SINAMICS G110D

The cost effective solution for distributed inverter applications

Brochure · April 2009

SINAMICS Drives

Answers for industry.

SIEMENS

SINAMICS G110D

Mechanically optimal and bus configurable

Application: Conveyor systems

The distributed SINAMICS G110D inverter has been specifically designed to address conveyor technology applications in the industrial environment. It is used in distribution logistics, in airports as well as for many other conveyor-related tasks where a distributed drive is required, which is either communications capable or can be operated with I/O.
Further, SINAMICS G110D is suitable for basic, controlled applications as well as those in which AS-Interface connections are used, e.g. in the food and beverage industry (without tensides, surfactants or surface-active agents) and in the packaging industry.

Perfect for distributed requirements

The SINAMICS G110D inverter sets new standards for basic, distributed applications. It distinguishes itself by its extremely low profile, compact and space-saving design as well as its enclosure rating. Its drilling pattern, which is identical for all power ratings, ensures that it can be easily exchanged (also for SINAMICS G120D).
It covers a wide power range from 0.75 kW to 7.5 kW (1.0 HP to 10 HP) and has many advantages as a result of the AS-Interface bus configuration, quick stop functions as well as the optional maintenance and manual-auto switch that is directly integrated into the drive. These and other features make it user friendly and simple to engineer.
Distributed control solutions can be quickly and easily implemented using these scalable products:

- SIRIUS M200D (motor starter)
- SINAMICS G110D (inverter for basic conveyor-related applications)
- SINAMICS G120D (inverter for sophisticated conveyor-related applications).

Highlights

Mechanic system

- Low profile design
- All ratings have the same drilling pattern
- Robust metal enclosure
- Enclosure rating: IP65
- Installed close to the motor (easily accessible for manual control, maintenance, etc.)
- Standardized connectors for all connections

Electronics

- Optional maintenance switch
- Optional manual-auto switch
- Quick stop
- Integrated brake control 180 V DC and 205 V DC
- Software braking functions
- Integrated braking chopper

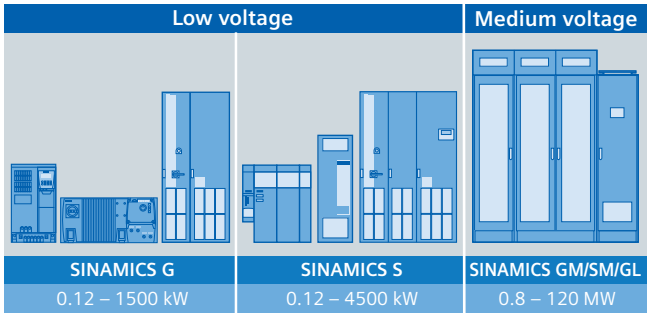
Communication

- AS-Interface with bus configuration
- Integrated in Totally Integrated Automation

SINAMICS G110D is part of the SINAMICS drive family for innovative and leading-edge drive solutions

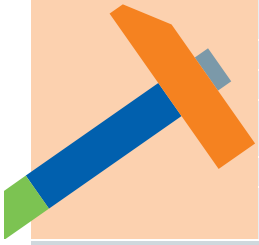
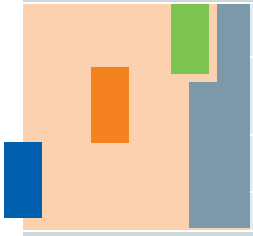
- Broad range of power ratings from 0.12 kW to 120 MW
- Low-voltage and medium-voltage versions available
- Seamless, integrated functionality by using common hardware and software platforms
- Common engineering and configuration tools
  - SIZER for engineering
  - STARTER for configuration and commissioning
- High degree of flexibility and ability to be combined

Whatever the drive task, SINAMICS has the optimum drive – and they can all be engineered, parameterized, commissioned, and operated in the same way.



SINAMICS G110D

Innovation for distributed drive technology

Function	Benefits
Optimized design	
 Compact and space-saving design with an extremely low profile	Low space requirement Significantly simpler mechanical design, installation and retrofitting of the plant or system
Identical drilling pattern for all power ratings from 0.75 kW to 7.5 kW (1.0 HP to 10 HP) (dimensions are identical to those of SINAMICS G120D)	Simplifies engineering Reduces the number of spares required to support a system
Mechanically and electrically rugged	
 Wide voltage range from 380 V to 500 V ±10 %	Continuous operation through voltage fluctuations High plant and system availability
Metal housing	Supports machine mounting; does not require an enclosure
Coated electronic modules	Operation in harsh environments
Short-circuit proof inputs and outputs	Protection against faulty wiring Protection against failed sensors
Integrated Class A EMC filter (acc. to EN 55011)	Reduction of EMC emissions
Integrated motor protection using a thermal model and Thermoclick and PTC/KTY evaluation	Increased operational lifetime of the motor
Fast commissioning and extremely easy to maintain	
 Standardized plug connections for the fieldbus, power and inputs and outputs	Reduction of the number of system components and stock of spare parts High plant availability and service friendliness Reduction of the exchange times
Extended communication and diagnostic functions via AS-Interface	Reliable maintenance and plantwide engineering Cost effective connectivity to a higher level controller (e.g. Totally Integrated Automation)
Operator-friendly parameter structure	Fast and simple commissioning and maintenance
Can be operated using the following: Intelligent Operator Panel (IOP) with plain text messages, locally at the inverter The STARTER commissioning tool	Quick, user friendly configuration Easy drive parameter cloning Simple diagnostics and troubleshooting
Optional Maintenance switch integrated in the drive	Fewer components than for a discrete design No additional wiring costs
Manual control using key-operated switch and push-buttons, directly mounted on the drive	User friendly and simple engineering Simple local operator control for commissioning and service
Memory card holder and MMC memory card	Fast standard commissioning Fast copying and saving of parameters Simple device replacement
Standardization	
 Wide range of power ratings from 0.75 to 7.5 kW (1.0 to 10 HP)	Uniform plant engineering for the entire power range
Standard plug connections of the distributed SINAMICS G110D and SINAMICS G120 inverters as well as the SIRIUS M200D motor starter	Confusion-proof and reduction of stock Simple plant and component engineering
Engineering and commissioning using standard tools such as SIZER, STARTER for all SINAMICS inverters	Fast engineering and simple commissioning Central data management, integrated communication
Globally certified acc. to CE, UL, c-tick	For plant construction companies that are accepted worldwide
Intelligent functions	
 Integrated brake control with multiple voltages within a single device	Simple device selection and engineering Reduction of spare parts
Quick stop	Fast response, rough positioning

SINAMICS G110D

Technical data

G110D (FSA, FSB and FSC)	
Power rating	0.75 ... 7.5 kW [1.0 ... 10 HP]
Degree of protection	IP65
Mounting dimensions (W x H x D) in mm [(W x H x D) in inches]	with maintenance switch: FSA: 0.75 ... 3 kW: 450 x 210 x 145 [1.0 ... 2.2 HP: 1.8 x 0.8 x 57] without maintenance switch: FSA: 0.75 ... 3 kW: 450 x 210 x 125 [1.0 ... 2.2 HP: 1.8 x 0.8 x 49] with/without maintenance switch: FSB: 4 kW: 450 x 210 x 165 [3 HP: 1.8 x 0.8 x 64] FSC: 5.5 ... 7.5 kW: 450 x 210 x 240 [4.1 ... 10 HP: 1.8 x 0.8 x 94]
Electrical data	
Line supply voltage	380 ... 500 V 3 AC ±10 %
Line frequency	47 ... 63 Hz
Overload capability (high overload HO)	Average max. rated output current during a cycle time of 300 s 1.5 × rated output current (i.e. 150 % overload) over 60 s for a cycle time of 300 s 2 × rated output current (i.e. 200 % overload) over 3 s for a cycle time of 300 s
Rated input current (at 40 °C ambient temperature)	2.0 ... 17.9 A (high overload HO)
Rated output current (at 40 °C ambient temperature)	2.3 ... 19 A (high overload HO)
Output frequency	0 ... 650 Hz
Pulse frequency	4 kHz (Standard) 4 ... 16 kHz (in 2 kHz steps) with automatic reduction
Supply voltage	Control module: 30 V DC Power unit: 24 V DC
Skip frequencies	4, programmable
Skip frequency range	1, programmable
Fixed frequencies	6, programmable
Digital inputs	4, locally at the device 2, can be addressed via AS-Interface, configurable or programmable, electrically isolated
Analog inputs	1 (0 ... 10 V); 0.5 A, supplied through a switched 24 V
Electromagnetic compatibility	EMC Standard EN 61800-3

Communication	
Bus interface	AS-Interface
Functions	
Open-loop/ closed-loop control technique	*V/f*, FCC
Operating functions	• Digital input signals are locally pre-processed • Positioning down ramp • Automatic restart • Flying restart • Slip compensation • Motor temperature monitoring • Jog operation – and many more
Protective functions	• Motor temperature monitoring with and without temperature sensor (Thermoclick and PTC/KTY) • Load duty cycle monitoring • Power unit monitoring • Plant/system protective functions
Braking functions	• Integrated control for a motor holding brake/operating brake • Electronic braking using a software brake and braking resistor
Motors that can be connected	3-phase synchronous and induction motors
Standards	
Standards conformance	UL, CE, c-tick
Commissioning software	
	STARTER, SIZER
Accessories	
	• Maintenance switch as option, mounted on the drive • Manual control using a key-operated switch and pushbuttons as option, mounted on the drive • Braking resistor • MMC card and card holder • PC connecting cable, RS232 and USB • Connector sets • Pre-fabricated cables

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