SIEMENS

SINAMICS G120D

The specialist for demanding, distributed conveyor applications – positioning-capable and with extended safety functions

Inverters

siemens.com/sinamics-g120d

SINAMICS G120D

The distributed, safe inverter with energy recovery and positioning capability

SINAMICS G120D is the first choice for demanding conveyor-related applications in the industrial environment, where a distributed drive capable of communication is required. Prime example: Assembly lines in the automotive sector. Further, it is also suitable for many additional high-performance applications in the area of airports, food and beverage industry (without tenside) and in distribution logistics (e.g. electric monorails), etc.

Highlights at a glance
Integrated functions
• Positioning capability using an incremental and/or absolute position measuring system
• Extended safety function
• Energy recovery, low line harmonics, energy saving, braking resistors are not required
• Safety I/Os on board
Communication
• Higher number of I/Os
• Simple and fast diagnostic capability
• IRT and PROFIenergy-capable
Mechanics
• Only few parts have to be stocked as a result of the modularity
• Standard connector systems
• Rugged, low-profile design

The optimum single-motor drive for high-performance solutions

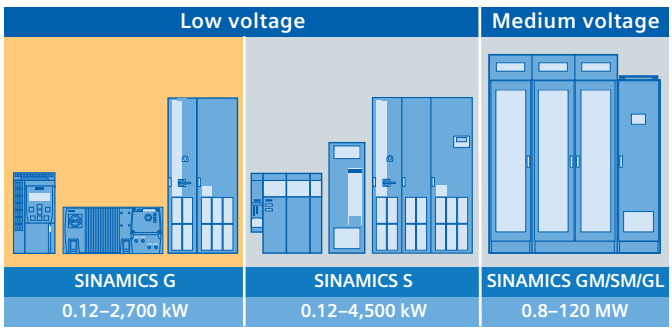
SINAMICS G120D sets itself apart as a result of its extremely low-profile design, identical drilling pattern for all power ratings and the high degree of protection. The distributed inverter offers safety functions that make it absolutely unique in its class. Braking resistors are not required, as it is capable of energy recovery when in the generating mode. As a consequence, it plays a decisive role when it comes to energy saving, and it goes without saying that it is communication-capable.

SINAMICS G120D sets new standards in distributed architectures. It has a modular design – comprising Power Module and Control Unit – and covers a wide power range extending from 0.75 kW up to 7.5 kW.

A member of the SINAMICS drive family for innovative drive solutions that are fit for the future

- Wide range of power ratings from 0.12 kW to 120 MW
- Available in a low-voltage as well as a medium-voltage version
- 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
  - STARTER for parameterizing and commissioning
- High degree of flexibility and combinability

SINAMICS has the optimum drive for every application. A real highlight: All of the drives can be configured, parameterized, commissioned and operated in the same identical fashion.



SINAMICS G120D – their advantages

	Function	Benefit
Integrated functions		
	• Positioning functionality	• Process-related implementation of positioning tasks • The PLC is relieved of additional positioning tasks, therefore frequently a smaller PLC can be 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 not required • Lower engineering costs • Space saving • Energy and cost saving
	• Logic functionality (FFB)	• Implementation of fast, open-loop control tasks, for instance, rapid traverse-crawl switchover directly in the inverter • Relieves the load on the PLC
Communication		
	• Via PROFIBUS DP and PROFINET • 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-friendliness (usability)		
	• Simple commissioning using graphically prompted parameterizing software	• Commissioning without expert knowledge
	• Series commissioning and simple inverter replacement using an optional	• Faster replacement in the case of a fault increases system availability • Memory card permits consistent data management by automatically accepting the saved parameters
	• TRACE and measuring functions	• Simplified drive optimization and optimum 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

Technical data

Power rating	0.75 ... 7.5 kW
Degree of protection	IP65
Line voltage	3 AC 380 ... 500 V ±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 24 V 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		
Safety functions			
Integrated safety functions according to Cat. 3 acc. to EN 954-1, Pld 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 setpoint 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

Ordering data 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	6SL3544-0FB20-1FA0
CU240D-2 PN-F	PROFINET	6SL3544-0FB21-1FA0
CU240D-2 PN-F PP	PROFINET	6SL3544-0FB21-1FB0
Positioning-capable/safety		
CU250D-2 DP-F	PROFIBUS DP	6SL3546-0FB21-1PA0
CU250D-2 PN-F	PROFINET	6SL3546-0FB21-1FA0
CU250D-2 PN-F PP	PROFINET	6SL3546-0FB21-1FB0

Power Modules

Rated power 3 AC 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

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