LSX SERIES

002385
Issue 4

MICRO SWITCH Hazardous Area Switches



DESCRIPTION

MICRO SWITCH LSX hazardous area switches are designed for use in adverse environments. They are approved for use in hazardous locations and NEMA classified atmospheres because their rugged housings have integral flame paths. These flame paths force internal expanding gases to cool below external atmosphere ignition temperatures before they leave the housing. The LSX also features tracking interchangeability with MICRO SWITCH BX Series Hazardous Area switches. An optional mounting plate provides the same tracking and mounting as the standard HDLS Series (heavy-duty limit switch).

The majority of HDLS operating heads and circuitry options are available for the LSX Series. The rotary actuated LSX series products are designed for use with levers that have non-sparking actuators due to the potentially hazardous environment. The other styles of LSX Series switches which are the plunger actuated and wobble actuated products incorporate an integral non-sparking actuator.

FEATURES

- **Design flexibility** — MICRO SWITCH LSX limit switches' field adjustability (CW-CCW operation, rotatable operating head) assists in matching the switch to the application. Available with momentary, maintained, sequential, or center neutral action.
- **Unique design features** — The head design is keyed for more secure head-to-body retention with the head indexable in any one of four positions 90° apart. Captive mounting screws in the heads help prevent the loss of screws during replacement or repositioning of the head. Self-lifting pressure plate terminals save wiring time.
- **Withstands many caustic environments** — A die-cast zinc head and aluminum body make the LSX suitable for indoor and outdoor applications. A diaphragm seal between the head and body is designed to provide an extra measure of protection. Switches remain functional when exposed to many severe environments and caustic chemicals.
- **Optional seals** — Standard seals are suitable for most applications, but optional fluorocarbon or fluorosilicone seals are available for many harsh chemical, high or low temperature environments.
- **Designed to control low-voltage dc applications** — Hazardous area switches are available with a choice of silver or gold-plated contacts to handle a variety of electrical load requirements from low energy to power-duty control.

APPLICATIONS

- **Grain elevators** — Monitors plugged grain conveyors, slide gate position, diverter valves, and leg positions
- **Control valves and actuators** — Senses the "on" or "off" position of the valve
- **On-shore drilling** — Detects end of travel positions for extend and retract operations of drilling equipment
- **Pipelines** — Monitors pig position and resulting pipeline health
- **Petrochemical and chemical plants** — Monitors the position of control valves, doors, and gates
- **Water treatment plantsabinets** — Detects control valve position
- **Paint booths** — Door interlocks for sliding or hinged gates or doors
- **Hazardous waste handling** — Often used as a valve position monitor

VALUE TO CUSTOMERS

- Extensive variety of actuation heads and multiple non-sparking actuators
- All-metal drive train that offers consistent operating characteristics through a broad temperature range. Also lasts longer (without need for frequent adjustment) than drive trains with plastic parts

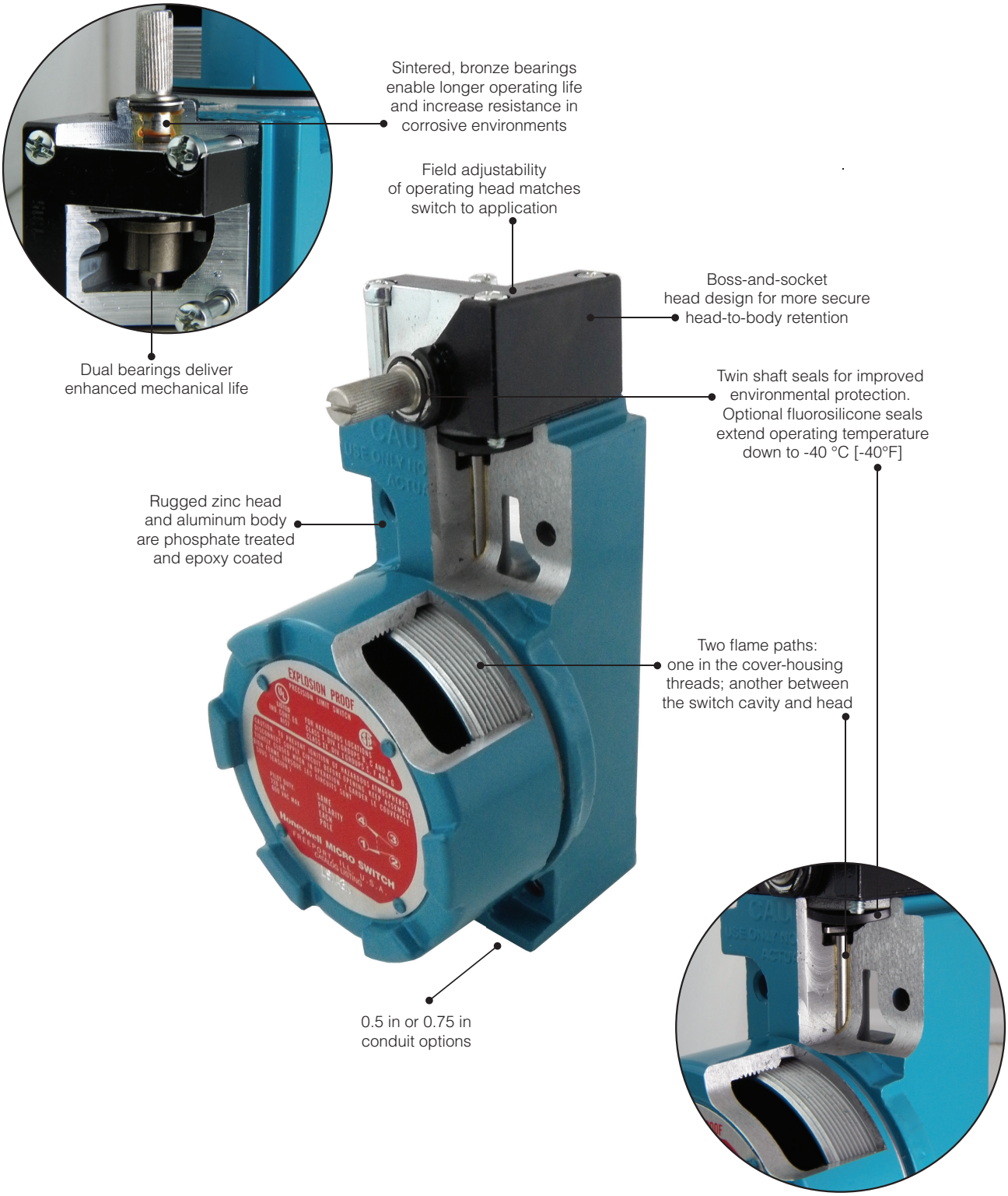
DIFFERENTIATION

- Industry-leading breadth of product
- Weather sealed to NEMA 1, 3, 4, 6, 13; Explosion proof to NEMA 7 (Class 1, Division 1 & 2, Groups B, C, D); NEMA 9 (Class 2, Division 1 & 2, Groups E, F, G)

Honeywell

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

Figure 1. MICRO SWITCH LSX Series Features and Options



MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

Figure 2. MICRO SWITCH LSX Series Product Nomenclature

LSX – **J** – **3K** – **7A**

Switch Type	Head Style	Circuitry and Conduit Connection	Modification Code	Actuator Options
LSX Series Hazardous Area Switch	**A** Side rotary; momentary	**3E** 1NO/1NC, gold contacts, 1/2-14NPT	**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, gold contacts, 3/4-14NPT		**2K** Adjustable, 0.5 in x 0.25 in nylon roller
	K Whisker	**4T** 2NO/2NC, gold contacts, 3/4-14NPT, sequential operation		**3E** Yoke, 0.75 in x 0.25 in nylon roller
	L Side rotary; sequential	**4U** 2NO/2NC, gold contacts, 3/4-14NPT, 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, gold contacts, 1/2-14NPT		**5** Offset, rollerless
	U Side rotary, low pre-travel	**7T** 2NO/2NC, gold contacts,1/2-14NPT, sequential operation		**5A** Offset, 0.75 in x 0.25 in nylon roller
	V Top plunger, adjustable	**7U** 2NO/2NC, gold contacts,1/2-14NPT, 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

Not all combinations available. Please contact Honeywell for assistance.

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 5.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

TABLE 1. SPECIFICATIONS

Characteristic	Parameter
Product type	MICRO SWITCH hazardous area limit switches
Actuators	side pin plunger side rotary top pin plunger - adjustable wobble - cat whisker side pin plunger - adjustable side rotary maintained top roller plunger wobble - plastic rod side roller plunger top pin plunger top rotary
Circuitry	1NC 1NO SPDT snap action, double break 2NC 2NO DPDT snap action, double break 2NC 2NO DPDT snap action, double break, sequential 2NC 2NO DPDT snap action, double break, center neutral
Electrical	10 A thermal single and double pole: AC15 A600, AC15 B600; DC13 R300 (see table on page 5)
Housing material	zinc head, aluminum body
Termination types	0.5 in - 14 NPT conduit 0.75 in - 14 NPT conduit
Housing type	LSX non-plug-in
Agency approvals and standards	UL, CSA
Sealing	NEMA 1, 3, 4, 6, 13
Hazardous area designations	NEMA 7 (Class 1, Division 1 & 2, Groups B, C, D), NEMA 9 (Class 2, Division 1 & 2, Groups E, F, G)
Operating temperature*	standard: -12°C to 121°C [10°F to 250°F] optional: -40°C to 121°C [-40°F to 250°F]
UNSPSC code	39122213
UNSPSC commodity	39122213 Limit Switch

* Reference operating head styles on pages 6 and 7 for exceptions.

TABLE 2. MICRO SWITCH LSX SERIES ELECTRICAL RATINGS 10 A CONTINUOUS CARRY AC VOLTS; PILOT DUTY: AC15, A600

Electrical Rating	Circuitry	Vac	Amps at 0.35 Power Factor Make	Amps at 0.35 Power Factor Break
AC15, A600	SPDT DPDT	120	60	6
		240	30	3
		480	15	1.5
		600	12	1.2

TABLE 3. MICRO SWITCH LSX SERIES ELECTRICAL RATINGS DC VOLTS; PILOT DUTY: DC13, R300

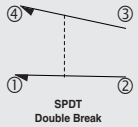
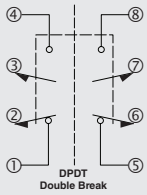
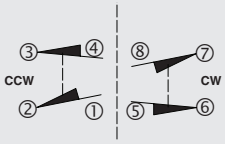
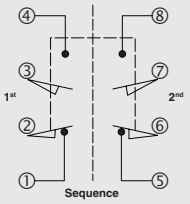
Electrical Rating	Circuitry	Vdc	Make & Break Amps Inductive	Make & Break Amps Resistive
DC13, R300	SPDT DPDT	120	0.25	0.8
		240	0.15	0.4

TABLE 4. MICRO SWITCH LSX LIMIT SWITCHES ARE CAPABLE OF THE FOLLOWING LOW VOLTAGE DC LOADS

Circuitry	Vdc	Amps Inductive	Amps Resistive
SPDT, DPDT	24	10	10

MICRO SWITCH HAZARDOUS AREA SWITCHES
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TABLE 5. SWITCH CONTACT STYLES, DOUBLE BREAK

SPDT (1NC/1NO)	DPDT (2NC/2NO)	Center Neutral (SPDT each direction) Pole 1 operates CCW; Pole 2 operates CW	Sequence Action Pole 1 operates before Pole 2, either CW, CCW, or both
			

NOTE: Same polarity each pole

Temperature Limits

	Standard LSX				Low Temperature LSX (Fluorosilicone Sealed): Y_B				High Temperature LSX (Fluorocarbon Sealed)*: Y_C		
	Low Limit		High Limit		Low Limit		High Limit		Low Limit		High Limit
	-12°C [10°F]	-1°C [30°F]	93°C [200°F]	121°C [250°F]	-40°C [-40°F]	-29°C [-20°F]	93°C [200°F]	121°C [250°F]	-12°C [10°F]	-1°C [30°F]	121°C [250°F]
LSXA - Side Rotary Momentary	•			•	•			•	•		•
LSXB - Top Rotary		•		•		•		•		•	•
LSXC - Top Plain Plunger	•		•		•		•		•		•
LSXD - Top Roller Plunger	•		•		•		•		•		•
LSXE - Side Plain Plunger	•		•		•		•		•		•
LSXF - Side Roller Plunger	•		•		•		•		•		•
LSXH - Side Rotary, Low Diff, Low Torque		•		•		•		•		•	•
LSXJ - Wobble Stick	•		•		•			•	•		•
LSXK - Cat Whisker	•		•			•		•	•		•
LSXL - Side Rotary, Sequence	•			•	•			•	•		•
LSXM - Side Rotary, Center Neutral		•		•	•			•		•	•
LSXN - Side Rotary, Maintained		•		•		•		•		•	•
LSXP - Side Rotary, Low Diff	•			•	•			•	•		•
LSXR - Side Rotary, Low Torque		•		•		•		•		•	•
LSXU - Side Rotary, 5° Low Pretravel	•			•							•
LSXV - Top Adjustable Plunger	•		•		•		•		•		•
LSXW - Side Adjustable Plunger	•		•		•		•		•		•

* For LSX application wherein the upper temperature limit is normally above 93°C [200°F], extended switch life can be obtained by using completely fluorocarbon-sealed switches rather than standard LSX.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

Special Options

High Temperature/Chemical Resistant Switches

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

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
LSXY-AC3K	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 boot seal (where applicable).

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
LSXY-AB3K	low-temperature version of LSXA3K

MICRO SWITCH LSX Series Operating Heads

SIDE ROTARY: Heads may be positioned in any one of four positions, 90° increments. All are momentary action except maintained head (LSXN Series).



LSXA - Standard: 60° minimum overtravel, 15° maximum pretravel, 5° (single pole) and 7° (double pole) maximum differential travel.

LSXR - Low operating torque: 60° minimum overtravel, 15° maximum pretravel, 0.19 Nm [1.7 in-lb] maximum operating torque.

LSXN - Maintained contact: Maintained on counterclockwise rotation and reset on clockwise rotation, and vice versa.

LSXP - Low differential: 68° minimum overtravel, 9° maximum pretravel, 3° (single pole) and 4° (double pole) maximum differential travel.

LSXH - Low torque, low differential travel: 68° minimum overtravel. Features low operating torque and narrow differential travel.

LSXL - Sequence action: 48° minimum overtravel. Delayed action between operation of two poles.

LSXM - Center neutral: 57° minimum overtravel. One pole operates on the clockwise rotation, and the other pole on the counterclockwise rotation.

LSXU - Low pretravel: 5° max. pretravel, 70° min. overtravel.

TOP ROTARY: Available levers provide greater versatility. Heads may be positioned in any one of four positions, 90° increments. All are momentary action.



LSXB: With 100° minimum overtravel. Various levers that fit side rotary shafts may be used on the top rotary shaft. Switch is suitable for use when increased overtravel is required.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

MICRO SWITCH LSX Series Operating Heads

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.

	**LSXC – Top pin plunger:** A copper alloy plunger for in-line actuating motion. Oil-tight seals on plunger and between the operating head and housing are designed to keep out coolant, dust, and chips. Momentary action.
	**LSXD – Top roller plunger:** A copper alloy roller plunger 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:** A copper alloy adjustable plunger is designed to simplify the application and decreases installation time. The operating points of the switch can be adjusted from 65,66 mm to 72,0 mm [2.585 in to 2.535 in]. Seals are the same as the pin plunger. Momentary action.

WOBBLE LEVER ACTUATING HEADS: Heads come with either a Delrin® plastic rod or a copper alloy cat whisker. Any movement of the lever (except pull) will actuate the switch.

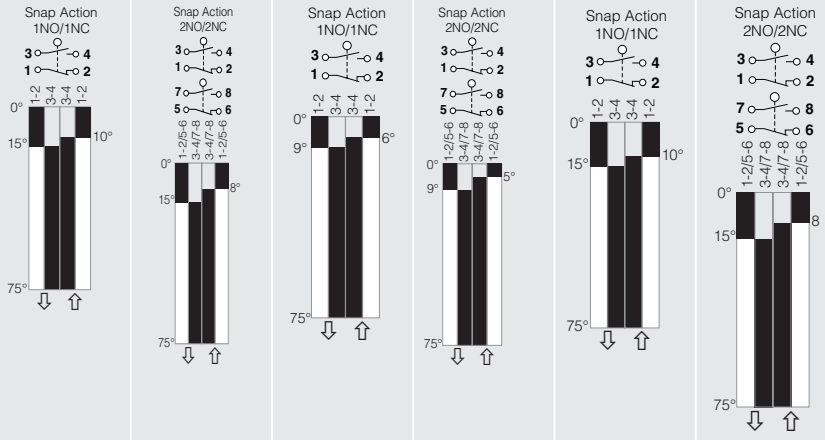
	
LSXJ – Plastic rod: Recommended where possible scratching or marring by the actuator is to be avoided.	**LSXK – Cat whisker:** Copper alloy actuator designed for low operating force applications.

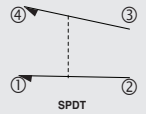
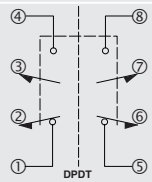
SIDE PLUNGERS: Made of non-sparking copper alloy. Available with 4,83 mm [0.19 in] minimum overtravel. Side plungers are offered in plain plunger, an adjustable pin plunger, and a roller plunger.

	**LSXE – Side pin plunger:** A copper alloy plunger for actuating motion inline with the plunger travel. Actuating head may be rotated in any of four positions, 90° apart. A boot seal on the plunger and a gasket seal between the head and housing is designed to keep out coolant, dust, and chips. Momentary action.
	**LSXF – Side roller plunger:** A copper alloy roller plunger fits close quarters under cams and slides. The head may be rotated in any of four positions, 90° apart. The roller can be turned vertical or horizontal to the switch. Boot seal on plunger. 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.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

SIDE ROTARY • MICRO SWITCH LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

	Standard (LSXA)		Low Differential (LSXP)		Low Torque (LSXR)	
	Standard		Low differential travel		Low operating torque	
	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT
						
Pretravel	15° max.		9° max.		15° max.	
Differential travel	5° max.	7° max.	3° max.	4° max.	5° max.	7° max.
Overtravel	60° min.		66° min.		60° min.	
Operating 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)					
Operating temperature range[2]	-12°C to 121°C [10°F to 250°F]				-1°C to 121°C [30°F to 250°F]	

		Contacts	Conduit (NPT)	Listing		
SPDT	 SPDT Double Break	Silver	0.5 in	**LSXA3K**	**LSXP3K**	**LSXR3K**
		Silver	0.75 in	**LSXA4K**	**LSXP4K**	**LSXR4K**
		Gold[1]	0.5 in	**LSXA3E**	**LSXP3E**	**LSXR3E**
DPDT	 DPDT Double Break	Silver	0.5 in	**LSXA7L**	**LSXP7L**	**LSXR7L**
		Silver	0.75 in	**LSXA4L**	**LSXP4L**	**LSXR4L**
		Gold[1]	0.75 in	**LSXA4S**	**LSXP4S**	**LSXR4S**

Contact closed ■; Contact open □

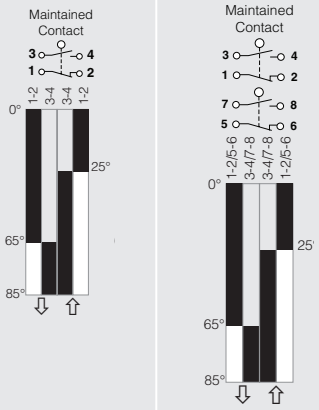
[1] Gold-plated contacts

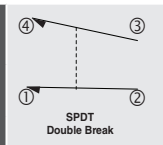
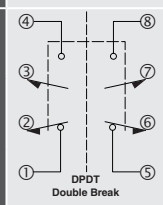
[2] Completely fluorocarbon sealed switches are preferred for use in temperatures above 93°C [200°F]

For low temperature or high temperature versions, see page 6.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

SIDE ROTARY • MICRO SWITCH LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

	Maintained Contact (LSXN)		Low Torque (LSXH)	
	Maintained, 2-position Std.		Momentary, low torque	
	SPDT	DPDT	SPDT	DPDT
					
Pretravel	65° max.		9° max.	
Differential travel	40° max.		3° max.	4° max.
Overtravel	20° min.		66° min.	
Operating torque	0,45 Nm [4 in-lb] max.		0,19 Nm [1.7 in-lb] max.	
Action	Maintained		Momentary, CW, & CCW (Spring return)	
Operating temp. range[2]	-1°C to 121°C [30°F to 250°F] (for low temp or high temp versions, see page 6)			

		Contacts	Conduit (NPT)	Listing	
SPDT		Silver	0.5 in	**LSXN3K**	**LSXH3K**
		Silver	0.75 in	**LSXN4K**	**LSXH4K**
		Gold[1]	0.5 in	**LSXN3E**	**LSXH3E**
DPDT		Silver	0.5 in	**LSXN7L**	**LSXH7L**
		Silver	0.75 in	**LSXN4L**	**LSXH4L**
		Gold[1]	0.75 in	**LSXN4S**	**LSXH4S**

Contact closed ■; Contact open □

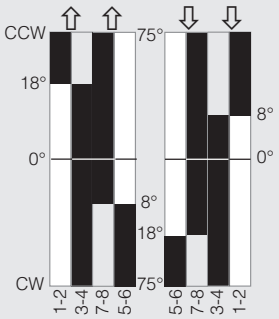
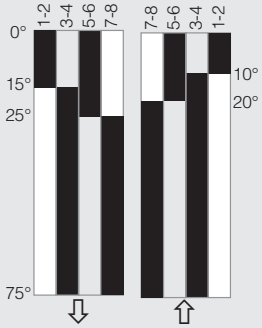
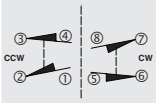
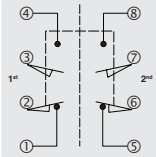
[1] Gold-plated contacts

[2] Completely fluorocarbon sealed switches are preferred for use in temperatures above 93°C [200°F]

For low temperature or high temperature versions, see page 6.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

SIDE ROTARY • MICRO SWITCH LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

			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
					
Pretravel			18° max.	1st: 15°; 2nd: additional 10°
Differential travel			10° max.	each pole: 5°
Overtravel			57° min.	48° min.
Operating torque			0,45 Nm [4 in-lb] max.	0,45 Nm [4 in-lb] max.
Action			CW & CCW (Spring return)	
Operating temp. range[2]			-1°C to 121°C [30°F to 250°F]	-12°C to 121°C [10°F to 250°F]
		Contacts	**Conduit (NPT)**	**Listing**
DPDT		Silver	0.5 in	**LSXM7N**	–
		Silver	0.75 in	**LSXM4N**	–
		Gold[1]	0.5 in	**LSXM7U**	–
		Gold[1]	0.75 in	**LSXM4U**	–
		Silver	0.5 in	–	**LSXL7M**
		Silver	0.75 in	–	**LSXL4M**
		Gold[1]	0.5 in	–	**LSXL7T**
		Gold[1]	0.75 in	–	**LSXL4T**

Contact closed ■; Contact open □

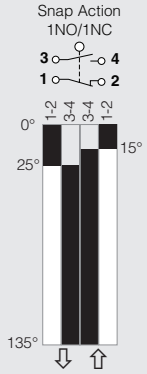
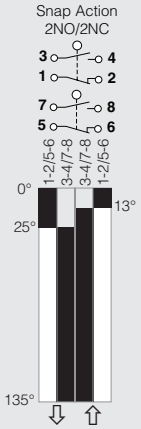
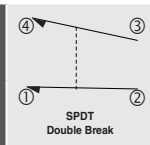
[1] Gold-plated contacts

[2] Completely fluorocarbon sealed switches are preferred for use in temperatures above 93°C [200°F]

For low temperature or high temperature versions, see page 6.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

TOP ROTARY • MICRO SWITCH LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

			Standard (LSXB)	
			Standard	
			SPDT	DPDT
				
Pretravel			25° max.	
Differential travel			10° max.	12° max.
Overtravel			110° min.	
Operating torque			0,25 Nm [2.5 in-lb]	
Action			Momentary, CW, & CCW (Spring return)	
Operating temp. range[1]			-1°C to 121°C [30°F to 250°F] (for low temp or high temp versions, see page 6)	
	Contacts	**Conduit (NPT)**	**Listing**	
SPDT 	Silver	0.5 in	**LSXB3K**	–
	Silver	0.75 in	–	**LSXB4L**

Contact closed ■; Contact open □

[1] Gold-plated contacts

[2] Completely fluorocarbon sealed switches are preferred for use in temperatures above 93°C [200°F]

For low temperature or high temperature versions, see page 6.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

TABLE 6. COMMON LEVERS FOR USE WITH MICRO SWITCH LSX ROTARY SWITCHES*

Levers for use with side-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.



Fixed lever, nylon roller
LSZ51A – front mount roller
LSZ51C – back mount roller



Short fixed lever, nylon roller
LSZ59A – front mount roller
LSZ59C – back mount roller



Offset lever, nylon roller
LSZ55A – back mount roller
LSZ55C – front mount roller



One-way lever, nylon roller
LSZ60A – front mount roller



Yoke lever, nylon rollers
LSZ53A – front/back mount rollers



Adjustable lever, nylon roller
LSZ52A – back mount roller
LSZ52C – front mount roller



LSZ52J
adjustable lever, nylon roller
25,4 mm [1 in]



LSZ52K
adjustable lever, nylon roller
38,1 [1.5 in]



LSZ54M
aluminum rod
140 mm [5.5 in]



LSZ61
loop
152 mm [6 in]



LSZ67AA**
Plastic conveyor roller



LSZ68
rod with spring
305 mm [12 in]

* Non-sparking rollers and actuators must be used in hazardous areas.
** May require orientation of switch and lever to enable gravity to help restore switch's free position.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

TABLE 7. LSX SERIES LEVER ORDER GUIDE

	Catalog Listing	Material	Roller Dia. mm [in]	Roller Width mm [in]	Roller Mounting
	Fixed 38,1 [1.5] inch radius				
	LSZ51	Rollerless	n/a	n/a	n/a
	LSZ51A	Nylon	19 [0.75]	6,35 [0.25]	Front
	LSZ51C	Nylon	19 [0.75]	6,35 [0.25]	Back
	LSZ51F	Nylon	25,4 [1.0]	12,7 [0.50]	Front
	LSZ51G	Nylon	38,1 [1.5]	6,35 [0.25]	Front
	LSZ51J	Nylon	25,4 [1.0]	12,7 [0.50]	Back
	LSZ51M	Nylon	19 [0.75]	31,7 [1.25]	Back
	LSZ51P	Nylon	19 [0.75]	12,7 [0.50]	Front
	LS2Z51A (sst)	Nylon	19 [0.75]	6,35 [0.25]	Front
	LS2Z51C (sst)	Nylon	19 [0.75]	6,35 [0.25]	Back
	LS2Z51E (sst)	Copper alloy	19 [0.75]	6,35 [0.25]	Front
	LS2Z51F (sst)	Copper alloy	19 [0.75]	6,35 [0.25]	Back
	Adjustable 38,1 [1.5] in to 3.5 in radius				
	LSZ52	Rollerless	n/a	n/a	n/a
	LSZ52A	Nylon	19 [0.75]	6,35 [0.25]	Back
	LSZ52C	Nylon	19 [0.75]	6,35 [0.25]	Front
	LSZ52E	Nylon	19 [0.75]	33,0 [1.30]	Front
	LSZ52J	Nylon	25,4 [1.0]	12,7 [0.50]	Front
	LSZ52K	Nylon	38,1 [1.5]	6,35 [0.25]	Front
	LSZ52M	Nylon	50,8 [2.0]	6,35 [0.25]	Front
	LSZ52N	Nylon	19 [0.75]	12,7 [0.50]	Front
	LS2Z52A (sst)	Nylon	19 [0.75]	6,35 [0.25]	Front
	LS2Z52C (sst)	Nylon	19 [0.75]	6,35 [0.25]	Back
	LS2Z52E (sst)	Copper alloy	19 [0.75]	6,35 [0.25]	Front
	LS2Z52F (sst)	Copper alloy	19 [0.75]	6,35 [0.25]	Back
	Yoke – 38,1 [1.5] in radius				
	LSZ53A	Nylon	19 [0.75]	6,35 [0.25]	Front/Back
	LSZ53E	Nylon	19 [0.75]	6,35 [0.25]	Back/Front
	LSZ53M	Nylon	19 [0.75]	31,7 [1.25]	Back/Front
	LSZ53S	Nylon	19 [0.75]	6,35 [0.25]	Back/Back
	Rod				
	LSZ54	Hub only	n/a	n/a	n/a
	LSZ54M	Alum, 140 mm [5.5 in]	Ø 3,2 [Ø 0.125]	n/a	n/a
	LSZ54N	Stainless, 330 mm [13 in]	Ø 3,2 [Ø 0.125]	n/a	n/a
	LSZ54P	Plastic rod, 305 mm [12 in]	Ø6,85 [Ø 0.27]	n/a	n/a
	LSZ54W	Plastic rod, 183 mm [7.2 in]	Ø6,85 [Ø 0.27]	n/a	n/a
	Offset – 38,1 [1.5] in radius				
	LSZ55	Rollerless	n/a	n/a	n/a
	LSZ55A	Nylon	19 [0.75]	6,35 [0.25]	Back
	LSZ55C	Nylon	19 [0.75]	6,35 [0.25]	Front
	LSZ55E	Nylon	19 [0.75]	12,7 [0.50]	Front
	LSZ55K	Nylon	38,1 [1.5]	6,35 [0.25]	Front

TABLE 7. LSX SERIES LEVER ORDER GUIDE

	Catalog Listing	Material	Roller Dia. mm [in]	Roller Width mm [in]	Roller Mounting
	Short fixed – 1.3 in radius				
	LSZ59A	Nylon	19 [0.75]	6,35 [0.25]	Front
	LSZ59C	Nylon	19 [0.75]	6,35 [0.25]	Back
	One-way roller lever				
	LSZ60A	Nylon	19 [0.75]	6,35 [0.25]	Front
	Flexible loop				
	LSZ61	Ø 4,8 [Ø 0.19] Nylatron	152 mm [6 in] flexible loop		
	LSZ618	Ø 4,8 [Ø 0.19] Nylatron	241 mm [9.5 in] flexible loop		
	LSZ54	Hub only	n/a	n/a	n/a
	Spring rod				
	LSZ68	Delrin rod, 305 mm [12 in]	Ø 6,35 [0.25]	n/a	n/a
	LSZ617	Delrin rod, 406 mm [16 in]	Ø 6,35 [0.25]	n/a	n/a
	LSZ686	Delrin rod, 152 mm [6 in]	Ø 6,35 [0.25]	n/a	n/a
	Rubber roller levers				
	LSZ51Y 38,1 [1.5] radius (standard)	Rubber	50 [2.0]	12,7 [0.5]	front
	LSZ55Y 38,1 [1.5] radius (offset)	Rubber	50 [2.0]	12,7 [0.5]	front
	LSZ52Y 38,1 to 89 [1.5 to 3.5] radius (adjustable)	Rubber	50 [2.0]	12,7 [0.5]	front
	Plastic roller levers				
	LSZ67AA (conveyor)*	Plastic	38,1 [1.5]	96,5 [3.8]	n/a

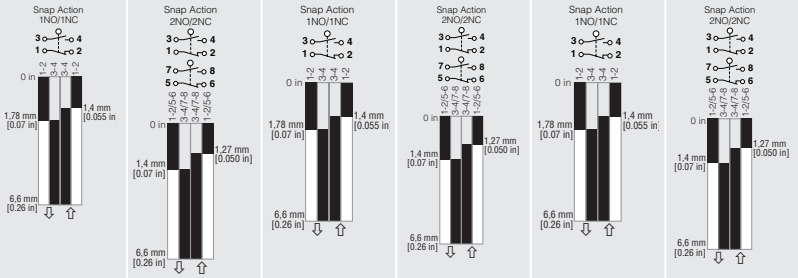
* May require orientation of switch and lever to enable gravity to help restore switch to free position.

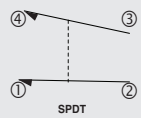
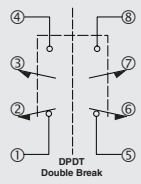
MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

TOP PLUNGER • MICRO SWITCH LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

All top plungers are momentary action.

	Plain (LSXC)	Roller (LSXD)	Adjustable (LSXV)
			
	Top plain plunger for in-line operating motion	Top 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 65,66 mm min.; 72,0 mm max. [2.585 in min; 2.835 in max.]

	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT
						
Pretravel	1,78 mm [0.07 in]					
Differential 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]	0,38 mm [0.015 in]	0,51 mm [0.02 in]
Overtravel	4,83 mm [0.19 in]					
Operting force	17,8 N [4 lb] max.					
Operating point	58,55 mm ±0,76 mm [2.305 in ±0.030 in]		68,58 mm ±1,02 mm [2.70 in ±0.040 in]		65,66 mm min.; 72,0 mm max. [2.585 in min; 2.835 in max.]	
Operating temp. range[2]	-12°C to 93°C [10°F to 200°F] (for low temp or high temp versions, see page 6)					

		Contacts	Conduit (NPT)	Listing		
SPDT	 SPDT Double Break	Silver	0.5 in	**LSXC3K**	**LSXD3K**	**LSXV3K**
		Silver	0.75 in	**LSXC4K**	**LSXD4K**	**LSXV4K**
		Gold[1]	0.5 in	**LSXC3E**	**LSXD3E**	**LSXV3E**
DPDT	 DPDT Double Break	Silver	0.5 in	**LSXC7L**	**LSXD7L**	**LSXV7L**
		Silver	0.75 in	**LSXC4L**	**LSXD4L**	**LSXV4L**
		Gold[1]	0.75 in	**LSXC4S**	**LSXD4S**	**LSXV4S**

Contact closed ■; Contact open □

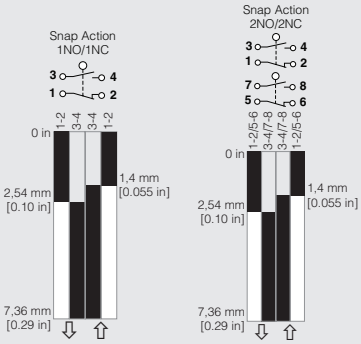
[1] Gold-plated contacts

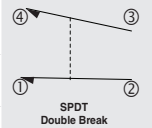
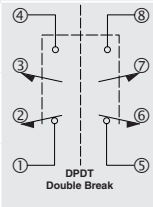
[2] Completely fluorocarbon sealed switches are preferred for use in temperatures above 93°C [200°F]

For low temperature or high temperature versions, see page 6.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

SIDE PLUNGER • MICRO SWITCH LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS
All side plungers are momentary action. Heads may be positioned to accept actuation from any of four directions, 90° apart.

	Plain (LSXE)		Roller (LSXF)		Adjustable (LSXW)	
						
	Side plain plunger for in-line operating motion		Side roller plunger – can be set at 90° increments to accept cam or slide actuation		Adjustable side plain plunger simplifies installation since operating point can be adjusted from 41 mm min.; 47,37 mm max. [1.615 in min.; 1.865 in max.]	
	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT
						
Pretravel	2,54 mm [0.10 in]					
Differential travel	1,14 mm [0.045 in]					
Overtravel	4,83 mm [0.19 in]					
Operting force	26,7 N [6 lb] max.					
Operating point	33,02 mm ±0,76 mm [1.300 in ±0.030 in]		44,07 mm ±1,02 mm [1.735 in ±0.04 in]		41 mm min.; 47,37 mm max. [1.615 in min.; 1.865 in max.]	
Operating temp. range[2]	-12°C to 93°C [10°F to 200°F] (for low temp or high temp versions, see page 6)					

		Contacts	Conduit (NPT)	Listing		
SPDT		Silver	0.5 in	LSXE3K	LSXF3K	LSXW3K
		Silver	0.75 in	LSXE4K	LSXF4K	LSXW4K
		Gold[1]	0.5 in	LSXE3E	LSXF3E	LSXW3E
DPDT		Silver	0.5 in	LSXE7L	LSXF7L	LSXW7L
		Silver	0.75 in	LSXE4L	LSXF4L	LSXW4L
		Gold[1]	0.75 in	LSXE4S	LSXF4S	LSXW4S

Contact closed ■; Contact open □

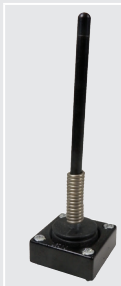
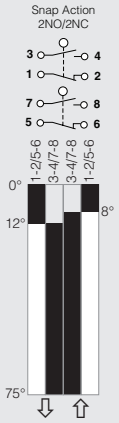
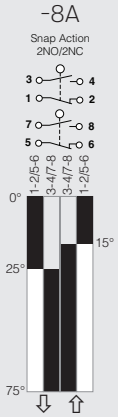
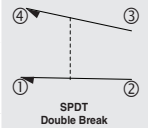
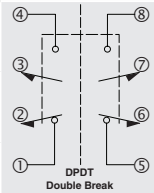
[1] Gold-plated contacts

[2] Completely fluorocarbon sealed switches are preferred for use in temperatures above 93°C [200°F]

For low temperature or high temperature versions, see page 6.

MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

WOBBLE • MICRO SWITCH LSX SERIES ORDER GUIDE/RECOMMENDED LISTINGS

			LSXJ Series 7A Actuator		LSXK Series 8A Actuator	
			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				
Actuator length			152,4 mm [6 in]		139,7 mm [5.5 in] copper alloy	
Pretravel			25,4 mm [1.0 in]		51,0 mm [2.0 in]	
Operating force			2,78 Nm [10 oz]		1,39 Nm [5 oz]	
Operating temp. range[2]			-12°C to 93°C [10°F to 200°F] (for low temp or high temp versions, see page 6)			
	Contacts	**Conduit (NPT)**	**Listing**			
SPDT 	Silver	0.5 in	**LSXJ3K-7A**		**LSXK3K-8A**	
	Silver	0.75 in	**LSXJ4K-7A**		**LSXK4K-8A**	
	Gold[1]	0.5 in	**LSXJ3E-7A**		**LSXK3E-8A**	
DPDT 	Silver	0.5 in	**LSXJ7L-7A**		**LSXK7L-8A**	
	Silver	0.75 in	**LSXJ4L-7A**		**LSXK4L-8A**	
	Gold[1]	0.75 in	**LSXJ4S-7A**		**LSXK4S-8A**	

Contact closed ■; Contact open □

[1] Gold-plated contacts

[2] Completely fluorocarbon sealed switches are preferred for use in temperatures above 93°C [200°F]

For low temperature or high temperature versions, see page 6.

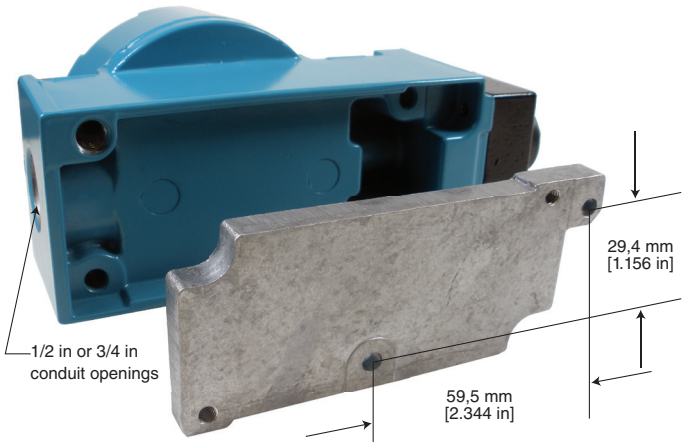
MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

REPLACEMENT CONTACT BLOCKS	
Circuitry	**Replacement Contact Block**
Single pole	LSXZ3K
Double pole	LSXZ3L
Sequence or central neutral	LSXZ3M

REPLACEMENT HEADS FOR STANDARD LSX SWITCHES	
Switch Type	**Catalog Listing/Operating Head Only**
LSXA	LSZ1A
LSXB	LSZ1B
LSXC	LSXZ1C
LSXD	LSXZ1D
LSXE	LSXZ1E
LSXF	LSXZ1F
LSXH	LSZ1H
LSXJ	LSZ1JGA
LSXK	LSXZ1KHA
LSXL	LSZ1L
LSXM	LSZ1M
LSXN	LSZ1N
LSXP	LSX1P
LSXR	LSZ1R
LSXU	LSZ1U
LSXV	LSXZ1V
LSXW	LSXZ1W

ADAPTER PLATE

Catalog listing LSXZ4022 adapter plate enables the NEMA-rated, explosion-proof LSX Series 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)



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

For example,
Catalog listing LSXA3K**23** is a 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
8 Roller on side plungers in vertical position

For example,
Catalog listing LSXF3K**3** is a LSXF3K switch with the side roller plunger to the right side.

Figure 3. MICRO SWITCH LSX Series Side Rotary Product Dimensions • mm [in]
Side Rotary – Head Codes: A, H, L, M, N, P, Q, R, AND U

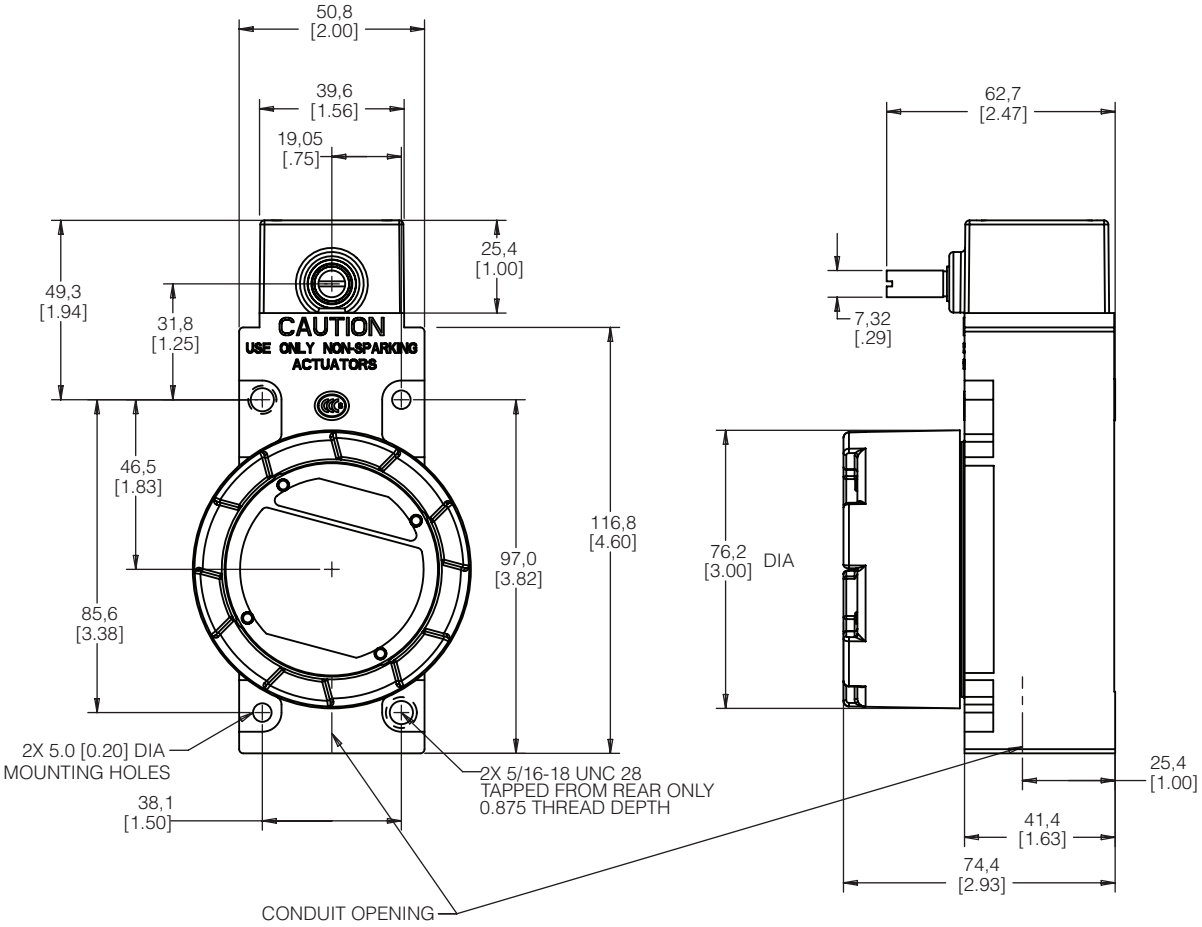


Figure 4. MICRO SWITCH LSX Series Wobble Stick, Head Code J • mm [in]

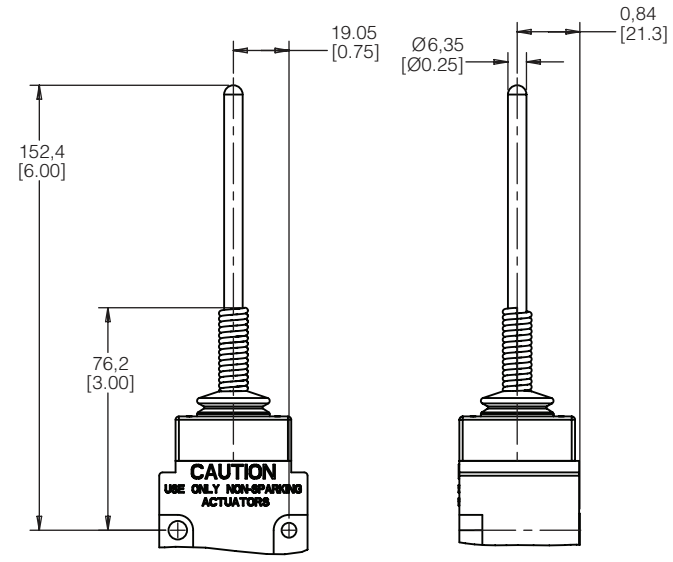
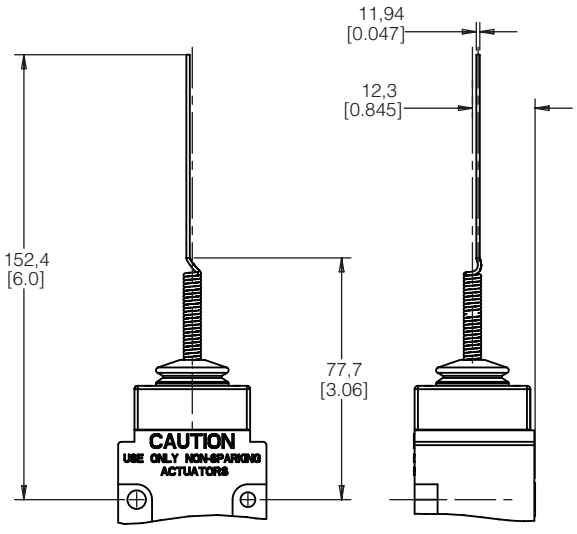


Figure 5. MICRO SWITCH LSX SERIES Cat Whisker Wobble, Head Code K • mm [in]



MICRO SWITCH HAZARDOUS AREA SWITCHES
LSX SERIES

Figure 6. MICRO SWITCH LSX Series Top Rotary, Head Code B • mm [in]

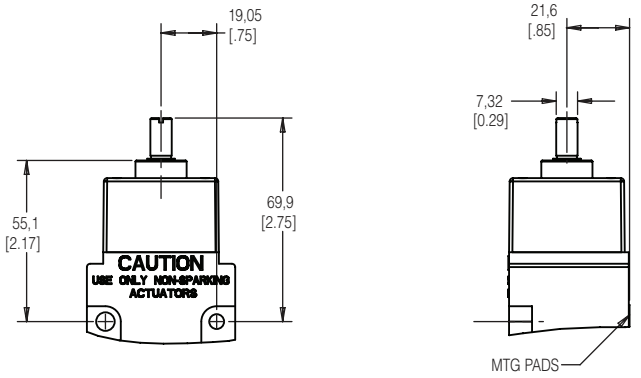


Figure 7. MICRO SWITCH LSX Series Top Pin Plunger, Head Code C • mm [in]

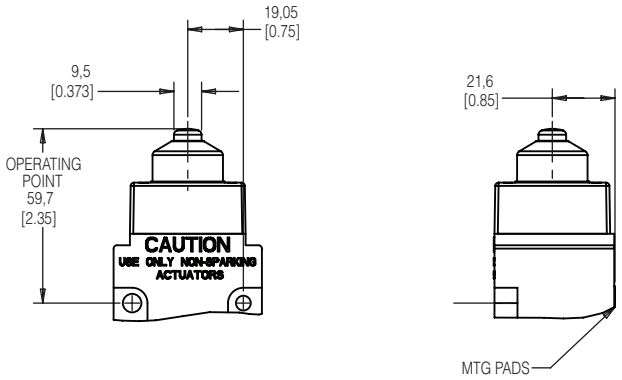


Figure 8. MICRO SWITCH LSX Series Top Roller Plunger, Head Code D • mm [in]

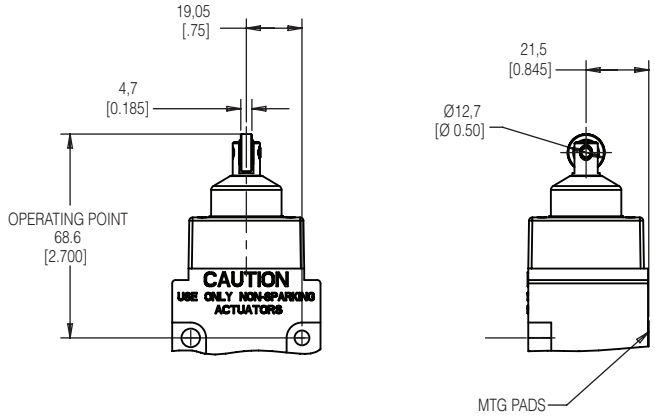


Figure 9. MICRO SWITCH LSX Series Side Plunger, Head Code E • mm [in]

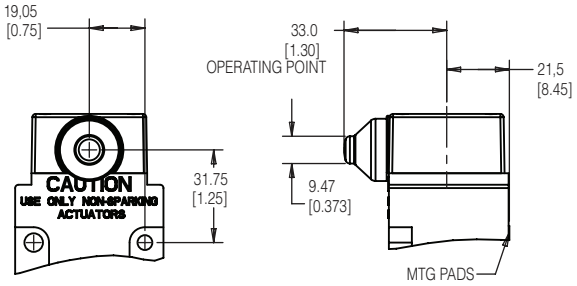


Figure 10. MICRO SWITCH LSX Series Adjustable Top Pin Plunger, Head Code V • mm [in]

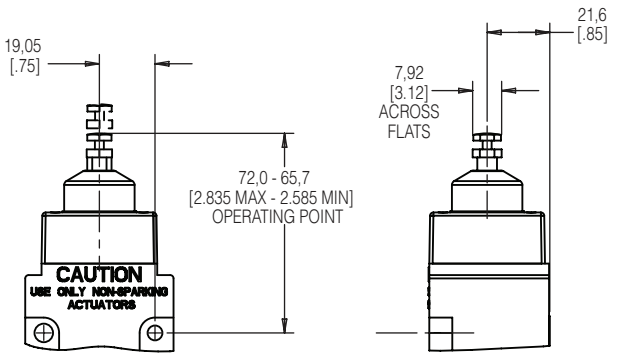


Figure 11. MICRO SWITCH LSX Series Side Roller Plunger, Head Code F • mm [in]

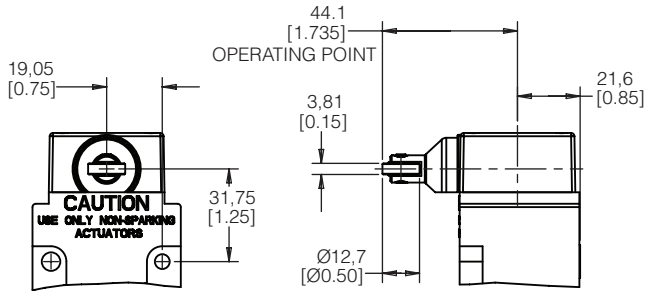
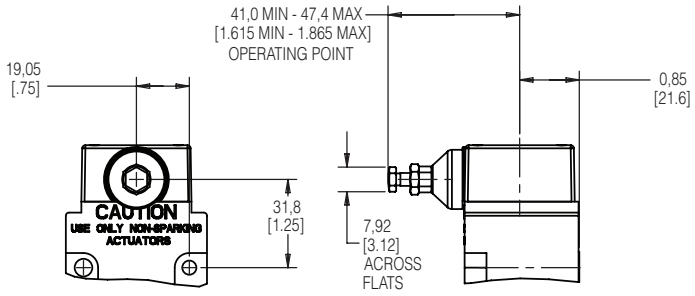


Figure 12. MICRO SWITCH LSX Series Adjustable Side Pin Plunger, Head Code W • mm [in]



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