

# System overview

Clicking to SiePortal

6SL3255-0AA00-5AA0



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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Low Inertia servomotors

### Selection and ordering data

**SIMOTICS S-1FL2 servomotors** – Further info in section "SIMOTICS S-1FL2 servomotors".

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current		Torque constant	Moment of inertia of rotor	Recommended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100\text{ K}$	$M_0$ at $\Delta T=100\text{ K}$	$M_N$ at $\Delta T=100\text{ K}$	$M_{max}$	$I_N$ at $\Delta T=100\text{ K}$	$I_{max}$	Article No.	Nm/A	$J_{without\ brake}$	$J_{with\ brake}$	$m_{without\ brake}$	$m_{with\ brake}$
r/min	kW (hp)	Nm	Nm	Nm	A	A			kg cm <sup>2</sup>	kg cm <sup>2</sup>	kg	kg

### SIMOTICS S-1FL2 Low Inertia servomotors – For high dynamic performance

#### Shaft height 20 – Rated speed $n_N$ 3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.05 (0.07)	0.16	0.16	0.56	0.81	3.1	<b>1FL2102-2AG</b> ■ ■ - ■ ■ ■ C 0	0.2	0.017	0.022	40x	0.29	0.46
6500	0.10 (0.14)	0.32	0.32	1.12	0.76	2.95	<b>1FL2102-4AG</b> ■ ■ - ■ ■ ■ C 0	0.42	0.029	0.034	30x	0.39	0.56

#### Shaft height 20 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.05 (0.07)	0.16	0.16	0.56	0.84	3.4	<b>1FL2102-2AF</b> ■ ■ - ■ ■ ■ C 0	0.19	0.017	0.022	40x	0.29	0.45
6500	0.10 (0.14)	0.32	0.32	1.12	0.81	2.9	<b>1FL2102-4AF</b> ■ ■ - ■ ■ ■ C 0	0.4	0.029	0.034	30x	0.38	0.55

#### Shaft height 30 – Rated speed $n_N$ 3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.20 (0.27)	0.64	0.64	2.24	1.28	4.8	<b>1FL2103-2AG</b> ■ ■ - ■ ■ ■ C 0	0.5	0.08	0.11	30x	0.79	1.14
6500	0.40 (0.54)	1.27	1.27	4.45	2.4	8.7	<b>1FL2103-4AG</b> ■ ■ - ■ ■ ■ C 0	0.53	0.155	0.185		1.16	1.5

#### Shaft height 30 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.20 (0.27)	0.64	0.64	2.24	1.3	4.8	<b>1FL2103-2AF</b> ■ ■ - ■ ■ ■ C 0	0.49	0.08	0.11	30x	0.78	1.12
6500	0.40 (0.54)	1.27	1.27	4.45	1.3	4.8	<b>1FL2103-4AF</b> ■ ■ - ■ ■ ■ C 0	0.98	0.155	0.185		1.14	1.49

#### Shaft height 40 – Rated speed $n_N$ 3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.75 (1.02)	2.4	2.4	8	4.4	16	<b>1FL2104-2AG</b> ■ ■ - ■ ■ ■ C 0	0.55	0.5	0.58	20x	2.7	3.5
6500	1.00 (1.36)	3.2	3.2	10.8	4.4	16	<b>1FL2104-4AG</b> ■ ■ - ■ ■ ■ C 0	0.73	0.63	0.71		3.3	4.1

#### Shaft height 40 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.75 (1.02)	2.4	2.4	8	2.1	7.6	<b>1FL2104-2AF</b> ■ ■ - ■ ■ ■ C 0	1.14	0.5	0.58	20x	2.7	3.5
6500	1.00 (1.36)	3.2	3.2	10.8	3	10.9	<b>1FL2104-4AF</b> ■ ■ - ■ ■ ■ C 0	1.07	0.63	0.71		3.3	4.1

#### Shaft height 52 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

6000	1.45 (2.04)	5	4.6	15.9	4.35	18	<b>1FL2105-2AF</b> ■ 1 - ■ ■ ■ B 0	1.08	1.71	2.54	20x	5.5	6.4
6000	2.10 (2.72)	8	6.6	25.3	5.6	24	<b>1FL2105-4AF</b> ■ 1 - ■ ■ ■ B 0	1.19	2.65	3.48	15x	7.8	8.7

<b>Brake</b>												
Without												
Holding brake												
<b>Degree of protection</b>												
IP54												
IP65 (with shaft sealing ring)												
<b>Shaft end, feather key</b>												
Plain shaft												
Shaft with feather key (half-key balancing)												
<b>Encoder</b>												
Absolute encoder 17-bit singleturn												
Absolute encoder 21-bit singleturn												
Absolute encoder 21-bit singleturn + 12-bit multiturn												
<b>Connection technology</b>												
Metal circular connector												
Metal hybrid connector												

Detailed information on SINAMICS S200 is available on the internet at: [www.siemens.com/sinamics-s200](http://www.siemens.com/sinamics-s200)

In addition, the Siemens Product Configurator can be used on the internet: [www.siemens.com/sinamics-s200/configuration](http://www.siemens.com/sinamics-s200/configuration).

<sup>1)</sup> Rated torque, rated power and maximum torque listed in the table above allow for a production tolerance of 10 %.

<sup>2)</sup> Motor weight with absolute encoder 17-bit singleturn.

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SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Low Inertia servomotors

SINAMICS S200 servo converters Further info in section "SINAMICS S200 servo converters".		Line filter	Recommended standard fuse		Recommended circuit breaker
Max. motor power		Frame size	More information at <a href="http://www.siemens.com/sinamics-s200/ocpd">www.siemens.com/sinamics-s200/ocpd</a>		IEC/UL-cUL-compliant
kW (hp) Article No.		Line voltage $I_N$	/ 3NA3	/ Fuse type	3RV2
		V A Article No.	A Article No.	A Class	Article No.
<b>SINAMICS S200 and SINAMICS S200 Basic servo converters</b>					
<b>Line voltage 200 ... 240 V 1 AC / 3 AC</b>					
0.10 (0.14)	6SL5 10-1BB10-1A 0	FSA	1 AC 200 ... 240 18 3 AC 200 ... 240 5	6SL5550-0XB21-8CA0 6SL3203-0BE15-0VA0	4 3NA3804 3 J 3RV2011-1EA10
<b>Line voltage 380 ... 480 V 3 AC</b>					
0.20 (0.27)	6SL5 5 10-1BE10-2A 0	FSA	3 AC 380 ... 480 5	6SL5550-0XE20-5CA0	4 3NA3804 3 J 3RV2011-1CA10
<b>Line voltage 200 ... 240 V 1 AC / 3 AC</b>					
0.20 (0.27)	6SL5 10-1BB10-2A 0	FSA	1 AC 200 ... 240 18 3 AC 200 ... 240 5	6SL5550-0XB21-8CA0 6SL3203-0BE15-0VA0	4 3NA3804 3 J 3RV2011-1EA10
0.40 (0.54)	6SL5 10-1BB10-4A 0	FSB	1 AC 200 ... 240 18 3 AC 200 ... 240 5	6SL5550-0XB21-8CA0 6SL3203-0BE15-0VA0	6 3NA3801 6 J 3RV2011-1HA10 3RV2011-1EA10
<b>Line voltage 380 ... 480 V 3 AC</b>					
0.20 (0.27)	6SL5 5 10-1BE10-2A 0	FSA	3 AC 380 ... 480 5	6SL5550-0XE20-5CA0	4 3NA3804 3 J 3RV2011-1CA10
0.40 (0.54)	6SL5 5 10-1BE10-4A 0				3RV2021-1DA10
<b>Line voltage 200 ... 240 V 1 AC / 3 AC</b>					
0.75 (1.02)	6SL5 10-1BB10-8A 0	FSC	1 AC 200 ... 240 18 3 AC 200 ... 240 5	6SL5550-0XB21-8CA0 6SL3203-0BE15-0VA0	16 3NA3805 15 J 3RV2011-1KA10 3RV2011-1HA10
1.00 (1.36)	6SL5 10-1BB11-0A 0	FSC	1 AC 200 ... 240 18 3 AC 200 ... 240 5	6SL5550-0XB21-8CA0 6SL3203-0BE15-0VA0	16 3NA3805 15 J 3RV2011-1KA10 3RV2011-1JA10
<b>Line voltage 380 ... 480 V 3 AC</b>					
0.75 (1.02)	6SL5 5 10-1BE10-8A 0	FSB	3 AC 380 ... 480 5	6SL5550-0XE20-5CA0	10 3NA3803 10 J 3RV2021-1EA10
1.00 (1.36)	6SL5 5 10-1BE11-0A 0				3RV2021-1FA10
<b>Line voltage 380 ... 480 V 3 AC</b>					
1.75 (2.38)	6SL5 5 10-1BE11-5A 0	FSC	3 AC 380 ... 480 12	6SL5550-0XE21-2CA0	16 3NA3805 15 J 3RV2011-4AA10
2.50 (3.40)	6SL5 5 10-1BE12-5A 0				20 3RV2011-4AA10

  

<b>Servo converter</b>	
SINAMICS S200	5
SINAMICS S200 Basic	6
<b>Version</b>	
Pulse Train Input (PTI)	A
PROFINET (PN)	F

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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Low Inertia servomotors

## Selection and ordering data

SIMOTICS S-1FL2 servomotors – Further info in section "SIMOTICS S-1FL2 servomotors"

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current		Torque constant	Moment of inertia of rotor	Recommended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100$ K	$M_0$ at $\Delta T=100$ K	$M_N$ at $\Delta T=100$ K	$M_{max}$	$I_N$ at $\Delta T=100$ K	$I_{max}$	Article No.		$J_{without\ brake}$	$J_{with\ brake}$	$m_{without\ brake}$	$m_{with\ brake}$
r/min	kW (hp)	Nm	Nm	Nm	A	A		Nm/A	kg cm <sup>2</sup>	kg cm <sup>2</sup>	kg	kg

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## Brake

Without	0
Holding brake	1

## Degree of protection

IP54	0
IP65 (with shaft sealing ring)	1

## Shaft end, feather key

Plain shaft	0
Shaft with feather key (half-key balancing)	1

## Encoder

Absolute encoder 17-bit singleturn	H S M
Absolute encoder 21-bit singleturn	
Absolute encoder 21-bit singleturn + 12-bit multeturn	

## Connection technology

Metal circular connector	B C
Metal hybrid connector	

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SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Low Inertia servomotors

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MOTION-CONNECT connection systems – Further info in section "MOTION-CONNECT 350 and 380 connection systems".																																																																																																																																																																																			
Pre-assembled dual cables for power and communication				Pre-assembled power cables				Pre-assembled dual cables for communication																																																																																																																																																																											
No. of cores x cross-section mm <sup>2</sup>		Article No.		No. of cores x cross-section mm <sup>2</sup>		Article No.		No. of cores x cross-section mm <sup>2</sup> Article No.																																																																																																																																																																											
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-		-		4 x 0.75 or 4 x 0.75 / 2 x 0.38		6FX3 02-5 K32-1 0		3 x 2 x 0.25 <sup>1)</sup> 6FX3 02-2XB11-1 0																																																																																																																																																																											
<table border="1"> <thead> <tr> <th colspan="2">Connection system</th> <th colspan="2">5</th> <th colspan="2">8</th> <th colspan="2">5</th> <th colspan="2">8</th> </tr> </thead> <tbody> <tr> <td colspan="2">MOTION-CONNECT 350</td> <td colspan="2">5</td> <td colspan="2">8</td> <td colspan="2">5</td> <td colspan="2">8</td> </tr> <tr> <td colspan="2">MOTION-CONNECT 380</td> <td colspan="2">8</td> <td colspan="2">5</td> <td colspan="2">8</td> <td colspan="2">5</td> </tr> <tr> <td colspan="2">Brake cores</td> <td colspan="2">C</td> <td colspan="2">D</td> <td colspan="2">C</td> <td colspan="2">D</td> </tr> <tr> <td colspan="2">Without</td> <td colspan="2">C</td> <td colspan="2">D</td> <td colspan="2">C</td> <td colspan="2">D</td> </tr> <tr> <td colspan="2">With</td> <td colspan="2">D</td> <td colspan="2">C</td> <td colspan="2">D</td> <td colspan="2">C</td> </tr> <tr> <td colspan="2">Outlet direction</td> <td colspan="2">D</td> <td colspan="2">N</td> <td colspan="2">D</td> <td colspan="2">N</td> </tr> <tr> <td colspan="2">Drive end (DE)</td> <td colspan="2">D</td> <td colspan="2">N</td> <td colspan="2">D</td> <td colspan="2">N</td> </tr> <tr> <td colspan="2">Non drive end (NDE)</td> <td colspan="2">N</td> <td colspan="2">D</td> <td colspan="2">N</td> <td colspan="2">D</td> </tr> <tr> <td colspan="2">Length</td> <td colspan="2">A</td> <td colspan="2">D</td> <td colspan="2">A</td> <td colspan="2">D</td> </tr> <tr> <td colspan="2">3 m</td> <td colspan="2">A</td> <td colspan="2">D</td> <td colspan="2">A</td> <td colspan="2">D</td> </tr> <tr> <td colspan="2">5 m</td> <td colspan="2">A</td> <td colspan="2">F</td> <td colspan="2">A</td> <td colspan="2">F</td> </tr> <tr> <td colspan="2">7 m</td> <td colspan="2">A</td> <td colspan="2">H</td> <td colspan="2">A</td> <td colspan="2">H</td> </tr> <tr> <td colspan="2">10 m</td> <td colspan="2">B</td> <td colspan="2">A</td> <td colspan="2">B</td> <td colspan="2">A</td> </tr> <tr> <td colspan="2">15 m</td> <td colspan="2">B</td> <td colspan="2">F</td> <td colspan="2">B</td> <td colspan="2">F</td> </tr> <tr> <td colspan="2">20 m</td> <td colspan="2">C</td> <td colspan="2">A</td> <td colspan="2">C</td> <td colspan="2">A</td> </tr> <tr> <td colspan="2">30 m</td> <td colspan="2">D</td> <td colspan="2">A</td> <td colspan="2">D</td> <td colspan="2">A</td> </tr> </tbody> </table>										Connection system		5		8		5		8		MOTION-CONNECT 350		5		8		5		8		MOTION-CONNECT 380		8		5		8		5		Brake cores		C		D		C		D		Without		C		D		C		D		With		D		C		D		C		Outlet direction		D		N		D		N		Drive end (DE)		D		N		D		N		Non drive end (NDE)		N		D		N		D		Length		A		D		A		D		3 m		A		D		A		D		5 m		A		F		A		F		7 m		A		H		A		H		10 m		B		A		B		A		15 m		B		F		B		F		20 m		C		A		C		A		30 m		D		A		D		A	
Connection system		5		8		5		8																																																																																																																																																																											
MOTION-CONNECT 350		5		8		5		8																																																																																																																																																																											
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Brake cores		C		D		C		D																																																																																																																																																																											
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Outlet direction		D		N		D		N																																																																																																																																																																											
Drive end (DE)		D		N		D		N																																																																																																																																																																											
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<sup>1)</sup> No. of cores x cross-section for encoder cable in mm<sup>2</sup> for:  
 Length <20 m: 3 x 2 x 0.25  
 Length ≥ 20 m: 2 x 2 x 0.25 + 2 x 0.38

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## Selection and ordering data

SIMOTICS S-1FL2 servomotors – Further info in section "SIMOTICS S-1FL2 servomotors"

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current		Torque constant	Moment of inertia of rotor	Recommended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100\text{ K}$	$M_0$ at $\Delta T=100\text{ K}$	$M_N$ at $\Delta T=100\text{ K}$	$M_{max}$	$I_N$ at $\Delta T=100\text{ K}$	$I_{max}$	Article No.		$J_{without\ brake}$	$J_{with\ brake}$	$m_{without\ brake}$	$m_{with\ brake}$
r/min	kW (hp)	Nm	Nm	Nm	A	A		Nm/A	kg cm <sup>2</sup>	kg cm <sup>2</sup>	kg	kg

## SIMOTICS S-1FL2 Low Inertia servomotors – For high dynamic performance

Shaft height 20 – Rated speed  $n_N$  3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.05 (0.07)	0.16	0.16	0.56	0.81	3.1	1FL2102-2AG ■ ■ - ■ ■ C 0	0.2	0.017	0.022	40x	0.29	0.46
6500	0.10 (0.14)	0.32	0.32	1.12	0.76	2.95	1FL2102-4AG ■ ■ - ■ ■ C 0	0.42	0.029	0.034	30x	0.39	0.56

Shaft height 20 – Rated speed  $n_N$  3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.05 (0.07)	0.16	0.16	0.56	0.84	3.4	1FL2102-2AF ■ ■ - ■ ■ C 0	0.19	0.017	0.022	40x	0.29	0.45
6500	0.10 (0.14)	0.32	0.32	1.12	0.81	2.9	1FL2102-4AF ■ ■ - ■ ■ C 0	0.4	0.029	0.034	30x	0.38	0.55

Shaft height 30 – Rated speed  $n_N$  3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.20 (0.27)	0.64	0.64	2.24	1.28	4.8	1FL2103-2AG ■ ■ - ■ ■ C 0	0.5	0.08	0.11	30x	0.79	1.14
6500	0.40 (0.54)	1.27	1.27	4.45	2.4	8.7	1FL2103-4AG ■ ■ - ■ ■ C 0	0.53	0.155	0.185		1.16	1.5

Shaft height 30 – Rated speed  $n_N$  3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.20 (0.27)	0.64	0.64	2.24	1.3	4.8	1FL2103-2AF ■ ■ - ■ ■ C 0	0.49	0.08	0.11	30x	0.78	1.12
6500	0.40 (0.54)	1.27	1.27	4.45	1.3	4.8	1FL2103-4AF ■ ■ - ■ ■ C 0	0.98	0.155	0.185		1.14	1.49

Shaft height 40 – Rated speed  $n_N$  3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.75 (1.02)	2.4	2.4	8	4.4	16	1FL2104-2AG ■ ■ - ■ ■ C 0	0.55	0.5	0.58	20x	2.7	3.5
6500	1.00 (1.36)	3.2	3.2	10.8	4.4	16	1FL2104-4AG ■ ■ - ■ ■ C 0	0.73	0.63	0.71		3.3	4.1

Shaft height 40 – Rated speed  $n_N$  3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.75 (1.02)	2.4	2.4	8	2.1	7.6	1FL2104-2AF ■ ■ - ■ ■ C 0	1.14	0.5	0.58	20x	2.7	3.5
6500	1.00 (1.36)	3.2	3.2	10.8	3	10.9	1FL2104-4AF ■ ■ - ■ ■ C 0	1.07	0.63	0.71		3.3	4.1

Shaft height 52 – Rated speed  $n_N$  3000 r/min – Line voltage 380 ... 480 V 3 AC

6000	1.45 (2.04)	5	4.6	15.9	4.35	18	1FL2105-2AF ■ 1 - ■ ■ B 0	1.08	1.71	2.54	20x	5.5	6.4
6000	2.10 (2.72)	8	6.6	25.3	5.6	24	1FL2105-4AF ■ 1 - ■ ■ B 0	1.19	2.65	3.48	15x	7.8	8.7

## Brake

Without	0
Holding brake	1

## Degree of protection

IP54	0
IP65 (with shaft sealing ring)	1

## Shaft end, feather key

Plain shaft	0
Shaft with feather key (half-key balancing)	1

## Encoder

Absolute encoder 17-bit singleturn	H S M
Absolute encoder 21-bit singleturn	
Absolute encoder 21-bit singleturn + 12-bit multeturn	

## Connection technology

Metal circular connector	B C
Metal hybrid connector	

Detailed information on SINAMICS S200 is available on the internet at: [www.siemens.com/sinamics-s200](http://www.siemens.com/sinamics-s200)In addition, the Siemens Product Configurator can be used on the internet: [www.siemens.com/sinamics-s200/configuration](http://www.siemens.com/sinamics-s200/configuration)

<sup>1)</sup> Rated torque, rated power and maximum torque listed in the table above allow for a production tolerance of 10 %.

<sup>2)</sup> Motor weight with absolute encoder 17-bit singleturn.

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SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Low Inertia servomotors

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MOTION-CONNECT connection systems (continued) – Further info in section "MOTION-CONNECT 350 and 380 connection systems".						
Pre-assembled dual cables for communication		Connectors				
SINAMICS S200 – Brake on the 1FL2 servomotor with holding brake		Drive end (DE) direction	Non drive end (NDE) direction	Motor side		
No. of cores x cross-section mm <sup>2</sup>	Article No.	for hybrid connection Article No.	for hybrid connection Article No.	for power connection Article No.	for encoder connection Article No.	for brake Article No.

MOTION-CONNECT connection systems (continued)

-	-	6FX2003-3HD00	6FX2003-3HN00	-	-	-
-	-	6FX2003-3HD00	6FX2003-3HN00	-	-	-
-	-	6FX2003-3HD00	6FX2003-3HN00	-	-	-
-	-	6FX2003-3HD00	6FX2003-3HN00	-	-	-
-	-	6FX2003-3HD00	6FX2003-3HN00	-	-	-
-	-	6FX2003-3HD00	6FX2003-3HN00	-	-	-
-	-	-	-	6FX2003-0LL63	6FX2003-0DB63	- (in power connector)

MOTION-CONNECT connectors for SINAMICS S200 servo converters						
Crimp contacts "power and PE" (2000 pieces per reel) for hybrid connection		Crimp contacts "signal and brake" (2000 pieces per reel) for hybrid connection		Connectors converter side		
				for power connection	IX signal connector, C coded for encoder connection	for brake
6FX2003-7HP00		6FX2003-7HS00		-	6FX2003-0DE61	-

## System overview

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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Medium Inertia servomotors

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## Selection and ordering data

SIMOTICS S-1FL2 servomotors – Further info in section "SIMOTICS S-1FL2 servomotors".

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current	Article No.	Torque constant	Moment of inertia of rotor	Recommended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100$ K	$M_0$ at $\Delta T=100$ K	$M_N$ at $\Delta T=100$ K	$M_{max}$	$I_N$ at $\Delta T=100$ K	$I_{max}$			$J_{without}$ brake	$J_{with}$ brake	$m_{without}$ brake	$m_{with}$ brake
r/min	kW (hp)	Nm	Nm	Nm	A	A		Nm/A	kg cm <sup>2</sup>	kg cm <sup>2</sup>	kg	kg

## SIMOTICS S-1FL2 Medium Inertia servomotors – For dynamic and smooth operational performance

Shaft height 30 – Rated speed  $n_N$  3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.20 (0.27)	0.64	0.64	2.24	1.33	4.8	1FL2203-2AG ■ ■ - ■ ■ C 0	0.48	0.18	0.21	30×	0.76	1.11
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6500	0.40 (0.54)	1.27	1.27	4.45	2.4	8.7	1FL2203-4AG ■ ■ - ■ ■ C 0	0.53	0.35	0.38		1.11	1.46
------	-------------	------	------	------	-----	-----	---------------------------	------	------	------	--	------	------

Shaft height 30 – Rated speed  $n_N$  3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.20 (0.27)	0.64	0.64	2.24	1.3	4.8	1FL2203-2AF ■ ■ - ■ ■ C 0	0.49	0.18	0.21	30×	0.77	1.12
------	-------------	------	------	------	-----	-----	---------------------------	------	------	------	-----	------	------

6500	0.40 (0.54)	1.27	1.27	4.45	1.3	4.8	1FL2203-4AF ■ ■ - ■ ■ C 0	0.98	0.35	0.38		1.09	1.44
------	-------------	------	------	------	-----	-----	---------------------------	------	------	------	--	------	------

Shaft height 40 – Rated speed  $n_N$  3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.75 (1.02)	2.4	2.4	7.5	4.4	14.2	1FL2204-2AG ■ ■ - ■ ■ C 0	0.55	1.23	1.31	15×	2.6	3.4
------	-------------	-----	-----	-----	-----	------	---------------------------	------	------	------	-----	-----	-----

6500	1.00 (1.36)	3.2	3.2	11.3	4.4	16	1FL2204-4AG ■ ■ - ■ ■ C 0	0.73	1.61	1.69		3.1	3.9
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Shaft height 40 – Rated speed  $n_N$  3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.75 (1.02)	2.4	2.4	7.5	2.25	7.1	1FL2204-2AF ■ ■ - ■ ■ C 0	1.07	1.23	1.31	15×	2.6	3.4
------	-------------	-----	-----	-----	------	-----	---------------------------	------	------	------	-----	-----	-----

6500	1.00 (1.36)	3.2	3.2	10	3	9.9	1FL2204-4AF ■ ■ - ■ ■ C 0	1.07	1.61	1.69		3.1	3.9
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Shaft height 48 – Rated speed  $n_N$  3000 r/min – Line voltage 380 ... 480 V 3 AC

6000	0.94 (1.36)	3.6	3	11.5	2.5	9.5	1FL2205-2AF ■ 1 - ■ ■ B 0	1.24	3.15	4.03	15×	3.6	4.7
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6000	1.45 (2.04)	6	4.6	19.3	3.75	15.1	1FL2205-4AF ■ 1 - ■ ■ B 0	1.28	5.1	5.98		5	6.1
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## Brake

Without  
Holding brake0  
1

## Degree of protection

IP54  
IP65 (with shaft sealing ring)0  
1

## Shaft end, feather key

Plain shaft  
Shaft with feather key (half-key balancing)0  
1

## Encoder

Absolute encoder 17-bit singleturn  
Absolute encoder 21-bit singleturn  
Absolute encoder 21-bit singleturn + 12-bit multeturnH  
S  
M

## Connection technology

Metal circular connector  
Metal hybrid connectorB  
CDetailed information on SINAMICS S200 is available on the internet at: [www.siemens.com/sinamics-s200](http://www.siemens.com/sinamics-s200)In addition, the Siemens Product Configurator can be used on the internet: [www.siemens.com/sinamics-s200/configuration](http://www.siemens.com/sinamics-s200/configuration)

1) Rated torque, rated power and maximum torque listed in the table above allow for a production tolerance of 10 %.

2) Motor weight with absolute encoder 17-bit singleturn.

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System overview

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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Medium Inertia servomotors

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SINAMICS S200 servo converters Further info in section "SINAMICS S200 servo converters".		Line filter	Recommended standard fuse		Recommended circuit breaker
Max. motor power		Frame size	More information at <a href="http://www.siemens.com/sinamics-s200/ocpd">www.siemens.com/sinamics-s200/ocpd</a>		IEC/UL-cUL-compliant
kW (hp)    Article No.		Line voltage $I_N$	/    3NA3	/    Fuse type	3RV2
		V                    A    Article No.	A    Article No.	A    Class	Article No.
<b>SINAMICS S200 and SINAMICS S200 Basic servo converters</b>					
<b>Line voltage 200 ... 240 V 1 AC / 3 AC</b>					
0.20 (0.27)	<b>6SL5 10-1BB10-2A 0</b>	FSA	1 AC 200 ... 240 18	<b>6SL5550-0XB21-8CA0</b>	4 <b>3NA3804</b> 3    J <b>3RV2011-1EA10</b>
			3 AC 200 ... 240 5	<b>6SL3203-0BE15-0VA0</b>	
0.40 (0.54)	<b>6SL5 10-1BB10-4A 0</b>	FSB	1 AC 200 ... 240 18	<b>6SL5550-0XB21-8CA0</b>	6 <b>3NA3801</b> 6    J <b>3RV2011-1HA10</b>
			3 AC 200 ... 240 5	<b>6SL3203-0BE15-0VA0</b>	<b>3RV2011-1EA10</b>
<b>Line voltage 380 ... 480 V 3 AC</b>					
0.20 (0.27)	<b>6SL5 5 10-1BE10-2A 0</b>	FSA	3 AC 380 ... 480 5	<b>6SL5550-0XE20-5CA0</b>	4 <b>3NA3804</b> 3    J <b>3RV2011-1CA10</b>
0.40 (0.54)	<b>6SL5 5 10-1BE10-4A 0</b>				<b>3RV2011-1DA10</b>
<b>Line voltage 200 ... 240 V 1 AC / 3 AC</b>					
0.75 (1.02)	<b>6SL5 10-1BB10-8A 0</b>	FSC	1 AC 200 ... 240 18	<b>6SL5550-0XB21-8CA0</b>	16 <b>3NA3805</b> 15    J <b>3RV2011-1KA10</b>
			3 AC 200 ... 240 5	<b>6SL3203-0BE15-0VA0</b>	<b>3RV2011-1HA10</b>
1.00 (1.36)	<b>6SL5 10-1BB11-0A 0</b>	FSC	1 AC 200 ... 240 18	<b>6SL5550-0XB21-8CA0</b>	16 <b>3NA3805</b> 15    J <b>3RV2011-1KA10</b>
			3 AC 200 ... 240 5	<b>6SL3203-0BE15-0VA0</b>	<b>3RV2011-1JA10</b>
<b>Line voltage 380 ... 480 V 3 AC</b>					
0.75 (1.02)	<b>6SL5 5 10-1BE10-8A 0</b>	FSB	3 AC 380 ... 480 5	<b>6SL5550-0XE20-5CA0</b>	10 <b>3NA3803</b> 10    J <b>3RV2011-1EA10</b>
1.00 (1.36)	<b>6SL5 5 10-1BE11-0A 0</b>				<b>3RV2011-1FA10</b>
<b>Line voltage 380 ... 480 V 3 AC</b>					
1.00 (1.36)	<b>6SL5 5 10-1BE11-0A 0</b>	FSB	3 AC 380 ... 480 5	<b>6SL3203-0BE15-0VA0</b>	10 <b>3NA3803</b> 10    J <b>3RV2011-1FA10</b>
1.75 (2.38)	<b>6SL5 5 10-1BE11-5A 0</b>	FSC	3 AC 380 ... 480 12	<b>6SL5550-0XE21-2CA0</b>	16 <b>3NA3805</b> 15 <b>3RV2011-4AA10</b>
<b>Servo converter</b>					
SINAMICS S200		<b>5</b>			
SINAMICS S200 Basic		<b>6</b>			
<b>Version</b>					
Pulse Train Input (PTI)		<b>A</b>			
PROFINET (PN)		<b>F</b>			



## System overview

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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Medium Inertia servomotors

## Selection and ordering data

SIMOTICS S-1FL2 servomotors – Further info in section "SIMOTICS S-1FL2 servomotors".

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current		Torque constant	Moment of inertia of rotor		Recommended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100\text{ K}$	$M_0$ at $\Delta T=100\text{ K}$	$M_N$ at $\Delta T=100\text{ K}$	$M_{max}$	$I_N$ at $\Delta T=100\text{ K}$	$I_{max}$	Article No.	Nm/A	$J_{without\ brake}$	$J_{with\ brake}$		$m_{without\ brake}$	$m_{with\ brake}$
r/min	kW (hp)	Nm	Nm	Nm	A	A			kg cm <sup>2</sup>	kg cm <sup>2</sup>		kg	kg
<b>SIMOTICS S-1FL2 Medium Inertia servomotors – For dynamic and smooth operational performance</b>													
<b>Shaft height 30 – Rated speed <math>n_N</math> 3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC</b>													
6500	0.20 (0.27)	0.64	0.64	2.24	1.33	4.8	1FL2203-2AG ■ ■ - ■ ■ C 0	0.48	0.18	0.21	30×	0.76	1.11
6500	0.40 (0.54)	1.27	1.27	4.45	2.4	8.7	1FL2203-4AG ■ ■ - ■ ■ C 0	0.53	0.35	0.38		1.11	1.46
<b>Shaft height 30 – Rated speed <math>n_N</math> 3000 r/min – Line voltage 380 ... 480 V 3 AC</b>													
6500	0.20 (0.27)	0.64	0.64	2.24	1.3	4.8	1FL2203-2AF ■ ■ - ■ ■ C 0	0.49	0.18	0.21	30×	0.77	1.12
6500	0.40 (0.54)	1.27	1.27	4.45	1.3	4.8	1FL2203-4AF ■ ■ - ■ ■ C 0	0.98	0.35	0.38		1.09	1.44
<b>Shaft height 40 – Rated speed <math>n_N</math> 3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC</b>													
6500	0.75 (1.02)	2.4	2.4	7.5	4.4	14.2	1FL2204-2AG ■ ■ - ■ ■ C 0	0.55	1.23	1.31	15×	2.6	3.4
6500	1.00 (1.36)	3.2	3.2	11.3	4.4	16	1FL2204-4AG ■ ■ - ■ ■ C 0	0.73	1.61	1.69		3.1	3.9
<b>Shaft height 40 – Rated speed <math>n_N</math> 3000 r/min – Line voltage 380 ... 480 V 3 AC</b>													
6500	0.75 (1.02)	2.4	2.4	7.5	2.25	7.1	1FL2204-2AF ■ ■ - ■ ■ C 0	1.07	1.23	1.31	15×	2.6	3.4
6500	1.00 (1.36)	3.2	3.2	10	3	9.9	1FL2204-4AF ■ ■ - ■ ■ C 0	1.07	1.61	1.69		3.1	3.9
<b>Shaft height 48 – Rated speed <math>n_N</math> 3000 r/min – Line voltage 380 ... 480 V 3 AC</b>													
6000	0.94 (1.36)	3.6	3	11.5	2.5	9.5	1FL2205-2AF ■ 1 - ■ ■ B 0	1.24	3.15	4.03	15×	3.6	4.7
6000	1.45 (2.04)	6	4.6	19.3	3.75	15.1	1FL2205-4AF ■ 1 - ■ ■ B 0	1.28	5.1	5.98		5	6.1

<b>Brake</b>	
Without	0
Holding brake	1
<b>Degree of protection</b>	
IP54	0
IP65 (with shaft sealing ring)	1
<b>Shaft end, feather key</b>	
Plain shaft	0
Shaft with feather key (half-key balancing)	1
<b>Encoder</b>	
Absolute encoder 17-bit singleturn	H
Absolute encoder 21-bit singleturn	S
Absolute encoder 21-bit singleturn + 12-bit multiturn	M
<b>Connection technology</b>	
Metal circular connector	B
Metal hybrid connector	C

Detailed information on SINAMICS S200 is available on the internet at: [www.siemens.com/sinamics-s200](http://www.siemens.com/sinamics-s200)In addition, the Siemens Product Configurator can be used on the internet: [www.siemens.com/sinamics-s200/configuration](http://www.siemens.com/sinamics-s200/configuration)

<sup>1)</sup> Rated torque, rated power and maximum torque listed in the table above allow for a production tolerance of 10 %.

<sup>2)</sup> Motor weight with absolute encoder 17-bit singleturn.

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SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Medium Inertia servomotors

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MOTION-CONNECT connection systems – Further info in section "MOTION-CONNECT 350 and 380 connection systems".						
Pre-assembled dual cables for power and communication		Pre-assembled power cables		Pre-assembled dual cables for communication		
No. of cores × cross-section mm <sup>2</sup>	Article No.	No. of cores × cross-section mm <sup>2</sup>	Article No.	No. of cores × cross-section mm <sup>2</sup>	Article No.	
<b>MOTION-CONNECT connection systems</b>						
4 × 0.75 / 3 × 2 × 0.25 <sup>1)</sup> or 4 × 0.75 / 3 × 2 × 0.25 <sup>1)</sup> / 2 × 0.38	6FX3 02-7 01-1 0	-	-	-	-	
4 × 0.75 / 3 × 2 × 0.25 <sup>1)</sup> or 4 × 0.75 / 3 × 2 × 0.25 <sup>1)</sup> / 2 × 0.38	6FX3 02-7 01-1 0	-	-	-	-	
4 × 0.75 / 3 × 2 × 0.25 <sup>1)</sup> or 4 × 0.75 / 3 × 2 × 0.25 <sup>1)</sup> / 2 × 0.38	6FX3 02-7 01-1 0	-	-	-	-	
4 × 0.75 / 3 × 2 × 0.25 <sup>1)</sup> or 4 × 0.75 / 3 × 2 × 0.25 <sup>1)</sup> / 2 × 0.38	6FX3 02-7 01-1 0	-	-	-	-	
-	-	4 × 0.75 or 4 × 0.75 / 2 × 0.38	6FX3 02-5 K32-1 0	3 × 2 × 0.25 <sup>1)</sup>	6FX3 02-2XB11-1 0	
<b>Connection system</b> MOTION-CONNECT 350 MOTION-CONNECT 380	5 8			5 8		5 8
<b>Brake cores</b> Without With		C D		C D		
<b>Outlet direction</b> Drive end (DE) Non drive end (NDE)		D N				
<b>Length</b> 3 m 5 m 7 m 10 m 15 m 20 m 30 m		A A A B B C D	D F H A A A A		A A A B B C D	D F H A A B F C D

<sup>1)</sup> No. of cores × cross-section for encoder cable in mm<sup>2</sup> for:  
 Length <20 m: 3 × 2 × 0.25  
 Length ≥ 20 m: 2 × 2 × 0.25 + 2 × 0.38

# System overview

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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Medium Inertia servomotors

### Selection and ordering data

**SIMOTICS S-1FL2 servomotors** – Further info in section "SIMOTICS S-1FL2 servomotors".

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current		Torque constant	Moment of inertia of rotor		Recommended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100\text{ K}$	$M_0$ at $\Delta T=100\text{ K}$	$M_N$ at $\Delta T=100\text{ K}$	$M_{max}$	$I_N$ at $\Delta T=100\text{ K}$	$I_{max}$	Article No.	Nm/A	$J_{without\ brake}$	$J_{with\ brake}$		$m_{without\ brake}$	$m_{with\ brake}$
r/min	kW (hp)	Nm	Nm	Nm	A	A			kg cm <sup>2</sup>	kg cm <sup>2</sup>		kg	kg

### SIMOTICS S-1FL2 Medium Inertia servomotors – For dynamic and smooth operational performance

#### Shaft height 30 – Rated speed $n_N$ 3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.20 (0.27)	0.64	0.64	2.24	1.33	4.8	<b>1FL2203-2AG</b> ■ ■ - ■ ■ C 0	0.48	0.18	0.21	30x	0.76	1.11
6500	0.40 (0.54)	1.27	1.27	4.45	2.4	8.7	<b>1FL2203-4AG</b> ■ ■ - ■ ■ C 0	0.53	0.35	0.38		1.11	1.46

#### Shaft height 30 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.20 (0.27)	0.64	0.64	2.24	1.3	4.8	<b>1FL2203-2AF</b> ■ ■ - ■ ■ C 0	0.49	0.18	0.21	30x	0.77	1.12
6500	0.40 (0.54)	1.27	1.27	4.45	1.3	4.8	<b>1FL2203-4AF</b> ■ ■ - ■ ■ C 0	0.98	0.35	0.38		1.09	1.44

#### Shaft height 40 – Rated speed $n_N$ 3000 r/min – Line voltage 200 ... 240 V 1 AC / 3 AC

6500	0.75 (1.02)	2.4	2.4	7.5	4.4	14.2	<b>1FL2204-2AG</b> ■ ■ - ■ ■ C 0	0.55	1.23	1.31	15x	2.6	3.4
6500	1.00 (1.36)	3.2	3.2	11.3	4.4	16	<b>1FL2204-4AG</b> ■ ■ - ■ ■ C 0	0.73	1.61	1.69		3.1	3.9

#### Shaft height 40 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

6500	0.75 (1.02)	2.4	2.4	7.5	2.25	7.1	<b>1FL2204-2AF</b> ■ ■ - ■ ■ C 0	1.07	1.23	1.31	15x	2.6	3.4
6500	1.00 (1.36)	3.2	3.2	10	3	9.9	<b>1FL2204-4AF</b> ■ ■ - ■ ■ C 0	1.07	1.61	1.69		3.1	3.9

#### Shaft height 48 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

6000	0.94 (1.36)	3.6	3	11.5	2.5	9.5	<b>1FL2205-2AF</b> ■ 1 - ■ ■ B 0	1.24	3.15	4.03	15x	3.6	4.7
6000	1.45 (2.04)	6	4.6	19.3	3.75	15.1	<b>1FL2205-4AF</b> ■ 1 - ■ ■ B 0	1.28	5.1	5.98		5	6.1

<b>Brake</b> Without Holding brake	0 1
<b>Degree of protection</b> IP54 IP65 (with shaft sealing ring)	0 1
<b>Shaft end, feather key</b> Plain shaft Shaft with feather key (half-key balancing)	0 1
<b>Encoder</b> Absolute encoder 17-bit singleturn Absolute encoder 21-bit singleturn Absolute encoder 21-bit singleturn + 12-bit multiturn	H S M
<b>Connection technology</b> Metal circular connector Metal hybrid connector	B C

Detailed information on SINAMICS S200 is available on the internet at: [www.siemens.com/sinamics-s200](http://www.siemens.com/sinamics-s200)

In addition, the Siemens Product Configurator can be used on the internet: [www.siemens.com/sinamics-s200/configuration](http://www.siemens.com/sinamics-s200/configuration)

<sup>1)</sup> Rated torque, rated power and maximum torque listed in the table above allow for a production tolerance of 10 %.

<sup>2)</sup> Motor weight with absolute encoder 17-bit singleturn.

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SINAMICS S200 servo drive system with SIMOTICS S-1FL2 Medium Inertia servomotors

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MOTION-CONNECT connection systems (continued) – Further info in section "MOTION-CONNECT 350 and 380 connection systems".						
Pre-assembled dual cables for communication		Connectors				
SINAMICS S200 – Brake on the 1FL2 servomotor with holding brake		Drive end (DE) direction	Non drive end (NDE) direction	Motor side		
No. of cores x cross-section mm <sup>2</sup>	Article No.	for hybrid connection Article No.	for hybrid connection Article No.	for power connection Article No.	for encoder connection Article No.	for brake Article No.
<b>MOTION-CONNECT connection systems (continued)</b>						
-	-	<b>6FX2003-3HD00</b>	<b>6FX2003-3HN00</b>	-	-	-
-	-	<b>6FX2003-3HD00</b>	<b>6FX2003-3HN00</b>	-	-	-
-	-	<b>6FX2003-3HD00</b>	<b>6FX2003-3HN00</b>	-	-	-
-	-	<b>6FX2003-3HD00</b>	<b>6FX2003-3HN00</b>	-	-	-
-	-	-	-	<b>6FX2003-0LL63</b>	<b>6FX2003-0DB63</b>	- (in power connector)
<b>MOTION-CONNECT connectors for SINAMICS S200 servo converters</b>						
Crimp contacts "power and PE" (2000 pieces per reel) for hybrid connection		Crimp contacts "signal and brake" (2000 pieces per reel) for hybrid connection		Connectors converter side		
				for power connection	IX signal connector, C coded for encoder connection	for brake
<b>6FX2003-7HP00</b>		<b>6FX2003-7HS00</b>		-	<b>6FX2003-0DE61</b>	-

# System overview

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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 High Inertia servomotors

### Selection and ordering data

**SIMOTICS S-1FL2 servomotors** – Further info in section "SIMOTICS S-1FL2 servomotors".

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current	Article No.	Torque constant	Moment of inertia of rotor	Recom- mended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100\text{ K}$	$M_0$ at $\Delta T=100\text{ K}$	$M_N$ at $\Delta T=100\text{ K}$	$M_{max}$	$I_N$ at $\Delta T=100\text{ K}$	$I_{max}$			$J_{without\ brake}$	$J_{with\ brake}$	$m_{without\ brake}$	$m_{with\ brake}$
r/min	kW (hp)	Nm	Nm	Nm	A	A		Nm/A	kg cm <sup>2</sup>	kg cm <sup>2</sup>	kg	kg

### SIMOTICS S-1FL2 High Inertia servomotors – For smooth operational performance

#### Shaft height 45 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

4000	0.40 (0.54)	1.45	1.27	4.445	1.2	4.2	<b>1FL2304-2AF</b> ■ 1 - ■ ■ B 0	1.12	2.69	3.05	10x	3.5	4.9
4000	0.75 (1.02)	3.02	2.39	8.365	2.1	7.3	<b>1FL2304-4AF</b> ■ 1 - ■ ■ B 0	1.21	5.18	5.54		5.4	6.8

#### Shaft height 65 – Rated speed $n_N$ 2000 r/min – Line voltage 380 ... 480 V 3 AC

3000	0.75 (1.02)	3.7	3.58	12	2.5	8.4	<b>1FL2306-1AC</b> ■ 1 - ■ ■ B 0	1.48	7.962	9.57	10x	5.9	8.9
3000	1.00 (1.36)	5	4.78	17	3	10.7	<b>1FL2306-2AC</b> ■ 1 - ■ ■ B 0	1.67	11.65	13.26	5x	7.3	10.3
3000	1.50 (2.04)	8	7.16	22	4.6	14.1	<b>1FL2306-4AC</b> ■ 1 - ■ ■ B 0	1.63	15.287	16.9		8.6	11.6
3000	1.75 (2.38)	8.8	8.4	30	5.3	19	<b>1FL2306-6AC</b> ■ 1 - ■ ■ B 0	1.66	22.612	24.22		11.1	14.1
3000	2.00 (2.72)	13.3	9.6	33.425	5.9	20.7	<b>1FL2306-7AC</b> ■ 1 - ■ ■ B 0	1.71	29.938	31.55		13.7	16.7

#### Shaft height 90 – Rated speed $n_N$ 2000 r/min – Line voltage 380 ... 480 V 3 AC

3000	2.50 (3.40)	12.6	11.9	37.5	7.8	25.2	<b>1FL2310-0AC</b> ■ 1 - ■ ■ B 0	1.62	47.409	56.78	5x	15.4	21.4
3000	3.50 (4.76)	18.1	16.7	55	11	36.2	<b>1FL2310-2AC</b> ■ 1 - ■ ■ B 0	1.65	69.095	78.47		19.4	25.4
2500	5.00 (6.80)	25.2	23.9	70	12.6	36.9	<b>1FL2310-4AC</b> ■ 1 - ■ ■ B 0	2	90.827	100.2		23.7	29.7
2000	7.00 (9.52)	35.2	33.4	90	13.2	35.6	<b>1FL2310-6AC</b> ■ 1 - ■ ■ B 0	2.67	134.292	143.66		31.9	37.9

<b>Brake</b> Without Holding brake	0 1
<b>Degree of protection</b> IP54 IP65 (with shaft sealing ring)	0 1
<b>Shaft end, feather key</b> Plain shaft Shaft with feather key (half-key balancing)	0 1
<b>Encoder</b> Absolute encoder 17-bit singleturn Absolute encoder 21-bit singleturn Absolute encoder 21-bit singleturn + 12-bit multeturn	H S M
<b>Connection technology</b> Metal circular connector Metal hybrid connector	B C

Detailed information on SINAMICS S200 is available on the internet at: [www.siemens.com/sinamics-s200](http://www.siemens.com/sinamics-s200)

In addition, the Siemens Product Configurator can be used on the internet: [www.siemens.com/sinamics-s200/configuration](http://www.siemens.com/sinamics-s200/configuration)

<sup>1)</sup> Rated torque, rated power and maximum torque listed in the table above allow for a production tolerance of 10 %.

<sup>2)</sup> Motor weight with absolute encoder 17-bit singleturn.

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SINAMICS S200 servo drive system with SIMOTICS S-1FL2 High Inertia servomotors

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SINAMICS S200 servo converters Further info in section "SINAMICS S200 servo converters".		Line filter			Recommended standard fuse			Recommended circuit breaker	
Max. motor power		Frame size	With one of the recommended line filters, IEC 61800-3 category C2 can be reached in combination with SINAMICS S200 for motor cable lengths up to 30 m (98.5 ft).			More information at <a href="http://www.siemens.com/sinamics-s200/ocpd">www.siemens.com/sinamics-s200/ocpd</a>		IEC/UL-compliant	
kW (hp)    Article No.			Line voltage	$I_N$	Article No.	/    3NA3	/    Fuse type	IEC/UL/cUL-compliant	
		V	A	Article No.	A    Article No.	A    Class	Article No.		
<b>SINAMICS S200 servo converters</b>									
<b>Line voltage 380 ... 480 V 3 AC</b>									
0.40 (0.54)	<b>6SL5 5 10-1BE10-4A ■ 0</b>	FSA	3 AC 380 ... 480	5	<b>6SL5550-0XE20-5CA0</b>	4	<b>3NA3804</b>	3 J	<b>3RV2011-1DA10</b>
0.75 (1.02)	<b>6SL5 5 10-1BE10-8A ■ 0</b>	FSB				10	<b>3NA3803</b>	10	<b>3RV2011-1EA10</b>
<b>Line voltage 380 ... 480 V 3 AC</b>									
0.75 (1.02)	<b>6SL5 5 10-1BE10-8A ■ 0</b>	FSB	3 AC 380 ... 480	5	<b>6SL5550-0XE20-5CA0</b>	10	<b>3NA3803</b>	10 J	<b>3RV2011-1EA10</b>
1.00 (1.36)	<b>6SL5 5 10-1BE11-0A ■ 0</b>								<b>3RV2011-1FA10</b>
1.75 (2.38)	<b>6SL5 5 10-1BE11-5A ■ 0</b>	FSC	3 AC 380 ... 480	12	<b>6SL5550-0XE21-2CA0</b>	16	<b>3NA3805</b>	15	<b>3RV2011-4AA10</b>
2.50 (3.40)	<b>6SL5 5 10-1BE12-5A ■ 0</b>								<b>3RV2011-4AA10</b>
<b>Line voltage 380 ... 480 V 3 AC</b>									
2.50 (3.40)	<b>6SL5 5 10-1BE12-5A ■ 0</b>	FSC	3 AC 380 ... 480	12	<b>6SL5550-0XE21-2CA0</b>	16	<b>3NA3805</b>	20 J	<b>3RV2011-4AA10</b>
3.50 (4.76)	<b>6SL5 5 10-1BE13-5A ■ 0</b>	FSD	3 AC 380 ... 480	20	<b>6SL5550-0XE22-0CA0</b>	20	<b>3NA3807</b>	25	<b>3RV2021-4BA10</b>
5.00 (6.80)	<b>6SL5 5 10-1BE15-0A ■ 0</b>								<b>3RV2021-4BA10</b>
7.00 (9.52)	<b>6SL5 5 10-1BE17-0A ■ 0</b>					25	<b>3NA3810</b>		<b>3RV2021-4DA10</b>

<b>Servo converter</b>	
SINAMICS S200	5
SINAMICS S200 Basic	6
<b>Version</b>	
Pulse Train Input (PTI)	A
PROFINET (PN)	F

## System overview

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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 High Inertia servomotors

## Selection and ordering data

SIMOTICS S-1FL2 servomotors – Further info in section "SIMOTICS S-1FL2 servomotors".

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current		Torque constant	Moment of inertia of rotor		Recommended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100\text{ K}$	$M_0$ at $\Delta T=100\text{ K}$	$M_N$ at $\Delta T=100\text{ K}$	$M_{max}$	$I_N$ at $\Delta T=100\text{ K}$	$I_{max}$	Article No.	Nm/A	$J_{without\ brake}$	$J_{with\ brake}$		$m_{without\ brake}$	$m_{with\ brake}$
r/min	kW (hp)	Nm	Nm	Nm	A	A			kg cm <sup>2</sup>	kg cm <sup>2</sup>		kg	kg

## SIMOTICS S-1FL2 High Inertia servomotors – For smooth operational performance

Shaft height 45 – Rated speed  $n_N$  3000 r/min – Line voltage 380 ... 480 V 3 AC

4000	0.40 (0.54)	1.45	1.27	4.445	1.2	4.2	<b>1FL2304-2AF</b> ■ 1 - ■ ■ B 0	1.12	2.69	3.05	10x	3.5	4.9
4000	0.75 (1.02)	3.02	2.39	8.365	2.1	7.3	<b>1FL2304-4AF</b> ■ 1 - ■ ■ B 0	1.21	5.18	5.54		5.4	6.8

Shaft height 65 – Rated speed  $n_N$  2000 r/min – Line voltage 380 ... 480 V 3 AC

3000	0.75 (1.02)	3.7	3.58	12	2.5	8.4	<b>1FL2306-1AC</b> ■ 1 - ■ ■ B 0	1.48	7.962	9.57	10x	5.9	8.9
3000	1.00(1.36)	5	4.78	17	3	10.7	<b>1FL2306-2AC</b> ■ 1 - ■ ■ B 0	1.67	11.65	13.26	5x	7.3	10.3
3000	1.50 (2.04)	8	7.16	22	4.6	14.1	<b>1FL2306-4AC</b> ■ 1 - ■ ■ B 0	1.63	15.287	16.9		8.6	11.6
3000	1.75 (2.38)	8.8	8.4	30	5.3	19	<b>1FL2306-6AC</b> ■ 1 - ■ ■ B 0	1.66	22.612	24.22		11.1	14.1
3000	2.00 (2.72)	13.3	9.6	33.425	5.9	20.7	<b>1FL2306-7AC</b> ■ 1 - ■ ■ B 0	1.71	29.938	31.55		13.7	16.7

Shaft height 90 – Rated speed  $n_N$  2000 r/min – Line voltage 380 ... 480 V 3 AC

3000	2.50 (3.40)	12.6	11.9	37.5	7.8	25.2	<b>1FL2310-0AC</b> ■ 1 - ■ ■ B 0	1.62	47.409	56.78	5x	15.4	21.4
3000	3.50 (4.76)	18.1	16.7	55	11	36.2	<b>1FL2310-2AC</b> ■ 1 - ■ ■ B 0	1.65	69.095	78.47		19.4	25.4
2500	5.00 (6.80)	25.2	23.9	70	12.6	36.9	<b>1FL2310-4AC</b> ■ 1 - ■ ■ B 0	2	90.827	100.2		23.7	29.7
2000	7.00 (9.52)	35.2	33.4	90	13.2	35.6	<b>1FL2310-6AC</b> ■ 1 - ■ ■ B 0	2.67	134.292	143.66		31.9	37.9

## Brake

Without  
Holding brake0  
1

## Degree of protection

IP54  
IP65 (with shaft sealing ring)0  
1

## Shaft end, feather key

Plain shaft  
Shaft with feather key (half-key balancing)0  
1

## Encoder

Absolute encoder 17-bit singleturn  
Absolute encoder 21-bit singleturn  
Absolute encoder 21-bit singleturn + 12-bit multeturnH  
S  
M

## Connection technology

Metal circular connector  
Metal hybrid connectorB  
CDetailed information on SINAMICS S200 is available on the internet at: [www.siemens.com/sinamics-s200](http://www.siemens.com/sinamics-s200)In addition, the Siemens Product Configurator can be used on the internet: [www.siemens.com/sinamics-s200/configuration](http://www.siemens.com/sinamics-s200/configuration)

<sup>1)</sup> Rated torque, rated power and maximum torque listed in the table above allow for a production tolerance of 10 %.

<sup>2)</sup> Motor weight with absolute encoder 17-bit singleturn.

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SINAMICS S200 servo drive system with SIMOTICS S-1FL2 High Inertia servomotors

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MOTION-CONNECT connection systems – Further info in section "MOTION-CONNECT 350 and 380 connection systems".						
Pre-assembled dual cables for power and communication		Pre-assembled power cables		Pre-assembled dual cables for communication		
No. of cores × cross-section mm <sup>2</sup>	Article No.	No. of cores × cross-section mm <sup>2</sup>	Article No.	No. of cores × cross-section mm <sup>2</sup>	Article No.	
<b>MOTION-CONNECT connection systems</b>						
–	–	4 × 0.75	6FX3 02-5 C L01-1 0	3 × 2 × 0.25 <sup>1)</sup>	6FX3 02-2XB12-1 0	
–	–	4 × 0.75	6FX3 02-5 C L01-1 0	3 × 2 × 0.25 <sup>1)</sup>	6FX3 02-2XB12-1 0	
–	–	4 × 1.5	6FX3 02-5 C L02-1 0	3 × 2 × 0.25 <sup>1)</sup>	6FX3 02-2XB12-1 0	
–	–	4 × 2.5	6FX3 02-5 C L12-1 0			
<b>Connection system</b>			5		5	
MOTION-CONNECT 350			8		8	
MOTION-CONNECT 380						
<b>Brake cores</b>						
Without				C		
With				D		
<b>Length</b>						
3 m				A D		A D
5 m				A F		A F
7 m				A H		A H
10 m				B A		B A
15 m				B F		B F
20 m				C A		C A
30 m				D A		D A

<sup>1)</sup> No. of cores × cross-section for encoder cable in mm<sup>2</sup> for:  
 Length <20 m: 3 × 2 × 0.25  
 Length ≥ 20 m: 2 × 2 × 0.25 + 2 × 0.38



# System overview

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## SINAMICS S200 servo drive system with SIMOTICS S-1FL2 High Inertia servomotors

### Selection and ordering data

**SIMOTICS S-1FL2 servomotors** – Further info in section "SIMOTICS S-1FL2 servomotors".

Max. speed	Rated power <sup>1)</sup>	Static torque	Rated torque <sup>1)</sup>	Max. torque <sup>1)</sup>	Rated current	Max. current	Article No.	Torque constant	Moment of inertia of rotor	Recommended load to motor inertia ratio, max.	Weight <sup>2)</sup>	
$n_{max}$	$P_N$ at $\Delta T=100\text{ K}$	$M_0$ at $\Delta T=100\text{ K}$	$M_N$ at $\Delta T=100\text{ K}$	$M_{max}$	$I_N$ at $\Delta T=100\text{ K}$	$I_{max}$			$J_{without\ brake}$	$J_{with\ brake}$	$m_{without\ brake}$	$m_{with\ brake}$
r/min	kW (hp)	Nm	Nm	Nm	A	A		Nm/A	kg cm <sup>2</sup>	kg cm <sup>2</sup>	kg	kg

### SIMOTICS S-1FL2 High Inertia servomotors – For smooth operational performance

#### Shaft height 45 – Rated speed $n_N$ 3000 r/min – Line voltage 380 ... 480 V 3 AC

4000	0.40 (0.54)	1.45	1.27	4.445	1.2	4.2	<b>1FL2304-2AF</b> ■ 1 - ■ ■ B 0	1.12	2.69	3.05	10x	3.5	4.9
4000	0.75 (1.02)	3.02	2.39	8.365	2.1	7.3	<b>1FL2304-4AF</b> ■ 1 - ■ ■ B 0	1.21	5.18	5.54		5.4	6.8

#### Shaft height 65 – Rated speed $n_N$ 2000 r/min – Line voltage 380 ... 480 V 3 AC

3000	0.75 (1.02)	3.7	3.58	12	2.5	8.4	<b>1FL2306-1AC</b> ■ 1 - ■ ■ B 0	1.48	7.962	9.57	10x	5.9	8.9
3000	1.00 (1.36)	5	4.78	17	3	10.7	<b>1FL2306-2AC</b> ■ 1 - ■ ■ B 0	1.67	11.65	13.26	5x	7.3	10.3
3000	1.50 (2.04)	8	7.16	22	4.6	14.1	<b>1FL2306-4AC</b> ■ 1 - ■ ■ B 0	1.63	15.287	16.9		8.6	11.6
3000	1.75 (2.38)	8.8	8.4	30	5.3	19	<b>1FL2306-6AC</b> ■ 1 - ■ ■ B 0	1.66	22.612	24.22		11.1	14.1
3000	2 (2.72)	13.3	9.6	33.425	5.9	20.7	<b>1FL2306-7AC</b> ■ 1 - ■ ■ B 0	1.71	29.938	31.55		13.7	16.7

#### Shaft height 90 – Rated speed $n_N$ 2000 r/min – Line voltage 380 ... 480 V 3 AC

3000	2.50 (3.40)	12.6	11.9	37.5	7.8	25.2	<b>1FL2310-0AC</b> ■ 1 - ■ ■ B 0	1.62	47.409	56.78	5x	15.4	21.4
3000	3.50 (4.76)	18.1	16.7	55	11	36.2	<b>1FL2310-2AC</b> ■ 1 - ■ ■ B 0	1.65	69.095	78.47		19.4	25.4
2500	5.00 (6.80)	25.2	23.9	70	12.6	36.9	<b>1FL2310-4AC</b> ■ 1 - ■ ■ B 0	2	90.827	100.2		23.7	29.7
2000	7.00 (9.52)	35.2	33.4	90	13.2	35.6	<b>1FL2310-6AC</b> ■ 1 - ■ ■ B 0	2.67	134.292	143.66		31.9	37.9

#### Brake

Without  
Holding brake

0  
1

#### Degree of protection

IP54  
IP65 (with shaft sealing ring)

0  
1

#### Shaft end, feather key

Plain shaft  
Shaft with feather key (half-key balancing)

0  
1

#### Encoder

Absolute encoder 17-bit singleturn  
Absolute encoder 21-bit singleturn  
Absolute encoder 21-bit singleturn + 12-bit multiturn

H  
S  
M

#### Connection technology

Metal circular connector  
Metal hybrid connector

B  
C

Detailed information on SINAMICS S200 is available on the internet at: [www.siemens.com/sinamics-s200](http://www.siemens.com/sinamics-s200)

In addition, the Siemens Product Configurator can be used on the internet: [www.siemens.com/sinamics-s200/configuration](http://www.siemens.com/sinamics-s200/configuration)

<sup>1)</sup> Rated torque, rated power and maximum torque listed in the table above allow for a production tolerance of 10 %.

<sup>2)</sup> Motor weight with absolute encoder 17-bit singleturn.

Clicking to SiePortal

6SL3255-0AA00-5AA0



SINAMICS S200 servo drive system with SIMOTICS S-1FL2 High Inertia servomotors

1

MOTION-CONNECT connection systems (continued) – Further info in section "MOTION-CONNECT 350 and 380 connection systems".						
Pre-assembled dual cables for communication		Connectors				
SINAMICS S200 – Brake on the 1FL2 servomotor with holding brake		Drive end (DE) direction	Non drive end (NDE) direction	Motor side		
No. of cores x cross-section mm <sup>2</sup>	Article No.	for hybrid connection Article No.	for hybrid connection Article No.	for power connection Article No.	for encoder connection Article No.	for brake Article No.

MOTION-CONNECT connection systems (continued)

2 x 0.75	6FX3 02-5BL03-1 0	–	–	6FX2003-0LL13	6FX2003-0DB13	6FX2003-0LL53
2 x 0.75	6FX3 02-5BL03-1 0	–	–	6FX2003-0LL13	6FX2003-0DB13	6FX2003-0LL53
2 x 0.75	6FX3 02-5BL03-1 0	–	–	6FX2003-0LL13	6FX2003-0DB13	6FX2003-0LL53

Connection system	
MOTION-CONNECT 350	5
MOTION-CONNECT 380	8

Length	
3 m	A D
5 m	A F
7 m	A H
10 m	B A
15 m	B F
20 m	C A
30 m	D A

MOTION-CONNECT connectors for SINAMICS S200 servo converters

Connectors converter side		
for power connection	IX signal connector, C coded for encoder connection	for brake
–	6FX2003-0DE61	–



## SINAMICS S200 servo drive system

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### Accessories

#### Accessories for SINAMICS S200 Basic and SINAMICS S200 servo converters

Description	Article No.
<b>SINAMICS SD card</b> 8 GB Parameter assignments, firmware and licenses for a converter can be stored on the memory card. <ul style="list-style-type: none"> <li>• Empty</li> <li>• With firmware V6.2</li> <li>• With firmware V6.3</li> </ul>	6SL5970-0AA00-0AA0 6SL5570-0GC00-0AA0 6SL5570-0GD00-0AA0
<b>SINAMICS Smart Adapter</b> <sup>2)</sup> Wi-Fi solution for the next generation of SINAMICS converters SINAMICS S200 <sup>2)</sup> , SINAMICS S210 (New) <sup>2)</sup> and SINAMICS G220	6SL4950-0AJ00-0AA0
<b>Connecting cables and connectors for SIMATIC S7 controller and SINAMICS S200 Basic / SINAMICS S200, Pulse Train Input version (PTI)</b>	
<b>Connector for setpoint cable</b> 50-pin MDR connector	6SL3260-2NA00-0VA0
<b>Setpoint cable with connector</b> MDR 50-pin connector, free pins to controller side, length: 1 m	6SL3260-4NA00-1VB0
<b>Setpoint cable with connectors on both sides and separate terminal block</b> MDR 50-pin connector, terminal block to controller side, length: 0.5 m	6SL5562-0XX00-0AD0
<b>Connecting cables and connectors for SIMATIC S7 controller and SINAMICS S200 Basic / SINAMICS S200, PROFINET version</b>	
<b>PROFINET I/O connector</b> 20-pin	6SL3260-2MA00-0VA0
<b>PROFINET I/O cable</b> with 20-pin MDR connector, length: 1 m (3.28 ft)	6SL5562-1XX00-0AC0
<b>PROFINET I/O adapter</b> <sup>1)</sup> for 20-pin MDR connector	6SL5562-1XX00-0AD0
<b>Pre-assembled PROFINET cable</b> with two RJ45 180° plugs, length: 1 m (3.28 ft)	6XV1871-5BH10
<b>RJ45 data plug-in connector</b> with 180° (straight) cable outlet	6GK1901-1BB10-2AA0
<b>Standard PROFINET cable</b> 4-core, sold by the meter, not assembled	6XV1840-2AH10
<b>PROFINET patch cable</b> For the networking of concatenated converters Industrial Ethernet TP cord, CAT 6 A, twisted pair line 4 × 2 cores, pre-assembled with two RJ45 connectors <ul style="list-style-type: none"> <li>• 0.3 m (0.98 ft)</li> <li>• 0.5 m (1.64 ft)</li> </ul>	6XV1870-3QE30 6XV1870-3QE50

For further information about PROFINET cables refer on the internet at: [www.siemens.com/simatic-net](http://www.siemens.com/simatic-net)

#### Recommended SIMATIC S7 controller

More 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](http://www.siemens.com/simatic-s7-1500)

#### Spare parts for SINAMICS S200 Basic and SINAMICS S200 servo converters

Description	Article No.
<b>Shield connection kit</b> including several shield plates and fixing screws	6SL5566-0AB00-0AA0
<b>Terminal kits</b> <ul style="list-style-type: none"> <li>• for SINAMICS S200</li> <li>• for SINAMICS S200 Basic</li> </ul>	6SL5568-0XX00-0AA0 6SL5668-0XX00-0AA0
<b>Replacement fans</b> <ul style="list-style-type: none"> <li>• for SINAMICS S200, 400 V version, FSC</li> <li>• for SINAMICS S200, 400 V version, FSD</li> </ul>	6SL5560-0CE00-0AA0 6SL5560-0DE00-0AA0

#### Starter kit

Description	Article No.
<b>SINAMICS S200 PN starter kit</b> Scope of delivery: <ul style="list-style-type: none"> <li>• SINAMICS S200 servo converter, PROFINET version, 200 V, 400 W</li> <li>• SIMOTICS S-1FL2 Low Inertia servomotor, shaft height 30, 400 W, IP65 degree of protection, without holding brake, shaft with feather key, with absolute encoder 21-bit singleturn</li> <li>• Pre-assembled dual motor connection cable, drive end, 3 m (9.84 ft)</li> <li>• Pre-assembled PROFINET I/O cable, 1 m (3.28 ft)</li> </ul> The delivery quantity is limited to three units per customer.	6SL5990-0AE50-0AA0

#### Training cases

Description	Article No.
<b>SINAMICS S200 training case PROFINET version</b> Scope of delivery: <ul style="list-style-type: none"> <li>• 2 × SINAMICS S200 servo converter, PROFINET version, 200 V, 100 W</li> <li>• 1 × SIMOTICS S-1FL2 Low Inertia servomotor, absolute encoder 21-bit singleturn</li> <li>• 1 × SIMOTICS S-1FL2 Low Inertia servomotor, absolute encoder 21-bit singleturn + 12-bit multiturn</li> <li>• 2 × Pre-assembled dual motor connection cable</li> <li>• Rail, prepared for installation of a controller, e.g. SIMATIC S7-1500 (controller not included in scope of delivery)</li> <li>• SIMATIC ET 200SP, PROFINET Interface Module</li> </ul> The SINAMICS S200 training case is supplied as a trolley with a hood.	6AG1067-1AA42-0AA0
<b>SINAMICS S200 training case Pulse Train Input version (PTI)</b> <sup>1)</sup> Scope of delivery: <ul style="list-style-type: none"> <li>• 1 × SINAMICS S200 servo converter, Pulse Train Input version (PTI), 200 V, 100 W</li> <li>• 1 × SIMOTICS S-1FL2 Low Inertia servomotor, absolute encoder 21-bit singleturn + 12-bit multiturn</li> <li>• 1 × Pre-assembled dual motor connection cable</li> <li>• 1 × SIMATIC S7-1200, compact CPU, CPU 1211C, DC/DC/DC</li> <li>• 1 × SIMATIC S7-1200, Communication Board CB 1241, RS485</li> </ul> The SINAMICS S200 training case Pulse Train Input version (PTI) is supplied as a trolley with a hood.	6AG1067-1AA43-0AA0

<sup>1)</sup> Available soon.

<sup>2)</sup> Release for SINAMICS S200 and SINAMICS S210 (New) available soon.