

# YASKAWA



## Product & Solution News

[yaskawa.eu](http://yaskawa.eu)





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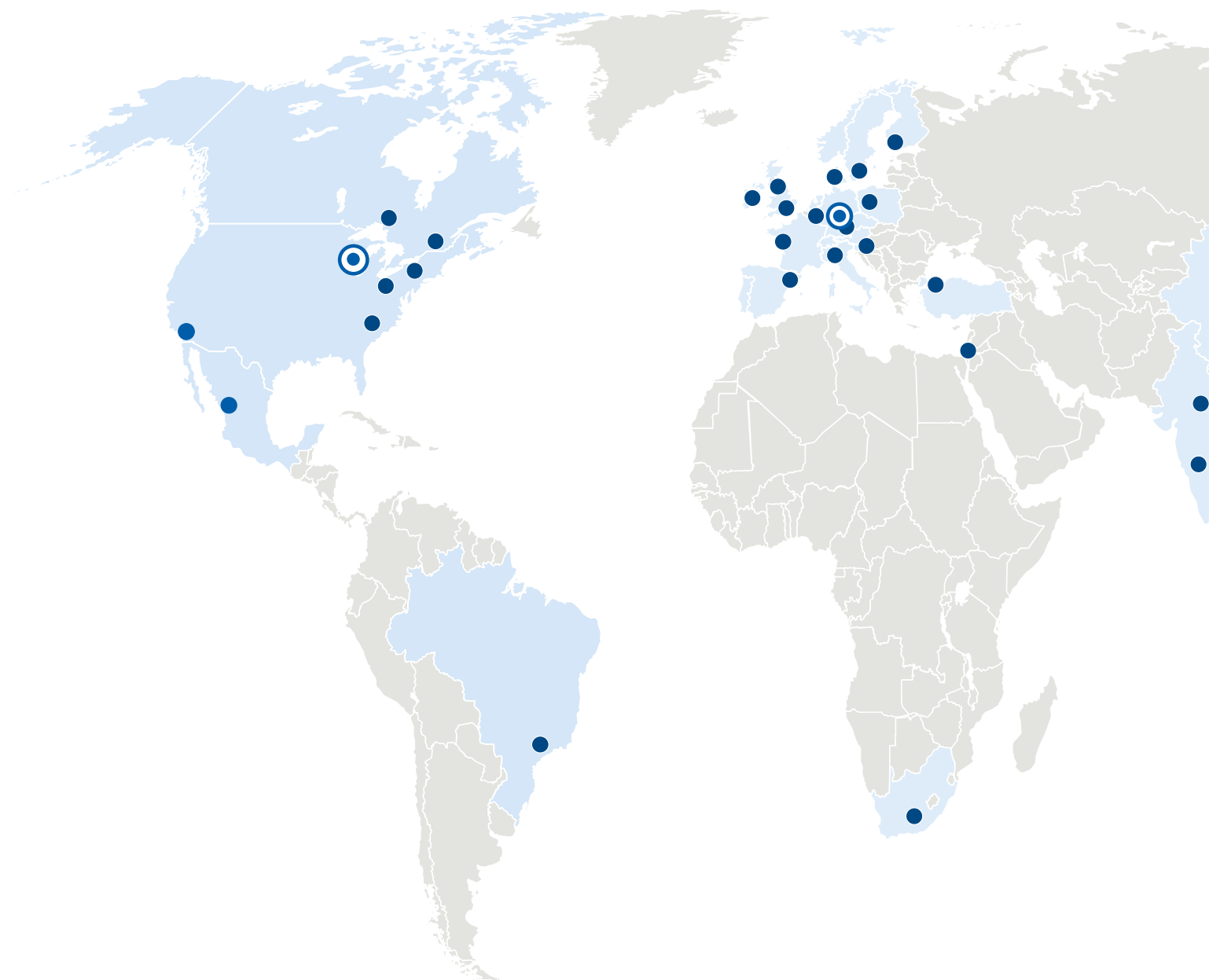


# A global company

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.

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**15,000**  
Employees  
worldwide



**2,000**  
Employees  
EMEA-region



**6**  
European  
manufacturing locations



**23**  
European  
entities



**2 million**  
AC drives  
produced in 2024



**3.4 million**  
Servo drives and motors  
produced in 2024



**47,000**  
Industrial robots  
produced in 2024



**400,000**  
PLCs & I/Os  
produced in 2024

**36 million**  
accumulated units  
produced (as of 2024)

**26 million**  
accumulated units  
produced (as of 2024)

**600,000**  
accumulated units  
produced (as of 2024)

**10.4 million** accumulated  
units produced (as of  
2024)



- 6x Top 100 Global Innovator \*)
- 100+ European channel partners
- Network of system integrators

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

**YASKAWA**

In focus



**The automation  
technology that  
puts you in control**

# iCube Control

As individual as your needs

Whether you want the flexibility of open system design, the scalability of modular system integration or the certainty of security and safety – you get it all with the iCube Control platform.

## Flexibility

- Program in IEC61131-3, along with high-level languages
- Collaborate securely across teams and geographies
- Choose from a wide variety of Yaskawa servo technology matched to your application

## Scalability

- One machine controller and one software engineering tool for Motion, Logic, Safety, HMI and Robotics
- Scale controller features to meet your specific application requirements
- Easily integrate additional components with open network communications

## Certainty

- Engineered to ensure the highest quality and long-term product life cycle
- Integrated FailSafe over EtherCAT for a complete machine safety solution
- Secure controller communications and web-based management

## Expert support

- Expert engineering resources, from design to development
- Quick, nimble and thorough response, from concept to implementation
- Delivered by Yaskawa, the world's largest manufacturer of robotics and automation systems

## Integrated

Smart products that enable the collection and analysis of real-time data

## Intelligent

Big Data analysis and AI learning deliver new ways of optimizing the production process at every level

## Innovative

Insights gained from the production process trigger improvements to production and quality



# Sigma-X

Quality. Precision. Dynamics.

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

More than 32 years of experience and several million installed servo drives are the basis for these outstanding servo systems. The Sigma-X series 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.

## Versatile application

Thanks to the extended automatic load adjustment, you can cover a wide range of loads and applications with a single motor type. This increases the flexibility of your machine.

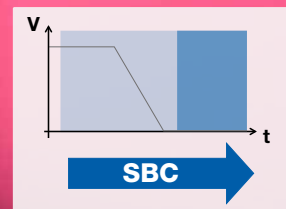
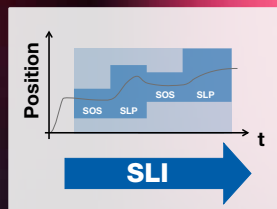
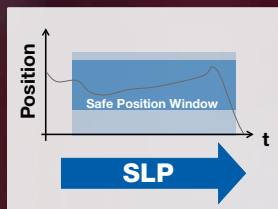
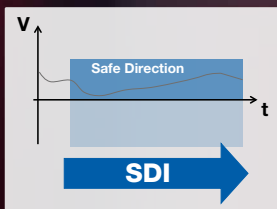
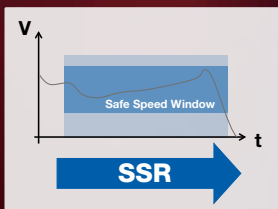
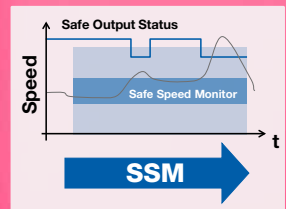
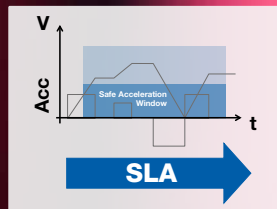
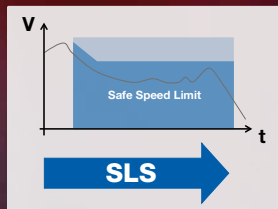
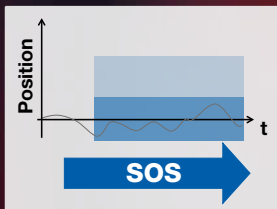
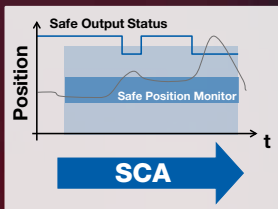
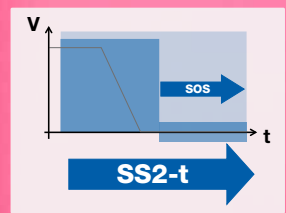
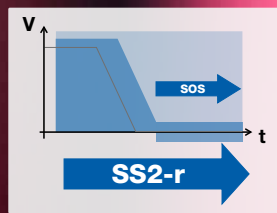
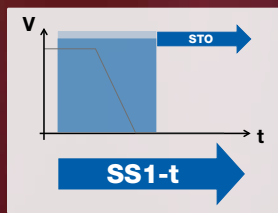
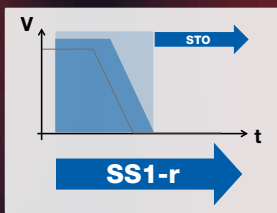
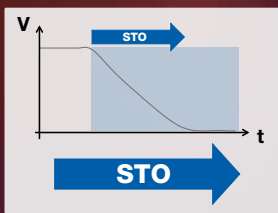
## Advanced functions

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	26 bit absolute	26 bit absolute
Protection class	IP67 by default	IP67 by default
Single axis	✓	✓
Dual axis	✓	-
Triple axis	✓	-
Rotary motors	✓	✓
Linear motors	✓	✓
Direct drive motors	✓	-







# Advanced safety modules for Sigma-X

Open & scalable according to your needs

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

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	Description	Safety functions	I/Os	FSoE
SGDXS-OSA01A	Advanced safety module I/O only	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA, SBC	6 I/O dual channel SIL3/PLe Cat3 2 I/O single channel SIL2/PLd Cat3	-
SGDXS-OSAA0A	Advanced safety module FSoE only	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA	-	✓
SGDXS-OSAA1A	Advanced safety module FSoE and I/O	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA, SBC	5 I/O dual channel SIL3/PLe Cat3	✓

The comprehensive safety functions allow you to find a suitable solution for many applications. Each one complies with the latest SIL3/ PLe (Cat. 3) standard. We support you in reducing risks with ease.

The new generation of safety modules also offers FSoE slave functionality. The combination of safety and the open and widely used EtherCAT fieldbus system helps you to implement your safety application with less wiring effort.

## Features

- Extensive security functions enable a fitting solution for many applications
- All safety functions fulfill SIL3/PL-e (Cat. 3)
- With FSoE (FailSafe over EtherCAT) the safety functions can be controlled and monitored via fieldbus



Cost-saving by optimized application  
**Efficiency**

**Flexibility** to master any challenge

**Experience** from 30 million  
installed AC drives

**Maximized machine  
Performance**

Application **Reliability** by 10 years of  
maintenance free drive operation

**Ease of Use**  
minimizes setup times

Search for

**YASKAWA** 

on



# GA500 & GA700

## Balancing power to perfection

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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 results of this evolution are the GA500 and GA700 VFDs. Compact in size and flexible in terms of motor type and connectivity, these VFDs are designed to easily master nearly any application.

## Simplified system integration

GA500 and GA700 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 and GA700 minimize efforts to get your automation jobs done.

## Fast installation and setup

GA500 and GA700 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 and GA700 drives provide best control performance at minimized energy consumption.

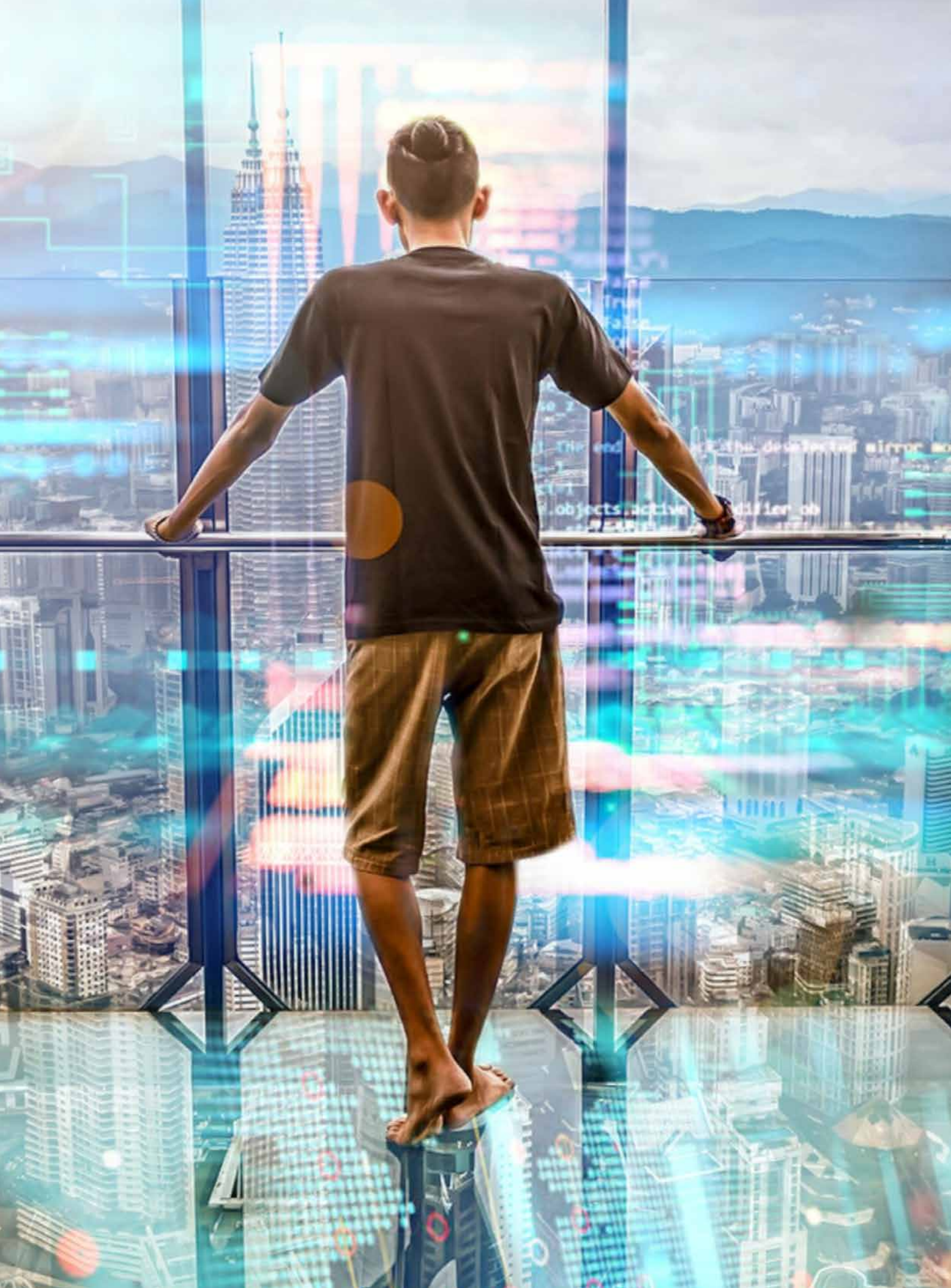
## Operation secured

GA500 and GA700 drives are built to perform reliably. The robust design with coated PCBs allows operation in 50 °C without derating while machine monitoring functions and integrated lifetime prediction prevent sudden failures. Thus our VFDs effectively secures operation and prevents production loss.

## Features

- Easy network integration
- Robust design. Can be operated in up to 4,000 m 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) comfortable using





# LA500

## The drive to retrofit your lift

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.

## 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.

## Features

- 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 with super low stand-by consumption





# HV600

## HVAC drives for fan and pump applications

The HV600 has been specially developed for building automation applications and helps to minimize energy costs and maximize user comfort.

## High performance that pushes expectations

Building owners, facility managers, and mechanical contractors specifying AC drives. They all trust Yaskawa to deliver reliable performance in HVAC applications.

The HV600 family of AC drives pushes past industry requirements to establish a new benchmark for industry expectations. In fact, the HV600 addresses all of the most pressing demands, including more flexibility and control, less downtime and more packaging options.

## Exceptional design

Available in IP20/UL Type 1 and IP55/UL Type 12 versions, the HV600 can be mounted without the need for an expensive additional enclosure. With a high contrast display HOA (Hand-Off-Auto) keypad, a high visibility status ring, and enhanced pump control functionality, the HV600 is perfectly suited to building automation application needs.

## Designed for ease of use

All programming is done through a single keypad with intuitive interface. The electronic bypass cover has a streamlined, visually appealing shape and the HV600 keypad stays with the frame, not the cover, when the cover is removed. The electronic bypass mirrors the AC drives multifunction digital outputs and serial communication is maintained with building controls while in bypass.

## Features

- Simple steps for efficient commissioning
- DriveWizard® and DriveWizard Mobile App support
- Safe programming without main power
- IP20/UL Type 1, IP55/UL Type 12, IP20/protected chassis
- Hand-Off-Auto keypad with LCD display and tactile buttons
- Built-in building automation protocols
- Compliance with global certifications and standards
- Built-in impedance for harmonic reduction
- On board EMC/RFI filter
- Conformal coating for circuit board protection
- Various application presets





# MotoLogix & SRCI

## 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 and example programs to write the robot application logic in the PLC.

## Standard Robot Command Interface

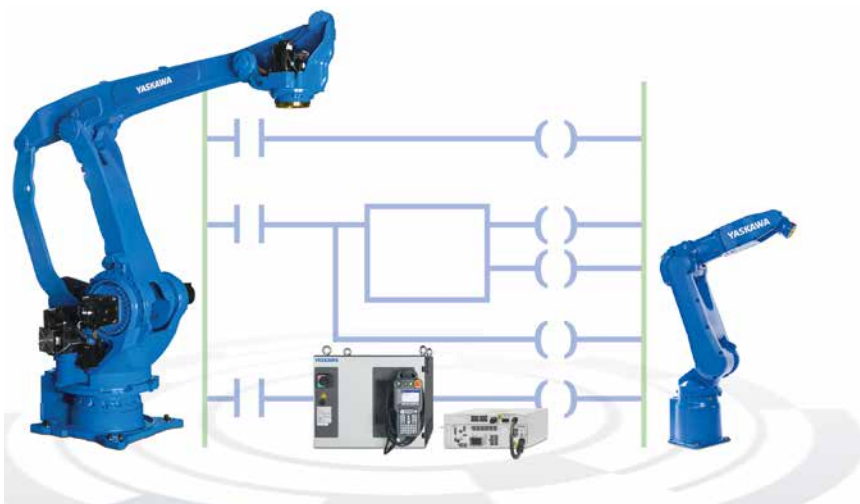
Just as with MotoLogix, SRCI allows programming the robot trajectory in the PLC instead of in the robot controller.

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).

## 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 YRC1000micro 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 with one MotoLogix interface
- MotoLogix on a OPC UA equipped PLC can act as a convenient gateway to PC based systems such as LabView



### Supported platforms:

YASKAWA  
PROFINET

B&R  
POWERLINK

Rockwell  
EtherNet/IP

Siemens  
TIA S7-300  
PROFINET

Siemens  
TIA S7-1500  
PROFINET

Siemens  
SIMOTION  
PROFINET

CODESYS  
PROFINET

CODESYS  
EtherCAT

CODESYS  
EtherNet/IP

Beckhoff  
EtherCAT



# 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 leading gripper and accessory manufacturers to provide our customers an ecosystem of ready-to-use plug & play products.



1. Receive your ready 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

The Smart Pendant has a patented, completely new coordinate system, the “Smart Frame”, which also supports rotation and tilting of the Smart Pendant. This means that you no longer have to calculate or convert movements in coordinate space (X, Y, Z) during teaching, as the system automatically takes its viewing direction towards the robot into account.

For collaborative robots, the system also supports the “hand guiding” function - manually guiding the robot to a desired position.





## Smart frame

The patented "Smart Frame" technology determines the position of the operator in relation to the robot. This means that a conventional coordinate system (X, Y, Z) is no longer required. The intuitive movement of the robot by tilting the Smart Pendant also makes operation easier.



## Features

- Large touch screen (10 in / 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 500 g and a maximum reach of 350 mm. The high repeatability of 0.02 mm 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.

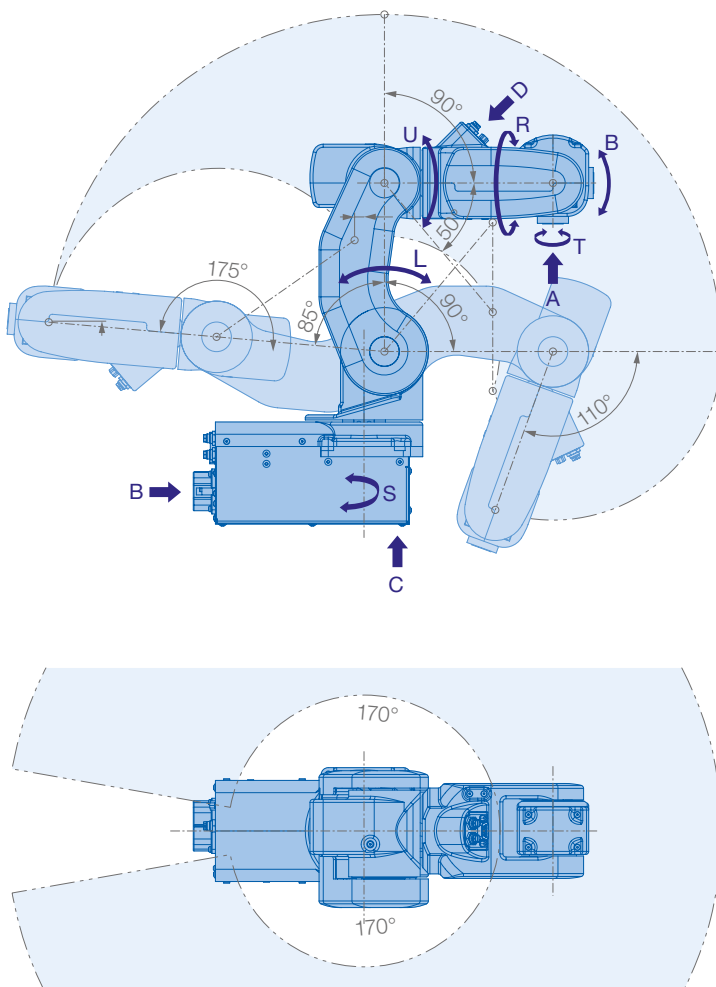
This robot is driven by the also small and compact MOTOMAN YRC1000micro controller, which is especially suited to operate small robots.

## 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.

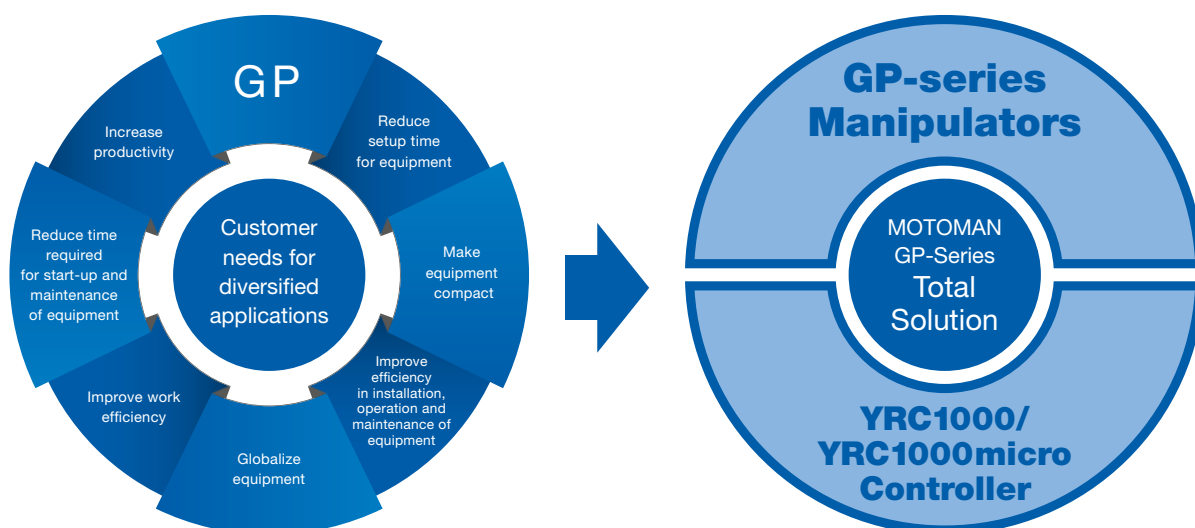
The slim and curvy design allows the manipulator to dive deep into work areas, while the smooth surface makes cleaning the GP robots easier. Only one robot cable is required for the connection between the manipulator and the controller. The advantages of this solution are reduced wear and reduced space 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.

## Features

- 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. They comply with EN 60529-IP67 and are dust and waterproof for use in harsh environments. Operator safety is ensured by power and force limiters that stop the robot in the event of contact with the 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.



**reddot** award 2020  
winner

## Features

### 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 protection)
- 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 human-robot-interaction, and returning into high speed when absence of the operator is detected by additional safety devices



# MOTOMAN HC30PL

## Human-collaborative robots

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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.



## Features

### 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 protection)
- 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 human-robot-interaction, and returning into high speed when absence of the operator is detected by additional safety devices

# SLIO

The decentralized I/O system



No matter which CPU you use: the SLIO I/O system minimizes the engineering effort and is quickly implemented. It is not even necessary to adapt the existing circuit diagram layout. Many different interface modules, each equipped with its own power module, support the following fieldbuses:



## Safety first

With modules for FailSafe over EtherCAT and PROFIsafe, the SLIO I/O system is suitable for all applications that require functional safety. The safety modules feature automatic shutdown in the event of a fault in accordance with IEC 61508 SIL3 and EN ISO 13849-1, Cat.4 / PL-e.

## Modularly expandable

Up to 64 signal and function modules per interface module can be expanded in one line, or with the line extension by up to 8 additional lines (max. 64 modules).

## Getting along worldwide

Suppose a German mechanical engineer supplies his plant which is equipped with SLIO to a worldwide production company. In Europe his customer requires PROFINET as a communication basis. In the USA the type of controller has to be an American one which only communicates via EtherNet/IP. And in Asia for example everything works via EtherCAT. SLIO can be used easily for all: only the coupler needs to be exchanged.

## Features

- Simple wiring
- Clear status and diagnosis monitoring
- Clever, user friendly labelling
- High-performance bus
- Easy installation and servicing
- Space saving staircase-shaped wiring with cage clamps
- Easy exchange of modules due to unique wiring concept
- High modularity due to 2, 4, 8 and 16 channel modules
- 16 channel modules with push-in technology

**YASKAWA**

# Product overview

# AC Drives

# 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
- 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

Compact 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	✓

# CR700

AC drives for crane applications

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

## 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.



## 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

The lift industry standard

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



# HV600

AC drives for HVAC applications



## Heating, ventilation, air conditioning

Designed specifically for building automation applications, the HV600 helps minimize energy costs and maximize user comfort.

The HV600 family of AC drives exceeds industry requirements and sets new standards for industry expectations. The HV600 meets all important requirements, such as more flexibility and control, less downtime and more.

Technical data	HV600
Motor power range [kW]	1.5 – 160
Permanent magnet motor (PM)	✓
Synchronous reluctance motor	✓

## Features

- DriveWizard® and DriveWizard Mobile app supported
- Safe programming without main power supply
- IP20/UL type 1, IP55/UL type 12, IP20/protected housing
- Hand-off auto keypad with LCD display and tactile buttons
- Compliance with global certifications and standards
- Built-in power impedance to reduce harmonics
- Built-in EMC/RFI filter
- Conformal coating for circuit board protection
- Various application presets

# U1000 Panels

Low Harmonics Regenerative Matrix Converter



## Matrix converter

The U1000 is a highly efficient variable frequency drive (VFD) based on latest matrix converter technology. With full power regeneration capability, the U1000 offers great energy saving potential while sinusoidal input currents and a power factor close to one reduce stress on grid components like transformers and power lines. With an ultra-compact shape, the U1000 is the first choice for innovative, energy-efficient drive solutions with or without power regeneration.

Technical data	U1000
Power range [kW]	4.0 – 500
Suppress power supply harmonics	✓
Apply multiple drives	✓
Induction and PM motor control	✓

## Features

- Innovative matrix drive technology without DC bus capacitors up to 400 kW
- Built-in power regeneration
- 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 cosphi of almost 1
- Built-in SIL3 STO function for machine safety
- Freely configurable solution in an IP54 enclosure

# 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

### 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 return on investments

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



# D1000

Regenerative converter unit with low harmonics

Technical data	D1000
Power range [kW]	5.0 – 630
Supress 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  $\cos\phi=1$  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  $\cos\phi$  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
Supress power supply harmonics	√
Apply to multiple drives	√
Induction and PM motor control	√
Approved for marine installation	BV, ABS, ClassNK, LR, DNV GL, KR

# Motion Control

# Servo drives

Quality. Precision. Dynamics.

Every single servo drive is the result of more than 30 years of experience in motion control. With our impressive product range, we offer the right solution for every application.

---

## Rotary servomotors - 200 V models

### SGMXJ



- Medium inertia, high speed
- 50 W - 750 W
- 7000 rpm

### SGMXG



- Medium inertia, high torque
- 300 W - 15 kW
- 4000 rpm

### SGMXA



- Low inertia, high speed
- 50 W - 7 kW
- 7000 rpm

## Servopacks - 200 V models

### SGDXS



- Single axis
- 50 W - 15 kW

### SGDXW



- Dual axis
- 50 W - 1 kW (per axis)

### SGDXT



- Triple axis
- 50 W - 400 W (per axis)

## Rotary servomotors - 400 V models

### SGM7J



- Medium inertia, high speed
- 200 W - 1.5 kW
- 6000 rpm

### SGM7G



- Medium inertia, high torque
- 450 W - 15 kW
- 3000 rpm

### SGM7A



- Low inertia, high speed
- 200 W - 7 kW
- 6000 rpm

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## Servopacks - 400 V models

### SGD7S



- Single axis
- 500 W - 15 kW

### SGD7W



- Dual axis
- 750 W - 1.5 kW (per axis)

## Direct drive servomotors - 200 V models

### SGM7F



- With iron core, inner rotor
- Rated: 2 Nm - 200 Nm  
Peak: 6 Nm - 600 Nm

### SGM7E



- Coreless, inner rotor
- Rated: 2 Nm - 35 Nm  
Peak: 6 Nm - 105 Nm

### SGM7D



- With iron core, outer rotor
- Rated: 1,3 Nm - 240 Nm  
Peak: 4 Nm - 400 Nm

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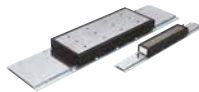
## Linear servomotors - 200 V and 400 V models

### SGLG



- Coreless model
- Rated: 12.5 N - 750 N  
Peak: 40 N - 3000 N

### SGLFW2



- Model with F-Type Iron core
- Rated: 25 N - 2520 N  
Peak: 86 N - 7560 N

### SGLT



- Model with T-Type iron core
- Rated: 130 N - 2000 N  
Peak: 380 N - 7500 N

# Advanced safety modules

## Functional safety

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, different option modules can be selected for further requirements.

## Advanced safety modules for Sigma-7

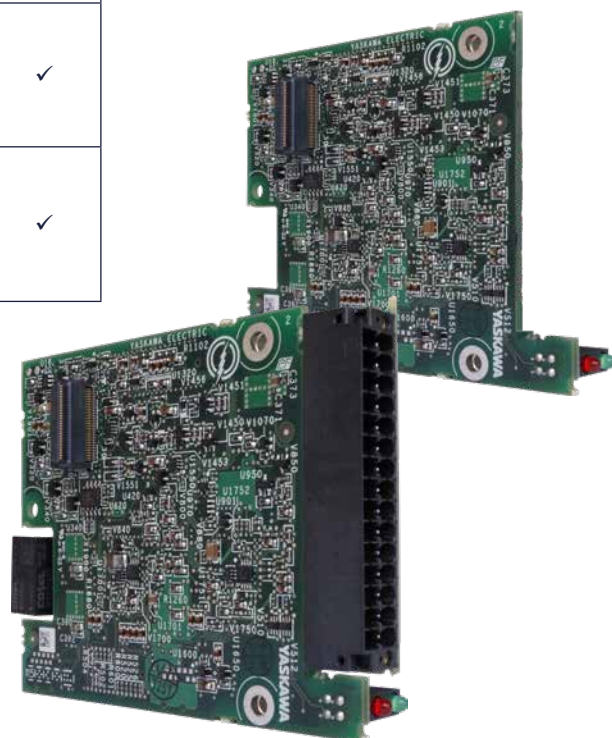
Option module	Safety functions	I/Os	FSoE
SGDV-OSA01A	STO/SS1/SS2/SOS/SLS	2 safe inputs	-
SGD7S-OSB01A	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA	-	✓
SGD7S-OSB02A	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA, SLT, SMT	6 I/O dual channel SIL3/PLe Cat3 2 I/O single channel SIL2/PLd Cat3	✓

## Features

- STO (Safe Torque Off) integrated
- 3 different option modules provide a scalable approach for your requirements
- Extensive safety functions allow a suitable solution for many applications
- All safety functions fulfil SIL3/PL-e (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

## Advanced safety modules for Sigma-X

Option module	Description	Safety functions	I/Os	FSoE
SGDXS-OSA01A	Advanced safety module I/O only	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA, SBC	6 I/O dual channel SIL3/PLe Cat3 2 I/O single channel SIL2/PLd Cat3	-
SGDXS-OSAA0A	Advanced safety module FSoE only	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA	-	✓
SGDXS-OSAA1A	Advanced safety module FSoE and I/O	STO, SS1-r, SS1-t, SS2-r, SS2-t, SOS, SLS, SSM, SDI, SLP, SSR, SLI, SCA, SLA, SBC	5 I/O dual channel SIL3/PLe Cat3	✓



# iCube Control

As individual as your needs

## Motion controller

The open automation platform gives machine builders and application developers full control over their system.



## Features

- Open programming
- Scalable and modular design
- Integrated safety
- Real-time open source Linux operating system
- Yaskawa Triton processor

Technical data	iC9226M-EC	iC9226M-FSoE
Fieldbus master	EtherCAT (CoE, FoE, EoE)	EtherCAT (CoE, EoE, FoE) EtherCAT Safety (FSoE)
Processor	Triton ARM Cortex-A17 1.26 GHz, 3 core processor	
Synchronized axes	Up to 64 real and 64 virtual axes	

# 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 the Singular Control version, MP3300iec RBT.

ONE  
**SOFTWARE**  
ONE  
**CONTROLLER**

## Features

- IEC61131-3 standard for efficient software programming 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



# Control systems

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## 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.



## 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, 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.



## 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, as well as an optional PROFIBUS master function. The CPUs can be expanded with up to 64 SLIO module units via the integrated backplane bus.



# HMI

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## smartPanels

The smartPanels are ideal for entry to mid-level applications and stand for high user-friendliness and connectivity. Equipped with a 1GHz ARM Cortex-A8 processor and HMI Designer or Movicon 11 standard, there are no limits for the user in terms of tags, screens, recipes, alarms, etc.

The smartPanels are supplied with a Linux system environment prepared for HMI Designer or with Windows Embedded Compact 7 with Movicon 11.



## Panel PCs

With the Panel PC series, you are ideally equipped for all control and monitoring tasks. The combination of an industrial PC with state-of-the-art performance features and a touch panel with optimum display options combines high performance in the smallest of spaces.

An Intel Celeron processor, large integrated RAM and display resolutions up to Full HD on the 21.5" panel PC leave nothing to be desired. The Windows system environment familiar to most users makes it easy to get started without having to learn anything new. As you have come to expect from us, the Panel PCs also have numerous useful interfaces. The visual appeal of your control cabinet is greatly enhanced by the high-quality materials used for the Panel PCs.

The Panel PCs are supplied with Windows 10 IoT Enterprise and your choice of Movicon or HMI Designer.



visualization with

# HMI Designer

# Movicon

# profichip<sup>®</sup> CPUs

## 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.



EtherNet/IP<sup>™</sup>



EtherCAT<sup>®</sup>

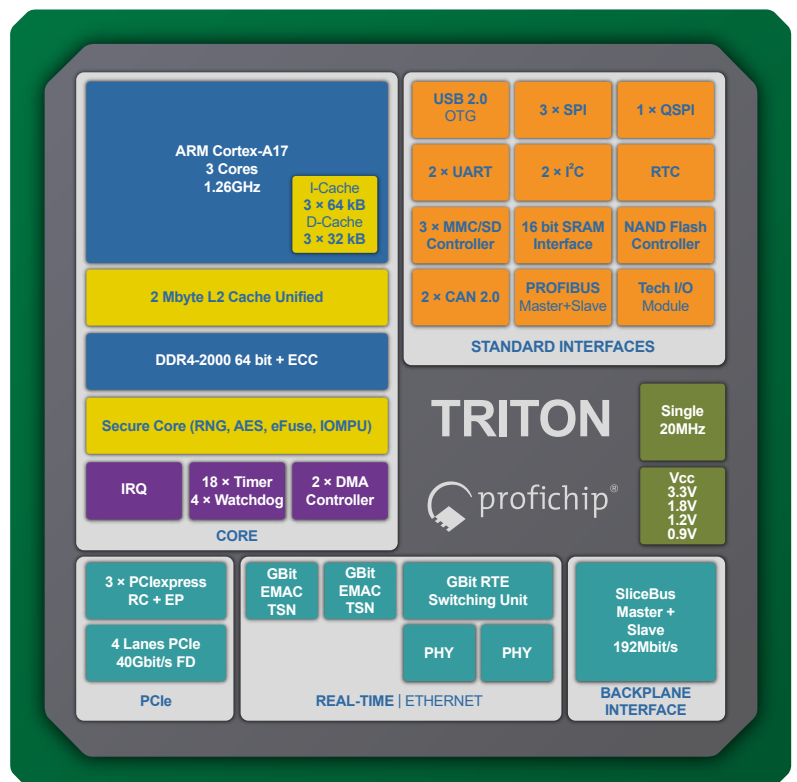
CANopen<sup>®</sup>

PROFI<sup>®</sup>  
NET



## 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



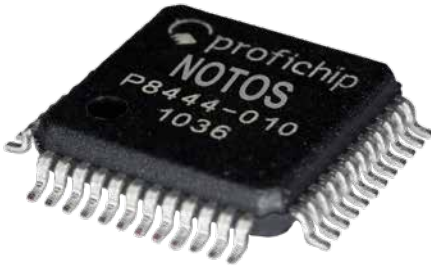
# NOTOS

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

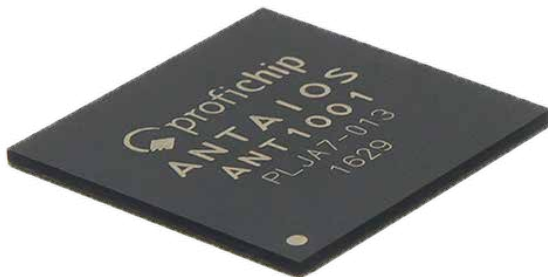
# ANTAIOS

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 with 288 MHz
- Ethernet interface with real-time switch
- Gigabit Ethernet MAC
- SliceBus master



# Robots

# MPP 3 & MPK series

Pick & place robots

## Handling, picking, packing

The 4-axes 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-axes 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, depalletizing

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

## Features

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



Technical data	PL series
Reach	2.061 – 3,159 mm
Payload	80 – 800 kg
Controlled axes	4 – 5

# SG series

Scara robots

## 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-axes 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.

## Features

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



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



**red dot award 2019**  
winner

# MPX series

6-axes painting robots

## 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-axes robots

## Handling & general applications

The 6-axes 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.

## Features

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



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

# SDA series

15-axes dual-arm robots

## Flexible applications

The SDA is a slim and agile 15-axes 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

# HD series

Industrial robots with Hygienic Design

## Hygienic and cleanroom applications

The new 6-axes high-performance robots in the MOTOMAN HD series were designed in collaboration with the Fraunhofer Institute for Manufacturing Engineering and Automation IPA specifically for use in hygienic and cleanroom environments.

With its modern design, the HD series meets the strict standards for applications in the food, life sciences, laboratory automation, medical and pharmaceutical sectors.

## Features

- Hygienic Design: closed housing, no protruding screws
- Robot connections on the underside
- Internal media routing incl. Ethernet connectors
- Hygienic flange with O-ring groove and axes
- Very low particle emission
- Food-grade grease
- Protection class IP69K



Technical data	HD series
Reach	727 – 927 mm
Payload	7 – 8 kg
Controlled axes	6

# 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 it is able to operate at different workplaces.

## Features

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



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-axes 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 20 kg 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 – 3,124 mm
Payload	7 – 20 kg
Controlled axes	6





## Drives Motion Controls

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