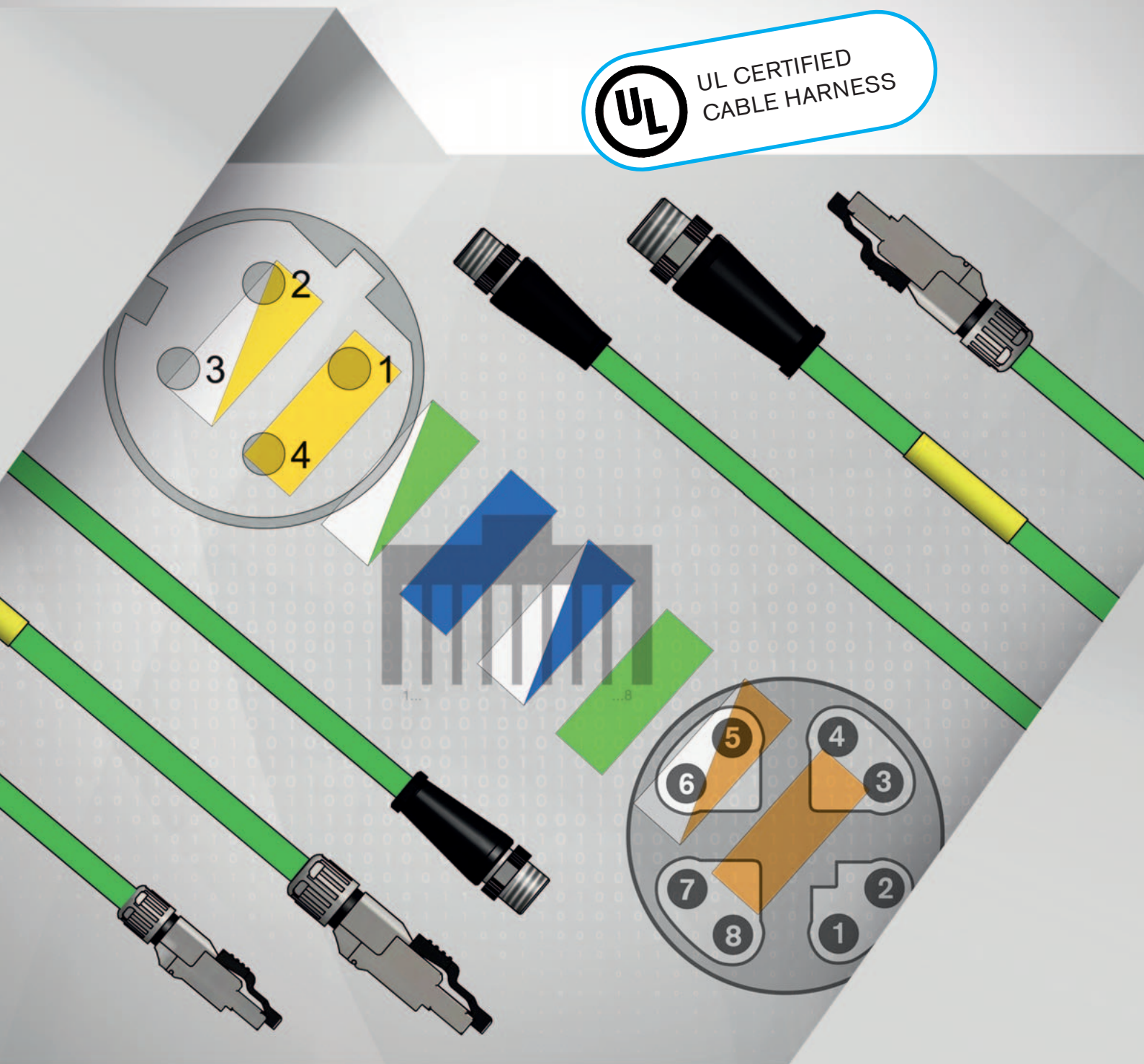


HARNESSED ETHERNET CABLES



Family business in the third generation

75 years of experience in cable and wire manufacturing as well as in temperature measurement technology turned a one-man business into a company with more than 550 employees. We prove our strength every year with more than 1500 special products according to customers' requirements. Each product is a new challenge for our creative technical team. We at **SAB** see ourselves as a manufacturer and a service provider – in the sense of true partnership and the greatest possible customer orientation.

Today, the quality of our products is known and appreciated in more than 100 countries around the world. In all product ranges, we are certified according to DIN EN ISO 9001. Furthermore, we have implemented an environmental management system for our company according to DIN EN ISO 14001, an occupational health and safety management system according to NLF/ILO-OSH and DIN ISO 45001, and an energy management system according to DIN EN ISO 50001.

And also for the future, our slogan is: **"WE GO FORWARD!"**

| | |
|--------------------------------|--|
| FOUNDED: | 1947 by Peter Bröckskes sen. an independent, medium-sized company. |
| CEO: | Peter Bröckskes and Sabine Bröckskes-Wetten |
| PLANT/LOCATION: | In Viersen (Lower Rhine) 110.000 m ² company site. Own manufacturing from copper conductor to outer sheath. VDE approved burnchamber and laboratory within the company. |
| EMPLOYEES/WORKERS: | approx. 430 at the plant in Viersen, 550 worldwide |
| YEARLY SALES: | over 134 Mio. € worldwide |
| PRODUCTS: | Special Cables Measurement Technology Cable Harnessing |
| CERTIFICATES AND APPROVALS: | <p>Quality management system acc. to DIN EN ISO 9001 for every manufacturing field</p> <p>Environmental management system acc. to DIN EN ISO 14001</p> <p>Occupational health and safety management acc. to NLF/ILO-OSH and DIN ISO 45001</p> <p>Energy management system acc. to DIN EN ISO 50001</p> |



HARNESSED CABLES



UL certified
cable harness

SAB Bröckskes has completed its range of harnessed cables with the certification acc. to UL Standard Wiring Harness „category ZPFW2 (UL)“ and „ZPFW8 (Canada)“ and herewith strengthens its position as cable specialist for cable harness acc. to customer's specification.

Whenever harnessed cables are produced as component part of a final product for the North American and Canadian market, an UL certified cable harness is necessary. With the UL certification **SAB** ensures the detailed traceability of individual components as for example cables, plugs or sleeves and offers highest planning reliability also with special harnessing products.

Underwriter Laboratories Inc. (UL), an independent American test and certification authority confirms the use of the materials and documents required by the final customer according to the UL certification for "Wiring Harness" acc. to ZPFW2 and ZPFW8. In the manufacturer's data base (www.ul.com) **SAB** is listed under file no. E473226 as a qualified and reliable manufacturer.

The requirements for UL certified cable harness are controlled by external audits every three months in order to guarantee the high requirements of the UL standards. Besides our cables, also harnessed versions, are tested in our own laboratory with regard to safety and reliability and are marked with the „Wiring Harness Label“.

On request **SAB** is able to manufacture cable harnessing products acc. to customer's specification acc. to UL Wiring Harnesses ZPFW2 and ZPFW8 from the cable to the harness and offers broad advice.

CERTIFICATE OF COMPLIANCE

Certificate Number 20150123-E473226
Report Reference E473226-20150123
Issue Date 2015-JANUARY-23

Issued to: SAB BROECKSKES GMBH & CO KG
GREFRATHERSTRASSE 204-212B
POSTFACH 12 01 60
41749 VIERSEN GERMANY

This is to certify that representative samples of COMPONENT - WIRING HARNESSSES
General Coverage

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: Wiring Harnesses, Subject 764, and CSA Inform Wiring Harnesses No. 1

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

B. Müller
Steve Walenholz, Assistant Chief Engineer, Global Inspection and Field Services
UL LLC

Any information and documentation involving UL mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at info@ul.com

Page 1 of 1

ETHERNET CABLES

CATLINE CAT 6A S - IE CONNECTION CABLE

Industrial Ethernet cable suitable for cable tracks
with moulded M12 connector X-coded at both ends



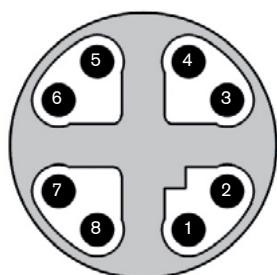
Application: IE system cable for continuously flexible application, e.g. in cable tracks in industrial environment.

Technical Data:

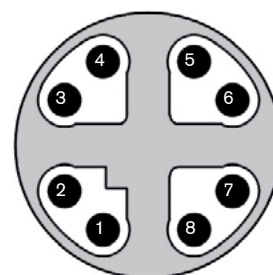
| | |
|---------------------------|--|
| Temperature range: | -40 °C to +70 °C |
| Voltage: | 48 V |
| Protection class: | IP67 in stretched condition |
| Connection end 1: | straight M12 male connector X-coded moulded with vibration protection |
| Connection end 2: | straight M12 male connector X-coded moulded with vibration protection |
| Marking: | yellow marking tube with marking: item number - order number - length - certification mark |

Cable characteristics:

| | |
|-------------------------------|---|
| SAB item no.: | L1677-4631 |
| Dimension: | 4 x 2 x 26 AWG |
| Conductor: | bare copper strands, fine wires |
| Insulation: | special polymer |
| Screen: | alu foil and tinned copper braiding |
| Outer sheath: | PUR, green (similar RAL 6018) |
| Outer diameter: | approx. 7,1 mm |
| Approvals: | UL/CSA |
| Oil resistance: | TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 |
| Min. bending radius | |
| <i>flexible application:</i> | 10 x d |
| <i>continuously flexible:</i> | 15 x d |



| connection diagram/pin assignment | | | |
|-----------------------------------|--------------|--|---------------|
| end 1 | 1:1 | | end 2 |
| M12 connector | core | | M12 connector |
| pin 1 | white-orange | | pin 1 |
| pin 2 | orange | | pin 2 |
| pin 3 | white-green | | pin 3 |
| pin 4 | green | | pin 4 |
| pin 5 | white-brown | | pin 5 |
| pin 6 | brown | | pin 6 |
| pin 7 | white-blue | | pin 7 |
| pin 8 | blue | | pin 8 |
| housing | screen | | housing |



| item no. with length code | |
|---------------------------|----------------------------|
| length | item no.: S1677-4020-_____ |
| 0,5 m | 00050 |
| 1,0 m | 00100 |
| 2,0 m | 00200 |
| 3,0 m | 00300 |
| 5,0 m | 00500 |
| 7,5 m | 00750 |
| 10,0 m | 01000 |
| 15,0 m | 01500 |
| 20,0 m | 02000 |
| 25,0 m | 02500 |

ETHERNET CABLES



CATLINE CAT 6A S - IE CONNECTION CABLE

Industrial Ethernet cable suitable for cable tracks
with mounted RJ45 connector at both ends



Application: IE system cable Cat. 6A for continuously flexible application, e.g. in cable tracks in industrial environment.

Technical Data:

| | |
|--------------------|--|
| Temperature range: | -40 °C to +70 °C |
| Voltage: | 50 V |
| Protection class: | IP20 |
| Connection end 1: | mounted RJ45 male connector Cat. 6A, 8-pole with cable gland |
| Connection end 2: | mounted RJ45 male connector Cat. 6A, 8-pole with cable gland |
| Marking: | yellow marking tube with marking: item number - order number - length - certification mark |

Cable characteristics:

| | |
|------------------------|---|
| SAB item no.: | L1677-4631 |
| Dimension: | 4 x 2 x 26 AWG |
| Conductor: | bare copper strands, fine wires |
| Insulation: | special polymer |
| Screen: | alu foil and tinned copper braiding |
| Outer sheath: | PUR, green (similar RAL 6018) |
| Outer diameter: | approx. 7,1 mm |
| Approvals: | UL/CSA |
| Oil resistance: | TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 |
| Min. bending radius | |
| flexible application: | 5 x d |
| continuously flexible: | 15 x d |



| connection diagram/pin assignment | | |
|-----------------------------------|--------------|---------|
| end 1 | TIA 568-B | end 2 |
| RJ45 | core | RJ45 |
| pin 1 | white-orange | pin 1 |
| pin 2 | orange | pin 2 |
| pin 3 | white-green | pin 3 |
| pin 4 | blue | pin 4 |
| pin 5 | white-blue | pin 5 |
| pin 6 | green | pin 6 |
| pin 7 | white-brown | pin 7 |
| pin 8 | brown | pin 8 |
| housing | screen | housing |



| item no. with length code | |
|---------------------------|----------------------------|
| length | item no.: S1677-4026-_____ |
| 0,5 m | 00050 |
| 1,0 m | 00100 |
| 2,0 m | 00200 |
| 3,0 m | 00300 |
| 5,0 m | 00500 |
| 7,5 m | 00750 |
| 10,0 m | 01000 |
| 15,0 m | 01500 |
| 20,0 m | 02000 |
| 25,0 m | 02500 |

ETHERNET CABLES

S PN 667 - PN CONNECTION CABLE

Profinet cable suitable for cable tracks with mounted RJ45 connector at both ends



Application: PN system cable Cat.5 for continuously flexible application, e.g. in cable tracks in industrial environment.

Technical Data:

| | |
|--------------------|--|
| Temperature range: | -40 °C to +70 °C |
| Voltage: | 50 V |
| Protection class: | IP20 |
| Connection end 1: | mounted RJ45 male connector |
| Connection end 2: | mounted RJ45 male connector |
| Marking: | yellow marking tube with marking: item number - order number - length - certification mark |

Cable characteristics:

| | |
|------------------------|---|
| SAB item no.: | L0667-2202 |
| Dimension: | 2 x 2 x 22 AWG |
| Conductor: | bare copper strands, 7 wires |
| Insulation: | special polymer |
| Screen: | alu foil and tinned copper braiding |
| Outer sheath: | PUR, green (similar RAL 6018) |
| Outer diameter: | 6,5 mm ± 0,2 mm |
| Approvals: | UL/CSA |
| Oil resistance: | TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 |
| Min. bending radius | |
| flexible application: | 5 x d |
| continuously flexible: | 15 x d |



| connection diagram/pin assignment | | | | | |
|-----------------------------------|--------|--------|--|---------|--|
| end 1 | 1:1 | | | end 2 | |
| RJ45 | core | | | RJ45 | |
| pin 1 | | yellow | | pin 1 | |
| pin 2 | | white | | pin 2 | |
| pin 3 | | orange | | pin 3 | |
| pin 4 | | | | pin 4 | |
| pin 5 | | | | pin 5 | |
| pin 6 | | blue | | pin 6 | |
| pin 7 | | | | pin 7 | |
| pin 8 | | | | pin 8 | |
| housing | screen | | | housing | |



| item no. with length code | |
|---------------------------|----------------------------|
| length | item no.: S0667-4026-_____ |
| 0,5 m | 00050 |
| 1,0 m | 00100 |
| 2,0 m | 00200 |
| 3,0 m | 00300 |
| 5,0 m | 00500 |
| 7,5 m | 00750 |
| 10,0 m | 01000 |
| 15,0 m | 01500 |
| 20,0 m | 02000 |
| 25,0 m | 02500 |

S PN 667 - PN CONNECTION CABLE

Profinet cable suitable for cable tracks type C
with moulded M12 connector D-coded at both ends



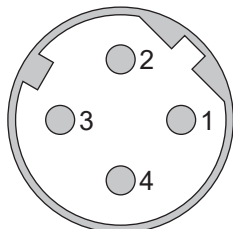
Application: PN system cable Cat.5 for continuously flexible application, e.g. in cable tracks in industrial environment.









Technical Data:

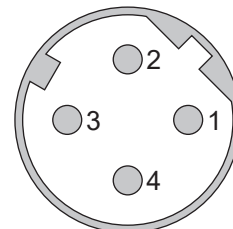
| | |
|--------------------|--|
| Temperature range: | -40 °C to +70 °C |
| Voltage: | 25 V |
| Protection class: | IP67 in stretched condition |
| Connection end 1: | straight M12 male connector D-coded moulded with vibration protection |
| Connection end 2: | straight M12 male connector D-coded moulded with vibration protection |
| Marking: | yellow marking tube with marking: item number - order number - length - certification mark |

Cable characteristics:

| | |
|------------------------|---|
| SAB item no.: | L0667-2202 |
| Dimension: | 2 x 2 x 22 AWG |
| Conductor: | bare copper strands, 7 wires |
| Insulation: | special polymer |
| Screen: | alu foil and tinned copper braiding |
| Outer sheath: | PUR, green (similar RAL 6018) |
| Outer diameter: | 6,5 mm ± 0,2 mm |
| Approvals: | UL/CSA |
| Oil resistance: | TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 |
| Min. bending radius | |
| flexible application: | 5 x d |
| continuously flexible: | 15 x d |



| connection diagram/pin assignment | | | | | |
|-----------------------------------|---|--------|---|---------------|--|
| end 1 | 1:1 | | | end 2 | |
| M12 connector | core | | | M12 connector | |
| pin 1 |  | yellow |  | pin 1 | |
| pin 2 |  | white |  | pin 2 | |
| pin 3 |  | orange |  | pin 3 | |
| pin 4 |  | blue |  | pin 4 | |
| housing | screen | | | housing | |



| item no. with length code | |
|---------------------------|----------------------------|
| length | item no.: S0667-4002-_____ |
| 0,5 m | 00050 |
| 1,0 m | 00100 |
| 2,0 m | 00200 |
| 3,0 m | 00300 |
| 5,0 m | 00500 |
| 7,5 m | 00750 |
| 10,0 m | 01000 |
| 15,0 m | 01500 |
| 20,0 m | 02000 |
| 25,0 m | 02500 |

ETHERNET CABLES



S PN 667 - PN CONNECTION CABLE

Profinet cable suitable for cable tracks
with moulded M12 connector D-coded and mounted RJ45 connector



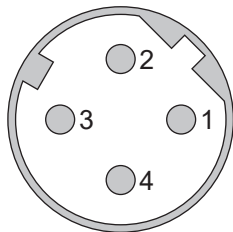
Application: PN system cable Cat.5 for continuously flexible application, e.g. in cable tracks in industrial environment.

Technical Data:

| | |
|--------------------|--|
| Temperature range: | -40 °C to +70 °C |
| Voltage: | 50 V |
| Protection class: | IP67 (M12, in stretched condition), IP20 (RJ45) |
| Connection end 1: | straight M12 male connector D-coded moulded with vibration protection |
| Connection end 2: | mounted RJ45 male connector |
| Marking: | yellow marking tube with marking: item number - order number - length - certification mark |

Cable characteristics:

| | |
|------------------------|---|
| SAB item no.: | L0667-2202 |
| Dimension: | 2 x 2 x 22 AWG |
| Conductor: | bare copper strands, 7 wires |
| Insulation: | special polymer |
| Screen: | alu foil and tinned copper braiding |
| Outer sheath: | PUR, green (similar RAL 6018) |
| Outer diameter: | 6,5 mm ± 0,2 mm |
| Approvals: | UL/CSA |
| Oil resistance: | TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 |
| Min. bending radius | |
| flexible application: | 5 x d |
| continuously flexible: | 15 x d |



| connection diagram/pin assignment | | | | | |
|-----------------------------------|--------|--------|---------|-------|--|
| end 1 | 1:1 | | end 2 | | |
| M12 connector | core | | RJ45 | | |
| pin 1 | | yellow | | pin 1 | |
| pin 2 | | white | | pin 2 | |
| pin 3 | | orange | | pin 3 | |
| | | | | pin 4 | |
| | | | | pin 5 | |
| pin 4 | | blue | | pin 6 | |
| | | | | pin 7 | |
| | | | | pin 8 | |
| housing | screen | | housing | | |



| item no. with length code | |
|---------------------------|----------------------------|
| length | item no.: S1667-4028-_____ |
| 0,5 m | 00050 |
| 1,0 m | 00100 |
| 2,0 m | 00200 |
| 3,0 m | 00300 |
| 5,0 m | 00500 |
| 7,5 m | 00750 |
| 10,0 m | 01000 |
| 15,0 m | 01500 |
| 20,0 m | 02000 |
| 25,0 m | 02500 |

ETHERNET CABLES



CATLINE CAT. 6A S - IE CONNECTION CABLE

Industrial Ethernet cable suitable for cable tracks
with moulded M12 connector X-coded and mounted RJ45 connector



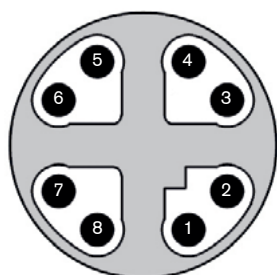
Application: IE system cable for continuously flexible application, e.g. in cable tracks in industrial environment.

Technical Data:

| | |
|--------------------|--|
| Temperature range: | -40 °C to +70 °C |
| Voltage: | 48 V |
| Protection class: | IP67 (M12, in stretched condition), IP20 (RJ45) |
| Connection end 1: | straight M12 male connector X-coded moulded with vibration protection |
| Connection end 2: | mounted RJ45 male connector Cat. 6A, 8-pole with cable gland |
| Marking: | yellow marking tube with marking: item number - order number - length - certification mark |

Cable characteristics:

| | |
|------------------------|---|
| SAB item no.: | L1677-4631 |
| Dimension: | 4 x 2 x 26 AWG |
| Conductor: | bare copper strands, fine wires |
| Insulation: | special polymer |
| Screen: | alu foil and tinned copper braiding |
| Outer sheath: | PUR, green (similar RAL 6018) |
| Outer diameter: | approx. 7,1 mm |
| Approvals: | UL/CSA |
| Oil resistance: | TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 |
| Min. bending radius | |
| flexible application: | 5 x d |
| continuously flexible: | 15 x d |



| connection diagram/pin assignment | | |
|-----------------------------------|--------------|---------------|
| end 1 | TIA 568-B | end 2 |
| M12 connector | core | M12 connector |
| pin 1 | white-orange | pin 1 |
| pin 2 | orange | pin 2 |
| pin 3 | white-green | pin 3 |
| pin 4 | green | pin 4 |
| pin 5 | white-brown | pin 5 |
| pin 6 | brown | pin 6 |
| pin 7 | white-blue | pin 7 |
| pin 8 | blue | pin 8 |
| housing | screen | housing |



| item no. with length code | |
|---------------------------|----------------------------|
| length | item no.: S1677-4027-_____ |
| 0,5 m | 00050 |
| 1,0 m | 00100 |
| 2,0 m | 00200 |
| 3,0 m | 00300 |
| 5,0 m | 00500 |
| 7,5 m | 00750 |
| 10,0 m | 01000 |
| 15,0 m | 01500 |
| 20,0 m | 02000 |
| 25,0 m | 02500 |

CATLINE CAT. 6A S - IE CONNECTION CABLE

Industrial Ethernet cable suitable for cable tracks
with mounted RJ45 connector and mounted RJ12 connector



Application: Connection cable between PC and IP cameras.

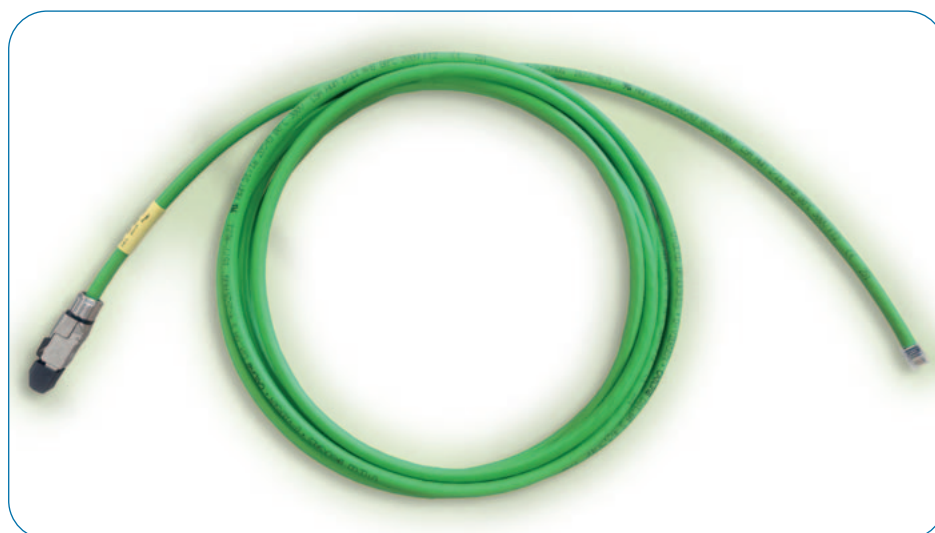
Technical Data:

| | |
|---------------------------|--|
| Temperature range: | -20 °C to +70 °C |
| Connection end 1: | mounted RJ45 male connector Cat. 6A, 8-pole with cable gland |
| Connection end 2: | mounted RJ12 male connector |
| Marking: | yellow marking tube with marking: item number - order number - length - certification mark |

Cable characteristics:

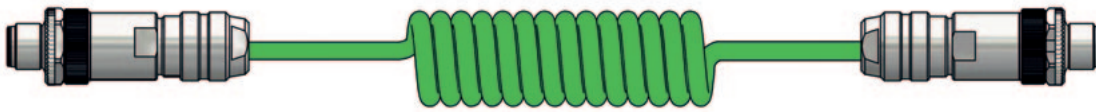
| | |
|-------------------------------|---|
| SAB item no.: | L1677-4631 |
| Dimension: | 4 x 2 x 26 AWG |
| Conductor: | bare copper strands, fine wires |
| Insulation: | special polymer |
| Screen: | alu foil and tinned copper braiding |
| Outer sheath: | PUR, green (similar RAL 6018) |
| Outer diameter: | approx. 7,1 mm |
| Approvals: | UL/CSA |
| Oil resistance: | TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 |
| Min. bending radius | |
| <i>flexible application:</i> | 5 x d |
| <i>continuously flexible:</i> | 15 x d |

| item no. with length code | |
|---------------------------|---------------------------------|
| length | item no.: S1677-4044- _ _ _ _ _ |
| 0,5 m | 00050 |
| 1,0 m | 00100 |
| 2,0 m | 00200 |
| 3,0 m | 00300 |
| 5,0 m | 00500 |
| 7,5 m | 00750 |
| 10,0 m | 01000 |



ETHERNET CABLE

Helix cable with axial outlets and M12 male connector D-coded at both ends



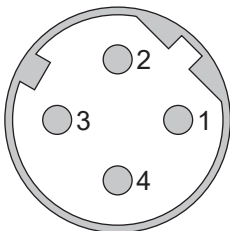
Application: Cat. 5 Profinet cable as helix cable for mobile use on machines and systems.









Technical Data:

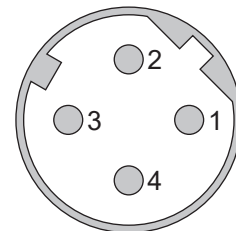
| | |
|---------------------------|---|
| Temperature range: | -30 °C to +80 °C |
| Voltage: | max. 113 V |
| Connection end 1: | straight M12 male connector D-coded |
| Connection end 2: | straight M12 male connector D-coded |
| Marking: | yellow marking tube with marking: item number - order number - length - certification mark, with customer identification on request! |

Cable characteristics:

| | |
|------------------------|---------------------------------|
| SAB item no.: | L0616-9066 |
| Dimension: | 2 x 2 x 26 AWG |
| Conductor: | bare copper strands, fine wires |
| Insulation: | SABIX® |
| Screen: | tinned copper braiding |
| Outer sheath: | PUR, green (similar RAL 6018) |
| Outer diameter: | approx. 6,1 mm |

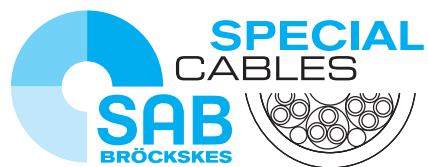


| connection diagram/pin assignment | | | | | |
|-----------------------------------|---|--------|---|---------------|--|
| end 1 | 1:1 | | | end 2 | |
| M12 connector | core | | | M12 connector | |
| pin 1 |  | yellow |  | pin 1 | |
| pin 2 |  | white |  | pin 2 | |
| pin 3 |  | orange |  | pin 3 | |
| pin 4 |  | blue |  | pin 4 | |
| housing | screen | | | housing | |



**Individual lengths
and further
plug combinations
on request!**





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