

Servo Motor

Cables



Servo Motor Cables

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single cable solution

You will find halogen-free motor connection cables 0.6/1 kV in chapter A

Servo Motor Cables

Applications



■ Applications motor connection cables for pulse converter fed three-phase drives

SL 834 C
SL 835 C
SL 851 C - Exploration

These cables are suitable for the fixed installation and flexible use e.g. in machine and industrial plant construction with average mechanical demand in dry, damp and wet conditions

■ Applications motor feedback and transmission cables

SL 893 C

Feedback cables are used for controlling motor speed and for giving feedback values. Transmission cables produce transmit control pulses for positioning and procedure characteristics. Exemplary applications: Highly flexible, mobile connection cables for e.g. speedo, brake, temperature control in motors, for continuously flexible applications in automation technology, control and production engineering, in cable tracks on wood-working machines, machine and industrial plant construction, even with high mechanical demands and in dry, damp and wet conditions, as well as at low temperatures flexible connection cables e.g. for speedo, brake, temperature control in motors, for continuously flexible applications in automation technology, control and product engineering.

■ Applications combined motor connection cables

SL 875 C
SL 891 C

These flexible motor connection cables are used for the power supply of motors. Depending on the construction type supply and control conductors are possible. The cables are suitable for high mechanical demands in dry, damp and wet conditions as well as at low temperatures. Exemplary applications: Applications in industries with intelligent servo drives, e.g. automation technologies, motive power, control and manufacturing engineering, in handling systems, car manufacturing industry, in cable tracks.

■ Applications variable frequency drive cables

This special multi-conductor cables shall be permitted for used in power, lighting, control and signal circuits in accordance to the National Electrical Code (NEC), NFPA 70 Article 336. In cable trays, in raceways and in outdoor locations supported by a messenger wire in accordance to Underwriters Laboratories Inc. (UL) Standard of Safety UL 1277. For class I division 2 circuits as permitted in NEC article 501.10 (B) and for class II division 2 circuits as permitted in NEC article 502.10 (B). In industrial establishments where the conditions of maintenance and supervision ensure that only qualified persons service the installation, and where the cables are continuously supported and protected against physical damage using mechanical protection, such as struts, angles or channels. These Tray Cables comply with the crush and impact requirements of Type TC and are identified for such use with the ER marking on the jacket. The cables are for use as exposed runs between a cable tray and the utilization device where the cables are continuously supported and protected against physical damage and are secured at intervals not exceeding 1.8 m (6 feet). Grounding for the utilization equipment shall be provided by an equipment grounding conductor within the cables. This Tray Cables shall also be permitted to be used in wet locations and are resistant to moisture and corrosive agents. Cables that are surface marked „oil resistant I” have a jacket that is for exposure to mineral oil at temperature not in excess of 60 °C (140 °F). Marked with „oil resistant II” they have a jacket that is for exposure to mineral oil at temperatures not in excess of 75 °C (167 °F). The Type TC is flame retardant and self-extinguishing. Also sunlight resistant depending on the jacket colour. The cables listed as MTW can be applied in the NFPA 79 machinery area. MTW cables are specified for use acc. to National Electrical Code (NFPA 70) and acc. to the National Fire Protection Association Electrical Standard for industrial machinery (NFPA 79). Wind turbine power and control cables are intended to be installed in cable trays or raceways within a wind turbine generator.

Exemplary applications:

VFD XLPE TR
VFD Combo XLPE
VFD Symmetrical XLPE TR
VFD XLPE 2KV TR

Type TC-ER
Type TC-ER
Type TC-ER
Type TC-ER

These cables are suitable for connecting alternating current variable frequency drives to alternating current variable frequency motors









■ DESINA® - DistributEd and Standardized INstAllation technology

DESINA® is an extensive concept for standardizing and distributing fluid and electric installations of machines and plants. A co-operation of machine construction, car manufacturing and supply industries has, furthermore, set up the specification of necessary components.

DESINA® applies already existing solutions such as open bus systems, industrial standards for connectors, etc. By standardizing components, interfaces and connecting systems, e.g. an optical fibre copper hybrid cable, most varying systems can be realised on a physical basis.

The following sheath colours are defined as a function code:

	orange	RAL 2003:	servo cable, screened
	green	RAL 6018:	measuring systems, screened
	violet	RAL 4001:	field bus, hybrid cables
	yellow	RAL 1021:	sensor/actuator cable, unscreened 4 x 0.34 mm ² copper
	black	RAL 9005:	power cable, unscreened
	grey	RAL 7001:	24 V control cable, unscreened

The sheaths of all cables are to be resistant against industrial lubricants.

■ You will find further information about the safe application of cables in chapter N

Servo Motor Cables

Selection table



		SAB Servo					
		cable type					
		SL 834 C	SL 835 C	SL 851 C - Exploration	SL 893 C	SL 875 C	SL 891 C
appli- cation	transmission and feedback cable						
	motor connection cable						
temperature range fixed laying*	+90 °C						
	-50 °C						
voltage	peak operating voltage max. 350 V						
	peak operating voltage max. 500 V						
	nominal voltage U ₀ /U 0,6/1 kV						
	voltage UL 30 V						
	voltage UL 300 V						
	voltage UL 1000 V						
	voltage cUL 1000 V						
	voltage CSA 300 V						
	voltage CSA 1000 V						
	testing voltage 600 V						
	testing voltage 2000 V						
	testing voltage 3000 V						
testing voltage 4000 V							
standards	fire performance: flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2						
	fire performance: acc. to cUL FT1, FT2						
	fire performance: acc. to CSA FT1, FT2						
	halogen-free acc. to IEC 60754-1 + VDE 0482-754-1						
	UL recognized						
	cUL recognized						
	CSA approval						
	DESINA® colours						
characteristics	PWIS uncritical**						
	low capacity construction						
	outer sheath surface: low adhesion						
	very good oil resistance acc. to EN 50363-10-2 + VDE 0207-363-10-2						
	good resistance against acids, alkalines, solvents, hydraulic liquids etc.						
	very good weather resistance						
	MUD resistance acc. to IEC 60092-360, IEC 61892-4, NEK TS 606						
	sunlight resistance acc. to HD 605						
	ozone resistance acc. to DIN EN 50396						
	saltwater resistance acc. to UL 1309						



*The temperature range for flexible application is mentioned on the corresponding catalogue page

**PWIS = paint-wetting impairment substances

		SAB VFD				
		cable type				
		VFD XLPE TR	VFD Combo XLPE	VFD Symmetrical XLPE TR	VFD XLPE 2KV TR	
appli- cation	variable frequency drive cable					
	UL motor connection cable					
temperature range	screen					
	(UL) / c(UL) / CSA-AWM: up to +90 °C					
	(UL): up to +90 °C					
	fixed laying: +105 °C					
	fixed laying: -25 °C					
voltage	fixed laying: -40 °C					
	voltage (UL) / c(UL) 600 V					
	voltage CSA-AWM / (UL) WTTC 1000 V					
	voltage (UL) 2000 V					
	testing voltage 3000 V					
standards	testing voltage 7500 V					
	fire performance: (UL) / c(UL) FT4, c(UL) / CSA-AWM FT1, FT2					
	fire performance: (UL) FT4 / IEEE 1202					
	(UL) recognized					
	c(UL)us recognized					
	CSA approval					
	characteristics	NFPA 79				
		WTTC approval				
		UL 90°C wet				
		WTTC: UL subject 2277				
TC-ER: UL standard 1277						
Class 1 Div 2 per NEC Article 501.4 (B)						
RHW-2: UL standard 44						
IEEE 1202/FT4						
oil resistance I & II						
sunlight resistance						
exposed runs						
cold bend test -40 °C						
direct burial						
moisture resistance						



Servo Motor Cables

SL 834 C

low capacity PUR motor connection cable with overall copper screen 0.6/1 kV



20235 80°C CSA AWM I/II A/B 80°C 1000V FT1 FT2 CE



marking example:

SAB BBRÖCKSKES · D-VIERSEN · 08340415 4x1,5mm² SL 834 C 16 AWG/4c 1000V 08341604

DESINA AWM Style 20235 80°C CSA AWM I/II A/B 80°C 1000V FT1 FT2 CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	special polymer
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334 and a green-yellow earth wire
Stranding:	in layers
Wrapping:	non-woven tape
Screen:	tinned copper braiding
Sheath material:	PUR
Sheath colour:	orange (RAL 2003)

Technical data:

Nominal voltage:	U ₀ /U 0.6/1 kV	
Voltage UL/CSA:	1000 V	
Testing voltage:	core/core	4000 V
	core/screen	4000 V
Min. bending radius		
fixed laying:	5 x d	
flexible application:	10 x d	
Temperature range	DIN VDE	UL/CSA: up to +80 °C
fixed laying:	-50/+90 °C	
flexible application:	-40/+90 °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, CSA FT1, FT2	
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2	
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.	
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“	

Outstanding features:

- » UL recognized, CSA approval
- » low capacity construction
- » very good EMC characteristics
- » halogen-free
- » very high flexibility
- » suitable for cable tracks
- » very good oil resistance
- » very long service life
- » adhesion-free installation
- » PWIS uncritical
(PWIS = paint-wetting impairment substances)
- » flexible at low temperatures
- » DESINA® colours (see page C/4)

low capacity
for your frequency controlled
drives and motors

item no.	no. of cores x cross section n x mm ²	AWG	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
08340415	4 x 1,50	16/4c	0,16	9,0	83,5	126
08340425	4 x 2,50	14/4c	0,16	10,8	142,5	195
08340440	4 x 4,00	12/4c	0,16	12,4	206,5	270
08340460	4 x 6,00	10/4c	0,21	15,4	298,1	398
08340470	4 x 10,00	8/4c	0,21	17,6	494,7	604
08340480	4 x 16,00	6/4c	0,21	22,7	749,7	953
08340490	4 x 25,00	4/4c	0,21	25,6	1119,8	1303
08340495	4 x 35,00	2/4c	0,21	28,9	1532,9	1750
08340496	4 x 50,00	1/4c	0,31	34,5	2144,5	2486

Other dimensions and colours are possible on request.

Note: DESINA® is a registered trademark of the German Machine Tool Builders' Association.

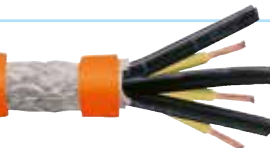
Servo Motor Cables

SL 835 C

symmetrical PUR motor connection cable with optimized EMC characteristics 0.6/1 kV



M Style 21223 I/II A/B 80°C 1000V FT1 FT2 E172204 CE



marking example:

SAB BRÖCKSKES · D-VIERSEN · 0835-0315 SL 835 C 3x1,5mm²+3G0,25mm² cULus AWM Style 21223 I/II A/B 80°C 1000V FT1 FT2 E172204 CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	special polymer
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334 and a green-yellow earth wire
Stranding:	in layers
Wrapping:	non-woven tape
Screen:	alu foil and tinned copper braiding
Sheath material:	PUR
Sheath colour:	orange (RAL 2003)

Technical data:

Nominal voltage:	U _o /U 0.6/1 kV	
Voltage UL/cUL:	1000 V	
Testing voltage:	core/core	4000 V
	core/screen	4000 V
Min. bending radius		
fixed laying:	5 x d	
flexible application:	10 x d	
Temperature range	DIN VDE	UL/cUL: up to +80 °C
fixed laying:	-50/+90 °C	
flexible application:	-40/+90 °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, cUL FT1, FT2	
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2	
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.	
Weather resistance:	very good	
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“	

Outstanding features:

- » UL/cUL recognized
- » low capacity construction
- » very good EMC characteristics
- » halogen-free
- » very high flexibility
- » suitable for cable tracks
- » very good oil resistance
- » very long service life
- » adhesion-free installation
- » PWIS uncritical
(PWIS = paint-wetting impairment substances)
- » flexible at low temperatures

EMC optimised by low capacity and earth symmetrical cable construction

item no.	dimension	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
08350315	3 x 1,50 + 3 G 0,25	0,16	9,2	76,8	121
08350325	3 x 2,50 + 3 G 0,50	0,16	11,5	138,2	202
08350340	3 x 4,00 + 3 G 0,75	0,16	12,7	197,0	264
08350360	3 x 6,00 + 3 G 1,00	0,21	14,2	263,7	341
08350370	3 x 10,00 + 3 G 1,50	0,21	16,5	430,7	523
08350380	3 x 16,00 + 3 G 2,50	0,21	19,8	649,4	772
08350390	3 x 25,00 + 3 G 4,00	0,21	22,8	973,2	1096
08350395	3 x 35,00 + 3 G 6,00	0,21	26,4	1345,8	1526
08350396	3 x 50,00 + 3 G 10,0	0,31	30,7	1926,7	2180

Other dimensions and colours are possible on request.

high symmetry and low coupling for low capacity power transmission at frequency converters

Servo Motor Cables

SL 851 C - Exploration

PUR motor connection cable with overall copper screen 0.6/1 kV



marking example:

SAB BRÖCKSKES · D-VIERSEN · SL 851 C - Exploration 4x2,5mm² AWM Style 21223 80°C 1000V cULus AWM III A/B 80°C 1000V FT1 FT2 CE

Application: Motor connection cable for the electrical hook-up of drilling equipment, compressors, generators as well as pumps in rough environments.

Construction:

Conductor	bare copper strands acc. to IEC 60228, VDE 0295, class 5
Insulation:	SABIX®
Colour code:	coloured acc. to HD 308 (VDE 0293-308) and a green-yellow earth wire
Screen:	alu foil and tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Sheath colour:	black (RAL 9005)

Outstanding features:

- » UL/cUL recognized
- » extremely large temperature range
- » low surface transfer impedance
- » low mutual capacitance
- » very good oil resistance
- » very good EMC characteristics
- » halogen-free

Technical data:

Nominal voltage:	U ₀ /U 0.6/1 kV
Voltage UL/cUL:	1000 V
Maximum operating voltage:	in three-phase current and single phase current operation: U ₀ /U 0.7/1.2 kV in D.C. current operation: U ₀ /U 0.9/1.8 kV peak value of alternating current: U [^] 1.7 kV
Testing voltage:	core/core 4000 V core/screen 4000 V
Min. bending radius	≤ 12 mm > 12 mm up to ≤ 20 mm > 20 mm
<i>fixed laying:</i>	5 x d 7,5 x d 10 x d
<i>flexible application:</i>	10 x d 15 x d 20 x d
Temperature range	DIN VDE UL/cUL: up to +80 °C
<i>fixed laying:</i>	-50/+90 °C
<i>flexible application*:</i>	-45/+90 °C
Cold resistance:	-50°C acc. to DIN EN 60811-506
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, cUL FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
MUD resistance:	very good - acc. to IEC 60092-360, IEC 61892-4, NEK TS 606
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Saltwater resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

*protected installation

item no.	no. of cores x cross section n x mm ²	AWG	largest single core ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
08510425	4 x 2,50	14/4c	0,26	10,0	124,5	168
08510440	4 x 4,00	12/4c	0,31	12,3	206,6	265
08510460	4 x 6,00	10/4c	0,31	14,0	315,9	386
08510470	4 x 10,00	8/4c	0,41	17,0	494,6	633
08510480	4 x 16,00	6/4c	0,41	22,1	753,6	931
08510490	4 x 25,00	4/4c	0,41	25,9	410,3	705
08510495	4 x 35,00	2/4c	0,41	29,8	1522,8	1810
08510496	4 x 50,00	1/4c	0,41	33,3	2110,1	2486
08510498	4 x 70,00	2/0/4c	0,41	39,7	2897,9	3452

Other dimensions and colours are possible on request.

small shielding capacitances
for your frequency-controlled drives and
motors (VFD) U[^] 1.7 kV

Servo Motor Cables

SL 893 C

low capacity PUR incremental encoder and feedback cable with overall copper screen



marking example:

SAB BRÜCKSKES · D-VIERSEN · 0893-0003 SL 893 C 5x2x0,25mm²+2x0,50 mm² **DESINA** cULus AWM Style 20233 I/II A/B 80°C 300V FT1 FT2 CE

Construction:

Conductor:	bare copper strands with reference to VDE 0812 + IEC 60228, VDE 0295, class 6
Insulation:	special polymer
Colour code:	coloured
Stranding:	cores/pairs twisted together in layer
<i>depending on construction:</i>	
Screen:	wrapped with tinned copper braiding
Inner Sheath:	special polymer
Wrapping:	non-woven tape or foil
Screen:	tinned copper braiding
Wrapping:	non-woven tape or foil
Sheath material:	PUR
Sheath colour:	green (RAL 6018) or orange (RAL 2003)

Technical data:

Peak operating voltage:	30 V (UL AWM Style 20236) or 300 V (UL AWM Style 20233)	
Testing voltage:	core/core	600 V (at 30 V)
	core/screen	600 V (at 30 V)
	core/core	2000 V (at 300 V)
	core/screen	2000 V (at 300 V)
Min. bending radius		
<i>fixed laying:</i>	5 x d	
<i>flexible application:</i>	10 x d	
Temperature range	DIN VDE	UL/cUL: up to +80 °C
<i>fixed laying:</i>	-50/+90 °C	
<i>flexible application:</i>	-40/+90 °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. cUL FT1, FT2	
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2	
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.	
Weather resistance:	very good	
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“	

Outstanding features:

- » UL/cUL recognized
- » low capacity construction
- » good EMC characteristics
- » high flexibility
- » suitable for cable tracks
- » very good oil resistance
- » long service life
- » adhesion-free installation
- » halogen-free
- » PWIS uncritical (PWIS = paint-wetting impairment substances)
- » DESINA® colours (see page C/4)

suitable for resolvers, encoders and position signaling cable

item no.	dimension	peak operating voltage	sheath color	outer-Ø mm	copper figure kg/km	cable weight ≈ kg/km
08930001	2 x 2 x 0,15 + 2 x 0,38	30 V	green	6,8 ± 0,3	46,9	62
08930002	2 x 2 x 0,20 + 2 x 0,38	30 V	green	6,8 ± 0,3	34,9	57
08930003	5 x 2 x 0,25 + 2 x 0,50	300 V	green	8,1 ± 0,3	57,3	85
08930004	(2x0,14) C + 6 x 2 x 0,14 + 2 x 0,50	300 V	green	8,8 ± 0,3	64,2	94
08930005	3 x 2 x 0,14 + 2 x 0,38	30 V	green	7,0 ± 0,3	49,6	67
08930006	4 x 2 x 0,14 + 4 x 0,50	300 V	green	8,5 ± 0,3	56,9	104
08930007	4 x 2 x 0,25 + 2 x 0,50	300 V	orange	8,8 ± 0,3	54,7	93
08930008	4 x 2 x 0,25 + 2 x 1,0	300 V	orange	8,2 ± 0,3	63,4	93
08930009	4 x 2 x 0,38 + 4 x 0,50	30 V	green	8,9 ± 0,3	71,8	106
08930010	3 x (2x0,14) D + 4 x 0,14 + 4 x 0,22 + 2 x 0,50	30 V	green	9,6 ± 0,3	72,1	108

Other dimensions and colours are possible on request.

DESINA

Note: DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Servo Motor Cables

SL 875 C

low capacity PUR hybrid motor connection cable with overall copper screen 0.6/1 kV

for all-in-one
cable systems

SAB Servo

20910 80°C CSA AWM I/II A/B 80°C 300V FT1 FT2 CE



marking example:

SAB BRÖCKSKES · D-VIERSEN · 08750105 SL 875 C 4G1,5mm² (1000V) + (2x1,0mm²)C (1000V) + (2x22AWG)C (1000V)

DESINA AWM Style 20910 80°C CSA AWM I/II A/B 80°C 300V FT1 FT2 CE

Construction:

Conductor: bare copper strands
acc. to IEC 60228, VDE 0295, class 6
< 0,50 mm² with reference to VDE 0812

Insulation: special polymer

Colour code: item 087501 . . .
supply cores: black cores with printing
core 1: U/L1/C/L+
core 2: V/L2
core 3: W/L3/D/L-
and a green-yellow earth wire
control cores: black cores with number 5+6
feedback: white, blue
item 087505 . . .
supply cores:
black, blue, brown, green-yellow
control cores: white-blue, white-green
feedback: white-green, brown-green +
grey, pink, yellow, violet

Stranding: control cores pairwise,
item 087501 . . .
feedbackcores pairwise
item 087505 . . .
feedbackcores 0.09 mm² pairwise
pairs with cores 0.24 mm²
in layers optimally stranded

Wrapping: non-woven tape resp. foil

Screen: elements with tinned copper braiding
item 087501 . . .
feedbackcores additional alu foil

Wrapping: non-woven tape resp. foil

Stranding: screened elements and supply cores
in layers optimally stranded

Wrapping: non-woven tape

Sheath material: TMPU acc. to EN 50363-10-2 +
VDE 0207-363-10-2 with mat surface

Sheath colour: orange (RAL 2003)

Technical Data:

Nominal voltage: DIN VDE: supply cores U₀/U_{0,6/1} kV

Peak operating voltage: DIN VDE: control cores +
feedback cores max. 500 V

Voltage: UL: 1000 V
CSA: ≥ 0,5 mm² 1000 V
< 0,5 mm² 300 V

Testing voltage: supply cores core/core 4000 V
+ control cores core/screen 4000 V
feedback cores core/core 3000 V
core/screen 3000 V

Min. bending radius
fixed laying: 5 x d
flexible application: 10 x d
continuously flexible: 12 x d

Radiation resistance: 5 x 10⁷ cJ/kg

Temperature range DIN VDE UL/CSA: up to +80 °C
fixed laying: -50/+90 °C
flexible application: -40/+90 °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,
CSA FT1, FT2

Oil resistance: very good - TMPU
acc. to EN 50363-10-2 + VDE 0207-363-10-2

Chem. resistance: good against acids, alkalines, solvents,
hydraulic liquids etc.

Weather resistance: very good

Absence of harmful substances: acc. to RoHS directive of the European Union,
see chapter N „Technical data“

Outstanding features:

- » used as all-in-one cable solution in motor feedback systems
- » low capacity construction
- » UL recognized, CSA approval
- » very good EMC characteristics
- » long service life
- » adhesion-free installation
- » suitable for cable tracks
- » halogen-free
- » very good oil resistance
- » PWIS uncritical
(PWIS = paint-wetting impairment substances)
- » flexible at low temperatures
- » DESINA® colours (see page C/4)

item no.	dimension	outer- ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
acc. to SICK HIPERFACE DSL®				
08750101	4 x 0,50 + (2 x 0,34)C + (2 x 26 AWG)C	9,8	85,2	131
08750102	4 x 0,75 + (2 x 0,34)C + (2 x 26 AWG)C	10,0	95,4	139
08750103	4 x 1,00 + (2 x 0,75)C + (2 x 22 AWG)C	11,8	155,2	199
08750104	4 x 1,50 + (2 x 0,75)C + (2 x 22 AWG)C	12,6	176,5	230
08750105	4 x 1,50 + (2 x 1,00)C + (2 x 22 AWG)C	12,8	181,7	237
08750106	4 x 2,50 + (2 x 1,00)C + (2 x 22 AWG)C	13,9	222,0	286
08750107	4 x 4,00 + (2 x 1,00)C + (2 x 22 AWG)C	15,4	292,8	376
08750108	4 x 6,00 + (2 x 1,00)C + (2 x 22 AWG)C	18,1	414,2	520
08750109	4 x 10,00 + (2 x 1,50)C + (2 x 22 AWG)C	20,0	593,3	715
08750110	4 x 16,00 + (2 x 1,50)C + (2 x 22 AWG)C	24,4	851,9	1055
acc. to HEIDENHAIN HMC6®				
08750501	4 x 0,75 + (2 x 0,34)C + (2 x 0,24 + 2 x 2 x 0,09)C	10,8	122,7	163
08750502	4 x 1,50 + (2 x 0,75)C + (2 x 0,24 + 2 x 2 x 0,09)C	12,1	171,1	219
08750503	4 x 2,50 + (2 x 1,00)C + (2 x 0,24 + 2 x 2 x 0,09)C	13,7	224,0	282
08750504	4 x 4,00 + (2 x 1,00)C + (2 x 0,24 + 2 x 2 x 0,09)C	15,4	288,2	359

Other dimensions and colours are possible on request.



all-in-one cable
solution in motor
feedback systems

Note: SICK HIPERFACE DSL® is a registered trademark of SICK AG. It is only used for comparative purposes.
HEIDENHAIN HMC6® is a registered trademark of Dr. Johannes Heidenhain GmbH. It is only used for comparative purposes.
DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Servo Motor Cables

SL 891 C

low capacity combined PUR motor connection cable with overall copper screen 0.6/1 kV



21223 I/II A/B 80°C 1000V FT1 FT2 E172204 CE



marking example:

SAB BRÜCKSKES · D-VIERSEN · 0891-1415 SL 891 C 4x1,5mm²+(2x1,5mm²) cULus AWM Style 21223 I/II A/B 80°C 1000V FT1 FT2 E172204 CE

Construction:	
Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	SABIX®
Colour code:	Bosch Rexroth supply cores: black, number coded 1-3 and a green-yellow earth wire, control cores: black, number coded 5-8 Siemens supply cores: core 1: black, (U/L1/C/L+) core 2: black, (V/L2) core 3: black, (W/L3/D/L-) and a green-yellow earth wire control cores: black BR1, white BR2
Stranding:	control cores: twisted to pairs
Wrapping:	control cores: alu-foil
Screen:	control cores: wrapped with tinned copper braiding
Wrapping:	control cores: foil
Stranding:	screened control pairs and supply cores twisted together with fillers in layers
Wrapping:	non-woven tape
Screen:	tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	orange (RAL 2003)

Technical Data:	
Nominal voltage:	supply cores U _o /U 0.6/1 kV
Peak operating voltage:	control cores max. 350 V
Voltage UL/cUL:	1000 V
Testing voltage:	supply cores core/core 4000 V core/screen 4000 V control cores core/core 2000 V core/screen 2000 V
Min. bending radius	
<i>fixed laying:</i>	4 x d
<i>flexible application:</i>	7,5 x d
Temperature range	DIN VDE UL/cUL: up to +80 °C
<i>fixed laying:</i>	-50/+90 °C
<i>flexible application:</i>	-40/+90 °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, cUL FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Weather resistance:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

Outstanding features:

- » low capacity construction
- » UL/cUL recognized
- » very good EMC characteristics
- » long service life
- » adhesion-free installation
- » high flexibility
- » suitable for cable tracks
- » halogen-free
- » very good oil resistance
- » PWIS uncritical
(PWIS = paint-wetting impairment substance)
- » flexible at low temperatures
- » DESINA® colours (see page C/4)

item no.	dimension	outer-ø ± 0,80 mm	copper figure kg/km	cable weight ≈ kg/km
08910415	4 x 1,50 + 2 x (2 x 0,75)	11,4	166,5	211
08910425	4 x 2,50 + 2 x (2 x 1,00)	13,1	225,2	276
08910441	4 x 4,00 + (2 x 1,00) + (2 x 1,50)	15,0	303,2	373
08910461	4 x 6,00 + (2 x 1,00) + (2 x 1,50)	17,1	422,9	497
08910471	4 x 10,00 + (2 x 1,00) + (2 x 1,50)	19,3	581,3	692
08910485	4 x 16,00 + 2 x (2 x 1,50)	22,9	860,1	1012
08910490	4 x 25,00 + 2 x (2 x 1,50)	28,2	1240,8	1447
08911410	4 x 1,00 + (2 x 0,50)	9,0	88,2	120
08911415	4 x 1,50 + (2 x 1,50)	10,7	150,5	189
08911416	4 x 1,50 + (2 x 0,50)	9,5	108,0	142
08911425	4 x 2,50 + (2 x 1,50)	12,2	195,5	244
08911440	4 x 4,00 + (2 x 1,50)	13,6	262,1	317
08911460	4 x 6,00 + (2 x 1,50)	16,3	376,8	450
08911470	4 x 10,00 + (2 x 1,50)	18,5	544,0	657
08911480	4 x 16,00 + (2 x 1,50)	22,1	797,1	946
08911490	4 x 25,00 + (2 x 1,50)	26,2	1170,6	1354
0891-1495	4 x 35,00 + (2 x 1,50)	31,7	1593,3	1872
0891-1496	4 x 50,00 + (2 x 1,50)	35,0	2194,6	2527

Other dimensions and colours are possible on request.

low capacity solution
for your servo drive system

DESINA®
SIEMENS®
BOSCH
REXROTH®

Note: SIEMENS® is a registered trademark. It is only used for comparative purposes.
BOSCH REXROTH® is a registered trademark. It is only used for comparative purposes.
DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Servo Motor Cables

VFD XLPE TR type TC-ER

Variable frequency drive – double shielded VFD cable with XLPE insulation

NFPA 79
for industrial plants

SABVFD



FT4, CSA AWM I/II A/B 90C 1000V FT4 RoHS CE



marking example:

SAB NORTH AMERICA VFD XLPE TR P/N 35681404 (UL) Type TC-ER 14AWG/3C RHW-2 CDRS + GNDG CDR 90C Dry/Wet 600V, Oil Res I & II, Sunlight Resistant, Direct Burial, (UL) WTTC 1000V, (UL) Flexible Motor Supply Cable, c(UL) CIC-TC XLPE 600V FT4, CSA AWM I/II A/B 90C 1000V FT4 RoHS CE

Application: VFD XLPE TR is a flexible shielded motor supply cable designed for adjustable speed drives and servo systems. The cores are insulated with a thicker cross linked insulation providing better heat resistance, low capacitance and better protection against corona discharge.

Construction:

Conductor:	tinned copper strands class K
Insulation:	crosslinked PE, earth wire: PVC
Colour code:	blackish cores with consecutive numbers and green-yellow earth wire
Stranding:	in layers
Screen:	double shield, AMA foil and tinned copper braiding
Sheath material:	special sunlight and oil resistant copolymer
Sheath colour:	black (RAL 9005)

Technical data:

Voltage (UL) / c(UL):	600 V
CSA-AWM / (UL) WTTC:	1000 V
Testing voltage:	3000 V
Min. bending radius:	12 x d
Temperature range	(UL) / c(UL) / CSA-AWM: up to +90 °C fixed laying: -40/+105 °C
Fire performance:	(UL) / c(UL) FT4, c(UL) / CSA-AWM FT1, FT2
Oil resistance I & II:	yes
Sunlight resistance:	yes
Exposed Runs:	yes
Cold Bend Test:	-40 °C
Direct Burial:	yes
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

Outstanding features:

- » interconnection of variable frequency drive control device to variable frequency motors
- » UL 90°C wet
- » WTTC: UL subject 2277
- » TC-ER: UL standard 1277
- » flexible UL-motor connection cable 1000 V
- » crosslinked conductors, better for longer installations
- » oil resistance I & II
- » double shield (100% shielded)
- » Class 1 Div 2 per NEC Article 501.4 (B)

item no.	cross section/ no. of cores AWG/c	outer- ϕ \pm 10% mm	cable weight \approx kg/km
35681604	16/4c	12,1	125
35681404	14/4c	13,3	159
35681204	12/4c	15,0	214
35681004	10/4c	17,3	294
35680804	8/4c	22,5	556
35680604	6/4c	24,6	736
35680404	4/4c	27,7	1079
35680204	2/4c	31,7	1550
35680104	1/4c	36,7	1190
35681104	1/0-4c	39,8	2168
35682104	2/0-4c	42,2	2550
35683104	3/0-4c	46,5	3135
35684104	4/0-4c	52,9	3844
35682504	250/4c	56,3	4566
35683504	350/4c	62,8	6106
35685004	500/4c	79,3	8609

Other dimensions and colours are possible on request.

UL TC-ER-JP (joist pull) available on request.

Temperature resistant down to -40°C
Heavy duty application

Servo Motor Cables

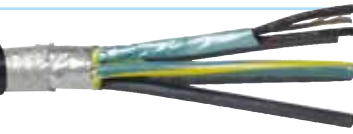
VFD Combo XLPE type TC-ER

Variable frequency drive - double shielded VFD cable with XLPE insulation and screened pair

NFPA 79
for industrial plants

SABVFD

FT4, CSA AWM I/II A/B 90C 1000V FT4 RoHS CE



marking example:

SAB NORTH AMERICA VFD Combo XLPE P/N 35691404 (UL) Type TC-ER 14AWG/3C RHW-2 CDRS + GNDG CDR + 14AWG/1PR 90C Dry/Wet 600V, Oil Res I & II, Sunlight Resistant, Direct Burial, (UL) WTTC 1000V, (UL) Flexible Motor Supply Cable, c(UL) CIC-TC XLPE 600V FT4, CSA AWM I/II A/B 90C 1000V FT4 RoHS CE

Application: VFD Combo XLPE is a flexible shielded motor supply cable designed for adjustable speed drives and servo systems. Included is an individually shielded pair for wiring a brake or temperature sensor. The cores are insulated with a thicker cross linked insulation providing better heat resistance, low capacitance and better protection against corona discharge.

Construction:

Conductor:	tinned copper strands class K
Insulation:	crosslinked PE, earth wire: PVC, pair: PVC/Nylon
Colour code:	blackish cores with consecutive numbers and green-yellow earth wire, pair is black with white numbers 5 and 6
Stranding:	in layers
Screen (pair):	aluminum foil and drain wire (drain wire same size as pair)
Screen (overall):	double shield, AMA foil and tinned copper braiding
Sheath material:	special sunlight and oil resistant copolymer
Sheath colour:	black (RAL 9000)

Technical data:

Voltage (UL) / c(UL):	600 V
CSA-AWM / (UL) WTTC:	1000 V
Testing voltage:	3000 V
Min. bending radius:	12 x d
Temperature range	(UL) / c(UL) / CSA-AWM: up to +90 °C -40/+105 °C
<i>fixed laying:</i>	
Fire performance:	(UL) / c(UL) FT4, c(UL) / CSA-AWM FT1, FT2
Oil resistance I & II:	yes
Sunlight resistance:	yes
Exposed Runs:	yes
Cold Bend Test:	-40 °C
Direct Burial:	yes
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

Outstanding features:

- » interconnection of variable frequency drive control device to variable frequency motors
- » shielded pairs for a brake or temperature sensor
- » UL 90°C wet
- » WTTC: UL subject 2277
- » TC-ER: UL standard 1277
- » flexible UL-motor connection cable 1000 V
- » crosslinked conductors, better for longer installations
- » oil resistance I & II
- » double shield (100% shielded)
- » Class 1 Div 2 per NEC Article 501.4 (B)

Temperature resistant down to -40°C
Heavy duty application

item no.	cross section/ no. of cores AWG/c	no. of pair/ cross section AWG/pr	outer-ø ± 10% mm	cable weight ≈ kg/km
35691614	16/4c	18/1pr	14,6	144
35691624D	16/4c	16/1pr	14,7	210
35691414	14/4c	18/1pr	15,6	175
35691404	14/4c	14/1pr	16,0	213
35691424D	14/4c	16/1pr	15,9	257
35691464	14/4c	18/2pr	16,8	254
35691214	12/4c	18/1pr	16,6	231
35691224D	12/4c	16/1pr	16,8	308
35691204	12/4c	14/1pr	16,9	277
35691264	12/4c	18/2pr	17,7	299
35691004	10/4c	14/1pr	18,7	354
35691024D	10/4c	16/1pr	18,9	417

item no.	cross section/ no. of cores AWG/c	no. of pair/ cross section AWG/pr	outer-ø ± 10% mm	cable weight ≈ kg/km
35691064	10/4c	18/2pr	19,4	383
35690804	8/4c	14/1pr	24,4	536
35690864	8/4c	18/2pr	24,4	576
35690604	6/4c	14/1pr	26,2	726
35690664	6/4c	16/2pr	26,2	766
35690404	4/4c	14/1pr	29,0	1011
35690464	4/4c	14/2pr	30,3	1068
35690204	2/4c	14/1pr	32,5	1401

Other dimensions and colours are possible on request.

D = drain wire.

UL TC-ER-JP (joist pull) available on request.

Servo Motor Cables

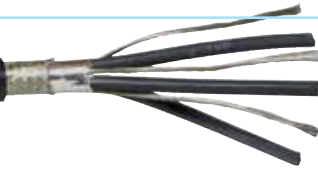
VFD Symmetrical XLPE TR type TC-ER

Variable frequency drive - double shielded VFD cable with XLPE insulation and 3 symmetrical grounds

NFPA 79
for industrial plants



600V FT4, CSA AWM I/II A/B 90C 1000V FT4 RoHS CE



marking example:

SAB NORTH AMERICA VFD Symmetrical XLPE TR P/N 35681003 (UL) TC-ER 10AWG/3C RHW-2 CDRS + 3 x 14 AWG GNDS 90C Dry/Wet, Oil Resistant I/II, Sunlight Resistant, Direct Burial, (UL) WTTC 1000V, (UL) Flexible Motor Supply Cable, c(UL) CIC-TC XLPE 600V FT4, CSA AWM I/II A/B 90C 1000V FT4 RoHS CE

Application: VFD Symmetrical XLPE TR is a flexible shielded motor supply cable designed for adjustable speed drives and servo systems. The cable is designed with 3 phase leads and 3 symmetrical tinned copper grounds. The phase cores are insulated with a thicker cross linked insulation providing better heat resistance, low capacitance and better protection against corona discharge.

Construction:

Conductor:	tinned copper strands class K
Insulation:	crosslinked PE
Colour code:	blackish cores with consecutive numbers
Stranding:	in layers with 3 tinned ground wires in the interstices
Screen:	double shield, AMA foil and tinned copper braiding
Sheath material:	special sunlight and oil resistant copolymer
Sheath colour:	black (RAL 9000)

Technical data:

Voltage (UL) / c(UL):	600 V
CSA-AWM / (UL) WTTC:	1000 V
Testing voltage:	3000 V
Min. bending radius:	12 x d
Temperature range	(UL) / c(UL) / CSA-AWM: up to +90 °C -40/+105 °C
fixed laying:	
Fire performance:	(UL) / c(UL) FT4, c(UL) / CSA-AWM FT1, FT2
Oil resistance I & II:	yes
Sunlight resistance:	yes
Exposed Runs:	yes
Cold Bend Test:	-40 °C
Direct Burial:	yes
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

Outstanding features:

- » interconnection of variable frequency drive control device to variable frequency motors
- » WTTC-approval
- » finer strand for better flexibility
- » UL 90°C wet
- » TC-ER: UL standard 1277
- » UL flexible motor supply cable 1000V
- » crosslinked conductors, better for longer installations
- » oil resistance I & II
- » double shield (100% shielded)
- » 3 symmetrical grounds
- » Class 1 Div 2 per NEC Article 501.4 (B)

item no.	cross section/ no. of cores AWG/c	ground wire x cross section n x AWG	outer-ø ± 10% mm	cable weight ≈ kg/km
35681403	14/3c	3 x 18	12,7	170
35681203	12/3c	3 x 16	14,5	230
35681003	10/3c	3 x 14	16,3	312
35680803	8/3c	3 x 14	20,6	465
35680603	6/3c	3 x 12	24,2	674
35680403	4/3c	3 x 12	27,0	877
35680203	2/3c	3 x 10	31,1	1266
35680103	1/3c	3 x 8	33,1	1545
35681103	1/0-3c	3 x 8	35,8	1757
35682103	2/0-3c	3 x 8	38,3	2167
35683103	3/0-3c	3 x 6	40,7	2508
35684103	4/0-3c	3 x 6	48,0	3060
35682503	250/3c	3 x 6	50,9	3680
35683503	350/3c	3 x 2	56,7	5170
35685003	500/3c	3 x 2	63,2	6353

Other dimensions and colours are possible on request.

Temperature resistant down to -40°C
Heavy duty application

Servo Motor Cables

VFD XLPE 2KV TR type TC-ER

Variable frequency drives - shielded VFD cable with three ground wires, 2 kV

NFPA 79
for industrial plants



marking example:

SAB NORTH AMERICA P/N 8692103 2/0 AWG/3/C RHW-2 2000V 3x6 AWG GNDS Shielded Type TC-ER SUN RES DIR BUR

Application: VFD XLPE 2KV TR is designed for use in variable frequency drive (VFD) applications and rated up to 2000 V. It is a power cable used to supply power to motors or for connection to other power devices in industrial settings.

Construction:

Conductor:	uncoated annealed copper strands acc. to ASTM B-3 and B-8
Insulation:	crosslinked PE
Colour code:	blackish cores with consecutive numbers with three ground wires
Stranding:	in layers with three uninsulated bare ground wires in the filler
Screen:	uncoated 5mil copper tape shield with 50% overlap
Sheath material:	special sunlight resistant and flame retardant PVC
Sheath colour:	black (RAL 9000)

Technical data:

Voltage (UL):	2000 V
Testing voltage:	7500 V
Min. bending radius:	15 x d
Temperature range	(UL): up to +90 °C -25 °C
<i>fixed laying:</i>	
Fire performance:	(UL) FT4 / IEEE 1202
Sunlight resistance:	yes
Moisture resistance:	yes
Exposed Runs:	yes
Direct Burial:	yes
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

Outstanding features:

- » interconnection of variable frequency drive control device to variable frequency motors
- » RHW-2: UL standard 44
- » TC-ER: UL standard 1277
- » IEEE 1202/FT4
- » three bare ground wires for optimal performance
- » Class 1 Div 2 per NEC Article 501.4 (B)

item no.	cross section/ no. of cores AWG/c	ground wire x cross section n x AWG	outer-ø ± 10% mm	cable weight ≈ kg/km
8690203	1/3c	3 x 8	32,2	1465
8691103	1/0-3c	3 x 6	35,2	1822
8692103	2/0-3c	3 x 6	37,5	2130
8693103	3/0-3c	3 x 5	40,2	2650
8694103	4/0-3c	3 x 4	45,7	3251
8692503	250/3c	3 x 2	50,2	3760
8692513	250/3c	3 x 4	46,6	3720
8693503	350/3c	3 x 2	54,1	5025
8695003	500/3c	3 x 1	61,0	6805

Other dimensions and colours are possible on request.