Product Lineup

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

Omron safety components help improve machine safety

1. Door locking to protect workers
   Guard Lock Safety-door Switch
   D4SL-N
   D4NL
   D4JL
   - Metal or plastic housing

2. Door monitoring
   Slim Safety Door Switch
   D4GS-N
   Safety-door Switch
   D4NS / D4BS
   - Metal, plastic, or compact plastic housing

3. Contact sensing to prevent crushing
   Safety Edge/Edge Controller
   SGE
   SCC
   Note: The G9SP Safety Controller can be used instead or the SCC.

4. Door position and open/close detection
   Safety Limit Switch
   D4B-□N
   Small Safety Limit Switch D4N/D4F
   - Metal or plastic housing

5. Worker protection in hazardous areas
   Mat for presence sensing
   Safety Mat/Controller
   UMA
   SCC
   UMA Safety Mats
   Note: The G9SP/G9SX-NS Controller is required.

6. Emergency machine stop
   Emergency Stop Switch
   A165E
   A22NE-PD/A22NE-P/
   A22E
   - A wide range of accessories
Non-contact door monitoring
Compact Non-contact Door Switch
D40A (PLd/Safety Category 3)
D40Z (PLe/Safety Category 4)

Standalone monitoring
Safety Relay Unit G9SA/G9SE
Flexible Safety Unit G9SX
Safety Controller G9SP
Machine Automation Controller NX102
Safety CPU Unit NX-SL5
Safety I/O Unit NX-SI/SO

Ensuring the safety of openings
Safety Light Curtain F3SG-SR

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
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

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

NEW
F3SG-SR

Available soon
R88M-1A □ / R88D-1SAN □ -ECT

NEW
3G3MX2-V1
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

2. Prevent collisions and entrapment by detecting workers and contacts
   - Safety Laser Scanner OS32C
   - Safety Edge/Edge Controller SGE/SCC

3. Expanding safety I/O through networks
   - NX Series Communication Control Unit NX-CSG
   - Safety CPU Unit NX-SLS
   - Safety I/O Terminal GI-SMD/SID

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

NEW F3SG-SR

NEW NX-CSG
NEW NX-SLS/SI/SO
NEW GI-SMD/SID
4  
Perimeter protection around equipment
Safety Multi-Light Beam F3SG-PG  
P16

5  
Full system emergency stop
Emergency Stop Switch A22NE  
P17

6  
Worker protection in hazardous areas
Safety Laser Scanner OS32C  
P17

7  
Emergency stop during teaching in hazardous areas
Enabling Grip Switch A4EG  
P18

8  
Door open/close detection and locking
Safety-door Hinge Switch D4NH  
P14

Guard Lock Safety-door Switch
D4SL-N  
P14

D4NL  
P14

D4JL  
P14

D4NS/D4JL-mounting Slide Key
D4NS-SK30/D4JL-SK40  
P15

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

D4JL-SK40  
P15

D4NS-SK30  
P15

Scheduled for release

Omron safety components help protect workers at manufacturing sites.
Safety Application Examples

Applications by Industry

1. Automotive

1. **Worker protection in hazardous areas**
   - Laser scanner for presence sensing
   - Safety Laser Scanner OS32C

2. **Emergency stop during teaching in hazardous areas**
   - Enabling Grip Switch A4EG

3. **Presence detection in harsh environments**
   - Safety Light Curtain F3SG-SR
   - Cutting oil resistant Robust type IP67G
   - Safety Mat/Controller UMA / SCC

4. **For preventing containment in hazardous areas**
   - Guard Lock Safety-door Switch D4JL
   - Rear release button to unlock

5. **Programming for safety control**
   - NX Series Communication Control Unit NX-CSG
   - Safety CPU Unit NX-SL5
   - Safety I/O Terminal GI-SMD/SiD
Applications by Industry

1. Door position and open/close detection
   - Safety Limit Switch D4B-N
   - Small Safety Limit Switch D4N /D4F
   - Metal or plastic housing

2. For preventing access to inertial hazards
   - Guard Lock Safety-door Switch D4SL-N/D4NL

3. For preventing containment inside the equipment
   - Guard Lock Safety-door Switch D4JL
   - Trapped key to prevent getting trapped

4. Standalone operation
   - Flexible Safety Unit G9SX
   - Safety Controller G9SP
   - Machine Automation Controller NX102
   - Safety CPU Unit NX-SL5
   - Safety I/O Unit NX-SI/SO

5. For preventing containment inside the equipment
   - Safety Edge/Edge Controller SGE
   - SCC
Safety Application Examples

Applications by Industry

1. Intrusion detection for wide openings
   - Safety Light Curtain F3SG-SR
   - Safety Light Curtain F3SJ-A

2. Entry and Exit access control
   - Guard Lock Safety-door Switch D4SL-N
   - D4SL-N-mounting Slide Key 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

3. FPD Manufacturing Equipment
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 (PLe/Safety Category 3) (P15)
     - D40Z (PLe/Safety Category 4) (P15)
     - D40R (PLe/Safety Category 4) (P15)
Safety Application Examples

For Washdown Environments
Safety Light Curtain F3SG-SR
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
(F3SJ-A)
IP67 compliant with environment-resistant case

For Guarding Large Openings
Safety Laser Scanner OS32C

Non-contact door detection for doors in wash-down environments
Compact Non-contact Door Switch D40A (PLd/Safety Category 3)
D40R/P (PLe /Safety Category 4)
# Product Lineup

## Safety limit switches

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D4N</strong></td>
<td></td>
<td>• Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO, 3NC, 1NC/1NO MBB and 2NC/1NO MBB</td>
</tr>
<tr>
<td>Small Safety</td>
<td></td>
<td>• M12 connector type for quick wiring and easy replacement</td>
</tr>
<tr>
<td>Limit Switch</td>
<td></td>
<td>• Standardized gold-clad contacts for high contact reliability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For standard loads and micro loads</td>
</tr>
<tr>
<td><strong>D4F</strong></td>
<td></td>
<td>• World's smallest class housing with direct opening mechanism (4 contacts)</td>
</tr>
<tr>
<td>Small Safety</td>
<td></td>
<td>• High sensitivity</td>
</tr>
<tr>
<td>Limit Switch</td>
<td></td>
<td>• 2 and 4 contact types</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IP67 protection</td>
</tr>
<tr>
<td><strong>D4B- N</strong></td>
<td></td>
<td>• Direct opening mechanism (NC contacts only) opens contacts when faults occur</td>
</tr>
<tr>
<td>Safety Limit</td>
<td></td>
<td>• Indicates applicable operating zone</td>
</tr>
<tr>
<td>Switch</td>
<td></td>
<td>• Push-button switching to control left and right motion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IP67 protection</td>
</tr>
<tr>
<td><strong>D4N- R</strong></td>
<td></td>
<td>• Lineup with up to 3 contacts: 1NC/1NO, 2NC, 2NC/1NO and 3NC</td>
</tr>
<tr>
<td>Pull-reset</td>
<td></td>
<td>• M12 connector type for quick wiring and easy replacement</td>
</tr>
<tr>
<td>Safety Limit</td>
<td></td>
<td>• Standardized gold-clad contacts for high contact reliability</td>
</tr>
<tr>
<td>Switch</td>
<td></td>
<td>• For standard loads and micro loads</td>
</tr>
</tbody>
</table>
## Safety door switches

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| D4NS                 | ![D4NS Image](image1.png) | • 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               | ![D4GS-N Image](image2.png) | • 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                 | ![D4BS Image](image3.png) | • 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               | ![D4SL-N Image](image4.png) | • 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                 | ![D4JL Image](image5.png) | • 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                 | ![D4NL Image](image6.png) | • Built-in switches with multiple-contact construction are available.  
• Key holding force: 1,300 N  
• For standard loads and micro loads  
• Various conduit types, e.g. M20  
• IP67 protection  |
| D4BL                 | ![D4BL Image](image7.png) | • Automatic mechanical locking by inserting operation key  
• Release by applying voltage to solenoid  
• Auxiliary release key for emergency unlock  
• IP67 protection  |
| D40ML                | ![D40ML Image](image8.png) | • 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                 | ![D4NH Image](image9.png) | • 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  |
<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D40A</strong></td>
<td></td>
<td>• Stable operation reduces controller errors caused by unstable doors</td>
</tr>
<tr>
<td>Compact Non-contact</td>
<td></td>
<td>• Connect up to 30 non-contact door switches with LED to one controller</td>
</tr>
<tr>
<td>Door Switch</td>
<td></td>
<td>• Reversible switch provides flexibility in installation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Two color LED indicator for easy maintenance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PLd/Safety Category 3</td>
</tr>
<tr>
<td><strong>D40Z</strong></td>
<td></td>
<td>• Conforms to ISO 13849-1 (PLe/Safety Category 4)</td>
</tr>
<tr>
<td>Compact Non-contact</td>
<td></td>
<td>• Switch’s LED indication patterns for easy troubleshooting</td>
</tr>
<tr>
<td>Door Switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>D40P</strong></td>
<td></td>
<td>• Hall effect coded magnet non-contact switches monitor the status of guarding doors.</td>
</tr>
<tr>
<td>Hall-Effect Coded Magnet Non-Contact Safety Switches</td>
<td></td>
<td>• Diverse housing material: plastic, stainless steel, hygienic designed stainless steel and special food type stainless steel housing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Conforms to safety categories up to PLe acc. EN ISO13849-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Operates with all OMRON safety controllers, up to 20 switches in series, up to PLd acc. EN ISO 13849-1</td>
</tr>
<tr>
<td><strong>D40R</strong></td>
<td></td>
<td>• Provides a high degree of tamper resistance, options with basic and unique coding makes</td>
</tr>
<tr>
<td>RFID Non-Contact Safety Switches</td>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Conforms to ISO 13849-1 (PLe / Category 4)</td>
</tr>
<tr>
<td><strong>D4SL-NSK10-LK</strong></td>
<td></td>
<td>• Lockout key prevents workers from getting trapped inside hazardous areas</td>
</tr>
<tr>
<td>D4SL-N-mounting Slide Key</td>
<td></td>
<td>• Vertical D4SL-N Guard Lock Safety-door Switch can be easily mounted on a 40 x 40 mm aluminum frame</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Plastic housing suitable for lightweight doors</td>
</tr>
<tr>
<td><strong>D4NS-SK</strong></td>
<td></td>
<td>• Door switch attachments for doors in various sizes from 20 x 20 mm aluminum frames to large guards around robots</td>
</tr>
<tr>
<td>D4JL-SK</td>
<td></td>
<td>• Shortens design time for door switch mounting part</td>
</tr>
<tr>
<td>D4NS/D4JL-mounting Slide Key</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Safety Lineup

### Safety sensors

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| **F3SG-SR**       | ![New Icon] | - 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**       | ![New Icon] | - Provides basic on/off safety functions  
- Simple wiring with only 4 wires  
- Fast response time of 5 ms |
| **F3SG-RE**       |            | - Omron's most compact size  
- Series connection up to 4 sets  
- Multiple resolutions and protective heights available |
| **F3SJ-A**        |            | - Omron's most compact size  
- Series connection up to 4 sets  
- Multiple resolutions and protective heights available |
| **F3SJ-B**        |            | - 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**        |            | - Provides basic on/off safety functions  
- Simple and affordable hand protection models  
- Good noise immunity |
| **F3W-MA**        |            | - 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**          |            | - For hazardous gaps in machines  
- Used together with G9SP Safety Controller  
- Sensing distance of 3m |
| **F3SP-B1P**      | ![Smart Actuator Icon] | - 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) |

*1. IEC 60529/JIS C 0920 Annex 1

Note: The F3SP-B1P in combination with F3SG-RA/F3SJ-B/F3SJ-A conforms to standards.
### Presence sensing devices

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| OS32C Safety Laser Scanner | ![Image](image1.png) | - 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  
- Low-power consumption (5 W) extends operation time of battery powered systems like AGVs |
| UMA/SCC Safety Mat/Controller | ![Image](image2.png) | - 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 | ![Image](image3.png) | - 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

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| A165E Emergency Stop Switch (16-dia.) | ![Image](image4.png) | - 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.) | ![Image](image5.png) | **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.) | ![Image](image6.png) | **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  
- IP65 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.) | ![Image](image7.png) | **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 |
| ER6022 Rope Pull Emergency Stop Switch | ![Image](image8.png) | - 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

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| A4EG G4Grip Switch | ![A4EG Appearance](image1) | • 3-position switch with clicking feel  
• Configure safety circuits easily by combining with G95X-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 | ![A4E Appearance](image2) | • 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 | ![A22LK Appearance](image3) | • 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 Switch  
  - Lockout key of D4SL-NSK10-LK Slide Key |
| A22TK Safety Key Selector Switch | ![A22TK Appearance](image4) | • 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

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| G9SA        | ![G9SA](image1) | • 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        | ![G9SB](image2) | • 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        | ![G9SE](image3) | • 17.5 or 22.5 mm width to save mounting space  
• Easy maintenance with status indicators  
• One unit for various safety devices, from contact input to PNP input |
| SCC1224-A   | ![SCC1224-A](image4) | • Monitored manual or automatic reset modes  
• Two safety outputs, 1 auxiliary output for signaling and delayed Auxiliary Output  
• External Device Monitoring - EDM is standard |

### Flexible safety units G9SX Series

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| G9SX        | ![G9SX](image5) | • 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     | ![G9SX-NS](image6) | • 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     | ![G9SX-GS](image7) | • 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     | ![G9SX-SM](image8) | • 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     | ![G9SX-LM](image9) | • 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)

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX-CSG320/ SLS/SL5/SI/SO</td>
<td>![Image]</td>
<td>- CIP Safety on EtherNet/IP is supported</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Feature EtherNet/IP Communications Port</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- The Standard Unit of NX-series Available</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Excellent Connectivity with OMRON Safety I/O Devices</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Support for the IEC 61311-3 Programming Environment</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Program Languages Based on the IEC 61311-3 International Standard</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Programming with Variables</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Complete Advanced Validation</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Checking Safety Programs and Safety Parameters</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Debugging</td>
</tr>
</tbody>
</table>

## Integrated Safety Controller

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX102-***</td>
<td>![Image]</td>
<td>- Fast and accurate control by synchronizing all machine devices with the PLC and Motion Engines</td>
</tr>
<tr>
<td>NX-SL5</td>
<td>![Image]</td>
<td>- OPC UA server functionality</td>
</tr>
<tr>
<td>NX-SI/SO</td>
<td>![Image]</td>
<td>- Up to 12 axes of control via EtherCAT</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Up to 32 local NX I/O Units</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- DC power supply without battery backup</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Fully conforms to IEC 61311-3 standard programming</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- PLCopen Function Blocks for Motion Control allow users to create complex programs quickly and easily</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>- Direct connection to a database, with no special unit, software, or middleware required (NX102-***20)</td>
</tr>
</tbody>
</table>

## GI-SMD/SID Safety I/O Terminal

### GI-S Series

- Support for CIP Safety on EtherNet/IP
- Standard-feature EtherNet/IP port
- Easy programming with Sysmac Studio

## SYSMAC-SE Automation Software Sysmac Studio

- One software for motion, logic, safety, drives, vision and HMI
- Fully compliant with open standard IEC 61311-3 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

## SYSMAC-SE Automation Software Sysmac Studio

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- One simulation tool for sequence and motion in a 3D environment
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## Safety Controller NX Series EtherCAT (FSoE)

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX102/SL3/SL/</td>
<td></td>
<td>• Support for the IEC 61131-3 Programming Environment</td>
</tr>
<tr>
<td>CPU Unit,</td>
<td></td>
<td>• Program Languages Based on the IEC 61131-3 International Standard</td>
</tr>
<tr>
<td>Safety Control Units</td>
<td></td>
<td>• Programming with Variables</td>
</tr>
<tr>
<td>NX701/102-,</td>
<td></td>
<td>• Complete Advanced Validation</td>
</tr>
<tr>
<td>NJ501/301/101-</td>
<td></td>
<td>• Checking Safety Programs and Safety Parameters</td>
</tr>
<tr>
<td>CPU Unit</td>
<td></td>
<td>• Debugging</td>
</tr>
<tr>
<td>NX-ECC/SL3/SL/</td>
<td></td>
<td>• Integrated safety into machine automation possible by connecting with</td>
</tr>
<tr>
<td>SI/SO</td>
<td></td>
<td>the NX-series EtherCAT Coupler.</td>
</tr>
<tr>
<td>EtherCAT Coupler Unit, Safety Control Units</td>
<td></td>
<td>• The Safety CPU Unit controls up to 128 Safety I/O Units.</td>
</tr>
<tr>
<td>SYSMAC-SE</td>
<td></td>
<td>• 4 or 8 points per Safety Input Unit. The 4-point Safety Input Unit can</td>
</tr>
<tr>
<td>Automation</td>
<td></td>
<td>be directly connected with OMRON Non-contact Switches and Singlebeam</td>
</tr>
<tr>
<td>Software</td>
<td></td>
<td>Sensors.</td>
</tr>
<tr>
<td>Sysmac Studio</td>
<td></td>
<td>• 2 or 4 points per Safety Output Unit. The 2-point Safety Output Unit is</td>
</tr>
<tr>
<td></td>
<td></td>
<td>characterized by large output breaking current of 2.0 A.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The Safety Units can be freely allocated in any combination with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>standard NX I/O.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Compliant with IEC61131-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Safety programs can be standardized and reused efficiently by using</td>
</tr>
<tr>
<td></td>
<td></td>
<td>POUs for design and operation.</td>
</tr>
</tbody>
</table>

## Safety Controller NX Series Stand-alone System

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX-EIC202/SL3/</td>
<td></td>
<td>• Up to 63 NX-I/O Units can be connected to one EtherNet/IP Coupler Unit.</td>
</tr>
<tr>
<td>SI/Sl/</td>
<td></td>
<td>• Standard and high-performance units can be mixed1.</td>
</tr>
<tr>
<td>Coupler Unit,</td>
<td></td>
<td>• Each Coupler plus its I/O form just a single EtherCAT node on the</td>
</tr>
<tr>
<td>Safety Control Units</td>
<td></td>
<td>network.</td>
</tr>
<tr>
<td>SYSMAC-SE/NE/</td>
<td></td>
<td>• The IP address can be found on the label on the Unit, without using</td>
</tr>
<tr>
<td>FE</td>
<td></td>
<td>software.</td>
</tr>
<tr>
<td>Automation</td>
<td></td>
<td>• Slave configuration by Sysmac Studio can be done centrally via the</td>
</tr>
<tr>
<td>Software</td>
<td></td>
<td>controller, or on-the-spot using the Coupler’s built-in USB port.</td>
</tr>
<tr>
<td>Sysmac Studio</td>
<td></td>
<td>* Input per Coupler Unit: Maximum 504 bytes, Output per Coupler Unit:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximum 504 bytes</td>
</tr>
</tbody>
</table>

## Safety Controller G9SP Series

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>G9SP</td>
<td></td>
<td>• Easy programming for complex safety control</td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td>• Unique programming software to support easy design and verification</td>
</tr>
<tr>
<td>Controller</td>
<td></td>
<td>• Memory cassette for easy duplication of configuration</td>
</tr>
<tr>
<td>WS02-G9SP-V</td>
<td></td>
<td>• G9SP configuration tool</td>
</tr>
<tr>
<td>G9SP Configurator</td>
<td></td>
<td>• Easy setup and configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Simulation for easy verification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• User-defined Function Blocks greatly reduce design time</td>
</tr>
</tbody>
</table>
## Product Lineup

### Safety Network Controller DeviceNet Safety NE1A/NE0A Series

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| NE1A-SCPU(-EIP) Series Safety Network Controller | ![NE1A-SCPU(-EIP) Series Safety Network Controller](image) | 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 | ![NE1A-SCPU-EIP](image) | 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 | ![NE0A-SCPU Series Safety Network Controller](image) | 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 | ![DST1 Series Safety I/O Terminal](image) |  
- 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 | ![NE1A-EDR01 EtherNet/IP-DeviceNet Router](image) | 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 |

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### Safety Relays

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| G7SA    | Relay with Forcibly Guided Contacts | - 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 | - 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 | - 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

<table>
<thead>
<tr>
<th>Model</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| R88M-1A / R88D-1SAN-ECT | Available soon | - Advanced safety functions: STO/SS1/SS2/SOS/SL5/SLP/SDV/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 | NEW | - Safety function: STO  
- Servo drive for rotary motors  
- Up to 15 kW  
- Battery-free absolute encoder |
| 3G3MX2-V1 | Multi-function Compact Inverter | - Safety function: STO  
- PM motor control helps save energy  
- Positioning functionality  
- Up to 15 kW  
- Drive Programming |
| 3G3RX2 | High-function General-purpose Inverter | - 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. F165I

Safety Scanner
OS32C Series
Cat. No. OS32C

RFID Safety Switches
D40ML Series
Cat. No. C64I

Safety Relay
G9SE Series
Cat. No. J77I

Safety Relay Unit
G9SA Series
Cat. No. J48I

Safety Relay
G9SX Series
Cat. No. J67I

Safety Relay
SCC-1224A
Cat. No. F54I

Safety Mats
UMA Series
Cat. No. F323I

Door Switches
D40R/P Series
Cat. No. C428I

Emergency stop
A22E/A22NE Series
Cat. No. A263I

Rope Switch
ER6022
Cat. No.

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