

Safety Selection Guide



Complete Safety Solutions from Banner



Safety Light Curtains

- Intuitive and easy-to-use and set up
- End-to-end sensing
- Heavy-duty aluminum housing and recessed window to avoid damage in harsh environments
- Highly visible alignment and diagnostic indicators
- IP69 hygienic models available for washdown environments
- Cascade capable models available



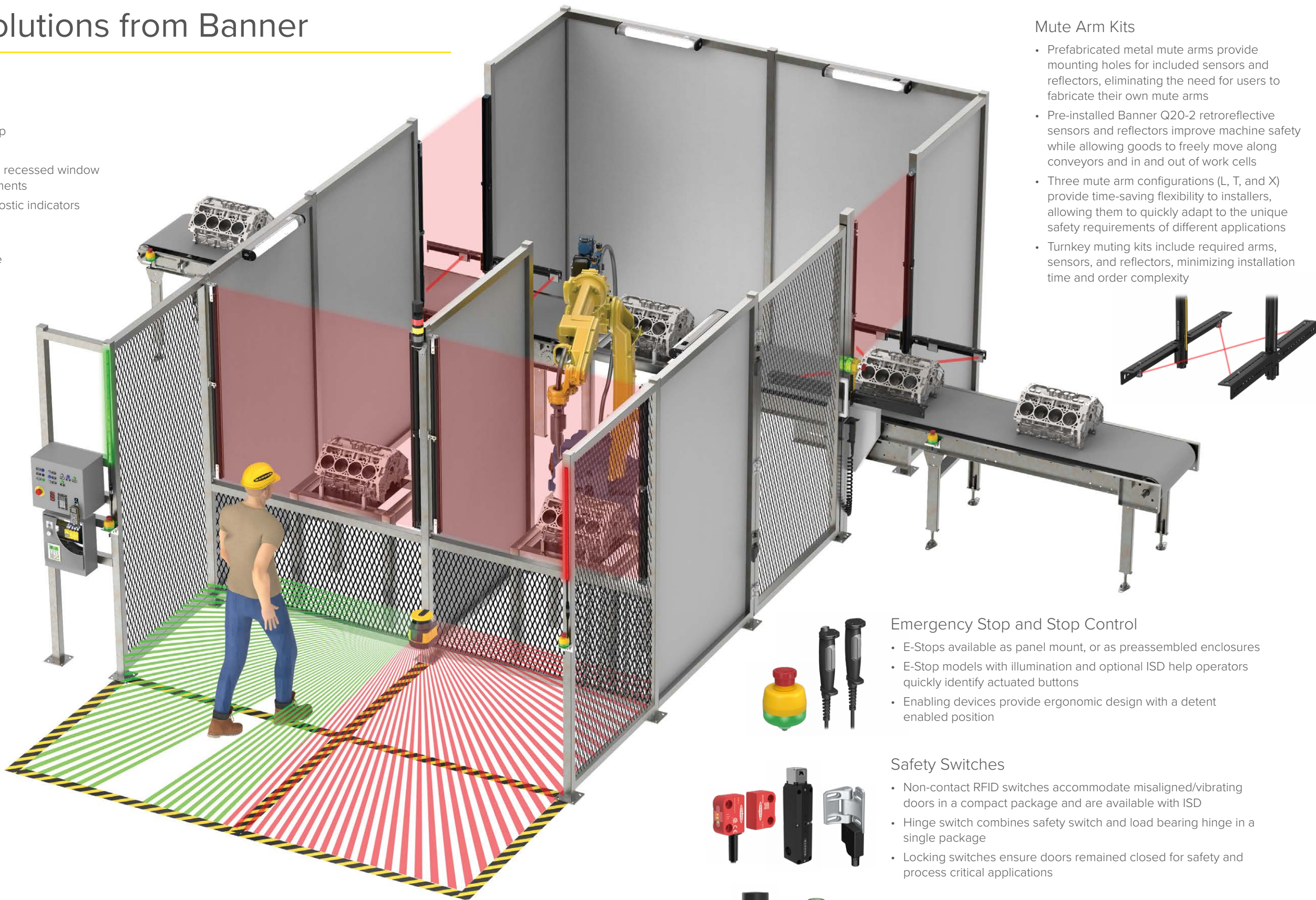
Safety Controllers

- Up to eight expansion I/O modules can be added as your safety application grows or changes
- Configuration software is so simple that you will be programming in minutes
- Simulator functionality allows users to test their configurations without being connected to a controller
- Available with ISD, which provides an array of data including device status, voltage, temperature, RFID tag value, sensing distance, and more
- View and configure your controller remotely using Banner's network access feature



Safety Laser Scanners

- Two-dimensional laser scanner with easy-to-use software
- Programming of irregular shaped warning and detection zones
- 275° scanning angle with selectable resolutions and 5.5 m range



Mute Arm Kits

- Prefabricated metal mute arms provide mounting holes for included sensors and reflectors, eliminating the need for users to fabricate their own mute arms
- Pre-installed Banner Q20-2 retroreflective sensors and reflectors improve machine safety while allowing goods to freely move along conveyors and in and out of work cells
- Three mute arm configurations (L, T, and X) provide time-saving flexibility to installers, allowing them to quickly adapt to the unique safety requirements of different applications
- Turnkey muting kits include required arms, sensors, and reflectors, minimizing installation time and order complexity



Emergency Stop and Stop Control

- E-Stops available as panel mount, or as preassembled enclosures
- E-Stop models with illumination and optional ISD help operators quickly identify actuated buttons
- Enabling devices provide ergonomic design with a detent enabled position

Safety Switches

- Non-contact RFID switches accommodate misaligned/vibrating doors in a compact package and are available with ISD
- Hinge switch combines safety switch and load bearing hinge in a single package
- Locking switches ensure doors remained closed for safety and process critical applications

Lighting and Indication

- Preassembled and preconfigured multi-segment LED tower light indicators
- Programmable multicolor LED indicators, panel mount models available
- Pro Editor software offers a wide variety of color and animation options

Safety Light Curtain Selection Guide

																																																											
S4B					EZ-SCREEN LS					EZ-SCREEN 14/30					EZ-SCREEN LP					EZ-SCREEN LS2					SGS Grids																																		
Type IEC 61496-1, -2					Type 4					Type 4					Type 4					Type 4					Type 2					Type 4																													
Safety Rating EN ISO 13849-1; IEC 61508; IEC 62061					Category 4 PL e; SIL3					Category 4 PL e; SIL3					Category 4 PL e; SIL3					Category 4 PL e; SIL3					Category 2 PL c					Category 4 PL e; SIL3																													
IP Rating					IP65					IP65, IP67, IP69K option					IP65					IP54, IP65					IP65					IP65																													
Dimensions W x D (mm)					38 x 38					36 x 45					36 x 45					28 x 26					25 x 32					52 x 56.9																													
Resolution (mm)					14, 30					14, 23, 40					14		30			14, 25					30					300, 400, 500																													
Max Sensing Range (m)					12					12					6		18			Basic: 4 Standard: 7					15					Standard: 30 Long Distance: 60																													
Defined Area (mm)					300 to 1800					14 mm: 280 to 1820 23 mm: 280 to 2380 40 mm: 280 to 1820					150 to 1800		150 to 2400			Basic: 270, 410, 550, 690 Standard: 270 to 1250					150 to 1800					500 to 1200																													
Increments (mm)					150					70					150					Standard: 140					150					2, 3, 4 Beams																													
Functions																																																											
Hand Detection					✓					✓					✓					✓					✓																																		
Finger Detection					✓					✓					✓					✓																																							
Body Detection																														✓																													
Cascade					✓					SLLC					SLSC					SLPC																																							
Scan Codes					✓					✓					✓					✓										✓																													
Fixed Blanking					Accessory					Accessory					✓					✓																																							
Reduced Resolution															✓					✓																																							
EDM					✓					✓					✓					✓					✓					✓																													
Reset															✓					✓					✓					✓																													
Integrated Muting																				✓										✓																													
LED on Top										Accessory																				✓																													

Safety Scanner Selection Guide



SX5-B6



SX5-M10

Dimensions W x D x H (mm)	102 x 112 x 152	102 x 112 x 152
Presence Detection	50/70 mm	50/70 mm
Body Detection	70/150 mm	70/150 mm
Hand Detection	30/40 mm	30/40 mm
Range (depending on resolution)	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m
Max. Zone Sets (depending on configuration)	6	10
Master Remote		Master (up to 3 remotes)
Removable Memory		SXA-RM-10
Speed Monitoring		
Max. OSSD Outputs (depending on configuration)	1x 2 OSSD	2x 2 OSSD
Inter Device Connection		8-Pin M12
Integral Muting	✓	✓
Programmable Dust Filter	✓	✓
Measurement Data	✓	✓
Field-replaceable Window	✓	✓

Muting/bypass



SX5-M70



SX5-ME70



SX5-R

102 x 112 x 152	102 x 112 x 152	102 x 112 x 152
50/70 mm	50/70 mm	50/70 mm
70/150 mm	70/150 mm	70/150 mm
30/40 mm	30/40 mm	30/40 mm
30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m
70	70	depending on master
Master (up to 3 remotes)	Master (up to 3 remotes)	Remote
SXA-RM-70	SXA-RM-70	
	✓	
3x 2 OSSD	3x 2 OSSD	
8-Pin M12	8-Pin M12	8-Pin M12
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	

Remote Safe I/O

More Devices, Machine Mountable, and No Learning Curve

LINK1 ETH1

LINK2 ETH2

NET

MOD

Port 0

Port 1

Port 2

Port 3

Port 4

Port 5

Port 6

Port 7

V1

V2

Seamless integration into **CIP Safety** applications

Easy scalability with **Ethernet passthrough**

Familiar setup using Rockwell's **Studio 5000®** No new software to learn

Six inputs compatible with most industrial safety devices, including light curtains, e-stops, door switches, and scanners

Simplify wiring, reduce cost, and gain valuable insights into your safety devices with **In-Series Diagnostics (ISD)**

Two configurable safety outputs provide single- or dual-channel control at 1 A per channel

Bright LEDs for easy status indication and troubleshooting

IP67-rated for flexible, out-of-cabinet installations

Available with either M12 L-Code or Mini **pass-through power** connections

		
	RSIO-L5-6SI2SO-C	RSIO-MA4-6SI2SO-C
Power Connection	L-Code	Mini
Safety Rating	Up to Category 4, PL e (EN ISO 13849) Up to SIL 3 (IEC 61508)	
IP Rating	For Indoor Use Only IP65, IP67, NEMA 1, UL Type 1	
Dimensions W x D x H (mm)	74 x 28 x 262	
ISD (In-Series Diagnostics)	✓	
EtherNet/IP	✓	
	✓	
Safety Inputs	6	
Safety Outputs	2	
Configurable I/O	✓	
Configurable Ports	8	
Test Pulses (On/Off)	✓ (per port)	
Power Supply	24 V DC	



Independent Coverage and Control Across Conveyor Lines

Use RSio's In-Series Diagnostics (ISD) capabilities to create individual safety zones on long-run conveyors common in distribution, 3PL, and material-handling environments. On one safety input, an ISD chain consisting of a rope pull brought in via ISD Connect and a series of e-stops provides stop coverage along the first conveyor line. A second safety input brings in another ISD chain of e-stops to protect a second line. A final switching device connected to one of RSio's safety-rated outputs controls the motor-driven rollers on the first line, while the second line's final switching device (FSD) is controlled by the GuardLogix safety controller via the CIP Safety connection. A hybrid port configured as a standard output drives a CL50 Column Light to provide system-status indication at a distance.

When any device in the first ISD chain is tripped, RSio drops the safety output to remove power from the FSD and stop the first conveyor. When a device in the second ISD chain is tripped, RSio reports the safety input status to the Safety PLC over the CIP Safety connection on the EtherNet/IP network, and the Safety PLC commands its final switching device to stop the second conveyor. ISD device-level diagnostics help maintenance quickly locate which device along either line needs attention.


RSIO-MA4-6SI2SO-C
Remote Safe I/O


SSA-EB1PLGR-0DECQ8
E-Stop


CL50GRYPQ
Column Light


K30LGRYPQ
Indicator


RP-RM83F-75LR
Rope Pull with E-Stop


SSA-ISD-TCA
ISD Connect

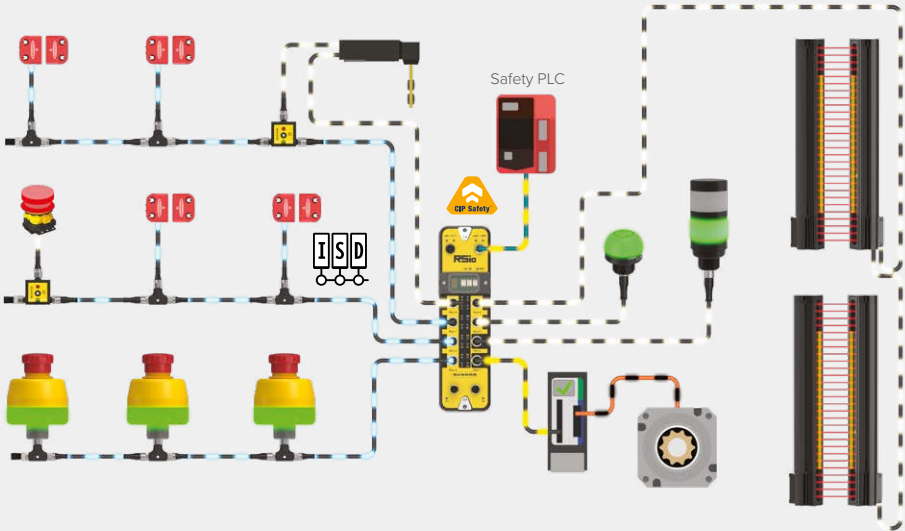
Add a standard device, such as this Rope Pull to an ISD network using the ISD Connect.

ISD In-Series Diagnostics

More Devices, Less Wiring, and Faster Diagnostics

In-Series Diagnostics (ISD) makes it possible for each RSio input to connect up to 32 ISD-enabled safety devices, or safety devices brought in through ISD Connect, in a daisy-chain while providing diagnostic data for each individual device. ISD chains use plug-and-play M12 T-connectors and cabling, with the ISD protocol traveling over the same wiring as the OSSD signals, providing continuous device status and clear identification of which device in the chain causes a stop.

RSio supports a mix of ISD and non-ISD devices across its six inputs. Each input can monitor either a single safety device directly or an ISD chain of up to 32 devices—192 devices total across one RSio.



Relay and Controller Selection Guide

					
	GM/ES	UM	SM	AT	MMD
	p. 42	p. 42	p. 42	p. 42	p. 42
Device Type	Preconfigured Safety Relay Modules				
Self Testing Safety Device		✓			✓
Self Testing Safety Device with EDM Function	✓	✓	✓	✓	✓
E-Stop	✓	✓			✓ (secondary function)
Rope Pull	✓	✓			✓ (secondary function)
Gate Switch (potential free contacts)	✓	✓			✓
RFID Gate Switch (OSSD contacts)		✓			✓
ISD Functionality					
  					
					
Network Access and View					
Safety Mat Monitoring			✓		
Two-Hand Control	✓				
Enabling Device	✓	✓			
Expandable					
Muting					✓
ON/OFF Delay					
Speed Monitoring					
Safety Standard	Cat. 4 PL e, per EN ISO 13849-1; SIL 3 per IEC 61508 and IEC 62061				
Inputs	1 NC and 1 NO (single or dual) 1 NC (single) 2 NC (dual)	1 NC (single) or 2 NC (dual) or 2 PNP	1 (or multiple in series) 4-wire safety mat	2 STB or buttons with complementary contacts	2 NC mutable (dual) and 2 NC SSI (dual)
Safety Outputs	2 NO, 3 NO, 4 NO	2 NO or 3 NO	4 NO	2 NO	2 PNP OSSD or 2 NO
Maximum Safety Output Rating	6A, 7A	7A	6A	6A	6A
Auxiliary Outputs	1 NC or 1 NC and 2 PNP	1 NC, depending on model	1 NC and 2 PNP		1 PNP or 1 NC
Power Supply	24 V AC/DC 115 V AC and 12-24 V DC or 230 V AC and 12-24 V DC	24 V AC/DC	115 V AC and 12-24 V DC or 230 V AC and 12-24 V DC	24 V AC/DC	24 V DC

					
SSM	SR	IM	EM	SC10	SC26/XS26
p. 42	p. 42	p. 42	p. 42	p. 44	p. 44
Preconfigured Safety Relay Modules				Configurable Controllers	
✓				✓	✓
✓				✓	✓
				✓	✓
				✓	✓
				✓	✓
				✓	✓
				2 chains	8 chains
				✓	✓
					✓ (XS Series only)
				✓	✓
				✓	✓
				✓	✓
	✓	✓	✓		✓
				✓	✓
				✓	✓
OFF delay available					
✓					
Cat. 4 PL e, per EN ISO 13849-1; SIL 3 per IEC 61508 and IEC 62061				Same as Preconfigured Safety Relay Modules	
2 PNP	2 NC (dual) or 2 PNP	2 NC (dual) or 2 PNP	1 NC (single) or 2 NC (dual)	10	SC26: up to 26 XS26: up to 154
2 NO	2 NO, 3 NO	2 NO, 3 NO	4 NO or 4 NO with delay	2x 3 NO	SC: 2 XS: up to 68
4A	6A	6A	6A	6A each	0.5A each
1 NC	1 NC	1 NC, depending on model		depends on configuration	depends on configuration
24 V DC	24 V DC	24 V DC	24 V DC or 24 V AC/DC, depending on model	24 V DC	24 V DC

Safety Switches Selection Guide



SI-MAG	
Device Type	Magnetic
Switch Style	Non-Contact
Non-Locking	✓
Locking	
Position	✓

Contacts1 NC, 1 NO

Locking or Unlocking Power	
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Straight Rigid Inline

Rigid Inline

Flexible Inline

High-Force Accessory

LED Status Indication

Cascadable

ISD (In-Series Diagnostics)

Coding level/ Manipulation protection EN ISO 14119	Low coding
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Housing MaterialPlastic

Locking	
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Actuation Extraction Force

Resettable Switching Point	
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SI-RF	
RFID	
Non-Contact	
✓	
✓	

OSSD PNP

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✓

✓

✓

Unique/Low/High coding	
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Plastic

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SI-LS	
Mechanical	
Separate Actuator	Separate Actuator
✓	✓

2 NC, 1 NO
1 NC, 1 NO
2 NC

1 NC, 1 NO
2 NC
2 NC, 1 NO
1 NC

--	--

✓

✓

✓

Low coding	Low coding
------------	------------

Plastic

--	--

10 N

--	--



SI-QS	
Mechanical	
Separate Actuator	Separate Actuator
✓	✓

1 NC, 1 NO
2 NC
2 NC, 1 NO
1 NC

--	--

✓

✓

✓

Low coding	Low coding
------------	------------

Plastic

--	--

10 N

--	--

High-Force models:
adjust. from 50-100 N



SI-GL42		
Mechanical		
Separate Actuator	Separate Actuator	Limit
		✓
✓	✓	

1 NO
1 NC
1 NC, 1 NO
2 NC
2 NC, 1 NO
3 NC

1 NC, 1 NO
2 NC, 1 NO
1 NC
2 NC
3 NC

1 NC, 1 NO
2 NC
2 NC, 1 NO

24 V AC/DC	24 V AC/DC 110 V AC/230 V AC	
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✓

✓

✓

Compatible with
ISD connect

Low coding	Low coding	Uncoded
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Head: Metal
Body: Plastic

Plastic

Plastic

Spring lock Solenoid lock	Spring lock Solenoid lock	
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1500 N
when locked

2000 N
when locked

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SI-HG63	
Hinge	
Hinge	Hinge
✓	✓

2 NC, 1 NO

1 NC, 1 NO

--	--

Compatible with
ISD connect

Uncoded	Uncoded
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Metal

Metal

--	--

✓	
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E-Stop Devices Selection Guide

		
	SSA-EBM	SSA-EB
Panel Mount Emergency Stop Buttons		
E-Stop	✓	✓
Rope Pull		
Button Size (mm)	40 mm	40, 44, 60 mm
Illuminated Housing		
Illuminated Button		✓
Release	✓	✓
Lock/Unlock Button		✓ (SSA-EB1M only)
Rope Length (m)		
Rope Connection		
ISD (In-Series Diagnostics)		
Safety Contacts	1 NC 2 NC	1 NC 2 NC 3 NC 4 NC
Auxiliary Contacts	1 NO	1 NO 2 NO
OSSD Outputs		
Connection	Screw terminals	Screw terminals
Panel/Bracket Hole (mm)	22 mm	30 mm

		
SSA-EB1PL	SSA-EB1P	SSA-EB1M
Emergency Stop Buttons		
✓	✓	✓
40, 60 mm	40, 60 mm	44 mm
✓		✓
✓	✓	
✓	✓	✓
		✓
✓	✓	
1 NC 2 NC 4 NC	1 NC 2 NC 4 NC	1 NC 2 NC 4 NC
1 NO 2 NO	1 NO 2 NO	1 NO 2 NO
✓	✓	
M12 or Screw terminals	M12 or Screw terminals	M12 or Screw terminals
30 mm	30 mm	

				
RP-RM83	RP-LS42	RP-QM(T)72	RP-LM40	RP-QM90
Rope Pull Emergency Stop Switches				
✓	✓			
✓	✓	✓ (only stop control)	✓ (only stop control)	✓
32 mm	32 mm			
✓				
38 m 70 m	25 m 37.2 m 75 m	6 m 12 m 20 m	6 m	50 + 50 m
Built-in turnbuckle or ring connection	Built-in turnbuckle or ring connection	Ring connection	Ring connection	Ring connection
2 NC	2 NC	2 NC 4 NC	2 NC	2 NC
2 NO	2 NO	1 NO (specific models)		2 NO
Screw terminals	Screw terminals	Screw terminals	Screw terminals	Screw terminals



- Related Product:
ISD Connect
- Connects a non-ISD-enabled safety device with 2 normally closed sets of contacts, such as a panel-mount E-stop or safety switch, to an ISD chain
 - IP67-rated and installs easily, with no assembly or individual wiring required
 - Access diagnostic data, prevent system faults, and reduce equipment downtime of non-ISD devices
 - Built-in indication for input device and ISD status

Smarter Automation. Better Solutions.™

Banner Engineering designs and manufactures industrial automation products including sensors and measurement devices; lighting, indicators, and displays; connectivity technology; condition monitoring solutions; machine safety products; industrial wireless systems; remote I/O; plus barcode scanners and machine vision. By listening to customers and engineering solutions that remove production constraints so they can achieve operational goals, Banner is an integral part of making many of the things we use every day, from food and medicine to cars and electronics. In fact, a high-quality, reliable Banner product is installed somewhere around the world every two seconds. Headquartered in Minneapolis since 1966, Banner is an industry leader with more than 10,000 products, operations on five continents, and a worldwide team of more than 5,500 employees and partners. Our dedication to innovation and personable service makes Banner a trusted source of smart automation technologies to customers around the globe.

