Edition
2023

SINAMICS Variable Frequency Drives

Efficient. Versatile. Fit for the future.

siemens.com/sinamics

SIEMENS

Into the digital future – driving simplicity, sustainability and versatility

With the SINAMICS family of drives from Siemens, you can simply and efficiently address any drive application – in the low and DC voltage domains. All drive components are perfectly harmonized and coordinated with one another. Siemens efficient motion 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 and sustainable future – with SINAMICS, you have the optimum basis to address all requirements relating to digitalization, cost effectiveness and environmental friendliness.

SINAMICS can be easily connected to Industrial Edge and Cloud platforms allowing you to simply boost the efficiency of your production and reduce downtimes to a minimum based on innovative maintenance concepts.

Next Generation

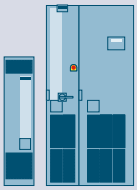
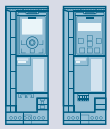
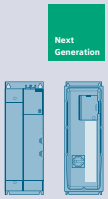
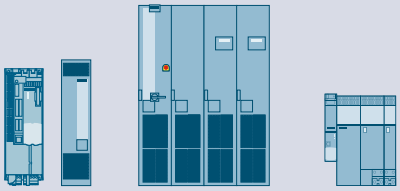
Explore the innovations of SINAMICS variable frequency drives.

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 drives has the precise solution you require for your application.

Low v

Standard performance converters				Industry specific converters		High performance converters	
							
V20	G120C	G120	G130 / G150	G120X	G180	G220 / G220 Clean Power	S120
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	0.1 – 55 kW	0.55 – 5.700 kW

SINAMICS – key-benefits

Energy efficiency & sustainability

Industry of the future should be efficient, productive and sustainable. With our drive systems and digital services, your production environment will be a trailblazer – regarding both cost effectiveness and environmental friendliness.

Digitalization

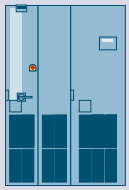
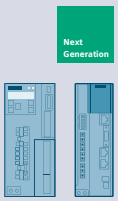
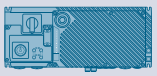
SINAMICS drives are ready for the digital era:
Operating data can be directly transferred to Industrial Edge and Cloud platforms. The information captured there can make your plant or system more productive and reduce downtimes to a minimum.

Efficient engineering

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

Scan this code for more information about SINAMICS variable frequency drives family

oltage

		Servo converters			Distributed converters		DC-DC converters
							
S150	DCM (DC)	SIMATIC MICRO-DRIVE	V90 / S200	S210	S120M	G115D / G120D	DCP
75 – 1.200 kW	6 kW – 30 MW	0.1 – 1 kW	0.05 – 7 kW	0.1 – 7 kW	0.25 – 1.1 kW	0.37 – 7.5 kW	30 / 120 / 250 kW

Safe & secure

To keep your machines running smoothly, SINAMICS drives are packed with comprehensive functions to ensure maximum machine safety for operating and maintenance personnel and cybersecurity in industrial plants and systems.

Efficient Motion Control

High and future proof performance combined with the simplest possible engineering and high security: This is what the Siemens efficient motion control system stands for. Optimally coordinated hardware and software play a key role. Open connectivity between the OT/IT levels means that you're well-equipped for the challenges of the digital age.

Services

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

SINAMICS – the perfect fit for any industry

We offer solutions to meet current and future challenges in motion control. Thanks to comprehensive features and an innovative design, the SINAMICS family can be deployed in any industry, for example:

Food & beverage

With SINAMICS drives we provide the food and beverage industry with drive solutions that allow them to meet individual customer requirements – quickly, flexibly and with the highest quality. The drives also ensure that all processes are energy efficient and reliable.

Chemicals

Applications in the chemical industry demand rugged, reliable and safe equipment, and of course this also applies to the drives. The SINAMICS family offers extensive safety functions and a high degree of protection, which makes it the ideal fit for harsh environments.

Pharma

The pharmaceutical industry evolves at a rapid pace and it requires drive systems that can keep up. Thanks to their modular design, SINAMICS drives can be easily adapted to address requirements. Their high energy efficiency also gives users that all-important competitive edge.

HVAC

With their industry-specific integrated software features e.g. for fan applications in HVAC systems / building automation SINAMICS drives are the perfect fit for these domains.

Oil & Gas / Hydrogen

High levels of efficiency and safety are crucial in the oil & gas and hydrogen industries – SINAMICS variable frequency drives fully comply with both requirements. Security Integrated ensures system availability and Safety Integrated functions keep people and machines safe.

Automotive & Battery

The shift to e-mobility is fundamentally changing the automotive industry. By using a SINAMICS digital twin battery manufacturers and machine builders can speed up their time to market and satisfy the massively growing demand.

Marine

Driven by a strict decarbonization agenda, the disruptive trend of Green Shipping is shaping the future of the industry in an unprecedented way. SINAMICS drives and the consequential capture, analysis and evaluation of the wealth of data available in operation open up new dimensions regarding reliability and energy efficiency – and in turn, environmentally-compatible operation.

Water & Waste Water

Requirements in the areas of drinking water, waste water, and desalination vary widely. This is where the SINAMICS family comes into its own offering a selection of perfectly tailored solutions that ensure maximum efficiency and sustainability.

Intralogistics

Increasing inventory turnover rates, small order quantities with fast delivery times and the increasing need to save energy and drive sustainability. We can help you master all these challenges with reliable SINAMICS drive technology.

Pulp & Paper

The pulp & paper industry is facing an evolving market, strict climate goals, and new energy challenges. This means that plants must be smarter, more sustainable and more efficient than ever before. SINAMICS drives have the functions and performance to future-proof your business.

Cranes

Cranes play an important role in many industries where the fast and precise handling of large and heavy goods is mandatory to enable optimal throughput and logistics. SINAMICS drive technology addresses each and every crane tasks.

Metals

The global metals industry is undergoing radical transformation primarily driven by the urgent need to decarbonize the various processes. This increases operational efficiency and production flexibility to adapt to changing market dynamics. SINAMICS drives represent the perfect fit for all applications in the metals domain, complemented by a digitalization portfolio and is your ideal and dependable partner to create a smart, efficient & sustainable production environment.

Variable frequency drives for every drive application

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

- Standard performance converters
- Industry specific converters
- High performance converters
- Distributed converters
- Servo converters
- DC-DC converter

Pumping/ventilating/ compressing

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

- SINAMICS V20
- SINAMICS G130 / G150
- SINAMICS G180
- SINAMICS G120X
- SINAMICS G220
- DCM

Moving

Energy-efficient and rugged solutions for basic conveyor technology involving roller or chain conveyors, hoisting gear and elevators. Additionally, these solutions address the needs of storage and retrieval machines that demand a high dynamic performance. And always with Safety Integrated onboard.

- SINAMICS G120C
- SINAMICS G130/G150
- SINAMICS G220
- SINAMICS S150
- SINAMICS DCM
- SINAMICS G115D
- SINAMICS G120D
- DCP

Positioning

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

- SINAMICS G120
- SINAMICS G220
- SINAMICS G120D
- SINAMICS S200
- SINAMICS S210
- SINAMICS S120
- DCP

Processing

SINAMICS is the ideal solution for continuous processes demanding high speed and torque precision, for instance, for extruders, centrifuges, agitators and all types of production machines. With isochronous communication and Safety Integrated they are predestined to address high-end motion control applications.

- SINAMICS G120
- SINAMICS G150
- SINAMICS G220
- SINAMICS S150
- SINAMICS DCM
- SINAMICS V90
- SINAMICS S210
- SINAMICS S120

Machining

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

- SINAMICS S120

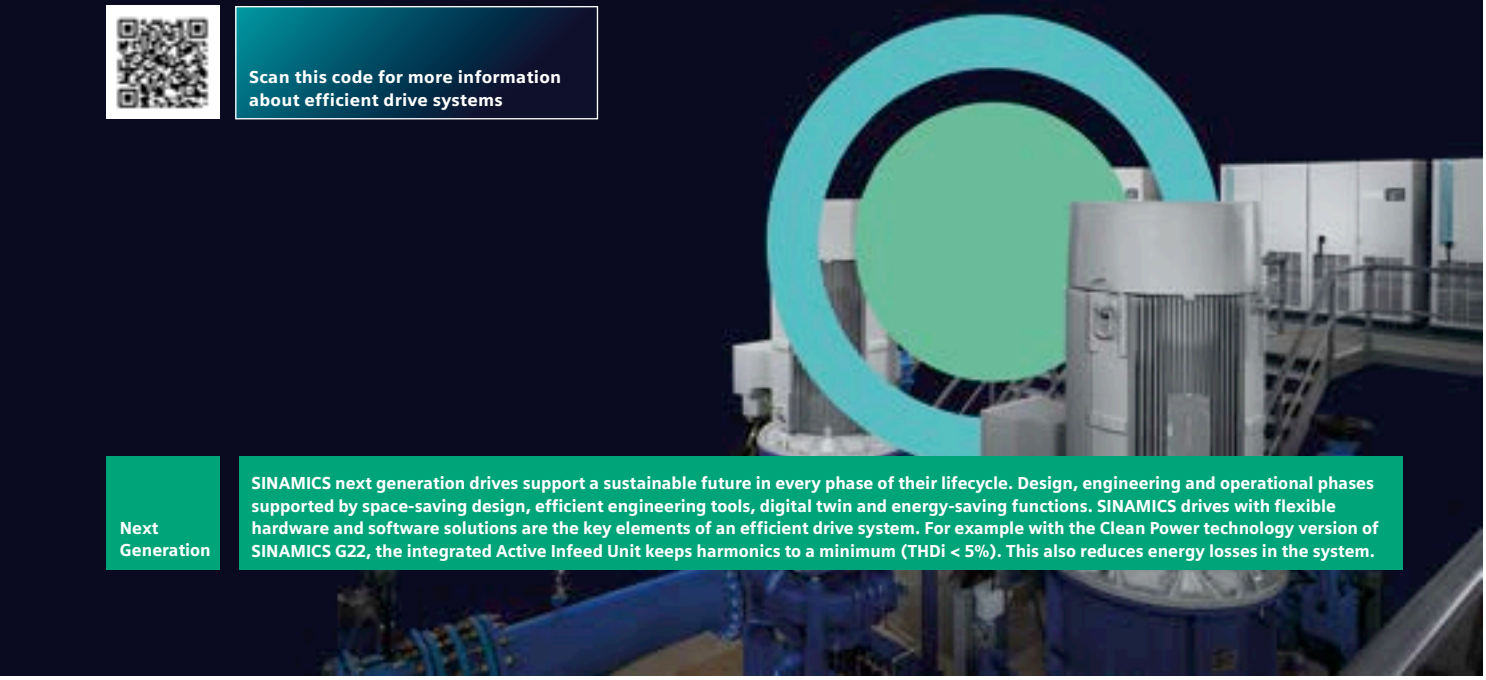
Efficient drive systems – Go for sustainability

Electric drive systems consume 70% of the overall energy used in industry – therefore representing an enormous energy saving potential. You can optimize your processes and enter into a new dimension of efficiency with the latest drive systems and digital drive train solutions.

The best way to really optimize your drive systems effectively: with a holistic, consequentially digital strategy. Together, we can draw-up the optimum solution for your plant or system. We can support you with the latest drive technology which complies with the standards of today and tomorrow. The energy efficiency features of our SINAMICS drives unlock further energy saving potential. With digital solutions, we transform the data from your drives into a truly valuable resource – which with Predictive Maintenance Services, significantly boosts productivity and efficiency. With Siemens as partner, you secure the know-how that you require to increase the productivity of your drives – combining higher energy efficiency and productivity and at the same time saving valuable resources. Now is the time to take action. With SINAMICS drives, the possibilities are endless.

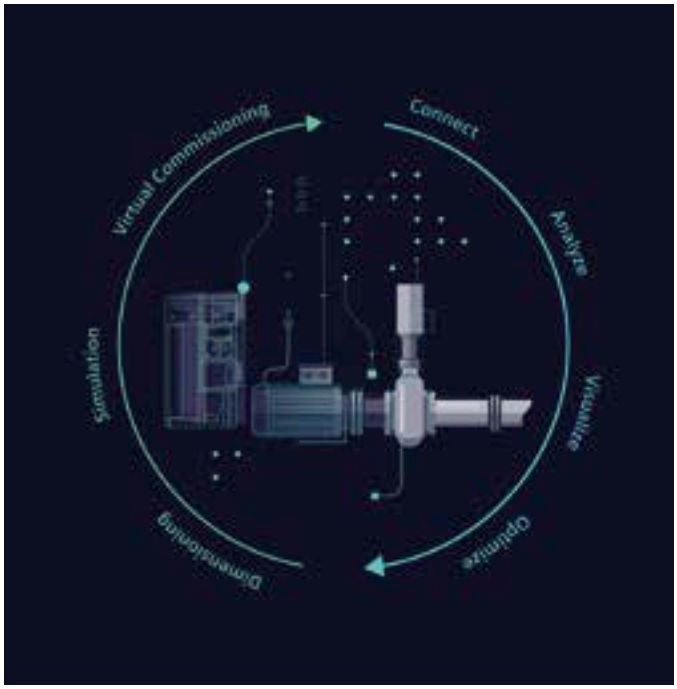
Go for drive system optimization! The key to achieving higher drive efficiency is to optimize the overall system. Highly specialized motors and drives, intelligent sensors and analytic tools allow you to optimally harmonize and coordinate your processes and drive systems. Further, with a digital twin of your drive system, you can optimize your maintenance and energy management – slashing your energy consumption by up to 60 percent and making your operations more sustainable.

Scan this code for more information about efficient drive systems



Next Generation

SINAMICS next generation drives support a sustainable future in every phase of their lifecycle. Design, engineering and operational phases supported by space-saving design, efficient engineering tools, digital twin and energy-saving functions. SINAMICS drives with flexible hardware and software solutions are the key elements of an efficient drive system. For example with the Clean Power technology version of SINAMICS G22, the integrated Active Infeed Unit keeps harmonics to a minimum (THDi < 5%). This also reduces energy losses in the system.



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, sustainable and secure – without having to invest in a completely new infrastructure.

Our portfolio for the digital drive train covers the complete workflow. Starting with dimensioning, simulation and 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. The connectivity of our drives – independent of any specific platform – links your drives with all the relevant platforms. Using cloud or edge apps and data analysis models, you can then derive valuable knowledge from the drive data to optimize your 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 data, anomalies can be identified at an early stage – and even avoided in the first place. The data gained from drives also allow for more transparency on the energy consumption, and thus can be used for optimization measures leading to higher efficiency and sustainability of machines.

Edge computing supplements to 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 drives to the Industrial Edge or cloud platform allows complex data that is captured in the drive to be analyzed. By leveraging intelligent algorithms, patterns can be detected, enabling the early identification of anomalies and providing a wealth of information about the health of a drive train, the application, and pending maintenance tasks.

Next Generation

Real Digital Twin of the SINAMICS next generation drives are available in DriveSim Advanced with functional and logical parts of the real firmware for even easier simulation of the drive response in engineering and commissioning phases before hardware is available.

Scan this code for more information about digitalization in drive technology

SINAMICS Drive Software
The right function for every application

The SINAMICS Drive Software ensures that our SINAMICS converters operate smoothly and reliably. It offers comprehensive functionality, is easily expandable and enables the greatest possible flexibility for a wide range of applications.

Easily expandable

The SINAMICS Software package comes with functionality to address many applications. However, the scope of performance can be further expanded using additional SINAMICS Drive Software options. These options allow the use of special added value or expansion functions.

Greatest flexibility

SINAMICS Drive Software options can be easily ordered together with SINAMICS frequency converters. Additionally, SINAMICS Drive Software options can be tested free of charge for a limited period and then purchased later.

Comprehensive functionality

SINAMICS Drive Software enables highly accurate and dynamic control of different types of motors, and it offers functions for the following:

- Digitalization
- Safety Integrated
- Security Integrated
- Motor control
- Technology
- Energy efficiency
- Efficient engineering
- Application specific features

Scan this code for more information about SINAMICS Drive Software

Efficient engineering over the complete lifecycle

Selection tools:

Our **SINAMICS Selector App** guides you to the right converter.

Siemens Product Configurator (SPC) helps you configure your drive and mechanical system.

TIA Selection Tool (TST) for simple drive engineering. Starting from your application, the tool supports you step-by-step when defining the mechanical system and when selecting and dimensioning drives, motors and gearboxes. 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.

Commissioning tools:

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

The **integrated webserver** – simplicity revisited
The webserver enables easy commissioning, operation and diagnostics, all of which are aligned to the actual drive functionality, with no additional software required. The parameter masks are already integrated in the drive. The device is directly accessed using the web browser with the web address of the device, for instance from a laptop.

Next Generation

SINAMICS next generation drives offer an integrated webserver with innovated functions for easy engineering and supporting data exchange with Startdrive. No additional devices or separate software is required.

Safety Integrated – simply safe, twice as efficient

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**

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 efficient motion control systems. This certified system offers valuable support in the workflow, such as engineering in the TIA Portal.

With the safety acceptance test integrated in the TIA-Portal/Startdrive, you can now validate the correct safety parameterization – and the safety activation test supports you when it comes to validating complete safety control circuits – extending from the sensor to the actuator.

Safety Integrated allows you to eliminate 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 drive 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 communications via PROFIsafe. You benefit from higher productivity with minimized downtimes.

Next Generation

SINAMICS next generation drives are part of one Safety Integrated software platform with a common look and feel and functional response. The Safety Integrated functions in our next generation drives are now certified according IEC 61800-5-SIL 3 and ISO 13849-1 Cat. 4 and PL e.

Scan this code for more information about safety integrated

Security Integrated – heightened data security for industrial plants and systems

With the new Security Integrated functions we are hardening SINAMICS drives and therefore also your machines against external cyber attacks.

Highlight

- **Keep systems and data safe with Security Integrated**

Next Generation

SINAMICS next generation drives offer increased resilience to cyber-attacks with the Security Integrated concept.

Scan this code for more information about industrial cybersecurity

PERFECT INTERACTION WITH

Efficient Motion Control

Industry is demanding more and more complex motion control solutions and robots. To meet these demands, machine builders must compensate the shortage of skilled workers, become more flexible in the face of increasing complexity, and ensure the safety of operators and machines. But how? With solutions for efficient motion control.

Highlights

FLEXIBILITY

Increase your flexibility in motion control projects with modular, standardized, and user-friendly engineering and operation.

SPEED

Accelerate the time to market for your machines through parallelization and virtualization of workflows.

SUSTAINABILITY

Test and validate applications in a virtual environment without hardware or physical prototypes.

SAFETY

Ensure maximum machine and operator safety while maintaining productivity and flexibility.

Faster time to market, increasing functionality and complexity, and demands for safety and sustainability are major challenges for machine builders. Efficient motion control helps you build innovative machines faster and without costly prototyping, so you can more easily meet your customers' needs.

Scan this code for more information about Efficient Motion Control and ways to make motion control more efficient.

Cutting edge services – to continuously improve your production environment

Highlights

- **Increase efficiency:** Increase the overall efficiency of your plant, become more resource-efficient and sustainable, and improve quality with our service portfolio.
- **Reduce costs:** Our services help you minimize unplanned downtime, better plan service intervals, and cut overall maintenance costs.
- **Increase availability:** Digital services make fault analysis easier and speed up troubleshooting, which helps you increase the availability of your plant.
- **Save energy:** Increased production efficiency allows you to save energy, reduce CO_2 emissions, and boost overall plant sustainability.
- **Gain flexibility:** Use our services to make your plant production systems and processes more flexible and open to new technologies.
- **Reduce time to market:** Speed up your products' time to market with increased availability and fewer plant shutdowns.

Digital Enterprise Services

Our services cover the complete lifecycle of the SINAMICS product family. We support you in achieving more efficient production, leveraging the opportunities provided by digitalization and at the same time reducing the 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.

With both traditional and digital service portfolios for motion control, we support you in your digital transformation journey while also addressing your strategic targets such as environmentally friendly production, resource efficiency and much more.

Optimized service contracts

With an individual service contract, you can 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.

In addition, we can now offer customized maintenance packages, configured to optimally address your SINAMICS drive requirements through the **Siemens Industry Mall.**

Retrofit for Drive Systems

The latest SINAMICS technology is the perfect replacement for discontinued SIMOVERT MASTERDRIVES and MICROMASTER drives. We recommend replacing aging and obsolete products. With Retrofit for Drives Systems you secure the availability of spare parts and critical product know-how, thus avoiding plant downtimes. This results in increased availability and total efficiency of the machines in your plant. Digital Enterprise Services is ready to support you in your migration strategy and plan your retrofit projects.

Service Protect

We offer a free-of-charge 6-month extended manufacturer´s warranty 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.

For more information and to find the Service Protect options available for your product, go to **Service Protect**

Service Protect can also be added to your order using the **Siemens Product Configurator SPC**

Scan this code for more information about drive system services

SINAMICS
low voltage converters
Powerful and flexible

- Standard performance converters
- Industry specific converters
- High performance converters
- Distributed converters

SINAMICS V20

Simple. Rugged. Efficient.

Highlights

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

Applications

Pumping/ Ventilating/ Compres-sing | 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
Communications	USS/Modbus RTU
TIA Portal connected	No
Commissioning tools	V20 BOP, V20 Smart Access Module
Digitalization tools	TIA Selection Tool
Controllers	SIMATIC S7-1200/SIMATIC S7-1500
Recommended motors	SIMOTICS GP/SD[1] (standard induction motors, aluminum/ cast iron), SIMOGEAR[1] (geared motors)

[1] Please find the right motors from our product partner Innomotics.com

siemens.com/sinamics-selector

siemens.com/product-configurator

Scan this code for more information about SINAMICS V20

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
Communications	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 , EtherNet/IP
TIA Portal connected	Yes
Commissioning tools	BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive
Digitalization tools	Drive System Framework, Analyze MyDrives Edge, SINAMICS DriveSim Basic, TIA Selection Tool, SPC, SINAMICS Startdrive
Controllers	SIMATIC S7-1200 / S7-1500, SIMATIC ET200
Recommended motors	SIMOTICS GP/SD[1] (standard induction motors, aluminum/cast iron) SIMOGEAR[1] (geared motors)

[1] Please find the right motors from our product partner Innomotics.com

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/ Compres-sing | Moving | Processing

Scan this code for more information about SINAMICS G120C

siemens.com/sinamics-selector

siemens.com/product-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

Pumping/ Ventilating/ Compress-ing

Moving

Processing

Positioning

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 ... 250 hp at 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
Communications	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
Digitalization tools	SIDRIVE IQ Fleet, Drive System Framework, Analyze MyDrives Edge, SINAMICS DriveSim Basic, TIA Selection Tool, SPC, SINAMICS Startdrive
Controllers	SIMATIC ET200, SIMATIC S7-1200/SIMATIC S7-1500, SIMATIC PCS 7
Recommended motors	SIMOTICS M-1PH8 Siemens main motors SIMOTICS GP/SD[1] (standard induction motors, synchronous-reluctance motors aluminum/cast iron) SIMOGEAR[1] (geared motors) SIMOTICS TN[1] (trans-standard motors) SIMOTICS XP[1] (explosion-protected motors)

[1] Please find the right motors from our product partner Innomotics.com

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Scan this code for more information about SINAMICS G120

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
Communications	PROFINET, PROFIBUS DP, EtherNet/IP, USS, PROFIsafe
TIA Portal connected	Yes
Commissioning tools	AOP30, SINAMICS Startdrive
Digitalization tools	TIA Selection Tool – Sizer Plug In, SINAMICS DriveSim Basic/ Advanced, Drive System Framework, Analyze MyDrives, SIPLUS CMS
Controllers	SIMATIC ET200, SIMATIC S7-1500, SIMATIC PCS 7
Recommended motors	SIMOTICS GP/SD[1] (standard induction motors aluminum/cast iron) SIMOTICS TN[1] (trans-standard motors) SIMOTICS HT[1] (low-speed permanent magnet synchronous motors)

[1] Please find the right motors from our product partner Innomotics.com

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

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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)**
- **ATEX-certified for motors in hazardous zones**

Applications

Pumping/ Ventilating/ Compressing | Moving | Processing

Format	Built-in unit (compact) Cabinet unit, Cabinet Systems
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 ... 6600 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
Communications	PROFIBUS DP, EtherNet/IP, Modbus TCP/IP, Modbus RTU, CANopen: PROFINET
TIA Portal connected	No
Commissioning tools	IMS
Controllers	SIMATIC ET200/SIMATIC S7-1500, SIMATIC PCS 7
Recommended motors	SIMOTICS GP/SD[1] (standard induction motors aluminum/cast iron) SIMOTICS TN[1] (trans-standard motors) SIMOTICS XP[1] (explosion-protected motors)

[1] Please find the right from our product partner Innomotics.com

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Scan this code for more information about SINAMICS G180

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 SIL3 HW via terminals
Communications	PROFINET, PROFIBUS, EtherNet / IP, Modbus RTU, USS, BACnet MS / TP, Wi-Fi via SINAMICS G120 Smart Access Module, SD card for parameter cloning
TIA Portal connected	via GSD file
Commissioning tools	BOP-2, IOP-2, G120 Smart Access Module, SIMATIC PCS7 and SIMATIC PDM
Digitalization tools	Analyze MyDrives Edge, SINAMICS DriveSim Basic, TIA Selection Tool, SPC, TIA Portal Add-in(with GSD file), Drive System Framework, Drive System Services
Controllers	SIMATIC S7-1500/1200/400, Desigo PX
Recommended motors	SIMOTICS[2] Reluctance motors SIMOTICS GP/SD[2] (standard induction motors with aluminum/cast iron enclosures) SIMOTICS DP[2] (smoke extraction motors)

[1] The maximum temperature for Profinet converters is 55 °C
[2] Please find the right motors from our product partner Innomotics.com

Highlights

- **The infrastructure drive for pump/fan applications in water/waste-water industries and building automation**
- **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

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SINAMICS G220

Efficient. Secure. Future proof.

Next Generation

Highlights

- **Efficient energy consumption with Clean Power technology (THDi < 5%) and optimal high-efficiency motor control.**
- **Efficient engineering via an integrated webserver and Startdrive (TIA Portal).**
- **Secure technology with Safety and Security integrated functions, S2 redundancy, 3C3 coating, and IP55.**

Applications

Pumping/ Ventilating/ Compress-ing

Moving

Processing

Positioning

	SINAMICS G220 IP20	SINAMICS G220 IP55[1]
Format	Built in Unit (compact)	
Drive concept	AC/AC	
Degree of protection	IP20 / UL open type	IP55 / UL type 12
Supply voltage/ power kW (hp)		
3AC 200 ... 240 V	0.55 ... 30 kW (0.75 – 40 hp)	1.1 ... 30 kW (1.5 – 40 hp)
3AC 380 ... 500 V	1.1 ... 55 kW (1.5 – 75 hp)	1.1 ... 55 kW (1.5 – 75 hp)
3AC 525 ... 690 V	3 ... 55 kW (4 – 75 hp)	3 ... 55 kW (4 – 75 hp)
Energy recovery	No	
Control modes	U/f, FCC, ECO, vector control encoderless/with encoder, torque control encoderless/with encoder	
Ambient temperature	–20 °C to 60 °C > 45 °C with reduction	–20 °C to 50 °C > 40 °C with reduction
Line filter	With integrated line filter for environments according to EN 61800-3 Category C2, integrated DC reactor, Category C3 (690 V)	
Braking chopper	Yes, integrated braking unit as standard	
Safety functions	Standard: STO, SS1, SMT (requires option module SMT) Extended: SS1, SLS, SDI, SSM Certified according IEC 61800-5- up to SIL 3 and ISO 13849-1 Cat. 4 and PL e	
Security functions	User Management & Access Control (UMAC), Integrity and authenticity check	
Communications	PROFINET (RT/IRT, MRP & S2 Redundancy), Modbus TCP/IP, EtherNet/IP	
TIA Portal connected	Yes	
Commissioning tools	SINAMICS Startdrive, on board webserver, SINAMICS SDI Standard, SINAMICS SDI Pro 5.5", SINAMICS Smart Adapter (Wi-Fi)	
Digitalization tools	Analyze MyDrives Edge, SINAMICS DriveSim Basic, SINAMICS DriveSim Advanced, SIZER, TIA Selection Tool, SPC TIA Portal / SINAMICS Startdrive, Drive System Framework, IIoT option module Drive System Services	
Controllers	SIMATIC S7-1200/S7-1500, SIMATIC ET200 S7-1500/1200/400, Desigo PX	
Recommended motors	Induction motors, synchronous reluctance motors, permanent Magnet motor[2]	

[1] Available soon

[2] Please find the right motors from our product partner Innomotics.com

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SINAMICS G220 Clean Power IP20[1]	SINAMICS G220 Clean Power IP20[1]
IP20 / UL open type	IP55 / UL type 12
– 7.5 ... 55 kW (10 – 75 hp) –	– 7.5 ... 55 kW (10 – 75 hp) –
–20 °C to 60 °C > 45 °C with reduction	–20 °C to 50 °C > 40 °C with reduction
With integrated line filter for environments according to EN 61800-3 Category C2, integrated active infeed unit THD(i) < 5%	

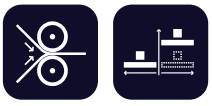
SINAMICS S120

Universal. Precise. Safety Integrated.

Highlights

- **Modular system for high performance**
- **High degree of scalability, flexibility, combinability**
- **SINAMICS S120 Chassis and SINAMICS S120 Cabinet Modules can ordered in air and liquid cooled versions**

Applications S120



Processing Positioning

Machining Moving

	S120 High-performance application	S120 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	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 without derating/to 55 °C with derating	
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	
Communications	PROFINET, PROFIBUS DP, EtherNet/IP (CU320-2), USS, CANopen (CU320-2), Modbus TCP, PROFIsafe	
TIA Portal connected	Yes	
Commissioning tools	SINAMICS Startdrive, STARTER, SCOUT, Webserver	
Digitalization tools	Analyze MyDrives Edge, SIDRIVE IQ Fleet, SINAMICS DriveSim Basic, Drive System Framework, Analyze MyDrives, TIA Selection Tool, SPC, TIA Portal / SINAMICS Startdrive, Drive System Services	
Controllers	SIMATIC, SINUMERIK, SIMATIC DC	
Recommended motors	SIMOTICS S, M, L, T Siemens Motion Control Motors SIMOTICS GP, SD, XP, DP[1]	

[1] Please find the right motors from our product partner Innomotics.com

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S120 High-performance application	S120 CM High-performance application
Built-in unit chassis (modular)	Cabinet unit
Control Unit + Infeed + Motor Module	Control Unit + Infeed + Motor Module
DC/AC	DC/AC
IP00 / IP20	IP20, optional: IP21, IP23, IP43, IP54, IP55
– – 110 ... 3040 kW (150 ... 4370 hp at 460 V) 75 ... 5700 kW (75 ... 5700 hp at 575 V)	– – 4.8 ... 3040 kW (5 ...4370 hp at 460 V) 75 ... 5700 kW (75 ... 5700 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 M Siemens motors SIMOTICS SD, XP, DP, TN, HT[1]	

SINAMICS S150

Multifunctional. Precise. Capable of energy recovery.

Highlights

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

Applications

Processing Moving Positioning

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 without derating/to 50 °C with derating
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
Communications	PROFINET, PROFIBUS DP, EtherNet/IP, USS, CANopen, Modbus TCP, PROFIsafe
TIA Portal connected	Yes
Commissioning tools	SINAMICS Startdrive, STARTER, Webserver, AOP30
Digitalization tools	Analyze MyDrives Edge, SIDRIVE IQ Fleet, SINAMICS DriveSim Basic, Drive System Framework, Analyze MyDrives, TIA Selection Tool, SPC TIA Portal / SINAMICS Startdrive, Drive System Services
Controllers	SIMATIC
Recommended motors	SIMOTICS M Siemens motors SIMOTICS SD, XP, DP, TN, HT[1]

[1] Please find the right motors from our product partner Innomotics.com

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Scan this code for more information about SINAMICS S150

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
Communications	PROFINET, PROFIBUS DP, USS, EtherNet/IP, Modbus TCP
TIA Portal connected	Yes
Commissioning tools	BOP, AOP30, SCOUT, STARTER
Controllers	SIMATIC, SIMATIC PCS 7
Recommended motors	Suitable for all DC motors

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 | Pumping/ Ventilating/ Compress-ing

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SINAMICS G115D

Versatile. Rugged. Distributed.

Highlights

- **User friendly, modular solution with a new design for easy wiring, commissioning and service incl. dedicated features for conveyor technology**
- **Out-of-the-box concept for easy handling, fast set up and an 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 (limited by geared motor) or optional IP65/UL approval corresponding to the geared motor (compact system)	IP65 (connector version) or IP66 (cable gland version)/UL type 4X
Supply voltage/ power kW (hp)		
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 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[1]	
Braking chopper	Integrated brake resistor as standard, optional external brake resistor	
Safety functions	STO according to SIL2/Pld, via F-DI and/or PROFIsafe, SLS as a licensed option with no additional HW	
Communications	PROFINET/Ethernet IP, AS-i or I/O controlled, PROFIsafe	
TIA Portal connected	Yes, complete drive system	
Commissioning tools	SINAMICS Startdrive, G120 Smart Access Module	
Digitalization tools	TIA Portal / SINAMICS Startdrive, Tia Selection Tool, SPC, DriveSim Basic, Drive System Framework, Analyze MyDrives Edge, SIDRIVE IQ Fleet	
Controllers	SIMATIC S7-1200/S7-1500, SIMATIC ET200	
Recommended motors	SIMOGEAR (geared motors)[2]	

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

Please find the right motors from our product partner Innomotics.com

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Scan this code for more information about SINAMICS G115D

"

Innovative system solutions for
horizontal motion applications"

SINAMICS G120D

Multifunctional. Rugged. Distributed.

Highlights

- **Integrated safety functions and positioning functionality**
- **Simple commissioning using prompted para-meterizing 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
Communications	PROFINET/Ethernet IP, PROFIBUS, PROFIsafe
TIA Portal connected	Yes
Commissioning tools	IOP-2 Handheld, SINAMICS Startdrive
Digitalization tools	TIA Portal / SINAMICS Startdrive, Tia Selection Tool, SPC, DriveSim Basic, Drive System Framework, Analyze MyDrives Edge
Controllers	SIMATIC S7-1200/SIMATIC S7-1500, SIMATIC ET200
Recommended motors	SIMOTICS GP/SD[1] (standard induction motors, synchronous-reluctance motors aluminum/cast iron) SIMOGEAR[1] (geared motors)

[1] Please find the right motors from our product partner Innomotics.com

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Scan this code for more information about SINAMICS G120D

SINAMICS servo converters
Precise and with a high dynamic performance

Servo converters

SINAMICS V90

Simple. Precise. System based.

Highlights

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

Applications

Processing Positioning Moving

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
Communications	Pulse/direction interface, USS/Modbus RTU, PROFINET
TIA Portal connected	Yes, via the Hardware Support Package
Commissioning tools	SINAMICS V-ASSISTANT
Digitalization tools	TIA Portal Add-in, DriveSim Basic, TIA Selection Tool, SPC
Controllers	SIMATIC S7-1200/SIMATIC S7-1500/T
Recommended motors	SIMOTICS S-1FL6 Siemens servo motors

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SINAMICS S200/ S200 Basic

Performance optimized. Easy to use. Fit for future.

Format	Built-in unit (compact)
Drive concept	AC/AC
Degree of protection	IP20
Supply voltage/ power kW (hp)	
1/3AC 200 ... 240 V	0.1 ... 1.0 kW (0.14 ... 1.34 hp)
3AC 380 ... 480 V	0.2 ~ 7.0 kW (0.27...9.4 hp)[1]
Energy recovery	–
Control modes	Servo control with encoder
Ambient temperature	0 to 40 °C without derating 40 ~ 60 °C with derating
Line filter	With external line filter for environments according to IEC 61800-3 Category C2
Braking chopper	S200: all have an integrated braking resistor (>0.1 kW) S200 Basic: integrated braking resistor (>0.4 kW)
Safety functions	STO, SS1-t (available soon) via terminal (Certified according IEC 61800-5- up to SIL 3 and ISO 13849-1 Kat. 4 and PL e) [1]
Security functions	User Management & Access Control (UMAC, Integrity and authenticity check)
Communications	Pulse train interface, Modbus RTU (available soon), PROFINET
TIA Portal connected	Full integration
Commissioning tools	Webserver / SINAMICS Startdrive
Digitalization tools	SINAMICS DriveSim Basic, TIA Selection Tool, SPC TIA Portal/ SINAMICS Startdrive, SINAMICS Webserver, SIOS App
Controllers	SIMATIC S7-1200, SIMATIC S7-1500/T, ET200 SP Open controller
Recommended motors	SIMOTICS S-1FL2 Siemens servo motors

[1] Not available for S200 Basic

Next Generation

Highlights

- **Optimized dynamic performance enabled by fast system response and high overload capacity**
- **Reduced space requirement thanks to compact design**
- **Easy engineering using Webserver, Startdrive**

Applications

Processing Positioning Moving

Scan this code for more information about SINAMICS S200

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SINAMICS S210

Versatile. Precise. Safety Integrated.

Next Generation

Highlights

- Easy installation with One Cable Connection (OCC) and easy comissioning with One Button Tuning
- Basic and Extended Safety Integrated functionality via PROFIsafe
- SIMOTICS S-1FK2, S-1FT2 and S-1FS-2 motors for increased performance

Applications

Processing Positioning Moving

Format	Built-in unit (compact)
Drive concept	AC/AC
Degree of protection	IP20
Supply voltage/ power kW (hp)	
1AC 200 ... 240 V	0.05 ... 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
Control modes	Servo control with encoder, 2nd encoder possible[1]
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	Safety: SIL3 certified according IEC 61800-5 and PLe/Cat.4 according ISO 13849-1 for the new SINAMICS S210 (V.6). SIL2 certified according IEC 61800-5, PLd/Cat. 3 according ISO 13849-1 for current SINAMICS S210 (< = V.5)
Security functions	User Management & Access Control (UMAC, Integrity and authenticity check)[1]
Communications	PROFINET, PROFIdrive, PROFIsafe, PROFIenergy
TIA Portal connected	Full integration
Commissioning tools	Webserver, SINAMICS Startdrive
Digitalization tools	Analyze MyDrives Edge, SIDRIVE IQ Fleet, SINAMICS DriveSim Basic, SINAMICS DriveSim Advanced[1], TIA Selection Tool, SPC, TIA Portal with SINAMICS Startdrive, Drive System Framework, Drive System Services
Controllers	SIMATIC S7-1500, SIMATIC S7-1500 with T-CPU, SIMATIC ET 200 SP Open Controller
Recommended motors	SIMOTICS S-1FK2 Siemens servomotors optional as planetary geared motors SIMOTICS S-1FT2 Siemens servo motor optional as planetary geared motors SIMOTICS S-1FS2 Siemens hygienics servo motor

[1] only for the new SINAMICS S210 (> = V.6.3)

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Scan this code for more information about SINAMICS S210

”

The new SINAMICS S210 servo drive.
More features, more possibilities.”

SINAMICS S120

Universal. Precise. Safety Integrated.

Highlights

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

Applications S120

Moving

Processing

Positioning

Machining

	S120 Servo drive converter	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 without derating/to 55 °C with derating	
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	
Communications	PROFINET, PROFIBUS DP, EtherNet/IP (CU320-2), USS, CANopen (CU320-2), Modbus TCP, PROFIsafe	
TIA Portal connected	Yes	
Commissioning tools	SINAMICS Startdrive, SCOUT, Webserver, Starters	
Digitalization tools	Analyze Mydrives Edge, SIDRIVE IQ Fleet, SINAMICS DriveSim Basic, Drive System Framework, TIA Selection Tool, SPC TIA Portal / SINAMICS Startdrive, Drive System Services	
Controllers	SIMATIC, SIMATIC DC, SINUMERIK	
Recommended motors	SIMOTICS S, M, L, T Siemens Motors for Motion Control SIMOTICS[1] SD, XP, DP, TN, HT	SIMOTICS S, M, L, T Siemens Motors for Motion Control SIMOTICS[1] GP, SD, XP, DP

[1] Please find the right motors from our product partner Innomotics.com

siemens.com/product-configurator

Scan this code for more information about SINAMICS S120

S120 Servo drive converter	S120 M Servo drive converter
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) 75 ... 5700 kW (75 ... 5700 hp at 575 V)	– – 0.33 ... 1.1 kW –
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 S, M, L, T Siemens Motors for Motion Control	SIMOTICS S Siemens servo motors
SIMOTICS[1] SD, XP, DP, TN, HT	

SINAMICS S120M

SINAMICS S200.
Servo on! Move beyond.”

SINAMICS DC-DC converters
Optimal performance for industrial applications

DC-DC converters

"

The compact DC-DC converter SINAMICS DCP."

SINAMICS DCP

Reliable. Combinable. Versatile.

Highlights

- **Ready-to-go equipment**
- **Attaching storage system to S120 drive train system**
- **Fit the future**

Applications

Moving

Positioning

Format	Built-in unit
Drive concept	DC – DC
Degree of protection	IP20: SINAMICS DCP 30 kW IP00: SINAMICS DCP 120 kW and DCP 250 kW
Operating voltage range side 1	0 – 1000 V DC (DCP 30 kW and DCP 120 kW) 0 – 1200 V DC (DCP 250 kW)
Operating voltage range side 2	0 – 1000 V DC (DCP 30 kW and DCP 120 kW) 0 – 1200 V DC (DCP 250 kW)
Current	DCP 30 kW: 50 A at 600 V DC (40 hp) DCP 120 kW: 200 A at 600 V DC (161 hp) DCP 250 kW: 250 A at 1000 V DC (335 hp)
Input capacitance	DCP 30 kW: 40 µF (on both sides) DCP 120 kW: 1200 µF (on both sides) DCP 250 kW: 800 µF (on both sides)
Inductance of the energy storage	DCP 30 kW: 700 µH DCP 120 kW: 500 µH DCP 250 kW: 500 µH
DC electronics power supply	24 V DCP 30 kW: current consumption: 5 A at 24 V DCP 120 kW: current consumption: 20 A at 24 V DCP 250 kW: current consumption: 20 A at 24 V
Control modes	Voltage control, current control
Ambient operating temperature	0 °C to +40 °C (up to +55 °C with derating)
Communications	PROFINET, PROFIBUS DP, EtherNet/IP, Modbus TCP
TIA Portal connected	Yes
Commissioning tools	BOP, Starter
Controllers	Internal

Scan this code for more information about SINAMICS DCP

SINAMICS family – an overview

	Supply voltage	Power (kW)	Power (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 ... 250 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 G220	3AC 200 ... 240 V 3AC 380 ... 500 V 3AC 525 ... 690 V	0.55 ... 30 kW (IP20) 1.1 ... 30 kW (IP55) 1.1 ... 55 kW (IP20) 1.1 ... 55 kW (IP55) 7.5 ... 55 kW (IP20) Clean Power 7.5 ... 55 kW (IP55) Clean Power 3 ... 55 kW (IP20) 3 ... 55 kW (IP55)	0.75 ... 40 hp 1.5 ... 40 hp 1.5 ... 75 hp 1.5 ... 75 hp 10 ... 75 hp 10 ... 75 hp 4 ... 75 hp 4 ... 75 hp
SINAMICS S120	3AC 380 ... 480 V 3AC 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 ... 5700 kW	1.5 ... 150 hp 150 ... 400 hp 150 ... 4370 hp 0.75 ... 400 hp 10 ... 400 hp 75 ... 5700 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 S200	1/3AC 200 ... 240 V 3AC 380 ... 480 V	0.1 ... 1.0 kW 0.2 ... 7.0 kW	0.14...1.34 hp 0.27...9.4 hp[1]
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	3AC 380 ... 480 V 3AC 500 ... 690 V	0.55 ... 132 kW 110 ... 250 kW 1.6 ... 107 kW 110 ... 3040 kW 75 ... 5700 kW	0.5 ... 150 hp 150 ... 340 hp 2 ... 145 hp 150 ... 4133 hp 75 ... 5700 hp
SINAMICS S120M	3AC 380 ... 480 V	0.33 ... 1.55 kW	0.45 ... 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
DC-DC converters			
SINAMICS DCP	50 A ... 600 V DC (DCP 30 kW) 200 A ... 600 V DC (DCP 120 kW) 250 A ... 1000 V DC (DCP 250 kW	30 kW (DCP 30 kW) 120 kW (DCP 120 kW) 250 kW (DCP 250 kW)	40 hp (DCP 30 kW) 161 hp (DCP 120 kW) 335 (DCP 250 kW)

Communication	Commissioning tools	Safety functions
USS/Modbus RTU	V20 BOP, 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	AOP30, SINAMICS Startdrive	STO, SS1, SBC, SLS, SDI, SSM, SBT
PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU/ BACNet/FLN1	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 (RT/IRT, MRP & S2 Redundancy), Modbus TCP/IP, EtherNet/IP	SINAMICS Startdrive, onboard webserver, SINAMICS SDI Standard, SINAMICS SDI Pro 5.5“, SINAMICS Smart Adapter	Standard: STO, SS1, SMT (requires option module SMT) Extended: SS1, SLS, SDI, SSM
PROFINET, PROFIBUS DP, EtherNet/IP (CU320-2), USS, CANopen (CU320-2), Modbus TCP, PROFIsafe	SINAMICS Startdrive, Starter, Scout, Webserver	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT
PROFINET, PROFIBUS DP, EtherNet/IP, USS, CANopen, PROFIsafe	SINAMICS Startdrive, integrated webserver	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT
PROFINET, PROFIBUS DP, USS, EtherNet/IP, Modbus TCP	BOP, AOP30, SCOUT, STARTER	STO, SS1
Pulse/direction interface, USS/Modbus RTU, PROFINET	SINAMICS V-ASSISTANT, TIA Portal HSP	STO
Pulse train interface, Modbus RTU (available soon), PROFINET	Webserver, SINAMICS Startdrive	STO, SS1-t (available soon) via terminal (Certified according IEC 61800-5- up to SIL 3 and ISO 13849-1 Cat. 4 and PL e)[1]
OCC (One Cable Connection) PROFINET, PROFIdrive, PROFIsafe, PROFIenergy	Webserver, SINAMICS Startdrive	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLA, SBT (SINAMICS S210 NEW: Certified according IEC 61800-5- up to SIL 3 and ISO 13849-1 Cat. 4 and PL e)
PROFINET, PROFIBUS DP, EtherNet/IP (CU320-2), USS, CANopen (CU320-2), Modbus TCP, PROFIsafe	Webserver, SINAMICS Startdrive, Starter, Scout	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT
PROFINET, PROFIBUS DP, EtherNet/IP2, USS, CANopen	SINAMICS Startdrive, Starter	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT
PROFINET/Ethernet IP, AS-i or I/O controlled	SINAMICS Startdrive, SINAMICS G120 Smart Access Module	STO, SLS as a licensed option
PROFINET/Ethernet IP, PROFIBUS	IOP-2 Handheld, SINAMICS Startdrive	STO, SS1, SLS, SDI, SSM
PROFINET, PROFIBUS DP, EtherNet/IP, Modbus TCP	BOP, Starter	n/a

[1] Not available for S200 Basic
[2] in progress

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