

## System configuration

### SINAMICS G120P and SINAMICS G120P Cabinet pump, fan, compressor converters

#### Integrated Drive Systems

#### Overview (continued)

SINAMICS G120P Power Modules for use in building technology for heating, air-conditioning and ventilation applications, with degree of protection IP20, 380 to 480 V 3 AC

SINAMICS G120P		Power Module	Load-side power components	
Rated power	460 V		Output reactor	Sine-wave filter
400 V	460 V	Type	Article No.	Article No.
kW	hp			
0.37	0.5	6SL3210-1NE11-3 . G1	6SL3202-0AE16-1CA0	–
0.55	0.5	6SL3210-1NE11-7 . G1	6SL3202-0AE16-1CA0	–
0.75	0.75	6SL3210-1NE12-2 . G1	6SL3202-0AE16-1CA0	–
1.1	1	6SL3210-1NE13-1 . G1	6SL3202-0AE16-1CA0	–
1.5	2	6SL3210-1NE14-1 . G1	6SL3202-0AE16-1CA0	–
2.2	3	6SL3210-1NE15-8 . G1	6SL3202-0AE16-1CA0	–
3	3	6SL3210-1NE17-7 . G1	6SL3202-0AE18-8CA0	–
4	5	6SL3210-1NE21-0 . G1	6SL3202-0AE21-8CA0	–
5.5	7.5	6SL3210-1NE21-3 . G1	6SL3202-0AE21-8CA0	–
7.5	10	6SL3210-1NE21-8 . G1	6SL3202-0AE21-8CA0	–
11	15	6SL3210-1NE22-6 . G1	6SL3202-0AE23-8CA0	–
15	15	6SL3210-1NE23-2 . G1	6SL3202-0AE23-8CA0	–
18.5	20	6SL3210-1NE23-8 . G1	6SL3202-0AE23-8CA0	–
22	25	6SL3210-1NE24-5 . L0	6SE6400-3TC03-8DD0	6SL3202-0AE24-6SA0
30	30	6SL3210-1NE26-0 . L0	6SE6400-3TC05-4DD0	6SL3202-0AE26-2SA0
37	40	6SL3210-1NE27-5 . L0	6SE6400-3TC08-0ED0	6SL3202-0AE28-8SA0
45	50	6SL3210-1NE28-8 . L0	6SE6400-3TC07-5ED0	6SL3202-0AE28-8SA0
55	60	6SL3210-1NE31-1 . L0	6SE6400-3TC14-5FD0	6SL3202-0AE31-5SA0
75	75	6SL3210-1NE31-5 . L0	6SE6400-3TC15-4FD0	6SL3202-0AE31-5SA0
<b>Push Through</b>				
3	3	6SL3211-1NE17-7 . G1	6SL3202-0AE18-8CA0	–
7.5	10	6SL3211-1NE21-8 . G1	6SL3202-0AE21-8CA0	–
18.5	20	6SL3211-1NE23-8 . G1	6SL3202-0AE23-8CA0	–

## Overview (continued)

SINAMICS G120P Power Modules for use in building technology for heating, air-conditioning and ventilation applications, with degree of protection IP55, 380 to 480 V 3 AC

SINAMICS G120P		Power Module Type	Recommended line-side overcurrent protection devices IEC-compliant		Load-side power components	
Rated power			Fuse type 3NA3	Circuit breaker	Output reactor	Sine-wave filter
400 V kW	460 V hp		Article No.	Article No.	Article No.	Article No.
0.37	0.5	6SL3223-0DE13-7 . G1	3NA3803	3RV2011-1CA10	6SL3202-0AE16-1CA0	–
0.55	0.5	6SL3223-0DE15-5 . G1	3NA3803	3RV2011-1DA10	6SL3202-0AE16-1CA0	–
0.75	0.75	6SL3223-0DE17-5 . G1	3NA3803	3RV2011-1FA10	6SL3202-0AE16-1CA0	–
1.1	1	6SL3223-0DE21-1 . G1	3NA3803	3RV2011-1GA10	6SL3202-0AE16-1CA0	–
1.5	2	6SL3223-0DE21-5 . G1	3NA3803	3RV2011-1JA10	6SL3202-0AE16-1CA0	–
2.2	3	6SL3223-0DE22-2 . G1	3NA3803	3RV2011-1KA10	6SL3202-0AE16-1CA0	–
3	3	6SL3223-0DE23-0 . G1	3NA3803	3RV2021-4AA10	6SL3202-0AE18-8CA0	–
4	5	6SL3223-0DE24-0 . G1	3NA3805	3RV2021-4BA10	6SL3202-0AE21-8CA0	–
5.5	7.5	6SL3223-0DE25-5 . G1	3NA3807	3RV2021-4BA10	6SL3202-0AE21-8CA0	–
7.5	10	6SL3223-0DE27-5 . G1	3NA3810	3RV1031-4EA10	6SL3202-0AE21-8CA0	–
11	15	6SL3223-0DE31-1 . G1	3NA3814	3RV1031-4FA10	6SL3202-0AE23-8CA0	–
15	15	6SL3223-0DE31-5 . G1	3NA3820	3RV1031-4HA10	6SL3202-0AE23-8CA0	–
18.5	20	6SL3223-0DE31-8AG1	3NA3820	3RV1042-4KA10	6SL3202-0AE23-8CA0	–
18.5	20	6SL3223-0DE31-8BA0	3NA3820	–	6SE6400-3TC03-8DD0	–
22	25	6SL3223-0DE32-2 . A0	3NA3822	–	6SE6400-3TC03-8DD0	6SL3202-0AE24-6SA0
30	30	6SL3223-0DE33-0 . A0	3NA3824	–	6SE6400-3TC05-4DD0	6SL3202-0AE26-2SA0
37	40	6SL3223-0DE33-7 . A0	3NA3830	–	6SE6400-3TC08-0ED0	6SL3202-0AE28-8SA0
45	50	6SL3223-0DE34-5 . A0	3NA3832	–	6SE6400-3TC07-5ED0	6SL3202-0AE28-8SA0
55	60	6SL3223-0DE35-5 . A0	3NA3836	–	6SE6400-3TC14-5FD0	6SL3202-0AE31-5SA0
75	75	6SL3223-0DE37-5 . A0	3NA3140	–	6SE6400-3TC15-4FD0	6SL3202-0AE31-5SA0
90	100	6SL3223-0DE38-8 . A0	3NA3144	–	6SE6400-3TC14-5FD0	6SL3202-0AE31-8SA0

## SINAMICS G120P built-in and wall-mounted units

PM230 Power Modules, 0.37 kW to 90 kW

### Sine-wave filters

#### Overview



Sine-wave filter

Sine-wave filters limit the rate of voltage rise ( $dv/dt$ ) and the peak voltages on the motor winding. Similar to an output reactor, they enable the connection of longer motor cables.

Bearing currents are also reduced significantly. Using these filters therefore allows standard motors with standard insulation and without insulated bearings to be operated on SINAMICS.

As a result, the voltage load on the motor winding is virtually identical to the load on windings of directly mains-fed motors.

Owing to the very low rates of voltage rise on the motor cable, the sine-wave filter also has a positive impact in terms of electromagnetic compatibility which means that it is not absolutely essential to use shielded cables for short motor cables to achieve the required standard of EMC.

Since the voltage applied to the motor is not pulsed, the inverter-related stray losses and additional noise in the motor are also reduced considerably and the noise level of the motor is similar to the level produced by directly mains-fed motors.

When using sine-wave filters, the following should be observed:

- Pulse frequencies of between 4 kHz and 8 kHz are permissible for rated outputs up to and including 90 kW
- The output frequency is limited to 150 Hz.
- Operation and commissioning may only be performed with the motor connected as the sine-wave filter is not no-load proof
- It must be ensured that the automatic pulse frequency reduction functions are also deactivated
- 80 % of the line input voltage is available as an output voltage for PM230 Power Modules.

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#### Integration

*Sine-wave filters that are optionally available depending on the Power Module used*

	Frame size					
	FSA	FSB	FSC	FSD	FSE	FSF
<b>PM230 Power Module, degree of protection IP20 and/or IP55</b>						
Available frame sizes	✓	✓	✓	✓	✓	✓
<b>Load-side power components</b>						
Sine-wave filter	–	–	–	S	S	S

S = Lateral mounting

– = Not possible

#### Selection and ordering data

Rated power		SINAMICS G120P PM230 Power Modules degree of protection <u>IP20</u>	SINAMICS G120P PM230 Power Modules degree of protection <u>IP55/UL Type 12</u>		Sine-wave filter
400 V kW	460 V hp	Type 6SL3210-...	Type 6SL3223-...	Frame size	Article No.
<b>380 ... 480 V 3 AC</b>					
22	25	1NE24-5 . L0	0DE32-2 . A0	FSD	<b>6SL3202-0AE24-6SA0</b>
30	30	1NE26-0 . L0	0DE33-0 . A0	FSD	<b>6SL3202-0AE26-2SA0</b>
37	40	1NE27-5 . L0	0DE33-7 . A0	FSE	<b>6SL3202-0AE28-8SA0</b>
45	50	1NE28-8 . L0	0DE34-5 . A0	FSE	
55	60	1NE31-1 . L0	0DE35-5 . A0	FSF	<b>6SL3202-0AE31-5SA0</b>
75	75	1NE31-5 . L0	0DE37-5 . A0	FSF	
90	100	–	0DE38-8 . A0	FSF	<b>6SL3202-0AE31-8SA0</b>

# SINAMICS G120P built-in and wall-mounted units

## PM230 Power Modules, 0.37 kW to 90 kW

### Sine-wave filters

#### Technical specifications

Line voltage 380 ... 480 V 3 AC		Sine-wave filter			
		6SL3202-0AE24-6SA0	6SL3202-0AE26-2SA0	6SL3202-0AE28-8SA0	
<b>Rated current</b>	A	47	61.8	92	92
<b>Power loss</b>	kW	0.185	0.152	0.251	0.251
<b>Connection to the Power Module</b>		Screw-type terminals	Screw-type terminals	Screw-type terminals	Screw-type terminals
• Conductor cross-section	mm <sup>2</sup>	50	50	95	95
<b>Motor connection</b>		Screw-type terminals	Screw-type terminals	Screw-type terminals	Screw-type terminals
• Conductor cross-section	mm <sup>2</sup>	50	50	95	95
<b>PE connection</b>		M6 screw	M6 screw	M8 screw	M8 screw
<b>Cable length, max.</b> between sine-wave filter and motor					
• 380 ... 480 V ±10 % 3 AC					
- Shielded	m (ft)	200 (656)	200 (656)	200 (656)	200 (656)
- Unshielded	m (ft)	300 (984)	300 (984)	300 (984)	300 (984)
<b>Dimensions</b>					
• Width	mm (in)	250 (9.84)	250 (9.84)	275 (10.8)	275 (10.8)
• Height	mm (in)	315 (12.4)	305 (12.0)	368 (14.5)	368 (14.5)
• Depth	mm (in)	262 (10.3)	262 (10.3)	275 (10.8)	275 (10.8)
<b>Possible as base component</b>		No	No	No	No
<b>Degree of protection</b>		IP00	IP00	IP00	IP00
<b>Weight, approx.</b>	kg (lb)	24 (52.9)	34 (75.0)	45 (99.2)	45 (99.2)
<b>Suitable for PM230 Power Module degree of protection IP20</b>	Type	6SL3210-1NE24-5UL0 6SL3210-1NE24-5AL0	6SL3210-1NE26-0UL0 6SL3210-1NE26-0AL0	6SL3210-1NE27-5UL0 6SL3210-1NE27-5AL0	6SL3210-1NE28-8UL0 6SL3210-1NE28-8AL0
<b>Suitable for PM230 Power Module degree of protection IP55/UL Type 12</b>	Type	6SL3223-0DE32-2UA0 6SL3223-0DE32-2AA0	6SL3223-0DE33-0UA0 6SL3223-0DE33-0AA0	6SL3223-0DE33-7UA0 6SL3223-0DE33-7AA0	6SL3223-0DE34-5UA0 6SL3223-0DE34-5AA0
• Rated power of the Power Module	kW	22	30	37	45
• Rated current $I_{rated}$ of the Power Module	A	45	60	75	90
• Frame size		FSD	FSD	FSE	FSE
Line voltage 380 ... 480 V 3 AC		Sine-wave filter			
		6SL3202-0AE31-5SA0		6SL3202-0AE31-8SA0	
<b>Rated current</b>	A	150		182	
<b>Power loss</b>	kW	0.43		0.47	
<b>Connection to the Power Module</b>		Screw-type terminals		Screw-type terminals	
• Conductor cross-section	mm <sup>2</sup>	150		150	
<b>Motor connection</b>		Screw-type terminals		Screw-type terminals	
• Conductor cross-section	mm <sup>2</sup>	150		150	
<b>PE connection</b>		M8 screw		M6 screw	
<b>PE connection</b>		M8 screw		M8 screw	
<b>Cable length, max.</b> between sine-wave filter and motor					
• 380 ... 480 V ±10 % 3 AC					
- Shielded	m (ft)	200 (656)		200 (656)	
- Unshielded	m (ft)	300 (984)		300 (984)	
<b>Dimensions</b>					
• Width	mm (in)	350 (13.8)		350 (13.8)	
• Height	mm (in)	440 (17.3)		468 (18.4)	
• Depth	mm (in)	305 (12.0)		305 (12.0)	
<b>Possible as base component</b>		No		No	
<b>Degree of protection</b>		IP00		IP00	
<b>Weight, approx.</b>	kg (lb)	63 (139)		80 (176)	
<b>Suitable for PM230 Power Module degree of protection IP20</b>	Type	6SL3210-1NE31-1UL0 6SL3210-1NE31-1AL0		6SL3210-1NE31-5UL0 6SL3210-1NE31-5AL0	
<b>Suitable for PM230 Power Module degree of protection IP55/UL Type 12</b>	Type	6SL3223-0DE35-5UA0 6SL3223-0DE35-5AA0		6SL3223-0DE37-5UA0 6SL3223-0DE37-5AA0	
• Rated power of the Power Module	kW	55		75	
• Rated current $I_{rated}$ of the Power Module	A	110		145	
• Frame size		FSF		FSF	