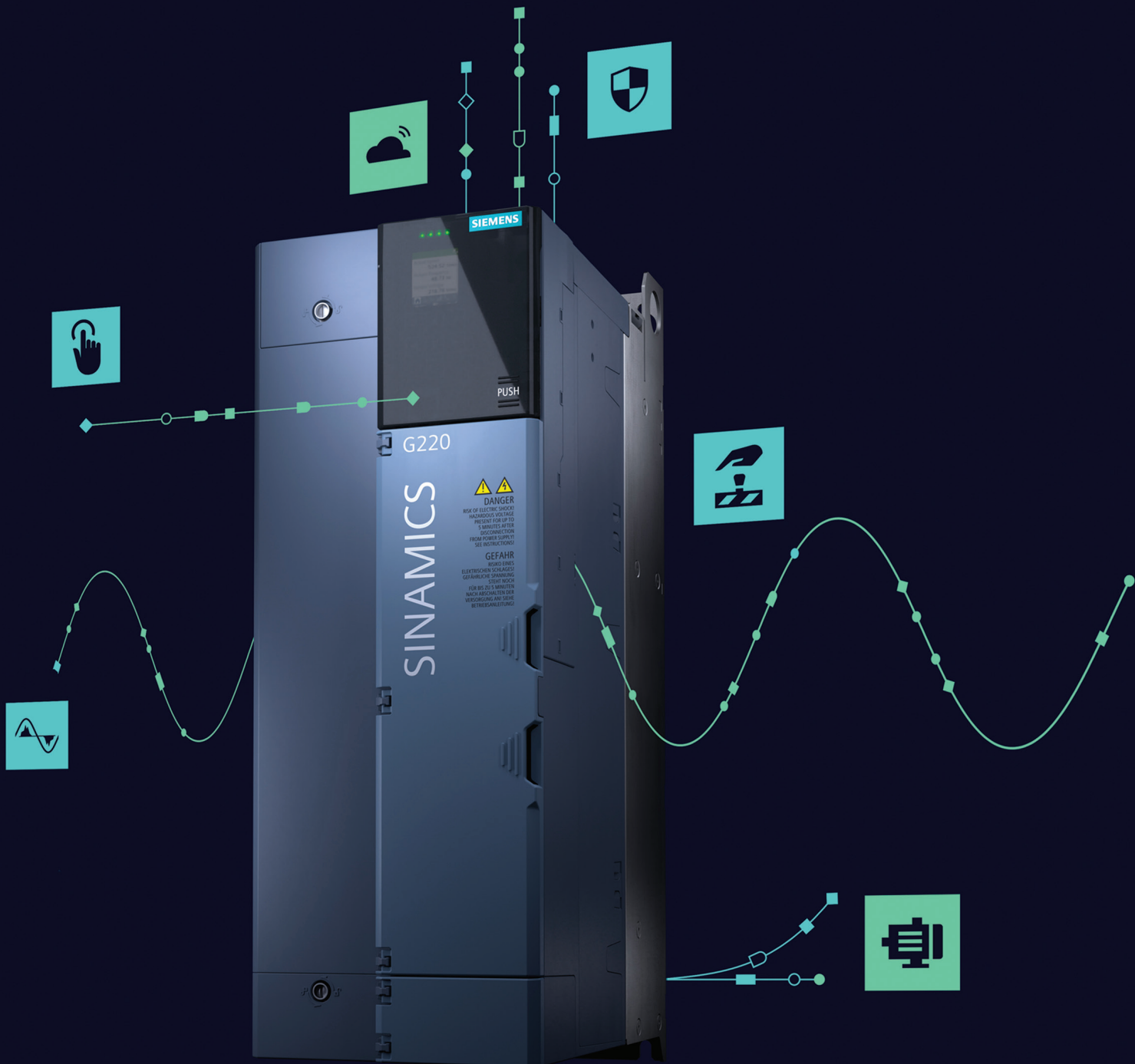


SIEMENS

# SINAMICS G220

The high-performance variable frequency drive for every industry

[usa.siemens.com/sinamics-g220](http://usa.siemens.com/sinamics-g220)



# Efficient. Secure. Future-proof.

## Meet current and future challenges in motion control

SINAMICS G220 is the new and innovative variable frequency drive to meet current and future challenges in every industry. Most objectives in motion control involve increasing productivity and availability—not only right now, but also years down the line. This is a drive that enables you to meet these objectives. Thanks to improved hardware and software, SINAMICS G220 takes digital drive technology to a new level, making your applications more efficient, secure and future-proof.



### Efficient.

- ✓ Energy efficiency, making your applications more sustainable
- ✓ Ease-of-use with user-friendly configuration, commissioning and engineering
- ✓ Low harmonic technology
- ✓ Enhanced motor control
- ✓ Engineering tools like SINAMICS Startdrive
- ✓ Integration in TIA Portal



### Secure.

- ✓ Safety Integrated functions for personnel and plant protection (SIL3 and PLe)
- ✓ Secure technology integrated, guaranteeing safe and reliable operation
- ✓ ATEX certified motor protection
- ✓ Redundancy, UL Type 12/IP55 protection and Class 3C3 coating
- ✓ An innovative UL 61800-5-1 compliant design with up to 100kA SCCR



### Future-proof.

- ✓ Future-proof solution, opening up new possibilities via digitalization
- ✓ Perfect fit for use in every industry
- ✓ Digital twin technology
- ✓ Cloud and Industrial Edge
- ✓ Hardware and software options
- ✓ Seamless system portfolio



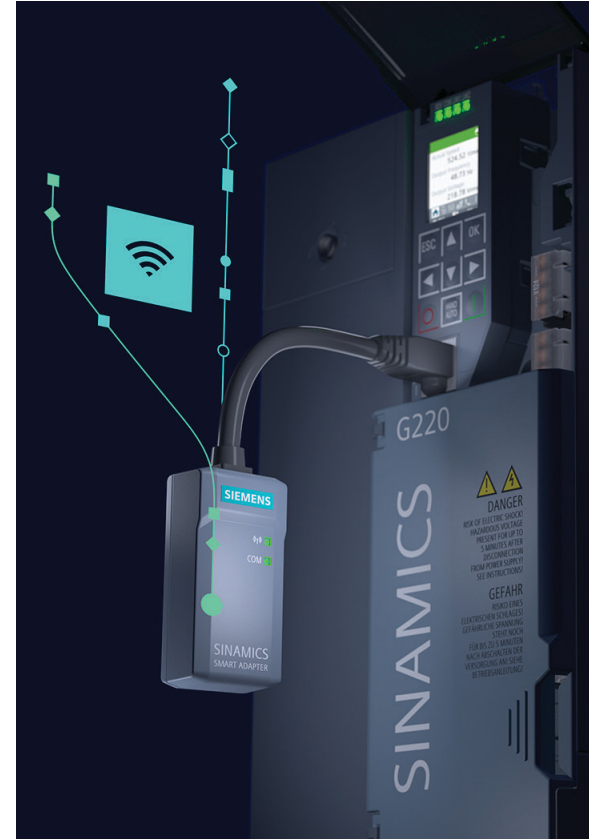
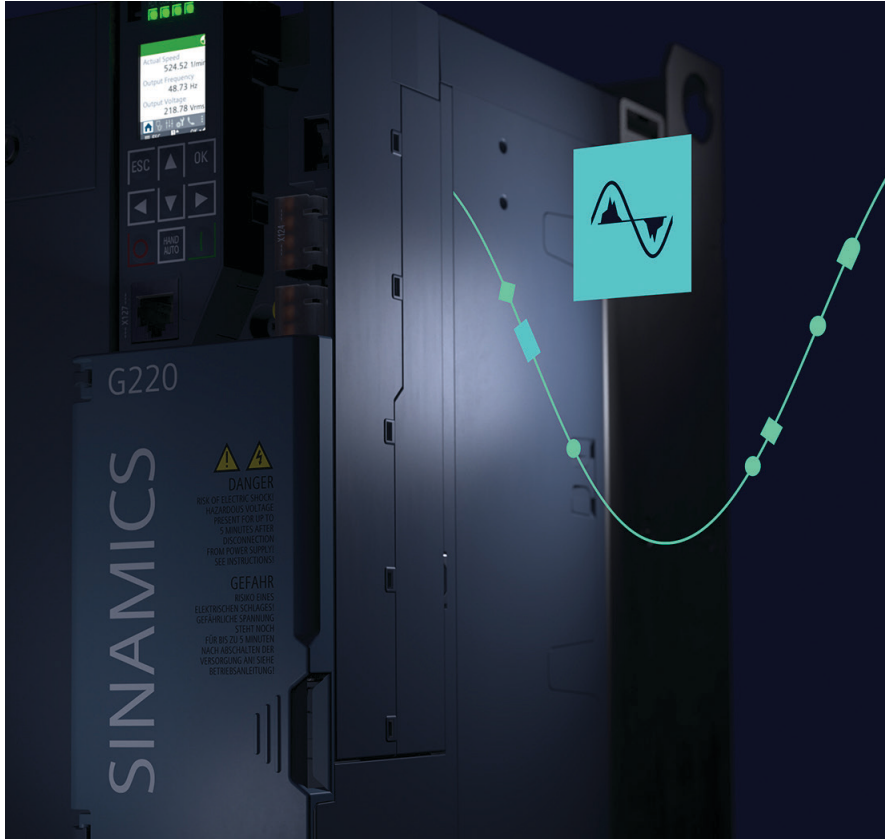
As the first SINAMICS drive to join the Siemens Xcelerator portfolio, our Siemens-wide business platform for digital transformation, SINAMICS G220 is equipped with the necessary functions to make your applications more efficient, secure and future-proof.

## The seamless power range at a glance

	SINAMICS G220	SINAMICS G220 Clean Power*
Target verticals	<p>Food and beverage, pharma, oil and gas, chemicals, marine, general machinery</p>	
EMC	C2 (400V), C3 (690V)	C2
Cooling	Air cooling using an integrated fan	
Ambient temperatures	UL Open Type/IP20: -20 to 45° C / to 60° C (> 45° C with derating) UL Type 12/IP55: -20 to 40° C / to 55° C (> 40° C with derating)	
Motor cable length	150 m (EMC Category C2) / 300 m	
Motor control	U/f, FCC, ECO, vector control encoderless / with encoder, torque control encoderless / with encoder	
Overload capability	Constant Torque (CT) or High Overload (HO): 200% 3 s, 150% 57 s Variable Torque (VT) or Low Overload (LO): 150% 3s, 110% 57s every 300 s	
Inputs/outputs	6 DI (1 PTI), 1 F-DI, 3 DO (1 NO 2 NO/NC relay), 1 F-DO, 2 AI, 1 AO, 1 input for PTC/KTY84/Pt1000 motor temperature sensor	
Communication	PROFINET (RT/IRT, MRP and S2 redundancy), Modbus TCP/IP, EtherNet/IP	
Safety functions	Safe Torque Off (STO), Safe Stop 1 (SS1), SIL 3, PL e, Cat. 4 via terminals or PROFIsafe	

\*Available soon

# Enjoy a new level of efficiency



In addition to streamlining the selection and commissioning process, SINAMICS G220 increases productivity and energy efficiency in the operating phase. This reduces both operating costs and CO<sub>2</sub> emissions, making your applications more sustainable.

## Reduce harmonics with Clean Power technology

Protect your power network by meeting the most stringent harmonic standards with SINAMICS G220 Clean Power. The integrated Active Infeed Unit keeps harmonics to a minimum (THDi < 5% in compliance with IEEE 519). This also reduces energy losses in the system.

## Achieve optimal dynamics with SINAMICS Motor Control Extended

The drive system offers best-in-class motor control, which allows you to achieve optimal dynamics and be more energy efficient. Synchronous reluctance motors (SRM) can be optimally controlled, even if they are near standstill or have a high load torque.



### Integration in TIA Portal and Industrial Edge

- Increase your productivity thanks to seamless interaction with SIMATIC PLCs and HMI.
- Save time and resources in the design phase by using the digital twin and SINAMICS DriveSim Advanced—the ultimate solution for optimizing your drive system. It is integrated with TIA Portal (SINAMICS Startdrive) and provides advanced customization and detail functions to quickly simulate different operating conditions and scenarios.
- Optimize your processes based upon more transparent drive train and application data.

### Individual features for more productivity and increased sustainability

- Support for high-efficiency motors including IE5 (International Efficiency Class 5)
- Fast PROFINET RT/IRT connection and MRP/MRPD/S2 redundancy via the plug-in communication module
- Designed for long cable lengths, integrated DC-link choke in all power ratings, optional EMC filter and energy-saving functions

# Rely on **safe and secure technology**

To keep your machines running smoothly, SINAMICS G220 includes comprehensive functions for machine safety and cybersecurity. All Safety Integrated functions can be directly controlled via PROFIsafe and the terminals, while Security Integrated can be easily managed via the Security wizard, including through User Management and Access Control (UMAC).

## **Protect personnel and plants with Safety Integrated**

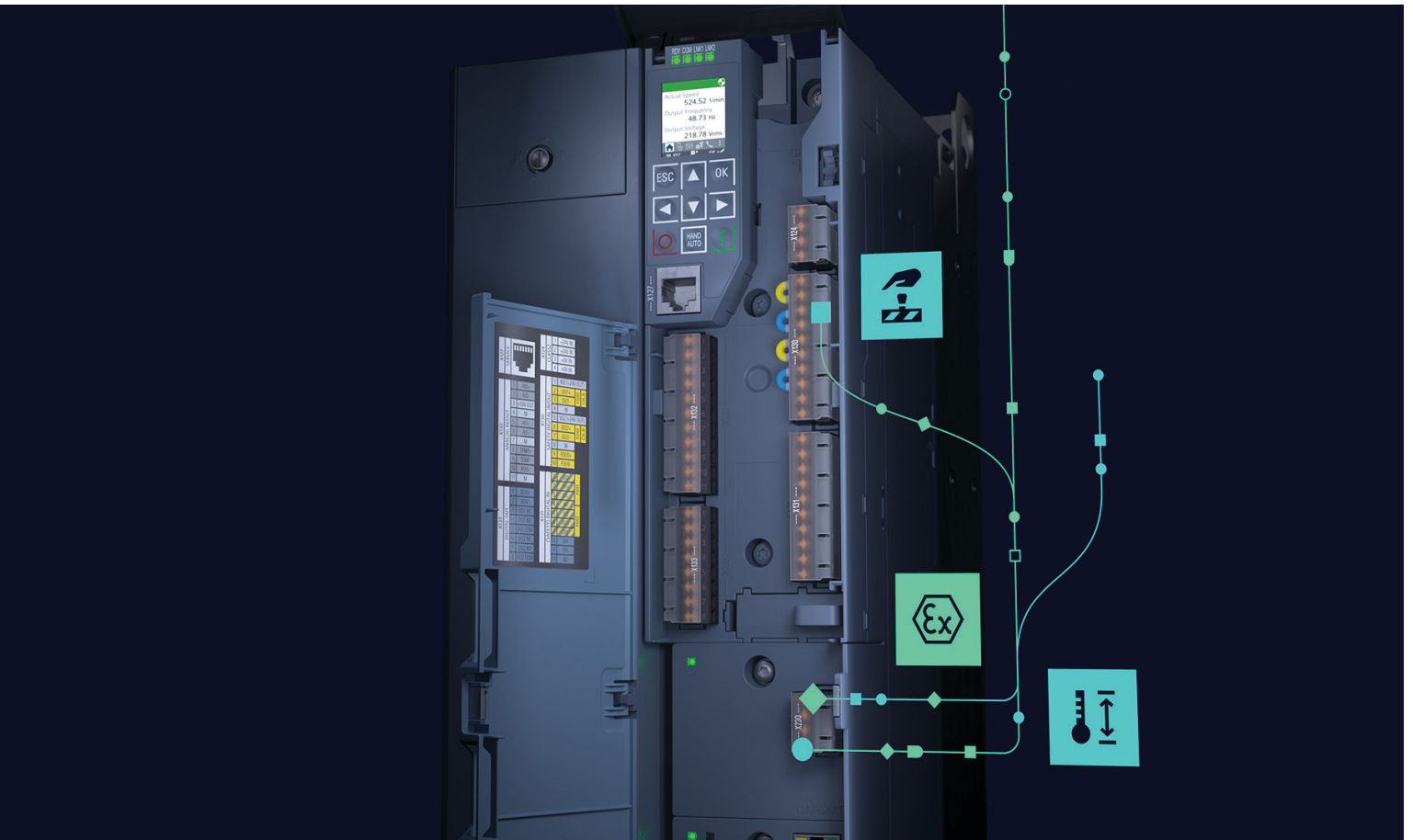
- SINAMICS G220 includes safety functions up to safety integrity level (SIL) 3/performance level (PL) e/Category 4. Commissioning and testing these functions is now much easier due to significantly improved usability concept. Additionally, there is no need to perform manual forced test stop functions to comply with SIL 3/PLe/Cat. 4 anymore. In SINAMICS G220, the forced test stops are now performed automatically.
- For additional safety, Safe Torque Off (STO) is pre-commissioned and immediately ready for use.
- With Safe Motor Temperature (SMT), the drive is suitable for applications in ATEX environments. The input for PTC sensors is ATEX-certified, ensuring thermal motor protection.
- Extended safety functions can be added easily through software options:
  - SLS (Safely-Limited Speed)
  - SDI (Safe Direction)
  - SSM (Safe Speed Monitor)
  - SS1 (Safe Stop 1)
- A state-of-the-art and innovative UL 61800-5-1 design with up to 100kA SCCR ensures improved personnel safety and robustness.

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

- Combining plant security, network security and system integrity, Security Integrated is a defense-in-depth concept that shields your applications from any cybersecurity threats.
- By default, only necessary functions are enabled in the factory settings and they are pre-configured with secure settings.
- Security Integrated ensures safe communication between the drive and TIA Portal or web clients.
- Integrity and authenticity checks prevent the installation of manipulated firmware.

## **Ensure availability in harsh environments with a high protection class**

- SINAMICS G220 is available with UL Type 12/IP55 protection, which protects the drive from dust or water.
- Class 3C3 coating on electronic components makes them extremely robust, ensuring longer lifetimes in corrosive environments.
- PROFINET S2 system redundancy guarantees the availability of your systems even in case of a controller failure.



# Future-proof your applications

SINAMICS G220 offers digital tools and services to stream-line processes in each phase, making them more time and cost-efficient. Thanks to additional hardware modules and an expandable software portfolio, SINAMICS G220 meets the specific requirements to future-proof your business.

## Accelerate time-to-market with the digital twin

- SINAMICS G220 allows for easy and fast design and commissioning thanks to the digital twin. This way, you can test the drive's behavior, identify any issues and make adjustments in the design phase—without requiring any hardware.
- The digital twin is available in SINAMICS Startdrive (TIA Portal) with SINAMICS DriveSim Advanced, which is the ultimate solution for optimizing your drive system.



## Optimize your drive and plants with the IloT Option Module (OM-IloT)

- SINAMICS G220 can be easily connected to the Industrial Edge ecosystem via the IloT option module. This module exchanges high frequency data between the drive and Industrial Edge, increasing transparency and providing valuable insights.
- This data can be used for extensive monitoring and diagnostics, which provide the basis for improving the system and boosting its reliability.
- In addition, the insights that are gathered from this data and analyzed via Analyze MyDrives can be used for predictive maintenance and prevent downtime.

## Enjoy maximum flexibility with hardware and software options

- To fulfill specific requirements, SINAMICS G220 is customizable with communication modules and option modules. They can be easily plugged into the drive and swapped out if any of your requirements change.
- While the majority of SINAMICS Drive Software functions are already included in the firmware, additional software options are available for specific needs. SINAMICS Safety Integrated Extended offers additional safety functions while SINAMICS Motor Control Extended enhances motor performance.
- All offerings are part of included in a seamless portfolio that complies with global standards. As a result, SINAMICS G220 can be implemented in any plant worldwide.



**Digitalization is the key** to making processes more efficient, increasing machine availability and streamlining workflows.



# The perfect fit for every industry

Thanks to its comprehensive features and innovative design, SINAMICS G220 is suitable for various industries, including processing, manufacturing, and marine. It can be implemented in moving, processing, pumping, ventilating, compressing and positioning applications—meeting even the most stringent requirements.



## Food and Beverage

With SINAMICS G220, we provide the food and beverage industry with a drive solution that allows them to meet individual customer requirements quickly, flexibly and in the highest quality. In addition, the drive ensures that all processes are energy-efficient and reliable.



## Pharma

The pharmaceutical industry is characterized by fast changes and requires a drive system that can match this pace. Thanks to its flexible design, SINAMICS G220 can be easily adapted to changing requirements. Its communication redundancy and security enable reliable production for users while energy efficiency gives users a competitive edge.





**Chemicals**

Applications in the chemical industry need to be robust, reliable and safe—and the same applies to the drive systems. SINAMICS G220 offers Class 3C3 coating and UL Type 12/IP55 protection, making it fit for use in harsh environments. To further increase reliability, SINAMICS G220 supports S2 redundancy.



**Oil and Gas**

High levels of efficiency and safety are crucial in the oil and gas industry—SINAMICS G220 can fulfill both requirements. Security Integrated ensures system availability and Safety Integrated functions keep people and machines safe, even in ATEX environments.



**Marine**

Harmonics need to be strictly limited in the marine industry, which is why SINAMICS G220 Clean Power is the ideal drive solution for auxiliary applications, such as deck machinery or winches. It reduces harmonics in compliance with IEEE 519 and thereby also lowers system losses, increasing the energy efficiency of applications and improving their environmental footprint.



# Technical data

## SINAMICS G220 drive system

### SINAMICS G220

### SINAMICS G220 Clean Power\*



	UL Open Type/IP20	UL Type 12/IP55*	UL Open Type/IP20*	UL Type 12/IP55*
<b>Supply voltage</b>	<b>Rated power kW/hp</b>			
3AC 200 ... 240V	0.55–30 kW / 0.75–40 hp	1.1–30 kW / 1.5–40 hp	—	—
3AC 380 ... 500V	1.1–55 kW / 1.5–75 hp	1.1–55 kW / 1.5–75 hp	7.5–55 kW / 10–75 hp	7.5–55 kW / 10–75 hp
3AC 525 ... 690V	3–55 kW / 4–75 hp	3–55 kW / 4–75 hp	—	—
<b>Motors supported</b>	Asynchronous motor (induction), synchronous reluctance motor, permanent magnet motor			

\* Available soon

Note: SINAMICS G220 horsepower ratings are according to NEC Table 430.250 at standard 3AC NEC voltage ranges, i.e., 220-240V, 440-480V and 550-600V.

Efficient usability is achieved through the integrated **SINAMICS Smart Drive Interface (SDI Standard)**



## Hardware options



### Operator panels

#### SINAMICS Smart Drive Interface (SDI) Pro 5.5" \*

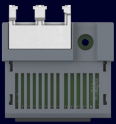
Color touch display (5.5"), multilingual operator interface, multi-drive access



### Wi-Fi access

#### SINAMICS Smart Adapter

Wi-Fi connection to access the drive via mobile devices (smartphone, tablet, laptop)



### Communication modules

#### CM-PN, PROFINET, Modbus TCP/IP, EtherNet/IP™



### Optional modules

**OM-DQ (DRIVE-CLiQ)** Fast connection and setup via two DRIVE-CLiQ ports



**OM-IIoT\* (Industrial Internet of Things)** High-frequency data transfer to Industrial Edge



**OM-SMT (Safe Motor Temperature)** ATEX-certified input for PTC sensors of motors in Ex-environment

\*Available soon

## Software options



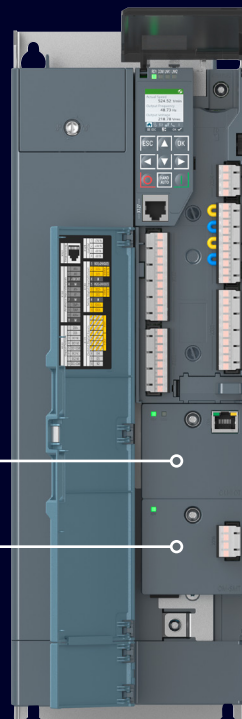
### Safety Extended

SS1, SLS, SSM, SDI



### Motor Control Extended

Optimal motor control near standstill



# Technical data

## SINAMICS G220

UL Open Type / IP20



### Dimensions

Frame size	Drive height mm / (in)	Height with shielding plates mm / (in)	Width mm / (in)	Depth mm / (in)
FSA	250 / (9.8)	420 / (16.5)	73 / (2.9)	219 / (8.6)
FSB	355 / (14.0)	548 / (21.6)	85 / (3.3)	219 / (8.6)
FSC	355 / (14.0)	589 / (23.2)	125 / (4.9)	219 / (8.6)
FSD1	400 / (15.7)	650 / (25.6)	150 / (5.9)	256 / (10.1)
FSD2	442 / (17.4)	692 / (27.2)	200 / (7.9)	256 / (10.1)
FSE	520 / (20.5)	803 / (31.6)	250 / (9.8)	256 / (10.1)

### Rated power

Frame size	3AC 200...240V, -20% / +10%	3AC 380...500V, -20% / +10%
FSA	0.55 ... 2.2kW (0.75 ... 3hp)	1.1 ... 4.0kW (1.5 ... 5hp)
FSB	3.0 ... 4.0kW (4 ... 5hp)	5.5 ... 7.5kW (7.5 ... 10hp)
FSC	5.5 ... 7.5kW (7.5 ... 10hp)	11 ... 15kW (15 ... 20hp)
FSD1	N/A	18.5 ... 22kW (25 ... 30hp)
FSD2	11 ... 18.5kW (15 ... 25hp)	30 ... 37kW (40 ... 50hp)
FSE	22 ... 30kW (30 ... 40hp)	45 ... 55kW (60 ... 75hp)

## SINAMICS G220

UL Type 12 / IP55\*



### Dimensions\*\*

Frame size	Drive height mm / (in)	Height with shielding plates mm / (in)	Width mm / (in)	Depth mm / (in)
<b>FSB</b>	415 / (16.3)	621 / (24.4)	225 / (8.9)	265 / (10.4)
<b>FSC</b>	460 / (18.1)	690 / (27.2)	245 / (9.6)	290 / (11.4)
<b>FSD1</b>	571 / (22.5)	857 / (33.7)	209 / (8.2)	324 / (12.8)
<b>FSD2</b>	650 / (25.6)	976 / (38.4)	270 / (10.6)	329 / (13.0)
<b>FSE</b>	778 / (30.6)	1168 / (46.0)	327 / (12.9)	390 / (15.4)

### Rated power\*\*

Frame size **3AC 380...500V, -20% / +10%**

<b>FSB</b>	1.1 ... 7.5kW (1.5 ... 10hp)
<b>FSC</b>	11 ... 15kW (15 ... 20hp)
<b>FSD1</b>	18.5 ... 22kW (25 ... 30hp)
<b>FSD2</b>	30 ... 37kW (40 ... 50hp)
<b>FSE</b>	45 ... 55kW (60 ... 75hp)

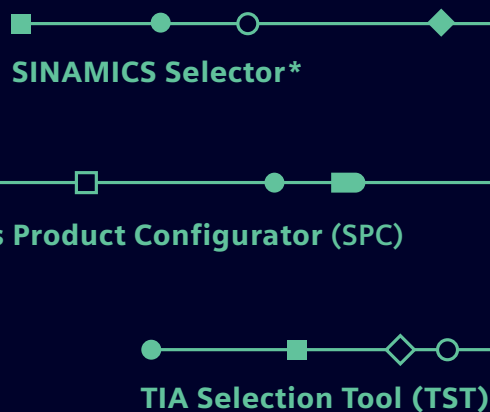
\*Available soon \*\*Dimensions for UL Type 12/IP55 3AC 200...240V variant will be available soon.

# Reduce selection and **commissioning times**

SINAMICS G220 is compatible with most of our proven engineering tools. All of them are easy-to-use, which shortens selection and commissioning times. If you require additional functionalities, you can easily upgrade the hardware or add software options. For a fast and convenient support service, all product information is available digitally—simply scan the QR code.

## Selection tools

- Our **SINAMICS Selector\*** app guides you to the right drive.
- **Siemens Product Configurator (SPC)** and **TIA Selection Tool (TST)** help you configure your drive and mechanical system.



\*Available soon



Scan this code or click on this link for more information  
[usa.siemens.com/sinamics-g220](http://usa.siemens.com/sinamics-g220)



### Commissioning tools

- The **integrated web server** enables efficient set up, fast diagnostics and maintenance via a wide range of clients. The SINAMICS Smart Adapter enables Wi-Fi access from your smart devices.
- **SINAMICS Startdrive** in TIA Portal provides you with step-by-step instructions for commissioning and integrating the system in an automated environment.
- The **FDI package for PCS7/neo integration** ensures that your application runs smoothly.

Integrated web server

SINAMICS Startdrive (TIA Portal)

SIMATIC PCS 7 / neo / FDI

# Service offerings

To ensure you are benefiting as much as possible from your SINAMICS G220, we offer a variety of services—from technical support and repairs to extended coverage options. The most comprehensive offering is Service Protect, which includes 7½ years of total warranty.



Siemens Industry Online Support App



Product registration



#### **Support and consulting services**

- Technical support via phone, e-mail and chat
- [Siemens Industry Online Support App](#)



#### **Warranty**

- 24 months standard
- Plus 6 months free-of-charge (FOC) with product registration: [myregistration.siemens.com](http://myregistration.siemens.com)



#### **Spares and repairs, field services**

- Spare part exchange as standard
- In-house repair with express repair offering
- Field service worldwide



#### **Added-value services**

- Digital services
- Training services
- Service agreements
- Extended manufacturer cover—Service Protect (+3 years or +5 years)
- Retrofit and modernization service

**Published by  
Siemens Industry, Inc.**

100 Technology Drive  
Alpharetta, GA 30005

(770) 871-3800

Order No. DRBR-G220-0923

Printed in USA

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