

# 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

## All machines need safety

Recent changes to safety standards now hold the end user and their chosen machine builders responsible for machine safety to prevent operator injury. Let Omron guide you through the risk assessment and hazard abatement process leading to component selection to deliver an outstanding solution that can reduce your liability.

## 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



Switching Components



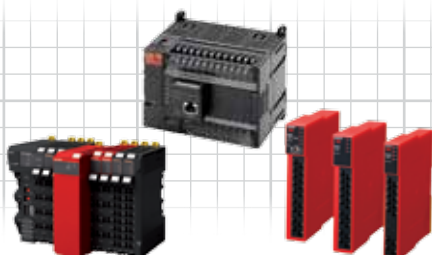
Control Components



Automation Systems

### Safety device monitoring and control

Devices that make safety-related decisions.



Safety



Automation Systems

### Output devices

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



Safety



Robotics



Motion and Drives



# 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.



### 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.



*Semiconductor*

### 7 Complementary Control Products

Programmable Logic Controllers  
CP1E/CP1L/CP1H Compact PLC

Whether your machine operates stand-alone or as a process module, the CP1 series saves space with a Micro PLC footprint and offers the control capability of a modular PLC.



# 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 Non-contact Switches

D40 Series

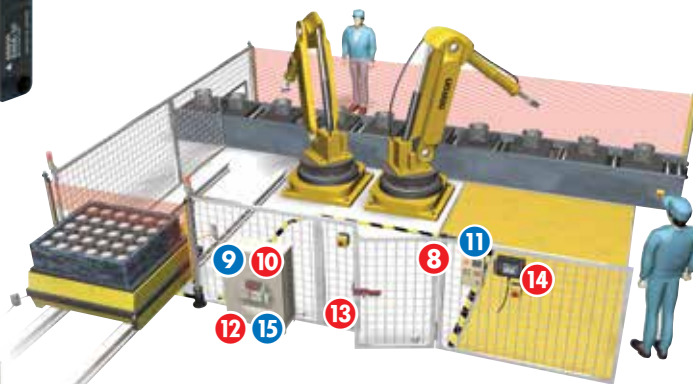
When you want to monitor the status of multiple access doors use series connected non-contact switches.



## 9 Power Supplies

S8VS Series

Let your panel power supply help diagnose problems using built-in multimeter functionality. It can display voltage, current, output run time, and life expectancy and provide alarm output.



Automotive

## 14 Operator Controls

A4EG Enabling Grip

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



## 13 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.



## 10 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

## 11 Human Machine Interface

NB Dedicated Basic HMI

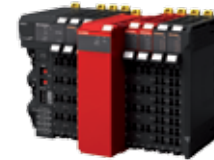
Easy to integrate HMI comes loaded with pre-built screens for status, monitoring and control of safety and non-safety I/O.



## 12 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

## 15 Complementary Control Products

Modular Programmable Logic Controllers  
CJ2 Modular PLC

When your packaging or general machine automation projects need to connect to the safety system, choose CJ2 series PLCs for their simple connectivity using the built-in Ethernet port.



EtherNet/IP

# 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.



### 16 Safety Door Switches

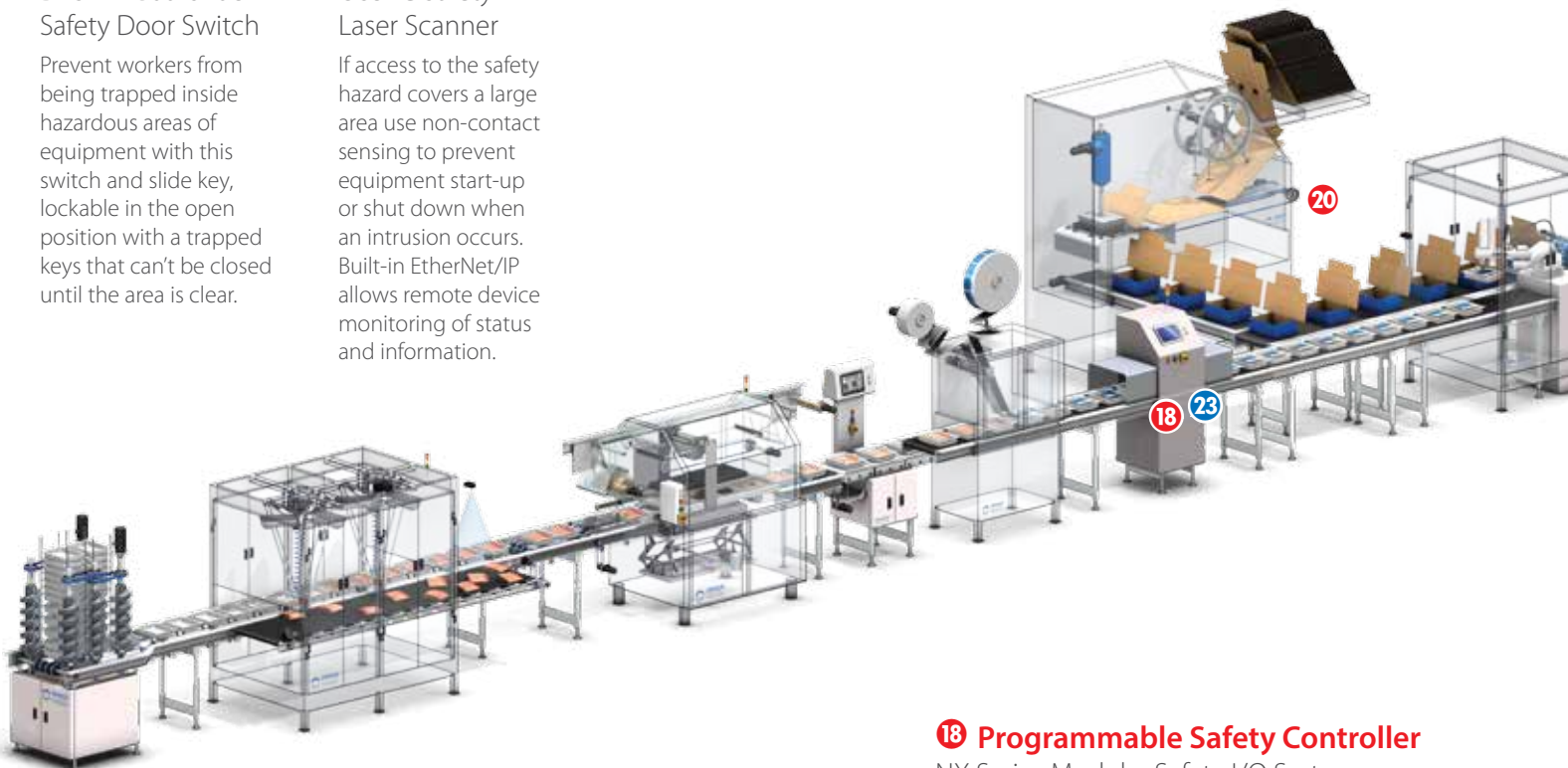
D4SL-N Guard lock Safety Door Switch

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.

### 17 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.



### 18 Programmable Safety Controller

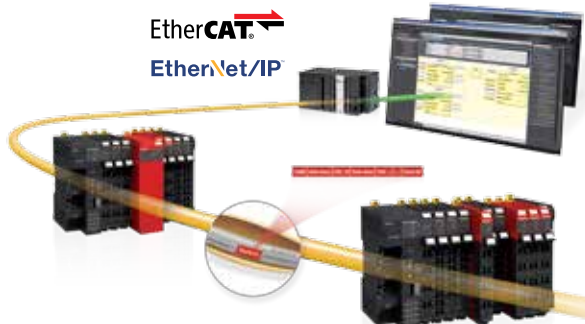
NX Series Modular Safety I/O System

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

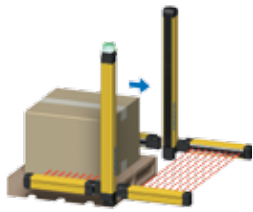
NX-S to build a modular I/O system with up to 256 or 1024 I/O.

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.







**19 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.



**20 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.



**21 Force-guided Relays**

G7SA / G7S-E

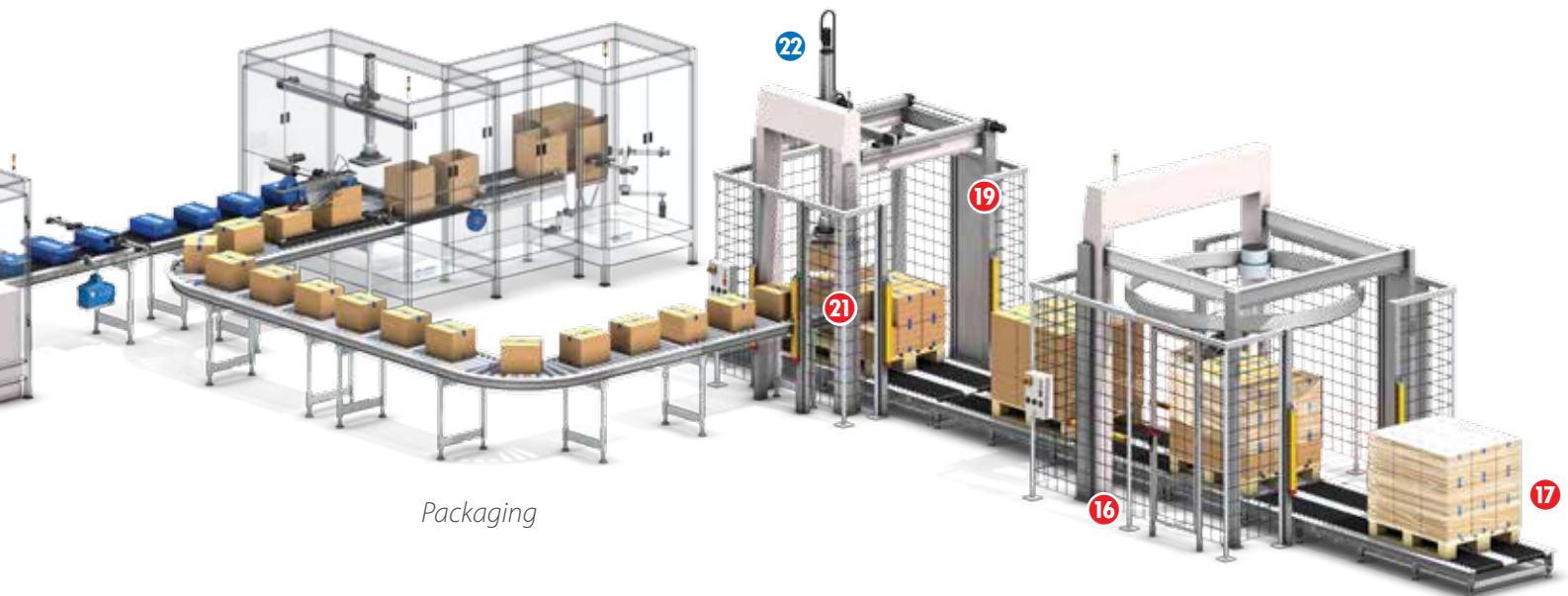
Safety systems from the simplest to the most complex use these relays to switch different voltages and higher currents, and monitor faults.



**22 Motion & Drives**

G5 Servo Systems and MX2 Frequency Inverters

These products incorporate safety functionality with safe inputs to directly remove power to the output actuators without the need for additional hardware. Feedback is provided to ensure that the power has been removed.



Packaging

**23 Complementary Control Products**

NJ and NX7 Series Machine Automation Controllers

Simplify the integration of your safety systems with the NJ and NX series 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.

**EtherCAT**  
**EtherNet/IP**



The NX7 is the highest performance Sysmac CPU, designed to address the most demanding industrial control and motion applications, laying the infrastructure for Big Data support.



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*Authorized Distributor:*

**Automation Control Systems**

- Machine Automation Controllers (MAC) • Programmable Controllers (PLC)
- Operator interfaces (HMI) • Distributed I/O • Software

**Drives & Motion Controls**

- Servo & AC Drives • Motion Controllers & Encoders

**Temperature & Process Controllers**

- Single and Multi-loop Controllers

**Sensors & Vision**

- Proximity Sensors • Photoelectric Sensors • Fiber-Optic Sensors
- Amplified Photomicrosensors • Measurement Sensors
- Ultrasonic Sensors • Vision Sensors

**Industrial Components**

- RFID/Code Readers • Relays • Pushbuttons & Indicators
- Limit and Basic Switches • Timers • Counters • Metering Devices
- Power Supplies

**Safety**

- Laser Scanners • Safety Mats • Edges and Bumpers • Programmable Safety Controllers • Light Curtains • Safety Relays • Safety Interlock Switches