Honeywell



MICRO SWITCH™ BX/BX2 Series Hazardous Location Limit Switches

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.

What makes our switches better?

- Around-the-world use in hazardous areas with international approvals: UL, CSA, ATEX (CE), IEC Ex, 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
- Top-of-the-line environmental sealing combined with Honeywell expertise for hazardous location package design provides the right product for the right application
- 303 stainless steel operating shaft on sintered bronze bearing for enhanced mechanical life and operational reliability
- Exclusive teller tab on levers ensures proper torque. When the tab cannot be moved, the lever is tight enough to prevent slippage



STATE OF THE PARTY OF THE PARTY

RELIABILITY • SAFETY • RUGGED • BUILT TO FIT

Features and Benefits

SEALED TO NEMA 1, 3, 4, 6, 13; IP67

MICRO SWITCH™ BX/BX2 limit switch **NEMA/IP** sealing features twin shaft seals for an extra measure of protection. They are suitable for applications in **demanding indoor and/or outdoor environments**, where they may be subjected to shock or vibration from equipment, temperature extremes, dust, splashing water, coolant, and/or hose-directed water.

International approvals for use around the world

READY TO WORK - AROUND THE WORLD

Agency coverage for hazardous locations provided through UL, CSA, ATEX (CE), IEC Ex, NEPSI Ex (China), and KOSHA (select listings - Korea).

Industry-leading breadth of products

WIDE VARIETY OF PRODUCT OFFERING

Broad range of actuator styles are available for both aluminum and stainless steel head and body types. Many options for pin and roller plungers, rotary levers, or wobble (multidirectional) actuation facilitate installation. Single-pole or double-pole basic switch with gold or silver contacts provide reliable control of low energy or power-duty switching.

WITHSTANDS MANY CAUSTIC ENVIRONMENTS

Two rugged designs are available: **aluminum** or **corrosion-resistant stainless steel** head and body. Both designs are suitable for indoor and outdoor applications. A **diaphragm seal** between head and body provides an extra measure of protection. Switches remain functional when exposed to many severe environments and caustic chemicals.

OPTIONAL SEALS

Standard fluorosilicone seals are suitable for most applications, but **optional fluorocarbon seals** are available for harsh chemical or higher temperature environments.

UNIQUE DESIGN FEATURES

The head design is keyed for **secure head-to-body retention** with the head in any one of four positions 90° apart. Self-lifting pressure plate terminals **saves** wiring time.

DESIGN FLEXIBILITY

Honeywell offers a 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.

EASILY CONTROLS 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.

Potential 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

OFF-SHORE AND ON-SHORE DRILLING

Senses extend and retract position of drilling equipment



PIPELINES

Monitors pig position and resulting pipeline health

PETROCHEMICAL AND CHEMICAL PLANTS

Monitors control valves, doors, gates, and their position

WATER TREATMENT PLANTS

Senses control valve position



Door interlocks for sliding or hinged gates or doors

CONVEYORS (ABOVE-GROUND)

Monitors belt tension, belt alignment

PULP AND PAPER

Senses product/material presence, roll size

HAZARDOUS WASTE HANDLING

Often used as a valve position monitor



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. Sintered, bronze bearings enable longer operating life and increase resistance in corrosive environments Field adjustable operating head • (CW and CCW, CW or CCW) matches switch to application Boss-and-socket head design for secure head-to-body retention Twin shaft seals for an extra measure of environmental protection. Dual bearings deliver enhanced mechanical life Flurosilicone seals extend operating temperature Rugged aluminum head and body • down to -40 °C [-40°F] are phosphate treated and epoxy coated Two flame External ground screw for agency • paths: one in compliance. Internal ground screw the cover-housing provided on all products for threads; another agency compliance between the switch cavity and head 0.5 in, 0.75 in, or 20 mm conduit options

Figure 2. MICRO SWITCH™ BX SERIES PRODUCT NOMENCLATURE

вх		F	зк	V	-
Switch Type	Conduit Threads	Head Style*	Body/Basic Switch Code	Actuator Modification	Actuator Options
BX Series Aluminum	½ or ¾ NPT**	* Side rotary; momentary	1A 3NC/1NO, slow acting, 3/4 -14 NPT	1 CW rotation	* Fixed Ø 0.75 in x 0.25 in W nylon roller, 1.5 in radius, front mount
Hazardous Area	4 20 mm	Top rotary; momentary	3NC/1NO, slow acting, 3/4 -14 NPT gold-plated contacts	2 CCW rotation	Fixed Ø 0.75 in x 0.25 in W nylon roller, 1.5 in radius, back mount
Limit Switch	** see Body/Basic Switch Code column	C * Top pin plunger, momentary	1NC/1NO, snap action, 1/2 -14 NPT gold-plated contacts	Right-oriented actuator head assembly	Adjustable, Ø 0.75 in x 0.25 in W nylon roller. front mount
BX2 Series Stainless	NOTE: if 1/2 NPT or 3/4 NPT conduit is	* Top roller plunger, momentary	3K 1NC/1NO, snap action, 1/2 - 14 NPT	4 Left-oriented actuator head assembly	* Adjustable, Ø 0.75 in x 0.25 in W nylon roller. back mount
Steel Hazardous	desired, no code is necessary. Leave- blank.	* Side pin plunger; momentary	^Δ 4K 1NC/1NO, snap action, 3/4 - 14 NPT	Head assembled with actuator to mounting surface	Adjustable, Ø 1.0 in x 0.5 in W nylon roller, front mount
Area Limit Switch		* Side roller plunger; momentary	4L 2NC/2NO, snap action, 3/4 - 14 NPT	6 Roller perpendicular to mounting surface	Adjustable, Ø 1.0 in x 0.5 in W nylon roller, back mount
Limit Owiton		* Side rotary, momentary; low PT, low torque	4M 2NC/2NO, snap action, sequential, 3/4 - 14 NPT	8 Roller parallel to mounting surface	Yoke, Ø 0.75 in x 0.25 in W nylon rollers, same side, back mount
		J Wobble stick	2NC/2NO, snap action, center neutral, 3/4 - 14 NPT		Hub rod, aluminum
		Cat whisker	2NC/2NO, snap action, 3/4 -14 NPT gold-plated contacts		Offset, Ø 0.75 in x 0.25 in W nylon roller, back mount
		* Side rotary; sequential, momentary	2NC/2NO, snap action, sequential, 3/4 -14 NPT, gold-plated contacts		Offset, Ø 0.75 in x 0.25 in W nylon roller, front mount
		* Side rotary; central neutral, momentary	2NC/2NO, snap action, center neutral, 3/4 -14 NPT, gold-plated contacts		7A Plastic wobble stick
		N * Side rotary; maintained	7L 2NC/2NO, snap action, 1/2 - 14 NPT		8A Cat whisker, 5.5 in
		* Side rotary, momentary; low PT and DT	2NC/2NO, snap action, center neutral, 1/2 - 14 NPT		
		* Side rotary, momentary; low torque	Δ 2NC/2NO, snap action, 1/2 -14 NPT gold-plated contacts		
			A ONIC/ONIC		

2NC/2NO, snap action, sequential, 1/2 -14 NPT, gold-plated contacts

2NC/2NO, snap action, center neutral, 1/2 -14 NPT, gold-plated contacts

Side pin plunger, adjustable, momentary

Top pin plunger, adjustable, momentary

To order fluorocarbon versions, insert the additional letter ${\bf C}$ in the appropriate places in the standard catalog listing, as shown below:

-	
ВХАЗК	standard, side-rotary switch
BXA <u>C</u> 3K	completely FC-sealed version of BXA3K

 $[\]Delta$ Not available with conduit code 4.

^{*} BX2 stainless steel "head styles" and "actuators" available

Table 1. Specifications

Characteristic		Parameter Parame					
Product type	MIC	CRO SWITCH™ hazardous area limit s	witches				
	Side pin plunger	Side pin plunger - adjustable	Side roller plunger				
Actuators	Side rotary	Side rotary maintained	Top pin plunger				
	Top pin plunger - adjustable	Top roller plunger	Top rotary				
	Wobble - cat whisker	Wobble - plastic rod					
		1NC 1NO SPDT snap action, double b	reak				
	:	2NC 2NO DPDT snap action, double b	reak				
Circuitry	2NC 2	2NC 2NO DPDT snap action, double break, sequential					
	2NC 2NO DPDT snap action, double break, center neutral						
	3NC 1NO slow action, double break						
F	10 A thermal						
Electrical	Single and double pole: AC15 A600; DC13 R300 (see table on page 8)						
Housing material		Aluminum (BX) or Stainless Steel (BX	(2)				
	0.5 in - 14 NPT conduit						
Termination types		0.75 in - 14 NPT conduit					
	20 mm conduit						
Housing type		BX/BX2 non-plug-in					
Sealing		NEMA 1, 3, 4, 6, 13; IP67					
O	Standard wit	Standard with fluorosilicone seals: -40 °C to 70 °C [-40 °F to 158 °F]					
Operating temperature*		Optional with fluorocarbon seals: -12 °C to 70 °C [10 °F to 158 °F]					
UNSPSC code	302119						
UNSPSC commodity		302119 Switches and controls and rel	ays				

^{*} Reference operating head styles on page 8 for exceptions.

Table 2. Agency Certifications

		ATEX (CE) ² Europe	CSA , UL, or cULus ⁴ Canada, USA	IEC Ex ² International	KOSHA ¹ Korea	NEPSI EX ³ China
		⟨£x⟩	C UL US LISTED	IEĈE X	S s	Ex NEPSI
	Conduit					
BX Series	M20	•		•		•
(aluminum)	NPT	•	•	•	•	•
BX2 Series	M20	•	•	•		•
(stainless steel)	NPT	•	•	•		•

¹ BXA3K, BXA4L, and BXB4L catalog listings are KOSHA certified.

² ATEX & IEC Ex: [(Gas) II 2 G; Exd IIC T6: (Dust) II 2 D; Ex d tD A21 T85°C]

³ NEPSI Ex: GYJ111016

⁴ 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™ 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,	SPDT	120	60	6
A600	DPDT	240	30	3
		480	15	1.5
		600	12	1.2

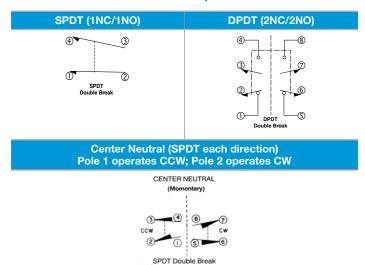
MICRO SWITCH™ BX AND BX2 SERIES ELECTRICAL RATINGS: dc VOLTS; PILOT DUTY: DC13, R300

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

MICRO SWITCHTM 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



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 (Flo	uorosilicone)	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:

вхазк	standard, side-rotary switch
BXA <u>C</u> 3K	FC-sealed version of BXA3K
BX2A3K	standard, stainless steel side-rotary switch
BX2A <u>C</u> 3K	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™ 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 • St CW/CCW Mome		Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
		Aluminum	1NC-1NO	Silver	0.5-14 NPT	вхазк
	15° 1-2	Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	BXA3E
		Aluminum	1NC-1NO	Silver	0.75-14 NPT	BXA4K
	1-2 0° 10° 75°	Aluminum	1NC-1NO	Silver	20 mm	BX4A3K
	Pretravel • 15° max.	Aluminum	1NC-1NO	Gold plate	20 mm	BX4A3E
	Diff. travel (SPDT) • 5° max. Diff travel (DPDT) • 7° max.	Stainless Steel	1NC-1NO	Silver	0.5-14 NPT	BX2A3K
	Overtravel • 60° min. Oper. torque • 0,45 Nm [4 in-lb] max.	Stainless Steel	1NC-1NO	Silver	20 mm	BX24A3K
	*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXA4L
	15° 1-2/5-6	Aluminum	2NC-2NO	Silver	20 mm	BX4A4L
	3-4/7-8	Aluminum	2NC-2NO	Gold plate	0.5-14 NPT	BXA7S
	1-2/5-6 0° 8° 75°		2NC-2NO	Gold plate	0.75-14 NPT	BXA4S
		Stainless Steel	2NC-2NO	Silver	0.75-14 NPT	BX2A4L
BXP /BX2P • Lo CW/CCW Mome	ow Differential entary	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	9° 1-2	Aluminum	1NC-1NO	Silver	0.5-14 NPT	вхрзк
O° 6° 75° Pretravel • 9° max. Diff. travel (SPDT) • 3° max. Diff. travel (DPDT) • 4° max.		Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXP4L
	Overtravel • 66° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]	Stainless Steel	2NC-2NO	Silver	0.75-14 NPT	BX2P4L
	9° 1-2/5-6 3-4/7-8 3-4/7-8 1-2/5-6 0° 5° 75°	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 BXAC3K limit switch.

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



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 BXAC3K limit switch.

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

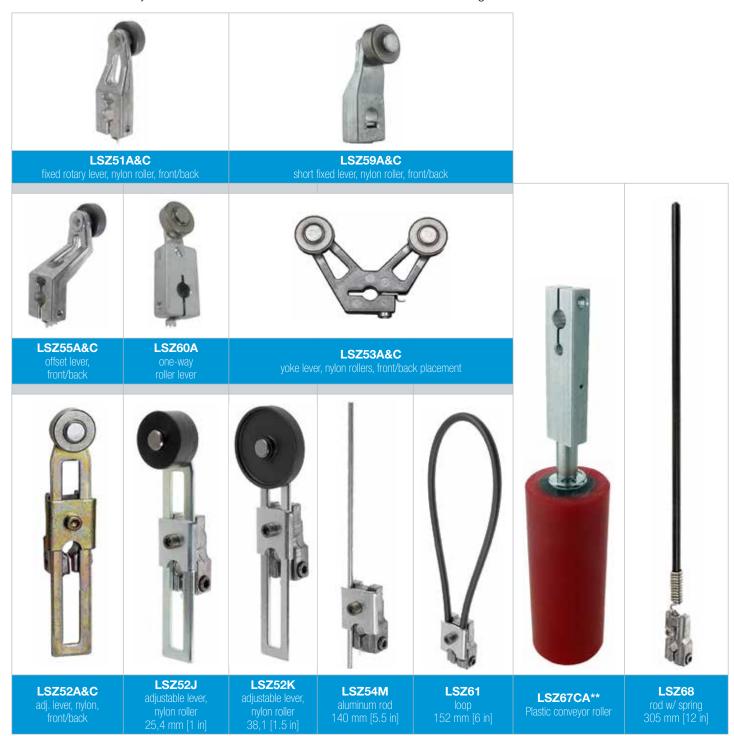
BXN • Maintaine CCW (trip), CW	BXN • Maintained, Two Position CCW (trip), CW (Reset)		Contacts (snap-action)	Contact Material	Conduit	Listing
	65° 1-2 3-4 3-4	Aluminum	1NC-1NO	Silver	0.5-14 NPT	BXN3K
	0° 25° 85° Pretravel • 65° max. Diff. travel • 40° max.	Aluminum	1NC-1NO	Silver	20 mm	BX4N3K
	Overtravel • 20° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F] 65°	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXN4L
	1-2/5-6 3-4/7-8 3-4/7-8 1-2/5-6 0° 25° 85°	Aluminum	2NC-2NO	Silver	20 mm	BX4N4L
BXM • Center N CW and CCW M	leutral, Iomentary	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] 75° 18° 0° 75° 1-2 3-4	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXM4N
	3-4 1-2 CCW 8° CW 75° 0° 18° 75° 5-6 7-8 7-8 5-6 CCW 8° CW	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 BXAC3K limit switch.

Table 3. Common levers for use with MICRO SWITCH™ BX 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.



^{*} Stainless steel levers for BX2 Series (stainless steel) are described on page 15.

^{**} 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 radiu	ıs		
400	LSZ51	Rollerless	n/a	n/a	n/a
	LSZ51A	Nylon	19 [0.75]	6,35 [0.25]	Front
18370	LSZ51C	Nylon	19 [0.75]	6,35 [0.25]	Back
10718	LSZ51F	Nylon	25,4 [1.0]	12,7 [0.50]	Front
/// III	LSZ51G	Nylon	38,1 [1.5]	6,35 [0.25]	Front
4841	LSZ51J	Nylon	25,4 [1.0]	12,7 [0.50]	Back
15011	LSZ51M	Nylon	19 [0.75]	31,7 [1.25]	Back
200	LSZ51P	Nylon	19 [0.75]	12,7 [0.50]	Front
TIL	LS2Z51A (sst)	Nylon	19 [0.75]	6,35 [0.25]	Front
- Allia	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
		38,1 [1.5] in to			
-	LSZ52	Rollerless	n/a	n/a	n/a
(0)	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
g land	LSZ52J	Nylon	25,4 [1.0]	12,7 [0.50]	Front
6	LSZ52K	Nylon	38,1 [1.5]	6,35 [0.25]	Front
La	LSZ52M	Nylon	50,8 [2.0]	6,35 [0.25]	Front
d Dal	LSZ52N	Nylon	19 [0.75]	12,7 [0.50]	Front
	LS2Z52A (sst)	Nylon	19 [0.75]	6,35 [0.25]	Front
11 11	LS2Z52A (sst)	Nylon	19 [0.75]	6,35 [0.25]	Back
	LS2Z52E (sst)	Copper alloy	19 [0.75]		Front
The same of the sa	LS2Z52E (SSI) LS2Z52F (SSI)	Copper alloy		6,35 [0.25]	Back
		- 11	19 [0.75]	6,35 [0.25]	Dack
		[1.5] in radius		0.05 (0.05)	Frant/Dask
	LSZ53A	Nylon	19 [0.75]	6,35 [0.25]	Front/Back
A 12	LSZ53E LSZ53M	Nylon	19 [0.75]	6,35 [0.25]	Back/Front Back/Front
	LSZ53S	Nylon	19 [0.75] 19 [0.75]	31,7 [1.25] 6,35 [0.25]	Back/Back
1	Rod				
1	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
0	LSZ54W	Plastic rod, 183 mm [7.2 in]	Ø6,85 [Ø 0.27]	n/a	n/a
- Table	Offset - 38,	1 [1.5] in radiu	ıs		
	LSZ55	Rollerless	n/a	n/a	n/a
PA D	LSZ55A	Nylon	19 [0.75]	6,35 [0.25]	Back
110	LSZ55C	Nylon	19 [0.75]	6,35 [0.25]	Front
200	LSZ55E	Nylon	19 [0.75]	12,7 [0.50]	Front
1	LSZ55K	Nylon	38,1 [1.5]	6,35 [0.25]	Front

	Catalog Listing	Material	Roller Dia. mm [in]	Roller Width mm [in]	Roller Mounting	
	Short fixed	- 1.3 in radius		Freed		
_	LSZ59A	Nylon	19 [0.75]	6,35 [0.25]	Front	
3	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	р				
\wedge	LSZ61	Ø 4,8 [Ø 0.19] Nylatron	152 mm [6 ir	152 mm [6 in] flexible loop		
()	LSZ618	Ø 4,8 [Ø 0.19] Nylatron	241 mm [9.5 in] flexible loop			
V	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 rolle	er levers				
0	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	
fig.	LSZ52Y 38,1 to 89 [1.5 to 3.5] radius (adjustable)	Rubber	50 [2.0]	12,7 [0.5]	front	
	Plastic rolle	r 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.

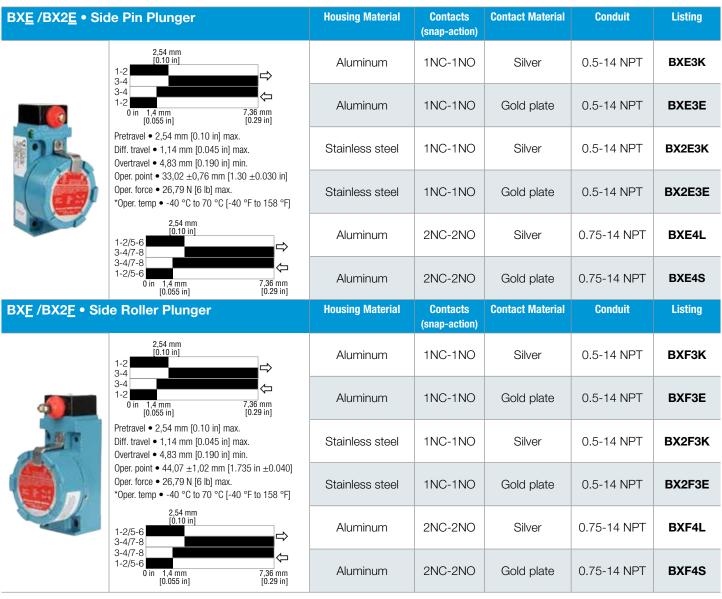
BX <u>C</u> /BX2 <u>C</u> • To	p Pin Plunger	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	1,78 mm [0.07 in]	Aluminum	1NC-1NO	Silver	0.5-14 NPT	вхсзк
	1-2 3-4 3-4	Aluminum	1NC-1NO	Silver	0.75-14 NPT	BXC4K
1-2 0 in 1,4 mm 6,6 mm [0.055 in] [0.26 in]	Aluminum	1NC-1NO	Silver	20 mm	вх4С3К	
	Pretravel ◆ 1,78 mm [0.07 in] max. Diff. travel (SPDT) ◆ 0,38 mm [0.015 in] max.	Aluminum	1NC-1NO	Gold plate	20mm	BX4C3E
Diff trav Overtrav Oper. pc Oper. fo	Diff travel (DPDT) • 0,51 mm [0.020 in] max. Divertravel • 4,83 mm [0.190 in] min. Diper. point • 58,5 ±0,76 mm [2.305 ±0.030 in] Diper. force • 17,8 N [4 lb] max. Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXC4L
		Aluminum	2NC-2NO	Silver	20 mm	BX4C4L
	1,78 mm [0.07 in]	Aluminum	2NC-2NO	Gold plate	20 mm	BX4C4S
	3-4/7-8 3-4/7-8	Stainless steel	2NC-2NO	Silver	0.75-14 NPT	BX2C4L
	1-2/5-6 0 6,6 mm (0.05 in) (0.26 in)	Stainless steel	2NC-2NO	Silver	20 mm	BX24C4L
	pp Roller Plunger at 90° increments)	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	1,78 mm [0.07 in] 1-2 3-4 1-2	Aluminum	1NC-1NO	Silver	0.5-14 NPT	вхрзк
3-4 3-4 1-2 0 in 1, [0.1] Pretravel • Diff. travel (Aluminum	1NC-1NO	Silver	20 mm	BX4D3K
	0 in 1,4 mm 6,6 mm [0.055 in] [0.26 in] Pretravel ◆ 1,78 mm [0.07 in] max.	Aluminum	1NC-1NO	Gold plate	20 mm	BX4D3E
	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.	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXD4L
	Oper. point • $68.6 \pm 1.02 \text{ mm} [2.70 \pm 0.040 \text{ in}]$ Oper. force • $17.8 \text{ N} [4 \text{ lb}] \text{ max}.$	Aluminum	2NC-2NO	Silver	20 mm	BX4D4L
	*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F] 1,78 mm [0.07 in]	Aluminum	2NC-2NO	Gold plate	20 mm	BX4D4S
	1-2/5-6 3-4/7-8	Stainless steel	2NC-2NO	Silver	0.75-14 NPT	BX2D4L
1-2/5-6 11-2	1-2/5-6 0 in 1,27 mm 6,6 mm	Stainless steel	2NC-2NO	Silver	20 mm	BX24D4L
BX <u>V</u> • Top Adju	stable Plunger	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	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] 1-2/5-6 3-4/7-8 3-4/7-8 3-4/7-8 1-2/5-6 0 in 1,27 mm [0.05 in] 6.6 mm [0.26 in]	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXV4L

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 BXAC3K limit switch.

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

All side plungers are momentary action.



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 BXAC3K limit switch.

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

BX <u>J</u> • Wobble,	Plastic Rod (7A Actuator)	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	12° 1-2 3-4 3-4 1-2 0° 8° 40°	Aluminum	1NC-1NO	Silver	0.5-14 NPT	BXJ3K-7A
		Aluminum	1NC-1NO	Silver	20 mm	BX4J3K-7A
	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]	Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	BXJ3E-7A
	12° 1-2/5-6 3-4/7-8	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXJ4L-7A
	3-4/7-8 1-2/5-6 0° 8° 40°	Aluminum	2NC-2NO	Silver	20 mm	BX4J4L-7A
DVV a Wahhla	O-1 M/L:-1 (OA A-11)			011-11-1-1-1-1		
B∧ <u>r</u> • Wobble,	Cat Whisker (8A Actuator)	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
B∧ <u>r</u> • Wobble,	25° 1-2 3-4 3-4			Silver	0.5-14 NPT	BXK3K-8A
BA <u>K</u> ♥ Wobble,	25° 1-2 3-4 3-4 1-2 0° 15° 50° Actuator length • 152 mm [6 in] Pretravel • 50,8 mm [2.0 in] max.	Material	(snap-action)			
BA <u>K</u> ♥ WODDIE,	25° 1-2 3-4 3-4 1-2 0° 15° 50° Actuator length • 152 mm [6 in]	Material Aluminum	(snap-action) 1NC-1NO	Silver	0.5-14 NPT	ВХКЗК-8А

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 BXAC3K 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 BXA3K23 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
- Roller on top plungers perpendicular to mounting surface
- Roller on side plungers in vertical position

For example,

Catalog listing BXF3K3 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

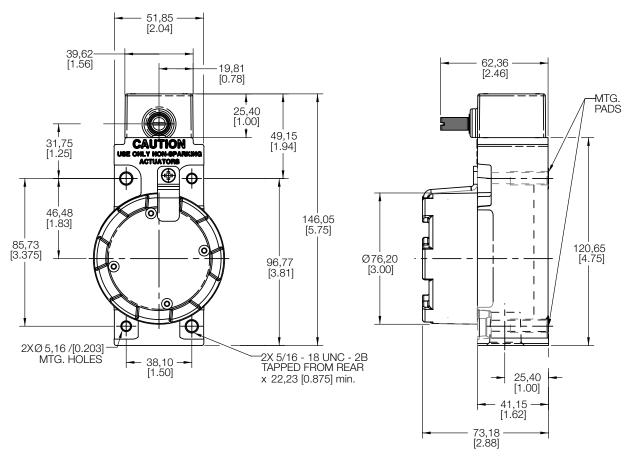


Figure 4. MICRO SWITCH™ BX SERIES WOBBLE STICK, **HEAD CODE J • mm [in]**

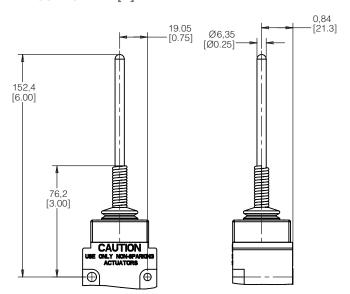


Figure 5. MICRO SWITCH™ BX SERIES CAT WHISKER WOBBLE, HEAD CODE K • mm [in]

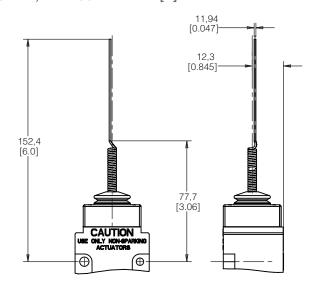
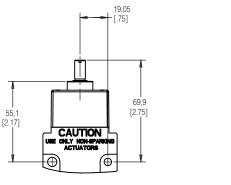


Figure 6. MICRO SWITCH™ BX SERIES TOP ROTARY, **HEAD CODE B** • mm [in]



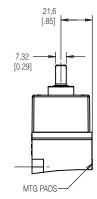
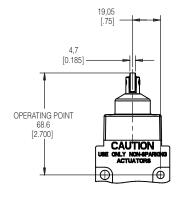


Figure 8. MICRO SWITCH™ BX SERIES TOP ROLLER PLUNGER, **HEAD CODE D** • mm [in]



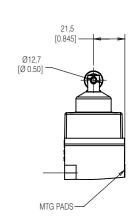


Figure 11. MICRO SWITCH™ BX SERIES ADJUSTABLE TOP PIN PLUNGER, HEAD CODE V • mm [in]

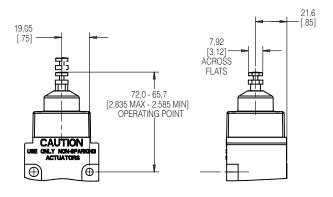


Figure 7. MICRO SWITCH™ BX SERIES TOP PIN PLUNGER, **HEAD CODE C** • mm [in]

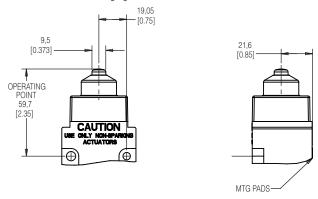


Figure 9. MICRO SWITCH™ BX SERIES SIDE PLUNGER, **HEAD CODE E • mm [in]**

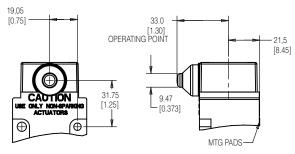


Figure 10. MICRO SWITCH™ BX SERIES SIDE ROLLER PLUNGER, HEAD CODE F • mm [in]

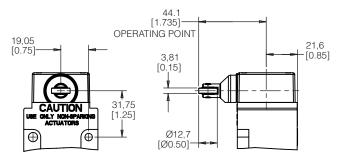


Figure 12. MICRO SWITCH™ BX SERIES ADJUSTABLE SIDE PIN PLUNGER, HEAD CODE W • mm [in]

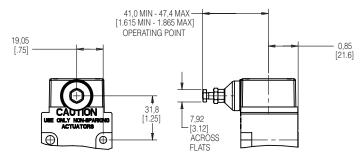


Figure 13. MICRO SWITCH™ BX2 Series Side Rotary Product Dimensions • mm [in] SIDE ROTARY - HEAD CODES: A, P, AND R

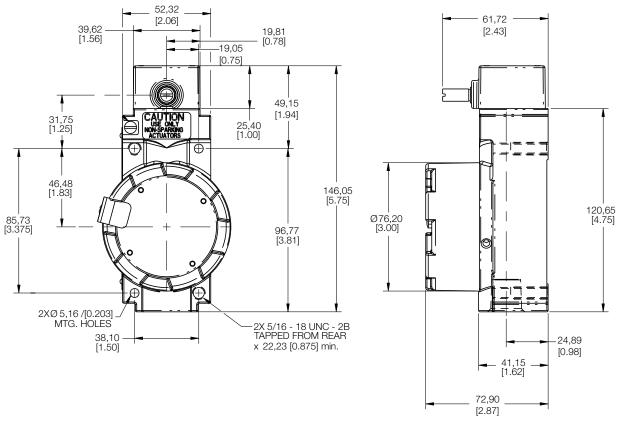


Figure 14. MICRO SWITCH™ BX2 Series Top Plunger Product Dimensions • mm [in] TOP PLUNGER - HEAD CODES: C and D

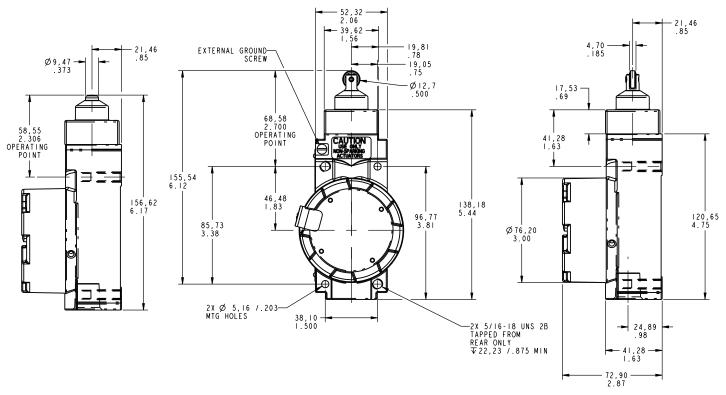
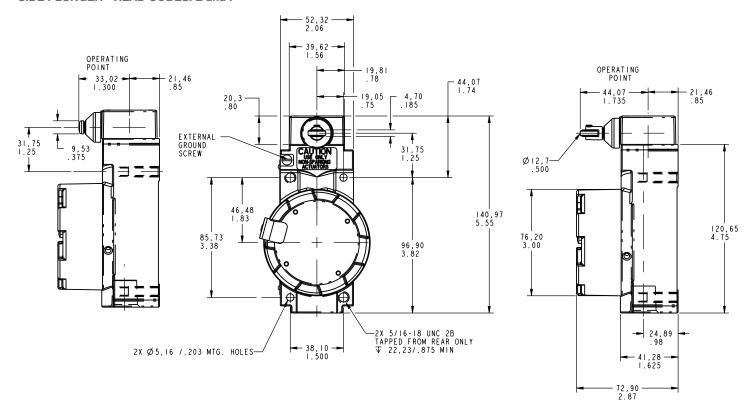


Figure 15. MICRO SWITCH™ BX2 Series Side Plunger Product Dimensions • mm [in] SIDE PLUNGER - HEAD CODES: E and F



This datasheet supports the following MICRO SWITCH™ BX Series Hazardous Area Limit Switches

BX24A3K	BX4C3E	BXA3K	BXD3K	BXN3K
BX24A3K-1A	BX4C3K	BXA3K-1A	BXD4L	BXN4L
BX24C4L	BX4C4L	BXA3K5	BXE3K	BXP3K
BX24J3K-7A	BX4CC3K	BXA4K	BXE4L	BXP4L
BX24P4L	BX4D3E	BXA4L	BXF3K	BXP4S
BX2A3K	BX4D3K	BXA4L-1A	BXF4L	BXQC4L354
BX2A4L	BX4D3K-RS	BXA4S	BXG1A	BXQE4L356
BX2C4L	BX4D4L	BXA4S5	BXH3K	BXQE7L357
BX2D4L	BX4G1A	BXA7S	BXJ3E-7A	BXQP4L355
BX2P4L	BX4J3K-7A	BXB4L	BXJ3K-7A	BXR3E
BX4A3E	BX4J4L-7A	BXC3K	BXJ4L-7A	BXR3K
BX4A3K	BX4M4N	BXC4K	BXK4L-8A	BXR4L
BX4A3K-1A	BX4N3K	BXC4L	BXM4N	BXR4S
BX4A4L	BX4N4L	BXC4S	BXM4N-1A	

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

WARNINGPERSONAL 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 product sheet is for reference only. Do not use this document as a product installation guide.
- 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.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.

While we provide application assistance personally, through our literature and the Honeywell website, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.