SIEMENS

EFFICIENT. RELIABLE. APPLICATION-READY.

SINAMICS G210X

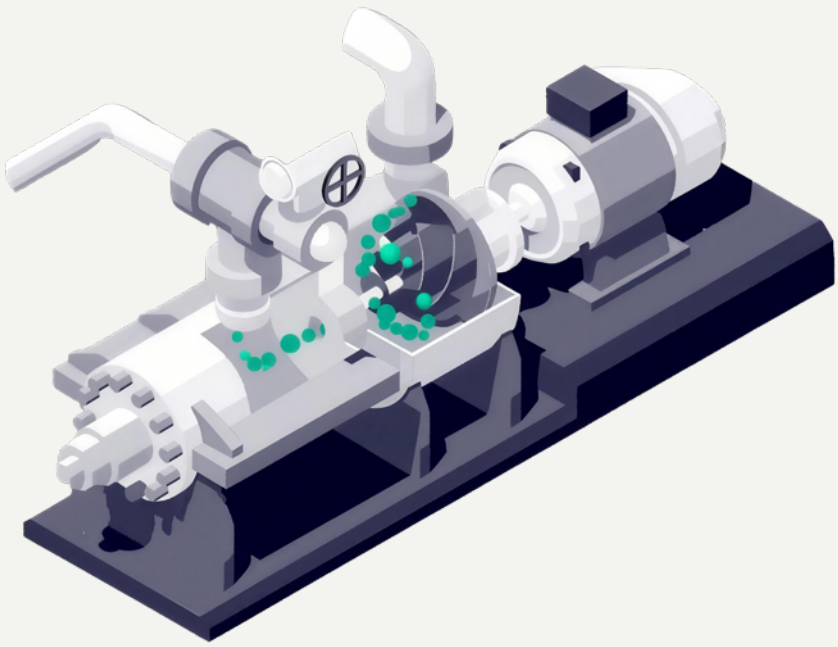
Driving the next generation of pump and fan applications.

Siemens.com/sinamics-g210x

Next Generation

Driving the next generation of **pump and fan applications**

Rising energy demands. Stricter sustainability mandates. Growing infrastructure complexity. Today's pump and fan applications must deliver more with less, and ensure higher efficiency, smarter integration and reliable operation under demanding conditions.



SINAMICS G210X has been specifically developed to address these challenges for pump and fan applications in industrial environments, the water industry as a whole and HVAC.

Reliable, application-ready and designed to support efficient operation, SINAMICS G210X supports you now and in the future, ensuring stable operation over the long term.

SINAMICS G210X

Value pillars at a glance

Efficient

Simpler engineering, optimized system efficiency

- **Less effort —** Out-of-the-box and ready to run with full TIA Portal integration
- **Less energy —** Optimized efficiency in partial load operation
- **Less cost —** Reduced system complexity as some functions are directly integrated in the drive — such as the Eco mode

Reliable

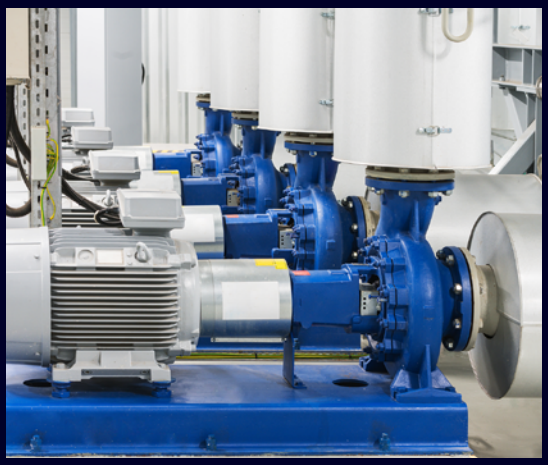
Continuous, safe & reliable operation of your application with full system transparency under demanding conditions

- **For harsh environments —** Secure your uptime with IP55 / 3C3 protection, S2 redundancy and predictive maintenance
- **Safety by Design —** Comply with the demanding safety requirements with SIL 3 / PL e functions via PROFIsafe
- **Security by Design —** Stay ahead of evolving regulations with integrated CRA-compliant cybersecurity

Application-ready

Purpose-built for pump and fan applications with seamless system integration

- **Adaptable performance —** Meet specific application requirements with dedicated pump and fan functions
- **Flexible integration —** Integrate your drive solutions seamlessly into your automation environment
- **Scalable configurations —** Scale from basic to advanced to address different application needs



Water and wastewater systems operate around the clock in demanding environments, from corrosive conditions to remote pumping stations.

At the same time, utilities across-the-board face rising energy costs, ageing infrastructures and increasing regulatory requirements.

SINAMICS G210X is purpose-built to master these challenges, enabling reliable and efficient operation of pump systems across the entire water cycle.

Purpose-built for **water applications**

From treatment plants to pumping stations — One solution covers them all

- Water treatment plants
- Wastewater treatment plants
- Irrigation systems
- Pumping stations
- Filtration and cleaning processes
- Water towers
- Desalination plants
- And many more relevant applications

SINAMICS G210X
Built for your challenges

Efficient Operation

Reduce energy consumption with the ECO mode — optimized for steady loads and partial load operation

Optimize efficiency by using high-efficiency motors (e.g. IE4 / IE5, SRM, PEM*)

Lower operational costs with integrated energy management such as PROFIenergy

Speed up commissioning and reduce engineering time with pre-configured water application wizards

Reliable under demanding conditions

Ensure stable operation under fluctuating grid conditions thanks to the integrated DC link reactor

Maintain continuous performance in harsh environments with IP20, IP55 as well as corresponding UL versions and resistance to chemically active substances up to Class 3C3

Designed for system compatibility with EMC and harmonic standards such as EN 61000-3-13, IEEE 519

* SRM = synchronous reluctance motor
PEM = permanent magnet motor

Ready for your application

Protect your pumps and infrastructure

- Help extend your pump lifetime and avoid failures with cavitation detection
- Reduce stress in the piping system and avoid pipe damage with controlled pipe filling to eliminate water hammer
- Reduce blockages and maintenance costs with automatic pump impeller de-ragging

Simplify operation

- Adapt operation to real demand with multi-pump and staging control using just one frequency converter
- Enable smooth integration into existing automation landscapes via standard industrial communication protocols such as PROFINET, EtherNet / IP, PROFIBUS DP and Modbus RTU
- Support plant-level integration into SIMATIC PCS 7 / neo and control architectures using the TIA tool

Purpose-built for **HVAC applications**

HVAC systems provide constant climate control in all types of buildings and structures — from data centers to tunnels. Stricter operational standards and diverse equipment configurations require a drive that is efficient, reliable and ready to run out of the box. SINAMICS G210X is purpose-built to do precisely this.

From data centers to sports arenas — One solution for diverse applications

- Pressure booster systems
- Coolant distribution units
- Climate-control systems
- Ventilation systems for tunnels and subways
- Refrigeration compressors
- Cooling towers
- Smoke extraction systems
- And many more relevant applications

SINAMICS G210X
Built for every challenge

Efficient operation

Reduce overall energy consumption with integrated energy-saving functions and optimized operation with high-efficiency motors such as IE4, IE5, SRM, PEM*

Save energy and reduce wear with adaptive operation in partial and no-load conditions

Simplify selection, system setup and commissioning supported by the **Siemens Product Configurator** and with intuitive access via web server, SDI Pro

Reduce engineering costs with pre-defined HVAC-specific application functions

Reliable under all conditions

Ensure stable operation in challenging environments with wide temperature range through a rugged design, IP20 / IP55 protection, UL versions and Class 3C3 resistance to chemically active substances

Minimize grid disturbances with conformance to EMC and harmonic standards

Ensure system availability with PROFINET S2 system redundancy

* SRM = synchronous reluctance motor
PEM = permanent magnet motor

Ready for your application

Seamless system integration

- Seamlessly integrate your solutions into building automation systems with native communications via Modbus RTU and more
- Simplify multi-unit coordination with staging mode allowing multiple pumps or fans to be controlled by one frequency converter

Safe and continuous operation

- Ensure safe operation in critical ventilation scenarios with fire mode for smoke extraction and emergency ventilation systems
- Maintain operation after power interruptions with automatic restart functionality
- Shorten restart times after power failures with integrated flying restart function
- Stabilize operation under varying conditions by skipping critical motor speeds to avoid resonance effects, vibration and wear
- Enable autonomous time-controlled operation with integrated real-time clock for continuous around-the-clock scheduling

Reduce selection and commissioning times

SINAMICS G210X 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 functions, you can easily upgrade the hardware or add software options. For fast and convenient support, comprehensive product information is available digitally via the QR code.

Scan this code or click on this link for more information
siemens.com/sinamics-g210x

Selection tools

Siemens Product Configurator enables drive products and components such as motors, frequency converters, controllers and connection systems to be quickly and easily configured. It also provides comprehensive documentation (data sheets in up to 12 languages, 2D / 3D CAD data, terminal diagrams, certificates and EPLAN macros) and supports direct ordering via SiePortal.

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 the TIA Portal provides you with step-by-step instructions for commissioning and integrating the system into automation environments.

Integration into a **PCS7 / neo environment via SIMATIC PDM** ensures that your application runs smoothly.

Get the most out of your frequency converter

SINAMICS OPC UA — the new chapter for connectivity

With compatibility in mind, SINAMICS G210X follows the universal OPC UA communication standard to allow clear communications with hardware from different manufacturers by using a standardized data exchange protocol. This enables seamless data exchange and offers secure vertical communications to Industrial Edge HMI or SCADA.

SINAMICS Drive Control Chart (DCC) for SINAMICS G210X

Create custom programs in DCC using intuitive drag-and-drop blocks, then download them directly to the SINAMICS frequency converter. This allows the frequency converter to handle more tasks, which reduces the load on the PLC. DCC is fully integrated into the TIA Portal and available via SINAMICS Startdrive for seamless engineering.

Get 20 free blocks with SINAMICS G210X — to more flexibly address your application requirements these can be expanded by up to 500.

Discover more about SINAMICS DCC in SINAMICS Startdrive

Optimize your drive and systems with the IIoT Option Module

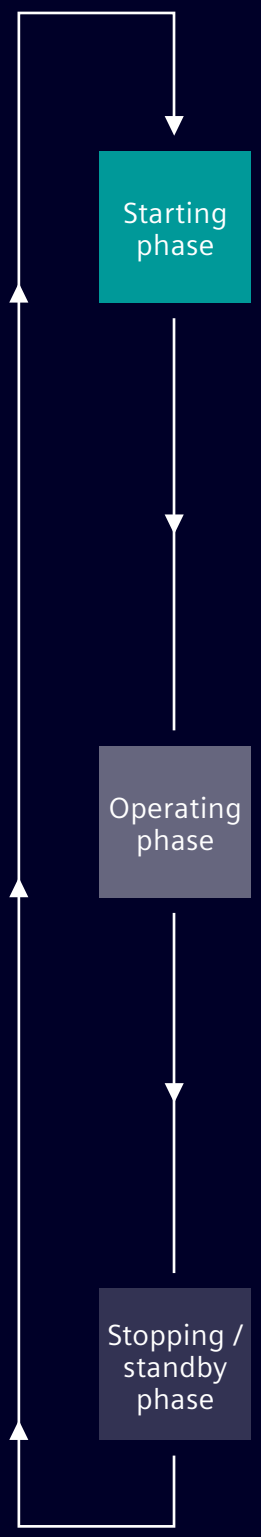
SINAMICS G210X can be easily connected to the Industrial Edge ecosystem via the IIoT option module. This module exchanges high frequency data between the drive and Industrial Edge, increasing transparency and providing valuable insights.

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 using Drivetrain Analyzer Edge can be used to avoid downtimes through predictive maintenance.

Application-ready

Embedded functions - designed for your pump and fan needs



Smart start

- **Priming pump:** Fills the main pump before starting
- **De-ragging:** Auto-reverses to clear blockages
- **Pipe filling:** Prevents pressure surges when starting
- **Dual ramp:** Smooth starting, fast stopping
- **Flying restart & auto restart:** Catches spinning pumps and resumes operation after faults

Efficient operation — control

- **Multi-pump control:** Up to 8 pumps with one frequency converter
- **Cascade control:** PID-based pump staging
- **PID controller:** 4 integrated closed-loop controllers
- **Multi-speed setpoints:** Predefined speed selection
- **Keep-running mode:** Ensure continuous operation in critical conditions
- **Fire mode (ESM):** Emergency operating mode in critical situations

Efficient operation

- **ECO mode:** Partial load optimization
- **Energy & flow calculator:** Sensorless estimate of energy consumption
- **Bypass mode:** Auto converter / line switching
- **Hibernation mode:** Auto stop and restart depending on demand
- **Pump characteristic:** Monitoring with alarms

Efficient operation — protection

- **Blockage protection:** Abnormal torque detection
- **Dry-running protection:** Torque / speed monitoring
- **Leakage detection:** Load monitoring to detect pipe leaks
- **Cavitation protection:** PID feedback with alarm / trip

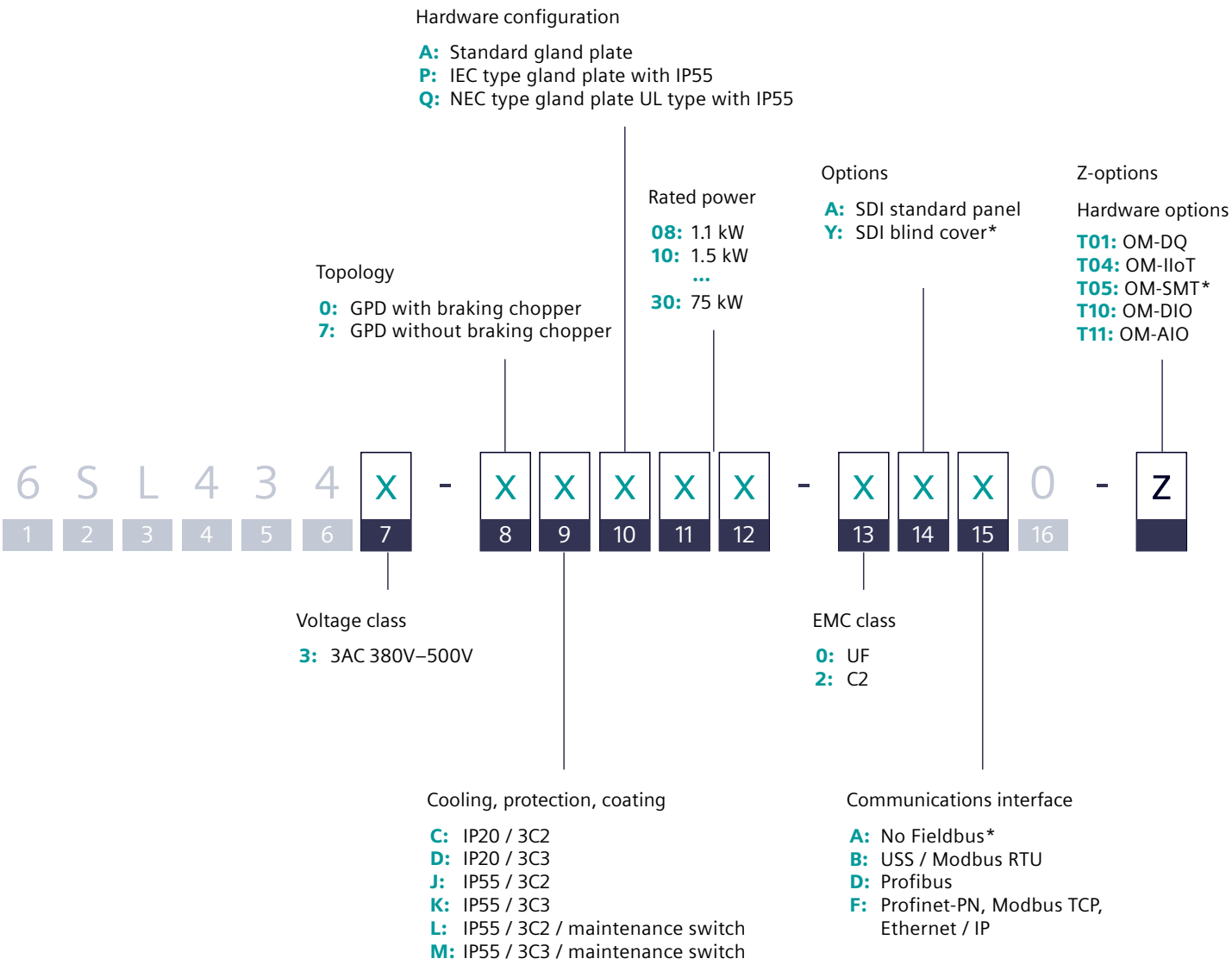
Safe Standby

- **Condensation protection:** DC current keeps motor dry
- **Frost protection:** Slow rotation prevents freezing
- **Jockey pump:** Standby pressure for fire pipelines

Technical data

System	Drive options	
	IP20	IP55
Supply voltage / power kW (hp)		
3AC 380 … 500 V	1.1–75 kW / 1.5–100 hp	1.1–75 kW / 1.5–100 hp
Supported motors	Induction motors, synchronous reluctance motors, permanent magnet motors	
Target verticals	HVAC, water & wastewater, data centers, energy, chemicals, consumer packaged goods	
EMC	Unfiltered, C2 / functional grounding (IT line system) can be removed	
Cooling	Integrated fan	
Operating temperatures	-20 to 60 °C (>45° with derating)	-20 to 50 °C (>40° with derating)
Motor cable length	Up to 150 m (EMC Category C2) / 300 m	
Motor control	V/f, flux current control (FCC), ECO, sensorless vector control	
Overload capability	110% for 60 s, every 300 s	
Inputs / outputs	4 DI, 1F-DI, 2 DI / DO, 2 DO (AC / DC relay) 2 AI, 1 AO, 1 input for PTC / KTY84 / Pt1000 motor temperature sensor	
Connectivity	OPC UA, PN RT, Ethernet IP, Modbus RTU / TCP, PROFIBUS DP	
Communication modules	CM-PN: PROFINET (RT, MRP & S2-Redundancy), Modbus TCP, EtherNet / IP CM-DP: PROFIBUS CM-RS485: Modbus RTU	
Option modules	OM-DQ, OM- DIO, OM-AIO, OM-SMT, OM-IIOT, ER-OM	

Ordering procedure



Rated power

11	0	1	1	1	1	1	1	1	1	2	2	2	2	2
12	8	0	1	2	3	5	6	7	8	0	1	3	4	6
Rating	1.1 kW/ 1.5 hp	1.5 kW/ 2.0 hp	2.2 kW/ 3.0 hp	3 kW/ 4.0 hp	4 kW/ 5.0 hp	5.5 kW/ 7.5 hp	7.5 kW/ 10 hp	11 kW/ 15 hp	15 kW/ 20 hp	18.5 kW/ 25 hp	22 kW/ 30 hp	30 kW/ 40 hp	37 kW/ 50 hp	45 kW/ 60 hp

11	2	3
12	7	0
Rating	55 kW/ 75 hp	75 kW/ 100 hp

* Coming soon

Hardware & software options

Hardware options

Operator panels

SINAMICS 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

CM-DP
PROFIBUS

CM-RS485
Modbus RTU

Option 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 PTC sensor input for Ex motors

OM-DIO
Digital input / output

4 x DIO, 2 x NO relay outputs, 1 x NC / NO relay output

OM-AIO
Analog input / output

3 x AI, 2 x AO

ER-OM
Expansion rack for option modules

Additional 180mm rack length

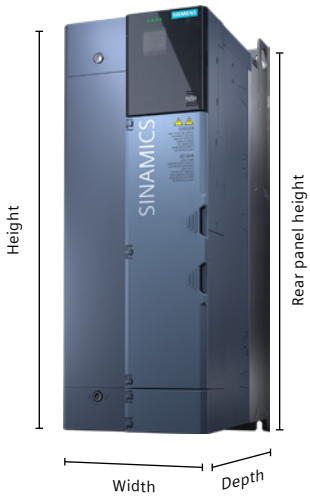
Software options

Software options		Article Number
SINAMICS OPC UA Single Extended	Seamless connectivity for next generation applications	6SL5977-0AA00-1GA0
SINAMICS DCC Extended	Flexible software tool to graphically program up to 100 blocks	6SL5977-0AA00-2FA0
SINAMICS DCC Advanced	Flexible software tool to graphically program up to 500 blocks	6SL5977-0AA00-3FA0

* Coming soon

Dimensions

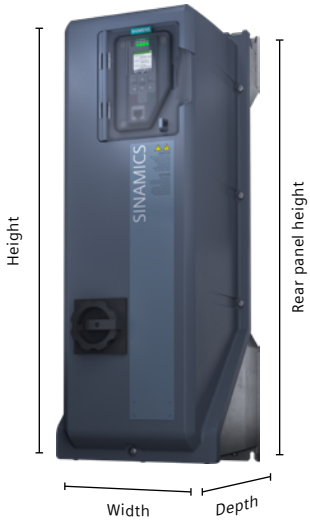
IP20



	FSA	FSB	FSC
Supply voltage	3 AC 380 … 500 V, –20% / +10%		
Rated power	1.1 kW … 5.5 kW	7.5 kW … 11 kW	15 kW … 18.5 kW
Height	250 mm	355 mm	355 mm
Rear panel height	288 mm	395 mm	395 mm
Width	73 mm	85 mm	125 mm
Depth	208 mm	208 mm	209 mm

	FSD1	FSD2	FSE
Supply voltage	3 AC 380 … 500 V, –20% / +10%		
Rated power	22 kW … 30 kW	37 kW … 45 kW	55 kW … 75 kW
Height	400 mm	442 mm	520 mm
Rear panel height	443 mm	492 mm	566 mm
Width	150 mm	200 mm	250 mm
Depth	245 mm	245 mm	245 mm

IP55



	FSB	FSC	FSD1
Supply voltage	3 AC 380 … 500 V, –20% / +10%		
Rated power	1.1 kW … 11 kW	15 kW … 18.5 kW	22 kW … 30 kW
Height of the drive	415 mm	460 mm	571 mm
Rear panel height	455 mm	500 mm	610 mm
Width	225 mm	245 mm	209 mm
Depth	225 mm	250 mm	284 mm
Depth, including maintenance switch	265 mm	283 mm	319 mm

	FSD2	FSE
Supply voltage	3 AC 380 … 500 V, –20% / +10%	
Rated power	37 kW … 45 kW	55 kW … 75 kW
Height of the drive	650 mm	778 mm
Rear panel height	695 mm	820 mm
Width	270 mm	327 mm
Depth	284 mm	315 mm
Depth, including maintenance switch	318 mm	379 mm

Service portfolio

To ensure that you benefit as much as possible from your SINAMICS G210X, we offer a wide variety of services – from technical support and repairs to extended coverage options. The comprehensive coverage is provided by Service Protect, which includes 8 years of extended warranty.

Support and consulting services

- Technical support via phone, e-mail and chat
- **Siemens Industry Online Support App**

Warranty

- Standard: 24 months
- Plus 6 months free of charge (FOC) when the product is registered via **myregistration.siemens.com**

Spares and repairs, field services

- Spare part exchange as standard
- In-house repair with express repair service
- Worldwide field service

Added-value services

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

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