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# SINAMICS S210 Servo Drive System

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# SINAMICS S210 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

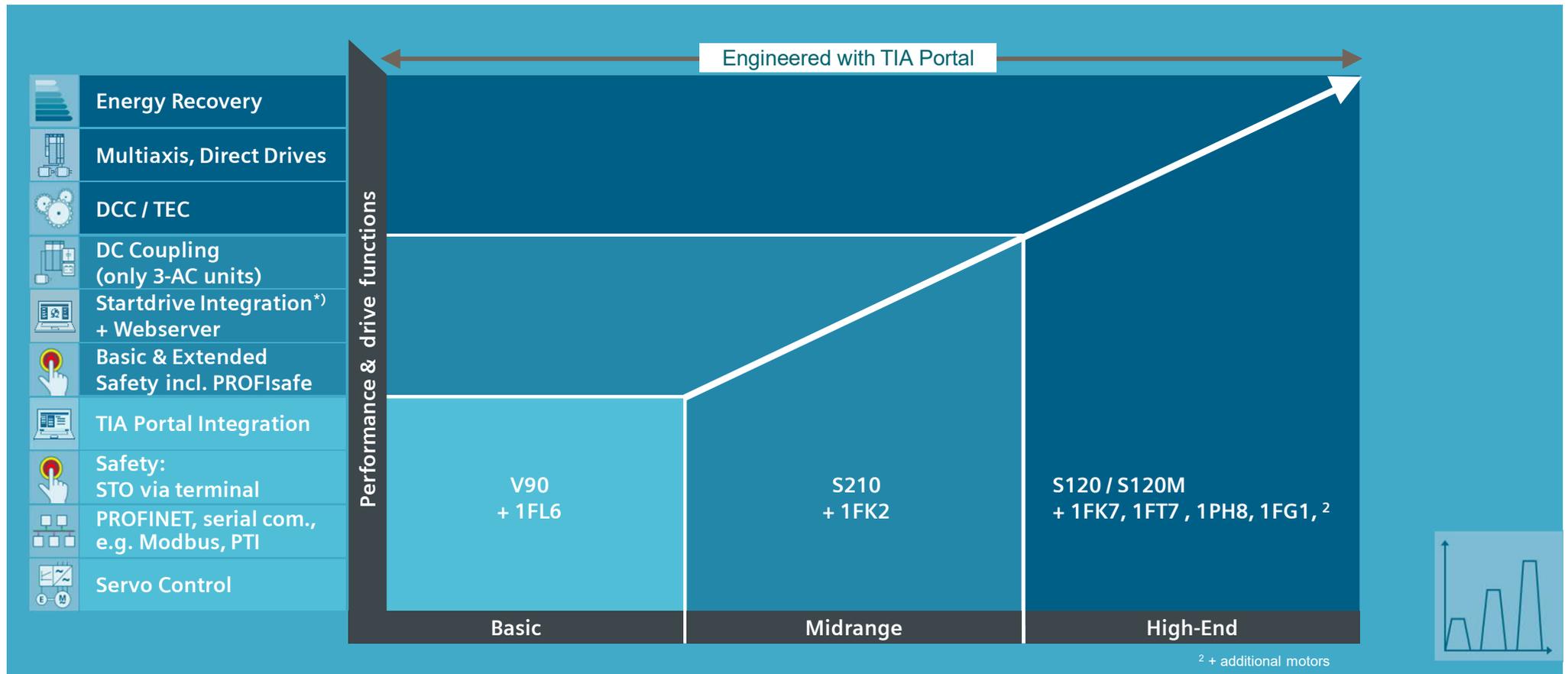
## Midrange: SINAMICS S210 Servo Drive System

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

# The scalable SINAMICS Drives Portfolio for „Discontinuous Motion“

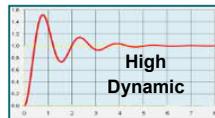


# SINAMICS S210 Servo Drive System

## Easy, High Performant, Safe

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Compact design -  
High Performance



Easy commissioning  
via TIA Portal<sup>\*)</sup> ( $\geq$  V15.1)  
or  
Webserver



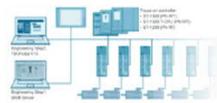
Simple installation with  
One Cable Connection for  
the motor



Ready for world wide  
markets



Optimal together with  
SIMATIC controller



Integrated Safety  
Functionality



# SINAMICS S210 Servo Drive System

## The top highlights of the System

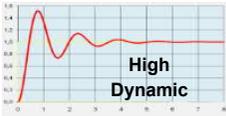
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### Feature / Function

- 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

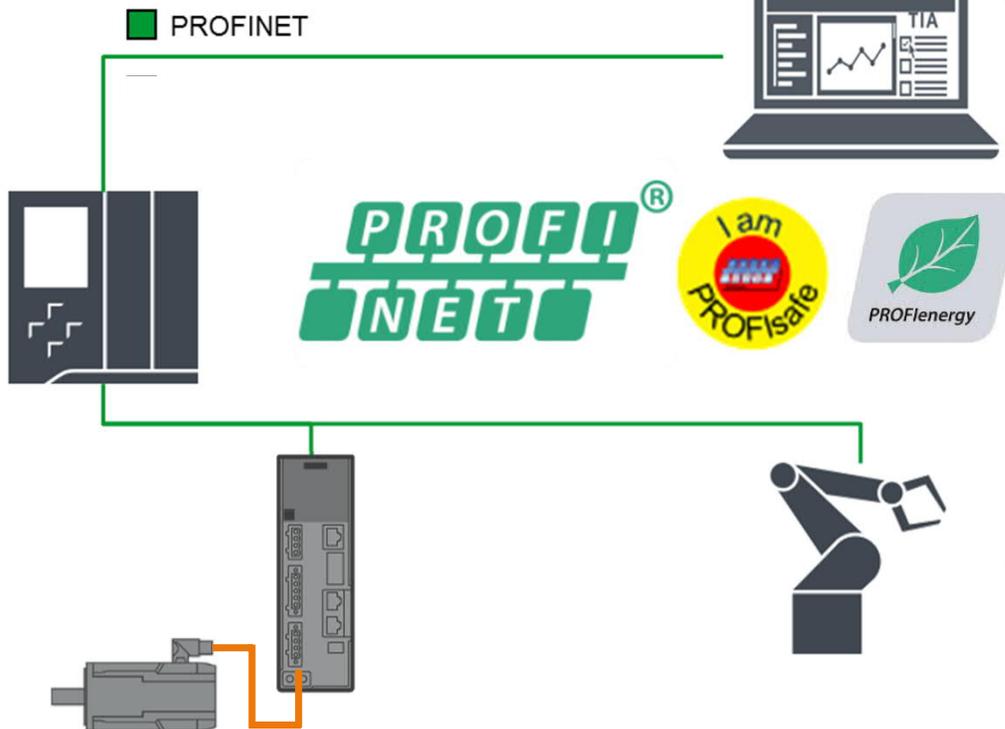
### Benefits

- ▶  High Dynamic  
• Increase performance
- ▶  • Fulfill high demands for safety
- ▶  • Easy engineering
- ▶  • Saves time on installation
- ▶  • Ready for world wide markets

# Added Value with SINAMICS S210 Servo Drive System

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## System advantages

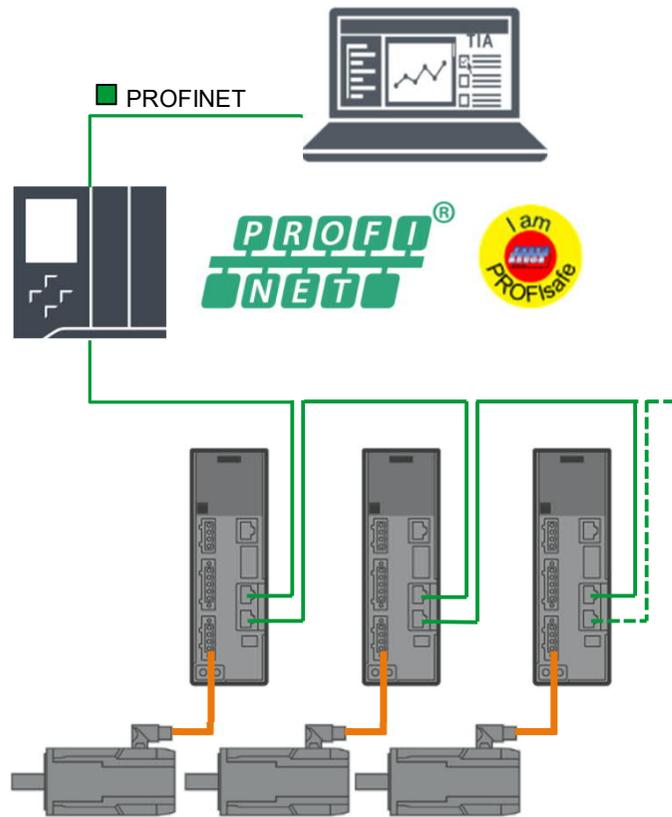


 The certified integrated safety functions help to ensure to realize a practicable protection of personnel and machinery ✓

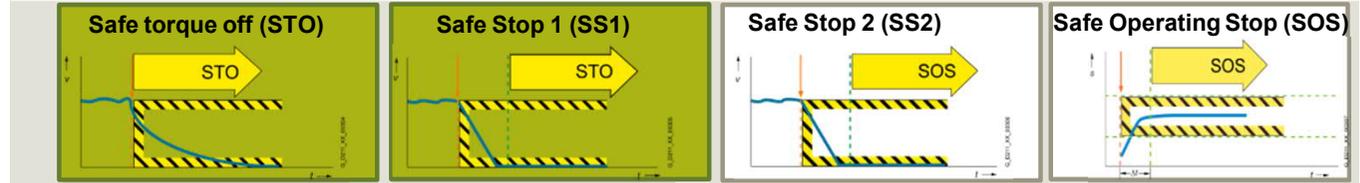
 Simple engineering and high performance with PROFINET, Safety on the same bus, PROFlenergy ✓

 Integrated engineering and data management via TIA-Portal. Standard operating philosophy. One project file, therefore consistency is always ensured. ✓

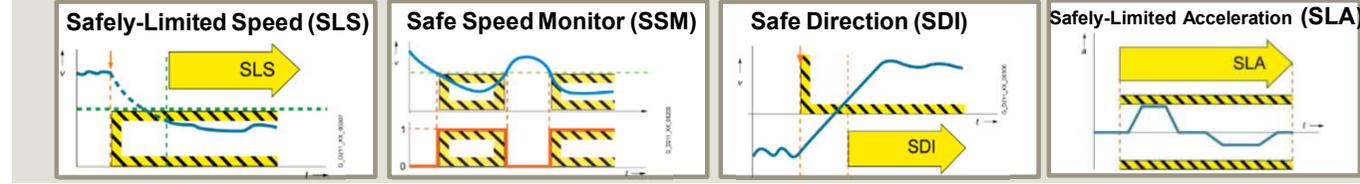
# SINAMICS S210 Safety Integrated functions according to EN 61800-5-2 functional safety



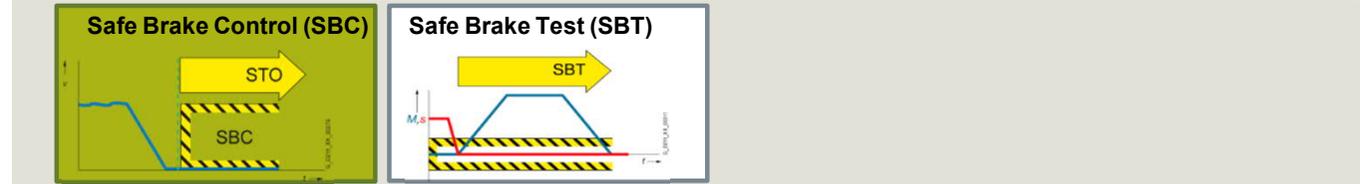
## Functions for safe shutdown



## Functions for safely monitoring motion



## Functions for safe brake management and diagnosis

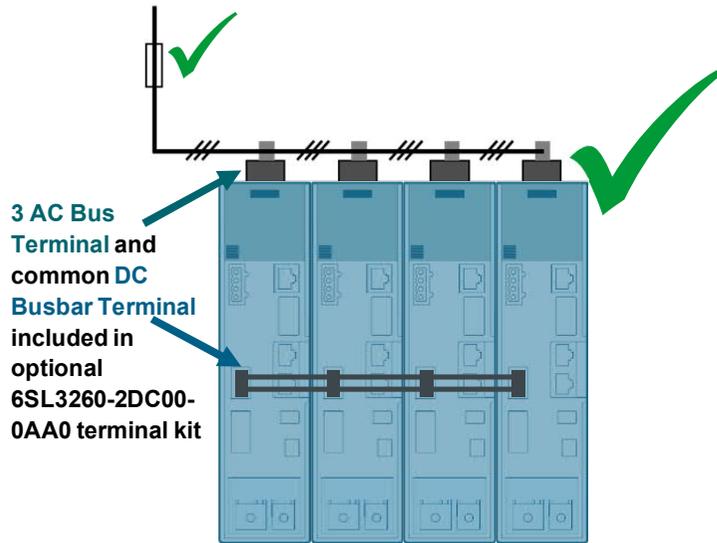


**Standard Safety Function**

**Extended Safety Function (available starting SINAMICS Firmware Version V5.1 SP1):**  
 License required (via SINAMICS SD-Card)  
 Motor with safety encoder required (1FK2■■■■■■■■■■-S■■ or 1FK2■■■■■■■■■■-M■■)

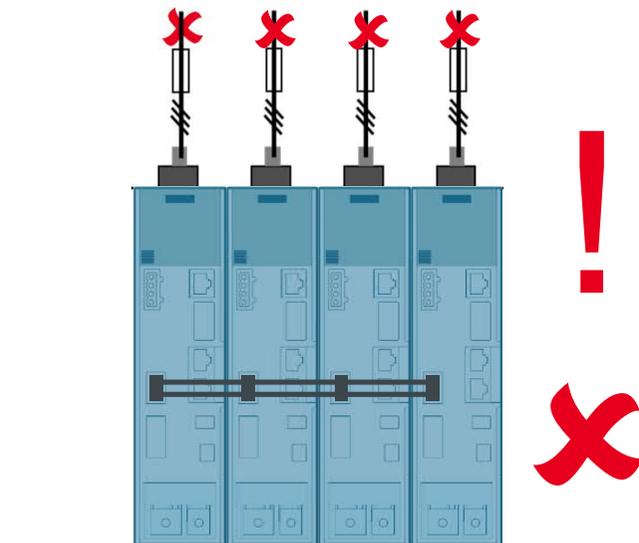
# SINAMICS S210

## 3AC Devices – Line supply when DC-Link is used



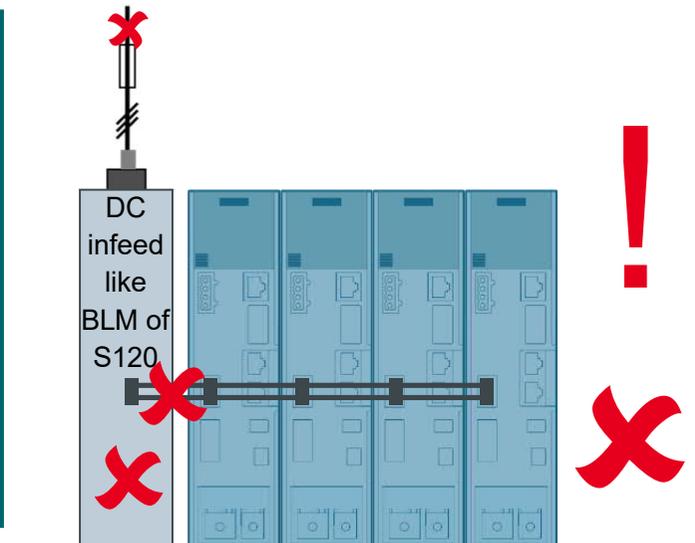
### Group fusing

When DC coupling is used, **only group fusing is allowed!** For suggested fuses please refer to manual of SINAMICS S210. Therefore also the 3AC supply of the drives (Terminal X1) must be connected via the infeed AC busbar connectors (Terminal included in optional Kit Order Number 6SL3260-2DC00-0AA0)



### Line fusing

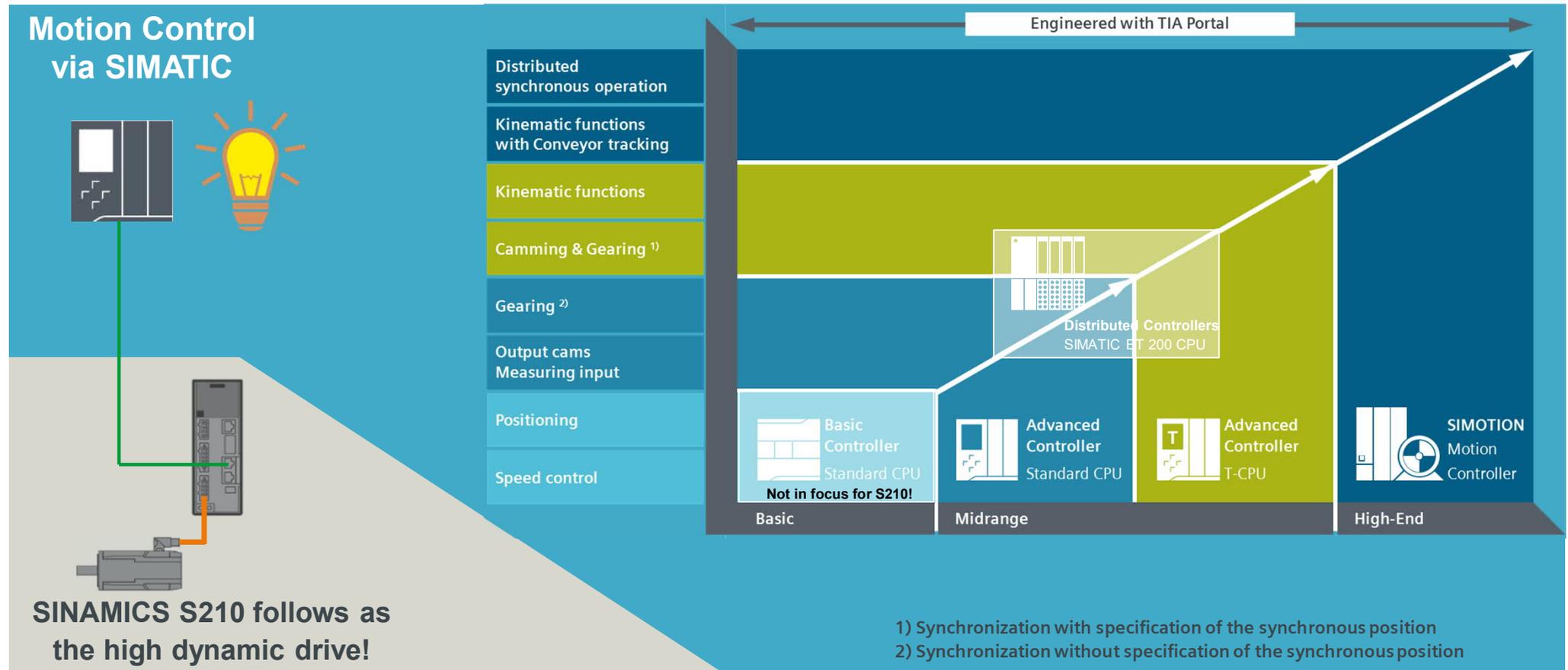
When DC coupling is used, single line fusing is **not allowed!**



### Infeed of DC via DC Busbar

Using a common external DC supply, like a SLM of SINAMICS S120 System to power up the DC busbar of SINAMICS S210 is **not allowed!** If this is required, please use SINAMICS S120 System instead!

# Motion Control via SIMATIC S7 & SIMOTION controller and PROFINET



# SINAMICS S210 servo drive system

## Technical overview

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



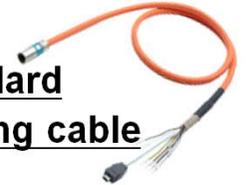
- Voltage: 1AC 200-240V and 3AC 200-480V
- Power: 50W-7.0kW
- PN IRT (250  $\mu$ s), current cont. 62,5  $\mu$ s, PROFIsafe
- Safety functions: STO, SS1, SBC  
Extended safety: SS1, SS2, SOS, SLS, SSM, SLA, SDI, SBT
- Up to 6 devices can be connected via DC link (only 3AC devices)
- Removable terminals
- DI: 1 F-DI (2 DI), 2 DI Measure Probes
- Side-by-side mounting
- Integrated EMC-Filter
- Integrated break resistor
- Integrated WEB-Server

### SIMOTICS S-1FK2 (1FK21...) High Dynamic (1FK22...) Compact



- Torque ( $M_0$ ): 0,16-40Nm
- High Dynamic (HD) and Compact (CT), shaft height 20 to 100
- Encoder: 22 Bit Abs. Single or Multiturn (battery-free)
- 300% overload
- Protection Degree: IP64, optional IP65
- With or without holding brake
- Plain or feather key shaft
- Rotatable, robust metal connector
- Ready to use in North-America 

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



- 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 (6FX800...)
- Small and compact M12 connector for motor SH20/30mm (only 25mm in height)
- Extension cables and mounting flange available

# SINAMICS S210 servo drive system, Easy, High Performant, Safe & Perfect together with SIMATIC.

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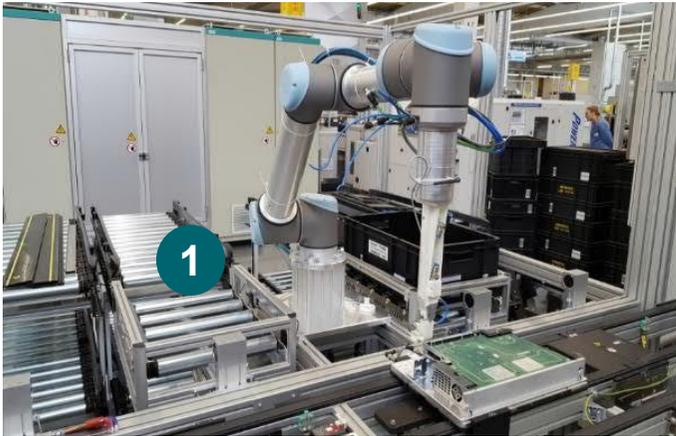
## Advantages of S210 servo drive system

- **High performance** of drive and motor
- **Fast installation** of drive and motor via one cable connection (OCC)
- Integrated basic & extended **safety functions**
- **Easy engineering** commissioning because now fully integrated into the TIA-Portal\*, “One Button Tuning” and **web server**.
- **Optimal together with SIMATIC** controller like SIMATIC S7-1500/T-CPU/ ET200 SP Open Controller.
- Now also integrated in the **TIA Selection Tool (offline Version)**

**Drives, motors and controllers.  
All from a single source.  
Matching perfectly.**

## Reference MC Factory F80 Erlangen New production line for SINAMICS S120 Motor-Modules

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Equip the material feeding conveyor for the new SINAMICS S120 Motor Module production line in MC Factory Erlangen F80. The S210/ S-1FK2 drive a linear axes. The linear axe lifts and positioned the roller conveyor **1** which is attached to it. In total there are 4 conveyor stations with each 4 lifters. Products used: SINAMICS S210 Servo Drive System and SIMATIC ET200 SP open controller. Please see application video [here](#)

**Customer:**  
MC Factory F80 Erlangen (Germany)

**Industry:** Equipment manufacturing

### Benefits:

- **Commissioning:** Very easy setup, Commissioning of the drive already finished after 5 minutes! Thanks to One Button Tuning and electronic type plate of the motor.
- **Installation:** Fast Installation with One Cable
- **Controller:** Works perfectly together with distributed SIMATIC ET200 SP Open Controller

# SINAMICS S210 Servo Drive System

## The new high dynamic Servo Drive System from Siemens

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