

HARNESSED CABLE OVERMOULDING



UL CERTIFIED
CABLE HARNESS



www.sab-cable.com



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 www.ul.com/customer-service

Page 1 of 1

Production possibilities

Flexible cables and wires “Made in Germany”

As a leading manufacturer we develop and produce cables for industrial purposes.

Our wide range of materials offers a lot of possibilities for your individual product requirement.

The following survey shows an extract of our production possibilities:

Conductor Materials:

- ✓ bare copper
- ✓ tinned copper
- ✓ silver plated copper
- ✓ nickel plated copper
- ✓ nickel
- ✓ nickel pure
- ✓ compensating cable alloys

Insulation and Jacketing Materials:

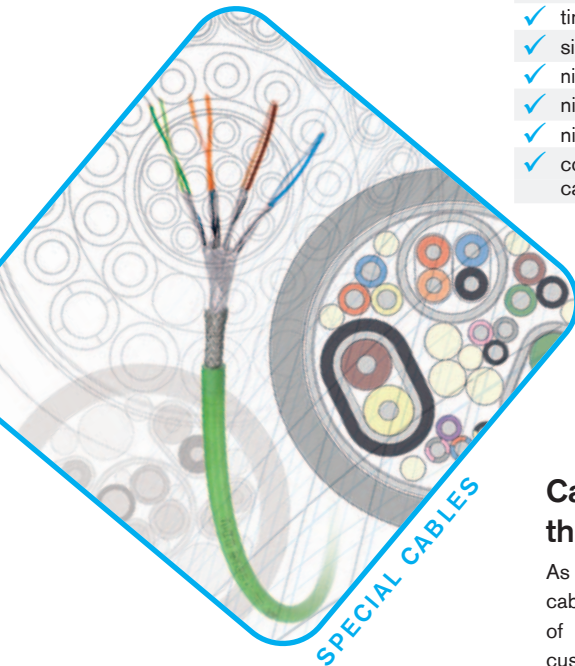
- ✓ PVC
- ✓ Polyethylene
- ✓ Polypropylene
- ✓ Polyurethane
- ✓ TPE
- ✓ SABIX® (zero halogen)
- ✓ Besilen® - Silicone
- ✓ FEP, ETFE, PFA, PTFE
- ✓ PI foil
- ✓ Fibreglass

Temperature Ranges:

- Thermoplastic Elastomers
- ✓ -50°C up to +145°C
- SABIX®
- ✓ -50°C up to +220°C
- Besilen® - Silicone
- ✓ -40°C up to +220°C
- FEP, ETFE, PFA
- ✓ -90°C up to +260°C
- Fibreglass
- ✓ up to +600°C

Conductors:

- ✓ cross sections 0,055 - 300 mm²
- ✓ unshielded and shielded over 100 conductors

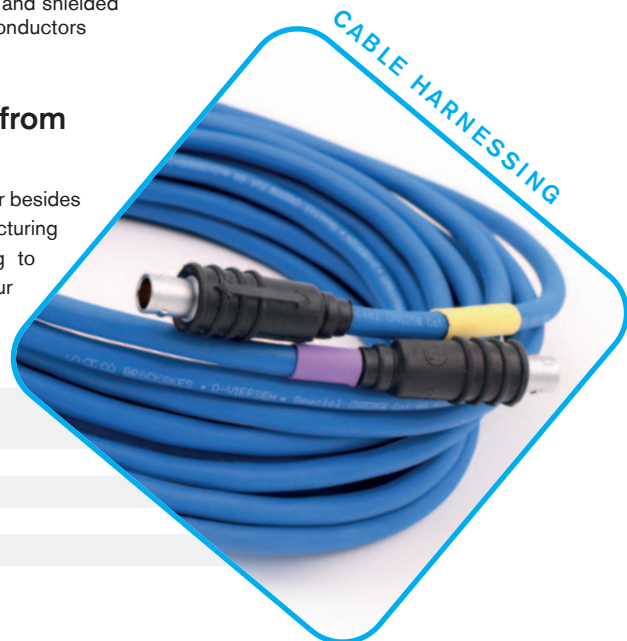


SPECIAL CABLES

Cable harnessing directly from the manufacturer SAB:

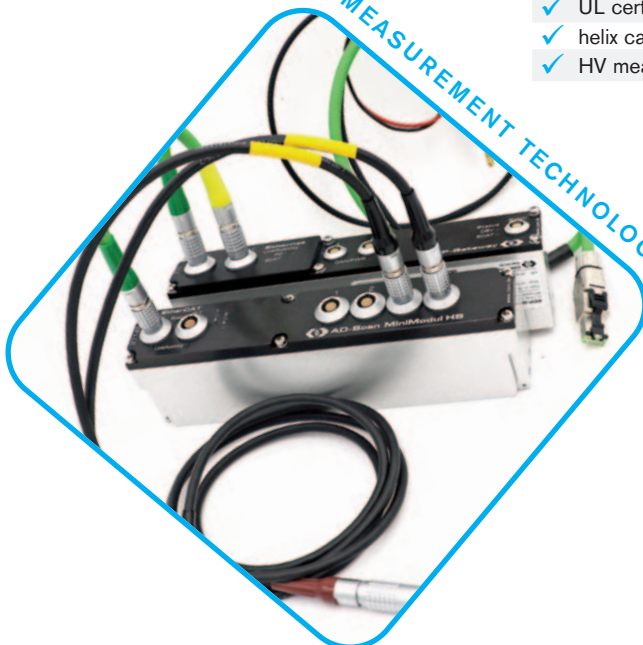
As a full service partner we are able to offer besides cable design and production the manufacturing of cable harnessing products according to customer's request. Please trust on our experience for decades in the treatment of cables and connectors.

- ✓ cable harness according to customer's demands
- ✓ complete cable harness
- ✓ UL certified assemblies
- ✓ helix cables
- ✓ HV measuring harness



CABLE HARNESSING

MEASUREMENT TECHNOLOGY



Measuring technology for industrial applications

Manufacturer of temperature sensors for industrial applications with 75 years of experience!

- ✓ mineral insulated thermocouples
- ✓ mineral insulated resistance thermometers
- ✓ temperature sensors
- ✓ mobile high voltage measuring technology
- ✓ temperature sensors for vehicle testing

CABLE OVERMOULDING

CATLINE CAT. 6A S - IE CONNECTION CABLE

Industrial Ethernet cable, suitable for cable tracks,
with moulded M12 connector and mounted RJ45 connector



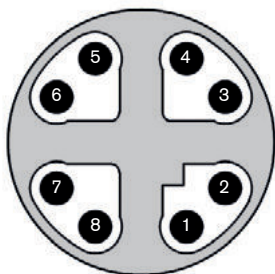
Application: IE system cable for continuously flexible application, e.g. in cable tracks in industrial environment.

Technical Data:

Temperature range:	-40 °C to +70 °C
Voltage:	48 V
Protection class:	IP67 (M12, in stretched condition), IP20 (RJ45)
Connection side 1:	M12 X-coded, male connector, straight, moulded with vibration seal
Connection side 2:	RJ45 connector, mounted, 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			
side 1	TIA 568-B		side 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

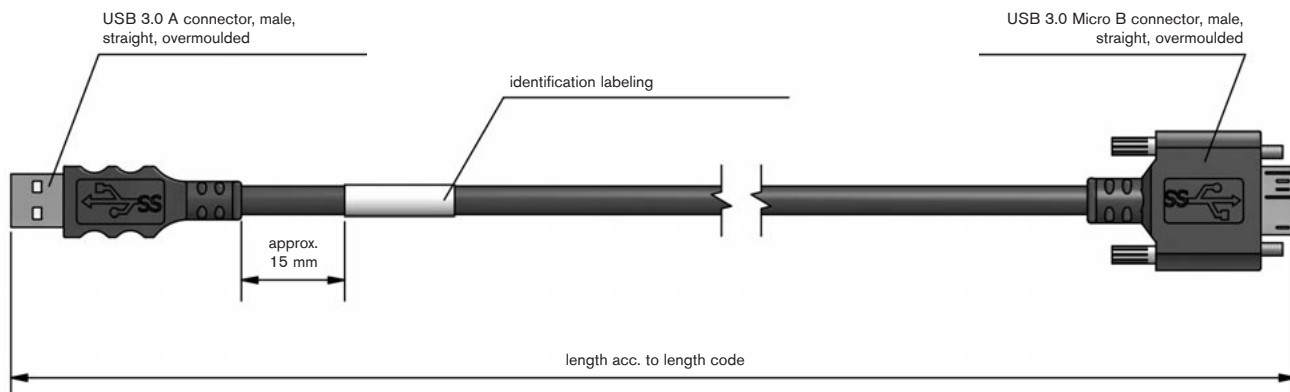


item no. with length code	
length	item no.: S1677-4027-_____
0,5 m	00050
1,0 m	00100
2,0 m	00200
3,0 m	00300
5,0 m	00500
7,5 m	00750
10,0 m	01000
15,0 m	01500
20,0 m	02000
25,0 m	02500

CABLE OVERMOULDING

USB 3.0 (USB 3.2 GEN 1X1) CABLE

with USB A and USB Micro B connector, overmoulded



Technical Data:

Temperature range:	-30 °C to +80 °C
Voltage range:	max. 350 V
Connection side 1:	USB 3.0 A connector, male, straight
Connection side 2:	USB 3.0 Micro B connector, male, straight

Cable characteristics:

SAB item no.:	L0604-9004
Dimension:	3x(2x30 AWG)ST + 2 x 24 AWG
Conductor:	silver-plated or tinned copper strands, fine wires
Insulation:	SABIX®
Screen:	alu foil with drain wire as well as tinned copper braiding
Outer sheath:	PUR, black (similar RAL 9005)
Outer diameter:	approx. 6,4 mm

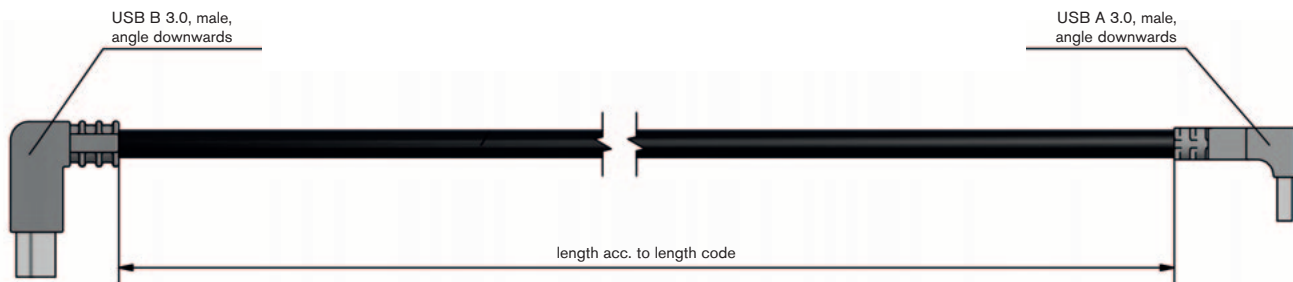
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5,0 m	00500
7,5 m	00750
10,0 m	01000
15,0 m	01500
20,0 m	02000
25,0 m	02500



CABLE OVERMOULDING

USB 3.0 (USB 3.2 GEN 1X1) CABLE

with USB A and USB B connector, overmoulded (angle downwards)



Technical Data:

Temperature range:	-30 °C to +80 °C
Voltage range:	0 – 5 V
Connection side 1:	USB-B connector, tilted
Connection side 2:	USB-A connector, tilted

Cable characteristics:

SAB item no.:	L0604-9004
Dimension:	3x(2x30 AWG)ST + 2 x 24 AWG
Conductor:	silver-plated or tinned copper strands, fine wires
Insulation:	SABIX®
Screen:	alu foil with drain wire as well as tinned copper braiding
Outer sheath:	PUR, black (similar RAL 9005)
Outer diameter:	approx. 6,4 mm

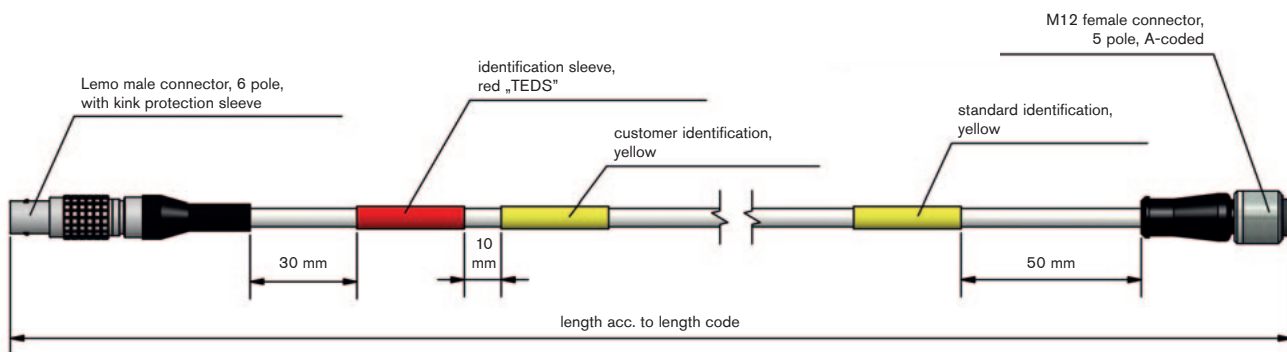
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3,0 m	00300
5,0 m	00500
7,5 m	00750
10,0 m	01000
15,0 m	01500
20,0 m	02000
25,0 m	02500



CABLE OVERMOULDING

DATA CABLE

with 6 pole male connector and M12 female connector



Technical Data:

Temperature range:	-40 °C to +80 °C
Voltage range:	0 – 60 V
Connection side 1:	M12 female connector, 5 pole, overmoulded
Connection side 2:	Lemo male connector, 6 pole

Cable characteristics:

SAB item no.:	L3833-0522
Dimension:	5 x AWG 22/7
Conductor:	tinned copper strands, fine wires
Insulation:	FEP
Screen:	tinned copper braiding
Outer sheath:	FEP, white (similar RAL 1013)
Outer diameter:	approx. 4,2 mm

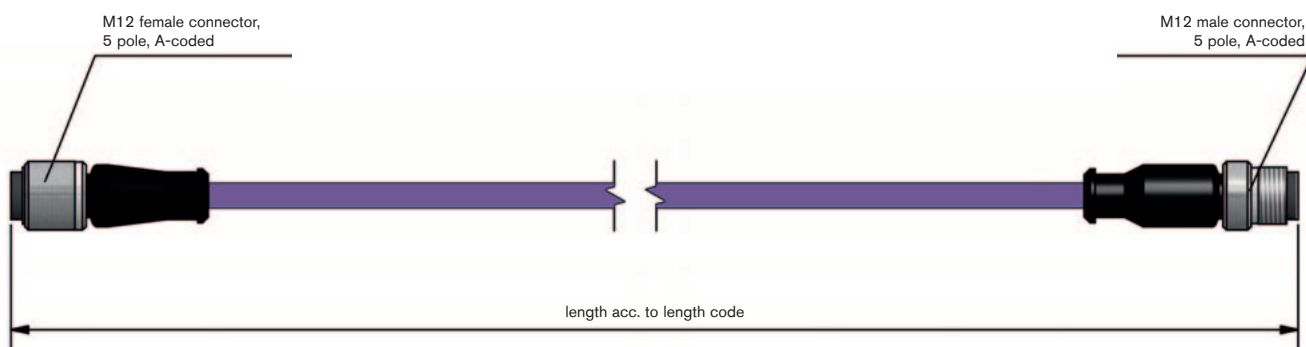
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7,5 m	00750
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15,0 m	01500
20,0 m	02000
25,0 m	02500

connection diagram/pin assignment				
Lemo male connector	core		M12 female connector	
pin 1		yellow		pin 4
pin 2		green		pin 3
pin 3		grey		pin 5
pin 4		white		pin 2
pin 5		brown		pin 3
pin 6		---		pin 1
housing	screen		housing	

CABLE OVERMOULDING

DEVICENET™ CABLE

with 5 pole M12 female connector and M12 male connector



Technical Data:

Temperature range:	-40 °C to +90 °C
Voltage range:	max. 350 V
Connection side 1:	M12 female connector, 5 pole, A-coded
Connection side 2:	M12 male connector, 5 pole, A-coded

Cable characteristics:

SAB item no.:	L0656-9004
Dimension:	2 x 0,34 mm ² + 2 x 0,34 mm ²
Conductor:	bare copper strands, fine wires
Insulation:	FEP
Screen:	tinned copper braiding
Outer sheath:	PUR, redlilac (similar RAL 4001)
Outer diameter:	approx. 7,5 mm

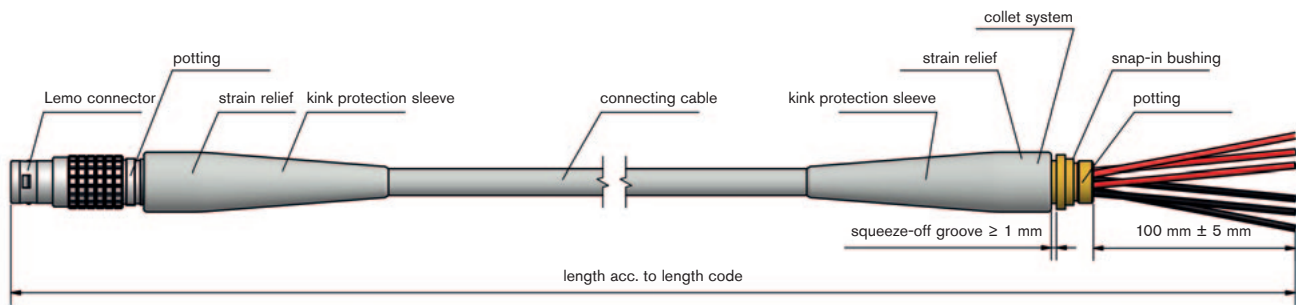
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7,5 m	00750
10,0 m	01000
15,0 m	01500
20,0 m	02000
25,0 m	02500

connection diagram/pin assignment				
M12 female connector	core			M12 male connector
pin 1	drain wire			pin 4
pin 2		red		pin 3
pin 3		black		pin 5
pin 4		white		pin 2
pin 5		blue		pin 3
housing	screen			housing

CABLE OVERMOULDING

SABMED S-CABLE

with connector and silicon overmoulded kink protection sleeve, 4 m



Technical Data:

Temperature range:	-25 °C to +180 °C
Voltage range:	0 – 12 V
Connection side 1:	Lemo male connector, 6 pole, overmoulded
Connection side 2:	mounted snap-in bushing, overmoulded

Cable characteristics:

SAB item no.:	L3900-0032
Dimension:	6 x 1,0 mm ²
Conductor:	silver-plated copper strands, fine wires
Insulation:	FEP
Screen:	tinned copper braiding
Outer sheath:	Smed S, grey (similar RAL 7004)
Outer diameter:	approx. 7,5 mm

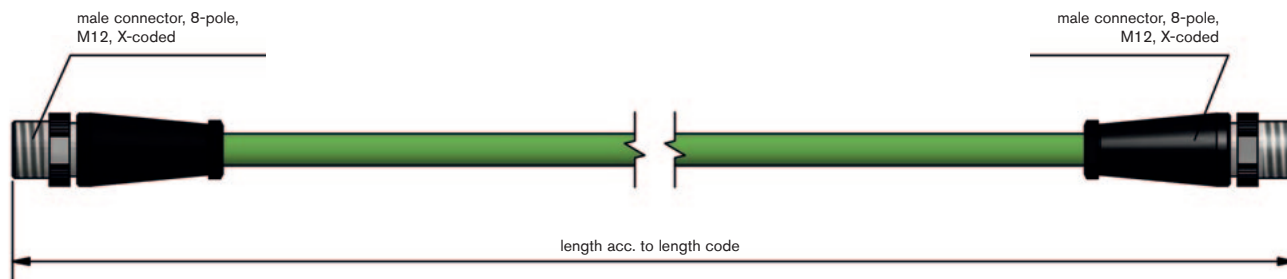
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7,5 m	00750
10,0 m	01000
15,0 m	01500
20,0 m	02000
25,0 m	02500

connection diagram/pin assignment	
connector	core
pin 1	black
pin 2	red
pin 3	red
pin 4	black
pin 5	white
housing	screen

CABLE OVERMOULDING

CATLINE CAT. 6A S - IE CONNECTION CABLE

Industrial Ethernet cable, suitable for cable tracks,
with moulded M12 male connector assembly at both sides



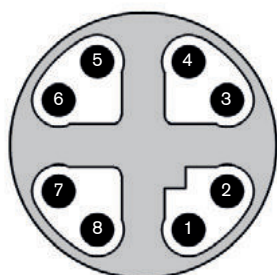
Technical Data:

Temperature range:	-40 °C to +19 °C
Voltage range:	max. 90 V
Connection side 1:	male connector, 8-pole, M12, X-coded
Connection side 2:	male connector, 8-pole, M12, X-coded

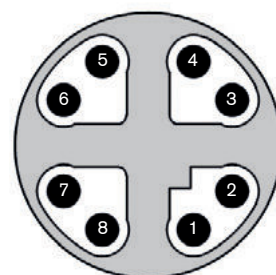
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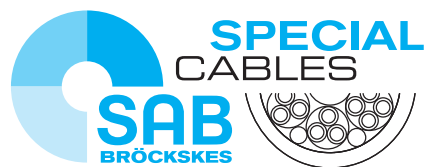
Cable characteristics:

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			
side 1	TIA 568-B		side 2
M12 connector		core	
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





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