

PRECISION TO THE CORE

CONTROL EFFICIENTLY WITH ISG-KERNEL



GETTING MOVEMENTS ON THE RIGHT TRACK

High-end functionalities for the control of machines, plants and robots

ISG-kernel is a software core for the control of machines and systems in almost all areas of CNC, robotics, and motion control (PLC open). With an outstanding path and speed planning, fast machining operations are made possible. Thanks to the architecture model on which the software is based, the ISG-kernel can be continuously adapted to new technologies as well as quickly to customer requirements.

Examples of areas of application include processing machines and robots, the movement of complex kinematics, and PLC-oriented programming of motion functions via PLCopen function blocks. More than **15.000** installations/year

More than **35** years of experience



PRECISE & FAST

_ Interpolation cycle times below 500µs possible

- _ Processing of up to 60,000 blocks/sec
- _ Position resolution 10 picometers
- _ Compensation for machine errors
- _ HSC and contour smoothing



FLEXIBLE

- _ No size limitation for NC programs
- _ PLC open libraries for IEC 61131 PLCs
- _ Up to 256 axes and 32 channels/kinematics
- _ Extensive kinematics library
- _ Configurable range of functions



CROSS-TECHNOLOGY

- . Tangential tool guidance with programmable corner behavior
- Static and dynamic gantry couplings
- _ Reversing on the contour
- _ RT cycles for NC code execution in the real-time context
- _ Technology packages and CNC cycles



ACCESSIBLE & ADAPTABLE

- Access to internal control data via CNC object library
 Interfaces for customer-specific control extensions (McCOM)
- _ Fast interface for connection of any PLC system

SIMPLY MOVING

One control core for all technologies

ISG-kernel supports a variety of different technologies for CNC, MC, and RC in addition to a clock-synchronous PLC task connection. As an independent software package, ISG-kernel can be extended according to your requirements with various option packages. Even existing control technology can thus be extended with high-end functionalities. No matter whether you use the control component for cutting and drilling or engraving and lasering, ISG-kernel is flexibly applicable.

IN USE ACROSS ALL INDUSTRIES

- _ Machine Tools _ Woodworking _ Packaging Technolog _ Additive Manufacturir
- Sheet Metal Working
 Robotics and Automation
 Wire and Die-Sinking
 Tube Processing











Scan the code & experience ISG-kernel in use!



Dispensing

STAY FLEXIBLE

ISG-kernel allows the combination of its components and standard components to produce individual control solutions that solve different motion tasks consistently and reliably. The transparency of functions and interfaces also enables flexible adaptation of automation to new requirements.

Maximum freedom



Easy adaptation of axis behavior (axis swap lookahead, axis swap betwee channels, synchronization



Open interfaces for your software, for analysis, and machine learning



Dynamically configurable software construction kit (parallelizable for multi-core CPUs)

Continuity without breaks

Control and communication of machine tools, robots, and motion on one control system



Digital Engineering

Support of configuration and testing of your applications by virtual CNC and ISG-virtuos

INTEGRATE EASILY

ISG-kernel supports various control platforms. Integration into customer systems is done using the Software Development Kit (SDK), while the control component is operated via an API equipped with all necessary functions. For the integration of our software, you need a PLC for the I/O data access, as well as a drive interface and a corresponding licensing tool.





INNOVATION **AT THE CORE**

Innovative & field-proven

Thanks to our long-standing partnerships institutes, ISG-kernel is constantly adapted continuously expanded. This is how we ensure that ISG-kernel enables the implementation of your new ideas.



ARENA2036

"As a long-standing partner in the field of high-end CNC, we are pushing boundaries together in terms of accuracy, speed, and range of functions on the basis of our PC-based control philosophy. This enables us to meet even the most demanding customer requirements quickly and purposefully."

> Henning Rausch, Beckhoff Automation GmbH & Co. KG Product Manager TwinCAT CNC / Branch Manager Machine Tools

KUKA

"The integration of ISG-kernel adds high-guality CNC functions to the KUKA robot controller, which allows a direct connection of the robot to the process chain of CAD/CAM systems. This way, we are opening up new markets outside of classic robot applications."

Alexander Bay, KUKA AG Key Technology Manager CNC/Material-Removal/Additive-Manufacturing

HE HOMAG

"The cooperation in partnership, the provision of a cross-industry platform, and the continuous further development of this platform have been promoting the successful implementation of new technologies as well as machining strategies and thus enabling the integration of CNC machining with robots."

> Jochen Frev, HOMAG GmbH Senior Manager CNC Software BU CNC Processing

"The multitude of functions enables smooth integration into the complete CNC machine portfolio worldwide. Thanks to the very good cooperation over the last 20 years, we have been able to continuously optimize our products and develop innovative solutions for our customers."

Ingo Göller, Messer Cutting Systems GmbH CTO Global - Chief Technology Officer

GET STARTED WITH ISG-KERNEL

Would you like to extend your control system with a powerful component using ISG-kernel and make your production processes more efficient? Then contact us now via

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ISG – YOUR TECHNOLOGY PARTNER

For the implementation of your requirements in the area of motion control and digital engineering, ISG-kernel and our other products as well as our simulation and control experts are at your disposal:

The simulation software for Virtual Commissioning (VC)

The test automation software for control systems and simulation models

Your service partner in matters of simulation, digital engineering, and VC

TwinStore

The online store for 4D-simulation models

@ISG Industrielle Steuerungstechnik Gmb

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