

## SINAMICS G120 standard converters

0.37 kW to 250 kW (0.5 hp to 400 hp)

### Power Modules

#### Integration

**Maximum permissible cable lengths from the motor to the converter when using output reactors, sine-wave filters, dv/dt filters plus VPL or filters depending on the voltage range and the Power Module being used** (continued)

Frame size	Maximum permissible motor cable lengths (shielded/unshielded) in m (ft)						
	FSA	FSB	FSC	FSD	FSE	FSF	FSG
<b>PM250 Power Module with line-commutated energy recovery</b>							
<b>Without optional power components</b>	–	–	25/100 (82/328)	50/100 (164/328) <sup>7)</sup>	50/100 (164/328) <sup>7)</sup>	50/100 (164/328) <sup>7)</sup>	–
<b>With optional output reactor</b>							
• At 380 ... 400 V 3 AC	–	–	150/225 (492/738)	200/300 (656/984)	200/300 (656/984)	200/300 (656/984)	–
• At 401 ... 480 V 3 AC	–	–	100/150 (328/492)	200/300 (656/984)	200/300 (656/984)	200/300 (656/984)	–
<b>With optional sine-wave filter</b>							
• At 380 ... 480 V 3 AC	–	–	200/300 (656/984)	200/300 (656/984)	200/300 (656/984)	200/300 (656/984)	–

#### Selection and ordering data

To ensure that a suitable Power Module is selected, the following currents should be used for applications:

- Rated output current for applications with low overload (LO)
- Base-load current for applications with high overload (HO)

With reference to the rated output current, the modules support at least 2-pole to 6-pole low-voltage motors, e.g. the SIMOTICS 1LE1 motor series. The rated power is merely a guide value. For a description of the overload performance, please refer to the general technical specifications of the Power Modules.

#### PM240-2 Power Modules standard variant

Rated power <sup>8)</sup>		Rated output current $I_N$ <sup>9)</sup> A	Power based on the base-load current <sup>10)</sup>		Base-load current $I_H$ <sup>10)</sup> A	Frame size	PM240-2 Power Module standard variant without integrated line filter Article No.	PM240-2 Power Module standard variant with integrated line filter class A Article No.
kW	hp		kW	hp				
<b>200 ... 240 V 1 AC/3 AC</b>								
0.55	0.75	3.2	0.37	0.5	2.3	FSA	6SL3210-1PB13-0UL0	6SL3210-1PB13-0AL0
0.75	1	4.2	0.55	0.75	3.2	FSA	6SL3210-1PB13-8UL0	6SL3210-1PB13-8AL0
1.1	1.5	6	0.75	1	4.2	FSB	6SL3210-1PB15-5UL0	6SL3210-1PB15-5AL0
1.5	2	7.4	1.1	1.5	6	FSB	6SL3210-1PB17-4UL0	6SL3210-1PB17-4AL0
2.2	3	10.4	1.5	2	7.4	FSB	6SL3210-1PB21-0UL0	6SL3210-1PB21-0AL0
3	4	13.6	2.2	3	10.4	FSC	6SL3210-1PB21-4UL0	6SL3210-1PB21-4AL0
4	5	17.5	3	4	13.6	FSC	6SL3210-1PB21-8UL0	6SL3210-1PB21-8AL0
<b>200 ... 240 V 3 AC</b>								
5.5	7.5	22	4	5	17.5	FSC	6SL3210-1PC22-2UL0	6SL3210-1PC22-2AL0
7.5	10	28	5.5	7.5	22	FSC	6SL3210-1PC22-8UL0	6SL3210-1PC22-8AL0
11	15	42	7.5	10	35	FSD	6SL3210-1PC24-2UL0	–
15	20	54	11	15	42	FSD	6SL3210-1PC25-4UL0	–
18.5	25	68	15	20	54	FSD	6SL3210-1PC26-8UL0	–
22	30	80	18.5	25	68	FSE	6SL3210-1PC28-0UL0	–
30	40	104	22	30	80	FSE	6SL3210-1PC31-1UL0	–
37	50	130	30	40	104	FSF	6SL3210-1PC31-3UL0	–
45	60	154	37	50	130	FSF	6SL3210-1PC31-6UL0	–
55	75	178	45	60	154	FSF	6SL3210-1PC31-8UL0	–

<sup>1)</sup> The values apply with low-capacitance CY cables – the max. permissible motor cable length is 50 m (164 ft) (shielded) and 100 m (328 ft) (unshielded) as standard.

<sup>2)</sup> For frame sizes FSD to FSG the maximum permissible cable lengths are not increased with an output reactor. By means of the output reactor, the loading of the motor windings is reduced by lower rates of voltage rise (dv/dt). By means of two output reactors connected in series, the maximum permissible cable lengths for frame sizes FSD and FSE are increased to 350 m (1148 ft) (shielded) and 525 m (1723 ft) (unshielded), and for frame sizes FSF and FSG to 525 m (1723 ft) (shielded) and 800 m (2625 ft) (unshielded).

<sup>3)</sup> Maximum overvoltage at the motor terminals <1350 V with cable lengths up to 450 m (1476 ft) shielded or 650 m (2133 ft) unshielded – maximum overvoltage at the motor terminals <1500 V with cable lengths up to 525 m (1723 ft) shielded or 800 m (2625 ft) unshielded.

<sup>4)</sup> The values apply with low-capacitance CY cables – the max. permissible motor cable length is 50 m (164 ft) (shielded) as standard.

<sup>5)</sup> The 690 V versions of the PM240-2 Power Modules frame size FSG are only available with an integrated Category C3 filter. To operate the converter also within TN systems with grounded outer conductor, you must remove the grounding screw.

<sup>6)</sup> More information is available on the internet at [www.siemens.com/sinamics-g120/documentation](http://www.siemens.com/sinamics-g120/documentation)

<sup>7)</sup> Max. motor cable length 25 m (82 ft) (shielded) for Power Modules with integrated line filter to maintain the limit values acc. to EN 61800-3 Category C2.

<sup>8)</sup> Rated power based on the rated output current  $I_N$ . The rated output current  $I_N$  is based on the duty cycle for low overload (LO).

<sup>9)</sup> The rated output current  $I_N$  is based on the duty cycle for low overload (LO). These current values are valid for 200 V, 400 V or 690 V and are specified on the rating plate of the Power Module.

<sup>10)</sup> The base-load current  $I_H$  is based on the duty cycle for high overload (HO).

# SINAMICS G120 standard converters

0.37 kW to 250 kW (0.5 hp to 400 hp)

Power Modules

## Selection and ordering data

Rated power <sup>1)</sup>		Rated output current $I_N$ <sup>2)</sup> A	Power based on the base-load current <sup>3)</sup>		Base-load current $I_H$ <sup>3)</sup> A	Frame size	PM240-2 Power Module standard variant without integrated line filter	PM240-2 Power Module standard variant with integrated line filter class A
kW	hp		kW	hp			Article No.	Article No.
<b>380 ... 480 V 3 AC <sup>4)</sup></b>								
0.55	0.75	1.7	0.37	0.5	1.3	FSA	6SL3210-1PE11-8UL1	6SL3210-1PE11-8AL1
0.75	1	2.2	0.55	0.75	1.7	FSA	6SL3210-1PE12-3UL1	6SL3210-1PE12-3AL1
1.1	1.5	3.1	0.75	1	2.2	FSA	6SL3210-1PE13-2UL1	6SL3210-1PE13-2AL1
1.5	2	4.1	1.1	1.5	3.1	FSA	6SL3210-1PE14-3UL1	6SL3210-1PE14-3AL1
2.2	3	5.9	1.5	2	4.1	FSA	6SL3210-1PE16-1UL1	6SL3210-1PE16-1AL1
3	4	7.7	2.2	3	5.9	FSA	6SL3210-1PE18-0UL1	6SL3210-1PE18-0AL1
4	5	10.2	3	4	7.7	FSB	6SL3210-1PE21-1UL0	6SL3210-1PE21-1AL0
5.5	7.5	13.2	4	5	10.2	FSB	6SL3210-1PE21-4UL0	6SL3210-1PE21-4AL0
7.5	10	18	5.5	7.5	13.2	FSB	6SL3210-1PE21-8UL0	6SL3210-1PE21-8AL0
11	15	26	7.5	10	18	FSC	6SL3210-1PE22-7UL0	6SL3210-1PE22-7AL0
15	20	32	11	15	26	FSC	6SL3210-1PE23-3UL0	6SL3210-1PE23-3AL0
18.5	25	38	15	20	32	FSD	6SL3210-1PE23-8UL0	6SL3210-1PE23-8AL0
22	30	45	18.5	25	38	FSD	6SL3210-1PE24-5UL0	6SL3210-1PE24-5AL0
30	40	60	22	30	45	FSD	6SL3210-1PE26-0UL0	6SL3210-1PE26-0AL0
37	50	75	30	40	60	FSD	6SL3210-1PE27-5UL0	6SL3210-1PE27-5AL0
45	60	90	37	50	75	FSE	6SL3210-1PE28-8UL0	6SL3210-1PE28-8AL0
55	75	110	45	60	90	FSE	6SL3210-1PE31-1UL0	6SL3210-1PE31-1AL0
75	100	145	55	75	110	FSF	6SL3210-1PE31-5UL0	6SL3210-1PE31-5AL0
90	125	178	75	100	145	FSF	6SL3210-1PE31-8UL0	6SL3210-1PE31-8AL0
110	150	205	90	125	178	FSF	6SL3210-1PE32-1UL0	6SL3210-1PE32-1AL0
132	200	250	110	150	205	FSF	6SL3210-1PE32-5UL0	6SL3210-1PE32-5AL0
<b>500 ... 690 V 3 AC</b>								
11	10	14	7.5	7.5	11	FSD	6SL3210-1PH21-4UL0	6SL3210-1PH21-4AL0
15	15	19	11	10	14	FSD	6SL3210-1PH22-0UL0	6SL3210-1PH22-0AL0
18.5	20	23	15	15	19	FSD	6SL3210-1PH22-3UL0	6SL3210-1PH22-3AL0
22	25	27	18.5	20	23	FSD	6SL3210-1PH22-7UL0	6SL3210-1PH22-7AL0
30	30	35	22	25	27	FSD	6SL3210-1PH23-5UL0	6SL3210-1PH23-5AL0
37	40	42	30	30	35	FSD	6SL3210-1PH24-2UL0	6SL3210-1PH24-2AL0
45	50	52	37	40	42	FSE	6SL3210-1PH25-2UL0	6SL3210-1PH25-2AL0
55	60	62	45	50	52	FSE	6SL3210-1PH26-2UL0	6SL3210-1PH26-2AL0
75	75	80	55	60	62	FSF	6SL3210-1PH28-0UL0	6SL3210-1PH28-0AL0
90	100	100	75	75	80	FSF	6SL3210-1PH31-0UL0	6SL3210-1PH31-0AL0
110	100	115	90	100	100	FSF	6SL3210-1PH31-2UL0	6SL3210-1PH31-2AL0
132	125	142	110	100	115	FSF	6SL3210-1PH31-4UL0	6SL3210-1PH31-4AL0

Rated power <sup>1)</sup>		Rated output current $I_N$ <sup>2)</sup> A	Power based on the base-load current <sup>3)</sup>		Base-load current $I_H$ <sup>3)</sup> A	Frame size	PM240-2 Power Module standard variant with integrated line filter Category C3	PM240-2 Power Module standard variant with integrated line filter Category C2
kW	hp		kW	hp			Article No.	Article No.
<b>380 ... 480 V 3 AC <sup>4)</sup></b>								
160	250	302	132	200	250	FSG	6SL3210-1PE33-0CL0	6SL3210-1PE33-0AL0
200	300	370	160	250	302	FSG	6SL3210-1PE33-7CL0	6SL3210-1PE33-7AL0
250	400	477	200	300	370	FSG	6SL3210-1PE34-8CL0	6SL3210-1PE34-8AL0
<b>500 ... 690 V 3 AC</b>								
160	150	171	132	150	142	FSG <sup>5)</sup>	6SL3210-1PH31-7CL0	–
200	200	208	160	150	171	FSG <sup>5)</sup>	6SL3210-1PH32-1CL0	–
250	250	250	200	200	208	FSG <sup>5)</sup>	6SL3210-1PH32-5CL0	–

- <sup>1)</sup> Rated power based on the rated output current  $I_N$ . The rated output current  $I_N$  is based on the duty cycle for low overload (LO).
- <sup>2)</sup> The rated output current  $I_N$  is based on the duty cycle for low overload (LO). These current values are valid for 200 V, 400 V or 690 V and are specified on the rating plate of the Power Module.
- <sup>3)</sup> The base-load current  $I_H$  is based on the duty cycle for high overload (HO).

- <sup>4)</sup> SIPLUS components for extreme requirements are available. More information is available on the internet at [www.siemens.com/siplus-drives](http://www.siemens.com/siplus-drives)

- <sup>5)</sup> The 690 V versions of the PM240-2 Power Modules frame size FSG are only available with an integrated Category C3 filter. To operate the converter also within TN systems with grounded outer conductor, you must remove the grounding screw. If the grounding screw is removed, the EMC property according to Category C3 is no longer given.

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### Power Modules

#### Selection and ordering data

##### PM250 Power Modules

Rated power <sup>1)</sup>		Rated output current $I_N$ <sup>2)</sup> A	Power based on the base-load current <sup>3)</sup>		Base-load current $I_H$ <sup>3)</sup> A	Frame size	PM250 Power Module without integrated line filter	PM250 Power Module with integrated line filter class <b>A</b>
kW	hp		kW	hp			Article No.	Article No.
<b>380 ... 480 V 3 AC</b>								
<b>7.5</b>	10	18	<b>5.5</b>	7.5	13.2	FSC	–	<b>6SL3225-0BE25-5AA1</b>
<b>11</b>	15	25	<b>7.5</b>	10	19	FSC	–	<b>6SL3225-0BE27-5AA1</b>
<b>15</b>	20	32	<b>11</b>	15	26	FSC	–	<b>6SL3225-0BE31-1AA1</b>
<b>18.5</b>	25	38	<b>15</b>	20	32	FSD	<b>6SL3225-0BE31-5UA0</b>	<b>6SL3225-0BE31-5AA0</b>
<b>22</b>	30	45	<b>18.5</b>	25	38	FSD	<b>6SL3225-0BE31-8UA0</b>	<b>6SL3225-0BE31-8AA0</b>
<b>30</b>	40	60	<b>22</b>	30	45	FSD	<b>6SL3225-0BE32-2UA0</b>	<b>6SL3225-0BE32-2AA0</b>
<b>37</b>	50	75	<b>30</b>	40	60	FSE	<b>6SL3225-0BE33-0UA0</b>	<b>6SL3225-0BE33-0AA0</b>
<b>45</b>	60	90	<b>37</b>	50	75	FSE	<b>6SL3225-0BE33-7UA0</b>	<b>6SL3225-0BE33-7AA0</b>
<b>55</b>	75	110	<b>45</b>	60	90	FSF	<b>6SL3225-0BE34-5UA0</b>	<b>6SL3225-0BE34-5AA0</b>
<b>75</b>	100	145	<b>55</b>	75	110	FSF	<b>6SL3225-0BE35-5UA0</b>	<b>6SL3225-0BE35-5AA0</b>
<b>90</b>	125	178	<b>75</b>	100	145	FSF	<b>6SL3225-0BE37-5UA0</b>	<b>6SL3225-0BE37-5AA0</b>

<sup>1)</sup> Rated power based on the rated output current  $I_N$ . The rated output current  $I_N$  is based on the duty cycle for low overload (LO).

<sup>2)</sup> The rated output current  $I_N$  is based on the duty cycle for low overload (LO). These current values are valid for 400 V and are specified on the rating plate of the Power Module.

<sup>3)</sup> The base-load current  $I_H$  is based on the duty cycle for high overload (HO).