“State-of-the-art Data Center Solutions”
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 standards for different products and services. Some commonly Data Center standards are formed by organisations such as ASHREA, CENELEC, ISO/IEC, TIA, BICSI, UPTIME, IEEE, NEB.

Today’s real challenges in a Data Center can be summarised as:

- Energy Efficiency for Power & Cooling (PUE-DCIE)
- High Density Servers; Storage Servers
- Co-location
- Refurbishment
As the main continuous need to run all systems, power is the major element for all Data Centers. Data center designers should 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

<table>
<thead>
<tr>
<th>PUE</th>
<th>DCIE</th>
<th>Efficiency Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>33%</td>
<td>Un-efficient</td>
</tr>
<tr>
<td>2.5</td>
<td>40%</td>
<td>Low efficient</td>
</tr>
<tr>
<td>2.0</td>
<td>50%</td>
<td>Average</td>
</tr>
<tr>
<td>1.5</td>
<td>67%</td>
<td>Efficient</td>
</tr>
<tr>
<td>1.2</td>
<td>83%</td>
<td>Well Efficient</td>
</tr>
</tbody>
</table>

Electrical Power IN
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.

ENVIRONMENTAL MONITORING & MANAGEMENT

Environmental monitoring and management in your Data Center provides you visibility and control of vital parameters which ensures your uptime and efficiency.
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.
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.
Cold Corridor Containment serves for energy savings in Data Center cooling. The sliding doors are self-closing with mechanical lock. If required, doors can be electrically closed and integrated to the building management system.

Ergonomically designed and aesthetic looking HCS DataLine 16 Data Center cabinets are designed in order to meet various needs of secure housing for existing and new generation servers and other active equipments. Thanks to 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.
Cabling as the physical layer is the transmission media of the data which shall be chosen 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 guidelines, 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 standards 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 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 pre-terminated 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 DataLink Fiber-Optic components
• Single mode standard 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 pigtailed.
• Fiber optic 19" panels.
• Fiber optic wall-mount patch panels and distribution boxes.
• Fiber optic high-Capacity Fiber-Optic Rack-Mount Cabinets up to 288 ports.
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 tray and mesh cable tray systems run power and data cables either in ceilings or in raised floors. The variety of our solutions guarantee the right solution for any conceivable application.

Cable routing for power and copper 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. The cable routing duct requires non-metallic components and is completely halogen-free (PPO, ROHS-compliant, UL2024A standard certified).

Cable routing for fibre optic cables

Mounting systems

Cable routing duct for fibre optic cables, mesh cable trays or cable trays have common requirement: Universally applicable mounting systems. They ensure secure fixing beneath the ceiling, on the wall or in the floor, and are available in many different 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 via cable penetrations preventing the spread of fire and smoke into the next rooms.
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 archived.

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.
Power consumption cost is extremely important for Data Center operation - this is pushing Data Center designers and managers 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 components 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.

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

<table>
<thead>
<tr>
<th>Data Center Server Cabinets</th>
<th>20-23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Center Network Cabinets</td>
<td>24-27</td>
</tr>
<tr>
<td>Data Center Cabling Open Frames</td>
<td>28-29</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>General</th>
<th>Steel Sheets</th>
<th>Powder Coating</th>
<th>Mechanical</th>
<th>Assembly</th>
<th>IT equipment safety</th>
<th>Fan Unit &amp; Power Strips</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS EN 60297-3-100101102</td>
<td>DIN EN 10130-91</td>
<td>DIN 67530</td>
<td>TS EN 61587-1</td>
<td>TS EN 60917-2-1F-2</td>
<td>TS EN 60950-1</td>
<td>TS EN 60439-1</td>
</tr>
<tr>
<td>DIN 41494</td>
<td>DIN EN 10327</td>
<td>ASTM D 2796</td>
<td></td>
<td></td>
<td>IEC 60364-7-707</td>
<td>TS EN 62208</td>
</tr>
<tr>
<td>TS EN 60529-1</td>
<td>EREGLI 6112</td>
<td>ASTM D 3451</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP20 (Optional IP 42)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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
General Properties

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

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Internal Height mm</th>
<th>Dimensions mm</th>
<th>Net Weight Kg</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C16-04261</td>
<td>42U19&quot; (600x1100) mm DataLine™16 Data Center Server Cabinet</td>
<td>1880</td>
<td>600 1100 2028</td>
<td>117</td>
<td></td>
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<tr>
<td>C16-04761</td>
<td>47U19&quot; (600x1100) mm DataLine™16 Data Center Server Cabinet</td>
<td>2102</td>
<td>600 1100 2250</td>
<td>132</td>
<td></td>
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<tr>
<td>C16-04262</td>
<td>42U19&quot; (600x1200) mm DataLine™16 Data Center Server Cabinet</td>
<td>1880</td>
<td>600 1200 2028</td>
<td>134</td>
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<tr>
<td>C16-04762</td>
<td>47U19&quot; (600x1200) mm DataLine™16 Data Center Server Cabinet</td>
<td>2102</td>
<td>600 1200 2250</td>
<td>155</td>
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</tbody>
</table>
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.

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.

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:

<table>
<thead>
<tr>
<th>General</th>
<th>Steel Sheets</th>
<th>Powder Coating</th>
<th>Mechanical</th>
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<tr>
<td>TS EN 60297-3-100/101/102</td>
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<td>DIN 67530</td>
<td>TS EN 61587-1</td>
<td>TS EN 60917-2-11-2</td>
<td>TS EN 60950-1</td>
<td>TS EN 60439-1</td>
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<tr>
<td>DIN 41494</td>
<td>DIN EN 10327</td>
<td>ASTM D 2796</td>
<td>IEC 60364-7-707</td>
<td>TS EN 60439-1</td>
<td>TS EN 62208</td>
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<tr>
<td>TS EN 60529-1</td>
<td>EREGLI 6112</td>
<td>ASTM D 3451</td>
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</tr>
<tr>
<td>IP20 (Optional IP 42)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.
General Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material of Construction</td>
<td>Sheet &amp; Galvanized steel. 1.0/1.2/1.5/2.0 mm thickness.</td>
</tr>
<tr>
<td>Paint and Color</td>
<td>Special steel finish with electrostatic powder coat, RAL 9005 black. Other colors available upon request.</td>
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<tr>
<td>Front Door</td>
<td>Solid metal, Oval shaped, nominal 85% perforated, one part. Opening left &amp; right. 180 degree opening (135 degree when used in a row). Interchangeable door hinges.</td>
</tr>
<tr>
<td>Side Panels</td>
<td>2 parts, Removable with handles &amp; lockable with slim latch.</td>
</tr>
<tr>
<td>Rear Door</td>
<td>Solid metal, flat, nominal 85% perforated, two part. Opening left &amp; right. 180 degree opening (135 degree when used in a row). Interchangeable door hinges.</td>
</tr>
<tr>
<td>Top Chassis &amp; Cover</td>
<td>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 possibility to ceiling (with fixing accessory).</td>
</tr>
<tr>
<td>Bottom Chasis</td>
<td>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).</td>
</tr>
<tr>
<td>19” profiles</td>
<td>Adjustable, 4 units (2 front, 2 rear). U-marked.</td>
</tr>
<tr>
<td>Vertical Cable Organizer</td>
<td>Mountable on sides &amp; rear vertically (optional).</td>
</tr>
<tr>
<td>Front Door Lock</td>
<td>High quality, three-point lockable cylindrical mechanism with handle.</td>
</tr>
<tr>
<td>Levelling fit &amp; Pulleys</td>
<td>Available (optional).</td>
</tr>
<tr>
<td>Loading Capacity</td>
<td>1500 kg max. (42U, T5 EN 61587-1).</td>
</tr>
</tbody>
</table>
## Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Internal Height mm</th>
<th>Dimensions</th>
<th>Net Weight Kg</th>
<th>Notes</th>
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<tbody>
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<td>Width mm 800</td>
<td>1100</td>
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<td>C16-04781</td>
<td>47U19&quot; (800x1100) mm DataLine™16 Data Center Network Cabinet</td>
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<td>Depth mm 800</td>
<td>1100</td>
<td>2250</td>
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<td>C16-04282</td>
<td>42U19&quot; (800x1200) mm DataLine™16 Data Center Network Cabinet</td>
<td>1880</td>
<td>Height mm 800</td>
<td>1200</td>
<td>2028</td>
</tr>
<tr>
<td>C16-04782</td>
<td>47U19&quot; (800x1200) mm DataLine™16 Data Center Network Cabinet</td>
<td>2102</td>
<td></td>
<td>1200</td>
<td>2250</td>
</tr>
</tbody>
</table>
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 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

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Dimensions</th>
<th>Net Weight Kg</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C13-04214</td>
<td>42U 19&quot; (1671x465)mm DataLine™13 Open Frame</td>
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<tr>
<td>C13-04514</td>
<td>45U 19&quot; (1671x465)mm DataLine™13 Open Frame</td>
<td>Width 1671 mm, Depth 465 mm, Height 485 mm</td>
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<tr>
<td>C13-04714</td>
<td>47U 19&quot; (1671x465)mm DataLine™13 Open Frame</td>
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<td>Cabinet Accessories</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Corridor Containment</td>
<td>33</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Overhead Cabling Management</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snapfix Cable Containment Brackets, Snapfix Pdu Brackets, Grounding Kits</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush Kits, Levelling Feet, Castor Group, Baying Kit</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shelves, 19” Blank Panels</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horizontal Cable Organiser</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**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 and 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.
### Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-012E01</td>
<td>Containment Door System, double doors with secure glass, manual operated</td>
<td>1200 x 2000 mm</td>
</tr>
<tr>
<td>C00-012E02</td>
<td>Containment Roof System, transparent roof reinforced with metal frame (600 mm)</td>
<td>1200 x 600 mm</td>
</tr>
<tr>
<td>C00-012E03</td>
<td>Containment Roof System, transparent roof reinforced with metal frame (800 mm)</td>
<td>1200 x 800 mm</td>
</tr>
<tr>
<td>HCS P/N</td>
<td>Description</td>
<td>Dimensions</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>C00-10E01</td>
<td>U-shaped cable path, h:85. for w600 DC Cabinets</td>
<td>Width 600</td>
</tr>
<tr>
<td>C00-10E02</td>
<td>U-shaped cable path, h:130. for w600 DC Cabinets</td>
<td>Width 600</td>
</tr>
<tr>
<td>C00-10E03</td>
<td>W-shaped cable path, h:200. for w600 DC Cabinets</td>
<td>Width 600</td>
</tr>
<tr>
<td>C00-10E04</td>
<td>U-shaped cabinet front label panel, h:200. for w600 DC Cabinet</td>
<td>Width 600</td>
</tr>
<tr>
<td>C00-10E05</td>
<td>U-shaped cable path, h:85. for w800 DC Cabinets</td>
<td>Width 800</td>
</tr>
<tr>
<td>C00-10E06</td>
<td>U-shaped cable path, h:130. for w800 DC Cabinets</td>
<td>Width 800</td>
</tr>
<tr>
<td>C00-10E07</td>
<td>W-shaped cable path, h:200. for w800 DC Cabinets</td>
<td>Width 800</td>
</tr>
<tr>
<td>C00-10E08</td>
<td>U-shaped cabinet front label panel, h:200. for w800 DC Cabinets</td>
<td>Width 800</td>
</tr>
<tr>
<td>C00-10G01</td>
<td>Top chassis cable routing organiser, for DC cabinets w600, 6 pcs/set</td>
<td></td>
</tr>
<tr>
<td>C00-10G02</td>
<td>Top chassis cable routing organiser, for DC cabinets w800, 10 pcs/set</td>
<td></td>
</tr>
</tbody>
</table>
### CABLE ORGANIZER RINGS

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

### PDU BRACKETS

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-03G02</td>
<td>fixing ring for Vertical power strips, for DC cabinets (1 set: 2 pcs)</td>
</tr>
</tbody>
</table>

### GROUNDING KITS

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Dimensions Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-06A04</td>
<td>6 mm Door grounding kit for DataLine 16 cabinets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C00-06A05</td>
<td>16/25 mm Cabinet Body Grounding Kit for DataLine 16 cabinets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## BRUSH KITS & LEVELLING FEET & CASTOR GROUP & FIXING KITS

### Ordering Information

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

## BAYING KIT

### Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Width mm</td>
</tr>
<tr>
<td>C00-012D01</td>
<td>DataLine 16 cabinets baying kit, 4 pcs/set</td>
<td></td>
</tr>
</tbody>
</table>

www.hescs.com
### SHELVES

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Depth mm</th>
<th>Load Capacity</th>
<th>Additional Items Included</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-01B04</td>
<td>Fixed Shelf, Vented Steel Sheet, 1/2U, 19&quot;, 4 Fixing Points</td>
<td>1000 mm</td>
<td>30 Kg max.</td>
<td>Mounting Kit</td>
<td></td>
</tr>
<tr>
<td>C00-01B08</td>
<td>Fixed Shelf, Vented Steel Sheet, 1/2U, 19&quot;, 4 Fixing Points, with Support Profile</td>
<td>1000 mm</td>
<td>60 Kg max.</td>
<td>Mounting Kit</td>
<td></td>
</tr>
<tr>
<td>C00-01B11</td>
<td>Fixed Shelf, Vented Steel Sheet, Heavy Duty, 1U, 19&quot;, 4 Fixing Points, with Support Profile</td>
<td>1000 mm</td>
<td>100 Kg max.</td>
<td>Mounting Kit</td>
<td></td>
</tr>
<tr>
<td>C00-01C04</td>
<td>Sliding Shelf, Vented Steel Sheet, 1/2U, 19&quot;, 4 Fixing Points, Rail Locked1000 mm</td>
<td>35 Kg max.</td>
<td>-</td>
<td>Mounting Kit</td>
<td></td>
</tr>
<tr>
<td>C00-01C07</td>
<td>Sliding Shelf, Vented Steel Sheet, Heavy Duty, 1U, 19&quot;, 8 Fixing Points. 1000 mm</td>
<td>100 Kg max.</td>
<td>-</td>
<td>Mounting Kit</td>
<td>Depth Adjustable</td>
</tr>
<tr>
<td>C00-01C08</td>
<td>Sliding Shelf, Vented Steel Sheet, 1U, 19&quot;, Teleskobic Cable Carry Mechanizm</td>
<td>-</td>
<td>-</td>
<td>Mounting Kit</td>
<td>750mm open Depth Adjustable</td>
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</tbody>
</table>

### Drawers

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Depth mm</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-01D01</td>
<td>1U, 19&quot;, lockable drawer</td>
<td>350 mm</td>
<td>Mounting Kit</td>
</tr>
<tr>
<td>C00-01D02</td>
<td>2U, 19&quot;, lockable drawer</td>
<td>550 mm</td>
<td>Mounting Kit</td>
</tr>
<tr>
<td>C00-01D03</td>
<td>3U, 19&quot;, lockable drawer</td>
<td>550 mm</td>
<td>Mounting Kit</td>
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### BLANK PANELS

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Material</th>
<th>Color</th>
<th>Additional Items Included</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-10A01</td>
<td>1U 19&quot; Blank Panel</td>
<td>Steel Sheet</td>
<td>Black RAL 9005</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>C00-10A02</td>
<td>2U 19&quot; Blank Panel</td>
<td>Steel Sheet</td>
<td>Black RAL 9005</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>C00-10A04</td>
<td>4U 19&quot; Blank Panel</td>
<td>Steel Sheet</td>
<td>Black RAL 9005</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>C00-10A08</td>
<td>8U 19&quot; Blank Panel</td>
<td>Steel Sheet</td>
<td>Black RAL 9005</td>
<td>-</td>
<td></td>
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<tr>
<td>C00-10A16</td>
<td>16U 19&quot; Blank Panel</td>
<td>Steel Sheet</td>
<td>Black RAL 9005</td>
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<tr>
<td>C00-10A24</td>
<td>24U 19&quot; Blank Panel</td>
<td>Steel Sheet</td>
<td>Black RAL 9005</td>
<td>-</td>
<td></td>
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<tr>
<td>C00-10H01</td>
<td>Fan Tray Blank Panel for DataLine 16 cabinets</td>
<td>Steel Sheet</td>
<td>Black RAL 9005</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>C00-10H02</td>
<td>Ventilation hole blank panel for DataLine 16 cabinets</td>
<td>Steel Sheet</td>
<td>Black RAL 9005</td>
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</tbody>
</table>
### HORIZONTAL CABLE ORGANIZER

**Ordering Information**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Hook &amp; Ring</th>
<th>Color</th>
<th>Hook &amp; Ring Size</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-09C01</td>
<td>1U 19&quot; cable organizer ring, metal hook</td>
<td>1 pcs</td>
<td>Black RAL 9005</td>
<td>44x44 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09C02</td>
<td>1U 19&quot; cable organizer ring, metal hook</td>
<td>1 pcs</td>
<td>Black RAL 9005</td>
<td>44x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09C03</td>
<td>2U 19&quot; cable organizer ring, metal hook</td>
<td>10 pcs</td>
<td>Black RAL 9005</td>
<td>88x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09C04</td>
<td>1U 19&quot; cable organizer ring, plastic hook</td>
<td>1 pcs</td>
<td>Black RAL 9005</td>
<td>44x44 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A08</td>
<td>1U 19&quot; cable organizer, plastic rings</td>
<td>5 pcs</td>
<td>Black RAL 9005</td>
<td>44x44 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A01</td>
<td>1U 19&quot; cable organizer, plastic rings</td>
<td>5 pcs</td>
<td>Black RAL 9005</td>
<td>44x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A09</td>
<td>1U 19&quot; cable organizer, metal rings</td>
<td>5 pcs</td>
<td>Black RAL 9005</td>
<td>44x44 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A02</td>
<td>1U 19&quot; cable organizer, metal rings</td>
<td>5 pcs</td>
<td>Black RAL 9005</td>
<td>44x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A03</td>
<td>2U 19&quot; cable organizer, plastic rings</td>
<td>10 pcs</td>
<td>Black RAL 9005</td>
<td>88x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A10</td>
<td>2U 19&quot; cable organizer, plastic rings</td>
<td>5 pcs</td>
<td>Black RAL 9005</td>
<td>44x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A11</td>
<td>1U 19&quot; cable organizer, metal rings and closing cover</td>
<td>5 pcs</td>
<td>Black RAL 9005</td>
<td>44x44 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A04</td>
<td>1U 19&quot; cable organizer, metal rings and closing cover</td>
<td>5 pcs</td>
<td>Black RAL 9005</td>
<td>44x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A05</td>
<td>2U 19&quot; cable organizer, metal rings and closing cover</td>
<td>10 pcs</td>
<td>Black RAL 9005</td>
<td>88x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A13</td>
<td>1U 19&quot; cable organizer, metal rings and brush</td>
<td>5 pcs</td>
<td>Black RAL 9005</td>
<td>44x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A14</td>
<td>2U 19&quot; cable organizer, metal rings and brush</td>
<td>10 pcs</td>
<td>Black RAL 9005</td>
<td>88x88 mm</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A07</td>
<td>1U 19&quot; cable organizer, metal, with brush</td>
<td>-</td>
<td>Black RAL 9005</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A06</td>
<td>1/2U 19&quot; cable organizer, metal, with brush and clamping</td>
<td>-</td>
<td>Black RAL 9005</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C00-09A12</td>
<td>1U 19&quot; cable organizer, metal, with brush and clamping</td>
<td>-</td>
<td>Black RAL 9005</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C00-09B01</td>
<td>1U d=400 mm Depth cable organizer, metal</td>
<td>-</td>
<td>Black RAL 9005</td>
<td>-</td>
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<tr>
<td>C00-09B02</td>
<td>1U d=600 mm Depth cable organizer, metal</td>
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<td>Black RAL 9005</td>
<td>-</td>
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<tr>
<td>C00-09B03</td>
<td>1U d=800 mm Depth cable organizer, metal</td>
<td>-</td>
<td>Black RAL 9005</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C00-09B04</td>
<td>1U d=1000 mm Depth cable organizer, metal</td>
<td>-</td>
<td>Black RAL 9005</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
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## SECTION C: Data Center Accessories

<table>
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<tr>
<th>Product</th>
<th>Pages</th>
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</thead>
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<td>Data Center Environmental Monitoring &amp; Management Solution</td>
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<tr>
<td>Power Distribution Units - Basic</td>
<td>42-43</td>
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<tr>
<td>Power Distribution Units - Metered</td>
<td>44-45</td>
</tr>
<tr>
<td>Power Distribution Units - Ip Monitored</td>
<td>46-47</td>
</tr>
<tr>
<td>Power Distribution Units - Managed &amp; Ip Switched</td>
<td>48-49</td>
</tr>
<tr>
<td>LCD Consoles With Kvm Switch (Ip)</td>
<td>50-51</td>
</tr>
</tbody>
</table>
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
- **Weight**: 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-electrical 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**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-13A02</td>
<td>Main Unit + Web pack</td>
</tr>
<tr>
<td>C00-13A03</td>
<td>Combo Sensor</td>
</tr>
<tr>
<td>C00-13A04</td>
<td>Humidity &amp; Temperature High Sensitivity</td>
</tr>
<tr>
<td>C00-13A05</td>
<td>Humidity &amp; Temperature Standart</td>
</tr>
<tr>
<td>C00-13A06</td>
<td>Temperature Sensor Standart</td>
</tr>
<tr>
<td>C00-13A07</td>
<td>Flood Sensor</td>
</tr>
<tr>
<td>C00-13A08</td>
<td>Water Detect Cable 1 meter</td>
</tr>
<tr>
<td>C00-13A09</td>
<td>Water Detect Cable 5 meter</td>
</tr>
<tr>
<td>C00-13A10</td>
<td>3-phase VF Module</td>
</tr>
<tr>
<td>C00-13A11</td>
<td>3-phase Energy Module</td>
</tr>
<tr>
<td>C00-13A12</td>
<td>UPS RS-232 Module</td>
</tr>
<tr>
<td>C00-13A13</td>
<td>LCD Module</td>
</tr>
<tr>
<td>C00-13A14</td>
<td>Expansion Module</td>
</tr>
<tr>
<td>C00-13A15</td>
<td>Dry Contact Module 1 port</td>
</tr>
<tr>
<td>C00-13A16</td>
<td>Dry Contact Module 8 port</td>
</tr>
<tr>
<td>C00-13A17</td>
<td>Dry Contact Module 24 port</td>
</tr>
<tr>
<td>C00-13A18</td>
<td>Relay Output Module 4 port - 0.5A</td>
</tr>
<tr>
<td>C00-13A19</td>
<td>Relay Output Module 12 port - 0.5A</td>
</tr>
<tr>
<td>C00-13A20</td>
<td>Alarm Signal Input Module</td>
</tr>
<tr>
<td>C00-13A21</td>
<td>Integration Module (SNMP/R5232/R5485)</td>
</tr>
<tr>
<td>C00-13A22</td>
<td>Server Integration Module (SNMP)</td>
</tr>
<tr>
<td>C00-13A23</td>
<td>Analog Module 1 Port - 4-20mA or 0-10V</td>
</tr>
<tr>
<td>C00-13A24</td>
<td>Analog Module 24 Port</td>
</tr>
<tr>
<td>C00-13A25</td>
<td>Proximity Module</td>
</tr>
</tbody>
</table>

---

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

---

Connecting Networks.™

www.hescs.com
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
## General Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output socket type &amp; quantity</td>
<td>18 or 24 way DIN 49440 16A Schuko type</td>
</tr>
<tr>
<td>Plug Type</td>
<td>IEC60309 plug (2P+E)</td>
</tr>
<tr>
<td>Rating Voltage</td>
<td>250VAC 50/60 Hz</td>
</tr>
<tr>
<td>Max. Power</td>
<td>8000 Watts</td>
</tr>
<tr>
<td>Safety Authentication</td>
<td>CE</td>
</tr>
<tr>
<td>Rating Current</td>
<td>32A</td>
</tr>
<tr>
<td>Protection</td>
<td>2x16A circuit breaker with cover</td>
</tr>
<tr>
<td>Product Size</td>
<td>L x W x H = 1612 x 44.4 x 66 mm</td>
</tr>
<tr>
<td>Mounting Length</td>
<td>Zero U, 1584 mm</td>
</tr>
<tr>
<td>Case Colour</td>
<td>Black</td>
</tr>
<tr>
<td>Cable dimension</td>
<td>3x6.0mm</td>
</tr>
<tr>
<td>Cable Length</td>
<td>3 metres</td>
</tr>
</tbody>
</table>

## Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-03D03</td>
<td>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 x 3.0m)</td>
</tr>
<tr>
<td>C00-03D04</td>
<td>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 x 3.0m)</td>
</tr>
</tbody>
</table>
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 Ammeter - Total PDU Current Load Monitoring
- Voice alarm
### General Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output socket type &amp; quantity</td>
<td>24 way IEC320 C13 10A and 4 way IEC320 C19 16A</td>
</tr>
<tr>
<td>Plug Type</td>
<td>IEC60309 plug (32A 2P+E)</td>
</tr>
<tr>
<td>Rating Voltage</td>
<td>250VAC 50/60 Hz</td>
</tr>
<tr>
<td>Max Power</td>
<td>8000 Watts</td>
</tr>
<tr>
<td>Safety Authentication CE</td>
<td></td>
</tr>
<tr>
<td>Rating Current</td>
<td>32A</td>
</tr>
<tr>
<td>Protection</td>
<td>2x16A circuit breaker with cover</td>
</tr>
<tr>
<td>Product Size</td>
<td>L x W x H = 1645x 44.4 x 66 mm</td>
</tr>
<tr>
<td>Mounting Length</td>
<td>Zero U, 1618.5 mm</td>
</tr>
<tr>
<td>Case Colour</td>
<td>Black</td>
</tr>
<tr>
<td>Cable dimension</td>
<td>3x6.0mm</td>
</tr>
<tr>
<td>Cable Length</td>
<td>3 metres</td>
</tr>
<tr>
<td>Monitoring Functions</td>
<td>Total PDU load current</td>
</tr>
<tr>
<td>Alarm Functions</td>
<td>Max value of PDU total load current</td>
</tr>
<tr>
<td>Alarming Method</td>
<td>Total PDU load current on the LCD display with voice alarm.</td>
</tr>
</tbody>
</table>

### Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-03D05</td>
<td>20 way C13 &amp; 4 way C19 IEC 320 power strip with ampermeter display, 0U, 32 Amp EN60309 Input Plug - 3M lead, 2 x 16A MCB</td>
</tr>
</tbody>
</table>
VERTICAL IP MONITORED POWER DISTRIBUTION UNITS

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 Temperature/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 Protocol, SNMP (V1/V2) Telnet SSH (optional)
- **System Supporting**: Supporting multi-user operation, and software updating

**Ordering Information**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-03D06</td>
<td>20 way C13 &amp; 4 way C19 IEC 320 power strip, IP MONITORED, 0U, 32 Amp EN60309 Input Plug - 3M lead, 1x32A MCB</td>
</tr>
</tbody>
</table>
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.

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

ROHS, CE

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 Temperature/Humidity, When total load current exceeds preset limited value (system default), When outlet load current exceeds preset limited value.
  - State indicator on NPDUs control interface flashes, and NPU 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

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-03D07</td>
<td>16 way C13 &amp; 4 way C19 IEC 320 power strip, IP SWITCHED, OU, 32 Amp EN60309 Input Plug - 3M lead, 1x32A MCB</td>
</tr>
</tbody>
</table>
**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 or 16 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 screen display)
- Supports daisy-chaining up to 7 units
- Auto scan mode
- Metal case, rack mountable
### General Properties

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

### Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00-13B01</td>
<td>17” Rack Mountable LCD Drawer</td>
</tr>
<tr>
<td>C00-13B02</td>
<td>17” Rack Mountable LCD Drawer with 8 port KVM</td>
</tr>
<tr>
<td>Switch</td>
<td></td>
</tr>
<tr>
<td>C00-13B03</td>
<td>17” Rack Mountable LCD Drawer with 16 port KVM</td>
</tr>
</tbody>
</table>
### SECTION D: Data Center Copper & Fiber Optic Cabling Solutions

<table>
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<tr>
<th>Product</th>
<th>Page</th>
</tr>
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<td>DATALINK 250 Category 6 Horizontal Cables; U/UTP Cables, U/FTP Cables</td>
<td>54-57</td>
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<tr>
<td>DATALINK 250E Category 6E Horizontal Cables; U/UTP Cables</td>
<td>58-59</td>
</tr>
<tr>
<td>DATALINK 500A Augmented Category 6 Horizontal Cables; U/MRTP Cables, U/FTP Cables, S/FTP Cables</td>
<td>60-65</td>
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<tr>
<td>DATALINK 600 Category 7 Horizontal Cables; S/FTP Cat7+ Cables Tested @ 1000mhz</td>
<td>66-67</td>
</tr>
<tr>
<td>DATALINK 600 Category 7 Horizontal Cables; S/FTP Cat7+ Cables Tested @ 1200mhz</td>
<td>68-69</td>
</tr>
<tr>
<td>DATALINK 100e Category 5e Unshielded Rj-45 To Telco Copper Patch Panels</td>
<td>70-71</td>
</tr>
<tr>
<td>DATALINK 100e Category 5e Unshielded Rj-45 To Ipass Pre-Terminated Copper Patch Panels</td>
<td>72-73</td>
</tr>
<tr>
<td>DATALINK 250E Category 6E Patch Panels Unshielded Rj-45 Copper Angled Patch Panels (Jacks)</td>
<td>74-75</td>
</tr>
<tr>
<td>DATALINK Blank·Keystone-jack Copper Patch Panels</td>
<td>76-77</td>
</tr>
<tr>
<td>DATALINK 500A Augmented Category 6A Cable Assemblies</td>
<td>78-79</td>
</tr>
<tr>
<td>DATALIGHT MTD Indoor/Outdoor Multi-Tight Distribution Fiber Optic Cables</td>
<td>80-81</td>
</tr>
<tr>
<td>DATALIGHT SLT Indoor/Outdoor Single-Loose Tube Fiber Optic Cables</td>
<td>82-83</td>
</tr>
<tr>
<td>DATALIGHT MLT Indoor/Outdoor Dielectric Dry-Core Multi-Loose Tube Fiberoptic Cables</td>
<td>84-85</td>
</tr>
<tr>
<td>DATALIGHT Fiber Optic Patch Cords And Pigtails</td>
<td>86-87</td>
</tr>
<tr>
<td>DATALIGHT Fiber Optic Pre-terminated 19&quot; Patch Panels</td>
<td>88-89</td>
</tr>
<tr>
<td>DATALIGHT MPO Cable Assemblies</td>
<td>90-91</td>
</tr>
<tr>
<td>DATALIGHT Fiber Options &amp; Test Methods</td>
<td>92-93</td>
</tr>
</tbody>
</table>

*Note: For all cable alternatives, please refer to the “HCS Product Catalog”*
**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
- 10BASE-T 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
- 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.
Category 6 U/UTP 100 Ohm Horizontal LAN Cables

### Transmission Properties and Electrical Specifications

<table>
<thead>
<tr>
<th>FREQ. MHz</th>
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<th>NEXT Nom</th>
<th>NEXT Std</th>
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<th>EL NEXT Nom</th>
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### 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 f/HZ 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

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<th>Description</th>
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<th>Weight Kg/Km</th>
<th>Cal. Value KJ/m</th>
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<td>585</td>
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<td>500m Drum</td>
<td>FIG-8</td>
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<td>FIG-8</td>
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<td>5.6x11.3</td>
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<td>H06-00804-DM</td>
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<td>5.6x11.3</td>
<td>72</td>
<td>1190</td>
<td>1000m Drum</td>
<td>FIG-8</td>
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**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 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- ISALAN
- ATM 52
- 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
- CENELEC EN 50288-5

**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 +80°C
- **Temperature operating range**: -20 to +60°C
- **Flame Test**: IEC 60332-1
- **Halogen content in LS0H cables**: Null.

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.
Typical NEXT Loss

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<tr>
<th>FREQ. (MHz)</th>
<th>Insertion Loss dB/100m</th>
<th>NEXT dB</th>
<th>PS NEXT dB</th>
<th>EL FEXT dB/100m</th>
<th>PS EL FEXT dB/100m</th>
<th>RL dB</th>
<th>TCL dB</th>
<th>EL-TCL dB</th>
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<td>50.4</td>
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<td>11.4</td>
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<td>20.1</td>
<td>0.4</td>
<td>18.8</td>
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</table>

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 uygulamaları için aşağıdaki protokoller de dahil olmak üzere desteklemektedir:
- 100BASE-T Gigabit Ethernet
- ATM 15S
- TP-PMD
- 100BASE-T Fast Ethernet
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- Token Ring 100 Mbps
- ATM 52
- 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
- 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.

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<tr>
<th>Property</th>
<th>Specification</th>
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<td>Basic Conductor</td>
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<td>Insulation</td>
<td>Polyolefin</td>
</tr>
<tr>
<td>Number of insulated conductors</td>
<td>8, twisted in 4 pairs. (8 pairs in FIG-8 cables)</td>
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<tr>
<td>Color Code of Pairs</td>
<td>Blue x White/Blue, Orange x White/Orange, Green x White/Green, Brown x White/Brown.</td>
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<tr>
<td>Overall Tape Wrap</td>
<td>None.</td>
</tr>
<tr>
<td>Overall shield</td>
<td>None.</td>
</tr>
<tr>
<td>Drain wire</td>
<td>None.</td>
</tr>
<tr>
<td>Outer Jacket</td>
<td>LS0H Halogen free flame retardant or PVC compound</td>
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<tr>
<td>Standard Jacket Color</td>
<td>Light Gray RAL 7035. Other colors available upon request.</td>
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<td>Standard Surface Marking</td>
<td>Includes HCS P/N, cable description, Meter mark and Batch Number.</td>
</tr>
<tr>
<td>Pulling force</td>
<td>50 N/mm² max.</td>
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<tr>
<td>Short Term Bend Radius</td>
<td>8xOD mm</td>
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<td>Long Term Bend Radius</td>
<td>4xOD mm</td>
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<td>Temperature operating range</td>
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<td>Installation temperature range</td>
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<td>Flame Test</td>
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<td>Halogen content in LS0H cables</td>
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### Category 6E U/UTP 100 Ohm Horizontal LAN Cables

**Transmission Properties and Electrical Specifications**

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<th>PS EL NEXT</th>
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<td>dB/100m</td>
<td>dB</td>
<td>nS/100m</td>
<td>dB</td>
<td>Ns</td>
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</table>

**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 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

**Ordering Information**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>OD mm</th>
<th>Weight Kg/Km</th>
<th>Cal. Value KJ/m</th>
<th>Packaging</th>
<th>Notes</th>
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<td>-</td>
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<td>H6E-00402-DP</td>
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</table>

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

www.hescs.com
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 PIN, 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 +60°C

Temperature operating range
- -20 to +60°C

Flame Test
- IEC 60332-1

Halogen content in LS0H cables
- Null.

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.
Transmission Properties and Electrical Specifications

<table>
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<tr>
<th>FREQ.</th>
<th>Insertion Loss</th>
<th>NEXT Loss</th>
<th>PS NEXT Loss</th>
<th>ELFEXT</th>
<th>PS ELFEXT</th>
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<th>Delay</th>
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<td>23.0</td>
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</table>

**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

**Coupiling 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**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>OD mm</th>
<th>Weight Kg/Km</th>
<th>Cal. Value Kj/m</th>
<th>Packaging</th>
<th>Notes</th>
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<td>4x2x23# UMRTP CAT 6A LS0H Grey</td>
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<tr>
<td>H6A-00406-DM</td>
<td>4x2x23# UMRTP CAT 6A LS0H Grey</td>
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<tr>
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<td>H6A-00805-DM</td>
<td>2x(4x2x23#) UMRTP CAT 6A PVC Grey</td>
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<td>FIG-8</td>
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<td>H6A-00806-DP</td>
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<td>FIG-8</td>
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<td>H6A-00806-DM</td>
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<td>92</td>
<td>1210</td>
<td>1000m Drum</td>
<td>FIG-8</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Conductor</td>
<td>Solid, 23AWG, 0.57 mm, bare annealed copper</td>
</tr>
<tr>
<td>Insulation</td>
<td>Polyolefin</td>
</tr>
<tr>
<td>Number of insulated conductors</td>
<td>8, twisted in 4 pairs. (8 pairs in FIG-8 cables)</td>
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<tr>
<td>Color Code of Pairs</td>
<td>Blue x White, Orange x White, Green x White, Brown x White.</td>
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<tr>
<td>Individual pair shield</td>
<td>Laminated aluminum foil (foil face outward) providing 100% coverage.</td>
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<tr>
<td>Drain wire</td>
<td>Solid, 24AWG, 0.51 mm, tin-coated annealed copper</td>
</tr>
<tr>
<td>Overall tape</td>
<td>Polyester tape providing 100% coverage.</td>
</tr>
<tr>
<td>Outer Jacket</td>
<td>LS0H Halogen free flame retardant or PVC compound.</td>
</tr>
<tr>
<td>Standard Jacket Color</td>
<td>Light Gray RAL 7035. Other colors available upon request.</td>
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<tr>
<td>Standard Surface Marking</td>
<td>Includes HCS PIN, cable description, Meter mark and Batch Number.</td>
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<tr>
<td>Pulling force</td>
<td>50 N/mm² max.</td>
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<td>Short Term Bend Radius</td>
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<td>Long Term Bend Radius</td>
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<td>Storage Temperature</td>
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<td>Temperature operating range</td>
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<td>Flame Test</td>
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<td>Halogen content in LS0H cables</td>
<td>Null.</td>
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Augmented Category 6 U/FTP 100 Ohm Horizontal LAN Cables

Transmission Properties and Electrical Specifications

<table>
<thead>
<tr>
<th>FREQ.</th>
<th>Insertion Loss</th>
<th>NEXT Loss</th>
<th>PS NEXT Loss</th>
<th>ACR- F</th>
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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

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<th>HCS P/N</th>
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<th>Cal. Value KJ/m</th>
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<th>Notes</th>
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<td>500m Drum</td>
<td>FIG-B</td>
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<td>1000m Drum</td>
<td>FIG-B</td>
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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
- 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 10Gbps 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 cables 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.

<table>
<thead>
<tr>
<th>Physical and Mechanical Properties</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Basic Conductor</td>
<td>Solid, 23AWG, 0.57 mm, bare annealed copper</td>
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<tr>
<td>Insulation</td>
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<tr>
<td>Number of insulated conductors</td>
<td>8, twisted in 4 pairs. (8 pairs in FIG-8 cables)</td>
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<tr>
<td>Color Code of Pairs</td>
<td>Blue x White, Orange x White, Green x White, Brown x White</td>
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<tr>
<td>Individual pair shield</td>
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<td>Drain wire</td>
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<td>Overall shield</td>
<td>Tin coated copper braid laid in close contact over the inner foils.</td>
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<td>Outer Jacket</td>
<td>LS0H Halogen free flame retardant or PVC compound.</td>
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<td>Standard Jacket Color</td>
<td>Light Gray RAL 7035. Other colors available upon request.</td>
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<td>Standard Surface Marking</td>
<td>Includes HCS PIN, cable description, Meter mark and Batch Number.</td>
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<tr>
<td>Pulling force</td>
<td>50 N/mm² max.</td>
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<td>Short Term Bend Radius</td>
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<td>Long Term Bend Radius</td>
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<tr>
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<td>Temperature operating range</td>
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<td>Halogen content in LS0H cables</td>
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Augmented Category 6 S/FTP 100 Ohm Horizontal LAN Cables

Transmission and Electrical Specifications

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<tr>
<th>FREQ. (MHz)</th>
<th>Insertion Loss (dB/100m)</th>
<th>NEXT Loss (dB)</th>
<th>PS NEXT Loss (dB)</th>
<th>ACR-F (dB/100m)</th>
<th>PS ACR-F (dB)</th>
<th>RL (nS/100m)</th>
<th>Prop. Delay (nS)</th>
<th>TCL (µs)</th>
<th>EL-TCL (µs)</th>
<th>PS ANEXT (dB)</th>
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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

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<th>HCS P/N</th>
<th>Description</th>
<th>OD (mm)</th>
<th>Weight (Kg/Km)</th>
<th>Cal. Valueue (KJ/m)</th>
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<td>1000m Drum FIG-8</td>
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</table>

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
- ATM 25
- 10BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- Broadband and Baseband Video
- ISDN Basic and Primary Access
- 1BASE-5 Starlan
- TP-PMD
- ATM 155
- Token Ring 100 Mbps
- ATM 52
- 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

**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 +60°C
- **Temperature operating range**: -20 to +60°C
- **Installation temperature range**: 0 to +50°C
- **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)

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## Transmission Properties and Electrical Specifications

<table>
<thead>
<tr>
<th>FREQ.</th>
<th>Insertion Loss</th>
<th>NEXT Loss</th>
<th>PS NEXT Loss</th>
<th>ELFEXT</th>
<th>PS ELFEXT</th>
<th>RL</th>
<th>TCL</th>
<th>EL-TCTL</th>
<th>PS ANEXT</th>
<th>PS AFEEXT</th>
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<td>dB/100m Max</td>
<td>dB Min</td>
<td>dB Min</td>
<td>dB/100m Max</td>
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<td>dB Min</td>
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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/f1/2 @ 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

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**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.

---

**Ordering Information**

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<th>HCS P/N</th>
<th>Description</th>
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<th>Weight Kg/Km</th>
<th>Cal. Value Kj/m</th>
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<td>FIG-8</td>
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www.hescs.com
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 kullanılmaktadır. Tüm DataLink 600 serisi kablolar, IEC 61156-5 (ISO/IEC 11801) standardının gereksinimlerinin çok üzerinde bir performans sergilemektedir ve 1200 MHz’ e kadar test edilmektedir.

**Applications**

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

- 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

**Specifications 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**

- Olaganüstü iletim değerleri - 100 metre uç tan uca kanal (Channel) uygulamalarında 10GBE’yı destekler.
- Sevkiyat öncesi her makara veya kutu kablonun tek tek test edilmesi - En üst düzey kalite güvencesini sağlar.
- Olaganüstü malzeme özellikleri ve kablo dizaynı - Benzersiz Century™/uniÖmür Boyu Garanti sağırlar .
- Yüksek ACR değerleri - Tüm uygulamalarda en düşük veri kayıp oranını sağlar ./uniÖmür
- Oldukça yüksek per dengesi ve çift folyolu yapı - kablodan dışarı sızan ışımayı minimize, gürültü bağımsızlığını 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 .
- Pürüzsüz ve rijit dış kılıf- Kablonun kutusundan kolay ve hızlı çekilmesi ve kurulmasına yardımcı olur .
- Temel ‹letken Katı, 23AWG, tavl› ç›plak bak›r .<zolasyon Polyolefin</zolasyon>
- ‹zole ‹letken Sayısı 8, bükülmüs 4 per haline (Fig-8 kablolarla 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 d›ş tarafa), %100 koruma sağırlar .
- D›ş Folyo (Blendaj) Per folyolar›yla yak›n temasta kalay kaplı bakır çatalma.
- D›ş K›l›f (Blendaj) Per folyosunda yapışan metal kalay kaplı bakır çatalma.
- Standart D›ş K›l›f Rengi Açık Gri RAL 7035. ‹stenirse di¤er renkler mevcuttur .
- Standart kablo yaz› bilgisi HCS Ürün kodu, kablo tan›mlamas›, metraj bilgisi ve parti numaras›.
- Çekme kuvveti 50 N/mm² maks.
- Büküleme yarçapı (kurulum (kisa dönem)) 8xKablo d›ş çap› (mm).
- Büküleme yarçapı (kurulum (uzun dönem)) 4xKablo d›ş çap› (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
- LSZH kabloları halöjen miktarı IEC 60754 (gaz) & IEC 61034 (duman)

**Applications**

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

- 1200 MHz’e kadar Broadband Dijital ve Analog CATV sinyalleri
- 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

**Physical and Mechanical Properties**

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<td>Per folyolanya yapışan metal kalay kaplı bakır çatalma.</td>
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**Transmission Properties and Electrical Specifications**

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<td>17.3</td>
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<td>NS</td>
<td>67.0</td>
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<tr>
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<td>38.01</td>
<td>66.4</td>
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<td>40.1</td>
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<td>500</td>
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<td>41.1</td>
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<td>NS</td>
<td>67.0</td>
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<tr>
<td>600</td>
<td>47.10</td>
<td>63.7</td>
<td>60.7</td>
<td>39.5</td>
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<td>17.3</td>
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<td>NS</td>
<td>67.0</td>
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<td>700</td>
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<td>62.7</td>
<td>59.7</td>
<td>38.2</td>
<td>35.2</td>
<td>16.6</td>
<td>NS</td>
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<td>64.8</td>
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<td>58.9</td>
<td>37.0</td>
<td>34.0</td>
<td>16.1</td>
<td>NS</td>
<td>NS</td>
<td>64.0</td>
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<td>1000</td>
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<td>60.4</td>
<td>57.4</td>
<td>35.1</td>
<td>32.1</td>
<td>15.1</td>
<td>NS</td>
<td>NS</td>
<td>62.5</td>
<td>33.2</td>
</tr>
<tr>
<td>1200</td>
<td>68.36</td>
<td>59.2</td>
<td>56.2</td>
<td>33.5</td>
<td>30.5</td>
<td>14.3</td>
<td>NS</td>
<td>NS</td>
<td>61.3</td>
<td>31.6</td>
</tr>
</tbody>
</table>

**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 iletim Süresi (Prop. Delay):** 500*36/ft/2 @ 1-1200 MHz
- **Perler Arası Sinyal Geçikmesi (Skev):** 25 ns/100m maks @ 1-1200 MHz
- **İzolasyon Direnci:** 5000 MegaOhm•Km min. @ 500 Vdc
- **Birleşme Zayıflaması:** 85 dB min @ 30-100 MHz 85-20Log(f/100) @100-600 MHz
- **Ekranałamaya Zayıflaması:** 60 dB min @ 30-600 MHz
- **Transfer Empedansi:** 10 mOhm/m maks @ 1-30 MHz 30 MOhm/m maks @ 30-100 MHz

**Ordering Information**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>OD mm</th>
<th>Weight Kg/Km</th>
<th>Cal. Value Kj/m</th>
<th>Packaging</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>H07-F0421-1D</td>
<td>4x2x23# S/FTP CAT 7+ PVC Gri, 1200 MHz</td>
<td>7.0</td>
<td>48</td>
<td>660</td>
<td>500m Makara</td>
<td></td>
</tr>
<tr>
<td>H07-F0421DM</td>
<td>4x2x23# S/FTP CAT 7+ PVC Gri, 1200 MHz</td>
<td>7.0</td>
<td>48</td>
<td>660</td>
<td>1000m Makara</td>
<td></td>
</tr>
<tr>
<td>H07-F0422-1D</td>
<td>4x2x23# S/FTP CAT 7+ LS0H Gri, 1200 MHz</td>
<td>7.0</td>
<td>48</td>
<td>660</td>
<td>500m Makara</td>
<td></td>
</tr>
<tr>
<td>H07-F0422DM</td>
<td>4x2x23# S/FTP CAT 7+ LS0H Gri, 1200 MHz</td>
<td>7.0</td>
<td>48</td>
<td>660</td>
<td>1000m Makara</td>
<td></td>
</tr>
<tr>
<td>H07-F0823-DP</td>
<td>2x(4x2x23#) S/FTP CAT 7+ PVC Gri, 1200 MHz</td>
<td>7.0x14.2</td>
<td>100</td>
<td>1320</td>
<td>500m Makara</td>
<td>FIG-8</td>
</tr>
<tr>
<td>H07-F0823-DM</td>
<td>2x(4x2x23#) S/FTP CAT 7+ PVC Gri, 1200 MHz</td>
<td>7.0x14.2</td>
<td>100</td>
<td>1320</td>
<td>1000m Makara</td>
<td>FIG-8</td>
</tr>
<tr>
<td>H07-F0824-DP</td>
<td>2x(4x2x23#) S/FTP CAT 7+ LS0H Gri, 1200 MHz</td>
<td>7.0x14.2</td>
<td>100</td>
<td>1320</td>
<td>500m Makara</td>
<td>FIG-8</td>
</tr>
<tr>
<td>H07-F0824-DM</td>
<td>2x(4x2x23#) S/FTP CAT 7+ LS0H Gri, 1200 MHz</td>
<td>7.0x14.2</td>
<td>100</td>
<td>1320</td>
<td>1000m Makara</td>
<td>FIG-8</td>
</tr>
</tbody>
</table>

**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 (RI-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 (RI-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
- 100BASE-TX
- Broadband and Baseband Video
- ATM 155
- ISDN Basic and Primary Access
- TP-PMD
- 1BASE-5 Starlan
- ATN 25
- Basel and X.11
- ISALAN
- 100BASE-T2
- 100BASE-T4
- ATM 52
- 100BASE-T Ethernet
- Token Ring 4 Mbps and 16 Mbps
- 10BASE-T Ethernet
- Token Ring 100 Mbps

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:

<table>
<thead>
<tr>
<th>Transmission</th>
<th>EMC</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI/TIA/568-C.2</td>
<td>EN-55022, Class B (Europe)</td>
<td>UL94 V-0 rated plastic materials</td>
</tr>
</tbody>
</table>

Benefits & Features
- Exceptional material properties and design - providing a unique Century™ Lifetime Warranty.
- Detaled 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

<table>
<thead>
<tr>
<th>Transmission and Electrical Specifications</th>
<th>Typical Return Loss (Forward, Component Level)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td><strong>Insertion Loss</strong></td>
</tr>
<tr>
<td>MHz</td>
<td>dB</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1.00</td>
<td>0.02</td>
</tr>
<tr>
<td>4.00</td>
<td>0.03</td>
</tr>
<tr>
<td>8.00</td>
<td>0.04</td>
</tr>
<tr>
<td>10.00</td>
<td>0.04</td>
</tr>
<tr>
<td>16.00</td>
<td>0.05</td>
</tr>
<tr>
<td>25.00</td>
<td>0.06</td>
</tr>
<tr>
<td>31.25</td>
<td>0.07</td>
</tr>
<tr>
<td>62.50</td>
<td>0.11</td>
</tr>
<tr>
<td>100.00</td>
<td>0.15</td>
</tr>
</tbody>
</table>

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

Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Panels Description</th>
<th>TELCO Blocks</th>
<th>Units</th>
<th>Size</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5E-T2401-1U</td>
<td>24 port RJ-45 to TELCO Unshielded CAT5e 19&quot; Panel</td>
<td>4</td>
<td>1u</td>
<td>43.7x482.6</td>
<td>1.75x19</td>
</tr>
<tr>
<td>P5E-T4801-2U</td>
<td>48 port RJ-45 to TELCO Unshielded CAT5e 19&quot; Panel</td>
<td>8</td>
<td>2u</td>
<td>87.4x482.6</td>
<td>3.44x19</td>
</tr>
<tr>
<td>P5E-T2402-2U</td>
<td>24 port RJ-45 to TELCO Unshielded 2P 19&quot; Panel</td>
<td>2</td>
<td>2u</td>
<td>43.7x482.6</td>
<td>3.44x19</td>
</tr>
<tr>
<td>P5E-T4802-2U</td>
<td>48 port RJ-45 to TELCO Unshielded 2P 19&quot; Panel</td>
<td>4</td>
<td>2u</td>
<td>87.4x482.6</td>
<td>3.44x19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Modular Cords Description</th>
<th>Plugs</th>
<th>Length</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSE-T02510-XX</td>
<td>25x2x24# UTP CAT 5e PVC RJ21 modular Cord Grey</td>
<td>TELCO 180° to 180°</td>
<td>XXm</td>
<td></td>
</tr>
<tr>
<td>TSE-T02520-XX</td>
<td>25x2x24# UTP CAT 5e LS0H RJ21 modular Cord Grey</td>
<td>TELCO 180° to 180°</td>
<td>XXm</td>
<td></td>
</tr>
<tr>
<td>TSE-T02530-XX</td>
<td>25x2x24# UTP CAT 5e PVC RJ21 modular Cord Grey</td>
<td>TELCO 110° to 110°</td>
<td>XXm</td>
<td></td>
</tr>
<tr>
<td>TSE-T02540-XX</td>
<td>25x2x24# UTP CAT 5e LS0H RJ21 modular Cord Grey</td>
<td>TELCO 110° to 110°</td>
<td>XXm</td>
<td></td>
</tr>
<tr>
<td>TSE-T02550-XX</td>
<td>25x2x24# UTP CAT 5e PVC RJ21 modular Cord Grey</td>
<td>TELCO 110° to 110°</td>
<td>XXm</td>
<td></td>
</tr>
<tr>
<td>TSE-T02560-XX</td>
<td>25x2x24# UTP CAT 5e LS0H RJ21 modular Cord Grey</td>
<td>TELCO 110° to 110°</td>
<td>XXm</td>
<td></td>
</tr>
</tbody>
</table>
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)
- 100BASE-TX
- 100BASE-T
- 100BASE-T2
- 100BASE-T4
- 10BASE-T Ethernet
- Token Ring 100 Mbps
- 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:

<table>
<thead>
<tr>
<th>Transmission</th>
<th>EMC</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN-55022, Class B (Europe)</td>
<td>FCC Part 15, Class A (USA)</td>
<td>Zero-halogen in LS0H constructions.</td>
</tr>
</tbody>
</table>

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 +70°C
- Operation conditions: -20 to +60°C at 0-90% RH (Non condensing)
- Packaging: One unit per box.

General Properties: Cassettes RJ-45 receptacles
- Housing material: Thermoplastic Rated UL94 V-0.
- Jack spring contact coating: 1.27<im>50<im>-inch) hard Gold over 2.54<im>100<im>-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 receptacles
- Housing material: Zinc Alloy
- Contact Material: Copper Alloy
- Contact Plating: 1.27<im>50<im>-inch) hard Gold over 2.54<im>100<im>-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 +60°C 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
- Insertion Force: 1.27<im>50<im>-inch) hard Gold over 2.54<im>100<im>-inch) Nickel plating
- Flame Performance: 60 N
Category 5e Unshielded RJ-45 to iPass Pre-Terminated Copper Patch Panels

Transmission and Electrical Specifications

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Insertion Loss (dB)</th>
<th>NEXT (dB)</th>
<th>FEXT (dB)</th>
<th>RL (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nom</td>
<td>Min</td>
<td>Nom</td>
<td>Min</td>
</tr>
<tr>
<td>1.00</td>
<td>0.02</td>
<td>0.10</td>
<td>85.0</td>
<td>65.0</td>
</tr>
<tr>
<td>4.00</td>
<td>0.03</td>
<td>0.10</td>
<td>75.0</td>
<td>65.0</td>
</tr>
<tr>
<td>8.00</td>
<td>0.04</td>
<td>0.11</td>
<td>70.0</td>
<td>64.9</td>
</tr>
<tr>
<td>10.00</td>
<td>0.04</td>
<td>0.13</td>
<td>68.0</td>
<td>63.0</td>
</tr>
<tr>
<td>16.00</td>
<td>0.05</td>
<td>0.16</td>
<td>64.0</td>
<td>58.9</td>
</tr>
<tr>
<td>25.00</td>
<td>0.06</td>
<td>0.20</td>
<td>60.0</td>
<td>55.0</td>
</tr>
<tr>
<td>31.25</td>
<td>0.07</td>
<td>0.22</td>
<td>58.0</td>
<td>53.1</td>
</tr>
<tr>
<td>62.50</td>
<td>0.11</td>
<td>0.32</td>
<td>52.0</td>
<td>47.1</td>
</tr>
<tr>
<td>100.00</td>
<td>0.15</td>
<td>0.40</td>
<td>45.0</td>
<td>43.0</td>
</tr>
</tbody>
</table>

Typical Return Loss (Forward, Component Level)

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Nom (Min)</th>
<th>Max (Min)</th>
<th>Nom (Min)</th>
<th>Max (Min)</th>
<th>Nom (Min)</th>
<th>Max (Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 nS max @ 1-100 MHz</td>
<td>2.5 nS max @ 1-100 MHz</td>
<td>1.25 nS max @ 1-100 MHz</td>
<td>1.5 A max</td>
<td>20 mOhm max (per contact)</td>
<td>200 mOhm max</td>
<td>50 mOhm max</td>
</tr>
<tr>
<td>Voltage rating</td>
<td>72 Vdc max</td>
<td>1000 Volts rms for 1 minute</td>
<td>500 MegaOhm min @ 500 Vdc</td>
<td>0.1 Ohm max @ 20C</td>
<td>28-20 Log(f/100) dB min @ 1-100 MHz</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Typical Test Results at the Component Level

<table>
<thead>
<tr>
<th>Panels Description</th>
<th>TELCO Blocks</th>
<th>Units</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unshielded empty patch panel, 19&quot;, 1U, for 4x iPass cassettes insert</td>
<td>-</td>
<td>1u</td>
<td>-</td>
</tr>
<tr>
<td>6 port RJ-45 to iPass Unshielded 1000BASE-T 19&quot; cassette</td>
<td>1</td>
<td>1u</td>
<td>-</td>
</tr>
<tr>
<td>12 port RJ-45 to iPass Unshielded 1000BASE-T 19&quot; cassette</td>
<td>2</td>
<td>1u</td>
<td>-</td>
</tr>
</tbody>
</table>

Modular Cords Description

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Modular Cords Description</th>
<th>Plugs</th>
<th>Length</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSE-P02510-XX</td>
<td>25x2x24# UTP CAT 5e iPass modular Cord Grey</td>
<td>iPass</td>
<td>XX m</td>
<td></td>
</tr>
<tr>
<td>TSE-P02520-XX</td>
<td>25x2x24# UTP CAT 5e LS0H iPass modular Cord Grey</td>
<td>iPass</td>
<td>XX m</td>
<td></td>
</tr>
</tbody>
</table>
**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:

<table>
<thead>
<tr>
<th>Transmission</th>
<th>EMC</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI/TIA/568-C.2</td>
<td>EN-55022, Class B (Europa)</td>
<td>UL94 V-0 rated plastic materials</td>
</tr>
</tbody>
</table>

**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**

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

www.hescs.com
Category 6E Unshielded RJ-45 Copper Angled Patch Panels (Jacks)

### Transmission and Electrical Specifications

<table>
<thead>
<tr>
<th>FREQUENCY MHz</th>
<th>INSERTION LOSS dB</th>
<th>NEXT dB</th>
<th>FEXT dB</th>
<th>RL dB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MAX</td>
<td>MIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>0.02</td>
<td>85.0</td>
<td>84.0</td>
<td>53.0</td>
</tr>
<tr>
<td>4.00</td>
<td>0.02</td>
<td>81.0</td>
<td>75.0</td>
<td>54.0</td>
</tr>
<tr>
<td>8.00</td>
<td>0.02</td>
<td>78.0</td>
<td>70.0</td>
<td>56.0</td>
</tr>
<tr>
<td>10.00</td>
<td>0.03</td>
<td>77.0</td>
<td>68.0</td>
<td>57.0</td>
</tr>
<tr>
<td>16.00</td>
<td>0.03</td>
<td>73.0</td>
<td>58.0</td>
<td>58.0</td>
</tr>
<tr>
<td>25.00</td>
<td>0.04</td>
<td>70.0</td>
<td>60.1</td>
<td>60.0</td>
</tr>
<tr>
<td>31.25</td>
<td>0.04</td>
<td>68.0</td>
<td>59.0</td>
<td>57.0</td>
</tr>
<tr>
<td>62.50</td>
<td>0.05</td>
<td>64.0</td>
<td>53.0</td>
<td>44.0</td>
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<tr>
<td>100.00</td>
<td>0.06</td>
<td>60.0</td>
<td>49.0</td>
<td>34.0</td>
</tr>
<tr>
<td>200.00</td>
<td>0.06</td>
<td>55.0</td>
<td>43.0</td>
<td>23.0</td>
</tr>
<tr>
<td>250.00</td>
<td>0.08</td>
<td>52.0</td>
<td>41.0</td>
<td>20.0</td>
</tr>
</tbody>
</table>

### Typical De-Embedded Return-Loss

<table>
<thead>
<tr>
<th>FREQUENCY MHz</th>
<th>INSERTION LOSS dB</th>
<th>NEXT dB</th>
<th>FEXT dB</th>
<th>RL dB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MAX</td>
<td>MIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>0.02</td>
<td>85.0</td>
<td>84.0</td>
<td>53.0</td>
</tr>
<tr>
<td>4.00</td>
<td>0.02</td>
<td>81.0</td>
<td>75.0</td>
<td>54.0</td>
</tr>
<tr>
<td>8.00</td>
<td>0.02</td>
<td>78.0</td>
<td>70.0</td>
<td>56.0</td>
</tr>
<tr>
<td>10.00</td>
<td>0.03</td>
<td>77.0</td>
<td>68.0</td>
<td>57.0</td>
</tr>
<tr>
<td>16.00</td>
<td>0.03</td>
<td>73.0</td>
<td>58.0</td>
<td>58.0</td>
</tr>
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<td>0.06</td>
<td>60.0</td>
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<tr>
<td>200.00</td>
<td>0.06</td>
<td>55.0</td>
<td>43.0</td>
<td>23.0</td>
</tr>
<tr>
<td>250.00</td>
<td>0.08</td>
<td>52.0</td>
<td>41.0</td>
<td>20.0</td>
</tr>
</tbody>
</table>

### Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Blocks</th>
<th>Units</th>
<th>Size</th>
<th>TS68</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6E-02404-1U</td>
<td>24 port RJ-45 Unshielded Angled CAT 6E 19° Patch Panel 110 IDC</td>
<td>1U</td>
<td></td>
<td>44.5x483</td>
<td>1.75x19</td>
</tr>
<tr>
<td>P6E-04804-2U</td>
<td>48 port RJ-45 Unshielded Angled CAT 6E 19° Patch Panel 110 IDC</td>
<td>2U</td>
<td></td>
<td>89x483</td>
<td>3.5x19</td>
</tr>
</tbody>
</table>

### Additional Information

- **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 @ 20°C
- **TCL**: 28-20 Log(f/1000) dB min @ 1-250 MHz
- **Transfer Impedance**: N/A
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 compatibility 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.
 ✓ High quality metal casing - providing excellent EMF (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 +60°C at 0-90% RH (Non condensing) |
| Storage Temperature | -20 to +80°C |
| Non Halogen constructions | Available upon request. |

Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Units</th>
<th>Jack Compatibility</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00-01610-1U</td>
<td>16 port Keystone Jack Boş 19&quot; Plastik Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-01620-1U</td>
<td>16 port Keystone Jack Boş 19&quot; Metal Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Evet</td>
</tr>
<tr>
<td>P00-02410-1U</td>
<td>24 port Keystone Jack Boş 19&quot; Plastik Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-02420-1U</td>
<td>24 port Keystone Jack Boş 19&quot; Metal Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Evet</td>
</tr>
<tr>
<td>P00-02430-1U</td>
<td>24 port Keystone Jack Boş 19&quot; Metal Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-02450-1U</td>
<td>24 port Keystone Jack Boş 19&quot; Metal Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-02460-1U</td>
<td>24 port Keystone Jack Boş 19&quot; Açılı Metal Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-02470-1U</td>
<td>24 port Keystone Jack Boş 19&quot; Açılı Metal Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Evet</td>
</tr>
<tr>
<td>P00-03210-2U</td>
<td>32 port Keystone Jack Boş 19&quot; Plastik Patch Panel</td>
<td>2u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-04810-2U</td>
<td>48 port Keystone Jack Boş 19&quot; Plastik Patch Panel</td>
<td>2u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-04810-1U</td>
<td>48 port Keystone Jack Boş 19&quot; Plastik Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-04820-1U</td>
<td>48 port Keystone Jack Boş 19&quot; Plastik Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Evet</td>
</tr>
<tr>
<td>P00-04860-1U</td>
<td>48 port Keystone Jack Boş 19&quot; Açılı Metal Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Hayır</td>
</tr>
<tr>
<td>P00-04870-1U</td>
<td>48 port Keystone Jack Boş 19&quot; Açılı Metal Patch Panel</td>
<td>1u</td>
<td>Evet</td>
<td>Evet</td>
</tr>
</tbody>
</table>
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-to-bend, 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-568-C, 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”
- 10BASE-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.
Augmented Category 6 Cable Assemblies

Typical Transmission Properties

<table>
<thead>
<tr>
<th></th>
<th>Typical NEXT Loss</th>
<th>Typical Return Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Graph" /></td>
<td><img src="image2" alt="Graph" /></td>
<td></td>
</tr>
</tbody>
</table>

Typical PS-NEXT Loss

![Graph](image3)  
Typical ACR-F

![Graph](image4)

Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Basic Cables</th>
<th>FR</th>
<th>Number of Cables</th>
<th>Length (m)</th>
<th>Shild</th>
</tr>
</thead>
<tbody>
<tr>
<td>T6A-HNN3C-LLX</td>
<td>Pre-terminated 4x2x23# U/FTP or U/MRTP CAT 6A LSOH cables</td>
<td>A</td>
<td>NN</td>
<td>LL</td>
<td>S/U</td>
</tr>
<tr>
<td>T6A-HNN4C-LLX</td>
<td>Pre-terminated 4x2x23# S/FTP CAT 7 LSOH cables</td>
<td>A</td>
<td>NN</td>
<td>LL</td>
<td>S</td>
</tr>
<tr>
<td>T6A-HNN5C-LLX</td>
<td>Pre-terminated 4x2x22# S/FTP CAT 7A LSOH cables</td>
<td>A</td>
<td>NN</td>
<td>LL</td>
<td>S</td>
</tr>
<tr>
<td>T6A-HNN6C-LLX</td>
<td>Pre-terminated 4x2x23# U/FTP or U/MRTP CAT 6A LSOH cables</td>
<td>B</td>
<td>NN</td>
<td>LL</td>
<td>S/U</td>
</tr>
<tr>
<td>T6A-HNN7C-LLX</td>
<td>Pre-terminated 4x2x23# S/FTP CAT 7 LSOH cables</td>
<td>B</td>
<td>NN</td>
<td>LL</td>
<td>S</td>
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<tr>
<td>T6A-HNN8C-LLX</td>
<td>Pre-terminated 4x2x22# S/FTP CAT 7A LSOH cables</td>
<td>B</td>
<td>NN</td>
<td>LL</td>
<td>S</td>
</tr>
<tr>
<td>T6A-HO63O-5OS</td>
<td>Pre-terminated 4x2x23# U/FTP CAT 6A LSOH, Grey cables</td>
<td>A</td>
<td>6</td>
<td>5</td>
<td>Yes</td>
</tr>
<tr>
<td>T6A-H126O-KOU</td>
<td>Pre-terminated 4x2x23# U/MRTP CAT 6A LSOH, Grey cables</td>
<td>B</td>
<td>12</td>
<td>90</td>
<td>No</td>
</tr>
<tr>
<td>T6A-H0241-ASS</td>
<td>Pre-terminated 4x2x23# S/FTP CAT 7 LSOH, Blue cables</td>
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<td>2</td>
<td>15</td>
<td>Yes</td>
</tr>
<tr>
<td>T6A-H0478-B8S</td>
<td>Pre-terminated 4x2x23# S/FTP CAT 7 LSOH, Yellow cables</td>
<td>B</td>
<td>4</td>
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<td>Yes</td>
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<tr>
<td>T6A-H1253-CSS</td>
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<td>12</td>
<td>35</td>
<td>Yes</td>
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<tr>
<td>T6A-H0689-D8S</td>
<td>Pre-terminated 4x2x22# S/FTP CAT 7A LSOH, Purple cables</td>
<td>B</td>
<td>6</td>
<td>48</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Examples

<table>
<thead>
<tr>
<th>P/N</th>
<th>Description</th>
<th>FR</th>
<th>Number</th>
<th>Length (m)</th>
<th>Shild</th>
</tr>
</thead>
<tbody>
<tr>
<td>T6A-HO630-5OS</td>
<td>Pre-terminated 4x2x23# U/FTP CAT 6A LSOH, Grey cables</td>
<td>A</td>
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<td>T6A-H0241-ASS</td>
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<td>Pre-terminated 4x2x22# S/FTP CAT 7A LSOH, Green cables</td>
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<td>T6A-H0689-D8S</td>
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<td>B</td>
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Standard color: Light Gray RAL 7035. To define other colors and constructions use the Modular Cords P/N System Table As=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) fiber optic 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 ENS0173
- EIA/TIA-455
- ISO/IEC 11801 (2nd Edition)
- IEC 60754
- IEC 60793
- IEC 60794
- CENELEC EN50173
- EIA/TIA-455

**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

<table>
<thead>
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<th>Description</th>
<th>Buffer</th>
<th>OD mm</th>
<th>Tensile Strength</th>
<th>Weight Kg/Km</th>
<th>Cal. Value KJ/m</th>
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<td>4 Fibers LS0H Black Tight</td>
<td>4.9</td>
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</tbody>
</table>

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
- CENELEC EN50173
- 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 (ANSITIA/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**

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<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Notes</th>
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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 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-FS 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)
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
Repealed bending: 100 Cycles min.
Crush Resistance: 2200 N
Storage Temperature: -50 to +70C
Temperature operating range: -40 to +70C

Ordering Information

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<th>Fiber/Tube</th>
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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

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

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

www.hescs.com
**Technical Specifications - Transmission Properties**

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>SC</th>
<th>SC/APC</th>
<th>ST</th>
<th>FC</th>
<th>FC/APC</th>
<th>MT-RJ</th>
<th>LC</th>
<th>MPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM Attenuation</td>
<td>Mean: 0.2 dB</td>
<td>Mean: 0.2 dB</td>
<td>Mean: 0.2 dB</td>
<td>Mean: 0.2 dB</td>
<td>Mean: 0.2 dB</td>
<td>Mean: 0.2 dB</td>
<td>Mean: 0.2 dB</td>
<td>Mean:0.35 dB</td>
</tr>
<tr>
<td>@ 1300nm Sigma: 0.1 dB</td>
<td>Sigma: 0.1 dB</td>
<td>Sigma: 0.1 dB</td>
<td>Sigma: 0.1 dB</td>
<td>Sigma: 0.1 dB</td>
<td>Sigma: 0.1 dB</td>
<td>Sigma: 0.1 dB</td>
<td>Sigma: 0.12dB</td>
<td></td>
</tr>
<tr>
<td>MM Attenuation</td>
<td>Mean: 0.15 dB</td>
<td>Mean: 0.15 dB</td>
<td>Mean: 0.15 dB</td>
<td>Mean: 0.15 dB</td>
<td>-</td>
<td>Mean: 0.15 dB</td>
<td>Mean: 0.15 dB</td>
<td>Mean:0.35 dB</td>
</tr>
<tr>
<td>@ 1300nm Sigma: 0.05 dB</td>
<td>-</td>
<td>Sigma: 0.05 dB</td>
<td>Sigma: 0.05 dB</td>
<td>-</td>
<td>Sigma: 0.05 dB</td>
<td>Sigma: 0.05 dB</td>
<td>Sigma: 0.12 dB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean: 58 dB</td>
<td>Mean: 58 dB</td>
<td>Mean: 58 dB</td>
<td>Mean: 58 dB</td>
<td>Mean: 58 dB</td>
<td>Mean: 58 dB</td>
<td>Mean: 60 dB</td>
<td></td>
</tr>
<tr>
<td>MM Return Loss Min: 25 dB</td>
<td>D Max: 0.2 dB</td>
<td>Min: 25 dB</td>
<td>D Max: 27 dB</td>
<td>-</td>
<td>D Max: 0.2 dB</td>
<td>D Max: 0.2 dB</td>
<td>D Max: 0.2 dB</td>
<td></td>
</tr>
<tr>
<td>SM Connection Dur. 500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>MM Connection Dur. 500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp. Range -40 to +85C</td>
<td>-40 to +85C</td>
<td>-40 to +85C</td>
<td>-40 to +85C</td>
<td>-40 to +85C</td>
<td>-40 to +85C</td>
<td>-40 to +85C</td>
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</tr>
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</table>

**Durability Tests - Maximum Attenuation Increase After Test**

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>SC</th>
<th>SC/APC</th>
<th>ST</th>
<th>FC</th>
<th>FC/APC</th>
<th>MT-RJ</th>
<th>LC</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Cycling: -40 to +85C</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>10 cycles</td>
</tr>
<tr>
<td>High Temp. Endurance: +85C</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>96 hours</td>
</tr>
<tr>
<td>Low Temp. Endurance: -40C</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>96 hours</td>
</tr>
<tr>
<td>High Humidity Endurance: %95 RH @ +40˚C</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>P to P</td>
</tr>
<tr>
<td>Vibration Endurance: 10-55 Hz, 1.5 mm.</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>96 hours</td>
</tr>
<tr>
<td>Tensile Endurance: 0-10 Kg @ 1 min.</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>10 cycles</td>
</tr>
<tr>
<td>Connection Durability: 1000 cycles</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td>0.2 dB</td>
<td></td>
</tr>
</tbody>
</table>

**P/N System - Terminated Modular Fiber Optic Cords**

<table>
<thead>
<tr>
<th>T</th>
<th>NN</th>
<th>X</th>
<th>Cable Type &amp; OD (mm)</th>
<th>Color</th>
<th>AB</th>
<th>-</th>
<th>XY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note 1</td>
<td>#</td>
<td>Cable</td>
<td>OD</td>
<td>Note 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>50/125 FO standard grade</td>
<td>A</td>
<td>Bare fiber</td>
<td>0.25</td>
<td>00 = Natural</td>
<td>1 = ST</td>
<td>m=dm</td>
</tr>
<tr>
<td>52</td>
<td>50/125 FO premium grade</td>
<td>B</td>
<td>Tight-Buffered Fiber</td>
<td>0.9</td>
<td>01 = Blue</td>
<td>2 = SC</td>
<td>An=10m+</td>
</tr>
<tr>
<td>53</td>
<td>50/125 FO patch cord grade</td>
<td>C</td>
<td>Simplex PVC</td>
<td>1.6</td>
<td>02 = Orange</td>
<td>3 = SC/APC</td>
<td>Bn=20m+</td>
</tr>
<tr>
<td>54</td>
<td>50/125 FO 10GBE grade</td>
<td>E</td>
<td>Simplex LSZH</td>
<td>1.6</td>
<td>03 = Green</td>
<td>4 = FC</td>
<td>Cn=30m+</td>
</tr>
<tr>
<td>55</td>
<td>50/125 FO Modifed 10 GBE grade (150m.)</td>
<td>G</td>
<td>Simplex PVC</td>
<td>2.0</td>
<td>04 = Brown</td>
<td>5 = FC/APC</td>
<td>Dn=40m+</td>
</tr>
<tr>
<td>56</td>
<td>50/125 FO Modifed 10 GBE grade (600m.)</td>
<td>K</td>
<td>Simplex LSZH</td>
<td>2.0</td>
<td>05 = Gray</td>
<td>6 = MT-RJ</td>
<td>En=50m+</td>
</tr>
<tr>
<td>61</td>
<td>62.5/125 FO standard grade</td>
<td>M</td>
<td>Duplex zip PVC</td>
<td>1.6x3.3</td>
<td>06 = White</td>
<td>7 = FDDI</td>
<td>Fn=60m+</td>
</tr>
<tr>
<td>62</td>
<td>62.5/125 FO premium grade</td>
<td>P</td>
<td>Duplex zip LSZH</td>
<td>1.6x3.3</td>
<td>07 = Red</td>
<td>8 = LC</td>
<td>Gm=70m+</td>
</tr>
<tr>
<td>63</td>
<td>62.5/125 FO patch cord grade</td>
<td>R</td>
<td>Duplex zip PVC</td>
<td>2.0x4.1</td>
<td>08 = Black</td>
<td>9 = VF-45</td>
<td>Hm=80m+</td>
</tr>
<tr>
<td>91</td>
<td>Singlemode FO standard grade</td>
<td>T</td>
<td>Duplex zip LSZH</td>
<td>2.0x4.1</td>
<td>09 = Yellow</td>
<td>A=MPO 4F - Female</td>
<td>Km=90m+</td>
</tr>
<tr>
<td>92</td>
<td>Singlemode FO premium grade</td>
<td>V</td>
<td>Duplex zip LSZH + 2x28 AWG TC Cables</td>
<td>0.204x1.1</td>
<td>10 = Violet</td>
<td>B=MPO 6F - Female</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>Singlemode FO ITU-T G.652</td>
<td>X</td>
<td>Cables Type &amp; OD (mm)</td>
<td>Fiber Count</td>
<td>NN</td>
<td>T</td>
<td>XY</td>
</tr>
<tr>
<td>95</td>
<td>Singlemode FO ITU-T G.655</td>
<td>D</td>
<td>Bare Ribbon LSZH cable</td>
<td>NN</td>
<td>D=MPO 12F -Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Singlemode FO ITU-T G.656</td>
<td>F</td>
<td>Jacketed Ribbon LSZH cable</td>
<td>NN</td>
<td>F=MPO 6F - Male</td>
<td></td>
<td></td>
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<tr>
<td>97</td>
<td>Singlemode FO ITU-T G.657</td>
<td>H</td>
<td>Ruggedized (Trunk) LSZH cable</td>
<td>NN</td>
<td>H=MPO 12F -Male</td>
<td></td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>Indoor LSZH MTD cable</td>
<td>N</td>
<td>Indoor LSZH MTD cable</td>
<td>NN</td>
<td>J=MT-RJ -Male</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example 1: T63-M0512-30 =&gt;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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example 2: T91-A0040-15 =&gt;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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example 3: T54-F12HH-B6 =&gt; 26 meters cord made of a 12x50/125 microns OM3 fibers Ribbon LSZH cable terminated on both sides with Male MPO connectors.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
Fiberoptic Pre-Terminated 19" Patch Panels

Description
HCS DataLight Pre-Terminated Fiber Optic 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.
**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**

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

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

<table>
<thead>
<tr>
<th>Connector Housing</th>
<th>PET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Ferrule</td>
<td>PPS</td>
</tr>
<tr>
<td>Boot</td>
<td>Silicone</td>
</tr>
<tr>
<td>SM Backbone</td>
<td>Aluminum</td>
</tr>
<tr>
<td>MM Backbone</td>
<td>Aluminum</td>
</tr>
<tr>
<td>Flame Test</td>
<td>UL-94 V-0</td>
</tr>
<tr>
<td>Max. Insertion Loss</td>
<td>0.5dB</td>
</tr>
</tbody>
</table>
MPO Cable Assemblies

Technical Specifications - Complete Assemblies

<table>
<thead>
<tr>
<th>Specification</th>
<th>SM</th>
<th>MM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation @ 1300nm</td>
<td>Mean:0.35 dB Sigma: 0.12dB</td>
<td>Mean:0.35 dB Sigma: 0.12dB</td>
</tr>
<tr>
<td>Return Loss</td>
<td>Min:55 dB Mean:60dB</td>
<td>Min:25 dB D Max:0.2dB</td>
</tr>
<tr>
<td>Connection Durability</td>
<td>D Max:0.2dB</td>
<td>D Max:0.2 dB</td>
</tr>
<tr>
<td>Mating Cycles</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Operating Temp.</td>
<td>-0 to +70C</td>
<td>-0 to +70C</td>
</tr>
<tr>
<td>Installation Temp.</td>
<td>-0 to +70C</td>
<td></td>
</tr>
<tr>
<td>Storage Temp.</td>
<td>-40 to +70C</td>
<td></td>
</tr>
</tbody>
</table>

Durability Tests - Maximum Attenuation Increase after test

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

Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Length</th>
<th>Notes</th>
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<tbody>
<tr>
<td>TFO-X12DD-10C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
<td>1.0</td>
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<tr>
<td>TFO-X12DD-20C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
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<tr>
<td>TFO-X12DD-30C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
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<tr>
<td>TFO-X12DD-50C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
<td>5.0</td>
<td>-</td>
</tr>
<tr>
<td>TFO-X12DD-A0C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
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<tr>
<td>TFO-X12DD-A5C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
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<td>TFO-X12DD-C0C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
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<tr>
<td>TFO-X12DD-E5C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
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<tr>
<td>TFO-X12DD-H0C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
<td>80.0</td>
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<tr>
<td>TFO-X12DD-K9C</td>
<td>MPO-MPO (Female-Female) 12F LS0H FO Assembly</td>
<td>99.0</td>
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</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
<th>Attenuation (dB/Km)</th>
<th>Min. Bandwidth (MHz•Km)</th>
<th>Numerical Aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Standard Grade OM1 - ISO/IEC 11801 TIA-568-C.3</td>
<td>2.8 3.0 0.9 1.1</td>
<td>500 NS 600 NS</td>
<td>0.200±0.02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
<th>Attenuation (dB/Km)</th>
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<th>Numerical Aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td>Premium Grade OM2 - ISO/IEC 11801 EIA/TIA 492AAAB A1a.1 - IEC 60793-2-10 TIA-568-C.3</td>
<td>2.8 3.0 0.8 1.0</td>
<td>600 NS 1200 NS</td>
<td>0.200±0.02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
<th>Attenuation (dB/Km)</th>
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<th>Numerical Aperture</th>
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</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td>Patch Cord Grade</td>
<td>3.0 3.5 1.2 1.5</td>
<td>150 NS 200 NS</td>
<td>0.200±0.02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
<th>Attenuation (dB/Km)</th>
<th>Min. Bandwidth (MHz•Km)</th>
<th>Numerical Aperture</th>
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</thead>
<tbody>
<tr>
<td>4</td>
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<td>10G Grade 300m OM3 - ISO/IEC 11801 EIA/TIA 492AAAC-A A1a.2 - IEC 60793-2-10 TIA-568-C.3</td>
<td>2.8 3.0 0.8 1.0</td>
<td>1500 2000 500 500</td>
<td>0.200±0.02</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
<th>Attenuation (dB/Km)</th>
<th>Min. Bandwidth (MHz•Km)</th>
<th>Numerical Aperture</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td>10G Grade NEW Bend Insensitive OM4 - EIA/TIA 492AAAD OM4 - ISO/IEC 11801 (Draft) A1a.3 - IEC 60793-2-10 TIA-568-C.3</td>
<td>2.3 2.5 0.6 0.8</td>
<td>3500 4700 500 500</td>
<td>0.200±0.015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
<th>Attenuation (dB/Km)</th>
<th>Min. Bandwidth (MHz•Km)</th>
<th>Numerical Aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td>10G Grade NEW Bend Insensitive OM4 - EIA/TIA 492 AAAD OM4 - ISO/IEC 11801 A1a.3 - IEC 60793-2-10</td>
<td>2.3 2.5 0.6 0.8</td>
<td>3500 4700 500 500</td>
<td>0.200±0.015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
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<th>Numerical Aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td></td>
<td>62.5/125µm Graded Index Multimode Optical Fiber</td>
<td>Standard Grade OM1 - ISO/IEC 11801 TIA-568-C.3</td>
<td>3.0 3.5 0.7 1.0</td>
<td>200 NS 600 NS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
<th>Attenuation (dB/Km)</th>
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<th>Numerical Aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td></td>
<td>Premium Grade OM2 - ISO/IEC 11801 EIA/TIA 492AAAB A1a.1 - IEC 60793-2-10 TIA-568-C.3</td>
<td>2.6 3.0 0.7 1.0</td>
<td>500 NS 600 NS</td>
<td>0.275±0.015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Multimode Fiber Grade &amp; Standard</th>
<th>Attenuation (dB/Km)</th>
<th>Min. Bandwidth (MHz•Km)</th>
<th>Numerical Aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td></td>
<td>Patch Cord Grade</td>
<td>3.0 3.5 1.2 1.5</td>
<td>150 NS 200 NS</td>
<td>0.275±0.015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Singlemode Fiber Grade &amp; Standard</th>
<th>1310nm</th>
<th>1383nm</th>
<th>1550nm</th>
<th>MFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td>Standard Grade OS1 - ISO/IEC 11801 TIA-568-C.3</td>
<td>0.4 0.5 NS NS NS NS</td>
<td>9.3±0.5 µm@1310nm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Singlemode Fiber Grade &amp; Standard</th>
<th>1310nm</th>
<th>1383nm</th>
<th>1550nm</th>
<th>MFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td></td>
<td>Premium Grade TIA-568-C.3</td>
<td>0.33 0.38 NS NS NS NS</td>
<td>9.3±0.5 µm@1310nm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Singlemode Fiber Grade &amp; Standard</th>
<th>1310nm</th>
<th>1383nm</th>
<th>1550nm</th>
<th>MFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td></td>
<td>ITU-T G.652</td>
<td>0.33 0.35 NS NS NS NS</td>
<td>9.2±0.5 µm@1310nm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Singlemode Fiber Grade &amp; Standard</th>
<th>1310nm</th>
<th>1383nm</th>
<th>1550nm</th>
<th>MFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td></td>
<td>ITU-T G.652.D no water peak</td>
<td>0.33 0.35 0.31 0.35 NS NS</td>
<td>9.2±0.5 µm@1310nm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Singlemode Fiber Grade &amp; Standard</th>
<th>1310nm</th>
<th>1383nm</th>
<th>1550nm</th>
<th>MFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td></td>
<td>ITU-T G.655 Non-zero dispersion shifted</td>
<td>0.33 0.35 NS NS NS NS</td>
<td>9.6±0.5 µm@1550nm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Singlemode Fiber Grade &amp; Standard</th>
<th>1310nm</th>
<th>1383nm</th>
<th>1550nm</th>
<th>MFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td></td>
<td>ITU-T G.656 No water peak non-zero dispersion shifted</td>
<td>0.33 0.35 0.35 0.40 NS NS</td>
<td>9.6±0.5 µm@1550nm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber P/N</th>
<th>Fiber Type</th>
<th>Singlemode Fiber Grade &amp; Standard</th>
<th>1310nm</th>
<th>1383nm</th>
<th>1550nm</th>
<th>MFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
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<td>ITU-T G.657 Bend-insensitive Class B</td>
<td>0.33 0.35 0.31 0.35 NS NS</td>
<td>9.6±0.5 µm@1550nm</td>
<td></td>
<td></td>
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</tbody>
</table>

### 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.
## Optical and Geometrical Fiber Properties

<table>
<thead>
<tr>
<th>Tested Property</th>
<th>Test Method</th>
<th>ITU-T Test Methods</th>
<th>EIA/TIA-455 FOTP No.</th>
<th>IEC 60793-1 Test Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Geometry</td>
<td>Transmitted Near Field</td>
<td>SM: G.650 Method 2.2.1</td>
<td>MM: G.651 Sec 1 Method B.3</td>
<td>MM: 58</td>
</tr>
<tr>
<td>Spectral Attenuation</td>
<td>Cut-Back</td>
<td>SM: G.650 Method 2.4.1</td>
<td>MM: G.651 Sec 2,1 Method B.2</td>
<td>SM: 78, MM: 46</td>
</tr>
<tr>
<td>Attenuation and</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Specified wavelengths</td>
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<tr>
<td>Numerical Aperture</td>
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<td></td>
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<tr>
<td>Cutoff Wavelength</td>
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<tr>
<td>Mode Field Diameter</td>
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<tr>
<td>Bandwidth</td>
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<tr>
<td>Chromatic Dispersion</td>
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</table>

## Mechanical and Environmental FO Cable Properties

<table>
<thead>
<tr>
<th>Tested Property</th>
<th>EIA/TIA-455 FOTP Number</th>
<th>IEC 60794-1 Test Methods</th>
<th>CENELEC EN 18700 Test Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating and Pulling Load</td>
<td>33</td>
<td>E1</td>
<td>501</td>
</tr>
<tr>
<td>Minimum Bending Radius</td>
<td>33</td>
<td>E1</td>
<td>501</td>
</tr>
<tr>
<td>Crush Resistance (Compression)</td>
<td>41</td>
<td>E3</td>
<td>504</td>
</tr>
<tr>
<td>Repeated Bending</td>
<td>104</td>
<td>E6</td>
<td>509</td>
</tr>
<tr>
<td>Phy-FiXX™ Copper &amp; Fiber Optic Managed Cabling Solutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATALINK 250E HCS PHY-FIXX™ MANAGED CATEGORY 6 UNSHIELDED RJ-45 COPPER PATCH PANELS</td>
<td>96-97</td>
<td></td>
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</tr>
<tr>
<td>DATALINK 500A HCS PHY-FIXX™ MANAGED CATEGORY 6A SHIELDED RJ-45 COPPER PATCH PANELS</td>
<td>98-99</td>
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<td>DATALINK 250E HCS PHY-FIXX™ CATEGORY 6 UNSHIELDED RJ-45 OUTLET TERMINATOR</td>
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<tr>
<td>DATALINK 500A HCS PHY-FIXX™ CATEGORY 6A SHIELDED RJ-45 OUTLET TERMINATOR</td>
<td>101</td>
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</tr>
<tr>
<td>DATALIGHT HCS PHY-FIXX™ MANAGED 24-PORT DUPLEX LC FIBER PATCH PANELS</td>
<td>102</td>
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</tr>
<tr>
<td>DATALIGHT HCS PHY-FIXX™ FIBER OPTIC PATCH CORDS</td>
<td>103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCS PHY-FIXX™ 576 CHANNEL SCANNER</td>
<td>104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCS PHY-FIXX™ APPLICATION SOFTWARE &amp; LICENSE</td>
<td>105</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
 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 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
- 100BASE-T2
- 100BASE-T4
- 100BASE-TX
- 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:

<table>
<thead>
<tr>
<th>Transmission</th>
<th>EMC</th>
<th>Safety</th>
</tr>
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<tbody>
<tr>
<td>1GBASE-T Gigabit Ethernet</td>
<td>ANSI/TIA-568-C-1</td>
<td>FCC Part 15, Subpart 1 Class A (USA)</td>
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<td>ANS/TIA-568-C-2</td>
<td>UL94 V-0 rated plastic materials</td>
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<td>100BASE-T4</td>
<td>ISO/IEC-11801</td>
<td>Zero-halogen in LS0H constructions</td>
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<td>100BASE-TX</td>
<td>EN-55022, Class B (Europe)</td>
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<td>ATM 52</td>
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<td>ATM 25</td>
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<td>10BASE-T Ethernet</td>
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<tr>
<td>Token Ring 4 Mbps</td>
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<td>Baseband Video</td>
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<td>ISDN Basic and Primary Access</td>
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<td>1BASE-5 Starlan</td>
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</tr>
<tr>
<td>ISALAN</td>
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</table>

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.

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 1.25µm 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 +60°C.
Installation and operation conditions: 0 to +50°C 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**

<table>
<thead>
<tr>
<th>Transmission and Electrical Specifications</th>
<th>Typical De-Embedded Return-Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FREQ.</strong> MHz</td>
<td><strong>Insertion Loss</strong> dB</td>
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<td>Min</td>
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<tr>
<td>200.00</td>
<td>0.06</td>
</tr>
<tr>
<td>250.00</td>
<td>0.08</td>
</tr>
</tbody>
</table>

- **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 @ 20°C
- **Initial contact resistance**: 2.5 mOhm
- **TCL**: 28-20 Log(f/100) dB min @ 1-250 MHz
- **Transfer Impedance**: N/A

**Ordering Information**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Blocks</th>
<th>Units</th>
<th>Size: Hx/Wx/D mm/Inch</th>
<th>TS68</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6E-02409-1U</td>
<td>24 port RJ-45 Unshielded CAT 6E 19&quot; Phy-FiXX™ Patch Panel</td>
<td>110 IDC</td>
<td>1u</td>
<td>44x483x92</td>
<td>1.75x19x4.25</td>
</tr>
</tbody>
</table>
Phy-FiXX™ Managed Category 6A Shielded RJ-45 Copper Patch Panels

Data Center

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 order.

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.

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.

Applications
HCS Phy-FiXX™ DataLink 500A panels are tested as CAT6A/Class EA Channel and they comply to the following standards:

- 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.
- The patch panel works as a conventional patch panel when not connected to the Phy-FiXX™ system.
- 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.

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.

Benefits & Features
- LED status indicators on both the panel sides show status of connectivity between the panel and the scanner.
- LED status indicators can be activated and deactivated from a remote location by the network supervisor.
- LED status indicators on each port calls for operator action (connect/disconnect patch-cord).
- LED status indicator on the panel calls for operator action of connectivity between the panel and the scanner.
- LED status indicators are used by the Phy-FiXX™ system to track connectivity in the patch zone and work area.
- LED status indicators are used by the Phy-FiXX™ system to track connectivity in the patch zone and work area.

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 1.25µm 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 +60°C
- Installation and operation conditions: 0 to +50°C at D-90% RH (Non condensing)
- Packaging: One unit per box.
- Shipping weight: 840 gr.
### Phy-FiXX™ Managed Category 6A Shielded RJ-45 Copper Patch Panels

#### Transmission and Electrical Specifications

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<thead>
<tr>
<th>FREQ. MHz</th>
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<th>NEXT dB Min</th>
<th>FEXT dB Min</th>
<th>RL dB</th>
<th>TCL dB Min</th>
<th>EL TCL dB Min</th>
<th>PS NEXT dB</th>
<th>PS ACRF dB</th>
<th>PS AFEXT dB</th>
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</table>

#### 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 @ 20°C

#### Initial Contact Resistance
- 2.5 mOhm

#### TCL
- 28-20 Log(f/100) dB min @ 1-500 MHz

### Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Blocks</th>
<th>Units</th>
<th>Size: Hx/Wx/D</th>
<th>T568</th>
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</thead>
<tbody>
<tr>
<td>P6A-02409-1U</td>
<td>24 port RJ-45 Shielded CAT 6A 19&quot; Phy-FiXX™ Patch Panel</td>
<td>110 IDC</td>
<td>1u</td>
<td>44x483x92</td>
<td>1.75x19x4.25</td>
</tr>
</tbody>
</table>
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 +50°C at 0-90%RH (non condensing)
- Standard Color: Transparent.

Ordering Information

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Compatible with</th>
<th>Unit/pack</th>
<th>T568</th>
</tr>
</thead>
</table>
Phy-FiXX™ Category 6A Shielded RJ-45 Outlet Terminator.

**Description**

**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
- 100BASE-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 +50°C at 0-90%RH (non condensing)
- Standard Color: Transparent.

**Ordering Information**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Compatible with</th>
<th>Units/pack</th>
<th>T568</th>
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<tbody>
<tr>
<td>K6A-008TR</td>
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<td>HCS P/N W6A-008D1</td>
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<td>A&amp;B</td>
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**Phy-FiXX™ Managed 24-Port Duplex LC Fiber Patch Panels**

**Description**
Phy-FiXX™ is a revolutionary and advanced physical layer management suite 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-LR (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:

<table>
<thead>
<tr>
<th>Transmission</th>
<th>EMC</th>
<th>Safety</th>
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<tbody>
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<td>FCC Subpart F 68.5</td>
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<td>UL 1863 &amp; CSA 22.2</td>
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<tr>
<td>ISO/IEC-11801</td>
<td></td>
<td></td>
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</table>

**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 Open grommet
- 2 x fiber support base and clips
- Laser hazard warning label
- Instruction sheet
- International hardware kit

**Ordering Information**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Units</th>
<th>Size: Hx/Wx/D</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFO-F2401-1U</td>
<td>24 port Single Mode Duplex LC Phy-FiXX™ FO Patch Panel</td>
<td>1u</td>
<td>44.2x484.6x336.6 1.74x19.1x13.25</td>
</tr>
<tr>
<td>PFO-F2402-1U</td>
<td>24 port Multimode Duplex LC Phy-FiXX™ FO Patch Panel</td>
<td>1u</td>
<td>44.2x484.6x336.6 1.74x19.1x13.25</td>
</tr>
</tbody>
</table>

“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™ Datapath 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™ Datapath 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™ Datapath 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™ Datapath FO Patch Cords are tested at the component level and they comply to the following standards:

<table>
<thead>
<tr>
<th>Transmission</th>
<th>Safety</th>
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<tbody>
<tr>
<td>ANSI/TIA-568-C.3</td>
<td>UL 1863</td>
</tr>
</tbody>
</table>

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 +50°C

Operating temperature
-20 to +50°C

Storage temperature
-50 to +80°C

Packaging
One unit per box.

Optical Characteristics

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>ISO Class</th>
<th>BW (OFL) @850nm</th>
<th>Maks. Att. dB/Km @850nm</th>
<th>Max. Mated IL dB</th>
<th>Min. RL dB (UPC)</th>
<th>Jacket Color</th>
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</thead>
<tbody>
<tr>
<td>MM 62.5/125µ</td>
<td>OM1</td>
<td>200</td>
<td>3.75</td>
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<td>Orange</td>
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<tr>
<td>MM 50/125µ</td>
<td>OM2</td>
<td>500</td>
<td>3.5</td>
<td>0.3</td>
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<td>Grey</td>
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<tr>
<td>MM 50/125µ</td>
<td>OM3</td>
<td>2500</td>
<td>3.0</td>
<td>0.3</td>
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<td>Aqua</td>
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<td>MM 50/125µ</td>
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<td>2.6</td>
<td>0.3</td>
<td>-</td>
<td>Aqua</td>
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<td>SM 9/125µ</td>
<td>OS1</td>
<td>NA</td>
<td>0.5</td>
<td>0.3</td>
<td>50</td>
<td>Yellow</td>
</tr>
<tr>
<td>SM 9/125µ</td>
<td>OS2</td>
<td>NA</td>
<td>0.5</td>
<td>0.3</td>
<td>50</td>
<td>Yellow</td>
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Ordering Information

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<th>Description</th>
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<th>Tolerance</th>
<th>Weight grams</th>
<th>Notes</th>
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<td>Phy-FiXX™ LC-LC Duplex LS0H FO Cord</td>
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</table>
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 576 separate 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.

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

HCS Phy-FiXX™ 576 Channel Scanner

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions mm</th>
<th>Shipping Weight Kg</th>
<th>Units</th>
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<tr>
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<td>W</td>
<td>D</td>
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<tr>
<td>PB PF48 0800 Phy-FiXX™ 576 Channel Scanner</td>
<td>44</td>
<td>483</td>
<td>216</td>
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</tbody>
</table>

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.

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

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

<table>
<thead>
<tr>
<th>Management</th>
<th>EMC</th>
<th>Safety</th>
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<tbody>
<tr>
<td>HTTP</td>
<td>EN-55022, Class B (Europe)</td>
<td>UL 1950</td>
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<tr>
<td>SNMP (read-only)</td>
<td>FCC Part 15, Class B (USA)</td>
<td>IEC 60950</td>
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</table>

Certifications

- HTTP
- EN-55022, Class B (Europe)
- FCC Part 15, Class B (USA)
- UL 1950
- IEC 60950
- CSA 950
- SNMP (read-only)
- FCC Part 15, Class B (USA)
- IEC 60950
- CSA 950
- HTTP
- EN-55022, Class B (Europe)
- FCC Part 15, Class B (USA)
- UL 1950
- IEC 60950
- CSA 950
- HTTP
- EN-55022, Class B (Europe)
- FCC Part 15, Class B (USA)
- UL 1950
- IEC 60950
- CSA 950
- HTTP
- EN-55022, Class B (Europe)
- FCC Part 15, Class B (USA)
- UL 1950
- IEC 60950
- CSA 950
- HTTP
- EN-55022, Class B (Europe)
- FCC Part 15, Class B (USA)
- UL 1950
- IEC 60950
- CSA 950
- HTTP
- EN-55022, Class B (Europe)
- FCC Part 15, Class B (USA)
- UL 1950
- IEC 60950
- CSA 950
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- EN-55022, Class B (Europe)
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- IEC 60950
- CSA 950
- HTTP
- EN-55022, Class B (Europe)
- FCC Part 15, Class B (USA)
- UL 1950
- IEC 60950
- CSA 950
- HTTP
- EN-55022, Class B (Europe)
- FCC Part 15, Class B (USA)
- UL 1950
- IEC 60950
- CSA 950
- HTTP
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 licences can be added incrementally as additional channels are connected to the scanner. Each scanner may have up to six 96 channels licences or one 576 channel licence installed on it. 96 channel licences 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**:
  - 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**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSW-A5760</td>
<td>HCS Phy-FiXX™ Application Software</td>
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<tr>
<td>KSW-A576M</td>
<td>HCS Phy-FiXX Application Software - 1 Year Maintenance</td>
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<tr>
<td>KSW-L0960</td>
<td>HCS Phy-FiXX™ 96 Channel Software License</td>
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<td>KSW-L096M</td>
<td>HCS Phy-FiXX 96 Channel Software License - 1 Year Maintenance</td>
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<tr>
<td>KSW-L5760</td>
<td>HCS Phy-FiXX™ 576 Channel Software License</td>
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</tr>
<tr>
<td>KSW-L576M</td>
<td>HCS Phy-FiXX 576 Channel Software License - 1 Year Maintenance</td>
<td></td>
</tr>
</tbody>
</table>
Bölüm F: Data Center’lar için Kablo Kanalları ve Yangın Önleyici Sistemler

FİBER OPTİK KABLO KANALLARI VE AKSESUARLARI 110-116
ENERJİ VE BAKIR DATA KABLOLARI İÇİN METAL KABLO KANALLARI VE AKSESUARLARI 118-125
YANGINA DAYANIKLI & YANGIN ÖNLEYICI ÜRÜNLER 128-134
Fiber Optik Kablo Kanalları ve Aksesuarları
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 sağlamak için zorlu koşullar altında performans göstermesi için tasarlanmıştır. Kanalların tamamen pürüzsüz yapısı ve fiber optik kabloların dönüş açılarına göre tasarlanmış dönüş aparatları sayesinde, fiber optik kabloların hasar görmesi engellenmiş olur. Kabinetlere inisler 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 ihtiyaçına 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 uyguluk 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 / +60°C 0-90% RH (yoğunlaşmayan)

Depolama Sıcaklığı: -20 / +80°C

Standart Renk: Sarı RAL 1021.

**Sipariş Bilgileri**

<table>
<thead>
<tr>
<th>HCS P/N</th>
<th>Açıklama</th>
<th>Ölçü (b) mm</th>
<th>Uzunluk (m)</th>
<th>Paket miktarı (mt/adet)</th>
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<td>Uzunluk (m)</td>
<td>Paket miktarı (mt/adet)</td>
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