HEL UK ABEL® is a global manufacturer and supplier of wires, cables & cable accessories. We offer a complete, perfectly coordinated portfolio of flexible and continuous flat cables and cabling systems for automation & material handling, renewable energy, infrastructure facilities and a great variety of other market segments.

Additionally, our extensive warehouse stock enables us to supply your needs within extremely short delivery times:

- Industrial cables & wires
- Infrastructure cables & wires
- Data, network & bus technology
- Media technology
- Renewable energy & transportation
- Pre-assembled cables
- Spiral cables
- Shipwiring & marine cables
- Cable accessories

Welcome to HELUKABEL® - THAILAND
**Type**

**Cable structure**
- Inner conductor diameter:
- Core insulation:
- Core colours:
- Stranding element:
- Separator:
- Shielding 1:
- Total shielding:
- Drain wire:
- Outer sheath material:
- Cable external diameter:
- Outer sheath colour:

**Fixed installation, indoor**  
3x0.5 mm²
- Copper, bare (AWG 20/7)
- Foam-skin-PE
- wh, bu, ye
- Triple core
- Polyester foil over stranded bundle
- Al-Foil
- Cu braid, tinned
- yes
- PVC
- app. 7,7 mm ± 0,3 mm
- Red

**Electrical data**
- Characteristic impedance: 110 Ohm ± 15 Ohm
- Conductor resistance, max.: 37,8 Ohm/km
- Insulation resistance, min.: 10 GOhm x km
- Loop resistance: 75,6 Ohm/km max.
- Mutual capacitance: 60 nF/km nom.
- Test voltage: 2 kV
- Attenuation: 1 MHz < 16,0 dB/100m
  5 MHz < 35,0 dB/100m

**Technical data**
- Weight: app. 77 kg/km
- bending radius, repeated: 120 mm
- Operating temperature range min.: -40°C
- Operating temperature range max.: +75°C
- Caloric load, approx. value: 1,10 MJ/m
- Copper weight: 40,00 kg/km

**Norms**
- Applicable standards: CC-Link Specification 1.10
- Flame-retardant acc. IEC 60332-2-1
- UL Style: CM 75°C or PLTC
- CSA standard: CSA FT 4

**Application**
HELUKABEL® CC-Link Bus PVC for fixed installation. The primary market is Asia, but the USA and the United Kingdom are using CC-Link increasingly. The cable has the appropriate approvals for these markets. A version with power supply conductors is optionally available. It is used particularly in channels.

**Part no.** 800497, CC-Link communications cable
Dimensions and specifications may be changed without prior notice.
LAN Cable
Category 5e

Cable structure
Inner conductor Ø:
Conductor material:
Core insulation:
Core colours:
Separator:
Screen over stranding element:
Screen 1 over stranding:
Screen 2 over stranding:
Outer sheath material:
Outer diameter:
Outer sheath colour:

Electrical data
Characteristic impedance:
Loop resistance:
Mutual capacitance:
Ref. propagation velocity:

Typical values
Frequency (MHz) | 10 | 16 | 62.5 | 100 | 200
--- | --- | --- | --- | --- | ---
Attenuation (dB/100m) | 5.6 | 7.2 | 14.4 | 18.2 | 25.9
Next (dB) | 62.0 | 59.0 | 50.0 | 46.0 | 40.0
ACR (dB) | 56.4 | 51.8 | 35.6 | 27.8 | 14.6

Technical data
Weight: app. 50 kg/km
bending radius, repeated: 52 mm
Operating temperature range min.: -20°C
Operating temperature range max.: +60°C
Caloric load, approx. value: 0.60 MJ/m / 0.48 MJ/m
Copper weight: 28.00 kg/kg

Norms
81610:
Acc. to ISO/IEC 11801, Acc. to EN 50173, Acc. to EIA/TIA 568-A, Category 5e

Application
HELUKAT® 200 data cables are used in the tertiary, but also in the secondary level of a network. They are characterized by large performance reserves and outstanding performance. They can be used to implement services such as Gigabit Ethernet, Fast Ethernet, Ethernet, ATM155, FDDI, token ring 4/16 Mbit/s, or ISDN absolutely trouble-free. Likewise, the mechanical characteristics are perfectly suited for the application in tight cable channels and platforms due to their optimized construction.

Part no.
81610, SF/UTP 4x2xAWG 24/1 PVC (S-FTP)

Dimensions and specifications may be changed without prior notice.
**Type**

**Cable structure**
- Inner conductor diameter:
- Core insulation:
- Core colours:
- Stranding element:
- Separator:
- Inner sheath material:
- Shielding 1:
- Drain wire:
- Outer sheath material:
- Cable external diameter:
- Outer sheath colour:

**Industrial Area**

**S/FTP 4x2xAWG 22/1**
- Copper, bare (AWG 22/1)
- Foam-skin-PE
- wh/bu, wh/og, wh/gn, wh/bn
- Double core
- FRNC
- Al-Foil
- AL-Foil + braid
- yes
- PVC
- app. 9.6 mm ± 0.3 mm
- Green similar to RAL 6018

**Electrical data**
- Characteristic impedance:
- 100 Ohm ± 15 Ohm at 1 to 100 MHz
- 100 Ohm ± 20 Ohm at 101 to 500 MHz
- 59 Ohm/km
- 0.5 GOhm x km
- 118 Ohm/km max.
- 72 nF/km nom.
- 0.7 kV
- 62 %

**Typical values**

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>10</th>
<th>16</th>
<th>62.5</th>
<th>100</th>
<th>250</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation (db/100m)</td>
<td>5.9</td>
<td>7.5</td>
<td>15.0</td>
<td>19.1</td>
<td>31.1</td>
<td>45.3</td>
</tr>
<tr>
<td>Next (dB)</td>
<td>60.3</td>
<td>57.2</td>
<td>48.4</td>
<td>45.3</td>
<td>39.3</td>
<td>34.8</td>
</tr>
<tr>
<td>PNext (dB)</td>
<td>57.3</td>
<td>54.2</td>
<td>45.4</td>
<td>42.3</td>
<td>36.3</td>
<td>31.8</td>
</tr>
</tbody>
</table>

**Technical data**
- Weight: app. 115 kg/km
- bending radius, repeated: 80 mm
- Operating temperature range min.: -20°C
- Operating temperature range max.: +60°C
- Caloric load, approx. value: 1.63 MJ/m
- Copper weight: 44.00 kg/km

**Norms**
- Acc. to ISO/IEC 11801, Acc. to EN 50173, Acc. to EIA/TIA 568-A, Category 6A, Flame-retardant acc. to IEC 60332-3, CMG FT4

**Application**

HELUKAT® 500IND was designed specially for extreme industrial applications for fixed installation. The copper data cable is especially well-suited for Category 6A Gigabit/500MHz (IEC 61156-5) Ethernet applications. It guarantees excellent transmission characteristics and may be used even under the harshest conditions.

**Part no.** 803693, INDUSTRIAL ETHERNET KAT.6A 10GIG PVC

Dimensions and specifications may be changed without prior notice.
LAN Cable
Category 7e

Cable structure
Inner conductor Ø:
Conductor material:
Core insulation:
Core colours:
Seperator:
Screen over stranding element:
Screen 1 over stranding:
Screen 2 over stranding:
Outer sheath material:
Outer diameter:
Outer sheath colour:

S/FTP 4x2xAWG 23/1 FRNC
0,57 mm
Copper, bare
Foam-skin-PE
wh/bu, wh/og, wh/gn, wh/bn
- Al-Foil
- Cu braid
- FRNC
app. 7,5 mm
Blue Lilac similar to RAL 4005

Electrical data
Characteristic impedance:
Loop resistance:
Mutual capacitance:
Rel. propagation velocity:

Typical values
<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>10</th>
<th>16</th>
<th>62,5</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>600</th>
<th>900</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation (dB/100m)</td>
<td>5,6</td>
<td>7,1</td>
<td>13,9</td>
<td>17,5</td>
<td>25,2</td>
<td>32,1</td>
<td>44,9</td>
<td>55,0</td>
<td>58,0</td>
</tr>
<tr>
<td>Next (dB)</td>
<td>100,0</td>
<td>100,0</td>
<td>96,0</td>
<td>94,0</td>
<td>88,0</td>
<td>84,0</td>
<td>73,0</td>
<td>71,0</td>
<td>69,0</td>
</tr>
<tr>
<td>ACR (dB)</td>
<td>94,4</td>
<td>92,9</td>
<td>82,1</td>
<td>76,5</td>
<td>62,8</td>
<td>51,9</td>
<td>28,1</td>
<td>16,0</td>
<td>9,0</td>
</tr>
</tbody>
</table>

Technical data
Weight: app. 60 kg/km
bending radius, repeated: 60 mm
Operating temperature range min.: -20°C
Operating temperature range max.: +60°C
Caloric load, approx. value: 0,60 MJ/m
Copper weight: 28,00 kg/km

Norms
Acc. to ISO/IEC 11801, Acc. to EN 50173, Acc. to EIA/TIA 568-A, Category 7e, Flame-retardant acc. to IEC 60332-3, Smoke density acc. to IEC 61034, Halogen-free acc. to 60754-2, Corrosiveness acc. to EN50267-2-3

Application
HELUKAT®600 data cables are used in the tertiary, but also in the secondary level of a network. They are characterized by large performance reserves and outstanding performance. They can be used to implement services such as Gigabit Ethernet, Fast Ethernet, Ethernet, ATM155, FDDI, token ring 4/16 Mbit/s or ISDN absolutely trouble-free. Likewise, the mechanical characteristics are perfectly suited for the application in tight cable channels and platforms due to their optimized construction.

Part no.
80810, S/FTP 4x2xAWG 23/1 FRNC (S-STP)

Dimensions and specifications may be changed without prior notice.
Industrial Ethernet

ROBUST

**Type**

**Cable structure**
- Inner conductor diameter:
- Core insulation:
- Core colours:
- Stranding element:
- Separator:
- Shielding 1:
- Screen 1 over stranding:
- Screen 2 over stranding:
- Outer sheath material:
- Cable external diameter:
- Outer sheath colour:

**Industrial Area**

**S/FTP 4x2xAWG 23/1 PUR**
- Copper, bare (AWG 23/1)
- Foam-skin-PE
- wh/bu, wh/og, wh/gn, wh/bn
- Double core
- Al-Foil
- Cu braid
- PUR
- app. 7.5 mm ± 0.3 mm
- Green similar to RAL 6018

**Electrical data**

**Characteristic impedance:**
- 100 Ohm ± 15 Ohm at 1 to 100 MHz
- 100 Ohm ± 20 Ohm at 101 to 1200 MHz
- 149 Ohm/km max.

**Loop resistance:**
- 43 nF/km nom.

**Relative propagation velocity:**
- 77 %

**Typical values**

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>10</th>
<th>16</th>
<th>62.5</th>
<th>100</th>
<th>250</th>
<th>350</th>
<th>600</th>
<th>900</th>
<th>1000</th>
<th>1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>attenuation (dB/100m)</td>
<td>5.6</td>
<td>7.0</td>
<td>13.8</td>
<td>17.6</td>
<td>28.3</td>
<td>34.0</td>
<td>45.2</td>
<td>57.1</td>
<td>60.8</td>
<td>66.0</td>
</tr>
<tr>
<td>NEXT (dB)</td>
<td>89.4</td>
<td>88.0</td>
<td>75.2</td>
<td>69.4</td>
<td>53.7</td>
<td>43.0</td>
<td>27.8</td>
<td>13.9</td>
<td>5.2</td>
<td>-3.0</td>
</tr>
</tbody>
</table>
| ACR (dB) | 34.00 kg/km

**Technical data**

- Weight: app. 68 kg/km
- Bending radius, repeated: 78 mm
- Operating temperature range min.: -40°C
- Operating temperature range max.: +80°C
- Caloric load, approx. value: 0.74 MJ/m
- Copper weight:

**Norms**

Acc. to ISO/IEC 11801, Acc. to EN 50173, Acc. to EIA/TIA 568-A, Category 7e, Flame-retardant acc. to IEC 60332-1-2, Halogen-free acc. to 60754-2, Oil-resistant, AWM Style 21238 600V 80°C

**Application**

HELUKAT® 600IND Category 7e Robust is used for harsh industrial environments. Mechanically, this product exhibits excellent resistance to mineral oils, greases and cooling lubricants and has good microbe and hydrolysis resistance. Electrically, this cable is characterized by high reserve capacity and outstanding performance. This allows you to create services such as Gigabit Ethernet, Fast Ethernet, Ethernet, ATM155, FDDI, Token Ring 4/16 Mbit/s or ISDN without difficulty. These cables considerably exceed the requirement for compliance with Class B interference emission to EN55022, as well as interference immunity to EN55024. This gives the series outstanding EMC characteristics. Also in color blue under p/n 11008281 available.

**Part no.**

801197, S/FTP 4x2xAWG 23/1 PUR (S-STP)

Dimensions and specifications may be changed without prior notice.
**Industrial Ethernet**

**Drag Chain**

**Cable structure**
- Inner conductor diameter:
- Core insulation:
- Core colours:
- Separator:
- Shielding 1:
- Screen 1 over stranding:
- Screen 2 over stranding:
- Outer sheath material:
- Cable external diameter:
- Outer sheath colour:

**Electrical data**
- Characteristic impedance:
- Loop resistance:
- 100 Ohm ± 15 Ohm at 1 to 100 MHz
- 100 Ohm ± 20 Ohm at 101 to 600 MHz
- 175,2 Ohm/km max.

**Typical values**

<table>
<thead>
<tr>
<th>frequency (MHz)</th>
<th>10</th>
<th>16</th>
<th>62,5</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>600</th>
</tr>
</thead>
<tbody>
<tr>
<td>attenuation (db/100m)</td>
<td>6,7</td>
<td>8,5</td>
<td>17,4</td>
<td>22,1</td>
<td>31,6</td>
<td>39,2</td>
<td>57,4</td>
</tr>
<tr>
<td>next (db)</td>
<td>78</td>
<td>78</td>
<td>75,5</td>
<td>72,4</td>
<td>67,9</td>
<td>65,2</td>
<td>60,7</td>
</tr>
<tr>
<td>ACR (db)</td>
<td>71,3</td>
<td>69,5</td>
<td>58,1</td>
<td>50,3</td>
<td>36,3</td>
<td>26</td>
<td>3,3</td>
</tr>
</tbody>
</table>

**Technical data**
- Weight: app. 95 kg/km
- bending radius, repeated: 131 mm
- Operating temperature range min.: -30°C
- Operating temperature range max.: +70°C
- Copper weight: 46,00 kg/km

**Norms**
- Acc. to ISO/IEC 11801
- Acc. to EIA/TIA 568-A
- Category 7
- Halogen-free acc. to 60754-1
- Flame-retardant acc. to IEC 60332-1-2
- CMX 75°C (shielded) or AWM 20940 600V

**Application**
HELUKAT® 600S Category 7 Trailing Cable is designed for use in cable carriers and the recurring loads caused by moving machine components. It provides excellent transmission characteristics under extremely difficult conditions.

**Part no.**
805614, SF/FTP 4x2xAWG 24/7 PUR

Dimensions and specifications may be changed without prior notice.
CC-Link Certified Cables

The HELUKABEL® GmbH provides you with all cable types for your CCLink network, approved by the CLPA organization. In addition to the classical red 3-cored CC-Link cable, there are now various approved versions for CC-Link IE available. Different application areas are:

### CC-Link

<table>
<thead>
<tr>
<th>Type</th>
<th>Part no.</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>HELUKABEL® CC-Link BUS</td>
<td>800497</td>
<td>fixed installed, random movement</td>
</tr>
</tbody>
</table>

### CC-Link IE

<table>
<thead>
<tr>
<th>Type</th>
<th>Part no.</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>HELUKAT® 200 4x2xAWG24/1 PVC</td>
<td>81610</td>
<td>fixed installed, Cat5e</td>
</tr>
<tr>
<td>HELUKAT® 500IND 4x2xAWG22/1 PVC</td>
<td>803693</td>
<td>fixed installed, Cat6&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>HELUKAT® 600 4x2xAWG23/1 FRNC</td>
<td>80810</td>
<td>halogen-free, fixed installed, Cat7e</td>
</tr>
<tr>
<td>HELUKAT® 600IND 4x2xAWG23/1 PUR</td>
<td>801197</td>
<td>fixed installed, Cat7e</td>
</tr>
<tr>
<td>HELUKAT® 600S 4x2xAWG 24/7 PUR</td>
<td>805614</td>
<td>dragchain, Cat7</td>
</tr>
</tbody>
</table>

CONTACTS

Want to design your own cable from our product assortment?
No problem with our product finder: www.helukabel.com/productfinder

Have questions about our products? Your contact at HELUKABEL:

Horst Messerer
Product & Sales Manager
horst.messerer@helukabel.de
Phone: +49 7150 / 9209-129

Order a catalogue online at: www.helukabel.com/publicationorder

National Locations

Berlin
Zum Mühlenfließ 1
15366 Neuenhagen
Phone: +49 3342 2397 0

Chemnitz
Eichelbergstraße 7
09212 Limbach-Oberfrohna
Phone: +49 3722 6086 0

Sales Office - North
Viktoriastraße 2
25524 Itzehoe
Phone: +49 4821 40394 0

Robotec-Systems GmbH
47167 Duisburg
Phone: +49 203 935424 51
info@robotec-systems.de

Sales Office - Rhein-Ruhr
Centroallee 261
46047 Oberhausen
Phone: +49 208 882320 0

Kabelmat Wickeltechnik GmbH
72293 Glatten
Phone: +49 7443 9670 0
kabelmat@kabelmat.com

International Locations

Austria · Belgium · Brazil · Bulgaria · Canada · China · Czech Republic · Denmark · Finland · France · Hungary · India · Indonesia · Italy · Malaysia · Mexico · Myanmar · Netherlands · Peru · Poland · Portugal · Romania · Russia · Singapore · South Africa · South Korea · Spain · Sweden · Switzerland · Thailand · Turkey · United Arab Emirates · UK · USA · Vietnam