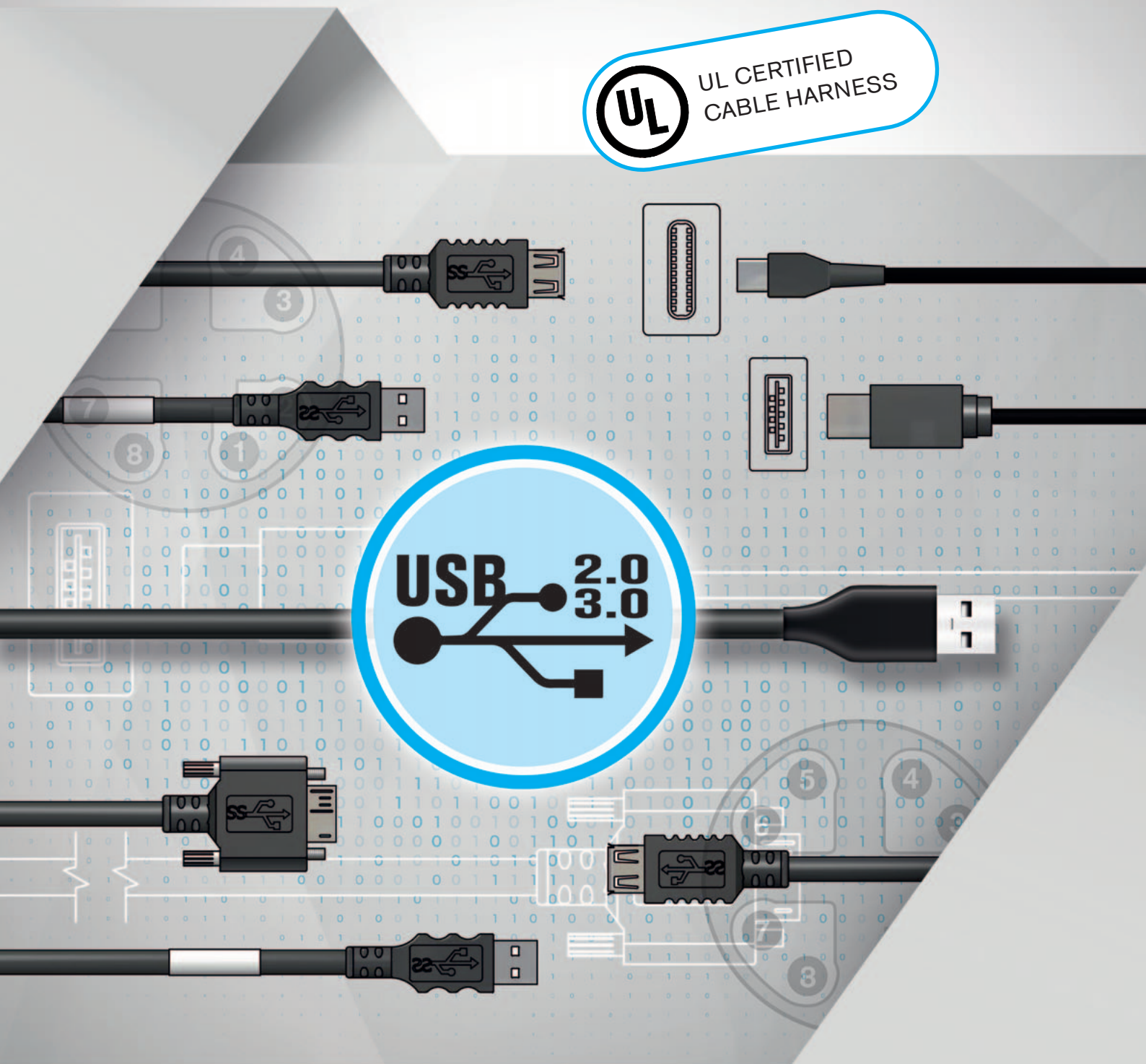


HARNESSED USB 3.0 CABLES



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

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Harnessed USB 3.0 cables

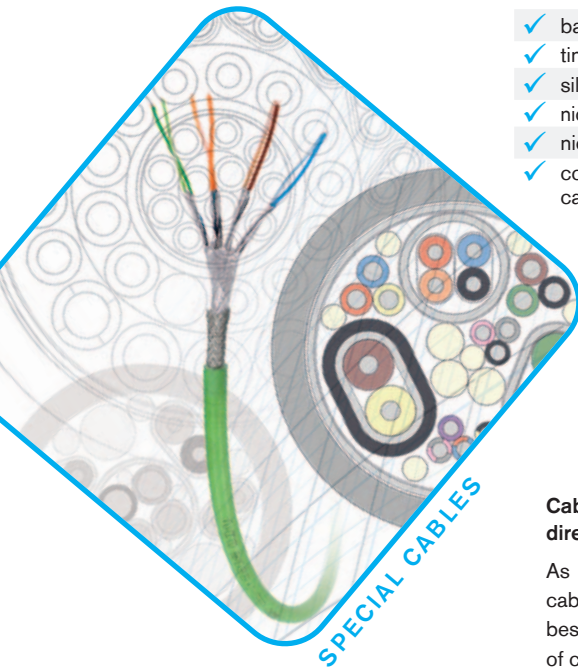
Production possibilities

Flexible cables and wires "Made in Germany"

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

Our great variety of materials offer a wide range of possibilities to manufacture your requested product.

The following survey shows an extract from our production range:



Conductor Materials:

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

Insulation and Jacketing Materials:

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

Temperature Ranges:

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

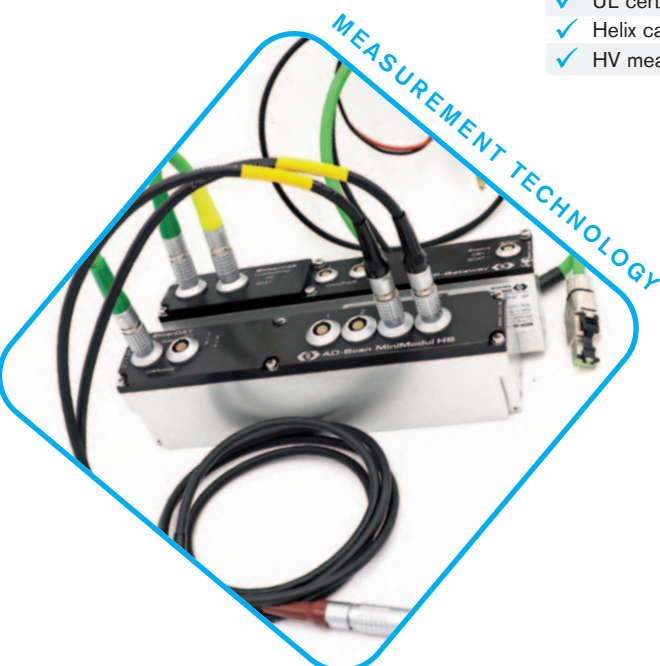
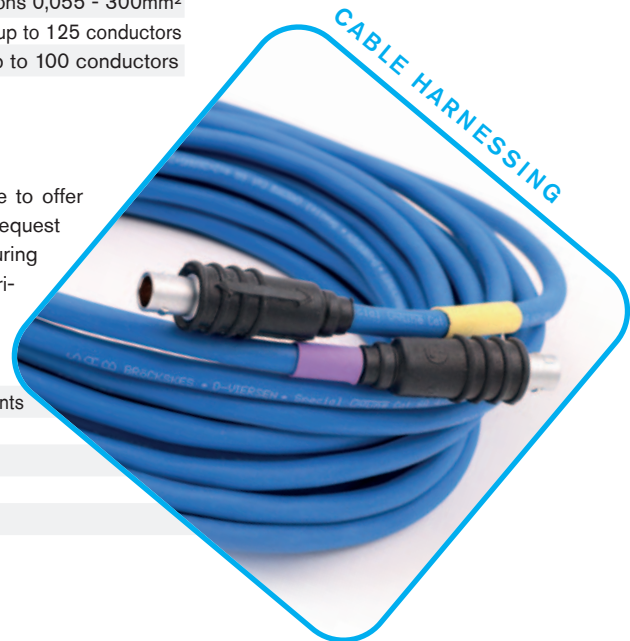
Conductors:

- ✓ cross sections 0,055 - 300mm²
- ✓ unshielded up to 125 conductors
- ✓ shielded up to 100 conductors

Cable harnessing directly from the manufacturer SAB:

As a full service partner we are also able to offer cable harnessing acc. to the customers request besides the development and manufacturing of cables. Please trust our long-term experience in the processing of cables and plugs.

- ✓ harnessing acc. to customer's requirements
- ✓ complete cable harness
- ✓ UL certified assemblies
- ✓ Helix cables
- ✓ HV measurement harnessing



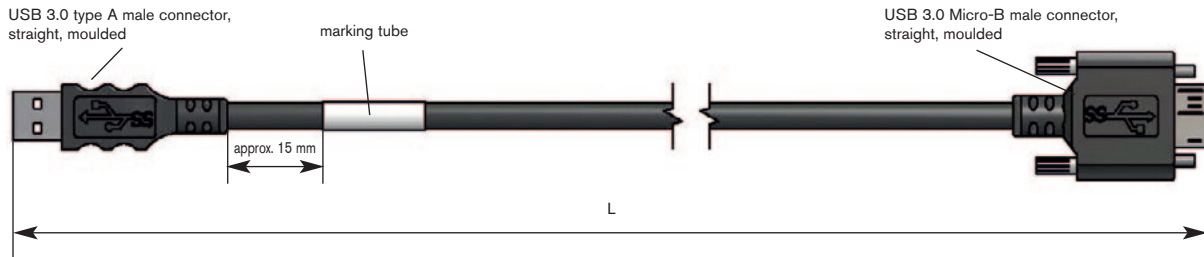
Measuring technique for industrial purpose

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

- ✓ Mineral insulated thermocouples
- ✓ Mineral insulated resistance thermometers
- ✓ Temperature sensors
- ✓ Mobile high voltage temperature measurement technique
- ✓ Temperature sensors for automobile testing

USB 3.0 CABLE WITH MOULDED CONNECTOR

USB 3.0 cable with moulded type A and Micro-B male connector



Application:

Connection cable PC – 3D camera



Cable characteristics:

- mechanically very rugged
- PUR cable suitable for cable tracks

Cable data:

Construction:	3x(2x30AWG)ST+2x24AWG
Insulation:	SABIX®
Outer sheath:	PUR
Outer diameter:	approx. 6,1 mm
Min. bending radius:	10 x d
Peak operating voltage:	max. 350 V

Configuration example:

item no.	length „L“ in cm
S0604-4004-00100	100
S0604-4004-00200	200
S0604-4004-00300	300
S0604-4004-00500	500

Connector:

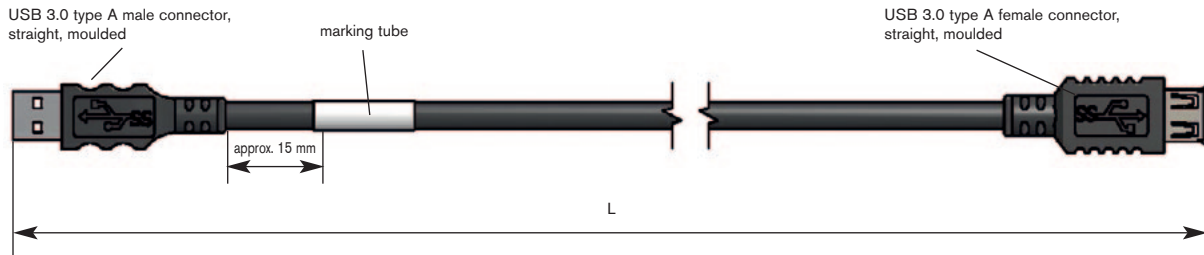
side 1:	USB 3.0 type A male connector
side 2:	USB 3.0 type Micro-B male connector

SAB marking:

item number, order number, length

USB 3.0 CABLE WITH MOULDED CONNECTOR

USB 3.0 cable with moulded type A male connector and type A female connector



Application:

Extension cable



Cable characteristics:

- mechanically very rugged
- PUR cable suitable for cable tracks

Cable data:

Construction:	3x(2x30AWG)ST+2x24AWG
Insulation:	SABIX®
Outer sheath:	PUR
Outer diameter:	approx. 6,1 mm
Min. bending radius:	10 x d
Peak operating voltage:	max. 350 V

Configuration example:

item no.	length „L“ in cm
S0604-4005-00050	50
S0604-4005-00100	100
S0604-4005-00200	200
S0604-4005-00300	300
S0604-4005-00500	500

Connector:

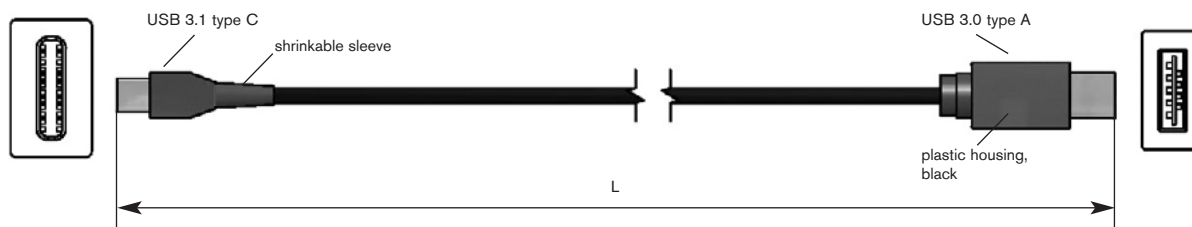
side 1:	USB 3.0 type A male connector
side 2:	USB 3.0 type A female connector

SAB marking:

item number, order number, length

USB 3.0 CABLE WITH HAND-ASSEMBLED CONNECTORS

USB 3.0 cable with hand-assembled type A connector and type C connector



Application:

Connection cable USB A
with USB C connector



Cable characteristics:

- mechanically very rugged
- PUR cable suitable for cable tracks

Cable data:

Construction:	3x(2x30AWG)ST+2x24AWG
Insulation:	SABIX®
Outer sheath:	PUR
Outer diameter:	approx. 6,1 mm
Min. bending radius:	10 x d
Peak operating voltage:	max. 350 V

Configuration example:

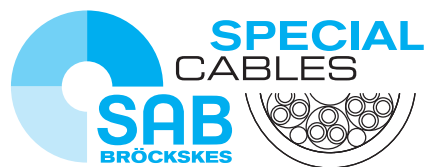
item no.	length „L“ in cm
S0604-4009-00100	100
S0604-4009-00200	200
S0604-4009-00300	300
S0604-4009-00500	500

Connector:

side 1:	USB 3.0 type A connector (hand-assembled)
side 2:	USB 3.1 type C connector (hand-assembled)

SAB marking:

item number, order number, length



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