

Order overview (continued)

Accessories for SINAMICS S210 servo converters

Description	Article No.
SINAMICS SD card (optional) 512 MB The parameter assignment, firmware and licenses for a converter can be stored on this memory card	
• Empty	6SL3054-4AG00-2AA0
• With firmware V5.1	6SL3054-4FB00-2BA0
• With firmware V5.1 SP1	6SL3054-4FB10-2BA0
• With firmware V5.1 SP1 and Safety license (Extended Functions)	6SL3054-4FB10-2BA0-Z F01
Safety license (Extended Functions) ¹⁾	6SL3074-0AA10-0AA0
PROFINET patch cable For the networking of concatenated converters	
• 0.3 m (0.98 ft)	6XV1870-3QE30
• 0.5 m (1.64 ft)	6XV1870-3QE50
Line filter (optional) ²⁾ European standard EN 61008-3 Category C2 can also be achieved for cable lengths up to 25 m (82 ft) with this line filter. Category C3 is reached with cable lengths up to 50 m (164 ft).	6SL3203-0BB21-8VA0

Accessories for SIMOTICS S-1FK2 servomotors

Description	For motor	Article No.
Shaft sealing ring (optional) To achieve degree of protection IP65 for retrofitting or as spare part	1FK2 . 02	1FK2902-0GC00
	1FK2 . 03	1FK2903-0GC00
	1FK2 . 04	1FK2904-0GC00

Accessories for MOTION-CONNECT connection systems

OCC extension cables

Description	For motor	Article No. (See table on page 1/12 for length codes)
Pre-assembled OCC extension cable MOTION-CONNECT 500	1FK2102 and 1FK2 . 03	6FX5002-8QE04-1
	1FK2104	6FX5002-8QE08-1
Pre-assembled OCC extension cable MOTION-CONNECT 800PLUS	1FK2102 and 1FK2 . 03	6FX8002-8QE04-1
	1FK2104	6FX8002-8QE08-1
Pre-assembled OCC extension cable MOTION-CONNECT 500 With connector supplied on the converter side ³⁾	1FK2102 and 1FK2 . 03	6FX5012-8QE04-1
	1FK2104	6FX5012-8QE08-1
Pre-assembled OCC extension cable MOTION-CONNECT 800PLUS With connector supplied on the converter side ³⁾	1FK2102 and 1FK2 . 03	6FX8012-8QE04-1
	1FK2104	6FX8012-8QE08-1

OCC components for self assembly

Description	For motor	Article No. (See table on page 1/12 for length codes)
Sold by the meter OCC line MOTION-CONNECT 500 ³⁾	1FK2102 and 1FK2 . 03	6FX5008-1BE04-1
	1FK2104	6FX5008-1BE08-1
Sold by the meter OCC line MOTION-CONNECT 800PLUS ³⁾	1FK2102 and 1FK2 . 03	6FX8008-1BE04-1
	1FK2104	6FX8008-1BE08-1
Motor-side M12 SPEED-CONNECT connector ³⁾	1FK2102 and 1FK2 . 03	6FX2003-0LU64
Motor-side M17 SPEED-CONNECT connector ³⁾	1FK2104	6FX2003-0LU54
M12 SPEED-CONNECT connector with external thread for extension cable ³⁾	1FK2102 and 1FK2 . 03	6FX2003-0LA64
M17 SPEED-CONNECT connector with external thread for extension cable ³⁾	1FK2104	6FX2003-0LA54
Converter-side Siemens IX signal connector ³⁾	–	6FX2003-0DE01
Shield clamp (Packing unit: 10 items)	–	6FX2003-7EX10

Control cabinet bushings

Description	For motor	Article No.
Mounting flange	1FK2102 and 1FK2 . 03	6FX2003-7JX00
	1FK2104	6FX2003-7HX00

Recommended SIMATIC S7 controller

Further information about SIMATIC S7-1500 and SIMATIC S7-1500 T-CPU controllers is available in Catalog ST 70 and on the Internet at www.siemens.com/simatic-s7-1500

¹⁾ Extended function for an existing memory card (firmware V5.1 SP1 or higher). The memory card is not included in the scope of delivery. The Safety license can also be ordered together with a memory card (see above).





²⁾ The line filter does not have UL approval.

³⁾ Available soon.





SINAMICS S210 servo drive

0.1 kW to 0.75 kW

SINAMICS S210 servo drive**Selection and ordering data**

Description	Frame size	Article No.
200 ... 240 V 1 AC		
SINAMICS S210 servo converters Incl. shield plate and push-in connector without memory card		
 <ul style="list-style-type: none"> • 0.1 kW 	FSA	6SL3210-5HB10-1UF0
 <ul style="list-style-type: none"> • 0.2 kW 	FSA	6SL3210-5HB10-2UF0
 <ul style="list-style-type: none"> • 0.4 kW 	FSB	6SL3210-5HB10-4UF0
 <ul style="list-style-type: none"> • 0.75 kW 	FSC	6SL3210-5HB10-8UF0

Accessories

Description	Article No.
 SINAMICS SD card (optional) 512 MB The parameter assignment, firmware and licenses for a converter can be stored on this memory card <ul style="list-style-type: none"> • Empty • With firmware V5.1 • With firmware V5.1 SP1 NEW • With firmware V5.1 SP1 and Safety license (Extended Functions) NEW 	6SL3054-4AG00-2AA0 6SL3054-4FB00-2BA0 6SL3054-4FB10-2BA0 6SL3054-4FB10-2BA0-Z F01
Safety license NEW (Extended Functions) ¹⁾	6SL3074-0AA10-0AA0
 PROFINET patch cable For the networking of concatenated converters Industrial Ethernet TP cord, CAT 6 A, twisted pair line 4 x 2 cores, pre-assembled with two RJ45 connectors <ul style="list-style-type: none"> • 0.3 m (0.98 ft) • 0.5 m (1.64 ft) 	6XV1870-3QE30 6XV1870-3QE50
 Line filter (optional) ²⁾ European standard EN 61008-3 Category C2 can also be achieved for cable lengths up to 25 m (82 ft) with this line filter. Category C3 is reached with cable lengths up to 50 m (164 ft).	6SL3203-0BB21-8VA0
 Replacement connector set 230 V 1 AC For frame sizes FSA, FSB and FSC with a set of connectors as in scope of delivery and two shield plates	6SL3260-2DB00-0AA0

¹⁾ Extended function for an existing memory card (firmware V5.1 SP1 or higher). The memory card is not included in the scope of delivery. The Safety license can also be ordered together with a memory card (see above).

²⁾ The line filter does not have UL approval.

Technical specifications

Unless explicitly specified otherwise, the following technical specifications are valid for all SINAMICS S210 servo converters.

General technical specifications

Mechanical specifications

Vibratory load

- Transport ¹⁾ acc. to EN 60721-3-2
- Operation acc. to EN 60721-3-3
 - Test values according to EN 60068-2-6

Class 2M3
 Class 3M2
 Test Fc (sinusoidal)

- 10 ... 13 Hz: 0.075 mm amplitude of deflection
- 13 Hz ... 150 Hz: 1 × *g* acceleration amplitude
- 10 frequency cycles per axis

Shock load

- Transport ¹⁾ acc. to EN 60721-3-2
- Operation acc. to EN 60721-3-3
 - Test values according to EN 60068-2-27

Class 2M3
 Class 3M2
 Test Ea (semisinusoidal)

- 5 × *g* peak acceleration
- 30 ms duration
- 3 shocks in all three axes in both directions

Environmental conditions

Protection class

According to EN 61800-5-1

Class I (with protective bonding circuit) and class III (PELV or SELV)

Degree of protection

According to EN 60529

IP20
 Mounting in control cabinet necessary

Permissible ambient temperature (air) in operation

0 ... 50 °C (32 ... 122 °F)

Installation altitude

Up to max. 4000 m (13123 ft)

- Up to 1000 m (3281 ft) above sea level without derating
- As from 1000 m (3281 ft) derating 10 % of current or 5 K per 1000 m (3281 ft)
- Isolation transformer required as from 2000 m (6562 ft)

Climatic environmental conditions

- Storage ²⁾ acc. to EN 60721-3-1
- Transport ¹⁾ acc. to EN 60721-3-2
- Operation acc. to EN 60721-3-3

Class 1K4
 -25 ... +55 °C (-13 ... +131 °F)

Class 2K4
 -40 ... +70 °C (-40 ... +158 °F)
 Max. air humidity: 95 % at 40 °C (104 °F)

Better than class 3K3
 0 ... 50 °C (32 ... 122 °F)
 Relative air humidity: 5 ... 95 %
 Condensation, splashwater, and ice formation not permitted (EN 60204, Part 1)

Environmental class/harmful chemical substances

- Storage ²⁾ acc. to EN 60721-3-1
- Transport ¹⁾ acc. to EN 60721-3-2
- Operation acc. to EN 60721-3-3

Class 1C2
 Class 2C2
 Class 3C2

Organic/biological influences

- Storage ²⁾ acc. to EN 60721-3-1
- Transport ¹⁾ acc. to EN 60721-3-2
- Operation acc. to EN 60721-3-3

Class 1B2
 Class 2B2
 Class 3B2

Degree of pollution

According to EN 61800-5-1

2

Standards

Certificates of suitability

CE, cULus, RCM, EAC, KC

¹⁾ In transport packaging.

²⁾ In product packaging.

SINAMICS S210 servo drive

0.1 kW to 0.75 kW

SINAMICS S210 servo drive

Technical specifications (continued)

Line voltage 200 ... 240 V 1 AC		SINAMICS S210 servo converters			
		6SL3210-5HB10-1UF0	6SL3210-5HB10-2UF0	6SL3210-5HB10-4UF0	6SL3210-5HB10-8UF0
Line supply connection					
• Supply voltage		200 ... 240 V $\pm 10\%$ 1 AC			
• Line frequency	Hz	50/60			
• Conductor cross-section, max.	mm ²	2.5			
Rated current	A	1.4	2.7	5	9.3
Inrush current	A	8	8	8	8
Power loss	W	15.7	23.2	38.5	71.1
Electronic power supply					
• Voltage		24 V -15 % ... +20 %			
• Power requirement, max.	A	1.6			
• Conductor cross-section, max.	mm ²	2.5			
Output					
• Rated power for motor	kW	0.1	0.2	0.4	0.75
• Rated current for motor	A	0.8	1.36	2.4	4.4
• Output current for motor, max.	A	3.1	4.8	8.7	16
Pulse frequency power unit	kHz	8			
Output frequency	Hz	0 ... 550			
Line filter		Integrated, category C2 (up to 10 m (32.8 ft) cable length), category C3 (up to 25 m (82.0 ft) cable length)			
Braking resistor		Without ¹⁾	Integrated	Integrated	Integrated
Digital inputs ²⁾					
• Fast inputs for measuring probes, reference marks, temperature monitoring, external braking resistor		3			
- Low level		-30 V ... +5 V and ≤ 2 mA			
- High level		15 V ... 30 V			
- Current consumption	mA	6			
- Delay time, typ. L \rightarrow H	μ s	5			
- Delay time, typ. H \rightarrow L	μ s	50			
- Galvanic isolation		No			
• Fail-safe input		1			
- Low level		-30 V ... +5 V and ≤ 2 mA			
- High level		15 V ... 30 V			
- Current consumption	mA	5			
- Delay time, typ. L \rightarrow H	μ s	50			
- Delay time, typ. H \rightarrow L	μ s	100			
- Galvanic isolation		Yes			
• Conductor cross-section, max.	mm ²	1.5			
Cooling		Convection (without fan)			
Frame size		FSA	FSA	FSB	FSC
Dimensions					
• Width	mm (in)	45 (1.77)	45 (1.77)	55 (2.17)	74.5 (2.93)
• Height	mm (in)	170 (6.69)	170 (6.69)	170 (6.69)	170 (6.69)
• Depth	mm (in)	170 (6.69)	170 (6.69)	170 (6.69)	195 (7.68)
Weight, approx.	kg (lb)	1.1 (2.43)	1.1 (2.43)	1.2 (2.65)	1.9 (4.19)

¹⁾ An internal braking resistor is not required for normal operation on account of the available DC link capacity.

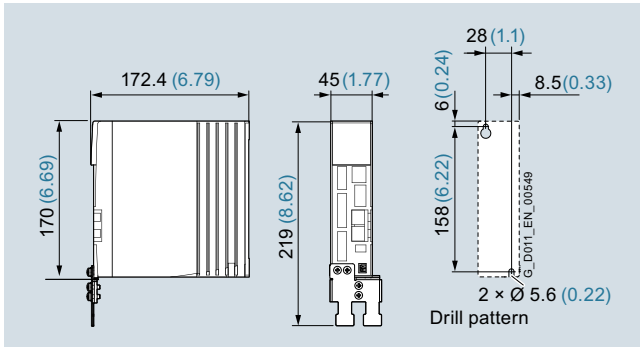
²⁾ The specified delay times refer to the hardware. The actual reaction time depends on the time slot in which the digital input is processed.

SINAMICS S210 servo drive

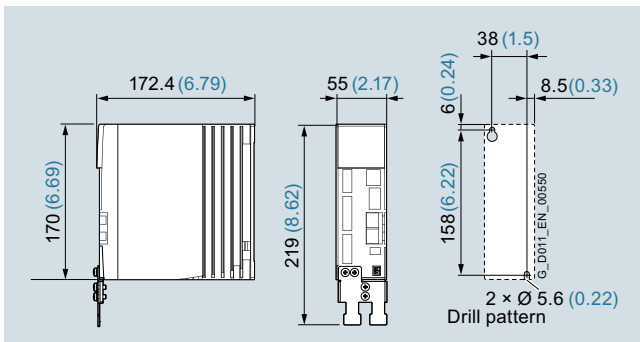
0.1 kW to 0.75 kW

SINAMICS S210 servo drive

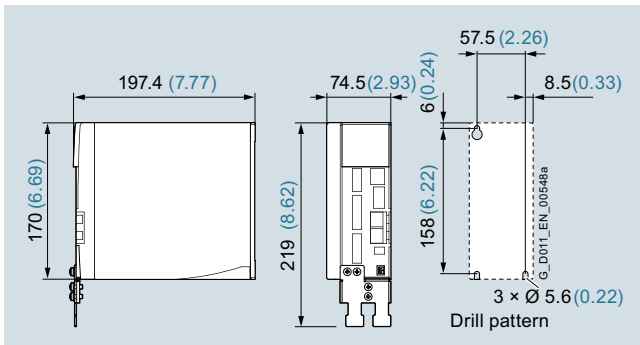
Dimensional drawings



Dimension drawing, frame size FSA



Dimension drawing, frame size FSB



Dimension drawing, frame size FSC

All dimensions in mm (values in brackets are in inches).

With the OCC motor connection cable connected, the overall depth increases by 56.6 mm (2.28 inches).

Accessories

Line filters

Filters are already integrated in order to achieve category C2 (for motor cable lengths up to 10 m) or category C3 (for motor cable lengths up to 25 m). Further requirements can be achieved using an external line filter.

	Maximum motor cable length	
	for converters without additional line filter	for converters with external line filter
EMC category C2	10 m (32.8 ft)	25 m (82 ft)
EMC category C3	25 m (82 ft)	50 m (164 ft)

Recommended line-side overcurrent protective devices

Overcurrent protective devices are absolutely necessary for the operation of the converters. The table listed in the section "Recommended line-side overcurrent protective devices" provides recommendations according to IEC and UL regulations, depending on the area of application. Recommendations on further overcurrent protective devices are available at:

<https://support.industry.siemens.com/cs/document/109748999>

Additional information about the listed Siemens fuses is available in Catalog LV 10 as well as in the Industry Mall.

Braking resistors

As far as necessary, braking resistors are integrated into the converters. Together with the generously dimensioned DC link capacities, an external braking resistor is not necessary in the normal case.

If the internal braking resistor is inadequate for applications with very high requirements, an external braking resistor can be connected as an alternative.

Memory cards

A memory card (SINAMICS SD card) can be optionally used with SINAMICS S210. The associated slot is located under the front cover of the converter. Not only the firmware but also the device parameterization of a SINAMICS S210 servo converter can be stored on the memory card.

When service is required, e.g. after the converter has been replaced and the data have been downloaded from the memory card, the drive system is immediately ready for use again.

A memory card is only absolutely necessary, if functions requiring license, such as the Extended Safety functions, are used. The necessary license is saved on the memory card.

SINAMICS S210 servo drive

0.1 kW to 0.75 kW

Line-side components > Line filters**Technical specifications**

Line voltage 200 ... 240 V 1 AC		Line filter ¹⁾
Rated current		6SL3203-0BB21-8VA0
A		18
Line/load connection		Screw terminals
• Conductor cross-section		mm ² 10
PE connection		M5 screw stud
Degree of protection		IP20
Dimensions		
• Width		mm (in) 59 (2.32)
• Height		mm (in) 155 (6.10)
• Depth		mm (in) 53 (2.09)
Weight, approx.		kg (lb) 0.9 (1.98)
Suitable for SINAMICS S210 servo converters		Type 6SL3210-5HB10-1UF0 (0.1 kW) 6SL3210-5HB10-2UF0 (0.2 kW) 6SL3210-5HB10-4UF0 (0.4 kW) 6SL3210-5HB10-8UF0 (0.75 kW)

Selection and ordering data

Rated power of the servo converter	Suitable for SINAMICS S210	Line filter ¹⁾
kW		Article No.
Line voltage 200 ... 240 V 1 AC		
0.1	6SL3210-5HB10-1UF0	6SL3203-0BB21-8VA0
0.2	6SL3210-5HB10-2UF0	
0.4	6SL3210-5HB10-4UF0	
0.75	6SL3210-5HB10-8UF0	

Line-side components > Recommended line-side overcurrent protective devices**Selection and ordering data**

Overcurrent protective devices are absolutely necessary for the operation of the converters. The following table lists recommendations for fuses.

- Siemens fuses of type 3NA3 for use in the area of validity of IEC
- UL-listed fuses Class J for use in USA and Canada

Recommendations on further overcurrent protective devices are available at:

<https://support.industry.siemens.com/cs/document/109748999>

The Short Circuit Current Rating (SCCR) according to UL for industrial control cabinet installations to NEC Article 409 or UL 508A/508C or UL 61800-5-1 is as follows for Class J fuses for

- SINAMICS S210: 65 kA

SCCR and ICC values for combination with further overcurrent protective devices are available at:

<https://support.industry.siemens.com/cs/document/109748999>

Notes for installations in Canada:

The converters are intended for line supply systems with over-voltage category III. More information is available in the technical documentation on the Internet at:

www.siemens.com/sinamics-s210/documentation

Additional information about the listed Siemens fuses is available in Catalog LV 10 as well as in the Industry Mall.

Rated power	SINAMICS S210	IEC-compliant		UL/cUL-compliant	
		Fuse		Fuse type	
		Current	3NA3	Rated voltage 600 V AC	Current
kW	Type 6SL3210-...	A	Article No.	Class	A
Line voltage 200 ... 240 V 1 AC					
0.1	5HB10-1UF0	6	3NA3801	J	6
0.2	5HB10-2UF0	6	3NA3801	J	6
0.4	5HB10-4UF0	10	3NA3803	J	10
0.75	5HB10-8UF0	16	3NA3805	J	20

¹⁾ The line filter does not have UL approval.