

# SIEMENS

## SINAMICS V70

### The perfect solution for simple servo applications



The SINAMICS V70 servo converter is primarily designed for controlling standard applications of turning and milling machines. It enables precision and efficiency of the machines through bus communication with the CNC control 808D ADVANCED, 3-fold overload capability and the 20-bit absolute encoder with high resolution in the feed motors SIMOTICS S-1FL6 and the main spindle motors SIMOTICS M-1PH1. Together, the products result in optimally matched axis packages.

#### Typical fields of application

The solution is particularly well suited for positioning tasks such as in conjunction with PLC systems: Stacking and destacking of magazines, cycles of rotary tables, cycles of conveyor belts, feed axes and other transport devices, control of simple interpolating axes, positioning of servo valves, positioning of adjustment axes, positioning of feed axes in simple machine tools.

## SINAMICS V90

### The performance-optimized and easy-to-operate servo drive system



The drive system comprises the SINAMICS V90 servo converter and the SIMOTICS S-1FL6 servo motor. The system features eight converter frame sizes and seven motor shaft heights to cover a power range of 0.05 to 7.0 kW for operation in single-phase and three-phase networks. It can be integrated easily via PTI, PROFINET, USS or Modbus RTU. The SINAMICS V90 servo drive system enables a host of simple motion control tasks to be implemented cost-efficiently and conveniently with the focus being on dynamic motion and processing.

The servo drive system comprises the SINAMICS V90 servo converter and the SIMOTICS S-1FL6 servo motor. For operation in single-phase and three-phase networks, diverse converter frame sizes and motor shaft heights cover a wide range of applications with the focus on dynamic motion and processing – for example positioning, conveying and winding.

## SINAMICS S210

### The servo drive system with simple configuration for mechanical engineering

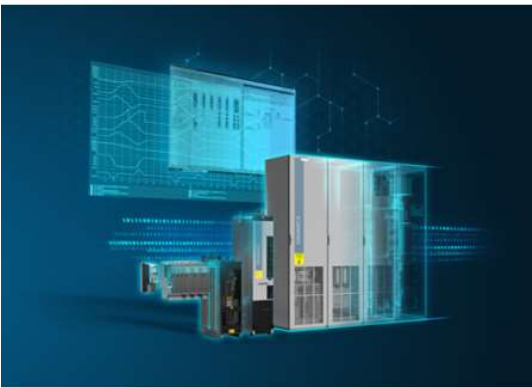


With this converter, which is provided specially for use with the newly developed SIMOTICS S-1FK2 motors, Siemens offers a new servo drive system with various performance classes from 50 W to 7 kW. The converter already has an integrated safety function and configuration couldn't be easier. Connection to the higher-level controller is implemented via PROFINET, commissioning through the web server, and One Button Tuning is a real delight. Finally, the design prize-winning SIMOTICS 1FK2 servo motors move small loads highly dynamically and medium to large loads extremely precisely.

Main applications of the SINAMICS S210 servo drive system are machines for packaging, handling such as pick & place, wood and ceramics processing, as well as digital printing.

## SINAMICS S120

### Flexible, modular drive system for demanding single-axis or multi-axis applications



The modular SINAMICS S120 drive is the modular system for high-performance motion control applications in industrial plant and machinery construction. Customized solutions can be implemented based on a wide range of components and functions that are optimally coordinated with one another. For instance, high-performance single-motor drives and coordinated drives (multi-axis applications) with vector or servo functionality. Users of the SINAMICS S120 drive will benefit from a system that offers higher performance, enhanced productivity and improved flexibility

From Basic drive functions and Advanced functions all the way to application and industrial know-how: Here you will find the unbeatable firmware functions that distinguish our low-voltage converters, including SINAMICS S120. Highlights include: A web server, further outstanding features such as Safety Integrated Functions, know-how protection, and much more.



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# SINAMICS S120

## Universal. Precise. Safety Integrated.

### Highlights

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

### Applications S120



Processing



Positioning

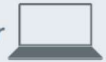


Machining



Moving

	S120	S120
	High-performance application	High-performance application
<b>Format</b>	Built-in unit Blocksize (modular)	Built-in unit Booksize (modular)
<b>Structure</b>	Control Unit + Power Module	Control Unit + infeed + Motor Module
<b>Drive concept</b>	AC/AC	DC/AC
<b>Degree of protection</b>	IP20	IP00 / IP20
<b>Supply voltage/ power kW (hp)</b>		
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)	–
<b>Energy recovery</b>	No	Yes, depending on the infeed
<b>Control modes</b>	V/f control, vector control with/without encoder Servo control with encoder	
<b>Ambient temperature</b>	0 °C to 40 °C	
<b>Line filter</b>	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
<b>Braking chopper</b>	Integrated braking chopper for PM240-2 Power Modules	Yes (optional)
<b>Safety functions</b>	STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SBT, SLA, SCA	
<b>Communication</b>	PROFINET, PROFIBUS DP, EtherNet/IP, USS (kein CU310), CANopen (CU320-2), Modbus TCP	
<b>TIA Portal connected</b>	Yes, PROFIsafe	
<b>Commissioning tools</b>	SINAMICS Startdrive, SCOUT, web server	
<b>Control systems</b>	SIMATIC, SINUMERIK, SIMOTION	
<b>Recommended motors</b>	SIMOTICS GP, SD, XP, DP, M, S, L, T	SIMOTICS GP, SD, XP, DP, M, S, L, T



S120	S120 CM
<b>High-performance application</b>	<b>High-performance application</b>
Built-in unit Chassis (modular)	Cabinet unit
Control Unit + infeed + Motor	Control Unit + infeed + Motor Module
DC/AC	DC/AC
IP00 / IP20	IP20, optional: IP21, IP23, IP43, IP54
–	–
–	–
110 ... 3040 kW (150 ... 4370 hp at 460 V)	4.8 ... 3040 kW (5 ... 4370 hp at 460 V)
75 ... 6840 kW (75 ... 1250 hp at 575 V)	75 ... 5700 kW (75 ... 1250 hp at 575 V)
Yes, depending on the infeed	Yes, depending on the infeed
With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional)	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
Yes (optional)	Yes (optional)
SIMOTICS SD, XP, DP, TN, HT, M	SIMOTICS GP, SD, XP, DP, TN, HT, M



# SINAMICS V90

## Simple. Precise. System-based.

### Highlights

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

### Applications



Processing



Positioning

<b>Format</b>	Built-in unit (compact)
<b>Drive concept</b>	AC/AC
<b>Degree of protection</b>	Converters: IP20 Motor: IP65
<b>Supply voltage/power kW (hp)</b>	
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)
<b>Energy recovery</b>	–
<b>Control modes</b>	Servo control with encoder
<b>Ambient temperature</b>	0 °C to 45 °C without derating/to 55 °C with derating
<b>Line filter</b>	With external line filter for environments according to IEC 61800-3 Category C2
<b>Braking chopper</b>	Integrated braking chopper for all frame sizes and max. motor power $\geq 0.2$ kW
<b>Safety functions</b>	STO via terminal
<b>Communication</b>	Pulse/direction interface, USS/Modbus RTU, PROFINET
<b>TIA Portal connected</b>	Yes, via the Hardware Support Package
<b>Commissioning tools</b>	SINAMICS V-ASSISTANT
<b>Controller</b>	SIMATIC S7-1200, SIMATIC S7-1500
<b>Recommended motors</b>	SIMOTICS S-1FL6 (servomotors)



[siemens.com/sinamics-v90](https://www.siemens.com/sinamics-v90)



[siemens.com/dt-configurator](https://www.siemens.com/dt-configurator)

# SINAMICS S210

## Versatile. Precise. Safety Integrated.



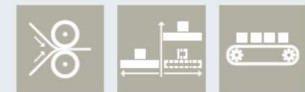
<b>Format</b>	Built-in unit (compact)
<b>Drive concept</b>	AC/AC
<b>Degree of protection</b>	IP20
<b>Supply voltage/power kW (hp)</b>	
1AC 200 ... 240 V	0.1 ... 0.75 kW (0.14 ... 1.02 hp)
3AC 200 ... 480 V	0.4 ... 7 kW (0.54 ... 9.5 hp)
<b>Energy recovery</b>	No, but DC coupling optional for 3AC devices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

<b>Recommended motors</b>	SIMOTICS S-1FK2 (servomotors) SIMOTICS S-1FK2 as planetary geared motors SIMOTICS S-1FK2 with SIMOGEAR gearbox with the optional gearbox SIMOGEAR KS adapter SIMOTICS S-1FT2 (servomotors)
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### Highlights


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


### Applications



Processing    Positioning    Moving

[siemens.com/sinamics-s210](https://www.siemens.com/sinamics-s210) 

[siemens.com/sinamics-selector](https://www.siemens.com/sinamics-selector) 

[siemens.com/dt-configurator](https://www.siemens.com/dt-configurator) 

# SINAMICS family – an overview

	Supply voltage	Power (kW)	Powerg (hp)
<b>Low voltage AC</b>			
<b>SINAMICS V20</b>	1AC 200 ... 240 V 3AC 380 ... 480 V	0.12 ... 3 kW 0.37 ... 30 kW	0.16 ... 4 hp 0.5 ... 40 hp
<b>SINAMICS G120C</b>	3AC 380 ... 480 V	0.55 ... 132 kW	0.75 ... 150 hp
<b>SINAMICS G120</b>	1AC / 3AC 200 ... 240 V 3AC 200 ... 240 V 3AC 380 ... 480 V 3AC 380 ... 480 V 3AC 500 ... 690 V	0.55 ... 4 kW 5.5 ... 55 kW 0.55 ... 250 kW 7.5 ... 90 kW 11 ... 250 kW	0.75 ... 5 hp, PM240-2 7.5 ... 60 hp, PM240-2 0.75 ... 400 hp, PM240-2 10 ... 125 hp, PM250 10 ... 400 hp at 600 V, PM240-2
<b>SINAMICS G130/G150</b>	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
<b>SINAMICS G120X</b>	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
<b>SINAMICS G180</b>	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
<b>SINAMICS S120</b>	AC 380 ... 480 V  AC 500 ... 690 V	400 V: 1.6 ... 107 kW 460 V: 110 ... 250 kW 460 V: 110 ... 3040 kW 480 V: 0.55 ... 250 kW  600 V: 11 ... 250 kW 575 V: 75 ... 6840 kW	1.5 ... 150 hp 150 ... 400 hp 150 ... 4370 hp 0.75 ... 400 hp  10 ... 400 hp 75 ... 1250 hp
<b>SINAMICS S150</b>	3AC 380 ... 480 V 3AC 500 ... 690 V	110 ... 800 kW 75 ... 1200 kW	150 ... 1150 hp 75 ... 1250 hp
<b>SINAMICS DCM (DC)</b>	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
<b>SINAMICS V90</b>	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
<b>SINAMICS S210</b>	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
<b>SINAMICS S120</b>	AC 380 ... 480 V  AC 500 ... 690 V	0.37 ... 90 kW 110 ... 250 kW 1.6 ... 107 kW 110 ... 3040 kW 1.6 ... 3000 kW  75 ... 5700 kW	0.5 ... 120 hp 150 ... 340 hp 2 ... 145 hp 150 ... 4133 hp 2 ... 4079 hp  100 ... 7750 hp
<b>SINAMICS S120M</b>	3AC 380 ... 480 V	0.25 ... 1.55 kW	0.3 ... 2 hp
<b>SINAMICS G115D</b>	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
<b>SINAMICS G120D</b>	3AC 380 ... 500 V	0.75 ... 7.5 kW	1 ... 10 hp