



S2K Motion

GE Fanuc Automation

www.gefanuc-europe.com



Intelligent Servo Systems
for Your Motion Applications

S2K – The Drive with Control Capability

High Performance and High Reliability

With high servo loop update speeds and the feature-rich drive/controller combinations available, GE Fanuc Motion Solutions are ready to handle the most difficult motion applications. GE Fanuc Motion Solutions also have an unmatched reputation for ruggedness and reliability. With MTBF measured in decades and over 3 million axes installed world-wide, proven reliability means years of machine uptime.

Applications:

- Packaging
- Labelling machines
- Assembly
- Pick-and-Place machines
- Flying cut-off
- Cross cutter
- Winder
- Rotary tables
- Feed/cut to length
- Wood working machinery

All Functions You Need in a Stand-Alone Integrated Package

The GE Fanuc S2K Series products offer amplifier and control capability for servo systems in a stand-alone integrated package. The S2K controller supports point to point moves for pick and place application as well as complex cam motion for packaging applications. The communication interfaces allow an easy integration in your automation environment via Profibus DP, DeviceNet or

Modbus/RS232. Compared with conventional programming tools you will save engineering costs by using the flowchart editor of Motion Developer. In addition, you will have all the benefits of a single unified working environment, because this software is a part of the powerful CIMPLICITY® Machine Edition automation tool.

S2K Functions at a Glance

Integrated Position Control

- Complex motion profile capability including jerk limited acceleration
- Secondary position feedback for compensation of slip and lost motion

Electronic Gearing and Line Shafting

- Master selectable between Servo or Encoder or "virtual Master"

Electronic Cam

- Compile function generates the slave curve automatically
- Index and phase synchronisation

Multiple Network Interfaces

- Profibus DP
- DeviceNet
- Modbus / RS232

High-Speed Registration Control

- 30µs Position Capture for feed or cut-to-mark applications

Velocity Mode / Torque Mode

- 122 µs Servo Loop Update in DSP
- Dynamic torque limiting
- Autotune guarantees simple optimization of loop parameters

Powerful Programming Language

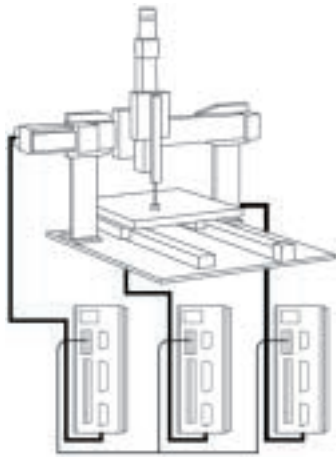
- Text-based commands enlarge the flowchart program and ensure the best flexibility to realize your application
- Multi-tasking capability

Integrated PLC

- On board Digital & Analogue I/O, user-configurable, optically isolated



Powerful Motion Functions

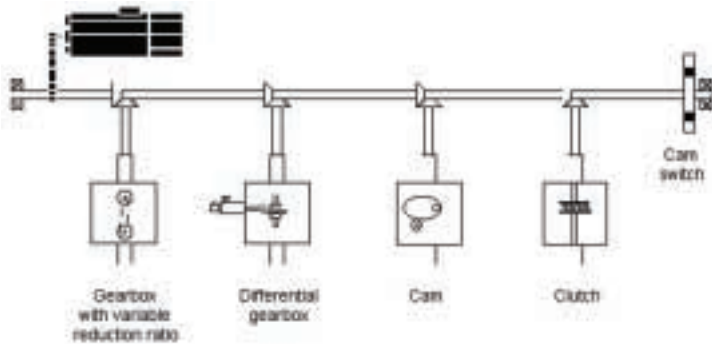


Stand-Alone Motion Control

With the built-in PLC and up to 21 local I/O's per drive (more expandable via the network), your motion system becomes a cost-effective machine control for many applications. DeviceNet peer-to-peer communication allows a single drive to control motion easily in a multi-axis system.

Distributed Motion Control

As a network node, your motion system can receive commands and programs as well as handshake data with PCs, PLCs and other controllers. This provides the flexibility to choose your existing front-end control and HMI solution while still receiving the benefits from GE Fanuc's motion control.

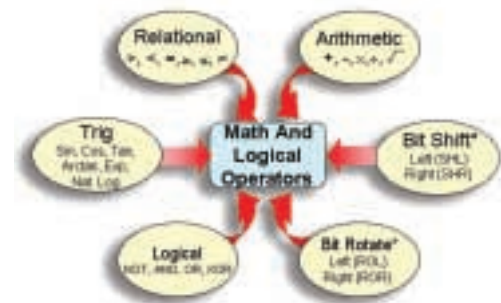


Electronic Line Shafting

When the motion of various axes of a machine need to be closely matched to each other, they must be coupled in some way. The so called electronic line shafting (ELS) is a powerful alternative to traditional mechanical couplings. Stiffer coupling, a high degree of accuracy and better flexibility are the main advantages. To realize these capabilities, S2K uses an auxiliary encoder input as a master source for electronic gearing/camming functions and forwards this position signal to all drives.

S2K Software Capabilities

The S2K models allow up to 100 predefined motion blocks and four user-defined programs. The comprehensive programming language provides extensive maths and logical operators, program flow control, I/O manipulation, network control and system status commands. 32 bit integer variables share their memory of about 100 KB with the floating point variables. The programs can handle up to 999 labels and up to 32 nested subroutines.



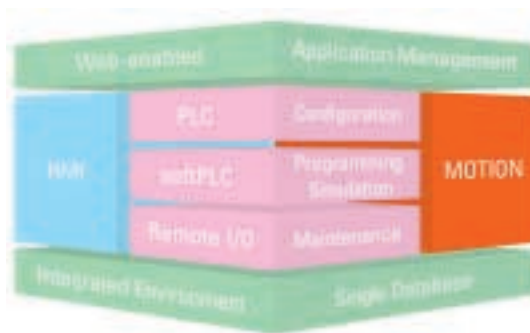
S2K Series Operating System

At the heart of the S2K is a powerful multi-tasking real-time operating system. Up to four programs, one motion task and one communication task can be executed simultaneously. Time critical tasks can be executed in a separate program, and Program 4 acts as a fault handler. S2K also supports immediate

mode operation where an external host can load registers or issue commands over a fieldbus. Program variables are determined on-the-fly based on process input and external events.

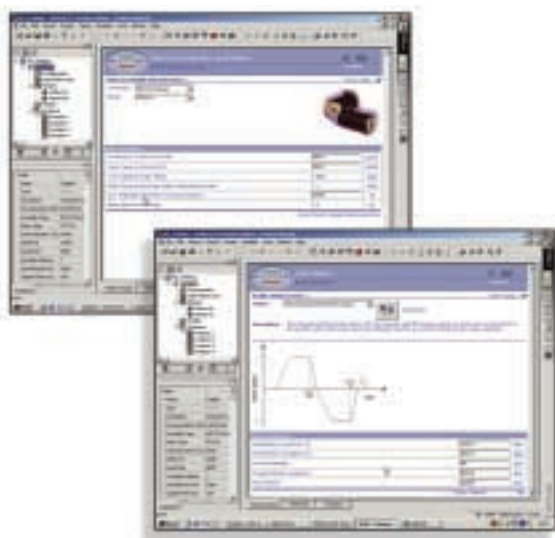
Development Tool for Both – Beginner and Advanced Programmer

The programming tool Motion Developer, which is integrated in the automation software CIMPLICITY® Machine Edition, offers all the benefits of a single programming environment. You will come to the conclusion that your project time is less and you can save significant engineering costs.



CIMPLICITY Machine Edition Integrated Programming Environment

CIMPLICITY Machine Edition provides all the automation software components you need for your machine level applications such as motion control, HMI development, PLC programming, PC-based control and system management. Each component is tightly integrated with each other. Drag-and-drop, common database and object library are all standard features of Machine Edition.

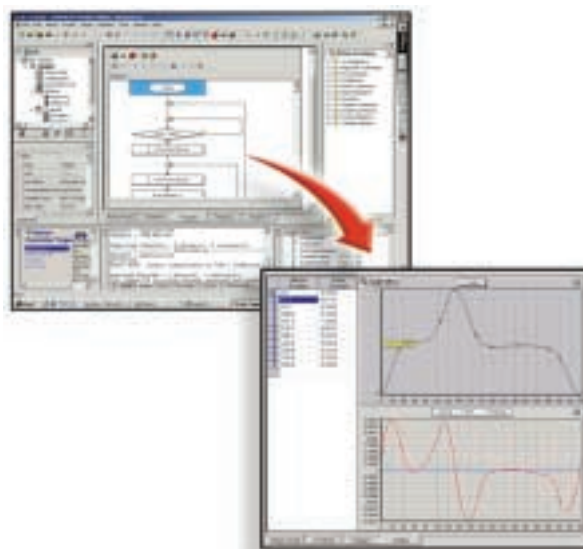


Wizards Supports Your Engineering

With the help of the Configuration Wizards you can simply select and download the parameters for the motor/drive combination. Application Wizards provide step-by-step instructions to guide the first-time user through controller configuration and simple motion programming. Most helpful is the Motion Wizard: Adding new motion blocks is as easy as selecting the move type from the available list and filling in the blanks. Up to 100 motion blocks can be created and called by any of the four programs. Once created, these motion blocks can be saved in the library under a user-specified name for re-use in future projects.

Graphical Programming Editor

Flowchart programming is the solution for quick and easy-to-use software development. In addition, Motion Developer provides a chroma-color text editor for “power users” to expand the motion commands.



Debugging

Extensive debugging and diagnostic tools are included in the development package to optimise your application. This offers tools such as a Histogram function (torque, velocity, etc.) and a Motion Oscilloscope.

S2K Servo Motors

The Drive to Match Your Application

Good dynamics and small dimensions, combined with cost-efficient construction, make GE Fanuc servo motors suitable for general purpose applications as well as for high dynamic applications. Up to 40 different servo types in a range between 0.2 Nm and 56 Nm and a flange size between 55 mm and 190 mm we are able to offer you a motor to match your application. Direct Drive motors with speeds up to 8000 rpm are available.

Compact

The smaller dimensions of the motors allow a more compact machine design.

Dynamic

The high flux-density rare-earth magnets reduce the motor inertia and allow higher peak torques. These benefits, combined with the optimized servo loops, reduce the positioning time and machine cycle rates.

Reliability

The GE Fanuc motors have a very rugged design, because of the rigid motor shaft and high-quality bearings. The feedback device is a resolver, which is also very rugged as it has no internal electronics. The brushless construction ensures the motor has a long, maintenance-free life.

Specifications

- Sinusoidal back E.M.F. and current waveforms
- Enclosure protection IP 65; shaft seal IP 64
- Temperature sensor embedded in windings
- Class F insulation
- With keyway
- Skewed stator design for smooth operation at lower speed
- Ambient temperature 5° to 40° C
- All ratings are totally enclosed, non-ventilated operation
- 2-plug connection as a standard



Motor Sizing

GE Fanuc offers a free, easy-to-use, Servo Sizing Tool to help you select motor size for Motion Control Applications (downloadable from the Internet: www.gefanuc-europe.com).

In addition we will help you to select the ideal motor for your application, just call GE Fanuc!

Our Core Products

Servo Systems – the Perfect Match for Your Requirements.

Servomotor Type	Inertia	Rated Power	Rated Speed	Rated Torque	Peak Torque	Acc.	Amplifier Type
SK800...	kg·cm ²	kW	rpm	Nm	Nm		IC800...
MSA 055C032 AR001	0.19	0.24	7500	0.3	1.4	7.4	SSI104-X
MSA 055G032 AR001	0.28	0.47	7500	0.6	2.8	10.0	SSI104-X
MSA 070C044 AR001	0.47	0.63	5500	1.1	4.1	8.7	SSI104-X
MSA 070E044 AR001	0.62	0.92	5500	1.6	4.6	7.4	SSI104-X
MSA 092C044 AR001	0.94	0.60	4800	1.2	4.6	4.9	SSI104-X
MSA 092E064 AR001	1.30	0.63	3000	2.0	6.0	4.6	SSI104-X
MSA 115A088 AR001	2.70	0.71	2000	3.4	8.2	3.0	SSI104-X
MSA 115C013 AR001	5.10	0.94	1500	6.0	12.3	2.4	SSI104-X
MSA 115A064 AR001	2.70	0.94	2800	3.2	10.5	3.9	SSI107-X
MSA 115C088 AR001	5.10	1.21	2000	5.8	14.2	2.8	SSI107-X
MSA 115E130 AR001	7.50	1.47	1600	8.8	22.0	2.9	SSI107-X
MSA 115C130 AR001	5.10	1.94	3200	5.8	21.5	4.2	SSI407-X
MSA 115C088 AR001	5.10	2.51	5000	4.8	14.2	2.8	SSI407-X
MSA 115E130 AR001	7.50	3.81	5200	7.0	21.5	2.9	SSI407-X
MSA 142C088 AR001	11.50	3.86	4500	8.2	30	2.6	SSI420-X
MSA 142E086 AR001	17.00	6.03	4800	12.0	40	2.4	SSI420-X
MSA 142G130 AR001	22.00	5.69	3200	17.0	58	2.6	SSI420-X
MSA 142J180 AR001	27.00	6.91	3300	20.0	60	2.2	SSI420-X
MSA 190E180 AR001	78.00	7.54	2400	30.0	85	1.1	SSI420-X
MSA 190G260 AR001	100.00	8.71	2600	32.0	120	1.2	SSI420-X

For a narrow description of the type numbers, please have a look in the S2K manual. If you can't find your best fitting servo system, please ask for the extended motor line.

Controller options and accessories:

- Profibus DP
- DeviceNet
- Brake resistors

Motor options:

- Brake
- Absolute encoder
- Connector kits
- Cable kits

Note: Add connector kits or cable kits to your motor order. Ordering the cable kits with fully assembled and tested cables for standard lengths will avoid start-up problems.

Motion Developer: IC800FXMODEV

Programming cable: IC800SKCS030



GE Fanuc Automation

For the location of your nearest GE Fanuc sales representative or authorized distributor contact:

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