

# G120X & S210 - nova dimenzija pokreta!

Webinar 26. 05 2020

# AGENDA



- Pregled novosti Siemens pogonske tehnike

**NEW** ▪ Micro Drive

**NEW** ▪ G120X



**NEW** ▪ S210

▪ S120

- DT Konfigurator

# SIEMENS PRODUCT PORTFOLIO DRIVE SYSTEM



				
Extra-low voltage DC	low voltage AC			
Basic	Basic	Midrange	High-End	
24 V DC / 48 V DC SIMATIC MICRO-DRIVE PDC 	<ul style="list-style-type: none"> <li>SINAMICS V20</li> <li>SINAMICS V90</li> </ul>	<ul style="list-style-type: none"> <li>SINAMICS G120C</li> <li>SINAMICS G120P</li> <li>SINAMICS G120</li> <li>SINAMICS G110D/G120D / G110M</li> <li>SINAMICS G130 / G150</li> <li>SINAMICS G180</li> <li>SINAMICS S110</li> <li>SINAMICS S210</li> </ul>	<ul style="list-style-type: none"> <li>SINAMICS S120</li> <li>SINAMICS S150</li> </ul>	
100 – 1000 W	0.05 – 30 kW	0.12 – 6,600 kW	0.12 – 5,700 kW	
				DC
				Simple and demanding applications
				<ul style="list-style-type: none"> <li>SINAMICS DCM</li> </ul>
				6 kW – 3 MW
				AC
				Demanding applications with high performance classes
				<ul style="list-style-type: none"> <li>SINAMICS GL150 / SL150</li> <li>SINAMICS SM120 CM / SM 150 / GM 150</li> <li>SINAMICS GH150 / GH180</li> </ul>
				6 kW – 14.2 MW



# SIMATIC MICRO-DRIVE

## Highlights of the new 24/48V servo drive system

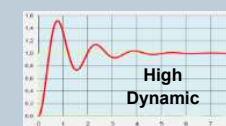
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### Feature / Funktion

- Flexibility & combinability of system components<sup>1</sup>
- **PROFINET IRT (1ms)**
- Safety Integrated: STO, SS1, **SLT**, SLS, SSM via **PROFIsafe**
- **TIA Portal** Integration
- **“One Button Tuning”**
- One cable to the Motor<sup>2</sup>
- Integrated EMC (C1) filter
- 24-48 V<sub>DC</sub>: 0,1-1kW
- **Battery operation** incl. recovery system
- UL

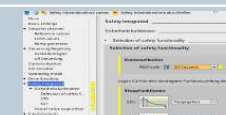
### Nutzen



- Universally applicable
- Increases performance



- Meets the highest safety requirements



- Simplified commissioning



- Saves time during installation



- Suitable for a wide range of markets

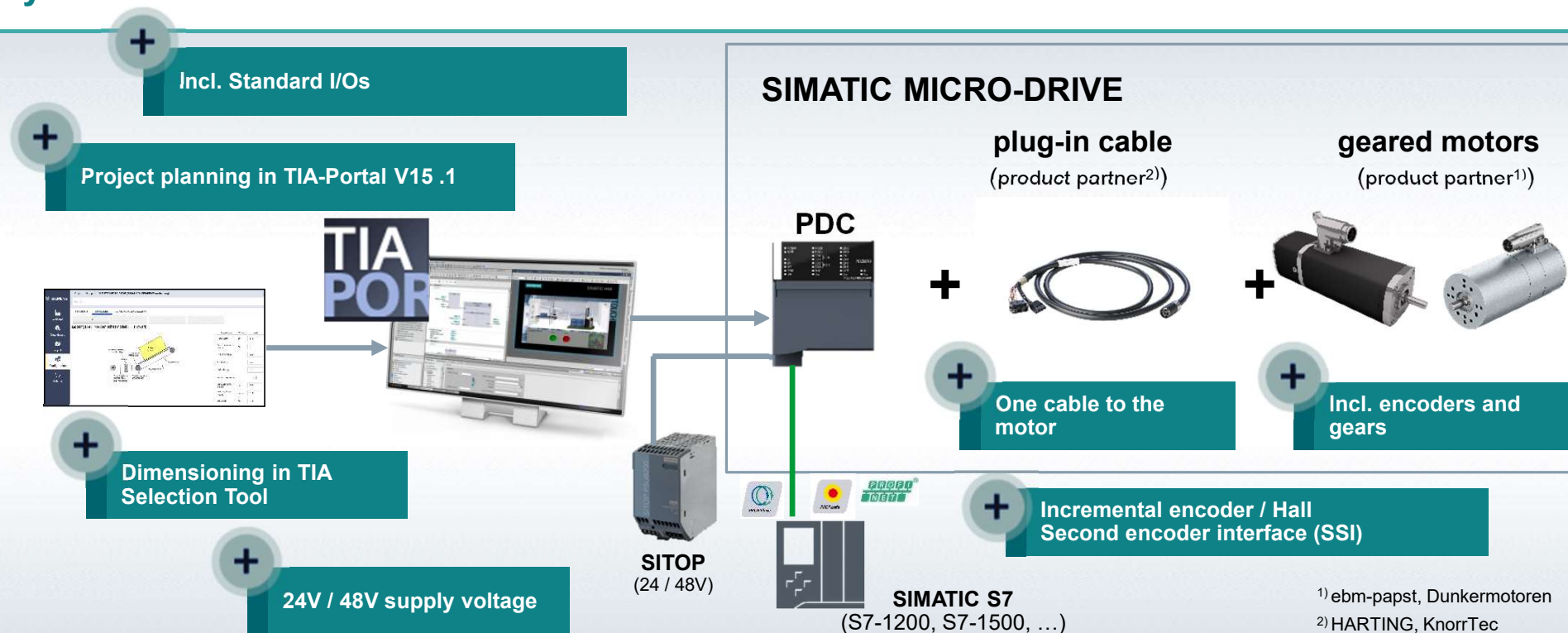
<sup>1</sup> Product partners: Dunkermotoren & ebm-papst (motors) / HARTING & KnorrTec (plug-in cables)

<sup>2</sup> Dunkermotoren up to 200W & ebm-papst up to 400W

# SIMATIC MICRO-DRIVE 24V/48V DC&EC Drive System

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## System overview



<sup>1)</sup> ebm-papst, Dunkermotoren

<sup>2)</sup> HARTING, KnorrTec

# SIMATIC MICRO-DRIVE PDC housing sizes



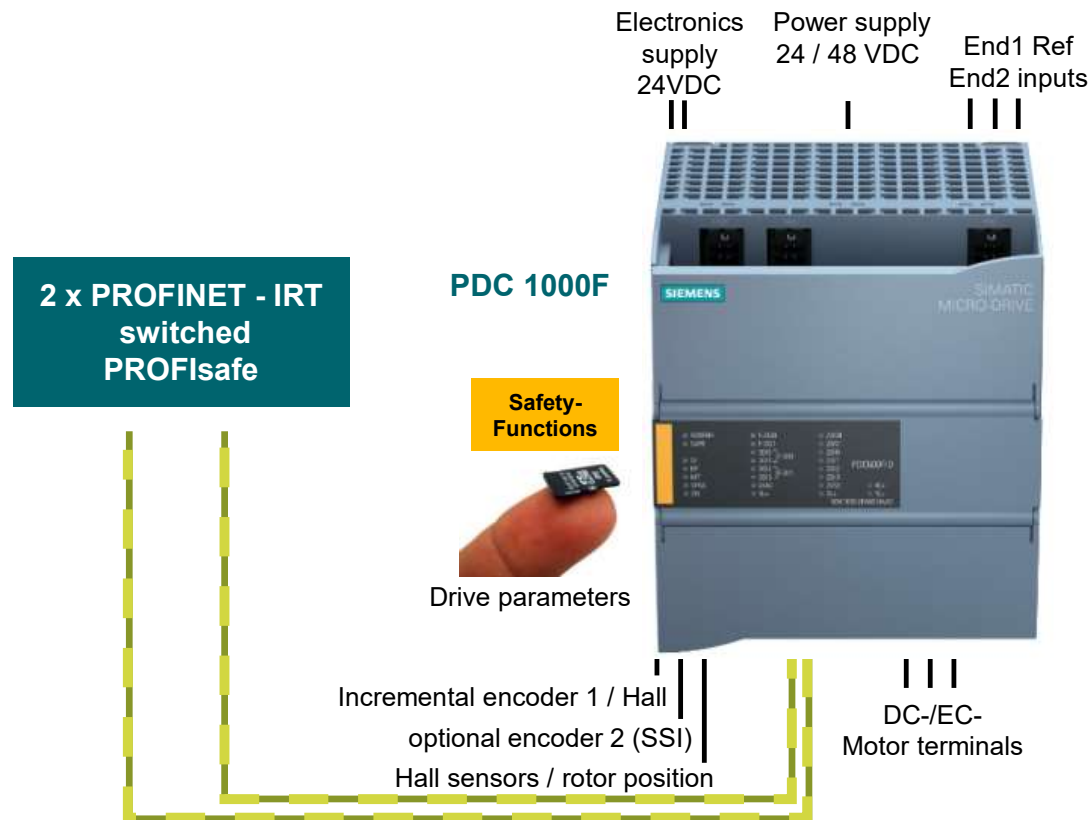
General dimensions  
height: 125 mm, depth: 120 mm, width: variable

\*up to 1000W are planned

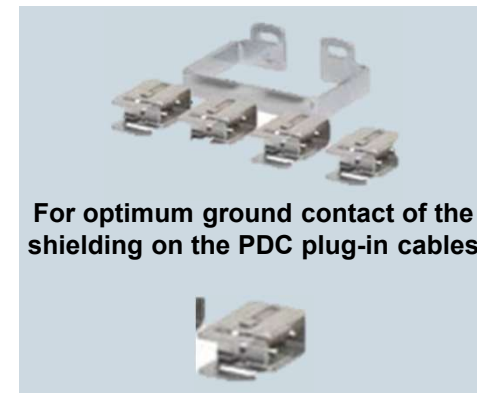
# SIMATIC MICRO-DRIVE

## Interfaces of the PDC motor controllers

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### Shield clamp set for plug-in cables



# SIMATIC MICRO-DRIVE – Gear Motors

## Features and Benefits

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### EC motors are Partner Products

#### Motor with

- IQ encoder,
- Hall sensors
- optional planetary gear
- optional holding brake



Feature / Function		Benefits
<b>Robust industrial plug</b> A rotatable plug for single cable connection	▶	<ul style="list-style-type: none"><li>• Free choice of the direction of the cable outlet from the machine</li></ul>
<b>Sealing ring</b> Protection class IP65 with optional sealing ring	▶	<ul style="list-style-type: none"><li>• High tolerance to harsh environmental conditions</li></ul>
<b>Dynamic motors</b> Motors with low moment of inertia	▶	<ul style="list-style-type: none"><li>• High performance for dynamic machines with low load inertia</li></ul>
<b>Compact Motors</b> Motors with medium inertia and very compact design	▶	<ul style="list-style-type: none"><li>• For applications with higher load inertias</li><li>• Completely assembled and tested Label: „for SIMATC MICRO-DRIVE“</li></ul>



# SIMATIC MICRO-DRIVE –All-in-one plug-in cables

## Features and Benefits

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Plug-in cables are partner products



### Feature / Function

**Single cable connection  
All-in-One**

**Easy to install**

**Compact design**

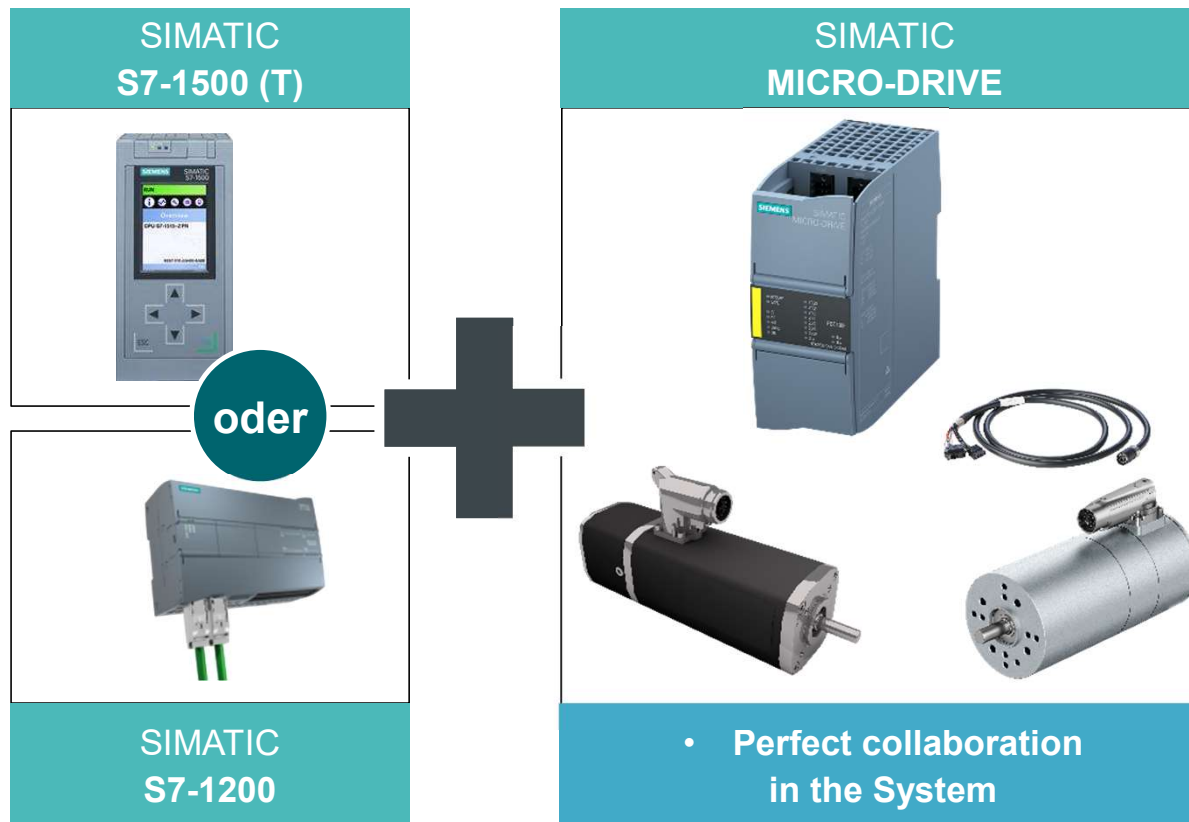
### Benefits

- Only one cable required for motor, encoder and Hall sensors
- The single cable version is suitable for all different PDC powers
- Individual length up to 20 m can be ordered
- Trailing cable version available
- Laying only one cable instead of 2 or 3
- Rotatable quick connection technology with bayonet connector
- Pre-assembled and ready to order
- Small and compact plug M12 e.g. and bayonet lock
- Flexible cable with small bending radius
- Completely assembled and tested  
Label: "for SIMATIC MICRO-DRIVE"

## SIMATIC MICRO-DRIVE

### Perfect collaboration in the System

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### Advantages of the Servo drive system

- Efficient Engineering
- Continuous control of the drives
- Coordinated portfolio
- Integrated safety technology
- System diagnosis

## SINAMICS V20

The cost-effective, reliable and easy-to-use converter for basic applications

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From 0.12 kW to 30 kW

### Easy to install

- Compact design
- Flexible mounting (wall or push-through)
- USS and Modbus RTU at terminals
- Electromagnetic compatibility (EMC), C1 for single phase 230V

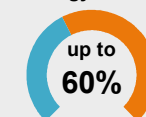
### Easy to use

- Parameter loading without power supply
- Smart access web server module **New**
- Keep running mode
- Wide voltage range, advanced cooling design and coated PCBs

### Easy to save money

- Eco mode and hibernation mode
- Monitoring of energy
- High overload and low overload modes

Energy saving



## Option Parts – Smart Access Module

### Commissioning, operation and diagnostics at your fingertips

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#### Feature

#### Benefit

- Safe and convenient access



- to the drive, even though the drive is installed in confined spaces
- due to a wireless direct connection without cable to mobile device or computer

- No installation required



- No apps or downloads necessary
- Works with all common browsers and every end device

- Easy operation



- Due to an intuitive/guided user interface
- Appearance similar to an app
- Higher functionality than BOP

- Complete solution



- The integrated webserver offers all functions
- Regardless of hardware and operating system
- Upgradeable firmware and language package



## Overview of Product Portfolio SINAMICS V20 Option Parts--Smart Access Module

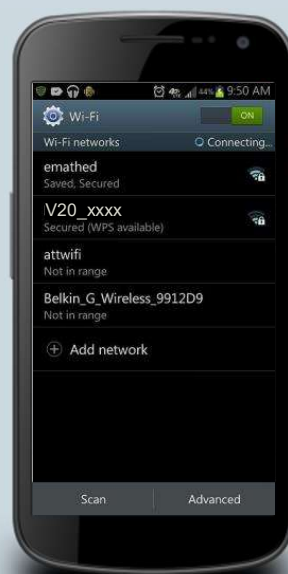
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1



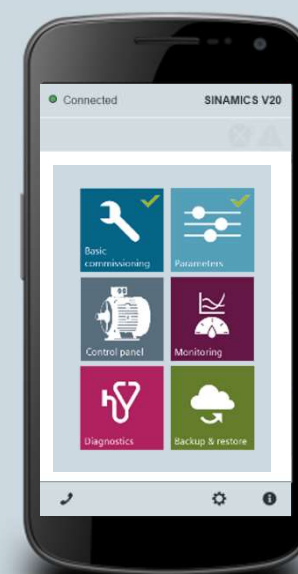
**Mount Smart Access onto  
SINAMICS V20 and  
switch on the module**

2



**Search SINAMICS V20  
Smart Access in your  
Wi-Fi networks**

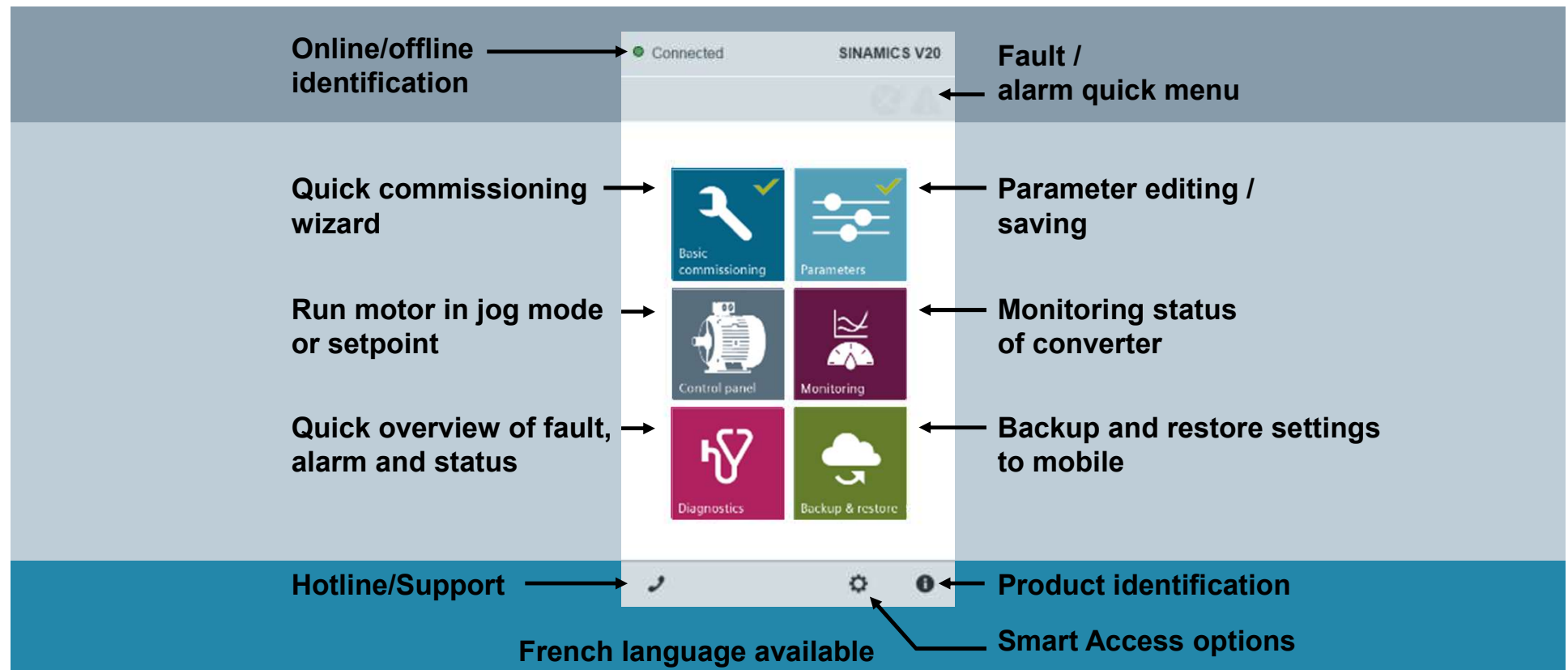
3



**Open browser to access  
the homepage**



## Option Parts – Smart Access Module



## SINAMICS G low voltage inverters

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### G120C



**0.55 - 132 kW**  
The compact inverter

### G120



**0.55 – 250 kW**  
The modular system

### G120X



**0.75 – 630 kW**  
The specialist for pumps,  
fans and compressors

### G110D/G120D/G110M



**0.75 - 7.5 kW**  
The inverter for  
distributed applications

## SINAMICS G - General Performance Converters

Pumps, fans, compressors, conveyor belts, mixers, mills or extruders: No matter what application, SINAMICS G converters are perfectly adapted to basic to mid-level control dynamics requirements.

The converters are based on the same platform as all other members of this innovative drives family. Users benefit from a standardized and user-friendly operating concept.

# SINAMICS G120C

The compact converter with integrated communication interfaces

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## Frame size overview

Frame size overview	G120C		With installed BOP-2	With installed IOP-2
Frame size	Dimensions in mm (Dimensions of PROFINET version) width x height x depth	Output in kW (hp)	Dimensions in mm Increase of the (installation) depth	Dimensions in mm Increase of the (installation) depth
FSAA*	73 x 173 x 155 (160,0)*	0,55-2,2 0,75-3,0	+11mm	+21mm
FSA	73 x 196 x 203 (225,4)	3- 4 0,75 - 5		
FSB	100 x 196 x 203 (225,4)	5,5 - 7,5 7,5 - 10		
FSC	140 x 295 x 203 (225,4)	11 - 18,5 15 - 25		
FSD	200 x 472 x 237 PROFINET	22 – 45 25 – 50		
FSE	275 x 551 x 237 PROFINET	55 60		
FSF	305 x 708 x 357 PROFINET	75-132 75 - 150		

## SINAMICS G120

The optimum drive for every destination

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### G120C



0,55 - 18,5 kW  
The compact converter

### G120



0,55 - 250 kW  
The modular system

### G120X



0,75 – 630 kW  
The specialist for  
pumps, fans and  
compressors

### G110D/G120D



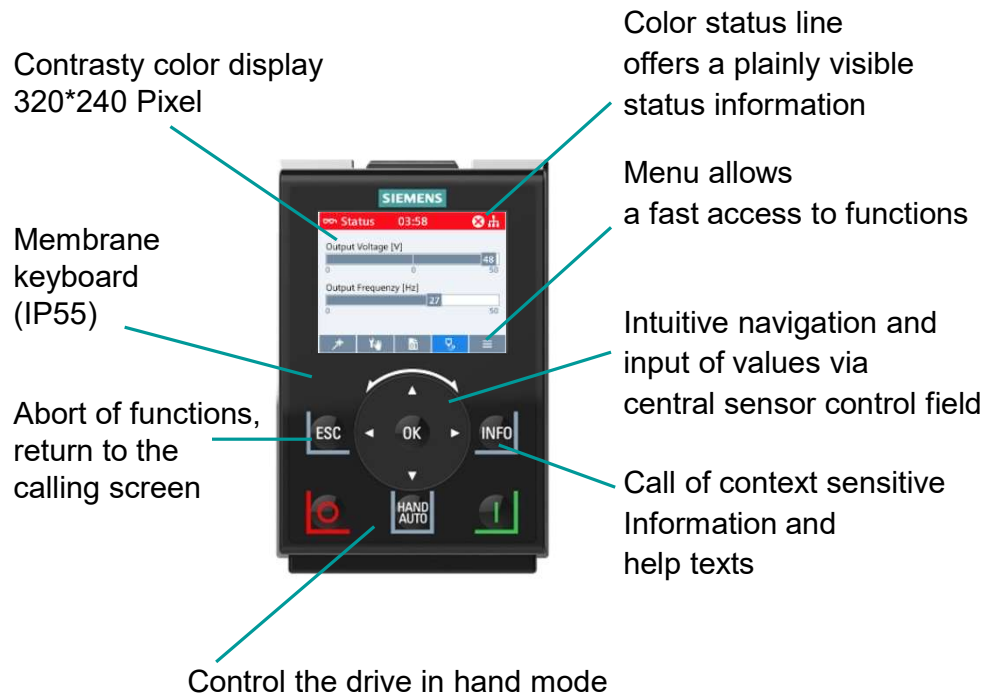
0.75 - 7.5 kW  
The inverter for  
distributed applications

## SINAMICS G – converter family

Whether it's a matter of efficient pumping, ventilating and compressing, or precise movement, processing, or machining, the number of application areas for frequency converters is almost endless. So it's good that there is one family of drives for all of these areas that perfectly fulfills every requirement: SINAMICS. Our portfolio represents uniform engineering, extremely high efficiency and convenient operation.

## Intelligent Operator Panel IOP-2

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### Core features:

- Hardware innovation increases system performance and usability
  - Color display with an increased resolution (320\*240)
  - Membrane keyboard allows protection class IP55
  - Intuitive and fast operation through central sensor control field with integrated arrow keys
  - Open for future extensions based on a powerful system platform
- Enhanced user interface
- Accelerated commissioning of SINAMICS G drives via wizards
- Easy extendable to a new function state (firmware, wizards, languages) via USB interface
- Only one order number for all languages (incl. Chinese)



## SINAMICS G120 Smart Access Module for three product series: G120C, G120, G120P

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### SINAMICS G120C

PN/USS/DP



### SINAMICS G120

CU230P-2  
CU240E-2

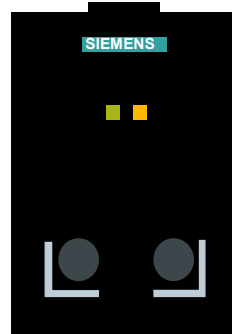
PN/USS/DP



### SINAMICS G120P

CU230P-2

PN/USS/DP



# SINAMICS G120X

## The specialized solution for Pump & Fan applications

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**Seamless** drive system **up to 630 kW/ 700 HP** and **wide protection** levels



**Simple setup** and optimized user interface



**Robust design** enables operation at **harsh environments**



**EMC compliant** and **long cable lengths** without output chokes



**Integrated safety** STO SIL 3 Hardware

## SINAMICS G120X offers comprehensive functionality and creates added value

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**Frame size C with SAM**

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Feature / Function	Benefits
<b>“Out-of-the-box”</b> - Complete drive delivered together ready to switch on from <b>0.75kW - 630kW / 1- 700 HP</b>	<ul style="list-style-type: none"> <li>• <b>Reduced cost and efforts</b> for: ordering (1 MLFB), delivery and commissioning</li> </ul>
Dedicated user interface and P&F functions with optimized <b>SAM (webserver)</b> and <b>IOP-2</b>	<ul style="list-style-type: none"> <li>• Faster commissioning with improved <b>user friendly setup</b></li> </ul>
Optimized design: <b>3C3 coating</b> + extended operating temperatures <b>-20 °C to 45 ...60 °C</b> (with derating) <sup>1</sup>	<ul style="list-style-type: none"> <li>• Ability to work in <b>harsh environments</b> (e.g. corrosive gases)</li> </ul>
<b>EMC compliant</b> (C1 + C2) and integrated <b>full DC-link choke</b>	<ul style="list-style-type: none"> <li>• <b>Grid friendly</b> design with reduced harmonics and <b>long cable length</b></li> </ul>
<b>Safe Torque Off SIL 3</b> hardware	<ul style="list-style-type: none"> <li>• Reduced electromechanical components and <b>standard compliant</b></li> </ul>
Compatible with <b>SINAMICS connect</b> and <b>TIA Portal</b> via GSD file	<ul style="list-style-type: none"> <li>• <b>Fit for digitalization</b> and for cloud based analytics</li> <li>• <b>PLC connectivity</b> as a standard</li> </ul>
<b>Pluggable</b> I/O terminal hardware	<ul style="list-style-type: none"> <li>• <b>Simple</b> installation, service and maintenance</li> </ul>

IOP-2: Intelligent Operator Panel  
SAM: Smart Access Module  
P&F: Pump and Fan

<sup>1</sup> max. 55 °C for PROFINET version

## Compliant 3C2 / 3C3 coating on circuit boards

Environment parameters IEC 60721-3-3	Units	Class			
		3C2		3C3	
		Mean	Max	Mean	Max
Sea salt	mg/m <sup>3</sup>	Salt mist			
Sulphur dioxide	mg/m <sup>3</sup>	0.3	1	5	10
Hydrogen sulphide	mg/m <sup>3</sup>	0.1	0.5	3	10
Chlorine	mg/m <sup>3</sup>	0.1	0.3	0.3	1
Hydrogen chloride	mg/m <sup>3</sup>	0.1	0.5	1	5
Hydrogen fluoride	mg/m <sup>3</sup>	0.01	0.03	0.1	2
Ammonia	mg/m <sup>3</sup>	1	3	10	35
Ozone	mg/m <sup>3</sup>	0.05	0.1	0.1	0.3
Nitrogen Oxides	mg/m <sup>3</sup>	0.5	1	3	9

- **FSA ... FSG:** Protected according to **3C3** to EN 60721-3-3

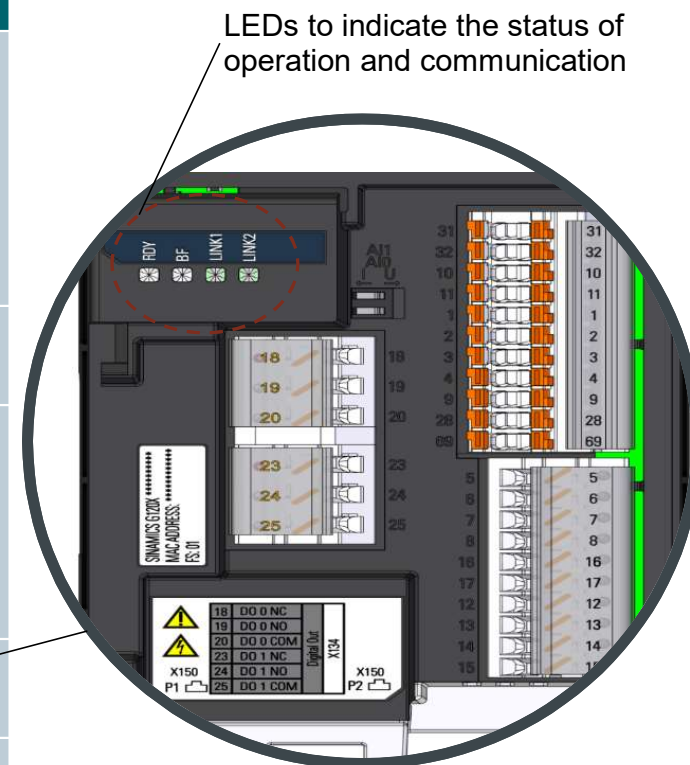
- **FSH/FSJ:** Protected according to **3C2** according to EN 60721-3-3

# SINAMICS G120X

## Technical data – Communication interfaces, options

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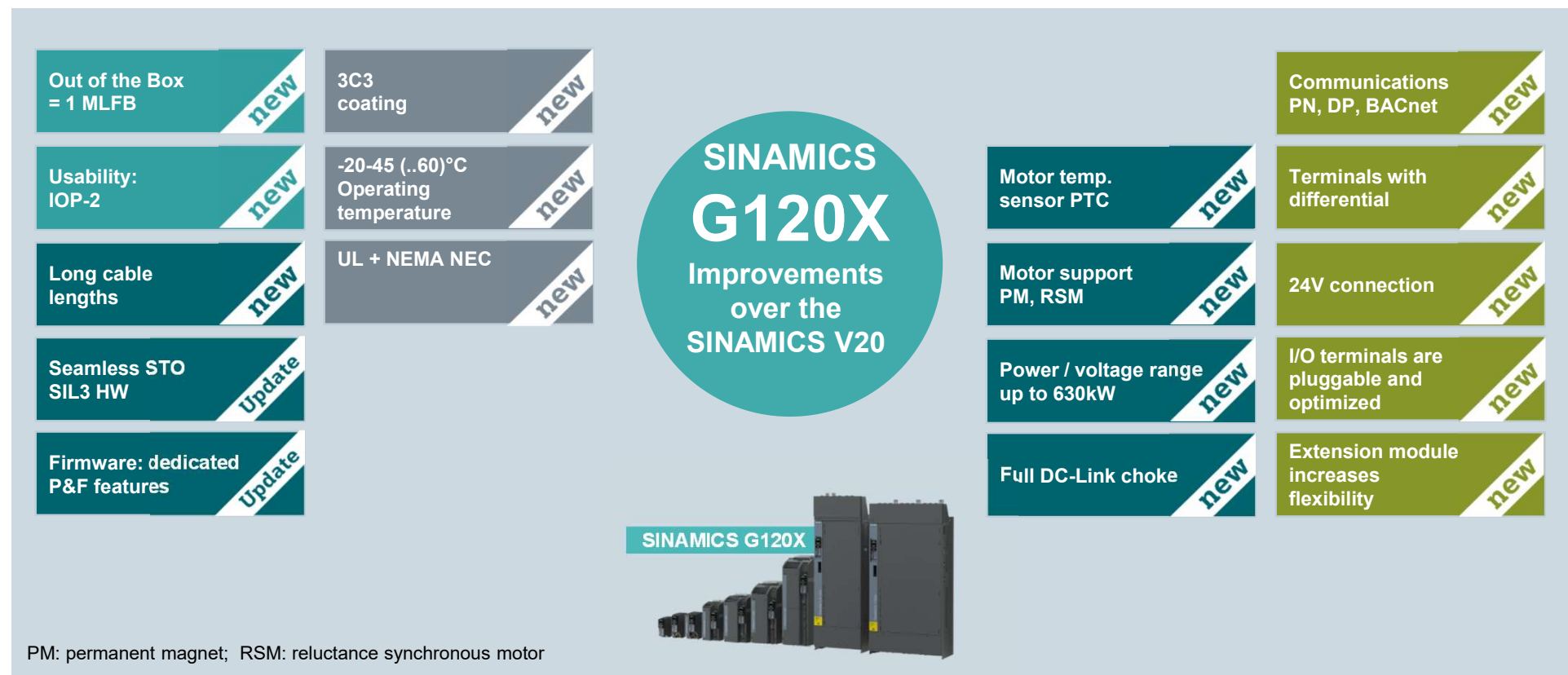
Product data overview	G120X
Inputs / Outputs / Communication Interfaces	<ul style="list-style-type: none"> <li>• 6 dig. inputs, 2 dig. outputs (relays)</li> <li>• 2 analog inputs 0 – 10V, 0/4 – 20mA</li> <li>• 1 analog outputs 0 – 10V, 0/4 – 20mA</li> <li>• 1 input for PTC/KTY/Pt100/Pt1000 motor sensor</li> <li>• PROFINET, EtherNet IP</li> <li>• Modbus RTU, USS, BACnet MS/TP</li> <li>• PROFIBUS DP</li> </ul>
I/O Extension Module <sup>2,3</sup>	<ul style="list-style-type: none"> <li>• 2DI, 2AO, 4DO (relay), 2x Pt1000 or Ni1000</li> </ul>
Options	<ul style="list-style-type: none"> <li>• SD card</li> <li>• IP21 roof top kit</li> <li>• IP20 PT-kit as an option/ FS A-G</li> <li>• I/O extension module<sup>1</sup></li> <li>• Smart Access Module</li> <li>• Input and output filters</li> </ul>
Terminal Hardware	1.5 mm <sup>2</sup> cable per clamp, pluggable 1 plug with double clamps <sup>2</sup>
Standards	CE, UL, cUL, EAC <sup>4</sup> , KC <sup>3</sup> , RCM





# The SINAMICS G120X differentiates itself from the SINAMICS V20 with dedicated features and improvements

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# Do you want a drive, specialized for your branch and application? We have the answer!

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## Solution

### Our SINAMICS G120X ...



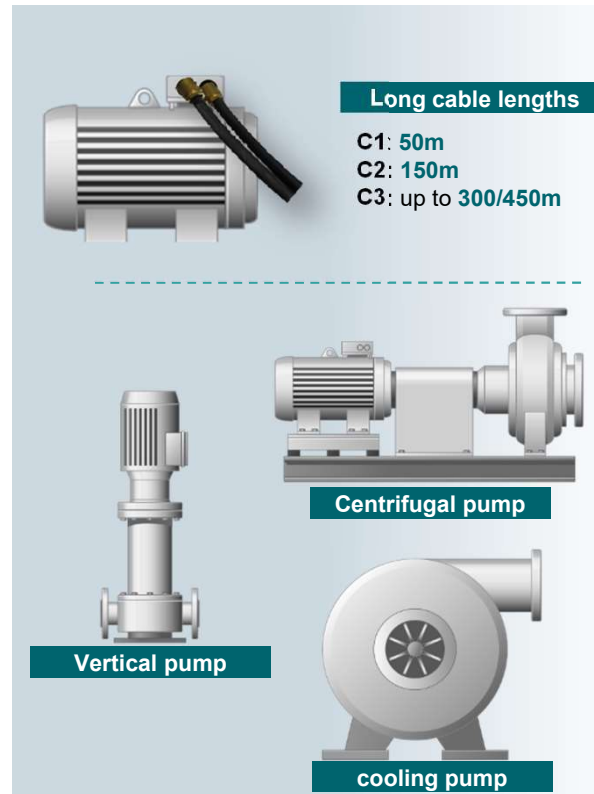
...can be used in the **1<sup>st</sup> and 2<sup>nd</sup> environment**.



...ensures **EMC compliance** with **long cable lengths**



...offers **several voltage<sup>1</sup>** classes



<sup>1</sup> 3AC 200V, 400V, 690V

<sup>2</sup> Cable lengths depend on frame sizes

<sup>3</sup> Refer to manual <sup>4</sup> For FSH,J refer to the manual

## Highlights



- **Integrated full DC- Link choke** enhances grid/device protection
- **C1+C2 EMC compliance** and long cable lengths<sup>2</sup> up to **450m**
- **Emergency STOP** via **STO SIL3** hardware as a standard
- **Overload capability:** 110%/60s<sup>3</sup> or 135%/3s<sup>3</sup>; HO<sup>4</sup> rating: 150%/60s

**Optimized**  
**for the water industry**

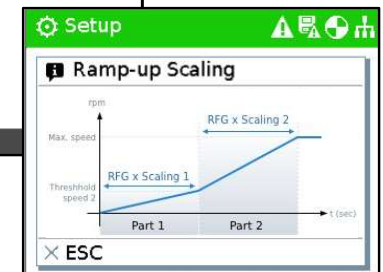
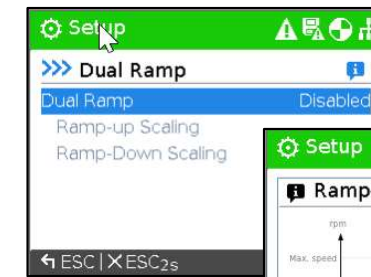
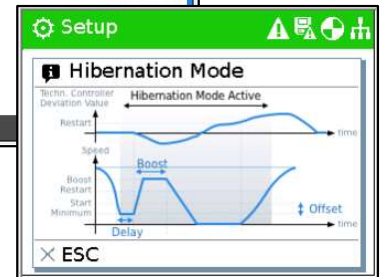
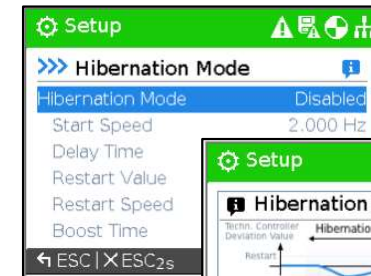
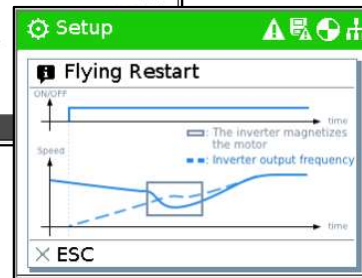
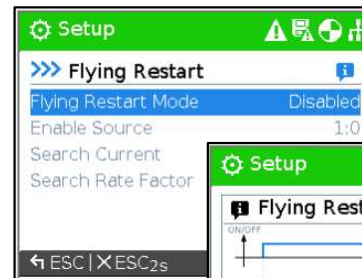
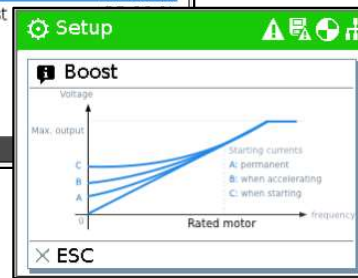
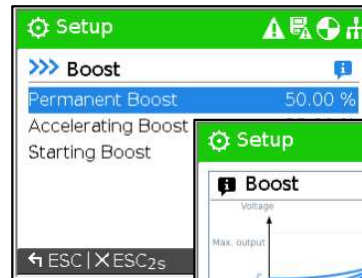
## IOP-2 available functionalities from V2.4 HF1 (V02.04.00.01.03)

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### V2.4

- Automatic Restart
- Boost
- Bypass mode
- Cavitation protection
- Condensation protection
- Deragging
- Dual ramp
- First pipe filling
- Flying restart
- Frost protection
- Hibernation mode
- Skip frequencies
- PID Controller
- Adapting Kp and Tn
- Programmable timers
- Cascade control
- Load monitoring
- Efficiency optimization

**Available  
now!**



# The G120X offers different protection degrees with a seamless system approach up to 630 kW / 700HP

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<p><b>Voltage / Power Range</b></p> <p>3AC200 – 230V (0.75 – 55 kW / 1 – 75 HP)</p> <p>3AC380 – 480V (0.75 – 560 kW / 1 – 700 HP)</p> <p>3AC500 – 690V (3 – 630 kW / 4 – 700 HP)</p>	<p><b>IP20 /IP21 kit<sup>1,2/</sup> IP20 Push Through kit<sup>2</sup></b></p> <p><b>UL open type</b> Power: 0.75 – 560 kW (630kW @ 690V) 1 – 700 HP</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Blocksize</b></p> <p><b>Chassis</b></p> <p>H J</p> </div> </div> <p>@400V Power range kW up to...</p> <p>A B C D E F G H J</p> <p>...3 ...7.5 ...15 ...37 ...55 ...132 ...250 ...400 ...560</p> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;"> <p>incl.</p> <div style="display: flex; gap: 10px;"> <div style="text-align: center;"> <p><b>Operator Panel</b></p> <p><b>IOP-2/ BOP-2</b></p> </div> <div style="text-align: center;"> <p>or</p> <p><b>SAM</b></p> </div> </div> </div>	<p><b>Options</b></p> <p>SD card</p> <p>IP21 roof top kit</p> <p>IP20 / UL open push through kit</p> <p>I/O ext. module</p> <p>Filter B</p> <p>Passive harmonic filter</p> <p>Choke</p> <p>Sinus filter du/dt filter</p>
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<sup>1</sup> Wall mounted w/o cabinet in lockable electrical room

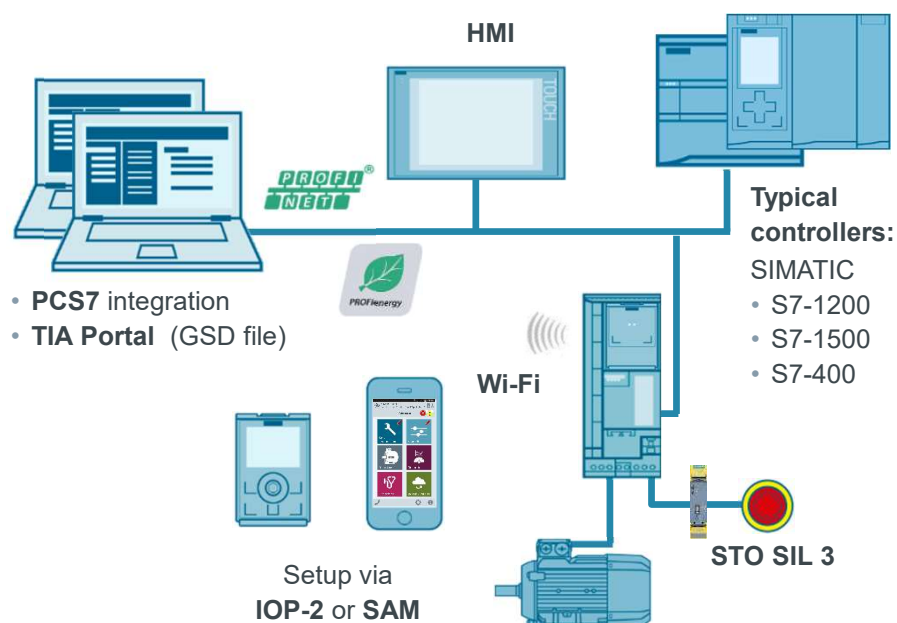
<sup>2</sup> IP21 kit/ IP20 PT-kit FS A-G as an orderable option

SAM: Smart Access Module  
IOP: Intelligent Operator Panel

# SINAMICS G120X System Integration offers 3 main advantages

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## System advantages



The certified integrated safety STO SIL 3 HW helps to ensure protection of personnel, machinery and processes



+ Easy engineering and simple setup via SAM or IOP-2  
+ High performance with PROFINET and PROFlenergy



+ Powerful engineering and data management via PCS7  
+ TIA Portal basic usability with GSD file





## SINAMICS Servo Drive System, positioning within SINAMICS “Discontinuous Motion” Portfolio

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### Basic: SINAMICS V90 Servo Drive System

Single axis AC/AC drive with **basic functionality** and connectivity for standard numeric and motion controllers

### Midrange: SINAMICS S210 Servo Drive System

Single axis AC/AC drive with high **dynamic and performance** for motion applications in the mid range segment.

### High-End: SINAMICS S120 Servo Drive

Modular DC/AC multi axis system with most advanced drive based **technology** and connectivity to high end numeric and motion controllers

# SINAMICS V90 Servo Drive System

## The performance-optimized and easy-to-use servo system

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V90 drive + MC-300 cable + 1FL6 motor

SINAMICS V90 system is the performance-optimized and easy to use servo system.

### Highlight

#### Performance-optimized

Advanced one-button tuning and real-time auto tuning, sufficient encoder resolution and high data transfer rate

#### Cost effective

Various control modes, integrated braking resistor design, integrated into STEP-7 Professional (PROFINET version)

#### Easy-to-use

Plug & play design, graphic user interface V-Assistant tool and parameter cloning

#### Reliable operation

Wide range of supported line voltage, high degree of motor protection and STO function

## SIMOTICS S-1FL6 Overview

With a range of 50W - 7,0kW / 0,16 - 33.4Nm and shaft heights of SH 20 - 90

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1/3AC 200V~240V 0.05kW to 2kW  
SIMOTICS S-1FL6 Low inertia  
(for high dynamic performance)

3AC 380V~480V 0.4kW to 7kW  
SIMOTICS S-1FL6 High inertia  
(for smooth performance)



	SH 20	SH 30	SH 40	SH 50
Mn(Nm)	0.16-0.32	0.64-1.27	2.39-3.18	4.78-6.37
Pn(kW)	0.05-0.10	0.2-0.4	0.75-1.0	1.5-2.0
n <sub>rated</sub> (rpm)	3000			
Encoder	INC.2500ppr / ABS.21bit single-turn / ABS.21bit single-turn+12bit multi-turn			

	SH 45	SH 65	SH 90
Mn(Nm)	1.27-2.39	3.58-9.55	11.9-33.4
Pn(kW)	0.4-0.75	0.75-2.0	2.5-7.0
n <sub>rated</sub> (rpm)	3000	2000	2000
Encoder	INC.2500ppr / ABS.20bit single-turn+12bit multi-turn		

**Machine Tool**

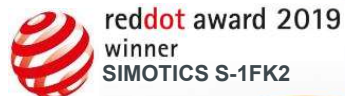
**General servo application**

Shaft Height (mm)	Rated Power (kW)	Rated Torque (Nm)	Inertia w/o brake (kgcm <sup>2</sup> )
20	0.05	0.16	0.031
	0.1	0.32	0.052
30	0.2	0.64	0.214
	0.4	1.27	0.351
40	0.75	2.39	0.897
	1	3.18	1.15
50	1.5	4.78	2.04
	2	6.37	2.62
45	0.4	1.27	2.7
	0.75	2.39	5.2
65	0.75	3.58	8.0
	1	4.77	15.3
	1.5	7.16	15.3
	1.75	8.36	22.6
	2	9.55	29.9
90	2.5	11.9	47.4
	3.5	16.7	69.1
	5	23.9	90.8
	7	33.4	134.3

# SINAMICS S210 Servo Drive System

## The top highlights of the System

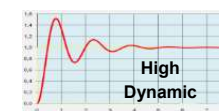
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### Feature / Function

- Dedicated S-1FK2 motor(HD/CT)
- Fast Current Controller (62,5  $\mu$ s)
- Fast PROFINET IRT (250  $\mu$ s)
- DC-Coupling (for 3-AC units)
- Basic & Extended Safety integrated functions via PROFIsafe
- Integrated Webserver
- “One Button Tuning”
- TIA Portal (V15.1) integrated
- TIA Selection Tool integrated
- One-Cable-Connection (OCC)
- Integrated EMC Filter
- Integrated Braking Resistor
- 1AC 230V (200-240V) 0.05 – 0.75kW
- 3AC 400V (200-480V) 0.4 – 7kW
- UL Certification

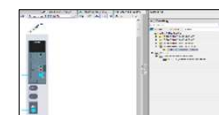
### Benefits



- Increase performance



- Fulfill high demands for safety



- Easy engineering



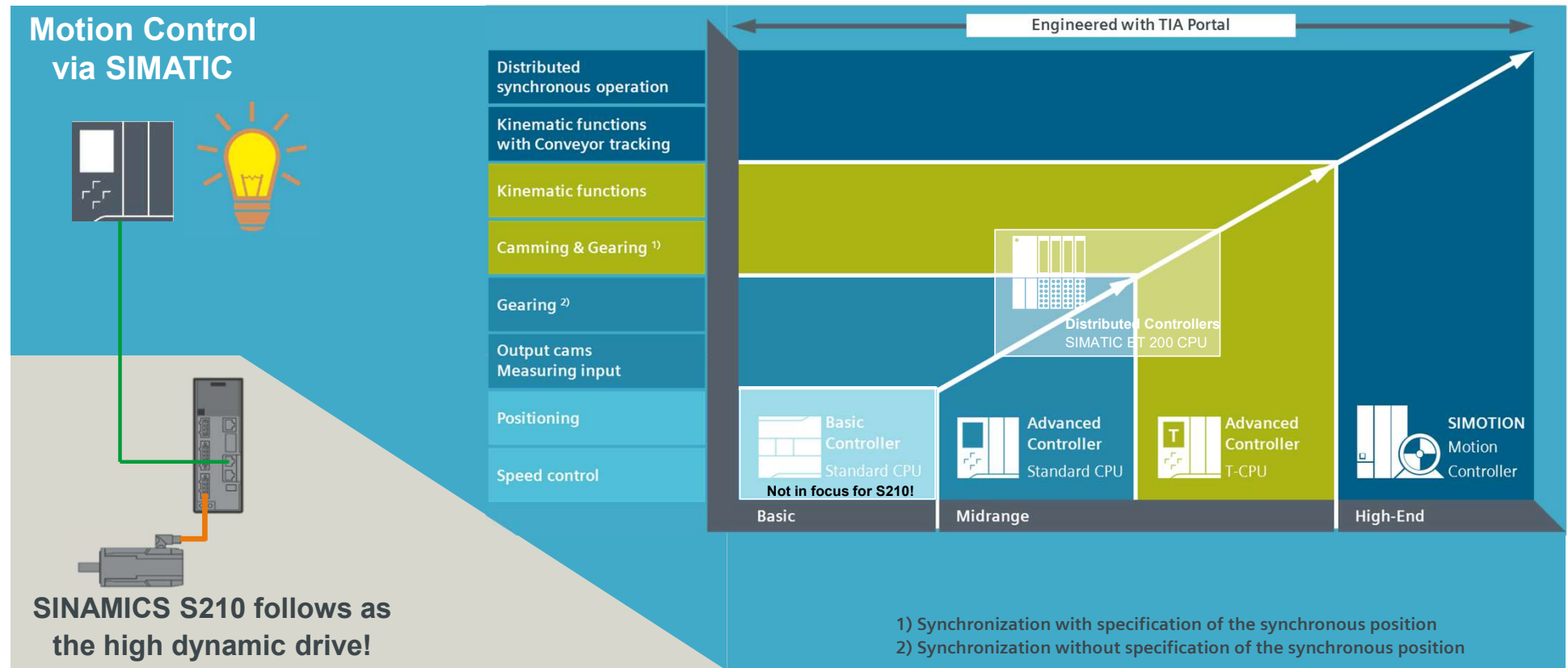
- Saves time on installation



- Ready for world wide markets

# Motion Control via SIMATIC S7 & SIMOTION controller and PROFINET

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# SINAMICS S210 servo drive system

## Technical overview

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### SINAMICS S210 (6SL3210-5HB...) 1AC (6SL3210-5HE...) 3AC



- Voltage: 1AC 200-240V and 3AC 200-480V
- Power: 50W-7.0kW\*
- PN IRT (250  $\mu$ s), current cont. 62,5  $\mu$ s, PROFIsafe
- Safety functions: STO, SS1, SBC, ext safety: SS1, SS2, SOS, SLS, SSM, SLA, SDI, SBT
- Removable terminals
- Side-by-side mounting
- 300% overload
- Integrated EMC-Filter
- Integrated break resistor
- DI: 1 F-DI (2 DI), 2 DI for measuring probes
- Integrated WEB-Server

### SIMOTICS S-1FK2 (1FK21...) HD (1FK22...) CT



- Torque ( $M_0$ ): 0,16-40Nm\*
- High Dynamic (HD) and Compact (CT), shaft height 20 to 100\*
- Encoder: 22 Bit Abs. Single or Multiturn
- Protection Degree: IP64, optional IP65
- Plain or feather key shaft
- With or without holding brake
- Ready to use in North-America 

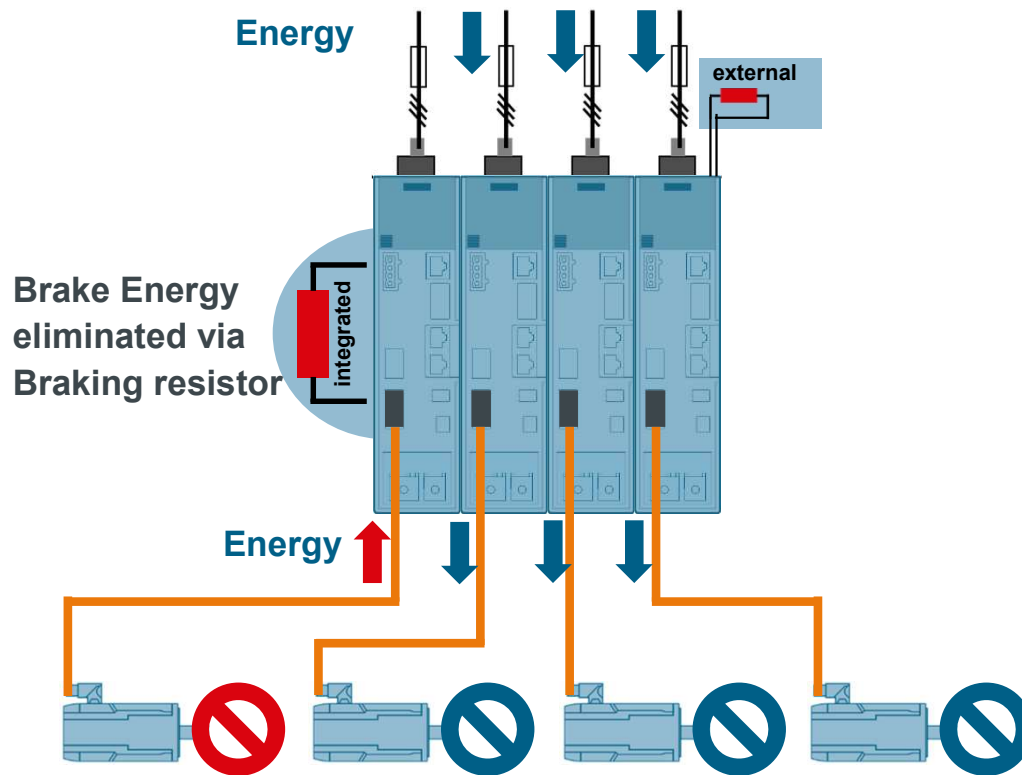
### One Cable Connection (6FX5002-8QN...) (6FX8002-8QN...)



- Individual cable lengths up to 50m can be ordered
- SPEED- CONNECT fast connection system with rotatable motor connector
- Flexible cables with small bending radii
- Trailing cable version available
- Small and compact M12 connector for motor SH20/30mm (only 25mm in height)
- Extension cables and mounting flange available

## SINAMICS S210 (1&3-AC Variante) Motoric- and brake operation

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**The energy generated during braking is dissipated via the integrated or externally mounted braking resistors.**

For operation on 3AC 200-240V line supply, please observe the configuring notes in the SINAMICS S210 device manual or on the following slide 23 with regard to the required external intrinsically safe braking resistor.

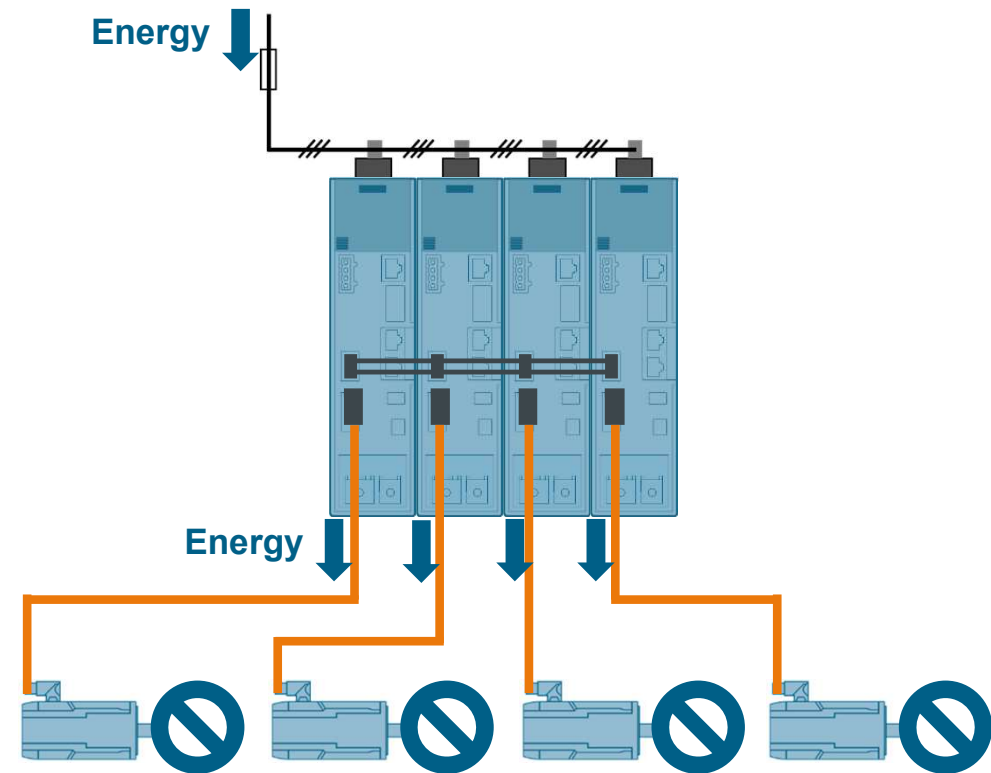


## SINAMICS S210 in 3-AC Netzanschluss Variante Motoric- and brake operation via DC-Coupling

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All SINAMICS S210 supply the S-1FK2 motors with motor energy, the devices are additionally coupled via the DC link.

For operation on 3AC 200-240V line supply, please observe the configuring notes in the [SINAMICS S210 device manual](#) or on the following slide 23 with regard to the required external intrinsically safe braking resistor.



## SINAMICS S210 in 3-AC Netzanschluss Variante Motoric- and brake operation via DC-Coupling

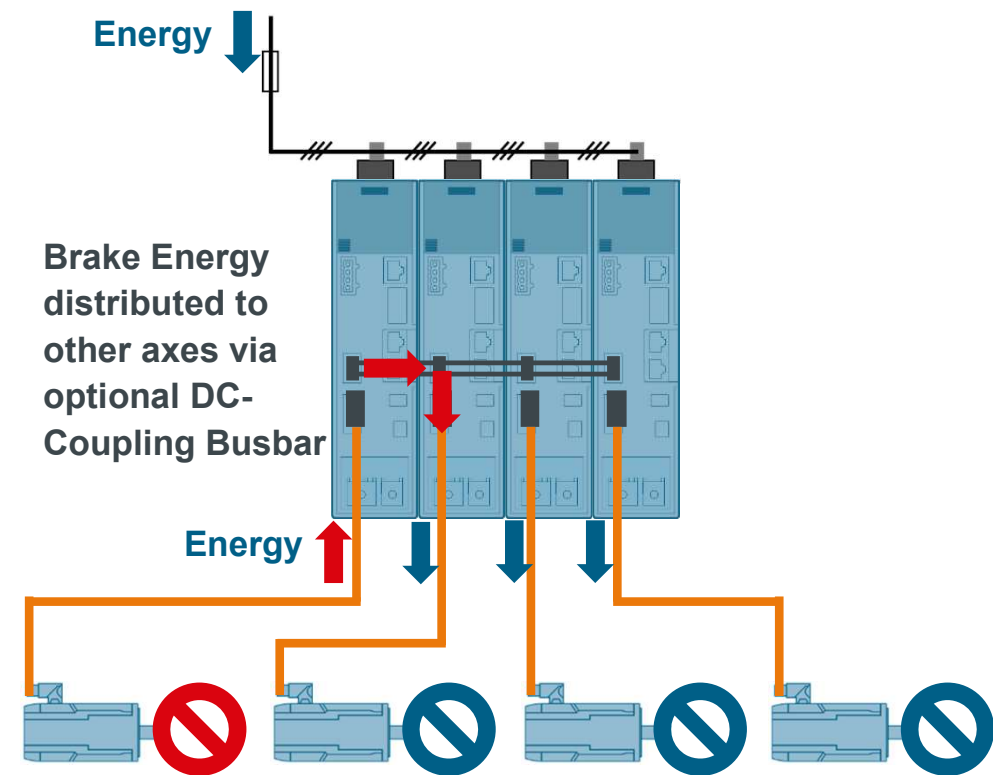
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The generator energy generated during braking is made available to the other (motor) axes via the DC link coupling.

The DC link coupling of the inverters enables energy to be exchanged during dynamic braking and acceleration processes.

This reduces the thermal waste heat generated during braking via the integrated braking resistor.

For operation on 3AC 200-240V line supply, please observe the configuring notes in the [SINAMICS S210 device manual](#) or on the following slide 23 with regard to the required external intrinsically safe braking resistor.



## SINAMICS S210 in 3-AC Netzanschluss Variante

### Brake operation via DC-Coupling and braking resistor

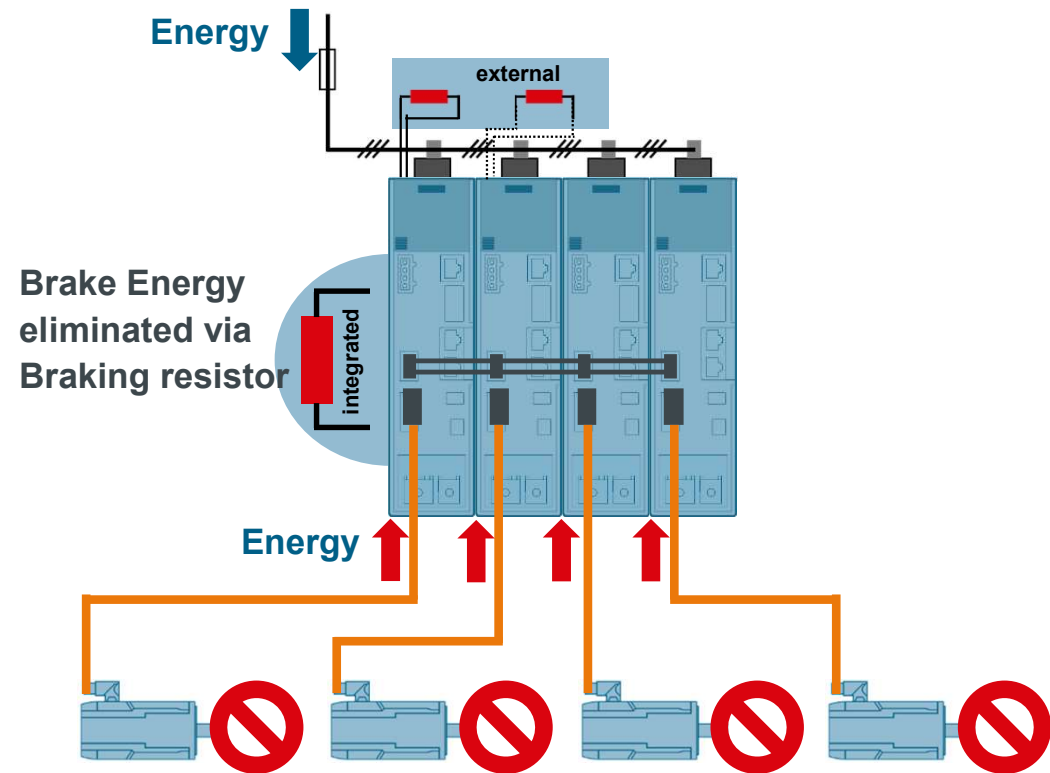
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For braking, the total available braking power (DC link capacity and integrated braking resistor power) of all inverters coupled in a group is available.

If you need an external braking resistor for your system despite DC link coupling, you must connect it to the inverter with the highest power.

If another external braking resistor is required, it will be connected to the second highest power drive and so on.

For operation on 3AC 200-240V line supply, please observe the configuring notes in the [SINAMICS S210 device manual](#) or on the following slide 23 with regard to the required external intrinsically safe braking resistor.



## SIMOTICS S-1FK2

### Planetary gear box and KS adapter for SIMOGEAR

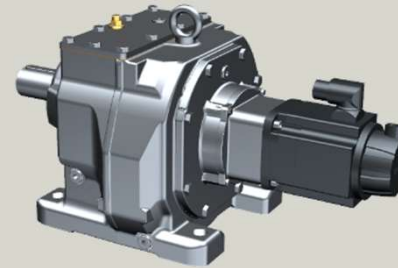
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#### Planetary Gearboxes to SIMOTICS S-1FK2

Currently S-1FK2 with planetary gear boxes can not be ordered via Siemens tools.

SIMOTICS S-1FK2 Motors are integrated in the engineering tools of Neugart (NCP), Wittenstein-Alpha (cymex) and APEX (Design Tool).



#### Adapter to connect SIMOGEAR to SIMOTICS S-1FK2

- Connection of servomotors via KS adapter
- Backlash-free coupling without feather key connection
- 4 different gear types of SIMOGEAR Family (helical-, flat-, bevel- and helical-worm gear units)
- SIMOGEAR Catalog MD.50.11
- SIMOGEAR Konfigurator

## SINAMICS S120 – the modular drive system for applications at the highest level



SINAMICS S120 offers solutions for high-performance single and multi-axis drives

### Detailed description:

- Power range: 0.12 kW – 5700 kW
- Servo /vector control, V/f control
- Integrated safety and positioning functions
- Additional motion control functions in conjunction with SIMOTION or SINUMERIK
- High degree of scalability, flexibility and combinability
- Energy efficiency as a result of the energy recovery capability and/or common DC link
- Communication: PROFIBUS / PROFINET / EtherNet/IP / CANopen / Modbus TCP
- Advanced Technology Functions for individual – and at the same time – efficient drive solutions (DCC and TEC)
- SINAMICS web server for efficient diagnostics and maintenance

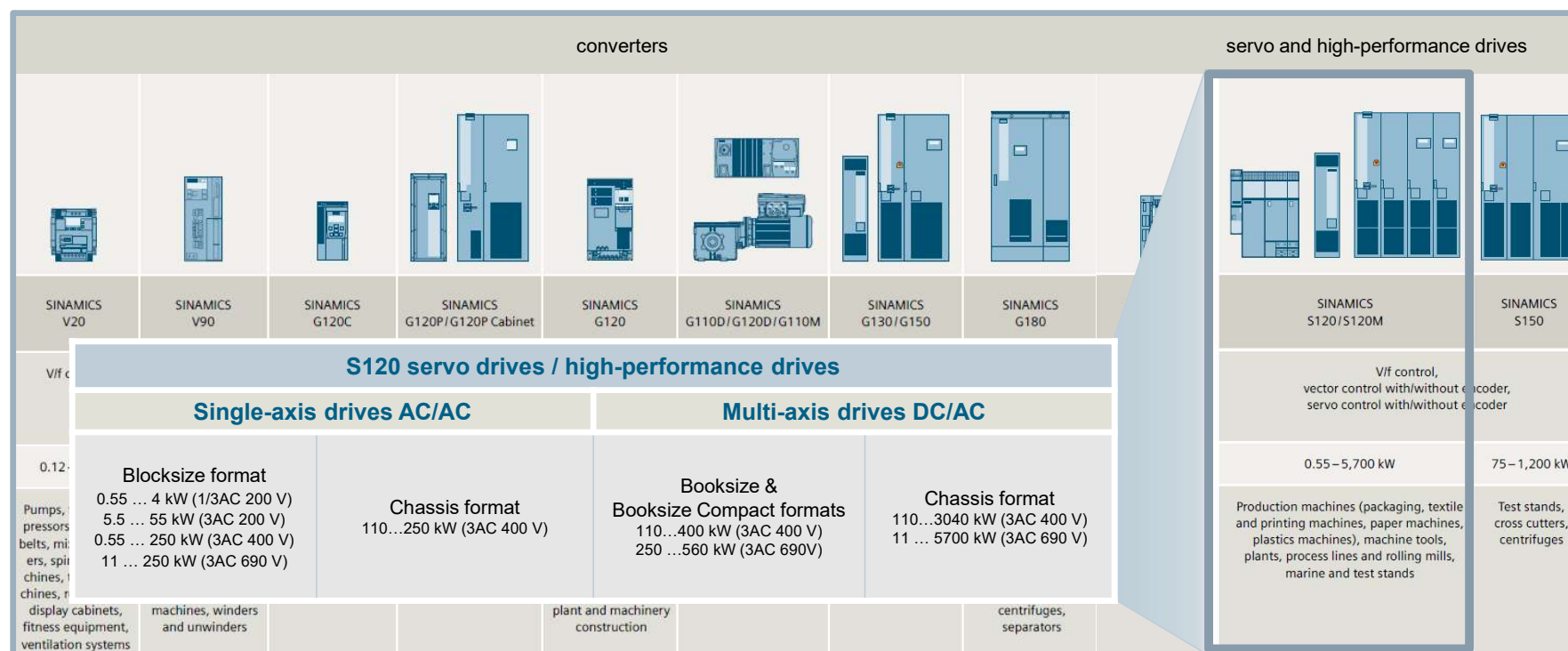


# SINAMICS S120

## Positioning in the SINAMICS portfolio



### Low voltage AC devices



# SINAMICS Startdrive V16

## Highlights of new features

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### Feature

- Introduction of SINAMICS S120 **CU310-2** with Powermodules **PM240-2** and CU Adapter for CU320-2
- Introduction of **UMAC (User Management and Access Control)** and **Know-How Protection**
- Support of **SIMATIC Drive Controllers** with the **SINAMICS Integrated** Control Unit
- Implementation of additional **Hardware components (e.g. DQ Hubs)** and feature extensions (e.g. central measuring input)

### Benefit

- Further expansion of the SINAMICS S120 family in the TIA Portal for the integration of projects with single-axis applications
- Assignment of user rights with controlled access for editing drive functions
- Protection against unauthorized modification of project planning and know-how
- SIMATIC T-CPU in booksize format for optimum connection to the SINAMICS S120 drive system in the control cabinet
- Additional SINAMICS S120 components, such as DRIVE-CLiQ hubs, extend the application possibilities for the modular drive system.



# SINAMICS Startdrive V16

## Delivery forms of Startdrive Basic / Advanced

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	Startdrive Basic V16	Startdrive Advanced V16	Startdrive Advanced Upgrade V16	Software Update Service
<b>MLFB for DVD</b>	6SL3072-4GA02-0XA0	6SL3072-4GA02-0XA5	6SL3072-4GA02-0XE5	6SL3072-4AA02-0XL8
<b>MLFB for Download in Industry Mall (OSD)</b>	6SL3072-4GA02-0XG0	6SL3072-4GA02-0XG5	6SL3072-4GA02-0XK5	6SL3072-4AA02-0XY8
<b>L-Price for DVD / Download</b>	32 Euro	500 / 475 Euro	200 / 190 Euro	150 / 142,50 Euro <small>(per year)</small>
<b>Delivery with STEP 7 Prof.</b>	X	X*	-	-
<b>SIOS Download</b> <a href="#">109771710</a>	X	(X)*	(X)*	-
<b>Updates in TIA Portal Updater</b>	X	X	X	-

\* Only with Trial License

**Helpful Tool – DT Configurator LIVE DEMO**



Hvala na pozornosti!

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