

# YASKAWA

## Products and Solutions



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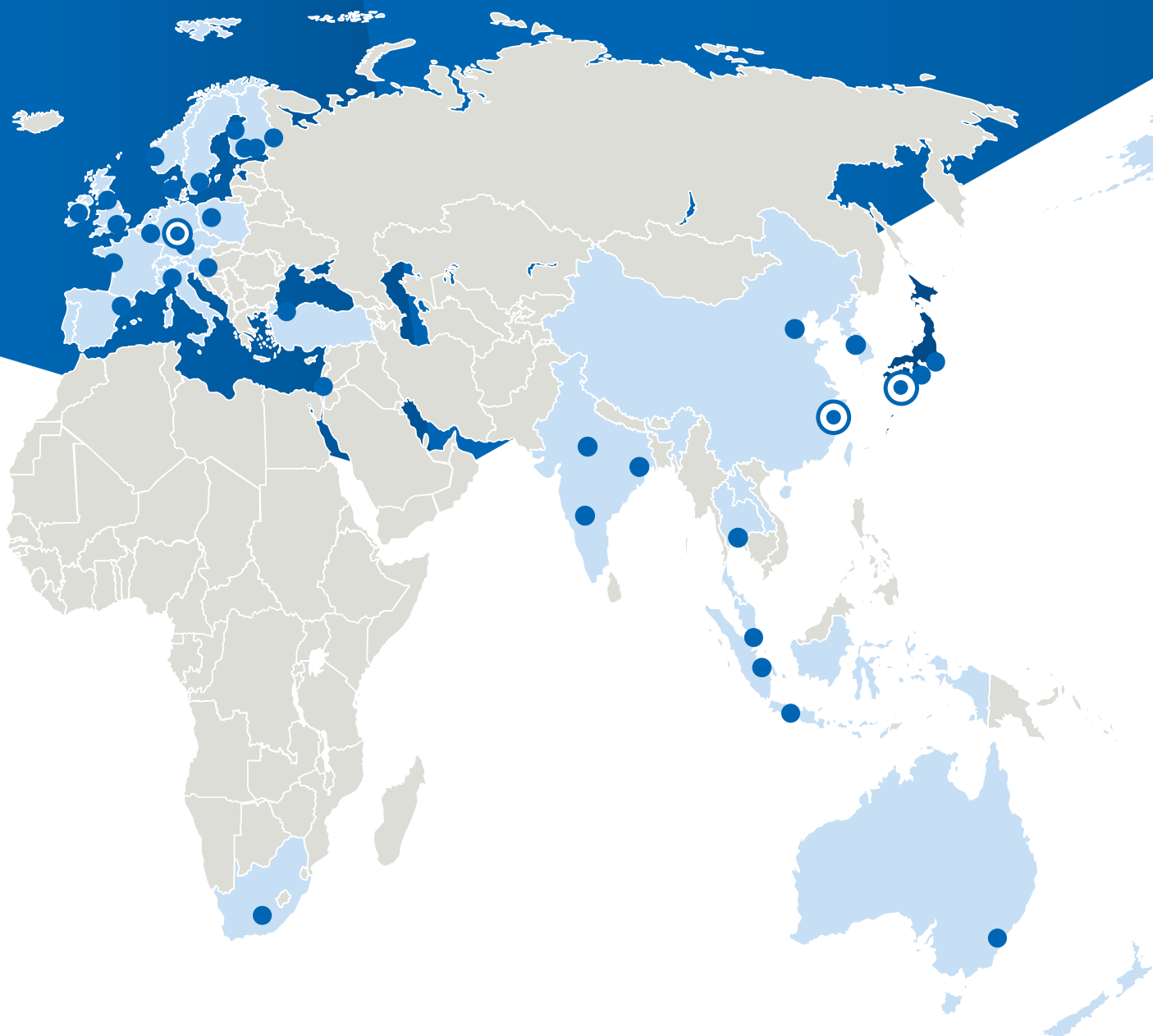
Robots 60

# A global company

We are a company of people pursuing our passion. Driven by the vision of a smarter future with advanced technologies that save precious time and energy. And for us, any given day is a new chance to make progress.

Our goal is to contribute to the evolution of society by improving the nature of its business, increasing the performance and productivity of our industry, and therefore our everyday lives. Naturally we promote renewable resources to ensure a healthy environment.

Shaping the future. Sustainably. Together.





**15,000**  
Employees  
Worldwide



**2,100**  
Employees  
EMEA region



**9**  
European  
manufacturing locations



**23**  
European  
entities  
Regional presence



**2.0 Million**  
AC drives  
Production in 2022

**33 Million**  
Accumulated units produced  
(as of 2022)



**3.4 Million**  
Servo drives and motors  
Production in 2022

**25 Million**  
Accumulated units produced  
each (as of 2022)



**47,000**  
Industrial robots  
Production in 2022

**590,000**  
Accumulated units produced  
(as of 2022)



- Top 100 Global Innovator 2016, 2017, 2018, 2019, 2020 and 2021 \*)
- 100+ European channel partners
- Network of system integrators

\*) Clarivate Analytics  
(former part of Thomson Reuters)

In Focus





CONTROLLER



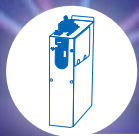
ROBOTS



HMI

**4.0**

YASKAWA CONNECTED FACTORY



SERVO DRIVES



AC DRIVES

EXPERIENCE  
CONNECTIVITY

# Connectivity

We speak your language

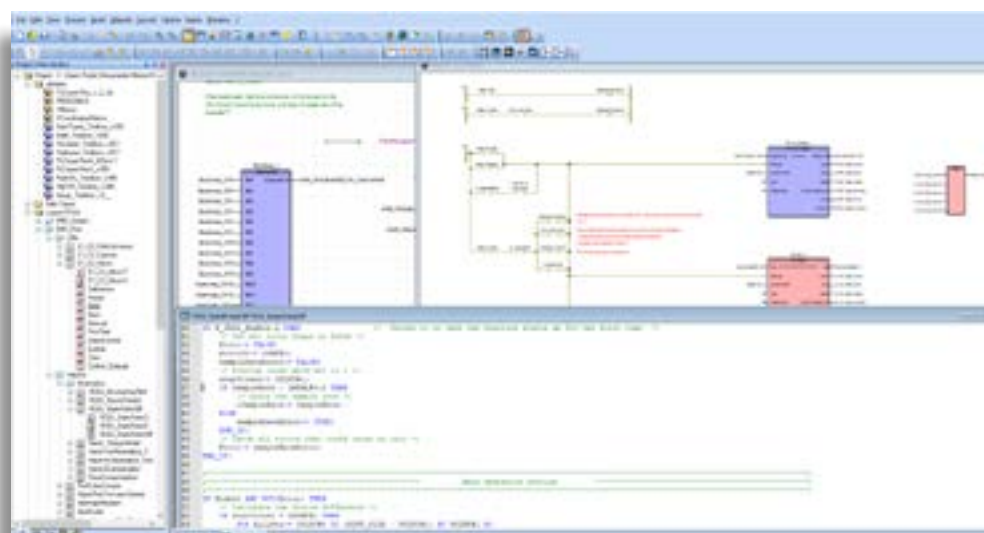
We speak many languages in our support and service, but also with our machines and technology. Providing simple solutions to connect with EtherCAT, Ethernet/IP, PROFINET, MECHATROLINK and many more. Not sure if Yaskawa can connect with your system? Contact us and we'll be sure to find a solution.

Open to all common fieldbus systems



Easy integration and implementation by the use of reliable function blocks

Pre-defined and tested function block library for fast implementation. Thorough documentation available. Free to use, open source for easy modification and adaptation of new features.







YASKAWA

POWER

MP II 3300

MBU-303

CPU-301 16axes

266F-

RDY  
RUN  
ALM  
ERR  
BAT  
M-ALM

RUN  
SYS  
SF  
OFF  
CONF  
TEST

STOP  
E-INIT  
INIT  
CNFG  
LOAD  
TEST  
MNT

CN  
LK1  
LK2



M-E

CN 1

# Singular control

One software. One controller. For everything in motion.

If you're familiar with standard ladder logic and function block programming, you can already program every component in a complete automation system, including robots and servo systems.

## ONE SOFTWARE ONE CONTROLLER

### What is singular control?

Motion, Robots, VFDs, and I/O on a single controller programmed in a single software environment.

The heart of the solution is the MP3300iec controller, where all of the application programming is performed in one software environment (MotionWorks IEC) using structured text, sequential function chart (SFC), industry-standard PLCopen function blocks and ladder logic, and includes vision integration and conveyor tracking.

The magic of Singular Control: Regardless of the mechanism, the function blocks used for motion programming are the same. This allows you to implement robotics with standard motion control without the need for a programming pendant or a proprietary robotic programming language. If your machine includes standard motion axes, robotics, or special mechanisms, the entire system can be programmed in one software environment. You can upgrade your machines with new mechanisms (to add flexibility or throughput) without the need to change the application program or introduce new controllers into the system.

### Features

- One for all:  
Robots, Servo systems, Logic control
- Up to 62 axes + 2 virtual axes of motion
- Built-in web server lets you check status or run diagnostics through a standard web browser
- Networking options:  
Modbus TCP, EtherNet/IP, MECHATROLINK-III and OPC UA
- Simple interface for HMI and I/O solutions
- Manage every system component with one software package running on a motion controller
- Programming robots using MotoLogix interface and function blocks
- Migrate a motion application from servos to robots and back again without changing application code
- Do it all with the IEC 61131-3 programming your team already knows and is comfortable using



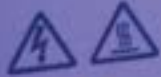




**YASKAWA**

**SERVOPACK 400V**

SGD7S-5R4DA0A  
000F64



CHARGE



RUN ERR

L/A  
A

B



CN  
3

**YASKAWA**

# Sigma-7

Your production. Your choice. Our best.

Servo drives of the Sigma-7 series stand out due to their uncompromising performance. From consistently simple and fast commissioning in just three minutes to maximum machine throughput.

More than 30 years of experience and several million installed servo drives are the basis for these outstanding servo systems. The Sigma-7 series, which is available in 200V and 400V versions, provides performance that can hardly be found in other servo systems and delivers real benefits in terms of cost and time savings.

### “Tuning less” mode

The “Tuning less” mode allows many applications to use the drives right out of the box without further adjustments or tuning. In this way the sophisticated algorithms help to save commissioning time.

### Automatic load adjustment

Automatic load adjustment adapts the control loop up to an inertia ratio of 30:1. This means one type of motor can be used in different applications. This reduces inventory diversification, saves stocking and minimizes procurement costs.

### Advanced auto-tuning

Advanced Auto-tuning reduces settling time to up to 4 ms in most applications and therefore optimizes machine productivity.

### Advanced functions

Functions like vibration suppression, power ripple and friction compensation reduce engineering efforts and help getting the most out of a machine with minimized efforts and at lowest cost.

Function	200 V	400 V
Power Range	50 W – 15 kW	200 W – 15 kW
Encoder	24 bit absolute	
Protection Class	IP67 by default	
Single Axis	✓	✓
Dual Axis	up to 1 kW	up to 3 kW
Rotary Motors	One amplifier for rotary and linear	One amplifier for rotary and linear
Linear Motors		
Direct Drive Motors	✓	–
Integrated Motion Controller	✓	✓

EtherCAT®

PROFI<sup>®</sup>  
NET

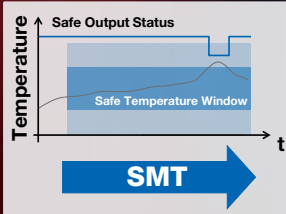
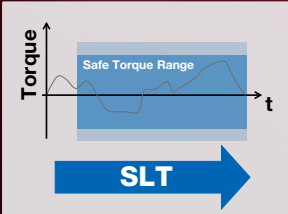
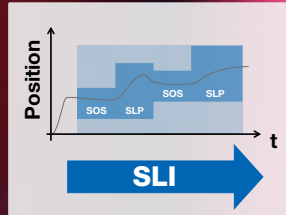
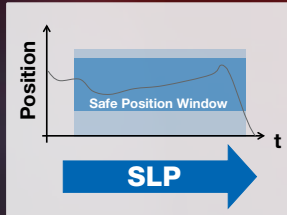
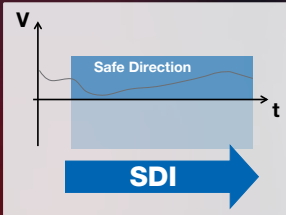
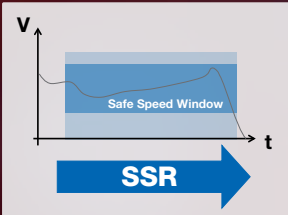
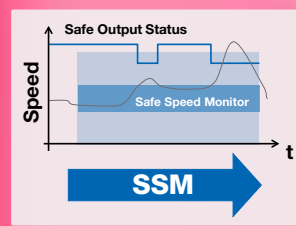
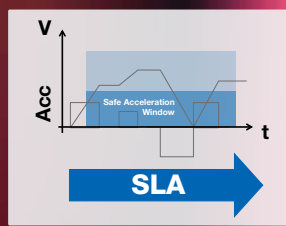
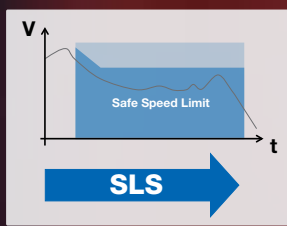
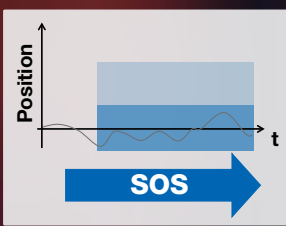
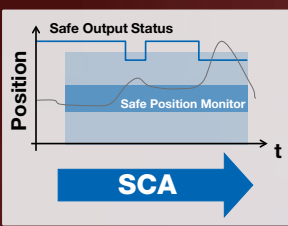
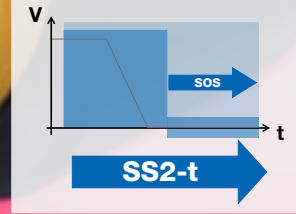
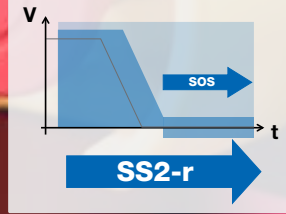
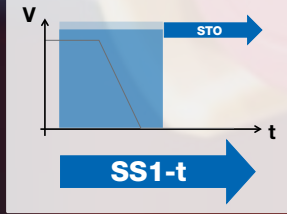
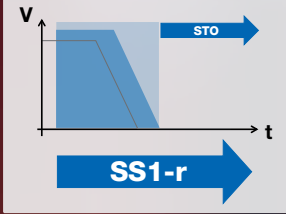
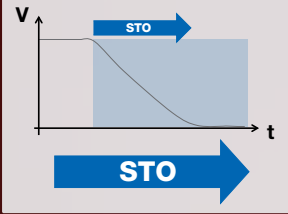
MECHATROLINK



Sigma-7 200V



Sigma-7 400V



# Advanced safety modules for Sigma-7

Open & scalable according to your needs

We offer a new generation of advanced safety modules, which are geared to your requirements. They follow with SIL3/PLe and FSoE (FailSafe over EtherCAT) the latest standards of the industry.

In order to find a suitable and economical solution for your application we offer a scalable concept. While Safe Torque Off is integrated in every SERVOPACK, three different option modules can be selected for further requirements:

Option Module	Safety Functions	I/Os	FSoE
SGDV-OSA01A	STO/SS1/SS2/SOS/SLS	<ul style="list-style-type: none"> <li>2 Safe Inputs</li> </ul>	-
SGD7S-OSB01A*	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA	-	✓
SGD7S-OSB02A*	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA, SLT, SMT	<ul style="list-style-type: none"> <li>6 I/O dual channel SIL3/PLe Cat3</li> <li>2 I/O single channel SIL2/PLd Cat3</li> </ul>	✓

The 14 safety functions enable you to find a suitable solution for many applications. Fulfilling for every safety function the latest standard SIL3/ PLe (Cat. 3). We support you to easily reduce risks.

The new generation of safety modules is also providing FSoE Slave functionality. Combining Safety and the open as well as common Ethernet based fieldbus system EtherCAT helps you to realize your safety application with less effort for wiring.

## Features

- STO (Safe Torque Off) integrated
- 3 different option modules provide a scalable approach for your requirements
- 14 safety functions allow a suitable solution for many applications
- All safety functions fulfil SIL3/PLe (Cat. 3)
- 6 configurable Safe I/O Channels
- 1 Safe Analog Input Channel
- Via FSoE (FailSafe over EtherCAT) the safety functions can be controlled and monitored via fieldbus



SGD7S-OSB01A

SGD7S-OSB02A



# GA500

Balancing power to perfection

Cost-saving by optimized application  
Efficiency

Experience from 23 million  
installed AC drives

Application Reliability by 10 years of  
maintenance free drive operation

Flexibility to master any challenge

Maximized machine  
Performance

Ease of Use  
minimizes setup times



More than 100 years of experience with driving electric motors have led us to develop products which perfectly combine technical superiority with easy handling. The latest result of this evolution is the new GA500 microdrive. Compact in size and flexible in terms of motor type and connectivity, the GA500 is designed to easily master nearly any application.

### Simplified system integration

GA500 drives are designed to be easily integrated into systems and machinery. Combining network support, application focused features and great customizability with unparalleled ease of use, the GA500 minimizes efforts to get your automation jobs done.

### Fast installation and setup

GA500 drives embed various features eliminating the need for peripherals. This in line with easy wiring plus smart functions for doing a basic setup literally in 5 minutes greatly reduce the time and cost required to having a running system.

### Best machine performance

By integrating latest motor control technology for induction, permanent magnet and synchronous reluctance motors, the GA500 drives provide best control performance at minimized energy consumption.

### Operation secured

GA500 drives are built to perform reliably. The robust design with coated PCBs allows operation in 50 °C without derating while machine monitoring functions and an integrated life time prediction prevent sudden failures. Thus GA500 effectively secures operation and prevents production loss.

## Features

- Easy network integration
- Robust design. Can be operated in up to 4,000m altitude and 60 °C hot environment
- Coated PCBs
- Embedded braking chopper
- Integrated programming environment
- 24 VDC power input for controller
- USB port
- 10 years maintenance-free design
- Screwless control terminals
- Easily accessible mains terminals
- 24 VDC Power for sensors
- Built-in EMC filter
- One drive for various applications (induction, permanent magnet and synchronous reluctance motors)



Search for

**YASKAWA**

on





# LA500

Does your lift need a new drive? We have the perfect fit. Our LA500 lift drive comes with integrated safety features, highest ride comfort and outstanding reliability. Installing LA500 to your lift adds sustainability while saving you time and energy.



## Highlights

- Integrated EMC filter with class C2 for EN12015 compliance
- Integrated braking chopper
- Integrated SIL3 STO function for operation without motor contactors
- Flexible control sequence to work with almost any controller
- Setup in lift terminology and units
- Automatic motor data tuning in stand still condition without removing ropes
- Long lasting design
- Maintenance free
- Energy saving by super low stand-by consumption

### Simplified system integration

LA500 drives are designed to be easily integrated into lift systems. Embedded safety functions, integrated filters and braking choppers reduce the number of components in the control panel, which does not only reduce the space required but also increases system reliability.

### Fast installation and setup

A highly flexible interface allows easy integration with most any lift controller. Easy wiring and smart functions for completing a basic setup in a couple of minutes minimize the time and cost involved in the commissioning of your lift.

### Highest ride comfort

With precise motor control and high starting torque, flexibly configurable ride curves and integrated brake control logic, the LA500 provides the key to a smooth ride and accurate landing.

### Sustainable systems

Designed for 10 years of operation without maintenance, our LA500 drives are built to perform reliably for a long time. The robust design featuring coated PCBs allows operation in 50 °C without derating, while integrated service lifetime prediction prevents sudden failures and downtime.



LA500 – flexibility, ease of use, and a sustainable design offer the best value proposition for your lift application.





# MotoLogix

## Interface for MOTOMAN robot programming and control via PLC

MotoLogix is a software interface for programming and control of MOTOMAN robots by PLC. Being available for all major PLC brands and fieldbuses the software is designed with two primary objectives:

- Enable deep integration of Yaskawa robot systems in PLC controlled machinery
- Easy programming/commissioning/teaching/operating of robots in a machine, without need of specialized knowledge

### MotoLogix has two components

#### 1. MotoLogix runtime

Enables the MotoLogix interface on the Yaskawa robot controller, using the fieldbus for communication with the PLC.

#### 2. MotoLogix PLC library + examples

Comprehensive set of function blocks for writing the robot application logic in the PLC (example programs).

### Standard Robot Command Interface

Just as with MotoLogix, SRCI allows programming the robot trajectory in the PLC instead of in the robot controller. The SRCI specification was created by a working group consisting of a leading PLC vendor and many robot vendors. The goal is to standardize both the data packet and the PLC library functions. This enables users to switch between different robot- and/or PLC vendors without having to rewrite all of their PLC code.

SRCI is not limited to any particular PLC or fieldbus. It is expected that over time, many PLC vendors will support this interface (and create a PLC library).

### Supported Platforms:

YASKAWA  
PROFINET

B&R  
POWERLINK

SIEMENS  
TIA S7-300  
PROFINET

Rockwell  
EtherNet/IP

SIEMENS  
TIA S7-1500  
PROFINET

CODESYS  
EtherCAT

SIEMENS  
SIMOTION  
PROFINET

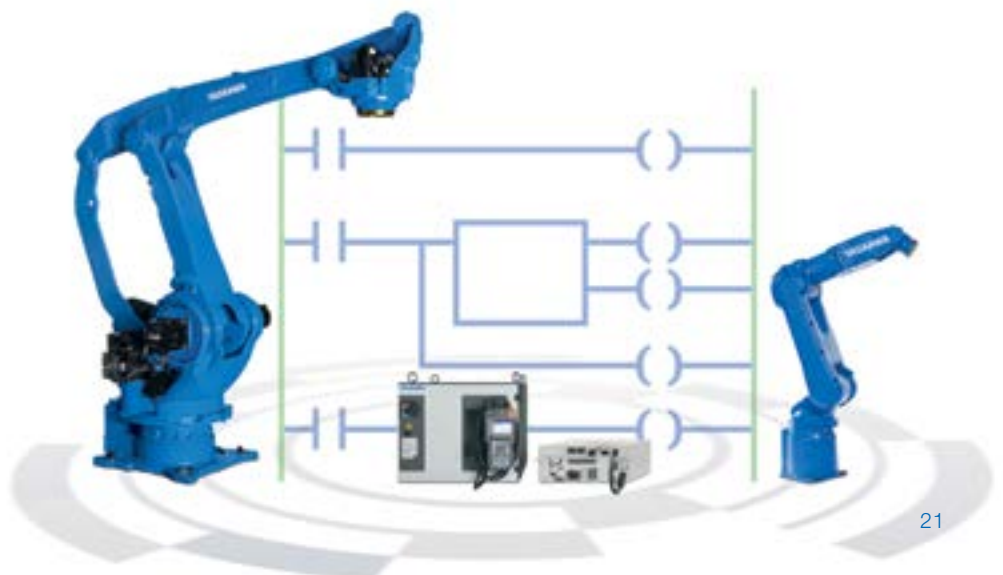
CODESYS  
EtherNet/IP

Beckhoff  
EtherCAT

CODESYS  
PROFINET

## Features

- Robot programming carried out in PLC language – unified for the whole system
- Connects all peripheral devices (sensor, camera, conveyor) through PLC
- Robot completely integrated in the PLC and HMI environment
- Testing of the complete PLC/HMI robot application using virtualization (MotoSim)
- Assurance of path accuracy (calculation in MOTOMAN controller)
- All DX200, YRC1000 and YRC-1000micro robots can be controlled, including the collaborative types such as HC10
- No Teach pendant or Yaskawa robotics knowledge is required for robot programming and operation
- Data stored in the PLC, not in the robot controller
- Control up to 4 robots over one MotoLogix interface
- MotoLogix on a OPC UA equipped PLC can act as a convenient gateway to PC based systems such as LabView





# Yaskawa Ecosystem

Plug & play!

## Simple Robot Programming & Operation

Unlike traditional more complex robot execution, which requires an upfront investment in training, Smart Series technology provides simple, intuitive robot programming and operation methods for your workforce. With a host of grippers and accessories available from our Technology Partners, Smart Series robots can be easily adapted to changing manufacturing requirements and can readily be deployed and redeployed for the next job.

## 100% Industrial

But with all the simplification, our robots in no way lose their 100% industrial functionality. All our Smart Series robots are controlled by our compact yet powerful YRC1000micro controller. To make the wide range of applications and functions as user-friendly as possible, programming is done via our Smart Pendant with patented Smart Frame function.

**We support you when it comes to implementing your automation solution.**

## Smart Series Partner Program

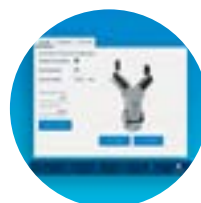
Yaskawa has partnered with the leading gripper and accessory manufacturers to provide our customers an ecosystem of ready-to-use plug& play products.



1. Receive your read to install package



2. Install the gripper on your robot



3. Configure on the Smart Pendant

## Features

- Pre-configuration
- User-friendly setup and deployment out of the box
- Perfect for customers that are new to robotics or looking for an easy automation solution





# Smart pendant

Next generation robot control interface

Smart pendant reduces what users needs to remember in order to enter instructions and values, and the procedures for doing so. The main menu makes switching between screens more user-friendly, as all menus are listed in a sequence that requires minimal memorization.

Easy access to all functions: Users can remember the location of each item in the navigation menu and safely return to the home menu in case of confusion.





## Smart frame

The patented technology of the „Smart Frame“ determines the orientation of the operator to the robot. Therefore, a conventional coordinate system (X, Y, Z) is no longer required. The intuitive movement of the robot by tilting the Smart Pendant also simplifies operation.



## Features

- Large touch screen (10 Inch / 25.4 cm)
- Ergonomic due to low weight, angled cable exit on the side and integrated emergency stop
- Simple and intuitive operation, short learning curve
- Ideal for users who need to reprogram frequently and appreciate ease of use
- Supports many powerful functions of the MOTOMAN YRC1000
- Context sensitive help and help menu offers many explanations





# MotoMINI

Small. Lightweight. Fast.

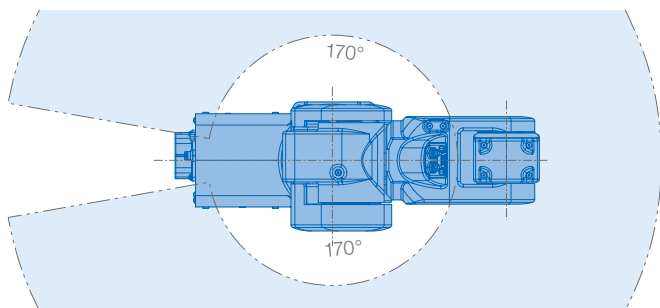
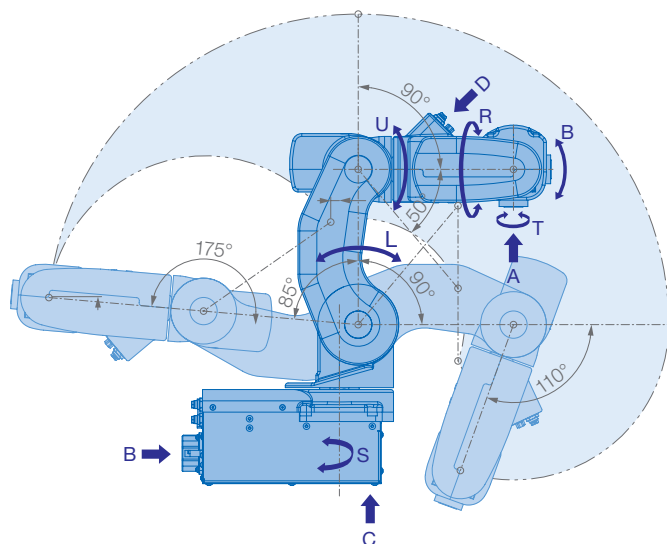
The MotoMINI 6-axis robot was especially designed for handling and assembly of small work pieces. It reduces the size of your production line and helps to increase productivity.

This lightweight high-speed robot provides a payload of 500g and a maximum reach of 350mm. The high repeatability of 0.02mm offers superior performance in small part handling and assembly. It is easy to change the location of MotoMINI according to the line's operating condition or the work piece being manufactured.

This robot is driven by the also small and compact MOTOMAN YRC1000micro controller, which is especially suited to operate small robots.

## Features

- Compact and fast
- Lightweight and portable
- Superior performance in small part handling & assembly
- Minimum footprint
- Flexible positioning



reddot award 2019  
winner



MOTOMAN GP8



red dot award 2018  
winner



# MOTOMAN GP-Series

Handling & general applications

We complete our range of MOTOMAN industrial robots and now offer models for handling and general applications from 7 to 600 kg. Most models are IP67 rated and can be programmed and controlled with the new and smaller YRC1000 controller. With numerous special application functions that are already implemented in the controller, automation tasks can be implemented with ease.

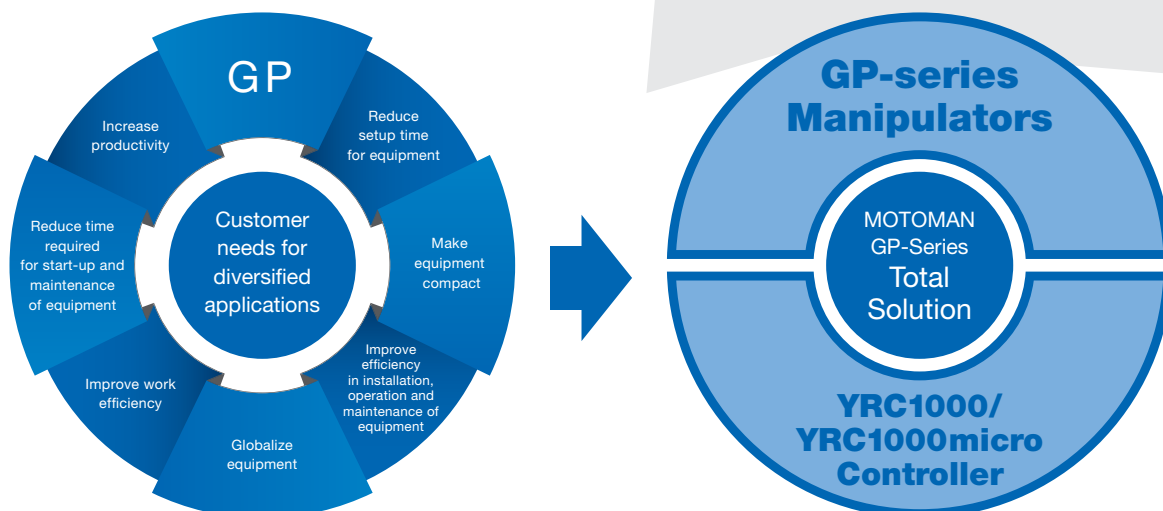
The slim and curvy design allows the manipulator to dive deep into work areas, while the smooth surfaces make cleaning the GP robots easier. Only one robot cable is required for the connection between the manipulator and the controller. The advantages of this solution are reduced wear and reduced space requirements, as well as reduced maintenance costs and smaller required spare parts stock.

The robots of the GP series are controlled by the new MOTOMAN YRC1000 control unit. The new drive technology reduces the time required for the actuation process with the aid of minimized movement changes due to different speeds. This extremely compact controller allows for optimal space utilization and is designed to set new standards with robot acceleration and speed.

The YRC1000 controller programmer provides improved cable routing. With only 730 g, it is the lightest programming device in its category and can confirm robot positions via the 3D robot model display. The touch screen allows intuitive operation and thus easy movement and scrolling with the cursor.

## Highlights

- Increase productivity: A variety of workpieces can be transferred and different grippers can be mounted
- Make equipment compact: Slim and easy-to-use structure
- Easy set-up
- Robot surface is designed to prevent adherence of dust
- High environmental performance: Its structure can resist dust and coolants due to its IP67 standard protection class
- Easy maintenance: Data saving feature enables to replace the wire harness in the robot without having to connect to a battery
- Productivity improvement due to reduction in number of cables and connectors



# MOTOMAN HC10DT IP67

Human-Collaborative robots for harsh environments



MOTOMAN HC10DT IP67 (B10 + B12) are 6 axes human-collaborative robots with a payload of up to 10 kg. Complying to EN 60529-IP67, they are dust and waterproof protected to operate in harsh environments. Operator's safety is assured by a Power and Force Limit technology that stops the robot in case of contact with an operator.

The robot arm can be hand guided by an operator and robot positions and gripper operation can be registered via "Teach" and "Tool" buttons. These features offer time saving during the robot programming. The robot's arm geometry was designed to avoid pinch points (finger) and provides internal wiring options (Air (-B10) or Ethernet (-B12)).

The MOTOMAN HC10DT IP67 robots can operate without additional protective measures like a safety fence, depending on the risk assessment. This saves space and costs.

Controlled by  
**YRC1000**

Controlled by  
**YRC1000  
micro**



**reddot** award 2020  
winner

## Highlights

### Controller

- Fully industrial robot controller YRC1000 and YRC1000micro

### High safety

- Contact force between operator and robot is limited to a safe level
- Safety by Design: rounded edges without pinch points (finger protections)
- Internal cable routing options: Air (-B10) or Ethernet (-B12)
- Safety standards – applications for industrial robots: ISO 10218-1 (5.10.5 Power and Force Limiting)
- Complies to ISO TS 15066
- Safety functions industrial robot controller: ISO 13849-1, PLd, Cat. 3
- Functional safety unit included
- Safe force/Torque sensors in all 6 links

### Easy teaching

- Move the robot arm directly via hand guiding function: easy teaching mode supported by function buttons at the wrist

### No safety fence

- Depending on the application, the MOTOMAN HC10DT can be switched between safe/collaborative mode in phases of man-robot-interaction, and returning into high speed when absence of the operator is detected by additional safety devices



# MOTOMAN HC30PL

Human-collaborative robots



MOTOMAN HC30PL is a 6 axes human-collaborative robot with a payload of up to 30 kg. Operator's safety is assured by a Power and Force Limit technology that stops the robot in case of contact with an operator.

The robot arm can be hand guided by an operator and robot positions and gripper operation can be registered via "Teach" and "Tool" buttons. These features offer time saving during the robot programming. The robot's arm geometry was designed to avoid pinch points (finger).

The MOTOMAN HC30PL robot can operate without additional protective measures like a safety fence, depending on the risk assessment. This saves space and costs.

Controlled by  
**YRC1000**

Controlled by  
**YRC1000  
micro**

## Highlights

### Controller

- Fully industrial robot controller YRC1000 and YRC1000micro

### High safety

- Contact force between operator and robot is limited to a safe level
- Safety by design: rounded edges without pinch points (finger protections)
- Internal cable routing
- Safety standards – applications for industrial robots: ISO 10218-1 (5.10.5 Power and Force Limiting)
- Complies to ISO TS 15066
- Safety functions industrial robot controller: ISO 13849-1, PLd, Cat. 3
- Functional safety unit included
- Safe force/Torque sensors in all 6 links

### Easy teaching

- Move the robot arm directly via hand guiding function: easy teaching mode with a switch box

### No safety fence

- Depending on the application, the MOTOMAN HC30PL can be switched between safe/collaborative mode in phases of man-robot-interaction, and returning into high speed when absence of the operator is detected by additional safety devices



# Weld4Me

Collaborative robotics for easy welding of small series



As an alternative or supplement to manual MIG/MAG welding with air-cooled welding equipment, the Weld4Me robot station offers all the advantages needed. It has a small footprint and is easy to move with a hand pallet truck, and it brings the consistent quality of robotic welding to your production processes.

The hybrid robot mounted on top combines the strength and accuracy of the industrial robot with the safety features necessary for human-robot collaboration. Besides, the IP67 protection class provides superior capabilities for applications in rough welding environments. Due to direct teaching and the customized welding wizard software, operating and programming the Weld4Me robots is easy to learn for welding personnel, even without prior robotics knowledge.

#### Human-robot safety features

The robot monitors and limits its speed and range, in one or more zones, with the Functional Safety Unit (FSU). In addition to this, the Power and Force Limiting (PFL) function will stop the robot as soon as the detected external force exceeds a threshold value.



## Highlights

### Weld4Me base package

- MOTOMAN HC10DT IP67 robot with YRC1000 controller
- EC declaration of incorporation of partly completed machinery, according to Machinery Directive 2006/42/EC, Annex II.1.B.
- Movable robot stand
- Teach box fixture
- Welding Wizard for easy robot job creation
- Calibration kit for welding torch

### Options

- Complete Fronius welding package (power source TPS320i, welding torch and cable package)
- Welding table 1200 × 800 mm, fixture clamps and glare shield
- Calibration kit with cups and wire cutter
- Clamps for mounting the calibration kit onto the table
- Trolley for welding power source
- Base kit for welding equipment from other suppliers on request
- Robot jacket and wrist cover for heavy sputter applications
- Other colors by customer choice
- Further accessories

### Weld4Me CE cell

- Our Weld4Me solution is also available as a CE cell version. Please contact your local Yaskawa representative for up-to-date information on this.

# Motors and drives for turbo applications

Up to 1.5 MW and 20,000rpm



Switch up to high-speed drive train technology for turbo applications and reach speeds of up to 20,000 rpm with power ranging from 300 – 1,500 kW. This is possible due to our proprietary solid rotor technology, available as standardized packages.

### Think outside the gearbox

The Switch direct-drive, high-speed motors eliminate the need for a mechanical gearbox, while allowing the application to reach higher speeds and unmatched energy efficiency.

Our high-speed drive system consists of solid rotor motors together with the latest Yaskawa variable frequency drive technology.

Together with the frequency converter, you get full control and variable speed over the entire operating range.

### High-speed solid rotor motor

Solid rotor technology is designed to create electrical drive trains in their simplest form. It is based on induction motor technology – a widely used technology that was invented over a hundred years ago.

Traditionally, the rotor of an induction motor is made of stacked electrical sheets. But to enable the induction machine to withstand high centrifugal forces and thermal cycling, the solid rotor is machined from a single stress-relieved steel billet. This is simply the most robust form of a high-speed rotor.

### Turbo drive

The turbo drive has been optimized for high-speed operation, especially with the solid rotor machines.

To compensate for the power factor, we have integrated an optimized sine wave filter into the same cabinet with the variable frequency drive. The sine filter improves the electricity quality by reducing harmonics, which reduces motor losses. The sine filter also eliminates voltage peaks and rise time (du/dt), improving the machine insulation lifetime and electromagnetic compatibility (EMC).

## Highlights

Our solid rotor high-speed electrical motors give your turbo application:

- Gearless, direct-drive solution
- Up to 1.5 MW and 20,000 rpm
- Simpler, fewer components
- Lower maintenance needs
- High mechanical integrity and rigidity
- Reach higher system efficiencies
- 50% more compact and easier to install than a geared solution
- Withstands high centrifugal forces and thermal cycling
- Capability to reach higher system efficiencies
- Thousands of solid rotor motors delivered with zero rotor failures

### Applications that can benefit

- Fans and turbo blowers
- Vacuum systems in paper machines
- Turbo generators
- Industrial air compressors
- Gas compressors
- Chiller compressors
- Turbo pumps
- Test benches
- Other high-speed industrial applications



# System SLIO

The updated smart control I/O system.  
16x Digital Input and Output Modules



The digital input and output modules provide significantly more space in the control cabinet. Thanks to the innovative design with removable front connector, wiring is particularly convenient.

**Modular concept**

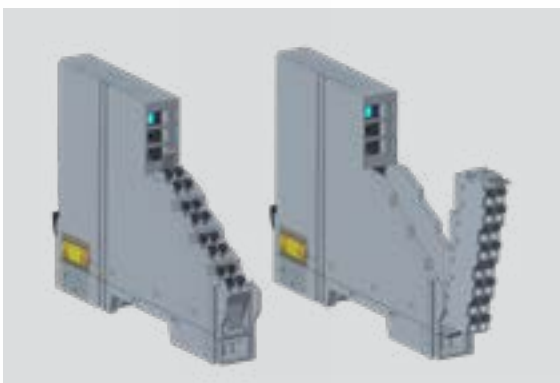
- The new modular design consists of the base module and a removable connector
- The base module can be easily pulled out and exchanged in the installed state
- They have the same compact dimensions of the previous SLIO modules (13x100x76 mm) which means that twice the amount of IOs can be accommodated in the same space

**Removable connector**

- The connector has a latch and can be removed from the base module via a swivel mechanism
- This allows pre-wiring of the connector and simplifies the wiring effort
- In the event of replacement, the wiring on the connector can remain in place and the connector can simply be plugged into the replacement module

**Push-in technology**

- The terminals of the connector are designed in push-in technology this allows for easy wiring
- Wiring possible with and without wire end ferrules



**Features**

- 50% space saving in the system
- Control cabinets or decentralized I/O distributors can become significantly smaller
- Innovative design allows for easier wiring even in the event of subsequent changes

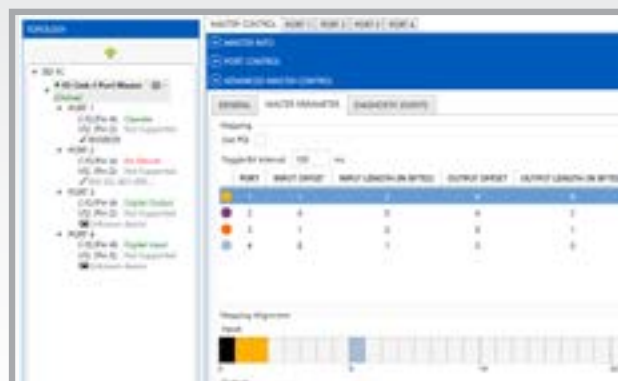


	021-1BH00	022-1BH00
Digital Inputs	16x DC 24 V	-
Digital Outputs	-	16x DC 24 V 0.5A
Wiring	Without wire ferrules: 0.25 - 0.75 mm <sup>2</sup> / AWG 24-18  With wire ferrules: 0.14 - 0.75 mm <sup>2</sup> / AWG 25-18	



# System SLIO

New IO-Link module with matching software



The proven decentralized I/O and control system SLIO is now extended by a new IO-Link module and the associated software YASKAWA IO-Link Manager. The SLIO IO-Link module now enables communication between CPU and IO-Link capable field devices such as sensors and actuators according to IEC 61131-9.

**YASKAWA IO-Link Manager**

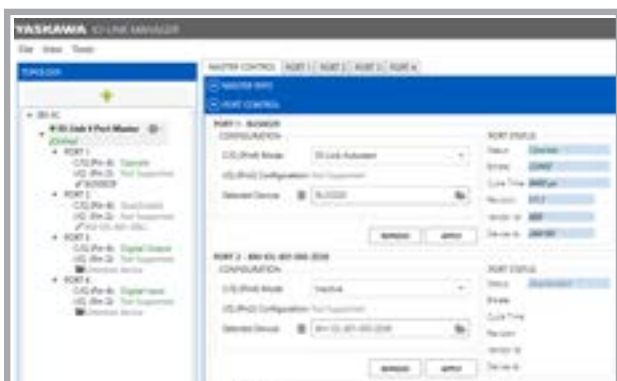
- The IO-Link master modules are configured, controlled and updated via the new YASKAWA IO-Link Manager software
- The IODD files for the IO-Link Devices can either be downloaded from a server of the IO-Link community or installed manually
- High data security is guaranteed, since IODD files do not contain any executable code

**Flexible topologies**

- If used with a SLIO controller, the IO-Link Master module can be connected directly to the SLIO PLC
- In a topology with a 3rd party controller, each IO-Link Master has to be used within decentralized setup behind interface module
- You can use up to six IO-Link Master in one SLIO PLC or SLIO Interface Modul setup
- The IO-Link Master can connect up to four IO-Link devices

**Device description IODD – file**

- For integration into your configuration tool, you use an IODD file (IO Device Description) from the manufacturer of the corresponding IO-Link device
- The file contains individual device properties for the corresponding IO-Link device and simplifies configuration and parametrization



**Features**

**Hardware**

- IO-Link master, 4 channels
- IO-Link ports galvanically isolated from the backplane bus
- Permanent memory for parameter
- Channels be run as standard-I/O (SIO) or in IO-Link mode
- Status-LEDs for SIO-mode, IO-Link mode and for error indication
- Length of process data for input and output of 64 bytes each

**Software**

- IO-Link Manager

042-1IO00	
IO-Link Master 4 Channels	IO-Link Manager
Can be used with: <b>SLIO PLCs</b> or: Interface Modules <b>053-1EC01</b> <b>053-1PN01</b> <b>053-1IP01</b>  Up to 6 IO-Link Master can be used per PLC or Interface Module setup	Can be downloaded from the Yaskawa Download Center



# Product overview

## GA700

AC drives for industrial applications

### Standard AC Drive

The GA700 precisely controls induction, permanent magnet, and synchronous reluctance motors providing versatility to run a variety of applications with just one drive. The times of complex motor set-up are over. With the new EZ vector mode, the GA700 can run all of these motor types without the need for comprehensive tuning.

### Easy Programming

DriveWorksEZ® is our intuitive graphical programming environment. Create customized functions for your application in a very short time by dragging and dropping function blocks. The online diagnosis tool supports testing.

### Features

- Easy set-up due to the integrated start-up wizard
- Integrated features (STO with SIL 3, Braking transistor [up to 75 kW], EMC filter, DC reactor [22 kW and above] ...)
- Data logging with real time stamp up to 32 GB on MicroSD card
- Mobile Device Connectivity: Cloud connected DriveWizard Mobile App for drive management on smartphones and tablets, Manual App providing technical documentation exactly where you need it
- Safe programming when switched off
- Network up to five GA700 drives with a single communication card



Technical Data	GA700
Motor power range [kW]	0.55 – 630
Induction motor (IM)	√
Permanent magnet motor (PM)	√
Synchronous reluctance motor	√

## GA500

AC drives for industrial applications

### Standard AC Drive

Compact in size and flexible in terms of motor type and connectivity, the GA500 is designed to easily master nearly any application.

### Easy Programming

DriveWorksEZ® is our intuitive graphical programming environment. Create customized functions for your application in a very short time by dragging and dropping function blocks. The online diagnosis tool supports testing.

### Features

- Easy network integration
- Robust design. Operation up to 4000 m altitude and 60 °C environment
- Coated PCBs
- Embedded braking chopper
- Integrated programming environment
- 24 VDC power input for controller
- USB port
- 10 years maintenance-free design
- Screwless control terminals
- Easily accessible mains terminals
- 24 VDC power for sensors
- Built-in EMC filter
- One drive for various applications (induction, permanent magnet and synchronous reluctance motors)



Technical Data	GA500
Motor power range [kW]	0.1 – 30
Induction motor (IM)	√
Permanent magnet motor (PM)	√
Synchronous reluctance motor	√

## DriveWizard® 10

Software user interface for AC drives

Easy configuration of Yaskawa AC drives. Its comprehensive monitoring functions and integrated oscilloscope allow easy process optimization and fast troubleshooting.

- Connect to the GA500 via USB – even without mains power!
- Configure the GA500 online or offline.
- Log your process with up to six channels of recorded data.
- Create reports to export and send via email.
- Simplify operation and save valuable time during setup, maintenance, or troubleshooting.
- Import and export data with DriveWizard mobile.
- Connect to multiple drives though ProfiNet, EtherNet/IP or Modbus TCP.



## DriveWorksEZ® 10

Software for creating individual functions for AC drives

User-friendly, icon-based, drag-and-drop graphical environment for adding programmable functions. This allows the drive to be tailored for a variety of machine and application requirements without the cost of external controllers, such as PLCs or additional controller hardware options.

- Select from 400+ function blocks
- Logic/math functions
- Timers/counters
- Up to 100 connections
- Offline simulation mode for testing without the risk of application malfunctions
- Protection of intellectual property with project lock
- Online monitor for visual debugging
- Fast cycle time of 2 ms, independent of program size



### DriveWorks Application Library

Provides pre-configured application modules that can be used instantly or can be modified and expanded to fit the need of your application or machine.

For example:

- Brake sequence
- Flexible timer
- Torque limits
- Master-Slave via serial communication without PLC
- Dual PI controller
- Unbalance detection

## DriveWizard Mobile

App-based user interface for AC drives

The ultimate setup tool for Yaskawa AC drives. From simple parameter editing through Setup Wizard with an 8 channel fully featured oscilloscope, it provides all tools needed for setup, monitoring and process optimization.

- Intuitive parameter editing with help and search function
- Create favorite parameter lists
- 8-channel oscilloscope with comprehensive trigger functions and data analysis
- Parameter backup/verify
- Setup Wizard for quick setup without knowledge about menus and parameters
- Troubleshooting support with fault analysis and countermeasures
- Export to DriveWizard PC tool
- Worry-free data recovery: Parameter back-up/retrieval anytime via Yaskawa cloud service for registered drives
- Usable offline in areas without mobile reception



## Yaskawa Manuals app

App-based documentation for AC drives

With the Yaskawa Manuals app the latest manuals for your AC drives are always with you.

- Responsive layout - line breaks automatically adjust to zoom level for best readability without panning left/right
- Quickly find the information you really need using the search function
- Set own bookmarks to frequently used pages
- All books can be downloaded for offline use
- Always up-to-date documents



Mobile device connectivity is achieved through using the built-in USB port (USB on-the-go) or wireless communication with the Bluetooth® LCD keypad option.

Bluetooth® and the Bluetooth logo are registered trademarks of Bluetooth SIG, Inc. USA. Android™ is a trademark of Google Inc. iOS® is a registered trademark of Cisco and is used under license by Apple, Inc.

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## CR700

AC drives for crane applications

### Crane AC Drive

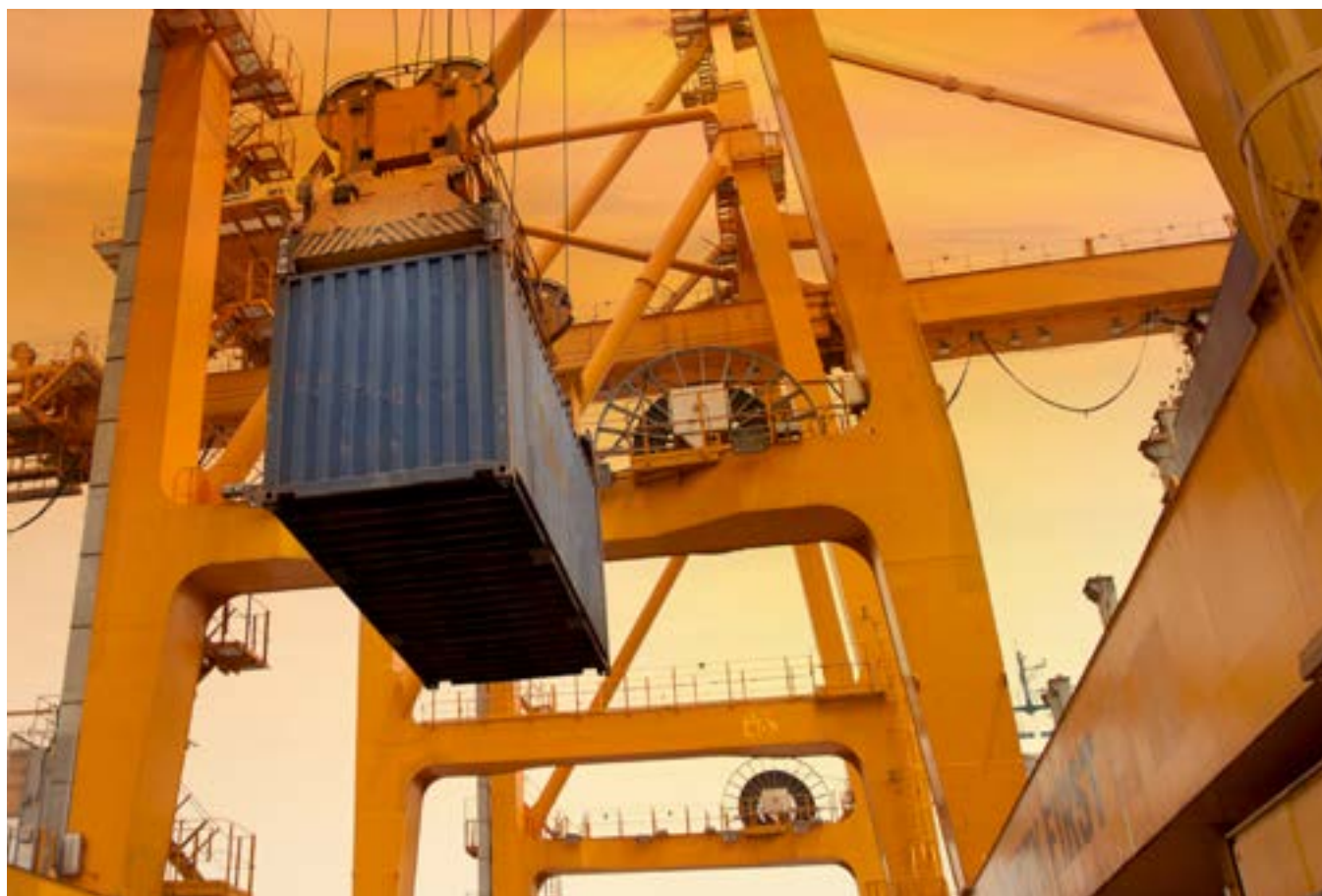
Continuous improvements of the key functions for crane applications has won the trust of our customers for over 30 years. The CR700 balances the hoist application in perfection. Made possible by innovative design advantages the CR700 crane drive helps you to lower initial investment for factory construction, supports you by increasing your productivity, lowers the efforts for daily maintenance and helps to reduce energy consumption.



Technical Data	CR700
Motor power range [kW]	0.55 – 315
Induction motor (IM)	√

### Features

- Synchronous position control and tandem application
- Anti-sway function
- Light-load function
- Load balance without encoder
- Wire length monitor
- Maintenance monitor
- Travel limit
- Brake command monitor





## LA700, LA500

Standard drives for lift applications

Technical Data	LA700	LA500
Motor power range [kW]	1.5 – 110	4.0 – 22
Induction motor (IM)	√	√
Permanent magnet motor (PM)	√	-

### Lift AC Drive

The LA700 lift drive is the perfect solution for technical requirements of today's lifts. LA700 controls induction and permanent magnet motors and is the first choice for new installations, machine room less lifts and lift modernization.

The compact LA500 is the economic solution for modernization and new installation of lifts with gear box motors without speed feedback. By sticking to the basics, this AC drive combines usability and outstanding ride performance with a robust and durable design.

### LA700 Features

- Open- and closed-loop-control for IM and PM motors
- Large power range
- Programming in lift terminology and in 13 languages
- Displays parameter in lift-specific terms and units (m/s, m/s<sup>2</sup> ...)
- Automatic evacuation with UPS system/battery
- Flexible controller interface
- Best ride comfort
- Operation without motor contactors (SIL3 STO)
- DCP3/DCP4/CANLift

### LA500 Features

- Open- and closed-loop-control for induction motors
- Programming in lift terminology and in 8 languages
- State-of-the-art motor control algorithms for a smooth ride and a precise stop
- Designed for long performance and low life-cycle cost
- Preventive maintenance indicator for IGBT, capacitors and cooling fans



# Green Performance Solutions

Model	R1000	D1000	U1000
Energy saving by braking power regeneration	●	●	●
Motor drive	–	–	●
Improve power factor	–	●	●
Suppress input current harmonics	–	●	●
DC voltage boost	–	●	–
Feed-in of multiple drives	○	●	–
Simple wiring	○	○	●
Downsize panel	○	○	●
Integrated Bypass function at 50 Hz	–	–	●

## R1000

Energy saving regenerative unit

Technical Data	R1000
Regeneration capacity [kW]	3.5 – 300
Apply to multiple drives	√

### Intelligent Braking Resistor

The R1000 regenerative unit replaces conventional braking resistors in machines and systems and makes braking energy available to other consumers in the same system. This saves energy and reduces costs.

### Features

- Allows 4-quadrant-operation without braking resistors
- No wasted heat due to braking resistors, thus less need for cooling/ventilation, reduced fire hazard and operating costs
- Provides regenerative energy for other consumers in the plant, reducing total power consumption
- Quick amortisation of investments





## D1000

Regenerative converter unit with low harmonics

Technical Data	D1000
Power range [kW]	5.0 – 630
Suppress power supply harmonics	√
Apply to multiple drives	√

### Low Harmonic Energy Recovery Unit

D1000 is a regenerative unit for DC power supply of single drives or systems consisting of AC drives, servos or robots. In addition to the use of braking energy, the D1000 enables particularly efficient and network-friendly system operation.

### Features

- 4-quadrant-operation without braking resistors
- Sinusoidal input current (total harmonic distortion < 5 %) and  $\cos\phi_i = 1$  minimize losses in cables, transformers and generators and allow an optimal utilization of the system
- Controlled, customizable DC voltage guarantees the same level of DC voltage independent of the power supply voltage (Boost function)
- D1000 reduces the cost for energy and maintenance, which allows for a short payback period
- No wasted heat due to braking resistors, thus less need for cooling/ventilation, reduced fire hazard and operating costs



## U1000

The AC-to-AC drive for maximum efficiency

### Matrix Converter

The U1000 is a highly efficient AC drive based on latest Matrix converter technology. With full power regeneration capability it offers great energy saving potential while sinusoidal input currents and a power factor close to one reduce stress on grid components, cables and wires. With an ultra-compact shape, it is the first choice for innovative, energy-efficient drive solutions with or without power regeneration.



### Features

- Innovative Matrix Drive technology without DC bus capacitors up to 500 kW
- Built-in power regeneration
- Extremely compact compared to conventional solutions for feedback or low harmonics
- Completely integrated solution minimizes installation and wiring effort
- Built-in bypass operation at 50 Hz for IM motor
- Maximum flexibility through integrated PLC functionality
- Low-loss and smooth system operation thanks to sinusoidal input current and  $\cos\phi_i$  of almost 1
- Built-in SIL3 STO function for machine safety
- Induction motor and permanent magnet motor control
- Approved for global marine installation

Technical Data	U1000
Power range [kW]	4.0 – 500
Suppress power supply harmonics	√
Apply multiple drives	√
Induction and PM motor control	√
Approved for marine installation	BV, ABS, ClassNK, LR, DNV GL, KR



## Sigma-7

Your production. Your choice. Our best.

### Servo drives

The development of the Sigma-7 series focused on three main goals: consistently simple and fast commissioning, maximum machine throughput with high precision and maximum operational reliability. It is available as 200 V and 400 V series. Combining the experience from 25 years of development know-how and 22 million servo systems in the field.

Our motors offer an excellent power factor: At the same power, they are significantly smaller and reduce heat generation by up to 20%. In combination with the amplifiers, the motors, which feature 24-bit encoders, meet the highest tracking and precision requirements. Sigma-7 SERVOPACKs can replace their predecessors without new mounting holes. This greatly reduces the cost of upgrading and simplifies the transition to a higher level of performance and precision.



Function	200 V	400 V
Power range	50 W – 15 kW	200 W – 15 kW
Encoder	24 bit absolute	
Protection class	IP67 by default	
Single axis	✓	✓
Dual axis	up to 1 kW	up to 3 kW
Rotary motors	✓	One amplifier for all
Linear motors	✓	
Direct drive motors	✓	–
Integrated motion controller	✓	✓
Embedded fieldbus	Pulse train / Analog input, MECHATROLINK-II, MECHATROLINK-III, EtherCAT, PROFINET	EtherCAT, MECHATROLINK-III, PROFINET
Advanced Safety Functions	✓	✓
FailSafe over EtherCat	–	✓



200 V Series



400 V Series

## Sigma-7 rotary servomotors

Our rotary servomotors are some of the most efficient in the industry. The excellent ratio of size to performance and very low temperature development save space and energy in the application and therefore significantly reduce costs.

### SGM7A

200 V



- Low inertia, high speed
- 50W – 7 kW

400 V



- Low inertia, high speed
- 200W – 7 kW

### SGM7J



- Medium inertia, high speed
- 50W – 750W



- Medium inertia, high speed
- 200W – 1.5 kW

### SGM7G



- Medium inertia, high torque
- 300W – 15 kW



- Medium inertia, high torque
- Available as standard and high-speed models
- 450W – 15 kW

## Sigma-7 direct drive motors

Our direct drives provide high torque while being compact in size. In combination with the high performance functions of Sigma 7 Servopacks like friction and power ripple compensation they play to their strengths. No power transmitting devices like belts or gears are needed which reduces construction sizes, weight and in the end energy consumption.

### SGM7D

Ideal for applications that require SGM7E high torque, high precision and high rigidity.

- High inertia
- Built-in high-resolution (24-bit) encoder
- A high allowable load moment of inertia ratio enables application to large loads
- Large center aperture provides more space for wiring connections

#### Features

- Available for 200V
- Rated torque: 1,3 - 240Nm
- Max. torque: 5 - 400Nm
- Max. speed: 48 - 360min<sup>-1</sup>

### SGM7F

Ideal for applications that require downsizing and a shorter takt time.

- Medium inertia
- Built-in high-resolution (24-bit) encoder
- Compact size with small rotor diameter
- Greater speed and torque stability enable high-speed, high-frequency positioning

#### Features

- Available for 200V
- Rated torque: 2 - 200Nm
- Max. torque: 6 - 600Nm
- Max. speed: 250 - 600min<sup>-1</sup>

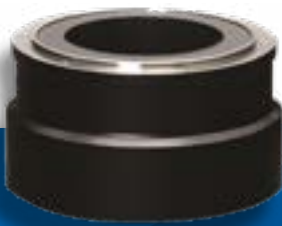
### SGM7E

Ideal for applications that require smooth movement without speed fluctuations.

- Low inertia
- Built-in high-resolution (24-bit) encoder
- Smooth operation without speed fluctuations achieved through coreless structure with low cogging

#### Features

- Available for 200V
- Rated torque: 2 - 35Nm
- Max. torque: 6 - 105Nm
- Max. speed: 250 - 500min<sup>-1</sup>



Outer rotor with core



Inner rotor with core



Coreless, inner rotor

## Sigma-7 linear motors

We continuously challenge performance barriers with our linear motor products to improve speed and accuracy. Our linear motors improve performance, reliability, speed and accuracy in most automation applications.

### SGLGW2 / SGLFW2

The iron-core linear motors combine high peak forces with a compact design and low energy consumption. The integrated temperature switch provides additional safety. The very low force ripple ensures precise, smooth movement. The automatic regulator tuning in the servo drive means that the linear motor can be put into operation quickly and easily.

#### Features

- Available for 200V & 400V
- Peak forces from 135 to 7,560N
- Optional water cooling system
- Low force ripple

### SGLGW / SGLGM

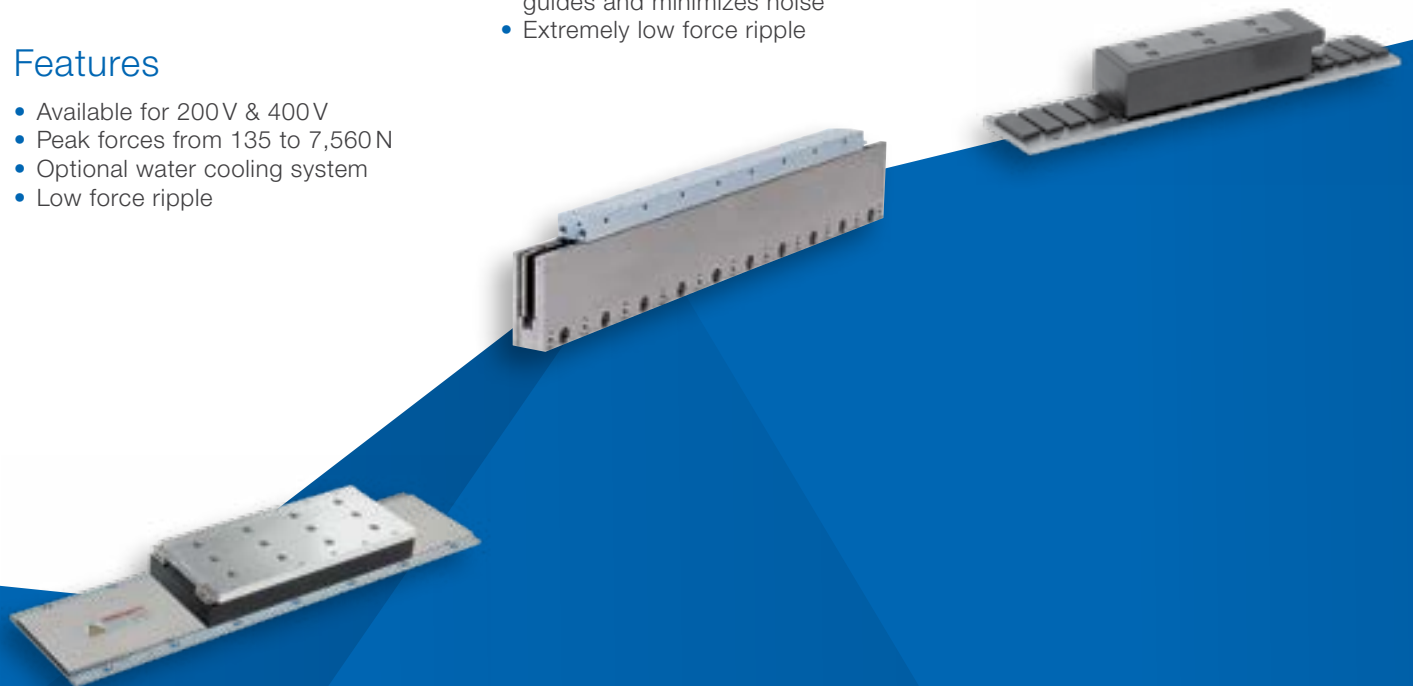
#### Features

- Available for 200V
- Peak forces from 40 to 3,000N
- Lack of magnetic attraction force extends the life of linear motion guides and minimizes noise
- Extremely low force ripple

### SGLFW / SGLFM

#### Features

- Available for 200V
- Peak forces from 86 to 5,400N
- The magnetic attraction force between the moving and stationary members can be used effectively to increase the rigidity of the linear guidance by preloading the linear motion bearings





## Advanced safety modules for Sigma-7

In order to find a suitable and economical solution for your application we offer a scalable concept. While Safe Torque Off is integrated in every SERVOPACK, three different option modules can be selected for further requirements:

Options module	Safety functions	I/Os	FSoE
SGDV-OSA01A	STO/SS1/SS2/SOS/SLS	<ul style="list-style-type: none"> <li>2 Safe Inputs</li> </ul>	-
SGD7S-OSB01A	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA	-	✓
SGD7S-OSB02A	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA, SLT, SMT	<ul style="list-style-type: none"> <li>6 I/O dual channel SIL3/PLe Cat3</li> <li>2 I/O single channel SIL2/PLd Cat3</li> </ul>	✓



SGD7S-OSB01A



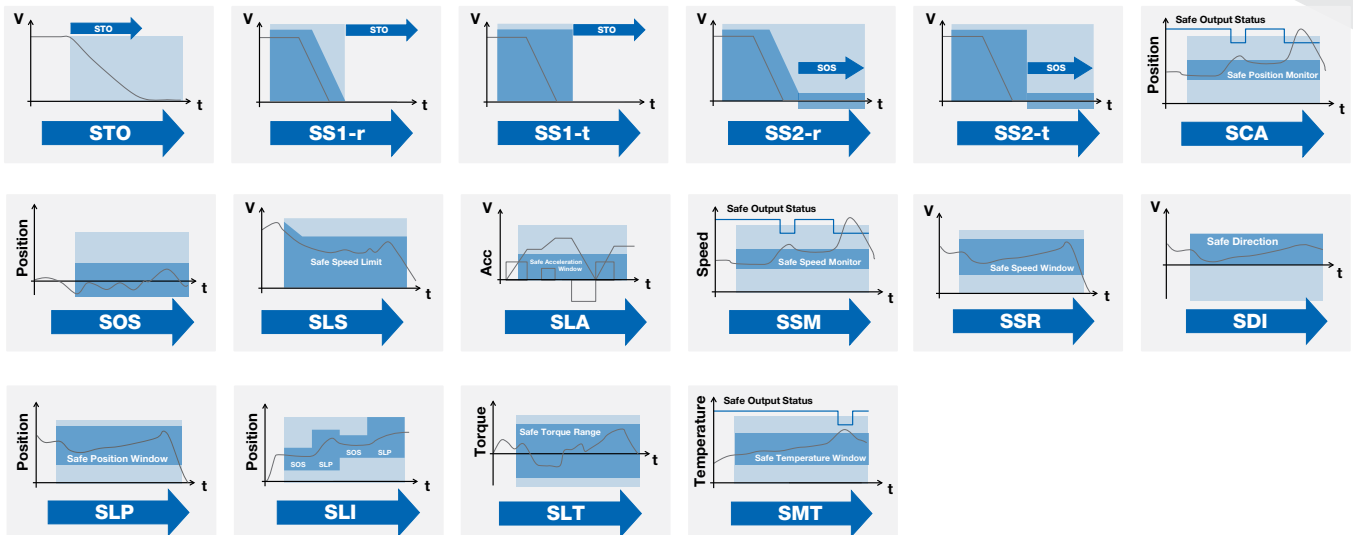
SGD7S-OSB02A

The 14 safety functions enable you to find a suitable solution for many applications. Fulfilling for every safety function the latest standard SIL3/ PLe (Cat. 3). We support you to easily reduce risks.

The new generation of safety modules is also providing FSoE Slave functionality. Combining Safety and the open as well as common Ethernet based fieldbus system EtherCAT helps you to realize your safety application with less effort for wiring.

### Features

- STO (Safe Torque Off) integrated
- 3 different option modules provide a scalable approach for your requirements
- 14 safety functions allow a suitable solution for many applications
- All safety functions fulfil SIL3/PLe (Cat. 3)
- 6 configurable Safe I/O Channels
- 1 Safe Analog Input Channel
- Via FSoE (FailSafe over EtherCAT) the safety functions can be controlled and monitored via fieldbus





## Features

- IEC61131-3 programming standard for efficient softwareprogramming and -handling
- Control modes: positioning, electronic shaft, speed and CAM
- Acceleration: linear, exponential, with moving average
- Connectors: MECHATROLINK-III, Ethernet (100 Mbit/s)
- PLCopen function blocks
- Reusable code libraries enable the import of previously developed logic
- Also available as singular control version for easy control of all motion and robotics applications

## MP3300iec & MP3200iec

High performance automation controllers

### Machine controller

Our MP Controller series facilitates a new realm of possibilities in the world of machine control. The controllers provide highest precision even in high speed applications.

Also available as Singular Control version, as MP3300iec RBT.

**ONE  
SOFTWARE  
ONE  
CONTROLLER**

## MP2600iec

IEC on the drive

### Option card

The MP2600iec is a small size and powerful controller option for Sigma-7 SERVOPACKs operating a single axis.



## Features

- IEC61131-3 programming standard for efficient software handling
- 1.5 axis control
- Open standards Ethernet/IP and Modbus/TCP
- PLCopen function blocks
- Reusable code libraries enable the import of previously developed logic

## Features

- IEC61131-3 programming standard for efficient softwareprogramming and -handling
- Single-axis control
- Connectors: Ethernet/IP & Modbus/TCP
- PLCopen function blocks
- Reusable code libraries enable the import of previously developed logic

## Sigma-7 SIEC

IEC on the drive

### Integrated machine controller

The Sigma-7 SIEC combines servo electronics and machine control functionality. It is based on a Sigma-7 single-axis SERVOPACK with all its advantages.



## System MICRO

Compact and fast

### PLC

The very compact and extremely fast micro-controller system MICRO offers completely new ways of operation and status display. The size of the module allows it to be used in almost any automation environment. Via the integrated backplane bus, the Compact CPU with integrated digital and analog IOs can be expanded by up to 8 modules. A PROFINET controller with I-Device function is also integrated.

## System 300S+

High-speed control system

### PLC

The 300S+ system family significantly enhances the 300S product family. The 300S+ CPUs have gained in memory size and additional benefits, but without increasing in price. The features known from the 300S family have also been transferred to the 300S+ family. In case of service, the 300S CPUs are exchangeable one to one by the respective successor products.

## System SLIO

Highly modular and compact

### PLC and decentralized I/O-system

The SLIO control system combines excellent functionality with a clever mechanical concept in an ultra-compact design. The SLIO CPUs are available in a compact version and modular versions with integrated PROFINET controller with I-Device, EtherCAT Master and Modbus TCP Master. The PROFIBUS Master function can optionally be enabled. The CPUs can be expanded with up to 64 SLIO module units via the integrated backplane bus.



## professional Panels

The Touch Panel family is suited for all applications in the factory, process and building automation. Due to the aluminum die-cast housing the Touch Panels are mechanically particularly robust. With the front-side IP65 protection, these devices also survive in harsh industrial environments.

The portfolio ranges from 6.5" TFT up to 12" TFT color display. The compact design allows the use of VIPA Touch Panels also in confined spaces. The panels can be operated either horizontally or vertically.

## smartPanels

smartPanels are the smartest choice for high usability, performance and featuring OPC UA connectivity in one panel.

smartPanels are optimally designed for medium-sized applications. They stand for high usability and connectivity. Equipped with Movicon 11 Standard, the user is practically unrestricted in terms of tags, screens, recipes, alarms, etc.

## Panel PCs

The Panel PCs with display sizes 10.1", 15.6" and 21.5" are a combination of an industrial PC with state-of-the-art performance features and a touch panel with optimal displaying options.

The required performance is provided by an Intel Celeron quad-core processor, Windows® 10 IoT Enterprise (x64) operating system and Movicon 11 Runtime and Editor for the visualization application.

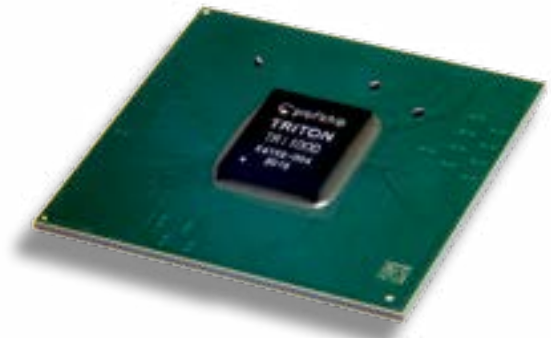


# TRITON

All-in-One chip

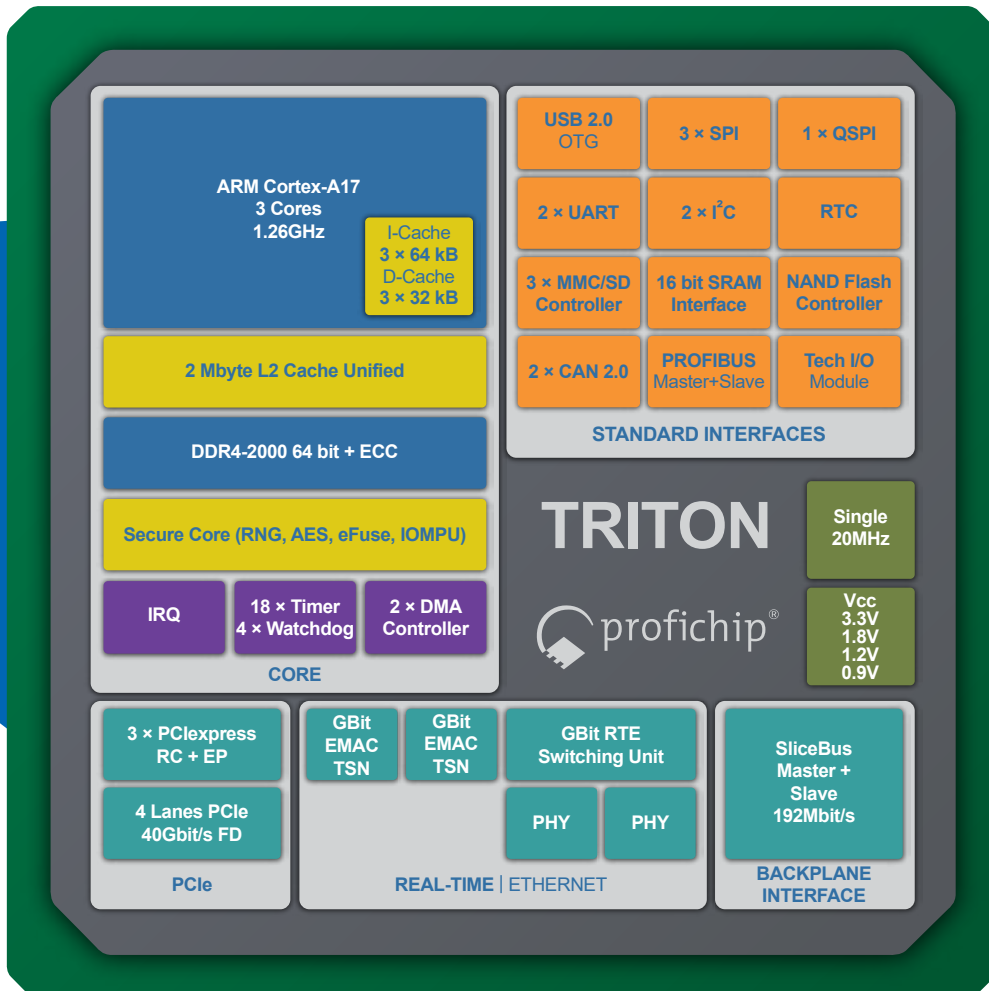
**Gigabit Ethernet communication controller, PLC, backplane master, and motion controller in one chip**

Triton combines industrial gigabit Ethernet communication with a fast and reliable backplane system as well as a powerful motion/automation multicore processor in one product with low power dissipation.



## Features

- Future ready with TSN support, DDR4, PCIeexpress, and security core
- No heatsink needed thanks to low power consumption
- Low total cost of ownership due to integrated functionalities (Backplane master, PHYs, etc.)
- 3 cores with high single thread performance best suited for motion and PLC tasks





## NOTOS

No more bottlenecks

### Fast backplane bus controller

The NOTOS chipset allows you to use our latest backplane technology.

The SliceBus 2.0 technology is designed to provide many additional features in a compact low-cost chip.



### Features

- Integrated technology functions such as PWM, Counter, SSI
- Time synchronization in the nanosecond range
- Up to 32 I/O per module in shift register mode
- Pin compatible with SNAP+
- Single master system
- Up to 64 slave stations (nodes)
- Asynchronous, serial data transmission with 192 Mbit/s via point-to-point LVDS Physics
- Additional alarm line for initialization and asynchronous event communication from node to master
- Complete system recognition from SliceBus master without external module configuration information
- Full duplex transmission

## ANTAIOS

Unlimited networking

### Real-time Ethernet communication control

ANTAIOS combines a powerful ARM Cortex-A5 processor for advanced user applications with effective and highly flexible communication technology for industrial applications that require sophisticated real-time capabilities.

It is designed for remote EAs, gateways, sensors, actuators and communication master modules.



### Features

- Multiple fieldbus support
- ARM Cortex-A5 processor 288 MHz
- Ethernet interface with real-time switch
- Gigabit Ethernet MAC
- SliceBus master



## MPP 3 & MPK series

### Pick & place robots

#### Handling, picking, packing

The 4-axis high-speed robot MOTOMAN MPP3 with parallel kinematic system combines the speed of the delta design with a high payload capacity and a large working range.

The MOTOMAN MPK is a high-speed, 5-axis picking robot that provides superior performance and reliability for food handling, picking, packing and other high-speed material handling applications.

### Features

- Minimal footprint
- Fast acceleration and high speed increase productivity
- Optional vision and conveyor tracking for maximum flexibility

Technical data	MPP3 & MPK series
Reach	860 – 1,893 mm
Payload	3 – 50 kg
Controlled axes	4 – 5

## PL series

### Palletizing & depalletizing robots

#### Palletizing

The brandnew MOTOMAN PL series robots covers a range of powerful Palletizing robots in a payload range from 80 to 800 kg, providing high performance in box/case/bag palletizing for various tasks in EOL-Packaging and Distribution Center automation. They offer excellent speed/payload combinations, stacking heights and simple installation.

Technical data	MPL series
Reach	2,061 – 3,159 mm
Payload	80 – 800 kg
Controlled axes	4 – 5



### Features

- Compact design
- High acceleration
- Increased durability of hose package by internal cable wiring



## SG series Scara robot

### Picking, packing & handling

The robust SG series is particularly suitable for applications that require high speed and accuracy. Small interference contours allow the robots working together in confined spaces. Internal cabling enables a reliable workflow and saves extensive maintenance. The SG400 is driven by the compact and lightweight YRC1000micro controller.

### Features

- Fast, powerful and reliable
- Wide motion range
- Compact and robust design
- Internal cabling
- High repeatability and accuracy
- Ideal for applications in confined spaces
- Easy integration and high dynamics
- Easy maintenance

Technical data	SG series
Reach	400 – 650 mm
Payload	3 – 6 kg
Controlled axes	4

## MotoMINI series

Small. Lightweight. Fast.

### Handling & general applications

The MotoMINI 6-axis robot was especially designed for handling and assembly of small work pieces. It reduces the size of your production line and helps to increase productivity.



Technical data	MotoMINI
Reach	350 mm
Payload	0.5 kg
Controlled axes	6

### Features

- Small and fast
- Lightweight and portable
- Superior performance in small part handling & assembly
- Minimum footprint
- Flexible positioning



**reddot** award 2019  
winner



## MPX series

### 6-axis painting robot

#### Painting & coating

The MOTOMAN MPX series with hollow wrist is strong enough to accommodate large rotary atomizers. Its process arm and high load capacity allow efficient painting of multiple colors. Due to its extremely compact design, the painting cell is kept small to save space.

### Features

- High painting quality
- Optimized working range
- Flexible installation
- Space-saving

Technical data	MPX series
Reach	727 – 2,700 mm
Payload	5 – 15 kg
Controlled axes	6

## GP series

### High-speed, 6-axis robot

#### Handling & general applications

The 6-axis MOTOMAN GP series are versatile, powerful robots offering superior performance for a variety of applications. It provides a high payload of up to 600 kg and a wide motion range of up to 2,942 mm, which especially enables the handling of large and heavy work pieces.

Technical data	GP series
Reach	532 – 2,942 mm
Payload	7 – 600 kg
Controlled axes	6



### Features

- High speed
- Extremely broad range of products
- Compact size
- Compact and powerful



## SDA series

### 15-axis dual-arm robot

#### Flexible applications

The SDA is a slim and agile 15-axis dual-arm robot providing “human-like” flexibility of movement and fast acceleration. Its powerful actuator based design with high wrist performance and fully integrated supply cables, makes it ideal for a wide variety of operations such as assembly, part transfer, machine tending, packaging and other handling tasks that formerly could only be done by people. Both robot arms can synchronously work together or simultaneously perform tasks independently. Due to its small footprint it can operate in confined spaces, saving valuable floor space.

#### Features

- High flexibility
- High speed
- Compact design allows maximum performance

Technical data	SDA series
Reach	854 – 1,313 mm
Payload	5 – 20 kg
Controlled axes	15

## SIA series

### 7-axis single-arm robot

#### Flexible applications

The slim and powerful MOTOMAN SIA 7-axis single-arm robot is perfect for automated processes such as assembly, inspection, machine tending and material handling. The revolutionary design with high wrist performance and internal supply cables make it possible to use it in confined spaces while providing unrivalled manoeuvring flexibility. It is even able to easily move around corners or reach into the machine.



Technical data	SIA series
Reach	559 – 1,485 mm
Payload	5 – 50 kg
Controlled axes	7

#### Features

- High flexibility
- High speed
- Compact design allows maximum performance





## Features

- Safety by design
- Easy teaching
- No safety dence needed
- Fully industrial robot controller YRC1000 and YRC1000micro

## HC series

### Human-collaborative robots

#### 6 integrated sensors

The MOTOMAN HC robots are 6 axes human-collaborative robots with a payload of up to 20 kg. Operator's safety is assured by a Power and Force Limit technology that stops the robot in case of contact with an operator.

The HC robots can operate without additional protective measures like a safety fence, depending on the risk assessment. This saves space and costs.

Its installation area is very flexible and therefore able to operate at different workplaces.

Technical data	HC series
Reach	1,200 – 1,700 mm
Payload	10 – 30 kg
Controlled axes	6

## AR series

### Welding robots

#### Arc welding

The MOTOMAN AR series are compact high-speed 6-axis robots which provide accurate performance to achieve optimal results in extremely difficult conditions and especially for the high demands of arc welding applications.

With a payload of up to 20kg and a working range of 3,124 mm, the MOTOMAN AR series robots enable high quality welding of a broad variety of workpieces - from small items to bulky workpieces. The applicable inertia and axis speeds have been significantly raised, which leads to a "best in class" performance, speed and acceleration.

The robot is controlled by the YRC1000 controller which facilitates both programming and use with a wide range of functions specially designed for arc welding applications.



## Features

- High precision
- High speed
- Easy maintenance

Technical data	AR series
Reach	700 – 3124 mm
Payload	7 – 20 kg
Controlled axes	6

### **Drives Motion Controls**

YASKAWA Europe GmbH  
Philipp-Reis-Str. 6  
65795 Hattersheim am Main  
Germany  
+49 6196 569-500  
info@yaskawa.eu.com  
www.yaskawa.eu.com

YASKAWA Europe GmbH  
Hugo-Junkers-Str. 13  
90411 Nürnberg  
Germany  
+49 9132 744-0  
info@yaskawa.eu.com  
www.yaskawa.eu.com

### **Robotics**

YASKAWA Europe GmbH  
Yaskawastr. 1  
85391 Allershausen  
Germany  
+49 8166 90-0  
robotics@yaskawa.eu.com  
www.yaskawa.eu.com

### **Environmental Energy**

The Switch  
Elimäenkatu 17 – 19  
00510 Helsinki  
Finland  
+358 20 783 8200  
info@theswitch.com  
www.theswitch.com