

E-MOBILITY

HIGH VOLTAGE MEASUREMENT TECHNOLOGY



CSM GmbH

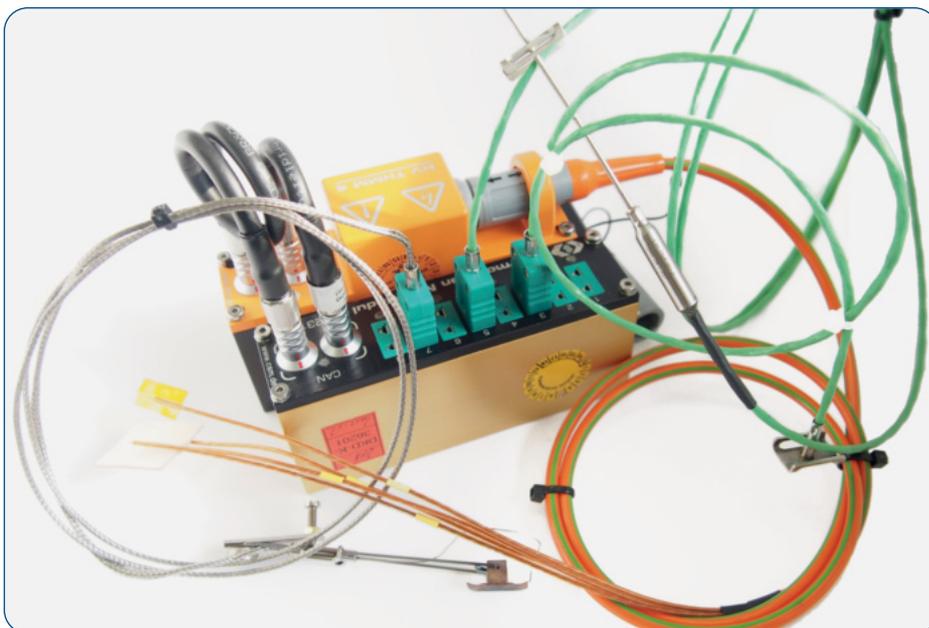
www.csm.de
www.sab-worldwide.com

CONTENT

■ The companies	SAB BRÖCKSKES GmbH & Co. KG / CSM GmbH - Computer-Systeme-Messtechnik	3
■ Safe temperature measurement	on HV components	4
■ Application example		5
■ Safe and efficient measurements in high-voltage environments		6
■ HV TH Measurement Modules		7

PRODUCT RANGE

■ 4-channel HV temperature sensor	FEP cable	8
■ 4-channel HV temperature sensor	PI cable	9
■ HV thermo extension		10
■ 1-channel HV temperature sensor		11
■ HV analogue sensor cable	item no. L3801-9192 / item no. L3801-9196	12
■ HV PT100: 2, 4, 6 and 8 channels in 4-wire circuit	reduced outer diameter and flat PT100 chip resistances for a comfortable installation	13
■ 2-channel HV PT extension		14
■ High voltage measuring cable IEPE	with MicroCom-plug	15
■ High voltage measuring cable	HV measuring cable with increased contact protection	16
■ High voltage measuring cable	1-channel with Redel-plug	17
■ High voltage measuring cable	1-channel with laboratory plug	18
■ Test adapter and accessories		19
■ Accessories for HV sensors		20
■ Besilen® - silicone cable	B 110 C Besilen® insulated shielded copper rope	21
■ Besilen® - silicone cable	B 107 Besilen® insulated copper rope	22
■ Application for high voltage measuring cables		23



THE COMPANIES



FOUNDED IN 1947

by Peter Bröckskes sen.
an independent,
middle sized company

CEO

Peter Bröckskes and Sabine Bröckskes-Wetten

PLANT/LOCATION

in Viersen (lower Rhine) 110.000m² company site
manufacturing from copper conductor to
outer sheath, thermocouples,
resistance thermometers, cable harnessing,
own VDE approved burning chamber and laboratory

STAFF

approx. 420 in Viersen, 500 worldwide

TURNOVER

approx. 95 million € worldwide

PRODUCTS

- special cables
- measurement
- cable harnessing

CERTIFICATES AND APPROVALS

quality management system acc. to ISO 9001:2015
for all production fields, environmental management
system acc. to ISO 14001:2015, occupational health
and safety management acc. to NLF/ILO-OSH 2001
and OHSAS 18001:2007, energy management system
acc. to DIN EN ISO 50001:2011



CSM GmbH

FOUNDED IN 1983

by Iris Koch and Dr. Winfried Koch
as a privately held technology company

CEO

Iris Koch
Dr. Winfried Koch

PLANT/LOCATION

CSM Computer-Systeme-Messtechnik GmbH
Filderstadt near Stuttgart

STAFF

approx. 100 employees worldwide

PRODUCT PORTFOLIO

- CAN- and EtherCAT®-based
measurement technology, high-voltage-safe
measurement modules for use in vehicles,
on machinery and in test benches
- E-Mobility Measurement System
from Vector and CSM for testing
high-voltage batteries, inverters, converters,
motors and high-voltage electrical systems
- Data loggers for mobile,
fail-safe data acquisition of measurement data

CERTIFICATES AND APPROVALS

certified acc. to DIN EN ISO 9001 since 2002, certified
acc. to DIN EN ISO 14001 since 2004, own test
laboratory for EMC tests, laboratory for calibrations with
DAkkS approval (D-K-15214-01-00)

SAFE TEMPERATURE MEASUREMENT ON HV COMPONENTS

The measurement system is especially designed for safe temperature measurement on HV components and is excellently suited for mobile and stationary use in the field of electric mobility: electric and hybrid vehicles.



Tested safety from measuring point to data logging

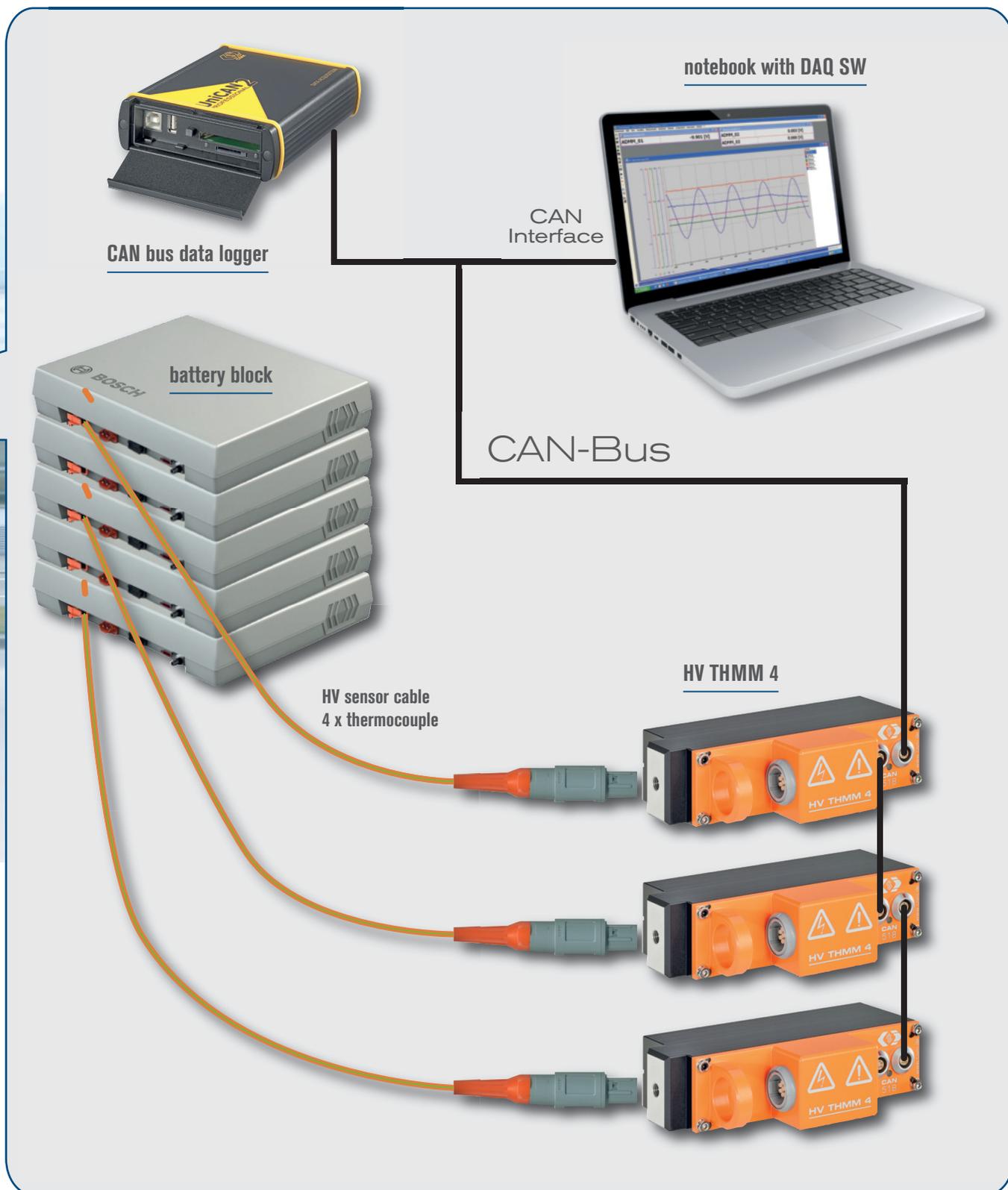
- ✓ temperature measurement on HV components
- ✓ suitable for mobile and stationary use in the field of e-mobility
- ✓ it can be used in close proximity to the measuring point
- ✓ type test of the complete system by an accredited laboratory



Digatron test bench for electric vehicle batteries

E-MOBILITY HIGH VOLTAGE MEASUREMENT TECHNOLOGY

APPLICATION EXAMPLE



E-MOBILITY HIGH VOLTAGE MEASUREMENT TECHNOLOGY

SAFE AND EFFICIENT MEASUREMENTS IN HIGH-VOLTAGE ENVIRONMENTS

Measurement systems from CSM provide safety from HV damage in the entire measurement chain - from the sensor to data acquisition software, and the user. As with our other CAN and EtherCAT® modules, they ensure fast installation as well as precise and reliable measurement results over the entire operating temperature range.

Overview HV Measurement Modules



HV Breakout Modules



HV DTemp Measurement System



E-Mobility Measurement System



HV AD ECAT Measurement Modules



HV STG Measurement Modules



HV TH Measurement Modules



HV PT Measurement Modules



HV IEPE Measurement Modules

HV TH MEASUREMENT MODULES

Safe temperature measurement with K-type thermocouples

Safe temperature measurements with thermocouples on high-voltage components: the high-voltage-safe temperature measurement modules are specifically designed for the reliable acquisition of temperatures in electric and hybrid vehicles.

These measurement modules are equipped with NiCr-Ni-temperature inputs (Type K) for easy and reliable temperature measurements. Thanks to the multi-level safety concept in accordance with DIN EN 61010, they offer certified safety from the point of measurement to the data acquisition.

HV THMM 4/HV TH4 evo

- ✓ High voltage safe MiniModules for distributed measurement applications in test drives - also under extreme environmental conditions
- ✓ Certified safety concept in accordance with DIN EN 61010; routine test including testing certificate
- ✓ Four measurement inputs via 8-pin Redel multi-connector, galvanically isolated
- ✓ Reinforced insulation up to 846 V (HV THMM 4) or up to 1,000 V RMS (HV TH4 evo)
- ✓ Measurement categories (as of hardware revision B002)
 - CAT II: 600 V
 - CAT III: 300 V
- ✓ High measurement precision and extremely low temperature drift over the entire operating temperature range from -40 °C to +100 °C (HV THMM 4) or up to +125 °C (HV TH4 evo)
- ✓ Extremely compact and robust housing with protection class IP67

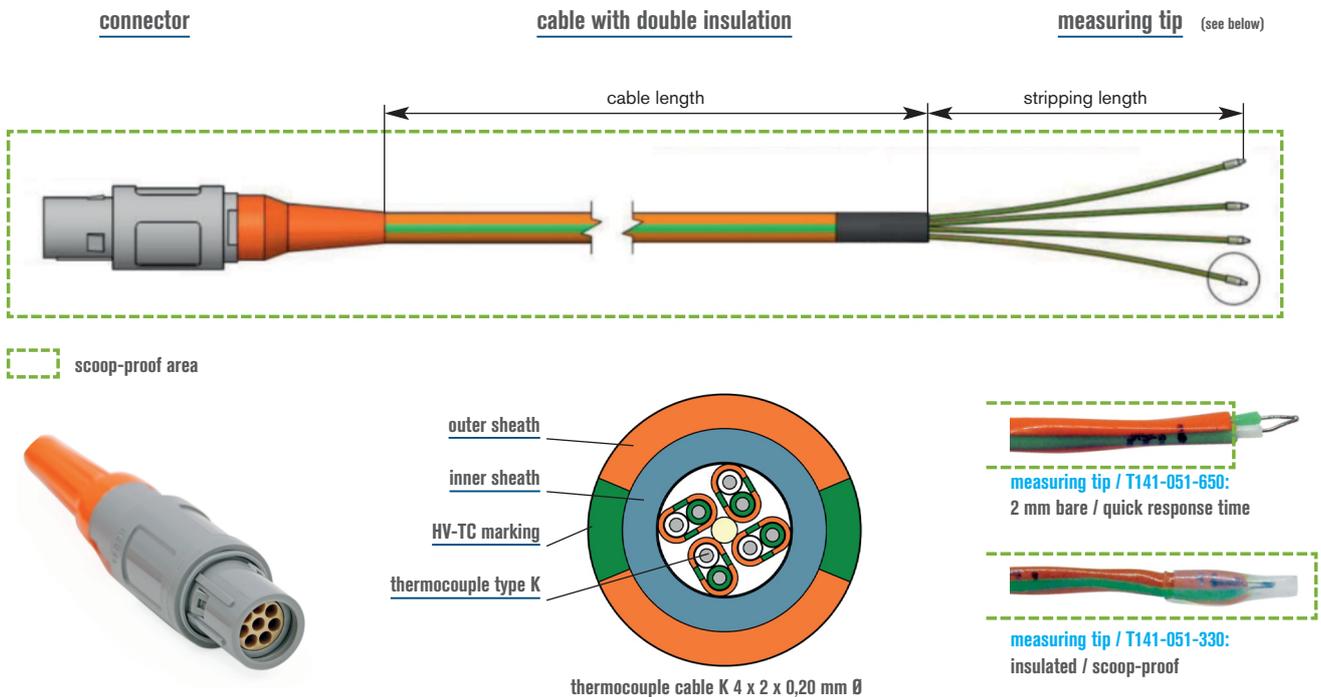


HV TH-TBM 8/HV TH8 evo

- ✓ High voltage safe 19-inch slide-in modules for the use in test benches and in vehicles
- ✓ Certified safety concept in accordance with DIN EN 61010; routine including testing certificate
- ✓ Eight measurement inputs via two 8-pin Redel-multi-connectors, galvanically isolated
- ✓ Reinforced insulation up to 846 V (HV TH-TBM 8) or up to 1,000 V RMS (HV TH8 evo)
- ✓ High measurement precision and extremely low temperature drift over the entire operating temperature range from up to -40 °C to +85 °C
- ✓ Compact and robust housing with protection class IP65

4-CHANNEL HV TEMPERATURE SENSOR

FEP cable



- ✓ **diameter**
total approx. 6,1 mm · pair approx. 1,9 mm
- ✓ **min. bending radius**
total 12 x cable diameter · pair of conductors 5 x cable diameter
- ✓ **temperature range**

thermo cable	-40 °C up to +150 °C (3000 h)
	+125 °C constant use
FEP thermopairs	-40 °C up to +180 °C
plug	-50 °C up to +170 °C
- ✓ **dielectric strength**

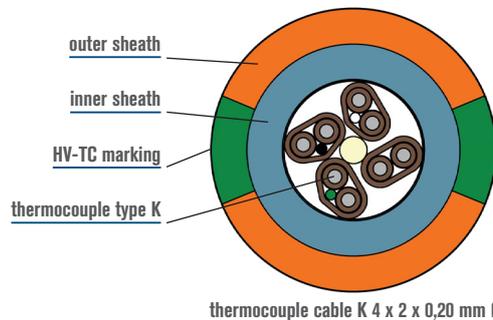
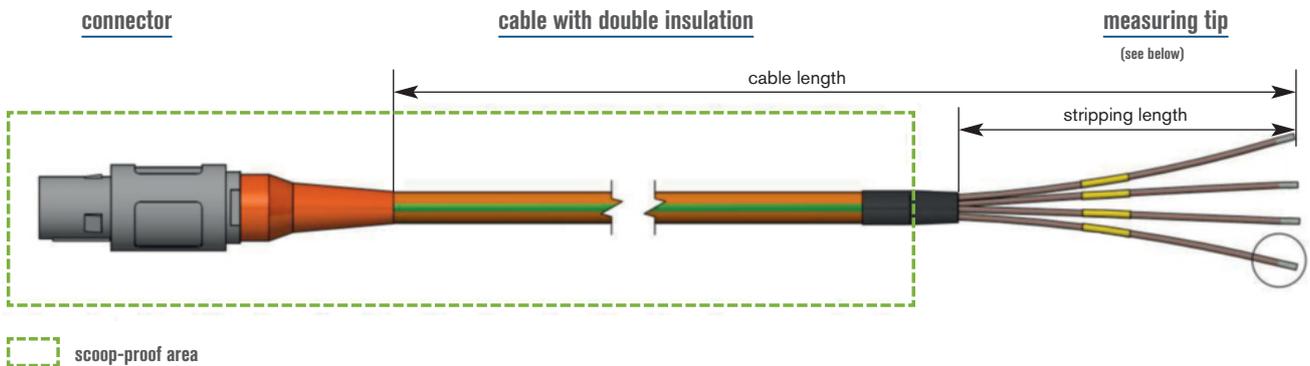
over sheathed pair	1000 V
plug	1000 V
- ✓ **routine test**
plug 3000 V / 1 minute
- ✓ **delivery with protecting cap**
- ✓ **serial number**
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN · CSM GmbH · D-FILDERSTADT ·
L0433-9235 · ⚡ Typ K HV-SENSOR ⚡

CONFIGURATION EXAMPLES

item no.	cable length mm	stripping length mm	pairs	measuring tip
T141-051-650	2400	400	*not scoop-proof*	bare / quick response time *not scoop-proof*
T141-056-330	2400	400	*scoop-proof*	insulated / mechanical heat shrinkable sleeve *scoop-proof*

4-CHANNEL HV TEMPERATURE SENSOR

PI cable



- ✓ **diameter**
total approx. 4,5 mm · pair approx. 1,0 mm
- ✓ **min. bending radius**
total 12 x cable diameter · pair of conductors 5 x cable diameter
- ✓ **temperature range**

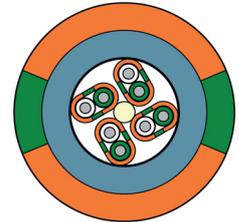
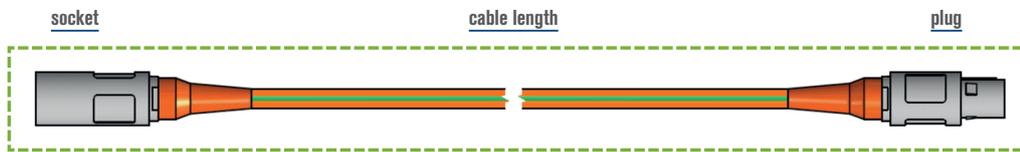
thermo cable	-40 °C up to +150 °C (3000 h)
	+125 °C constant use
Pi insulated thermopairs	-40 °C up to +250 °C
plug	-50 °C up to +170 °C
- ✓ **dielectric strength**

over inner sheath	1000 V
plug	1000 V
- ✓ **routine test**
plug 3000 V / 1 minute
- ✓ **delivery with protecting cap**
- ✓ **serial number**
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN ·
L0433-9231 · ⚡ Typ K HV-SENSOR ⚡

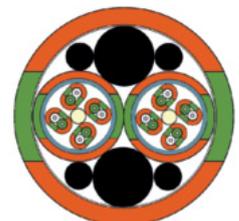
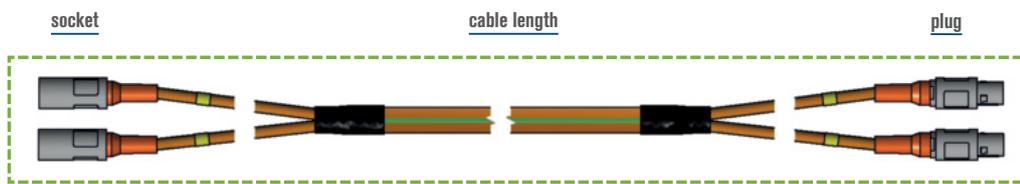
CONFIGURATION EXAMPLES

item no.	cable length mm	stripping length mm	pairs	measuring tip
T141-051-647	2400	400	*not scoop-proof*	bare / quick response time *not scoop-proof*
T141-058-746	2500	500	*not scoop-proof*	insulated / mechanical heat shrinkable sleeve *not scoop-proof*
T141-058-907	2400	400	*not scoop-proof*	bare / oil resistant shrinkable sleeve *not scoop-proof*

4-CHANNEL HV THERMO EXTENSION



thermocouple cable K 4 x 2 x 0,20 mm Ø



thermocouple cable K 2 x (4 x 2 x 0,20 mm Ø)

 scoop-proof only when stretched or with cover cap

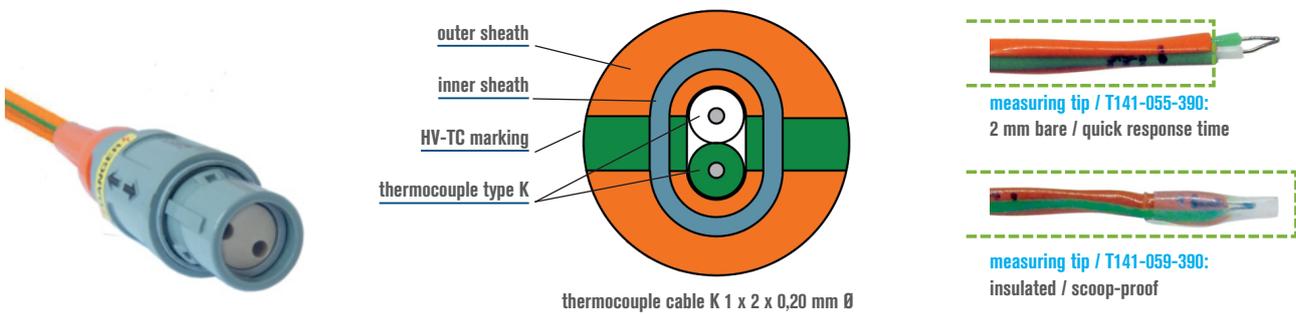
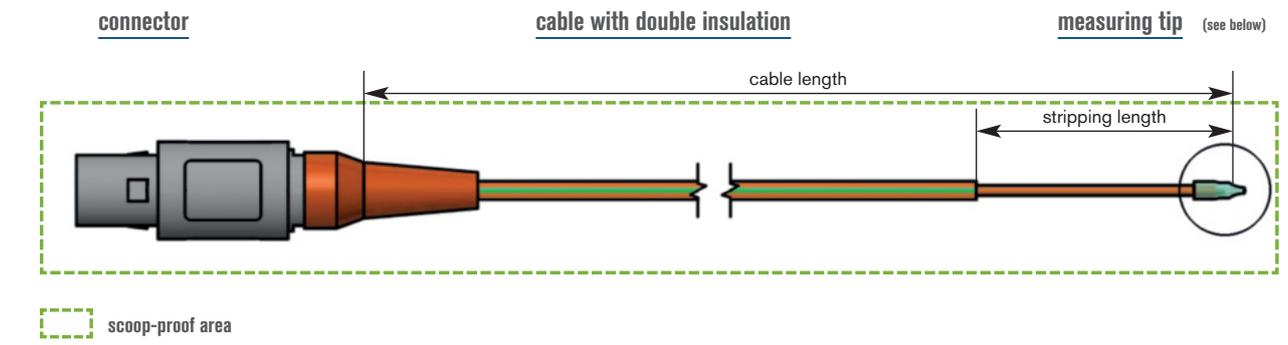
- ✓ **diameter**
approx. 6,1 mm at 4-channel
approx. 14,7 mm at 8-channel
- ✓ **min. bending radius**
12 x cable diameter
- ✓ **temperature range**
thermo cable -40 °C up to +150 °C (3000 h)
 +125 °C constant use
plug -50 °C up to +170 °C
- ✓ **dielectric strength**
over outer sheath 1000 V
plug/socket 1000 V
- ✓ **routine test**
plug/socket 3000 V / 1 minute
- ✓ **delivery with protecting cap**
- ✓ **serial number**
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN ·
L0433-9XXX · ⚡ Typ K HV-SENSOR ⚡



CONFIGURATION EXAMPLES

item no.	channels	cable length mm
T141-054-030	4	1000
T141-058-575	4	3000
T141-058-576	4	5000
T141-060-447	8	1000
T141-060-446	8	3000
T141-060-445	8	5000

1-CHANNEL HV TEMPERATURE SENSOR



- ✓ **diameter**
total approx. 3,4 mm · pair approx. 1,9 mm
- ✓ **min. bending radius**
total 12 x cable diameter · pair of conductors 5 x cable diameter
- ✓ **temperature range**

thermo cable	-40 °C up to +150 °C (3000 h)
	+125 °C constant use
FEP thermopairs	-40 °C up to +180 °C
plug	-50 °C up to +170 °C
- ✓ **dielectric strength**

over sheathed pair	1000 V
plug	1000 V
- ✓ **routine test**

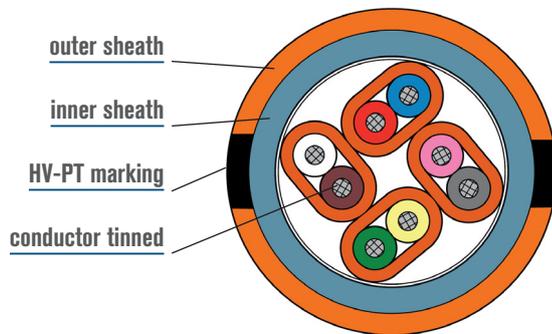
plug	3000 V / 1 minute
------	-------------------
- ✓ **delivery with protecting cap**
- ✓ **serial number**
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN ·
L0433-9241 · ⚡ Typ K HV-SENSOR ⚡

CONFIGURATION EXAMPLES

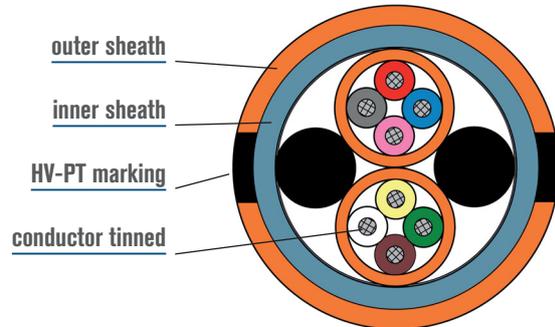
item no.	cable length mm	stripping length mm	pairs	measuring tip
T141-055-390	2400	400	*scoop-proof*	bare *not scoop-proof*
T141-059-052	2400	400	*scoop-proof*	insulated *scoop-proof*

HV ANALOGUE SENSOR CABLES

Item no. L3801-9192 / Item no. L3801-9196



outer diameter 4 x 2 x AWG 28



outer diameter 2 x 4 x AWG 28

- ✓ **diameter**
total approx. 7,1 mm
pair approx. 2,3 mm
- ✓ **min. bending radius**
total 12 x cable diameter
pair 5 x cable diameter
- ✓ **operating temperature**
fixed laying -40 °C up to +150 °C (3000 h)
- ✓ **voltage**
max. 1000 V
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN ·
CSM GmbH · D-FILDERSTADT ·
L3801-9192 · ⚡ HV-ANALOG ⚡

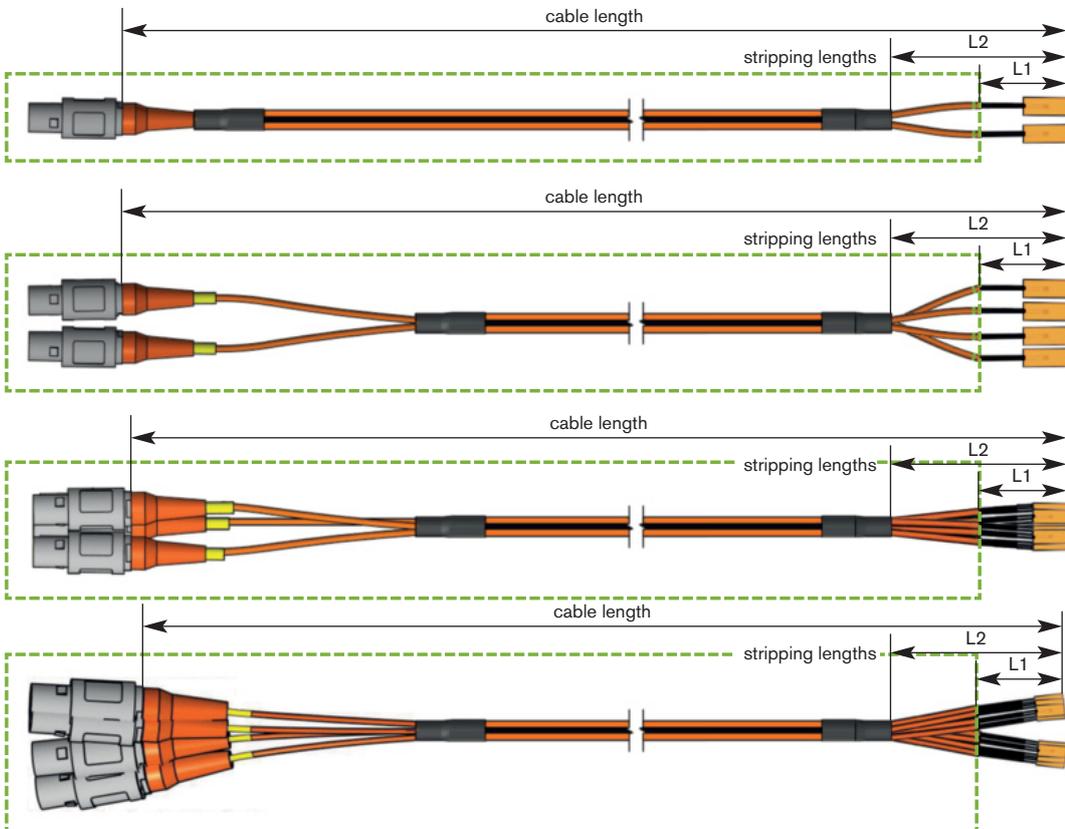
- ✓ **diameter**
total approx. 7,2 mm
4er approx. 2,6 mm
- ✓ **min. bending radius**
12 x cable diameter
- ✓ **operating temperature**
fixed laying -40 °C up to +150 °C (3000 h)
- ✓ **voltage**
max. 1000 V
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN ·
CSM GmbH · D-FILDERSTADT ·
L3801-9196 · ⚡ HV-ANALOG ⚡

E-MOBILITY HIGH VOLTAGE MEASUREMENT TECHNOLOGY

HV-PT100: 2, 4, 6 AND 8 CHANNELS IN 4-WIRE CIRCUIT

reduced outer diameter and flat PT100 chip resistances for a comfortable installation

NEW



scoop-proof area

example measuring tip: 2 x PT100 class A in Pi foil

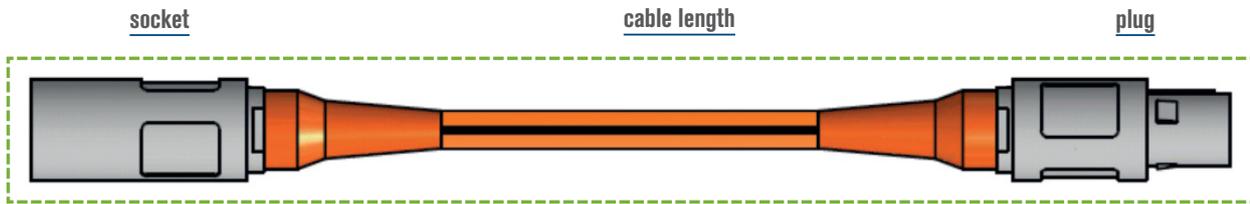


- ✓ **PT100**
length x width x height: 2,3 mm x 2 mm x 0,47 mm
accuracy class A
- ✓ **min. bending radius**
12 x cable diameter
- ✓ **temperature range**
connection cable -40 °C up to +150 °C (3000 h)
+125 °C constant use
sensor -200 °C up to +200 °C
FEP insulation -40 °C up to +180 °C
- ✓ **construction type**
PT100 sensors in Pi foil,
25 x 12,5 mm (length x width)
- ✓ **dielectric strength**
over outer sheath 1000 V
plug 1000 V
- ✓ **routine test**
plug 3000 V / 1 minute
- ✓ **delivery with protecting cap**
- ✓ **serial number**

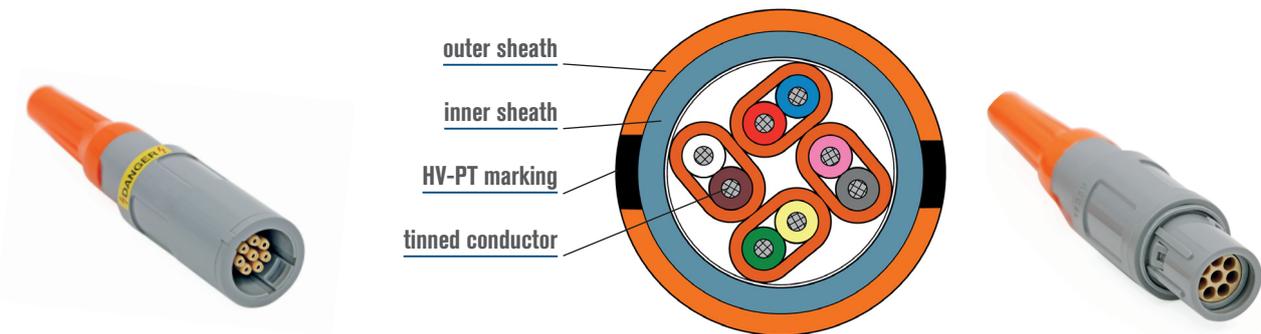
CONFIGURATION EXAMPLES

item no.	channels	cable diameter mm	cable length mm	stripping length L1 mm	stripping length L2 mm
T641-059-530	2 x PT100	4,6	2500	100	200
T641-059-531	4 x PT100	7,5	2500	100	200
T641-059-532	6 x PT100	8,3	2500	100	200
T641-059-534	8 x PT100	8,6	2500	100	200

2-CHANNEL HV PT EXTENSION



scoop-proof area



PT100 connection cable 4 x 2 x AWG 28

- ✓ **diameter**
approx. 7,1 mm
- ✓ **min. bending radius**
12 x cable diameter
- ✓ **temperature range**

thermo cable	-40 °C up to +150 °C (3000 h)
	+125 °C constant use
plug/socket	-50 °C up to +170 °C
- ✓ **dielectric strength**

over outer sheath	1000 V
plug/socket	1000 V
- ✓ **routine test**

plug	3000 V / 1 minute
------	-------------------
- ✓ **delivery with protecting cap**
- ✓ **serial number**
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN ·
CSM GmbH · D-FILDERSTADT ·
L3801-9192 · ⚡ HV-ANALOG ⚡

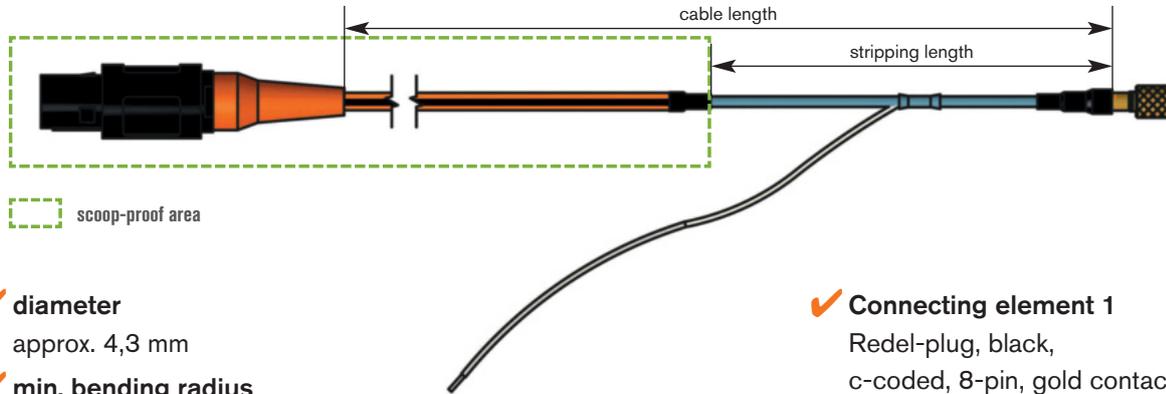


CONFIGURATION EXAMPLES

item no.	cable length mm
T641-056-497	1000
T641-058-117	3000
T641-058-574	5000

HIGH VOLTAGE MEASURING CABLE IEPE

with MicroCom plug



- ✓ **diameter**
approx. 4,3 mm
- ✓ **min. bending radius**
7,5 x cable diameter
- ✓ **temperature range**

cable	-40 °C up to +150 °C (3000 h)
	+125 °C constant use
plug	-50 °C up to +170 °C
- ✓ **dielectric strength**

over inner sheath	1000 V
plug	1000 V
- ✓ **routine test**
Redel-plug 3000 V / 1 minute
- ✓ **delivery with protecting cap**
- ✓ **serial number**
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN ·
L3833-9387 · ⚡ HV-ANALOG IEPE ⚡

- ✓ **Connecting element 1**
Redel-plug, black,
c-coded, 8-pin, gold contacts,
scoop-proof
under normal conditions only
and when stretched
(or with a cover cap)
- ✓ **Connecting element 2**
MicroCom female connector, 4 poles,
shortened union nut, 1/4-28 UNF
- ✓ **earthing**
L3349-9060, stand 0,5mm²,
with fork-type cable lug M4

CONFIGURATION EXAMPLES

item no.	cable length mm	stripping length mm	earthing mm
T642-059-674	2000	210	500
T642-059-675	2000	210	no

HIGH VOLTAGE MEASURING CABLE

HV measuring cable with increased contact protection



Marking for HV measuring cable 38339800:

SAB BRÜCKSKES · D-VIERSEN · HV-Messleitung (2x0,25mm²) ⚡ CE

Application: The high voltage measuring cable is used in the development of electric vehicles where scoop-proof testing & measuring of up to 1800 V DC operating voltage and application in the high voltage environment of electromobility takes place. Examples of applications are HV power electronics, HV batteries, electric motors, inverters, etc. High voltage measuring cables are used on the test benches and in test vehicles.

Construction:

Conductor:	tinned copper strands, extra fine wires
Insulation:	FEP
Colour code:	black and red
Stranding:	in layers with tinned copper drain wire, AWG 24
Screen:	alu foil and tinned copper braiding
Inner sheath:	FEP, colour: sky blue
Sheath material:	PUR
Sheath colour:	orange with black vertical stripes

Outstanding features:



- temperature resistance up to +150 °C (up to 3000 hours)
- high flexibility
- high abrasion resistance
- easy harnessing

Technical data:

Contact protection:	1000 V DC over the blue inner sheath
Testing voltage:	5000 V AC over the blue inner sheath
Operating voltage:	core/core 1800 V DC
Testing voltage:	core/core 5000 V AC core/screen 5000 V AC
Min. bending radius	
fixed laying	5 x d
flexible application:	10 x d
Temperature range	
fixed laying:	-50/+125 °C
flexible application:	-40/+125 °C +150 °C (up to 3000 h)
Temperature range of cores:	up to +180 °C (short time use up to +205 °C)
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm ²	largest single wire ø mm	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km
38339800	2 x 0,25	0,11	6,5	21,3	61
38339801	2 x 0,50	0,16	7,1	28,1	74
38339802	2 x 1,00	0,16	7,8	42,5	94
38339803	2 x 1,50	0,16	8,4	55,8	113

Other dimensions and colours are possible on request.

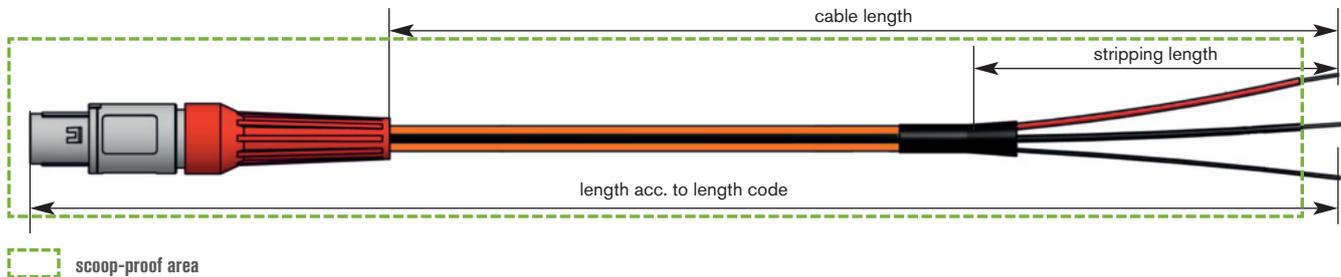


Possible on request:

- also possible as harnessed measuring cable with connected lab plugs to collect the tension at HV components.

HIGH VOLTAGE MEASURING CABLE

1-channel with Redel-plug



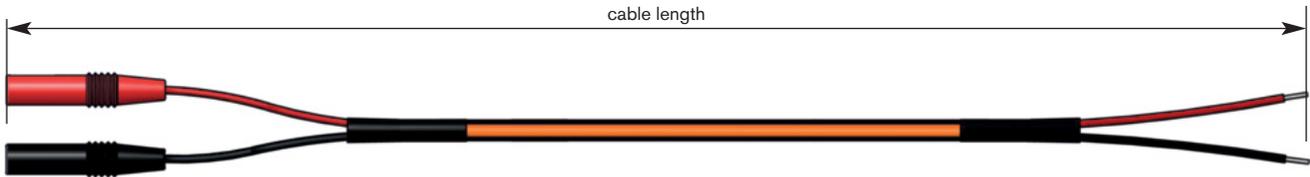
- ✓ **diameter**
approx. 6,5 mm
- ✓ **min. bending radius**
10 x cable diameter
- ✓ **temperature range**
 - cable -40 °C up to +150 °C (3000 h)
 - +125 °C constant use
 - cores -40 °C up to +180 °C
 - plug -40 °C up to +180 °C (short time use +205°C)
- ✓ **dielectric strength**
 - over inner sheath 1000 V
 - plug 1000 V
- ✓ **routine test**
 - plug 3000 V / 1 minute
- ✓ **serial number**
- ✓ **delivery with protecting cap**
- ✓ **marking**
SAB BRÖCKSKES · D-VIERSEN ·
L3833-9800 · ⚡ HV-measuring cable (2 x 0,25mm²) ⚡

CONFIGURATION EXAMPLES

item no.	cable length mm	stripping length mm	pairs	measuring tip
S0994-4002-00500 500 cm ←	5000	100	*scoop-proof*	bare *not scoop-proof*

HIGH VOLTAGE MEASURING CABLE

1-channel with laboratory plug



✓ **cable**

L3833-9236

Ø approx. 5,2 mm

✓ **min. bending radius**

7,5 x cable diameter

✓ **temperature range**

cable -40 °C up to +150 °C (3000 h)
 +125 °C constant use

cores -40 °C up to +180 °C

plug +5 °C up to +40 °C

✓ **dielectric strength**

over inner sheath 1000 V

plug 1000 V

✓ **routine test**

plug 3000 V / 1 minute

✓ **serial number**

✓ **marking**

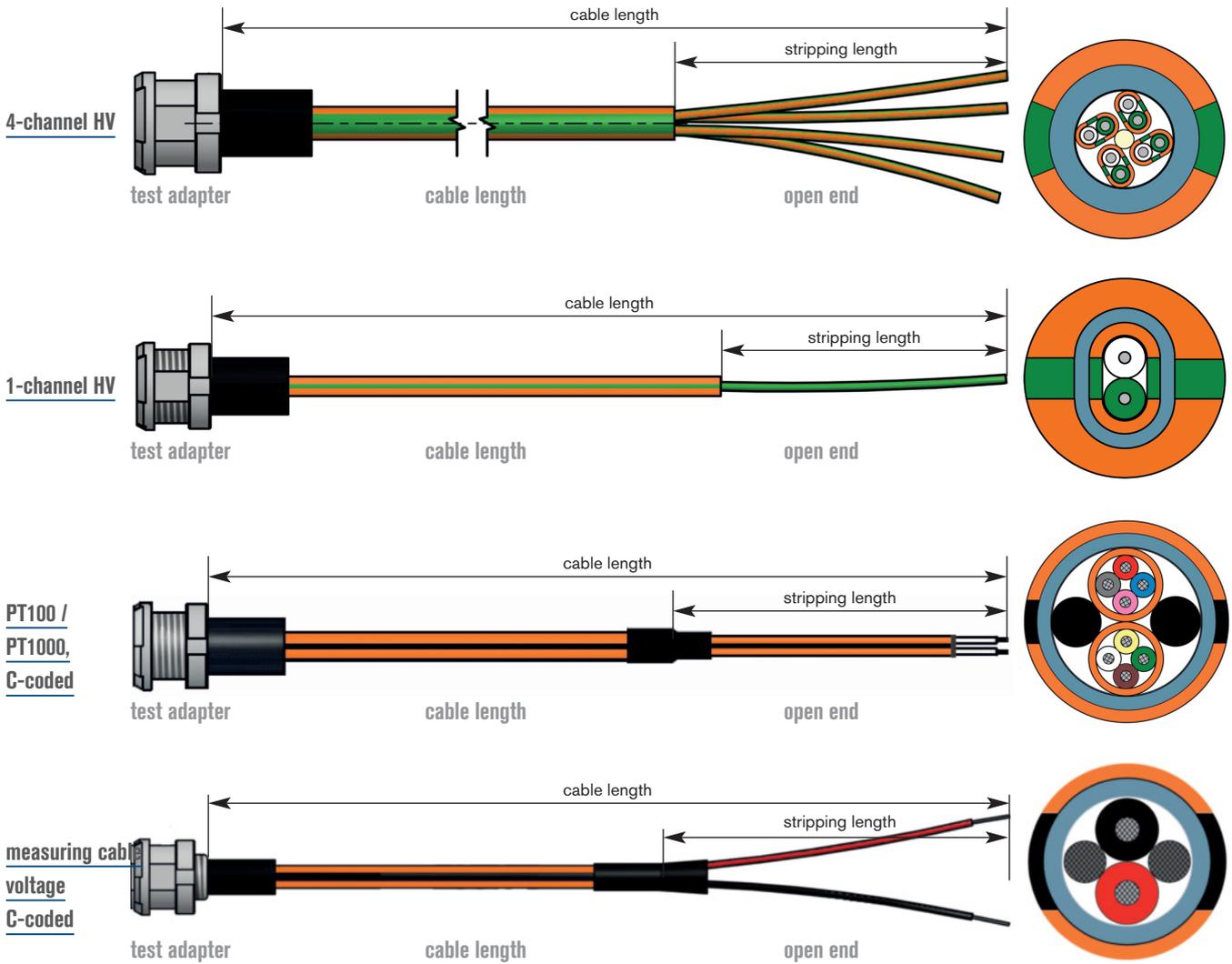
SAB BRÖCKSKES · D-VIERSEN ·

L3833-9236 · ⚡ HV-measuring cable (2 x 0,25mm²) ⚡

CONFIGURATION EXAMPLES

item no.	cable length mm	stripping length mm	pairs	measuring tip
S0994-4001	10000	80	*scoop-proof*	bare *not scoop-proof*

TEST ADAPTER AND ACCESSORIES FOR HV SENSORS



test adapter HV

CONFIGURATION EXAMPLES

item no.	configuration	cable length mm	stripping length mm
T141-056-583	4-channel type K	115	100
T141-055-568	1-channel type K	200	50
T641-057-773	PT100	150	120/5
S0994-4003	1-channel voltage	1000	100/10

Conversion kit to automatic hinged lid for Redel apparatus boxes / size 2P
to protect the apparatus box from dust, dirt and moisture

item no.

T021-060-467



ACCESSORIES FOR HV SENSORS

dual shrinkable sleeve natural PTFE/FEP

dimension D(min) 1,65mm, d(max) 0,00mm, shrinking temperature 380°C, application temperature -190°C/+200°C

item no.	quantity mm
T020-024-319	1000

HV cap for plugs

item no.	configuration
T021-050-281	4-channel type K
T021-054-558	PT100



HV cap for sockets

item no.	configuration
T021-053-127	4-channel type K
T021-055-802	PT100



cable clamp screwing for HV sensors made of nickel plated brass with FPM sealing temperature -40°C/+200°C

CONFIGURATION EXAMPLES

item no.	thread	no. of holes	for cable Ø mm
T025-059-232	M32 x 1,5	2	6,1
T025-059-042	M25 x 1,5	2	4,5



Filler plugs for cable glands Ø 4,5 mm & Ø 6,1 mm

Plastic (PEEK) beige/nature

item no.	quantity pieces
T055-060-544	10



spare pads

item no.	material	cutting size	packaging unit
T095-044-258	glass cloth tape	25 x 25 mm	100 pieces
T095-056-403	Pi foil	12,5 x 25 mm	100 pieces



temperature range

glass cloth tape: +230 °C
Pi foil: +250 °C

E-MOBILITY HIGH VOLTAGE MEASUREMENT TECHNOLOGY

BESILEN® - SILICONE CABLE

B 110 C Besilen® insulated shielded copper rope



Nominal voltage
up to
U₀/U 1,8/3 kV AC

Marking for B 110 C 01102500:

SAB BRÖCKSKES · D-VIERSEN · B 110 C U₀/U 1,8/3 kV 25,0mm²

Application: The connection cable is particularly appropriate to connect converters to electric-mobility test benches. Due to the high voltage rating, the cable can be used for various components and the power electronics. The extremely flexible cable design enables an easy laying.

Construction:

Conductor:	bare copper strands, extra fine wires
Insulation:	Besilen® EI2 acc. to EN 50363-1 + VDE 0207-363-1, orange
Wrapping:	alu foil
Screen:	tinned copper braiding
Sheath material:	Besilen® EM9 acc. to EN 50363-2-1 + VDE 0207-363-2-1
Sheath colour:	orange (similar RAL 2004)

Outstanding features:



- good EMC characteristics
- halogen-free
- heat resistant
- flexible at low temperatures
- flame retardant and self-extinguishing
- weather resistant

Technical data:

Nominal voltage	4,0 - 6,0 mm ² : U ₀ /U 1,5/1,5 kV AC U ₀ /U 2,2/2,2 kV DC 10,0 - 240,0 mm ² : U ₀ /U 1,8/3,0 kV AC U ₀ /U 2,7/5,4 kV DC
Testing voltage	4,0 - 6,0 mm ² : 4000 V 10,0 - 240,0 mm ² : 6000 V
Current-carrying capacity:	acc.to VDE 0298-4
Min. bending radius	
fixed laying:	6 x d
flexible application:	10 x d
Temperature range	
fixed laying:	-40/+180 °C
flexible application:	-25/+180 °C
short-time use:	+250 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2
Corrosiveness of conflagration gases:	IEC 60754-2 + VDE 0482-754-2 - no development of corrosive conflagration gases
Weather resistance:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	nominal cross section mm ²	largest single wire ø mm	ø over inner sheath approx. mm	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km
01100407	4,00	0,07	5,3	8,0	59,2	101
01100607	6,00	0,07	5,7	8,4	108,8	143
01101007	10,00	0,07	8,2	11,7	147,7	229
01101607	16,00	0,07	8,5	12,0	205,7	280
01102507	25,00	0,10	11,2	14,7	307,4	420
01103507	35,00	0,10	12,6	16,3	432,6	548
01105007	50,00	0,10	14,5	18,2	593,6	721
01107007	70,00	0,10	16,5	20,6	804,4	953
01109507	95,00	0,10	18,4	22,3	1064,5	1232
01101207	120,00	0,10	20,1	24,2	1311,0	1493
01101507	150,00	0,10	23,3	27,4	1627,6	1833
01101857	185,00	0,15	24,9	29,2	1970,9	2202
01102407	240,00	0,15	29,0	33,5	2554,3	2771

Other dimensions and colours are possible on request.

E-MOBILITY HIGH VOLTAGE MEASUREMENT TECHNOLOGY

BESILEN® - SILICONE CABLE

B 107 Besilen® insulated copper rope



Nominal voltage
up to
U_o/U 1,8/3 kV

Marking for B 107 01071007:

SAB BRÖCKSKES · D-VIERSEN · B 107 U_o/U 1,8/3 kV 10,0mm²

Construction:

Conductor:	bare copper strands, extra fine wires
Insulation:	Besilen® EM9 acc. to EN 50363-2-1 + VDE 0207-363-2-1
Sheath colour:	orange (similar RAL 2004)

Outstanding features:



- halogen-free
- heat resistant
- flexible at low temperatures
- flame retardant and self-extinguishing
- weather resistant

Technical data:

Nominal voltage	4,0 - 6,0 mm ² : U _o /U 1,5/1,5 kV 10,0 - 185,0 mm ² : U _o /U 1,8/3,0 kV
Testing voltage	4,0 - 6,0 mm ² : 4000 V 10,0 - 185,0 mm ² : 6000 V
Current-carrying capacity:	acc. to VDE 0298-4
Min. bending radius:	5 x d
Temperature range	
fixed laying:	-40/+180 °C
flexible application:	-25/+180 °C
short-time use:	+250 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2
Corrosiveness of conflagration gases:	IEC 60754-2 + VDE 0482-754-2 - no development of corrosive conflagration gases
Weather resistance:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	nominal cross section mm ²	largest single wire ø mm	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km
01070407	4,00	0,07	5,3	38,4	54
01070607	6,00	0,07	5,7	57,6	74
01071007	10,00	0,07	9,0	96,0	146
01071607	16,00	0,07	9,3	153,6	196
01072507	25,00	0,10	12,0	240,0	314
01073507	35,00	0,10	13,8	336,0	426
01075007	50,00	0,10	15,7	480,0	581
01077007	70,00	0,10	17,7	672,0	777
01079507	95,00	0,10	18,8	912,0	1012
01071207	120,00	0,10	20,5	1152,0	1244
01071507	150,00	0,10	23,7	1440,0	1551
01071857	185,00	0,15	25,3	1776,0	1893

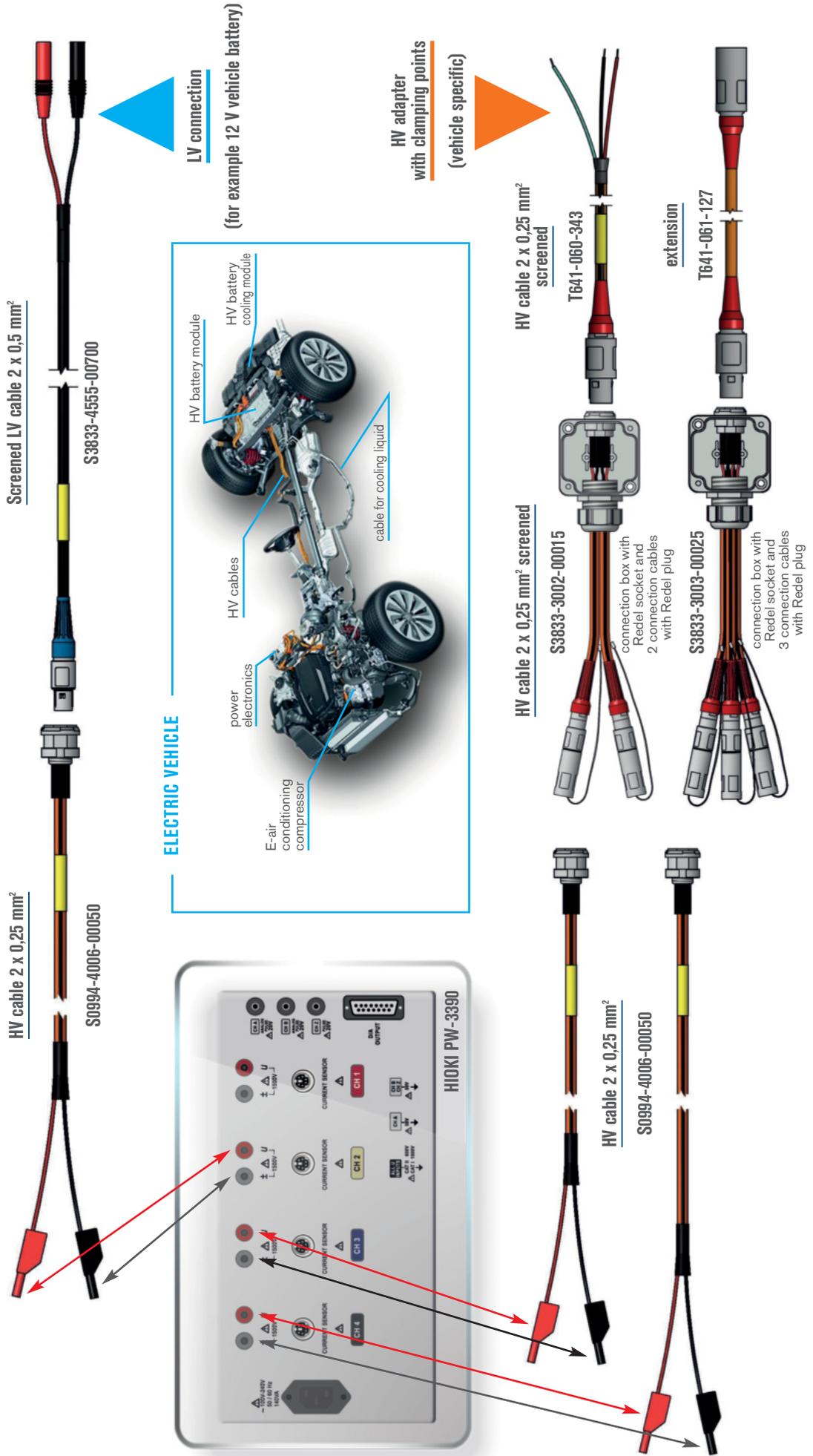
Other dimensions and colours are possible on request.



for E-Mobility HV test benches

E-MOBILITY HIGH VOLTAGE MEASUREMENT TECHNIQUE

APPLICATION FOR HIGH VOLTAGE MEASURING CABLES





SAB BRÖCKSKES GMBH & CO. KG

GREFRATHER STR. 204 - 212 B

41749 VIERSEN · GERMANY

TEL.: +49/2162/898-0

FAX: +49/2162/898-101

WWW.SAB-WORLDWIDE.COM

INFO@SAB-BROECKSKES.DE