Honeywell

MICRO SWITCH Hazardous Area Switches

BX | BX2 Series

002306

Issue 9

Datasheet



DESCRIPTION

The MICRO SWITCH BX/BX2 Series are designed for applications in hazardous or explosive environments requiring a rugged, durable switch virtually anywhere in the world. To comply with explosion-proof switching requirements, the flame path within the switch housing is designed to contain and cool escaping hot gases and fumes that could cause an explosion outside of the switch. Regardless of where the equipment or machinery is designed, built, or installed, BX and BX2 Series products carry global agency coverage.

Honeywell offers two versions of the BX series switch: the standard BX Series features an aluminum housing, while the BX2 series features a 316L stainless steel housing. The stainless steel housing adds additional resistance against corrosion in applications exposed to aggressive, caustic agents, as well as those often present in chemical processing plants, off-shore/near-shore sites, and other hazardous areas. Both products are weather sealed for outdoor use and designed for explosive gas/dust environments. All operating heads of the BX/BX2 Series are field adjustable at 90° increments.

DIFFERENTIATION

- Top-of-the-line environmental sealing combined with Honeywell expertise for hazardous location package design provides the right product for the right application
- Exclusive teller tab on levers ensures proper torque. When the tab cannot be moved, the lever is tight enough to prevent slippage

FEATURES

- Approvals: UL, CSA, ATEX (CE), IEC Ex, INMETRO (Brazil), NEPSI Ex (China), and KOSHA/KTL (select listings - Korea)
- Sealed to IP67, NEMA 1, 3, 4, 6, 13
- Industry-leading breadth of products
- Two rugged designs are available: aluminum or corrosion-resistant stainless steel head and body
- A diaphragm seal between head and body provides an extra measure of protection
- Optional fluorocarbon seals are available for harsh chemical or higher temperature environments
- Secure head-to-body retention with the head in any one of four positions 90° apart
- Self-lifting pressure plate terminals saves wiring time.
- Wide variety of non-sparking actuators, switch options, and head styles for design flexibility
- Rotary actuated heads are field adjustable for CW actuation, CCW actuation, or both to reduce inventory
- Choice of silver or gold-plated contacts

APPLICATIONS

- Grain elevators
- Control valves and actuators
- Off-shore and on-shore drilling
- Pipelines
- Petrochemical and chemical plants
- Water treatment plants
- Paint booths
- Conveyors (above-ground)
- Pulp and paper
- Hazardous waste handling

VALUE TO CUSTOMERS

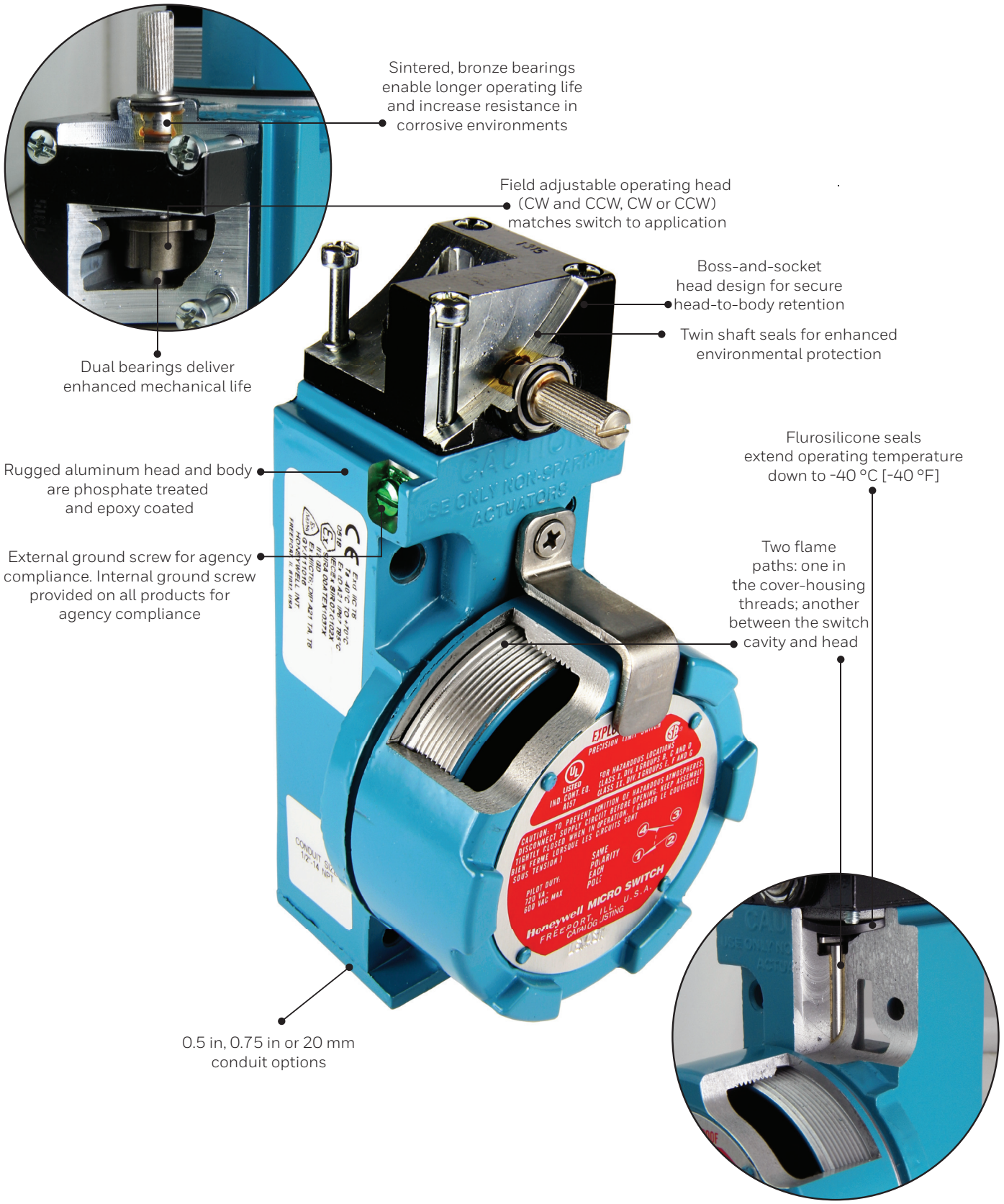
- Around-the-world use in hazardous areas with international approvals: UL, CSA, ATEX (CE), IEC Ex, INMETRO, KOSHA/KTL, and NEPSI Ex (China)
- Industry-leading breadth of product offering that includes: BX (aluminum housing) and BX2 (stainless steel housing) limit switches for hazardous locations
- 303 stainless steel operating shaft on sintered bronze bearing for enhanced mechanical life and operational reliability

PORTFOLIO

Honeywell offers a wide range of limit switches in different size packages and hazardous environments. These limit switches include the BX/BX2 Series, CX Series, EX Series, LSX Series, GXS Series, and 14CE100 Series. To view the entire product portfolio, click here.

Figure 1. MICRO SWITCH BX Series Features and Options

The MICRO SWITCH BX2 limit switch has similar features, except a 316L stainless steel head and body without epoxy coating.



MICRO SWITCH Hazardous Area Switches, BX | BX2 Series

Figure 2. MICRO SWITCH BX Series Product Nomenclature

BX — Switch Type

BX Series Aluminum Hazardous Area Limit Switch

BX2 Series Stainless Steel Hazardous Area Limit Switch

F — Conduit Threads

	½ or ¾ NPT**
4	20 mm

** see Body/Basic Switch Code column

NOTE: if 1/2 NPT or 3/4 NPT conduit is desired, no code is necessary. Leave-blank.

If conduit code "4" in this column is selected, conduit in Body/Basic Switch column does not apply.

3K — Head Style*

A *	Side rotary; momentary
B	Top rotary; momentary
C *	Top pin plunger, momentary
D *	Top roller plunger, momentary
E *	Side pin plunger; momentary
F *	Side roller plunger; momentary
H *	Side rotary, momentary; low PT, low torque
J	Wobble stick
K	Cat whisker
L *	Side rotary; sequential, momentary
M *	Side rotary; central neutral, momentary
N *	Side rotary; maintained
P *	Side rotary, momentary; low PT and DT
R *	Side rotary, momentary; low torque
V	Top pin plunger, adjustable, momentary
W	Side pin plunger, adjustable, momentary

Body/Basic Switch Code

1A	3NC/1NO, slow acting, 3/4 -14 NPT
1E	3NC/1NO, slow acting, 3/4 -14 NPT gold-plated contacts
3E	1NC/1NO, snap action, 1/2 -14 NPT gold-plated contacts
3K	1NC/1NO, snap action, 1/2 - 14 NPT
Δ **4K**	1NC/1NO, snap action, 3/4 - 14 NPT
4L	2NC/2NO, snap action, 3/4 - 14 NPT
4M	2NC/2NO, snap action, sequential, 3/4 - 14 NPT
4N	2NC/2NO, snap action, center neutral, 3/4 - 14 NPT
4S	2NC/2NO, snap action, 3/4 -14 NPT gold-plated contacts
4T	2NC/2NO, snap action, sequential, 3/4 -14 NPT, gold-plated contacts
4U	2NC/2NO, snap action, center neutral, 3/4 -14 NPT, gold-plated contacts
Δ **7L**	2NC/2NO, snap action, 1/2 - 14 NPT
Δ **7N**	2NC/2NO, snap action, center neutral, 1/2 - 14 NPT
Δ **7S**	2NC/2NO, snap action, 1/2 -14 NPT gold-plated contacts
Δ **7T**	2NC/2NO, snap action, sequential,1/2 -14 NPT, gold-plated contacts
Δ **7U**	2NC/2NO, snap action, center neutral, 1/2 -14 NPT, gold-plated contacts

Actuator Modification

1	CW rotation
2	CCW rotation
3	Right-oriented actuator head assembly
4	Left-oriented actuator head assembly
5	Head assembled with actuator to mounting surface
6	Roller perpendicular to mounting surface
8	Roller parallel to mounting surface

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Actuator Options

1A *	Fixed Ø 0.75 in x 0.25 in W nylon roller, 1.5 in radius, front mount
1C *	Fixed Ø 0.75 in x 0.25 in W nylon roller, 1.5 in radius, back mount
2A *	Adjustable, Ø 0.75 in x 0.25 in W nylon roller. front mount
2C *	Adjustable, Ø 0.75 in x 0.25 in W nylon roller. back mount
2J	Adjustable, Ø 1.0 in x 0.5 in W nylon roller, front mount
2K	Adjustable, Ø 1.0 in x 0.5 in W nylon roller, back mount
3S	Yoke, Ø 0.75 in x 0.25 in W nylon rollers, same side, back mount
4M	Hub rod, aluminum
5A	Offset, Ø 0.75 in x 0.25 in W nylon roller, back mount
5C	Offset, Ø 0.75 in x 0.25 in W nylon roller, front mount
7A	Plastic wobble stick
8A	Cat whisker, 5.5 in

Δ Not available with conduit code 4.

* BX2 stainless steel "head styles" and "actuators" available

To order fluorocarbon versions, insert the additional letter **C** in the appropriate places in the standard catalog listing, as shown below:

BXA3K	standard, side-rotary switch
BXAC3K	completely FC-sealed version of BXA3K

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 3NC 1NO slow action, double break
Electrical	10 A thermal Single and double pole: AC15 A600; DC13 R300 (see table on page 5)
Housing material	Aluminum (BX) or Stainless Steel (BX2)
Termination types	0.5 in - 14 NPT conduit 0.75 in - 14 NPT conduit 20 mm conduit
Housing type	BX/BX2 non-plug-in
Sealing	NEMA 1, 3, 4, 6, 13; IP67
Operating temperature*	Standard with fluorosilicone seals: -40 °C to 70 °C [-40 °F to 158 °F] Optional with fluorocarbon seals: -12 °C to 70 °C [10 °F to 158 °F]
ATEX/IEC Ex protection class	II 2 GD, Ex d IIC T6 Gb, Ex tb IIIC T85°C Db
UNSPSC code	302119
UNSPSC commodity	302119 Switches and controls and relays

* Reference operating head styles on page 6 for exceptions.

Table 2. Agency Certifications

		ATEX (CE)[2] Europe	CSA , UL, or cULus[3] Canada, USA	IEC Ex[1] International	KOSHA/KTL Korea	NEPSI EX[2] China	INMETRO[2] Brazil
	Conduit						
BX Series (aluminum)	M20	•		•	•	•	•
	NPT	•	•	•	•	•	•
BX2 Series (stainless steel)	M20	•	•	•	•	•	•
	NPT	•	•	•	•	•	•

[1] ATEX & IEC Ex: II 2 GD; Ex d IIC T6 Gb; Ex tb IIIC T85°C Db; Ta -40 °C to 70 °C or -12 °C to 70 °C (dependent on seal material)
[2] NEPSI Ex: GYJ111016
[3] CSA, cUL, UL: NEMA 7 (Gas) Div 1&2, Class I, Groups B, C, & D; NEMA 9 (Dust) Div 1&2, Class II, Groups E, F, & G

MICRO SWITCH Hazardous Area Switches, BX | BX2 Series

MICRO SWITCH BX and BX2 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

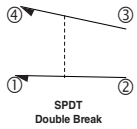
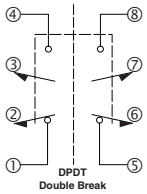
MICRO SWITCH BX and BX2 Series Electrical Ratings
dc Volts; Pilot Duty: DC13, R300

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

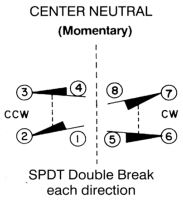
MICRO SWITCH BX and BX2 limit switches are capable of the following low voltage dc loads

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

Switch Contact Styles, Double Break

SPDT (1NC/1NO)	DPDT (2NC/2NO)
	

Center Neutral (SPDT each direction)
Pole 1 operates CCW; Pole 2 operates CW



NOTE: Same polarity each pole

Low Temperature Limits

For all MICRO SWITCH BX/BX2 styles, the upper temperature limit is 70 °C [158 °F], while the lower temperature limit is per the table below.

	MICRO SWITCH BX/BX2			
	Standard (Fluorosilicone)		Optional (Flurocarbon Sealed)	
Operating Head Styles	-40 °C [-40°F]	-29 °C [-20 °F]	-12 °C [10°F]	-1 °C [30 °F]
BXA, BX2A - Side Rotary Momentary	•		•	
BXB - Top Rotary		•		•
BXC, BX2C - Top Pin Plunger	•		•	
BXD, BX2D - Top Roller Plunger	•		•	
BXE, BX2E - Side Pin Plunger	•		•	
BXF, BX2F - Side Roller Plunger	•		•	
BXH, BX2H - Side Rotary, Low Pretravel and Torque		•		•
BXJ - Wobble Stick		•		•
BXK - Cat Whisker		•		•
BXL, BX2L - Side Rotary, Sequential Operation	•		•	
BXM, BX2M - Side Rotary, Center Neutral	•		•	
BXN, BX2N - Side Rotary, Maintained		•		•
BXP, BX2P - Side Rotary, Low Pretravel	•		•	
BXR, BX2R - Side Rotary, Low Torque		•		•
BXV - Top Adjustable Plunger	•		•	
BXW - Side Adjustable Plunger	•		•	

Fluorocarbon Sealed Switches (optional)

Fluorocarbon (FC)-sealed switches have an FC o-ring between the threaded cover and body. 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, synthetic fluids, water-based fluids, and petroleum-based fluids. The additional FC seals also promote longer operating life for rotary-actuated BX/BX2 switches in applications where the temperatures are normally elevated.

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

BXA3K	standard, side-rotary switch
BXAC3K	FC-sealed version of BXA3K
BX2A3K	standard, stainless steel side-rotary switch
BX2AC3K	Fluorocarbon-sealed version of BX2A3K

MICRO SWITCH BX/BX2 Series Operating Heads*

SIDE ROTARY: Heads may be positioned in any one of four positions, 90° increments. All are momentary action except maintained head (BXN/BX2N Series).



BXA/BX2A - Standard: 60° minimum overtravel, 15° maximum pretravel, 5° (single pole) and 7° (double pole) maximum differential travel.

BXR/BX2R - Low operating torque: 60° minimum overtravel, 15° maximum pretravel, 0.19 Nm [1.7 in lb] maximum operating torque.

BXN/BX2N - Maintained contact: Maintained on counterclockwise rotation and reset on clockwise rotation, and vice versa.

BXP/BX2P - Low differential: 68° minimum overtravel, 9° maximum pretravel, 3° (single pole) and 4° (double pole) maximum differential travel.

BXH/BX2H - Low torque, low differential travel: 68° minimum overtravel. Features low operating torque and narrow differential travel.

BXL/BX2L - Sequential operation: 48° minimum overtravel. Delayed action between operation of two poles.

BXM/BX2M - Center neutral: 57° minimum overtravel. One pole operates on the clockwise rotation, and the other pole on the counterclockwise rotation.

*__BX Series__ epoxy-coated zinc heads are shown for illustration. __BX2 Series__ heads are 316L stainless steel.

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



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

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. All are momentary action.



BXC/BX2C - Top pin plunger: A copper alloy plunger for in-line actuating motion. Oil-tight seals on plunger and between the operating head and housing keep out coolant, dust, and chips.



BXD/BX2D - 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.



BXV - Adjustable top pin plunger: A copper alloy adjustable 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.

MICRO SWITCH Hazardous Area Switches, BX | BX2 Series

MICRO SWITCH BX/BX2 Series Operating Heads

SIDE PLUNGERS: Available with 4,83 mm [0.19 in] minimum overtravel. Side plungers are offered in pin plunger, adjustable pin plunger, and a roller plunger. All are momentary action.



BXE/BX2E – 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 keep out coolant, dust, and chips.



BXF/BX2F – 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.



BXW – 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].

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



BXK – Plastic rod: Recommended where possible scratching or marring by the actuator is to be avoided.

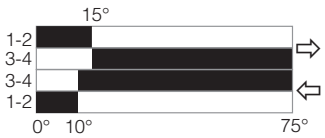


BXJ – Cat whisker: Copper alloy actuator designed for low operating force applications.

SIDE ROTARY • MICRO SWITCH BX/BX2 SERIES ORDER GUIDE/RECOMMENDED LISTINGS

BXA /BX2A • Standard CW/CCW Momentary





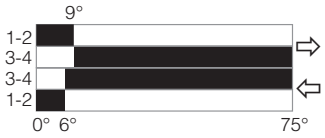
Pretravel • 15° max.
Diff. travel (SPDT) • 5° max.
Diff travel (DPDT) • 7° max.
Overtravel • 60° min.
Oper. torque • 0,45 Nm [4 in-lb] max.
*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]



Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXA3K**
Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	**BXA3E**
Aluminum	1NC-1NO	Silver	0.75-14 NPT	**BXA4K**
Aluminum	1NC-1NO	Silver	20 mm	**BX4A3K**
Aluminum	1NC-1NO	Gold plate	20 mm	**BX4A3E**
Stainless Steel	1NC-1NO	Silver	0.5-14 NPT	**BX2A3K**
Stainless Steel	1NC-1NO	Silver	20 mm	**BX24A3K**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXA4L**
Aluminum	2NC-2NO	Silver	20 mm	**BX4A4L**
Aluminum	2NC-2NO	Gold plate	0.5-14 NPT	**BXA7S**
Aluminum	2NC-2NO	Gold plate	0.75-14 NPT	**BXA4S**
Stainless Steel	2NC-2NO	Silver	0.75-14 NPT	**BX2A4L**

BXP /BX2P • Low Differential CW/CCW Momentary





Pretravel • 9° max.
Diff. travel (SPDT) • 3° max.
Diff. travel (DPDT) • 4° max.
Overtravel • 66° min.
Oper. torque • 0,45 Nm [4 in-lb] max.
*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]



Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXP3K**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXP4L**
Stainless Steel	2NC-2NO	Silver	0.75-14 NPT	**BX2P4L**
Stainless Steel	2NC-2NO	Silver	20 mm	**BX24P4L**

Contact closed ■; Contact open □

Actuating head is factory set for CW and CCW actuation. Easily field adjusted for CW or CCW per instructions included with switch.

NOTE: Same polarity each pole.

* Operating temperature range for standard fluorosilicone sealed switch. For optional fluorocarbon sealed switch, see temperature table, page 8. To order a fluorocarbon sealed version, insert the additional letter "**C**" in the standard catalog listing, as follows. The BXA3K limit switch is changed to a BXA**C**3K limit switch.

MICRO SWITCH Hazardous Area Switches, BX | BX2 Series

SIDE ROTARY • MICRO SWITCH BX/BX2 SERIES ORDER GUIDE/RECOMMENDED LISTINGS

BXR • Low Torque, CW and CCW Momentary





Pretravel • 15° max.
Diff. travel (SPDT) • 5° max.
Diff. travel (DPDT) • 7° max.
Overtravel • 60° min.
Oper. torque • 0,19 Nm [1.7 in-lb] max.
*Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]



Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXR3K**
Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	**BXR3E**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXR4L**
Aluminum	2NC-2NO	Gold plate	0.75-14 NPT	**BXR4S**

BXH • Low Differential, Low Torque, CW and CCW Momentary





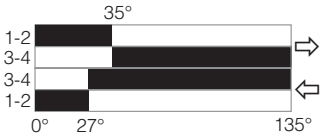
Pretravel • 9° max.
Diff. travel (SPDT) • 3° max.
Diff. travel (DPDT) • 4° max.
Overtravel • 66° min.
Oper. torque • 0,19 Nm [1.7 in-lb] max.
*Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]



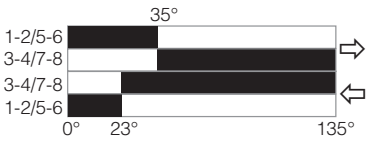
Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXH4L**

BXB • Top Rotary, CW and CCW Momentary





Pretravel • 35° max.
Diff. travel (SPDT) • 8° max.
Diff. travel (DPDT) • 12° max.
Overtravel • 100° min.
Oper. torque • 0,28 Nm [2.5 in-lb] max.
*Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]



Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXB3K**

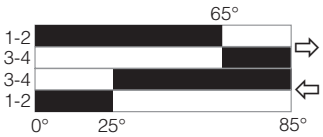
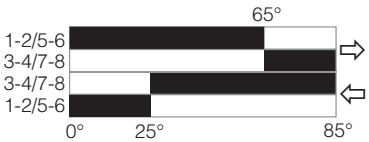
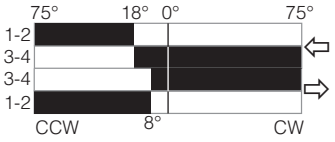
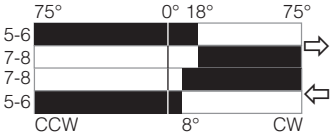
Contact closed ■; Contact open □

Actuating head is factory set for CW and CCW actuation. Easily field adjusted for CW or CCW per instructions included with switch.

NOTE: Same polarity each pole.

* Operating temperature range for standard fluorosilicone sealed switch. For optional fluorocarbon sealed switch, see temperature table, page 8. To order a fluorocarbon sealed version, insert the additional letter "**C**" in the standard catalog listing, as follows. The BXA3K limit switch is changed to a BXA**C**3K limit switch.

SIDE ROTARY • MICRO SWITCH BX/BX2 SERIES ORDER GUIDE/RECOMMENDED LISTINGS

BXN • Maintained, Two Position CCW (trip), CW (Reset)	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
  Pretravel • 65° max. Diff. travel • 40° max. Overtravel • 20° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F] 	Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXN3K**
	Aluminum	1NC-1NO	Silver	20 mm	**BX4N3K**
	Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXN4L**
	Aluminum	2NC-2NO	Silver	20 mm	**BX4N4L**
BXM • Center Neutral, CW and CCW Momentary	**Housing Material**	**Contacts (snap-action)**	**Contact Material**	**Conduit**	**Listing**
 Pretravel • 18° max. Diff. travel • 10° max. Overtravel • 57° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]  	Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXM4N**
	Aluminum	2NC-2NO	Silver	20 mm	**BX4M4N**

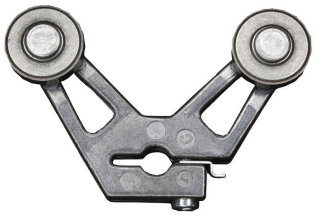
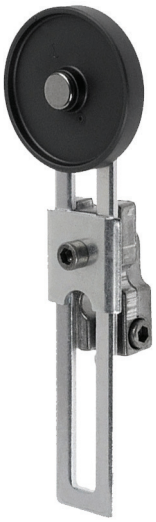
Contact closed ■; Contact open □

NOTE: Same polarity each pole.

* Operating temperature range for standard fluorosilicone sealed switch. For optional fluorocarbon sealed switch, see temperature table, page 8. To order a fluorocarbon sealed version, insert the additional letter "**C**" in the standard catalog listing, as follows. The BXA3K limit switch is changed to a BXA**C**3K limit switch.

Table 3. Common levers for use with MICRO SWITCH BX 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]	**LSZ67CA**** 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.

Table 4. BX/BX2 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

	Catalog Listing	Material	Roller Dia. mm [in]	Roller Width mm [in]	Roller Mounting
	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
	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

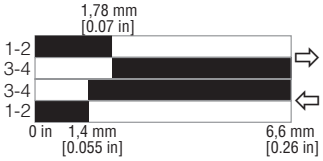
* May require orientation of switch and lever to enable gravity to help restore switch to free position.

TOP PLUNGER • MICRO SWITCH BX/BX2 SERIES ORDER GUIDE/RECOMMENDED LISTINGS

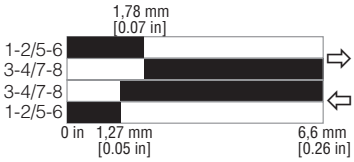
All top plungers are momentary action.

BXC /BX2C • Top Pin Plunger





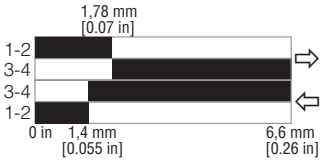
Pretravel • 1,78 mm [0.07 in] max.
Diff. travel (SPDT) • 0,38 mm [0.015 in] max.
Diff travel (DPDT) • 0,51 mm [0.020 in] max.
Overtravel • 4,83 mm [0.190 in] min.
Oper. point • 58,5 ±0,76 mm [2.305 ±0.030 in]
Oper. force • 17,8 N [4 lb] max.
*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]



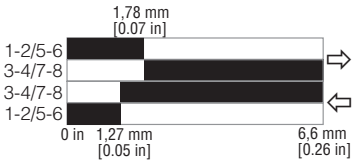
Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXC3K**
Aluminum	1NC-1NO	Silver	0.75-14 NPT	**BXC4K**
Aluminum	1NC-1NO	Silver	20 mm	**BX4C3K**
Aluminum	1NC-1NO	Gold plate	20mm	**BX4C3E**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXC4L**
Aluminum	2NC-2NO	Silver	20 mm	**BX4C4L**
Aluminum	2NC-2NO	Gold plate	20 mm	**BX4C4S**
Stainless steel	2NC-2NO	Silver	0.75-14 NPT	**BX2C4L**
Stainless steel	2NC-2NO	Silver	20 mm	**BX24C4L**

BXD /BX2D • Top Roller Plunger (can be rotated at 90° increments)





Pretravel • 1,78 mm [0.07 in] max.
Diff. travel (SPDT) • 0,38 mm [0.015 in] max.
Diff travel (DPDT) • 0,51 mm [0.020 in] max.
Overtravel • 4,83 mm [0.190 in] min.
Oper. point • 68,6 ±1,02 mm [2.70 ±0.040 in]
Oper. force • 17,8 N [4 lb] max.
*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]

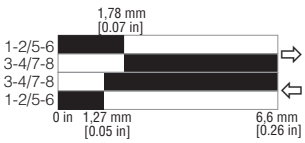


Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXD3K**
Aluminum	1NC-1NO	Silver	20 mm	**BX4D3K**
Aluminum	1NC-1NO	Gold plate	20 mm	**BX4D3E**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXD4L**
Aluminum	2NC-2NO	Silver	20 mm	**BX4D4L**
Aluminum	2NC-2NO	Gold plate	20 mm	**BX4D4S**
Stainless steel	2NC-2NO	Silver	0.75-14 NPT	**BX2D4L**
Stainless steel	2NC-2NO	Silver	20 mm	**BX24D4L**

BXV • Top Adjustable Plunger



Pretravel • 1,78 mm [0.07 in] max.
Diff. travel (SPDT) • 0,38 mm [0.015 in] max.
Diff travel (DPDT) • 0,51 mm [0.020 in] max.
Overtravel • 4,83 mm [0.190 in] min.
Oper. point • 65,66 [2.585] min; 72,01 [2.835] max.
Oper. force • 17,8 N [4 lb] max.
*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]



Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXV4L**

Contact closed ■; Contact open □

NOTE: Same polarity each pole.

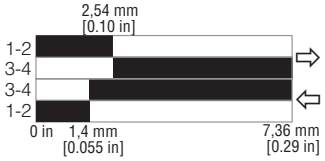
* Operating temperature range for standard fluorosilicone sealed switch. For optional fluorocarbon sealed switch, see temperature table, page 8. To order a fluorocarbon sealed version, insert the additional letter "**C**" in the standard catalog listing, as follows. The BXA3K limit switch is changed to a BXA**C**3K limit switch.

SIDE PLUNGER • MICRO SWITCH BX/BX2 SERIES ORDER GUIDE/RECOMMENDED LISTINGS

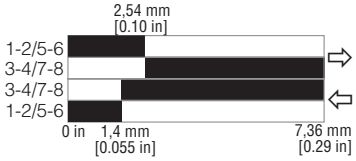
All side plungers are momentary action.

BXE /BX2E • Side Pin Plunger





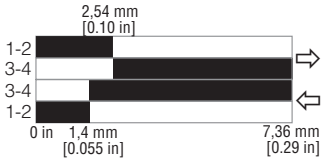
Pretravel • 2,54 mm [0.10 in] max.
Diff. travel • 1,14 mm [0.045 in] max.
Overtravel • 4,83 mm [0.190 in] min.
Oper. point • 33,02 ±0,76 mm [1.30 ±0.030 in]
Oper. force • 26,79 N [6 lb] max.
*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]



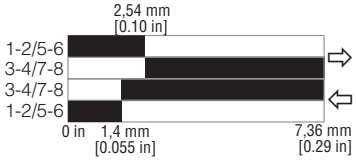
Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXE3K**
Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	**BXE3E**
Stainless steel	1NC-1NO	Silver	0.5-14 NPT	**BX2E3K**
Stainless steel	1NC-1NO	Gold plate	0.5-14 NPT	**BX2E3E**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXE4L**
Aluminum	2NC-2NO	Gold plate	0.75-14 NPT	**BXE4S**

BXF /BX2F • Side Roller Plunger





Pretravel • 2,54 mm [0.10 in] max.
Diff. travel • 1,14 mm [0.045 in] max.
Overtravel • 4,83 mm [0.190 in] min.
Oper. point • 44,07 ±1,02 mm [1.735 in ±0.040]
Oper. force • 26,79 N [6 lb] max.
*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]



Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXF3K**
Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	**BXF3E**
Stainless steel	1NC-1NO	Silver	0.5-14 NPT	**BX2F3K**
Stainless steel	1NC-1NO	Gold plate	0.5-14 NPT	**BX2F3E**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXF4L**
Aluminum	2NC-2NO	Gold plate	0.75-14 NPT	**BXF4S**

Contact closed ■; Contact open □

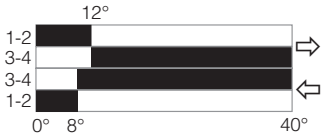
NOTE: Same polarity each pole.

* Operating temperature range for standard fluorosilicone sealed switch. For optional fluorocarbon sealed switch, see temperature table, page 8. To order a fluorocarbon sealed version, insert the additional letter "**C**" in the standard catalog listing, as follows. The BXA3K limit switch is changed to a BXA**C**3K limit switch.

WOBBLE • MICRO SWITCH BX/BX2 SERIES ORDER GUIDE/RECOMMENDED LISTINGS

BXJ • Wobble, Plastic Rod (7A Actuator)





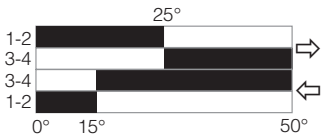
Actuator length • 152 mm [6 in]
Pretravel • 25,4 mm [1.0 in] max.
Oper. force • 2,8 N [10 oz] max.
*Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]



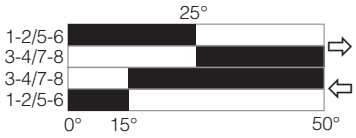
Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXJ3K-7A**
Aluminum	1NC-1NO	Silver	20 mm	**BX4J3K-7A**
Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	**BXJ3E-7A**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXJ4L-7A**
Aluminum	2NC-2NO	Silver	20 mm	**BX4J4L-7A**

BXK • Wobble, Cat Whisker (8A Actuator)





Actuator length • 152 mm [6 in]
Pretravel • 50,8 mm [2.0 in] max.
Oper. force • 1,4 N [5 oz] max.
*Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]



Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
Aluminum	1NC-1NO	Silver	0.5-14 NPT	**BXK3K-8A**
Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	**BXK3E-8A**
Aluminum	2NC-2NO	Silver	0.75-14 NPT	**BXK4L-8A**
Aluminum	2NC-2NO	Silver	20 mm	**BX4K4L-8A**

Contact closed ■; Contact open □

NOTE: Same polarity each pole.

* Operating temperature range for standard fluorosilicone sealed switch. For optional fluorocarbon sealed switch, see temperature table, page 8. To order a fluorocarbon sealed version, insert the additional letter "**C**" in the standard catalog listing, as follows. The BXA3K limit switch is changed to a BXA**C**3K limit switch.

REPLACEMENT CONTACT BLOCKS

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

REPLACEMENT HEADS for STANDARD BX Switches

Switch Type	Catalog Listing/Operating Head Only
BXA	LSZ1AB
BXB	LSZ1BB
BXC	LSXZ1CB
BXD	LSXZ1DB
BXE	LSXZ1EB
BXF	LSXZ1FB
BXH	LSZ1HB
BXJ	LSZ1JBGA
BXK	LSXZ1KBHA
BXL	LSZ1LB
BXM	LSZ1MB
BXP	LSZ1PB
BXR	LSZ1RB
BXV	LSXZ1VB
BXW	LSXZ1WB

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 BXA3K**23** is a BXA3K 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 BXF3K**3** is a BXF3K switch with the side roller plunger to the right side.

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

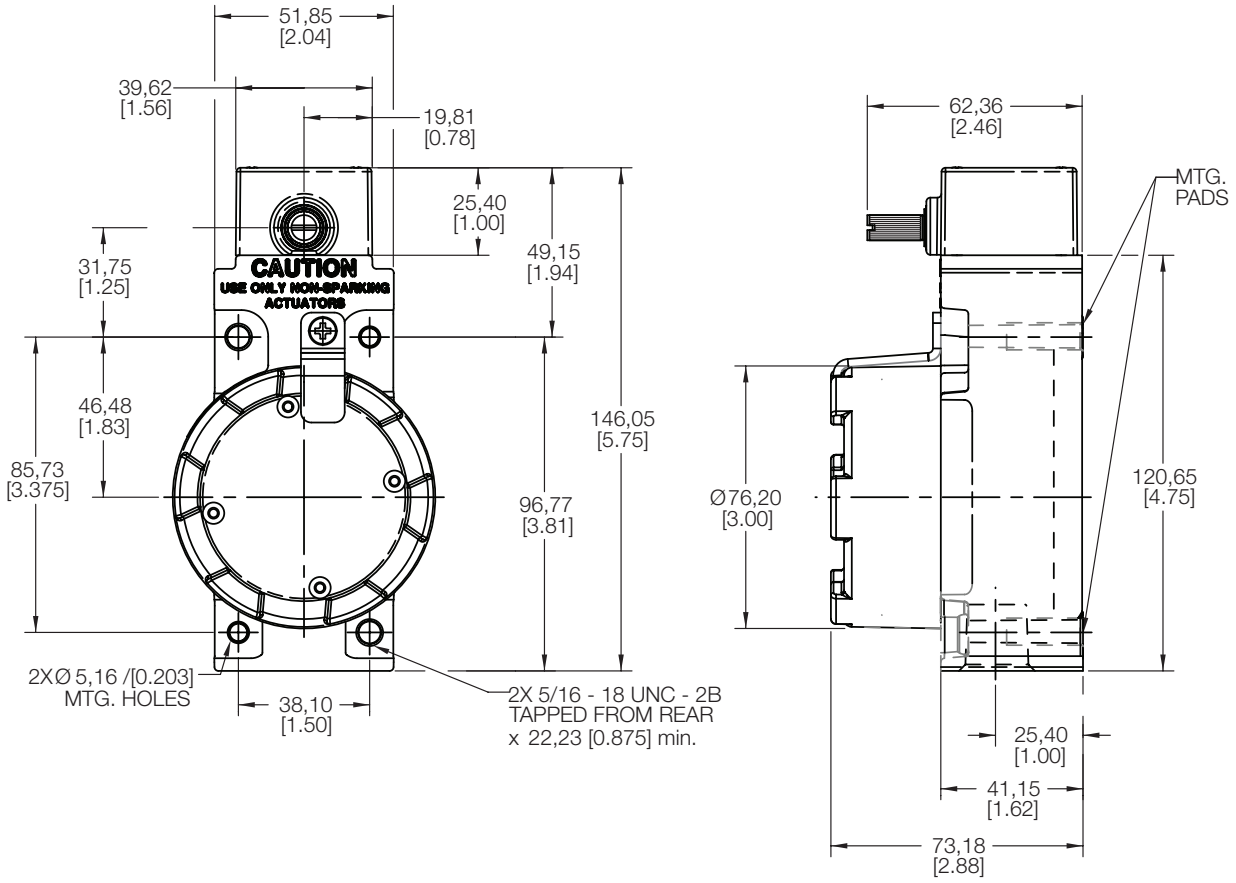


Figure 4. MICRO SWITCH BX Series Wobble Stick, Head Code J • mm [in]

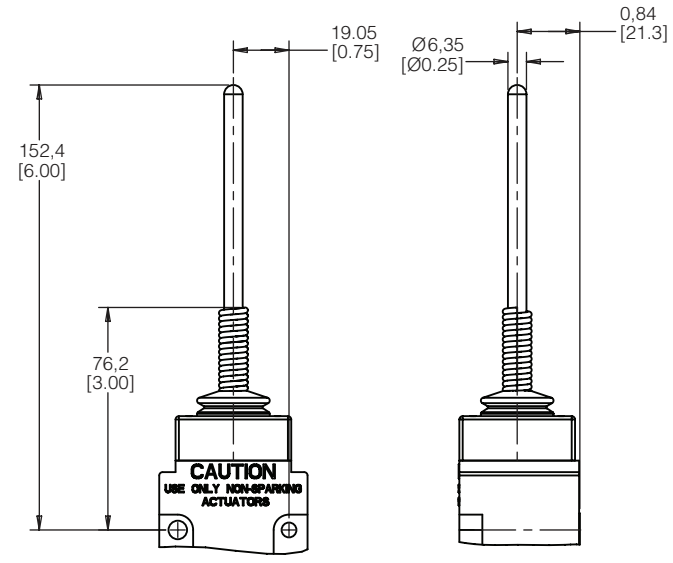


Figure 5. MICRO SWITCH BX SERIES Cat Whisker Wobble, Head Code K • mm [in]

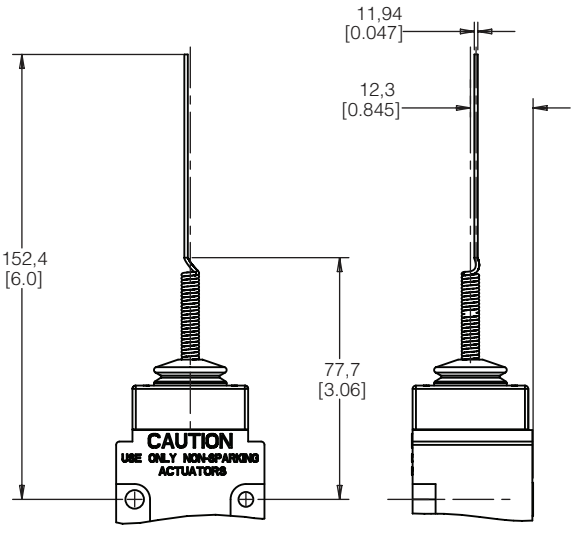


Figure 6. MICRO SWITCH BX Series Top Rotary, Head Code B • mm [in]

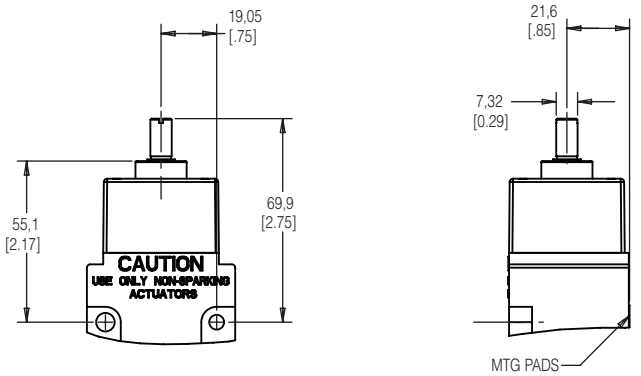


Figure 7. MICRO SWITCH BX Series Top Pin Plunger, Head Code C • mm [in]

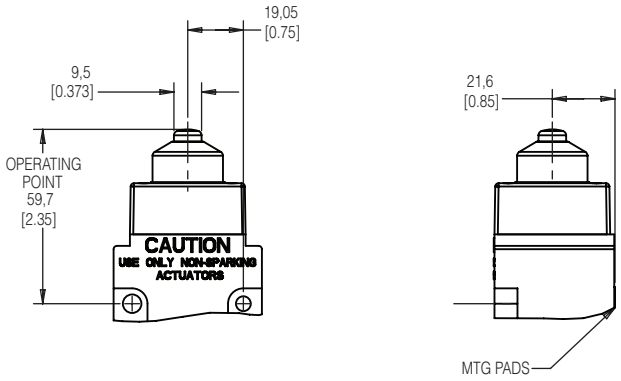


Figure 8. MICRO SWITCH BX Series Top Roller Plunger, Head Code D • mm [in]

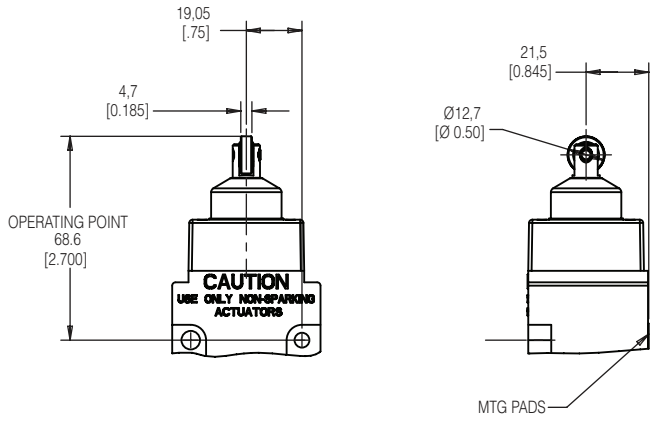


Figure 9. MICRO SWITCH BX Series Side Plunger, Head Code E • mm [in]

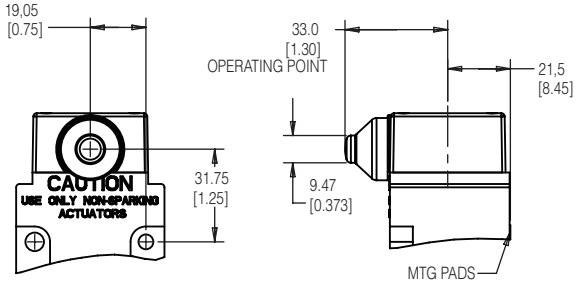


Figure 10. MICRO SWITCH BX Series Side Roller Plunger, Head Code F • mm [in]

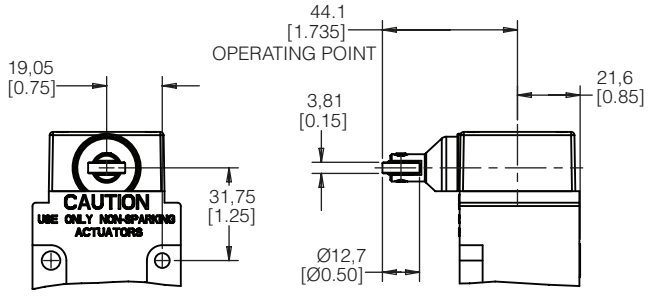


Figure 11. MICRO SWITCH BX Series Adjustable Top Pin Plunger, Head Code V • mm [in]

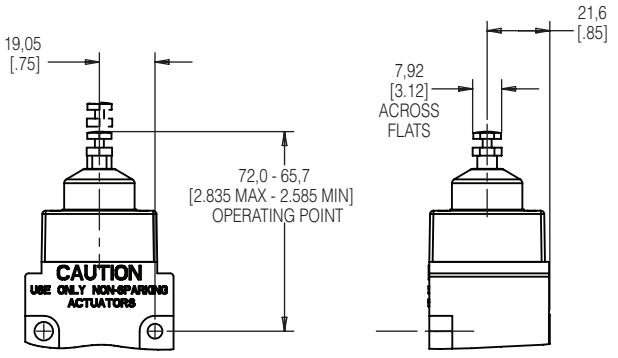


Figure 12. MICRO SWITCH BX Series Adjustable Side Pin Plunger, Head Code W • mm [in]

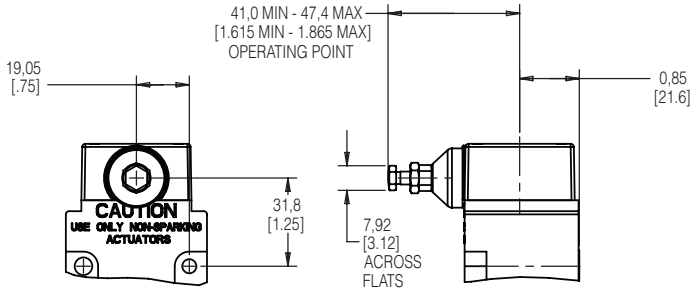


Figure 13. MICRO SWITCH BX2 Series Side Rotary Product Dimensions • mm [in]
Side Rotary – Head Codes: A, P, AND R

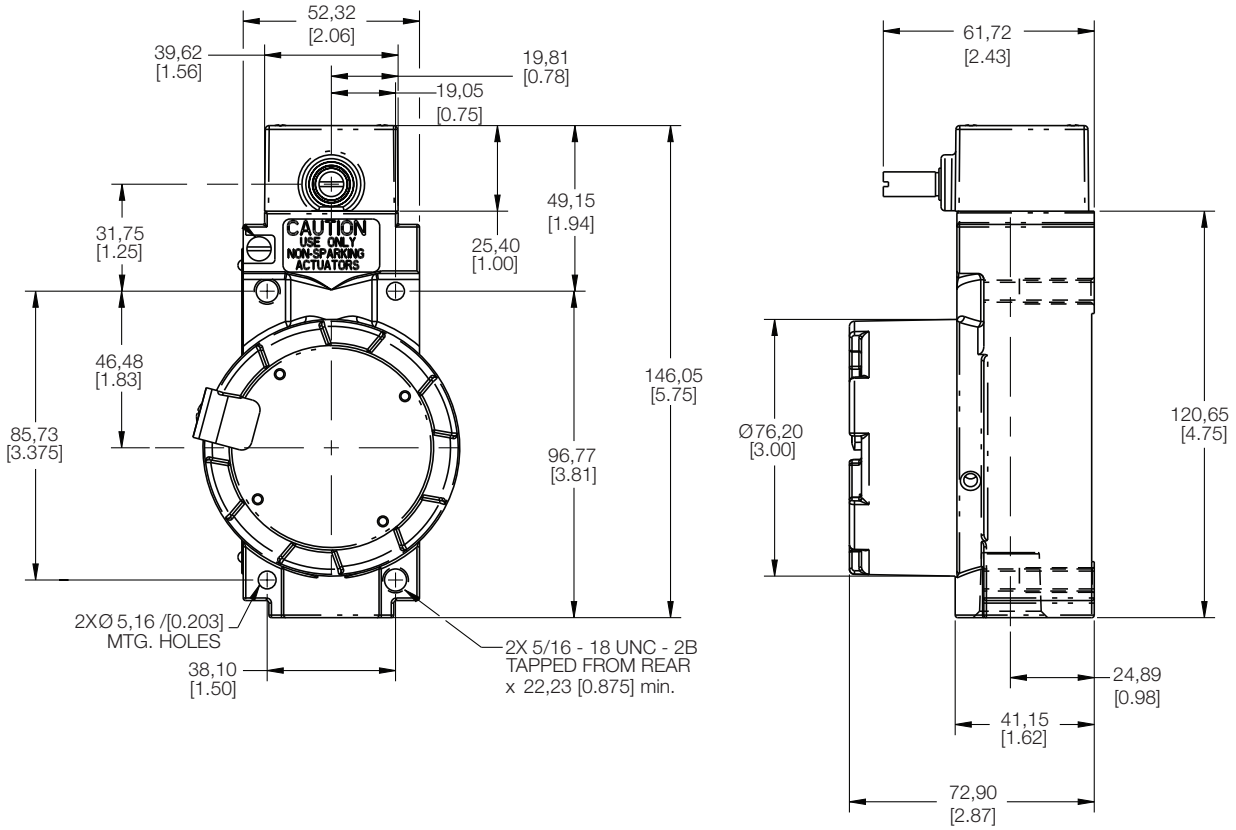


Figure 14. MICRO SWITCH BX2 Series Top Plunger Product Dimensions • mm [in]
Top Plunger – Head Codes: C and D

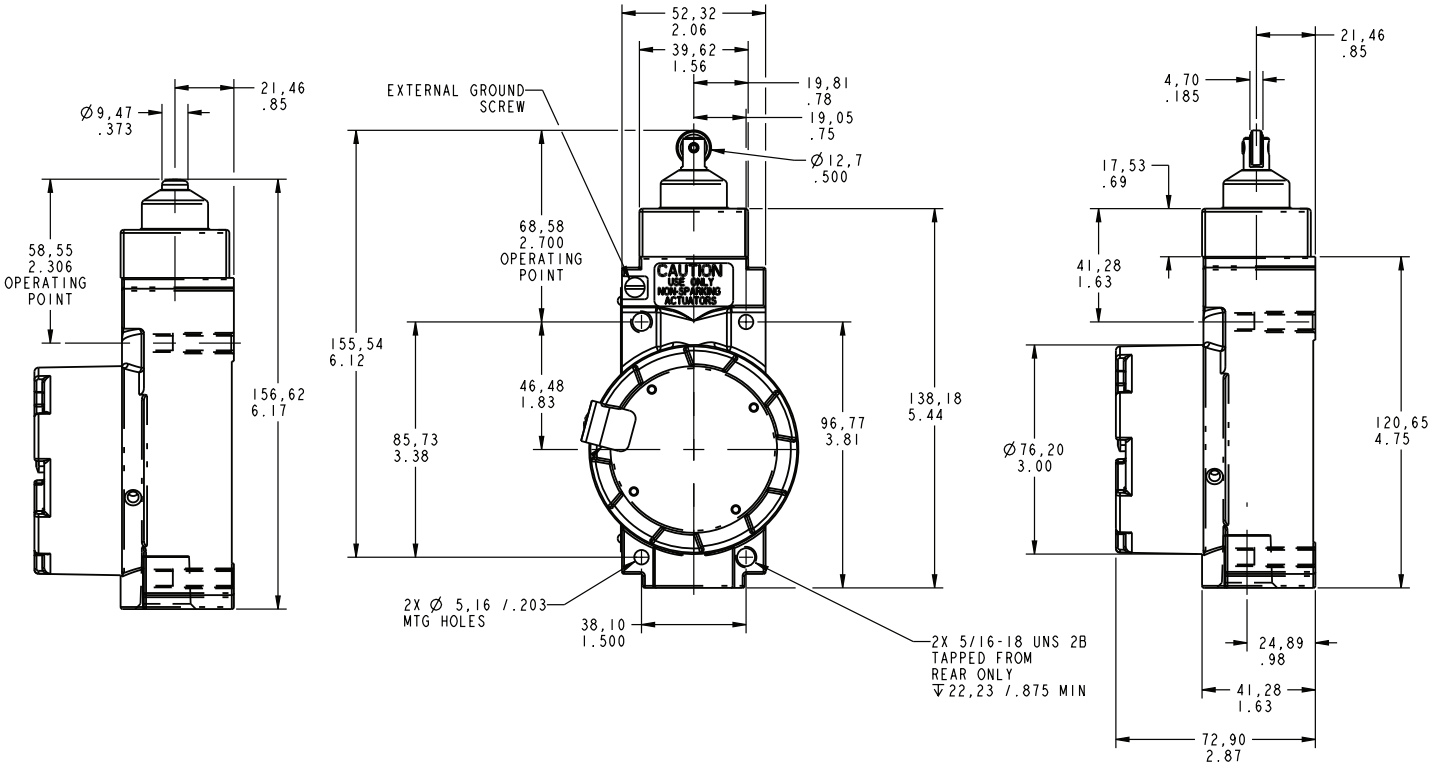
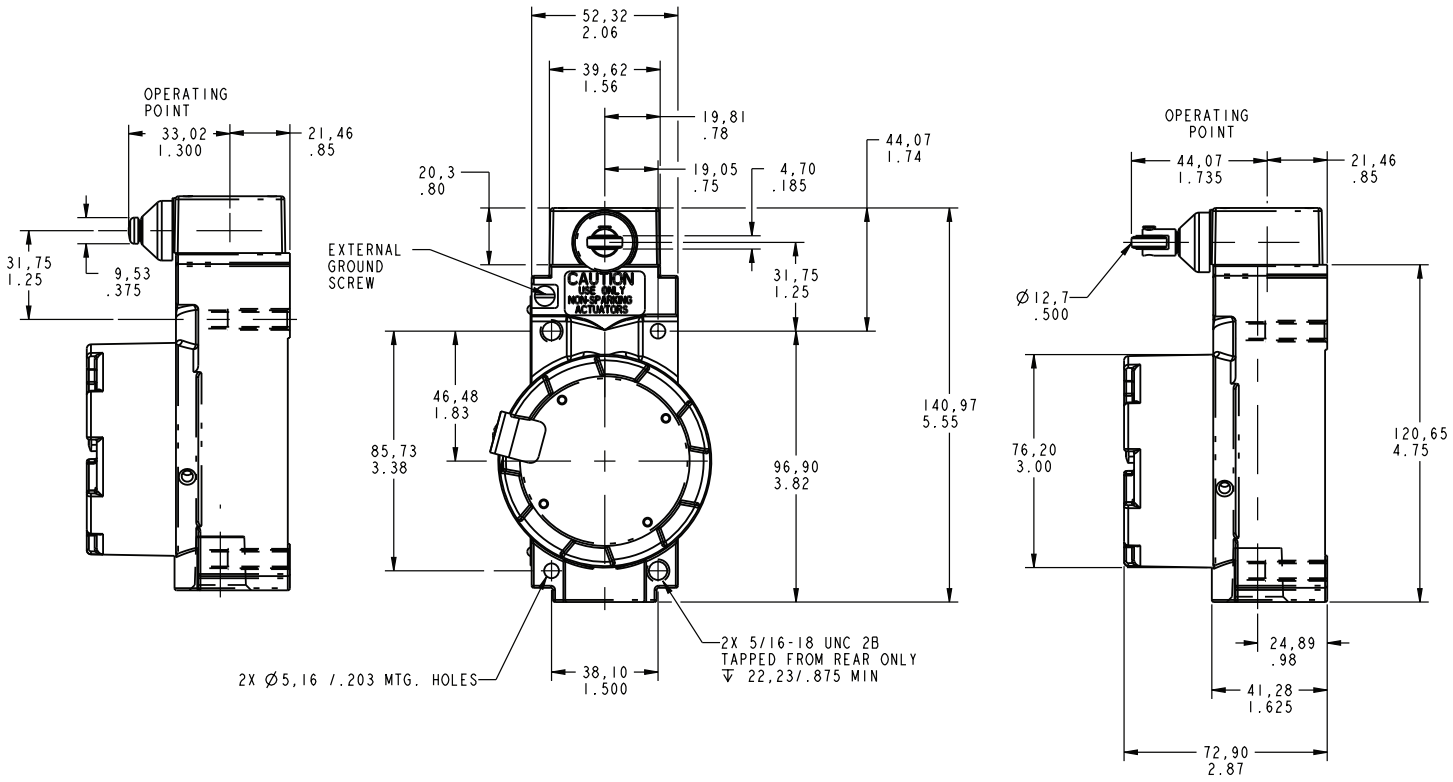


Figure 15. MICRO SWITCH BX2 Series Side Plunger Product Dimensions • mm [in]
Side Plunger – Head Codes: E and F



ADDITIONAL INFORMATION

The following associated literature is available on the Honeywell web site at sensing.honeywell.com:

- Product installation instructions
- Product range guide
- Hazardous area product brochure
- Product application-specific information
  - Application Note: Gas Recovery Unit and Other O&G Drilling Applications
  - Application Note: Pipeline Pig Passage Detection/Indicator Applications
  - Application Note: Electronic Sensors and Electromechanical Switches in Valves and Flow Meters
  - Application Note: Sensors and Switches Used in Valve Actuators and Valve Positioners
  - Application Note: Sensors and Switches for Industrial Manual Process Valves
  - Sensors and Switches in Oil Rig Applications

FOR MORE INFORMATION

Honeywell Sensing and Internet of Things services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor, visit sensing.honeywell.com or call:

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

⚠ WARNING
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- 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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