

INTERLOCK SWITCHES



PICO-GUARD™ page 125

- Fiber optic switches for non-contact applications
- Straight, right-angle, dual-lens, extreme-duty and heavy-duty models
- Low-cost alternative to cumbersome machine guarding methods
- Rugged construction for tough environments
- Easy to install



Compact Plastic page 135

- Designed to minimize tampering
- Five actuator types
- Actuator engagement from different locations



Magnet Style page 126

- Magnet switches for non-contact applications
- Compact, 3-piece non-contact system
- Sealed to resist water and dirt
- Designed to resist intentional defeat



Compact Metal page 141

- Rigid and flexible in-line actuators
- Rotating actuator heads



Hinge Style page 129

- Load-bearing, lever and rotating hinge styles
- Adjustable range of operation
- One-piece switches



Locking Style page 144

- Two options for locking mechanisms
- Two models for different voltages
- Rigid and flexible in-line actuators
- Rotating actuator heads

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MAGNET STYLE

HINGE STYLE

LIMIT STYLE

LOCKING STYLE

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MAGNET STYLE

HINGE STYLE

LIMIT STYLE

LOCKING STYLE

	Model		Catalog Page	Type	Package Style	Housing Material	Actuator Contacts	Solenoid Contacts
PICO-GUARD™	SFI-S1../R1..		125	Fiber Optic	2-Piece	Plastic	—	—
	SFI-D1../A1..					Plastic		
	SFI-M12..					Metal		
	SFI-D1E../A1E..					Metal		
	SFI-D1H../A1H..					Metal		
Magnet	SI-MAG1..		126	Magnetic	2-Piece	Plastic	1 NO & 1 NC	—
	SI-MAG2..					Plastic		
	SI-MAG3..					Plastic		
Hinge	SI-HG63		130	Mechanical Non-Locking	1-Piece	Metal	2 NC & 1 NO	—
	SI-HG80..		131			Metal	SPDT (Form C)	—
	SI-LS31R..		133			Plastic	1 NC & 1 NO, 2 NC	—
	SI-LS31H..		132			Plastic	1 NC & 1 NO, 2 NC	
Compact Plastic	SI-LS83../LS100..		135	Mechanical Non-Locking	2-Piece	Plastic	2 NC & 1 NO, 1 NC & 1 NO, 2 NC	—
	SI-QS75../QS90..		137			Plastic	1 NC, 1 NC & 1 NO, 2 NC, 2 NC & 1 NO	
Compact Metal	SI-LM40..		141	Mechanical Non-Locking	2-Piece	Metal	1 NO & 1 NC, 2 NC, 2 NC & 1 NO	—
Locking	SI-LS42..		144	Mechanical Locking	2-Piece	Plastic	1 NC & 1 NO, 2 NC, 2 NC & 1 NO, 3 NC	1 NC & 1 NO, 1 NC
	SI-QM100..		147			Metal	1 NC & 1 NO, 2 NC	1 NC & 1 NO

NC = Normally Closed, NO = Normally Open



INTERLOCK SWITCHES

PICO-GUARD Fiber Optic

- Interlock switches interface with PICO-GUARD SFCDT... fiber optic controllers.
- Compact, non-contact and easy to install, the switches interlock doors, guards, gates and covers.
- Fiber optic interlock switches eliminate the need to run electrical wires to a hazardous area.
- Fibers connect and disconnect quickly.
- Switches meet Safety Category 4 requirements with one switch pair per guard (per ISO 13849-1).
- Impact-resistant polycarbonate plastic, extreme-duty chemically resistant stainless steel or heavy-duty impact-resistant zinc die-cast models are available.
- Switches have an environmental rating of IP67 and are ATEX and FM approved for use in explosive environments when used with a PICO-GUARD controller.
- Attenuator is available for reducing excess gain in short-run applications.
- Splices are available for easily connecting two fiber sections.
- See page 59 for a complete PICO-GUARD controller.

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MAGNET STYLE

HINGE STYLE

LIMIT STYLE

LOCKING STYLE

Models for a variety of applications & environments.



Straight Page 64

- In-line lens housing
- Right or left side mounting flange



Right Angle Page 64

- Right-angle lens housing
- Right or left side mounting flange



Dual Lens & Actuator Page 64

- Passive U-shaped actuator for lift-off doors and removable guards
- Center mounting configuration



Straight Barrel Page 64

- Impact- and chemically resistant stainless steel
- 12 mm threaded barrel mounting



**Dual Lens & Actuator—
Extreme- & Heavy-duty** Page 64

- Actuator with U-shaped configuration allows fiber to “enter” and “exit” from one side of the guard only
- Extreme-duty chemically resistant stainless steel or heavy-duty impact resistant zinc die-cast models.
- Center mounting configuration



Magnet Style

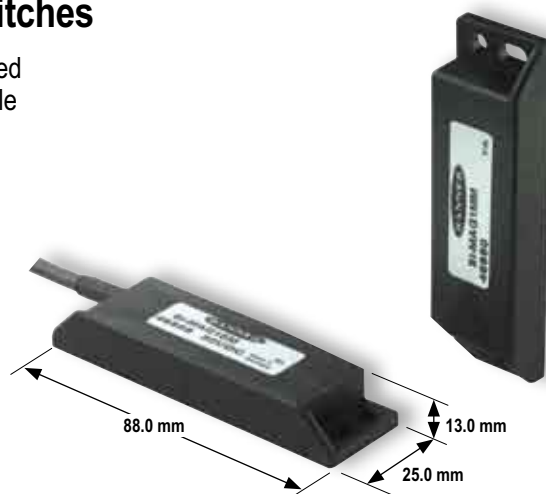
Non-Contact Safety Interlock Switches

- Sealed components resist water, dirt and are more accommodating to misalignment than mechanical switches.
- Shifts in distance and alignment don't compromise sensing.
- Coded magnets minimize the risk of intentional defeat.
- Compact size makes it possible to conceal the switch.
- Magnets with different polarizations add security.
- For safety applications, switch must be used with Gate Monitoring Module GM-FA-10J, SC22-3 Safety Controller or comparable control systems.



Magnet Style Safety Switches

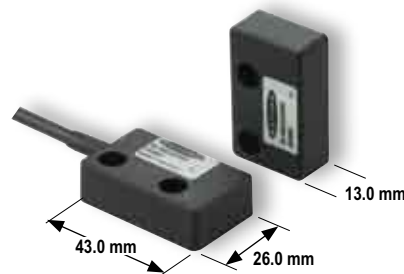
- 3-piece system: coded magnet, reed switch sensor and controller module
- Easy installation
- Three housing styles
- NEMA 4X and IP67 rating
- A complete system requires a guard monitoring module or controller (see page 127)



SI-MAG1SM.. and SI-MAG1MM.. Models



SI-MAG3SM and SI-MAG3MM Models



SI-MAG2SM and SI-MAG2MM Models

SI-MAG Magnet Style Safety Switches

Models			Contacts	Sensor Cable*	Switching Distance***		Data Sheet
					Min. ON	Max. OFF	
SI-MAG1SM	Sensor		1 NO & 1 NC	3 m	—	—	60998
SI-MAG1SMCO†					—	—	
SI-MAG1MM	Coded Magnet				0-3 mm	3-14 mm	
SI-MAG1MM90**					0-8 mm	8-16 mm	
SI-MAG1MMHF					—	—	
SI-MAG2SM	Sensor				—	—	
SI-MAG2MM	Coded Magnet				0-4 mm	4-8 mm	
SI-MAG3SM	Sensor				—	—	
SI-MAG3MM	Coded Magnet				0-3 mm	3-7 mm	

NC = Normally Closed Output, NO = Normally Open Output

* For 9 m cable, add **W/30** to the 3 m model number (example, **SI-MAG1SM W/30**).

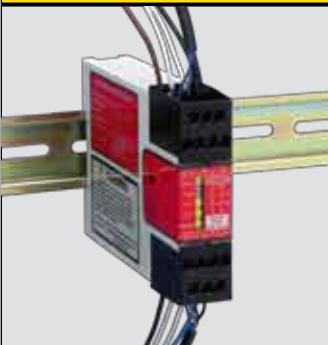
** Difference in Direction of Approach. See page 212 for more information.

*** For proper reset, switches must be positioned greater than 14 mm apart.

† Cable opposite

NOTE: The sensor and its magnet must be mounted at a minimum distance of 15 mm from any magnetized or ferrous material (example, steel) for proper operation. SFA-IMB1 or SFA-IMB2 can be used as spacers (see pages 171 and 172). Depending on the installation, multiple brackets may be required.

Monitoring Control Module (required for a complete system)

Models		Description	Product Information	Data Sheet
	GM-FA-10J	- The gate module monitors up to 20 Banner coded magnets for contact failure or wiring fault. - Two-channel operation monitors redundant switches on a single guard; one-channel operation monitors single switches on two guards. - Two redundant output switching channels connect to control-reliable power interrupt circuits and are rated for up to 250V ac at up to 6 A. - The reset input can be used for external device monitoring (EDM). - The gate monitoring module uses 24V ac/dc at less than 150 mA.	Page 81	60998
	SC22-3-S...	- One controller provides configurable monitoring of multiple safety devices. 22 input terminals can monitor both contact-based and PNP solid-state input devices. 3 pairs of independent solid-state safety outputs can be used with selectable one- or two-channel external device monitoring. - Ten configurable non-safety status outputs track inputs, outputs, lockout, I/O status and other functions - SC22-3 modules use 24V dc. 10/100 Base TX Ethernet communication option using EtherNet/IP and Modbus TCP protocols (SC22-3E models).	Page 77	133487
	SC22-3-C...			
	SC22-3E-S...			
	SC22-3E-C...			

SI-MAG Safety Switches Specifications

Switching Elements	Three pole-stable reed switches
Repeat Switching Accuracy	± 0.1 mm
Construction	Epoxy-encapsulated circuit in polyamide housing
Environmental Rating	NEMA 4X; IP67
Switching Capacity	30V dc max. @ 0.25 W
Operating Temperature	-5° to +70° C
Connections	Integral PVC-jacketed 3 m 4-wire cable. Cable O.D. is 5 mm. Wires are 24 AWG. (0.25 mm ²)
Wiring Diagrams	1-Channel Coded Magnet Switches: WD033 (p. 238) 2-Channel Positive Opening Switches: WD034 (p. 238) 1-Channel (Multiple Guards): WD035 (p. 239) 2-Channel (Multiple Guards): WD036 (p. 239)



Hinge Style

Interlocking Switches

- Three types are available—load-bearing hinge, hinged lever and rotating hinge.
- One-piece switch eliminates need for alignment, engagement and risk of breakage of a separate actuator.
- Design meets positive opening requirements for safety interlocks .

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MAGNET STYLE

HINGE STYLE

LIMIT STYLE

LOCKING STYLE



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SI-HG63 Load Bearing Page 130

- Hinge operates to a full 270° range of motion.
- In-line and right-angle hinge models are available.
- Hinge supports an axial and radial load of 1200 N.
- Housing is constructed of corrosion-resistant stainless steel.



SI-HG80 Load Bearing Page 131

- Hinge operates to a full 180° range of motion.
- In-line and right-angle hinge models are available.
- Hinge supports an axial load of 750 N and more than 1,000 N in radial direction.
- Housing is constructed of corrosion-resistant zinc die-cast.



SI-LS31H Hinge Lever Style Page 132

- Built-in hinge lever actuator attaches to doors or flaps which open 90° in one direction.
- Actuator head rotates in 90° increments.
- Housing is constructed of glass reinforced thermoplastic with plated steel actuator.

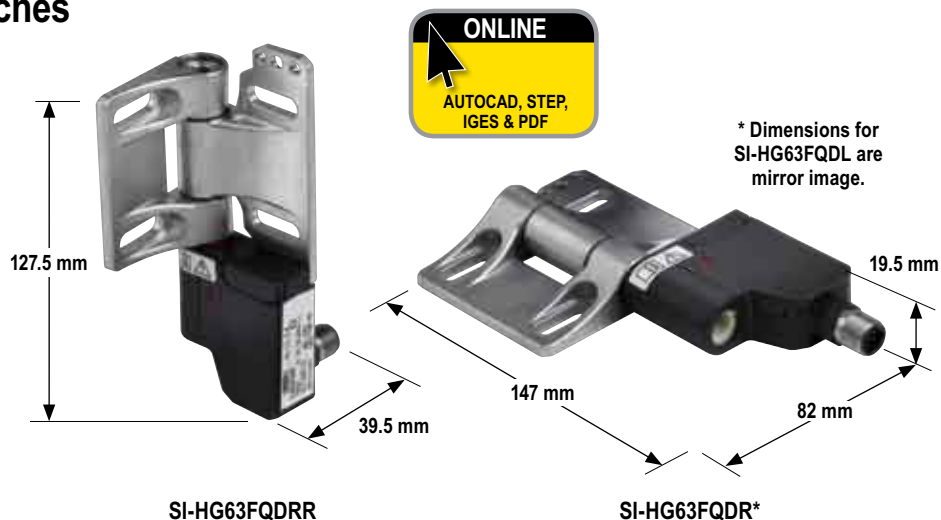


SI-LS31R Rotary Hinge-Style Page 133

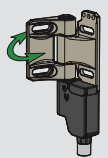
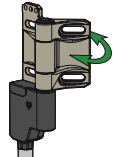
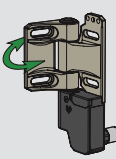
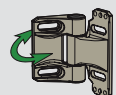
- Rotating actuator connects directly to door hinge.
- Actuator head rotates in 90° increments.
- Housing is constructed of glass reinforced thermoplastic with plated steel actuator.

SI-HG63 Hinge Style Switches

- In-line or right-angle models
- 270° range of motion
- $\pm 1.5^\circ$ adjustment
- Corrosion-resistant stainless steel
- Repositional safety switching point
- 6-pin Micro-style quick-disconnect cordset fittings
- Positive opening safety contacts (IEC 60947-5-1) 
- QD cordsets ordered separately



SI-HG63 Hinge Style Switches, 63 mm

Models	Actuator Type		Contact(s)	Contact Config. & Switch Diagram	Data Sheet
SI-HG63FQDR		In-line Integral load bearing		SD001 (Page 213)	129465
SI-HG63FQDL		In-line Integral load bearing			
SI-HG63FQDRR		Right-angle Integral load bearing			
SI-HG63A		Blank hinge			
			2 NC & 1 NO		
			-		

 Hinge 270°

NC = Normally closed contact, NO = Normally open contact

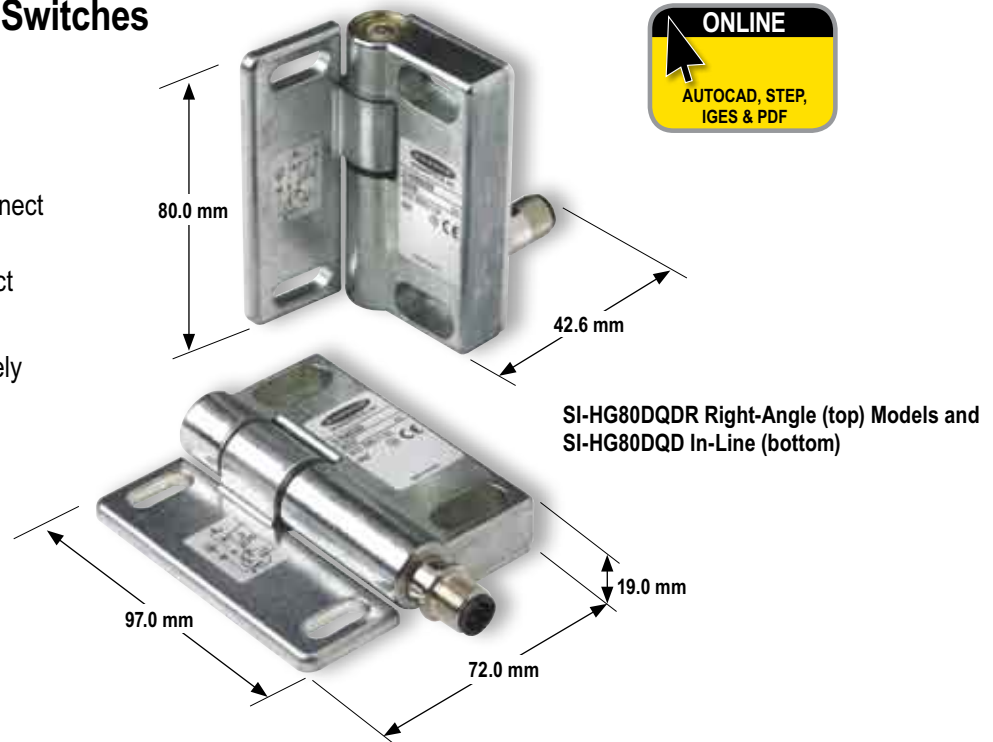
Accessories

Cordsets

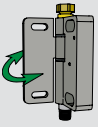
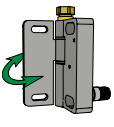
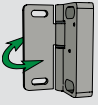
Micro-Style QD to Flying Leads		
		
pg. 183		
Length	Straight	Right-Angle
2 m	MQEAC-606	MQEAC-606RA
5 m	MQEAC-615	MQEAC-615RA
9.1 m	MQEAC-630	MQEAC-630RA

SI-HG80 Hinge Style Switches

- In-line and right-angle models
- Corrosion-resistant
- 180° range of motion
- 4-pin Micro-style quick-disconnect cordset fittings
- Positive opening safety contact (IEC 60947-5-1) 
- QD cordsets ordered separately



SI-HG80 Hinge Style Switches, 80 mm

Models	Actuator Type		Contact(s)	Contact Config. & Switch Diagram	Data Sheet
SI-HG80DQD			SPDT (Form C)	SD002 (Page 213)	46735
SI-HG80DQDR					
SI-HG80A			—		

 Hinge 180°

SPDT = Single-Pole, Double-Throw Contacts

CORDSETS
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MAGNET STYLE

HINGE STYLE

LIMIT STYLE

LOCKING STYLE

Accessories

Cordsets

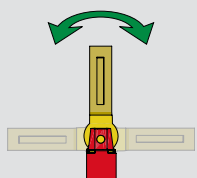
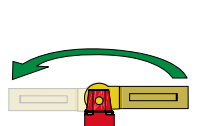
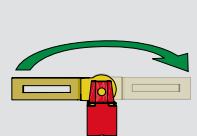
Micro-Style QD to Flying Leads		
		
pg. 182		
Length	Straight	Right-Angle
2 m	MQEAC-406	MQEAC-406RA
5 m	MQEAC-415	MQEAC-415RA
9.1 m	MQEAC-430	MQEAC-430RA

SI-LS31H Hinge Lever Style Switches

- Glass reinforced thermoplastic switch housing
- Plated steel actuator
- Rotating head
- Insulated device on all models (IEC 60947-5-1) 
- Positive opening safety contacts (IEC 60947-5-1) 



SI-LS31H Hinge Lever Style Switches, 31 mm

Models*	Actuator Type		Contact(s)	Contact Config. & Switch Diagram	Data Sheet
SI-LS31HGD	 Vertical Hinged Lever $\pm 90^\circ$		1 NC & 1 NO	SD003 (Page 213)	50165
SI-LS31HGE			2 NC	SD004 (Page 213)	
SI-LS31HGRD	 Right-Hand Hinged Lever 180°		1 NC & 1 NO	SD005 (Page 213)	
SI-LS31HGRE			2 NC	SD006 (Page 213)	
SI-LS31HGLD	 Left-Hand Hinged Lever 180°		1 NC & 1 NO	SD007 (Page 214)	
SI-LS31HGLE			2 NC	SD008 (Page 214)	



Hinge 90°



One-Directional 180°



One-Directional 180°

NC = Normally Closed Contact, NO = Normally Open Contact

* Contact factory for integral quick-disconnect (QD) and pigtail QD options.

SI-LS31R Rotary Hinge Style Switches

- Glass reinforced thermoplastic switch housing
- Plated steel actuator
- Rotating actuator head
- Insulated device on all models (IEC 60947-5-1) 
- Positive opening safety contacts (IEC 60947-5-1) 



SI-LS31R Rotary Hinge Style Switches, 31 mm

Models*	Actuator Type		Contact(s)	Contact Config. & Switch Diagram	Data Sheet
SI-LS31RTD			1 NC & 1 NO	SD009 (Page 214)	50163
SI-LS31RTE			2 NC	SD010 (Page 214)	



360° Rotary

NC = Normally Closed Contact, NO = Normally Open Contact

* Contact factory for integral quick-disconnect (QD) and pigtail QD options.

SI-HG63 Hinge Style Switches Specifications

Contact Rating	3 A @ 230V ac max., 1.0 A @ 24V dc max. 2.5 kV max. transient tolerance NEMA A300 P300
European Rating	Utilization categories: AC15 and DC13 (IEC 90497-5-1) $U_i = 250V$ ac, $I_{th} = 5A$
Minimum Switching Speed	5 operations per minute
Switching Angle	NC contact: $\pm 3^\circ$ NO contact: $\pm 9^\circ$ Tolerance for all angles: 1.5°
Mechanical Life	1 million operations
Short Circuit Protection	4 amp Slow Blow, 8 amp Fast Blow. Recommended external fusing or overload protection.
Force Exerted by Guard per Switch	Axial and radial: 1200 N (264 lbf) max.
Wire Connections	6-pin Micro-style quick-disconnect (QD) fitting. Cordsets are ordered separately. See page 183.
Operating Range	0° to 270°
Construction	Hinge: X22CrNi 17 Switch: PBT
Environmental Rating	NEMA 4; IP67
Operating Conditions	Temperature: -25° to $+70^\circ$ C
Weight	0.65 kg (1.43 lb)
Application Note	To avoid excessive radial stress in applications containing large doors, the hinge switch should be mounted either in pairs of two, or in conjunction with a blank hinge (see page 130).
Certifications	    
Contact configuration and Switching Diagram	SD001 (p. 213)

SI-HG80 Hinge Style Switches Specifications

Contact Rating	3 A @ 250V ac max., 0.5 A @ 60V dc max. 2.5 kV max. transient tolerance NEMA A300 P300
European Rating	Utilization categories: AC15 and DC13 (IEC 90497-5-1) $U_i = 250V$ ac, $I_{th} = 3A$
Minimum Switching Speed	20 operations per minute
Mechanical Life	1 million operations
Short Circuit Protection	6 amp Slow Blow, 10 amp Fast Blow. Recommended external fusing or overload protection.
Force Exerted by Guard per Switch	Axial: 750 N max. Radial: 1000 N max.
Operating Range	0° to 180°
Wire Connections	4-pin Micro-style quick-disconnect (QD) fitting. Cordsets are ordered separately. See page 182.
Construction	Zinc Die-cast (GD-Zn)
Environmental Rating	NEMA 4; IP67
Operating Conditions	Temperature: -25° to +70° C
Weight	0.40 kg
Application Notes	To avoid excessive radial stress in applications containing large doors, the hinge switch should be mounted either in pairs of two, or in conjunction with a blank hinge (see page 131).
Certifications	 
Contact Configuration and Switching Diagrams	SD002 (p. 213)

SI-LS31 Hinge Style Switches Specifications

Contact Rating	10A @ 24V ac, 10A @ 110V ac, 6A @ 230V ac, 6A @ 24V dc		2.5 kV max. transient tolerance	NEMA A300 P300															
European Rating	Utilization categories: AC15 and DC13 U _i = 500V ac I _{th} = 10A		<table><tr><th colspan="3">40-60 Hz</th></tr><tr><th>U_i V</th><th>I_i/AC-15 A</th><th>I_i/DC-13 A</th></tr><tr><td>24</td><td>10</td><td>6</td></tr><tr><td>110</td><td>10</td><td>1</td></tr><tr><td>230</td><td>6</td><td>.4</td></tr></table>		40-60 Hz			U _i V	I _i /AC-15 A	I _i /DC-13 A	24	10	6	110	10	1	230	6	.4
40-60 Hz																			
U _i V	I _i /AC-15 A	I _i /DC-13 A																	
24	10	6																	
110	10	1																	
230	6	.4																	
Contact Material	Silver-nickel alloy																		
Maximum Switching Speed	50 operations per minute																		
Mechanical Life	1 million operations																		
Required Actuation Force	SI-LS31R models: 10 N cm SI-LS31H models: 15 N cm																		
Short Circuit Protection	6 amp Slow Blow, 10 amp Fast Blow. Recommended external fusing or overload protection.																		
Wire Connections	Screw terminals with pressure plates accept the following wire sizes – Stranded and solid: 20 AWG (0.5 mm ²) to 16 AWG (1.5 mm ²) for one wire Stranded: 20 AWG (0.5 mm ²) to 18 AWG (1.0 mm ²) for two wires																		
Cable Entry	M20 x 1.5 threaded entrance Adapter supplied to convert from M20 x 1.5 to ½" - 14 NPT threaded entrance																		
Construction	Glass fiber-reinforced thermoplastic UL94-VO rating; plated steel actuator																		
Environmental Rating	IP65																		
Operating Conditions	Temperature: -30° to +80° C																		
Weight	0.09 Kg																		
Certifications	   LISTED Auxiliary Device																		
Contact Configuration and Switching Diagrams	SI-LS31R models: SD009 and SD010 (p. 214) SI-LS31H models: SD003, SD004, SD005, SD006, SD007 and SD008 (p. 213-214)																		



Compact Plastic Flat Pack and Limit Switch Styles

- Mechanically coded actuators use two independent operating elements to minimize intentional tampering or defeat.
- Rotating head requires no tools.
- Four standard actuators are available, as well as an optional high-extraction-force adapter.
- IP65 switch housing rating increases to IP67 with addition of a screw to the wiring chamber door.

SI-LS83 and SI-LS100 Models

Page 135

SI-QS75 and SI-QS90 Models

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PICO-GUARD™

MAGNET STYLE

HINGE STYLE

LIMIT STYLE

LOCKING STYLE

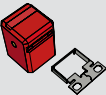
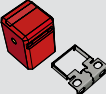
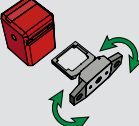
SI-LS83 and SI-LS100 Plastic Style Switches

- Low profile for confined spaces
- Tough glass-reinforced thermoplastic housing
- Limit switch design (EN 50047)
- In-line or right-angle actuator
- Actuator engagement from four side or four top positions
- Insulated device on all models (IEC 60947-5-1) 
- Positive opening safety contacts (IEC 60947-5-1) 

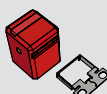
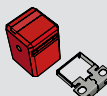
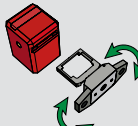
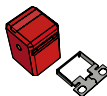
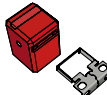
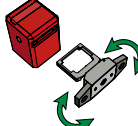


SI-LS83 Models SI-LS100 Models
(both models shown with right-angle rigid in-line actuator)

SI-LS100 Plastic Style Switches, 100 mm

Kits				Contact(s)	Contact Config. & Switch Diagram	Data Sheet
Kit Model*	Actuator Type		Interlock			
SI-LS100SF	SI-QS-SSA-2 Straight Rigid In-Line		SI-LS100F	2 NC & 1 NO	SD011 (Page 214)	59622
SI-LS100SRAF	SI-QS-SSA-3 Rigid In-Line		SI-LS100F			
SI-LS100MRFF	 SI-QS-SSU Flexible In-Line		SI-LS100F			

SI-LS83 Plastic Style Switches, 83 mm

Kits				Contact(s)	Contact Config. & Switch Diagram	Data Sheet
Kit Model*	Actuator Type		Interlock			
SI-LS83SD	SI-QS-SSA-2 Straight Rigid In-Line		SI-LS83D	1 NC & 1 NO	SD012 (Page 214)	59622
SI-LS83SRAD	SI-QS-SSA-3 Rigid In-Line		SI-LS83D			
SI-LS83MRFD	 SI-QS-SSU Flexible In-Line		SI-LS83D			
SI-LS83SE	SI-QS-SSA-2 Straight Rigid In-Line		SI-LS83E	2 NC	SD013 (Page 215)	
SI-LS83SRAE	SI-QS-SSA-3 Rigid In-Line		SI-LS83E			
SI-LS83MRFE	 SI-QS-SSU Flexible In-Line		SI-LS83E			



Multi-Directional NC = Normally Closed Contact, NO = Normally Open Contact

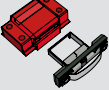
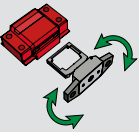
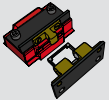
* A kit contains an interlock and actuator. Individual interlocks (without actuator) are for replacement purposes only.
Contact factory for integral quick-disconnect (QD) and pigtail QD options.

SI-QS75 and SI-QS90 Plastic Style Switches

- Actuator engagement from front, back, or either of two top positions
- Insulated device on all models (IEC 60947-5-1) 
- Positive opening safety contacts (IEC 60947-5-1) 



SI-QS75 Flat-Pack Style Switches, 75 mm

Kits				Contact	Contact Config. & Switch Diagram	Data Sheet
Kit Model*	Actuator Type		Interlock			
SI-QS75MC	SI-QS-SSA-4 Rigid In-Line		SI-QS75C	1 NC	SD014 (Page 215)	49370
SI-QS75MFC	 SI-QS-SSU Flexible In-Line		SI-QS75C			
SI-QS75MC-100 (High-Force)	SI-QS-SSA Rigid In-Line & SI-QS-100 High-force Accessory		SI-QS75C			



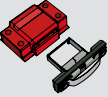
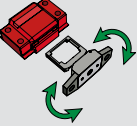
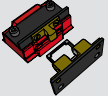
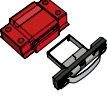
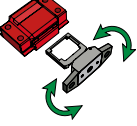
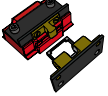
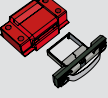
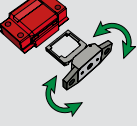
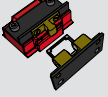
Multi-Directional

NC = Normally Closed Contact,

NO = Normally Open Contact

* A kit contains an interlock and actuator. Individual interlocks (without actuator) are for replacement purposes only.
Contact factory for integral quick-disconnect (QD) and pigtail QD options.

SI-QS90 Flat-Pack Style Switches, 90 mm

Kit Model*	Kits			Contact(s)	Contact Config. & Switch Diagram	Data Sheet
	Actuator Type		Interlock			
SI-QS90MD	SI-QS-SSA-4 Rigid In-Line		SI-QS90D	1 NC & 1 NO	SD015 (Page 215)	49370
SI-QS90MFD	 SI-QS-SSU Flexible In-Line		SI-QS90D			
SI-QS90MD-100 (High-Force)	SI-QS-SSA Rigid In-Line & SI-QS-100 High-force Accessory		SI-QS90D			
SI-QS90ME	SI-QS-SSA-4 Rigid In-Line		SI-QS90E	2 NC	SD016 (Page 215)	49370
SI-QS90MFE	 SI-QS-SSU Flexible In-Line		SI-QS90E			
SI-QS90ME-100 (High-Force)	SI-QS-SSA Rigid In-Line & SI-QS-100 High-force Accessory		SI-QS90E			
SI-QS90MF	SI-QS-SSA-4 Rigid In-Line		SI-QS90F	2 NC & 1 NO	SD017 (Page 215)	49370
SI-QS90MFF	 SI-QS-SSU Flexible In-Line		SI-QS90F			
SI-QS90MF-100 (High-Force)	SI-QS-SSA Rigid In-Line & SI-QS-100 High-force Accessory		SI-QS90F			



Multi-Directional

NC = Normally Closed Contact,

NO = Normally Open Contact

* A kit contains an interlock and actuator. Individual interlocks (without actuator) are for replacement purposes only.
Contact factory for integral quick-disconnect (QD) and pigtail QD options.

SI-LS83 and SI-LS100 Plastic Style Switches Specifications

Contact Rating	10A @ 24V ac, 10A @ 110V ac, 6A @ 230V ac, 6A @ 24V dc 2.5 kV max. transient tolerance NEMA A300 P300																
European Rating	Utilization categories: AC15 and DC13 (IEC 60947-5-1) Switches with 1 & 2 contact pairs: $U = 500V$ ac, $I_{th} = 10A$ Switches with 3 contact pairs: $U_i = 400V$ ac, $I_{th} = 5A$	<table border="1"> <thead> <tr> <th colspan="3">40-60 Hz</th></tr> <tr> <th>U V</th><th>I_e/AC-15 A</th><th>I_e/DC-13 A</th></tr> </thead> <tbody> <tr> <td>24</td><td>10</td><td>6</td></tr> <tr> <td>110</td><td>10</td><td>1</td></tr> <tr> <td>230</td><td>6</td><td>.4</td></tr> </tbody> </table>	40-60 Hz			U V	I_e /AC-15 A	I_e /DC-13 A	24	10	6	110	10	1	230	6	.4
40-60 Hz																	
U V	I_e /AC-15 A	I_e /DC-13 A															
24	10	6															
110	10	1															
230	6	.4															
Contact Material	Silver-nickel alloy																
Maximum Switching Speed	30 operations per minute																
Maximum Actuator Speed	1 m/second																
Mechanical Life	1 million operations																
Minimum Actuator Engagement Radius	In-line actuators: 150 mm Flexible actuators: 50 mm in all directions																
Actuation Extraction Force	12 N																
Short Circuit Protection	6 amp Slow Blow, 10 amp Fast Blow. Recommended external fusing or overload protection.																
Wire Connections	Stranded and solid: 20 AWG (0.5 mm ²) to 18 AWG (1.0 mm ²) for one wire Stranded: 20 AWG (0.5 mm ²) to 18 AWG (1.0 mm ²) for two wires																
Cable Entry	M20 x 1.5 for SI-LS100 and M16 x 1.5 for SI-LS83 threaded entrance. Adaptor supplied to convert to 1/2"- 14 NPT threaded entrance.																
Construction	Glass fiber-reinforced thermoplastic UL94-VO rating																
Environmental Rating	IP65 Note: Addition of a No. 3 x 1/4" screw (max) to the wiring access door increases sealing to IP67; NEMA 4X																
Operating Conditions	Temperature: -30° to +80° C																
Weight	SI-LS83 models: 0.12 kg SI-LS100 models: 0.13 kg																
Certifications	    LISTED Auxiliary Device																
Contact Configuration and Switching Diagrams	SI-LS100 models: SD011 (p. 214) SI-LS83 models: SD012 and SD013 (p. 214-215)																

SI-QS75 and SI-QS90 Flat-Pack Style Switches Specifications

Contact Rating	10A @ 24V ac, 10A @ 110V ac, 6A @ 230V ac, 6A @ 24V dc 2.5 kV max. transient tolerance NEMA A300 P300																
European Rating	Utilization categories: AC15 and DC13 (IEC 60947-5-1) Switches with 1 & 2 contact pairs: $U_i = 500V$ ac, $I_{th} = 10A$ Switches with 3 contact pairs: $U_i = 400V$ ac, $I_{th} = 5A$	<table border="1"> <thead> <tr> <th colspan="3">40-60 Hz</th></tr> <tr> <th>U_i V</th><th>$I_{th}/AC-15$ A</th><th>$I_{th}/DC-13$ A</th></tr> </thead> <tbody> <tr> <td>24</td><td>10</td><td>6</td></tr> <tr> <td>110</td><td>10</td><td>1</td></tr> <tr> <td>230</td><td>6</td><td>.4</td></tr> </tbody> </table>	40-60 Hz			U_i V	$I_{th}/AC-15$ A	$I_{th}/DC-13$ A	24	10	6	110	10	1	230	6	.4
40-60 Hz																	
U_i V	$I_{th}/AC-15$ A	$I_{th}/DC-13$ A															
24	10	6															
110	10	1															
230	6	.4															
Contact Material	Silver-nickel alloy																
Maximum Switching Speed	30 operations per minute																
Maximum Actuator Speed	1 m/second																
Mechanical Life	1 million operations																
Minimum Actuator Engagement Radius	In-line actuators: 150 mm Flexible actuators: 50 mm in all directions																
Actuation Extraction Force	High-Force models: 100 N All others: 10 N																
Short Circuit Protection	6 amp Slow Blow, 10 amp Fast Blow. Recommended external fusing or overload protection.																
Wire Connections	Screw terminals with pressure plates accept the following wire sizes – For switches with one or two contacts: Stranded and solid: 20 AWG (0.5 mm ²) to 16 AWG (1.5 mm ²) for one wire Stranded: 20 AWG (0.5 mm ²) to 18 AWG (1.0 mm ²) for two wires For switches with three contacts: Stranded and solid: 20 AWG (0.5 mm ²) to 18 AWG (1.0 mm ²) for one wire Stranded: 20 AWG (0.5 mm ²) to 18 AWG (1.0 mm ²) for two wires																
Cable Entry	M20 x 1.5 for SI-QS90 and M16 x 1.5 for SI-QS75 threaded entrance. Adapter supplied to convert M20 x 1.5 to ½" - 14 NPT threaded entrance.																
Construction	Glass fiber-reinforced thermoplastic UL94-VO rating																
Environmental Rating	IP65 Note: Addition of a No. 3 x ¼" screw (max) to the wiring access door increases sealing to IEC IP67; NEMA 4X																
Operating Conditions	Temperature: -30° to +80° C																
Weight	SI-QS75 models: 0.11 kg SI-QS90 models: 0.13 kg																
Application Notes	Models with one and two contacts have three cable entry locations (bottom and two sides); models with three contacts have two cable entry locations (two sides). All entry locations are sealed with knockouts. To remove knockouts, thread the supplied M16 x 1.5 or M20 x 1.5 to ½" - 14 NPT conduit adapter or optional M16 x 1.5 or M20 x 1.5 cable gland into one of the threaded entry locations. The knockout will break open just before the adapter or cable gland bottoms out.																
Certifications	  																
Contact Configuration and Switching Diagrams	SI-QS75 models: SD014 (p. 215) SI-QS90 models: SD015, SD016 and SD017 (p. 215)																



Compact Metal Limit Switch Style with In-Line Actuator

- Rigid and flexible in-line actuators are available.
- Actuator head rotates to four possible positions, in 90° increments.
- Aluminum die cast construction

PICO-GUARD™

MAGNET STYLE

HINGE STYLE

LIMIT STYLE

LOCKING STYLE



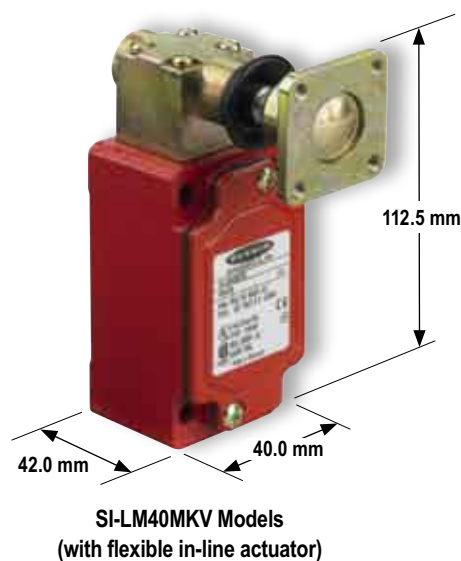
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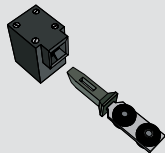
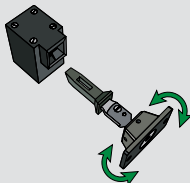
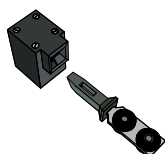
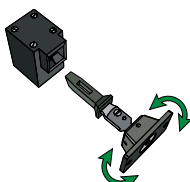
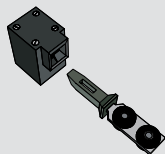
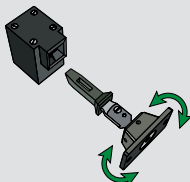
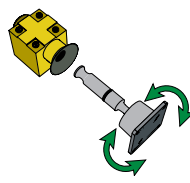
PAGE 149

SI-LM40 Metal Style Switches

- Standard limit switch design
- Stainless steel actuators
- Trumpet-style switch option
- Protective earth terminal on all models (IEC 60947-1) $\oplus$
- Positive opening safety contacts (IEC 60947-5-1) $\rightarrow$



SI-LM40 Limit Switch Style, 40 mm

Kits				Contact(s)	Contact Config. & Switch Diagram	Data Sheet
Kit Model*	Actuator Type		Interlock			
SI-LM40MKHD	SI-QM-SSA Straight Rigid In-Line		SI-LM40KHD	1 NO & 1 NC	SD018 (Page 215)	49372
SI-LM40MKHFD	 SI-QM-SMFA Flexible In-Line		SI-LM40KHD			
SI-LM40MKHE	SI-QM-SSA Straight Rigid In-Line		SI-LM40KHE	2 NC	SD019 (Page 216)	
SI-LM40MKHFE	 SI-QM-SMFA Flexible In-Line		SI-LM40KHE			
SI-LM40MKHF	SI-QM-SSA Straight Rigid In-Line		SI-LM40KHF	2 NC & 1 NO	SD020 (Page 216)	
SI-LM40MKHFF	 SI-QM-SMFA Flexible In-Line		SI-LM40KHF			
SI-LM40MKVD	 SI-QM-90A Flexible In-Line		SI-LM40KVD	1 NO & 1 NC	SD021 (Page 216)	50159
SI-LM40MKVE			SI-LM40KVE	2 NC	SD022 (Page 216)	



Multi-Directional

NC = Normally Closed Contact,

NO = Normally Open Contact

* A kit contains an interlock and actuator. Individual interlocks (without actuator) are for replacement purposes only.
Contact factory for integral quick-disconnect (QD) and pigtail QD options.

SI-LM40 Limit Style Switches Specifications

Contact Rating	10A @ 24V ac, 10A @ 110V ac, 6A @ 230V ac, 6A @ 24V dc 2.5 kV max. transient tolerance NEMA A300 P300																
European Rating	Utilization categories: AC15 and DC13 $U_i = 500V$ ac, $I_{th} = 10A$	<table border="1"> <thead> <tr> <th colspan="3">40-60 Hz</th> </tr> <tr> <th>U_i V</th><th>I_{th}/AC-15 A</th><th>I_{th}/DC-13 A</th></tr> </thead> <tbody> <tr> <td>24</td><td>10</td><td>6</td></tr> <tr> <td>110</td><td>10</td><td>1</td></tr> <tr> <td>230</td><td>6</td><td>.4</td></tr> </tbody> </table>	40-60 Hz			U_i V	I_{th} /AC-15 A	I_{th} /DC-13 A	24	10	6	110	10	1	230	6	.4
40-60 Hz																	
U_i V	I_{th} /AC-15 A	I_{th} /DC-13 A															
24	10	6															
110	10	1															
230	6	.4															
Contact Material	Silver-nickel alloy																
Maximum Switching Speed	SI-LM40MKH models: 50 operations per minute SI-LM40MKV models: 10 operations per minute																
Maximum Actuator Speed	SI-LM40MKH models: 1.5 m/second SI-LM40MKV models: 0.5 m/second																
Mechanical Life	SI-LM40MKH models: 1 million operations SI-LM40MKV models: 25,000 operations																
Minimum Actuator Engagement Radius	Rigid actuator: 400 mm Flexible actuator: 150 mm																
Actuation Extraction Force	SI-LM40MKH models: 10 N SI-LM40MKV models: 20 N																
Short Circuit Protection	6 amp Slow Blow, 10 amp Fast Blow. Recommended external fusing or overload protection.																
Wire Connections	Screw terminals with pressure plates accept the following wire sizes – Stranded and solid: 20 AWG (0.5 mm ²) to 16 AWG (1.5 mm ²) for one wire Stranded: 20 AWG (0.5 mm ²) to 18 AWG (1.0 mm ²) for two wires																
Cable Entry	M20 x 1.5 threaded entrance Adapter supplied to convert M20 x 1.5 to 1/2" - 14 NPT threaded entrance																
Construction	Aluminum alloy die cast																
Environmental Rating	IP65																
Operating Conditions	Temperature: -30° to +80° C																
Weight	SI-LM40MKH models: 0.34 kg SI-LM40MKV models: 0.31 kg																
Certifications	   LISTED Auxiliary Device																
Contact Configuration and Switching Diagrams	SI-LM40MKH..D models: SD018 (p. 215) SI-LM40MKH..F models: SD020 (p. 216) SI-LM40MKH..E models: SD019 (p. 216) SI-LM40MKV.. models: SD021 and SD022 (p. 216)																

PICO-GUARD™

MAGNET STYLE

HINGE STYLE

LIMIT STYLE

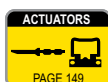
LOCKING STYLE

Locking Style

Spring or Solenoid Locking

- Two locking mechanisms are available: spring lock with energized solenoid release and energized solenoid lock with spring release.
- Rigid and flexible in-line actuators are available.
- Actuator head can be rotated in 90° increments to eight possible actuator positions: four vertical and four horizontal.
- Two models are available, based on voltage.

SI-LS42 Spring Lock/Solenoid Unlock Models	Page 145
SI-LS42 Solenoid Lock/Spring Unlock Models	146
SI-QM100 Models	147



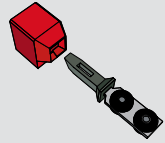
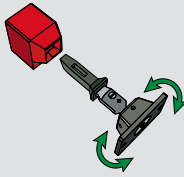
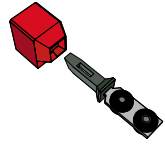
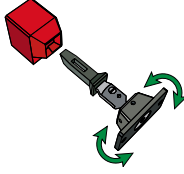
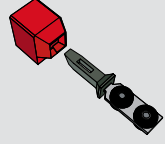
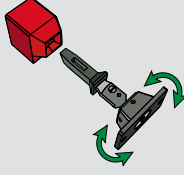
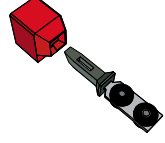
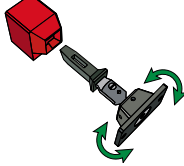
SI-LS42 Locking Style Switches

- Insulated device on all models (IEC 60947-5-1)
- Solenoid voltages: 24V ac/dc; and 24 to 48V dc or 24 to 230V ac
- Stainless steel actuator
- Positive opening safety contacts (IEC 60947-5-1)



SI-LS42 Models
(shown with rigid in-line actuator)

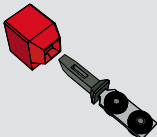
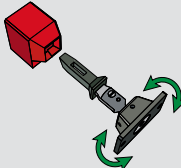
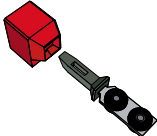
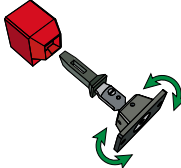
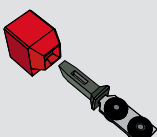
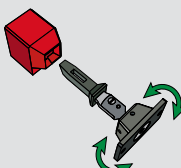
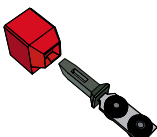
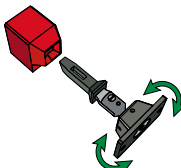
SI-LS42 Safety Switches, 42 mm - Spring Lock and Solenoid Unlock

Kits				Contact(s)	Solenoid Voltage	Contact Config. & Switch Diagram	Data Sheet
Kit Model *	Actuator Type		Interlock				
SI-LS42DMSG	SI-QM-SSA Straight Rigid In-Line		SI-LS42DSG	Actuator Contacts: 1 NC & 1 NO	24V ac/dc	SD023 (Page 216)	60099
SI-LS42UMSG			SI-LS42USG		24-48V dc/ 24-230V ac		
SI-LS42DMSGF	 SI-QM-SMFA Flexible In-Line		SI-LS42DSG	Solenoid Monitor Contacts: 1 NC & 1 NO	24V ac/dc		
SI-LS42UMSGF			SI-LS42USG		24-48V dc/ 24-230V ac		
SI-LS42DMSH	SI-QM-SSA Straight Rigid In-Line		SI-LS42DSH	Actuator Contacts: 2 NC	24V ac/dc	SD024 (Page 216)	
SI-LS42UMSH			SI-LS42USH		24-48V dc/ 24-230V ac		
SI-LS42DMSHF	 SI-QM-SMFA Flexible In-Line		SI-LS42DSH	Solenoid Monitor Contacts: 1 NC & 1 NO	24V ac/dc		
SI-LS42UMSHF			SI-LS42USH		24-48V dc/ 24-230V ac		
SI-LS42DMSI	SI-QM-SSA Straight Rigid In-Line		SI-LS42DSI	Actuator Contacts: 2 NC & 1 NO	24V ac/dc	SD025 (Page 217)	
SI-LS42UMSI			SI-LS42USI		24-48V dc/ 24-230V ac		
SI-LS42DMSIF	 SI-QM-SMFA Flexible In-Line		SI-LS42DSI	Solenoid Monitor Contact: 1 NC	24V ac/dc		
SI-LS42UMSIF			SI-LS42USI		24-48V dc/ 24-230V ac		
SI-LS42DMSJ	SI-QM-SSA Straight Rigid In-Line		SI-LS42DSJ	Actuator Contacts: 3 NC	24V ac/dc	SD026 (Page 217)	
SI-LS42DMSJF	 SI-QM-SMFA Flexible In-Line		SI-LS42DSJ	Solenoid Monitor Contact: 1 NC			

 Multi-Directional NC = Normally Closed Contact, NO = Normally Open Contact

* A kit contains an interlock and actuator. Individual interlocks (without actuator) are for replacement purposes only.
Contact factory for integral quick-disconnect (QD) and pigtail QD options.

SI-LS42 Safety Switches, 42 mm - Solenoid Lock and Spring Unlock

Kits				Contact(s)	Solenoid Voltage	Contact Config. & Switch Diagram	Data Sheet
Kit Model *	Actuator Type		Interlock				
SI-LS42DMMG	SI-QM-SSA Straight Rigid In-Line		SI-LS42DMG	Actuator Contacts: 1 NC & 1 NO	24V ac/dc	SD023 (Page 216)	60099
SI-LS42UMMG			SI-LS42UMG		24-48V dc/ 24-230V ac		
SI-LS42DMMGF			SI-LS42DMG	Solenoid Monitor Contacts: 1 NC & 1 NO	24V ac/dc		
SI-LS42UMMGF			SI-LS42UMG		24-48V dc/ 24-230V ac		
SI-LS42DMMH	SI-QM-SSA Straight Rigid In-Line		SI-LS42DMH	Actuator Contacts: 2 NC	24V ac/dc	SD024 (Page 216)	
SI-LS42UMMH			SI-LS42UMH		24-48V dc/ 24-230V ac		
SI-LS42DMMHF			SI-LS42DMH	Solenoid Monitor Contacts: 1 NC & 1 NO	24V ac/dc		
SI-LS42UMMHF			SI-LS42UMH		24-48V dc/ 24-230V ac		
SI-LS42DMMI	SI-QM-SSA Straight Rigid In-Line		SI-LS42DMI	Actuator Contacts: 2 NC & 1 NO	24V ac/dc	SD025 (Page 217)	
SI-LS42UMMI			SI-LS42UMI		24-48V dc/ 24-230V ac		
SI-LS42DMMIF			SI-LS42DMI	Solenoid Monitor Contact: 1 NC	24V ac/dc		
SI-LS42UMMIF			SI-LS42UMI		24-48V dc/ 24-230V ac		
SI-LS42DMMJ	SI-QM-SSA Straight Rigid In-Line		SI-LS42DMJ	Actuator Contacts: 3 NC	24V ac/dc	SD026 (Page 217)	
SI-LS42DMMJF	 SI-QM-SMFA Flexible In-Line		SI-LS42DMJ	Solenoid Monitor Contact: 1 NC			



Multi-Directional

NC = Normally Closed Contact, NO = Normally Open Contact

* A kit contains an interlock and actuator. Individual interlocks (without actuator) are for replacement purposes only.
Contact factory for integral quick-disconnect (QD) and pigtail QD options.

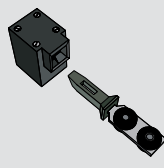
SI-QM100 Locking Style Switches

- Keyed actuators
- Solenoid voltages: 24V dc or 120V ac
- Protective earth terminal on all models (IEC 60947-1) 
- Standard mounting hole pattern (EN 50041)
- Positive opening safety contacts (IEC 60947-5-1) 

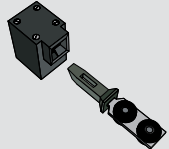


SI-QM100 Models
(shown with rigid in-line actuator)

SI-QM100 Safety Switches, 100 mm - Spring Lock and Solenoid Unlock

Kits			Contact(s)	Solenoid Voltage	Contact Config. & Switch Diagram	Data Sheet	
Kit Model*	Actuator Type						
SI-QM100DMSG	SI-QM-SSA Straight Rigid In-Line		SI-QM100DSG	Switching Contacts: 1 NC & 1 NO	24V dc	SD027 (Page 217)	49374
SI-QM100AMSG			SI-QM100ASG	Solenoid Monitor Contacts: 1 NC & 1 NO	120V ac		
SI-QM100DMSH			SI-QM100DSH	Switching Contacts: 2 NC Solenoid Monitor Contacts: 1 NC & 1 NO	24V dc	SD028 (Page 217)	

SI-QM100 Safety Switches, 100 mm - Solenoid Lock and Spring Unlock

Kits				Contact(s)	Solenoid Voltage	Contact Config. & Switch Diagram	Data Sheet
Kit Model*	Actuator Type		Interlock				
SI-QM100DMMG	SI-QM-SSA Straight Rigid In-Line		SI-QM100DMG	Switching Contacts: 1 NC & 1 NO	24V dc	SD027 (Page 217)	49374
SI-QM100AMMG			SI-QM100AMG	Solenoid Monitor Contacts: 1 NC & 1 NO	120V ac		



Multi-Directional

NC = Normally Closed Contact,

NO = Normally Open Contact

* A kit contains an interlock and actuator. Individual interlocks (without actuator) are for replacement purposes only.
Contact factory for integral quick-disconnect (QD) and pigtail QD options.

Locking Style Switches Specifications

Contact Rating	4A @ 250V ac max. 2.5 kV max. transient tolerance NEMA A300 P300																
European Rating	Utilization categories: AC15 and DC13 (IEC 60947-5-1) Switches with 1 & 2 contact pairs: $U_i = 250V$ ac SI-LS42 models: $I_{th} = 2.5 A$ SI-QM100 models: $I_{th} = 10 A$	<table border="1"> <thead> <tr> <th colspan="3">40-60 Hz</th></tr> <tr> <th>U_i V</th><th>$I_{th}/AC-15$ A</th><th>$I_{th}/DC-13$ A</th></tr> </thead> <tbody> <tr> <td>24</td><td>4</td><td>3</td></tr> <tr> <td>110</td><td>4</td><td>0.7</td></tr> <tr> <td>230</td><td>4</td><td>0.3</td></tr> </tbody> </table>	40-60 Hz			U_i V	$I_{th}/AC-15$ A	$I_{th}/DC-13$ A	24	4	3	110	4	0.7	230	4	0.3
40-60 Hz																	
U_i V	$I_{th}/AC-15$ A	$I_{th}/DC-13$ A															
24	4	3															
110	4	0.7															
230	4	0.3															
Contact Material	Silver-nickel alloy																
Solenoid Power Consumption	SI-LS42 models: 1.1 VA / Inrush 56 VA (0.2 sec) SI-QM100 models: 5.2 W																
Maximum Actuator Speed	1.5 m/second																
Mechanical Life	1 million operations																
Minimum Actuator Engagement Radius	Rigid actuator: 400 mm Flexible actuator: 150 mm																
Actuation Extraction Force	SI-LS42 models: 2000 N when locked SI-QM100 models: 1000 N when locked																
Short Circuit Protection	6 amp Slow Blow, 10 amp Fast Blow. Recommended external fusing or overload protection.																
Wire Connections	SI-LS42 models: 10 cage clamp elements 1.5 mm stranded max. / 16 AWG SI-QM100 models: Screw terminals with pressure plates accept the following wire sizes – 16 AWG (1.5 mm ²) max. solid; 14 AWG (2.5 mm ²) max. stranded, 18 AWG (1 mm ²) when using all 11 terminals																
Cable Entry	M20 x 1.5 threaded entrance Adapter supplied to convert M20 x 1.5 to 1/2" - 14 NPT threaded entrance																
Construction	SI-LS42 models: Glass fiber-reinforced polyamide thermoplastic housing; UL 94-V0 rating SI-QM100 models: Aluminum die cast																
Environmental Rating	IP67																
Operating Conditions	Temperature: SI-LS42 models: -30° to +70° C SI-QM100 models: -30° to +60° C																
Weight	SI-LS42 models: 0.3 kg SI-QM100 models: 0.81 kg																
Application Notes	When rotating the actuator head, the actuator MUST BE FULLY ENGAGED. When using a model with solenoid locking, the lock mechanism will disengage upon solenoid power failure.																
Certifications	  																
Contact Configuration and Switching Diagrams	SI-LS42 models: SD023, SD024, SD025 & SD026 (pp. 216-217) SI-QM100 models: SD027 and SD028 (p. 217)																

Replacement Actuators Parts for Safety Interlock Switches

Model	Description	Used With	Model	Description	Used With
 SI-QM-90A	Flexible in-line, trumpet-style, metal actuator used for doors or covers where alignment is difficult to maintain. Flexes in all directions. Minimum engagement radius for hinged closures is 150 mm.	• SI-LM40MKV	 SI-QS-SSA	Rigid in-line metal (die-cast steel) actuator for doors or covers with a radius of 150 mm or greater.	• SI-QS75 (high-force) • SI-QS90 (high-force)
 SI-QM-SB	Rigid in-line metal actuator used for doors or covers. Slide-bolt design for use in heavy-duty applications where alignment is difficult to maintain.	• SI-LM40MKH • SI-LS42 • SI-QM100	 SI-QS-SSA-2	Rigid in-line metal (stamped stainless steel) actuator used for doors or covers with accurate alignment, such as sliding doors. Minimum engagement radius for hinged closures is 150 mm.	• SI-LS83 • SI-LS100
 SI-QM-SMFA	Flexible in-line metal actuator used for doors or covers where alignment is difficult to maintain. Flexes in all directions. Minimum engagement radius for hinged closures is 150 mm.	• SI-LM40MKH • SI-LS42 • SI-QM100	 SI-QS-SSA-3	Rigid in-line metal (stamped stainless steel) actuator used for doors or covers with accurate alignment, such as sliding doors. Right-angle mounting flange. Minimum engagement radius for hinged closures is 150 mm.	• SI-LS83 • SI-LS100
 SI-QM-SSA	Rigid in-line metal actuator used for doors or covers with accurate alignment, such as sliding doors. Minimum engagement radius for hinged closures is 400 mm.	• SI-LM40MKH • SI-LS42 • SI-QM100	 SI-QS-SSA-4	Rigid in-line metal (stamped stainless steel) actuator for doors or covers with a radius of 150 mm or greater.	• SI-QS75 • SI-QS90
 SI-QS-100	High-extraction-force adaptor for particularly heavy or large doors. Adjustable from 50 to 100 Newtons (force). Used only for switches with in-line actuator SI-QS-SSA.	• SI-QS75 • SI-QS90	 SI-QS-SSU	Flexible in-line metal (die-cast steel) actuator for hinged doors with a radius of 50 mm or greater. Flexes in all directions. Minimum engagement radius for hinged closures is 150 mm.	• SI-LS83 • SI-LS100 • SI-QS75 • SI-QS90
SI-LS42-COVER	Replacement terminal cover	• SI-LS42			

Safety Interlock Switches Replacement Parts

Model*	Description	Used In
SI-LM40KHD	Individual Interlock (without actuator)	SI-LM40MKH..D kits
SI-LM40KHE		SI-LM40MKH..E kits
SI-LM40KHF		SI-LM40MKH..F kits
SI-LM40KVD		SI-LM40MKVD kit
SI-LM40KVE		SI-LM40MKVE kit
SI-LS42DSG		SI-LS42DMSG.. kits
SI-LS42USG		SI-LS42UMSG.. kits
SI-LS42DSH		SI-LS42DMSH.. kits
SI-LS42USH		SI-LS42UMSH.. kits
SI-LS42DSI		SI-LS42DMSI.. kits
SI-LS42USI		SI-LS42UMSI.. kits
SI-LS42DSJ		SI-LS42DMSJ.. kits
SI-LS42DMG		SI-LS42DMMG.. kits
SI-LS42UMG		SI-LS42UMMG.. kits
SI-LS42DMH		SI-LS42DMMH.. kits
SI-LS42UMH		SI-LS42UMMH.. kits
SI-LS42DMI		SI-LS42DMMI.. kits
SI-LS42UMI		SI-LS42UMMI.. kits
SI-LS42DMJ		SI-LS42DMMJ.. kits
SI-LS100F		SI-LS100.. kits
SI-LS83D		SI-LS83.. kits
SI-LS83E		SI-LS83..E kits
SI-QM100DSG		SI-QM100DMSG kit
SI-QM100ASG		SI-QM100AMSG kit
SI-QM100DMG		SI-QM100DMMG kit
SI-QM100AMG		SI-QM100AMMG kit
SI-QS75C		SI-QS75..C kits
SI-QS90D		SI-QS90..D kits
SI-QS90E		SI-QS90..E kits
SI-QS90F		SI-QS90..F kits

* Kits with one safety interlock switch and an actuator are available (see pages 135-147).