

Machine Safety Technology Guide



Product Lineup

Select the safety input, logic and output components that are suitable for your risk reduction strategy

INPUT

Guard solutions



Safety limit switches



Small Safety Limit Switch
D4N P13



Small Safety Limit Switch
D4F P13



Safety Limit Switch
D4B-N P13



Pull-reset Safety Limit Switch
D4N-R P13



Guard lock safety-door switches



Guard Lock Safety-door Switch
D4SL-N P14



Guard Lock Safety-door Switch
D4JL P14



Guard Lock Safety-door Switch
D4NL P14



Guard Lock Safety-door Switch
D4BL P14



RFID Magnetic Locking Safety Switch
D40ML P14

Safety-door switches



Safety-door Switch
D4NS P14



Slim Safety Door Switch
D4GS-N P14



Safety-door Hinge Switch
D4NH P14



Safety-door Switch
D4BS P14

Non-contact door switches



Compact Non-contact Door Switch
D40A/D40Z P15



Hall-Effect Coded Magnet Non-Contact Safety Switches
D40P P15



RFID Non-Contact Safety Switches
D40R P15

Slide keys



D4NS-SK/D4JL-SK P15



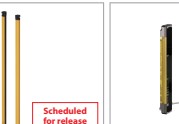
D4SL-N-mounting Slide Key
D4SL-NSK10-LK P15



Safety light curtains



Safety Light Curtain
F3SG-SR P16



Safety Multi-Light Beam
F3SG-PG P16



Small Safety Light Curtain
F3SJ-A P16

Muting actuators



Smart Muting Actuator
F3W-MA P16

Single-beam sensors



Single-beam Safety Sensor
E3ZS P18

Presence sensing



Safety laser scanners



Safety Laser Scanner
OS32C P17

Emergency stop/enabling devices



Emergency stop switches



Emergency Stop Switch(22-dia. or 25-dia.)
A22NE-PD/A22NE-P/A22E P17



Emergency Stop Switch(16-dia.)
A16SE P17



Emergency Rope Switch
ER6022 P17



Safety switches



Enabling Grip Switch
A4EG P18



Enabling Switch
A4E P18



Safety Key Selector Switch
A22TK P18

LOGIC

Safety controllers



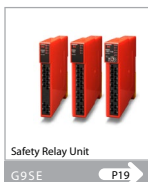
Controllers for small applications



P19



P19



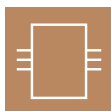
P19

Controllers for mid-size applications

Global/partial stopping



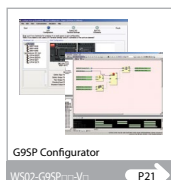
P19



Controllers for mid-size applications



P21



P21



Controllers for large applications

EtherNet/IP(CIP-Safety)

NX series



P20



P20



P20

EtherCAT (FSoE)

NX series



P20



P20



P21



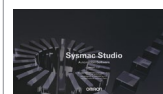
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P21



P21



Automation Software SysmacStudio

P21

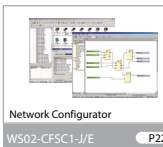
DeviceNet Safety NE1A/NE0A series



P22



P22



P22

OUTPUT

Safety relays



Safety relays



P23



P23



P23



Safety drives



AC Servomotor/Servo Drive



P23



P23

Inverter



P23



P23

OEM Safety Solutions

Omron safety components help improve machine safety

1

Door locking to protect workers

Guard Lock Safety-door Switch

D4SL-N P14

D4NL P14

D4JL P14 / D4BL P14

· Metal or plastic housing



D4BL



D4JL



D4SL-N



TL4019



D4NL

2

Door monitoring

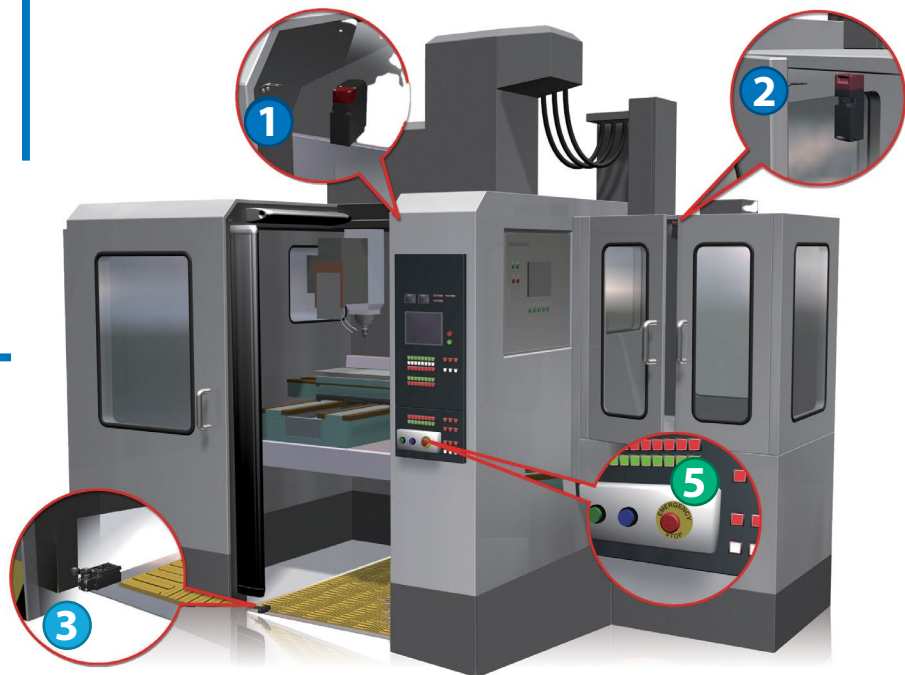
Slim Safety Door Switch

D4GS-N P14

Safety-door Switch

D4NS P14 / D4BS P14

· Metal, plastic, or compact plastic housing



3

Door position and open/close detection

Safety Limit Switch

D4B-□N P13

Small Safety Limit Switch D4N/D4F P13

· Metal or plastic housing



D4B-□N



D4N



D4F

5

Emergency machine stop

Emergency Stop Switch

A165E P17

A22NE-PD/A22NE-P/

A22E P17

· A wide range of accessories



7

Non-contact door monitoring

Compact Non-contact
Door Switch

D40A (PLd/Safety Category 3)

P15

D40Z (PLe/Safety Category 4)

P15



D40R/P D40A D40Z

Note: The G9SP/G9SX-NS Controller is required.

8

Standalone monitoring

Safety Relay Unit G9SA/G9SE

P19

Flexible Safety Unit G9SX

P19

Safety Controller G9SP

P21

Machine Automation Controller NX102

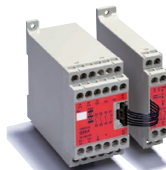
P21

Safety CPU Unit NX-SL5

P20

Safety I/O Unit NX-SI/SO

P20



G9SA



G9SE



G9SX



G9SP



NEW
NX102/
NX-SL5/SI/SO

9

Ensuring the safety of openings

Safety Light Curtain

F3SG-SR

P16

NEW
F3SG-SR



10

Advanced safety control of people, machines and goods

All eight safety functions compliant with IEC61800-5-2 are supported

• AC Servo System with
Safety Functionality 1S series

R88M-1A□/R88D-1SAN□-ECT



Available soon

R88M-1A□/
R88D-1SAN□-ECT

Safe machine shutdown

Safety function: STO

• AC Servo System 1S Series

R88M-1□/

R88D-1SN□-ECT

• MX2-V1 Multi-function

Compact Inverter

3G3MX2-V1

• High-function

General-purpose Inverter 3G3RX2



3G3MX2-V1



NEW
3G3RX2



NEW
R88M-1□/
R88D-1SN□-ECT

Machine Safety Application Examples

Omron safety components help protect workers at manufacturing sites

1



Presence sensing for frequently accessed areas and wide openings

Safety Light Curtain

F3SG-SR

P16

NEW

F3SG-SR

2

Prevent collisions and entrapment by detecting workers and contacts

Safety Laser Scanner

OS32C

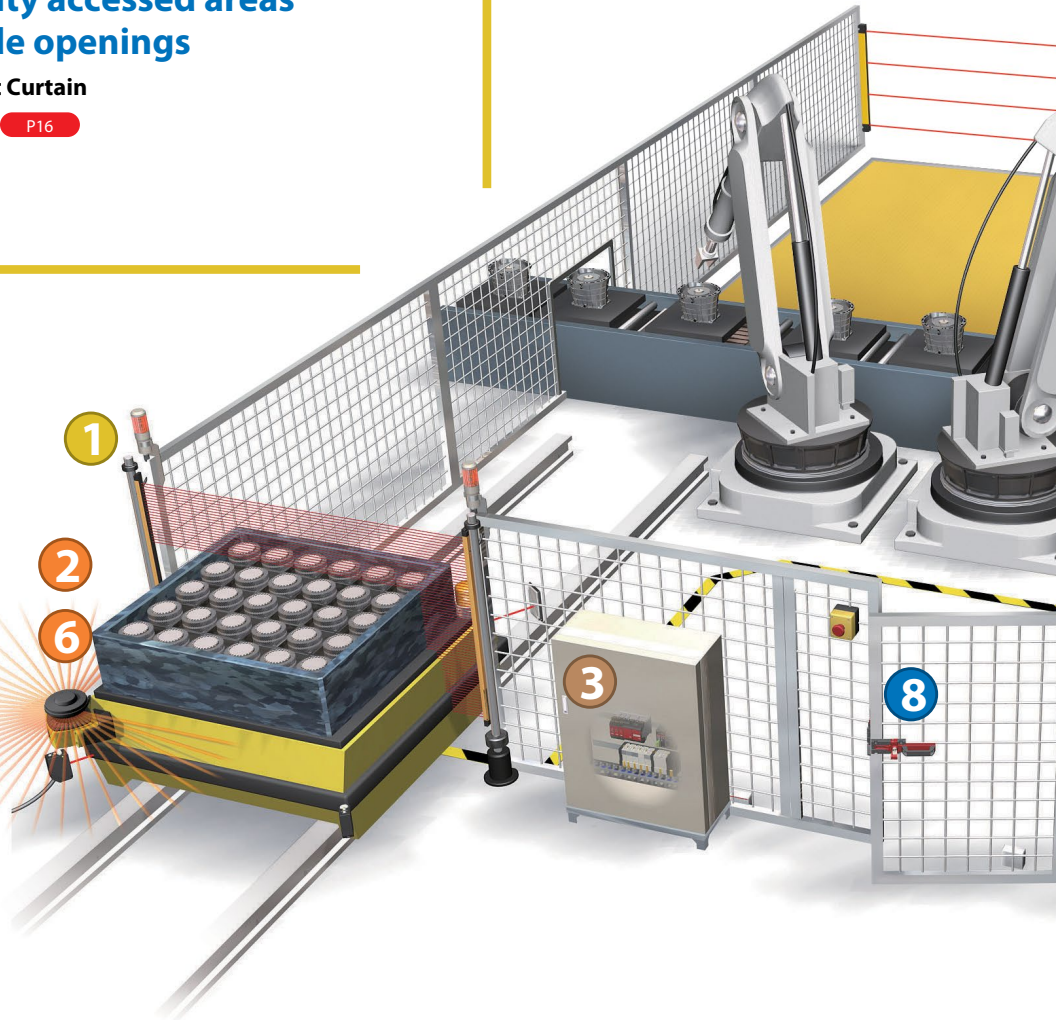
P17



OS32C



SGE



3

Expanding safety I/O through networks

NX Series Communication Control Unit NX-CSG

P20

Safety CPU Unit NX-SL5

P20

Safety I/O Terminal GI-SMD/SID

P20



NEW

NX-CSG
NX-SL5/SI/SO



NEW

GI-SMD/SID

4

Perimeter protection around equipment

Safety Multi-Light Beam
F3SG-PG

P16

Scheduled for release

F3SG-PG

4

5

Full system emergency stop

Emergency Stop Switch A22NE

P17

· Emergency Stop switch with Integrated Control Box



A22NE-M-P
Emergency Stop Switch
with Integrated Control Box

6

Worker protection in hazardous areas

Safety Laser Scanner OS32C

P17



OS32C

7

Emergency stop during teaching in hazardous areas

Enabling Grip Switch A4EG

P18

Enabling Switch A4E

P18

· Horizontal or vertical mounting



A4E



A4EG

8

Door open/close detection and locking

Safety-door Hinge Switch D4NH

P14

Guard Lock Safety-door Switch

D4SL-N /D4NL /D4JL

P14

P14

P14

· Hinge switch for open/close detection

· Guard lock switch for locking doors



D4NH

D4JL

D4SL-N

D4NS/D4JL-mounting Slide Key

D4NS-SK30/D4JL-SK40

P15

D4SL-N-mounting Slide Key D4SL-NSK10-LK

P15



D4SL-NSK10-LK



D4JL-SK40



D4NS-SK30

Safety Application Examples

Applications by Industry

1. Automotive

1

Worker protection in hazardous areas

Laser scanner for presence sensing

Safety Laser Scanner
OS32C



OS32C

2

Emergency stop during teaching in hazardous areas

Enabling Grip Switch
A4EG



A4EG

A22E

3

Presence detection in harsh environments

Safety Light Curtain

F3SG-SR

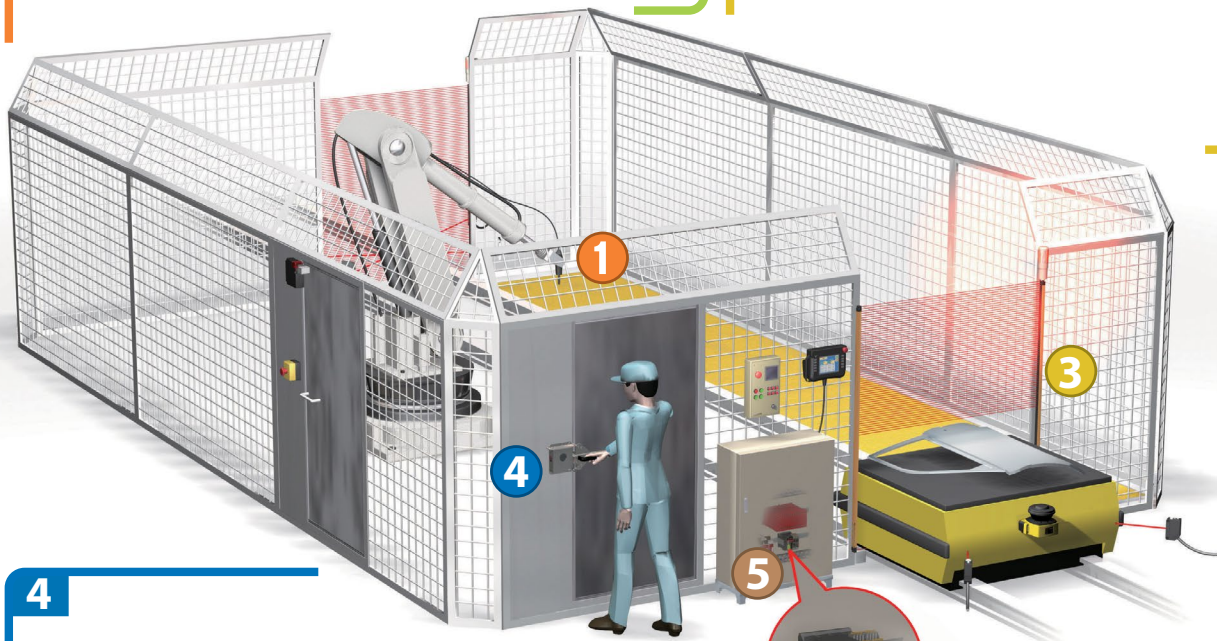
P16

Cutting oil resistant Robust type IP67G



F3SG-SR

NEW



4

For preventing containment in hazardous areas

Guard Lock Safety-door Switch D4JL

P14



D4JL

Rear release button to unlock

Unlock from inside to get out of hazardous area



D4JL-SK40

D4JL-mounting Slide Key
D4JL-SK40

P15

5

Programming for safety control

NX Series Communication
Control Unit NX-CSG

P20

Safety CPU Unit NX-SL5

P20

Safety I/O Terminal
GI-SMD/SID

P20



NEW

NX-CSG
NX-SL5/SI/SO



NEW

GI-SMD/SID

Applications by Industry

2. Machine Tool

1

Door position and open/close detectionSafety Limit Switch D4B-□N P13

Small Safety Limit Switch

D4N P13 /D4F P13

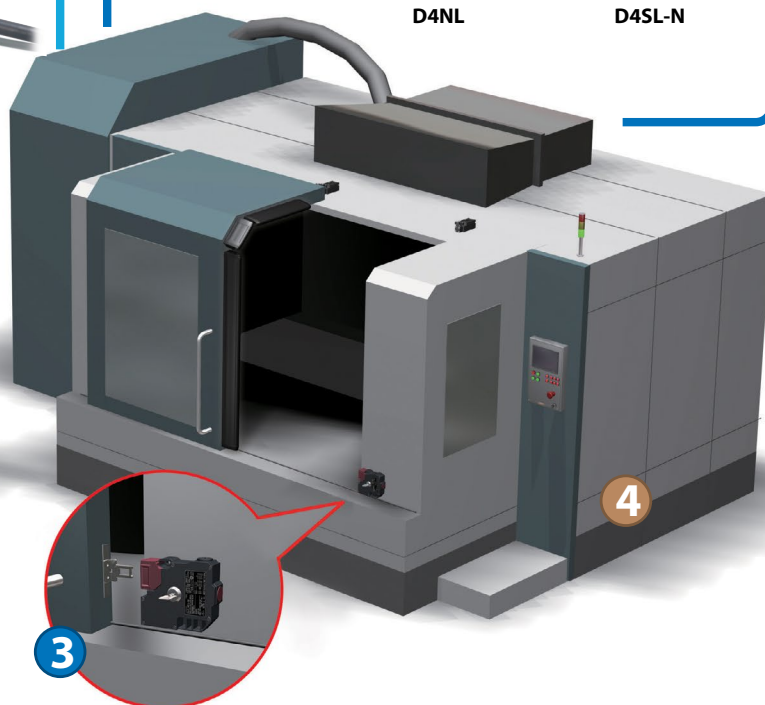
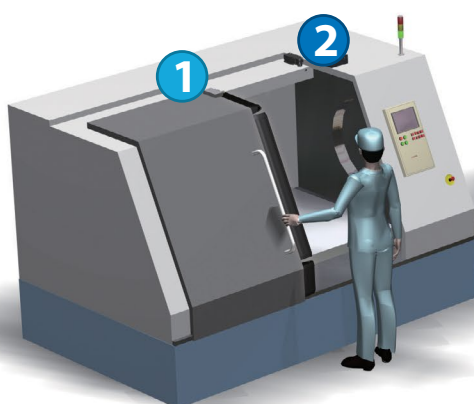
· Metal or plastic housing



2

For preventing access to inertial hazards

Guard Lock Safety-door Switch

D4SL-N/D4NL P14

3

For preventing containment inside the equipmentGuard Lock Safety-door Switch D4JL P14

Trapped key to prevent getting trapped

4

Standalone operation

Flexible Safety Unit

G9SX P19Safety Controller G9SP P21

Machine Automation

Controller NX102 P20Safety CPU Unit NX-SL5 P20Safety I/O Unit NX-SI/SO P20

Safety Application Examples

Applications by Industry

3. FPD Manufacturing Equipment

1

Intrusion detection for wide openings

Safety Light Curtain

F3SG-SR P16

Safety Light Curtain

F3SJ-A P16



2

Entry and Exit access control

Guard Lock Safety-door Switch

D4SL-N P14

D4SL-N-mounting Slide Key

D4SL-NSK10-LK□ P15



D4SL-N

D4SL-NSK10-LK□



3

For multiple hazard zones

Safety Controller G9SP

Machine Automation Controller NX102

Safety CPU Unit NX-SL5

Safety I/O Unit NX-SI/SO

P21

P20

P20

P20



G9SP



NEW

NX102/
NX-SL5/SI/SO

Applications by industry 4. Semiconductor manufacturing equipment

1

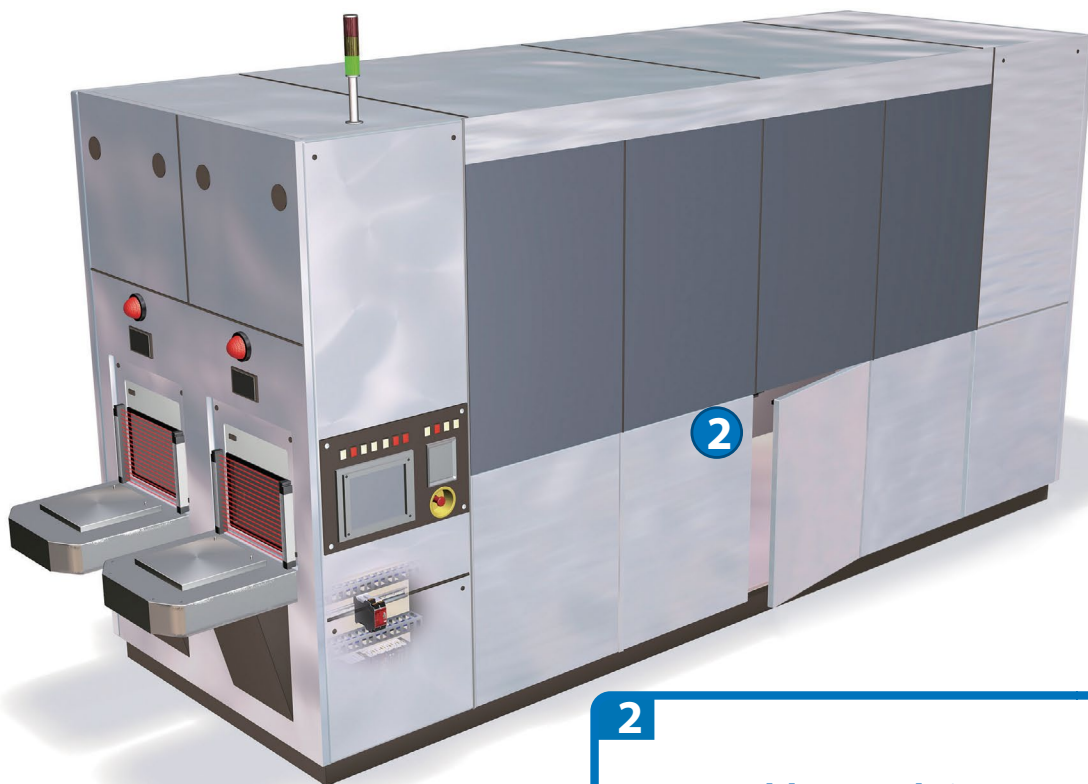
For a small opening

Safety Light Curtain

F3SG-SR P16

Safety Light Curtain

F3SJ-A P16



2

For movable guards in a clean room

Particle free

Compact Non-contact Door Switch

D40A (PLd/Safety Category 3) P15

D40Z (PLe/Safety Category 4) P15

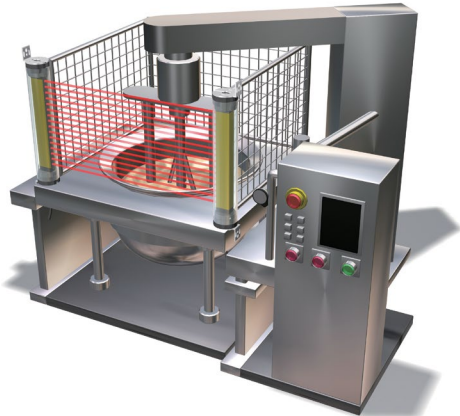
D40R (PLe/Safety Category 4) P15



Safety Application Examples

Applications by Industry

5. Food Production Equipment



1

For Washdown Environments

Safety Light Curtain

F3SG-SR

P16

Applicable to IP67G for waterproof and oil proofing

• IP69K model

The IP69K model also supports high-pressure cleaning

Safety Light Curtain F3SJ-A

• Water-resistant Case

F39-EJ□□□□-L/-D

P16

(For F3SJ-A)

IP67 compliant with environment-resistant case

**F3SJ-A,
F39-EJ**□□□□-L/-D



Water
resistance
IP69K

NEW

F3SG-SR
• IP67K model



2

For Guarding Large Openings

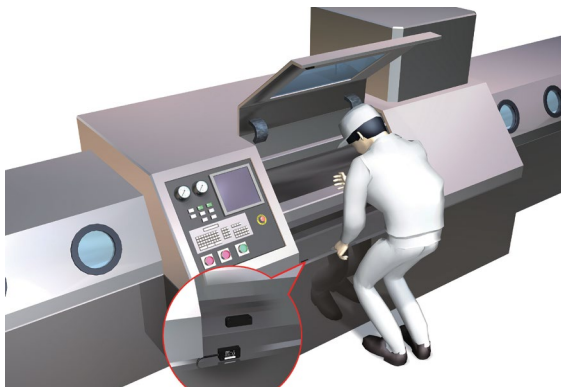
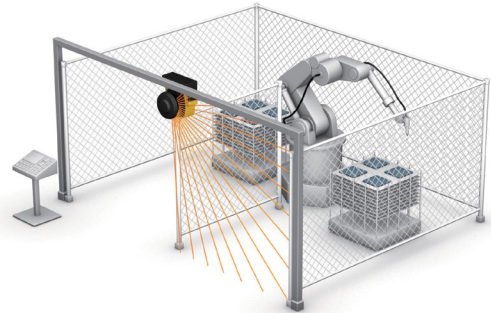
Safety Laser Scanner

OS32C

P17



OS32C



3

Non-contact door detection for doors in wash-down environments

Compact Non-contact Door Switch

D40A (PLd/Safety Category 3)

P15

D40R/P (PLe /Safety Category 4)

P15






D40A



D40R/P










Product Lineup




■ Safety limit switches

Model	Appearance	Features
D4N Small Safety Limit Switch		<ul style="list-style-type: none"> Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO, 3NC, 1NC/1NO MBB and 2NC/1NO MBB M12 connector type for quick wiring and easy replacement Standardized gold-clad contacts for high contact reliability For standard loads and micro loads
D4F Small Safety Limit Switch		<ul style="list-style-type: none"> World's smallest class housing with direct opening mechanism (4 contacts) High sensitivity 2 and 4 contact types IP67 protection
D4B-□N Safety Limit Switch		<ul style="list-style-type: none"> Direct opening mechanism (NC contacts only) opens contacts when faults occur Indicates applicable operating zone Push-button switching to control left and right motion IP67 protection
D4N-□R Pull-reset Safety Limit Switch		<ul style="list-style-type: none"> Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO and 3NC M12 connector type for quick wiring and easy replacement Standardized gold-clad contacts for high contact reliability For standard loads and micro loads

Product Lineup












■ Safety door switches

Model	Appearance	Features
D4NS Safety-door Switch		<ul style="list-style-type: none"> Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO and 3NC M12 connector type for quick wiring and easy replacement Standardized gold-clad contacts for high contact reliability For standard loads and micro loads Metal head types available
D4GS-N Slim Safety Door Switch		<ul style="list-style-type: none"> Slim housing only 17 mm wide (3 contacts) Reversible design allows front or rear mounting Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO and 3NC IP67 protection
D4BS Safety-door Switch		<ul style="list-style-type: none"> Direct opening mechanism opens switch contact when protective cover is opened Wide temperature range: -40 to 80°C IP67 rated switch box (EN 60947-5-1)
D4SL-N Guard Lock Safety-door Switch		<ul style="list-style-type: none"> Reduced wiring time with one-touch attachment and removal 4, 5 and 6 contact types Key holding force: 1,300 N Turning key insertion point without detaching head Drive solenoid directly from the controller
D4JL Guard Lock Safety-door Switch		<ul style="list-style-type: none"> Strong key holding force: 3,000 N (plastic housing) 2 safety circuits and 2 monitor contacts for various monitoring patterns Trapped key and rear release button prevent workers from getting trapped inside hazardous areas IP67 protection
D4NL Guard Lock Safety-door Switch		<ul style="list-style-type: none"> Built-in switches with multiple-contact construction are available. Key holding force: 1,300N For standard loads and micro loads Various conduit types, e.g. M20 IP67 protection
D4BL Guard Lock Safety-door Switch		<ul style="list-style-type: none"> Automatic mechanical locking by inserting operation key Release by applying voltage to solenoid Auxiliary release key for emergency unlock IP67 protection
D40ML RFID Magnetic Locking Safety Switch		<ul style="list-style-type: none"> RFID provides a high degree of tamper resistance. Three case materials - Plastic, diecast metal, 316 stainless steel Clean/Sanitize in Place stainless steel versions are rated IP69K. LEDs support easy fault diagnosis. Install up to 20 switches in series.
D4NH Safety-door Hinge Switch		<ul style="list-style-type: none"> Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO, 3NC, 1NC/1NO MBB and 2NC/1NO MBB M12 connector type for quick wiring and easy replacement Standardized gold-clad contacts for high contact reliability For standard loads and micro loads


Model	Appearance	Features
D40A Compact Non-contact Door Switch		<ul style="list-style-type: none"> Stable operation reduces controller errors caused by unstable doors Connect up to 30 non-contact door switches with LED to one controller Reversible switch provides flexibility in installation Two color LED indicator for easy maintenance PLd/Safety Category 3
D40Z Compact Non-contact Door Switch		<ul style="list-style-type: none"> Conforms to ISO 13849-1 (PLe/Safety Category 4) Switch's LED indication patterns for easy troubleshooting
D40P Hall-Effect Coded Magnet Non-Contact Safety Switces		<ul style="list-style-type: none"> Hall effect coded magnet non-contact switches monitor the status of guarding doors. Diverse housing material: plastic, stainless steel, hygienic designed stainless steel and special food type stainless steel housing Conforms to safety categories up to PLe acc. EN ISO13849-1 Operates with all OMRON safety controllers, up to 20 switches in series, up to PLd acc. EN ISO 13849-1
D40R RFID Non-Contact Safety Switches		<ul style="list-style-type: none"> Provides a high degree of tamper resistance, options with basic and unique coding makes Clean/Sanitize in Place, IP69K pre-wired versions with a resin body resist most chemicals and make them suitable for high pressure cleaning and CIP/SIP processes in food and beverage applications. Operates with all OMRON Safety Controllers, up to 20 switches in series. Conforms to ISO 13849-1 (PLe / Category 4)
D4SL-NSK10-LK □ D4SL-N-mounting Slide Key		<ul style="list-style-type: none"> Lockout key prevents workers from getting trapped inside hazardous areas Vertical D4SL-N Guard Lock Safety-door Switch can be easily mounted on a 40 x 40 mm aluminum frame Plastic housing suitable for lightweight doors
D4NS-SK D4JL-SK D4NS/D4JL-mounting Slide Key		<ul style="list-style-type: none"> Door switch attachments for doors in various sizes from 20 x 20 mm aluminum frames to large guards around robots Shortens design time for door switch mounting part

Product Lineup






■ Safety sensors

Model	Appearance	Features
F3SG-SR Safety Light Curtain	 NEW	<ul style="list-style-type: none"> • 3 color Area Beam Indicators (ABIs) for easy alignment and troubleshooting • IO-Link communication capable • Environmental resistance and rugged structure for use in any environment (IP67, IP67G *1) • One of the Industry's broadest line-up from finger protection to body protection • Flexible height model for easy integration into machines and lines
F3SG-PG Safety Multi-Light Beam	 Scheduled for release	*1. IEC 60529/JIS C 0920 Annex 1
F3SG-RE Safety Light Curtain (Easy type)		<ul style="list-style-type: none"> • Provides basic on/off safety functions • Simple wiring with only 4 wires • Fast response time of 5 ms
F3SJ-A Safety Light Curtain (ADVANCED Type)		<ul style="list-style-type: none"> • Omron's most compact size • Series connection up to 4 sets • Multiple resolutions and protective heights available
F3SG-RA Safety Light Curtain (Advanced type)		<ul style="list-style-type: none"> • All Models designed for global use. PNP/NPN selection by DIP Switch • Rugged and compact models • New Muting function to increase both productivity and safety
F3SG-RR Safety Light Curtain (Robust type)		<ul style="list-style-type: none"> • Mechanical seal structure prevents cutting oil from intrusion, IP67G rated • Special materials and cables significantly enhance oil resistance • Rugged and compact housing to fit any application
F3SJ-B Safety Light Curtain (BASIC Type)		<ul style="list-style-type: none"> • Cascade up to three sets for either U-shaped or L-shaped protection area • LED indicators to check the wiring status • Muting function available
F3SJ-E Safety Light Curtain (EASY Type)		<ul style="list-style-type: none"> • Provides basic on/off safety functions • Simple and affordable hand protection models • Good noise immunity
F3W-MA Smart Muting Actuator		<ul style="list-style-type: none"> • Integrated sensor system utilizing multiple beam sensor technology • Configure muting systems in combination with safety light curtains • Chattering/void space prevention mode to prevent impact of small object holes
E3ZS Single-beam Safety Sensor		<ul style="list-style-type: none"> • For hazardous gaps in machines • Used together with G9SP Safety Controller • Sensing distance of 3m
F3SP-B1P Control Unit for safety sensors		<ul style="list-style-type: none"> • Control unit for F3SG-RA/F3SJ-B/F3SJ-A Safety Light Curtain • Quick connection to light curtains using double-end connector cables • Easy connection to light curtains (Use Double-Ended Cables) <p>Note: The F3SP-B1P in combination with F3SG-RA/F3SJ-B/F3SJ-A conforms to standards.</p>

■ Presence sensing devices

Model	Appearance	Features
OS32C Safety Laser Scanner		<ul style="list-style-type: none"> • Small size (104.5 mm) and lightweight (1.3 kg) • Safety zone up to 4 m, warning zone up to 15 m, and detection angle up to 270° • Monitor operating status and data measurement over EtherNet/IP/TM • Low-power consumption (5 W) extends operation time of battery powered systems like AGVs

■ Emergency stop switches




Model	Appearance	Features
A165E Emergency Stop Switch (16-dia.)		<ul style="list-style-type: none"> • Direct opening mechanism opens contacts in emergencies • Safety lock mechanism prevents misuse • Modular construction; easy installation using snap-in switch • 3 contacts built into a single block (A165E-U)
A22NE-PD Emergency Stop Pushbutton Switch (22-dia. or 25-dia.)		Push-in Plus Terminal Block Model with Lock-lever-linked Contact Function <ul style="list-style-type: none"> • Lock-lever-linked Contact function detects improper installation of switch unit • Compact design and changed wiring direction reduce control panel size • Push-in plus terminals provide vibration resistant connections, reducing maintenance work • Lineup with up to 4 contacts • IP65 oil-resistant (non-lighted)/IP65 (lighted)/IP69K for high-temperature, high-pressure washdown (pull-reset)
A22NE-P Emergency Stop Pushbutton Switch (22-dia. or 25-dia.)		Push-in Plus Terminal Block Model <ul style="list-style-type: none"> • Compact design and changed wiring direction reduce control panel size • Push-in plus terminals provide vibration resistant connections, reducing maintenance work • Lock lever for easy mounting • Lineup with up to 6 contacts • P65 oil-resistant (non-lighted)/IP65 (lighted)/IP69K for high-temperature, high-pressure washdown (pull-reset)
A22E Emergency Stop Pushbutton Switch (22-dia. or 25-dia.)		Screw Terminal Block Model <ul style="list-style-type: none"> • Increased wiring efficiency with 3-row mounting of switch blocks (Non-lighted model: 3 switch blocks can be mounted for multiple contacts) • Round or forked crimp terminals can be used for installation • IP65 oil-resistant (non-lighted)/IP65 (lighted) • Bundled lock plate fixes lever to prevent operation unit and switch blocks from separating
ER6022 Rope Pull Emergency Stop Switch		<ul style="list-style-type: none"> • Rope spans up to 80 m (262 ft.) means fewer number of switches required per application with tension indicator and reset button • Tension indicator makes system setup and rope tension maintenance easy • Contact arrangements of 2 N/C + 1 N/O, 3 N/C + 1 N/O or 2 N/C + 2 N/O • IP67 (NEMA 6) enclosure enables the ER6022 switch to withstand water washdown cleaning

Product Lineup






■ Enabling devices

Model	Appearance	Features
A4EG Enabling Grip Switch		<ul style="list-style-type: none"> • 3-position switch with clicking feel • Configure safety circuits easily by combining with G9SX-GS Safety Guard Switching Unit • Models with emergency stop switch or momentary operation switch available • Optional holding key (sold separately) to change modes
A4E Enabling Switch		<ul style="list-style-type: none"> • 3-position switch with clicking feel • Complies with American national standard ANSI/RIA R15.06-1999 • Can be mounted in two directions
A22TK Safety Key Selector Switch		<ul style="list-style-type: none"> • Secure equipment activation during maintenance • 30 key types prevent locking devices from being easily disabled • Key has the same shape as trapped key of D4JL Guard Lock Safety-door Switch and lockout key of D4SL-NSK10-LK Slide Key. These units can be combined to improve safety (Specify the same key type) • Common to switch blocks of A22E Emergency Stop Switch (Non-lighted model only)

■ Safety relay units

Model	Appearance	Features
G9SA Safety Relay Unit		<ul style="list-style-type: none"> • Compact design • Two-hand controller available • Simple expansion connection • Fast response time: 10 ms • Operating status indicators • Finger protection construction • Modules with 3 or 5 safety contacts and OFF-delay timing
G9SB Safety Relay Unit		<ul style="list-style-type: none"> • 17.5 mm- and 22.5 mm-wide housing • Connectable with safety area sensors • Fast response time: 10 ms • Operating status indicators • Finger protection construction
G9SE Safety Relay Unit		<ul style="list-style-type: none"> • 17.5 or 22.5 mm width to save mounting space • Simple wiring using Push-In Plus terminal block • Easy maintenance with status indicators • One unit for various safety devices, from contact input to PNP input




■ Flexible safety units G9SX Series

Model	Appearance	Features
G9SX Flexible Safety Unit		<ul style="list-style-type: none"> • Logical "AND" function to implement partial/global stopping of a machine • Solid-state outputs (excluding expansion units) • Clear LED diagnosis of all inputs and outputs
G9SX-NS Non-Contact Door Switch Controller		<ul style="list-style-type: none"> • Connect up to 30 D40A/D40Z Compact Non-Contact Door Switches to one controller • Logical "AND" function to implement partial or global stopping of a machine • No programming required • Both non-contact door switches and conventional key-type safety-door switches can be input to G9SX-NSA
G9SX-GS Safety Guard Switching Unit		<ul style="list-style-type: none"> • Two operation modes to support auto switching and manual switching • External indicator outputs to indicate switching status of two safety input devices • Auxiliary outputs for monitoring of safety inputs, safety outputs, and errors • Clear LED diagnosis of all inputs and outputs • Clear and transparent segmentation of safety functions by use of unique logical "AND" connection
G9SX-SM Standstill Monitoring Unit		<ul style="list-style-type: none"> • Based on Back EMF operation • Ready to use - covering all standard applications without additional setup • User Configuration for fine-tuning of sensitivity • Clear LED diagnosis of all inputs and outputs • Up to Cat. 4 according to EN 954-1, PLd according to EN ISO 13849-1, and SIL 3 according to IEC/EN 62061
G9SX-LM Low-speed Monitoring Unit		<ul style="list-style-type: none"> • Motor rotation speed detected by proximity sensor • Monitors and confirms that speed does not exceed the preset level • Enabling switch input for maintenance • Clear LED diagnosis of all inputs and outputs • Up to Cat. 3 according to EN 954-1, PLd according to EN ISO 13849-1, and SIL 3 according to IEC/EN 62061

Product Lineup





■ Safety Network Controller NX Series EtherNet/IP (CIP-Safety)

Model	Appearance	Features
NX-CSG320/SL5/SI/SO Communication Control Unit/ Safety CPU Unit/ Safety Input Unit/ Safety Output Unit	 NEW	<ul style="list-style-type: none"> • CIP Safety on EtherNet/IP Is Supported • Feature EtherNet/IP Communications Port • The Standard Unit of NX-series Available • Excellent Connectability with OMRON Safety I/O Devices • Support for the IEC 61131-3 Programming Environment • Program Languages Based on the IEC 61131-3 International Standard • Programming with Variables • Complete Advanced Validation • Checking Safety Programs and Safety Parameters • Debugging
GI-SMD/SID Safety I/O Terminal GI-S Series	 NEW	<ul style="list-style-type: none"> • Support for CIP Safety on EtherNet/IP • Standard-feature EtherNet/IP port • Easy programming with Sysmac Studio
SYSMAC-SE/FE Automation Software Sysmac Studio		<ul style="list-style-type: none"> • One software for motion, logic, safety, drives , vision and HMI • Fully compliant with open standard IEC 61131-3 and Japanese standard JIS B3503 • Supports Ladder, Structured Text and Function Block programming with a rich instruction set • CAM editor for easy programming of complex motion profiles • One simulation tool for sequence and motion in a 3D environment • Advanced security function with 32 digit security password




■ Integrated Safety Controller

NX Series EtherCAT (FSoE) + EtherNet/IP (CIP-Safety)





Model	Appearance	Features
NX102-□□□□ NX1 CPU Unit NX-SL5 Safety CPU Unit SL5 NX-SI/SO Safety CPU Unit/ Safety Input Unit/ Safety Output Unit	 NEW	<ul style="list-style-type: none"> • Fast and accurate control by synchronizing all machine devices with the PLC and Motion Engines • Three built-in industrial Ethernet ports • OPC UA server functionality • Up to 12 axes of control via EtherCAT • Up to 32 local NX I/O Units • DC power supply without battery backup • Fully conforms to IEC 61131-3 standard programming • PLCopen Function Blocks for Motion Control allow users to create complex programs quickly and easily • Direct connection to a database, with no special unit, software, or middleware required (NX102-□□□20)
SYSMAC-SE Automation Software Sysmac Studio		<ul style="list-style-type: none"> • One software for motion, logic, safety, drives , vision and HMI • Fully compliant with open standard IEC 61131-3 and Japanese standard JIS B3503 • Supports Ladder, Structured Text and Function Block programming with a rich instruction set • CAM editor for easy programming of complex motion profiles • One simulation tool for sequence and motion in a 3D environment • Advanced security function with 32 digit security password



■ Safety Controller NX Series EtherCAT (FSOE)

Model	Appearance	Features
NX102/SL3/SI/ SO NX1 CPU Unit, Safety Control Units		<ul style="list-style-type: none"> Support for the IEC 61131-3 Programming Environment Program Languages Based on the IEC 61131-3 International Standard Programming with Variables Complete Advanced Validation Checking Safety Programs and Safety Parameters Debugging
NX701/102-, NJ501/301/101 -CPU NX/NJ Series CPU Unit NX-ECC/SL3/SI/ SO EtherCATCoupler Unit, Safety Control Units		<ul style="list-style-type: none"> Integrated safety into machine automation possible by connecting with the NX-series EtherCAT Coupler. The Safety CPU Unit controls up to 128 Safety I/O Units. 4 or 8 points per Safety Input Unit. The 4-point Safety Input Unit can be directly connected with OMRON Non-contact Switches and Singlebeam Sensors. 2 or 4 points per Safety Output Unit. The 2-point Safety Output Unit is characterized by large output breaking current of 2.0 A. The Safety Units can be freely allocated in any combination with standard NX I/O. Compliant with IEC61131-3 Safety programs can be standardized and reused efficiently by using POU's for design and operation.
SYSMAC-SE Automation Software Sysmac Studio		<ul style="list-style-type: none"> One software for motion, logic, safety, drives, vision and HMI Fully compliant with open standard IEC 61131-3 and Japanese standard JIS B3503 Supports Ladder, Structured Text and Function Block programming with a rich instruction set CAM editor for easy programming of complex motion profiles One simulation tool for sequence and motion in a 3D environment Advanced security function with 32 digit security password

■ Safety Controller NX Series Stand-alone System






Model	Appearance	Features
NX-EIC202/SL3/ SI/SO EtherNet/IP Coupler Unit, Safety Control Units		<ul style="list-style-type: none"> Up to 63 NX-I/O Units can be connected to one EtherNet/IP Coupler Unit. Standard and high-performance units can be mixed1. * Each Coupler plus its I/O form just a single EtherCAT node on the network. I/O control and safety control can be integrated by connecting Units for safety. The IP address can be found on the label on the Unit, without using software. Slave configuration by Sysmac Studio can be done centrally via the controller, or on-the-spot using the Coupler's built-in USB port. <p>* Input per Coupler Unit: Maximum 504 bytes, Output per Coupler Unit: Maximum 504 bytes</p>
SYSMAC-SE/NE/ FE Automation Software Sysmac Studio		<ul style="list-style-type: none"> One software for motion, logic, safety, drives, vision and HMI Fully compliant with open standard IEC 61131-3 and Japanese standard JIS B3503 Supports Ladder, Structured Text and Function Block programming with a rich instruction set CAM editor for easy programming of complex motion profiles One simulation tool for sequence and motion in a 3D environment Advanced security function with 32 digit security password

■ Safety Controller G9SP Series

Model	Appearance	Features
G9SP Safety Controller		<ul style="list-style-type: none"> Easy programming for complex safety control Unique programming software to support easy design and verification Memory cassette for easy duplication of configuration
WS02-G9SP □ □ -V □ G9SP Configurator		<p>G9SP configuration tool</p> <ul style="list-style-type: none"> Easy setup and configuration Simulation for easy verification User-defined Function Blocks greatly reduce design time


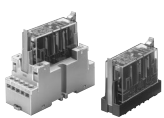

Product Lineup

■ Safety Network Controller DeviceNet Safety NE1A/NE0A Series

Model	Appearance	Features
NE1A-SCPU(-EIP) Series Safety Network Controller		<p>Achieve Safety Control through Programming. NE1A-SCPU</p> <ul style="list-style-type: none"> • Compact Safety Controller. • Reduced wiring with safety networks. Connect up to 32 Safety Terminals. • Monitor the safety system from Standard Controllers across the network. • ISO13849-1 (PLe) and IEC 61508 SIL3 certification. <p>NE1A-SCPU-EIP</p> <ul style="list-style-type: none"> • Monitors safety systems via EtherNet/IP. • Equipped with master functions of CIP Safety on DeviceNet. • Does not require external devices for connecting Safety Network Controller and EtherNet/IP.
NE0A-SCPU Series Safety Network Controller		<p>Ideal for safety applications with up to 12 inputs</p> <ul style="list-style-type: none"> • Safety category compliant circuits can be built easily • Reusable user-defined safety circuit templates for easy standardization • TÜV-certified templates available • NE0A operating status can be monitored by standard DeviceNet master • Network distribution in combination with NE1A Safety Controller
DST1 Series Safety I/O Terminal		<ul style="list-style-type: none"> • Terminals for distributed safety components reduce wiring • Up to 12 inputs for safety signals • Up to 8 safety outputs (solid state or relay) • Safety system can be monitored by standard controller via networks • Up to Cat. 4 according to EN 954-1/ISO 13849-1 and SIL 3 according to IEC 61508 • DST1-XD0808SL-1 with built-in logic functions for high-speed processing in applications requiring partial stopping of safety systems
NE1A-EDR01 EtherNet/IP-DeviceNet Router		<p>Allows safety system to be monitored via Ethernet</p> <ul style="list-style-type: none"> • Remote operation of safety system from PC • Monitors safety system by other vendor's PLC via Ethernet • UDP packet messages supported
WS02-CFSC1-J/E Network Configurator		<p>Configuration tool for NE Series</p> <ul style="list-style-type: none"> • I/O configuration of safety network controllers and safety I/O terminals • Safety circuit programming • Monitoring of safety circuits • Includes DeviceNet Configurator functions

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■ Safety Relays

Model	Appearance	Features
G7SA Relay with Forcibly Guided Contacts		<ul style="list-style-type: none"> Relays with forcibly guided contacts (EN 50205 Class A, certified by VDE) Compact and slim design 4- and 6-pole relays available Terminals are arranged for easy PCB layout Reinforced insulation between inputs, outputs and poles
G7S-□-E Relay with Forcibly Guided Contacts		<ul style="list-style-type: none"> NO contacts: 10 A at 250 VAC and 10 A at 30 VDC, NC contacts: 6 A at 250 VAC and 6 A at 30 VDC (for resistive loads) Relays with forcibly guided contacts (EN 50205 Class A, certified by VDE) Supports CE marking of machinery (Machinery Directive) Track-mounting and back-mounting sockets available
G7Z Power Relay		<ul style="list-style-type: none"> Switching current 160 A (40 A rating/4-pole/IEC-AC1) Relay in combination with auxiliary contact block meets EN 60947-4-1 Safety function with mirror contacts in various configurations Reduced openings to protect against dust and foreign matters Compact, cost efficient solution for applications such as inverters, UPS, solar and fuel-cell battery circuits

■ Safety Drives

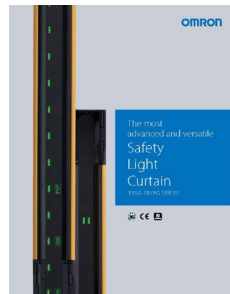
Model	Appearance	Features
R88M-1A□/ R88D-1SAN□-ECT AC Servo System with Safety Functionality	 Available soon	<ul style="list-style-type: none"> Advanced safety functions: STO/SS1/SS2/SOS/SLS/SLP/SDI/SBC Servo drive for rotary motors Up to 3 kW Battery-free absolute encoder Power, encoder and brake in one pre-assembled cable
R88M-1□/ R88D-1SN□-ECT AC Servo System	 NEW	<ul style="list-style-type: none"> Safety function: STO Servo drive for rotary motors Up to 15 kW Battery-free absolute encoder
3G3MX2-V1 Multi-function Compact Inverter		<ul style="list-style-type: none"> Safety function: STO PM motor control helps save energy Positioning functionality Up to 15 kW Drive Programming
3G3RX2 High-function General-purpose Inverter	 NEW	<ul style="list-style-type: none"> Safety function: STO PM motor control helps save energy Triple rating: Normal Duty (ND), Low Duty (LD), and Very Low Duty (VLD) Up to 132 kW Drive Programming

Safety products brochures

Click on the brochure cover for a link to the brochure, or search the catalog number on automation.omron.com



Safety Network Controller
NX Series
Cat. No. S64I



Safety Light Curtain
F3SG-SR/PG Series
Cat. No. F105I



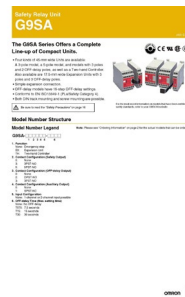
Safety Scanner
OS32C Series
Cat. No. OS32C



RFID Safety Switches
D40ML Series
Cat. No. C424I



Safety Relay
G9SE Series
Cat. No. J77I



Safety Relay Unit
G9SA Series
Cat. No. J48I



Safety Relay
G9SX Series
Cat. No. J67I



Door Switches
D40R/P Series
Cat. No. C428I



Emergency stop
A22E/A22NE Series
Cat. No. A263I



Rope Switch
ER6022
Cat. No. C57I

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