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Overview

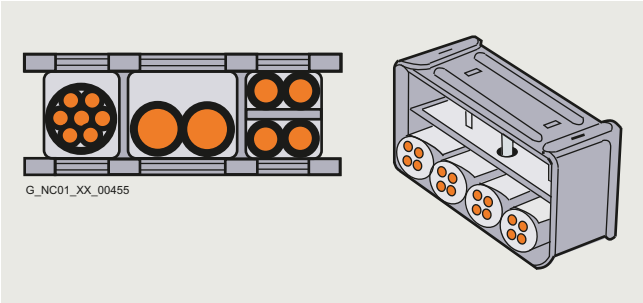
The use of pre-assembled MOTION-CONNECT 300 cables ensures high quality and system-tested, problem-free operation.

Degree of protection of pre-assembled power and signal cables and their extensions is IP65 when closed and connected unless otherwise stated.

MOTION-CONNECT 300 cables are not suitable for outdoor use.

MOTION-CONNECT 300 cables are approved for a maximum horizontal travel distance of 5 m without support.

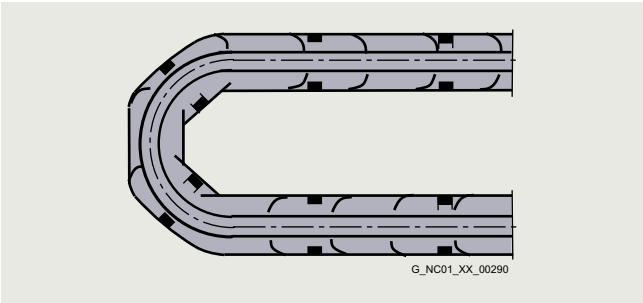
The cables must be unwound without twisting.



To maximize the service life of the cable carrier and cables, cables in the carrier made from different materials must be separated in the cable carrier using spacers. The spacers must be filled evenly to ensure that the position of the cables does not change during operation. The cables should be distributed as symmetrically as possible according to their weights and dimensions. Cables with different outer diameters should be separated by spacers as well.

When inserting pre-assembled cables into the cable carrier, do not pull at the connector, as this may damage the strain relief or cable clamping.

The cables must not be fixed in the cable carrier.
They must be freely movable.



The cables must be able to be moved without applying force, specifically in the bending radii of the carrier.
The specified minimum bending radii must be adhered to.

The cable fixings must be attached at both ends at an appropriate distance from the end points of the moving parts in a dead zone.

Cables must be installed in accordance with the instructions supplied by the cable carrier manufacturer.

In case of vibration load and with horizontal or vertical cable entries, we recommend that the cable is additionally fixed if between the cable strain relief on the cable carrier and the terminal at the motor part of the cable is hanging loose or is not routed. To prevent machine vibrations being transmitted to the connectors, the cable should be fixed at the moving part where the motor is mounted.

Derating factors for power and signal cables

Ambient air temperature °C (°F)	Derating factor according to EN 60204-1 Table D.1
30 (86)	1.15
35 (95)	1.08
40 (104)	1.00
45 (113)	0.91
50 (122)	0.82
55 (131)	0.71
60 (140)	0.58

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Overview

Example: MOTION-CONNECT 300, power cable for SIMOTICS S-1FL6 Low Inertia servomotors

Example: MOTION-CONNECT 300, power cable for SIMOTICS S-1FL6 High Inertia servomotors

For selection and ordering data please refer to section "System overview" "SINAMICS V90 basic servo drive system" from page 1/8.

Technical specifications

Product name	**MOTION-CONNECT 300 power cable**	
	SINAMICS V90 200 ... 240 V 1 AC/3 AC – SIMOTICS S-1FL6 Low Inertia, 0.05 kW ... 1 kW	SINAMICS V90 200 ... 240 V 1 AC/3 AC – SIMOTICS S-1FL6 Low Inertia, 1.5 kW ... 2 kW SINAMICS V90 380 ... 480 V 3 AC – SIMOTICS S-1FL6 High Inertia, 0.4 kW ... 7 kW
Type	6FX3002-5CK01-....	6FX3002-5CL02-.... 6FX3002-5CL12-.... 6FX3002-5CK32-....
No. of cores	4	4
Degree of protection motor side (when closed and connected)	IP20	IP65
Certificate of suitability		
• RoHS	Yes	Yes
• CE and UKCA	Yes	Yes
Rated voltage U_0/U	300 V/500 V	600 V/1000 V
Test voltage, rms	4 kV	4 kV
Operating temperature on the surface		
• Fixed installation	-25 … +80 °C (-13 … +176 °F)	-25 … +80 °C (-13 … +176 °F)
Tensile stress, max.		
• Fixed installation	50 N/mm^2	50 N/mm^2
• Flexible installation	20 N/mm^2	20 N/mm^2
Smallest bending radius		
• Fixed installation	6 × diameter	6 × diameter
• Flexible installation	155 mm	155 mm
Torsional stress	Absolute 30°/m	Absolute 30°/m
Bending	100000	1000000
Insulation material, incl. jacket	PVC	PVC
Oil resistance	EN 60811-2-1	EN 60811-2-1
Outer jacket	PVC	PVC
Flame-retardant	EN 60332-1-1 to 1-3	EN 60332-1-1 to 1-3

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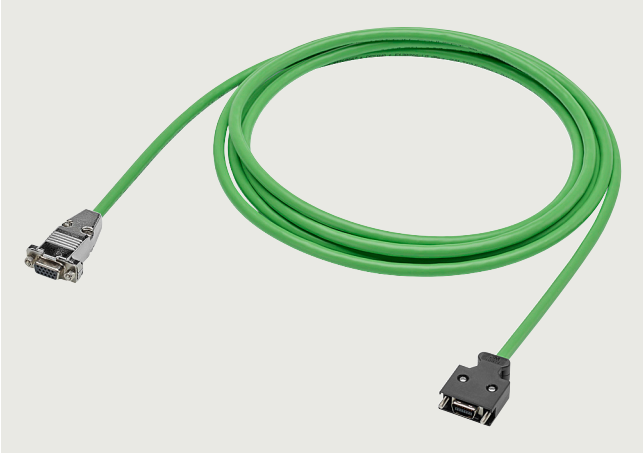
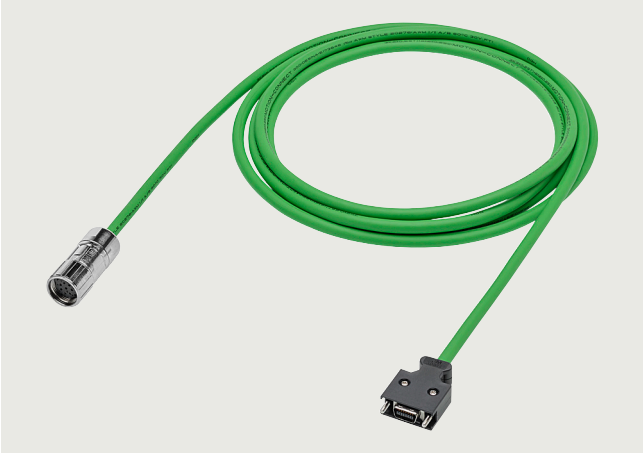
Pre-assembled signal cables for SINAMICS V90

Overview



Example: MOTION-CONNECT 300, signal cable for encoder connection for SIMOTICS S-1FL6 Low Inertia servomotors



Example: MOTION-CONNECT 300, signal cable for encoder connection for SIMOTICS S-1FL6 High Inertia servomotors

For selection and ordering data please refer to section "System overview" "SINAMICS V90 basic servo drive system" from page 1/8.

Technical specifications

Product name	**MOTION-CONNECT 300 signal cable for encoder connection**	
	SINAMICS V90 200 ... 240 V 1 AC/3 AC – SIMOTICS S-1FL6 Low Inertia, 0.05 kW ... 1 kW	SINAMICS V90 200 ... 240 V 1 AC/3 AC – SIMOTICS S-1FL6 Low Inertia, 1.5 kW ... 2 kW SINAMICS V90 380 ... 480 V 3 AC – SIMOTICS S-1FL6 High Inertia, 0.4 kW ... 7 kW
Type	6FX3002-2DB20-.... 6FX3002-2CT20-....	6FX3002-2DB10-.... 6FX3002-2DB12-.... 6FX3002-2CT12-....
No. of cores	10	10
Degree of protection motor side (when closed and connected)	IP20	IP65
Certificate of suitability		
• RoHS	Yes	Yes
• CE and UKCA	Not required	Not required
Rated voltage U_0/U	30 V/30 V	30 V/30 V
Test voltage, rms	500 V	500 V
Operating temperature on the surface		
• Fixed installation	-25 … +80 °C (-13 … +176 °F)	-25 … +80 °C (-13 … +176 °F)
Tensile stress, max.		
• Fixed installation	50 N/mm^2	50 N/mm^2
• Flexible installation	20 N/mm^2	20 N/mm^2
Smallest bending radius		
• Fixed installation	6 × diameter	6 × diameter
• Flexible installation	155 mm	155 mm
Torsional stress	Absolute 30°/m	Absolute 30°/m
Bending	100000	1000000
Insulation material, incl. jacket	PVC	PVC
Oil resistance	EN 60811-2-1	EN 60811-2-1
Outer jacket	PVC	PVC
Flame-retardant	EN 60332-1-1 to 1-3	EN 60332-1-1 to 1-3

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Overview

Example: MOTION-CONNECT 300, signal cable for brake connection for SIMOTICS S-1FL6 Low Inertia servomotors

Example: MOTION-CONNECT 300, signal cable for brake connection for SIMOTICS S-1FL6 High Inertia servomotors

For selection and ordering data please refer to section "System overview" "SINAMICS V90 basic servo drive system" from page 1/8.

Technical specifications

Product name	**MOTION-CONNECT 300 signal cable for brake connection**	
	SINAMICS V90 200 ... 240 V 1 AC/3 AC – SIMOTICS S-1FL6 Low Inertia, 0.05 kW ... 1 kW	SINAMICS V90 200 ... 240 V 1 AC/3 AC – SIMOTICS S-1FL6 Low Inertia, 1.5 kW ... 2 kW SINAMICS V90 380 ... 480 V 3 AC – SIMOTICS S-1FL6 High Inertia, 0.4 kW ... 7 kW
Type	6FX3002-5BK02-....	6FX3002-5BL03-....
No. of cores	2	2
Degree of protection motor side (when closed and connected)	IP20	IP65
Certificate of suitability		
• RoHS	Yes	Yes
• CE and UKCA	Not required	Not required
Rated voltage U_0/U	30 V/30 V	30 V/30 V
Test voltage, rms	500 V	500 V
Operating temperature on the surface		
• Fixed installation	-25 … +80 °C (-13 … +176 °F)	-25 … +80 °C (-13 … +176 °F)
Tensile stress, max.		
• Fixed installation	50 N/mm^2	50 N/mm^2
• Flexible installation	20 N/mm^2	20 N/mm^2
Smallest bending radius		
• Fixed installation	6 × diameter	6 × diameter
• Flexible installation	155 mm	155 mm
Torsional stress	Absolute 30°/m	Absolute 30°/m
Bending	100000	1000000
Insulation material, incl. jacket	PVC	PVC
Oil resistance	EN 60811-2-1	EN 60811-2-1
Outer jacket	PVC	PVC
Flame-retardant	EN 60332-1-1 to 1-3	EN 60332-1-1 to 1-3

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Connectors for SINAMICS V90

Overview

Shaft height	Connectors motor side			
	for power connection	for incremental encoder	for absolute encoder	for brake
MOTION-CONNECT connectors for SIMOTICS S-1FL6 Low Inertia servomotors				
20, 30, 40	6FX2003-0LL12	6FX2003-0SL12	6FX2003-0DB12	6FX2003-0LL52
50	6FX2003-0LL13	6FX2003-0SL13	6FX2003-0DB13	6FX2003-0LL53
MOTION-CONNECT connectors for SIMOTICS S-1FL6 High Inertia servomotors				
45, 65, 90	6FX2003-0LL13	6FX2003-0SL13	6FX2003-0DB11	6FX2003-0LL53

Frame size	Connectors drive side			
	for power connection	for incremental encoder	for absolute encoder	for brake
MOTION-CONNECT connectors for SINAMICS V90 servo drive				
FSA, FSB, FSC, FSD	–	6FX2003-0SB14	6FX2003-0SB14	–

For selection and ordering data please refer to section "System overview" "SINAMICS V90 basic servo drive system" from page 1/8.