

MICRO SWITCH™ LSX Series

Explosion-Proof Hazardous Area Switches

DESCRIPTION

MICRO SWITCH™ LSX switches are for use either indoors or outdoors in hazardous atmospheres as they are a completely sealed, explosion-proof device. An optional mounting plate provides the same tracking and mounting as the standard HDLS. The majority of HDLS operating heads and circuitry options are available on the LSX. Standard HDLS levers are used, but because of explosion-proof requirements, only nylon rollers or

FEATURES AND BENEFITS

- Sealing - NEMA 1, 3, 4, 6, 7 (Class 1, Division 1, Groups B, C, D), 9 (Class 2, Division 1, Groups E, F, G), 13
- Tracking interchangeability with MICRO SWITCH™ ML-E1 and HDLS
- Variety of heads and non-sparking actuators
- Field adjustability matches switch to application
- Momentary, maintained, sequential, or center neutral action
- 10 A continuous carry electrical rating
- Choice of silver or gold contacts
- 0.5 in or 0.75 in conduit opening
- UL Listed, file #E61730
- CSA Certified, file #LR57327
- Internal grounding screw

other non-sparking material can be selected. Plunger and cat whisker types listed in the LSX order guide are non-sparking materials. The MICRO SWITCH™ LSX withstands pressure of an internal explosion and cools the exploding gases below the kindling temperature of the explosive atmosphere. Flame paths are provided by the cover-housing threads and an extended plunger between the switch cavity and head.

APPLICATIONS

- Control valves and actuators
- Petroleum plants
- Chemical plants
- Waste treatment
- Hazardous waste handling

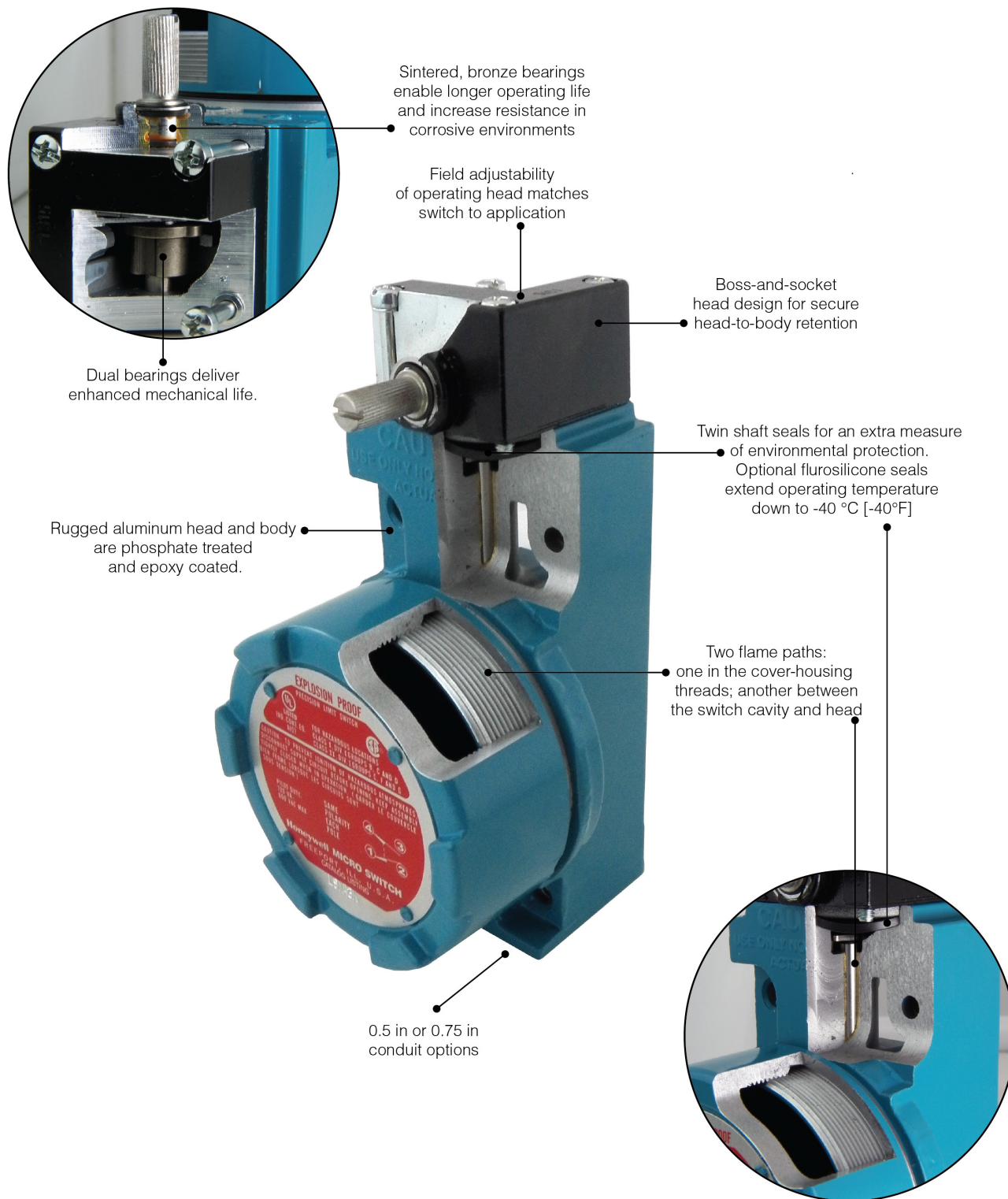
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Figure 1. MICRO SWITCH™ LSX SERIES FEATURES AND OPTIONS



Explosion-Proof, Hazardous Area Limit Switches

MICRO SWITCH™ LSX SERIES PRODUCT NOMENCLATURE

LSX Switch Type	J Head Style	3K Circuitry and Conduit Connection	Modification Code	7A Actuator Options
LSX Series Hazardous Area Switch	A Side rotary; momentary	3E 1NO/1NC, 1/2-14NPT, gold contacts	1 CW rotation	1 Fixed roller, 1.5 in radius
	B Top rotary; momentary	3K 1NO/1NC, 1/2-14NPT	2 CCW rotation	1A Fixed 0.75 in x 0.25 in nylon roller, 1.5 in radius
	C Top plunger, plain	3N SPNC direct acting, 1/2-14NPT	3 Head assembled with actuator to right side	1C Fixed 0.75 in x 0.25 in nylon roller, 1.5 in radius
	D Top plunger, roller	4K 1NO/1NC, 3/4-14NPT	4 Head assembled with actuator to left side	2 Adjustable, rollerless
	E Side plunger plain; momentary	4L 2NO/2NC, 3/4-14NPT	5 Head assembled with actuator toward mounting surface	2A Adjustable, 0.75 in x 0.25 in nylon roller
	F Side plunger roller; momentary	4M 2NO/2NC, 3/4-14NPT, sequential operation	6 Roller perpendicular to mounting surface	2C Adjustable, 0.75 in x 0.25 in nylon roller
	H Side rotary, momentary; low PT, low torque	4N 2NO/2NC, 3/4-14NPT, center neutral	8 Roller on side plunger in vertical position	2J Adjustable, 1.0 in x 0.5 in nylon roller
	J Wobble stick	4S 2NO/2NC, 3/4-14NPT, gold contacts		2K Adjustable, 0.5 in x 0.25 in nylon roller
	K Whisker	4T 2NO/2NC, 3/4-14NPT, gold contacts, sequential operation		3E Yoke, 0.75 in x 0.25 in nylon roller
	L Side rotary; sequential	4U 2NO/2NC, 3/4-14NPT, gold contacts, center neutral		3M Yoke, 0.75 in x 0.25 in nylon roller
	M Side rotary; central neutral	7L 2NO/2NC, 1/2-14NPT		3S Yoke, 0.75 in x 0.25 in nylon roller, same side
	N Side rotary; maintained	7M 2NO/2NC, 1/2-14NPT, sequential operation		4 Hub only
	P Side rotary, momentary; low PT and DT	7N 2NO/2NC, 1/2-14NPT, center neutral		4M Hub rod, aluminum
	R Side rotary, momentary; low torque	7S 2NO/2NC, 1/2-14NPT, gold contacts		5 Offset, rollerless
	U Side rotary, low pre-travel	7T 2NO/2NC, 1/2-14NPT, gold contacts, sequential operation		5A Offset, 0.75 in x 0.25 in nylon roller
	V Top plunger, adjustable	7U 2NO/2NC, 1/2-14NPT, gold contacts, center neutral		5C Offset, 0.75 in x 0.25 in nylon roller
	W Side plunger, adjustable			7A Plastic wobble stick
				8A Whisker, 5.5 in
				9A Fixed, 0.75 in x 0.25 in nylon roller, open, 1.33 in radius
				9C Fixed, 0.75 in x 0.25 in nylon roller, closed, 1.33 in radius

To order high temperature versions, insert the additional letters **Y** and **C** in the appropriate places in the standard catalog listing, as shown below:

LSXA3K	standard, side-rotary plug-in switch
LSXYAC3K	completely FC-sealed version of LSXA3K

To order low temperature versions, insert the additional letters **Y** and **B** in the appropriate places in the standard catalog listing, as shown below:

LSXA3K	standard, side-rotary plug-in switch
LSXYAB3K	low-temperature version of LSXA3K

For more details, please see page 18.

MICRO SWITCH™ LSX Series

Figure 3. MICRO SWITCH™ LSX SERIES PRODUCT DIMENSIONS • mm [in]

SIDE ROTARY - HEAD CODES: A, H, L, M, N, P, Q, R, AND U

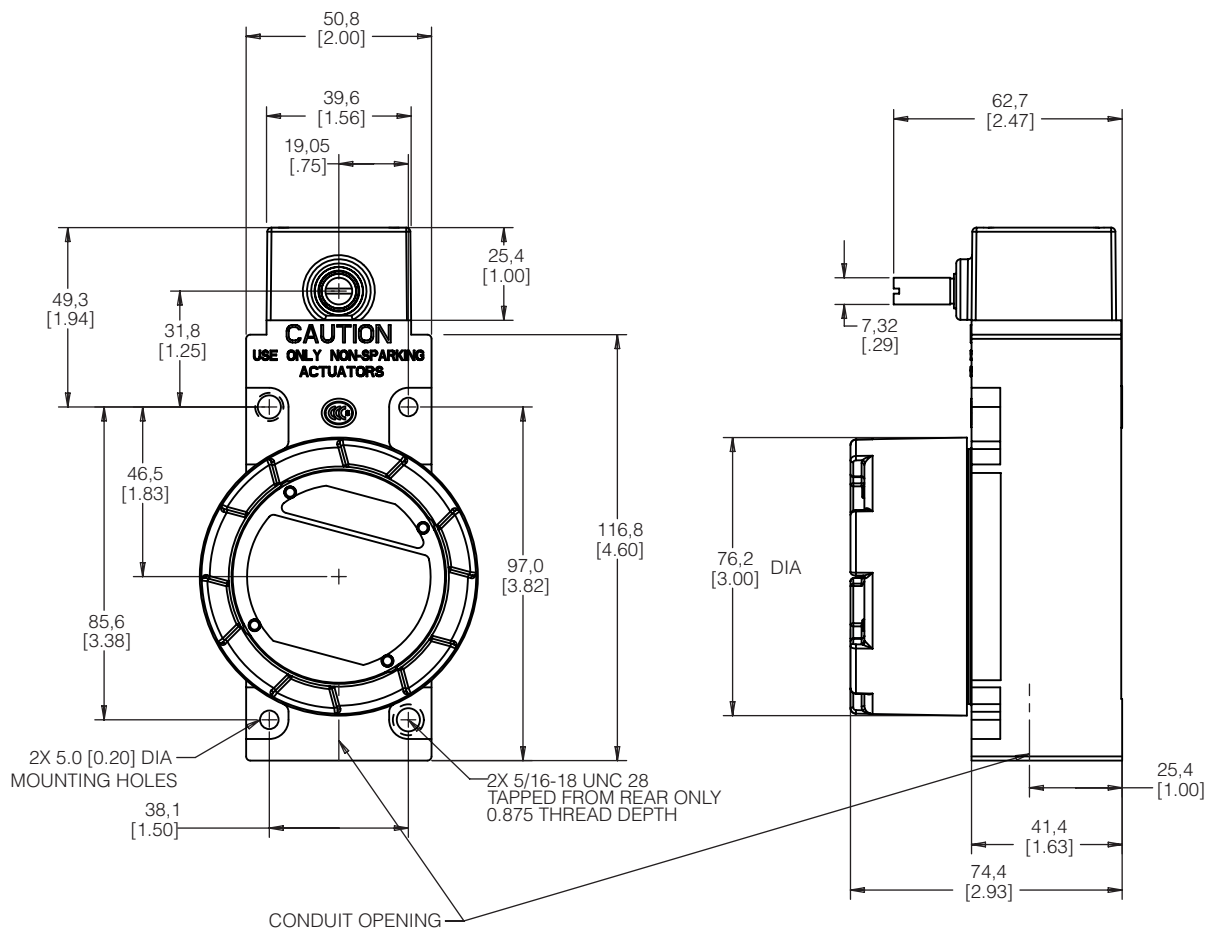


Figure 4. MICRO SWITCH™ LSX SERIES WOBBLE STICK, HEAD CODE J • mm [in]

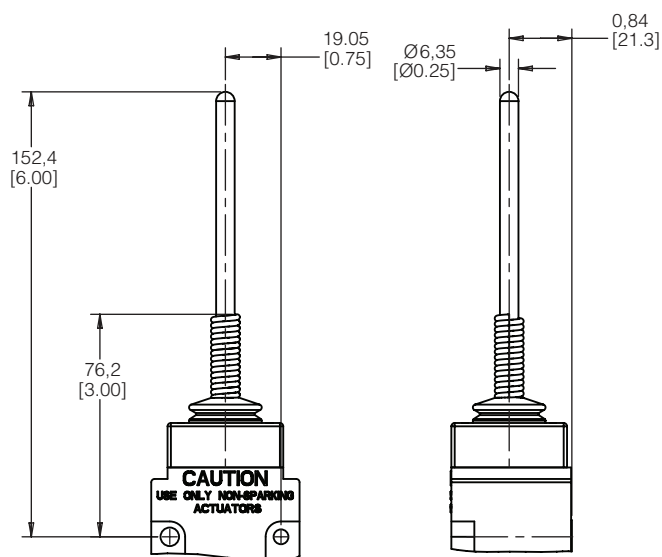
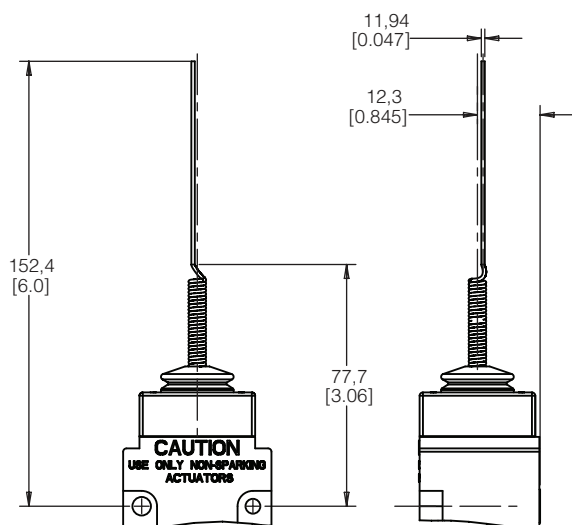


Figure 5. MICRO SWITCH™ LSX SERIES CAT WHISKER WOBBLE, HEAD CODE K • mm [in]



Explosion-Proof, Hazardous Area Limit Switches

Figure 6. MICRO SWITCH™ LSX SERIES TOP ROTARY, HEAD CODE B • mm [in]

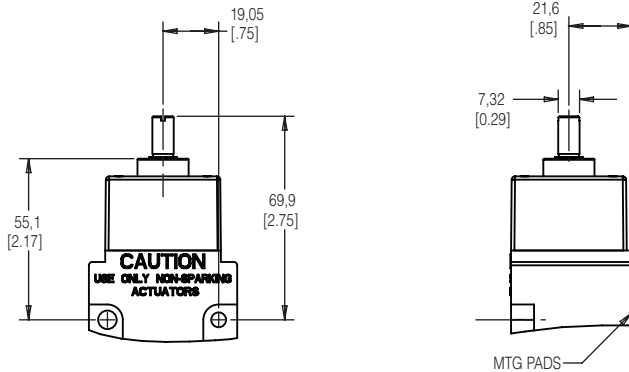


Figure 8. MICRO SWITCH™ LSX SERIES TOP ROLLER PLUNGER, HEAD CODE D • mm [in]

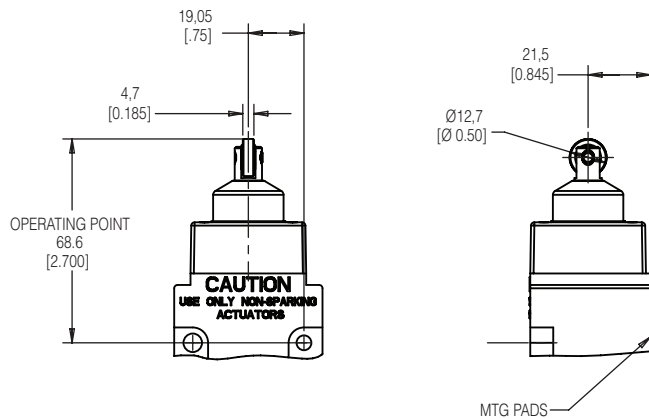


Figure 11. MICRO SWITCH™ LSX SERIES ADJUSTABLE TOP PIN PLUNGER, HEAD CODE V • mm [in]

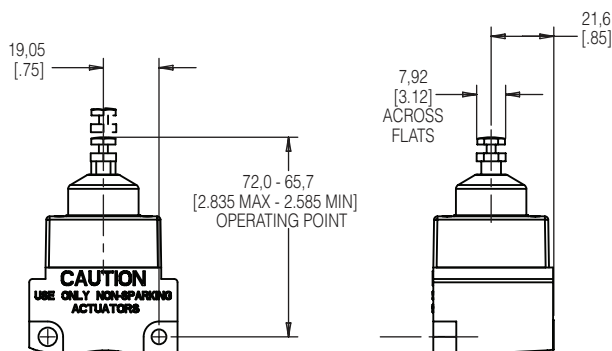


Figure 7. MICRO SWITCH™ LSX SERIES TOP PIN PLUNGER, HEAD CODE C • mm [in]

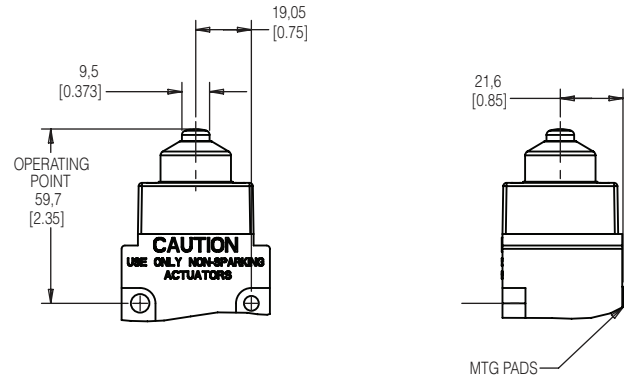


Figure 9. MICRO SWITCH™ LSX SERIES SIDE PLUNGER, HEAD CODE E • mm [in]

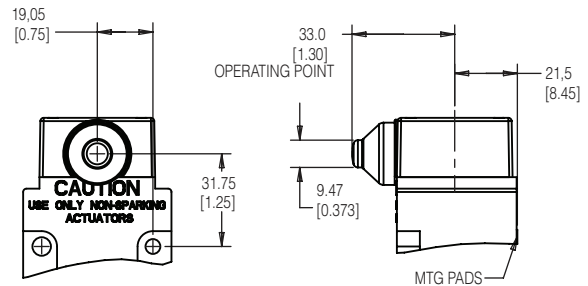


Figure 10. MICRO SWITCH™ LSX SERIES SIDE ROLLER PLUNGER, HEAD CODE F • mm [in]

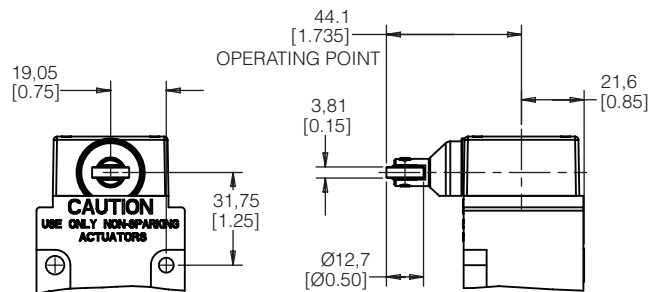
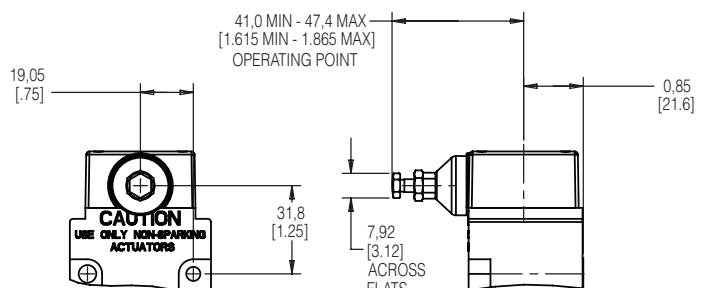


Figure 12. MICRO SWITCH™ LSX SERIES ADJUSTABLE SIDE PIN PLUNGER, HEAD CODE W • mm [in]



MICRO SWITCH™ LSX Series

Table 1. General MICRO SWITCH™ LSX Series Specifications

Characteristic	Parameter
Product Type	MICRO SWITCH™ Hazardous Area Limit Switches
Actuators	Side plunger - adjustable Side plunger - pin Side rotary Side rotary maintained Top plunger - pin Top roller plunger Wobble - cat whisker Wobble - plastic rod Side roller plunger Top plunger - adjustable Top rotary
Circuitry	1NC 1NO SPDT snap action, double break 2NC 2NO DPDT snap action, double break SNPC direct acting 2NC 2NO DPDT sequential 2NC 2NO DPDT center neutral
Electrical	10 A thermal Single and double pole: AC15 A600; DC13 R300
Housing Material	Aluminum
Termination Types	0.5 in - 14NPT conduit 0.75 in - 14NPT conduit
Housing Type	LSX Non-Plug-in
Sealing	NEMA 1, 3, 4, 6, 7 (Class 1, Division 1, Groups B, C, D), 9 (Class 2, Division 1, Groups E, F, G), 13
Operating Temperature	-12 °C to 121 °C [10 °F to 250 °F];
Agency Approvals and Standards	UL, CSA
Hazardous Area Designations	Div. 1 & 2, Class I, Groups B, C, & D Div. 1 & 2, Class II, Groups E, F, & G
UNSPSC Code	302119
UNSPSC Commodity	302119 Switches and controls and relays

Explosion-Proof, Hazardous Area Limit Switches

MICRO SWITCH™ LSX SERIES OPERATING HEADS

SIDE ROTARY: Available levers provide greater versatility. Heads may be positioned with shaft on any side. All are momentary action except maintained head (LSN Series).



LSXA - Standard: 60° minimum overtravel, 15° maximum pretravel, 5° (single pole) and 7° (double pole) maximum differential travel. Operating temperature range from -12 °C to 121 °C [10 °F to 250 °F].*

LSXR - Low operating torque: 60° minimum overtravel, 15° maximum pretravel, 0.19 Nm [1.7 in lb] maximum operating torque. Operating temperature range from -1 °C to 121 °C [250 °F to 250 °F].*

LSXN - Maintained contact: Maintained on counterclockwise rotation and reset on clockwise rotation, and vice versa. Operating temperature range from -1 °C to 121 °C [30 °F to 250 °F].

LSXP - Low differential: 68° minimum overtravel, 7° maximum pretravel, 3° (single pole) and 4° (double pole) maximum differential travel. Operating temperature range from -12 °C to 121 °C [10 °F to 250 °F].*

LSXH - Low torque, low differential travel: 68° minimum overtravel. Features low operating torque and narrow differential travel. Operating temperature range from -1 °C to 121 °C [30 °F to 250 °F].*

LSXL - Sequence action: 48° minimum overtravel. Delayed action between operation of two poles. Operating temperature range from -12 °C to 121 °C [10 °F to 250 °F].*

LSXM - Center neutral: 53° minimum overtravel. One set of contacts operates on the clockwise rotation, and another set on the counterclockwise rotation. Operating temperature range from -1 °C to 121 °C [30 °F to 250 °F].*

TOP ROTARY: Available levers provide greater versatility. Heads may be positioned with shaft on any side. All are momentary action except maintained head.



LSXB: With 100° minimum overtravel. Various levers that fit side rotary shafts may be used on the top rotary shaft. Switch is ideal when increased overtravel is required. Momentary action. Standard operating temperature range from -1 °C to 121 °C [30 °F to 250 °F].*

TOP PLUNGERS: Available with 4,83 mm [0.19 in] minimum overtravel. Top pin plungers are offered in pin plunger, an adjustable plunger, and a roller plunger. Standard temperature range of -12 °C to 93 °C [10 °F to 200 °F].



LSXC - Top pin plunger: A corrosion-resistant steel plunger for in-line actuating motion. Oil-tight seals on plunger and between the operating head and housing keep out coolant, dust, and chips. Momentary action.



LSXD - Top roller plunger: A corrosion-resistant steel roller and plunger that is adjustable to 90° angles to accept cam or slide operation from any of two directions. Boot seal on the plunger. Momentary action



LSXV - Adjustable top pin plunger: Provides easy application and saves on installation time. The operating points of the switch can be adjusted from 52,8 mm to 59,3 mm [2.085 in to 2.335 in]. Seals are the same as the pin plunger. Momentary action.



MICRO SWITCH™ LSX Series

MICRO SWITCH™ LSX SERIES OPERATING HEADS

SIDE PLUNGERS: Available with 4,83 mm [0.19 in] minimum overtravel. Side plungers are offered in plain plunger, an adjustable plain plunger, a roller plunger, and a maintained plunger. Standard temperature range of -12 °C to 93 °C [10 °F to 200 °F].

	LSXE - Side pin plunger: For actuating motion inline with the plunger travel. Actuating head may be faced in any of four positions, 90° apart. A boot seal on the plunger and a gasket seal between the head and housing keep out coolant, dust, and chips. Momentary action.		LSXW - Adjustable side pin plunger: Has the same features of the side plain plunger plus the means to adjust the operating points of the switch from 41 mm to 47,4 mm [1.615 in to 1.865 in]. Momentary action.
	LSXF - Side roller plunger: Fits close quarters under cams and slides. The head may be faced in any of four positions, 90° apart. <u>The roller can be turned vertical or horizontal to the switch.</u> Boot seal on plunger. Momentary action.		

WOBBLE LEVER ACTUATING HEADS: Heads come with either a Delrin® plastic rod or steel cat whisker. Any movement of the lever (except pull) will actuate the switch. Standard temperature range of -12 °C to 93 °C [10 °F to 200 °F].

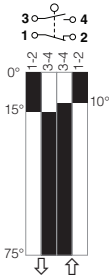
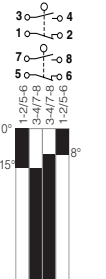
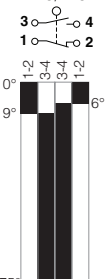
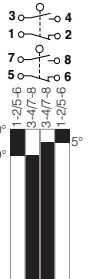
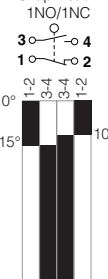
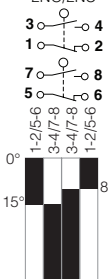
	
LSXK - Plastic rod: Recommended where possible scratching or marring by the actuator is to be avoided.	LSXJ - Cat whisker: 300 Series SST actuator designed for low operating force applications.

Explosion-Proof, Hazardous Area Limit Switches

Side Rotary

MICRO SWITCH™ LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS



	Standard (LSXA)		Low Differential (LSXP)		Low Torque (LSXR)		
Description	Standard		Low differential travel		Low operating torque		
Contact closed  Contact open 	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT	
	Snap Action 1NO/1NC 	Snap Action 2NO/2NC 	Snap Action 1NO/1NC 	Snap Action 2NO/2NC 	Snap Action 1NO/1NC 	Snap Action 2NO/2NC 	
	Pretravel	15° max.	15° max.	9° max.	9° max.	15° max.	15° max.
	Different. travel	5° max.	7° max.	3° max.	4° max.	5° max.	7° max.
	Overtravel	60° min.	60° min.	66° min.	66° min.	60° min.	60° min.
Oper. torque	0,45 Nm [4 in-lb] max.		0,45 Nm [4 in-lb] max.		0,19 Nm [1.7 in-lb] max.		
Action	Momentary, CW & CCW (Spring return)						
Op. temp range ³	-12 °C to 121 °C [10 °F to 250 °F]				-1 °C to 121 °C [30 °F to 250 °F]		
	LSXA3K	LSXA7L	LSXP3K	LSXP7L	LSXR3K	LSXR7L	
	LSXA4K	LSXA4L	LSXP4K	LSXP4L	LSXR4K	LSXR4L	
	LSXA3E	-	LSXP3E	-	LSXR3E	-	
	-	LSXA4S	-	LSXP4S	-	LSXR4S	

¹ Gold-plated contacts

³ Completely fluorocarbon sealed switches are preferred for use in temperatures above 93 °C [200 °F] (for low temp or high temp, versions, see page 19)

To order a fluorocarbon sealed switch, insert the letters **Y** and **C** into the catalog listing as follows. The LSXA3K limit switch is changed to a LSX**Y****C**3K limit switch.

MICRO SWITCH™ LSX Series

Side Rotary

MICRO SWITCH™ LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS



	Maint. Contact (LSXN)		Low Torque (LSXH)			
Description	Maintained, 2-pos ^{1,2} . Std.		Momentary, low torque			
	SPDT	DPDT	SPDT	DPDT		
	Maintained Contact Maintained Contact Maintained Contact		Snap Action 1NO/1NC Snap Action 1NO/1NC		Snap Action 2NO/2NC Snap Action 2NO/2NC	
	Contact closed ■ Contact open □					
Pretravel	65° max.		9° max.	9° max.		
Different. travel	30° max.	35° max.	3° max.	4° max.		
Overtravel	20° min.		66° min.	66° min.		
Oper. torque	0,45 Nm [4 in-lb]		0,19 Nm [1.7 in-lb] max.			
Action	Maintained		CW & CCW (Spring return)			
Op. temp range ³	-1 °C to 121 °C [30 °F to 250°F] (for low temp, high temp, or preloaded versions, see page 19)					
	LSXN3K	LSXN7L	LSXH3K	LSXH7L		
	LSXN4K	LSXN4L	LSXH4K	LSXH4L		
	LSXN3E	-	LSXH3E	-		
	-	LSXN4S	-	LSXH4S		

¹ Gold-plated contacts

³ Completely fluorocarbon sealed switches are preferred for use in temperatures above 93 °C [200 °F] (for low temp or high temp, versions, see page 19)

To order a fluorocarbon sealed switch, insert the letters **Y** and **C** into the catalog listing as follows. The LSXA3K limit switch is changed to a LSXYAC3K limit switch.

Explosion-Proof, Hazardous Area Limit Switches

Side Rotary

MICRO SWITCH™ LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS



Description	Center Neutral (LSXM)	Sequence Action (LSXL)
	Center Neutral (Pole 1 operates CCW; Pole 2 operates CW)	Sequential (Pole 1 operates before Pole 2, either CW, CCW, or both)
	DPDT	DPDT
	Contact closed ■ Contact open □	
Pretravel	18° max.	1 st : 15°; 2 nd : add'l 10°
Different. travel	10° max.	each pole: 5°
Overtravel	57° min.	48° min.
Oper. torque	0,45 Nm [4 in-lb]	0,45 Nm [4 in-lb]
Action	CW & CCW (Spring return)	
Op. temp range³	-1 °C to 121 °C [30 °F to 250°F]	-12 °C to 121 °C [10 °F to 250°F]
Contacts	Conduit (NPT)	
Silver	0.5 in	LSXM7N LSXL7M
Silver	0.75 in	LSXM4N LSXL4M
Gold ¹	0.5 in	LSXM7U LSXL7T
Gold ¹	0.75 in	LSXM4U LSXL4T

¹ Gold-plated contacts

³ Completely fluorocarbon sealed switches are preferred for use in temperatures above 93 °C [200 °F] (for low temp or high temp. versions, see page 19)

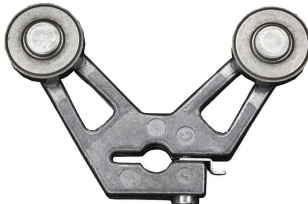
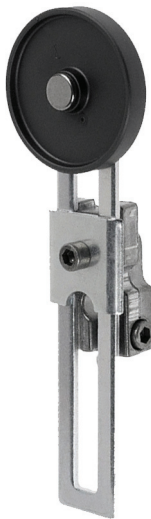
To order a fluorocarbon sealed switch, insert the letters **Y** and **C** into the catalog listing as follows. The LSXA3K limit switch is changed to a LSXYAC3K limit switch.

MICRO SWITCH™ LSX Series

Levers

Table 2. Common levers for use with MICRO SWITCH™ LSX Rotary Switches

Levers for use with side or top rotary actuated switches are available in a wide choice of sizes and materials. The most common listings are shown below. Rollers may be on either side of the lever to best match the external actuating mechanism.

									
LSZ51A&C fixed rotary lever, nylon roller, front/back		LSZ59A&C short fixed lever, nylon roller, front/back							
									
LSZ55A&C offset lever, front/back		LSZ60A one-way roller lever							
		LSZ53A&C yoke lever, nylon rollers, front/back placement							
									
LSZ52A&C adj. lever, nylon, front/back		LSZ52J adjustable lever, nylon roller 25,4 mm [1 in]		LSZ52K adjustable lever, nylon roller 38,1 [1.5 in]		LSZ54M aluminum rod 139,7 mm [5.5 in]		LSZ61 loop 152,4 mm [6 in]	
						LSZ67CA Plastic conveyor roller		LSZ68 rod w/ spring 304,8 mm [12 in]	

Explosion-Proof, Hazardous Area Limit Switches

Levers

Table 3. LSX SERIES ACTUATOR CODE TABLE (see previous page)

	Catalog Listing	Material	Roller Dia. (in)	Roller Width (in)	Roller Mounting
	Fixed 1.5 inch radius				
	–	Rollerless	n/a	n/a	n/a
	LSZ51A	Nylon	0.75	0.25	Front
	LSZ51C	Nylon	0.75	0.25	Back
	LSZ51F	Nylon	1.0	0.520	Front
	LSZ51G	Nylon	1.5	0.25	Front
	LSZ51J	Nylon	1.0	0.520	Back
	LSZ51M	Nylon	0.75	1.25	Back
	LSZ51P	Nylon	0.75	0.50	Front
	Adjustable 1.5 in to 3.5 in radius				
	–	Rollerless	n/a	n/a	n/a
	LSZ52A	Nylon	0.75	0.25	Back
	LSZ52C	Nylon	0.75	0.25	Front
	LSZ52E	Nylon	0.75	1.30	Front
	LSZ52J	Nylon	1.0	0.50	Front
	LSZ52K	Nylon	1.5	0.25	Front
	LSZ52M	Nylon	2.0	0.25	Front
	LSZ52N	Nylon	0.75	0.50	Front
	Yoke – 1.5 in radius				
	LSZ53A	Nylon	0.75	0.25	Front/Back
	LSZ53E	Nylon	0.75	0.25	Back/Front
	LSZ53M	Nylon	0.75	1.25	Back/Front
	LSZ53S	Nylon	0.75	0.25	Back/Back
	Rod				
	–	Hub only	n/a	n/a	n/a
	LSZ54M	Alum, 5.5 in	Ø 0.125	n/a	n/a
	LSZ54N	Stainless, 13 in	Ø 0.125	n/a	n/a
	LSZ54P	Plastic rod, 12 in	Ø 0.27	n/a	n/a
	LSZ54W	Plastic rod, 7.2 in	Ø 0.27	n/a	n/a
	Offset – 1.5 in radius				
	–	Rollerless	n/a	n/a	n/a
	LSZ55A	Nylon	0.75	0.25	Back
	LSZ55C	Nylon	0.75	0.25	Front
	LSZ55E	Nylon	0.75	0.50	Front
	LSZ55K	Nylon	1.5	0.25	Front

	Catalog Listing	Material	Roller Dia. (in)	Roller Width (in)	Roller Mounting
	Short fixed - 1.3 in radius				
	LSZ59A	Nylon	0.75	0.25	Front
	LSZ59C	Nylon	0.75	0.25	Back
	One-way roller lever				
	LSZ60A	Nylon	0.75	0.25	Front
	Flexible loop				
	LSZ61	Ø 0.19 Nylatron	6 inch flexible loop/cap screw		
	LSZ618	Ø 0.19 Nylatron	9.5 inch flexible loop/cap screw		
	LSZ54	Hub only	n/a	n/a	n/a
	Spring rod				
	LSZ68	Delrin rod, 12 in	Ø 0.25	n/a	n/a
	LSZ617	Delrin rod, 16 in	Ø 0.25	n/a	n/a
	LSZ686	Delrin rod, 6 in	Ø 0.25	n/a	n/a
	Rubber roller levers				
	LSZ51Y (standard)	Rubber	2.0	0.5	front
	LSZ55Y (offset)	Rubber	2.0	0.5	front
	LSZ52Y (adjustable)	Rubber	2.0	0.5	front
	Plastic roller levers				
	LSZ67AA (conveyor)	Plastic	1.5	3.8	n/a

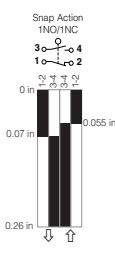
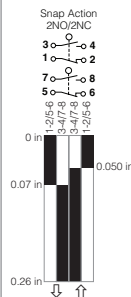
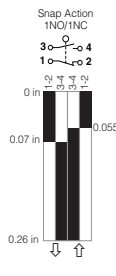
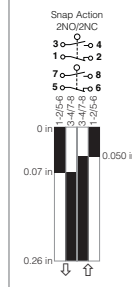
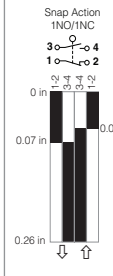
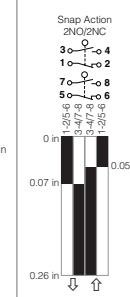
MICRO SWITCH™ LSX Series

Plungers

MICRO SWITCH™ LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

All top plungers are momentary action.



action.	Plain (LSXC)		Roller (LSXD)		Adjustable (LSXV)	
						
Description	Top plain plunger for in-line operating motion		Roller plunger – can be set at 90° increments to accept cam or slide actuation		Adjustable top plain plunger simplifies installation since operating point can be adjusted from 2.085 in to 2.335 in	
	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT
Contact closed  Contact open 	Snap Action 1NO/1NC 	Snap Action 2NO/2NC 	Snap Action 1NO/1NC 	Snap Action 2NO/2NC 	Snap Action 1NO/1NC 	Snap Action 2NO/2NC 
Pretravel	1,78 mm [0.07 in]					
Different. travel	0,38 mm [0.015 in]	0,51 mm [0.02 in]	0,38 mm [0.015 in]	0,51 mm [0.02 in]		
Overtravel	4,83 mm [0.19 in]					
Operating force	17,8 N [4 lb] max.					
Oper. point	2.305 in ±0.030 in		2.70 in ±0.050 in		2.585 in min; 2.835 in max.	
Op. temp range ³	-12 °C to 93 °C [10 °F to 200 °F] (for low temp, high temp, or preloaded versions, see page 6)					
	LSXC3K	LSXC7L	LSXD3K	LSXD7L	LSXV3K	LSXV7L
	LSXC4K	LSXC4L	LSXD4K	LSXD4L	LSXV4K	LSXV4L
	LSXC3E	-	LSXD3E	-	LSXV3E	-
	-	LSXC4S	-	LSXD4S	-	LSXV4S

¹ Gold-plated contacts

³ Completely fluorocarbon sealed switches are preferred for use in temperatures above 93 °C [200 °F] (for low temp or high temp, versions, see page 19)

To order a fluorocarbon sealed switch, insert the letters **Y** and **C** into the catalog listing as follows. The LSXA3K limit switch is changed to a LSXY**Y**C3K limit switch.

Explosion-Proof, Hazardous Area Limit Switches

Plungers

MICRO SWITCH™ LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

Heads may be positioned to accept actuation from any of four directions, 90° apart.



actuation part.	Plain (LSXE)		Roller (LSXF)		Adjustable (LSXW)	
						
Description	Side plain plunger for in-line actuating (momentary)		Side roller plunger (momentary)		Adjustable side plain plunger (momentary)	
	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT
	Snap Action 1NO/1NC  0 in 0.10 in 0.29 in ↓ ↑	Snap Action 2NO/2NC  0 in 0.10 in 0.29 in ↓ ↑	Snap Action 1NO/1NC  0 in 0.10 in 0.29 in ↓ ↑	Snap Action 2NO/2NC  0 in 0.10 in 0.29 in ↓ ↑	Snap Action 1NO/1NC  0 in 0.10 in 0.29 in ↓ ↑	Snap Action 2NO/2NC  0 in 0.10 in 0.29 in ↓ ↑
Contact closed ■ Contact open □						
Pretravel	2,54 mm [0.10 in]					
Different. travel	1,14 mm [0.045 in]					
Overtravel	4,83 mm [0.19 in]					
Operating force	26,7 N [6 lb] max.					
Oper. point	[1.300 in ± 0.030 in]		1.735 in ±0.04 in		1.615 in min; 1.865 in max.	
Op. temp range ³	-12 °C to 93 °C [10 °F to 200 °F] (for low temp, high temp, or preloaded versions, see page 6)					
	LSXE3K	LSXE7L	LSXF3K	LSXF7L	LSXW3K	LSXW7L
	LSXE4K	LSXE4L	LSXF4K	LSXF4L	LSXW4K	LSXW4L
	LSXE3E	-	LSXF3E	-	LSXW3E	-
	-	LSXE4S	-	LSXF4S	-	LSXW4S

¹ Gold-plated contacts

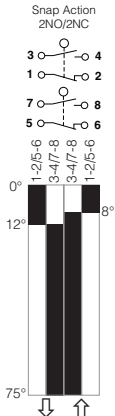
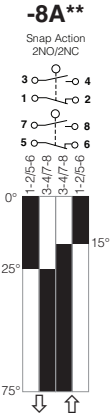
³ Completely fluorocarbon sealed switches are preferred for use in temperatures above 93 °C [200 °F] (for low temp or high temp, versions, see page 19)

To order a fluorocarbon sealed switch, insert the letters **Y** and **C** into the catalog listing as follows. The LSXA3K limit switch is changed to a LSXYAC3K limit switch.

MICRO SWITCH™ LSX Series

Wobblers

MICRO SWITCH™ LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

	LSXJ Series 7A Actuator		LSXK Series 8A Actuator			
	Description		Delrin® plastic rod lever (wobble stick)		Cat whisker actuator for low operating force applications	
			SPDT	DPDT	SPDT	DPDT
	 LSJ1A-7A - Plastic rod LSK1A-8A - Cat whisker Contact closed ■ Contact open □		 Snap Action 2NO/2NC 3 4 1 2 7 8 5 6 1-2/5-6 3-4/7-8 1-2/5-6 0° 12° 8° 75° ↓ ↑		 -8A** Snap Action 2NO/2NC 3 4 1 2 7 8 5 6 1-2/5-6 3-4/7-8 1-2/5-6 0° 25° 15° 75° ↓ ↑	
Actuator length		6 in		5.5 in stainless steel		
Pretravel		25,4 mm [1.0 in]		51,0 mm [2.0 in]		
Oper. force		2,78 Nm [10 oz]		1,39 Nm [5 oz]		
Op. temp range ³		-12 °C to 93 °C [10°F to 200 °F] (for low temp, high temp, or preloaded versions, see page 6)				
Contacts	Conduit (NPT)					
Silver	0.5 in	LSXJ3K-7A	LSXJ7L-7A	LSXK3K-8A	LSXK7L-8A	
Silver	0.75 in	LSXJ4K-7A	LSXJ4L-7A	LSXK4K-8A	LSXK4L-8A	
Gold ¹	0.5 in	LSXJ3E-7A	-	LSXK3E-8A	-	
Gold ¹	0.75 in	-	LSXJ4S-7A	-	LSXK4S-8A	

¹ Gold-plated contacts

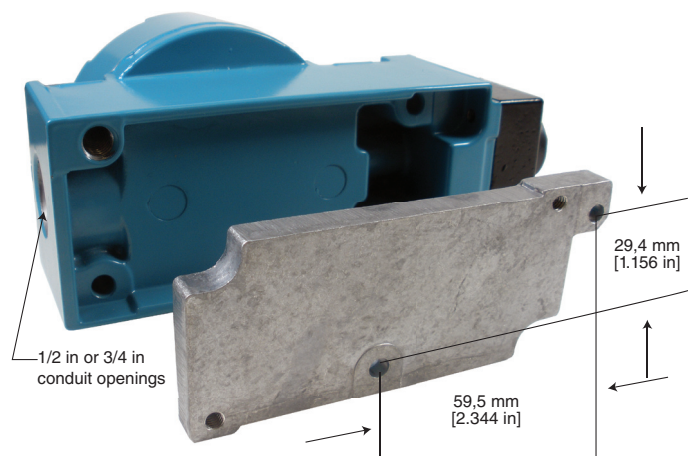
³ Completely fluorocarbon sealed switches are preferred for use in temperatures above 93 °C [200 °F] (for low temp or high temp, versions, see page 19)

To order a fluorocarbon sealed switch, insert the letters **Y** and **C** into the catalog listing as follows. The LSXA3K limit switch is changed to a LSXYAC3K limit switch.

Explosion-Proof, Hazardous Area Limit Switches

ADAPTER PLATE

Catalog listing LSXZ4022 adapter plate enables the explosion-proof LSX to be mounted on existing HDLS mounting holes. The LSX has a recessed back into which the adapter plate fits and mounts, using two screws (furnished)



REPLACEMENT HEADS

Switch Type	Catalog listing/operating head only
LSXA	LSZ1A
LSXB	LSZ1B
LSXC	LSXZ1C
LSXD	LSXZ1D
LSXE	LSXZ1E
LSXF	LSXZ1F
LSXH	LSXZ1H
LSXJ	LSXZ1JGA
LSXK	LSXZ1KHA
LSXL	LSXZ1L
LSXM	LSXZ1M
LSXN	LSXZ1N
LSXP	LSXZ1P
LSXR	LSXZ1R

REPLACEMENT CONTACT BLOCKS

Circuitry	Replacement Contact Block
Single pole	LSXZ3K
Double pole	LSXZ3L
Sequence or central neutral	LSXZ3M

MICRO SWITCH™ LSX Series

SPECIAL OPTIONS

HIGH TEMPERATURE/CHEMICAL RESISTANT SWITCHES

Completely fluorocarbon (FC)-sealed switches have a full FC body gasket coving the switch cavity. Rotary types have an extra FC seal on the operating shaft, while plunger versions have FC boot seals. They are for use in applications where the environment includes fire-resistant synthetic fluids. In addition to most all fluids, the FC-sealed switches may be used with such industrial fluids such as Cellulube, Fyrquell, Houghto-Safe, Pydraul, and other special cutting and hydraulic fluids. The additional FC seals also promote longer operating life for rotary-actuated LSX switches in applications where the temperatures are normally -12 °C to 121 °C [10 °F to 250 °F]. If pre-wired with cable, then temperature limits are 105 °C [221 °F] dry and 60 °C [140 °F] wet.

To order, insert the additional letters **Y** and **C** in the appropriate places in the standard catalog listing, as shown below:

LSXA3K	standard, side-rotary plug-in switch
LSXYAC3K	completely FC-sealed version of LSXA3K

LOW TEMPERATURE SWITCHES

All forms of LSX limit switches are also available in low-temperature construction. Design features include fluorosilicone diaphragm, shaft seals, and external booth seal (where applicable). If pre-wired with a cable, low temperature limits are -10 °C [14 °F] flex and -30 °C [-22 °F] non-flex.

To order, insert the additional letters **Y** and **B** in the appropriate places in the standard catalog listing, as shown below:

LSXA3K	standard, side-rotary plug-in switch
LSXYAB3K	low-temperature version of LSXA3K

TEMPERATURE LIMITS	LSX			
	Low Limit		High Limit	
	-12 °C [10 °F]	-1 °C [30 °F]	93 °C [200 °F]	121 °C [250 °F]
LSXA - Side Rotary Momentary	X			X
LSXB - Top Rotary		X		X
LSXC - Top Plain Plunger	X		X	
LSXD - Top Roller Plunger	X		X	
LSXE - Side Plain Plunger	X		X	
LSXF - Side Roller Plunger	X		X	
LSXH - Side Rotary, Low Diff, Low Torque		X		X
LSXJ - Wobble Stick	X		X	
LSXK - Cat Whisker	X		X	
LSXL - Side Rotary, Sequence	X			X
LSXM - Side Rotary, Center Neutral		X		X
LSXN - Side Rotary, Maintained		X		X
LSXP - Side Rotary, Low Pretravel	X			X
LSXR - Side Rotary, Low Torque		X		X
LSXV - Top Adjustable Plunger	X		X	
LSXW - Side Adjustable Plunger	X		X	

Explosion-Proof, Hazardous Area Limit Switches

ASSEMBLY MODIFICATIONS

Momentary action rotary switches can be furnished in other than the normal assembled conditions. To specify modifications, add the numbers shown below to the catalog listings. Modification number suffixes are:

- 1** Clockwise actuation only
- 2** Counterclockwise actuation only
- 3** Shaft to right of switch front
- 4** Shaft to left of switch front
- 5** Shaft to back of switch
- 7** Indicator light wired to NC circuit

For example,

Catalog listing LSXA3K**23** is an LSXA3K switch adjusted for counterclockwise actuation only. The operating shaft is to the right side of the switch when viewing it from the front (label side). No lever.

PLUNGER ASSEMBLY MODIFICATIONS

Add the following modification numbers to the catalog listing in the plunger switch:

- 3** Side plunger to right of switch front
- 4** Side plunger to left of switch front
- 5** Side plunger to back of switch
- 6** Roller on top plungers perpendicular to mounting surface
- 7** Light on indicator versions wired to NC circuit
- 8** Roller on side plungers in vertical position

For example,

Catalog listing LSXF3K**3** is an LSXF3K switch with the side roller plunger to the right side.

MICRO SWITCH™ LSX SERIES ELECTRICAL RATINGS ac Volts; Pilot Duty: AC15, A600/B600

Electrical Rating	Circuitry	Vac	Amps at 0.35 Power Factor Make	Amps at 0.35 Power Factor Break
A* AC15, A600	SPDT	120	60	6
		240	30	3
		480	15	1.5
		600	12	1.2
A* AC15, A600	DPDT	120	30	3
		240	15	1.5
		480	7.5	0.75
		600	6	0.6
B AC15, B600	Δ	120	30	3
		240	15	1.5
		480	7.5	0.75
		600	6	0.60

Δ extra-low torque (Model LSXT..)

MICRO SWITCH™ LSX SERIES ELECTRICAL RATINGS dc Volts; Pilot Duty: DC13, R300

Electrical Rating	Circuitry	Vdc	Make & Break Amps Inductive	Make & Break Amps Resistive
A, B*	SPDT	120	0.25	0.8
	DPDT	240	0.15	0.4

* For switches with an indicator light, use only at voltage stated for indicator light.

MICRO SWITCH™ LSX Series

This datasheet supports the following MICRO SWITCH™ LSX Hazardous Area Limit Switches.

LSX4A3K	LSXC7L	LSXN4S-3S	LSXYEB3K	LSXZ27N
LSX4A4L	LSXD3E	LSXN7L	LSXYEC3K	LSXZ27NB
LSX4A4S	LSXD3K	LSXN7L-2A	LSXYFB3K	LSXZ27S
LSX4C3K	LSXD3K6	LSXP3E	LSXYHB3K-2C	LSXZ27SB
LSX4D3K	LSXD4K	LSXP3K	LSXYJB3K-7A	LSXZ27SC
LSX4M4N	LSXD4L	LSXP3K-1A	LSXYLB4M	LSXZ27T
LSXA3E	LSXD4L6	LSXP3K-1C	LSXYMB4N	LSXZ27TB
LSXA3E-1A	LSXD7L	LSXP3K-5C	LSXYMB4N-1A	LSXZ27TC
LSXA3E-2K	LSXE3K	LSXP3K1	LSXYMB4N-2C	LSXZ27U
LSXA3E1	LSXE3K3	LSXP3K3	LSXYMB4N5-1A	LSXZ27UB
LSXA3E24-1A	LSXE3K4	LSXP3K3-1A	LSXYMB4N	LSXZ27UC
LSXA3K	LSXE4K	LSXP3K5-1A	LSXYMC4N	LSXZ3E
LSXA3K-1A	LSXE4L	LSXP4K	LSXYNB3K	LSXZ3K
LSXA3K-1C	LSXF3E	LSXP4K-2C	LSXYNB3N-1A	LSXZ3L
LSXA3K-2C	LSXF3K	LSXP4L	LSXYNB4L	LSXZ3M
LSXA3K-2J	LSXF3K5	LSXP4L-2C	LSXYPB3K	LSXZ3S
LSXA3K-2K	LSXF3K8	LSXP4L3-2C	LSXYPB4L	LSXZ4012
LSXA3K-4M	LSXF4L	LSXP7L	LSXYPB4S	LSXZ4022
LSXA3K-5C	LSXF4L5	LSXP7L 14-2C	LSXYPC4L5	
LSXA3K1	LSXF7L	LSXP7L3	LSXYRB3K	
LSXA3K1-1C	LSXF7L5	LSXQA3K332	LSXYVC3K	
LSXA3K1-2C	LSXH3K	LSXQC4C	LSXYWC3K	
LSXA3K4-4M	LSXH3K-2C	LSXR3K	LSXYWC4L5	
LSXA3K5	LSXH3K-4M	LSXR3K-1A	LSXZ1C	
LSXA3K5-1A	LSXH3K3-2C	LSXR3K-1C	LSXZ1CB	
LSXA3K5-4M	LSXH4K	LSXR3K-5A	LSXZ1CC	
LSXA3K5-5C	LSXH4L	LSXR4K-2C	LSXZ1D	
LSXA3K	LSXH4L-4	LSXR4L	LSXZ1DB	
LSXA3N	LSXH4L3	LSXR4L-1C	LSXZ1DC	
LSXA4K	LSXH4L	LSXR4L-2J	LSXZ1E	
LSXA4K-1A	LSXH7L4-1A	LSXR4L-5A	LSXZ1EB	
LSXA4K-2C	LSXJ3E-7A	LSXR4L-5C	LSXZ1EC	
LSXA4K-2J	LSXJ3K-7A	LSXR4L1	LSXZ1F	
LSXA4L	LSXJ4L-7A	LSXR4L24	LSXZ1FB	
LSXA4L-1A	LSXJ4S-7A	LSXU3K	LSXZ1FC	
LSXA4L-1C	LSXJ7L-7A	LSXV3K	LSXZ1KHA	
LSXA4L-2C	LSXK3K-8A	LSXV4L	LSXZ1V	
LSXA4L-2K	LSXK4L-8A	LSXV4S	LSXZ1VB	
LSXA4L-4M	LSXL4M	LSXV7L	LSXZ1VC	
LSXA4L-5C	LSXL4M4	LSXW3K	LSXZ1W	
LSXA4L13-2J	LSXL7M-2C	LSXW3K3	LSXZ1WB	
LSXA4L2-1C	LSXM4N	LSXW4L	LSXZ1WC	
LSXA4L3-2C	LSXM4N-1A	LSXW7L	LSXZ23E	
LSXA4L4-1A	LSXM4N-1C	LSXYAB3E	LSXZ23EB	
LSXA4L4-2C	LSXM4N-2C	LSXYAB3K	LSXZ23K	
LSXA4L5	LSXM4N-2J	LSXYAB3K-1A	LSXZ23KB	
LSXA4L5-1A	LSXM4N-3S	LSXYAB3K2	LSXZ23N	
LSXA4S	LSXM4N-4M	LSXYAB3K2-5C	LSXZ23NB	
LSXA4S-2K	LSXM4N-5C	LSXYAB3K5-2C	LSXZ24K	
LSXA4S13-2C	LSXM4N3-1A	LSXYAB4K	LSXZ24KB	
LSXA4S5	LSXM4N4	LSXYAB4K-1A	LSXZ24L	
LSXA7L	LSXM4N4-1A	LSXYAB4L	LSXZ24LB	
LSXA7L-1A	LSXM4N5	LSXYAB4L-1A	LSXZ24M	
LSXA7S	LSXM4N5-1A	LSXYAB4L4	LSXZ24MB	
LSXA7S-2	LSXM4U	LSXYAB4L5-1A	LSXZ24N	
LSXA7S1-1C	LSXM7N	LSXYAC3K	LSXZ24NB	
LSXA7S2-1C	LSXM7N-1A	LSXYAC3K-2C	LSXZ24S	
LSXB3K	LSXM7U	LSXYAC4L	LSXZ24SB	
LSXB3K-4M	LSXN3K	LSXYBB3K	LSXZ24SC	
LSXB4L	LSXN3K-1A	LSXYBB4L	LSXZ24T	
LSXB4L-1C	LSXN3K-4M	LSXYCB3K	LSXZ24TB	
LSXB4L-4M	LSXN4K	LSXYCB4L	LSXZ24TC	
LSXC3E	LSXN4L	LSXYCC3K	LSXZ24U	
LSXC3K	LSXN4L-1A	LSXYCC4L	LSXZ24UB	
LSXC4K	LSXN4L-2C	LSXYDB3K	LSXZ24UC	
LSXC4L	LSXN4L-3S	LSXYDB4L	LSXZ27L	
LSXC4S	LSXN4L4	LSXYDC7L	LSXZ27LB	

MICRO SWITCH™ LSX Series

Explosion-Proof, Hazardous Area Limit Switches

WARNING **PERSONAL INJURY**

- DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARNING **MISUSE OF DOCUMENTATION**

- The information presented in this datasheet is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

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