SIEMENS

Ingenuity for life

SINAMICS G120P

The specialist for industrial applications and building systems

siemens.com/sinamics-g120p

The SINAMICS family.

The optimum drive for every application.

The optimum drive for every application: This is precisely what the SINAMICS family is all about. A drive family that is convincing as a result of its extensive portfolio. Flexible and combinable solutions can be configured based on a wide range of power ratings extending from 0.05 kW to 85 MW in low, medium and DC voltage versions. With a wealth of associated advantages.

Innovative platform concept

Irrespective of power and performance, all products of the SINAMICS family are based on the same hardware and software platform. This development strategy offers you standard and unified operation, the same selection and commissioning tools as well as identical options and minimized training costs.

Simple connection

SINAMICS drives can be simply connected to SIMATIC controls – and quickly, smoothly and seamlessly integrated into the automation environment. Further, SINAMICS drives are part of Totally Integrated Automation (TIA).

Integrated safety concept

With Safety Integrated, the SINAMICS family offers an almost complete range of seamless drive-based safety functions in order to reliably master specific dangerous situations.

The SINAMICS G120P inverter series is a member of the SINAMICS family – and has been specifically developed for tasks in building systems and industrial applications.

A broad portfolio.

With special focus.

SINAMICS G120P inverters focus on pump, fan and compressor applications

Experienced sector specialists

Every sector has its own special challenges – SINAMICS G120P frequency converters offer the optimum solutions for building systems and the process industry. These include nine frame sizes and an especially wide power range extending from 0.37 kW up to 630 kW.

Precisely fitting solutions

Special requirements require special solutions: based on various Power Modules and individually tailored firmware functions, all applications are precisely addressed.

Innovated power units

The new PM240P-2 Power Module and the innovated PM330 Power Module significantly increase process reliability and energy efficiency – and offer more flexibility. This is because a complete product series is now available that offers standard and unified solutions across all voltage ranges.

Higher-energy transparency

SIMATIC Energy Suite – as integrated option for the TIA Portal – efficiently links energy management with automation bringing energy transparency to your production environment.

You can find additional information about the SIMATIC Energy Suite at **www.siemens.com/energysuite**

SINAMICS G120P in building systems	
Power:	0.37–90 kW
Supply voltages:	380–400 Volt
Control modes:	U/f-control with stator flux orientation, vector control without encoder

SINAMICS G120P for the process industry	
Power:	11–630 kW
Supply voltages:	380–480 Volt and 500–690 Volt
Control modes:	U/f control with stator flux orientation, vector control without encoder

Developed for specific sectors.

With powerful Power Modules.

SINAMICS G120P frequency converters are the optimum solution to address the specific demands of building systems – whether for fans feeding and extracting air in HVAC systems, in pumps for heating and cooling circuits or compressors for refrigeration machines.

Flexible installation

Remain flexible: PM230 Power Modules with their IP20 and IP55 degree of protection can be installed in control cabinets or directly installed where they are required. Thanks to different EMC filters, they can be connected to public grids as well as to industrial line supplies.

Special functionality

A well-conceived portfolio: In addition to standard functions – such as setpoint inputs, switch-on and switch-off logic, protecting and monitoring the machine, motor and converter, SINAMICS G120P also offers a wide range of sector-specific functions. These include controlling two or more zones, along with a fire protection mode, which ensures the longest possible operation in the case of an emergency.

Specifically developed for your building system applications

- All in one device: 2-zone and multizone control, for instance for controlling the temperature in several rooms
- Optimally secured: extended service operation as special mode in the case of fires
- Full control: real time clock with precise time stamp for fault and alarm logs, buffer time of up to five days, automatic daylight savings time switchover
- Freely programmable: digital time clocks to control three selectable events depending on whether weekday / hour / minute

Creating value-added: for your HVAC applications

Design and installation	• Wall mounting, installed directly at the required location – or in a control cabinet • Reactors can be used to increase cable lengths, optional filters for operating motors with lower voltage strength
Connection system	• Integrated Class A and B line filters for public grids • Lower line harmonics without requiring additional measures, low apparent current drawn, high power factor
Handling	• Fast and without expert knowledge • Display on operator panels as plain text (IOP) or as two line display (BOP-2) • Data backup and series commissioning with SINAMICS SD card • Prompted commissioning
Communication building management system	• Sector-specific (USS protocol, Modbus RTU, BACnet MS/TP, Siemens FLN P1)
Ruggedness	• Operation at ambient temperatures up to 60 °C • Automatic acknowledgment of faults after power failure, automatic restart • Synchronization to still spinning motors • Suppressing resonance points in piping networks • Monitoring pumps and fans

Your special requirements.

Our special solutions.

Practical support – for selecting, ordering and operating: our powerful selection and engineering tools.

DT Configurator

The Drive Technology Configurator (DT Configurator) supports you when optimally selecting the devices for your particular application. Even without expert knowledge: with integrated drive system configuration for pump, fan and compressor applications in the range from 1 kW–2.6 MW.

SinaSave

SinaSave determines the energy saving potential and pay-back times – and offers a wide range of comparison options for pump and fan drive systems.

By graphically displaying the most important results, for example, system power losses according to EN 50598, Sina-Save supports you when selecting the most cost-effective investment.

Built-in devices with PM230 Power Modules in IP20 wall-mounted devices with PM230 Power Modules in IP55

Select a Power Module ...		Built-in devices
Degree of protection		IP20/IP20 Push Through
3AC 380 – 480 V	Unfiltered	6SL321_-1NE__-_U__
PM230	Class A filter [1]	6SL321_-1NE__-_A__
	Class B filter[1]	

Rated power			Frame size	Article number
kW	hp	A		
0.37	0.50	1.3	FSA	6SL3210-1NE11-3□G1
0.55	0.75	1.7	FSA	6SL3210-1NE11-7□G1
0.75	1.0	2.2	FSA	6SL3210-1NE12-2□G1
1.1	1.5	3.1	FSA	6SL3210-1NE13-1□G1
1.5	2.0	4.1	FSA	6SL3210-1NE14-1□G1
2.2	3.0	5.9	FSA	6SL3210-1NE15-8□G1
3	4.0	7.7	FSA	6SL321■-1NE17-7□G1
4	5.0	10.2	FSB	6SL3210-1NE21-0□G1
5.5	7.5	13.2	FSB	6SL3210-1NE21-3□G1
7.5	10	18	FSB	6SL321■-1NE21-8□G1
11	15	26	FSC	6SL3210-1NE22-6□G1
15	20	32	FSC	6SL3210-1NE23-2□G1
18.5	25	38	FSC	6SL321■-1NE23-8□G1
18.5	25	38	FSD	-
22	30	45	FSD	6SL3210-1NE24-5□L0
30	40	60	FSD	6SL3210-1NE26-0□L0
37	50	75	FSE	6SL3210-1NE27-5□L0
45	60	90	FSE	6SL3210-1NE28-8□L0
55	75	110	FSF	6SL3210-1NE31-1□L0
75	100	145	FSF	6SL3210-1NE31-5□L0
90	125	178	FSF	-

EMC
U = unfiltered
A = integrated EMC Class A filter

■ Heatsink versions
0 = standard
1 = push through

Wall-mounted devices	... and the line and motor-side components	
IP55		
	External Class B filter [3]	Output reactor [4]
6SL3223-0DE__-_A__		
6SL3223-0DE__-_B__		
Article number	**Article number**	**Article number**
6SL3223-0DE13-7□G1	6SL3203-0BE17-7BA0	6SL3202-0AE16-1CA0
6SL3223-0DE15-5□G1	6SL3203-0BE17-7BA0	6SL3202-0AE16-1CA0
6SL3223-0DE17-5□G1	6SL3203-0BE17-7BA0	6SL3202-0AE16-1CA0
6SL3223-0DE21-1□G1	6SL3203-0BE17-7BA0	6SL3202-0AE16-1CA0
6SL3223-0DE21-5□G1	6SL3203-0BE17-7BA0	6SL3202-0AE16-1CA0
6SL3223-0DE22-2□G1	6SL3203-0BE17-7BA0	6SL3202-0AE16-1CA0
6SL3223-0DE23-0□G1	6SL3203-0BE17-7BA0	6SL3202-0AE16-1CA0
6SL3223-0DE24-0□G1	6SL3203-0BE21-8BA0	6SL3202-0AE16-8CA0
6SL3223-0DE25-5□G1	6SL3203-0BE21-8BA0	6SL3202-0AE21-8CA0
6SL3223-0DE27-5□G1	6SL3203-0BE21-8BA0	6SL3202-0AE21-8CA0
6SL3223-0DE31-1□G1	6SL3203-0BE23-8BA0	6SL3202-0AE21-8CA0
6SL3223-0DE31-5□G1	6SL3203-0BE23-8BA0	6SL3202-0AE28-8CA0
6SL3223-0DE31-8AG1	6SL3203-0BE23-8BA0	6SL3202-0AE28-8CA0
6SL3223-0DE31-8BA0	6SL3203-0BE27-5BA0	6SL3202-0AE28-8CA0
6SL3223-0DE32-2□A0	6SL3203-0BE27-5BA0	6SE6400-3TC03-8DD0
6SL3223-0DE33-0□A0	6SL3203-0BE27-5BA0	6SE6400-3TC05-4DD0
6SL3223-0DE33-7□A0	6SL3203-0BE31-1BA0	6SE6400-3TC08-0ED0
6SL3223-0DE34-5□A0	6SL3203-0BE31-1BA0	6SE6400-3TC07-5ED0
6SL3223-0DE35-5□A0	6SL3203-0BE31-8BA0	6SE6400-3TC14-5FD0
6SL3223-0DE37-5□A0	6SL3203-0BE31-8BA0	6SE6400-3TC15-4FD0
6SL3223-0DE38-8□A0	-	6SE6400-3TC14-5FD0

EMC
A = integrated EMC Class A filter
B = integrated EMC Class B filter

Select a Control Unit

Designation	Communication	Article number
CU230P-2 PN	PROFINET (PROFIdrive, PROFIenergy)	6SL3243-0BB30-1FA0
	Ethernet/IP (ODVA AC/AC Drive, SINAMICS Profile)	
CU230P-2 DP	PROFIBUS DP (PROFIdrive)	6SL3243-0BB30-1PA3
CU230P-2 HVAC	USS / Modbus RTU / BACnet MS/TP / FLN P1 Protocol	6SL3243-0BB30-1HA3

Select an operator panel and the required accessories

Designation	Article number	Designation	Article number
Basic Operator Panel (BOP-2)	6SL3255-0AA00-4CA1	Memory card SINAMICS SD Card 512 MB	6SL3054-4AG00-2AA0
Intelligent Operator Panel (IOP) with 13 user interface languages: DE, EN, IT, ES, FR, PT, RU, TK, FI, SV, NL, CS, PL	6SL3255-0AA00-4JA1	PC inverters connecting kit 2	6SL3255-0AA00-2CA0
Intelligent Operator Panel (IOP) with 3 user interface languages: DE, EN, ZH	6SL3255-0AA00-4JC1	Blanking cover for PM230 Power Modules IP55 degree of protection	6SL3256-1BA00-0AA0
IOP handheld	6SL3255-0AA00-4HA0	**Shield connecting kit 1 for CU230P-2 HVAC/DP**	6SL3264-1EA00-0FA0
IOP/BOP-2 door mounting kit	6SL3256-0AP00-0JA0	**Shield connecting kit 3 for CU230P-2 PN**	6SL3264-1EA00-0HB0

1) Power Modules PM230 mit integriertem Filter Klasse A erfüllen die Grenzwerte der EN 61800-3 Kategorie C2 und C3

2) Power Modules PM230 mit integriertem Filter Klasse B erfüllen die Grenzwerte der EN 61800-3 Kategorie C1 für leitungsgebundene Störabstrahlung

3) Power Modules PM230 (ungefiltert) mit externem Filter Klasse B erfüllen die Grenzwerte der EN 61800-3 Kategorie C1 für leitungsgebundene Störabstrahlung

4) PM230 mit Ausgangsdrossel erlauben zulässige Leitungslängen Umrichter-Motor von 150 m geschirmt (FSA...FSC) und 200 m geschirmt (FSD...FSF)

For complex tasks.

With the simplest solutions.

Increasing complexity of plants/systems and market globalization: SINAMICS G120P converter always provide the optimum response to address special process industry requirements.

Simply oriented to what is required in practice

SINAMICS G120P is now ready to address your global requirements. And with important functions such as speed control, control range, efficiency and communication level, it ensures simple handling.

Maximum flexibility

With the innovated PM330 Power Modules, the complete range of SINAMICS G120P devices is now available – and in all frame sizes and across all voltage ranges, from 400 V up to 690 V. A seamless and unified solution that can be flexibly deployed, and which significantly reduces your engineering and implementation costs.

Reliably protected

The new PM240P-2 Power Module increases your process reliability and safety: based on integrated safety functions and safety-related communication using a standard protocol. And an additional important benefit is the significantly lower wiring costs.

Developed for your industrial applications

The innovated PM330 Power Module:

- Higher degree of flexibility: with a new voltage level up to 690 V
- Space-saving: facilitates compact control cabinets
- Ruggedness: through numerous functions such as output voltage sensing
- Seamlessness: complete product series is available

The new PM240P-2 Power Modules:

- Process reliability and safety: highest safety level thanks to integrated safety functions, safe electronic shutdown (Safe Torque-Off / Safe Stop 1)
- Ruggedness: also for increased environmental conditions, such as temperatures from -10 °C to 60 °C – and aggressive environments (resistant to pollutants)
- Cost saving: increased energy efficiency with higher output voltage (98 percent) using the integrated DC link reactor

Value-added functions: for your industrial applications

Design and installation	• Connected to 3AC 400 V – with power ratings from 22 to 560 kW • Connected to 3AC 690 V – with power ratings from 11 to 630 kW • Up to 600 mm less space thanks to the compact design
Connection system	• Integrated and external Class A line filter • Lower line harmonics, low apparent current drawn, high power factor
Handling	• Simple integration into the automation landscape (Startdrive, TIA Portal) • User-friendly integration into the PCS 7 process control system, operation using faceplates
Integrated safety functions	• STO safety function SIL3 level to address the highest requirements in the process industry
Communication	• User-friendly integration into automation and process control systems with PROFIBUS and PROFINET
Ruggedness	• Reliable operation at ambient temperatures up to 60 °C • Even suitable for aggressive environments – components and coatings resistant to aggressive gases
Energy efficiency	• Efficiency higher than 98% • Flux reduction to adapt to the actual load • Hibernation mode • Efficient adaptation to the actual conveying power – up to three fixed-speed drives can be switched-in/switched-out

A seamless solution.

With a wealth of benefits.

Practical support – for selection, ordering and operation: our powerful engineering and selection tools.

SIZER engineering tool

Drive is engineered step by step: Simple to handle and fast to implement. With an extensive range of engineering options and intuitive navigation for a high degree of usability.

Starter / Startdrive

Straightforward parameterization and commissioning, reliable diagnostics and service. And with SINAMICS Startdrive you can leverage all the advantages of the TIA Portal when engineering your drives.

Built-in units with PM240P-2 and PM330 Power Modules in IP20

Select the Power Module ...				Built-in units
Degree of protection				IP20
3AC 380 – 480 V PM240P-2		Unfiltered		6SL321_-1RE__-_U__
		Filter Klasse A [1]		6SL321_-1RE__-_A__
Rated power			Frame size	Article number
kW	hp	A		
22	25	45	FSD	6SL3210-1RE24-5□L0
30	30	60	FSD	6SL3210-1RE26-0□L0
37	40	75	FSD	6SL3210-1RE27-5□L0
45	50	90	FSE	6SL3210-1RE28-8□L0
55	60	110	FSF	6SL3210-1RE31-1□L0
75	75	145	FSF	6SL3210-1RE31-5□L0
90	100	178	FSF	6SL3210-1RE31-8□L0
110	125	205	FSF	6SL3210-1RE32-1□L0
132	150	250	FSF	6SL3210-1RE32-5□L0
3AC 380 – 480 V PM330		Unfiltered [2]		6SL3310-1PE__-_AA0
160	200	300	GX	6SL3310-1PE33-0AA0
200	250	370	GX	6SL3310-1PE33-7AA0
250	300	460	GX	6SL3310-1PE34-6AA0
315	400	585	HX	6SL3310-1PE35-8AA0
355	450	655	HX	6SL3310-1PE36-6AA0
400	500	735	HX	6SL3310-1PE37-4AA0
450	500	840	JX	6SL3310-1PE38-4AA0
500	600	910	JX	6SL3310-1PE38-8AA0
560	700	1021	JX	6SL3310-1PE41-0AA0
3AC 500 – 690 V PM240P-2		Unfiltered		6SL3210-1RH__-_UL0
		Class A filter [5]		6SL3210-1RH__-_AL0
11	10	14	FSD	6SL3210-1RE21-4□L0
15	15	19	FSD	6SL3210-1RH22-0□L0
18.5	20	23	FSD	6SL3210-1RH22-3□L0
22	25	27	FSD	6SL3210-1RH22-7□L0
30	30	35	FSD	6SL3210-1RH23-5□L0
37	40	42	FSD	6SL3210-1RH24-2□L0
45	50	53	FSE	6SL3210-1RH25-2□L0
55	60	62	FSF	6SL3210-1RH26-2□L0
75	75	80	FSF	6SL3210-1RH28-0□L0
90	100	100	FSF	6SL3210-1RH31-0□L0
110	125	115	FSF	6SL3210-1RH31-2□L0
132	150	142	FSF	6SL3210-1RH31-4□L0
3AC 500 – 690 V PM330		Unfiltered [2]		6SL3310-1PG__-_AA0
315	350	340	HX	6SL3310-1PG33-7AA0
355	400	393	HX	6SL3310-1PG34-0AA0
400	450	430	HX	6SL3310-1PG34-5AA0
450	450	480	HX	6SL3310-1PG35-2AA0
500	500	535	JX	6SL3310-1PG35-8AA0
560	600	595	JX	6SL3310-1PG36-5AA0
630	700	665	JX	6SL3310-1PG37-2AA0

↑ **EMC**

U = unfiltered, A = integrated Class A EMC filter

... and the line-side components

Article number	Article number
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
External Class A filter [3]	Line reactor [4]
6SL3000-0BE33-1AA0	6SL3000-0CE33-3AA0
6SL3000-0BE33-1AA0	6SL3000-0CE35-1AA0
6SL3000-0BE35-0AA0	6SL3000-0CE35-1AA0
6SL3760-0MR00-0AA0	6SL3000-0CE36-3AA0
6SL3760-0MR00-0AA0	6SL3000-0CE37-7AA0
6SL3760-0MR00-0AA0	6SL3000-0CE37-7AA0
6SL3760-0MR00-0AA0	6SL3000-0CE38-7AA0
6SL3760-0MR00-0AA0	6SL3000-0CE41-0AA0
6SL3760-0MR00-0AA0	6SL3000-0CE41-0AA0
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
External Class A filter [3]	Line reactor [4]
6SL3760-0MS00-0AA0	6SL3000-0CH34-8AA0
6SL3760-0MS00-0AA0	6SL3000-0CH34-8AA0
6SL3760-0MS00-0AA0	6SL3000-0CH34-8AA0
6SL3760-0MS00-0AA0	6SL3000-0CH34-0AA0
6SL3760-0MS00-0AA0	6SL3000-0CH36-0AA0
6SL3760-0MS00-0AA0	6SL3000-0CH38-4AA0
6SL3760-0MS00-0AA0	6SL3000-0CH38-4AA0

Select a Control Unit

Designation	Communication	Article number
CU230P-2 PN	PROFINET (PROFIdrive, PROFIenergy) Ethernet/IP (ODVA AC/AC Drive, SINAMICS profile)	6SL3243-0BB30-1FA0
CU230P-2 DP	PROFIBUS DP (PROFIdrive)	6SL3243-0BB30-1PA3
CU230P-2 HVAC	USS / Modbus RTU / BACnet MS/TP / FLN P1 protocol	6SL3243-0BB30-1HA3

Select an operator panel and the required accessories

Designation	Article number	Designation	Article number
Basic Operator Panel (BOP-2)	6SL3255-0AA00-4CA1	Memory card SINAMICS SD Card 512 MB	6SL3054-4AG00-2AA0
Intelligent Operator Panel (IOP) with 13 user interface languages: DE, EN, IT, ES, FR, PT, RU, TK, FI, SV, NL, CS, PL	6SL3255-0AA00-4JA1	PC-converter connecting kit 2	6SL3255-0AA00-2CA0
Intelligent Operator Panel (IOP) with 3 user interface languages: DE, EN, ZH	6SL3255-0AA00-4JC1		
IOP Handheld	6SL3255-0AA00-4HA0	**Shield connection kit 1 for CU230P-2 HVAC/DP**	6SL3264-1EA00-0FA0
IOP/BOP-2 Door mounting kit	6SL3256-0AP00-0JA0	**Shield connecting kit 3 for CU230P-2 PN**	6SL3264-1EA00-0HB0

0 = Standard
1 = Push Through

1) PM240P-2 Power Modules with integrated Class A filter comply with limit values of EN 61800-3 Category C2
2) PM330 Power Modules in the basic version comply with limit values of EN 61800-3 Category C3
3) PM330 Power Modules with external Class A filters comply with limit values of EN 61800-3 Category C2
4) Line reactors must be used with PM330 Power Modules
5) PM240P-2 Power Modules with integrated Class A filter comply with limit values of EN 61800-3 Category C3

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