

## Machine Safety Solutions

Basic to Complex



- Enhance worker safety through proper safeguarding
- Expert guidance in risk assessment, consulting and parts selection
- Global product support and availability

# Omron has Safety covered

## Telling myth from truth

Do you believe machine safety slows productivity, makes operation and maintenance a hassle, and costs too much to implement? Let our Omron safety experts provide recent evidence to update your understanding of advances in safety and the not so obvious costs and risk exposure.

## Safe, productive and efficient machines

Our goal is to protect personnel and increase overall machine performance. We offer full lines of safety and automation devices that reduce project costs through innovative connectivity.

## One software, one program

A single software with integrated development environment for logic, safety, vision, motion, robotics, HMIs and networking. Your advantage is reduced programming and debugging time with flexibility for new build and retrofit projects. From basic equipment to full production lines, Omron can offer complete automation and safety solutions.

### Complexity of Equipment

## Safety I/O

6 – 20

Basic Machines and Equipment

20 – 256

Distributed Systems and Production Lines

128 – 1024

Complex Machines and Equipment

## Safety solutions scaled to your needs

We listen to your needs and offer expert advice and guidance for the application, integration and maintenance of safeguarding systems. This brochure shows examples of Omron safety and automation devices working together across a variety of applications.

- Basic machines and equipment
  - Complex machines and equipment
  - Distributed systems and production lines
- Make Omron your safety and automation partner for comprehensive solutions.



# Accessories to compliment your system

## Your complete automation & safety provider

Choose from these complimentary Automation products to directly interface with the safety-related parts of the control system. Omron can provide a complete solution with it's entire suite of products to fulfill all of your needs. You benefit from working with a single supplier to streamline support and purchasing to improve your time and cost efficiency. Because Omron can supply high level controls and devices right down to control panel switches allowing you to consolidate your purchase orders which reduces your internal costs and improves your project's overall profitability.

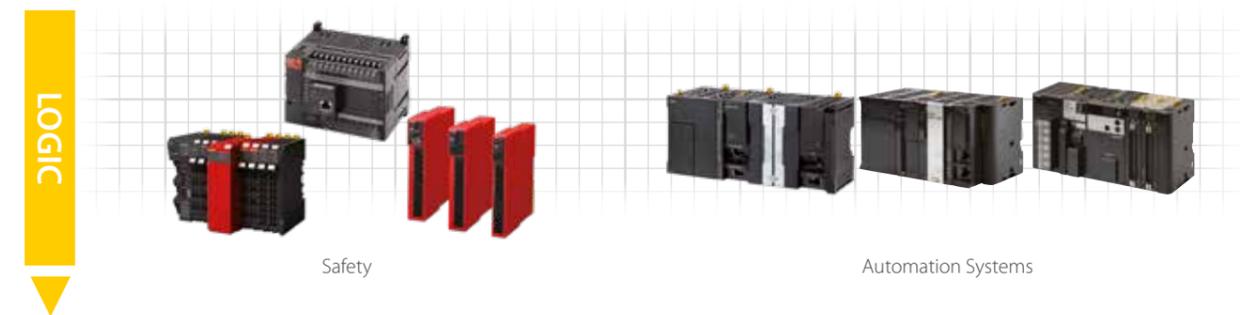
### Safeguarding devices, operator protection and emergency stop devices

Devices that capture information from the machine to determine if it can run.



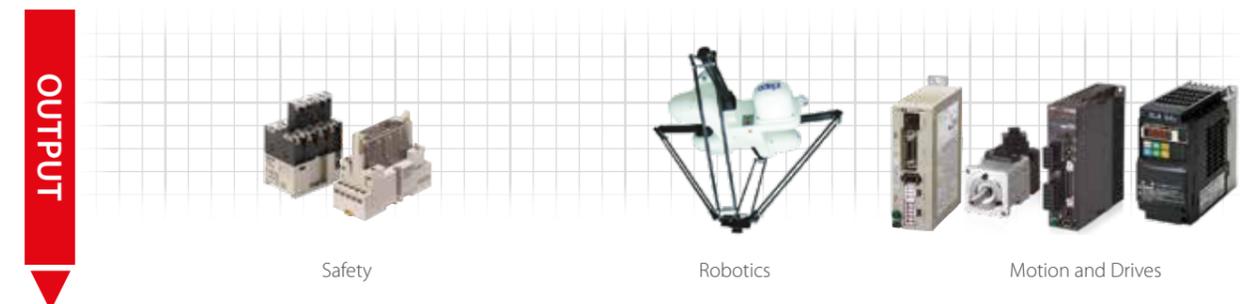
### Safety device monitoring and control

Devices that make safety-related decisions.



### Output devices

Devices that interact with equipment in order to ensure the safety of personnel.



# Basic machines and equipment

## Cost effective, easy, compact, simple...

Basic machines and equipment sometimes need only simple products to solve machine safeguarding requirements. These products provide the required function and performance in a small package at an affordable price. If your machine has simple guarding requirements with 1-6 safety device inputs consider these products to meet this requirement.

**1 Safety Light Curtains**  
F3SG-RE Economy Light Curtain

Satisfy the need for basic ON/OFF detection functionality with the highest level of protection to keep operators safe and productive.



**2 Power Supplies**  
S8VK Series

Whether used to power safety devices or the automation control system, we offer a wide range of compact power supplies.



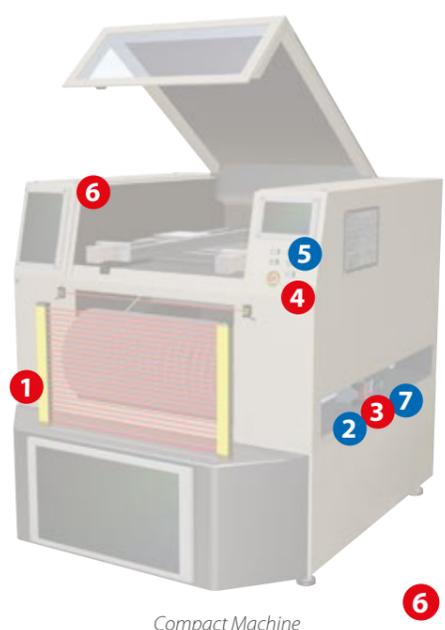
**3 Safety Monitoring Relays**  
G9SE Series

For simple safety control that scales up in small increments choose slim profile G9SE with front panel terminals for quick access and reduced wiring costs.



**7 Complementary Control Products**  
Compact in size, powerful in functionality  
NX1

The NX1 completes the NX/NJ machine controllers family offering same functionality in a compact design. The NX1 provides synchronized control of all machine devices such as motion, I/O, safety and vision under one Integrated Development Environment.



**4 Emergency Stop Devices**  
A22E 22mm/25mm Series

Industrial machines need an emergency stop device on the operator panel and the A22E series switches let you match machine aesthetics with different size actuators.



**5 Switching Components**  
A22N Series Pushbuttons

Complete your operator panel design with 22mm lighted and non-lighted pushbutton switches used for safety system reset, machine start, and other manual functions.



**6 Safety Door Switches**  
D4NS Series

Prevent unsafe operator access with compact plastic bodied safety door switches. An optional metal operation head increases life span.



# Complex machines and equipment

## Easy to use, advanced functionality, monitoring and diagnostic capabilities with more I/O...

When machine guarding requirements become complex with different setup and maintenance modes or require more safety inputs in the same panel, consider the following products. Our programmable safety controllers are easy to use and can be directly connected to the machine control system for status and monitoring over EtherNet/IP and can provide up to 256 I/O.

**8 Power Supplies**  
S8VK Series



**9 Operator Controls**  
A4EG Enabling Grip

Protect operators during setup and maintenance with a 3-position enabling grip to control machine start and stop.



**10 Operator Controls**  
A22TK Trapped Key Switch

Prevent unauthorized control of equipment operation with a trapped key switch. It can be used to lock selection of automatic or manual operation modes.



**11 Programmable Safety Controller**  
G9SP Series

Localize safety control with 10 or 20 inputs and directly connect to a supervising PLC via EtherNet/IP, or NB series HMI via serial communication.



EtherNet/IP

**12 Human Machine Interface**  
NB Dedicated Basic HMI

Easy to integrate HMI comes loaded with pre-built screens for status, monitoring and control of safety and non-safety I/O.



**13 Programmable Safety Controller**  
NX Series Modular Safety I/O System

Cut through safety controller interface limits with direct connection to any PLC using EtherNet/IP coupler, and build a stand-alone system with up to 256 I/O.



EtherNet/IP

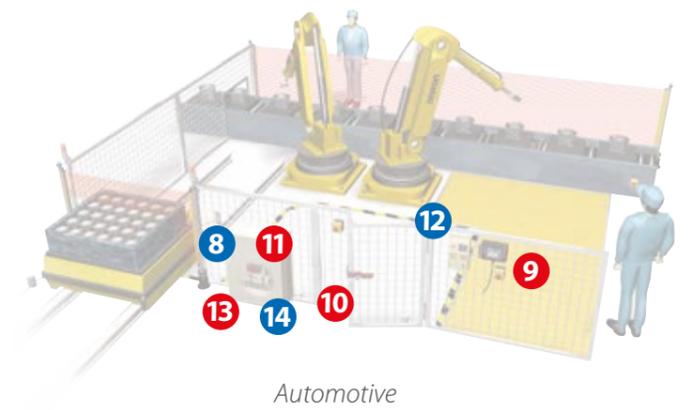
**14 Complementary Control Products**  
NJ and NX7 Series Machine Automation Controllers

The EtherCAT network architecture delivers speed and ease of connectivity to seamlessly integrate the NX-S safety unit.

The NJ Series has sequence and motion functionality and offers CPU units with robotics function and SQL client. The NX7 is the highest performance Sysmac CPU.



EtherNet/IP EtherCAT



# Distributed systems & production lines

Seamless integrated, fast, reliable, advanced...

For larger systems requiring a higher number of safety devices distributed over a larger area, we offer one of the faster most reliable networks, EtherCAT as a solution that integrates directly into the control architecture for seamless operation and rapid commissioning. With a common programming software and direct access of safety I/O status within the controller makes it the easiest system to seamlessly integrate into any control architecture.



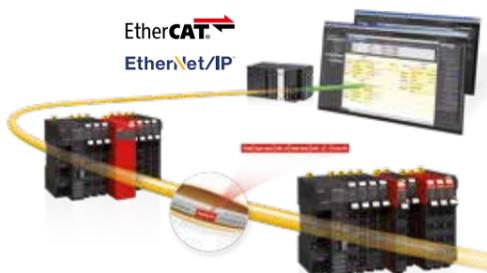
**1 Safety Door Switches**  
D4SL-N Guard lock Safety Door Switch  
Prevent workers from being trapped inside hazardous areas of equipment with this switch and slide key, lockable in the open position with a trapped keys that can't be closed until the area is clear.



**2 Safety Laser Scanners**  
OS32C Safety Laser Scanner  
If access to the safety hazard covers a large area use non-contact sensing to prevent equipment start-up or shut down when an intrusion occurs. Built-in EtherNet/IP allows remote device monitoring of status and information.



Packaging



**3 Programmable Safety Controller**  
NX Series Modular Safety I/O System  
Build a safety control system with compact modular I/O that directly integrates and connects to Omron NJ and NX controllers using Safety over EtherCAT, or connects to your standard automation controller using Safety over EtherNet/IP. Use NX-S to build a modular I/O system with up to 256 or 1024 I/O.  
The slim profile I/O units can be combined with standard I/O on the same bus coupler for panel space and cost savings. With re-usable function blocks you'll never run out of memory.



**4 Safety Light Curtains**  
F3SG-RA Advanced series with F3W-MA Muting Actuators  
When parts need to flow in and out of hazardous areas without stopping equipment this combination provides a plug and play solution.



**5 Safety Mats**  
UMQ Universal Mats with Quick Disconnect  
Whether you are trying to shutdown equipment or prevent it from starting up safety mats provide personnel detection in the harshest of environments.



**6 Force-guided Relays**  
G7SA / G7S-E  
Safety systems from the simplest to the most complex use these relays to switch different voltages and higher currents, and monitor faults.



**7 Motion & Drives**  
1S Drives  
Designed to meet the machine requirements, the 1S servo technology optimizes the full cycle, through the machine design, installation and commissioning tasks and finally to the maintenance once in production.

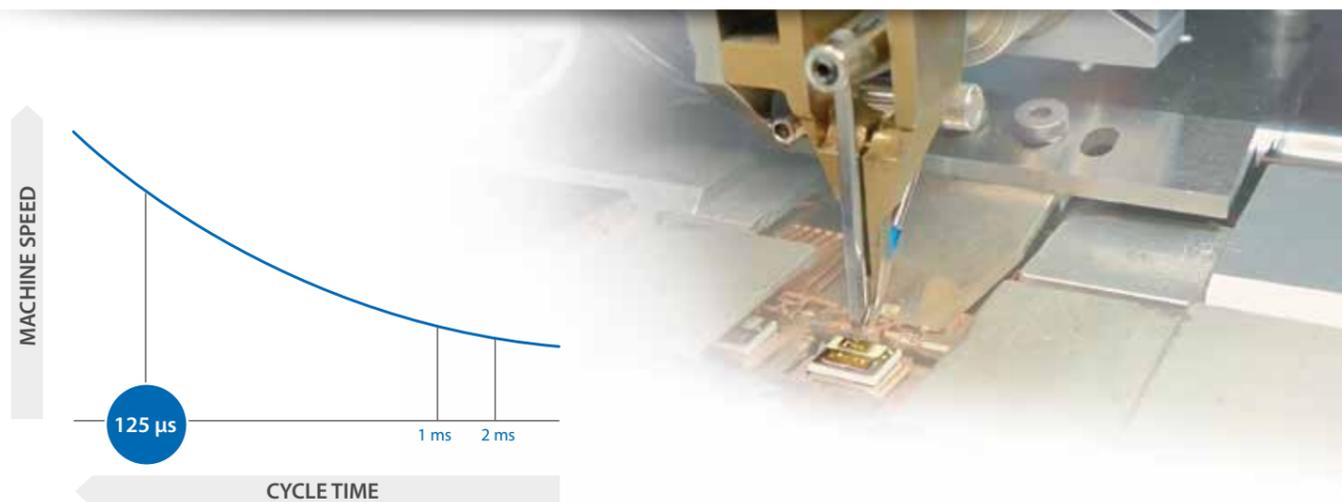


**8 Industrial PC Platform**  
Openness meets Automation Control

Powerful, reliable, scalable - and tough as they come  
Our NY Industrial PC has been designed from first principles to be powerful, reliable and scalable, making it ideally suited to visualization, data handling, measuring and controlling. We've simplified the design and build to eliminate faults caused by complexity and, with other unique design features, to maximize uptime and reduce costs. The future will be IT driven: Omron's IPC platform will make you part of it.

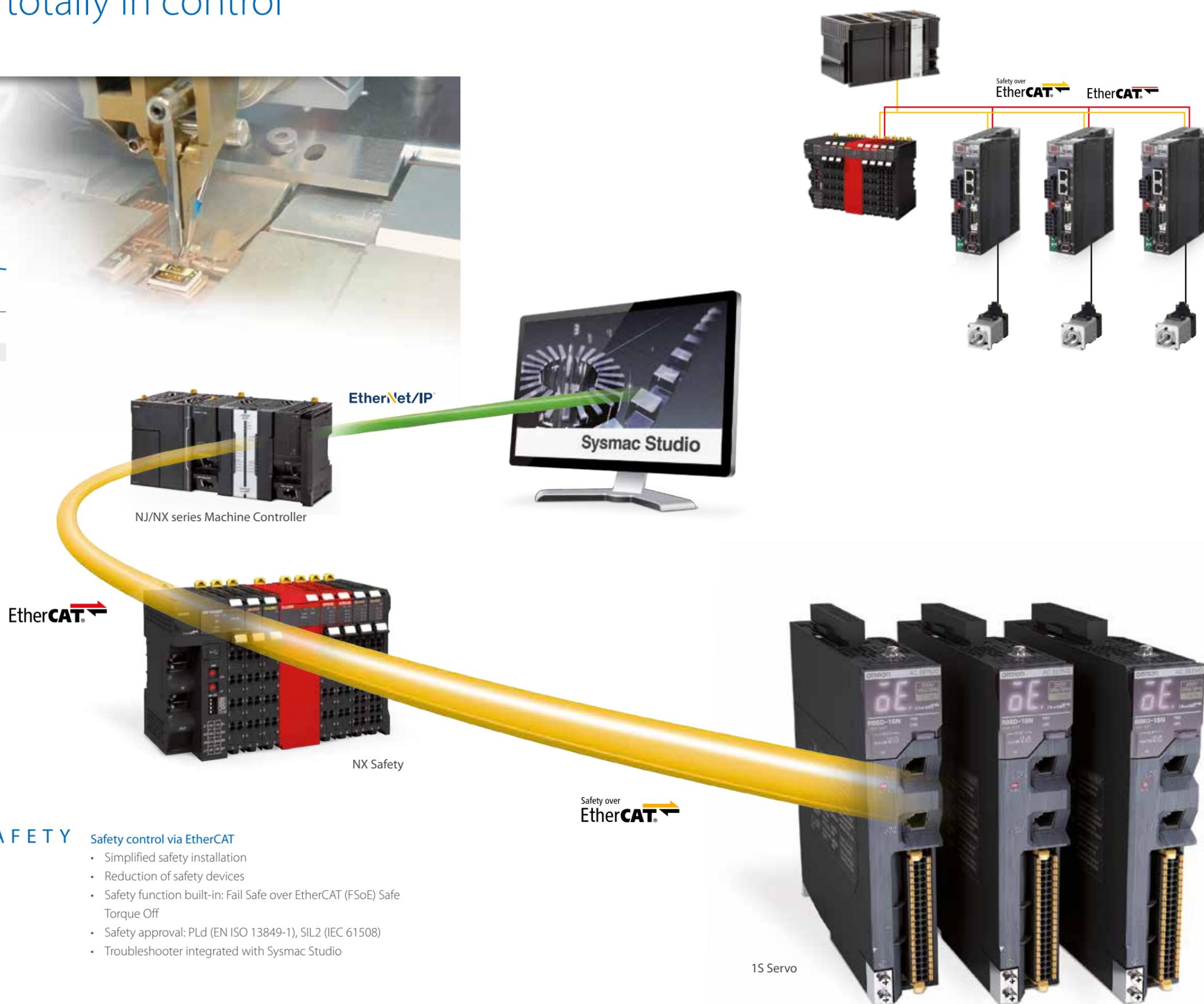


# Totally integrated, totally in control



## HIGHER PRODUCTIVITY

- 125 μs system cycle**
- Faster machine speed keeping same accuracy
  - Accurate profile generation in the controller
  - The 23 bit high resolution encoder in combination with the improved loop control provide an accurate following profile



## INTEGRATED SAFETY

- Safety control via EtherCAT**
- Simplified safety installation
  - Reduction of safety devices
  - Safety function built-in: Fail Safe over EtherCAT (FSoE) Safe Torque Off
  - Safety approval: PLd (EN ISO 13849-1), SIL2 (IEC 61508)
  - Troubleshooter integrated with Sysmac Studio

1S Servo

“To the machine the work of the machine,  
to man the thrill of further creation.”

Kazuma Tateisi, founder of Omron

## Omron at a glance

Listed in Forbes Top 2000 largest companies of the globe  
Omron Corporation NASDAQ: OMRNY  
Top ranking in Dow Jones Sustainability Index  
Thomson Reuters Top 100 Global Innovators



### 200,000 products ranging Input, Logic, Output & Safety

Sensing, Control Systems, Visualisation, Drives, Robots,  
Safety, Quality Control & Inspection, Control and  
Switching Components

# 6%

Annual investment in Research & Development

### Innovation track record of 80 years

1,200 employees dedicated to R&D  
12,500 + issued and pending patents

# 37,500

Employees worldwide

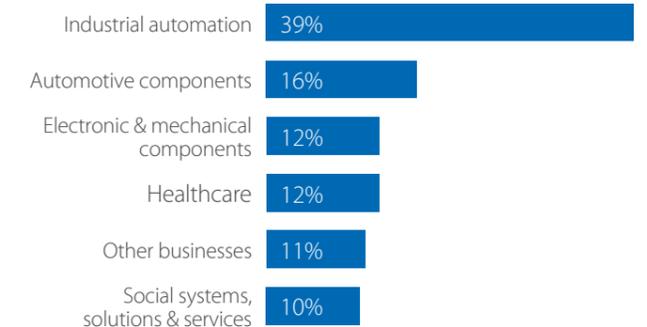
# 200

Locations worldwide

# 22

Countries in EMEA

### Working for the benefit of society



### Close to your needs

Technical training & seminars, technical support,  
Automation Technology Centers, online community (MyOmron), online catalogues and technical documentation,  
customer service & sales support, inter-operability labs (Tsunagi), safety services, repairs.

*Would you like to know more?*

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