OMRON

Safety Components

Selection Guide

Complete lineup of safety components

from input and logic to output

SAFETY, TECHNOLOGY & INNOVATION

Product Lineup

Omron products provide variou
Choose input, logic and output

INPUT

Guard solutions

Safety limit switches

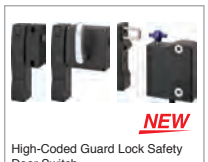
Small Safety Limit Switch
D4N P13

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



NEW
High-Coded Guard Lock Safety Door Switch
D41G,D41L P14

Guard Lock Safety-door Switch
D4SL-N P14

Guard Lock Safety-door Switch
D4JL P14

Guard Lock Safety-door Switch
D4NL P14

Safety-door switches

Safety-door Switch
D4NS P14

Slim Safety Door Switch
D4GS-N P14

Safety-door Hinge Switch
D4NH P14

Non-contact door switches

NEW
High-Coded Non-Contact Safety Door Switches
D41D P14

Compact Non-contact Door Switch
D40A/D40Z P15

Slide keys

D4NS/D4JL-mounting Slide Key
D4NS-SK/ D4JL-SK P15

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

Emergency exit unit

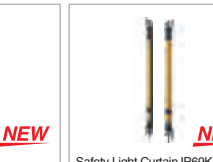
NEW
Actuators with Emergency Exit Unit for D41G
D41G-A2□-E1(T) P15

Single-beam sensors

Single-beam Safety Sensor
E3ZS P18

Safety light curtains

NEW
Safety Light Curtain
F3SG-SR P16



NEW
Safety Light Curtain IP69K Model
F3SG-SR-K P16

Safety Multi-Light Beam

NEW
Safety Multi-Light Beam
F3SG-PG P16

Presence sensing

Safety laser scanners

Safety Laser Scanner
OS32C P17

Safety mats

Safety Mat / Controller
UMA/SCC P17

Safety edges

Safety Edge/Edge Controller
SGE/SCC P17

Emergency stop/enabling devices

Emergency stop switches

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

E-stop Shroud
A22Z-EG2 P17

Emergency Stop Switch(16-dia.)
A165E P17

Safety switches

Enabling Grip Switch
A4EG P18

Enabling Switch
A4E P18

Safety Key Selector Switch
A22TK P18

Guard Lock Safety Key Selector Switch
A22LK P18

us functionalities.
t components that are suitable for the machine's risks.

LOGIC

Safety controllers

Controllers for small applications

Safety Relay Unit
G9SA P19

Safety Relay Unit
G9SB P19

Safety Relay Unit
G9SE P19

Controllers for mid-size applications

Global/partial stopping

G9SX series

Flexible Safety Unit
G9SX P19

Controllers for mid-size applications

Programmable

Safety Controller
G9SP P21

G9SP Configurator
WS02-G9SP□□-V□ P21

Controllers for large applications

Safety Controllers/Safety Network Controllers

EtherNet/IP(CIP-Safety) NX series

Communication Control Unit
NX-CSG P20

Safety CPU Unit
NX-SL5 P20

Safety I/O Terminal
GI-SMD/SID P20

EtherCAT(FSoE) NX series

NX1 CPU Unit
NX102-CPU P20

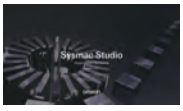
Safety CPU Unit
NX-SL5/SL3 P20

Safety I/O Unit
NX-SI/SO P21

EtherCAT Coupler Unit
NX-ECC P21

Safety CPU Unit
NX-SL3 P21

Safety I/O Unit
NX-SI/SO P21



Automation Software SysmacStudio
SYSMAC-□□ P21

DeviceNet Safety NE1A/NE0A series

Safety Network Controller
NE1A-SCPU P22

Safety I/O Terminal
DST1 series P22

Network Configurator
WS02-CFSC1-J/E P22

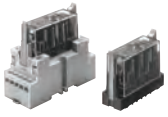
OUTPUT

Safety relays

Safety relays

Safety relays
G7SA P23

Sockets with Push-In Plus technologyfor G7SA Relays
P7SA-PU



Safety relays
G7S-□-E P23

Magnetic Contactor NEW
J7KC P23

Safety drives

AC Servomotor/Servo Drive

NEW
1S Series
AC Servo System with Safety Functionality
R88M-1A□/R88D-1SAN□-ECT P23

1S Series
AC Servo System
R88M-1□/R88D-1SN□-ECT P23

Inverter

MX2-V1 Multi-function Compact Inverter
3G3MX2-V1 P23

3G3RX2
High-function General-purpose Inverter
3G3RX2 P23

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


D4NL

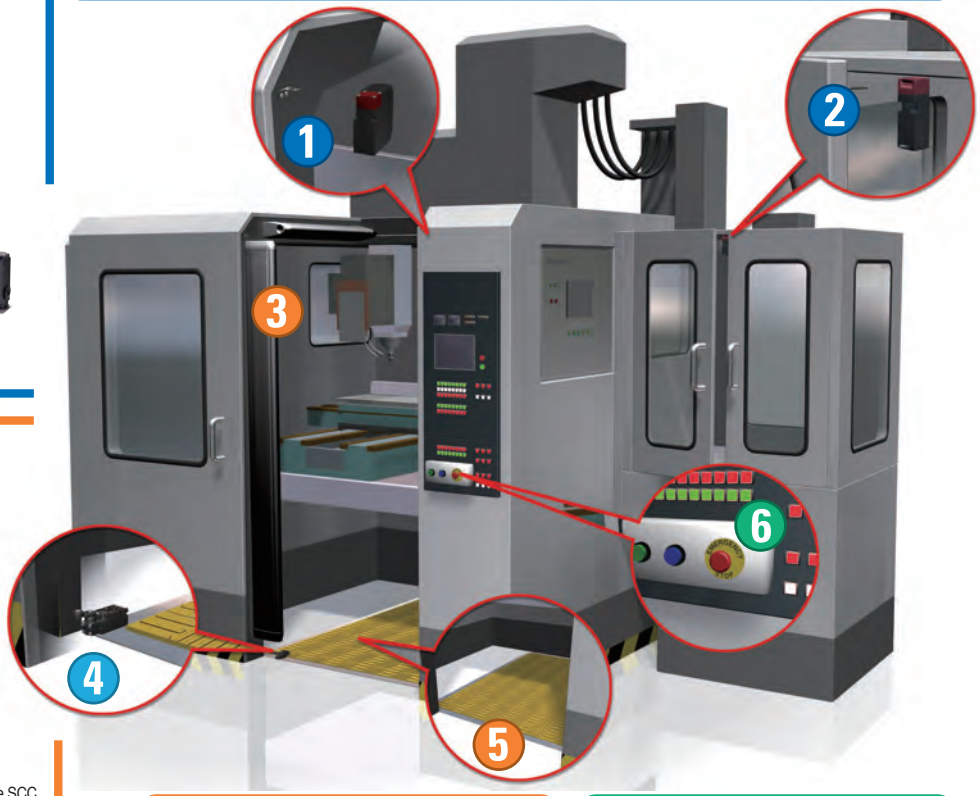
2 Door monitoring

Slim Safety Door Switch
D4GS-N P14
Safety-door Switch
D4NS P14 / **D4BS** P14
· Metal, plastic, or compact plastic housing


D4GS-N


D4NS


D4BS



3 Sensing contact to prevent crushing

Safety Edge/Edge Controller
SGE P17 / **SCCa** P17


SCC

SGE

Note: The G9SP Safety Controller can be used instead or the SCC.

4 Door position and open/close detection

Safety Limit Switch
D4B-□N p.13
Small Safety Limit Switch D4N/D4F p.13
· Metal or plastic housing

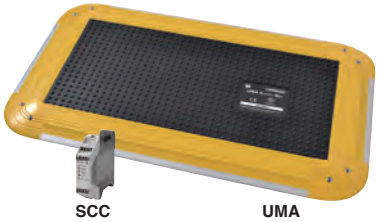

D4B-□N


D4N


D4F

5 Worker protection in hazardous areas

Mat for presence sensing
Safety Mat/Controller
UMA P17 / **SCC** P17


SCC

UMA

6 Emergency machine stop

Emergency Stop Switch
A165E P17
A22NE-PD/A22NE-P/ A22E P17
· A wide range of accessories


A22NE

A165E

7 Non-contact door monitoring

Compact Non-contact Safety Door Switch P15

D41D(PLe/Safety Category 4/High Coded)
D40A (PLd/Safety Category 3)
D40Z (PLe/Safety Category 4)

NEW D41D D40A D40Z

Note:Safety controller G9SP and G9SX-NS are separately required for D40A and D40Z .

8 Standalone operation

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

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 P23

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

- **AC Servo System with Safety Functionality 1S series**
  R88M-1A□/R88D-1SAN□-ECT

NEW
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**

R88M-1□/R88D-1SN□-ECT

3G3MX2-V1

3G3RX2

Omron safety components help protect workers at manufacturing sites

1 Intrusion detection for frequently accessed areas or wide openings

Safety Light Curtain
F3SG-SR P16

NEW
F3SG-SR

2 Prevent collisions and trapping by detecting human beings and contacts

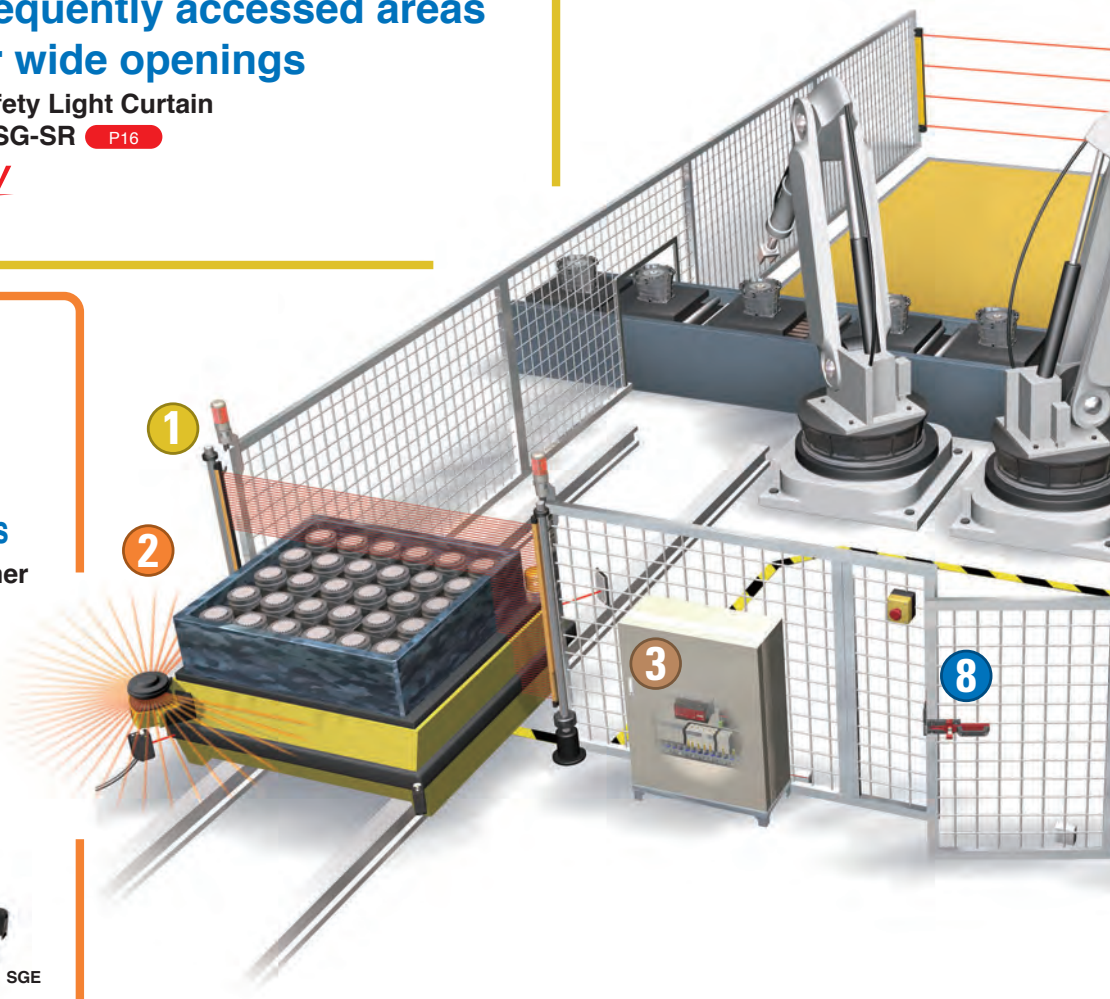
Safety Laser Scanner
OS32C P17
Safety Edge/
Edge Controller
SGE/SCC * P17

OS32C

SCC

SGE

* The G9SP Safety Controller can be used instead of the SCC.

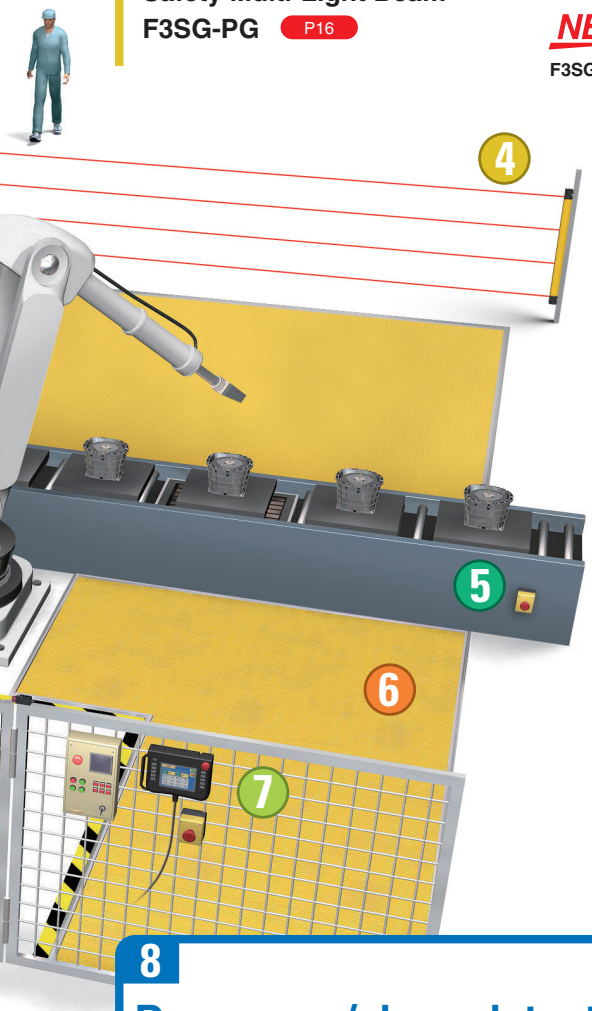


3 Expanding safety I/O through networks

NX Series Communication Control Unit NX-CSG P20
Safety CPU Unit NX-SL5 P20
Safety I/O Terminal GI-SMD/SID P20

GI-SMD/SID

NX-CSG
NX-SL5/SI/SO



4 Invasion detection around the equipment

Safety Multi-Light Beam
F3SG-PG P16

NEW
F3SG-PG

5 Emergency stop of the system

Emergency Stop Switch A22NE P17
· Yellow control box for simple installation

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

6 Worker protection in hazardous areas

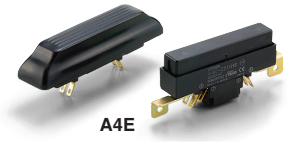
Safety Laser Scanner OS32C P17
Safety Mat/Controller
UMA P17 **/SCC** P17
· Mat for presence sensing

OS32C

SCC UMA

7 Emergency stop during teaching in hazardous areas

Enabling Grip Switch A4EG P18
Enabling Switch A4E P18
· Horizontal or vertical mounting



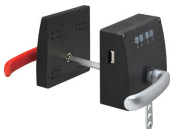
A4E

A4EG

8 Door open/close detection and locking

High-Coded Guard Lock Safety Door Switches (For Gate)
D41G(PLe/Safety Category 4//High Coded) P14
Safety-door Hinge Switch D4NH P14
Guard Lock Safety-door Switch
D4SL-N P14 **/D4NL** P14 **/D4JL** P14
· Hinge switch for open/close detection
· Guard lock switch for locking doors

D41G NEW



D41G-A2□-E1(T) NEW

Actuators with Emergency Exit Unit for D41G
D41G-A2□-E1(T) P15
D4NS/D4JL-mounting Slide Key
D4NS-SK30/D4JL-SK40 P15
D4SL-N-mounting Slide Key
D4SL-NSK10-LK P15

D4SL-N

D4SL-NSK10-LK□

D4NS-SK30

D4JL

D4NL

D4JL-SK40

D4NH

Safety Application Examples

Applications by industry 1. Automotive

1 Worker protection in hazardous areas

Laser scanner for presence sensing

Safety Laser Scanner
OS32C P17

OS32C

2 Emergency stop during teaching in hazardous areas

Enabling Grip Switch
A4EG p.18

A4EG

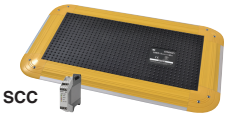
3 Invasion detection and presence detection in harsh environments

Safety Light Curtain
F3SG-SR P16

Cutting oil resistant Robust type IP67G
F3SG-RR P16

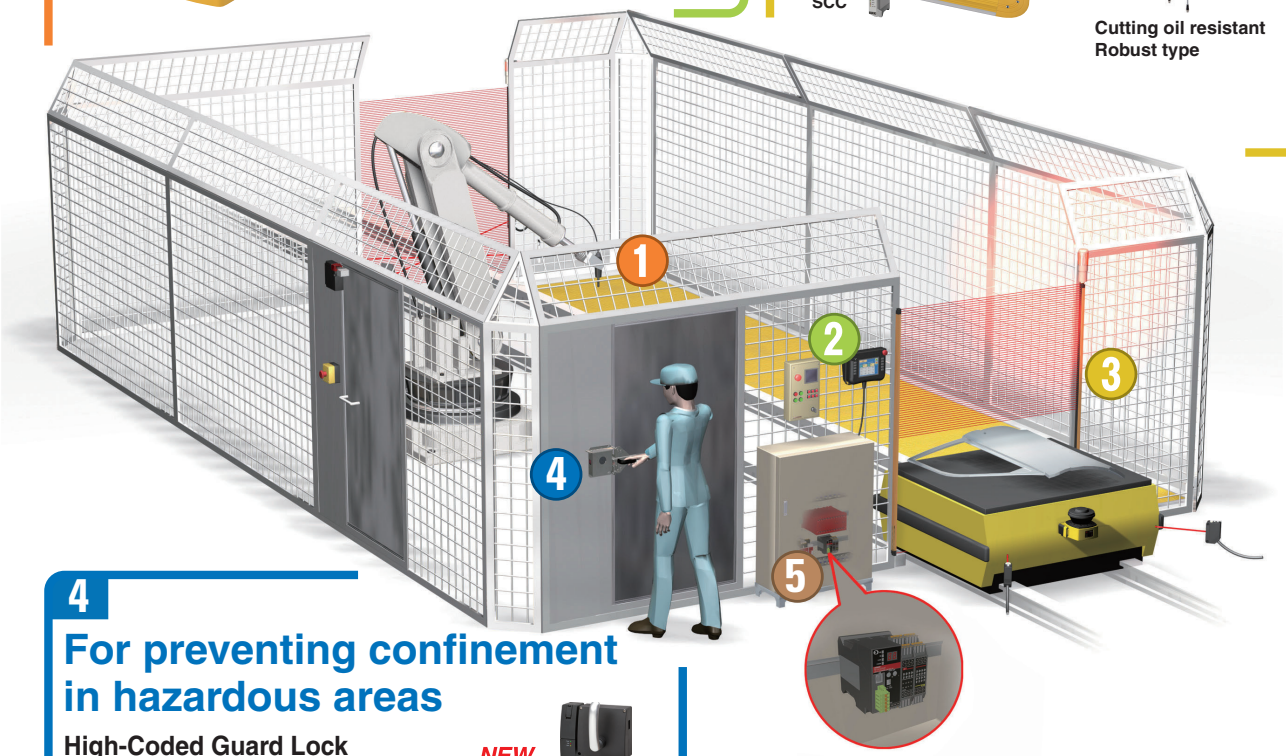
Safety Mat/Controller
UMA P17 /
SCC P17

NEW F3SG-SR



SCC UMA

Cutting oil resistant Robust type



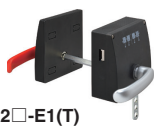
4 For preventing confinement in hazardous areas

High-Coded Guard Lock Safety Door Switches (For Gate)
D41G p.14
(PLe/Safety Category 4/High Coded)

NEW D41G

Actuators with Emergency Exit Unit for D41G
D41G-A2□-E1(T) p.15

NEW D41G-A2□-E1(T)



Guard Lock Safety-door Switch
D4JL p.14

D4JL

D4JL-mounting Slide Key
D4JL-SK40 p.15

D4JL-SK40

5 Programming for safety control

NX Series Communication Control Unit NX-CSG P20

Safety CPU Unit NX-SL5 P20

NX-CSG
NX-SL5/SI/SO

Safety I/O Terminal
GI-SMD/SID P20

GI-SMD/SID

Applications by industry 2. Machine tool

1 Door position and open/close detection

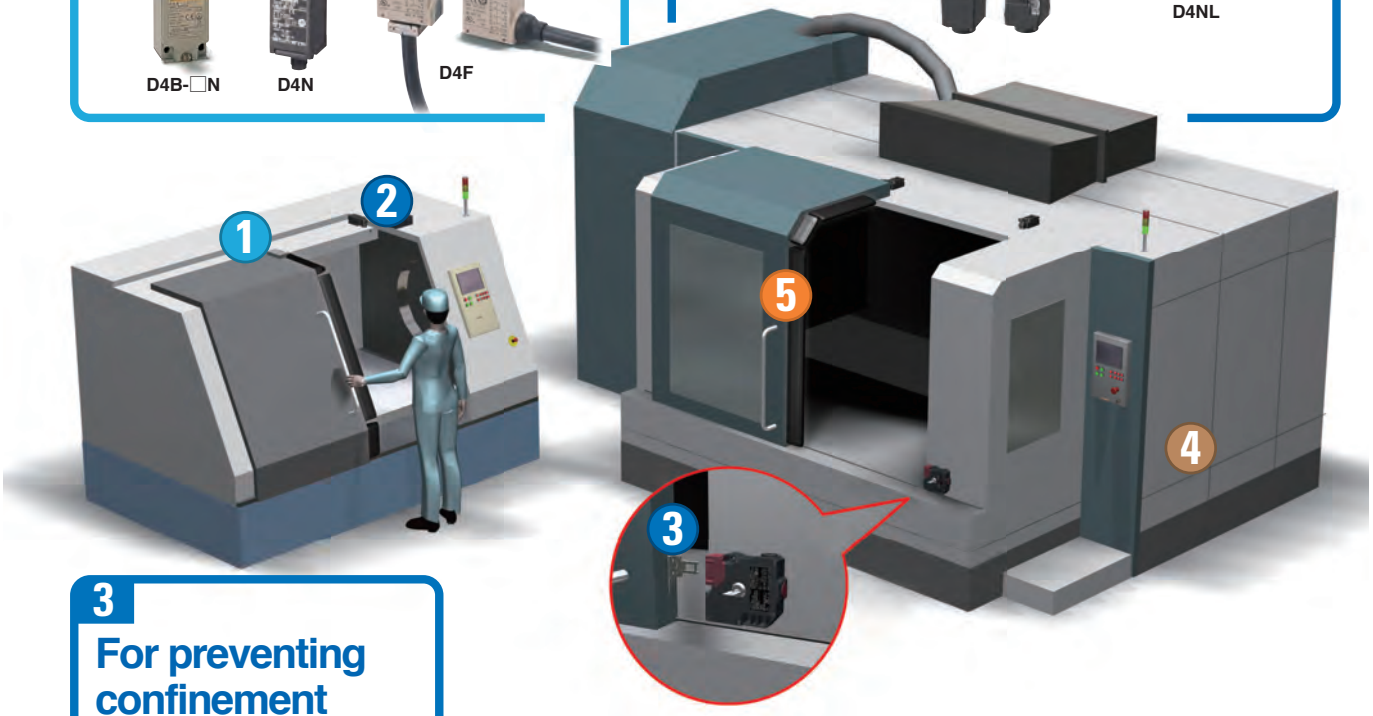
Safety Limit Switch D4B-□N P13
Small Safety Limit Switch
D4N P13 **/D4F** P13
· Metal or plastic housing

D4B-□N D4N D4F

2 For preventing access to inertial hazards

Guard Lock Safety-door Switch
D4SL-N/D4NL P14

D4SL-N D4NL



3 For preventing confinement inside the equipment

High-Coded Guard Lock Safety Door Switches (For Gate) D41G P14

Actuators with Emergency Exit Unit for D41G
D41G-A2□-E1(T) P15

Guard Lock Safety-door Switch
D4JL P14

Trapped key to prevent getting trapped

D4JL

NEW D41G NEW D41G-A2□-E1(T)

4 Standalone operation

Flexible Safety Unit
G9SX P19
Safety Controller G9SP P21
Machine Automation Controller
NX102 P20
Safety CPU Unit NX-SL5 P20
Safety I/O Unit NX-SI/SO P20

G9SX G9SP NX102 NX-SL5/SI/SO

5 For preventing containment inside the equipment

Safety Edge/Edge Controller
SGE P17
SCC P17

SCC SGE

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

F3SJ-A

NEW F3SG-SR

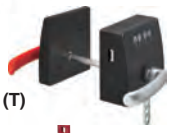
2 To the control of entry and exit

High-Coded Guard Lock Safety Door Switches (For Gate) D41G P14
(PLe/Safety Category 4/High Coded)

NEW D41G

Actuators with Emergency Exit Unit for D41G D41G-A2□-E1(T) P15

NEW D41G-A2□-E1(T)



Guard Lock Safety-door Switch D4SL-N P14

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

D4SL-N
D4SL-NSK10-LK□

3 When it is necessary to divide the stopping area by area

Safety Controller G9SP P21

Machine Automation Controller NX102 P20

Safety CPU Unit NX-SL5 P20

Safety I/O Unit NX-SI/SO P20

G9SP

NX102/
NX-SL5/SI/SO

4 To prevent unintended emergency stop

E-stop Shroud A22Z-EG Series P17

- Minimizes accidental activation, preventing operating errors
- SEMI S2-compliant E-stop shroud with EMO/EMS legend plate available

A22Z-EG1-W

A22Z-EG1

A22Z-EG2
(recessed shroud)

A22E-EMO

A22E-EMS

Note: These products can be used only for semiconductor manufacturing equipment. Do not use for other applications.

Applications by industry　4. Semiconductor manufacturing equipment

1

To a small opening

Safety Light Curtain
F3SG-SR P16

Safety Light Curtain
F3SJ-A P16

NEW
F3SG-SR

F3SJ-A

2

To prevent unintended emergency stop

E-stop Shroud
A22Z-EG Series P17

- Minimizes accidental activation, preventing operating errors
- SEMI compliant

A22Z-EG1-W

A22Z-EG1

A22Z-EG2
(recessed shroud)

Note: These products can be used only for semiconductor manufacturing equipment. Do not use for other applications.

3

In the movable guard in the clean room P15

Particle free

Compact Non-contact Safety Door Switch
D41D (PLe/Safety Category 4/ /High Coded)
D40A (PLd/Safety Category 3)
D40Z (PLe/Safety Category 4)

NEW
D41D

D40A

D40Z

Note: Safety controller G9SP and G9SX-NS are separately required for D40A and D40Z .

Safety Application Examples

Applications by industry　5. Food production equipment

1 Protection in wash-down environments

Safety Light Curtain
F3SG-SR P16
Applicable to IP67G for waterproof and oil resistance
·IP69K model

F3SG-SR-K
The IP69K model also supports high-pressure cleaning

Waterproof IP69K
ISO 20653
NEW
F3SG-SR-K
·IP69K model

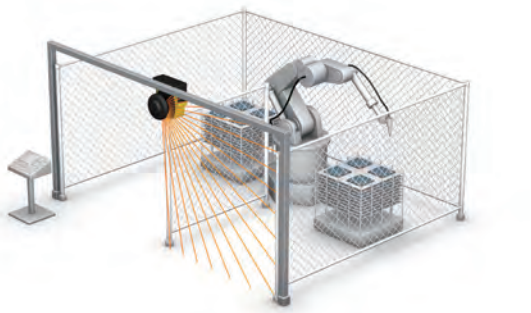
Safety Light Curtain F3SJ-A P16
·Water-resistant Case
F39-EJ□□□□-L/-D
(For F3SJ-A)
IP67 compliant environment-resistant case

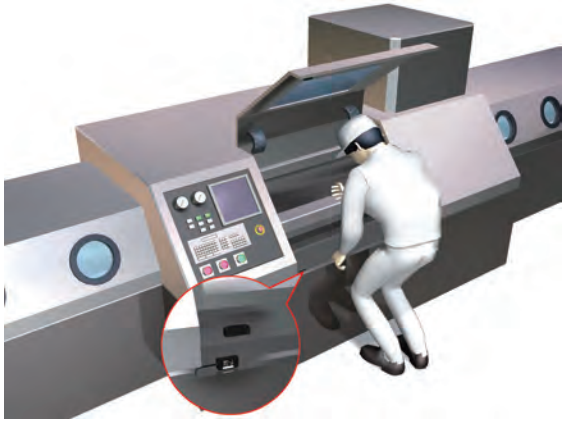
F3SJ-A,
F39-EJ□□□□-L/-D

2 In the selection of the guarded area of the opening

Safety Laser Scanner
OS32C P17

OS32C





3 Non-contact door detection for unstable doors in wash-down environments P15

Compact Non-contact Safety Door Switch
D41D (PLe/Category 4/High Coded)
D40A (PLd/Safety Category 3)
D40Z (PLe/Safety Category 4)

NEW
D41D

D40A

D40Z

High-Coded Guard Lock Safety Door Switch (ECOLAB)
D41L(PLe/Category 4//High Coded)
P14

NEW
D41L

Note: Safety controller G9SP and G9SX-NS are separately required for D40A and D40Z .

Product Lineup

■ Safety limit switches

Model	Appearance	Features
D4N **Small Safety Limit Switch** WEB		● 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 ● For standard loads and micro loads
D4F **Small Safety Limit Switch** WEB		● An incredibly small limit switch with a direct opening mechanism (four-contact construction model). ● High sensitivity ● 2 and 4 contact types ● IP67 protection
D4B-□N **Safety Limit Switch** WEB		● 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** WEB		● Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO and 3NC ● M12 connector type for quick wiring and easy replacement ● For standard loads and micro loads

WEB Mark...Refer to your local OMRON website

Product Lineup

■ Safety door switches

Non-Door lock

Model	Appearance	Features
D4NS **Safety-door Switch** WEB		● Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO and 3NC ● M12 connector type for quick wiring and easy replacement ● For standard loads and micro loads ● Metal head types available
D4GS-N **Slim Safety Door Switch** WEB		● 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** WEB		● 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)

Guard Lock Safety Door Switch

Model	Appearance	Features
D41G **High-Coded Guard Lock Safety Door Switch (For Gate)** Cat.No.F114	 NEW	● Tamper-proof safety door switch to prevent human error ● Integrated door handle structure reduces guarding design time ● Integrated handle's smooth operation enables quick emergency exit ● Switch can be unlocked when power supply is unavailable to avoid being trapped inside ● Complies with ISO 14119 (Type 4/High Coded),ISO 13849-1 (PLe)
D41L **High-Coded Guard Lock Safety Door Switch** Cat.No.F113	 NEW	● Tamper-proof safety door switch to prevent human error ● Hygienically designed switch Unique locking mechanism prevents water and foreign matter from collecting smooth surface leaves no wiping unevenness ● Complies with ISO 14119 (Type 4/High Coded), ISO 13849-1 (PLe) ● ECOLAB certified
D4SL-N **Guard Lock Safety-door Switch** Cat. No. C146		● 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** WEB		● Strong key holding force: 3,000 N (plastic housing) ● 2 safety circuits and 2 monitor contacts for various monitoring patterns ● For standard loads and micro loads ● Trapped key and rear release button prevent workers from getting trapped inside hazardous areas ● IP67 protection
D4NL **Guard Lock Safety-door Switch** WEB		● 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** WEB		● Automatic mechanical locking by inserting operation key ● Release by applying voltage to solenoid ● Auxiliary release key for emergency unlock ● IP67 protection

WEB Mark...Refer to your local OMRON website

Safety-door Hinge Switch

Model	Appearance	Features
D4NH **Safety-door Hinge Switch** WEB		● 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 ● For standard loads and micro loads

Non-Contact Safety Door Switch

Model	Appearance	Features
D41D **High-Coded Non-Contact Safety Door Switch** Cat.No.F112	 NEW	● Tamper-proof safety door switch to prevent human error ● Easy automatic pairing ● Fits in narrow spaces and corners inside machines three types of actuators ● Complies with ISO 14119 (Type 4/High Coded),ISO 13849-1 (PLe)
D40A **Compact Non-contact Door Switch** Cat. No. C140		● 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** Cat. No. C145		● Conforms to ISO 13849-1 (PLe/Safety Category 4) ● Switch's LED indication patterns for easy troubleshooting

Mounting brackets(Slide Key) and door handles for access doors to hazardous areas are available.

Model	Appearance	Features
D41G-A2□-E(T) **D41G-actuators With door-handle Emergency exit unit** Cat.No.F114	 NEW	● Integrated door handle structure reduces guarding design time ● Integrated handle's smooth operation enables quick emergency exit ● Switch can be unlocked when power supply is unavailable to avoid being trapped inside
D4SL-NSK10-LK□ **D4SL-N-mounting Slide Key** Cat. No. C146		● 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** WEB		● 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

WEB Mark...Refer to your local OMRON website

Product Lineup

■ Safety sensors

Model	Appearance	Features
F3SG-SR **Safety Light Curtain** Cat. No. F105 **F3SG-PG** **Safety Multi-Light Beam** Cat. No. F105	 NEW	● Conforms to major international standards ● Environmental resistance and rugged structure for use in any environment (IP67, IP67G *) ● A broad line-up, from finger protection to body protection ● Flexible height model for easy integration into machines and lines ● For diverse applications, from simple protection to data utilization * IEC 60529/JIS C 0920 Annex 1
F3SG-SR-K **Safety Light Curtain IP69K model** Cat. No. F105	 NEW	● IP69K (ISO 20653) protection for high-pressure wash-down applications ● Offers the same specifications and functionality as F3SG-4SRB□□ standard model. Detection capability of 14- and 25-mm dia. ● Conforms to major international standards
F3SG-RR **Safety Light Curtain (Robust type)** Cat. No. F094		● Mechanical seal structure prevents cutting oil from getting inside ● Special materials and cables significantly enhanced oil resistance ● Rugged and compact housing. Perfect fit installation ● IP67G (JIS C 0920 Annex 1) rated
F3SG-RA/RE **Safety Light Curtain (Advanced type, Easy type)** Cat. No. F094		**F3SG-RA (Advanced type)** ● Rugged and compact ● New muting function to increase both productivity and safety ● All models designed for global use. PNP/NPN selection by DIP switch ● Conforms to major international standards including Chinese standard GB 4584 **F3SG-RE (Easy type)** ● Provides simple safety functions - saving TCO by reducing errors ● Simple wiring with only 4 wires ● Fast response time of 5 ms
F3SJ-A **Safety Light Curtain (ADVANCED Type)** Cat. No. F074		● Muting and blanking functions available ● Series connection up to 4 sets ● Multiple versions available: Finger/hand/hand and arm/leg and body protection ● Protective heights from 245 mm to 2,500 mm ● Mounting bracket included
F3SJ-B/E **Safety Light Curtain (BASIC Type, Easy type)** Cat. No. F074		**F3SJ-B (BASIC Type)** ● Series connection up to three sets. Fits a U-shaped or L-shaped pattern ● Muting function to temporarily disable the safety light curtain when a workpiece ● passes through. LED indicators for checking wiring status **F3SJ-E (EASY Type)** ● Simple and affordable hand protection ● 1/2 the mounting time (Comparison with existing Omron products)
E3ZS **Single-beam Safety Sensor** WEB		● Complies with EN and IEC standards ● Sensing distance: 3 m ● Used together with G9SP Safety Controller ● For hazardous gaps in machines
F3W-MA **Smart Muting Actuator** Cat. No. F094		● Integrated sensor system utilizing multiplebeam sensor technology ● Configure muting systems in combination with safety light curtains ● Chattering/void space prevention mode to prevent impact of small object holes
F3SP-B1P **Control Unit for safety sensors** WEB		● 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) Note: The F3SP-B1P in combination with F3SG-RA/F3SJ-B/F3SJ-A conforms to standards.

WEB Mark...Refer to your local OMRON website

■ Presence sensing devices

Model	Appearance	Features
OS32C **Safety Laser Scanner** Cat. No. Z298		● 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° ● Low-power consumption (5 W) extends operation time of battery powered systems like AGVs ● Monitor operating status and measurement data over EtherNet/IP™
UMA/SCC **Safety Mat/ Controller** Cat. No. A250		● 1 and 2 cable types ● Meets EN ISO 13849-1 (PLd/Safety Category 3) and EN ISO 13856-1 ● Can be used with MC3 Safety Mat Controller or NX Safety Controller ● Complies with North American safety standards including ANSI/RIA 15.06 ● A wide variety of mat sizes and trims
SGE/SCC **Safety Edge/ Edge Controller** Cat. No. F088		● SGE Safety Edge in combination with SCC Edge Controller meets Safety Category 3 when built-in relays directly block hazards ● Simple one-unit structure integrating sensor and cover ● Side force resistant ● Various sensor lengths (150 to 6,100 mm) and heights (34 to 80 mm) ● Compliant with EN1760-2 (Safety edge standard)

■ Emergency stop switches

Model	Appearance	Features
A165E **Emergency Stop Switch (16-dia.)** WEB		● 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.)** Cat. No. A263		**Push-in Plus Terminal Block Model with Lock-lever-linked Contact Function** ● 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.)** Cat. No. A263		**Push-in Plus Terminal Block Model** ● 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.)** Cat. No. A263		**Screw Terminal Block Model** ● 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
A22Z-EG Series **E-stop Shroud** Cat. No. A263		● Minimizes accidental activation, preventing operating errors ● A22Z-EG1: EMERGENCY OFF legend plate included ● A22Z-EG2: recessed shroud Spacers can be used to adjust amount of protrusion

WEB Mark...Refer to your local OMRON website

Product Lineup

■ Enabling devices

Model	Appearance	Features
A4EG **Enabling Grip Switch** WEB		● 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** WEB		● 3-position switch with clicking feel ● Complies with American national standard ANSI/RIA R15.06-1999 ● Can be mounted in two directions
A22LK **Guard Lock Safety Key Selector Switch** WEB		● Secure equipment activation during maintenance ● Guard lock of operation unit prevents misuse ● The key has the same shape as the following key - Key of A22TK Safety Key Selector Switch - Trapped key of D4JL Guard Lock Safety-door Switc - Lockout key of D4SL-NSK10-LK Slide Key
A22TK **Safety Key Selector Switch** Cat. No. A189		● 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)

WEB Mark...Refer to your local OMRON website

■ Safety relay units

Model	Appearance	Features
G9SA **Safety Relay Unit** WEB		● 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** WEB		● 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** Cat. No. J198		● 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

WEB Mark...Refer to your local OMRON website

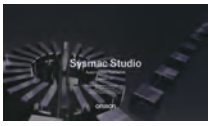
■ Flexible safety units G9SX Series

Model	Appearance	Features
G9SX **Flexible Safety Unit** WEB		● 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** Cat. No. C140		● 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** WEB		● 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** WEB		● 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, PLe according to EN ISO 13849-1, and SIL 3 according to IEC/EN 62061

WEB Mark...Refer to your local OMRON website

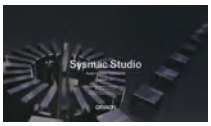
Product Lineup

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

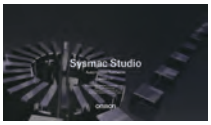
Model	Appearance	Features
NX-CSG320/ SL5/SI/SO **Communication Control Unit/ Safety CPU Unit/ Safety Input Unit/ Safety Output Unit** Cat. No. F104		● CIP Safety on EtherNet/IP Is Supported ● Feature EtherNet/IP Communications Port ● The Standard Unit of NX-series Available ● Excellent Connectability 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** Cat. No. F104		● Support for CIP Safety on EtherNet/IP ● Standard-feature EtherNet/IP port ● Easy programming with Sysmac Studio
SYSMAC-SE/FE **Automation Software Sysmac Studio** Cat. No.P138		● 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

WEB Mark...Refer to your local OMRON website

■ Safety Controller NX Series EtherCAT (FSoE) + EhterNet/IP (CIP-Safety)

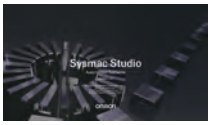
Model	Appearance	Features
NX102-□□□□ **NX1 CPU Unit** **NX-SL5** **Safety CPU Unit SL5** **NX-SI/SO** **Safety Input Unit/ Safety Output Unit** Cat. No. F104		● Fast and accurate control by synchronizing all machine devices with the PLC and Motion Engines ● Three built-in industrial Ethernet ports ● 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** Cat. No.P138		● 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 WEB		● 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 Cat. No. F101	 	● 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 POUs for design and operation.
SYSMAC-SE Automation Software Sysmac Studio Cat. No. P138		● 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

WEB Mark...Refer to your local OMRON website

■ Safety Controller NX Series Stand-alone System

Model	Appearance	Features
NX-EIC202/SL3/SI/SO EtherNet/IP Coupler Unit, Safety Control Units Cat. No. F100		● Up to 63 NX-IO 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. * Input per Coupler Unit: Maximum 504 bytes, Output per Coupler Unit: Maximum 504 bytes
SYSMAC-SE/NE/FE Automation Software Sysmac Studio Cat. No. P138		● 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 Cat. No. F090		● 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 Cat. No. F090		G9SP configuration tool ● Easy setup and configuration ● Simulation for easy verification ● User-defined Function Blocks greatly reduce design time

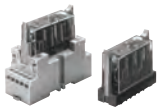
Product Lineup

■ Safety Network Controller DeviceNet□Safety NE1A/NE0A Series

Model	Appearance	Features
NE1A-SCPU(-EIP) Series **Safety Network Controller** WEB		**Achieve Safety Control through Programming.** **NE1A-SCPU** ● 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. **NE1A-SCPU-EIP** ● 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** WEB		Ideal for safety applications with up to 12 inputs ● 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** WEB		● 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** WEB		Allows safety system to be monitored via Ethernet ● 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** WEB		Configuration tool for NE Series ● I/O configuration of safety network controllers and safety I/O terminals ● Safety circuit programming ● Monitoring of safety circuits ● Includes DeviceNet Configurator functions

WEB Mark...Refer to your local OMRON website

■ Safety relays

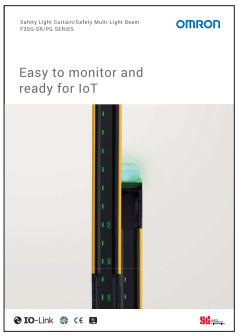
Model	Appearance	Features
G7SA **Relay with Forcibly Guided Contacts** Cat. No. J120		● Relays with forcibly guided contacts (EN/IEC 61810-3, certified by VDE) ● Compact and slim design ● 4- and 6-pole relays available ● Terminals are arranged for easy PCB layout ● Reinforced insulation between inputs, outputs and poles
G7S-□-E **Relay with Forcibly Guided Contacts** WEB		● 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/IEC 61810-3, certified by VDE) ● Supports CE marking of machinery (Machinery Directive) ● Track-mounting and back-mounting sockets available
J7KC **Magnetic Contactor** Cat. No. J230	 NEW	● Push-In Plus wiring Technology saves Wiring and Maintenance time ● Compliant with EN60947-1 Mirror Contact and ideal for safety applications ● High Contact Reliability (Min. 5 VDC, 3 mA) by Bifurcated contacts ● Ideal for motor Control up to 2.2 kW (200 to 240 VAC), 5.5 kW (380 to 440 VAC), AC-3 class
G7Z **Power Relay** Cat. No. J160		● 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

WEB Mark...Refer to your local OMRON website

■ Safety drives

Model	Appearance	Features
R88M-1A□/ R88D-1SAN□-ECT **AC Servo System with Safety Functionality** Cat. No. I838/I842	 NEW	● 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** Cat. No. I821		● Safety function: STO ● Servo drive for rotary motors ● Up to 15 kW ● Battery-free absolute encoder
3G3MX2-V1 **Multi-function Compact Inverter** Cat. No. I920		● Safety function: STO ● PM motor control helps save energy ● Positioning functionality ● Up to 15 kW ● Drive Programming
3G3RX2 **High-function General-purpose Inverter** Cat. No. I921/I923		● 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

Introduction of safety component catalogs



Safety Light Curtain/ Safety Multi-Light Beam

F3SG-SR/PG Series

Cat.No. F105

Safety Network Controller

NX Series

Cat.No. F104

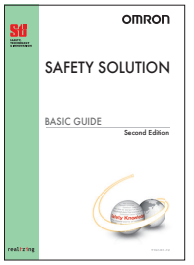
High-Coded Safety Door Switch

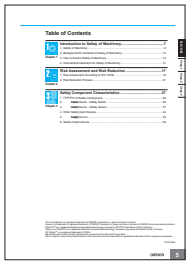
D41 Series

Cat.No. F115

For daily trouble of machine safety

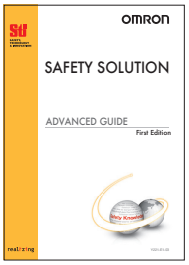
Instruction manual for safety design and safety standards
「SAFETY SOLUTION TECHNICAL GUIDE」

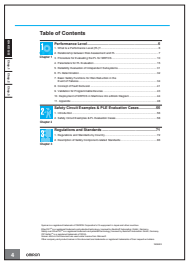




BASIC GUIDE

Cat.No. Y107





ADVANCED GUIDE

Cat.No. Y221

Note: Do not use this document to operate the Unit.