

Safety Monitoring Relays

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Product line		G9SE	G9SA	G9SA-T	SR101A	SR103/203AM
Description		Instantaneous/Time-delay	Instantaneous	Time-delay	Instantaneous	Instantaneous
Selling Tips		<ul style="list-style-type: none"> Easy to wire Slim profile 	Expandable outputs: up to 8 safety contacts	Expandable outputs: up to 6 safety contacts	E-Stop or single channel monitoring	Slim profile
Features		<ul style="list-style-type: none"> LED indicators 17.5 or 22.5 mm wide Push-in terminals 	<ul style="list-style-type: none"> Fixed Terminal Blocks 3 or 5 outputs Expandable outputs: instantaneous or time-delay 	<ul style="list-style-type: none"> Fixed Terminal Blocks Adjustable off time-delay DIN rail or panel mounting options available 	<ul style="list-style-type: none"> Fixed Terminal Blocks LED indicators Automatic restart 	<ul style="list-style-type: none"> Fixed or Removable Terminal Blocks Dual channel monitoring Manual or automatic restart (part number dependant)
Input Type		PNP	1 NC / 2 NC / PNP	1 NC / 2 NC / PNP	1 NC / Power Supply	1 NC / 2 NC / PNP
Supply Voltage		24 VDC	AC/DC 24 or AC 100-240	AC/DC 24 or AC 100-240	24 VAC/DC or 115 VAC	24 VAC/DC or 115 VAC
Life Expectancy	Mechanical	5,000,000 operations min.	5,000,000 operations min. (at approx. 7,200 operations/hr)	5,000,000 operations min. (at approx. 7,200 operations/hr)	10,000,000	10,000,000 / 2,000,000*
	Electrical	50,000 operations min.	100,000 operations min. (at approx. 1,800 operations/hr)	100,000 operations min. (at approx. 1,800 operations/hr)	-----	-----
Electrical Ratings	Rated Load	<ul style="list-style-type: none"> AC-15, 2 A/240 V DC-13, 1.5 A/24 V 	<ul style="list-style-type: none"> Resistive 250 VAC, 5 A Resistive 30 VDC, 5 A 	<ul style="list-style-type: none"> Resistive 250 VAC, 5 A Resistive 30 VDC, 5 A 	<ul style="list-style-type: none"> Inductive AC-15, 4 A/230 V Inductive DC-13, 2 A/24 V 	<ul style="list-style-type: none"> Inductive AC-15, 3 A/230 VAC: 5 A/230 VAC* Inductive DC-13, 2 A/24 V: 3 A/24 VDC*
	Minimum Permissible Current	4 mA / 24 VDC	1 mA / 5 VDC	1 mA / 5 VDC	20 mA / 24 V	10 mA / 10 V
Reliability (ISO 13849-1)	PFHd	-----	-----	-----	3.70E-8	----- / 1.45E-09
	PL	e	e	e / d*	d	e / e*
	Category	4	4	4 / 3*	3	4 / 4*
	MTTFd (year)	100	100	82 / 62*	-----	-----
	Dcavg (%)	98	99	99 / 60*	-----	-----
Number of Contacts		<ul style="list-style-type: none"> 201: 2 NO + 1 PNP (Aux.) 401: 4 NO + 1 PNP (Aux.) 221: 4 NO (2 NO Instantaneous, 2 NO Time-delay) + 1 PNP (Aux.) 	<ul style="list-style-type: none"> 301: 3 NO + 1 NC (Aux.) 501: 5 NO + 1 NC (Aux.) 	321: 3 NO + 2 NO (time delay) + 1 NC (Aux.)	2 NO	3 NO + 1 NC (Aux.)
Reset		Auto / Manual	Auto / Manual	Auto / Manual	Auto	Auto / Manual
Enclosure Width		<ul style="list-style-type: none"> 201: 17.5 mm 401/221: 22.5 mm 	<ul style="list-style-type: none"> All units (except expansion): 45 mm Expansion units: 17.5 mm 	<ul style="list-style-type: none"> All units (except expansion): 45 mm Expansion units: 17.5 mm 	22.5 mm	22.5 mm
Accessories		-----	G9SA-EX301 G9SA-EX321-T_	G9SA-EX301 G9SA-EX321-T_	-----	-----
Popular Part Numbers		G9SE-201 G9SE-401 G9SE-221-T05 G9SE-221-T30	G9SA-301 AC/DC24 G9SA-301 AC100-240 G9SA-501 AC/DC24 G9SA-EX301	G9SA-321-T075 AC/DC24 G9SA-EX301	<ul style="list-style-type: none"> Fixed Terminal: SR101A01 SR101A02 	<ul style="list-style-type: none"> Fixed Terminal: SR103AM01 SR103AM02 Removable Terminal: SR203AM01
Notes				*Time-delayed outputs		*SR2_ models: Maximum number of switching cycles: 500,000 per year, with switching current <= 0.1 A at 24 VDC

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Product line	SR104P	SR106ED	SR108/208AD	SR109/209AD	SR125SMS	SR131A	
Description	Two-hand control	Time-delayed Expansion Unit	Time-delay	Time-delay	Stop Motion Sensing	Instantaneous	
Selling Tips	Slim profile	Safety expansion unit designed to be switched from a single category 4 channel from any SR safety monitoring relay unit	Use to remove power to the coils of contactors after a machine has come to a controlled stop	Use to apply power for unlocking a solenoid locking switch	Detects the stop condition of all types of AC or DC motors by sensing the motor's back EMF (500 V max.)	Use to monitor non-contact door switches	
Features	<ul style="list-style-type: none"> Fixed or Removable Terminal Blocks External device monitoring (EDM) is provided 	<ul style="list-style-type: none"> Fixed Terminal Blocks OFF Time-Delay (1 to 30 s) 	<ul style="list-style-type: none"> OFF Time-Delay (0.5 to 10 s) LED Indicators Fixed or Removable Terminal Blocks 	<ul style="list-style-type: none"> OFF Time-Delay (0.5 to 10 s) Fixed or Removable Terminal Blocks 	<ul style="list-style-type: none"> Selectable speed limit features 1 NO and 1 NC output Auxiliary output has 2 solid state signaling outputs 	<ul style="list-style-type: none"> Fixed Terminal Blocks LED Indicators External device monitoring (EDM) Manual or automatic reset 	
Input Type	2 x 1 NC + 1 NO	2 NC (bridged)	1 NC / 2 NC / PNP	1 NC / 2 NC / PNP	Z1, Z2, Z3	1 NC + 1 NO	
Supply Voltage	24 VAC/DC or 115 VAC	24 VAC/DC	24 VAC/DC or 115 VAC	24 VAC/DC or 115 VAC	24 VDC or 110 VAC	24 VDC	
Life Expectancy	Mechanical	10,000,000	10,000,000	1,000,000 / 2,000,000*	1,000,000 / 2,000,000*	-----	1,000,000
	Electrical	-----	-----	-----	-----	-----	-----
Electrical Ratings	Rated Load	<ul style="list-style-type: none"> Inductive AC-15, 4 A/230 V Inductive DC-13, 2 A/24 V 	<ul style="list-style-type: none"> Inductive AC-15, 4 A/230 V Inductive DC-13, 2 A/24 V 	<ul style="list-style-type: none"> Inductive AC-15, 3 A/250 VAC; Resistive AC-12, 8 A/250 VAC; Inductive AC-15, 6 A/250 VAC* Inductive DC-13, 3 A/24 VDC; Resistive DC-12, 8 A/50 VDC; Inductive DC-13, 3 A/24 VDC* 	<ul style="list-style-type: none"> Inductive AC-15, 3 A/250 VAC; Resistive AC-12, 8 A/250 VAC; Inductive AC-15, 6 A/250 VAC* Inductive DC-13, 3 A/24 VDC; Resistive DC-12, 8 A/50 VDC; Inductive DC-13, 3 A/24 VDC* 	<ul style="list-style-type: none"> Inductive AC-15, 1800 VA inrush, 180 VA maintained; Inductive DC-13, 1.2-1.5 A/24 V 	<ul style="list-style-type: none"> Inductive AC-15, 1800 VA inrush, 180 VA maintained; Inductive DC-13, 1.5 A/24 V
	Minimum Permissible Current	20 mA / 24 V	20 mA / 24 V	10 mA @ 24 V / 10 mA @10 V*	11 mA @ 24 V / 10 mA @10 V*	10 mA / 17 V	10 mA / 1 V
Reliability (ISO 13849-1)	PFHd	2.49E-08*	4.29E-8	2.70E-08 / 2.38E-09*	2.70E-08 / 2.38E-09*	9.26E-09*	3.92E-9
	PL	e	d	e / e	e / e	d	e
	Category	4	3	4 / 4	4 / 4	3	4
	MTTFd (year)	-----	-----	-----	-----	-----	-----
	Dcavg (%)	-----	-----	-----	-----	-----	-----
Number of Contacts	2 NO	3 NO + 1 NC (Aux.)	2 NO + 3 NO (time delay)	2 NO + 2 NO (time delay) + 1 NC (time delay Aux.)	<ul style="list-style-type: none"> 1 NO + 1 NC (switched at preset detection threshold) 2 solid state for signaling 	<ul style="list-style-type: none"> 1 NO + 1 NC outputs 2 solid state aux. 	
Reset	-----	-----	Auto / Manual	Auto / Manual	-----	Auto / Manual	
Enclosure Width	22.5 mm	22.5 mm	22.5 mm / 45 mm	22.5 mm / 45 mm	45 mm	22.5 mm	
Accessories	TS-10 TS-20	-----	-----	-----	-----	-----	
Popular Part Numbers	<ul style="list-style-type: none"> Fixed Terminal: SR104P01 SR104P02 	SR106ED01	<ul style="list-style-type: none"> Fixed Terminal: SR108AD01 Removable Terminal: SR208AD01 	<ul style="list-style-type: none"> Fixed Terminal: SR109AD01 Removable Terminal: SR209AD01 	SR125SMS4501 SR125SMS4502	<ul style="list-style-type: none"> Fixed Terminal: SR131A00 	
Notes	*Maximum number of switching cycles: 400,000 per year, with switching current <= 0.1 A at 24 VDC	*Maximum number of switching cycles: 400,000 per year, with switching current <= 0.1 A at 24 VDC	*SR2_ models Reliability data: Maximum number of switching cycles: 500,000 per year, with switching current <= 0.1 A at 24 VDC	*SR2_ models Reliability data: Maximum number of switching cycles: 500,000 per year, with switching current <= 0.1 A at 24 VDC	*316 800 cycles per year at Low Load		

Safety Switches and Operator Controls

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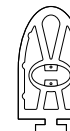
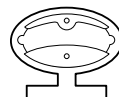


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Product line		A4EG	A22TK	TS-10
Description		Enabling Grip	Trapped Key Interlock	Capacitive Touch Switch
Selling Tips		<ul style="list-style-type: none"> Use for operator protection during set up and maintenance Distinctive tactile feedback 3 grip positions to account for operator response 	<ul style="list-style-type: none"> Key-type selector with direct opening mechanism Selector switch for secure equipment activation during maintenance 	<ul style="list-style-type: none"> No physical pressure required to actuate switch; reduces the likelihood of injury caused by repetitive motion Saves times and money Easy mounting in a single hole Wiring is simplified because terminals are clearly identified and easily accessible No special power supplies are required because switch is available in either 120 VAC or 24 VDC versions
Features		<ul style="list-style-type: none"> 3 models to choose from with: E-stop, Operator Buttons or none Operation key switch holder for automatic switching 	<ul style="list-style-type: none"> 30 types of exclusive keys make it more difficult to disable Key can freed in left or right position 	<ul style="list-style-type: none"> RFI Immunity; special circuitry inhibits output in the presence of RFI that would otherwise cause false triggering of output. Excellent sensitivity; sensor is designed to operate even if operator is wearing gloves.
Life Expectancy	Mechanical	100,000 operations min.	100,000 operations min.	50,000,000 operations min.
	Electrical	100,000 operations min.	100,000 operations min.	5,000,000 operations min.
Electrical Ratings	Certified Maximum	<ul style="list-style-type: none"> 24 VDC, 0.3 A (inductive load) 125 VAC, 1 A (resistive load) EN certification rating: AC-15 0.75 A/240 V DC-13 0.55 A/125 V 	<ul style="list-style-type: none"> 24 VAC, 10 A (inductive or resistive load) EN certification rating: AC-15 1 A / 440 VAC; AC-12 2 A / 440 VAC DC-13 0.1 A / 380 VDC; DC-12 0.2 A/380 VDC 	<ul style="list-style-type: none"> 1 A at 250 VAC max resistive; 1 A @ 90 VDC max resistive
	Minimum Permissible Current	24 VDC, 4 mA	1 mA @ 5 VDC	-----
	Power Supply	-----	-----	24 VDC or 120 VAC
Reliability (ISO 13849-1)	Category	-----	-----	Type III C (with G9SA-TH)
	B10d	1.00E+05	1.00E+05	
Connection Method		Terminal Screws	Terminal Screws	Terminal Screws
Enclosure Rating (EN60947-5-1)		IP66	IP65	IP64
Switch Output Configurations		2 NC + 1 NO 2 NC + 2 NC (Estop) 2 NC + 1 NO + 1 NO (Operator Buttons)	SPST-NC SPST-NO/SPST-NC DPST-NC DPST-NC + SPST-NO DPST-NO + SPST-NC TPST-NC	1 NC + 1 NO
Body Material		Plastic	Plastic / Metal	Plastic
Dimensions (L x W x H)		60 x 48 x 174 mm (plus optional switch height)	32.6 x 30 dia. mm (plus key height 32.2 mm)	40 x 60 dia. mm
Options		-----	Left or Right Key Free position Left or Right NC opening position	Power Supply
Controller Options		Various	Various	G9SA-TH301
Accessories		Mounting bracket, rubber cover, holding key	Control Box	Ring Guard, Electrical Box
Popular Part Numbers		A4EG-C000041 A4EG-BM2B041 A4EG-OP2 A4EG-OP3	A22TK-2LL-02-K01 A22TK-2RL-12-K01 A22Z-B101Y	TS-10
Notes				Must be used with a Two-Hand Control Relay when used as a safety "hold to run" device

Safety Mats, Edges and Bumpers

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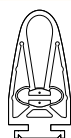
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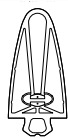
Product line	UMQ	SGE-88	SGE-1510	SGE-125	SGE-225
Description	Safety Mat	Safety Edge	Safety Edge	Safety Edge	Safety Edge
Selling Tips	Standard and Custom size available	Use in applications with fast responding equipment	Use in applications with fast responding equipment	Use in applications with average responding equipment	Use in applications with average responding equipment
Features	<ul style="list-style-type: none"> Static Load / Rolling Load: 270 lbs./sq. in. able to withstand forklift traffic. Recommended for: Water, Mineral Acids, Organic Acids, Aldehydes, Caustics; Somewhat resistant to Alcohols and Petroleum Solvents; Not Recommended for: Organic Solvents or Chlorinated Solvents 	<ul style="list-style-type: none"> Resistant to: Weather, Ozone, UV, Oxidation, Diluted Acids and Bases, Ester Solvents, Alcohol Not Recommended for: Oils, Including Vegetable oils or Hydrocarbons 	<ul style="list-style-type: none"> Recommended for: Water, Diluted Acids, Diluted Bases, Alcohol Somewhat resistant to: oxidizing and non-oxidizing acids, Oils and solvents 	<ul style="list-style-type: none"> Recommended for: Water, Diluted Acids, Diluted Bases, Alcohol Somewhat resistant to: oxidizing and non-oxidizing acids, Oils and solvents 	<ul style="list-style-type: none"> Resistant to: Weather, Ozone, UV, Oxidation, Diluted Acids and Bases, Ester Solvents, Alcohol Not Recommended for: Oils, Including Vegetable oils or Hydrocarbons
Material	PVC	EPDM	TPE	TPE	EPDM
Actuation Distance	-----	2.1 mm	4.23 mm	7.6 mm	4.5 mm
Actuation Force	66 lbs. (30 kg) in.	70 N with 10 mm/s	88 N with 50 mm/s	76 N	87 N
Life Expectancy	Mechanical	1,000,000	100,000	100,000	100,000
Electrical Ratings	Certified Maximum	-----	24 V 100 mA	24 V 100 mA	24 V 100 mA
Reliability Ratings	Refer to Omron controller specifications, tested as a system	Refer to Omron controller specifications, tested as a system	Refer to Omron controller specifications, tested as a system	Refer to Omron controller specifications, tested as a system	Refer to Omron controller specifications, tested as a system
Connection Method	Patented Mat Edge Connector	Pre-wired or Connector	Pre-wired or Connector	Pre-wired or Connector	Pre-wired or Connector
Mounting Method	Aluminum Trim	Double-sided Tape	Integrated Angle on Profile or SCA-15-9 Mounting Channel	SCA-15-9 Mounting Channel	SCA-25/25L Mounting Channel
Enclosure Rating (EN60947-5-1)	IP67	IP65	IP65	IP65	IP65
Contact Configurations	1 NO (4 wire)	1 NO (2 or 4 wire)with or without internal resistor	1 NO (2 or 4 wire)with or without internal resistor	1 NO (2 or 4 wire)with or without internal resistor	1 NO (2 or 4 wire)with or without internal resistor
Dimensions	<ul style="list-style-type: none"> Standard Mat Sizes: Widths 12 to 48 in. Lengths 12 to 72 in. Custom Mat Sizes: Widths From 8 in. up to 48 in. (0.5 in. increments) Lengths From 8 in. up to 72 in. (0.5 in. increments) 	8 mm x 7.4 mm (W x H)	15 mm x 10 mm (W x H)	15 mm x 25 mm (W x H)	25 mm x 25 mm (W x H)
Options	<ul style="list-style-type: none"> Standard or Custom Mat Sizes and Trim kits available 	<ul style="list-style-type: none"> Pre-wired, M8 Connector Internal Resistor Edge Lengths from 150 mm up to 6100 mm Cable Lengths: from 100 mm to 10,000 mm 	<ul style="list-style-type: none"> Pre-wired, M8 Connector Internal Resistor Edge Lengths from 150 mm up to 6100 mm Cable Lengths: from 100 mm to 10,000 mm 	<ul style="list-style-type: none"> Pre-wired, M8 Connector Internal Resistor Edge Lengths from 150 mm up to 6100 mm Cable Lengths: from 100 mm to 10,000 mm 	<ul style="list-style-type: none"> Pre-wired, M8 Connector Internal Resistor Edge Lengths from 150 mm up to 6100 mm Cable Lengths: from 100 mm to 10,000 mm
Accessories	Controller (Order Separately)	Controller (Order Separately)	Controller (Order Separately)	Controller (Order Separately)	Controller (Order Separately)
Popular Part Numbers	UMQ-3660-A, UMQ-3624-A, UMQ-2472-A, UMQ-2412-A, UMQ-1260-A, UMQ-1872-A, UMQ-2418-A, UMQ-2424-A, UMQ-2460-A, UMQ-3030-A, UMQ-3060-A, UMQ-3072-A, UMQ-3612-A, UMQ-3636-A, UMQ-3654-A, UMQ-3672-A, UMQ-4224-A, UMQ-4236-A, UMQ-4254-A, UMQ-4260-A, UMQ-4824-A, UMQ-4836-A, UMQ-4848-A, UMQ-4866-A, UMQ-4872-A, UMQ5 CABLE, UMQ10 CABLE	All part numbers are custom	All part numbers are custom	All part numbers are custom	All part numbers are custom

Safety Mats, Edges and Bumpers

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Product line	SGE-245/L	SGE-365	SCS-2525	SCS-2540	SCSF
Description	Safety Edge	Safety Edge	Safety Edge	Safety Edge	Safety Bumper
Selling Tips	Use in applications with slower responding equipment	Use in applications with slower responding equipment	Use in applications with fast responding equipment	Use in applications with fast responding equipment	Large crush zone suitable for slower response use such as AGV or Large door applications
Features	<ul style="list-style-type: none"> Resistant to: Weather, Ozone, UV, Oxidation, Diluted Acids and Bases, Ester Solvents, Alcohol Not Recommended for: Oils, Including Vegetable oils or Hydrocarbons 	<ul style="list-style-type: none"> Resistant to: Weather, Ozone, UV, Oxidation, Diluted Acids and Bases, Ester Solvents, Alcohol Not Recommended for: Oils, Including Vegetable oils or Hydrocarbons 	<ul style="list-style-type: none"> Somewhat resistant to: Diluted bases, and aromatic hydrocarbons (Benzene) Not Recommended for: Alcohol, Hydrogen hydrocarbons, Organic Solvents, Ketone solvents or oxidizing acids 	<ul style="list-style-type: none"> Somewhat resistant to: Diluted bases, and aromatic hydrocarbons (Benzene) Not Recommended for: Alcohol, Hydrogen hydrocarbons, Organic Solvents, Ketone solvents or oxidizing acids 	<ul style="list-style-type: none"> 4 different profiles available Oils - good; 10% acid - resistant; 10% alkaline - resistant
Material	EPDM	EPDM	NBR	NBR	Polyurethane or NBR rubber cover
Actuation Distance	9.4 mm	5.16 mm	5.4 mm	4.1 mm	80 mm object approx. 50% of height minimum
Actuation Force	118 N	76.1 N	134 N	70 N	> 125 N
Life Expectancy	Mechanical 100,000	100,000	100,000	100,000	-----
Electrical Ratings	Certified Maximum 24 V 100 mA	24 V 100 mA	24 V 100 mA	24 V 100 mA	-----
Reliability Ratings	Refer to Omron controller specifications, tested as a system	Refer to Omron controller specifications, tested as a system	Refer to Omron controller specifications, tested as a system	Refer to Omron controller specifications, tested as a system	-----
Connection Method	Pre-wired or Connector	Pre-wired or Connector	Pre-wired or Connector	Pre-wired or Connector	Pre-wired or Connector
Mounting Method	SCA-25/25L Mounting Channel	SCA-35/35L Mounting Channel	SCA-25/25L Mounting Channel	SCA-25/25L Mounting Channel	Mounting Channel Included
Enclosure Rating (EN60947-5-1)	IP65	IP65	IP65	IP65	IP65
Contact Configurations	1 NO (2 or 4 wire)with or without internal resistor	1 NO (2 or 4 wire)with or without internal resistor	1 NO (2 or 4 wire)with or without internal resistor	1 NO (2 or 4 wire)with or without internal resistor	1 NO (2 or 4 wire)with or without internal resistor
Dimensions	25 mm x 46 mm (W x H)	35 mm x 66 mm (W x H)	25 mm x 25 mm (W x H)	25 mm x 43 mm (W x H)	53 x 100 mm 100 x 200 mm 150 x 300 mm 200 x 400 mm (W x H)
Options	<ul style="list-style-type: none"> Pre-wired, M8 Connector Internal Resistor Edge Lengths from 150 mm up to 6100 mm Cable Lengths: from 100 mm to 10,000 mm 	<ul style="list-style-type: none"> Pre-wired, M8 Connector Internal Resistor Edge Lengths from 150 mm up to 6100 mm Cable Lengths: from 100 mm to 10,000 mm 	<ul style="list-style-type: none"> Pre-wired, M8 Connector Internal Resistor Edge Lengths from 150 mm up to 6100 mm Cable Lengths: from 100 mm to 10,000 mm 	<ul style="list-style-type: none"> Pre-wired, M8 Connector Internal Resistor Edge Lengths from 150 mm up to 6100 mm Cable Lengths: from 100 mm to 10,000 mm 	<ul style="list-style-type: none"> Pre-wired, M8 Connector External Resistor Edge Lengths from 150 mm up to 3000 mm Cable Lengths: from 100 mm to 10,000 mm
Accessories	Controller (Order Separately)	Controller (Order Separately)	Controller (Order Separately)	Controller (Order Separately)	Controller (Order Separately)
Popular Part Numbers	All part numbers are custom	All part numbers are custom	All part numbers are custom	All part numbers are custom	All part numbers are custom

Safety Mat and Edge Controllers

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Product line		MC3	MC4	MC6
Description		1 zone / 1 output	6 zones / 1 output	6 zones / 1 output
Application		4 wire Safety Mat	4 wire Safety Mat	4 wire Safety Mat
Selling Tips		IP20 DIN rail mount for in-panel applications	Connections for up to 6 sets of mats	Individual zone indication
Features		<ul style="list-style-type: none"> Removable terminal blocks 2 NO, 2 NC safety relay output 300 sq. ft. combined maximum 	<ul style="list-style-type: none"> Universal power input Field mounted, lockable metal enclosure Optional Lid-mounted key reset switch Quick disconnect for incoming power and relay outputs Quick disconnects up to 6 mat inputs 	<ul style="list-style-type: none"> Dual microprocessor circuitry monitors mat and wiring integrity 2-digit numeric display for fault diagnostics Universal power input Field replaceable Output Modules-Relay or Solid State
Maximum Mat Coverage		<ul style="list-style-type: none"> 300 sq. ft. max. One - 4-wire UM Safety Mat, or group series as one input Approximately 12 multiple mats may be connected to a single zone in series; Do not exceed 8 ohms per input channel. 	<ul style="list-style-type: none"> 300 sq. ft. max. Connections for up to six, - 4-wire UM Safety Mats approximately 12 multiple mats may be connected to a single zone in series. Do not exceed 8 ohms per input channel. 	<ul style="list-style-type: none"> 300 sq. ft. max. Connections for up to six, - 4-wire UM Safety Mats approximately 12 multiple mats may be connected to a single zone in series. Do not exceed 8 ohms per input channel.
Input Type		4 wire	4 wire	4 wire
Connection Method		Removable Pressure point screw	Cage clamp terminal strip / M12 mat connector	Cage clamp terminal strip & 2-part terminal blocks / M12 mat connector / Power Input and Safety Output Connector
Supply Voltage		24 VDC	24 VDC or 100-240 VAC	24 VDC or 100-240 VAC
Life Expectancy	Mechanical	10,000,000 operations min.	10,000,000 operations min.	10,000,000 operations min.
Electrical Ratings	Rated Load	230 VAC, 6 A, 1500 watts 24 VDC - 2 A Inductive, 6 A Resistive	230 VAC, 6 A, 1500 watts 24 VDC - 2 A Inductive, 6 A Resistive	230 VAC, 7 A, 1600 watts 24 VDC - 2 A Inductive, 6 A Resistive
Reliability (ISO 13849-1)	PFHd	3.97E-8	5.66E-8	2.99E-08 / 3.29 E-08 / 4.56E-08*
	PL	d	d	d
	Category	3	3	3
	MTTFd (year)	94	93	66 / 58 / 57*
	Dcavg (%)	97.3	96.5	97.8 / 97.9 / 97.4*
Output Configuration		2 NO + 2 NC Relay Output	2 NO + 2 NC Relay Output	2 NO and 1 NC Relay Output or 2 Current Sourcing 24 VDC (PNP)
Reset		Automatic Start, Start/Restart Interlock	Automatic Start, Start/Restart Interlock	DIP Switch Selected: Automatic Start, Start/Restart Interlock Start Interlock
Enclosure Rating		IP20	IP65 / NEMA 4, 12	IP65 / NEMA 4, 12
Dimensions (L x W x D)		55 x 75 x 110 mm	83.6 x 166.4 x 188.7 mm	83.6 x 166.4 x 188.7 mm
Options		-----	<ul style="list-style-type: none"> Power Connector Key-reset Input Voltage No. of Mat Connectors 	<ul style="list-style-type: none"> Power Connector Key-reset Input Voltage No. of Mat Connectors Safety Output Type
Accessories		Mat Distribution Box: UMDB-6	-----	-----
Popular Part Numbers		MC3	MC4-0010, MC4-0011, MC4-0012, MC4-0014, MC4-0013	MC6-ROC, MC6AC-0016, MC6DC-0016
Notes		MC3 / UM_ when combined with a connected dedicated controller, it conforms to both ISO 13849-1 PLd and EN1760-1.		*MC6 24VDC Relay Output, MC6 24VDC Solid State Output, MC6 AC 230V Relay Output

Safety Mat and Edge Controllers

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Product line	SCC	G9SP	NX-SL_ / NX-SIH400
Description	1 zone / 1 output	1 zone / 1 output	Multiple Zones / Multiple Outputs
Application	2 wire Safety Edge / Bumper	4 wire Safety Mat / Edge / Bumper	4 wire Safety Mat / Edge / Bumper
Selling Tips	Use the momentary closing aux. output to reverse automatic doors	The G9SP will accept up to 18 other safety device input in addition to the safety mat	Each NX-SIH400 input unit will accept one set of mats, each NX-SL CPU can accept up to 32 or 128 NX I/O units
Features	<ul style="list-style-type: none"> 4 Led indicators, Power, Activate, Fault, Aux Relay 2 Modes of Operation Automatic Start Start/Restart Interlock Automatic Start-up testing 	<ul style="list-style-type: none"> Programmable solution with status information available over RS-232C, Ethernet, EtherNet/IP or via an NB HMI 	<ul style="list-style-type: none"> Stand-alone or network operation
Maximum Mat Coverage	<ul style="list-style-type: none"> Up to 5 edges in series 	<ul style="list-style-type: none"> Up to 12 UM Safety Mat can be connected in series to one Test Output terminal. Up to 5 SGE Safety Edges can be connected in series to one Test Output terminal. The total wiring length must be 100 m or less. 	<ul style="list-style-type: none"> Up to 12 UM Safety Mat can be connected in series to one Test Output terminal. Up to 5 SGE Safety Edges can be connected in series to one Test Output terminal. The total wiring length must be 100 m or less.
Input Type	2 wire - 8.2 K ohm	4 wire	4 wire
Connection Method	Terminal Screws	Terminal Screws	Cage Clamp
Supply Voltage	120 VAC / 24 VAC/VDC	24 VDC	24 VDC
Life Expectancy	Mechanical	-----	-----
Electrical Ratings	Rated Load	4 A, 250 VAC / 4 A, 30 VDC	-----
Reliability (ISO 13849-1)	PFHd	----	*different for each controller
	PL	e	d
	Category	3	3
	MTTFd (year)	100	----
	Dcavg (%)	97	----
Output Configuration	2 Safety Relay Outputs 1 Aux. Relay Output	-----	-----
Reset	Monitored Manual / Automatic Reset	-----	-----
Enclosure Rating	IP20	-----	-----
Dimensions (L x W x D)	99 x 22.5 x 114 mm	-----	-----
Options	<ul style="list-style-type: none"> SCC-1224 Aux Contact Closes for 2 to 3 seconds and then reopens even if the edge is still actuated. SCC-1224ND (No Delay) Aux. Relay Output remains closed as long as the edge is actuated or until a reset occurs. 	-----	-----
Accessories	-----	-----	-----
Popular Part Numbers	SCC-1224, SCC-1224ND	-----	-----
Notes		Refer to the G9SP data sheet for more information	Refer to the NX-S data sheet for more information

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Product line		D4N	D4N_R	D4B_N	D4F
Selling Tips		<ul style="list-style-type: none"> Compact size with international electrical and safety approvals Industry standard mounting holes 	<ul style="list-style-type: none"> Pull-reset for use in overtravel detection of elevators, moving table and other similar devices Industry standard mounting holes 	<ul style="list-style-type: none"> Robust metal body Industry standard mounting holes Able to adjust the position of the head 	<ul style="list-style-type: none"> Omron's smallest limit switch with a direct opening mechanism (four-contact construction model). Industry standard mounting holes
Features		<ul style="list-style-type: none"> Choose from 14 different style actuators and 8 different type of switch configurations 	<ul style="list-style-type: none"> Choose from 7 different style actuators and 4 different type of switch configurations 	<ul style="list-style-type: none"> Actuator operation direction selection Equipped with a mechanism that indicates the applicable operating zone, as well as push-button switching to control left and right motion 	<ul style="list-style-type: none"> Metal body construction for increased durability
Life Expectancy	Mechanical	<ul style="list-style-type: none"> 15,000,000 operations min. Fork lever lock models: 10,000,000 operations min. 	<ul style="list-style-type: none"> 1,000,000 operations min. 	<ul style="list-style-type: none"> 30,000,000 operations min. (snap-action) 10,000,000 operations min. (slow-action) 	<ul style="list-style-type: none"> 10,000,000 times min
	Electrical	<ul style="list-style-type: none"> 500,000 operations min. (3 A resistive load at 250 VAC) 300,000 operations min. (10 A resistive load at 250 VAC) 	<ul style="list-style-type: none"> 500,000 operations min. (3 A resistive load at 250 VAC) 300,000 operations min. (10 A resistive load at 250 VAC) 	<ul style="list-style-type: none"> 500,000 operations min. (10 A resistive load at 250 VAC) 	<ul style="list-style-type: none"> 1,000,000 times min. (4 mA resistive load at 24 VDC, 4 circuits) 150,000 times min. (1 A resistive load at 125 VAC, 2 circuits/4 mA resistive load at 24 VDC, 2 circuits)
Electrical Ratings	Certified Maximum	AC 15: 230 V, 3 A DC 13: 250 V, 0.27 A	AC 15: 230 V, 3 A DC 13: 250 V, 0.27 A	AC 15: 400 V, 2 A DC: 30 V 6 A	AC 15: 240 V, 0.27 A DC 13: 250 V, 0.27 A
	Minimum Permissible Current	1 mA 5 VDC	1 mA 5 VDC	180 mA resistive load at 5 VAC	4 mA resistive load at 24 VDC, 4 circuits
Reliability Ratings	B10d	2.00E+07	2.00E+07	2.00E+07	2.00E+07
Connection Method		Terminal Screws M12 connector (2 contact models only)	Terminal Screws M12 connector (2 contact models only)	Terminal Screws	Pre-wired cable (1, 3, or 5 m)
Conduit Sizes		<ul style="list-style-type: none"> 1 or 2 conduit entrances: Pg13.5, G1/2, M20 1/2"-14NPT (M20 to 1/2"-14 NPT adapter included): M12 connector 	<ul style="list-style-type: none"> 1 or 2 conduit entrances: Pg13.5, G1/2, M20 1/2"-14NPT (M20 to 1/2"-14 NPT adapter included): M12 connector 	<ul style="list-style-type: none"> 1 conduit entrances: G1/2, M20 1/2"-14NPT (M20 to 1/2"-14 NPT adapter included) 	-----
Enclosure Rating (EN60947-5-1)		IP67	IP67	IP67, NEMA 3, 4, 4X, 6P, and 13	IP67
Contact Configurations		<ul style="list-style-type: none"> 1 NC/1 NO (snap, slow action, MBB) 2 NC (snap, slow action) 2 NC/1 NO (slow action, MBB) 3 NC (slow action) 	<ul style="list-style-type: none"> 1 NC/1 NO (slow action) 2 NC (slow action) 2 NC/1 NO (slow action) 3 NC (slow action) 	<ul style="list-style-type: none"> 1 NC/1 NO (snap, slow action) 2 NC (slow action) 	<ul style="list-style-type: none"> 1 NC/1 NO (slow-action) 2 NC (slow-action) 2 NC/2 NO (slow-action) 4 NC (slow-action)
Body Material		Plastic	Plastic	Metal	Metal
Dimensions (L x W x H)		31 x 30 x 64 mm (body only)	31 x 30 x 64 mm (body only)	43 x 40 x 97 (min. body and head)	18 x 30 x 72.7 mm (min. plunger style)
Options		<ul style="list-style-type: none"> Actuator Conduit Type Switch Configuration 	<ul style="list-style-type: none"> Actuator Conduit Type Switch Configuration 	<ul style="list-style-type: none"> Actuator Conduit Type Switch Configuration 	<ul style="list-style-type: none"> Actuator Cable exit direction Cable length
Popular Part Numbers		D4N-412G-NPT, D4N-4172-NPT, D4N-4162-NPT, D4N-4132-NPT, D4N-4120-NPT	D4N-4A2GR-NPT, D4N-4A20R-NPT, D4N-4B2GR-NPT, D4N-4A32R-NPT	D4B-4171N-NPT, D4B-4116N-NPT, D4B-4A13N-NPT, D4B-4117N-NPT, D4B-4113N-NPT, D4B-4111N-NPT, D4B-4A71N-NPT, D4B-4170N-NPT, D4B-4115N-NPT	D4F-302-1R, D4F-102-3R, D4F-202-3R, D4F-302-3R, D4F-120-3D, D4F-302-3D, D4F-120-5R, D4F-320-5R, D4F-220-5D, D4F-320-5D, D4F-302-5D
Notes		Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).

Safety Guardlocking Switches

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Product line		D4SL-N	D4NL	TL4019
Selling Tips		<ul style="list-style-type: none"> Slide key has trapped key to prevent entrapment and meet robotic work cell standards Fixed operation head ensures correct operation Easily mounted on 40 x 40 mm extrusion 	<ul style="list-style-type: none"> Popular for use on access door that do not require full body entry into hazardous areas of equipment Can be used for either standard loads or microloads 	<ul style="list-style-type: none"> Rear Release version allows door to be opened from inside in case of entrapment Operation Keys are included Narrow profile enables mounting to 2 in. square tubing or in applications with space restrictions
Features		<ul style="list-style-type: none"> 8-way rotatable body (with fixed head) Omron's smallest Class 6-contact Guard Lock Switch 	<ul style="list-style-type: none"> 8-way rotatable head 2 conduit openings 	<ul style="list-style-type: none"> 8-way rotatable head Unlock request version allows switch to unlock by simply pulling on handle
Life Expectancy	Mechanical	1,000,000 operations min	1,000,000 operations min	1,000,000 operations min
	Electrical	150,000 operations min. (1 A resistance at 125 VAC)	500,000 operations min. (3 A resistive at 250 VAC)	-----
Electrical Ratings	Certified Maximum	AC-15 1.5 A 120 V (Terminals: 11-42, 21-52, 21-22) DC-13 0.22 A 125 V	AC-15 3 A 240 V DC-13 0.27 A 250 V	AC: 230 V - 4 A DC: 24 V - 4 A
	Min. Permissible Current	1 mA / 5 VDC	1 mA / 5 VDC	1 mA / 24 VDC
Reliability Ratings	BI0d	2.00E+6	2.00E+6	3.00E+6
Connection Method		Removable Terminal block or connector	Terminal screws	Terminal screws
Conduit Sizes		Single conduit entrance: G1/2, M20, 1/2"-14 NPT (M20 to 1/2"-14 NPT adapter included)	2 conduit entrances: Pg13.5, G1/2, M20, 1/2"-14 NPT (M20 to 1/2"-14 NPT adapter included)	3 conduit entrances: 1/2"-14 NPT (M20 to 1/2"-14 NPT adapter included)
Enclosure Rating (EN60947-5-1)		IP67	IP67	IP67
Number of Contacts		<ul style="list-style-type: none"> 4 contacts: 2 + 2 (solenoid monitoring) 5 contacts: 3 + 2 (solenoid monitoring) 6 contacts: 3 + 3 (solenoid monitoring) 	<ul style="list-style-type: none"> 4 contacts: 2 + 2 (solenoid monitoring) 5 contacts: 3 + 2 (solenoid monitoring) 	<ul style="list-style-type: none"> 3 contact: 1 + 2 (monitoring) 4 contacts: 2 + 2 (monitoring)
Locking Options		<ul style="list-style-type: none"> Solenoid Lock / Mechanical Release Mechanical Lock / Solenoid Release 	<ul style="list-style-type: none"> Solenoid Lock / Mechanical Release Mechanical Lock / Solenoid Release 	<ul style="list-style-type: none"> Solenoid Lock / Mechanical Release Mechanical Lock / Solenoid Release Request to enter version: Solenoid Lock / Mechanical Release only
Solenoid Options		4/5 contact versions: 24 VDC @ 200 mA (max.) 6 contact version: 24 VDC @ 260 mA (max.)	24 VDC @ 200 mA / 110 VAC @ 50 mA	24 VAC/DC @ 333 mA / 110 VAC @ 72 mA
Key Holding Force		1,300 N min.	1,300 N min.	1,200 N min.
Body Material		Plastic	Plastic	Plastic
Dimensions (L x W x H)		Terminal Block Type: 39 x 39 x 180 mm Connector Type: 39 x 39 x 135 mm	88.5 x 35.5 x 95 mm	40 x 40 x 192 mm
Options		<ul style="list-style-type: none"> Plastic or Metal operation head Release Key Options: Phillips Screwdriver or Triangle Tip Screwdriver 	<ul style="list-style-type: none"> Plastic or Metal operation head Front or Top Release Key position Release Key Options: Phillips Screwdriver or Triangle Tip Screwdriver 	<ul style="list-style-type: none"> With Unlock Request Contact Without Door Contact With Door Contact Flat Blade Screw Release
Accessories		<ul style="list-style-type: none"> Operation Keys (D4SL-NK_) Slide Key Connector Cable 	<ul style="list-style-type: none"> Operation Keys (D4DS-K_) 	<ul style="list-style-type: none"> Alignment Guide Spare Operation Keys (Actuators) Key Release: on power-to-unlock models allows manual unlocking of guard door Slide Bolt with integral door handle LED Lid Kit Interior Lever Kit Lockout Mechanism
Popular Part Numbers		D4SL-N3VFA, D4SL-N3VFG, D4SL-N2NFG-D4N, D4SL-N3NFA-D, D4SL-N3NFA-DN, D4SL-N3NFG-D, D4SL-N3NFG-DN, D4SL-N3NFG-D4, D4SL-NK1, D4SL-NK2, D4SL-NK3, D4SL-NK1G, D4SL-NSK10-LK	D4NL-4EFA-B-NPT, D4NL-4EFG-B-NPT, D4NL-4FFA-B-NPT, D4NL-4FFG-B-NPT, D4NL-4EDA-B4-NPT, D4NL-4EDG-B4-NPT, D4NL-4GDG-B4-NPT, D4DS-K1, D4DS-K2, D4DS-K3, D4DS-K5	TL4019-10241TM, TL4019-20241TM, TL4019-30241TM, TL4019-30242TM, TL4019-10241FIM, TL4019-20241FIM, TL4019-30242FIM, TL4019-40241TM, TL4019-40242TM, TL4019-40241SM, TL4019-40241FIM, TL4019-40242FIM, TL4019-10241, TL4019-20241, TL4019-30241, TL4019-31101, TL4019-30242, TL4019-40241, TL4019-40242, TL4019-40243, TL4019-30241RR
Notes		<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) Conforms to ISO 14119 	<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) Conforms to ISO 14119 	<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) Conforms to ISO 13849-1

Safety Guardlocking Switches

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Product line		TL4024	D4JL/D4JL-SK40	D4BL
Selling Tips		<ul style="list-style-type: none"> • Metal body for more rugged environments • Operation Keys are included 	<ul style="list-style-type: none"> • Highest key holding force of 3,000 N for demanding applications 	<ul style="list-style-type: none"> • Metal body with key lock release mechanism • Left hand operation only
Features		<ul style="list-style-type: none"> • 8-way rotatable head • Unlocking is possible with a back load on the door to satisfy the demands of high cycle time applications • Metal body 	<ul style="list-style-type: none"> • Fixed 2-way operation head • 3 versions to choose from: standard operation, back-release or trapped key • Can be used for either standard loads or microloads 	<ul style="list-style-type: none"> • 4-way rotatable head • Both horizontal and vertical conduit openings • Easy-to-see LED indicators for monitoring
Life Expectancy	Mechanical	1,000,000 operations min	10,000 operations min. D4JL_A-7-: 3,000 operations min. D4JL_FA-8-01-SJ: 500 operations min.	1,000,000 operations min
	Electrical	-----	500,000 operations min. (3 A resistive load at 250 VAC)	500,000 operations min. (10 A resistive load at 250 VAC)
Electrical Ratings	Certified Maximum	AC: 230 V - 4 A DC: 24 V - 4 A	AC-15 3 A 240 V DC-13 0.27 A 250 V	Standard model: AC-15 3 A 250 V Indicator model: AC-15 6 A 250 V
	Min Permissible Current	10 mA @ 12 V / 1 mA @ 24 V	1 mA / 5 VDC	-----
Reliability Ratings	B10d	6.00E+6	2.00E+6	2.00E+6
Connection Method		Terminal screws	Terminal screws	Terminal screws
Conduit Sizes		3 conduit entrances: 1/2"-14 NPT	2 conduit entrances: G1/2, M20, 1/2"-14NPT	2 conduit entrances: PG13.5, G1/2, M20
Enclosure Rating (EN60947-5-1)		IP67	IP67	IP67
Number of Contacts		<ul style="list-style-type: none"> • 4 contacts: 2 + 2 (monitoring) 	<ul style="list-style-type: none"> • 6 contacts: 3 + 3 (solenoid monitoring) 	<ul style="list-style-type: none"> • 3 contact: 1 + 2 (monitoring))
Locking Options		<ul style="list-style-type: none"> • Solenoid Lock / Mechanical Release • Mechanical Lock / Solenoid Release • Back load unlocking: Solenoid Lock / Mechanical Release only 	<ul style="list-style-type: none"> • Solenoid Lock / Mechanical Release • Mechanical Lock / Solenoid Release • Trapped key + Rear release buttons type: Mechanical Lock / Solenoid Release only 	<ul style="list-style-type: none"> • Solenoid Lock / Mechanical Release • Mechanical Lock / Solenoid Release
Solenoid Options		24 VAC/DC @ 333 mA / 110 VAC @ 72 mA	24 VDC @ 200 mA	24 VDC @ 300 mA
Key Holding Force		1,500 N min.	3,000 N min.	700 N min.
Body Material		Metal	Plastic	Metal
Dimensions (L x W x H)		59 x 42 x 240 mm	114 x 36.5 x 132.9 mm	112 x 42.6 x 123.5 mm
Options		<ul style="list-style-type: none"> • Flat Blade Screw Release 	<ul style="list-style-type: none"> • Back-release (2 sizes of button) • Trapped key 	<ul style="list-style-type: none"> • Mechanical lock with solenoid release models available
Accessories		<ul style="list-style-type: none"> • Alignment Guide • Spare Operation Keys (Actuators) • Key Release: on power-to-unlock models allows manual unlocking of the guard door • Slide Bolt with integral door handle • Optional Lockout Mechanism 	<ul style="list-style-type: none"> • Operation Keys (D4JL-K_) • Slide Key 	<ul style="list-style-type: none"> • Operation Keys (D4BL-K_)
Popular Part Numbers		TL4024-10242, TL4024-10243, TL4024-10242TM	D4JL-2NFA-C5, D4JL-2NFA-D5, D4JL-2NFA-C6, D4JL-SK40, D4JL-K1, D4JL-K2, D4JL-K3	D4BL-2CRA, D4BL-2DRA, D4BL-2DRG, D4BL-4DRA-A, D4BL-4CRA-A-NPT, D4BL-4CRA-NPT, D4BL-K1, D4BL-K2, D4BL-K3
Notes		<ul style="list-style-type: none"> • Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) • Conforms to ISO 13849-1 	<ul style="list-style-type: none"> • Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) • Conforms to ISO 14119 	<ul style="list-style-type: none"> • Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) • Conforms to ISO 14119

Safety Tongue Switches

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Product line		D4NS/D4NS-K	D4BS	T2007	T5009 / T5009-6
Selling Tips		<ul style="list-style-type: none"> General purpose plastic bodied door switch, suitable for most applications Can be used for either standard loads or microloads 	<ul style="list-style-type: none"> General purpose metal bodied door switch, suitable for more rugged applications 	<ul style="list-style-type: none"> Miniature size - The smallest tongue-actuated switch available. Ideal for smaller machines with space restrictions. Fits on 1 in. square tubing 	<ul style="list-style-type: none"> Strong, glass - filled polyester housing and metal reinforced cam allows this popular switch to be used in most applications
Features		<ul style="list-style-type: none"> 8 way rotatable head Up to 3 safety contacts High pull force models are more resistive to fault tripping due to door vibration Optional metal operation head 	<ul style="list-style-type: none"> 4 way rotatable head Switch contact is opened by a direct opening mechanism (NC-contacts only) when the protective cover is opened Malfunctions and false operation prevented by a special Operation Key Can be used for either standard loads or microloads 	<ul style="list-style-type: none"> 8 way rotatable head Actuators can be mounted from the top or front of the switch NEMA 6 enclosure enables the switch to withstand a water washdown cleaning 	<ul style="list-style-type: none"> 2 way head with top or front key entry BBM contacts Rotatable head give 4 possible actuator entry points of versatile installation NEMA 6 enclosure enables the switch to withstand a water washdown cleaning
Life Expectancy	Mechanical	Standard type: 1,000,000 operations min. High pull-force type: 100,000 operations min.	1,000,000 operations min.	1,000,000 operations min.	1,000,000 operations min.
	Electrical	<ul style="list-style-type: none"> Standard type: 500,000 operations min. (3 A resistive load at 250 VAC), 300,000 operations min. (10 A resistive load at 250 VAC) High pull-force type: 100,000 operations min. (10 A resistive load at 250 VAC) 	500,000 operations min. (10 A resistive load at 250 VAC)	1,000,000 operations min.	1,000,000 operations min.
Electrical Ratings	Certified Maximum	AC-15 3 A 240 V DC-13 0.27 A 250 V	AC-15 2 A 400 V	AC: 500 V-1 A, 250 V-2 A, 100 V-5 A DC: 250 V-0.5 A, 24 V-2 A	AC: 500 V-1 A, 240 V-3 A, 120 V-6 A DC: 250 V-0.5 A, 24 V-2.5 A
	Minimum Permissible Current	1 mA / 5 VDC	-----	5 mA / 5 V	5 mA / 5 V
Reliability Ratings	B10d	2.00E+06	2.00E+06	2.00E+06	2.00E+06
Connection Method		Terminal Screws M12 connector (2 contact models only)	Terminal Screws	Terminal Screws Micro DC connector	Terminal Screws Micro AC connector
Conduit Sizes		1 or 2 conduit entrances: Pg13.5, G1/2, M20, 1/2"-14 NPT (M20 to 1/2"-14 NPT adapter included), M12 connector	1 conduit entrance: Pg13.5, G1/2, M20, 1/2"-14 NPT (M20 to 1/2"-14 NPT adapter included), M12 connector	1 conduit entrance: M16 with 0.5 in. NPT adapter; or Brad Harrison connector, (Micro-Change, 8R Series, 4-pole male, M12 threads)	3 conduit entrances: M20 with 1/2 in. NPT adapter included, 1/2 in. NPT, 6-pin micro AC connector 1/2 in.- 20
Enclosure Rating (EN60947-5-1)		IP67	IP67	IP67 (NEMA 6)	IP67 (NEMA 6)
Contact Configurations		1 NC/1 NO, 1 NC/1 NO MBB, 2 NC, 2 NC/NO, 2 NC/1 NO MBB, 3 NC	1 NC/1 NO, 2 NC	1 NC/1 NO, 2 NC	<ul style="list-style-type: none"> T5009: 2 NC + 1 NO T5009-6: 2 NC + 2 NO, 3 NC + 1 NO, 4 NC
Body Material		Plastic	Metal	Plastic	Plastic
Dimensions (L x W x H)		30 x 31 x 96 mm	40 x 43 x 111.5 mm	29 x 25 x 75 mm	58.4 x 33.5 x 96 mm
Options		<ul style="list-style-type: none"> 4 operation key types available Plastic or Metal Operation Head 	-----	-----	<ul style="list-style-type: none"> Stainless Steel Head
Accessories		<ul style="list-style-type: none"> Operation Keys (D4DS-K_) Slide Key 	<ul style="list-style-type: none"> Operation Keys (D4BS-K_) 	<ul style="list-style-type: none"> Spare Operation Keys (Actuators) Stainless steel guide 	<ul style="list-style-type: none"> Spare M20 to 1/2" NPT Adapter M20 Cord Grip
Popular Part Numbers		D4NS-4CF-NPT, D4NS-4DF-NPT, D4NS-4BF-NPT, D4NS-4AF-NPT, D4NS-9BF, D4NS-4AD, D4DS-K1, D4DS-K2, D4DS-K3, D4DS-K5	D4BS-45FS-NPT, D4BS-4AFS-NPT, D4BS-K1, D4BS-K2, D4BS-K3	T2007-1ISM, T2007-1IF1, T2007-02F1, T2007-11TM, T2007-02SM, T2007-02TM, T2007-02SCC5	T5009-02IF1M, T5009-02ISM, T5009-6040F1GN
Notes		<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) Conforms to ISO 14119 	<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) Conforms to ISO 14119 	<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) 	<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism)

Safety Tongue Switches

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Product line		T4012 Quick Link S252 omron247.com	T4016 Quick Link S253 omron247.com	T2008 Quick Link S254 omron247.com	D4GS-N Quick Link S237 omron247.com
Selling Tips		<ul style="list-style-type: none"> Full-size plastic bodied switch with 3 conduit entrances 40mm wide body allows unit to be used when there are space restrictions 15 degree flexible actuators allows the switch to maintain a switch integrity 	<ul style="list-style-type: none"> All metal housing and stainless steel actuator of the T4016 makes it suitable for harsh environments 	<ul style="list-style-type: none"> Small-size plastic bodied (25 mm wide) switch with optional stainless steel guide with M16 conduit entrance 	<ul style="list-style-type: none"> Slim design with a width of only 30 mm and a depth of 17 mm
Features		<ul style="list-style-type: none"> 8 way rotatable head Rotatable head give 8 possible actuator entry points of versatile installation NEMA 6 enclosure enables the switch to withstand a water washdown cleaning 	<ul style="list-style-type: none"> 8 way rotatable head Rotatable head give 8 possible actuator entry points of versatile installation NEMA 6 enclosure enables the switch to withstand a water washdown cleaning 	<ul style="list-style-type: none"> 8 way rotatable head Rotatable head give 8 possible actuator entry points of versatile installation NEMA 6 enclosure enables the switch to withstand a water washdown cleaning 	<ul style="list-style-type: none"> Operation key with rubber mounting hole to absorb vibration and shock Front and top key actuation available (model dependent)
Life Expectancy	Mechanical	2,000,000 operations min.	2,000,000 operations min.	1,000,000 operations min.	1,000,000 operations min.
	Electrical	-----	-----	-----	100,000 operations min. (1 A resistive load at 125 VAC)
Electrical Ratings	Certified Maximum	AC: 230 V, 4 A DC: 24 V, 4 A	AC: 230 V, 4 A DC: 24 V, 4 A	AC: 230 V, 4 A DC: 24 V, 4 A	AC-15 0.75 A 240 V DC-13 0.27 A 250 V
	Minimum Permissible Current	1 mA @ 24 V / 12 V @ 10 mA	1 mA @ 24 V / 12 V @ 10 mA	1 mA @ 24 V / 12 V @ 10 mA	4 mA / 24 VDC
Reliability Ratings	B10d	2.00E+06	4.50E+06	4.00E+06	2.00E+06
Connection Method		Terminal Screws	Terminal Screws	Terminal Screws	Pre-wired
Conduit Sizes		3 conduit entrances: M20 with 1/2 in. NPT adapter included	3 conduit entrances: 1/2 in. NPT	1 conduit entrance: M16 with 0.5 in. NPT adapter	-----
Enclosure Rating ((EN60947-5-1)		IP67 (NEMA 6)	IP67 (NEMA 6)	IP67 (NEMA 6)	IP67
Contact Configurations		1 NC + 1 NO, 2 NC, 2 NC + 2 NO, 3 NC + 1 NO, 4 NC	2 NC + 2 NO, 3 NC + 1 NO, 4 NC	1 NO + 1 NC, 2 NC	1 NC/1 NO, 2 NC, 2 NC/1 NO, 3 NC
Body Material		Plastic	Metal	Plastic	Plastic
Dimensions (L x W x H)		42 x 40 x 125 mm	51.5 x 42 x 160 mm	32 x 25 x 82 mm	17 x 35 x 85 mm
Options		<ul style="list-style-type: none"> Alignment Guide 	-----	-----	<ul style="list-style-type: none"> Top or Side Key Entry 1, 3 or 5 m cable
Accessories		<ul style="list-style-type: none"> Spare Operation Keys (Actuators) Stainless steel guide Slide Bolt Lockout Mechanism 	<ul style="list-style-type: none"> Spare Operation Keys (Actuators) Slide Bolt Lockout Mechanism 	<ul style="list-style-type: none"> Spare Operation Keys (Actuators) Stainless steel guide Slide Bolt 	<ul style="list-style-type: none"> Operation Keys (D4GS-NK_)
Popular Part Numbers		T4012-011, T4012-020TM, T4012-031TM, T4012-022TM, T4012-020, T4012-031, T4012-022	T4016-031SM, T4016-031TM	T4016-031SM, T4016-031TM	D4GS-N1R-5, D4GS-N2R, D4GS-N2R-5, D4GS-N3R-3, D4GS-N3R-5, D4GS-N4R, D4GS-NK1, D4GS-NK2, D4GS-NK4
Notes		<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) 	<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) Conforms to ISO 13849-1 	<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) Conforms to ISO 13849-1 	<ul style="list-style-type: none"> Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism) Conforms to ISO 14119

Safety Non-Contact Switches

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Product line		D40A	D40Z	CM
Description		Coded Magnet	Ferroresonant Technology	Coded Magnet Safety Interlock System
Selling Tips		Excellent choice when actuator is slow moving or comes at various angles and directs; just line it up and it works.	The Non-magnetic actuator makes D40Z ideal for use in applications with metal filings as they won't stick to actuator.	Increase tamper resistance with specific actuator containing coded magnet
Features		<ul style="list-style-type: none"> Up to 30 Switches to a Single Controller Switch status is easy to see at a glance with these red / yellow LED indicators 	<ul style="list-style-type: none"> Up to 30 Switches to a Single Controller Switch status is easy to see at a glance with these red / yellow LED indicators 	<ul style="list-style-type: none"> A variety of models with and without dedicated controllers to solve almost any need
Life Expectancy	Mechanical	-----	-----	10,000,000 operations min.
	Electrical	-----	-----	-----
Electrical Ratings	Certified Maximum	-----	-----	CM-S1, CM-S2, CM-S3: 500 mA / 24 V All others (except CM-S11 and CM-S13): 300 mA / 24 V
	Power Supply	24 VDC	24 VDC	-----
Reliability (ISO 13849-1)	PFHd	2.40E-9	1.50E-10	-----
	PL	d	e	-----
	Category (max.)	3	4	3 or 4 (controller / connection dependent)
	SIL	2	3	-----
B10d		-----	-----	-----
Connection Method		<ul style="list-style-type: none"> Pre-wired Cable (2 or 5 m), M12 pig-tail connector 	<ul style="list-style-type: none"> Pre-wired Cable (2 or 5 m) 	<ul style="list-style-type: none"> Pre-wired cable (5 or 10 m) 6-pin micro AC connector (model specific)
Enclosure Rating (EN60947-5-1)		IP67	IP67	IP67, NEMA 6: Switches IP20: Controllers
Switch Output Configurations		Special Communications with Solid State Aux 24 VDC, 10 mA (PNP open-collector output)	Special Communications with Solid State Aux 24 VDC, 10 mA (PNP/NPN open-collector output)	1 NO / 1 NC, 2 NC / 1 NO, 2-wire specialty
Body Material		Plastic (PBT)	Plastic (PBT)	Plastic (Glass-filled PPS or ABS) or Stainless Steel
Dimensions (L x W x H)		13 x 17 x 48 mm (Actuator) 13 x 25 x 48 mm (Sensor)	16 x 17 x 48 mm (Actuator) 16 x 25 x 48 mm (Sensor)	Various
Options		<ul style="list-style-type: none"> Cable length M12 connector Various Controllers 	<ul style="list-style-type: none"> Cable length Various Controllers 	<ul style="list-style-type: none"> Standard 1 NO / 1 NC switch and dedicated controller 2-wire system with dedicated controller Universal Reed Style for use with Safety Monitoring Relays that will accept 1 NO / 1 NC input
Controller Options		G9SX, G9SP, NX-S	G9SX, G9SP, NX-S	CM-S4, CM-S30, CM-S41, CM-S21, CM-SE, SRI31A, G9SA, G9SX
Accessories		-----	-----	Replacement Actuator
Popular Part Numbers		D40A-1C5	D40Z-1C2, D40Z-1C5	CM-S30, CM-S4, CM-S1PC3, CM-S1PC5, CM-S21-24, CM-S2PC3, CM-S2PC5, CM-S221PC5, CM-S3PC5, CM-S5PC5, CM-S521PC5, CM-S6PC5, CM-S621PC5, CM-S11PC5, CM-S521PC10, CM-S31SC3, CM-S31SC5
Notes		A non-contact door switch alone conforms as a subsystem to IEC61508 SIL2. The reliability of the whole system is determined upon it being combined with a connected dedicated controller (G9SX-NS or G9SP series safety controllers).		

Safety Non-Contact Switches

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Product line		MA	MA-S Series	MF	MFS
Description		Magnetically Actuated Safety Interlock	Magnetically Actuated / Stainless Housing	Magnetic Ferroresonant (Tamper Resistant)	Magnetic Ferroresonant (Stand-Alone)
Selling Tips		<ul style="list-style-type: none"> Select this series when direct switching of higher current loads is required 	<ul style="list-style-type: none"> Most of the same features as the MA series with the addition of a stainless steel housing for more demanding applications 	<ul style="list-style-type: none"> Tamper resistant - must satisfy two different types of technology to close the safety contacts Use stand-alone for lower risk applications with direct switching of relays and contactors up to 2 A at 230 VAC 	<ul style="list-style-type: none"> Tamper resistant - must satisfy two different types of technology to close the safety contacts Use stand-alone for lower risk applications with direct switching of relays and contactors up to 2 A at 230 VAC
Features		<ul style="list-style-type: none"> AC or DC models for directing switching of power to equipment 	<ul style="list-style-type: none"> AC or DC models for directing switching of power to equipment 	<ul style="list-style-type: none"> Bi-color LED indicator 19 mm wide 	<ul style="list-style-type: none"> LED indicator Compact-mounts easily on 1-in. square tubing NEMA 4 enclosure enables wash down cleaning
Life Expectancy	Mechanical	1,000,000 operations min.	10,000,000 operations min.	10,000,000 operations min.	10,000,000 operations min.
	Electrical	1,000,000 operations min.	1,000,000 operations min.	1,000,000 operations min.	1,000,000 operations min.
Electrical Ratings	Certified Maximum	AC models: 230 VAC / 2 A AC model (MA-10) 110 VAC / 2 A AC model (MA-3) 230 VAC / 3 A	AC models 230 VAC / 2 A max. DC models 30 VDC / All except MA-35 1 A; MA-35 0.3 A max.	0.5 A / 120 VAC; 0.5 A / 24 VDC	2 A / 230 VAC; 2 A / 30 VDC
	Power Supply	-----	-----	24 VDC	24 VDC
Reliability (ISO 13849-1)	PFHd	-----	-----	-----	-----
	PL	-----	-----	-----	-----
	Category (max.)	(controller / connection dependent)	(controller / connection dependent)	(controller / connection dependent)	3
	SIL	-----	-----	-----	-----
	B10d	2.00E+06	2.00E+06	-----	-----
Connection Method		<ul style="list-style-type: none"> Pre-wired Cable (Various Lengths) M12 DC Connector Terminal screws 	<ul style="list-style-type: none"> Pre-wired cable (3, 5, 10 or 12 m) 6-pin micro AC connector (model specific) 	<ul style="list-style-type: none"> Pre-wired Cable (5 or 10 m) 	<ul style="list-style-type: none"> Pre-wired cable to 3 m, 6 m or 10 m 6-pin micro AC connector or; 8-pin DC connector (model specific)
Enclosure Rating (EN60947-5-1)		All models except MA-3, 4, 5 IP67 (NEMA 6) MA-3, 4, 5 IP65 (NEMA 4)	IP67, NEMA 6	IP67 (NEMA 6)	IP67, NEMA 4
Switch Output Configurations		1 NC, 1 NC + 1 NO, 2 NC, 2 NC + 1 NO	1 NC, 1 NC + 1 NO, 2 NC, 2 NC + 1 NO	1 NC + 1 NO	1 NC + 1 NO, 2 NC, 2 NC + 1 NO
Body Material		Plastic (ABS)	Stainless Steel	Plastic (ABS)	Plastic (ABS)
Dimensions (L x W x H)		Various	Various	19 x 19 x 82.5 mm (Actuator) 17 x 19 x 82.5 mm (Sensor)	Various
Options		<ul style="list-style-type: none"> Cable Length Connector 	<ul style="list-style-type: none"> Cable Length Connector 	<ul style="list-style-type: none"> Cable Length 	<ul style="list-style-type: none"> Cable Length Connector
Controller Options		-----	-----	SR131A	-----
Accessories		Replacement Actuator	Replacement Actuator	Replacement Actuator	Replacement Actuator
Popular Part Numbers		MA-4APTC, MA-9DPCC, MA-15DP21C5, MA-16DP10C6 MA16DP11C6, MA16AP10C6, MA16AP11C6, MA-36DS11C3, MA-1APC4, MA-2APC4, MA-6APC4, MA-10APC2, MA-1APC8, MA-10APC4, MA-2DP15, MA-20DPCC, MA-21DPCC, MA-15DP21C3, MA-15DP21CC, MA16DP10C3, MA16DP11C3, MA16DP21C3, MA-16AP10C3, MA16AP11C3, MA-34DS11C3, MA-35DS21C3, MA-35DS21C5, MA-35DS21CC, MA-36AS10C3	MA-S21DSC3	MF-2PC10, MF-2PC5	MFS-11P11CC5, MFS-11P11C3, MFS-11P11C6, MFS-11P20C10, MFS-12P21C6, MFS-12P21CC5, MFS-11P20CC

Emergency Stop Devices

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Product line	A165E	A22E	ER5018	ER1022	ER1032	ER6022
Description	Pushbutton	Pushbutton	Rope Pull	Rope Pull	Rope Pull	Rope Pull
Selling Tips	<ul style="list-style-type: none"> One of smallest class of depths Illuminated or non-illuminated 	<ul style="list-style-type: none"> Replaceable terminals Illuminated or non-illuminated 	<ul style="list-style-type: none"> Bellows keep out dirt and water / suitable for outdoor with UV inhibitor 	<ul style="list-style-type: none"> Left or Right operation Integral E-stop button Indicator beacon can be wired to flash red or maintain a constant green 	<ul style="list-style-type: none"> Left and Right operation Integral E-stop button Indicator beacon can be wired to flash red or maintain a constant green 	<ul style="list-style-type: none"> Reversible operation Integral E-stop button Indicator beacon can be wired to flash red or maintain a constant green
Features	16 mm mounting, solder terminals	22 mm or 25 mm mounting, terminal screws	40 m / 131 ft. span Tension indicator	125 m / 410 ft. Tension indicator	200 m / 656 ft. Tension indicator	80 m / 262 ft. span Tension indicator
Life Expectancy	Mechanical	100,000 operations min.	300,000 operations min.	1,000,000 operations min.	1,000,000 operations min.	1,000,000 operations min.
	Electrical	100,000 operations min.	300,000 operations min.	1,000,000 operations min.	1,000,000 operations min.	1,000,000 operations min.
Electrical Ratings	Certified Maximum	3 A @ 250 VAC	6 A @ 220 VAC	3 A @ 240 VAC	3 A @ 240 VAC	3 A @ 240 VAC
	Minimum Permissible Current	-----	1 mA @ 5 VDC	5 mA @ 5 VDC	5 mA @ 5 VDC	5 mA @ 5 VDC
Reliability (ISO 13849-1)	B10d	1.00E+05	1.00E+05	1.50E+06	1.50E+06	1.50E+06
Enclosure Rating	IP65 (Oil Resistant)	IP65 (Oil Resistant)	IP67 (NEMA 6)	IP67 (NEMA 6)	IP67 (NEMA 6)	IP67 (NEMA 6)
Number of Contacts	up to 3	up to 4	2 NC + 1 NO, 3 NC	4 NC + 2 NO	4 NC + 2 NO	up to 4
Options	Push-Twist, Lighted	Push-Pull or Push-Twist, Lighted	-----	Explosion-proof	Explosion-proof	Explosion-proof, Stainless Steel
Accessories	Name plate, Panel plugs, Tightening tool, Extractor	Mounting Box, Shroud (SEMI), Name plate, Extractor, Tightening wrench	Rope Kit and Accessories	Emergency Stop Button, Indicator, Rope Kit and Accessories	Emergency Stop Button, Indicator, Rope Kit and Accessories	Emergency Stop Button, Indicator, Rope Kit and Accessories
Popular Part Numbers	A165E-S-01 A165E-S-02 A165E-S-03U	A22E-M-01 A22E-M-02 A22E-M-11 A22E-S-02 A22Z-B101Y	ER5018-021M	ER1022-042MELL ER1022-042NELL ER1022-042MELR ER1022-042NELR	-----	ER6022-021NEL ER6022-022MLSS
Notes	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).				

Force-Guided Relays/Power Contactors

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Product line		G7SA	G7S-E	G7Z	J7KNA-AR
Description		Force-guided Relay	Force-guided Relay	Multi-pole Power Relay	Mini-Contactor Relays
Selling Tips		<ul style="list-style-type: none"> 6 A switching capacity Slim profile 	<ul style="list-style-type: none"> 10 A switching capacity 	<ul style="list-style-type: none"> Contactor Current Range Capable of Carrying and Switching 40 A at 440 VAC 	<ul style="list-style-type: none"> AC and DC models available Long life expectancy
Features		<ul style="list-style-type: none"> 4 or 6 pole versions PCB or DIN rail mount sockets (with or without 24 VDC indicator) 	<ul style="list-style-type: none"> 6 pole PCB or DIN rail mount sockets DIN rail mount sockets come with or without 24 VDC indicator 	<ul style="list-style-type: none"> 4 pole Lower coil current versus switching capacity when compared to an equivalent contactor 	<ul style="list-style-type: none"> 4 pole Higher coil current consumption
Coil Voltages		12, 18, 21, 24, 48 or 110 VDC	24 VDC	12 or 24 VDC	24 VDC, 110 VAC, 230 VAC
Life Expectancy	Mechanical	10,000,000 operations min. (at approx. 36,000 operations/h)	10,000,000 operations min. (at approx. 18,000 operations/h)	1,000,000 operations min. (at 1,800 operations/h, contact no load)	10,000,000 operations min.
	Electrical	100,000 operations min. (at the rated load and approx. 1,800 operations/h)	100,000 operations min. (at the rated load and approx. 1,800 operations/h)	AC resistive load: 80,000 operations AC inductive load: 80,000 operations DC resistive load: 100,000 operations (at 1,200 operations/h, rated load)	AC15: Break 120 V - 6 A, 240 V - 3 A (continuous 10 A) DC13: 24 V - 3 A
Electrical Ratings	Rated Load	Resistive Load <ul style="list-style-type: none"> 6 A at 250 VAC 6 A at 30 VDC Inductive Load <ul style="list-style-type: none"> AC15 AC240V 2 A DC13 DC24V 1 A 	Resistive Load <ul style="list-style-type: none"> NO contact: 10 A at 250 VAC; 10 A at 30 VDC NC contact: 6 A at 250 VAC; 6 A at 30 VDC Inductive Load <ul style="list-style-type: none"> NO contact: AC15 AC240V 5 A; DC13 DC24V 2 A NC contact: AC15 AC240V 3 A; DC13 DC24V 2 A 	<ul style="list-style-type: none"> NO contact: Resistive Load 40 A at 440 VAC; Inductive Load $\cos\phi = 0.3$ 22 A at 440 VAC; Resistive load L/R = 1 ms 5 A at 110 VDC NC contact: Resistive Load 25 A at 440 VAC; Inductive Load $\cos\phi = 0.3$ 10 A at 440 VAC; Resistive load L/R = 1 ms 5 A at 110 VDC 	-----
	Minimum Permissible Current	1 mA / 5 VDC	1 mA / 5 VDC	1 mA / 5 VDC*	1 mA / 5 VDC*
Reliability (ISO 13849-1)	B10d	4.00E+05*	2.00E+05*	8.00E+04	-----
Number of Contacts		3PST-NO, SPST-NC DPST-NO, DPST-NC 5PST-NO, SPST-NC 4PST-NO, DPST-NC 3PST-NO, 3PST-NC	4PST-NO, DPST-NC 3PST-NO, 3PST-NC	<ul style="list-style-type: none"> Main Contacts: 4PST-NO, 3PST-NO/SPST-NC, DPST-NO/DPST-NC Aux. Contacts (safety rated): SPST-NO/SPST-NC, DPST-NC 	<ul style="list-style-type: none"> Main Contacts: 2 NO/2 NC, 3 NO/1 NC, 4 NO Aux. Contacts (safety rated): 1 NO/1 NC, 2 NC, 2 NO/2NC, 4 NO
Dimensions (L x W x H)		4 pole models: 40 x 13 x 24 mm 6 pole models: 50 x 13 x 24 mm	62 x 22.5 x 37 mm	62 x 45 x 88.3 mm	45 x 57.5 x 73 mm
Accessories		Mounting Sockets: P7SA- _	Mounting Sockets: P7S-_-E_	Auxiliary contact block: G73Z- _	Auxiliary contact block: J73KN-A- _
Popular Part Numbers		G7SA-2A2B DC24, G7SA-3A1B DC24, G7SA-3A3B DC24, G7SA-4A2B DC24, G7SA-5A1B DC24, P7SA-10F, P7SA-10F-ND DC24, P7SA-10P, P7SA-14F, P7SA-14F-ND DC24, P7SA-14P	G7S-3A3B-E DC24, G7S-4A2B-E DC24, P7S-14F-END DC24	G7Z-4A-11Z DC24, G7Z-4A-02Z DC24, G7Z-3A1B-11Z DC24, G7Z-2A2B-11Z DC24	J7KNA-AR-22 110, J7KNA-AR-31 24, J7KNAAR-31 110, J7KNA-AR-22 24VS, J7KNA-AR-31 24VS, J7KNA-AR-40 24VS
Notes		*This product conforms to EN50205 Forcibly Guided Contact Structure. Tested under conditions: AC-1 AC250V 6A, DC-1 DC30V 6A	*DC-13 load (24VDC / 2A) This product conforms to EN50205 Forcibly Guided Contact Structure.	*Auxiliary contact block types; NC contact blocks conform to EN60947-4-1 mirror contact mechanisms	*EN 60947-4-1 certification for mirror contact mechanisms has been obtained by using a combination of a relay and auxiliary contact blocks (5 VDC, 1 mA), enabling application in feedback circuits of safety circuits.

Programmable Safety Controllers

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Product line	G9SP	NE1A	NX-S
Description	Stand-alone Controller	DeviceNet Safety	FSOE Safety
Selling Tips	Stand-alone control to replace 3 or more safety relay units	Can be used as a stand-alone controller or a stand-alone network of safety I/O without the need for a PLC	Stand-alone operation using EtherNET/IP or network operation using EtherCAT (NJ platform)
Features	Stand-alone Operation	Stand-alone or Network Operation	Stand-alone or Network Operation
Max. number of Local Safety I/O	N10S - 10 in / 4 out; N10D - 10 in / 16 out; 20 in / 8 out	SCPU01-V1 - 16 in / 8 out; SCPU02 - 40 in / 8 out	-----
Max. number of Network Safety I/O	-----	>1024 (using NE1A -EDR01)	256 / 1024
Max number of Safety connections (per controller)	-----	32	32 / 128
Max number of Safety controllers network	-----	32 (expandable though EtherNet/IP coupler)	1
Program / Memory Size	Mechanical 128 function blocks	254 function blocks	512KB / 2048 KB
Safety Network	-----	DeviceNet Safety / over EtherNet/IP	EtherCAT (FSOE)
Monitoring / Communication Options	Ethernet, EtherNet/IP, RS-232C	DeviceNet, EtherNet/IP	EtherCAT, EtherNet/IP
Reliability (ISO 13849-1)	PFHd	9.40E-11 / 1.20E-10 / 1.10E-10	3.10E-10 / 3.00E-10
	PL	e	e
	Category	4	4
	SIL	SIL3	SIL3
Accessories	<ul style="list-style-type: none"> RS232-C Interface: CP1W-CIF01 EtherNET/IP Interface: CM-EIP-1 Memory Module: CP1W-ME05M 	<ul style="list-style-type: none"> EtherNet/IP Network Bridge: NE1A-EDR01 	<ul style="list-style-type: none"> EtherCAT Coupler: NX-ECC202 EtherNet/IP Coupler: NX-EIC202
Remote I/O	<ul style="list-style-type: none"> Non-safety expansion I/O: CP1W-20EDT/EDT1 CP1W-32ET/ET1 	<ul style="list-style-type: none"> 12 digital input: DST1-ID12SL-1 8 in / 8 out mixed digital: DST1-MD16SL-1 8 relay out: DST1-MRD08SL-1 8 in / 8 out mixed digital (mappable): DST1-XD0808SL-1 	<ul style="list-style-type: none"> 4 specialty input: NX-SIH400 8 digital input: NX-SID800 4 digital output: NX-SOD400 2 digital output (high current): NX-SOD200
Software	WS02-G9SP_	WS02-CSFC1-E_	Sysmac Studio (IEC61131-1)
Programming Style	Function Block	Function Block	Function Block (PLCOpen)
Applicable Input Devices	Solid State PNP devices (Light Curtain, Laser Scanners) Two-hand control, Dry contact switches (1 NC, 2 NC, 1 NO / 1 NC), Single-beam Photos, D40_Non-contact door switch, Safety Mats and Edges (4-wire), Enabling Switch, Mode Switch	Solid State PNP devices (Light Curtain, Laser Scanners) Two-hand control, Dry contact switches (1 NC, 2 NC, 1 NO / 1 NC), Enabling Switch, Mode Switch	Solid State PNP devices (Light Curtain, Laser Scanners) Two-hand control, Dry contact switches (1 NC, 2 NC, 1 NO / 1 NC), Single-beam Photos, D40_Non-contact door switch, Safety Mats and Edges (4-wire), Enabling Switch, Mode Switch
Muting Lamp	Open circuit detection	Open circuit detection	-----
Popular Part Numbers	G9SP-N10S, G9SP-N10D, G9SP-N20S	NE1A-SCPU01-V1, NE1A-SCPU02, DST1-ID12SL-1, DST1-MD16SL-1, DST1-MRD08SL-1, DST1-XD0808SL-1	NX-SL3300, NX-SL3500, NX-SIH400, NX-SID800, NX-SOD400, NX-SOD200
Notes		Reliability rating is for NE1A-SCPU0_ CPU's only, refer to the SISTEMA data for DST remote I/O unit ratings	Reliability rating is for NX-SL CPU's only, refer to the SISTEMA data for individual I/O unit ratings

Safety Light Curtains

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Product Line	F3SG-4RA	F3SG-4RE	MS4800B/S/A
Description	<ul style="list-style-type: none"> Industrial Grade 	<ul style="list-style-type: none"> Industrial Grade 	<ul style="list-style-type: none"> Industrial Grade
Selling Tips	<ul style="list-style-type: none"> Designed for rugged, harsh environments Handles High Shock and Dirty environments For heavy-duty, long range applications Finger & Hand protection Use for advanced applications 	<ul style="list-style-type: none"> Designed for rugged, harsh environments applications Handles High Shock and Dirty environments For heavy-duty, long range applications Finger & Hand protection 	<ul style="list-style-type: none"> Individual Beam Indicators are extremely useful for alignment and troubleshooting. Competition does not have this feature Designed for rugged, harsh environments Handles High Shock and Dirty environments due construction and high powered LEDs For heavy-duty, long range applications Built in the USA
Key Features	<ul style="list-style-type: none"> Blue Tooth + SD Manager QR code Troubleshooting Optical Synchronization Self Test and External Test External Device Monitoring Auxiliary output Advanced Functions including: fixed/floating blanking and muting applications Override function Position Detection Warning Zone Series connection up to 255 beams (up to 3 segments) Cross-talk prevention 	<ul style="list-style-type: none"> QR code Troubleshooting Simple Wiring Optical Synchronization Range Selection by Wire Connection 	<ul style="list-style-type: none"> Offered as Cascading by changing to MFS, same price. Individual Beam Indicators Cross-Talk Mitigation Machine Test Signal Range Selection External Device Monitoring Floating/Fixed Blanking Muting
Order Considerations	Brackets Included, Cables separate	Brackets Included, Cables separate	Brackets Included, Cables separate
Sales Strategy	Lead with F3SG-RA to show customer; reduced wiring, quick attach brackets and advanced muting functionality. Best to use F3SG-RA demo case to illustrate the light curtains advanced capabilities.	Lead with F3SG-RE for simple ON/OFF detection.	Large installed base, many MRO opportunities. Introduce F3SG global light curtain to these customers.
Resolutions Available	14 & 30 mm	14 & 30 mm	14, 20, 30 & 40 mm
Protection Heights Available	160 to 2080 mm height for 14 mm resolution & 190 to 2510 mm height for 30 mm resolution	160 to 2080 mm height for 14 mm resolution & 190 to 2510 mm height for 30 mm resolution	280 to 2040 mm
Sensor Type	Type 4	Type 4	Type 4
IP Rating	IP67 (Oil Proof)	IP67 (Oil Proof)	IP65
Response Time	14 mm: 7 to 17 ms; 30 mm: 7 to 12 ms	14 mm: 5 to 15 ms; 30 mm: 5 to 11 ms (ON to OFF)	14 - 59 ms depending on beam count
Power Supply Voltage	24 VDC \pm 20% (ripple p-p 10% max.)	24 VDC \pm 20% (ripple p-p 10% max.)	<ul style="list-style-type: none"> 24 VDC \pm 20%, 285 mA max RX; 24 VDC \pm 20%, 1.8 A max. (RX 450 mA + OSSDI 625 mA max. + OSSD2 625 mA max. + aux. 100 mA max.)
Safety Output	300 mA max., two PNP or NPN selectable by DIP switch	300 mA max., two PNP or NPN available	Two 24 VDC PNP outputs sourcing 625 mA max.
Programming	DIP switch & Blue Tooth + SD Manager	None	Through PDM & DIP switches
Profile	35 x 35 mm	35 x 35 mm	50 x 38 mm
Sensing Range	10 m for 14 mm resolution & 20 m for 30 mm resolution	10 m for 14 mm resolution & 20 m for 30 mm resolution	7 m for 14 mm resolution, 20 m for 20, 30 & 40 mm resolutions
Reliability (ISO 13849-1)	PFHd: See OSTI website PL: E Category: 4 SIL: 3	PFHd: See OSTI website PL: E Category: 4 SIL: 3	PFHd: 5.90E-08 PL: E Category: 4 SIL: 3
Accessories	<ul style="list-style-type: none"> F39-LGF - Adjustable Bracket F39-LGA - Fixed Bracket F39-JG3A-L - Single Ended cable (TX) F39-JG3A-D - Single Ended cable (RX) F39-JG3B-L - Double-Ended cable (TX) F39-JG3B-D - Double-Ended cable (RX) F39-JG2W - Cascading cable (TX & RX cables) 	<ul style="list-style-type: none"> F39-LGF - Adjustable Bracket F39-LGA - Fixed Bracket XS2F-M2PVC4SS2M - Single Ended cable (TX & RX) XS2F-M2PVC4SS5M - Double Ended cable (TX & RX) 	<ul style="list-style-type: none"> MS4800-CBLRX-10M - RX cable MS4800-CBLTX-10M - TX cable MS4800-CBLTXIC-003M - TX Interconnect cable MS4800-CBLRXIC-003M - RX Interconnect cable
Popular Part Numbers	F3SG-4RA0270-30, F3SG-4RA0590-30, F3SG-4RA0910-30, F3SG-4RA1230-30	F3SG-4RE0270-30, F3SG-4RE0590-30, F3SG-4RE0910-30, F3SG-4RE1230-30	MS4800S-30-0440, MS4800S-30-0600, MS4800S-30-0840, MS4800S-30-1200

Safety Light Curtains

Navigation Guide



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OMRON Automation and Safety Navigation Guide

Product Line	F3SJ-E	F3SJ-B	F3SJ-A
Description			
Selling Tips	<ul style="list-style-type: none"> General Purpose Bare bones light curtain for stand-alone devices The most cost effective light curtain in our portfolio. Designed to compete on very cost sensitive applications. Easier to align than most of the competition. (TOP/BOTTOM indicators) 	<ul style="list-style-type: none"> General Purpose For simple hand protection, series connection and muting Easier to align than most of the competition. (TOP/BOTTOM indicators) 	<ul style="list-style-type: none"> General Purpose For finger, hand & arm protection The ADVANCED type has a wide variety of muting and blanking functions to increase productivity. Built in USA
Key Features	<ul style="list-style-type: none"> No Dead Zone Self Test and External Test TOP/BOTTOM indicator for beam alignment Simple/Fast Wiring Includes captive 3 m cables 	<ul style="list-style-type: none"> No Dead Zone Self Test and External Test TOP/BOTTOM indicator for beam alignment Auxiliary output Simple 2 sensor muting Override function Series connection Cross-talk prevention Series connection up to 192 beams (up to 3- segments) 	<ul style="list-style-type: none"> No Dead Zone Self Test and External Test External Device Monitoring Auxiliary output Simple muting Advanced Muting/Partial Muting Override function Position Detection Fixed Blanking Floating Blanking Warning Zone Series connection up to 400 beams (up to 4 segments) Cross-talk prevention Software tools: Safe Distance Calculation, LED strength indicators
Order Considerations	Brackets separate	Brackets & Cables separate	Brackets Included, Cables separate
Sales Strategy	Use for very simplified applications. Recommend the NEW F3SG-4RE.	Let customer continue to order F3SJ-B if they require cascading or muting functionality, if they do not need cascading or muting; specify the F3SG-4RE.	General purpose advanced applications. Let existing customers continue to order F3SJ-A or let customer know about the new F3SG-4RA
Resolutions Available	25 mm	25 mm	14, 20, 25, 30 & 55 mm
Protection Heights Available	185 to 1105 mm	185 to 2065 mm	245 to 2470 mm
Sensor Type	Type 4	Type 4	Type 4
IP Rating	IP65	IP65	IP65
Response Time	15 ms Max	15 ms Max	25 ms Max
Power Supply Voltage	24 VDC ± 20%	24 VDC ± 20%	24 VDC ± 20%
Safety Output	Two 24 VDC PNP outputs sourcing 200 mA max.	Two 24 VDC PNP outputs sourcing 200 mA max.	Two 24 VDC PNP outputs sourcing 300 mA max.
Programming	No	No	SD Manager
Profile	30 x 30 mm	30 x 30 mm	30 x 24 mm
Sensing Range	7 m	7 m	9 m up to 1640 mm height, 7 m above 1640 mm height
Reliability (ISO 13849-1)	PFHd: 1.20E-08 PL: E Category: 4 SIL: 3	PFHd: 1.20E-08 to 1.90E-08 PL: E Category: 4 SIL: 3	PFHd: 1.70E-08 to 4.50E-08 PL: E Category: 4 SIL: 3
Accessories	<ul style="list-style-type: none"> F39-LJB1 - Top/bot bracket F39-LJB3-M6 - Quick mount bracket for M6 slide nut 	<ul style="list-style-type: none"> F39-JD3A - Single Ended Connector cable (2 cables per set for TX & RX) F39-LJB1 - Top/Bottom bracket 	<ul style="list-style-type: none"> F39-JC3A - Single Ended Connector cable (2 cables per set for TX & RX)
Popular Part Numbers	F3SJ-E0185P25, F3SJ-E0305P25, F3SJ-E0465P25, F3SJ-E0625P25	F3SJ-B0185P25, F3SJ-B0305P25, F3SJ-B0465P25, F3SJ-B0625P25	F3SJ-A0245P30, F3SJ-A0320P30, F3SJ-A0455P30, F3SJ-A0620P30, F3SJ-A0920P30

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Product Line	OS32C-_3/4M	OS32C-_3/4M-DM
Selling Tips	<ul style="list-style-type: none"> Quick setup time Reduced modifications to protected work area New models built after September 2014 has pollution tolerance mode & Pollution Tolerant Reference Boundary Mode for dusty environments Configuration memory and I/O block, no need to reprogram after sensor head replacement which results in reduced downtime All 4 m versions offer pollution tolerance mode & Pollution Tolerant Reference Boundary Mode for dusty environments 	<ul style="list-style-type: none"> Quick setup time Reduced modifications to protected work area Configuration memory and I/O block, no need to reprogram after sensor head replacement which results in reduced downtime EtherNet/IP connectivity for status monitoring and measurement data
Key Features	<ul style="list-style-type: none"> 70 zone sets (each: 1 safety & 2 warning) Ethernet connectivity Individual sector indicators Easy set-up software tool Configuration memory block 	<ul style="list-style-type: none"> Very compact 70 zone sets (each: 1 safety & 2 warning) Ethernet connectivity Individual sector indicators Easy set-up software tool Configuration memory block Status monitoring and measurement data is available
Order Considerations	Brackets & Cables are separate	Brackets & Cables are separate
Sales Strategy	Vertical & horizontal applications in work cells	AGV applications; talk about Omron's Rover & use video to show DM feature of scanner
Detection Angle	270°	270°
Resolutions Available	30, 40, 50, or 70 mm	30, 50, or 70 mm
Protection Ranges Available	Safety zone: 1.75 m (min. object resolution of 30 mm); 2.5 m (min. object resolution of 40 mm); 3.0 m (min. object resolution of 50 mm or 70 mm); Warning Zone: 10 m	Safety zone: 1.75 m (min. object resolution of 30 mm); 3.0 m (min. object resolution of 50 or 70 mm); 4.0 m (min. object resolution of 70 mm); Warning Zone: 15 m
Sensor Type	Type 3	Type 3
IP Rating	IP65	IP65
Response Time	<ul style="list-style-type: none"> Response time from ON to OFF: From 80 ms (2 scans) to 680 ms (up to 17 scans) [Pollution tolerance mode will add 6 m/Sec. to each scan time, this feature is available on 3 m versions built after September 2014] Response time from OFF to ON: Response time from ON to OFF + 100 ms to 60 s (configurable) 	<ul style="list-style-type: none"> Response time from ON to OFF: From 80 ms (2 scans) to 680 ms (up to 17 scans) [Pollution tolerance mode will add 6 m/sec. to each scan time] Response time from OFF to ON: Response time from ON to OFF + 100 ms to 60 s (configurable)
Power Supply Voltage	24 VDC ±25%/-30% (ripple p-p 2.5 V max.)	24 VDC ±25%/-30% (ripple p-p 2.5 V max.)
Safety Output	250 mA max., two PNP outputs	250 mA max., two PNP outputs
Programming	Easy to use software	Easy to use software
Profile	133.0 mm X 104.5 mm X 142.7 mm (except cable)	133.0 mm X 104.5 mm X 142.7 mm (except cable)
Sensing Range	<ul style="list-style-type: none"> 3 m Safety range & 10 m Warning range 4 m safety range and 15 m Warning range 	<ul style="list-style-type: none"> 3 m Safety range & 10 m Warning range 4 m Safety range & 15 m Warning range
Reliability (ISO 13849-1)	PFHd: 8.30E-08 PL: D Category: 3 SIL: 2	PFHd: 8.30E-08 PL: D Category: 3 SIL: 2
Accessories	<ul style="list-style-type: none"> OS32C-CBL-10M - Power cable, 10 m OS32C-ECBL-02M - Ethernet cable, 2 m OS32C-BKTI - Mounting bracket (Bottom/side) 	<ul style="list-style-type: none"> OS32C-CBL-10M - Power cable, 10 m OS32C-ECBL-02M - Ethernet cable, 2 m OS32C-BKTI - Mounting bracket (Bottom/side)
Popular Part Numbers	OS32C-BP OS32C-SPI OS32C-BP-4M OS32C-SPI-4M	OS32C-BP-DM OS32C-SPI-DM OS32C-BP-DM-4M OS32C-SPI-DM-4M

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