SIEMENS

SINAMICS Low Voltage Converters

Efficient. Versatile. Fit for the future. Simply my drive.

Edition 2020

siemens.com/sinamics

Into the digital future – with simplicity and versatility

With the SINAMICS family of converters from Siemens, you can simply and efficiently address each individual drive application – in the low, medium and DC voltage domains. All of the drive components are perfectly harmonized and coordinated with one another. Siemens converters, motors and control systems can be immediately and seamlessly integrated into the drive train and into existing automation landscapes. Simply select the appropriate drive components and start to commission your drive system.

Fit for a digital future – with SINAMICS, you have the optimum basis to address all of the requirements relating to digitalization.
As a result of the convenient connection to MindSphere – the Cloud-based solution – you can simply boost the efficiency of your production and reduce downtimes to a minimum based on innovative maintenance concepts.

SINAMICS – simply my drive.

Smart financing solutions for industry
Smart financing solutions from Siemens Financial Services make it easy for you to use the latest technology and software while conserving your budget. We develop payment plans that are individually tailored to your requirements. Benefit from technology and financing from a single source and contact us today!

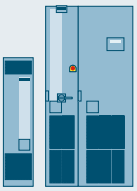
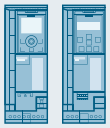
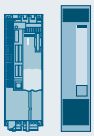
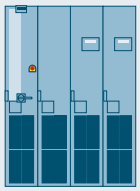
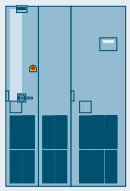
www.siemens.com/finance, marketing.sfs@siemens.com, Tel.: +49 89 636-30049

Contents:

The SINAMICS family for all power & performance classes

Always the optimum version – for every application, power rating and requirement: The wide range of SINAMICS converters has precisely the solution you require for your application.

Low voltage

Standard performance converters				Industry specific converters		High performance converters	
						  	
V20	G120C	G120	G130 / G150	G120X	G180	S120	S150
0.12 – 30 kW	0.55 – 132 kW	0.55 – 250 kW	75 – 2.700 kW	0.75 – 630 kW	2.2 – 6.600 kW	0.55 – 6.840 kW	75 – 1.200 kW

SINAMICS – versatility for maximum efficiency

Extensive portfolio

Customized power, performance and functionality: SINAMICS converters have a huge degree of flexibility – and also provide future-proof solutions for your applications.

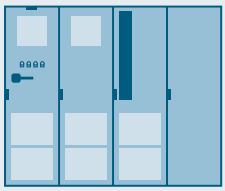
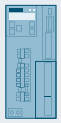
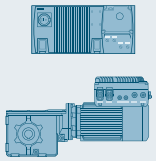
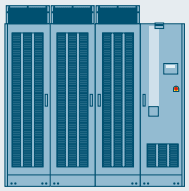
Digitalization

SINAMICS converters are ready & prepared for the digital era: Operating data can be directly transferred to Cloud platforms via MindConnect. The information collected there can help to make your plant or system more productive in the future and reduce downtimes to a minimum.

Efficient engineering

Powerful tools support you over the complete lifecycle when configuring, engineering, commissioning and troubleshooting your SINAMICS drive solution. Further, these tools also help you optimize your processes.

Experience more:
siemens.com/sinamics-pcs
siemens.com/micro-drive
siemens.com/medium-voltage-converter

	Grid converter	Servo converters			Distributed converters		Medium voltage For demanding applications with high power ratings		
									
DCM (DC)	PCS	SIMATIC MICRO-DRIVE	V90	S210	S120M	G115D / G120D	GL150 / SL150	SM120 CM / SM150 / GM150	GH150 / GH180
6 kW – 30 MW	435 – 870 kW	0.1 – 1 kW	0.05 – 7 kW	0.05 – 7 kW	0.25 – 1.1 kW	0.37 – 7.5 kW	2.8 – 85 MW	0.8 – 58 MW	0.15 – 28.5 MW

Safety Integrated

Maximum safety for operating and maintenance personnel: Safety functions are already integrated in our SINAMICS drives. You benefit from shorter response times, a higher degree of cost-effectiveness and lower wiring costs.

Drive-system solution

Profit from our modular automation concept that can be scaled as required: SINAMICS converters operate perfectly with SIMOTICS motors, SIMOGEAR geared motors – as well as SIMATIC, SINUMERIK and SIMOTION control systems. All of the components communicate seamlessly via PROFINET.

Services across the complete lifecycle

From spare parts management up to optimized maintenance concepts: Based on customized service quotations for your SINAMICS converters, you can sustainably secure maximum availability and productivity of your plants and systems.

The optimum converter for each and every application

Depending on the actual power rating and functionality, the following converters are available, for example:

Pumping/ventilating/compressing

- SINAMICS V20
- SINAMICS G120X
- SINAMICS G130 / G150
- SINAMICS G180

SINAMICS supports the continuous and energy-efficient operation of pumps, fans and compressors – either running continuously or requiring a high dynamic performance. The advantages include especially precise flow control, short response times – and the avoidance of damaging vibration levels and cavitation.

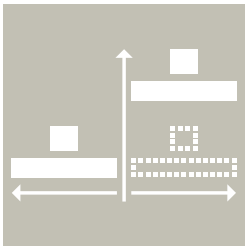
Moving

- SINAMICS G120C
- SINAMICS G120D
- SINAMICS G115D
- SINAMICS DCM

Energy-efficient and rugged solutions for basic conveyor technology with roller or chain conveyors, for hoisting gear and elevators – as well as for storage and retrieval machines that demand a high dynamic performance – and always with Safety Integrated onboard.

- Standard performance converters
- Converters for specific industries
- High performance converters
- Servo converters
- Distributed converters

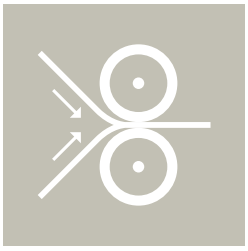
Positioning



- SINAMICS G120
- SINAMICS G120D
- SINAMICS S210
- SINAMICS S120

When high dynamic performance and precision are demanded: SINAMICS ensures precise positioning of individual axes, allows several axes to be interpolated in a coordinated fashion – for example as required in complex robotic applications.

Processing



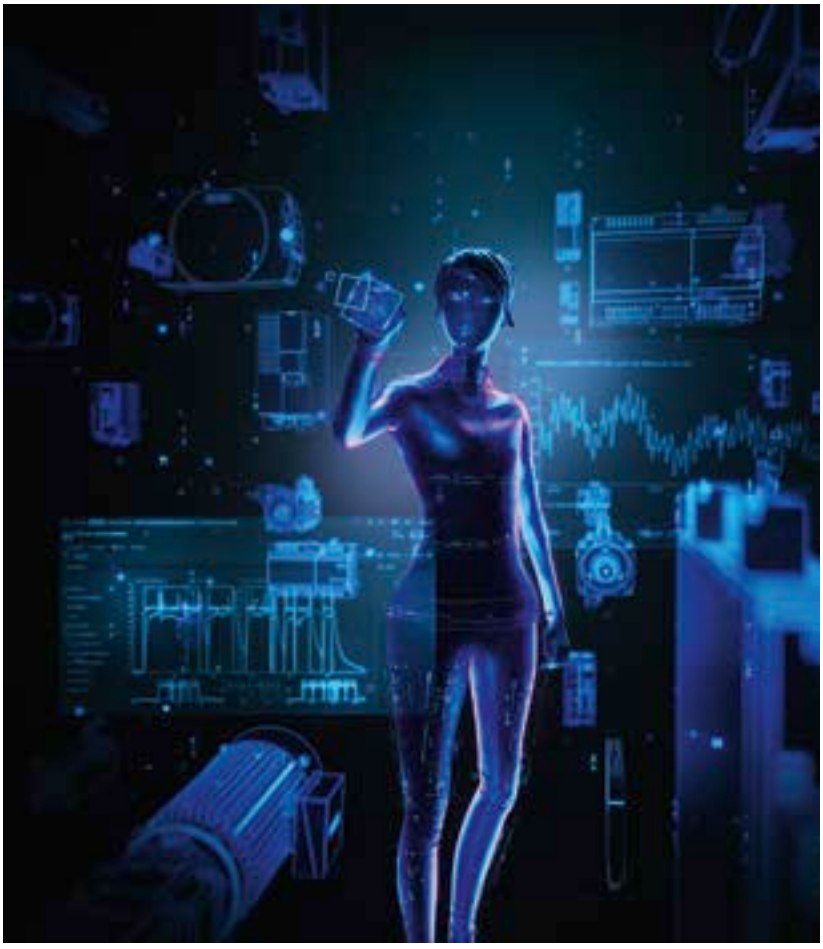
- SINAMICS G120
- SINAMICS S210
- SINAMICS S120
- SINAMICS S150
- SINAMICS DCM

SINAMICS is the ideal solution for continuously running processes demanding high speed and torque precision, for instance, for extruders, centrifuges, agitators and all types of production machines – motion control, isochronous communication and Safety Integrated.

Machining

- SINAMICS S120

Whether high-speed spindles or feed and auxiliary axes for turning, milling, drilling and sawing: SINAMICS is the perfect drive for all applications in material processing. Fast adaptability and minimum equipping times play a decisive role when it comes to achieving high productivity.



Digitalization – for higher availability, productivity and flexibility

Highlights

- **Drive technology as entry point into digitalization**
- **Transparency along the complete drive train**
- **Virtualization, engineering tools, connectivity and analytics**
- **Cloud and Edge solutions**
- **Identification and implementation of optimization measures**
- **Development of new business and service models**

Digital technologies also provide a great opportunity to make your production even more efficient and cost-effective and secure – without having to invest in completely new infrastructures.

Our digitalization portfolio covers the complete value-added chain. Starting with virtualization, where digital twins of drive trains facilitate physical simulation and virtual commissioning. Seamless engineering tools make it simpler to integrate converters and motors in your plants and systems. Our connectivity – independent of any specific platform – connects your drives with all the relevant platforms. Finally, using cloud or edge apps and data analysis models, you can derive valuable knowledge from the drive data of the application or machine.

Effectively utilizing drive data facilitates event-oriented monitoring as well as predictive maintenance concepts, while at the same time reducing unscheduled downtimes. By capturing drive and status data, anomalies can be identified at an early stage – and even avoided in the first place.

Edge computing supplements pure cloud solutions so that data in the field can be used even more simply and more flexibly. With edge computing, data is directly captured at the drive in the machine, analyzed and processed without any latency. This is important, because if a problem or fault becomes apparent, then it is crucial to react quickly.

Connecting SINAMICS converters to the Industrial Edge platform facilitates complex analysis of data that is already captured in the drive. Smart algorithms identify patterns, based on which anomalies can be identified providing information plenty of time in advance about the health of a drive train and the application as well as pending maintenance activities.

siemens.com/digital-drives

Efficient engineering over the complete lifecycle

Selecting products with the DT Configurator

From gear units through motors and converters up to the control system: Using the Drive Technology Configurator, you can quickly select the optimum products to address your specific applications.

The TIA Portal includes SINAMICS Startdrive to intuitively integrate SINAMICS drives into the automation landscape

Perfect interaction between SINAMICS drives and SIMATIC controllers:
The same operating concept, elimination of interfaces and the high level of user-friendliness make it possible to quickly integrate SINAMICS converters into the automation environment and commission them using the TIA Portal.

SIZER for simple drive engineering

Starting from your application, the tool supports you step-by-step when defining the mechanical system as well as when selecting and dimensioning converters, motors and gear units.

In addition to engineering results such as characteristics, technical data, installation drawings and dimension drawings, SIZER for Siemens Drives also calculates the performance and the load-dependent energy usage.

SinaSave to identify energy-saving potential

Using the SinaSave web-based tool, you can identify the energy-saving potential that your SINAMICS converter can free up. The evaluation provides information about the specific energy-saving potential, a financial analysis as well as information regarding the expected payback time.

Commissioning and diagnostics

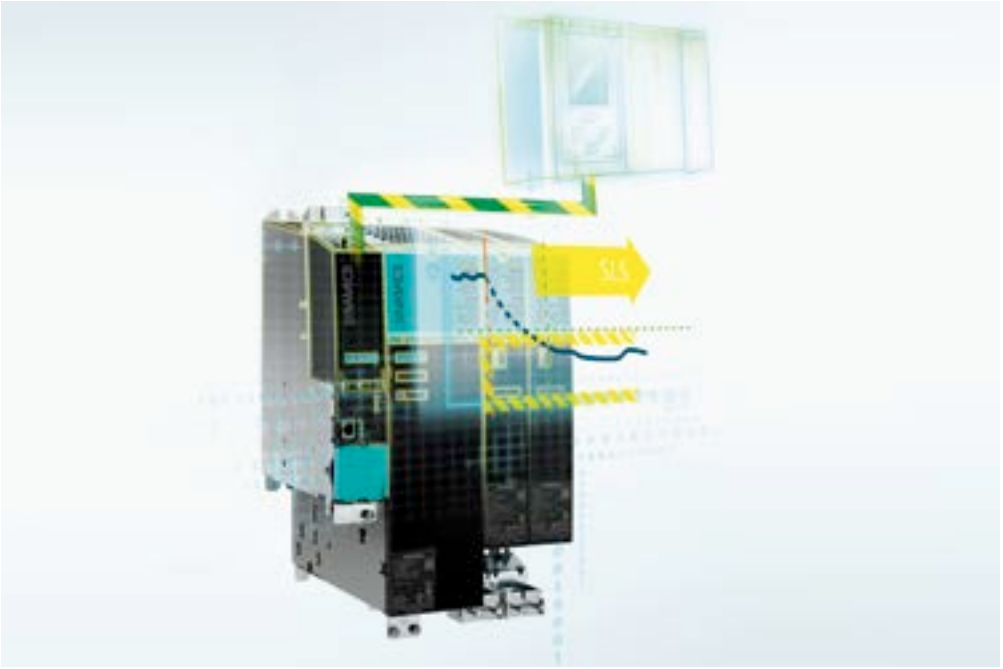
Operation, either locally or from a mobile device, monitoring, commissioning, diagnostics and service using the SINAMICS V20/ G120 Smart Access Module, IOP-2 or BOP-2 and the AOP30.

Highlights

- **Leverage all of the convenient TIA Portal functions for converter and drive engineering**
- **Fast selection, configuring and ordering**
- **Simple commissioning**
- **Determine energy-saving potential**

siemens.com/engineering-tools
siemens.com/tiaportal

siemens.com/dt-configurator



Safety Integrated – simply safe, twice the efficiency

Highlights

- **Certified system solution in compliance with the applicable standards**
- **Lower system costs due to fewer components and lower wiring costs**
- **Faster commissioning/ maintenance**
- **Higher productivity through shorter downtimes**

Optimum support for machine OEMs and machine operators:

With Safety Integrated in SINAMICS drives, you are not only selecting a safe technical solution, but you also benefit from perfect support relating to all safety issues. This starts with the seamless integration of safety technology in SINAMICS drives and in SIMATIC, SINUMERIK and SIMOTION control systems. This certified system offers valuable support in the workflow, such as engineering in the TIA Portal, documentation in compliance with the applicable standards using the Safety Evaluation Tool – all the way up to an integrated acceptance test.

Safety Integrated does away with electromechanical components. For you, this means that you require less space in your control cabinet, and you can reduce your costs when it comes to stocking spare parts and maintenance. Further, there is no wear as shutdown is realized purely electronically. Even when safety functions respond, the converter remains connected to the line supply – and can still be fully diagnosed.

Customized safety concepts with Safety Integrated can be very easily implemented based on the safety-related communication via PROFIsafe. You benefit from higher productivity with minimized downtimes.

siemens.com/safety-drives

Perfect interaction – the drive system solutions

The SINAMICS family is perfectly designed to interact with all automation components from the word go – with straightforward, seamless engineering and products that are perfectly harmonized and coordinated with one another. All of the drive elements seamlessly operate with one another, from converters through motors up to gear units and couplings.
The converters can be optimally linked to control systems such as SIMATIC, SINUMERIK and SIMOTION. Communication is established quickly and safely via PROFINET.

As a consequence, SINAMICS converters provide you with a complete solution that can be flexibly scaled to address your automation task. This means that you not only reduce time and costs, but you can also secure a sustainable lead in the market.

Highlights

- **Drive components that are optimally harmonized and coordinated with one another**
- **Seamless and future-proof complete solution**
- **Efficient engineering and simple commissioning**

siemens.com/sinamics

Cutting edge services – to continuously improve your production environment

Highlights

- **Maximum system availability and operational reliability through tailored services**
- **Improved operating conditions with costs that can be transparently budgeted**
- **Extension of the product lifecycle of machines and systems**

If you want to remain competitive, then you must be able to dynamically respond to market requirements. The optimum strategy is to continually increase the availability and productivity of your systems and machines. As partner with comprehensive technology and industry know-how, Siemens Digital Enterprise Services can offer you a unique range of services and support.

Our services cover the complete lifecycle of the SINAMICS product family. We support our customers to produce more efficiently with higher profit margins, help them leverage the opportunities provided by digitalization – and at the same time reduce their total cost of ownership.

You benefit from spare part and repair services specific to your plant or system, as well as global support provided by our experienced service experts. This support is available locally, remotely, online, by telephone or through individual training courses.

Digital Enterprise Services

Are you ready for digitalization? With our digitalization check you can find out just how prepared your plant or system already is for the digital era. Here we apply our digital drive system services – a modular portfolio comprising remote and condition monitoring services along with an extensive portfolio to improve and optimize your system.

Optimized service contracts

To a large extent, SINAMICS components are maintenance-free. Having said that, with an individual service contract you ensure that every component of your SINAMICS drive solution is checked, maintained and overhauled at precisely the right point in time. And of course, replaced if necessary – also as preventive measure.

Retrofit for drive systems

The SIMOVERT converter family sets itself apart as a result of its long service life and high reliability. This also applies to SIMOVERT MASTERDRIVES. In recent years, these have been continuously replaced by the SINAMICS product series. We recommend that you switch over to the SINAMICS family of converters so that the availability of spare parts can be secured in the future, thus avoiding plant downtimes. We would be more than willing to help you draw up the best migration strategy.

Service Protect
We offer a free-of-charge 6-month extended manufacturer cover for SINAMICS converters. Further, you have the option of insuring your SINAMICS drive for up to seven years – therefore guaranteeing continuous availability over the complete product lifecycle.

Register your SINAMICS converter now:
siemens.com/drive-registration

siemens.com/drivesystemservices

SINAMICS low voltage converters

Standard performance converters

Industry specific converters

High performance converters

Distributed converters

Powerful and flexible

SINAMICS V20
Simple. Rugged. Efficient.

Highlights

- **The perfect solution for basic applications**
- **Easy to install**
- **Easy to use**

Applications

Pumping/ Ventilating/ Compress-ing

Moving

Processing

Format	Built-in unit (compact)
Drive concept	AC/AC
Degree of protection	IP20/UL open type
Supply voltage/ power kW (hp)	
1AC 200 ... 240 V	0.12 ... 3 kW (0.16 ... 4 hp)
3AC 380 ... 480 V	0.37 ... 30 kW (0.5 ... 40 hp)
Energy recovery	No
Control modes	V/f (linear, square law, FCC, ECO)
Ambient temperature	–10 °C to 40 °C without derating/to 60 °C with derating
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C3/C2/C1 Without integrated line filter for environments according to IEC 61800-3 Category C4
Braking chopper	External braking chopper, except for frame size FSD/FSE 3AC with integrated braking chopper
Safety functions	No
Communication	USS/Modbus RTU
TIA Portal connected	No
Commissioning tools	BOP-2, V20 Smart Access Module
Controller	SIMATIC S7-1200

Recommended motors	SIMOTICS GP/SD (standard induction motors, aluminum/cast iron)

siemens.com/sinamics-v20

siemens.com/sinamics-selector

siemens.com/dt-configurator

SINAMICS G120C
Versatile. User-friendly. Compact.

Format	Built-in unit (compact)
Drive concept	AC/AC
Degree of protection	IP20/UL open type
Supply voltage/ power kW (hp)	
3AC 380 ... 480 V	0.55 ... 132 kW (0.75 ... 150 hp)
Energy recovery	No
Control modes	V/f (linear, square law, FCC, ECO), sensorless vector control (SLVC)
Ambient temperature	–10 °C to 40 °C without derating/to 60 °C with derating
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 Without integrated line filter for environments according to IEC 61800-3 Category C4
Braking chopper	Integrated braking chopper
Safety functions	STO
Communication	Frame size FSAA 0.55 kW to FSC 18.5 kW available with PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU Frame size FSD 22 kW to FSF 132 kW available with PROFINET
TIA Portal connected	Yes
Commissioning tools	BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive
Controller	SIMATIC S7-1200, SIMATIC ET200
Recommended motors	SIMOTICS GP/SD (standard induction motors, aluminum/cast iron) SIMOGEAR (geared motors)

Highlights

- **Compact for simple installation in the smallest space**
- **Simple commissioning and operator control**
- **Perfect integration in the automation environment**
- **Integrated safety technology**

Applications

Pumping/ Ventilating/ Compress-ing | Moving | Processing

siemens.com/sinamics-g120c

siemens.com/sinamics-selector

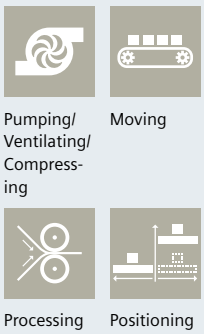
siemens.com/dt-configurator

SINAMICS G120
Multifunctional. Combinable. Safety Integrated.

Highlights

- **High degree of flexibility and combinability**
- **Higher-level, standard safety concept**
- **Wide range of power ratings**

Applications



Modular design

Format	Built-in unit (modular) Power Module, Control Unit, commissioning options
Drive concept	AC/AC
Degree of protection	IP20/UL open type
Supply voltage/ power kW (hp)	
1AC/3AC 200 ... 240 V	0.55 ... 4 kW (0.75 ... 5 hp), Power Module PM240-2
3AC 200 ... 240 V	5.5 ... 55 kW (7.5 ... 60 hp), Power Module PM240-2
3AC 380 ... 480 V	0.55 ... 250 kW (0.75 ... 400 hp), Power Module PM240-2
3AC 380 ... 480 V	7.5 ... 90 kW (10 ... 125 hp), Power Module PM250
3AC 500 ... 690 V	11 ... 250 kW (10 ... 400 hp bei 600 V), PM240-2
Control unit	Control Unit CU230P-2, CU240E-2, CU240E-2 F, CU250S-2
Energy recovery	In conjunction with PM250 Power Modules
Control modes	V/f (linear, square law, FCC, ECO), vector control with and without encoder (VC, SLVC)
Ambient temperature	–10 °C to 40 °C without derating/to 60 °C with derating
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 Without integrated line filter for environments according to IEC 61800-3 Category C4
Braking chopper	Integrated braking chopper for PM240-2 Power Modules
Safety functions	STO, SS1, SBC, SLS, SDI, SSM
Communication	PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU, CANopen, PROFIsafe
TIA Portal connected	Yes
Commissioning tools	BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive
Controller	SIMATIC ET200, SIMATIC S7-1500, SIMATIC PCS 7
Recommended motors	SIMOTICS GP/SD (standard induction motors, synchronous-reluctance motors aluminum/cast iron) SIMOGEAR (geared motors) SIMOTICS TN (trans-standard motors) SIMOTICS M-1PH8 (compact induction motors) SIMOTICS XP (explosion-protected motors)

siemens.com/sinamics-g120

siemens.com/sinamics-selector

siemens.com/dt-configurator

SINAMICS G130/G150
Multifunctional. User-friendly. Rugged.

Format	G130: Built-in unit (modular) G150: Cabinet unit
Drive concept	AC/AC
Degree of protection	G130: IP00 / IP20 G150: IP20 Optional: IP21, IP23, IP43, IP54
Supply voltage/ power kW (hp)	
3AC 380 ... 480 V	110 ... 560 kW (150 ... 800 hp) (G130) 110 ... 900 kW (150 ... 800 hp) (G150)
3AC 500 ... 600 V	110 ... 560 kW (150 ... 800 hp) (G130) 110 ... 1000 kW (150 ... 800 hp) (G150)
3AC 660 ... 690 V	75 ... 800 kW (85 ... 810 hp) (G130) 75 ... 2700 kW (85 ... 810 hp) (G150)
Energy recovery	No
Control modes	Sensorless vector control or V/f control
Ambient temperature	0 °C to 40 °C without derating/to 55 °C with derating
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional)
Braking chopper	G130: System component Braking Module G150: Braking Module optional
Safety functions	STO, SS1, SBC, SLS, SDI, SSM, SBT
Communication	PROFINET, PROFIBUS DP, EtherNet/IP, USS, CANopen, PROFIsafe
TIA Portal connected	Yes
Commissioning tools	AOP30, SINAMICS Startdrive, STARTER
Controller	SIMATIC ET200, SIMATIC S7-1500, SIMATIC PCS 7

Recommended motors	SIMOTICS GP/SD (standard induction motors aluminum/cast iron) SIMOTICS TN (trans-standard motors) SIMOTICS HT (low-speed permanent magnet synchronous motors)

Highlights

- **Applications: Pumps, fans, compressors, extruders, mixers, mills etc.**
- **Service-friendly thanks to device modules that are easy to access**
- **100% line supply voltage at the motor without any secondary effects**
- **When required, with integrated line harmonics filter and du/dt filter**

Applications

Pumping/ Ventilating/ Compressing | Moving | Processing

siemens.com/sinamics-g130; siemens.com/sinamics-g150

siemens.com/dt-configurator

SINAMICS G180
Multifunctional. Industry specific. Seamless across the system.

Highlights

- **Industry specific features such as du/dt filter and PTC evaluation**
- **Applications: Pumps, fans, extruders, compressors – also in hazardous zones**
- **Voltage levels: 400 V/500 V/690 V**
- **Line side: 6 to 24 pulse or LHF (Line Filter)**
- **From 200 kW, air or liquid cooled**
- **ATEX-certified for motors in hazardous zones**

Applications

Pumping/ Ventilating/ Compressing | Moving | Processing

Format	Built-in unit (compact) Cabinet unit
Drive concept	AC/AC
Degree of protection	Compact devices: IP20 (optional IP21) Cabinet units/systems: IP21 (higher degrees of protection up to IP54 optional)/with water cooling, IP54
Supply voltage/ power kW (hp)	
3AC 380 ... 480 V	2.2 ... 200 kW, compact device 250 ... 630 kW, cabinet unit
3AC 480 ... 500 V	2.2 ... 160 kW, compact device 250 ... 800 kW, cabinet unit
3AC 500 ... 690 V	7.5 ... 200 kW, compact device 250 ... 6000 kW, cabinet unit
Energy recovery	No
Control modes	V/f (linear, square law) Vector control with and without encoder (SLVC) Field-oriented control (FOC) with encoder and certification for explosion protection
Ambient temperature	0 to 40 °C
Line filter	Compact devices: with integrated line filter for environments according to IEC 61800-3 Category C2/C1 (optional) Cabinet units: with integrated line filter for environments according to IEC 61800-3 Category C3 Compact devices, cabinet units for IT line systems: with integrated line filter for environments according to IEC 61800-3 Category C4
Braking chopper	Yes
Safety functions	STO, ATEX-certified PTC thermistor input for explosion-protected motors
Communication	PROFIBUS DP, EtherNet/IP, Modbus TCP/IP, Modbus RTU, CANopen, on request: PROFINET
TIA Portal connected	No
Controller	SIMATIC ET200, SIMATIC S7-1500, SIMATIC PCS 7
Recommended motors	SIMOTICS GP/SD (standard induction motors aluminum/cast iron) SIMOTICS TN (trans-standard motors) SIMOTICS XP (explosion-protected motors)

siemens.com/sinamics-g180

siemens.com/dt-configurator

SINAMICS G120X
Flexible. Combinable. Application-specific.

Format	Built-in unit (compact)
Drive concept	AC/AC
Degree of protection	IP20, UL open type, IP21 (roof top kit)
Supply voltage/ power kW (hp)	
3AC 200 ... 240 V	0.75 ... 55 kW / 1 ... 75 hp
3AC 380 ... 480 V	0.75 ... 560 kW / 1 ... 700 hp
3AC 500 ... 690 V	3 ... 630 kW / 4 ... 700 hp
Energy recovery	No
Control modes	V/f (linear, square law, FCC, ECO), sensorless vector control (SLVC)
Ambient temperature	–20 °C to 45 °C (60 °C with derating[1])
Line filter	According to IEC 61800-3, with integrated line filter for environments Category C3/C2; optional C1 with external filter B
Braking chopper	No
Safety functions	STO
Communication	PROFINET, PROFIBUS, EtherNet/IP, Modbus RTU, USS, BACnet MS/TP2, Wi-Fi via SINAMICS G120 Smart Access Module
TIA Portal connected	No, only via GSD file
Commissioning tools	BOP-2, IOP-2, G120 Smart Access Module, SIMATIC PCS7 and SIMATIC PDM
Controller	SIMATIC S7-1500/1200/400, Desigo PX

Recommended motors	SIMOTICS GP/SD (synchronous reluctance motors with aluminum/cast iron enclosures)
	SIMOTICS GP/SD (standard induction motors with aluminum/cast iron enclosures)
	SIMOTICS DP (smoke extraction motors)

[1] The max temperature is 55 °C for PN version drives

Highlights

- **The infrastructure drive for pump/fan applications in water/wastewater industries and building technology**
- **Seamless range of power ratings available in 9 frame sizes extending from 0.75 – 630 kW**
- **Simple selection and ordering using just one order number – and immediately ready to run**
- **Impressively efficient with specific industry and energy efficiency functions**

Applications

Pumping/ Ventilating/ Compressing

siemens.com/sinamics-g120x

siemens.com/sinamics-selector

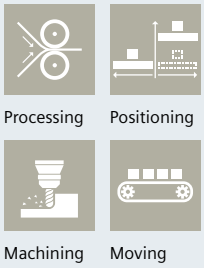
siemens.com/dt-configurator

SINAMICS S120
Universal. Precise. Safety Integrated.

Highlights

- **Modular system for high performance**
- **High degree of scalability, flexibility, combinability**

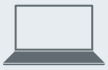
Applications S120



	S120	S120
	High-performance application	**High-performance application**
Format	Built-in unit Blocksize (modular)	Built-in unit Booksize (modular)
Structure	Control Unit + Power Module	Control Unit + infeed + Motor Module
Drive concept	AC/AC	DC/AC
Degree of protection	IP20	IP00 / IP20
Supply voltage/ power kW (hp)		
1/3AC 200 ... 240 V	0.55 ... 4 kW (0.75 ... 5 hp at 240 V)	–
3AC 200 ... 240 V	5.5 ... 55 kW (7.5 ... 60 hp at 240 V)	–
3AC 380 ... 480 V	0.55 ... 250 kW (0.75 ... 400 hp at 480 V)	1.6 ... 107 kW (1.5 ... 150 hp at 400 V)
3AC 500 ... 690 V	11 ... 250 kW (10 ... 400 hp at 600 V)	–
Energy recovery	No	Yes, depending on the infeed
Control modes	V/f control, vector control with/without encoder Servo control with encoder	
Ambient temperature	0 °C to 40 °C	
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 Without line filter for environments according to IEC 61800-3 Category C4	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional) Without line filter for environments according to IEC 61800-3 Category C4
Braking chopper	Integrated braking chopper for PM240-2 Power Modules	Yes (optional)
Safety functions	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SBT, SLA, SCA	
Communication	PROFINET, PROFIBUS DP, EtherNet/IP, USS (kein CU310), CANopen (CU320-2), Modbus TCP	
TIA Portal connected	Yes, PROFIsafe	
Commissioning tools	SINAMICS Startdrive, SCOUT, web server	
Control systems	SIMATIC, SINUMERIK, SIMOTION	
Recommended motors	SIMOTICS GP, SD, XP, DP, M, S, L, T	SIMOTICS GP, SD, XP, DP, M, S, L, T

siemens.com/sinamics-s120
siemens.com/sinamics-s120-innovation

siemens.com/dt-configurator



S120	S120 CM
High-performance application	**High-performance application**
Built-in unit Chassis (modular)	Cabinet unit
Control Unit + infeed + Motor	Control Unit + infeed + Motor Module
DC/AC	DC/AC
IP00 / IP20	IP20, optional: IP21, IP23, IP43, IP54
– – 110 ... 3040 kW (150 ... 4370 hp at 460 V) 75 ... 6840 kW (75 ... 1250 hp at 575 V)	– – 4.8 ... 3040 kW (5 ...4370 hp at 460 V) 75 ... 5700 kW (75 ... 1250 hp at 575 V)
Yes, depending on the infeed	Yes, depending on the infeed
With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional) Without line filter for environments according to IEC 61800-3 Category C4	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional) Without line filter for environments according to IEC 61800-3 Category C4
Yes (optional)	Yes (optional)
SIMOTICS SD, XP, DP, TN, HT, M	SIMOTICS GP, SD, XP, DP, TN, HT, M

SINAMICS S150
Multifunctional. Precise. Capable of energy recovery.

Highlights

- **Modular system for high performance**
- **High degree of scalability, flexibility, combinability**

Applications

Processing Moving

Format	Cabinet unit
Drive concept	AC/AC
Degree of protection	IP20, optional: IP21, IP23, IP43, IP54
Supply voltage/ power kW (hp)	
3AC 380 ... 480 V	110 ... 800 kW (150 ... 1150 hp)
3AC 500 ... 690 V	75 ... 1200 kW (75 ... 1250 hp)
Energy recovery	Yes
Control modes	V/f control Vector control with and without encoder Servo control with and without encoder
Ambient temperature	0 °C to 40 °C
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 Without line filter for environments according to IEC 61800-3 Category C4
Braking chopper	Yes (optional)
Safety functions	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SBT, SLA, SCA
Communication	PROFINET, PROFIBUS DP, EtherNet/IP, USS (no CU310), CANopen (CU320-2), Modbus TCP, PROFIsafe
TIA Portal connected	Yes
Commissioning tools	SINAMICS Startdrive, SCOUT, web server
Controller	SIMATIC, SIMOTION

Recommended motors	SIMOTICS SD, XP, DP, TN, HT, M

siemens.com/sinamics-s150

siemens.com/dt-configurator

SINAMICS DCM
Universal. Scalable. Rugged.

Format	Built-in unit
Drive concept	AC/DC
Degree of protection	IP00 / IP20
Supply voltage/ power kW (hp)	
1AC 50 ... 230 V	1.61 ... 362 kW (2.16 ... 485 hp)
1AC 50 ... 400 V	2.81 ... 653 kW (3.77 ... 876 hp)
1AC 50 ... 480 V	3.37 ... 310 kW (4.52 ... 416 hp)
1AC 50 ... 575 V	16.1 ... 863 kW (21.6 ... 1160 hp)
3AC 10 ... 50 V	0.16 ... 183 kW (0.21 ... 245 hp)
3AC 50 ... 400 V	6.3 ... 1460 kW (8.4 ... 1950 hp)
3AC 50 ... 480 V	6.3 ... 690 kW (8.4 ... 925 hp)
3AC 50 ... 575 V	35 ... 1930 kW (47 ... 2590 hp)
3AC 100 ... 690 V	551 ... 2160 kW (739 ... 2900 hp)
3AC 100 ... 830 V	831 ... 1900 kW (1110 ... 2550 hp)
3AC 100 ... 950 V	2200 ... 2500 kW (2950 ... 3350 hp)
Energy recovery	Yes
Control modes	Speed control, torque control, closed-loop EMF control (operation without tachometer), field weakening control
Ambient temperature	0 °C to 45 °C without derating for armature currents ≤ 125 A 0 °C to 40 °C without derating for armature currents ≥ 210 A Up to 55 °C with derating
Line filter	With additional line filter for environments according to IEC 61800-3 Category C2 Without additional line filter for environments according to IEC 61800-3 Category C3, C4
Safety functions	STO, SS1
Communication	PROFINET, PROFIBUS DP, USS, EtherNet/IP, Modbus TCP
TIA Portal connected	Yes
Commissioning tools	BOP, AOP30, SCOUT
Controller	SIMATIC, SIMATIC PCS 7, SIMOTION

Recommended motors	SIMOTICS DC

Highlights

- **For simple and favorably-priced plant and system modernization**
- **Flexible expandability regarding both functionality and performance**
- **High power rating in a compact design**
- **High reliability of all components**

Applications

Moving Processing

siemens.com/sinamics-dcm

siemens.com/dt-configurator

SINAMICS G115D
Versatile. Rugged. Distributed.

Highlights

- **User friendly, modular solution with a new construction design for easy wiring, commissioning and servicing incl. dedicated features for conveyor technology**
- **Out-of-the-box concept for easy handling, fast set up and extremely simple to operate design for applications with horizontal motion**

Applications

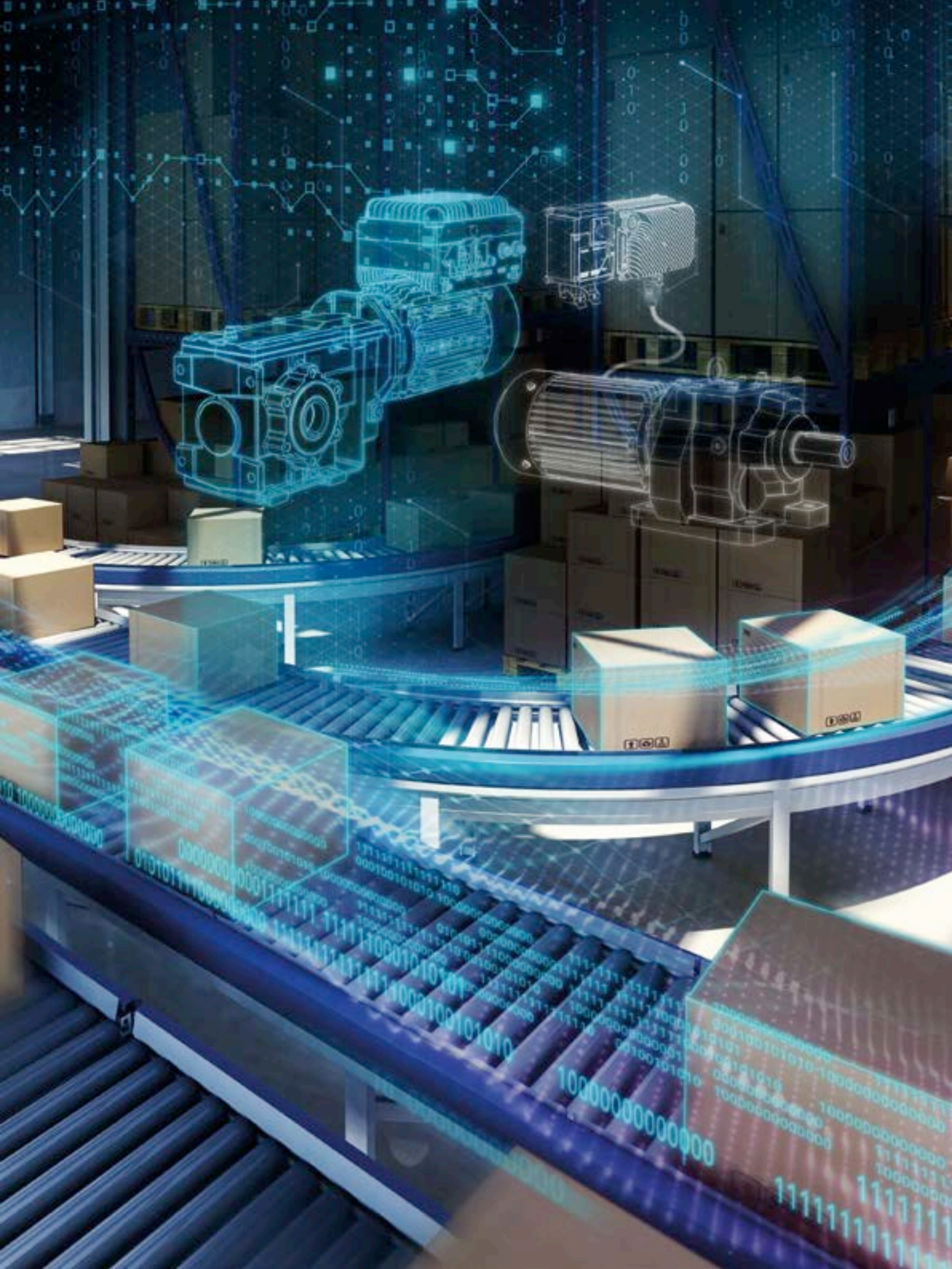
Moving

Format	Motor mounted	Wall mounted
Drive concept	AC/AC	
Degree of protection	IP55 (Ilimited by geared motor) or optional IP65/UL rating follows geared motor (compact system)	IP65 (connector version) or IP66 (gland version)/UL type 4X
Supply voltage/ power range		
3AC 380 ... 480 V	0.37 – 4 kW / 0.5 – 5 HP FSA up to 1.5 kW, FSB up to 4 kW	0.37 – 7.5 kW / 0.5 – 10 HP FSA up to 1.5 kW, FSB up to 4 kW, FSC[1] up to 7.5 kW
Energy recovery	No	
Control modes	U/f, FCC, ECO, SLVC sensorless vector control	
Ambient temperature	–30 to 40 °C/to 55 °C (> 40 °C with derating)	
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C2[2]	
Braking chopper	Yes, integrated	
Safety functions	STO according to SIL2/Pld, via F-DI and/or PROFIsafe	
Communication	PROFINET/Ethernet IP, AS-i[1] or I/O controlled[1]	
TIA Portal connected	Yes, complete drive system	
Commissioning tools	SINAMICS Startdrive, G120 Smart Access Module	
Controller	SIMATIC S7-1200/ S7-1500, SIMATIC ET200	
Recommended motors	SIMOGEAR (geared motors)[3]	

[1] In 2nd Step
[2] Removal of functional grounding (IT system) possible
[3] The motor mounted version is offered only with geared motor and converter as a complete drive system.

siemens.com/sinamics-g115d

siemens.com/dt-configurator



SINAMICS G120D
Multifunctional. Rugged. Distributed.

Highlights

- **Integrated safety functions and positioning functionality**
- **Simple commissioning using prompted parameterizing software**
- **High degree of protection**

Applications

Moving Positioning

Format	Distributed compact device
Drive concept	AC/AC
Degree of protection	IP65/UL Type 3
Supply voltage/ power kW (hp)	
3AC 380 ... 500 V	0.75 ... 7.5 kW (1 ... 10 hp)
Energy recovery	Yes
Control modes	V/f (linear, square law, FCC, ECO), vector control with and without encoder (VC, SLVC)
Ambient temperature	–10 °C to 40 °C without derating/to 60 °C with derating
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C3/C2
Braking chopper	No
Safety functions	STO, SS1, SLS, SDI, SSM
Communication	PROFINET, PROFIBUS DP, EtherNet/IP, PROFIsafe
TIA Portal connected	Yes
Commissioning tools	IOP-2 Handheld, SINAMICS Startdrive
Controller	SIMATIC S7-1200, SIMATIC ET200

Recommended motors	SIMOTICS GP/SD (standard induction motors, synchronous-reluctance motors aluminum/cast iron)
	SIMOGEAR (geared motors)

siemens.com/sinamics-g120d

siemens.com/dt-configurator

Precise and with a high dynamic performance

SINAMICS S120
Universal. Precise. Safety Integrated.

Highlights

- **Modular system for high performance**
- **High degree of scalability, flexibility, combinability**

Applications S120

Pumping/ Ventilating/ Compress-ing

Moving

Processing

Positioning

Machining

	S120	S120
	Servo drive converter	
Format	Built-in unit Blocksize (modular)	Built-in unit Booksize (modular)
Structure	Control Unit + Power Module	Control Unit + infeed + Motor Module
Drive concept	AC/AC	DC/AC
Degree of protection	IP20, optional IP43	IP20
Supply voltage/ power kW (hp)		
1AC 200 ... 240 V	–	–
3AC 200 ... 240 V	–	–
3AC 380 ... 480 V	110 ... 250 kW (150 ... 400 hp at 460 V)	1.6 ... 107 kW (1.5 ... 150 hp at 400 V)
3AC 500 ... 690 V	–	–
Energy recovery	No	Yes, depending on the infeed
Control modes	V/f control, vector control with/without encoder Servo control with encoder	
Ambient temperature	0 °C to 40 °C	
Line filter	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 Without line filter for environments according to IEC 61800-3 Category C4	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional) Without line filter for environments according to IEC 61800-3 Category C4
Safety functions	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SBT, SLA, SCA	
Communication	PROFINET, PROFIBUS DP, EtherNet/IP, USS (no CU310), CANopen (CU320-2), Modbus TCP, PROFIsafe	
TIA Portal connected	Yes	
Commissioning tools	SINAMICS Startdrive, SCOUT, web server	
Controller	SIMATIC, SIMOTION, SINUMERIK	
Recommended motors	SIMOTICS SD, XP, DP, TN, HT, M, S, L, T	SIMOTICS GP, SD, XP, DP, M, S, L, T

siemens.com/sinamics-s120

siemens.com/dt-configurator

SINAMICS S120M

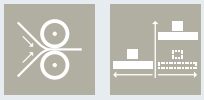
S120	S120M
Built-in unit Chassis (modular)	Distributed multi-axis system
Control Unit + infeed + Motor Module	Control Unit + infeed + Motor Module combined with motor
DC/AC	DC/AC
IP00/IP20	IP65
–	–
–	–
110 ... 3040 kW (150 ... 4370 hp at 460 V)	0.25 ... 1.1 kW
75 ... 6840 kW (75 ... 1250 hp at 575 V)	–
Yes, depending on the infeed	Yes, depending on the infeed
	Servo control with encoder
With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional)	With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional)
Without line filter for environments according to IEC 61800-3 Category C4	Without line filter for environments according to IEC 61800-3 Category C4
SIMOTICS SD, XP, DP, TN, HT, M, S, L, T	SIMOTICS S

SINAMICS V90
Simple. Precise. System-based.

Highlights

- **Optimized servo performance thanks to One-Button Auto Tuning and real time Auto-Tuning**
- **Simple to operate complete solution for motion control applications**
- **Together with a SIMATIC controller, a strong team in the TIA Portal**

Applications



Processing Positioning

Format	Built-in unit (compact)
Drive concept	AC/AC
Degree of protection	Converters: IP20 Motor: IP65
Supply voltage/power kW (hp)	
1AC / 3AC 200 ... 240 V	0.10 ... 0.75 kW (0.07 ... 1.02 hp)
3AC 200 ... 240 V	1.0 ... 2 kW (0.7 ... 2.7 hp)
3AC 380 ... 480 V	0.40 ... 7 kW (0.54 ... 10 hp)
Energy recovery	–
Control modes	Servo control with encoder
Ambient temperature	0 °C to 45 °C without derating/to 55 °C with derating
Line filter	With external line filter for environments according to IEC 61800-3 Category C2
Braking chopper	Integrated braking chopper for all frame sizes and max. motor power ≥ 0.2 kW
Safety functions	STO via terminal
Communication	Pulse/direction interface, USS/Modbus RTU, PROFINET
TIA Portal connected	Yes, via the Hardware Support Package
Commissioning tools	SINAMICS V-ASSISTANT
Controller	SIMATIC S7-1200, SIMATIC S7-1500

Recommended motors	SIMOTICS S-1FL6 (servomotors)

siemens.com/sinamics-v90

siemens.com/dt-configurator

SINAMICS S210
Versatile. Precise. Safety Integrated.

Format	Built-in unit (compact)
Drive concept	AC/AC
Degree of protection	IP20
Supply voltage/power kW (hp)	
1AC 200 ... 240 V	0.1 ... 0.75 kW (0.14 ... 1.02 hp)
3AC 200 ... 480 V	0.4 ... 7 kW (0.54 ... 9.5 hp)
Energy recovery	No, but DC coupling optional for 3AC devices possible
Control modes	Servo control with encoder
Ambient temperature	0 °C to 50 °C (32 °F to 122 °F)
Line filter	1AC devices with integrated line filter for environments according to IEC 61800-3 Category C2 3AC devices with integrated line filter for environments according to IEC 61800-3 category C3, category C2 and longer cable lengths with optional, external line filter
Braking chopper	Integrated braking resistor, external resistors optional
Safety functions	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLA, SBT
Communication	PROFINET, PROFIdrive, PROFIsafe, PROFIenergy
TIA Portal connected	Full integration
Commissioning tools	Web server, SINAMICS Startdrive
Controller	SIMATIC S7-1500

Recommended motors	SIMOTICS S-1FK2 (servomotors) SIMOTICS S-1FK2 as planetary geared motors SIMOTICS S-1FK2 with SIMOGEAR gearbox with the optional gearbox SIMOGEAR KS adapter SIMOTICS S-1FT2 (servomotors)

Highlights

- **Easy commissioning using a web server and One Button Tuning**
- **Optimized connection system using OCC (one cable connection)**
- **SIMOTICS S-1FK2 motors for increased performance**

Applications

Processing Positioning Moving

siemens.com/sinamics-s210

siemens.com/sinamics-selector

siemens.com/dt-configurator

SINAMICS family – an overview

	Supply voltage	Power (kW)	Powerg (hp)
Low voltage AC			
SINAMICS V20	1AC 200 ... 240 V 3AC 380 ... 480 V	0.12 ... 3 kW 0.37 ... 30 kW	0.16 ... 4 hp 0.5 ... 40 hp
SINAMICS G120C	3AC 380 ... 480 V	0.55 ... 132 kW	0.75 ... 150 hp
SINAMICS G120	1AC / 3AC 200 ... 240 V 3AC 200 ... 240 V 3AC 380 ... 480 V 3AC 380 ... 480 V 3AC 500 ... 690 V	0.55 ... 4 kW 5.5 ... 55 kW 0.55 ... 250 kW 7.5 ... 90 kW 11 ... 250 kW	0.75 ... 5 hp, PM240-2 7.5 ... 60 hp, PM240-2 0.75 ... 400 hp, PM240-2 10 ... 125 hp, PM250 10 ... 400 hp at 600 V, PM240-2
SINAMICS G130/G150	3AC 380 ... 480 V 3AC 500 ... 600 V 3AC 660 ... 690 V	110 ... 560 kW 110 ... 560 kW 75 ... 800 kW	150 ... 800 hp 150 ... 800 hp 85 ... 810 hp
SINAMICS G120X	3AC 200 ... 240 V 3AC 380 ... 480 V 3AC 500 ... 690 V	0.75 ... 55 kW 0.75 ... 560 kW 3 kW ... 630 kW	1 ... 75 hp 1 ... 700 hp 4 ... 700 hp
SINAMICS G180	3AC 380 ... 500 V	400 V: 2.2 kW ... 630 kW 500 V: 2.2 kW ... 800 kW 690 V: 7.5 kW ... 6700 kW	3 ... 857 hp 3 ... 1088 hp 8 ... 9110 hp
SINAMICS S120	AC 380 ... 480 V AC 500 ... 690 V	400 V: 1.6 ... 107 kW 460 V: 110 ... 250 kW 460 V: 110 ... 3040 kW 480 V: 0.55 ... 250 kW 600 V: 11 ... 250 kW 575 V: 75 ... 6840 kW	1.5 ... 150 hp 150 ... 400 hp 150 ... 4370 hp 0.75 ... 400 hp 10 ... 400 hp 75 ... 1250 hp
SINAMICS S150	3AC 380 ... 480 V 3AC 500 ... 690 V	110 ... 800 kW 75 ... 1200 kW	150 ... 1150 hp 75 ... 1250 hp
SINAMICS DCM (DC)	1AC 50 ... 230 V 1AC 50 ... 400 V 1AC 50 ... 480 V 1AC 50 ... 575 V 3AC 10 ... 50 V 3AC 50 ... 400 V 3AC 50 ... 480 V 3AC 50 ... 575 V 3AC 100 ... 690 V 3AC 100 ... 830 V 3AC 100 ... 950 V	1.61 ... 362 kW 2.81 ... 653 kW 3.37 ... 310 kW 16.1 ... 863 kW 0.16 ... 183 kW 6.3 ... 1460 kW 6.3 ... 690 kW 35 ... 1930 kW 551 ... 2160 kW 831 ... 1900 kW 2200 ... 2500 kW	2.16 ... 485 hp 3.77 ... 876 hp 4.52 ... 416 hp 21.6 ... 1160 hp 0.21 ... 245 hp 8.4 ... 1950 hp 8.4 ... 925 hp 47 ... 2590 hp 739 ... 2900 hp 1110 ... 2550 hp 2950 ... 3350 hp
SINAMICS V90	1AC / 3AC 200 ... 240 V 3AC 200 ... 240 V 3AC 380 ... 480 V	0.1 ... 0.75 kW 1 ... 2 kW 0.4 ... 7 kW	0.07 ... 1.02 hp 0.7 ... 2.7 hp 0.54 ... 10 hp
SINAMICS S210	1AC 200 ... 240 V 3AC 200 ... 480 V	0.1 – 0.75 kW 0.4 – 7 kW	0.14 ... 1.02 hp 0.54 ... 9.5 hp
SINAMICS S120	AC 380 ... 480 V AC 500 ... 690 V	0.37 ... 90 kW 110 ... 250 kW 1.6 ... 107 kW 110 ... 3040 kW 1.6 ... 3000 kW 75 ... 5700 kW	0.5 ... 120 hp 150 ... 340 hp 2 ... 145 hp 150 ... 4133 hp 2 ... 4079 hp 100 ... 7750 hp
SINAMICS S120M	3AC 380 ... 480 V	0.25 ... 1.55 kW	0.3 ... 2 hp
SINAMICS G115D	3AC 380 ... 480 V	0.37 ... 4 kW Motor mounted 0.37 ... 7.5 kW Wall mounted	0.5 ... 5 hp 0.5 ... 10 hp
SINAMICS G120D	3AC 380 ... 500 V	0.75 ... 7.5 kW	1 ... 10 hp

Communication	Commissioning tools	Safety functions
USS/Modbus RTU	BOP-2, V20 Smart Access Module	No
PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU, PROFIsafe	BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive	STO
PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU, CANopen, PROFIsafe	BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive	STO, SS1, SBC, SLS, SDI, SSM
PROFINET, PROFIBUS DP, EtherNet/IP, USS, CANopen, PROFIsafe	Yes	STO, SS1, SBC, SLS, SDI, SSM, SBT
PROFINET, PROFIBUS DP, EtherNet/IP, USS/ Modbus RTU/BACNet	BOP-2, IOP-2, G120 Smart Access Module	STO
PROFIBUS DP, EtherNet/IP, Modbus TCP/IP, Modbus RTU, CANopen, on request: PROFINET	IMS (Inverter Management Software)	STO, ATEX-certified PTC thermistor input for explosion-protected motors
PROFINET, PROFIBUS DP, EtherNet/IP2, USS, CANopen, pulse/direction interface, PROFIenergy, PROFIsafe, PROFIdrive, PROFIsafe	SINAMICS Startdrive	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT
PROFINET, PROFIBUS DP, EtherNet/IP, USS, CANopen, PROFIsafe	SINAMICS Startdrive	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT
PROFINET, PROFIBUS DP, USS, EtherNet/IP, Modbus TCP	BOP, AOP30, SCOUT	STO, SS1
Pulse/direction interface, USS/Modbus RTU, PROFINET	SINAMICS V-ASSISTANT, TIA Portal HSP	STO
OCC (One Cable Connection) PROFINET, PROFIdrive, PROFIsafe, PROFIenergy	Web server, SINAMICS Startdrive	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLA, SBT
PROFINET, PROFIBUS DP, EtherNet/IP2, USS, CANopen, Puls-/Richtungsschnittstelle, PROFIenergy, PROFIsafe, PROFIdrive	Web server, SINAMICS Startdrive	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT
PROFINET, PROFIBUS DP, EtherNet/IP2, USS, CANopen	SINAMICS Startdrive	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT
PROFINET/Ethernet IP, AS-i[1] or I/O controlled[1]	SINAMICS Startdrive, SINAMICS G120 Smart Access Module	STO
PROFINET, PROFIBUS DP, EtherNet/IP	IOP-2 Handheld, SINAMICS Startdrive	STO, SS1, SLS, SDI, SSM

[1] in progress

Published by Siemens AG

Digital Industries
Motion Control
P.O. Box 31 80
91050 Erlangen,Germany

For the U.S. published by
Siemens Industry Inc.
100 Technology Drive
Alpharetta, GA 30005
United States

Article No. DFMC-B10032-03-7600
Printed in Germany
Dispo 21500
WÜ/1000173743 WS 11210.5
© Siemens 2021

Subject to changes and errors.
The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. The required performance features are only binding if they have been expressly agreed upon in the form of a written contract.
All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.

To ensure the secure operation of Siemens products and solutions, it is necessary to take suitable preventive measures (e.g. cell protection concept) and integrate each component into a state-of-the-art holistic industrial security concept. When so doing, products from other manufacturers should be taken into account. For more information about industrial security, visit http://www.siemens.com/industrialsecurity.