SIEMENS

SINAMICS G120D

The perfect solution for demanding, distributed control applications

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Answers for industry.

SINAMICS G120D

The distributed drive with built-in safety — as well as positioning and regenerative capability

SINAMICS G120D is the first choice for demanding conveyor-related applications in the industrial environment, where a distributed drive is required. The G120D is perfect for demanding applications in the material handling industry including conveyor systems in the food and beverage industry, conveyor systems in the automotive industry, and conveyor systems for baggage handling systems. Additionally, it is suitable for multiple applications in distribution logistic such as electric monorails.

The optimal single-motor drive for high-performance solutions

SINAMICS G120D sets itself apart as a result of its extremely low-profile design, identical mounting hole pattern for all power ratings and a high degree of environmental protection (IP65 / NEMA 3R). The distributed drive offers safety functions that make it absolutely unique in its class. Braking resistors are not required, as it is capable of using regeneration to control motor speed. As a result, it plays a decisive role when it comes to energy saving. The G120D offers common communication protocols such as PROFINET and EtherNet / IP.

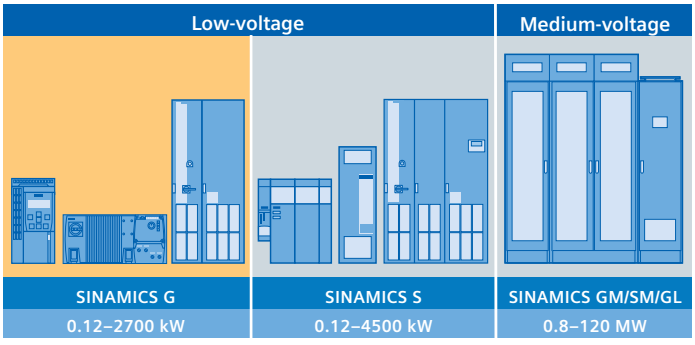
SINAMICS G120D sets new standards in distributed architectures. It has a modular design — comprised of a power module and a control unit and covers a wide power range extending from 1–10 hp.

SINAMICS — one family, one source, all applications.

The G120D is a part of the SINAMICS family of integrated drives, which offers the optimal drive for every application. As a result, these drives can be configured, parameterized, commissioned and operated in a standard fashion.

SINAMICS offers a variety of advantages:

- Wide range of power ratings from 0.12–120 MW
- Available in a low-voltage and medium-voltage versions
- Standard and unified functionality as a result of the common hardware and software platform
- All drives are engineered in the same way — SIZER for engineering and STARTER for parameterizing and commissioning
- High degree of flexibility and combinability



Highlights at a glance

- Positioning capability using an incremental and / or absolute position measuring system
- Extended safety functions
- Regen capable with low line harmonics
- Built in safety I/Os
- Higher number of I/Os
- Simple and fast diagnostic capability
- IRT and PROFIenergy-capable
- Profinet, EtherNet/IP among others
- Standard connector systems
- Rugged, low-profile design

SINAMICS G120D — advantages

	G120D features	Your benefits
	Integrated functions	
	▪ Positioning functionality	▪ Process-related implementation of positioning tasks ▪ The PLC is relieved of additional positioning tasks, therefore a smaller PLC can be frequently used with higher associated dynamic performance of the positioning task ▪ Modules can be eliminated (positioning module, encoder interface)
	▪ Safety functions	▪ Simpler implementation of safety concepts without requiring any additional external components (an encoder is not required) ▪ Faster system approvals ▪ Cost savings
	▪ Standard and fail-safe I/O can be used as distributed PLC I/O	▪ Distributed I/O can be eliminated ▪ Lower wiring costs ▪ Cost-savings
	▪ Energy recovery	▪ Braking resistor is not required ▪ Lower engineering costs ▪ Space saving ▪ Energy and cost saving
	▪ Logic functionality (FFB)	▪ Implementation of fast, open-loop control tasks — for example, rapid traverse-crawl switchover directly in the inverter ▪ Relieves the load on the PLC
	Communication	
	▪ Via PROFIBUS, PROFINET and EtherNet / IP ▪ PROFINET features: – Neighboring device detection (LLDP) – Ring-type structure possible (MRP, MRPD) – IRT-capable, PROFIenergy, PROFIsafe – Shared device	▪ Fast communication with innovative functions ▪ High plant / system availability ▪ Diagnostics capability; energy management ▪ Simple replacement in the case of a fault
	▪ Diagnostic alarms	▪ Simple and fast diagnostic capability
	User-friendly	
	▪ Simple commissioning using graphical parameterizing software	▪ Commissioning without expert knowledge
	▪ Series commissioning and simple drive replacement using an optional memory card	▪ Faster replacement in case of a fault increasing system availability ▪ Memory card permits consistent data management by automatically accepting the saved parameters
	▪ TRACE and measuring functions	▪ Simplified drive optimization and optimal diagnostics support
	Ruggedness	
	▪ Metal housing with a high degree of protection (IP65)	▪ A cabinet is not required ▪ Shorter, shielded motor cables ▪ Process-oriented mechanical design

Selection and ordering information

Control Units

Designation	Communication	Order No.: Control Unit
Standard/safety		
CU240D-2 DP	PROFIBUS DP	6SL3544-0FB20-1PA0
CU240D-2 DP-F	PROFIBUS DP	6SL3544-0FB21-1PA0
CU240D-2 PN	PROFINET, EtherNet/IP	6SL3544-0FB20-1FA0
CU240D-2 PN-F	PROFINET, EtherNet/IP	6SL3544-0FB21-1FA0
CU240D-2 PN-F PP	PROFINET, EtherNet/IP	6SL3544-0FB21-1FB0
Positioning-capable/safety		
CU250D-2 DP-F	PROFIBUS DP	6SL3546-0FB21-1PA0
CU250D-2 PN-F	PROFINET, EtherNet/IP	6SL3546-0FB21-1FA0
CU250D-2 PN-F PP	PROFINET, EtherNet/IP	6SL3546-0FB21-1FB0

Power Modules

Rated power 3AC 380...500V		Rated output current	Frame size	Order No.: PM 250 D
kW	**hp**	**A**		
0.75	1	2.2	FSA	6SL3525-0PE17-5AA1
1.5	1.5	4.1	FSA	6SL3525-0PE21-5AA1
3	4	7.7	FSB	6SL3525-0PE23-0AA1
4	5	10.2	FSC	6SL3525-0PE24-0AA1
5.5	7.5	13.2	FSC	6SL3525-0PE25-5AA1
7.5	10	19	FSC	6SL3525-0PE27-5AA1

Technical data

Power rating	0.75 ... 7.5 kW
Degree of protection	IP65
Line voltage	3 AC 380 ... 500V ±10 %
Operating temperature	–10...+55 °C with derating*
Overload capability (high overload HO)	200% for 3 s plus 150% for 57 s within a duty cycle of 300 s
Line frequency	47 ... 63 Hz
Supply voltage	External 24V DC
Mounting dimensions (W x H x D) incl. Control Unit in mm	• FSA, 0.75 ... 1.5 kW: 450 x 210 x 110 • FSB, 3 kW: 450 x 210 x 180 • FSC, 4 ... 7.5 kW: 450 x 210 x 220
PROFIenergy	Acc. to the standard
Environmental conditions	• Shock and vibration load acc. to EN 6008-2 • Protection class acc. to EN 61800-5-1
Protection functions	• Motor temperature monitoring with (PTC / KTY / Thermoklick) and without temperature sensor • Load cycle monitoring • System protection functions
Brake functions	• Integrated control for motor holding brake/operating brake • Electronic braking with energy recovery into the line supply
Conformance with standards	UL, cUL, CE, c-tick
Electromagnetic compatibility	EMC standard EN 61800-3 (integrated Class A filter)
Motors that can be connected	3-phase induction motors
Accessories	
Hardware	• Memory card (MMC or SD) • PC connecting cable via USB • Connector sets • Pre-assembled cables
Software	STARTER from version 4.3

Control Unit	CU240D-2 DP, CU240D-2 PN	CU240D-2 DP-F, CU240D-2 PN-F, CU240D-2 PN-F PP	CU250D-2 DP-F, CU250D-2 PN-F, CU250D-2 PN-F PP
Open-loop / closed-loop control technique	V/f, FCC, vector with / without encoder		
Communication			
Bus interface	PROFIBUS DP, PROFINET I/O, PROFIsafe, EtherNet/IP		
Safety functions			
Integrated safety functions according to Cat. 3 acc. to EN 954-1, PId acc. to ISO 13849-1 and SIL 2 acc. to IEC 61508	Safe Torque Off (STO)	Safe Torque Off (STO) Safe Stop 1 (SS1) Safely-Limited Speed (SLS) Safe Direction (SDI) Safe Speed Monitoring (SSM)	
Electrical data			
Fixed frequencies	16, programmable		
Digital outputs	2, parameterizable, max. 0.5 A	2, or 1 safety output, max. 0.5 A	
Digital inputs	6, parameterizable	6, or up to 3 safety inputs	
Analog inputs	2, parameterizable, or 2 additional DI		–
Encoder input	1x HTL incremental encoder		1x HTL incremental encoder; 1x SSI absolute encoder
Positioning functionality	–		Absolute or incremental positioning via: 16 traversing blocks or MDI direct set-point input (2 encoders can be operated in parallel)
Operating functions	• Digital input signals are locally pre-processed • Automatic restart • Flying restart • Slip compensation • Motor temperature monitoring • Jogging mode and a lot more		... in addition: • Positioning mode • Referencing • Jogging mode

* limit value is dependent on the CU being used

Siemens Industry, Inc.
5300 Triangle Parkway, Suite 100
Norcross, GA 30092
1-770-871-3800

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