

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

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

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

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



Single-beam sensors

Single-beam Safety Sensor
E3ZS P18

Safety light curtains

Safety Light Curtain
F3SG-SR P16

Safety Light Curtain IP69K Model
F3SG-SR-K P16

Safety Multi-Light Beam

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

is functionalities.

components that are suitable for the machine's risks.

LOGIC

Safety controllers



Controllers for small applications

Safety Relay Unit
G9SA P19

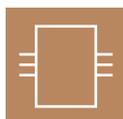
Safety Relay Unit
G9SB P19

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

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 technology for G7SA Relays
P7SA-PU P23

Safety relays
G7S□-E P23

Magnetic Contactor
J7KC P23 **NEW**

Safety drives



AC Servomotor/Servo Drive

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

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

Product Application Examples

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



2

Door monitoring

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



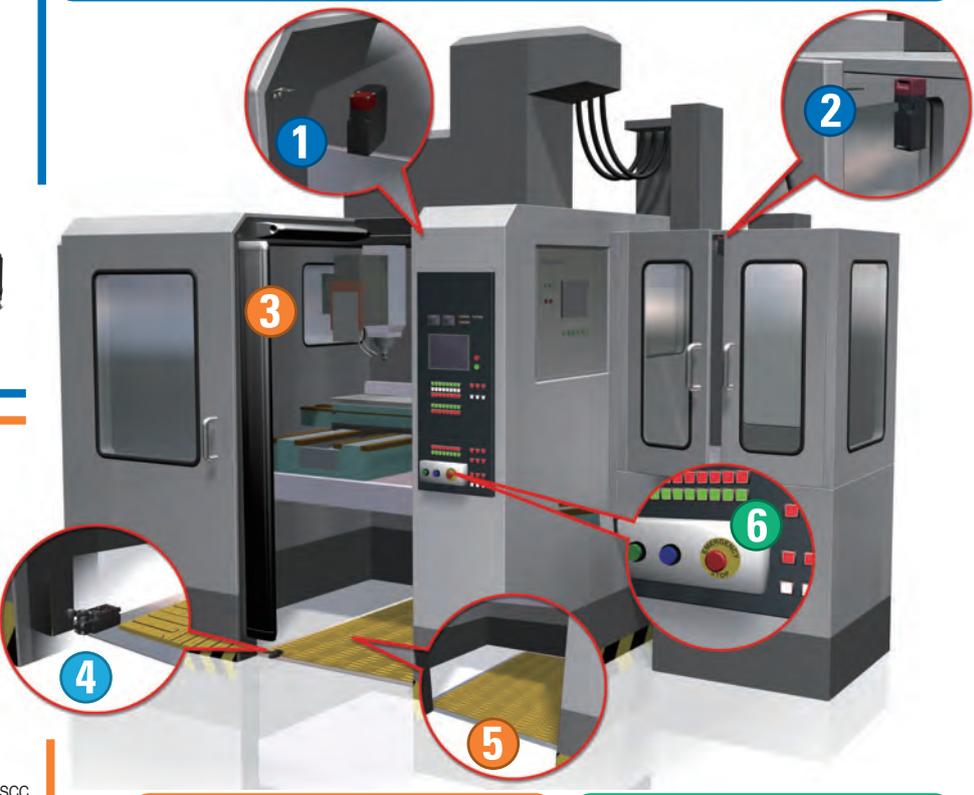
3

Sensing contact to prevent crushing

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



Note: The G9SP Safety Controller can be used instead of 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



5

Worker protection in hazardous areas

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



6

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 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
- 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-1A□/R88D-1SAN□-ECT R88M-1□/R88D-1SN□-ECT 3G3MX2-V1 3G3RX2

Product Application Examples

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



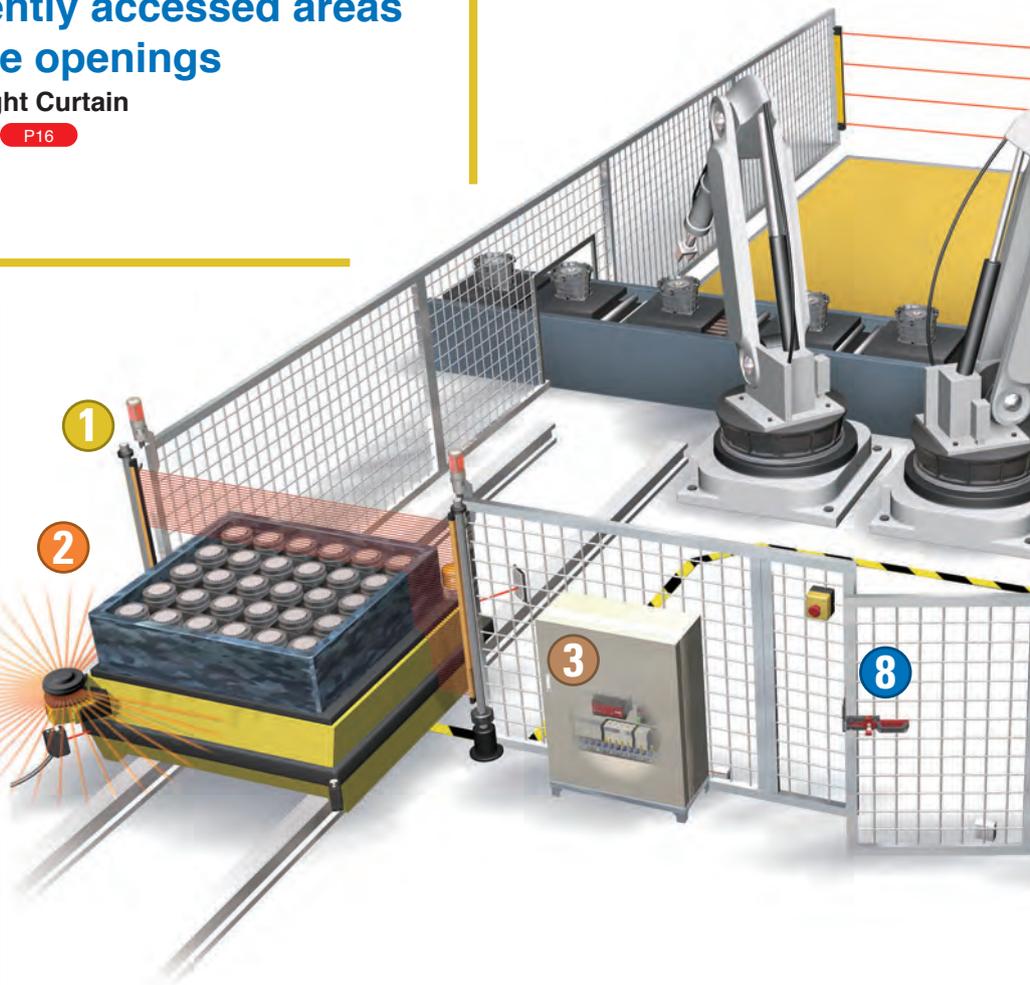
OS32C



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**



NX-CSG
NX-SL5/SI/SO

GI-SMD/SID

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

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



D41G

NEW



D41G-A2□-E1(T)

NEW



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



2

Emergency stop during teaching in hazardous areas

Enabling Grip Switch

A4EG p.18



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



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)

Actuators with Emergency
Exit Unit for D41G

D41G-A2□-E1(T) p.15

Guard Lock Safety-door Switch

D4JL p.14

D4JL-mounting Slide Key

D4JL-SK40 p.15

NEW

D41G



NEW

D41G-A2□-E1(T)



D4JL



D4JL-SK40



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



NX-CSG
NX-SL5/SI/SO



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

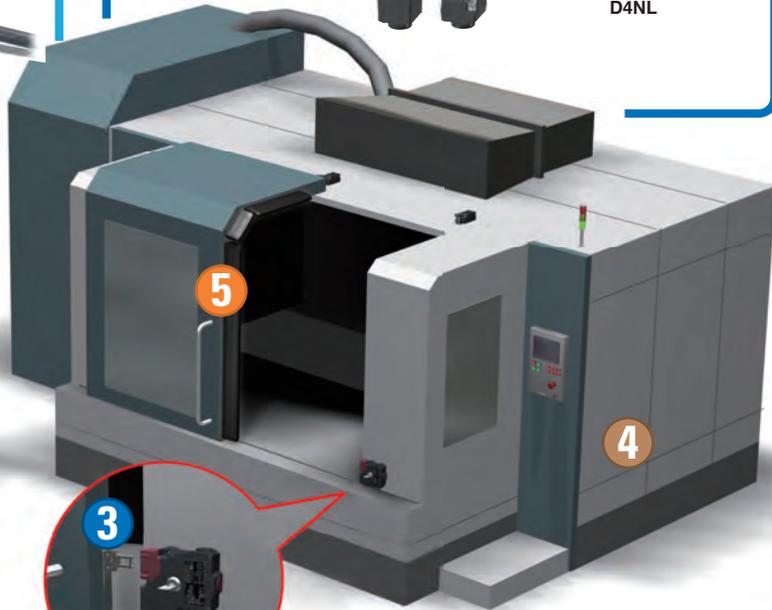
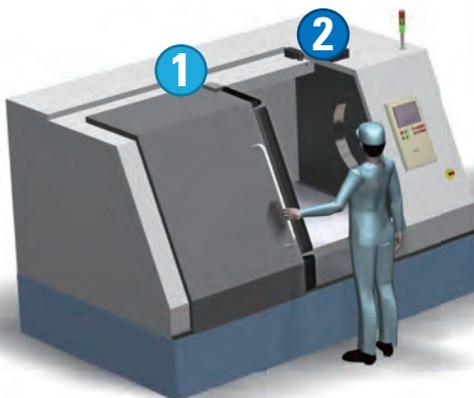


2

For preventing access to inertial hazards

Guard Lock Safety-door Switch

D4SL-N/D4NL **P14**



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



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**



5

For preventing containment inside the equipment

Safety Edge/Edge Controller

SGE **P17**

SCC **P17**



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** **NEW**
(PLe/Safety Category 4/High Coded) 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

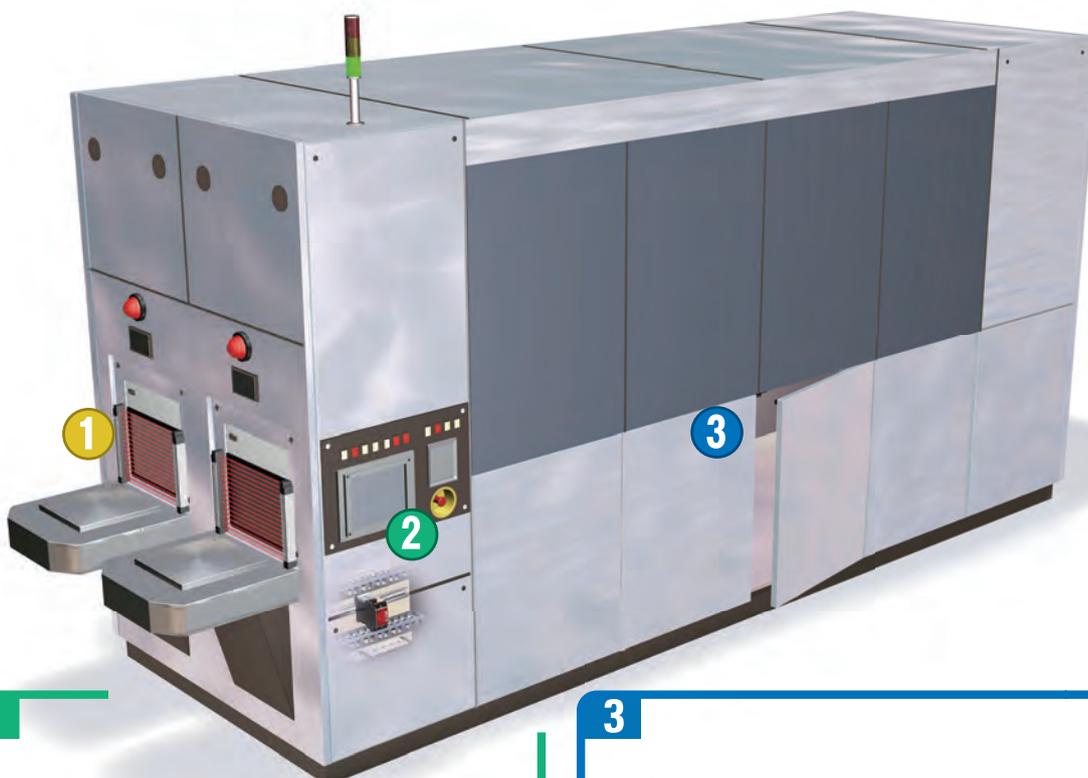
F3SJ-A P16



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



ECOLAB

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		<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 ● For standard loads and micro loads
D4F Small Safety Limit Switch WEB		<ul style="list-style-type: none"> ● 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		<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 WEB		<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 ● 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		<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 ● For standard loads and micro loads ● Metal head types available
D4GS-N Slim Safety Door Switch WEB		<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 WEB		<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)

Guard Lock Safety Door Switch

Model	Appearance	Features
D41G High-Coded Guard Lock Safety Door Switch (For Gate) Cat.No.F114	 NEW	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● Tamper-proof safety door switch to prevent human error ● Hygienically designed switch Unique locking mechanism prevents water and foreign matter from collecting ISO 14119 (Type 4/High Coded), ISO 13849-1 (PLe) ● Complies with ISO 14119 (Type 4/High Coded), ISO 13849-1 (PLe) ● ECOLAB certified
D4SL-N Guard Lock Safety-door Switch Cat. No. C146		<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 WEB		<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 ● 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		<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 WEB		<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

WEB Mark...Refer to your local OMRON website

Safety-door Hinge Switch

Model	Appearance	Features
D4NH Safety-door Hinge Switch WEB		<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 ● 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	<ul style="list-style-type: none"> ● 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		<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 Cat. No. C145		<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● 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		<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 WEB		<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

WEB Mark...Refer to your local OMRON website

Product Lineup

■ Safety sensors

Model	Appearance	Features
F3SG-SR Safety Light Curtain Cat. No. F105	 <i>NEW</i>	<ul style="list-style-type: none"> ● 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-PG Safety Multi-Light Beam Cat. No. F105		
F3SG-SR-K Safety Light Curtain IP69K model Cat. No. F105	 <i>NEW</i>	<ul style="list-style-type: none"> ● 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		<ul style="list-style-type: none"> ● 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) <ul style="list-style-type: none"> ● 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) <ul style="list-style-type: none"> ● 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		<ul style="list-style-type: none"> ● 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) <ul style="list-style-type: none"> ● 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) <ul style="list-style-type: none"> ● Simple and affordable hand protection ● 1/2 the mounting time (Comparison with existing Omron products)
E3ZS Single-beam Safety Sensor WEB		<ul style="list-style-type: none"> ● 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		<ul style="list-style-type: none"> ● 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		<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) Note: The F3SP-B1P in combination with F3SG-RA/F3SJ-B/F3SJ-A conforms to standards.

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■ Presence sensing devices

Model	Appearance	Features
OS32C Safety Laser Scanner Cat. No. Z298		<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° ● 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		<ul style="list-style-type: none"> ● 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		<ul style="list-style-type: none"> ● 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		<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.) Cat. No. A263		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.) Cat. No. A263		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.) Cat. No. A263		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
A22Z-EG Series E-stop Shroud Cat. No. A263		<ul style="list-style-type: none"> ● 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

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Product Lineup

■ Enabling devices

Model	Appearance	Features
A4EG Enabling Grip Switch WEB		<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 WEB		<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
A22LK Guard Lock Safety Key Selector Switch WEB		<ul style="list-style-type: none"> ● Secure equipment activation during maintenance ● Guard lock of operation unit prevents misuse ● The key has the same shape as the following key <ul style="list-style-type: none"> - Key of A22TK Safety Key Selector Switch - Trapped key of D4JL Guard Lock Safety-door Switch - Lockout key of D4SL-NSK10-LK Slide Key
A22TK Safety Key Selector Switch Cat. No. A189		<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)

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■ Safety relay units

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

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■ Flexible safety units G9SX Series

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

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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		<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 Cat. No. F104		<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 Cat. No.P138		<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

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

Safety over
EtherCAT



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		<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 Cat. No.P138		<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) Safety over EtherCAT

Model	Appearance	Features
NX102/SL3/SI/SO NX1 CPU Unit, Safety Control Units WEB		<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 EtherCAT Coupler Unit, Safety Control Units Cat. No. F101		<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 Cat. No. P138		<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

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■ 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		<ul style="list-style-type: none"> ● 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. <p>* Input per Coupler Unit: Maximum 504 bytes, Output per Coupler Unit: Maximum 504 bytes</p>
SYSMAC-SE/NE/FE Automation Software Sysmac Studio Cat. No. P138		<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 Cat. No. F090		<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 Cat. No. F090		G9SP configuration tool <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 WEB		Achieve Safety Control through Programming. NE1A-SCPU <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. NE1A-SCPU-EIP <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 WEB		Ideal for safety applications with up to 12 inputs <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 WEB		<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 WEB		Allows safety system to be monitored via Ethernet <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 WEB		Configuration tool for NE Series <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 Cat. No. J120		<ul style="list-style-type: none"> 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		<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/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		<ul style="list-style-type: none"> 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		<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

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■ Safety drives

Model	Appearance	Features
R88M-1A□/ R88D-1SAN□-ECT AC Servo System with Safety Functionality Cat. No. I838/I842		<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 Cat. No. I821		<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 Cat. No. I920		<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 Cat. No. I921/I923		<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

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.

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