SIEMENS

SINAMICS
Low-voltage drives

One family, one source, all applications.

usa.siemens.com/sinamics

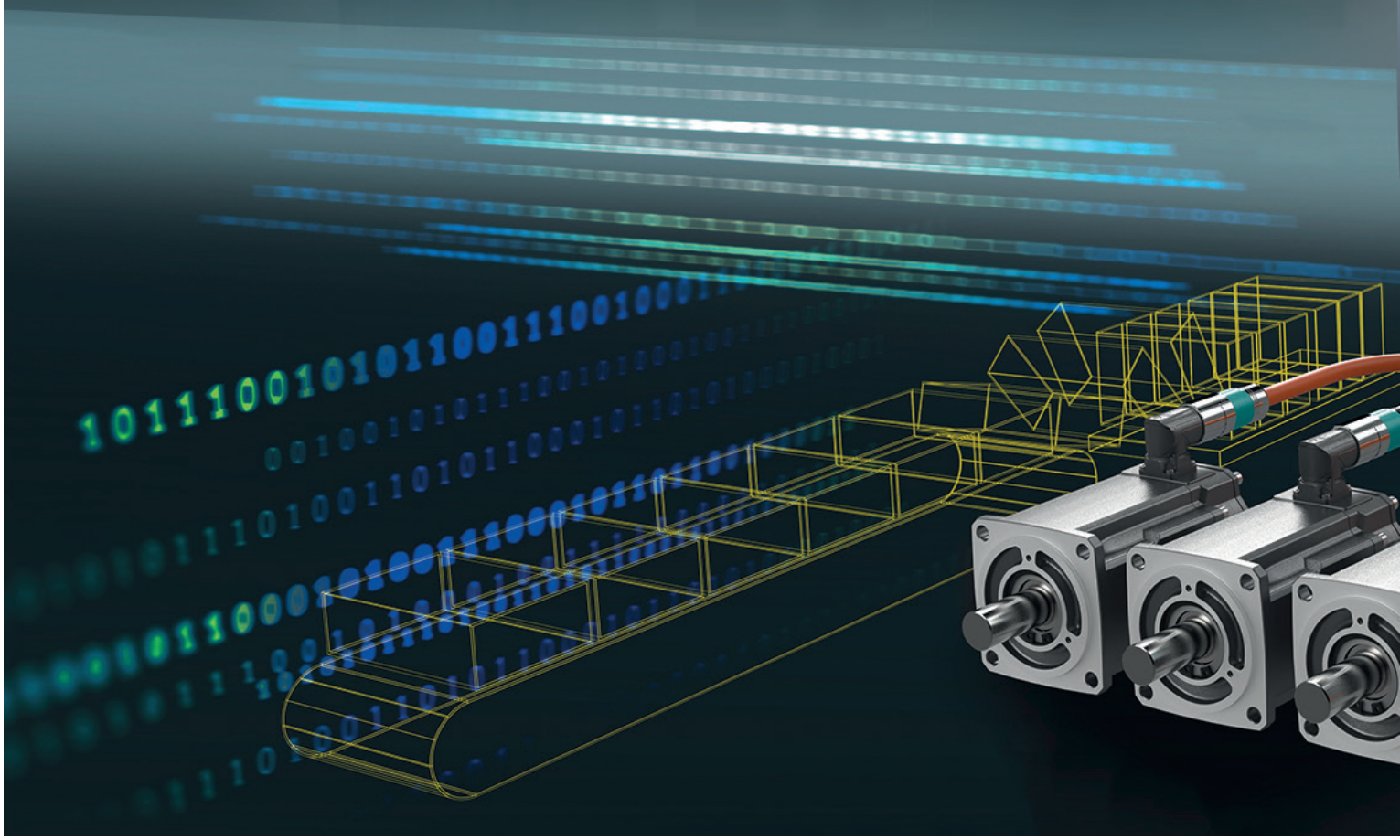
Perfect interaction—the drive-system solution

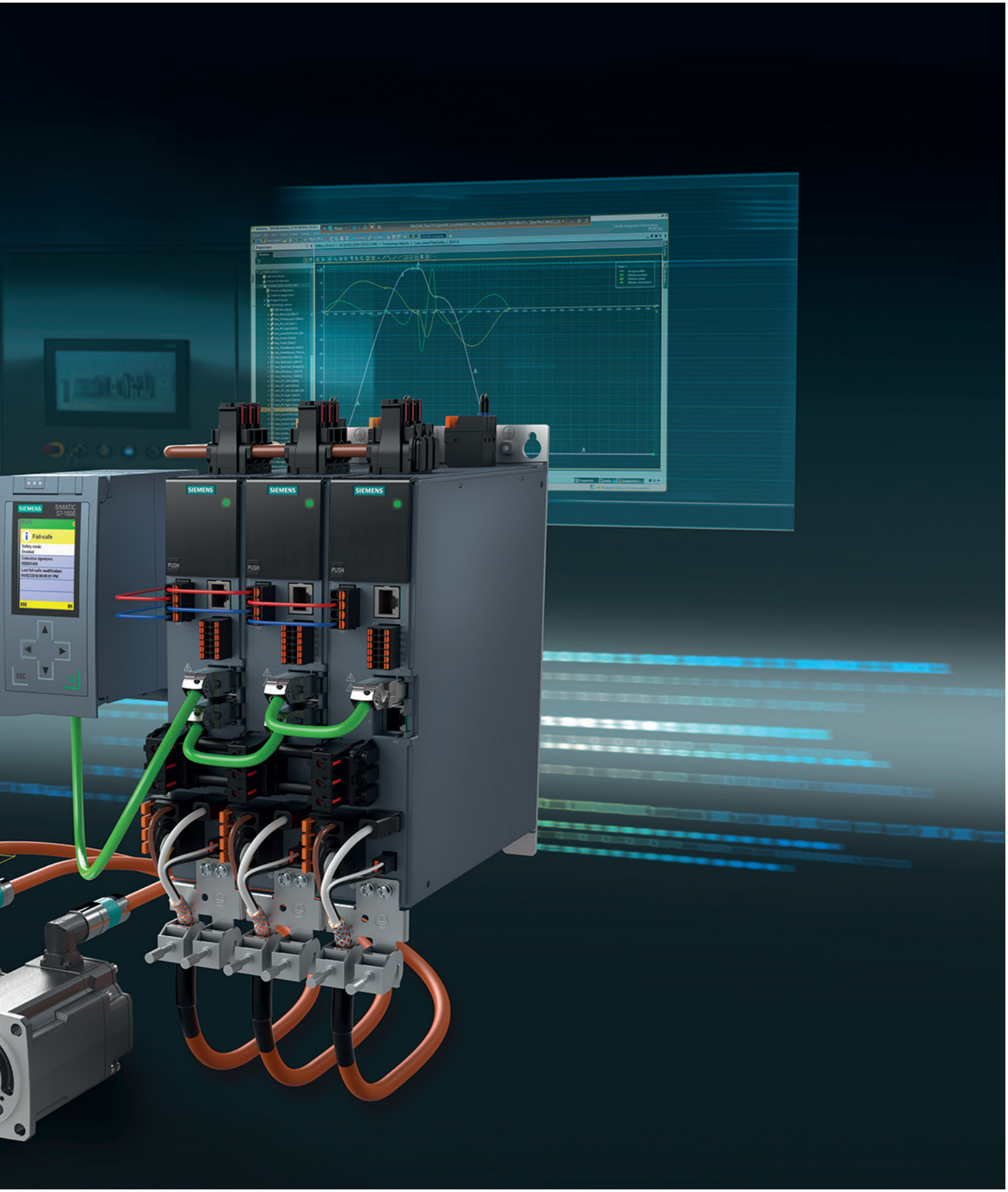
SINAMICS—one family, one source, all applications.

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 operate seamlessly, from drives through motors along with gear units and couplings. The drives can be optimally linked to control systems such as SIMATIC, SINUMERIK and SIMOTION. Communication is established quickly and safely via PROFINET.

As a result, SINAMICS drives 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 cost, but you can also secure a sustainable lead in the market.

- ✓ Drive components are optimally harmonized and coordinated with each another
- ✓ Seamless and future-proof complete solution
- ✓ Efficient engineering and simple commissioning




SIEMENS
SIMATIC
S7-1500
Fail-safe
SIEMENS
SIEMENS
SIEMENS
PUSH
PUSH
PUSH

SINAMICS—
versatility for maximum efficiency

The SINAMICS family of drives—simply and efficiently address each individual drive application—in the low, medium and DC voltage power range. Every drive component is perfectly harmonized and coordinated with one another. Siemens drives, motors and control systems can be seamlessly integrated into the drive train and into existing automation environments. Simply select the appropriate drive components and start commissioning your drive system.


Portfolio


Digitalization


Engineering


Safety Integrated


Drive-system solution


Lifecycle services

Into the digital future with simplicity and versatility

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 from Siemens—you can simply boost the efficiency of your production and reduce downtimes to a minimum based upon innovative maintenance concepts.

Extensive portfolio Customized power, performance and functionality: SINAMICS drives have a huge degree of flexibility while providing future-proof solutions for your applications.

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

Efficient engineering Powerful tools support you over the entire lifecycle when configuring, engineering, commissioning and troubleshooting your SINAMICS drive solution. In addition, these tools help you optimize your processes, as well.

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

Drive-system solution You'll benefit from our modular automation concept that can be scaled as required: SINAMICS drives operate perfectly with SIMOTICS motors, SIMOGEAR geared motors—as well as SIMATIC, SINUMERIK and SIMOTION control systems. Every component communicates seamlessly via PROFINET.

Services across the entire lifecycle From spare parts management up to optimized maintenance concepts: Based upon customized service quotations for your SINAMICS drives, you can sustainably secure maximum availability and productivity of your plants and systems.

Digitalization for a higher degree of productivity, availability and flexibility

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

Our digitalization portfolio covers the complete value-added chain. Starting with virtualization, digital twins of drive chains facilitate physical simulation and virtual commissioning. Seamless engineering tools make it easier to integrate drives and motors into your plants and systems. Our connectivity — independent of any specific platform — connects your drives with all the revelant platforms. Finally, using Cloud or Edge apps and data analysis models, you can derive valuable knowledge from the drive data of your application or machine.

Effectively utilizing data facilitates event-oriented monitoring as well as predictive maintenance concepts, while simultaneously 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's crucial to react quickly.

Connecting SINAMICS drives to the Industrial Edge platform facilitates complex analysis of data that is already captured in the drive. Smart algorithms identify patterns well in advance that are based upon identified anomalies providing information about the health of a drive train and the application, including pending maintenance activities.

Highlights

- ✓ Drive technology as entry point into digitalization
- ✓ Seamless machine database through integrated engineering
- ✓ Transparency along the complete drive train
- ✓ Secure data capture in the Cloud
- ✓ Identification and implementation of optimization measures
- ✓ Development of new business and service models

Efficient engineering over the entire lifecycle

Selecting products with the Siemens Product Configurator From gear units through motors and drives up to the control system: Using the Siemens Product Configurator, you can quickly select the ideal products to address your specific applications.

The TIA Portal includes SINAMICS Startdrive to intuitively integrate SINAMICS drives into the automation envrionment 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 drives into the automation environment and commission them using TIA Portal.

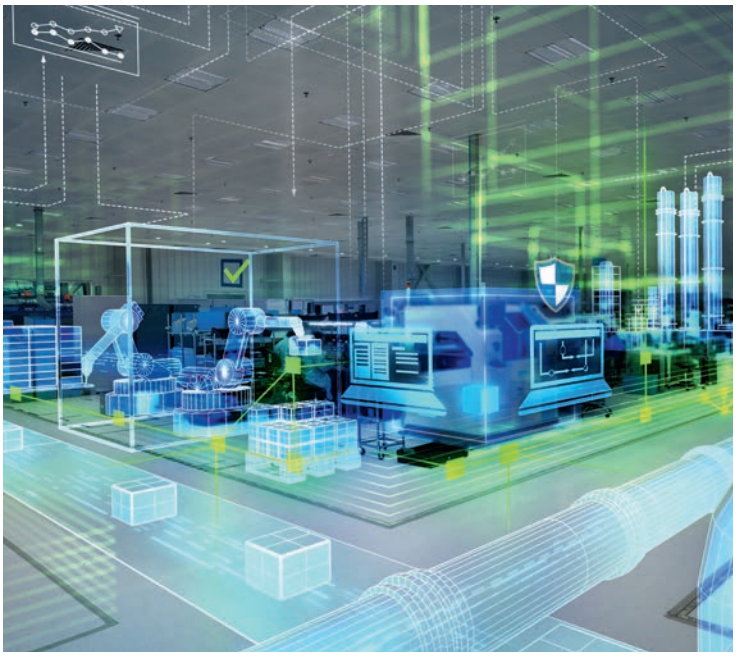
TIA Selection Tool for simple drive engineering Starting from your application, the tool supports you every step of the way when defining the mechanical system, including the selection and dimensioning of drives, motors and gear units. In addition to engineering results such as characteristics, technical 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 drives can free up. The evaluation provides information about the specific energy-saving potential, a financial analysis, as well as information about the expected payback time.

Commissioning and diagnostics You can operate, monitor, commission, diagnose and service SINAMICS V20 and G120 drives using the wireless Smart Access Module or the IOP-2 or BOP-2 operator panels, either locally or from a mobile device.

Highlights

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



Safety Integrated
simply safe, twice the efficiency

Optimum support for machine builders and machine operators:

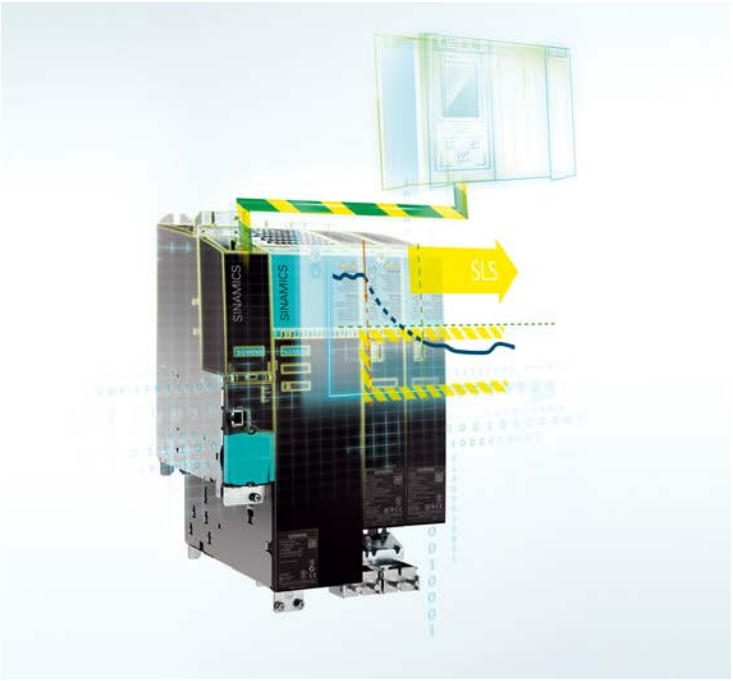
With Safety Integrated bult into SINAMICS drives, not only are you selecting a safe technical solution, but you'll also benefit from perfect support relating to all safety issues. This starts with the seamless integration of safety technology in SINAMICS drives and in SIMATIC, SINUMERIK and SIMOTION control systems. This certified system offers valuable support in workflows, 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 need less space in your control cabinet, and you can reduce your costs when it comes to stocking spare parts and maintenance. Additionally, 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 upon the safety-related communication via PROFIsafe. You'll certainly achieve increased manufacturing productivity with minimal machine downtimes.

Highlights

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



Cutting-edge services
to continuously improve your production environment

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

Our industry services cover the entire lifecycle of the SINAMICS product family. We enable our customers to produce more efficiently with greater profit margins, while helping them leverage the opportunities provided through digitalization and reducing their total cost-of-ownership.

You'll benefit from spare parts and repair services specific to your plant or system. Support is provided by our experienced service experts around the globe. This support is available locally, remotely, online, by telephone or through individual training classes.

Digital Industry Services Are you ready for digitalization? With our digitalization check, you can determine just how prepared your plant or system is for the digital era. Here, we apply our digital drive train services for the entire drive system—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 drives 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—as a preventive measure.

Drive system retrofit 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 family. We recommend that you switch to SINAMICS so the availability of spare parts can be secured in the future, thus avoiding plant downtimes. We would be more than willing to help you create the best migration strategy.

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 your machines and systems

"Extended Exchange" drive service

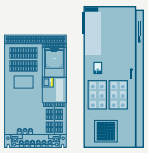
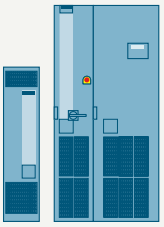
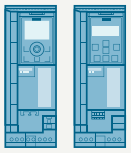
We offer a 6-month extended warranty free-of-charge for SINAMICS drives. Further, you have the option of insuring your SINAMICS drive for up to seven years—therefore guaranteeing continuous availability over the entire product lifecycle.

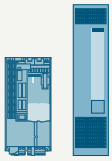
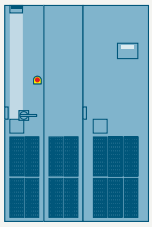
Register your SINAMICS drive system now:
siemens.com/drive-registration

The SINAMICS family for every power and performance class

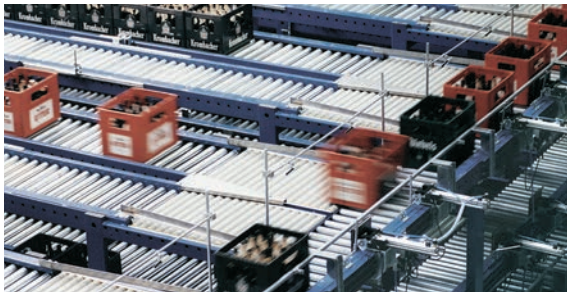
Low-voltage



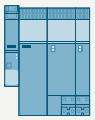
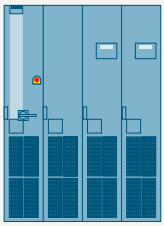
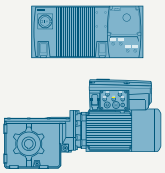
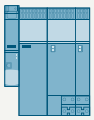




SINAMICS V20	SINAMICS G120C	SINAMICS G120 / G120E-2	SINAMICS G130 / G150	SINAMICS G120X	SINAMICS G120XE	SINAMICS S120 / S120CM
0.12–30 kW 0.16–40 hp	0.55–132 kW 0.75–150 hp	0.55–250 kW 0.5–400 hp	75–2,700 kW 100–3,600 hp	0.75–630 kW 1–700 hp	0.75–0560 kW 1–700 hp	0.55–6,840 kW 0.75–9,000 hp
Standard-performance drives				**Industry-specific drives**		


The wide range of SINAMICS drives has the precise solution you require for your application.	V20	G120C	G120 / G120E-2
Pumping / ventilating / compressing SINAMICS drives support the continuous and energy-efficient operation of pumps, fans and compressors, either running continuously or requiring a high dynamic performance. Advantages include: precise flow control, short response times and the avoidance of damaging vibration levels and cavitation.			
Moving 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 high dynamic performance — and always with Safety Integrated onboard.	–		
Positioning If high dynamic performance and precision are required, 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 drives are the ideal solution for continuously running processes that require high speed and torque precision — for instance, extruders, centrifuges, agitators and all types of production machines — motion control, isochronous communication and Safety Integrated.	–		
Machining Whether high-speed spindles or feed and auxiliary axes for milling, turning, drilling, grinding or 5-axis machining, SINAMICS is the perfect drive for applications in material processing and machining. Fast adaptability and minimum equipping times play a decisive role when it comes to achieving high manufacturing productivity.	–	–	–

						Ultra low-voltage
						
	SINAMICS S150	**SINAMICS DCM (DC)**	**SINAMICS G115D / G120D**	**SINAMICS S120**	**SINAMICS S210**	**MICRO-DRIVE**
	75–1,200 kW 100–1,600 hp	6 kW–30 MW 8–40,000 hp	0.37–7.5 kW 0.5–10 hp	0.55–6,840 kW 0.75–9,000 hp	0.05–7 kW 0.06–10 hp	0.1–1 kW 0.25–1.4 hp
High-performance drives			**Distributed drives**	**Servo drives**		**Servo drive**

G130 / G150	G120X	G120XE	S120 / S120CM	S150	DCM (DC)	G115D / G120D	S120	S210	MICRO-DRIVE
			–	–	–	–		–	–
	–	–							
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SINAMICS V20

Standard-performance drives

Simple. Rugged. Efficient.

Applications	Pumping / Ventilating / Compressing
Format	Built-in unit (compact)
Drive concept	AC / AC
Degree of protection	IP20 / UL open type
Supply voltage/power kW (hp)	1AC 200 ... 240V 0.12 ... 3 kW (0.16 ... 4 hp) 3AC 380 ... 480V 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 EN 61800-3 Category C3 / C2 / C1 ■ Without integrated line filter for environments according to EN 6 1800-3 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)

Highlights SINAMICS V20

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

SINAMICS G120C

Standard-performance drives

Versatile. User-friendly. Compact.

Applications	Pumping / Ventilating / Compressing, Moving, Processing
Format	Built-in unit (compact)
Drive concept	AC / AC
Degree of protection	IP20 / UL open type
Supply voltage/power kW (hp)	3AC 380 ... 480V 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 EN 61800-3 Category C3/C2 ■ Without integrated line filter for environments according to EN 61800-3 Category C4
Braking chopper	External 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, EtherNet/IP
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 SINAMICS G120C

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

SINAMICS G120 / G120E-2

Standard-performance drives

Modular. Multi-functional. Safety Integrated.

Applications	Pumping / Ventilating / Compressing, Moving, Positioning, Processing	
Format	**G120:** Built-in unit (modular)[1]	**G120E-2:** Cabinet unit
Drive concept	AC / AC	
Degree of protection	**G120:** IP20 / UL open type / UL Type 1 wall-mount	**G120E-2:** NEMA 1 or NEMA 12
Supply voltage/power kW (hp)	1AC / 3AC 200 ... 240V 3AC 200 ... 240V 3AC 380 ... 480V 3AC 380 ... 480V 3AC 380 ... 480V 3AC 500 ... 690V	0.55 ... 4 kW (0.75 ... 5 hp), Power Module PM240-2 5.5 ... 55 kW (7.5 ... 75 hp), Power Module PM240-2 0.55 ... 250 kW (0.75 ... 400 hp), Power Module PM240-2 0.55 ... 150 kW (1 ... 200 hp), Power Module PM240-2 (G120E-2) 7.5 ... 90 kW (10 ... 125 hp), Power Module PM250 11 ... 250 kW (10 ... 250 hp), 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 EN 61800-3 Category C3/C2 ■ Without integrated line filter for environments according to EN 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)	

[1] Power Module, Control Unit, commissioning options

Highlights SINAMICS G120 / G120E-2

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

SINAMICS G130 / G150

Standard-performance drives

Multi-functional. User-friendly. Rugged.

Applications	Pumping / Ventilating / Compressing, Moving, Processing	
Format	**G130:** Built-in unit (modular)	**G150:** Cabinet unit
Drive concept	AC / AC	
Degree of protection	**G130:** IP00 / IP20	**G150:** NEMA 1, NEMA 12, IP20, IP21, IP23, IP43, or IP54
Supply voltage/power kW (hp)	3AC 380 ... 480V 3AC 500 ... 600V 3AC 660 ... 690V	110 ... 560 kW (150 ... 800 hp) (G130) 110 ... 900 kW (150 ... 800 hp) (G150) 110 ... 560 kW (150 ... 800 hp) (G130) 110 ... 1000 kW (150 ... 800 hp) (G150) 75 ... 800 kW (85 ... 810 hp) (G130) 75 ... 2700 kW (85 ... 810 hp) (G150)
Energy recovery	No	
Control modes	V/f control, vector control with and without 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 EN 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	BOP20, 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 FD (compact induction motor with different cooling concepts) ■ SIMOTICS HT (low-speed permanent magnet synchronous motors)	

Highlights SINAMICS G130 / G150

- ✓ 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

SINAMICS G120X

Industry-specific drives

Flexible. Combinable. Application specific.

Applications	Pumping / Ventilating / Compressing
Format	Built-in unit (compact)
Drive concept	AC / AC
Degree of protection	IP20, UL open type, UL open type with push-through kits
Supply voltage/power kW (hp)	3AC 200 ... 240V 0.75 ... 55 kW / 1 ... 75 hp 3AC 380 ... 480V 0.75 ... 560 kW / 1 ... 700 hp 3AC 500 ... 690V 3 ... 630 kW / 4 ... 700 hp 1AC (L-L) 220 ... 240V input derated output 3AC 220 ... 240V 0.5 ... 30 hp 1AC (L-L) 440 ... 480V input derated output 3AC 440 ... 480V 0.5 ... 125 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 EN 61800-3, with integrated line filter for environments Category C3/C2; optional C1 with external filter B
Braking chopper	No
Safety functions	STO (SIL3)
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 FD (compact induction motors with different cooling concepts) ■ SIMOTICS DP (smoke extraction motors)

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

Highlights SINAMICS G120X

- ✓ The infrastructure drive for pump, fan and compressor applications in water / wastewater industries and building technology
- ✓ Seamless power ratings up to 700 hp and a new UL 61800-5-1 certified design with up to 100kA SCCR
- ✓ Simple selection and ordering using just one order number — and immediately ready to run
- ✓ Impressively efficient with industry-specific and energy efficient functions

SINAMICS G120XE

Industry-specific drives

Multi-functional. Industry-specific. Seamless across the system.

Applications	Pumping / Ventilating / Compressing
Format	Cabinet unit
Drive concept	AC / AC
Degree of protection	NEMA 1 or NEMA 12
Supply voltage/power kW (hp)	3AC 380 ... 480V 0.75 ... 560 kW / 1 ... 700 hp
Energy recovery	No
Control modes	V/f (linear, square law, FCC, ECO), sensorless vector control (SLVC)
Ambient temperature	0° C to 40° C
Braking chopper	No
Safety functions	STO (SIL3)
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	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 FD (compact induction motors with different cooling concepts) ■ SIMOTICS DP (smoke extraction motors)

Highlights SINAMICS G120XE

- ✓ The infrastructure drive for pump, fan and compressor applications in water / wastewater industries and building technology
- ✓ Seamless power ratings up to 700 hp and UL 508A certified enclosed design with 65kA SCCR
- ✓ Circuit breaker disconnect with flange mount operator and mechanical door interlock
- ✓ Cable entry top or bottom (line and motor side)
- ✓ Simple selection and ordering using just one order number—and immediately ready to run
- ✓ Impressively efficient with industry-specific and energy efficient functions

SINAMICS S120 / S120CM

High-performance drives

Universal. Precise. Safety Integrated.

Applications	Machining, Moving, Positioning, Processing	
Format	**S120 Built-in unit Blocksize (modular)**	**S120 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)	1AC / 3AC 200 ... 240V 0.55 ... 4 kW (0.75 ... 5 hp at 240V) 3AC 200 ... 240V 5.5 ... 55 kW (7.5 ... 60 hp at 240V) 3AC 380 ... 480V 0.55 ... 250 kW (0.75 ... 400 hp at 480V) 3AC 500 ... 690V 11 ... 250 kW (10 ... 400 hp at 600 V)	— — 3AC 380 ... 480V 1.6 ... 107 kW (1.5 ... 150 hp at 480V) —
Energy recovery	No	Yes, depending upon 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 EN 61800-3 Category C3/C2 ■ Without line filter for environments according to EN 61800-3 Category C4	■ With integrated line filter for environments according to EN 61800-3 Category C3/C2 (optional) ■ Without line filter for environments according to EN 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, Modbus TCP	
TIA Portal connected	Yes, PROFIsafe	
Commissioning tools	BOP20, AOP30, SINAMICS Startdrive, STARTER, SCOUT, web server	
Controller	SIMATIC, SINUMERIK, SIMOTION	
Recommended motors	SIMOTICS GP, SD, XP, DP, M, S, L, T	SIMOTICS GP, SD, XP, DP, M, S, L, T

Highlights SINAMICS S120 / S120CM

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

	S120 Built-in unit Chassis (modular)	S120CM Cabinet unit
	Control Unit + infeed + Motor Module	Control Unit + infeed + Motor Module
	DC / AC	DC / AC
	IP00 / IP20	NEMA 1, NEMA 12, IP20, IP21, IP23, IP43, or IP54
	— — 3AC 380 ... 480V 110 ... 3040 kW (150 ... 4370 hp at 460V) 3AC 500 ... 690V 75 ... 6840 kW (100...9000 hp at 575V)	— — 3AC 380 ... 480V 4.8 ... 3040 kW (5 ... 4370 hp at 460V) 3AC 500 ... 690V 75 ... 6840 kW (100...9000 hp at 575V)
	Yes, depending upon the infeed	Yes, depending upon the infeed
	■ With integrated line filter for environments according to EN 61800-3 Category C3/C2 (optional) ■ Without line filter for environments according to EN 61800-3 Category C4	■ With integrated line filter for environments according to EN 61800-3 Category C3/C2 (optional) ■ Without line filter for environments according to EN 61800-3 Category C4
	Yes (optional)	Yes (optional)
	SIMOTICS GP, SD, XP, DP, FD, TN, HT, M	SIMOTICS GP, SD, XP, DP, FD, TN, HT, M

SINAMICS S150

High-performance drives

Multi-functional. Precise. Capable of energy recovery.

Applications	Processing, Moving
Format	Cabinet unit
Drive concept	AC / AC
Degree of protection	NEMA 1, NEMA 12, IP20, IP21, IP23, IP43, or IP54
Supply voltage/power kW (hp)	3AC 380 ... 480V 110 ... 800 kW (150 ... 1150 hp) 3AC 500 ... 690V 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 EN 61800-3 Category C3/C2 ■ Without line filter for environments according to EN 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, 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

Highlights SINAMICS S150

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

SINAMICS DCM

High-performance drives

Universal. Scalable. Rugged.

Applications	Moving, Processing
Format	Built-in unit
Drive concept	AC / DC
Degree of protection	IP00 / IP20
Supply voltage/power kW (hp)	1AC 50 ... 230V 1.61 ... 362 kW (2.16 ... 485 hp) 1AC 50 ... 400V 2.81 ... 653 kW (3.77 ... 876 hp) 1AC 50 ... 480V 3.37 ... 310 kW (4.52 ... 416 hp) 1AC 50 ... 575V 16.1 ... 863 kW (21.6 ... 1160 hp) 3AC 10 ... 50V 0.16 ... 183 kW (0.21 ... 245 hp) 3AC 50 ... 400V 6.3 ... 1460 kW (8.4 ... 1950 hp) 3AC 50 ... 480V 6.3 ... 690 kW (8.4 ... 925 hp) 3AC 50 ... 575V 35 ... 1930 kW (47 ... 2590 hp) 3AC 100 ... 690V 551 ... 2160 kW (739 ... 2900 hp) 3AC 100 ... 830V 831 ... 1900 kW (1110 ... 2550 hp) 3AC 100 ... 950V 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 EN 61800-3 Category C2 ■ Without additional line filter for environments according to EN 61800-3 Category C3, C4
Safety functions	STO, SS1
Communication	PROFINET, PROFIBUS DP, USS, EtherNet / IP, Modbus TCP
TIA Portal connected	Yes
Commissioning tools	BOP20, AOP30, STARTER, SCOUT
Controller	SIMATIC, SIMATIC PCS 7, SIMOTION
Recommended motors	SIMOTICS DC

Highlights SINAMICS DCM

- ✓ 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 every component

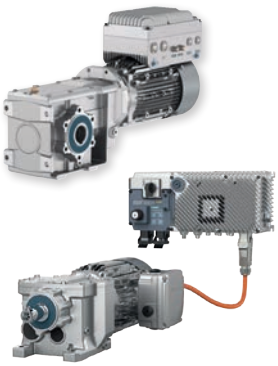
SINAMICS G115D

Distributed drives

Versatile. Rugged. Distributed.

Applications	Moving, Positioning	
Format	**Motor-mounted**	**Wall-mounted**
Drive concept	AC / AC	
Degree of protection	IP55 (limited 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 kW (hp)	3AC 380 ... 480V 0.37–4 kW / 0.5–5 hp FSA up to 1.5 kW FSB up to 4 kW	3AC 380 ... 480V 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° C 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	
Braking chopper	Yes, integrated	
Safety functions	STO according to SIL2/Pld, via F-DI and / or PROFIsafe	
Communication	PROFINET, EtherNet / IP, AS-i or I/O controlled	
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)[1]	

[1] The motor-mounted version is offered only with geared motor and drive as a complete system



Highlights SINAMICS G115D

- ✓ User-friendly, modular solution with a new construction design for easy wiring, commissioning and servicing including dedicated features for conveyor technology
- ✓ Out-of-the-box concept for easy handling, fast setup and extremely simple operation designed for horizontal motion control applications

SINAMICS G120D

Distributed drives

Multi-functional. Rugged. Distributed.

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 ... 500V 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 EN 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 / S7-1500, SIMATIC ET200
Recommended motors	■ SIMOTICS GP / SD (standard induction motors, synchronous-reluctance motors aluminum / cast iron) ■ SIMOGEAR (geared motors)

Highlights SINAMICS G120D

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

SINAMICS S120

Servo drives

Univeral. Precise. Safety Integrated.

Applications	Pumping / Ventilating / Compressing, Moving, Positioning, Processing, Machining	
Format	**S120 Built-in unit Blocksize (modular)**	
Structure	Control Unit + Power Module	
Drive concept	AC / AC	
Degree of protection	IP20, optional IP43	
Supply voltage/power kW (hp)	1AC / 3AC 200 ... 240V	0.55 ... 4 kW (0.75 ... 5 hp at 240V)
	3AC 200 ... 240V	5.5 ... 55 kW (7.5 ... 60 hp at 240V)
	3AC 380 ... 480V	110 ... 250 kW (150 ... 400 hp at 460V)
	3AC 500 ... 690V	—
Energy recovery	No	
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 EN 61800-3 Category C3/C2 ■ Without line filter for environments according to EN 61800-3 Category C4	
Braking chopper	Integrated braking chopper for PM240-2 Power Modules	
Safety functions	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SBT, SLA, SCA	
Communication	PROFINET, PROFIBUS DP, EtherNet / IP, Modbus TCP, PROFIsafe	
TIA Portal connected	Yes	
Commissioning tools	SINAMICS Startdrive, SCOUT, web server	
Controller	SIMATIC, SIMOTION, SINUMERIK	
Recommended motors	SIMOTICS SD, XP, DP, FD, TN, HT, M, S, L, T	

Highlights SINAMICS S120

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

S120 Built-in unit Booksize (modular)	S120 Built-in unit Chassis (modular)
Control Unit + infeed + Motor Module	Control Unit + infeed + Motor
DC / AC	DC / AC
IP20	IP00 / IP20
1.6 ... 107 kW (1.5 ... 150 hp at 460V) —	110 ... 3040 kW (150 ... 4370 hp at 460V) 75 ... 6840 kW (100...9,000 hp at 575V)
Yes, depending upon the infeed	Yes, depending upon the infeed
■ With integrated line filter forenvironments according to EN 61800-3 Category C3/C2 (optional) ■ Without line filter for environments according to EN 61800-3 Category C4	■ With integrated line filter for environments according to EN 61800-3 Category C3/C2 (optional) ■ Without line filter for environments according to EN 61800-3 Category C4
Yes (optional)	Yes (optional)
SIMOTICS GP, SD, XP, DP, M, S, L, T	SIMOTICS SD, XP, DP, FD, TN, HT, M, S, L, T

SINAMICS S210

Servo drives

Designed for high dynamic motion control applications.

Applications	Moving, Positioning, Processing
Format	Built-in unit (compact)
Drive concept	AC / AC
Degree of protection	IP20
Supply voltage/power kW (hp)	1AC 200 ... 240V 0.1 ... 0.75 kW (0.13 ... 1 hp) 3AC 200 ... 480V 0.4 ... 7 kW (0.5 ... 10 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 EN 61800-3 Category C2 ■ 3AC devices with integrated line filter for environments according to EN 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, SBT, SLA
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-1FS2 (stainless steel servo motor) ■ SIMOTICS S-1FT2 (servomotors)

Highlights SINAMICS S210

- ✓ Easy commissioning using a web server and One Button Tuning
- ✓ Optimized connection system using OCC (one cable connection)
- ✓ Safety Integrated functions via PROFIsafe

SIMATIC MICRO-DRIVE

Ultra low-voltage

Servo-drive system for ultra low-voltage applications

Applications	Moving, Positioning, Processing	
Format	**PDC drives (ProfiDrive-Control)**	**TM drives (Technology Module)**
Power range	100–1000W	Up to 280W
Motor supply voltage	24–48V DC	
Communication	PROFINET with PROFIdrive and PROFIsafe	PROFINET with PROFIdrive
Safety functions[1]	STO, SS1, SLT[2], SBC, SLS, SSM	Safety function STO hard-wired
Application	TIA Selection Tool	
Engineering	TIA Portal with HSP for SIMATIC MICRO-DRIVE	
Update	Siemens Automation Tool (SAT)	
EMC filter/EMV	■ Integrated ■ EN 61800-3:C1 = EN 55011:B1 (residential areas) ■ EN 61800-3:C2 = EN 55011:A1 (residential / industrial areas)	■ According to EN 61800-3 Category C2 ■ EN 61800-3:C2 = EN 55011:A1 (residential / industrial areas)
Standards	CE / UL-certified / RoHS, KC, EAC, RCM Performance Level: PL d according to IEC ISO 13849-1 Safety Category: Cat. 3 acc. to IEC ISO 13849-1	
	Safety Integrity Level: SIL2 according to IEC 61508-1	Safety integrity level: up to SIL3 according to IEC 61508-1
Typical controllers	SIMATIC S7-1200(F), S7-1500(F / T / TF), SIMATIC Open Controller (F / T / TF)	SIMATIC S7-1200(F), S7-1500(F / T / TF), SIMATIC Open Controller (F / T / TF)
Construction	IP20 housing, no fan, convection cooling, mounted on 35 mm DIN rails in accordance with DIN EN 60715	Mounting 35 mm DIN rail with Base Units in accordance with DIN EN 60715
Motor versions	EC motors with suitable encoder system ■ Supported encoder systems - Hall sensor and Incremental Encoder - Hall sensor and IQ Encoder - IQ Encoder - Incremental Encoder with (A, B, Z track) ■ Additional gearbox types and connection systems are available in the product partner portfolio	Stepper motor—simple application, very compact, high torque at low speed, encoderless positioning Servomotors with incremental encoder—extremely efficient, high-speed axis, high position accuracy Servomotors with absolute encoder—high-performance positioning with high overload
	Optional as planetary gearbox or with holding brake	

[1] for PDC F-variant [2] valid for PDC100F

Published by
Siemens Industry, Inc.

100 Technology Drive
Alpharetta, GA 30005

(770) 871-3800

Order No. DRBR-SINFAM-0123

Printed in USA

usa.siemens.com/motioncontrol