

YASKAWA

**In-Position
Technologies**

MACHINE CONTROL PRODUCTS

RETHINK WHAT'S POSSIBLE



RETHINK WHAT'S POSSIBLE



YASKAWA EXPERIENCE: BY THE NUMBERS

Since 1915,
Yaskawa has produced...

30M
SERVO
MOTORS

40M
VARIABLE
FREQUENCY
DRIVES

700K
ROBOTS

Per year, that's...

> 40,000 ROBOTS

> 825,000 SERVO AMPLIFIERS

> 1.12 MILLION SERVO MOTORS

> 2.1 MILLION AC DRIVES

35

Countries with
Yaskawa sales, service
and manufacturing
locations

14,000+ EMPLOYEES
WORLD WIDE



GLOBAL SALES
\$4.8B

100+
YEARS
MANUFACTURING
EXCELLENCE

*Based on 2023 reported sales. For reference only.

Today's machine builders
and equipment users face
unique challenges, with limited
resources and tight deadlines.

Your success depends on
suppliers with the right
products, the expertise
in applying them and a
commitment to supporting
them in the field.



SOLVING PROBLEMS IS IN OUR DNA

We embrace the toughest challenges to solve the
biggest problems.

Dedication to engineering and innovation is what
makes us different.

GLOBAL OVERVIEW

World leader in automation, drive technology and robotics

YASKAWA GLOBAL LOCATIONS



NORTH/SOUTH AMERICA

- United States
- Canada
- Brazil
- Mexico

EUROPE/AFRICA/MIDDLE EAST

- Germany
- Sweden
- U.K.
- Italy
- France
- Spain
- Norway
- Finland
- Netherlands
- Slovenia
- Czech Republic
- Poland
- Turkey
- Israel
- South Africa

ASIA/PACIFIC/OCEANIA

- Japan
- China
- Korea
- Taiwan
- Singapore
- Thailand
- Indonesia
- Vietnam
- Malaysia
- India
- Australia

PRODUCTS THAT PERFORM

You no longer need to settle for “good enough”.

SOFTWARE

iCUBE ENGINEER

A single software development environment for motion, logic, and safety, iCube Engineer gives developers the freedom to program in IEC61131-3 or other high-level languages.

HMI DESIGNER

HMI development environment that allows projects to run on smartPanel, PanelPC, PC, iC9200, and HTML5 web panel.

CONTROL

iC9200 CONTROLLER

A single EtherCAT-based machine controller for motion, logic, kinematics, safety, security, and more, the iC9200 is designed by Yaskawa specifically for demanding machine control applications.

SERVO

SIGMA SERIES SERVO SYSTEMS

Rotary, Linear and Direct Drive servos from 3 W to 55 kW offer advanced features, including Tuning-less Mode, vibration suppression, ripple and friction compensation and advanced functional safety

VFD

VARIABLE FREQUENCY DRIVES

Yaskawa drives offer simple motor setup with highly flexible network communications, embedded functional safety, no-power programming and mobile device connectivity with our DriveWizard mobile app

I/O

YASKAWA SLIO

The most effective, modern decentralized I/O systems available, providing exceptional usability in an extremely compact and functional design.

HMI

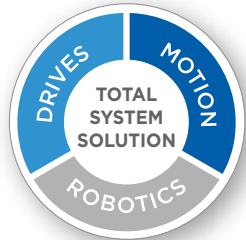
HMI PRODUCTS

Yaskawa smartPanel and Panel PC solutions monitor and interact with your machine easily and reliably.

ROBOTICS

ROBOTICS

Yaskawa offers articulated, delta, SCARA and collaborative packaging robot models compatible with simple-to-integrate robot controllers, as well as our MotionWorks IEC programming environment.



HMI Designer



CONTROLLER HARDWARE/SOFTWARE

iC9200 / iCUBE ENGINEER

iCube Control: A Total System for Total Control

iCube Control is the open automation machine control technology solution that gives engineers, application developers, machine builders, and designers, total control over their systems. The iC9200 machine controller and iCube Engineer programming software form the foundation for iCube Control.



iC9200 MACHINE CONTROLLER

THE MACHINE CONTROLLER FOR ALL

A single machine controller for motion, logic, kinematics, safety, security and more. The iC9200 is ready for any challenge you face today and that you will face tomorrow.

YASKAWA TRITON PROCESSOR

- 3 core ARM Cortex-A17 1.26GHz processor for fast processing of synchronous motion tasks
- High-speed DDR4 memory and eMMC flash
- Integrated real-time Ethernet network support

SAFETY OVER ETHERCAT

- Integrated EtherCAT machine controller and EtherCAT safety master
- FSoE network safety profile meeting SIL3 requirements

CONTROL SYSTEM SECURITY

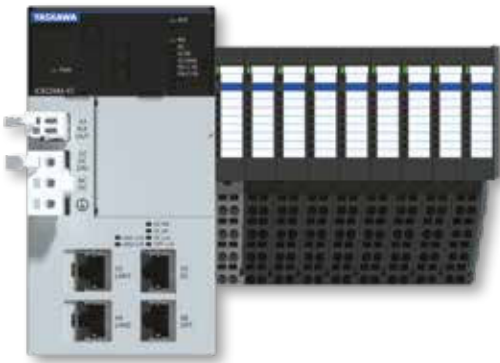
- Secure web-based management with multi-level password protection
- Secure OPC UA communications
- Designed for network security certification per ISA/IEC 62443

NETWORK COMMUNICATIONS

OPC UA, EtherNet/IP, Modbus TCP, Profinet, I/O Link

FLEXIBLE I/O

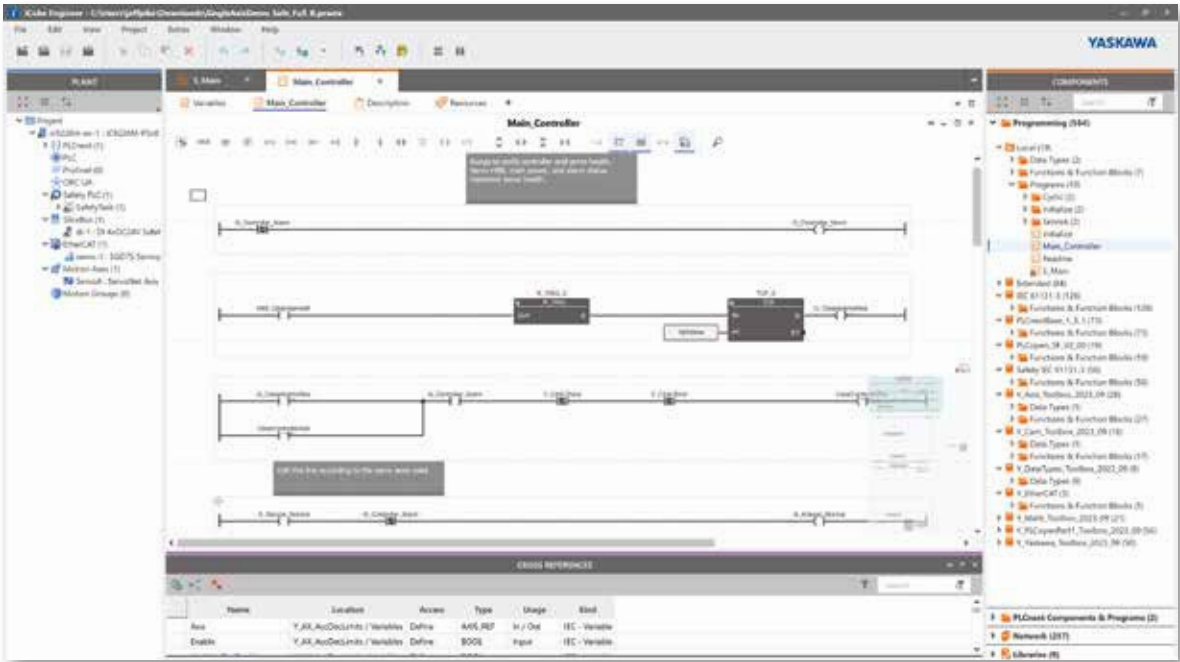
Expandable local I/O using standard SLIO Slice I/O



iCUBE ENGINEER

ENGINEERED FOR YOUR OPPORTUNITIES

Open up your possibilities and develop more efficient solutions. Designed for collaborative working, iCube Engineer gives developers the freedom to program motion, logic, and safety in IEC61131-3 or other high-level languages.



INTEGRATED ENVIRONMENT

- Motion, Robot, Logic, and VFD
- Fully integrated SIL 3 safety programming
- Network configuration, diagnostics and security

OPEN PROGRAMMING

- IEC61131-3 graphical, structured text or SFC programming
- Create libraries with C#, C++ and other high-level languages

CONTROL SYSTEM SECURITY

Device certificates and multi-user password protection

COLLABORATIVE

- Managed program access for multiple developers
- Online editing and version detection

SOFTWARE

HMI DESIGNER

Integrated HMI Development Environment

FEATURES

- 200+ drivers (HMI can act as a protocol converter)
- Recipe Manager
- Alarm Handling
- JavaScript
- Trending
- Datalogging
- Project simulation
- OPC UA online browsing
- OPC UA tags synchronize with iCube Engineer projects
- Projects on Yaskawa panels
- Projects on PC's
- Project on iC9200
- Modbus/TCP tag import from Motionworks IEC project

HMI Designer

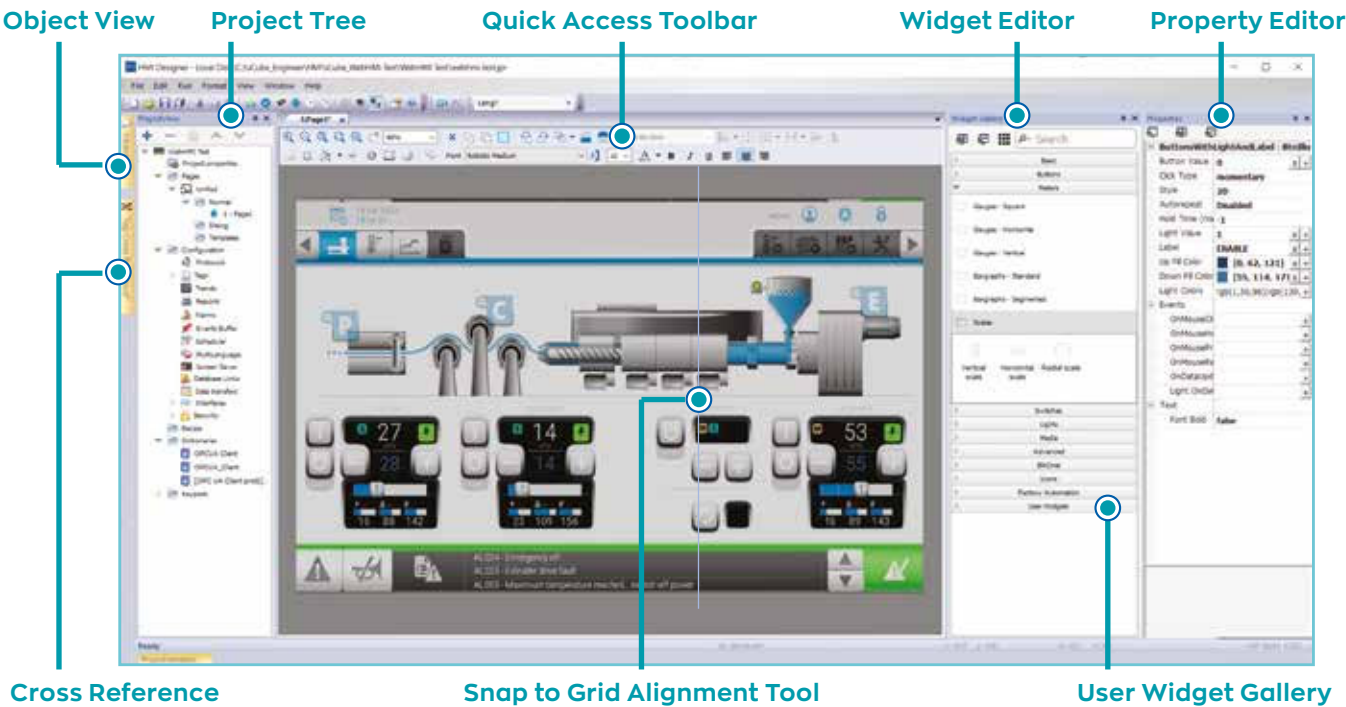
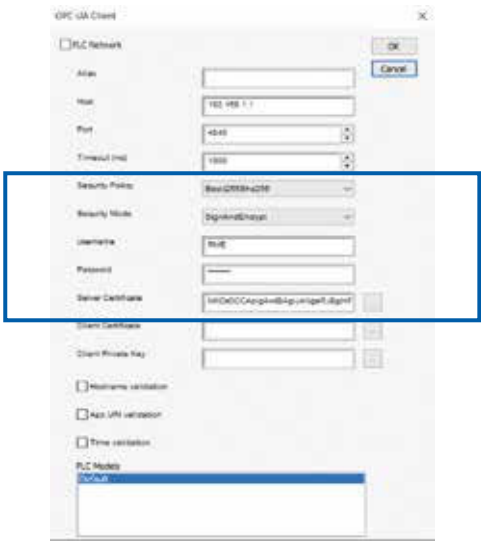
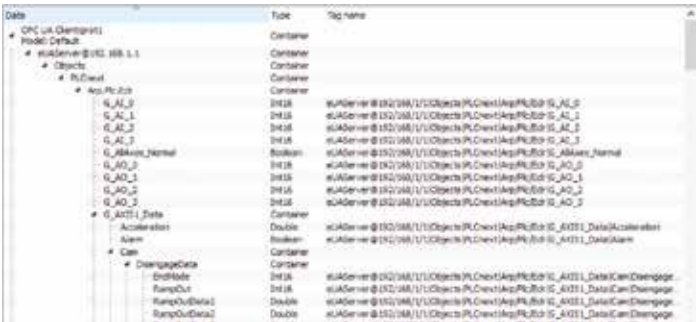
HMI Designer is an HMI development environment that is included with iCube Engineer at no additional cost.

It is available as a stand-alone version also for use with MPiec products using the Modbus/TCP driver.

Projects can run on smartPanels, PanelPCs, PCs, iC9200, or HTML5 web panels and iCube Engineer OPC UA tags will synchronize with the HMI project.

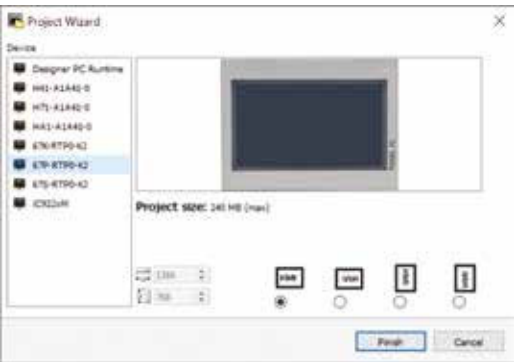
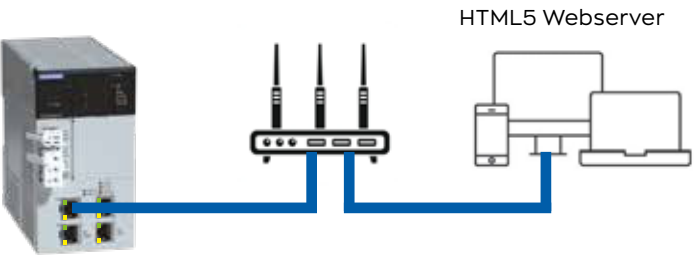
HMI DESIGNER COMMUNICATION

- OPC UA is the preferred communications protocol
- HMI is the Client
- Controller is the Server
- Security settings are available
- User data types are transferred to the HMI project
- Structures, arrays, etc., don't need to be broken down by the user



HMI PROJECT ON iC9200

- iC9200 hosts the HMI project (WebVisu)
- Uses iCube resources (3rd core processor, memory)
- Generic HTML5 device used for viewing
- iC9200 is selected as the target
- If “unified” project is selected (default), same project can be sent to controller or HMI panel



SMARTPANEL

The smartest choice for usability, performance and connectivity to iC9200 and MPiec controllers

The slim design and rugged resistive touch screen of the smartPanel is perfect for the everyday industrial applications.

FEATURES

- ARM Cortex Processor
- Robust and durable- IP66 protection rating (front)
- Rugged resistive touchscreen
- Familiar Windows system environment
- Slim space saving profile
- OPC UA with iC9200 and PLCI communication with MP3300iec, MP2600iec, and Sigma-7Siec using native data types



MODELS AND SPECIFICATIONS

Model Number	H41-A1A41-O	H71-A1A41-O	HA1-A1A41-O
Display Size [In]	4.3	7	10
Resolution [Pixel]	480 x 272	800 x 480	1024 x 600
Touch Screen	Resistive		
Processor	ARM Cortex-A8 1GHz		
Interfaces	1x RS232/422/485; 1x USB-A; 1x Ethernet		
Work Memory [MB]	512		
Load Memory [GB]	4		
Housing	Plastic		
Protection	Front: IP66 / Rear: IP20		
Operating System	Linux		
Runtime	HMI Designer		

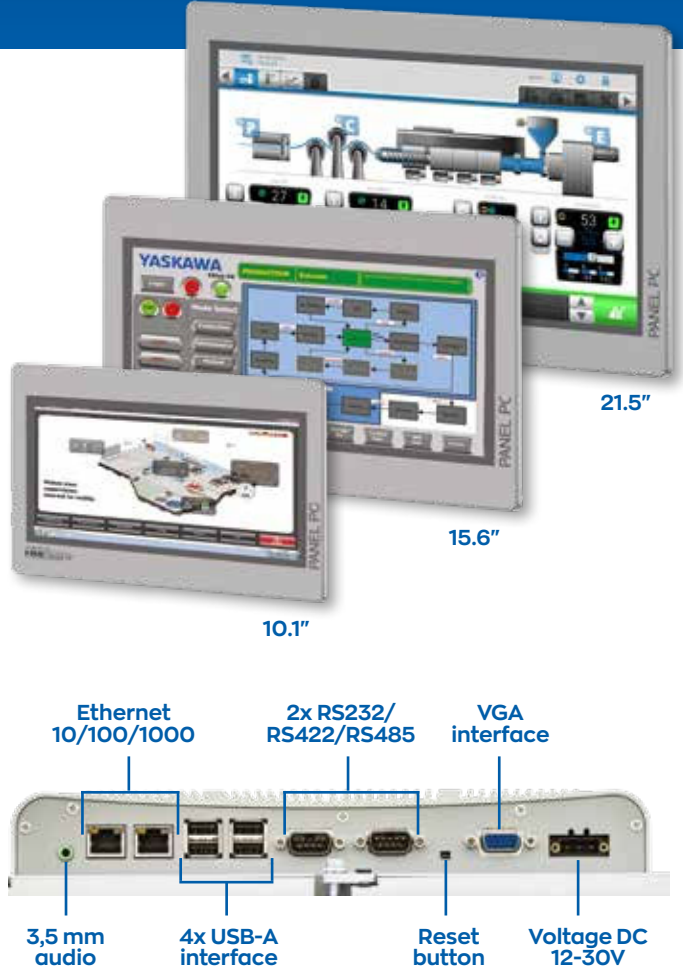
PANEL PC

Intelligent control and monitoring with PC performance

The latest performance features and a precise, responsive capacitive touchscreen combine in Panel PC to deliver outstanding usability in a small space.

FEATURES

- Intel Celeron Processor
- Large integrated work memory
- High resolution responsive capacitive touchscreen
- Familiar Windows system environment
- Numerous interfaces for every application need
- Fanless construction
- High-quality metal housing
- OPC UA with iC9200 and PLCI communication with MP3300iec, MP2600iec, and Sigma-7Siec using native data types



MODELS AND SPECIFICATIONS

Model Number	67K-RTPO-KJ	67P-RTPO-KJ	67S-RRTPO-KJ
Display Size [in]	10.1	15.6	21.5
Resolution [Pixel]	1280 x 800	1366 x 768	1920 x 1080
Touch Screen	Capacitive		
Processor	Intel Celeron J1900 Quadcore x 2.0 GHz		
Interfaces	2x Ethernet; 2x RS232/422/485 (SUB-D)	2x USB 2.0; 1x USB 3.0; 1x VGA;	1x Audio out
Work Memory [GB]	8		
User Memory [GB]	64		
Card Slot	CFast		
Casing	Aluminium		
Protection	Front: IP65 / Rear: IP20		
Operating System	Windows 10 IoT		
Runtime	HMI Designer		

INPUT/OUTPUT PRODUCTS

YASKAWA SLIO

Compact. Intelligent. Flexible.



The most effective decentralized I/O system available, SLIO is designed to help you modernize and standardize while retaining a sense of flexibility. SLIO can help reduce setup time and minimize user errors.

EASY WEB INTERFACE

SLIO diagnostic and status information is accessible through a web interface, linking a standard browser to any fieldbus module.



SIDE MOUNTING

Mount SLIO I/O directly to an iC9200 series controller using the controller's integrated Slice Bus.



HIGH SPEED BACKPLANE BUS

Achieve reaction times as fast as 20 microseconds with SLIO's high speed backplane bus. Connect as many as 64 modules at a time, while maintaining speeds up to 48 Mbit/s.

INSTALLER-FRIENDLY DESIGN

Engineered for error-free installation, SLIO can be installed by an average technician without consulting a machine designer or installation engineer.



RECONFIGURE WITHOUT WIRING

Updating or amending a SLIO system is as easy as removing an existing module and snapping in a new one. System functions can be changed without removing the wiring from the contact block.

SIGMA SERIES SERVOPACKS

A smarter SERVOPACK to enhance productivity



The Yaskawa Servo Tuning Suite

We've packed 25 years of innovation and five generations of servo expertise into our Sigma Series tuning features.

Yaskawa equips each SERVOPACK with a suite of software commissioning and tuning tools, designed to achieve full functioning right out of the box.

This superior performance continues in spite of the vibration, resonance, friction and noise that a modern automated machine can dish out.



Eliminate effects that steal away performance

Unwanted mechanical effects rob a servo system of the quick, smooth and precise movement you need. Yaskawa SERVOPACKs are equipped with suppression features that automatically eliminate harmful artifacts.

VIBRATION

Machine vibrations are eliminated by Yaskawa Vibration Suppression, which samples your equipment's natural oscillations and uses compensating frequencies to cancel them out.



Without Vibration Suppression



With Vibration Suppression

RESONANCE

Sigma-7 SERVOPACKs have twice as many anti-resonance filters to more effectively repress a servo system's natural medium-frequency resonances.

FRICTION

Coulomb friction and viscosity-related variables are effectively addressed by Friction Model Compensation, which effectively elicits smooth start-up action in low speed or high rigidity machines.

COGGING

Motor cogging effects are removed by Ripple Compensation, an especially important effect for systems that require minimum settling time and exceptionally precise positioning.

ELECTROMAGNETIC INTERFERENCE

The number of interference filters has been increased by 225% to counteract losses caused by data dropouts, EMI interference and artifacts from long cable runs.



TUNING-LESS FUNCTION

Get Up and Running Immediately

The tuning-less function is automatically enabled from the moment you pull the amp out of the box. No tuning is required.

From Day One, this function automatically compensates for mismatches in load to rotor inertia up to 100:1.

ADVANCED AUTOTUNING

Minimize Settling Time. Maximize Smooth Motion

Advanced auto tuning automatically adjusts nearly 20 gain and filter parameters to cancel vibration, rippling, friction and resonance..

ONE PARAMETER TUNING

Precise User-Driven Adjustment

Improve your machine's performance even further with easy fine tuning adjustments that won't throw off your existing operating parameters.

SETTLING TIME

40 ms
RANGE

SETTLING TIME

4 ms
RANGE

SETTLING TIME

0-4 ms
RANGE

SIGMA SERIES SERVOPACKS

Feature-packed for your machine

Sigma-X SERVOPACKS

With real-time data collection, speeds up to 7000 RPM, frequency response of 3.5 kHz, and multi-axis amplifiers with expanded functions to improve precision, Sigma-X takes servo response to a higher level to maximize your machine performance.

Sigma-X SERVOPACKS are EtherCAT-compatible to communicate seamlessly with our iCube Control platform.

200 V and 400 V models range from 50 W up to 15 kW.



SGDXS
Single-Axis

SGDXW
Dual-Axis

SGDXT
Three-Axis

INTEGRATED DATA COLLECTION AND VISUALIZATION

- Servo motor acts as a sensor to collect data to be used for preventive maintenance
- Operation optimization monitor ensures efficient equipment operation
- Detects equipment errors by comparing data stored in servo amplifier with operational data

EXPANDED FUNCTIONS TO IMPROVE PRECISION & QUALITY

- Speed ripple compensation
- Output torque compensation
- High resolution 26-bit absolute encoder feedback

SHORTENS CYCLE TIMES TO IMPROVE PERFORMANCE

- Maximum motor speed increased to 7000 RPM
- Speed frequency response increased to 3.5 kHz.

FASTER SERVO TUNING

- Expanded tuning-less function to 100 times the load
- Advanced auto-tuning with improved vibration detection and moment of inertia estimation algorithms
- One parameter tuning with load fluctuation compensation control

MULTI-AXIS SERVO AMPLIFIERS

- Reduces control panel size
- Reduces wiring time
- Two- and three-axis servo amplifiers available

Variety of Sigma-7 SERVOPACK products to fit your application

SGD7S



Single-Axis SERVOPACK

- 100 V, 200 V and 400 V operation
- 50 W - 15 kW operating range
- Control interface options:
 - EtherCAT
 - MECHATROLINK
 - Analog

SGD7W



Dual-Axis SERVOPACK

- Control two servo axes with one SERVOPACK
- Lower cost, component count, less cabinet space
- 200 V or 400 V operation
- Regenerative power feature conserves energy

SIGMA-7SIEC



Single-Axis Controller

- Controller and SERVOPACK in one device
- IEC 61131-3 compatibility for predictable behavior
- Ethernet/IP, Modbus TCP/IP and OPC server connectivity
- Built-in web server

MP2600IEC



1.5-Axis Controller

- Controller and SERVOPACK in one device
- IEC 61131-3 compatibility for predictable behavior
- Scalability between single and multi-axis control
- EtherNet/IP, Modbus TCP connectivity
- Built-in web server

SIGNALOGIC7



PLC-Ready SERVOPACK

- Add On Instructions (AOIs) for use with Rockwell PLCs
- Dual EtherNet/IP ports onboard
- Perform functions without learning new software
- Basic point to point moves, blended speed moves, homing, jogging, electronic gearing

ADVANCED NETWORK SAFETY



FSOE SERVOPACK

- Functional Safety over EtherCAT (FSOE)
- System certification to Safety Integrity Level 3 (PL_E)
- Lower cost, component count, less cabinet space
- 16 supported safety functions

ΣX : Bring iCube Control to Life!

SIGMALOGIC7

Improve machine performance for PLC-based control



SigmaLogic7 SERVOPACKS add the superior performance and reliability of a Yaskawa servo system to your PLC-based machine without leaving the familiar programming environment of your existing PLC.

Utilize Yaskawa-written, Yaskawa-tested add-on instructions (AOIs) in RSLogix5000 software, with a ControlLogix or CompactLogix PLC.

MOTION SEQUENCING WITH AOIs

Perform functions including point-to-point and blended moves, jogging and homing

- Use direct commands or 200-point configurable sequence table
- Utilize extra 7 inputs and 3 outputs on SigmaLogic7 SERVOPACK
- Use LogicWorks software to download sequence and configuration data

YASKAWA AOIs

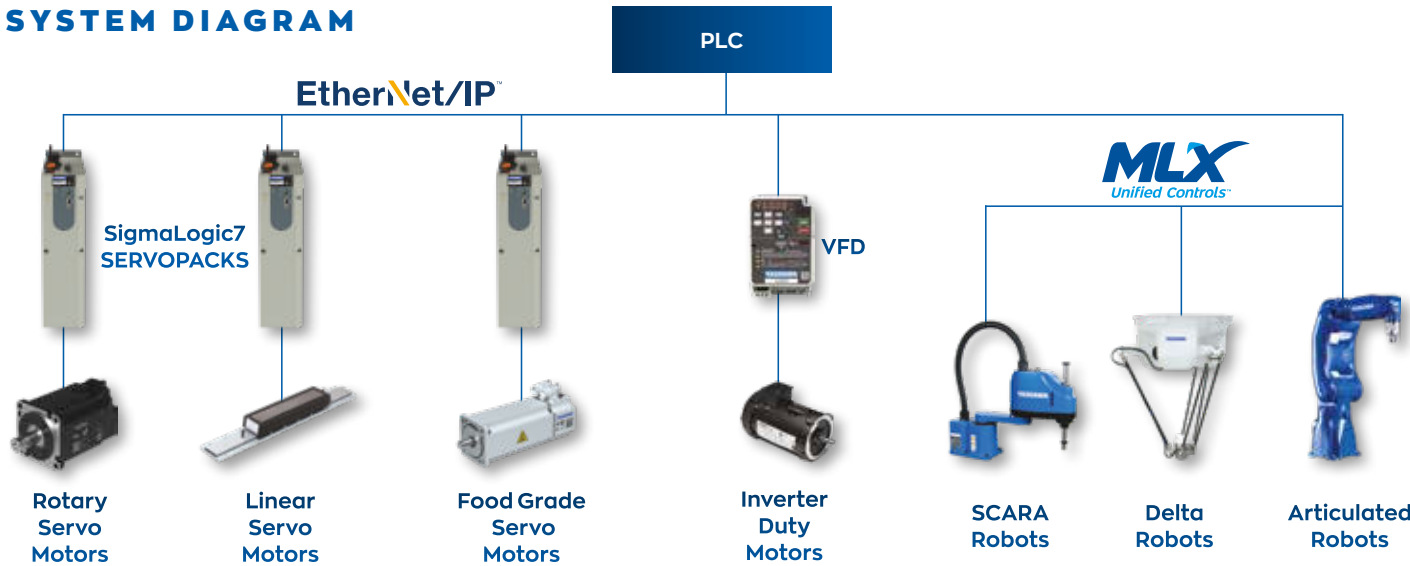
- Created for full compatibility with all CompactLogix and ControlLogix PLCs using RSLogix5000 software v17 and above
- Named to be familiar to Rockwell users
- Right-click instruction help available for all instructions in the PLC programming environment
- Sample program available in RSLogix5000



- Software utility to create individual move profiles and sequencing for the application
- Upload/download sequence table and configuration data to/from LogicWorks™
- Embedded monitoring and test functions

We've done the heavy lifting to make Integration of Yaskawa servo, robotic and variable frequency drive components simple and effortless for your PLC programming environment.

SIGMALOGIC7 SYSTEM DIAGRAM



Extend system performance and reliability with additional Yaskawa PLC tools

ROBOTICS

Yaskawa's **MLX Unified Controls™** software option:

- Enables robot programming in a standard PLC environment
- Provides control without a separate piece of hardware

VARIABLE FREQUENCY DRIVES

- **Tag Generator:** Easily create a tag file that can be imported into Logix Designer/RSLogix 5000
- **Faceplates:** Import faceplates to access commonly used parameters and monitors
- **AOIs:** Import our library of AOI using Yaskawa EtherNet/IP option

BUILT-IN SINGLE AXIS CONTROL

Single and 1.5 axis controller options



**SIGMA-7SIEC SINGLE-AXIS
CONTROL OPTION**

I/O FEATURES

- 7 digital inputs
- 4 digital outputs



You wouldn't guess from their trim size that Yaskawa has packed a single-axis motion controller and a world class SERVOPACK into a space slimmer than most normal servo amps occupy.

That means less crowding in control cabinets, plus the easy familiarity of IEC 61131-3 programming.

Both of these SERVOPACKs provide a compact, all-in-one servo/controller package with the following features:

- IEC 61131-3 standard programming environment with PLCOpen function blocks for motion control
- Self-tuning, anti-vibration and other high performance, easy-to-implement servo control features
- Ethernet/IP, Modbus TCP/IP and OPC server provide connectivity to PLCs, HMIs, SCADA, MES and ERP
- Scalability with the multi-axis MP3300iec controller via common MotionWorks IEC programming environment
- Web server that allows for maintenance diagnostics and troubleshooting



**MP2600IEC 1.5-AXIS
CONTROL OPTION**

I/O FEATURES

- 15 digital inputs
- 11 digital outputs
- 1 analog input
- 1 analog output
- 1 external encoder input
- 1 external encoder latch

INTEGRATED NETWORK SAFETY

Failsafe over EtherCAT (FSoE)

iCube Control combines automation technology with the certainty of machine safety you need to operate successfully, all in one fully integrated platform.



SAFETY SIMPLIFIED

iC9200 machine controllers are available with an integrated EtherCAT (FSoE) safety master, eliminating the need for an external safety PLC and allowing all safety and non-safety EtherCAT devices to be integrated onto a single network.

Safety applications are programmed using certified safety function blocks in iCube Engineer, allowing you to use a single software engineering tool for programming safety and non-safety logic and motion.

BENEFITS

- Cut down your engineering hours with simplified electrical designs
- Slash your commissioning time with fewer cables to wire and test during your assembly process
- Shorten your BOM and reduce machine cost by eliminating safety relays and using fewer cables
- Condense your electrical cabinet footprint with fewer components to install
- Simplify your safety logic with user-friendly software
- System certification to SIL 3, PL e

SAFETY FUNCTIONS SUPPORTED

- | | |
|--|--|
| <ul style="list-style-type: none">• Safe Torque Off (STO)• Safe Stop 1-r (SS1-r)• Safe Stop 2-r (SS2-r)• Safely Limited Speed (SLS)• Safe Speed Range (SLR)• Safely Limited Position (SLP)• Safely Limited Torque (SLT)• Safe CAM (SCA) | <ul style="list-style-type: none">• Safe Operating Stop (SOS)• Safe Stop 1-t (SS1-t):• Safe Stop 2-t (SS2-t)• Safely Limited Acceleration (SLA)• Safe Direction (SDA)• Safely Limited Increment (SLI)• Safe Motor Temperature (SMT)• Safe Speed Monitor (SSM) |
|--|--|

SIL 3, PL e

Yaskawa Servopacks featuring the Advanced Safety Module provide safe motion, meeting SIL 3, PL e requirements, which is suited for:

- Machines where serious injuries are possible,
- Frequency to exposure is long and/or frequent
- Possibility of avoiding injury is scarcely possible

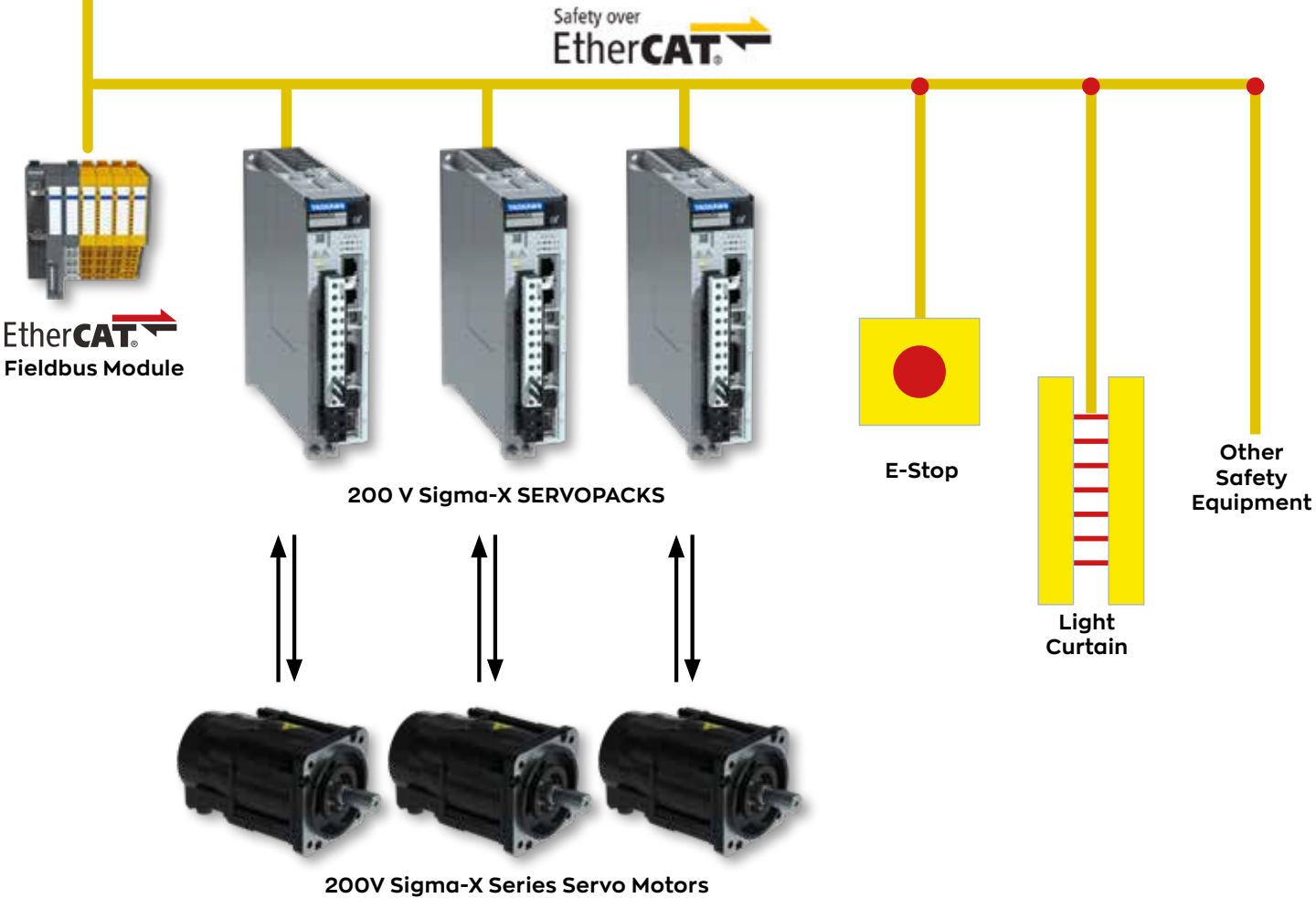
Up to 10 Safety Functions per SERVOPACK can be configured simultaneously

THE NEW SOLUTION: NETWORKED SAFETY



EtherCAT Master + EtherCAT Safety Master

SLIO safety input and output modules can be mounted directly to the iC9200 controller or remotely on an EtherCAT fieldbus module.

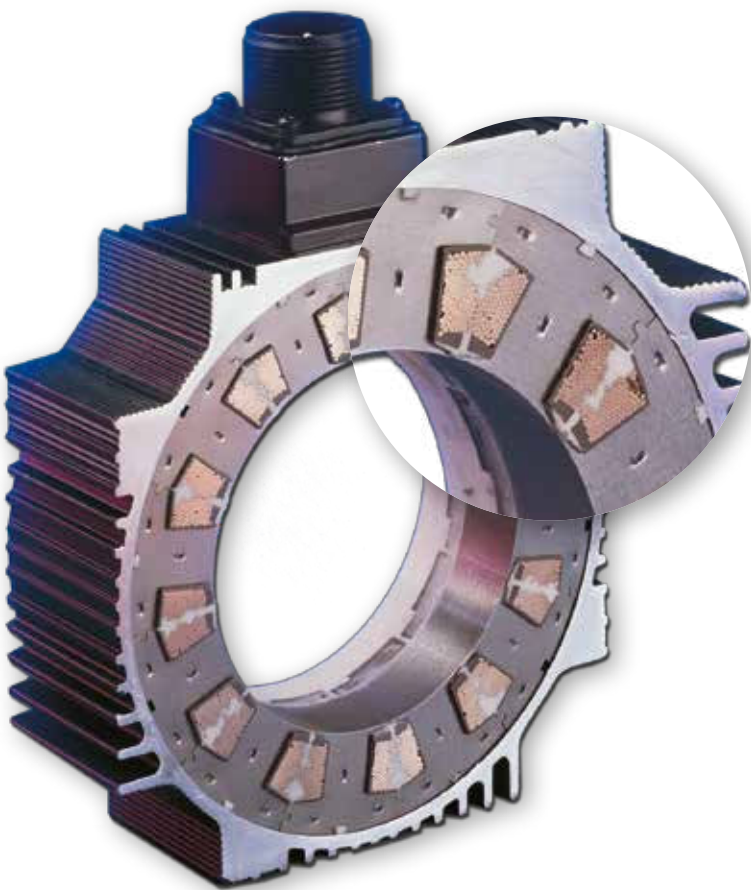


SIGMA SERIES SERVO MOTORS

Packed with performance

ΣX ENHANCEMENTS

For improved equipment performance



MORE TORQUE IN LESS SPACE

- Yaskawa's segmented stator core design and automated winding techniques pack nearly twice the copper into the stator gap, for much more torque output from every square millimeter of space
- Encapsulated windings prevent shorts between windings, improving heat dissipation
- Precise machining is used to minimize the air gap between rotor magnets and stator windings, for higher running torque and reduced cogging torque
- By reducing the space taken up by the end turns of the winding, overall motor length is significantly reduced
- Neodymium-Iron-Boron rotor magnets optimize flux density in the motor

BATTERYLESS ABSOLUTE ENCODER

- Simplifies wiring in control panels
- No concerns about losing rotational data if battery runs out.
- No need to stock batteries



SGMXG

SGMXA

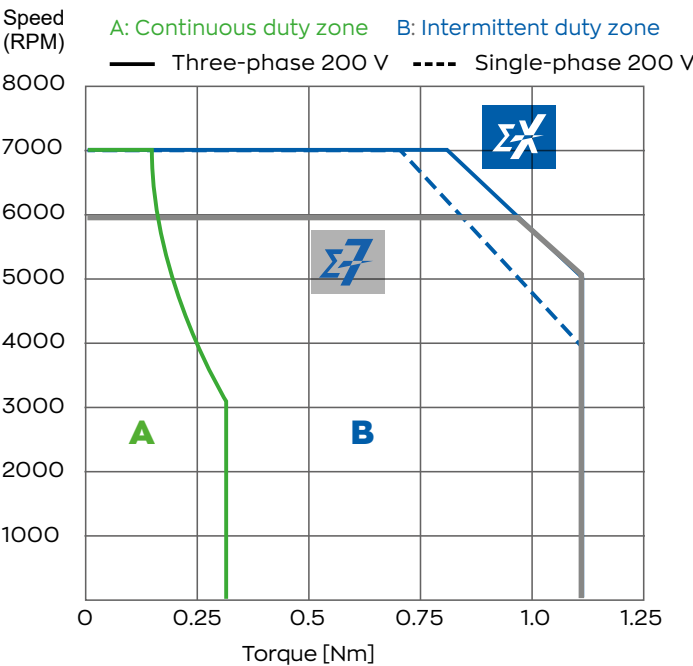
SGMXP

SGMXJ

INCREASED SPEEDS

The maximum rotation speed of the motor has increased from the earlier value of 6,000 RPM to 7,000 RPM.

Torque-rotation speed characteristics (for SGMXJ-01A)



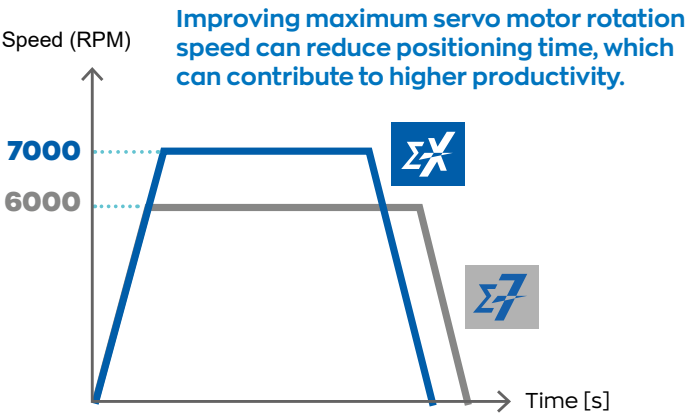
ΣX 7000 RPM

Σ 6000 RPM



Applicable models: All SGMXJ, SGMXA, and SGMXP models. SGMXG models increased to 4000 RPM

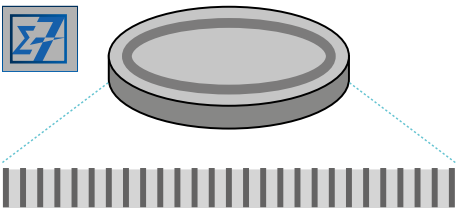
Positioning time



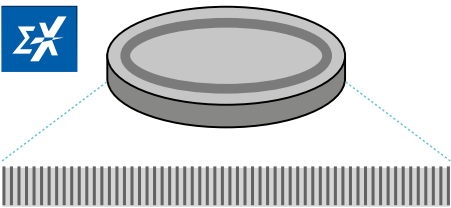
HIGH RESOLUTION 26-BIT ENCODER

The resolution of the encoder has been increased to 26 bits, four times that of Sigma-7.

Encoder resolution 24 bits ≈ 16 million pulses/rev



Encoder resolution 26 bits ≈ 67 million pulses/rev

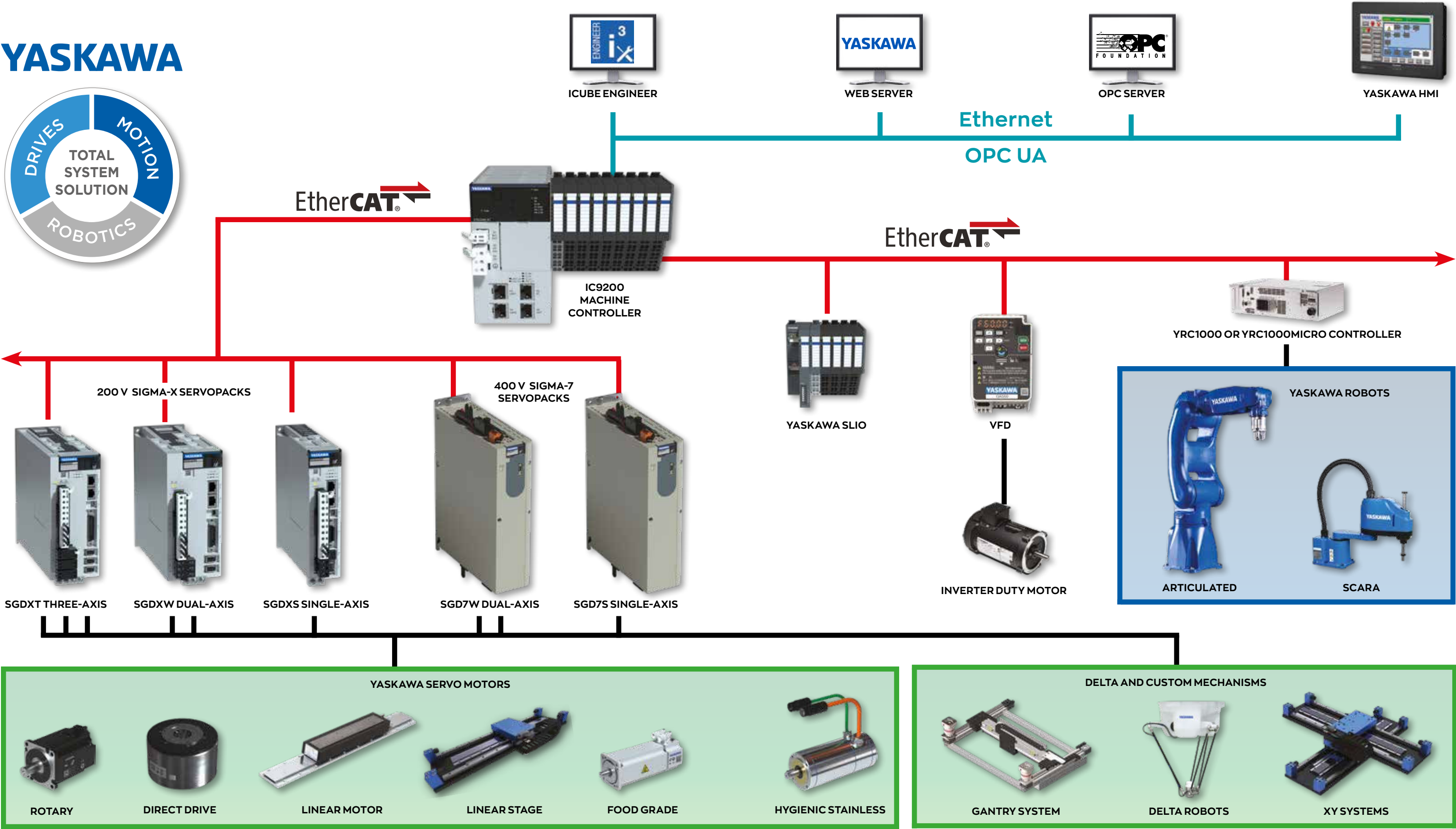
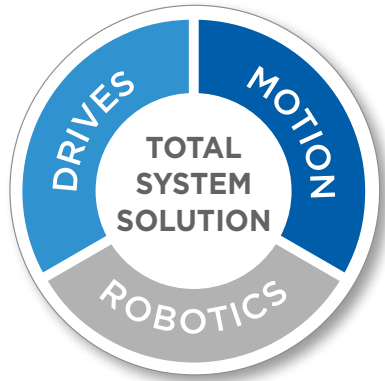


4 times that of Sigma-7

- Increased positioning resolution/stop precision ----> Precise stops
- Decrease in speed ripples ----> Smooth movement and improved machining precision

SYSTEM CONFIGURATION

YASKAWA



DIRECT DRIVE MOTORS

Boost the quality of your design

Direct drive motor technology provides a host of improvements in the quality of a machine's design.

- Less audible noise
- Reduced maintenance of mechanical transmissions
- Overall efficiency and performance increased, leading to lower long-term cost



SGM7E
(Coreless, Inner Rotor)

Ideal for smooth movement without speed fluctuations.

- Built-in 24-bit encoder
- Low cogging with a coreless system provides smooth operation free from speed variations.



SGM7F
(With Core, Inner Rotor)

Ideal for applications that require downsizing and shorter cycle time.

- Built-in 24-, 22- & 20-bit encoder
- Compact design with small rotor diameter
- High-speed, high frequency positioning
- Low inertia / low heat generation



SGM7D
(With Core, Outer Rotor)

Ideal for high torque, high precision and high rigidity.

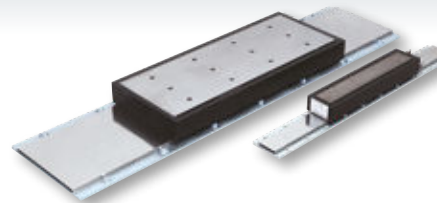
- Built-in 24-bit encoder
- High allowable load moment of inertia ratio for large loads
- Large center aperture provides more space for wiring
- High rigidity



SGLG
(Coreless)

Smooth linear motion with an ironless design that eliminates motor cogging.

- 200 V windings
- 40 to 3000 N of peak force
- Standard and high force magnetic ways
- Zero cogging reduces force ripple



SGLF2
(Iron-Core)

Second generation iron core design that delivers high force and speed in a compact form.

- 200 V or 400 V windings
- 135 to 7560 N of peak force
- 5 m/s peak speed



SGLT
(Dual Magnet Iron-Core)

An iron core design featuring dual magnets, producing high output in a compact footprint.

- 200 V or 400 V windings
- 380 to 7500 N of peak force
- 5 m/s peak speed
- Very little cogging

REDUCE DOWNTIME

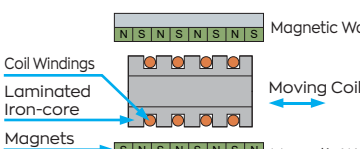
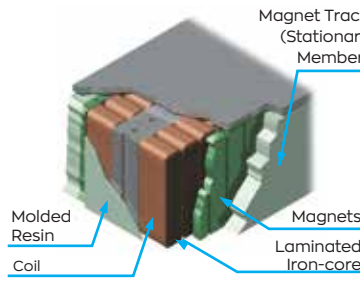
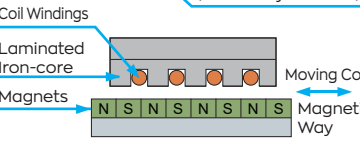
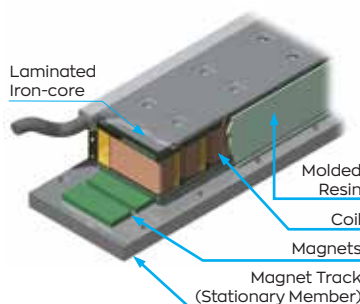
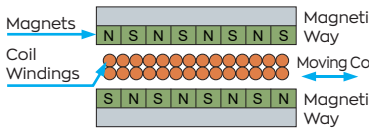
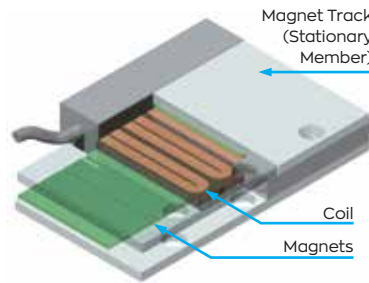
By eliminating gear reduction and creating a direct coupling to the machine load, direct drive motors simplify your machine's design. Eliminating transmission components leads to fewer breakdowns and long-term reliability you can trust.

REDUCE SIZE AND COST

Directly coupling a compact direct drive servo motor to your machine load will save physical space, which can lead to a more compact machine. When precision gearheads and other transmission components are gone, the cost of your machine will go down as well.

INCREASE PERFORMANCE

Direct drive motors get rid of the inefficiencies caused by mechanical transmission components that wear over time. Say goodbye to mechanical backlash as well. As compliance is reduced, the responsiveness of the servo system can be dramatically improved.



LINEAR MOTORS

Eliminate the effects of mechanical linkages

Yaskawa linear servo motors replace the backlash, friction, inertia and wear of mechanical linkages with smooth, precise, high performance linear motion in a compact footprint.

All Yaskawa linear motors offer plug-and-play connection with Sigma-7 and Sigma-5 series SERVOPACK amplifiers, using automatic motor recognition and serial encoder technology to make implementation trouble free.

SIGMA TRAC II

Ready to run, turnkey linear stages

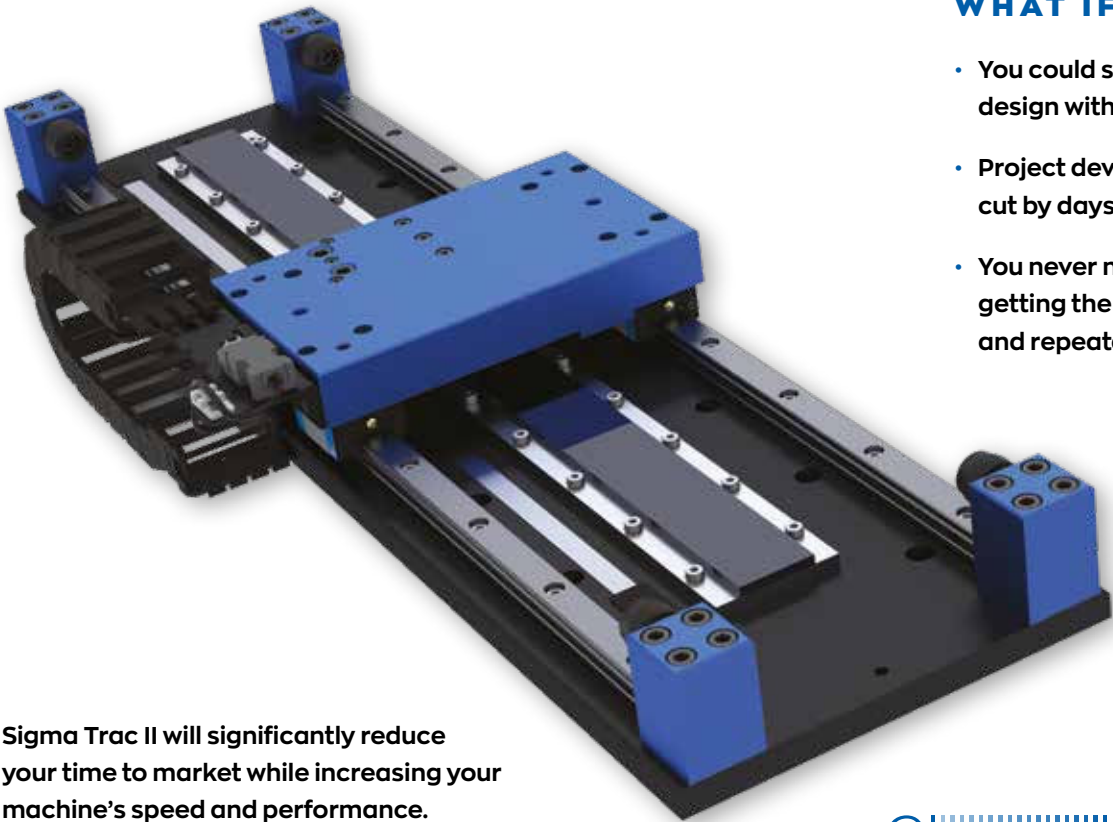
Built-to-order and fully tested. Bolt it down, connect it up and enjoy world class linear motion immediately.

FASTER MOTION, FASTER TIME TO MARKET

Need precise, high speed and repeatable linear motion, without the time-consuming process of designing your own linear stages?

Use Yaskawa’s motion engineering expertise to spare your overworked engineers the effort of specifying, designing and sourcing components, assembly jigs and test equipment.

Our expertly designed, manufactured and tested mechatronic solutions give your machine a faster time to market and your engineering team more time to innovate.



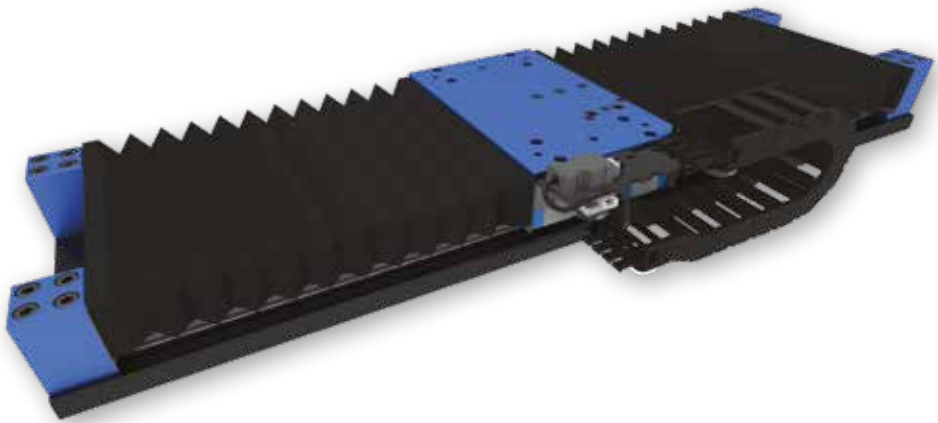
Sigma Trac II will significantly reduce your time to market while increasing your machine’s speed and performance.



COMPLETE LINEAR MOTION SOLUTION

Each component in Sigma Trac II is fully assembled and tested:

- Coil and magnets
- Bearings
- Encoder
- Cables
- Cable management
- Optional bellows
- Optional X-Y mounting kit



Simply provide a flat mounting surface and bolt on your payload!

WHAT IF...

- You could simplify your machine’s design with a bolt-in linear solution?
- Project development time could be cut by days or weeks?
- You never needed to worry about getting the best in speed, reliability and repeatability?

IMPROVE MACHINE PERFORMANCE

Minimize cycle times and maximize productivity with speeds up to 5m/s and peak force output up to 5040 N.

REPEATABILITY

Coupling the load directly to the motor and encoder yields positioning repeatability of $\pm 2 \mu\text{m}$.

WIDE RANGE OF SIZES

With six motor sizes and 24 base lengths, there is a linear stage for nearly any application. Stages are available for use with 100 V, 200 V, or 400 V power.

RELIABILITY

We’ve eliminate gears, belts and screws, resulting in a 10 million double-stroke design life

ABSOLUTE ENCODER FEEDBACK

Simplifies wiring and requires no homing routines, even after removing power from the equipment

ZERO MAINTENANCE

Integrated bearing lubrication technology for long-term maintenance-free operation.

CABLE MANAGEMENT

Carefully controlling cable flex maximizes cable life. Use additional space in the cable carrier for cables and hoses to your payload

BELLOWS

Optional bellows protect magnets and encoder scale from dust, loose debris and the occasional dropped tool

SERVO MOTOR PORTFOLIO

Rotary, Direct Drive, and Linear Motors

STANDARD ROTARY

The world’s largest manufacturer of servo motors brings 25 years of design innovation into each Sigma-7 rotary servo. Choose from a wide range of sizes, speeds and torque ratings, then add an amplifier and an MPiec controller to create a complete motion automation system.

200/400 V Sigma-X Servo Motors			
Low Inertia		Medium Inertia	
			
SGM7M*	11 W – 33 W	SGMXP	100 W - 1.5 kW
			
SGMXA	50 W - 7 kW	SGMXJ	50 W - 750 W
			
		SGMXG	300 W – 15 kW

* SGM7M servo motors are only available in 200 V.

Sigma-X SERVOPACKS					
1 Axis		2 Axis *		3 Axis*	
					
SGDXS	50W – 15 kW	SGDXW	50 W-1 kW per axis	SGDXT	50 W-400 W per axis

Control Interface: EtherCAT

* Multi-axis SGDXW and SGDXT SERVOPACKS are not available in 400 V.

400 V Sigma-7 Servo Motors			
Low Inertia		Medium Inertia	
			
SGM7A	200W – 7 kW	SGM7J	200 W – 1.5 kW
			
		SGM7G	450 W – 15 kW
			
		SGMVV*	22 kW – 55 kW

* SGMVV large capacity servo motors are compatible only with large capacity Sigma-5 SERVOPACKS.

Sigma-7 SERVOPACKs			
1 Axis		2 Axis	
			
SGD7S	500 W – 15 kW	SGD7W	750 W – 1.5 kW per axis

Control Interface: EtherCAT, MECHATROLINK

DIRECT DRIVE ROTARY

Direct drive products save space, eliminate backlash and cut component costs, adding extra mechanical strength to stiffen dynamic applications.

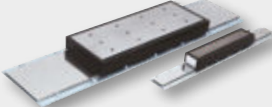
200 V	
SGM7F	
	(Iron Core) 2.0-200 Nm rated torque, 400-600 rpm max speed
SGM7E	
	(Coreless) 2.0-35 Nm rated torque, 250-500 rpm max speed
SGM7D	
	(Iron Core) 1.30-240 Nm rated torque, 30-240 rpm

SERVOPACKs					
1 Axis		2 Axis		3 Axis	
					
SGDXS SGD7S	50W – 15 kW	SGDXW SGD7W	50 W-1 kW per axis	SGDXT	50 W-400 W per axis

Control Interface: EtherCAT

DIRECT DRIVE LINEAR

Maximum speed and acceleration for linear motion. Choose from four designs to reduce compliance, replace mechanical linkages and create a better fit for your application.

200 V and 400 V	
SGLG*	
	(Coreless) 40-3000 N peak force, 5 m/s max speed
SGLF2	
	(Iron Core) 135-7560 N peak force, 5 m/s max speed
SGLT*	
	(Double Trac) 380-7500 N peak force, 5 m/s max speed
Sigma Trac II	
	(Complete Linear Stage) 5040 N peak force, 5 m/s max speed

* SGLG and SGLT only available in 200 V..

SERVOPACKs					
1 Axis		2 Axis *		3 Axis *	
					
SGDXS SGD7S	50W – 15 kW	SGDXW SGD7W	50 W-1 kW per axis	SGDXT	50 W-400 W per axis

Control Interface: EtherCAT

* Multi-axis SGDXW and SGDXT SERVOPACKS are not available in 400 V.

SERVO MOTORS

FOOD GRADE MOTORS

High-performance FDA approved motors

Yaskawa now offers food grade servo motors that integrate seamlessly with the Sigma-7 line of SERVOPACKs.

These FDA approved white epoxy painted high performance motors are ideal for food packaging equipment. They are capable of withstanding repeated high pressure wash down and they have a smooth housing to minimize entrapment areas.



FEATURES

- FDA approved white epoxy coating
- Finless extruded aluminum housing
- IP66 sealing (high pressure wash down)
- UL (cRUus), CE, RoHS
- Stainless steel shaft
- Four frame sizes
- 200 V / 400 V windings
- 24 V holding brake option
- 1.3 to 24 Nm of continuous torque
- Hiperface multi-turn absolute encoder



HYGIENIC STAINLESS MOTORS

For demanding washdown environments

Yaskawa now offers a wide range of hygienic stainless servo motors for use with the Sigma-7 line of SERVOPACKs.

These stainless steel motors are designed for demanding wash down environments and are ideal for applications in food and beverage processing equipment. They adhere to the EHEDG hygienic standard.



FEATURES

- 316/316L stainless steel housing, max corrosion resistance
- Smooth finish with no sharp inside corners
- IP66 for continuous flood while in operation and complete protection from dust
- IP69/IP69k for high pressure, high temperature while not in operation
- EHEDG, UL (cRUus), CE, RoHS
- Stainless steel shaft
- Two frame sizes
- 200 V / 400 V windings
- 24 V holding brake option
- 2.4 to 3.2 Nm of continuous torque
- Hiperface multi-turn absolute encoder



SINGULAR CONTROL™

Simplify engineering design, maintenance and training, while reducing your development and machine commissioning time

A Better Way to Control Automated Motion

Tired of hiring expensive programming experts to implement a robot, or of rewriting machine code every time you integrate a new mechanism?

Then you're ready for Singular Control™, one hardware platform, one software tool, one programming standard and one vendor for everything in motion automation. Yaskawa understands.

That's why we created Singular Control, and why we're putting it to work to make your job easier.



Delivering integrated control for Delta, SCARA, 6-axis, Gantry and customer-specific mechanisms.



A COMPLETE MECHATRONIC CONTINUUM

Motion axes, standard mechanisms, robots, and custom mechanisms running interchangeably under the same controller and application code

FAMILIAR PROGRAMMING

- Program robots with ladder logic and function blocks
- No proprietary robot programming language

INTEGRATED CONTROL

Control all types of mechanisms with one software engineering tool using the same function blocks

MACHINE FLEXIBILITY

Swap mechanism type with minimal changes to application code

FUTURE ENABLED

- Easily upgrade to new mechanisms
- Migrate your machine IP as your technology progresses

ROBOTICS PORTFOLIO

FAST. FLEXIBLE. RELIABLE.

Our full suite of material handling robots make it easy to integrate the ideal solution for your most challenging applications

Designed to optimize material handling operations from beginning to end, Yaskawa robots deliver exceptional speed and precision.

Whether your focus is food/beverage, pharmaceutical, consumer products or specialty items, our full suite of products and technologies make it easy to configure, program and integrate an ideal solution to meet your production goals.

HIGH SPEED PICKING

Perfect your primary operations with our extremely accurate and nimble picking robots.



MotoMini

- 0.5 kg payload
- 350 mm horizontal reach
- 495 mm vertical reach



MPP3 Series (Delta)

- 3 kg payload, 150 cpm
- 800 - 1,300 mm horizontal reach
- 300 mm - 601 mm z-stroke
- IP67-rated body, NSF-H1 certified food-grade lubricants



SG Series (SCARA)

- 3 - 6 kg payload
- 400 - 650 mm radial reach
- 200 - 210 mm z-stroke

COLLABORATIVE

Highly versatile and portable, HC-series cobots are ideal for a variety of tasks including machine tending, material handling, packaging and light assembly.



HC10XP / HC20XP

- 10 kg / 20 kg payload
- 1,200 mm / 1,700 mm max. reach
- IP67-rated body, NSF-H1 certified food-grade lubricants

PART HANDLING AND TRANSFER

Automate your secondary operations with our versatile, high-speed handling robots



GP Series

- 4.0 - 600 kg payloads
- 550 - 3518 mm horizontal reach
- 1008 - 5622 mm vertical reach



MH Series

- 2.0 - 900 kg payloads
- 532 - 4683 mm horizontal reach
- 804 - 6209 mm vertical reach

PALLETIZING

Move boxes and load pallets with greater consistency and ease using our efficient palletizing robots..



MPK/MPL Series

- 2.0 - 800 kg payloads
- 900 - 3159 mm horizontal reach
- 1551 - 3291 mm vertical reach
- IP67-rated body, NSF-H1 certified food-grade lubricants



PL Series

- 80 - 500 kg payloads
- 2061 - 3159 mm horizontal reach
- 3024 - 3291 mm vertical reach

CUSTOM SOLUTIONS FOR CUSTOMER NEEDS

ENGINEERED SERVICES GROUP

Our experts in automation and machine control are ready to design and build whatever is necessary to make new automation ideas possible.

Yaskawa is known for creating exceptional motion automation components. It is only natural to back up this reputation with an exceptional ability to help customers put them to use. Our capabilities range from custom enclosures, panels and cables to complete retrofits and electromechanical assemblies.



CONTROL SYSTEMS

Equipped to Handle Every Facet of Automated Systems

Our A-to-Z capability includes development of mechanical systems and control architecture, panel design, wiring, mechanical design and assembly ...all the way to shipping, stocking and fulfillment.

Whether you are looking to outsource some or all of the control system manufacturing for a new machine design or seeking a turnkey retrofit of existing equipment, Yaskawa Engineered Systems Group is your one stop for integration of the best automation products in the industry.



CUSTOM CABLES



Plug and Play Cables for any Equipment!

Yaskawa Engineered Systems Group can provide everything from connectors and raw wire to complete wiring harness.

- Custom lengths
- Complete harnesses
- Connector installations
- Armored and special specification cables
- Conduit
- JIT / Stocking program

CUSTOM ENCLOSURES AND PANELS

Custom without Complexity

Every aspect of control enclosure manufacturing is covered by Engineered Systems, from design and component selection to cabinet manufacturing, wiring and preparation for final installation.

Combine top quality Yaskawa control components, with hardware, cabinetry and connectors to match. Enjoy Yaskawa performance without the complexity of panel design.



SELECTION GUIDE

Machine Controllers

iC9200 CONTROLLER

Description		Part Number	Notes
iC9200 Hardware	iC9226M-EC (standard controller)	JEYRM-MPX02210L32-2	Licensing dependent on axis count (4-axis license included with base controller). Additional licensing requires electronic license.
	iC9226M-FSoE (with FSoE Safety)	JEYRM-MPX-022SE10L32-2	• 8-Axis Electronic: JXPMC-OPX010402 • 12-Axis Electronic: JXPMC-OPX010403 • 16-Axis Electronic: JXPMC-OPX010404 • 24-Axis Electronic: JXPMC-OPX010406 • 32-Axis Electronic: JXPMC-OPX010408 • 64-Axis Electronic: JXPMC-OPX010412
Software	iCube Engineer	JXPMC-ICF100☒	x: License Type: E: Electronic • U: USB Floating License
Network Components	OPC UA Client	JXPMC-OPX010901	Electronic license
	OPC UA Pub Sub	JXPMC-OPX010902	
	X6 Independent LAN Port	JXPMC-OPX010802	

MPi3c CONTROLLER

Description		Part Number	Notes
MP3300i3c Hardware	CPU Module	PMC-U-MP33☒☐☐	☒: CPU Options 0: Standard IMI CPU 1: Standard RJ45 CPU 3: Medium IMI CPU 4: Medium RJ45 CPU 5: High IMI CPU 6: High RJ45 CPU ☐☐: Maximum number of MECHATROLINK Axes: 04:4 08:8 20:20 32:32 62:62 (Note: Standard CPU up to 20 axes, Medium CPU in 20 and 32 axes, High CPU in 32 and 62)
	Power and Option Rack	JEPMC-BU330☐-E	☐: Number of slots: 4: 1 slot DC 3: 3 slots DC 2: 8 slots DC 1: 8 slots AC
Software	MotionWorks IEC Pro	PDE-U-IE3Px	Software Version: 3 x: License Type: E: Electronic • H: Floating License
	MotionWorks IEC OPC Server	PDE-U-OP2Px	Software Version 2 x: Licenses: A:1 • B:5 • C:10 • D:20 • E: Electronic
Option Cards (for MP3200i3c, MP3300i3c, MP2300Si3c, MP2310i3c)		JAPMC-AN2300	Analog Inputs (AI-01) (8) channels; +/- 10 V @ 16-bit resolution @ 20 kΩ or 4-20 mA @ 15-bit @ 250 Ω
		JAPMC-AN2310	Analog Outputs (AO-01) (4) channels; +/- 10 V @ 16-bit resolution; 5 mA max load current
		JAPMC-DO2300	Output Module (DO-01) (64) 24 VDC sinking outputs; 100 mA/output
		JAPMC-IO2300-E	I/O Module (LIO-01) (16) 24 VDC sinking or sourcing inputs; (16) 24 VDC sinking outputs; IOmA/output; (1) Encoder Counter; A/B/C channels; differential; latch response time varies based on input used; max frequency 4 MHz
		JAPMC-IO2301-E	I/O Module (LIO-02) (16) 24 VDC sinking or sourcing inputs; (16) 24 VDC sourcing outputs; IO mA/output; (1) Encoder Counter; A/B/C channels; differential; latch response time varies based on input used; max frequency 4 MHz
		JAPMC-IO2303	I/O Module (LIO-04) (32) 24 VDC sinking or sourcing inputs; (32) 24 VDC sinking outputs; 100 mA/output
		JAPMC-IO2304	I/O Module (LIO-05) (32) 24 VDC sinking or sourcing inputs; (32) 24 VDC sourcing outputs; 100 mA/output
		JAPMC-IO2305-E	Multi-Function (LIO-06) I/O Option Module (8) 24VDC sinking or sourcing inputs; (8) 24 VDC sinking outputs; 100 mA/output; (1) Encoder Counter; A/B/C channels; differential; (1) Analog input -10 to +10 V 16 bits; (1) Analog Output -10 to +10 V 16 bits
Terminal Block Conversion Kits		CBK-U-MP2A-☐☐	For LIO-01/02 ☐☐: Cable Length:: A5: 0.5 m 01: 1.0 m 03: 3.0 m
		CBK-U-MP2B-☐☐	For LIO-04/05/06/ MP2600i3c ☐☐: Cable Length:: A5: 0.5 m 01: 1.0 m 03: 3.0 m
		SBK-U-VBA-☐☐	For SGD7 Servo Amp- CN1 ☐☐: Cable Length:: • A5: 0.5 m 01: 1.0 m 03: 3.0 m

SLIO Modules: Distributed IO or Slice IO for iC9200 Controller

DIGITAL INPUT MODULES

Material Number	Description	Supported Bus Coupler		
		Slicebus	ECAT	PN
021-1BB00	2 inputs	Y	Y	Y
021-1BB10	2 fast inputs; Input filter time delay parameterizable 2 μs - 4 ms	Y	Y	Y
021-1BD00	4 inputs	Y	Y	Y
021-1BD10	4 fast inputs; Input filter time delay parameterizable 2 μs - 4 ms	Y	Y	Y
021-1BD40	4 inputs; Connect 2/3-wire	Y	Y	Y
021-1BD50	4 inputs; Active low input	Y	Y	Y
021-1BD70	4 inputs; Time stamp	Y	Y	Y
021-1BD80	4 inputs; μs-Timestamp; Sinking	Y	Y	Y
021-1BF00	8 inputs	Y	Y	Y
021-1BF01	8 inputs; 0.5 ms	Y	Y	Y
021-1BF50	8 inputs; Active low input	Y	Y	Y
021-1BF51	8 inputs; 0.5 MS; Sinking	Y	Y	Y
021-1BH00	16 inputs	Y	Y	Y
021-1DF00	8 inputs; Diagnosis of wiring errors	Y	Y	Y
021-1DF50	8 inputs; Diagnosis of wiring errors; Sinking	Y	Y	Y
021-1SD10	4 inputs; Safety	Y	Y	N

DIGITAL OUTPUT MODULES

Material Number	Description	Supported Bus Coupler		
		Slicebus	ECAT	PN
022-1BB00	2 outputs; Output current 0.5A	Y	Y	Y
022-1BB90	2 outputs; PWM	Y	Y	Y
022-1BD00	4 outputs; Output current 0.5 A	Y	Y	Y
022-1BD20	4 outputs; Output current 2 A	Y	Y	Y
022-1BD50	4 Low-Side outputs; Output current 0.5 A	Y	Y	Y
022-1BD70	4 outputs; Time stamp, Output current 0.5 A	Y	Y	Y
022-1BF00	8 outputs; Output current 0.5 A	Y	Y	Y
022-1BF50	8 Low-Side outputs; Output current 0.5 A	Y	Y	Y
022-1BH00	16 inputs	Y	Y	Y
022-1BH50	16 inputs; Output current 0.5 A; Sinking	Y	Y	Y
022-1HB10	2 relay outputs; DC 30 V / AC 230 V; Output current 3 A	Y	Y	Y
022-1HD10	4 relay outputs; DC 30 V / AC 230 V; Output current 1.8 A	Y	Y	Y
022-1DF00	8 outputs; Output current: 0.5 A; Diagnosis of wiring errors	Y	Y	Y
022-1SD10	4 outputs, Safety; Output current 0.5 A	Y	Y	N

SLIO Modules: Distributed IO or Slice IO for iC9200 Controller

ANALOG INPUT MODULES

Material Number	Description	Supported Bus Coupler		
		Slicebus	ECAT	PN
031-1BB10	2 inputs 12-Bit; Current 4-20 mA; 2 wire	Y	Y	Y
031-1BB30	2 inputs 12-Bit; Voltage 0-10 V	Y	Y	Y
031-1BB40	2 inputs 12-Bit; Current 4-20 mA	Y	Y	Y
031-1BB60	2 inputs 12-Bit; Current 4-20 mA; 2 wire	Y	Y	Y
031-1BB70	2 inputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1BB90	2 inputs 16-Bit; Thermocouple; Voltage -80 mV to +80 mV	Y	Y	Y
031-1BD30	4 inputs 12-Bit; Voltage 0-10 V	Y	Y	Y
031-1BD40	4 inputs 12-Bit; Current 0(4)-20 mA	Y	Y	Y
031-1BD70	4 inputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1BD80	4 inputs 16-Bit; 0-3000 ohm resistance; Resistance measurement with 2,3, and 4 wires	Y	Y	Y
031-1BF60	8 inputs 12-Bit; Current 0(4)-20 mA	Y	Y	Y
031-1BF74	8 inputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1CA20	Load Cell 16(24)-Bit; 4 or 6 wire	Y	Y	Y
031-1CB70	2 inputs 16-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1CD28	4 inputs 16-Bit; Current -20 mA to +20 mA; Voltage -10 V to +10 V	Y	Y	Y
031-1CD30	4 inputs 16-Bit; Voltage 0-10 V	Y	Y	Y
031-1CD40	4 inputs 16-Bit; Current 0(4)-20 mA	Y	Y	Y
031-1CD70	4 inputs 16-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1LD80	4 inputs 16-Bit; 0-3000 ohm resistance; Resistance measurement with 2,3, and 4 wires; Requires less parameter bytes than module 031-1BD80	Y	Y	Y
031-1PA10	Energy Measure Terminal; 3Ph 230/400V 1/5A	Y	Y	Y
031-1PA10	Energy Measure Terminal; 3Ph 230/400V 1/5A	Y	Y	Y

ANALOG OUTPUT MODULES

Material Number	Description	Supported Bus Coupler		
		Slicebus	ECAT	PN
032-1BB30	2 outputs 12-Bit; Voltage 0-10 V	Y	Y	Y
032-1BB40	2 outputs 12-Bit; Current 0(4)-20 mA	Y	Y	Y
032-1BB70	2 outputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
032-1BD30	4 outputs 12-Bit; Voltage 0-10 V	Y	Y	Y
032-1BD40	4 outputs 12 Bit; Current 0(4)-20 mA	Y	Y	Y
032-1BD70	4 outputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
032-1CD30	4 outputs 16-Bit; Voltage 0-10 V	Y	Y	Y
032-1CD40	4 outputs 16-Bit; Current 0(4)-20 mA	Y	Y	Y
032-1CD70	4 outputs 16-Bit; Voltage -10 V to +10 V	Y	Y	Y

SLIO Modules: Distributed IO or Slice IO for iC9200 Controller

FUNCTION MODULES

Material Number	Description	Supported Bus Coupler		
		Slicebus	ECAT	PN
040-1BA00	Communication Processor Module; RS 232 Interface; ASCII protocol	Y	Y	Y
040-1BA00	Communication Processor Module; RS 232 Interface; Modbus slave protocol	N	Y	Y
040-1CA00	Communication Processor Module; RS 422/485 Interface; ASCII protocol	Y	Y	Y
040-1CA00	Communication Processor Module; RS 422/485 Interface; Modbus slave protocol	N	Y	Y
050-1BA00	Counter Module; 1 Counter 32-Bit (AB); DC 24V	Y	Y	Y
050-1BA10	Counter Module; 1 Counter 32-Bit (AB); DC 5V (difference signal)	Y	Y	Y
050-1BB00	Counter Module; 2 Counter 32-Bit (AB); DC 24V	Y	Y	Y
050-1BB30	Counter Module Eco; 2 Counter 32-Bit (AB); DC 24V	Y	Y	Y
050-1BB40	Frequency Measurement; 2 Channels 24-Bit; DC 24V	Y	Y	Y
050-1BS00	SSI-Encoder; Master of Slave Mode; Encoder Frequency 125 kHz - 2 MHz; μ s time stamp for encoder value	Y	Y	Y
054-1DA00	PulseTrain Output Module; 1-channel RS422 with feedback; 4 inputs/outputs DC 24V	N	Y	Y
054-2BA10	Stepper Module; 1-channel with feedback; 4 inputs/ outputs DC 48 V, 5 A	N	Y	Y
054-1CB00	DC Motor Module; 2-channel with feedback; 4 inputs/ outputs DC 24 V	N	Y	Y

MISCELLANEOUS MODULES

Material Number	Description	Supported Bus Coupler		
		Slicebus	ECAT	PN
060-1AA01	Line Extension Controller; RJ45 plug connector; Master 2.0	N	Y	Y
060-1BA01	Line Extension Controller; RJ45 plug connector; Slave 2.0	N	Y	Y
042-1I000	Communication Processor; IO-Link Controller; 4-channel	N	Y	Y

INTERFACE MODULES

Material Number	Description
053-1IP01	EtherNet/IP-Slave; 2-Port Switch RJ45 100BaseTX full duplex; IO configuration via fieldbus;Up to 64 peripheral modules
053-1EC01	EtherCAT Slave module Up to 64 peripheral modules
053-1PN01	PROFINET Slave module Up to 64 peripheral modules

SLIO Modules: Distributed IO for MPiec Controller

DIGITAL INPUT MODULES

Material Number	Description	Supported Bus Coupler		
		E/IP	ECAT	M-III
021-1BB00	2 inputs	Y	Y	Y
021-1BB10	2 fast inputs; Input filter time delay parameterizable 2 μs - 4 ms	Y	Y	Y
021-1BD00	4 inputs	Y	Y	Y
021-1BD10	4 fast inputs; Input filter time delay parameterizable 2 μs - 4 ms	Y	Y	Y
021-1BD40	4 inputs; Connect 2/3-wire	Y	Y	Y
021-1BD50	4 inputs; Active low input	Y	Y	Y
021-1BD70	4 inputs; Time stamp	N	Y	N
021-1BF00	8 inputs	Y	N	Y
021-1BF01	8 inputs; 0.5 ms	Y	Y	Y
021-1BF50	8 inputs; Active low input	Y	Y	N
021-1DF00	8 inputs; Diagnosis of wiring errors	Y	Y	Y
021-1SD00	4 inputs; Safety	N	Y	N
021-1BH00	16 Inputs	Y	Y	Y

DIGITAL OUTPUT MODULES

Material Number	Description	Supported Bus Coupler		
		E/IP	ECAT	M-III
022-1BB00	2 outputs; Output current 0.5 A	Y	Y	Y
022-1BB90	2 outputs; PWM	Y	Y	Y
022-1BD00	4 outputs; Output current 0.5 A	Y	Y	Y
022-1BD20	4 outputs; Output current 2 A	Y	Y	Y
022-1BD50	4 Low-Side outputs; Output current 0.5 A	Y	Y	Y
022-1BD70	4 outputs; Time stamp, Output current 0.5 A	N	Y	N
022-1BF00	8 outputs; Output current 0.5 A	Y	N	Y
022-1BF50	8 Low-Side outputs; Output current 0.5 A	Y	Y	Y
022-1HB10	2 relay outputs; DC 30 V / AC 230 V; Output current 3 A	Y	Y	Y
022-1HD10	4 relay outputs; DC 30 V / AC 230 V; Output current 1.8 A	Y	Y	Y
022-1DF00	8 outputs; Output current: 0.5 A; Diagnosis of wiring errors	Y	Y	Y
022-1SD00	4 outputs; Safety; Output current 0.5 A	N	Y	N
022-1BH00	16 outputs, Output current 0.5 A	Y	Y	Y

SLIO Modules: Distributed IO for MPiec Controller

ANALOG INPUT MODULES

Material Number	Description	Supported Bus Coupler		
		E/IP	ECAT	M-III
031-1BB10	2 inputs 12-Bit; Current 4-20 mA; 2 wire	Y	Y	Y
031-1BB30	2 inputs 12-Bit; Voltage 0-10 V	Y	Y	Y
031-1BB40	2 inputs 12-Bit; Current 0(4)-20 mA	Y	Y	Y
031-1BB60	2 inputs 12-Bit; Current 4-20 mA; 2 wire	Y	Y	Y
031-1BB70	2 inputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1BB90	2 inputs 16-Bit; Thermocouple; Voltage -80 mV to +80 mV	Y	Y	Y
031-1BD30	4 inputs 12-Bit; Voltage 0-10 V	Y	Y	Y
031-1BD40	4 inputs 12-Bit; Current 0(4)-20 mA	Y	Y	Y
031-1BD70	4 inputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1BD80	4 inputs 16-Bit; 0-3000 Ω resistance; Resistance measurement with 2, 3, and 4-wires	Y	Y	N
031-1BF60	8 inputs 12-Bit; Current 0(4)-20 mA	Y	N	N
031-1BF74	8 inputs 12-Bit; Voltage -10 V to +10 V	Y	Y	N
031-1CB30	2 inputs 16-Bit; Voltage 0-10 V	Y	N	Y
031-1CB40	2 inputs 16-Bit; Current 0(4)-20 mA	Y	N	Y
031-1CB70	2 inputs 16-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1CD30	4 inputs 16-Bit; Voltage 0-10 V	Y	Y	Y
031-1CD35	4 inputs 16-Bit; Voltage 0-10 V	Y	N	Y
031-1CD40	4 inputs 16-Bit; Current 0(4)-20 mA	Y	Y	Y
031-1CD45	4 inputs 16-Bit; Current 0(4)-20 mA	Y	N	Y
031-1CD70	4 inputs 16-Bit; Voltage -10 V to +10 V	Y	Y	Y
031-1LB90	2 inputs 16-Bit; Thermocouple; Voltage -80 mV to +80 mV; Requires less parameter bytes than module 031-1BB90	Y	N	Y
031-1LD80	4 inputs 16-Bit; 0-3000 ohm resistance; Resistance measurement with 2, 3, and 4-wires; Requires less parameter bytes than module 031-1BD80	Y	Y	N
031-1CA20	Load Cell 16 (24)-Bit; 4 or 6 wire	Y	Y	Y
031-1PA00	Energy Measure Terminal; 3Ph 230/400V 1A	Y	N	Y
031-1PA10	Energy Measure Terminal; 3Ph 230/400V 1/5A	Y	Y	Y

ANALOG OUTPUT MODULES

Material Number	Description	Supported Bus Coupler		
		E/IP	ECAT	M-III
032-1BB30	2 outputs 12-Bit; Voltage 0-10 V	Y	Y	Y
032-1BB40	2 outputs 12-Bit; Current 0(4)-20 mA	Y	Y	Y
032-1BB70	2 outputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
032-1BD30	4 outputs 12-Bit; Voltage 0-10 V	Y	Y	Y
032-1BD40	4 outputs 12-Bit; Current 0(4)-20mA	Y	N	Y
032-1BD70	4 outputs 12-Bit; Voltage -10 V to +10 V	Y	Y	Y
032-1CB30	2 outputs 12-Bit; Voltage 0-10 V	Y	N	Y
032-1CB40	2 outputs 16-Bit; Current 0(4)-20 mA	Y	N	Y
032-1CB70	2 outputs 16-Bit; Voltage -10 V to +10 V	Y	N	Y
032-1CD30	4 outputs 16-Bit; Voltage 0-10 V	Y	Y	Y
032-1CD40	4 outputs 16-Bit; Current 0(4)-20mA	Y	Y	Y
032-1CD70	4 outputs 16-Bit; Voltage -10 V to +10 V	Y	Y	Y

SLIO Modules: Distributed IO for MPiec Controller

POTENTIAL DISTRIBUTOR MODULES

Material Number	Description	Supported Bus Coupler		
		E/IP	ECAT	M-III
001-1BA00	8 x DC 24 V clamps	Y	Y	Y
001-1BA10	8 x DC 0 V clamps	Y	Y	Y
001-1BA20	4 x DC 24 V; 4 x DC 0 V clamps	Y	Y	Y

POWER MODULES

Material Number	Description	Supported Bus Coupler		
		E/IP	ECAT	M-III
007-0AA00	Power supply DC 24 V, 10 A; (Only electronic modules as spare part of PLC and interface module)	Y	Y	Y
007-1AB00	Power supply DC 24 V, 10 A; Reverse polarity protection; Overvoltage protection	Y	Y	Y
007-1AB10	Power supply DC 24 V, 4 A; Power supply DC 24 V for bus supply 5 V, 2 A; Reverse polarity protection; Overvoltage protection	Y	Y	Y

INTERFACE MODULES

Material Number	Description
053-1IP01	EtherNet/IP-Slave; 2-Port Switch RJ45 100BaseTX full duplex; IO configuration via fieldbus;Up to 64 peripheral modules
053-1EC01	EtherCAT Slave module Up to 64 peripheral modules
053-1ML00	MECHATROLINK-III slave; Transfer rate 100 Mbit/s;Up to 64 peripheral modules

FUNCTION MODULES

Material Number	Description	Supported Bus Coupler		
		E/IP	ECAT	M-III
050-1BA00	Counter Module; 1 Counter 32-Bit (AB); DC 24V	Y	Y	Y
050-1BA10	Counter Module; 1 Counter 32-Bit (AB); DC 5V (difference signal)	Y	Y	Y
050-1BB00	Counter Module; 2 Counter 32-Bit (AB); DC 24V	Y	Y	Y
050-1BB30	Counter Module Eco; 2 Counter 32-Bit (AB); DC 24V	Y	Y	Y
050-1BB40	Frequency Measurement; 2 Channels 24-Bit; DC 24V	Y	N	Y
050-1BS00	SSI-Encoder; Master or Slave Mode; Encoder Frequency 125 kHz - 2 MHz; µs time stamp for encoder value	N	Y	Y
054-1BA00	Stepper Module; 1-channel with feedback; 4 inputs/ outputs DC 24V	Y	Y	N
054-1CB00	DC Motor Module, 2-channel with feedback; 4 inputs/outputs DC 24V	Y	Y	N
054-1DA00	Pulse Train Output Module; 1-channel RS422 w/ feedback; 4 configurable inputs/ outputs	Y	Y	N

Sigma Series Servo Products

SIGMA-X ROTARY SERVO MOTOR / SIGMA-X SERVOPACK COMBINATIONS

Rotary Servomotor Model		Rated Output	Rated Torque	Peak Torque	Rated (Max) Speed	Rotary Inertia		Sigma-X SERVOPACK Model			
						w/o holding brake	w/ holding brake.	200 V		400 V	
			Nm	Nm		x10 ⁻⁴ kg-m ²		SGDXS-□□□□	SGDXW-□□□□	SGDXT-□□□□	SGDXS-□□□□
SGM7M (Low inertia, ultra-small capacity)	SGM7M-A1A	11 W	0.035	0.105	3000 (7000)	0.00254	0.00399	R90A			
	SGM7M-A2A	22 W	0.070	0.210		0.00449	0.00596	R90A			
	SGM7M-A3A	33 W	0.105	0.315		0.00681	0.00831	1R6A			
SGMXJ (Medium inertia, small capacity)	SGMXJ-A5A	50 W	0.159	0.557	3000 (7000)	0.0458	0.0538	R70A			
	SGMXJ-01A*	100 W	0.318	1.11		0.0706	0.0786	R90A	1R6A, 2R8A	1R6A, 2R8A	
	SGMXJ-C2A	150 W	0.477	1.67		0.0983	0.107	1R6A			
	SGMXJ-02A*	200 W	0.637	2.23		0.267	0.327				-
	SGMXJ-04A*	400 W	1.27	4.46		0.490	0.550	2R8A	2R8A, 5R5A, 7R6A	2R8A	
	SGMXJ-06A	600 W	1.91	6.69		0.804	0.864				
	SGMXJ-08A*	750 W	2.39	8.36		1.59	1.76	5R5A	5R5A, 7R6A	-	
SGMXA (Low inertia, small capacity)	SGMXA-A5A	50 W	0.159	0.557	3000 (7000)	0.0257	0.0337	R70A			
	SGMXA-01A*	100 W	0.318	1.11		0.0377	0.0457	R90A	1R6A, 2R8A	1R6A, 2R8A	
	SGMXA-C2A	150 W	0.477	1.67		0.0498	0.0578	1R6A			
	SGMXA-02A*	200 W	0.637	2.23		0.143	0.203				-
	SGMXA-04A*	400 W	1.27	4.46		0.220	0.280	2R8A	2R8A, 5R5A, 7R6A	2R8A	
	SGMXA-06A	600 W	1.91	6.69		0.319	0.379				
	SGMXA-08A*	750 W	2.39	8.36		0.777	0.947	5R5A	5R5A, 7R6A		
	SGMXA-10A*	1.0 kW	3.18	11.1		0.973	1.14				
	SGMXA-15□*	1.5 kW	4.90	14.7		2.00	2.25				5R4D
	SGMXA-20□*	2.0 kW	6.36	19.1		2.47	2.72	180A			8R4D
	SGMXA-25□*	2.5 kW	7.96	23.9		3.19	3.44				
	SGMXA-30□*	3.0 kW	9.80	29.4		7.00	9.20	200A	-	-	120D
	SGMXA-40□*	4.0 kW	12.6	37.8		9.60	11.8				
	SGMXA-50□*	5.0 kW	15.8	47.6		12.3	14.5	330A			170D
	SGMXA-70A*	7.0 kW	22.3	54.0		12.3	-	550A			-
SGMXP (Medium inertia, flat type)	SGMXP-01A*	100 W	0.318	1.11	3000 (7000)	0.0631	0.0959	R90A	1R6A, 2R8A	1R6A, 2R8A	-
	SGMXP-02□*	200 W	0.637	2.23		0.267	0.427				
	SGMXP-04□*	400 W	1.27	4.46		0.413	0.573	2R8A	2R8A, 5R5A, 7R6A	2R8A	1R9D
	SGMXP-08□*	750 W	2.39	7.16		2.10	2.98	5R5A	5R5A, 7R6A		3R5D
	SGMXP-15□*	1.5 kW	4.77	14.3		4.02	4.90	120A	-	-	5R4D
SGMXG (Medium inertia, medium capacity)	SGMXG-03A	300 W	1.96	5.88	1500 (4000)	2.48	2.73				-
	SGMXG-05□*	450 W	2.86	8.92		3.33	3.58	3R8A	5R5A, 7R6A		1R9D
	SGMXG-09□*	850 W	5.39	14.2		13.9	16.0	7R6A	7R6A		3R5D, 5R4D
	SGMXG-13□*	1.3 kW	8.34	23.3		19.9	22.0	120A			5R4D, 8R4D
	SGMXG-20□*	1.8 kW	11.5	28.7		26.0	28.1	180A			8R4D, 120D
	SGMXG-30□*	2.9 kW	18.6	54.0		46.0	53.9				120D, 210D
	SGMXG-44□*	4.4 kW	28.4	71.6		67.5	75.4	330A			170D, 260D
	SGMXG-55□*	5.5 kW	35.0	102		89.0	96.9	470A			210D, 370D
	SGMXG-75□*	7.5 kW	48.0	119		125	133	550A			260D
	SGMXG-1A□	11 kW	70.0	175		242	261	590A			280D
	SGMXG-1E□	15 kW	95.4	224		303	341	780A			370D

* These motors also available as gear motors with gear ratios of 3:1, 5:1, 10:1, 25:1 or 50:1 gear ratios. Gear motors for SGMXP-08 and SGMXP-15 are available only in 400 V.

Sigma Series Servo Products

DIRECT DRIVE SERVO MOTOR / SIGMA-X SERVOPACK COMBINATIONS

Direct Drive Servomotor Model		Outer Diameter	Rated Output	Rated Torque	Peak Torque	Rated (Max) Speed	Rotary Inertia	Sigma-X SERVOPACK Model		
		mm	W	Nm	Nm	rpm	x10 ⁻⁴ kg-m ²	SGDXS-□□□□	SGDXW-□□□□	SGDXT-□□□□
SGM7D (With core, outer rotor)	SGM7D-30F	264	188	30.0	50.0	60 (72)	960	120A	-	-
	SGM7D-58F		364	58.0	100		1190			
	SGM7D-90F		565	90.0	150		1420			
	SGM7D-1AF		691	110	200		1670			
	SGM7D-01G	160	16	1.30	4.00	120 (150)	55.0	2R8A	-	-
	SGM7D-05G		63	5.00	6.00		75.0			
	SGM7D-08G		101	8.00	15.0		120			
	SGM7D-18G		226	18.0	30.0		150			
	SGM7D-24G		302	24.0	45.0	120 (144)	190	120A	-	-
	SGM7D-34G		320	34.0	60.0		230			
	SGM7D-45G		565	45.0	75.0		270			
	SGM7D-03H		38	3.00	4.00		25.0			
	SGM7D-28I	264	264	28.0	50.0	90 (108)	1800	120A	-	-
	SGM7D-70I		440	70.0	100	60 (72)	2000			
	SGM7D-12I		628	100	150		2300			
	SGM7D-1CI		817	130	200		2850			
	SGM7D-2BI		691	220	300	30 (60)	3400			
	SGM7D-2DI		754	240	400	30 (48)	4000			
	SGM7D-06J	150	75	6.00	8.00	120 (144)	150	120A	-	-
	SGM7D-09J		113	9.00	15.0		210			
	SGM7D-18J		226	18.0	30.0		240			
	SGM7D-20J		251	20.0	45.0		260			
	SGM7D-38J	107	358	38.0	60.0	90 (144)	330	2R8A	-	-
	SGM7D-02K		52	2.06	5.00	240 (360)	60.0			
	SGM7D-06K		151	6.00	10.0		70.0			
	SGM7D-08K		201	8.00	15.0		80.0			
	SGM7D-06L	224	113	6.00	10.0	180 (216)	220	2R8A	-	-
	SGM7D-12L		226	12.0	20.0		220			
	SGM7D-30L		565	30.0	40.0		370			
SGM7F Small-capacity (With core, inner rotor)	SGM7F-02A	100	63	2	6	300 (600)	8.04	2R8A	2R8A	2R8A
	SGM7F-05A		157	5	15		14.5			
	SGM7F-04B		126	4	12		16.2			
	SGM7F-10B	135	314	10	30	300 (600)	25.2	2R8A	2R8A	2R8A
	SGM7F-14B		440	14	42		36.9			
	SGM7F-08C	175	251	8	24	300 (600)	56.5	5R5A	5R5A	-
	SGM7F-17C		534	17	51		78.5	2R8A	2R8A	2R8A
	SGM7F-25C		785	25	75		111	5R5A	5R5A	-
	SGM7F-16D		503	16	48		178	7R6A	7R6A	-
	SGM7F-35D	230	1100 / 1000	35	105	300 / 270 (400)	276	5R5A	5R5A	-
SGM7F Medium-capacity (With core, inner rotor)	SGM7F-45M	280	707	45	135	150 (300)	388	7R6A	7R6A	-
	SGM7F-80M		1260	80	240		627	120A	-	
	SGM7F-1AM		1730	110	330		865	180A	-	
	SGM7F-80N	360	1260	80	240	150 (300)	1360	120A	-	-
	SGM7F-1EN		2360	150	450	150 (250)	2470	200A		
SGM7E (Coreless, inner rotor)	SGM7E-02B	135	42	2.0	6.0	200 (500)	28	2R8A	2R8A	2R8A
	SGM7E-05B		105	5.0	15		51			
	SGM7E-07B		147	7	21		77			
	SGM7E-04C		84	4.0	12		77			
	SGM7E-10C	175	209	10	30	200 (500)	140	2R8A	2R8A	2R8A
	SGM7E-14C		293	14	42	200 (300)	220			
	SGM7E-08D		168	8.0	24	200 (500)	285			
	SGM7E-17D	230	356	17	51	200 (350)	510	2R8A	2R8A	2R8A
	SGM7E-25D		393	25	75	150 (250)	750			
	SGM7E-16E		335	16	48	200 (500)	930			
	SGM7E-35E	290	550	35	105	150 (250)	1430	5R5A	5R5A	-

LINEAR SERVO MOTOR / SIGMA-X SERVOPACK COMBINATIONS

Linear Servomotor Model		Rated Force	Peak Force	Rated (Max) Speed	Moving Coil Mass	Sigma-X SERVOPACK Model			
		N	N	m/s	kg	SGDXS- □□□□	SGDXW- □□□□	SGDXT- □□□□	
SGLG (Coreless, with standard magnetic way)	SGLGW-30A050C	12.5	40	1.5 (5.0)	0.10	R70A	1R6A	1R6A	
	SGLGW-30A080C	25	80		0.15	R90A			
	SGLGW-40A140C	47	140		0.34				
	SGLGW-40A253C	93	280	2.0 (5.0)	0.60	1R6A	2R8A	2R8A	
	SGLGW-40A365C	140	420		0.87	2R8A			
	SGLGW-60A140C	70	220	2.3 (4.8)	0.42	1R6A	1R6A	1R6A	
	SGLGW-60A253C	140	440		0.76	2R8A	2R8A	2R8A	
	SGLGW-60A365C	210	660		1.1	5R5A	5R5A	-	
	SGLGW-90A200C	325	1300		1.8 (4.0)	2.2	120A		
	SGLGW-90A370C	550	2200	1.5 (4.0)	3.6	180A	-		
SGLGW-90A535C	750	3000	4.9		200A	-			
SGLG (Coreless, with high-force magnetic way)	SGLGW-40A140C	57	230	1.0 (4.2)	0.34	1R6A	1R6A	1R6A	
	SGLGW-40A253C	114	460		0.60	2R8A	2R8A	2R8A	
	SGLGW-40A365C	171	690		0.87	3R8A	5R5A	-	
	SGLGW-60A140C	85	360		0.42	1R6A	1R6A	1R6A	
	SGLGW-60A253C	170	720		0.76	3R8A	5R5A	-	
	SGLGW-60A365C	255	1080		1.1	7R6A	7R6A	-	
SGLF2 (with F-type iron core) 200V Models	SGLFW2-30A070A	45	135	4.0 (5.0)	0.50	1R6A	1R6A	1R6A	
	SGLFW2-30A120A	90	270		0.90				
	SGLFW2-30A230A	180	540		1.7	3R8A	-	-	
		170	500		2R8A	2R8A	2R8A		
	SGLFW2-45A200A	280	840	4.0 (4.5)	2.9	5R5A	5R5A	-	
	SGLFW2-45A380A	560	1680		5.5	180A			
	SGLFW2-90A200A	560	1680	4.0 (4.0)	5.3	120A	-		-
	SGLFW2-90A380A	1120	3360		10.1	200A			
	SGLFW2-90A560A	1680	5040	2.0 (2.5)	14.9	330A	-	-	
	SGLFW2-1DA380A	1680	5040		14.6	200A			
SGLF2 (with F-type iron core) 400V Models	SGLFW2-1DA560A	2520	7560	3.5 (3.5)	21.5	330A	-	-	
	SGLFW2-30D070A	45	135	4.0 (5.0)	0.50	1R9D	-	-	
	SGLFW2-30D120A	90	270		0.90				
	SGLFW2-30D230A	180	540		1.7				
	SGLFW2-45D200A	280	840	4.0 (4.5)	2.9	3R5D	-	-	
	SGLFW2-45D380A	560	1680		5.4	5R4D			
	SGLFW2-90D200A	560	1680	4.0 (4.0)	5.3	120D	-	-	
	SGLFW2-90D380A	1120	3360		10.1				
	SGLFW2-90D560A	1680	5040	3.5 (3.5)	14.9	170D	-	-	
SGLFW2-1DD380A	1680	5040	14.6						
SGLT (with T-type iron core) Standard models	SGLFW2-1DD560A	2520	7560		21.5	260D			
	SGLTW-20A170A	130	380	3.0 (5.0)	2.5	3R8A	5R5A	-	
	SGLTW-20A320A	250	760		4.6	7R6A	7R6A		
	SGLTW-20A460A	380	1140		6.7	120A	-		
	SGLTW-35A170A	220	660	2.5 (5.0)	3.7	5R5A	5R5A	-	
	SGLTW-35A320A	440	1320		6.8	120A	-		
	SGLTW-35A460A	670	2000		10	180A	-		
	SGLTW-40A400B	670	2600		1.5 (3.1)	15	330A		-
	SGLTW-40A600B	1000	4000	2.0 (3.1)	23	330A	-	-	
	SGLTW-80A400B	1300	5000	2.0 (2.5)	24	330A			
SGLTW-80A600B	2000	7500		35	550A				
SGLT (with T-type iron core) High-efficiency models	SGLTW-35A170H	300	600	2.5 (4.8)	4.9	5R5A	5R5A	-	
	SGLTW-35A320H	600	1200	2.0 (4.8)	8.8	120A	-		
	SGLTW-50A170H	450	900	2.0 (3.2)	6.0	5R5A	5R5A		
	SGLTW-50A320H	900	1800	2.0 (3.1)	11	120A	-		

Sigma Series Servo Products

SIGMA TRAC II LINEAR STAGE / SIGMA-X SERVOPACK COMBINATIONS

Linear Stage Model		Rated Force	Peak Force	Rated (Max) Speed	Maximum Payload		Moving Mass		SERVOPACK Model		
					w/o brake	with brake	w/o brake	with brake			
		N	N	m/s	kg	kg	kg	kg			
ST2F Sigma Trac II Linear Stages	ST2F-A1A	45	135	4.0 (5.0)	3.3	2.5	2.3	3.1	1R6A	1R6A	1R6A
	ST2F-A2A	90	270		5.8	5.0	3.6	4.4			
	ST2F-A3A	180	540		28.7	28.7	5.3	5.3	3R8A	-	-
		170	500		4.7	4.7		5.3	2R8A	2R8A	2R8A
	STF-A1D	45	135		3.3	2.5	2.3	3.1	1R9D	-	-
	STF-A2D	90	270		5.8	5.0	3.6	4.4			
	STF-A3D	180	540		28.7	28.7	5.3	5.3			
	ST2F-C1A	560	1680	4.0 (4.0)	116.5	114.5	15.5	15.5	120A	-	-
	ST2F-C2A	1120	3360		137.2	135.7	22.8	24.3	200A		
	ST2F-C3A	1680	5040		327.0	324.4	33.0	35.6	330A		
	STF-C1D	560	1680		116.5	114.5	15.5	15.5	5R4D		
	STF-C2D	1120	3360		137.2	135.7	22.8	24.3	120D		
	STF-C3D	1680	5040		327.0	324.4	33.0	35.6	170D		

Sigma Series Servo Products

SIGMA-7 ROTARY SERVO MOTOR / SIGMA-7 SERVOPACK COMBINATIONS

Rotary Servomotor Model		Rated Output	Rated Torque	Peak Torque	Rated (Max) Speed	Rotary Inertia		Sigma-7 SERVOPACK Model			
						abs. enc. w/ battery	battery-less abs. enc.	100V/200V	200V	400V	
			Nm	Nm	rpm	x10 ⁻⁴ kg·m ²		SGD7S-□□□□	SGD7W-□□□□	SGD7S-□□□□	SGD7W-□□□□
SGMMV (Low inertia, ultra-low capacity)	SGMMV-A1A	10 W	0.0318	0.0955	3000 (6000)	0.00272	-	R90A, R90F	1R6A, 2R8A	2R9E	-
	SGMMV-A2A	20 W	0.0637	0.191		0.00466					
	SGMMV-A3A	30 W	0.0955	0.286		0.00668		1R6A, 2R1F			
SGM7J * (Medium inertia, high speed)	SGM7J-A5A	50 W	0.159	0.557	3000 (6000)	0.0395	0.0410	R70A, R70F	1R6A, 2R8A	-	-
	SGM7J-01A*	100 W	0.318	1.11		0.0659	0.0674	R90A, R90F			
	SGM7J-C2A	150 W	0.477	1.67		0.0915	0.0930	1R6A, 2R1F			
	SGM7J-02□*	200 W	0.637	2.23		0.263	0.264	1R6A, 2R1F	2R8A, 5R5A, 7R6A	1R9D	2R6D, 5R4D
	SGM7J-04□*	400 W	1.27	4.46		0.486	0.487	2R8A, 2R8F			
	SGM7J-06A	600 W	1.91	6.69		0.800	0.801	5R5A	5R5A, 7R6A	-	-
	SGM7J-08□*	750 W	2.39	8.36		1.59	1.59	5R5A	5R5A, 7R6A	3R5D	2R6D, 5R4D
SGM7J-15D*	1.5 kW	4.77	14.3	4.02	4.02	N/A	N/A	5R4D	5R4D		
SGM7A * (Low inertia, high speed)	SGM7A-A5A	50 W	0.159	0.557	3000 (6000)	0.0217	0.0232	R70A, R70F	1R6A, 2R8A	-	-
	SGM7A-01A*	100 W	0.318	1.11		0.0337	0.0352	R90A, R90R			
	SGM7A-C2A	150 W	0.477	1.67		0.0458	0.0473	1R6A, 2R1F	1R6A, 2R8A	1R9D	2R6D, 5R4D
	SGM7A-02□*	200 W	0.637	2.23		0.139	0.140	2R8A, 2R8F			
	SGM7A-04□*	400 W	1.27	4.46		0.216	0.217	2R8A, 2R8F	2R8A, 5R5A, 7R6A	-	-
	SGM7A-06A	600 W	1.91	6.69		0.315	0.316	5R5A	5R5A, 7R6A	3R5D	2R6D, 5R4D
	SGM7A-08□*	750 W	2.39	8.36		0.775	0.776	120A	5R4D	5R4D	
	SGM7A-10□*	1.0 kW	3.18	11.1		0.971	0.972				
	SGM7A-15□*	1.5 kW	4.90	14.7		2.00	2.00	200A	-	120D	-
	SGM7A-20□*	2.0 kW	6.36	19.1		2.47	2.47				
	SGM7A-25□*	2.5 kW	7.96	23.9		3.19	3.19	200A	120D		
	SGM7A-30□*	3.0 kW	9.80	29.4		7.00	7.00	330A	170D		
	SGM7A-40A*	4.0 kW	12.6	37.8		9.60	9.60				
	SGM7A-50□*	5.0 kW	15.8	47.6		12.3	12.3	550A	-		
	SGM7A-70□*	7.0 kW	22.3	54.0		12.3	12.3	550A	-		
SGM7P (Medium inertia, flat type)	SGM7P-01A	100 W	0.318	0.955	3000 (6000)	0.0592	-	R90A, R90F	1R6A, 2R8A	-	-
	SGM7P-02A	200 W	0.637	1.91		0.263		2R8A, 2R8F			
	SGM7P-04A	400 W	1.27	3.82		0.409		5R5A	5R5A, 7R6A		
	SGM7P-08A	750 W	2.39	7.16		2.10		-			
	SGM7P-15A	1.5 kW	4.77	14.3		4.02		120A	-		
SGM7G * (Medium inertia, large torque)	SGM7G-03A	300 W	1.96	5.88	1500 (3000)	2.48	2.48	3R8A	5R5A, 7R6A	-	-
	SGM7G-05□*	450 W	2.86	8.92		3.33	3.33			1R9D	2R6D, 5R4D
	SGM7G-09□*	850 W	5.39	14.2		13.9	13.9	7R6A	7R6A	3R5D	5R4D
	SGM7G-13□*	1.3 kW	8.34	23.3		19.9	19.9	120A		5R4D	5R4D
	SGM7G-20□*	1.8 kW	11.5	28.7		26.0	26.0	180A	-	8R4D	-
	SGM7G-30□*	2.9 kW	18.6	45.1		46.0	46.0	330A		120D	
	SGM7G-44□*	4.4 kW	28.4	71.6		67.5	67.5	170D			
	SGM7G-55□*	5.5 kW	35.0	87.6		89.0	89.0	470A		210D	
	SGM7G-75□*	7.5 kW	48.0	119		125	125	550A		260D	
	SGM7G-1A□	11 kW	70.0	175		242	242	590A		280D	
	SGM7G-1E□	15 kW	95.4	224		303	303	780A		370D	
Food Grade	M431-NN0□	1.4 Nm	1.38	4.00	5500 (6000)	0.7	-	5R5A	-	3R5D	-
	M433-MN0□	3.7 Nm	3.72	10.75	5000 (6000)	1.7		120A, 180A		5R4D, 8R4D	
	M443-KN0□	5.5 Nm	5.50	15.50	5000 (5775)	5.1		330A		170D	
	M465-GN0□	24.8 Nm	24.85	70.00	2500 (3750)	44.0		470A		210D	
Hygienic Stainless	M532-GK07□	2.4 Nm	2.4	7.2	5500 (6000)	1.16	-	5R5A	-	5R4D	-
	M542-GK07□	3.2 Nm	3.2	8.8	3000 (4000)	2.62		7R6A		3R5D	

* These motors also available as gear motors with gear ratios of 3:1, 5:1, 10:1, 25:1 or 50:1 gear ratios

Sigma Series Servo Products

SIGMA-5 ROTARY SERVO MOTOR / SIGMA-5 SERVOPACK COMBINATIONS

The following series motors include models that are only compatible with Sigma-5 SERVOPACKS.

Rotary Servomotor Model		Rated Output	Rated Torque	Peak Torque	Rated (Max) Speed	Rotary Inertia *	Sigma-5 SERVOPACK Model			
							24 VDC / 48 VDC	200V	400V	
			Nm	Nm	rpm	x10 ⁻⁴ kg·m ²	SGDV-□□□□	SGDV-□□□□	SGDV-□□□□	
SGMMV Sigma-Mini (Low inertia, ultra-low capacity)	SGMMV-B3E	3.3 W	0.0105	0.0263		0.000441	1R7E	-	-	
	SGMMV-B5E	5.5 W	0.0175	0.0438	3000 (6000)	0.000796				
	SGMMV-B9E	11 W	0.0350	0.0875		0.00221				
	SGMMV-A1□	10 W	0.0318	0.0955		0.00272	2R9E	R90F, R90A	-	
	SGMMV-A2□	20 W	0.0637	0.191	3000 (6000)	0.00466				
	SGMMV-A3□	30 W	0.0955	0.286		0.00668				2R1F, 1R6A
SGMVV (Large Capacity, Medium inertia)	SGMVV-22BA□B	22 kW	140	350	1500 (2000)	366 (451)	-	121H	-	
	SGMVV-22BD□B							-	750J	
	SGMVV-22BA□D		262	526	800 (1300)	705 (775)		121H	-	
	SGMVV-22BD□D							-	750J	
	SGMVV-3ZBA□B	30 kW	191	478	1500 (2000)	498 (583)	-	161H	-	
	SGMVV-3ZBD□B							-	750J	
	SGMVV-3ZBA□D		358	752	800 (1300)	1290 (1448)		161H	-	
	SGMVV-3ZBD□D							-	750J	
	SGMVV-3GBA□B	37 kW	236	589	1500 (2000)	595 (665)	-	201H	-	
	SGMVV-3GBD□B							-	101J	
	SGMVV-3GBA□D		442	930	800 (1300)	1564 (1722)		201H	-	
	SGMVV-3GBD□D							-	101J	
	SGMVV-4EBD□B	45 kW	286	715	1500 (2000)	1071 (1229)	-	-	131J	
	SGMVV-4EBD□D		537	1182	800 (1300)	1804		-	131J	
	SGMVV-5EBD□B	55 kW	350	875	1500 (2000)	1290 (1448)	-	-	131J	

*: Rotary inertia values in parentheses indicate models with holding brakes.

DIRECT DRIVE SERVO MOTOR / SIGMA-7 SERVOPACK COMBINATIONS

Direct Drive Servomotor Model		Outer Diameter	Rated Output	Rated Torque	Peak Torque	Rated (Max) Speed	Rotary Inertia	Sigma-7 SERVOPACK Model	
		mm	W	Nm	Nm	rpm	x10 ⁻⁴ kg·m ²	SGD7S-□□□□ *	SGD7W-□□□□
SGM7D (With core, outer rotor)	SGM7D-30F	264	188	30.0	50.0	60 (72)	960	120A	-
	SGM7D-58F		364	58.0	100		1190		
	SGM7D-90F		565	90.0	150		1420		
	SGM7D-1AF		691	110	200		1670		
	SGM7D-01G	160	16	1.30	4.00	120 (150)	55.0	2R8A, 2R8F	-
	SGM7D-05G		63	5.00	6.00		75.0		
	SGM7D-08G		101	8.00	15.0	120	120A		
	SGM7D-18G		226	18.0	30.0	120 (144)		150	
	SGM7D-24G		302	24.0	45.0	90 (144)		190	
	SGM7D-34G		320	34.0	60.0		120 (144)	230	
	SGM7D-45G		565	45.0	75.0	120 (144)	270		
	SGM7D-03H	116	38	3.00	4.00	120 (150)	25.0	2R8A, 2R8F	-

*: Note: Use SGM7D servo motor in combination with FT-Specification SERVOPACK. The following SERVOPACK models can be used:

- SGD7S-□□□□□□A□□□F82□
- SGD7S-□□□□□□A□□□F83□

DIRECT DRIVE SERVO MOTOR / SERVOPACK COMBINATIONS (CONT.)

Direct Drive Servomotor Model		Outer Diameter	Rated Output	Rated Torque	Peak Torque	Rated (Max) Speed	Rotary Inertia	Sigma-7 SERVOPACK Model	
		mm	W	Nm	Nm	rpm	x10 ⁻⁴ kg·m ²	SGD7S-□□□□ *	SGD7W-□□□□
SGM7D (With core, outer rotor)	SGM7D-28I	264	264	28.0	50.0	90 (108)	1800	120A	-
	SGM7D-70I		440	70.0	100		2000		
	SGM7D-1ZI		628	100	150	60 (72)	2300		
	SGM7D-1CI		817	130	200		2850		
	SGM7D-2BI		691	220	300	30 (60)	3400		
	SGM7D-2DI		754	240	400	30 (48)	4000		
	SGM7D-06J	150	75	6.00	8.00	120 (144)	150	120A	-
	SGM7D-09J		113	9.00	15.0		210		
	SGM7D-18J		226	18.0	30.0		240		
	SGM7D-20J		251	20.0	45.0		260		
	SGM7D-38J	107	358	38.0	60.0	90 (144)	330	2R8A, 2R8F	-
	SGM7D-02K		52	2.06	5.00	240 (360)	60.0		
	SGM7D-06K		151	6.00	10.0		70.0		
	SGM7D-08K		201	8.00	15.0		80.0		
	SGM7D-06L	224	113	6.00	10.0	180 (216)	220	2R8A, 2R8F	-
SGM7D-12L	226		12.0	20.0	220				
SGM7D-30L	565		30.0	40.0	370		120A		
SGM7F Small-capacity (With core, inner rotor)	SGM7F-02A	100	63	2	6	300 (600)	8.04	2R8A, 2R1F	2R8A
	SGM7F-05A		157	5	15		14.5		
	SGM7F-07A		220	7	21			19.3	
	SGM7F-04B	135	126	4	12	300 (600)	16.2	2R8A, 2R8F	2R8A
	SGM7F-10B		314	10	30		25.2		
	SGM7F-14B		440	14	42			36.9	
	SGM7F-08C	175	251	8	24	300 (600)	56.5	2R8A, 2R8F	2R8A
	SGM7F-17C		534	17	51			78.5	5R5A
	SGM7F-25C		785	25	75		300 (500)	111	7R6A
	SGM7F-16D	230	503	16	48	300 (600)	178	5R5A	
	SGM7F-35D		1100 / 1000	35	105	300 / 270 (400)	276	7R6A, 120A	7R6A
SGM7F Medium-capacity (With core, inner rotor)	SGM7F-45M	280	707	45	135	150 (300)	388	7R6A	
	SGM7F-80M		1260	80	240		627	120A	-
	SGM7F-1AM		1730	110	330		865	180A	-
	SGM7F-80N	360	1260	80	240	150 (300)	1360	120A	-
	SGM7F-1EN		2360	150	450	150 (250)	2470	200A	
	SGM7F-2ZN		3140	200	600		3060		
SGM7E (Coreless, inner rotor)	SGM7E-02B	135	42	2.0	6.0	200 (500)	28	2R8A, 2R1F	2R8A
	SGM7E-05B		105	5.0	15		51		
	SGM7E-07B		147	7	21		77		
	SGM7E-04C	175	84	4.0	12	200 (500)	77	2R8A, 2R8F	2R8A
	SGM7E-10C		209	10	30	200 (400)	140		
	SGM7E-14C		293	14	42	200 (300)	220		
	SGM7E-08D	230	168	8.0	24	200 (500)	285	2R8A, 2R8F	2R8A
	SGM7E-17D		356	17	51	200 (350)	510		
	SGM7E-25D		393	25	75	150 (250)	750		
	SGM7E-16E	290	335	16	48	200 (500)	930	5R5A	
	SGM7E-35E		550	35	105	150 (250)	1430		

*: Note: Use SGM7D servo motor in combination with FT-Specification SERVOPACK. The following SERVOPACK models can be used:

- SGD7S-□□□□□□A□□□F82□
- SGD7S-□□□□□□A□□□F83□

Sigma Series Servo Products

LINEAR SERVO MOTOR / SIGMA-7 SERVOPACK COMBINATIONS

Linear Servomotor Model		Rated Force	Peak Force	Rated (Max) Speed	Moving Coil Mass	Sigma-7 SERVOPACK Model	
		N	N	m/s	kg	SGD7S-□□□□	SGD7W-□□□□
SGLG (Coreless, with standard magnetic way)	SGLGW-30A050C	12.5	40	1.5 (5.0)	0.10	R70A, R70F	1R6A
	SGLGW-30A080C	25	80		0.15	R90A, R90F	
	SGLGW-40A140C	47	140		0.34		
	SGLGW-40A253C	93	280	2.0 (5.0)	0.60	1R6A, 2R1F	
	SGLGW-40A365C	140	420		0.87	2R8A, 2R8F	
	SGLGW-60A140C	70	220		0.42	1R6A, 2R1F	1R6A
	SGLGW-60A253C	140	440	2.3 (4.8)	0.76	2R8A, 2R8F	2R8A
	SGLGW-60A365C	210	660		1.1	5R5A	
	SGLGW-90A200C	325	1300	1.8 (4.0)	2.2	120A	-
	SGLGW-90A370C	550	2200	1.5 (4.0)	3.6	180A	
	SGLGW-90A535C	750	3000		4.9	200A	
SGLG (Coreless, with high-force magnetic way)	SGLGW-40A140C	57	230	1.0 (4.2)	0.34	1R6A, 2R1F	1R6A
	SGLGW-40A253C	114	460		0.60	2R8A, 2R8F	2R8A
	SGLGW-40A365C	171	690		0.87	3R8A	5R5A
	SGLGW-60A140C	85	360		0.42	1R6A, 2R1F	1R6A
	SGLGW-60A253C	170	720		0.76	3R8A	5R5A
	SGLGW-60A365C	255	1080		1.1	7R6A	
SGLF2 (with F-type iron core)	SGLFW2-30□070A	45	135	4.0 (5.0)	0.50	1R6A, 2R1F, 1R9D	1R6A, 2R6D
	SGLFW2-30□120A	90	270		0.90		
	SGLFW2-30□230A	180	540		1.7	3R8A, 1R9D	2R6D
		170	500			2R8A, 2R8F	2R8A
	SGLFW2-45□200A	280	840	4.0 (4.5)	2.9	5R5A, 3R5D	5R5A, 2R6D
	SGLFW2-45□380A	560	1680		5.5	180A, 8R4D	-
			1500			120A, 5R4D	
	SGLFW2-90□200A	560	1680		5.3	200A	
	SGLFW2-90□380A	1120	3360	4.0 (4.0)	10.1		
	SGLFW2-90□560A	1680	5040		14.9	330A	
	SGLFW2-1D□380A	1680	5040	2.0 (2.5)	14.6	200A	-
SGLFW2-1D□560A	2520	7560	21.5		330A		
SGLF* (with F-type iron core)	SGLFW-20A090A	25	86	5.0 (5.0)	0.70	1R6A, 2R1F	1R6A
	SGLFW-20A120A	40	125	3.5 (5.0)	0.90		
	SGLFW-35A120A	80	220	2.5 (5.0)	1.3		
	SGLFW-35A230A	160	440	3.0 (5.0)	2.3	3R8A	5R5A
	SGLFW-50A200B	280	600	1.5 (5.0)	3.5	5R5A	
	SGLFW-50A380B	560	1200		6.9	120A	-
	SGLFW-1ZA200B	1120	2400	1.5 (4.9)	6.4	200A	
	SGLFW-1ZA380B						

* The SGLFW model is an earlier product. Select the SGLFW2 model when newly installing a linear servomotor to a machine.

LINEAR SERVO MOTOR / SIGMA-7 SERVOPACK COMBINATIONS (CONT.)

Linear Servomotor Model		Rated Force	Peak Force	Rated (Max) Speed	Moving Coil Mass	Sigma-7 SERVOPACK Model		
		N	N	m/s	kg	SGD7S-□□□□	SGD7W-□□□□	
SGLT (with T-type iron core) Standard models	SGLTW-20A170A	130	380	3.0 (5.0)	2.5	3R8A	5R5A	
	SGLTW-20A320A	250	760		4.6	7R6A		
	SGLTW-20A460A	380	1140		6.7	120A	-	
	SGLTW-35A170A	220	660	2.5 (5.0)	3.7	5R5A		
	SGLTW-35A320A	440	1320		6.8	120A	-	
	SGLTW-35A460A	670	2000		10	180A		
	SGLTW-40A400B	670	2600	1.5 (3.1)	15	330A		
	SGLTW-40A600B	1000	4000	2.0 (3.1)	23			
	SGLTW-80A400B	1300	5000	2.0 (2.5)	24	330A		-
	SGLTW-80A600B	2000	7500		35	550A		
SGLT (with T-type iron core) High-efficiency models	SGLTW-35A170H	300	600	2.5 (4.8)	4.9	5R5A		
	SGLTW-35A320H	600	1200	2.0 (4.8)	8.8	120A	-	
	SGLTW-50A170H	450	900	2.0 (3.2)	6.0	5R5A		
	SGLTW-50A320H	900	1800	2.0 (3.1)	11	120A	-	

SIGMA TRAC II LINEAR STAGE / SIGMA-7 SERVOPACK COMBINATIONS

Linear Stage Model		Rated Force	Peak Force	Rated (Max) Speed	Maximum Payload		Moving Mass		SERVOPACK Model	
		N	N	m/s	w/o brake	with brake	w/o brake	with brake		
					kg	kg	kg	kg	SGD7S-□□□□	SGD7W-□□□□
ST2F Sigma Trac II Linear Stages	ST2F-A1A	45	135	4.0 (5.0)	3.3	2.5	2.3	3.1	1R6A, 2R1F	1R6A
	ST2F-A2A	90	270		5.8	5.0	3.6	4.4		
	ST2F-A3A	180	540		28.7	28.7	5.3	5.3	3R8A	2R8A, 2R8F
		170	500		4.7	4.7		5.3	2R8A, 2R8F	
	ST2F-A1D	45	135		3.3	2.5	2.3	3.1	1R9D	2R6D
	ST2F-A2D	90	270		5.8	5.0	3.6	4.4		
	ST2F-A3D	180	540		28.7	28.7	5.3	5.3		
	ST2F-C1A	560	1680	4.0 (4.0)	116.5	114.5	15.5	15.5	120A	-
	ST2F-C2A	1120	3360		137.2	135.7	22.8	24.3	200A	-
	ST2F-C3A	1680	5040		327.0	324.4	33.0	35.6	330A	-
	ST2F-C1D	560	1680		116.5	114.5	13.5	15.5	5R4D	5R4D
	ST2F-C2D	1120	3360		137.2	135.7	22.8	24.3	120D	-
	ST2F-C3D	1680	5040		327.0	324.4	33.0	35.6	170D	-

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Document No. BL.MTN.01 | 12/09/2025 | © 2021 Yaskawa America, Inc.