A New Way of Motion

Easy to program, system simulation, integrated safety and built-in diagnostics

usa.siemens.com/anonymous
A new way of motion

To compete in a global market, machine builders must deliver high-performance machines that are faster, more automated and more flexible – while meeting specific customer requirements and keeping design costs in check. Siemens new way of motion control offers the innovation, including an unprecedented level of integration, necessary for a sustainable competitive advantage.

Easy to program

**Motion control program in just 3 steps**

1. Graphically configure the drive
2. Select the motion functions using technology objects
3. Program with PLC open and proven machine libraries

The technology objects handle motion control as well as the closed loop control and diagnosis of the axes.

**Proven application libraries**

Download ready-to-apply function blocks from our vast online library, including: camming, cross-cutter, gearing, flying saw, jog path, load sharing, positioning, rotary knife, splice control, synchronism and more!

**Easily control these functions and more!**

- Speed Control
- Measuring Probe
- Positioning
- Cam Disc
- Synchronization
- Cam/Cam Track
- Saw (flying shears)
- Gripper Feed
- Print Mark Correction
- Double Misfire
**Simulation tools (PLCSIM) – all built in**

The early detection and elimination of programming errors allows you to accelerate your commissioning time and increase program quality.

- Simulation is integrated into our single engineering framework. No additional software package is required.
- Test, validate and optimize your application code independent of physical hardware.
- Simulate and troubleshoot controller, drive axis, HMI applications and complex motion functions in a software environment.
- Integrated Trace functionality for precise diagnosis.
- When you are satisfied with your code, experience seamless integration into “real” hardware.

**Integrated trace functionality**

You can use the real-time trace function to precisely diagnose user programs and motion applications, thus optimizing the drives. By visualizing the entire process with real-time trace, you can easily identify sporadic events in the system during commissioning and maintenance.

Simply activate the controller’s trace function to combine control and monitoring:

- With Cycle accuracy
- Comprised in the controller’s firmware
### SIMATIC S7-1500 Controller

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard, safety and motion control functions on one controller</td>
<td>Faster time to market with less hardware to program</td>
</tr>
<tr>
<td>Extended motion control tasks such as gearing or camming are seamlessly integrated into one programming tool</td>
<td>Cost savings in engineering, training and downtime due to easy operation</td>
</tr>
<tr>
<td>A high degree of engineering efficiency due to graphic and tabular configuration and optimization of cams – integrated into one programming tool</td>
<td>Less complexity results in reduced engineering time and training expenses</td>
</tr>
</tbody>
</table>

### SINAMICS S120 Drive

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>One drive line for high performance induction and servo applications</td>
<td>Reduced variances across multiple application ranges</td>
</tr>
<tr>
<td>Plug &amp; Play configuration with electronic nameplates</td>
<td>Cost savings in engineering, training and downtime due to easy operation</td>
</tr>
<tr>
<td>The modular and flexible S120 design allows the right fit for all requirements</td>
<td>Energy efficiency with power regeneration and common DC bus</td>
</tr>
</tbody>
</table>

### SIMOTICS Rotary Motors

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic configuration with DRIVE-CLiQ encoders</td>
<td>Faster time to market due to less engineering time</td>
</tr>
<tr>
<td>Thermally and mechanically isolated encoder which maximizes encoder lifetime with 1FK7 Generation 2 and 1FT7 servo motors</td>
<td>Increase productivity with a robust solution</td>
</tr>
<tr>
<td>1FK2 servo motors utilize one cable technology (i.e. hybrid cable which combines power and feedback)</td>
<td>Reduce wiring and hardware costs with simplified installation</td>
</tr>
</tbody>
</table>

**PROFINET**

**Motion Control Solution Benefits:**
- **S7-1500TF Controller**
  - Feature: Standard, safety and motion control functions on one controller
    - Value: Faster time to market with less hardware to program
  - Feature: Extended motion control tasks such as gearing or camming are seamlessly integrated into one programming tool
    - Value: Cost savings in engineering, training and downtime due to easy operation
  - Feature: A high degree of engineering efficiency due to graphic and tabular configuration and optimization of cams – integrated into one programming tool
    - Value: Less complexity results in reduced engineering time and training expenses

**SINAMICS S120 Drive**
- Feature: One drive line for high performance induction and servo applications
  - Value: Reduced variances across multiple application ranges
- Feature: Plug & Play configuration with electronic nameplates
  - Value: Cost savings in engineering, training and downtime due to easy operation
- Feature: The modular and flexible S120 design allows the right fit for all requirements
  - Value: Energy efficiency with power regeneration and common DC bus

**SIMOTICS Rotary Motors**
- Feature: Automatic configuration with DRIVE-CLiQ encoders
  - Value: Faster time to market due to less engineering time
- Feature: Thermally and mechanically isolated encoder which maximizes encoder lifetime with 1FK7 Generation 2 and 1FT7 servo motors
  - Value: Increase productivity with a robust solution
- Feature: 1FK2 servo motors utilize one cable technology (i.e. hybrid cable which combines power and feedback)
  - Value: Reduce wiring and hardware costs with simplified installation
**SIMATIC HMI Comfort Panel**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated SD card for automatic backups</td>
<td>Increase productivity with fast, easy device replacement</td>
</tr>
<tr>
<td>Built in system-wide diagnostics to the I/O channel level enabled with a check of a box to display messages</td>
<td>System generated diagnostics for less commissioning and downtime</td>
</tr>
<tr>
<td>High Resolution – 16 million color low glare display; 80,000 hr. backlight; 170 degree viewing angle</td>
<td>Easy-to-read system information reduces downtime</td>
</tr>
</tbody>
</table>

**SINAMICS S210 Drive**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>The servo package consisting of S210 drive and 1FK2 motor is conveniently integrated into the controller</td>
<td>Faster time to market due to less engineering time</td>
</tr>
<tr>
<td>Cost effective solution with integrated safety functions</td>
<td>Reduce hardware costs</td>
</tr>
<tr>
<td>Perfect fit for mid range servo applications</td>
<td>Scalable solution for reduced engineering time</td>
</tr>
</tbody>
</table>

**SINAMICS G120 Drive**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory card provides simple and rapid drive replacement regardless of firmware</td>
<td>Increase productivity</td>
</tr>
<tr>
<td>Modular design with central and decentralized formats to provide the exact fit for every general purpose application</td>
<td>Scalable solution for reduced engineering time</td>
</tr>
<tr>
<td>Extremely robust with drive based safety functions</td>
<td>Increase productivity</td>
</tr>
</tbody>
</table>

**One Programming Tool – TIA Portal**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single framework that integrates all important components (e.g. safety, security, control, HMI, drives, switch-gear, decentralized peripherals, motion control, power distribution) into one programming tool</td>
<td>Reduce engineering time up to 30% for faster time to market</td>
</tr>
<tr>
<td>Early detection and resolution of programming errors with integrated simulation tools</td>
<td>Increase diagnostics automatically generated during device configuration</td>
</tr>
</tbody>
</table>
Integrated safety

One system, programming tool and network for standard and fail-safe

The integration of safety technology in standard automation reduces hardware and simplifies engineering to improve plant safety and increase productivity.

• Safety and standard control over one network
• Safety PLC library with certified blocks (utilized via failsafe PLC)
• Drive based Safety including motion functions
• Safety Acceptance Test integrated in engineering tool

Efficient engineering in the TIA Portal – standard and safety technology in a single system

With the TIA Portal, safety is easily integrated...

... into the existing system as well as into the existing communication.

Built-In diagnostics

Uniform system diagnostics, automatically generated during device configuration

• Faster troubleshooting and streamlined maintenance for less downtime
• Reduced engineering time – no additional programming required for diagnostic information

How does it work?

Easy-to-understand faults and drive messages are automatically displayed in the TIA Portal, HMI, web server and controller system without any engineering.
Support and Consulting Services

- **Industry Online Support site** is your resource for comprehensive information, FAQs and application examples covering all products, systems and services in the fields of automation and drives, as well as for the process industry. Support requests may also be initiated and tracked on this site.

- **Technical and Engineering Support** specialists provide 24/7 advice and answers for all inquiries about functionality, handling, and fault clearance of Siemens industrial products and solutions – via phone, email, support request, and remote access.

- **Regional Application Engineers** provide local assistance.

- **Experienced global network of Certified Solution Partners** with extensive industry knowledge using Siemens components for the implementation of tailored solutions for your specific applications and timetable.

- **Global support** – Siemens is active in 190 countries and has an extensive channel and solution partner network. We have 280 members of our global Application Expert Community network in 19 countries, closely affiliated with industry organization such as PMMI and OMAC.

### Application and Mentoring Services

Siemens is committed to making your life easier when it comes to your motion control solution. We can help you with:

- Selecting optimum solution packages from our product portfolio
- Proof of concept support for machine innovation
- Development and delivery of customized add-ons
- Providing assistance with testing and commissioning
- And more!

### Siemens Basic Technical Support Services

Siemens Basic Technical Support Services provide you with more value, reducing your Total Cost of Ownership (TCO)

- No Charge single, toll-free number with live operators
- No Charge basic technical support until product maturity during normal business hours

Contact us today!
Industry Customer Care Center
800-333-7421
The technical data presented in this document is based on an actual case or on as-designed parameters, and therefore should not be relied upon for any specific application and does not constitute a performance guarantee for any projects. Actual results are dependent on variable conditions. Accordingly, Siemens does not make representations, warranties, or assurances as to the accuracy, currency or completeness of the content contained herein. If requested, we will provide specific technical data or specifications with respect to any customer’s particular applications. Our company is constantly involved in engineering and development. For that reason, we reserve the right to modify, at any time, the technology and product specifications contained herein.