# U/FTP CAT 6A LSOH, Grey cables	A	6	5	Yes
T6A-H126O-KOU	Pre-terminated 4x2x23# U/MRTP CAT 6A LSOH, Grey cables	B	12	9O	No
T6A-HO241-A5S	Pre-terminated 4x2x23# S/FTP CAT 7 LSOH, Blue cables	A	2	15	Yes
T6A-HO478-B8S	Pre-terminated 4x2x23# S/FTP CAT 7 LSOH, Yellow cables	B	4	28	Yes
T6A-H1253-C5S	Pre-terminated 4x2x22# S/FTP CAT 7A LSOH, Green cables	A	12	35	Yes
T6A-HO689-D8S	Pre-terminated 4x2x22# S/FTP CAT 7A LSOH, Purple cables	B	6	48	Yes

Standard color: Light Gray RAL 7035. To define other colors and constructions use the Modular Cords P/N System Table
A=IEC 60332-1 B=IEC 60332-3-24

Indoor/Outdoor Multi-Tight Distribution Fiber Optic Cables
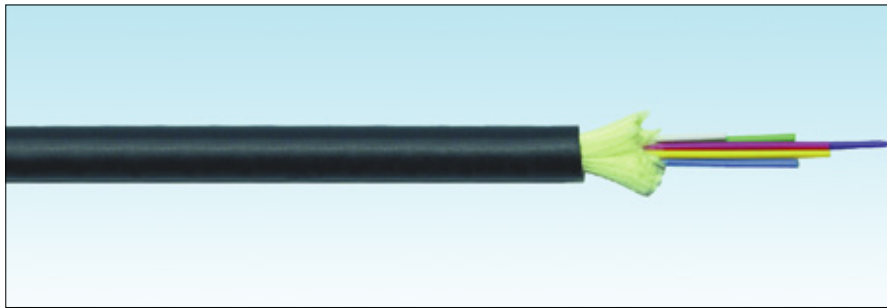
Description

HCS DataLight series includes a complete line of Local Area Network (LAN) fiberoptic cables for high transmission rates including voice, data and video.
All HCS DataLight cables are produced and rigorously tested to conform to most international standards.
HCS DataLight Indoor/Outdoor Multi-Tight-Distribution (MTD) cable series provides the ultimate solution for all types of installations and application.
These cables consist of 4-72 buffered fibers, cabled, served with water-blocking swellable aramid yarns and jacketed with black, UV resistant LS0H compound.
HCS DataLight cables fully conform to and provide a substantial margin above all relevant TIA/EIA and IEC standards.
Optional fibers available: Multimode 50/125 microns (OM2, OM3 & OM4), 62.5/125 microns and Singlemode fibers.

Applications

HCS DataLight cables can be used for various application including the following:

- General purpose all-dielectric indoor LAN cable
- Distribution to Riser cabling - direct connectorization
- In-building backbone and riser, optimized for Centralized Cabling (TIA TSB-72)
- Short distance distribution and trunking
- Office wiring

HCS DataLight cables support all presently available LAN applications, including the IEEE802.3z protocols for Gigabit Ethernet, 1000BASE-SX

(Short wavelength Gigabit Ethernet) 1000BASE-LX (Long wavelength Gigabit Ethernet) & IEEE 802.3ae 10GBASE-SR/SW 10GBASE-LX4 (10 Gigabit Ethernet).

Qualifications and Approvals

HCS DataLight Cables are tested and verified for full compliance with the following standards:

- ANSI/TIA/568-C.3
- IEC 60332-1
- CENELEC EN50173
- EIA/TIA-455
- ISO/IEC 11801 (2nd Edition)
- IEC 60754
- IEC 60793
- IEC 60794

Benefits & Features

- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ Tight or Semi-tight 900 microns buffered fibers - providing easy, fast and trouble-free termination and use of field-installable connectors.
- ✓ All-dielectric construction - providing perfect EMC (Electro Magnetic Compatibility) and total noise immunity.
- ✓ Halogen-free, flame retardant, UV and water resistant construction - providing a single cable suitable for all types of installations.
- ✓ Dry, jell-free longitudinal water blocking - providing easy and clean cable and fiber termination.
- ✓ Crisp and clear color coding - providing positive fiber identification and ease of termination.
- ✓ Descending sequential meter mark - providing easy stock and left-over handling.
- ✓ Smooth, limp and flexible jacket - providing easy and comfortable cable handling.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ A comprehensive product range - providing all state-of-the-art cable constructions.
- ✓ Unique DoubleSafe™ Quality Assurance Program   providing lowest rejection rate available.

Indoor/Outdoor Multi-Tight Distribution Fiber Optic Cables

Optional Constructions

HCS DataLight Indoor/Outdoor MTD Cables contain up to 72 color-coded, 0.9 mm tight or semi-tight buffer optical fibers.
In 4-24 fiber cables, all fibers are cabled together, reinforced by water-blocking swellable aramid strength yarns and protected with a flame-retardant, UV resistant LS0H Jacket.
36 and 72-fiber cables are made of 6-fiber sub units. 48 fiber cables are made of 4-fiber sub-units.
The cables fully comply with the EIA/TIA FOTP 82B longitudinal water-blocking test.

Basic Fiber	As selected from the FIBER OPTIONS Section
Buffer type	Tight or Semi-tight
Buffer material	PVC or LS0H Halogen free compound or acrylic
Buffer OD	900 microns nom
Strength elements	Served swellable aramid yarns, providing longitudinal water blocking
Number of fibers	4-72
Color Code	HCS Color Table No. 3 (IEC 60304 Color Code)
Outer Jacket	LS0H Halogen free and flame retardant compound
Standard Outer Jacket Color	Black RAL 9005. Other colors available upon request
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number
Max. Crush resistance	1000 N in 4-12 fiber cables. 3000 N in 24-72 fiber cables
Short Term Bend Radius	15xOD mm min.
Long Term Bend Radius	10xOD mm min.
Storage Temperature	-40 to +70 oC
Temperature operating range	-40 to +70 oC
Flame Test	UL 1581 VW-1 and IEC 60332-1.
Halogen content in LS0H cables	Null

Ordering Information

HCS P/N	Description	Buffer	OD mm	Tensile Strength N, Max.		Weight Kg/Km	Cal. Value Kj/m	Notes
				Short	Long			
MFO-00401	4 Fibers LS0H Black	Tight	4.9	960	550	25	460	
MFO-00402	4 Fibers LS0H Black	Semi-Tight	4.9	960	550	25	460	
MFO-00601	6 Fibers LS0H Black	Tight	5.8	960	550	34	650	
MFO-00602	6 Fibers LS0H Black	Semi-Tight	5.8	960	550	34	650	
MFO-00801	8 Fibers LS0H Black	Tight	6.2	1250	750	43	830	
MFO-00802	8 Fibers LS0H Black	Semi-Tight	6.2	1250	750	43	830	
MFO-01201	12 Fibers LS0H Black	Tight	7.4	1250	750	52	1000	
MFO-01202	12 Fibers LS0H Black	Semi-Tight	7.4	1250	750	52	1000	
MFO-02401	24 Fibers LS0H Black	Tight	10.3	1500	960	120	2000	
MFO-02402	24 Fibers LS0H Black	Semi-Tight	10.3	1500	960	120	2000	
MFO-03601	36 Fibers LS0H Black	Tight	19.7	1500	960	250	4000	
MFO-03602	36 Fibers LS0H Black	Semi-Tight	19.7	1500	960	250	4000	
MFO-04801	48 Fibers LS0H Black	Tight	18.9	1500	960	300	4800	
MFO-04802	48 Fibers LS0H Black	Semi-Tight	18.9	1500	960	300	4800	
MFO-07201	72 Fibers LS0H Black	Tight	26.3	1500	960	570	9000	
MFO-07202	72 Fibers LS0H Black	Semi-Tight	26.3	1500	960	570	9000	

Notes:
1. The "FO" in the P/N is replaced by the fiber designation selected from the FIBER OPTIONS Table.
2. Packaging options to be discussed with HCS Customer Service.
3. The standard jacket color is Black RAL 9005. Other colors available upon request.

Indoor/Outdoor Single Loose Tube Fiber Optic Cables

Description

HCS DataLight series includes a complete line of Local Area Network (LAN) fiberoptic cables for high transmission rates including voice, data and video.
All HCS DataLight cables are produced and rigorously tested to conform to most international standards.
HCS DataLight Indoor/Outdoor Single Loose Tube (SLT) cable series provides outstanding all-dielectric design for both indoor and outdoor installations in harsh conditions.
These cables consist of 2-12 color-coded bare fibers (250 microns OD), contained in a single jell-filled loose tube, overall served with water-blocking swellable aramid yarns or glass yarn and jacketed with black, UV resistant PE or LS0H compound.
HCS DataLight cables fully conform to and provide a substantial margin above all relevant TIA/EIA and IEC standards.
Optional fibers available: Multimode 50/125 microns (OM2, OM3 & OM4), 62.5/125 microns and Singlemode fibers.

Applications

HCS DataLight cables can be used for various application including the following:

- General purpose outdoor LAN cable
- Campus backbone cable
- Campus distribution cable

HCS DataLight cables support all presently available LAN applications, including the IEEE802.3z protocols for Gigabit Ethernet, 1000BASE-SX (Short wavelength Gigabit Ethernet) 1000BASE-LX (Long wavelength Gigabit Ethernet) & IEEE 802.3ae 10GBASE-SR/SW 10GBASE-LX4 (10 Gigabit Ethernet).

Qualifications and Approvals

HCS DataLight Cables are tested and verified for full compliance with the following standards:

- ANSI/TIA/568-C.3
- IEC 60332-1
- CENELEC EN50173
- EIA/TIA-455
- ISO/IEC 11801 (2nd Edition)
- IEC 60754
- IEC 60793
- IEC 60794

Benefits & Features

- Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- UV, LS0H and water resistant optional constructions - providing a single cable suitable for indoor and outdoor locations.
- All-dielectric construction - providing perfect EMC (Electro Magnetic Compatibility) and total noise immunity.
- Crisp and clear color coding - providing positive fiber identification and ease of termination.
- Descending sequential meter mark - providing easy stock and left-over handling.
- Batch number printed every meter - providing fast retrieval of test results from data-base.
- A comprehensive product range - providing all state-of-the-art cable constructions.
- Unique DoubleSafe™ Quality Assurance Program providing lowest rejection rate available.

Indoor/Outdoor Single Loose Tube Fiber Optic Cables

Optional Constructions

HCS DataLight Indoor/Outdoor SLT Cables contain up to 12 color-coded, 250 micron bare optical fibers.
All fibers are contained in a single jell-filled loose tube, overall served with water-blocking swellable aramid yarns and jacketed with black, UV resistant LS0H or PE compound.
The cables fully comply with the EIA/TIA FOTP 82B and IEC 794-1-F5 longitudinal water-blocking tests.

|	
Basic Fiber	As selected from the FIBER OPTIONS Section
Buffer type	None. (Bare, color-coded fibers)
Fibers OD	250 microns nom
Loose tube	Single, filled with a Thixotropic gel
Strength elements over the loose tube	Served swellable aramid or glass yarns, providing longitudinal water blocking
Number of fibers	2-12
Color Code	HCS Color Table No. 3 (ANSI/TIA/EIA-598-A Color Code)
Outer Jacket	Heavy duty, UV Resistant LS0H or PE compound
Cable OD	7.0 mm nom.
Standard Outer Jacket Color	Black RAL 9005. Other colors available upon request
Standard Surface Marking	Includes HCS P/N, cable description, Meter mark and Batch Number
Cable weight	38 Kg/Km nom
Max. Tensile Load - Short term	1000 N
Max. Tensile Load - Long term	500 N
Min. Bending Radius - Short term	140 mm
Min. Bending Radius - Long term	70 mm
Max. Crush resistance	2000 N
Water penetration	3m max @ 24h
Storage Temperature	-40 to +70 oC
Temperature operating range	-40 to +70 oC
Caloric Value:	800 Kj/m nom.
Halogen Content	Null

Ordering Information

HCS P/N	Description	Notes
SFO-00201	2 Fibers All Dielectric LS0H Indoor/Outdoor SLT Black	
SFO-00202	2 Fibers All Dielectric Indoor/Outdoor SLT Black	
SFO-00401	4 Fibers All Dielectric LS0H Indoor/Outdoor SLT Black	
SFO-00402	4 Fibers All Dielectric Indoor/Outdoor SLT Black	
SFO-00601	6 Fibers All Dielectric LS0H Indoor/Outdoor SLT Black	
SFO-00602	6 Fibers All Dielectric Indoor/Outdoor SLT Black	
SFO-00801	8 Fibers All Dielectric LS0H Indoor/Outdoor SLT Black	
SFO-00802	8 Fibers All Dielectric Indoor/Outdoor SLT Black	
SFO-01001	10 Fibers All Dielectric LS0H Indoor/Outdoor SLT Black	
SFO-01002	10 Fibers All Dielectric Indoor/Outdoor SLT Black	
SFO-01201	12 Fibers All Dielectric LS0H Indoor/Outdoor SLT Black	
SFO-01202	12 Fibers All Dielectric Indoor/Outdoor SLT Black	

Notes:
1. The "FO" in the P/N is replaced by the fiber designation selected from the FIBER OPTIONS Table.
2. Packaging options to be discussed with HCS Customer Service.
3. The standard jacket color is Black RAL 9005. Other colors available upon request.

Data Center

Indoor/Outdoor Dielectric Dry-Core Multi-Loose Tube FiberOptic Cables
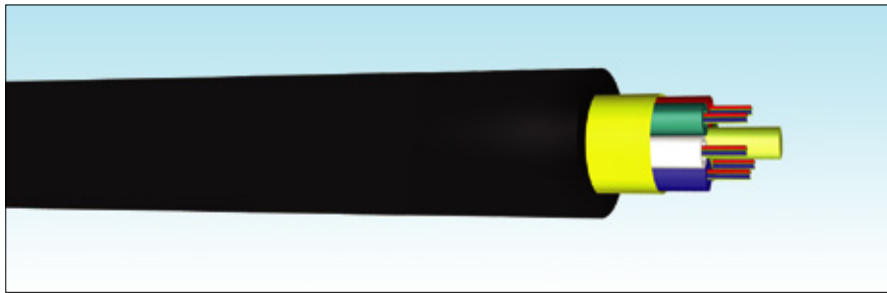
Description

HCS DataLight series includes a complete line of Local Area Network (LAN) fiberoptic cables for high transmission rates including voice, data and video.

All HCS DataLight cables are produced and rigorously tested to conform to most international standards.

HCS DataLight Indoor/Outdoor Multi-Loose Tube (MLT) cable series provides outstanding all-dielectric design for indoor and outdoor installations in harsh conditions. These cables consist of 4-288 color-coded bare fibers (250 microns) in up to 24 jell-filled loose tubes.

The loose tubes are cabled concentrically around an all dielectric central strength member, water swellable yarns placed between tubes and tubes are wrapped with swellable tape and jacketed with black, UV resistant LS0H compound.

HCS DataLight cables fully conform to and provide a substantial margin above all relevant TIA/EIA and IEC standards.

Optional fibers available: Multimode 50/125 microns (OM2, OM3 & OM4), 62.5/125 microns and Singlemode fibers.

Applications

HCS DataLight cables can be used for various application including the following:

- Long haul outside plant telephone, CATV and data-transmission cable
- Direct burial and duct installation cable
- Campus distribution cable

HCS DataLight cables support all presently available LAN applications, including the IEEE802.3z protocols for Gigabit Ethernet, 1000BASE-SX

(Short wavelength Gigabit Ethernet) 1000BASE-LX (Long wavelength Gigabit Ethernet) &IEEE 802.3ae 10GBASE-SR/SW 10GBASE-LX4 (10 Gigabit

Ethernet).

Qualifications and Approvals

HCS DataLight Cables are tested and verified for full compliance with the following standards:

- ANSI/TIA-568-C.3
- IEC 60332-1
- CENELEC EN50173
- EIA/TIA-455
- ISO/IEC 11801 (2nd Edition)
- IEC 60754
- IEC 60793
- IEC 60794

Benefits & Features

- ✓ Exceptional material properties and cable design - providing a unique Century™ Lifetime Warranty.
- ✓ UV and water resistant construction - providing a single cable suitable for many outdoor locations.
- ✓ All-dielectric construction - providing perfect EMC (Electro Magnetic Compatibility) and total noise immunity.
- ✓ Crisp and clear color coding - providing positive fiber identification and ease of termination.
- ✓ Descending sequential meter mark - providing easy stock and left-over handling.
- ✓ Batch number printed every meter - providing fast retrieval of test results from data-base.
- ✓ A comprehensive product range - providing all state-of-the-art cable constructions.
- ✓ Unique DoubleSafe™ Quality Assurance Program providing lowest rejection rate available.

Indoor/Outdoor Dielectric Dry-Core Multi-Loose Tube FiberOptic Cables

Cables Optional Constructions

HCS DataLight Outdoor MLT Cables contain up to 288 color-coded, 250 micron bare optical fibers.

4-12 color-coded bare fibers are contained in each jell-filled loose tube.

All loose tubes are cabled (with fillers as needed to preserve the cable geometry) around a solid, all dielectric central strength member and the water blocking yarns are placed between tubes.

The cable core is water blocking tape-wrapped and jacketed with black, UV resistant LS0H compound.

The cables fully comply with the EIA/TIA FOTP 82B and IEC 60794-1-F5 longitudinal water-blocking tests.

|	
Basic Fiber :	As selected from the FIBER OPTIONS Section.
Buffer type:	None. (Bare, color-coded fibers).
Fibers OD:	250 microns nom.
Loose tubes:	1-24, filled with a Thixotropic gel.
Central strength member:	Rigid, all-dielectric FRP.
Number of fibers:	4-288.
Color Code inside each tube:	Color Table No. 4: ANSI/TIA/EIA-598-A Color Code)
Color Code of loose tubes:	Per request.
Core filling:	Dry, water blocking yarns.
Core wrap:	Water blocking tape, providing 100% coverage.
Outer Jacket:	LS0H compound.
Standard Outer Jacket Color :	Black RAL 9005. Other colors available upon request.
Standard Surface Marking :	Includes HCS P/N, cable description, Meter mark and Batch Number.
Max. Tensile Strength - Short term	2500 N.
Max. Tensile Strength - Long term	1300 N.
Min. Bending Radius - Short term	20xCable OD
Min. Bending Radius - Long term	10xCable OD
Repeated bending:	100 Cycles min.
Crush Resistance	2200 N
Storage Temperature :	-50 to +70C
Temperature operating range :	-40 to +70C

Ordering Information

HCS P/N	Description	Tube	Fiber/Tube	OD mm	Weight Kg/Km	Notes
QFO-00411	4 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	1	4	11	115	
QFO-00611	6 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	3	2	11	115	
QFO-00811	8 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	2	4	11	115	
QFO-01211	12 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	3	4	11	115	
QFO-02411	24 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	6	4	11	118	
QFO-04811	48 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	4	12	11.6	130	
QFO-07211	72 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	6	12	11.6	132	
QFO-09611	96 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	8	12	13.5	160	
QFO-14411	144 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	12	12	17	255	
QFO-28811	288 Fibers All Dielectric Dry Core Indoor/Outdoor MLT Black	9+15	12	19.6	330	

Notes:
1. The "FO" in the P/N is replaced by the fiber designation selected from the FIBER OPTIONS Table.
2. Packaging options to be discussed with HCS Customer Service.
3. The standard jacket color is Black RAL 9005. Other colors available upon request.
4. Outer jacket is available LS0H. This option can be discussed with HCS Customer Service.

Fiber Optic Patch Cords and Pigtails
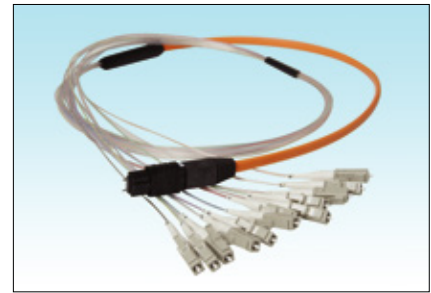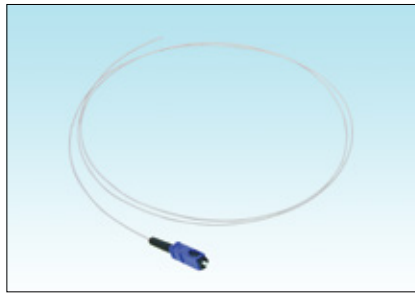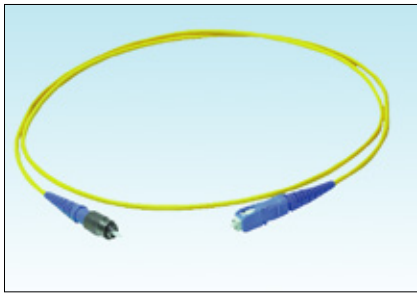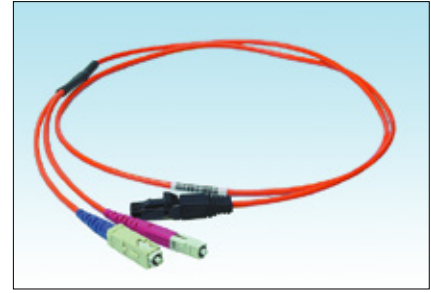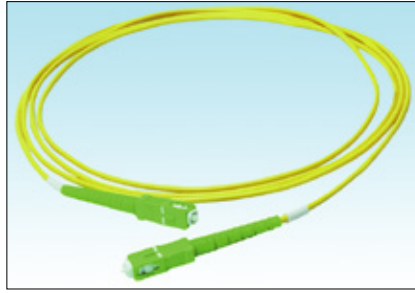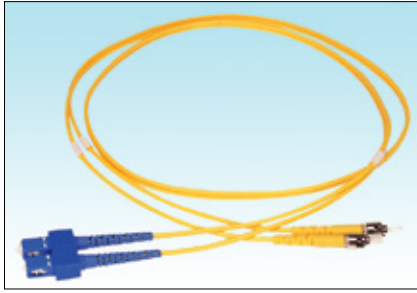
Description

HCS DataLight Patch Cords and Pigtails series provides a full range of high quality assemblies, supporting all state-of-the-art connectors types, including ST, SC, SC/APC FC, FC/APC, LC and MPO. Other types, such as SMA, FDDI, and VF-45 are available upon request.

HCS DataLight Patch Cords and Pigtails are available with all fiber types including Singlemode 9/125 microns, Multimode 50/125 microns (OM2, OM3 and OM4) and Multimode 62.5/125 microns fibers in any length required.

HCS DataLight Patch Cords and Pigtails are available with different buffer and jacket types and colors, including bare fibers (250 microns), tight buffers (900 microns) or jacketed minicables in Simplex or Duplex (Zip-cord) constructions.

HCS DataLight Patch Cords and Pigtails can be custom-made with breakout or MTD cables in multi-fiber constructions.

HCS DataLight Patch Cords and Pigtails comply with both major industry standards, ANSI/TIA/568-C.3 (Optical Fiber Cabling Components Standard) and IEC 60874 (Connectors for optical fibers and cables) and they are supported by the DoubleSafe™ QA program as a part of complete HCS cabling system.

Applications

- FiberOptic cross connect, patch panels, and distribution point connection.
- ODF connections.
- Fiber to the desk connection.
- Active FiberOptic equipment connection.

Qualifications and Approvals

HCS DataLight components are supported by the DoubleSafe™ QA program as a part of complete HCS cabling system and comply to ANSI/TIA/EIA-568-B.3 (Optical Fiber Cabling Components Standard) and IEC 60874 (Connectors for optical fibers and cables).

Benefits & Features

- ✓ Full compliance to industry standards - providing high quality components.
- ✓ Available with all major fiber types - providing a wide range of products.
- ✓ Available with all major connector types, including hybrid constructions - providing a wide range of products.
- ✓ Available in 12 different colors - providing a better compatibility and a wider selection range.
- ✓ Robust design - providing low rejection and replacement rates.
- ✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

Technical Specifications - Connectors

Connector Type / Connector Part	SC	SC/APC	ST	FC	FC/APC	MT-RJ	LC	MPO
Connector Housing	Thermoplastic	Thermoplastic	Thermoplastic Nickel Plated Zinc	Nickel Plated Zinc	Nickel Plated Zinc	Thermoplastic	Thermoplastic	Polybutylene Terephthalate
Connector Ferrule	Zirconia Ceramic	Zirconia Ceramic	Zirconia Ceramic	Zirconia Ceramic	Zirconia Ceramic	Thermoplastic	Ceramic	PPS
SM Hizalama Aparatı	Zirkon Seramik	Zirkon Seramik	Zirkon Seramik	Zirkon Seramik	Zirkon Seramik	-	Seramik	NS
MM Hizalama Aparatı	Zirkon Seramik	-	Metal	Zirkon Seramik	-	-	Seramik	NS
Boot	Polyester	Polyester	Polyester	Polyester	Polyester	Polyester	Polyester	Silicone
SM Backbone	Aluminum	Aluminum	Zinc Alloy	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
MM Backbone	Aluminum	-	Zinc Alloy	Aluminum	-	Aluminum	Aluminum	Aluminum
Flame Test	UL-94 V-0	UL-94 V-0	UL-94 V-0	UL-94 V-0	UL-94 V-0	UL-94 V-0	UL-94 V-0	UL-94 V-0

Note: MM=Multimode, 50/125 and 62.5/125 microns fibers. SM=Singlemode 9/125 microns fibers.

Fiber Optic Patch Cords and Pigtails

Technical Specifications - Transmission Properties

Connector Type Properties	SC	SC/APC	ST	FC	FC/APC	MT-RJ	LC	MPO
SM Attenuation @ 1300nm	Mean: 0.2 dB Sigma: 0.1 dB	Mean: 0.2 dB Sigma: 0.1 dB	Mean: 0.2 dB Sigma: 0.1 dB	Mean: 0.2 dB Sigma: 0.1 dB	Mean: 0.2 dB Sigma: 0.1 dB	Mean: 0.2 dB Sigma: 0.1 dB	Mean: 0.2 dB Sigma: 0.1 dB	Mean:0.35 dB Sigma: 0.12dB
MM Attenuation @ 1300nm	Mean: 0.15 dB Sigma: 0.05 dB	-	Mean: 0.15 dB Sigma: 0.05 dB	Mean: 0.15 dB Sigma: 0.05 dB	-	Mean: 0.15 dB Sigma: 0.05 dB	Mean: 0.15 dB Sigma: 0.05 dB	Mean:0.35 dB Sigma: 0.12 dB
SM Return Loss	Min: 50 dB Mean: 58 dB	Min: 65 dB Mean: 80 dB	Min: 50 dB Mean: 58 dB	Min: 50 dB Mean: 58 dB	Min: 65 dB Mean: 80 dB	Min: 50 dB Mean: 58 dB	Min: 50 dB Mean: 58 dB	Min:55 dB Mean: 60dB
MM Return Loss	Min: 25 dB D Max: 0.2 dB	-	Min: 25 dB Mean: 27 dB	Min: 25 dB Mean: 27 dB	-	Min: 25 dB D Max: 0.2 dB	Min: 25 dB D Max: 0.2 dB	Min:25 dB D Max:0.2 dB
SM Connection Dur.	D Max: 0.2 dB	D Max: 0.2 dB	D Max: 0.1 dB	D Max: 0.2 dB	D Max: 0.2 dB	D Max: 0.2 dB	D Max: 0.2 dB	D Max:0.2 dB
MM Connection Dur.	D Max: 0.2 dB	-	D Max: 0.2 dB	D Max: 0.2 dB	-	D Max: 0.2 dB	D Max: 0.2 dB	D Max:0.2 dB
SM Mating cycles	500	500	500	500	500	500	500	500
MM Mating cycles	500	-	500	500	-	500	500	400
Temp. Range	-40 to +85C	-40 to +85C	-40 to +85C	-40 to +85C	-40 to +85C	-40 to +85C	-40 to +85C	-40 to +85C

Durability Tests - Maximum Attenuation Increase After Test

Connector Type Test	SC	SC/APC	ST	FC	FC/APC	MT-RJ	LC	Notes
Temperature Cycling: -40 to +85C	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	10 cycles
High Temp. Endurance: +85°C	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	96 hours
Low Temp. Endurance: -40°C	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	96 hours
High Humidity Endurance: %95 RH @ +40°C	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	96 hours
Vibration Endurance: 10-55 Hz, 1.5 mm.	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	P to P
Tensile Endurance: 0-10 Kgf @ 1 min.	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	
Connection Durability: 1000 cycles	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.2 dB	

P/N System - Terminated Modular Fiber Optic Cords

Basic P/N						Length	
T	NN	X		NN	AB	-	XY
T	Tranmission Medium	Cable Type & OD (mm)		Color	Connectors	-	dm
	Note 1				Note 2		

#	NN Transmission Medium (Note 1)		#	Cable	OD	Color	Connectors (Note 2)	Length
51	50/125 FO standard grade		A	Bare fiber	0.25	00 = Natural	1 = ST	nn=dm
52	50/125 FO premium grade		B	Tight-Buffered Fiber	0.9	01 = Blue	2 = SC	An=10m+
53	50/125 FO patch cord grade		C	Simplex PVC	1.6	02 = Orange	3 = SC/APC	Bn=20m+
54	50/125 FO 10GBE grade		E	Simplex LS0H	1.6	03 = Green	4 = FC	Cn=30m+
55	50/125 FO Modified 10 GBE grade (150m.)		G	Simplexs PVC	2.0	04 = Brown	5 = FC/APC	Dn=40m+
56	50/125 FO Modified 10 GBE grade (600m.)		K	Simplex LS0H	2.0	05 = Gray	6 = MT-RJ	En=50m+
61	62.5/125 FO standard grade		M	Duplex zip PVC	1.6x3.3	06 = White	7 = FDDI	Fn=60m+
62	62.5/125 FO premium grade		P	Duplex zip LS0H	1.6x3.3	07 = Red	8 = LC	Gn=70m+
63	62.5/125 FO patch cord grade		R	Duplex zip PVC	2.0x4.1	08 = Black	9 = VF-45	Hn=80m+
91	Singlemode FO standard grade		T	Duplexs zip LS0H	2.0x4.1	09 = Yellow	A=MPO 4F - Female	Kn=90m+
92	Singlemode FO premium grade		V	Duplex zip LS0H + 2x28 AWG TC Cables	2.0x4.1	10 = Violet	B=MPO 6F - Female	
93	Singlemode FO ITU-T G.652					11 = Aqua	C=MPO 8F - Female	
94	Singlemode FO ITU-T G.652D		**X** Cable Type & OD (mm)			**NN** Fiber Count	D=MPO 12F -Female	
95	Singlemode FO ITU-T G.655		D	Bare Ribbon LS0H cable		NN	E=MPO 4F - Male	
96	Singlemode FO ITU-T G.656		F	Jacketed Ribbon LS0H cable		NN	F=MPO 6F - Male	
97	Singlemode FO ITU-T G.657		H	Ruggedized (Trunk) LS0H cable		NN	G=MPO 8F - Male	
			N	İndoor LS0H MTD cable		NN	H=MPO 12F -Male	
							J=MT-RJ -Male	
							K=LC-Duplex+Comm.Pin	
							L=SC-Duplex+Comm.Pin	

Example 1: T63-M0512-30 =>3 meters cord made of a 3.0 mm OD Duplex gray PVC Zip-minicable with tight coated 62.5/125 microns Patch Cord Grade fibers terminated on side A with ST connectors and on side B with SC connectors.

Example 2: T91-A0040-15 =>1.5 meters pigtail made of a 250 microns OD bare 9/125 microns Standard Grade fiber (not colored) terminated on one side with FC connector.

Example 3: T54-F12HH-B6 => 26 meters cord made of a 12x50/125✂ OM3 fibers Ribbon LS0H cable terminated on both sides with Male MPO connectors.

Notes
1. Detailed cable specs can be found in the relevant catalog pages.
2. Detailed connector specs can be found in the relevant catalog pages.

Data Center

HCS

Fiberoptic Pre-Terminated 19" Patch Panels

Description

HCS DataLight Pre-Terminated Fiberoptic Patch Panel series provides a full range of pre-terminated fiber optic patch panels and fiber optic distribution points. HCS DataLight Pre-Terminated Fiber Optic Patch Panels accept 4 cassettes for the different front units. Each cassette consists of factory-terminated fiber optic patching in order to convert the MTP/MPO interface to a standard ST/FC/LC/SC/MT-RJ coupler. HCS DataLight Pre-Terminated Fiber Optic Patch Panels are ideal for mission-critical applications such as Data Centers and Storage Area Networks, where fast installation is a must and MACs are frequent. Factory-terminated optical cassettes ensure the best performance, promising true plug&play application. The robust cable management of the 1U Patch Panel enables up to 5 meters of extra cable to be stored within the panel for future move and change requirements. HCS DataLight patch panels are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling systems. The HCS Logo and the DataLight Trademark ensure long lasting high-performance and full support of all present and emerging applications

Applications

- Fiberoptic & copper distribution
- Fiber to desk applications
- Central Office equipment
- Data - Centers

Qualifications and Approvals

HCS DataLight panels are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling systems and comply with the following safety standards:

- ❏ UL94 V-0 rated plastic materials
- ❏ Zero-halogen in LS0H constructions.

Benefits & Features

- ✓ Interchangeable modular design for fiber connectors - Providing ultimate flexibility.
- ✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
- ✓ Integrated full installation accessories (supplied free of charge), including clip organizers and T-raps - providing a simple and elegant cable termination and identification.
- ✓ High density 1U 96 port design - providing a compact panel and economical space use.
- ✓ Pre-terminated cassettes - enables true plug&play performance.
- ✓ Top access into the panel - providing easy and comfortable cable management.
- ✓ Easy snap-in removable slack management accessories - providing simple and easy cable handling & storing up to 5 meters of ruggedized trunk ribbon Fiber Optic cable.
- ✓ Detailed installation manual in English and Turkish - providing clear and comprehensive instructions.
- ✓ Optional back-side cable management with clip organizer and trap connection - providing simple and easy cable handling.
- ✓ Robust and installer-friendly design - providing reduced installation and operating costs.
- ✓ Modular and expandable comprehensive product range - providing up to 96 ports in a single panel.
- ✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

Fiberoptic Pre-Terminated 19" Patch Panels

General Properties

Material of construction	Steel, Aluminum, Aluminum Alloy or Anodized Aluminum.
Paint and Color	Powder paint finish, Black (Grey available upon request)
Connector Capacity	12-24-48 and 96 ports
Pre-terminated panel back connection	12/24 fiber ribbon cable terminated with MPO connector
Cassette capacity	4
Modular front plates	4
Insertion loss (max)	MM 50,62.5 and SM:0.90 dB/casette. MM 50 OM3 and OM4 :0.75 dB/casette.
Environmental conditions	-40 to +60C at 0-90% RH (Non condensing)
Packaging	One unit per box.
Storage Temperature	-20 to +80C
Non Halogen constructions	Available upon request.

Ordering Information

HCS P/N	Description	Connectors	Ports	Units	Size mm / mm	Notes
PFO-20001-1U	DataLight Fiberoptic Blank Pre-terminated Panel, 19"	N/A	N/A	1u	44.4x480x400	-
PFO-2M121-1U	DataLight Pre-Terminated cassette, 12 ST to 1 MPO	ST & MPO	12	1u	44.4x480x400	-
PFO-2M122-1U	DataLight Pre-Terminated cassette, 12 SC to 1 MPO	SC & MPO	12	1u	44.4x480x400	-
PFO-2M123-1U	DataLight Pre-Terminated cassette, 12 FC to 1 MPO	FC & MPO	12	1u	44.4x480x400	-
PFO-2M124-1U	DataLight Pre-Terminated cassette, 12 MT-RJ to 1 MPO	MT-RJ & MPO	12	1u	44.4x480x400	-
PFO-2M125-1U	DataLight Pre-Terminated cassette, 12 LC to 1 MPO	LC & MPO	12	1u	44.4x480x400	-
PFO-2M245-1U	DataLight Pre-Terminated cassette, 24 LC to 2 MPO	LC & MPO	24	1u	44.4x480x400	-

The required fiber type (FO) may be selected from HCS Fiber Options table.

Data Center

HCS Data Center Çözümleri

Data Center

HCS

MPO Cable Assemblies

Description

HCS DataLight MPO Assemblies series contain a full range of high quality assemblies factory terminated with MPO connectors.
HCS DataLight MPO Assemblies are available with most fiber types including Singlemode 9/125 microns, Multimode 50/125 microns (OM2, OM3 and OM4) and Multimode 62.5/125 microns fibers in any length required.
The assemblies are available with different cable types and colors, including bare ribbon cables, jacketed ribbon cables, ruggedized (trunk) ribbon cables and indoor MTD cables, with 12 fibers.
HCS DataLight Patch Cords and Pigtails comply with both major industry standards, ANSI/TIA-568-C.3 (Optical Fiber Cabling Components Standard) and IEC 60874 (Connectors for optical fibers and cables) and they are supported by the DoubleSafe™ QA program as a part of complete HCS cabling system.

Applications

- Mission critical applications such as Data Centers and Storage Area Networks
- Applications where fast installation is paramount
- Environments where moves adds and changes are frequent or managed in-house
- FiberOptic cross connect, patch panels, and distribution point connection
- ODF connections
- Fiber to the desk connection
- Active FiberOptic equipment connection

Qualifications and Protocol Support

HCS DataLight components are supported by the DoubleSafe™ QA program as a part of complete HCS cabling system and comply to ANSI/TIA-568-C.3 (Optical Fiber Cabling Components Standard) and IEC 60874 (Connectors for optical fibers and cables).
HCS DataLight MPO Assemblies are designed to support a variety of high-speed network topologies including:

- IEEE 802.3 10G Base-SR/SW 10Gbps
- IEEE 802.3 10G Base-LX4 10Gbps
- Fiber Channel 400-M5-SN-1 4Gbps
- Fiber Channel 1200-M5E-SN1 10Gbps
- Fiber Channel FC-PH 1Gbps

- IEEE 802.3 1000 Base-SX/LX 1Gbps
- FDDI 100Mbps
- IEEE 802.3 FOIRL 10Mbps
- IEEE 802.3 10 Base-F 10Mbps
- ATM 155 Mbps, 622 Mbps, 1.2 Gbps & 2.4 Gbps

Benefits & Features

✓ Premium factory-controlled optical performance - enables flexible system configuration and fast installation.
✓ Low Smoke Zero Halogen allows for routing cables in any indoor environment
✓ Industry-leading low insertion loss (0.50dB max.)
✓ Each and every assembly pre-tested before shipment.
✓ Round, flexible outer jacket is easy to bend, route and install.
✓ Full compliance to industry standards - providing high quality components.
✓ Available with all major fiber types - providing a wide range of products.
✓ Robust design - ensuring long life and short replacement rates.
✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

Technical Specifications - MPO Connectors

Connector Housing	PET
Connector Ferrule	PPS
Boot	Silicone
SM Backbone	Aluminum
MM Backbone	Aluminum
Flame Test	UL-94 V-0
Max.Insertion Loss	0.5dB

HCS Data Center Çözümleri

MPO Cable Assemblies

Technical Specifications - Complete Assemblies

SM Attenuation @ 1300nm	Mean:0.35 dB Sigma: 0.12dB
MM Attenuation @ 1300nm	Mean:0.35 dB Sigma: 0.12dB
SM Return Loss	Min:55 dB Mean: 60dB
MM Return Loss	Min:25 dB D Max:0.2dB
SM Connection Durability	D Max:0.2dB
MM Connection Durability	D Max:0.2 dB
SM Mating Cycles	500
MM Mating Cycles	500
Operating Temp.	-0 to +70C
Installation Temp.	-0 to +70C
Storage Temp.	-40 to +70C

Durability Tests - Maximum Attenuation Increase after test

Test	Max. Increase	Notes
Temperature Cycling: -40 to +85C	0.2 dB	10 Cycles
High Temp. Endurance: +85C	0.2 dB	96 Hours
Low Temp. Endurance: -40C	0.2 dB	96 Hours
High Humidity Endurance: 95% RH @ +40C	0.2 dB	96 Hours
Vibration Endurance: 10-55 Hz, 1.5 mm	0.2 dB	P to P
Tensile Endurance: 0-10 Kgf @ 1 minute	0.2 dB	-
Connection Durability: 1000 cycles	0.2 dB	-

Ordering Information

HCS P/N	Description	Length mm	Notes
TFO-X12DD-10C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	1.0	-
TFO-X12DD-20C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	2.0	-
TFO-X12DD-30C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	3.0	-
TFO-X12DD-50C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	5.0	-
TFO-X12DD-A0C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	10.0	-
TFO-X12DD-A5C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	15.0	-
TFO-X12DD-C0C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	30.0	-
TFO-X12DD-E5C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	55.0	-
TFO-X12DD-H0C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	80.0	-
TFO-X12DD-K9C	MPO-MPO (Female-Female) 12F LS0H FO Assembly	99.0	-

"FO" shall be replaced by the relevant Fiber P/N.
"X" shall be replaced by the relevant Cable Type.
"C" shall be replaced by the Jacket Color.

Note: Please contact HCS Customer Service for polarity method (A,B or C)

DataLight Fiber Options

Fiber P/N	Fiber Type	Multimode Fiber Grade & Standard	Attenuation (dB/Km)				Min. Bandwidth (MHz•Km)				Numerical Aperture
			850nm		1300nm		850nm		1300nm		
			Nom	Max	Nom	Max	OFL[3]	EMB[4]	OFL[3]	EMB[4]	
51	50/125μm Graded Index Multimode Optical Fiber	Standard Grade OM1 - ISO/IEC 11801 TIA-568-C.3	2.8	3.0	0.9	1.1	500	NS	600	NS	0.200±0.02
52		Premium Grade OM2 - ISO/IEC 11801 EIA/TIA 492AAAB A1a.1 - IEC 60793-2-10 TIA-568-C.3	2.8	3.0	0.8	1.0	600	NS	1200	NS	0.200±0.02
53		Patch Cord Grade	3.0	3.5	1.2	1.5	150	NS	200	NS	0.200±0.02
54		10G Grade 300m OM3 - ISO/IEC 11801 EIA/TIA 492AAAC-A A1a.2 - IEC 60793-2-10 TIA-568-C.3	2.8	3.0	0.8	1.0	1500	2000	500	500	0.200±0.02
55		10G Grade NEW Bend Insensitive OM3 - ISO/IEC 11801 EIA/TIA-492 AAAC-A A1a.2 - IEC 60793-2-10 TIA-568-C.3	2.8	3.0	0.8	1.0	1500	2000	500	500	0.200±0.02
56		10G Grade OM4 - EIA/TIA 492AAAD OM4 - ISO/IEC 11801 (Draft) A1a.3 - IEC 60793-2-10	2.3	2.5	0.6	0.8	3500	4700	500	500	0.200±0.015
57		10G Grade NEW Bend Insensitive OM4 - EIA/TIA-492 AAAD OM4 - ISO/IEC 11801 A1a.3 - IEC 60793-2-10	2.3	2.5	0.6	0.8	3500	4700	500	500	0.200±0.015
61	62.5/125μm Graded Index Multimode Optical Fiber	Standard Grade OM1 - ISO/IEC 11801 TIA-568-C.3	3.0	3.5	0.7	1.0	200	NS	600	NS	0.275±0.015
62		Premium Grade OM2 - ISO/IEC 11801 TIA-568-C.3	2.6	3.0	0.7	1.0	500	NS	600	NS	0.275±0.015
63		Patch Cord Grade	3.0	3.5	1.2	1.5	150	NS	200	NS	0.275±0.015

Fiber P/N	Fiber Type	Singlemode Fiber Grade & Standard	1310nm		1383nm		1550nm		MFD
			Nom	Max	Nom	Max	Nom	Max	
91	9.3/125μm Single Mode Optik Fiber	Standard Grade OS1 - ISO/IEC 11801 TIA-568-C.3	0.4	0.5	NS	NS	0.4	0.5	9.3±0.5 μm@1310nm
92		Premium Grade TIA-568-C.3	0.33	0.38	NS	NS	0.22	0.25	9.3±0.5 μm@1310nm
93		ITU-T G.652	0.33	0.35	NS	NS	0.20	0.22	9.2±0.5 μm@1310nm
94		ITU-T G.652.D no water peak	0.33	0.35	0.31	0.35	0.20	0.22	9.2±0.5 μm@1310nm
95		ITU-T G.655 Non-zero dispersion shifted	0.33	0.35	NS	NS	0.20	0.22	9.6±0.5 μm@1550nm
96		ITU-T G.656 No water peak non-zero dispersion shifted	0.33	0.35	0.35	0.40	0.20	0.22	9.6±0.5 μm@1550nm
97		ITU-T G.657 Bend-insensitive Class B	0.33	0.35	0.31	0.35	0.20	0.22	9.6±0.5 μm@1550nm

Notes:
1. The Fiber two-digit P/N should replace the "FO" letters in the selected HCS P/N
2. All transmission values are for cabled fibers
3. OFL => Overfilled Bandwidth per TIA/EIA 455-204 & IEC 60793-1-41 for legacy and LED based systems, typically up to 100Mbps.
4. EMB=> Effective Modal Bandwidth per TIA/EIA 455-220A and IEC 60793-1-49 for laser based systems up to 10Gbps.

DataLight Test Methods

Optical and Geometrical Fiber Properties

Tested Property	Test Method	ITU-T Test Methods	EIA/TIA-455 FOTP No.	IEC 60793-1 Test Methods
Fiber Geometry	Transmitted Near Field	SM: G.650 Method 2.2.1		A2
		MM: G.651 Sec. 1 Method B.3	MM: 58	
Spectral Attenuation	Cut-Back	SM: G.650 Method 2.4.1	SM: 78	C1A
		MM: G.651 Sec 2,1 Method B.2	MM: 46	
Attenuation and Attenuation Uniformity at Specified wavelengths	Backscattering (OTDR)	SM: G.650 Method 2.4.2	61	C1C
		MM: G.651 Sec 2 Method B.4	59	
Numerical Aperture	Far-Field Light Distribution	MM: G.651 Sec. 1 Method B.4	47	C6
Cutoff Wavelength	Transmitted Power	SM: G.650 Method 2.3.1, 2.3.3	80, 170.	C7A
Mode Field Diameter	Variable Aperture	SM: G.650 Method 2.1.2	167	
Bandwidth	Frequency Domain	MM: G.651 Sec 3 Method B.2	30	C2B
Chromatic Dispersion	Phase Shift	SM: G.650 Method 2.5.1	169	C5A

Mechanical and Environmental FO Cable Properties

Tested Property	EIA/TIA-455 FOTP Number	IEC 60794-1 Test Methods	CENELEC EN 18700 Test Methods
Operating and Pulling Load	33	E1	501
Minimum Bending Radius	33	E1	501
Crush Resistance (Compression)	41	E3	504
Repeated Bending	104	E6	509

SECTION E: Phy-FiXX™ Copper & Fiber Optic Managed Cabling Solutions

"İleri Teknoloji Data Center Çözümleri"

Phy-FiXX™ Managed Category 6 Unshielded RJ-45 Copper Patch Panels

Description

Phy-FiXX™ is a revolutionary and advanced physical layer management suit providing enterprises with the ability to manage their Physical Layer infrastructure with a level of visibility & integration unique in the structured cabling industry. Using a combination of software, electronics and structured cabling products, Phy-FiXX™ enables users to track and manage their investment from planning through to design, procurement, installation, moves, adds and changes (MACs) and the eventual upgrade of the infrastructure, thereby spanning its entire lifecycle.

HCS Phy-FiXX™ Category 6 unshielded Patch Panels are used within the Phy-FiXX™ System. Each 1U 24 Port Patch Panel has one data bus connection port located on the rear of the panel. The data bus connection port connects the panel to the Phy-FiXX™ scanner via a standard RJ45 patch cord. The patch panel is used by the Phy-FiXX™ system to track connectivity in the patch zone and work area. LED status indicators on the panel show status of connectivity between the panel and the scanner and also provide panel guidance for work orders.

The IDC section of the Phy-FiXX™ Patch Panels consist of V-shaped contacts that flex not fatigue when terminated. Each port features a patented spring-loaded shutter. The patch panel works as a conventional patch panel when not connected to the Phy-FiXX™ system.

All Phy-FiXX™ patch panels fully conform to and provide a substantial margin above all ANSI/TIA-568-C.2 and ISO/IEC-11801 (2nd Edition) Category 6 component requirements.

The HCS Phy-FiXX™ Logo and the DataLink 250E Trademark ensure long lasting high-performance and full support of most present applications.

Application

HCS Phy-FiXX™ DataLink 250E unshielded copper RJ-45 patch panels are used within the Phy-FiXX™ System for horizontal distribution or equipment terminations in telecommunications rooms and for interconnection terminations in consolidation points, and they fully support the following protocols:

- 1GBASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T "Fast Ethernet"
- ITU V.21 ve X.11
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN

Nitelikler ve Onaylar

HCS Phy-FiXX™ DataLink 250E panels are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling system.
HCS Phy-FiXX™ DataLink 250E panels are tested at the component level and they comply to the following standards:

Transmission	EMC	Safety
❏ ANSI/TIA-568-C.1	❏ EN-55022, Class B (Europe)	❏ UL94 V-0 rated plastic materials
❏ ANSI/TIA-568-C.2	❏ FCC Part 15, Subpart J, Class A (USA)	❏ Zero-halogen in LS0H constructions
❏ ISO/IEC-11801		

Benefits & Features

✓ Two power status indicators to ensure proper connection of power supply from the scanner.
✓ Data bus connection to the Phy-FiXX™ Scanner done with an industry standard RJ45 patch cord.
✓ Category 6 field configurable for T568A or T568B wiring options.
✓ Integral cable management shelf ensures bend radius compliance.
✓ International hardware kit contains both ANSI and metric hardware.
✓ Can be terminated using industry standard punch-down tools.
✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
✓ Supplied with front labeling card index strip - providing simple and elegant port identification.
✓ Detailed installation manual in English and Turkish - providing clear and comprehensive instructions.
✓ Exceeding Category 6 performance - providing full support to Gigabit Ethernet.
✓ Robust and installer-friendly design - providing reduced installation and operating costs.
✓ Compatible with 22-24 AWG solid conductors - providing support to a wider range of cabling types.

Connectivity Features

✓ LED status indicators on both the panel sides show status of connectivity between the panel and the scanner.
✓ LED status indicator on the panel calls for operator action (connect/disconnect patch-cord).
✓ LED status indicators on each port calls for operator action (connect/disconnect patch-cord).
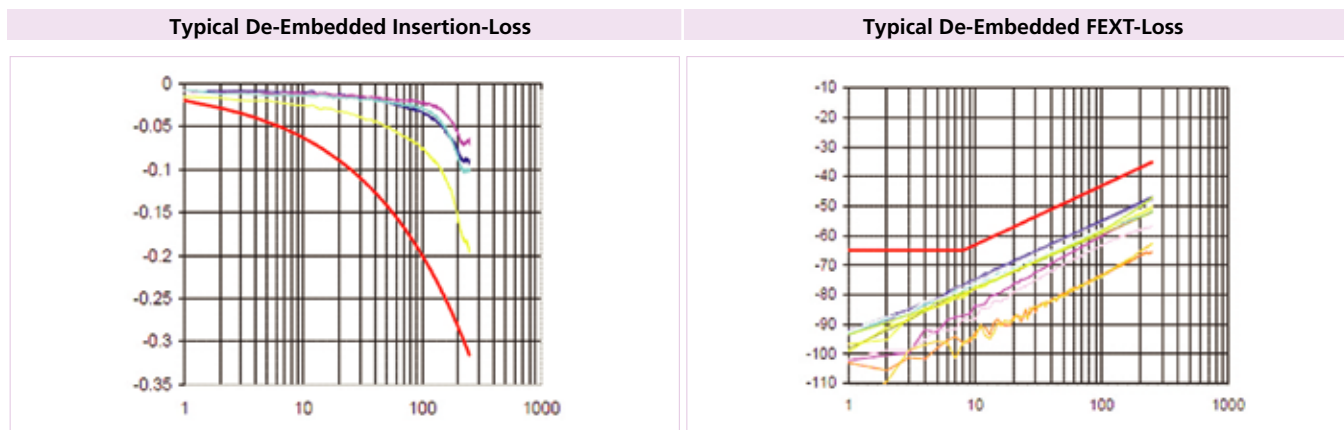✓ LED status indicators can be activated and deactivated from a remote location by the network supervisor.

General Properties

Wire size range	22-24 AWG, Solid.
Material of construction	CRS (cold rolled steel) 1.52 mm thickness.
Coating and color	Black Zinc.
Connector module holder	High impact, Flame-retardant plastic compound, UL 94 V-0.
Jack Housing material	Zinc Alloy plated bright Ni/Cu
IDC plastic housing	Polycarbonate UL94 V-0.
Jack contact material	Copper alloy plated with 1.25≥<m Gold over Nickel.
IDC contact material	Copper alloy plated with Matte Tin.
Plug Retention Force	6.8 Kgf (66 N) min.
Jack contact force	100 grams min.
IDC terminations cycles	20 min. using same-gauge wires.
IDC type	Gas tight
Jack insertion durability	750 mating cycles
Storage temperature range	-20 to +60C
Installation and operation conditions	0 to +50C at 0-90% RH (Non condensing)
Packaging	One unit per box.
Shipping weight	560 gr.

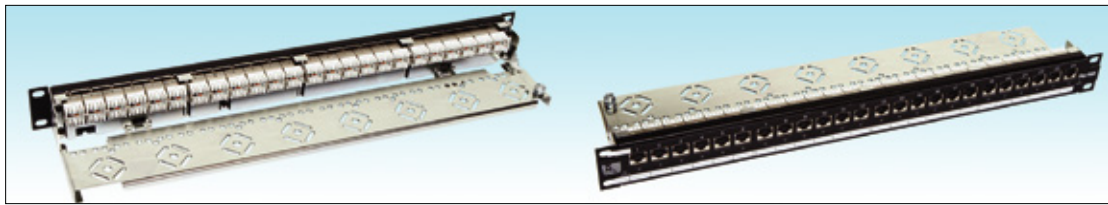## Phy-FiXX™ Managed Category 6 Unshielded RJ-45 Copper Patch Panels

Transmission and Electrical Specifications

FREQ. MHz	Insertion Loss dB Max	NEXT dB Min	FEXT dB Min	RL dB Min
1.00	0.02	85.0	84.0	53.0
4.00	0.02	81.0	75.0	54.0
8.00	0.02	78.0	70.0	56.0
10.00	0.03	77.0	68.0	57.0
16.00	0.03	73.0	58.0	58.0
25.00	0.04	70.0	60.1	60.0
31.25	0.04	68.0	59.0	57.0
62.50	0.05	64.0	53.0	44.0
100.00	0.06	60.0	49.0	34.0
200.00	0.06	55.0	43.0	23.0
250.00	0.08	52.0	41.0	20.0

Typical De-Embedded Return-Loss

Propagation Delay	2.5 nS max @ 1-250 MHz
Propagation Delay Skew	1.25 nS max @ 1-250 MHz
Current rating	1.5 A max.
Contact resistance	20 mOhm max (per contact)
Input/Output resistance	200 mOhm max
Input/Output resistance unbalance	50 mOhm max
Voltage rating	72 Vdc max
Dielectric strength	1000 Volts rms for 1 minute
Insulation Resistance	100 MegaOhm min @ 500 Vdc
DC Resistance	0.1 Ohm max @ 20C
Initial contact resistance	2.5 mOhm
TCL	28-20·Log(f/100) dB min @ 1-250 MHz
Transfer Impedance	N/A

Typical De-Embedded Insertion-Loss

Typical De-Embedded FEXT-Loss

Ordering Information

HCS P/N	Description	Blocks	Units	Size: Hx/Wx/D mm	Size: Hx/Wx/D Inch	T568
P6E-02409-1U	24 port RJ-45 Unshielded CAT 6E 19" Phy-FiXX™ Patch Panel	110 IDC	1u	44x483x92	1.75x19x4.25	UNI

Data Center

Phy-FiXX™ Managed Category 6A Shielded RJ-45 Copper Patch Panels

Description

Phy-FiXX™ is a revolutionary and advanced physical layer management suit providing enterprises with the ability to manage their Physical Layer infrastructure with a level of visibility & integration unique in the structured cabling industry. Using a combination of software, electronics and structured cabling products, Phy-FiXX™ enables users to track and manage their investment from planning through to design, procurement, installation, moves, adds and changes (MACs) and the eventual upgrade of the infrastructure, thereby spanning its entire lifecycle.

HCS Phy-FiXX™ Category 6A shielded Patch Panels are used within the Phy-FiXX™ System. Each 1U 24 Port Patch Panel has one data bus connection port located on the rear of the panel. The data bus connection port connects the panel to the Phy-FiXX™ scanner via a standard RJ45 patch cord. The patch panel is used by the Phy-FiXX™ system to track connectivity in the patch zone and work area. LED status indicators on the panel show status of connectivity between the panel and the scanner and also provide panel guidance for work orders.

The IDC section of the Phy-FiXX™ Patch Panels consist of V-shaped contacts that flex not fatigue when terminated. Each port features a patented spring-loaded shutter. The patch panel works as a conventional patch panel when not connected to the Phy-FiXX™ system.

All Phy-FiXX™ patch panels fully conform to and provide a substantial margin above all ANSI/TIA-568-C.2 and ISO/IEC-11801 (2nd Edition) Category 6A component requirements.The HCS Phy-FiXX™ Logo and the DataLink 500A Trademark ensure long lasting high-performance and full support of most present applications.

Applications

HCS Phy-FiXX™ DataLink 500A shielded copper RJ-45 patch panels are used within the Phy-FiXX™ System for horizontal distribution or equipment terminations in telecommunications rooms and for interconnection terminations in consolidation points, and they fully support the following protocols:

- 1GBASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T "Fast Ethernet"
- ITU V.21 ve X.11

- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps

- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps ve 16 Mbps

- Broadband ve Baseband Video
- ISDN Basic ve Primary Access
- 1BASE-5 Starlan
- ISALAN

Qualifications and Approvals

HCS Phy-FiXX™ DataLink 500A panels are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling system.
HCS Phy-FiXX™ DataLink 500A panels are tested as CAT6A/Class EA Channel and they comply to the following standards:

Transmission	EMC	Safety
❏ ANSI/TIA-568-C.1	❏ EN-55022, Class B (Eurppe)	❏ UL94 V-0 dereceli plastik malzemer
❏ ANSI/TIA-568-C.2	❏ FCC Subpart F 68.5 (USA)	❏ LS0H uygulamalarda 0 helojen
❏ ISO/IEC-11801		

Benefits & Features

✓ Two power status indicators to ensure proper connection of power supply from the scanner.
✓ Data bus connection to the Phy-FiXX™ Scanner done with an industry standard RJ45 patch cord.
✓ Category 6A field configurable for T568A or T568B wiring options.
✓ Integral cable management shelf ensures bend radius compliance.
✓ International hardware kit contains both ANSI and metric hardware.
✓ Can be terminated using industry standard punch-down tools.
✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
✓ Supplied with front labeling card index strip - providing simple and elegant port identification.
✓ Detailed installation manual in English and Turkish - providing clear and comprehensive instructions.
✓ Exceeding Category 6A performance - providing full support to Gigabit Ethernet.
✓ Robust and installer-friendly design - providing reduced installation and operating costs.
✓ Compatible with 22-24 AWG solid conductors - providing support to a wider range of cabling types.

Connectivity Features

✓ LED status indicators on both the panel sides show status of connectivity between the panel and the scanner.
✓ LED status indicator on the panel calls for operator action (connect/disconnect patch-cord).
✓ LED status indicators on each port calls for operator action (connect/disconnect patch-cord).
✓ LED status indicators can be activated and deactivated from a remote location by the network supervisor.

General Properties

Wire size range	22-24 AWG, Solid.
Material of construction	CRS (cold rolled steel) 1.52 mm thickness.
Coating and color	Black Powdercoat.
Connector module holder	High impact, Flame-retardant plastic compound, UL 94 V-0.
Jack Housing material	Zinc Alloy plated bright Ni/Cu
IDC plastic housing	Polycarbonate UL94 V-0.
Jack contact material	Copper alloy plated with 1.25 ᒧ<m Gold over Nickel.
IDC contact material	Copper alloy plated with Matte Tin.
Plug Retention Force	6.8 Kgf (66 N) min.
Jack contact force	100 grams min.
IDC terminations cycles	20 min. using same-gauge wires.
IDC type	Gas tight
Jack insertion durability	750 mating cycles
Storage temperature range	-20 to +60C
Installation and operation conditions	0 to +50C at 0-90% RH (Non condensing)
Packaging	One unit per box.
Shipping weight	840 gr.

HCS Data Center Çözümleri

Phy-FiXX™ Managed Category 6A Shielded RJ-45 Copper Patch Panels

Transmission and Electrical Specifications

FREQ.	IL	NEXT	FEXT	RL	TCL	EL TCL	PS ANEXT	PS AFEXT
MHz	dB	dB	dB	dB	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Min	Min
1.00	0.1	75.0	75.0	30.0	40.0	40.0	67.0	67.0
4.00	0.1	75.0	71.1	30.0	40.0	40.0	67.0	67.0
8.00	0.1	75.0	65.0	30.0	40.0	40.0	67.0	67.0
10.00	0.1	74.0	63.1	30.0	40.0	40.0	67.0	67.0
16.00	0.1	69.9	59.0	30.0	40.0	40.0	67.0	67.0
25.00	0.1	66.0	55.1	30.0	40.0	40.0	67.0	67.0
31.25	0.1	64.1	53.2	30.0	38.1	38.1	67.0	67.0
62.50	0.16	58.1	47.2	30.0	32.1	32.1	67.0	67.0
100.00	0.20	54.0	43.1	28.0	28.0	28.0	67.0	67.0
200.00	0.28	48.0	37.1	22.0	22.0	22.0	64.5	61.0
250.00	0.32	46.0	35.1	20.0	20.0	20.0	62.5	59.0
300.00	0.35	42.9	33.6	18.5	18.5	18.5	61.0	57.5
400.00	0.40	37.9	31.1	16.0	16.0	16.0	58.5	55.0
500.00	0.45	34.0	29.1	14.0	14.0	14.0	56.5	53.0

Typical Return-Loss

Propagation Delay	2.5 nS max @ 1-500 MHz
Propagation Delay Skew	1.25 nS max @ 1-500 MHz
Current rating	1.5 A max.
Contact resistance	20 mOhm max (per contact)
Input/Output resistance	200 mOhm max
Input/Output resistance unbalance	50 mOhm max
Voltage rating	72 Vdc max
Dielectric strength	1000 Volts rms for 1 minute
Insulation Resistance	100 MegaOhm min @ 500 Vdc
DC Resistance	0.1 Ohm max @ 20C
Initial contact resistance	2.5 mOhm
TCL	$28-20 \cdot Log(f/100)$ dB min @ 1-500 MHz

Typical PS-NEXT

Typical PS-ACRF
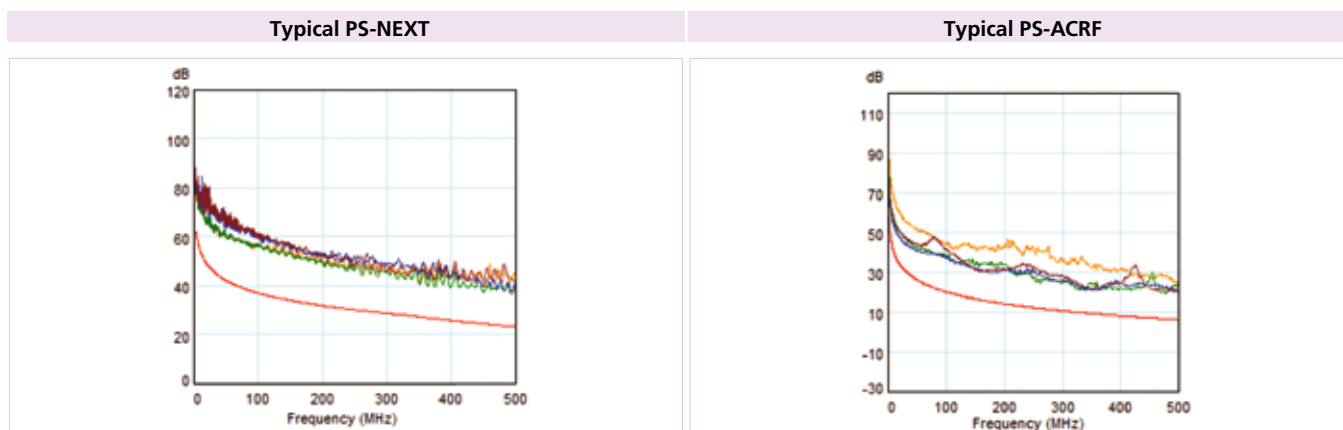
Ordering Information

HCS P/N	Description	Blocks	Units	Size: Hx/Wx/D		T568
				mm	Inch	
P6A-02409-1U	24 port RJ-45 Shielded CAT 6A 19" Phy-FiXX™ Patch Panel	110 IDC	1u	44x483x92	1.75x19x4.25	UNI

Phy-FiXX™ Category 6 Unshielded RJ-45 Outlet Terminator.
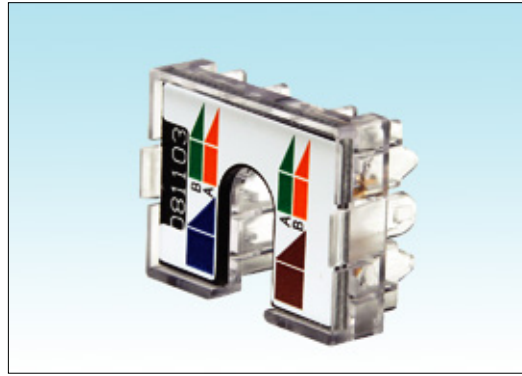
Description

Phy-FiXX™ is a revolutionary and advanced physical layer management suit providing enterprises with the ability to manage their Physical Layer infrastructure with a level of visibility & integration unique in the structured cabling industry. Using a combination of software, electronics and structured cabling products, Phy-FiXX™ enables users to track and manage their investment from planning through to design, procurement, installation, moves, adds and changes (MACs) and the eventual upgrade of the infrastructure, thereby spanning its entire lifecycle.

The Phy-FiXX™ Outlet Terminator is used at the work area outlet to allow the Phy-FiXX™ system to monitor the connection of the horizontal cable to the work area outlet. The Phy-FiXX™ Outlet Terminator is effectively a stuffer cap with in-built components that work exclusively in the HCS Phy-FiXX™ solution. It enables the Phy-FiXX™ system to determine circuit integrity to the work area outlet. Communications between the Phy-FiXX™ Outlet Terminator and the Phy-FiXX™ Scanner are transparent to the data channel and operate outside the Ethernet bandwidth. The Phy-FiXX™ system can function independently of the Phy-FiXX™ outlet terminator. However, the terminator provides enhanced functionality in terms of monitoring spare or unused channels.

Applications

HCS DataLink 250E Phy-FiXX™ terminator is entirely transparent to the data channels hence it supports all applications supported by HCS CAT 6 unshielded copper RJ-45 keystone jacks:

- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T "Fast Ethernet"
- 100BASE-T2
- 100BASE-T4

- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps ve 16 Mbps

- Broadband ve Baseband Video
- ISDN Basic ve Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Benefits & Features

✓ Confirms circuit integrity between the Phy-FiXX™ patch panel and the work area outlet.
✓ Enables monitoring of changes and detects the presence of devices at the outlet.
✓ Transparent to the Data Channel.
✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

Electrical properties

Contact resistance	2.5 mOhm Insulation
Interface resistance	20 mOhm Initial
Voltage rating	72 Vdc max.
Insulation Resistance	100 MegaOhm min @ 500 Vdc

General Properties

Housing material	Flame-retardant thermoplastic compound, UL 94 V-0.
Contacts material	Phosphor Bronze plated with Tin matte with Nickel.
Contact force	60 gr min.
Operating life	Min. 20 re-terminations.
Environmental conditions	-20 to +50C at 0-90%RH (non condensing)
Standard Color	Transparent.

Ordering Information

HCS P/N	Description	Compatible with	Unit/pack	T568
K6E-008TR	8P8C RJ-45 Unshielded CAT 6 Outlet Terminator	HCS P/N J6E-00873 HCS P/N W6E-008D1 HCS P/N W6E-008D2	24	A&B

Phy-FiXX™ Category 6A Shielded RJ-45 Outlet Terminator.

Description

Phy-FiXX™, kurumların fiziksel katman altyapı sistemlerini sürekli olarak izleyebilme ve yönetebilmelerine imkân sağlayan, yapısal kablolama sistemleri endüstrisine eşsiz ve devrim niteliğinde bir yenilik getiren Fiziksel Katman Yönetim platformudur. Yazılım, elektronik ve yapısal kablolama ürünlerinin mükemmel kombinasyonu sayesinde Phy-FiXX™ kullanıcılarına altyapı yatırımlarını planlama aşamasından başlayarak tasarım, satınalma, kurulum, yer değiştirme & ekleme & çıkarma, ve güncelleme de dahil tüm aşamalarını takip etme ve yönetilme imkanı vermektedir. Phy-FiXX™ Priz Terminatörü, prize çekilmiş olan kablonun bağlantısını izleyebilmek için Phy-FiXX™ sisteminde kullanılmaktadır.Phy-FiXX™ Priz Terminatörü,
HCS Phy-FiXX™ sistemi için özel olarak tasarlanmış, üzerinde entegre bir devre barındıran pasif IDC toz kapağıdır. Phy-FiXX™ sisteminde kullanıcı tarafının durumunu izleme ve yönetimine yardımcı olur. Phy-FiXX™ Priz Terminatör ve Phy-FiXX™ Tarayıcı arasındaki haberleşme Ethernet bant genişliğinin dışında çalışmaktadır. Phy-FiXX™ sistemi, Phy-FiXX™ Priz Terminatörü olmadan da çalışabilir, ancak özellikle aktif olmayan (yedek olarak ilerde kullanılmak üzere çekilen) data uçlarının durumlarını takip etmekte önemli bir işlevsellik sunmaktadır.

Applications

HCS DataLink 500A Phy-FiXX™ terminator is entirely transparent to the data channels hence it supports all applications supported by HCS CAT 6A shielded copper RJ-45 keystone jacks:

- 10BASE-T 10 Gigabit Ethernet
- 1000BASE-T Gigabit Ethernet
- ATM 155
- TP-PMD
- 100BASE-T "Fast Ethernet"
- 100BASE-T2

- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52
- ATM 25
- 10BASE-T Ethernet

- Token Ring 4 Mbps ve 16 Mbps
- Broadband ve Baseband Video
- ISDN Basic ve Primary Access
- 1BASE-5 Starlan
- ISALAN
- ITU V.21 ve X.11

Benefits & Features

✓ Confirms circuit integrity between the Phy-FiXX™ patch panel and the work area outlet.
✓ Enables monitoring of changes and detects the presence of devices at the outlet.
✓ Transparent to the Data Channel.
✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
✓ Unique DoubleSafe™ Quality Assurance Program - providing lowest rejection rate available.

Electrical properties

Contact resistance	2.5 mOhm Insulation
Interface resistance	20 mOhm Initial
Voltage rating	72 Vdc max.
Insulation Resistance	100 MegaOhm min @ 500 Vdc

General Properties

|	
Housing material	Flame-retardant thermoplastic compound, UL 94 V-0.
Contacts material	Phosphor Bronze plated with Tin matte with Nickel.
Contact force	60 gr min.
Operating life	Min. 20 re-terminations.
Environmental conditions	-20 to +50C at 0-90%RH (non condensing)
Standard Color	Transparent.

Ordering Information

HCS P/N	Description	Compatible with	Units/pack	T568
K6A-008TR	8P8C RJ-45 Shielded CAT 6A Outlet Terminator	HCS P/N W6A-008D1 HCS P/N W6A-008D2	24	A&B

Phy-FiXX™ Managed 24-Port Duplex LC Fiber Patch Panels
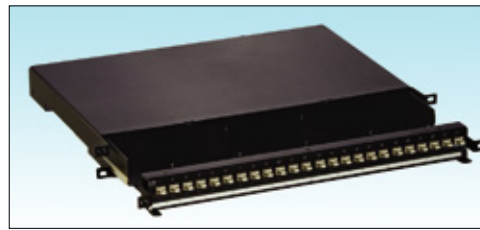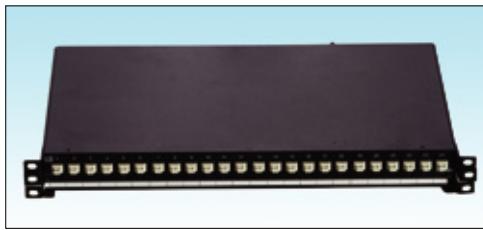
Description

Phy-FiXX™ is a revolutionary and advanced physical layer management suit providing enterprises with the ability to manage their Physical Layer infrastructure with a level of visibility & integration unique in the structured cabling industry. Using a combination of software, electronics and structured cabling products, Phy-FiXX™ enables users to track and manage their investment from planning through to design, procurement, installation, moves, adds and changes (MACs) and the eventual upgrade of the infrastructure, thereby spanning its entire lifecycle.

HCS Phy-FiXX™ 24-Port Duplex LC FO Patch Panels are used within the Phy-FiXX™ System. Each 1U 24 Port Patch Panel has one data bus connection port located on the rear of the panel. The data bus connection port connects the panel to the Phy-FiXX™ scanner via a standard RJ45 patch cord. The patch panel is used by the Phy-FiXX™ system to track connectivity in the patch zone and work area. LED status indicators on the panel show status of connectivity between the panel and the scanner and also provide panel guidance for work orders.

The adapter interface contains 24 duplex LC ports with Single Mode or Multimode options. The patch panel works as a conventional patch panel when not connected to the Phy-FiXX™ system.

All Phy-FiXX™ patch panels fully conform to and provide a substantial margin above all ANSI/TIA-568-C.3 and ISO/IEC-11801 (2nd Edition) FO component requirements.

The HCS Phy-FiXX™ Logo and the DataLight Trademark ensure long lasting high-performance and full support of most present applications.

Applications

HCS Phy-FiXX™ DataLight Duplex LC FO panels are used within the Phy-FiXX™ System for horizontal distribution or equipment terminations in telecommunications rooms and for interconnection terminations in consolidation points, and they fully support most presently available LAN applications, including the IEEE802.3z protocols for Gigabit Ethernet, 1000BASE-SX (Short wavelength Gigabit Ethernet) 1000BASE-LX (Long wavelength Gigabit Ethernet) & IEEE 802.3ae 10GBASE-SR/SW 10GBASE-LX4 (10 Gigabit Ethernet).

Qualifications and Approvals

HCS Phy-FiXX™ DataLight Duplex LC FO panels are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling system.

HCS Phy-FiXX™ DataLight Duplex LC FO panels are tested at the component level and they comply to the following standards:

Transmission	EMC	Safety
❏ UL94 V-0 rated plastic materials ❏ ANSI/TIA-568-C ❏ ISO/IEC-11801	❏ FCC Subpart F 68.5	❏ UL94 V-0 rated plastic materials ❏ UL 1863 & CSA 22.2

Benefits & Features

✓ Two power status indicators to ensure proper connection of power supply from the scanner.
✓ Data bus connection to the Phy-FiXX™ Scanner done with an industry standard RJ45 patch cord.
✓ Panel options for Single Mode and Multimode fibers, including OS1, OS2, OM1, OM2, OM3 & OM4
✓ Integral slide-out cable management shelf ensures bend radius compliance.
✓ International hardware kit contains both ANSI and metric hardware.
✓ Recessed mounting provides adequate space for routing patch cords, even in free standing enclosures with the front door closed.
✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
✓ Detailed installation manual in English and Turkish - providing clear and comprehensive instructions.
✓ Robust and installer-friendly design - providing reduced installation and operating costs.

Connectivity Features

✓ LED status indicators on both the panel sides show status of connectivity between the panel and the scanner.
✓ LED status indicator on the panel calls for operator action (connect/disconnect patch-cord).
✓ LED status indicators on each port calls for operator action (connect/disconnect patch-cord).
✓ LED status indicators can be activated and deactivated from a remote location by the network supervisor.

General Properties

Fiber options	Single Mode: OS1 & OS2. Multimode: OM1, OM2, OM3 & OM4
Material of construction	16 AWG cold rolled steel
Coating and color	Powder coating, black
Adapter shell material	Crastin SK602 NC010 (PBT 15% G.F.)
Adapter shell color	Natural
Alignment sleeve	SM: Zirconia MM: Phosphor-Bronze
Number of terminated fibers	48 (24 Duplex LC)
Installation temperature	-40 to +75C
Operating temperature	-40 to +75C
Storage temperature	-40 to +75C
Packaging	One unit per box.
Shipping weight	650 gr.

Parts List (Each assembled panel includes the following)

✓ 1 x Cable gland 4-8mm M20
✓ 4 x Blanking grommet 20mm
✓ 1 x Aramid retention post

✓ 1 x Open grommet
✓ 2 x Fiber support base and clips
✓ International hardware kit

✓ Laser hazard warning label
✓ Instruction sheet

Ordering Information

HCS P/N	Description	Units	Size: Hx/Wx/D		Notes
			mm	Inch	
PFO-F2401-1U	24 port Single Mode Duplex LC Phy-FiXX™ FO Patch Panel	1u	44.2x484.6x336.6	1.74x19.1x13.25	-
PFO-F2402-1U	24 port Multimode Duplex LC Phy-FiXX™ FO Patch Panel	1u	44.2x484.6x336.6	1.74x19.1x13.25	-

"FO" shall be replaced with the relevant Fiber P/N.

Phy-FiXX™ Fiber Optic Patch Cords

Description

Phy-FiXX™ is a revolutionary and advanced physical layer management suit providing enterprises with the ability to manage their Physical Layer infrastructure with a level of visibility & integration unique in the structured cabling industry. Using a combination of software, electronics and structured cabling products, Phy-FiXX™ enables users to track and manage their investment from planning through to design, procurement, installation, moves, adds and changes (MACs) and the eventual upgrade of the infrastructure, thereby spanning its entire lifecycle.
HCS Phy-FiXX™ DataLight FO Patch Cords are used to connect Phy-FiXX™ FO panels within the Phy-FiXX™ System.
HCS Phy-FiXX™ FO Patch Cords incorporate a monitoring cable along with contact points on the cord connectors that activate the detection mechanism in the Phy-FiXX™ patch panel. When used with the rest of the Phy-FiXX™ system, these patch cords will provide connectivity information to the Phy-FiXX™ system.
All Phy-FiXX™ patch cords fully conform to and provide a substantial margin above all ANSI/TIA-568-C.3 and ISO/IEC-11801 (2nd Edition) FO component requirements.
The HCS Phy-FiXX™ Logo and the DataLight Trademark ensure long lasting high-performance and full support of most present applications.

Applications

HCS Phy-FiXX™ DataLight FO Patch Cords are used to connect Phy-FiXX FO panels within the Phy-FiXX™ System and they fully support most presently available LAN applications, including the IEEE802.3z protocols for Gigabit Ethernet, 1000BASE-SX (Short wavelength Gigabit Ethernet) 1000BASE-LX (Long wavelength Gigabit Ethernet) & IEEE 802.3ae 10GBASE-SR/SW 10GBASE-LX4 (10 Gigabit Ethernet).

Qualifications and Approvals

HCS Phy-FiXX™ DataLight FO Patch Cords are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling system.
HCS Phy-FiXX™ DataLight FO Patch Cords are tested at the component level and they comply to the following standards:

Transmission			Safety
❏ ANSI/TIA-568-C.3	❏ ICEA 596	❏ ISO/IEC-11801	❏ UL 1863

Belirleyici Özellikler

✓ Robust duplex housings protect fibers.
✓ Monitoring contact interfaces with Phy-FiXX™ FO Patch panel.
✓ All cords available with Single Mode and Multimode fibers, including OS1, OS2, OM1, OM2 & OM3
✓ All cords available with two fibers contained in a single outer jacket.
✓ All cords are jacketed with LS0H (Low Smoke Zero Halogen) flexible compound.
✓ Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.

General Properties

|	
Fiber options	Single Mode: OS1,OS2. Multimode: OM1, OM2, OM3 & OM4
Connector type	Duplex LC
Durability	200 Insertions min.
Cable OD	2.76 x 6.0 mm
Min. Bend radius	2.8 mm
Cable tensile strength	300N
Number of terminated fibers	2
Installation temperature	-20 to +50C
Operating temperature	-20 to +50C
Storage temperature	-50 to +80C
Packaging	One unit per box.

Optical Characteristics

Fiber Type	ISO Class	BW (OFL)		Maks. Att. dB/Km		Max. Mated IL dB	Min. RL dB (UPC)	Jacket Color
		@850nm	@1300nm	@850nm	@1300nm			
MM 62.5/125μ	OM1	200	500	3.75	1.2	0.3	-	Orange
MM 50/125μ	OM2	500	500	3.5	1.2	0.3	-	Grey
MM 50/125μ	OM3	2500	500	3.0	1.0	0.3	-	Aqua
MM 50/125μ	OM4	3500	500	2.6	0.8	0.3	-	Aqua
SM 9/125μ	OS1	NA	NA	0.5	0.5	0.3	50	Yellow
SM 9/125μ	OS2	NA	NA	0.5	0.5	0.3	50	Yellow

Ordering Information

HCS P/N	Description	Length m	Tolerance	Weight grams	Notes
TFO-VccKK-10	Phy-FiXX™ LC-LC Duplex LS0H FO Cord	1.0	-0+0.1m	18	-
TFO-VccKK-20	Phy-FiXX™ LC-LC Duplex LS0H FO Cord	2.0	-0+0.1m	34	-
TFO-VccKK-30	Phy-FiXX™ LC-LC Duplex LS0H FO Cord	3.0	-0+0.1m	49	-
TFO-VccKK-50	Phy-FiXX™ LC-LC Duplex LS0H FO Cord	5.0	-0+0.1m	83	-
TFO-VccKK-A0	Phy-FiXX™ LC-LC Duplex LS0H FO Cord	10.0	-0+0.1m	157	-
TFO-VccKK-A5	Phy-FiXX™ LC-LC Duplex LS0H FO Cord	15.0	-0+1.5m	230	-

HCS Phy-FiXX™ 576 Channel Scanner
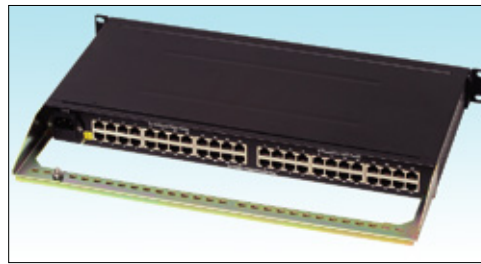
Description

Phy-FiXX™ is a revolutionary and advanced physical layer management suit providing enterprises with the ability to manage their Physical Layer infrastructure with a level of visibility & integration unique in the structured cabling industry. Using a combination of software, electronics and structured cabling products, Phy-FiXX™ enables users to track and manage their investment from planning through to design, procurement, installation, moves, adds and changes (MACs) and the eventual upgrade of the infrastructure, thereby spanning its entire lifecycle.

Phy-FiXX™ scanners monitor activity on a Phy-FiXX™ enabled system. Each 1U scanner can be connected to up to 48 patch panels providing monitoring of up to 576separate physical channels. Standard RJ45 patch cords are used as the data bus connection between scanners and patch cords.

Phy-FiXX™ scanners can be configured and activated independently of the software. When the Phy-FiXX™ application software is connected to the scanner, the scanner "discovers" active hardware and devices on the network and uploads this information onto the Phy-FiXX™ application software. Scanners monitor the connection state of Phy-FiXX™ channels and pass state change data to the Phy-FiXX™ application software. This triggers Phy-FiXX™'s smart polling function which queries the specific outlet and updates the software. In the event that the Phy-FiXX™ application cannot communicate with a scanner, the scanner records transactions in a queue for later delivery to the Phy-FiXX™ software. Scanners recover from power outages without requiring reconfiguration. Phy-FiXX™ scanners consume little power, which can be critical in power-hungry environments such as Data Centers.

Accessories

● Each scanner is supplied with one International 19-inch mounting kit.
● A standard IEC 60320 power cord (comprising a power plug and C13 Plug/outlet) is required but not included.

Standard conformance

Management	EMC	Safety
❏ HTTP	❏ EN-55022, Class B (Europe)	❏ UL 1950
❏ SNMP (read-only)	❏ FCC Part 15, Class B (USA)	❏ IEC 60950
		❏ CSA 950

Benefits & Features

✓ Supports up to 48 patch panels and 576 separate physical channels.
✓ Smart polling enables continuous updating of Phy-FiXX™ with minimal impact to the network.
✓ Simple scanner configuration
✓ Auto discovery of active hardware/devices & automatic database population
✓ Mission critical port disconnection alerts
✓ Trace to device location
✓ High density scanner enables rack space to be maximized
✓ Low power consumption with no specific fans or cooling required
✓ Automatic Rediscovery/Re-synchronization after outage or system failure
✓ Transaction queues record events for later delivery if the scanner is disconnected from the Phy-FiXX application.
✓ Scanner can be tested and activated independently of software activation
✓ Data bus connection between the scanner and patch panel is via an industry standard RJ45 patch cord

Electrical & Power properties

Max. power consumption	30 Watts
Universal AC input	110-240VAC, 50-60Hz
Heat generated	12 BTU/Hour
Insulation Resistance	100 MegaOhm min @ 500 Vdc

General Properties

Material of construction	CRS (cold rolled steel) 1.52 mm thickness.
Coating and color	Black powder coated finish
Storage conditions	-10 to 60❏C, 10 to 95% Relative Humidity non-condensing
Installation and operation conditions	0 to 50❏C, 15-90% Relative Humidity non-condensing
Packaging	One unit per box.
Shipping weight	4 Kg

Ordering Information

HCS P/N	Description	Dimensions mm			Shipping Weight Kg	Units
		H	W	D		
PB PF48 0800	Phy-FiXX™ 576 Channel Scanner	44	483	216	4.0	1U

HCS Phy-FiXX™ Application Software & License

Description

Phy-FiXX™ is a revolutionary and advanced physical layer management suit providing enterprises with the ability to manage their Physical Layer infrastructure with a level of visibility & integration unique in the structured cabling industry. Using a combination of software, electronics and structured cabling products, Phy-FiXX™ enables users to track and manage their investment from planning through to design, procurement, installation, moves, adds and changes (MACs) and the eventual upgrade of the infrastructure, thereby spanning its entire lifecycle.

Phy-FiXX™ Software is the central data manager for the Phy-FiXX™ system. It manages OSI Layer 1 infrastructure elements and provides instantaneous information to the IT Manager about connectivity on Phy-FiXX™ enabled channels. The software documents planned work orders and detects unplanned (ad hoc) changes to the network. It allows continuous monitoring of the complete physical channel from work area outlet to the active network device. Phy-FiXX™ software automatically monitors all connections and disconnections, identifies and confirms port availability and notifies the IT Manager of all unscheduled or unauthorized network cabling changes. All moves, adds, and changes (MACs) detected on the network are automatically updated in the database. Phy-FiXX™ software is a web based application that enables global network access by an unlimited number of users and provides cost effective and accurate network management.
Phy-FiXX™ Reports allow the IT team to extract information contained in the Phy-FiXX™ system about the Layer 1 infrastructure and the assets connected to the infrastructure. Reports include information about assets, work orders, logs, MACs, and connectivity status of Phy-FiXX™ enabled channels.

Phy-FiXX™ 96 and 576 Channel Software Licences are used to enable activation of Phy-FiXX™ panels on Phy-FiXX™ scanners. Channel licenses are installed on the Phy-FiXX™ server. Each 96 Channel licence activates four scanner ports and each 576 Channel licence activates 24 scanner ports. 96 Channel licences are ideal for low density environments where the entire channel capacity of a scanner is not required. Multiple 96 channel licences may be installed on a scanner to provide a solution matching the number of channels served by a scanner. 96 channel licenses can be added incrementally as additional channels are connected to the scanner. Each scanner may have up to six 96 channels licenses or one 576 channel licences installed on it. 96 channel licenses may be added to a scanner at any time

Technical Information

Phy-FiXX™ Software is designed for Windows 32 bit and 64 bit environments and requires a TCP/IP network.
The following system requirements are recommended:
Server*:
Supported Operating Systems: Windows Server 2008 (US English version)
Windows Server 2008 R2 (US English version)
Server should meet Microsoft's recommended requirements
Database*:
Microsoft SQL Server Express 2008
Microsoft SQL Server Express 2008 R2
Browser Support*:
Microsoft Internet Explorer Version 7.0 or higher
Firefox Version 3.2 or higher
Chrome Version 5.0 or higher
Recommended screen resolution of 1200 x 800 or better
Microsoft Silverlight is required on the web browsing device.
One year technical support provided with initial software purchase (can be renewed on an annual basis).
* HCS recommends Windows Server 2008 R2 and SQL Server Express 2008 R2.

Benefits & Features

- ✓ Hierarchal view of entire enterprise layer 1 infrastructure
- ✓ Monitoring of all connections/disconnections
- ✓ Drag and drop work orders
- ✓ Work orders for end devices and wire closet patches
- ✓ Guided patching
- ✓ Search feature to easily locate assets and information
- ✓ Event logs for audit trails
- ✓ Assets linkage to building maps
- ✓ Enhanced graphics and mapping features, including Zoom, Pan, Scaling & Mini-map.
- ✓ Tracing feature across all channel elements
- ✓ Unrestricted number of users per license
- ✓ Data import and export capability

Ordering Information

HCS P/N	Description	Notes
KSW-A5760	HCS Phy-FiXX™ Application Software	
KSW-A576M	HCS Phy-FiXX Application Software - 1 Year Maintenance	
KSW-L0960	HCS Phy-FiXX™ 96 Channel Software License	
KSW-L096M	HCS Phy-FiXX 96 Channel Software License - 1 Year Maintenance	
KSW-L5760	HCS Phy-FiXX™ 576 Channel Software License	
KSW-L576M	HCS Phy-FiXX 576 Channel Software License - 1 Year Maintenance	

Bölüm F:Data Center'lar için Kablo Kanalları ve Yangın Önleyici Sistemler

"İleri Teknoloji Data Center Çözümleri"

Fiber Optik Kablo Kanalları ve Aksesuarları
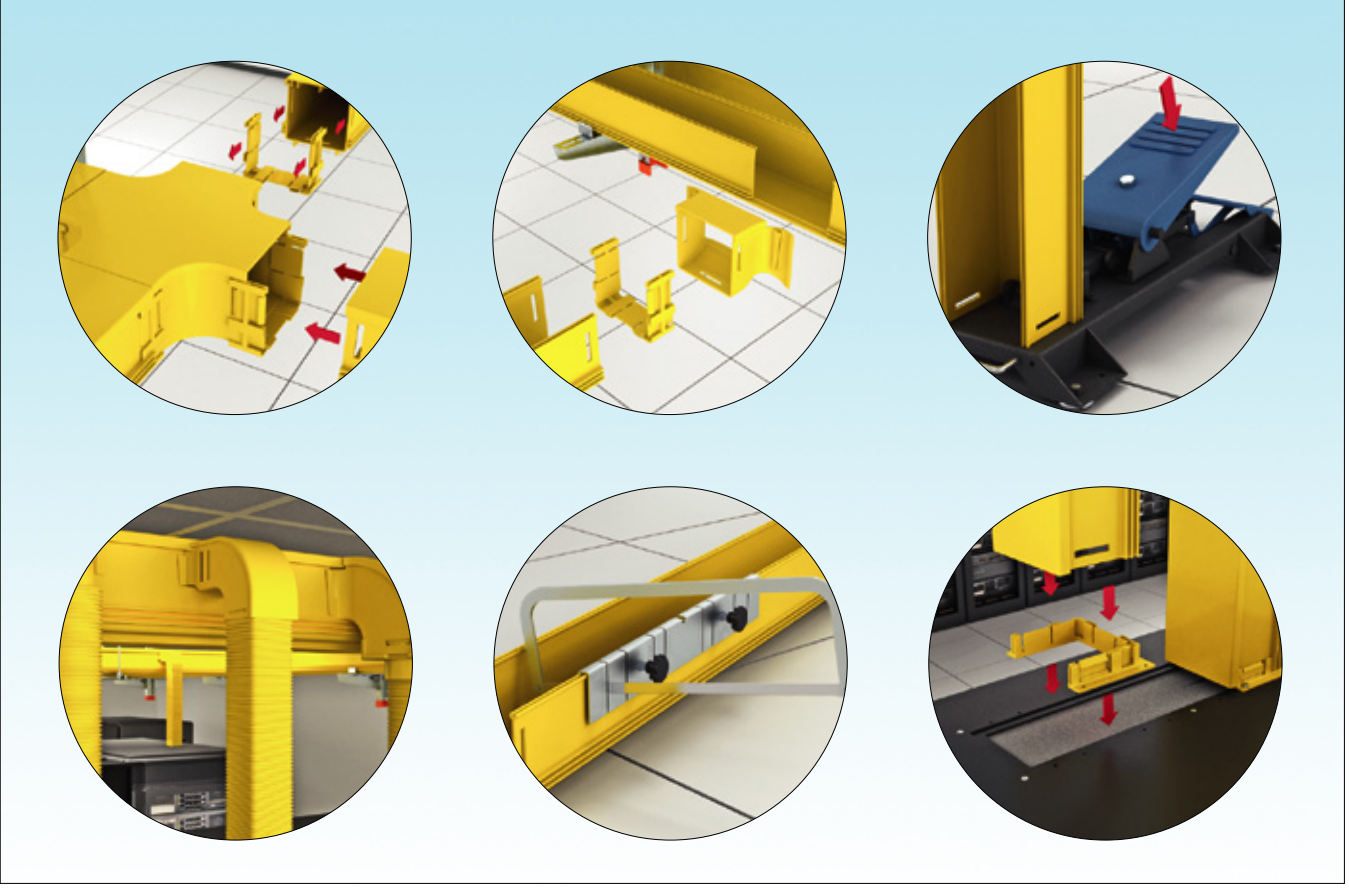
Açıklama

HCS DataLight Fiber Optik Kablo Kanalları ve Aksesuarları, Data Center'larda kullanılmakta olan fiber optik kabloların kesintisiz veri iletişimi sağlamaları için zarar görmeden uzun yıllar boyunca performans göstermeleri için özel olarak tasarlanmıştır. Kanalların tamamen pürüzsüz yapısı ve fiber optik kabloların dönüş açılarına göre tasarlanmış dönüş aparatları sayesinde, fiber optik kabloların hasar görmesi engellenmiş olur. Kabinetlere inişler ve bağlantılar için sunulan özel aletler, kanal kesimlerinin ve eklerin çapaksız yapılabilmesini ve daha sonraki montajların risksiz yapılabilmesini mümkün kılar.

Uygulamalar

HCS DataLight Fiber Optik Kablo Kanalları ve Aksesuarları, zengin kanal seçenekleri ve aksesuarları ile Data Center uygulamalarında gerekli olan fiber optik kablo kanalı ihtiyacına cevap vermektedir.

Belirleyici Özellikler

✓ Zengin Kanal Seçenekleri – 50x50, 100x100, 220x100 ve 300x100 olmak üzere dört ayrı ölçüde kanal ve aksesuarları ile, düşük adetli kablolama ihtiyaçları için esnek kablo kanalları mevcuttur.

✓ Kolay montaj – Kablo kanalları basit bir testere yardımıyla kesilebilir, istenilen yerde ek yapılabilir.

✓ Hafif yapı – Data Center için minimum ilave yük getirir.

✓ Halojen free malzeme yapısı – Data Center yangın gereksinimlerine uygunluk sağlar.

✓ Geniş aksesuar alternatifleri – Köşe dönüş, T ek, düz ek, sonlandırma kapakları gibi birçok yardımcı aksesuar sayesinde montajın kusursuz yapılmasına olanak sağlar.

Genel Özellikler

Yapım malzemesi: Halojen-free PPO (Polyphenylene oxide) malzeme.

Çalışma Sıcaklığı:	-40 / +60C 0-90% RH (yoğunlaşmayan)
Depolama Sıcaklığı:	-20 / +80C
Standart Renk:	Sarı RAL 1021.

Sipariş Bilgileri

HCS P/N		Açıklama	Ölçü (b) mm	Uzunluk (m)	Paket miktarı (mt/adet)	Not
	C00-14A01	Kablo kanalı, düz, kapaklı, 50 mm, PPO LS0H	50	2	60	
	C00-14A02	Kablo kanalı, perfore, kapaksız, 50 mm, PPO LS0H	50	2	60	
	C00-14A03	Birleştirme aparatı, 50 mm kanal için, PPO LS0H	50	-	25	Her ek için 1 adet gereklidir
	C00-14A04	30° dönüş, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A05	45° dönüş, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A06	90° dönüş, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A07	30° düşey dönüş, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A08	90° düşey dönüş, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A09	90° dikey dönüş, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A10	Yatay T parçası, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A11	Düşey T parçası, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A12	Düşey T parçası, açılıp kapanabilir, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A13	Dörtlü geçiş ek parçası, 50 mm kanal için, PPO LS0H	50	-	1	
	C00-14A14	Kablo kanalı sonlandırma parçası, 50 mm kanal için, PPO LS0H	50	-	5	
	C00-14A15	Yuvarlak Esnek tüp sonlandırma parçası, 50 mm, PPO LS0H	50	-	20	

HCS P/N	Açıklama	Ölçü (b) mm	Uzunluk (m)	Paket miktarı (mt/adet)	Not
C00-14B01	Kablo kanalı, düz, kapaklı, 100 mm, PPO LS0H	100	2	16	
C00-14B02	Kablo kanalı, düz, kapaksız, 100 mm, PPO LS0H	100	2	16	
C00-14B03	Birleştirme aparatı, 50 mm kanal için, PPO LS0H	100	-	2	Her ek için 1 adet gereklidir
C00-14B04	30° dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B05	45° dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B06	90° dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B07	30° düşey dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B08	45° düşey dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B09	90° düşey dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B10	30° dikey dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B11	45° dikey dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B12	90° dikey dönüş, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B13	Yatay T parçası, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B14	Yatay çıkış için T parçası, 100 mm kanal için, PPO LS0H	100	-	5	
C00-14B15	Düşey T parçası, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B16	Düşey T parçası, açılıp kapanabilir, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B17	Dörtlü geçiş ek parçası, 100 mm kanal için, PPO LS0H	100	-	1	
C00-14B18	Kablo kanalı sonlandırma parçası, kapalı, 100 mm kanal için, PPO LS0H	100	-	2	
C00-14B19	Kablo kanalı sonlandırma parçası, açık, 100 mm kanal için, PPO LS0H	100	-	2	

HCS P/N		Açıklama	Ölçü (b) mm	Uzunluk (m)	Paket miktarı (mt/adet)	Not
	C00-14B20	Yuvarlak Esnek tüp sonlandırma parçası, 100 mm, PPO LS0H	100	-	2	
	C00-14C01	Kablo kanalı, düz, kapaklı, 220 mm, PPO LS0H	220	2	8	
	C00-14C02	Kablo kanalı, düz, kapaksız, 220 mm, PPO LS0H	220	2	8	
	C00-14C03	Birleştirme aparatı, 220 mm kanal için, PPO LS0H	220	-	2	Her ek için 1 adet gereklidir
	C00-14C04	30° dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C05	45° dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C06	90° dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C07	30° düşey dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C08	45° düşey dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C09	90° düşey dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C10	30° dikey dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C11	45° dikey dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C12	90° dikey dönüş, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C13	Yatay T parçası, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C14	Yatay çıkış için T parçası, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C15	Düşey T parçası, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C16	Düşey T parçası, açılıp kapanabilir, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C17	Dörtlü geçiş ek parçası, 220 mm kanal için, PPO LS0H	220	-	1	
	C00-14C18	Dörtlü geçiş ek parçası, redüksiyonlu, 220 mm kanal için, PPO LS0H	220	-	1	

HCS P/N	Açıklama	Ölçü (b) mm	Uzunluk (m)	Paket miktarı (mt/adet)	Not
C00-14C19	Kablo kanalı sonlandırma parçası, kapalı, 220 mm kanal için, PPO LS0H	220	-	2	
C00-14C20	Yuvarlak Esnek tüp sonlandırma parçası, 220 mm, PPO LS0H	220	-	2	
C00-14D01	Kablo kanalı, düz, kapaklı, 300 mm, PPO LS0H	300	2	8	
C00-14D02	Kablo kanalı, düz, kapaksız, 300 mm, PPO LS0H	300	2	8	
C00-14D03	Birleştirme aparatı, 300 mm kanal için, PPO LS0H	300	-	2	Her ek için 1 adet gereklidir
C00-14D04	45° dönüş, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D05	90° dönüş, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D06	45° düşey dönüş, 50 mm kanal için, PPO LS0H	50	-	1	
C00-14D07	45° düşey dönüş, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D08	90° düşey dönüş, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D09	45° dikey dönüş, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D10	90° dikey dönüş, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D11	Yatay T parçası, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D12	Yatay çıkış için T parçası, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D13	Dörtlü geçiş ek parçası, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D14	Dörtlü geçiş ek parçası, redüksiyonlu, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14D15	Kablo kanalı sonlandırma parçası, kapalı, 300 mm kanal için, PPO LS0H	300	-	1	
C00-14E01	50mm esnek tüpe yan çıkış aparatı, yuvarlak, PPO LS0H	-	-	1	50 adet konnektörlü kablo geçirilebilir
C00-14E02	50mm kablo kanalı için T yan çıkış aparatı, PPO LS0H	50	-	1	

HCS P/N	Açıklama	Ölçü (b) mm	Uzunluk (m)	Paket miktarı (mt/adet)	Not
C00-14E03	50 mm kablo kanalı için 90° düşey yan çıkış aparatı, PPO LS0H	50	-	1	
C00-14E04	100 mm kablo kanalı için 90° düşey yan çıkış aparatı, PPO LS0H	100	-	1	
C00-14E05	220 mm kablo kanalı için 90° düşey yan çıkış aparatı, PPO LS0H	100	-	1	
C00-14E06	100 mm Yanal Yükseklikli Kanal Üstünden Çıkış aparatı, PPO LS0H	100	-	2	
C00-14E07	100 mm kanaldan 50 mm kanala geçiş aparatı, PPO LS0H	100'den 50'ye	-	1	
C00-14E08	220 mm kanaldan 100 mm kanala geçiş aparatı, PPO LS0H	220'den 100'e	-	1	
C00-14E09	300 mm kanaldan 100 mm kanala geçiş aparatı, PPO LS0H	300'den 100'e	-	1	
C00-14E10	220 mm kanaldan 100 mm kanala geçiş aparatı, sol, PPO LS0H	220'den 100'e	-	1	
C00-14E11	220 mm kanaldan 100 mm kanala geçiş aparatı, sağ, PPO LS0H	220'den 100'e	-	1	
C00-14E12	Esnek yuvarlak tüp, 50 mm, PPO LS0H	50	2	2	50 adet konnektörlü kablo geçebilir
C00-14E13	Esnek yuvarlak tüp, 100 mm, PPO LS0H	88	2	2	150 adet konnektörlü kablo geçebilir
C00-14E14	Kare esnek tüp, 80 mm, PPO LS0H	50	0.35	0.35	80 adet konnektörlü kablo geçebilir
C00-14E15	Çıkış rampası, PPO LS0H	-	-	1	
C00-14E16	Montaj parçası 50 mm kanal için, 304 derece paslanmaz çelik	50	-	10	
C00-14E17	Montaj parçası 100 mm kanal için, 304 derece paslanmaz çelik	100	-	10	
C00-14E18	Montaj parçası 220 mm kanal için, 304 derece paslanmaz çelik	220	-	10	
C00-14E19	Montaj parçası 300 mm kanal için, 304 derece paslanmaz çelik	300	-	10	
C00-14E20	Kesme aleti, 50 mm ve üzeri kanallar için	-	-	1	
C00-14E21	Kesme aleti, 100 mm ve üzeri kanallar için	-	-	1	

HCS P/N	Açıklama	Ölçü (b) mm	Uzunluk (m)	Paket miktarı (mt/adet)	Not
C00-14E22	Testere ağzı	-	-	1	
C00-14E23	50 mm kanallar için delik açma aleti	-	-	1	
C00-14E24	Manuel delik açma aleti, 100,220 ve 300 mm kanallar için	-	-	1	
C00-14E25	Manuel&hidrolik destekli delik açma aleti, 100,220 ve 300 mm kanallar için	-	-	1	
C00-14E26	Ayaktan kontrollü delik açma aleti, 100,220 ve 300 mm kanallar için	-	-	1	
C00-14E27	Ayaktan kontrollü delik açma aleti, 100,220 ve 300 mm kanallar için, taşıma çantası ile	-	-	1	