



MICRO SWITCH™ BX | BX2  
Hazardous Area Switches  
**BX | BX2 Series**



# 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

***Ready to work...  
anywhere in the world!***



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



### **PAINT BOOTHS**

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

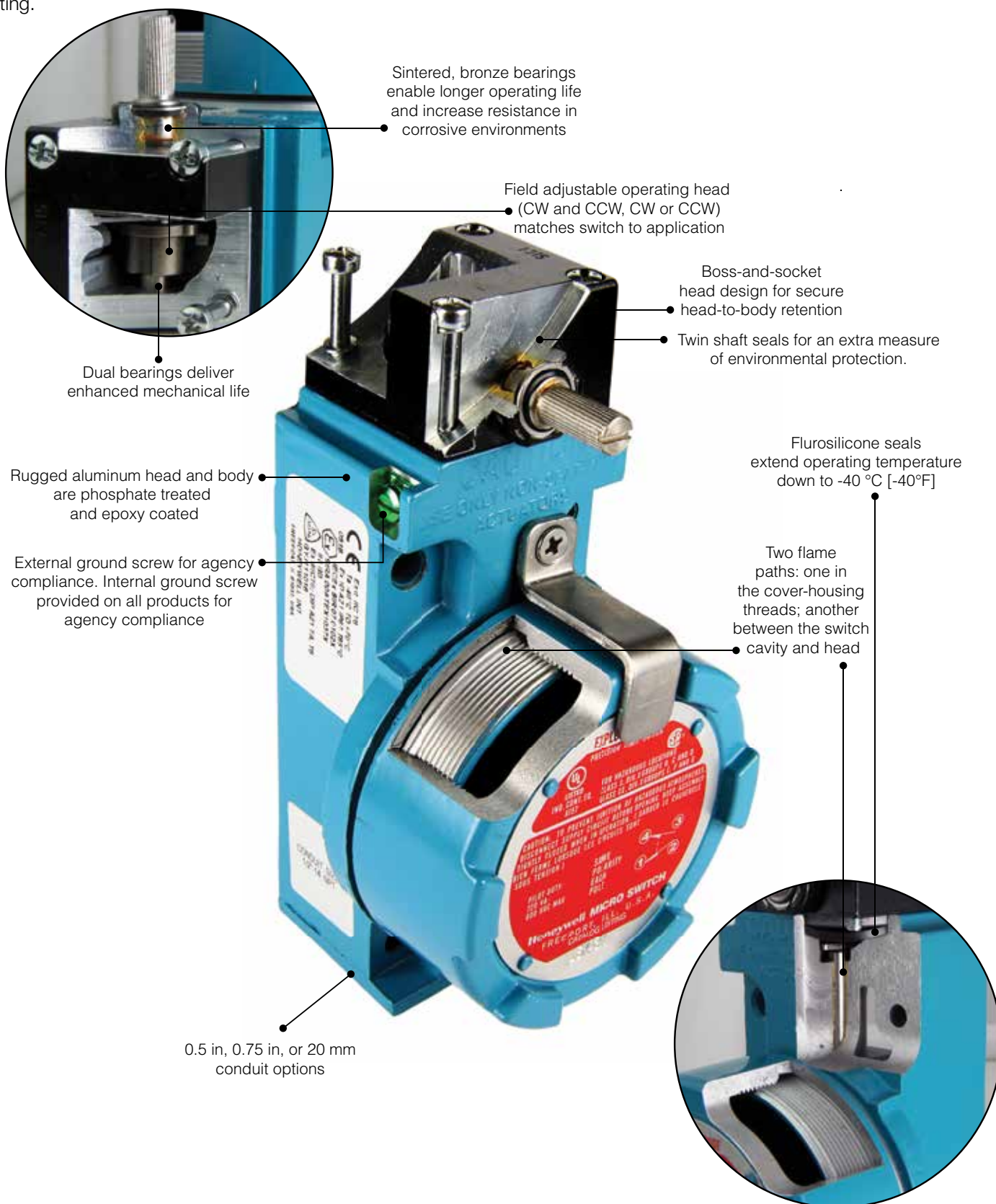
### **HAZARDOUS WASTE HANDLING**

Often used as a valve position monitor

# MICRO SWITCH™ Hazardous Area Limit Switches

**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.



# BX | BX2 Series

Figure 2. MICRO SWITCH™ BX SERIES PRODUCT NOMENCLATURE

| <b>BX</b>                                                         |                                    | <b>F</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>3K</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Switch Type                                                       | Conduit Threads                    | Head Style*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Body/Basic Switch Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Actuator Modification                                                                                                                                                                                                                                                                                              | Actuator Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>BX Series</b><br>Aluminum<br>Hazardous<br>Area<br>Limit Switch | 1/2 or 3/4 NPT**<br><b>4</b> 20 mm | <b>A</b> * Side rotary; momentary<br><b>B</b> Top rotary; momentary<br><b>C</b> * Top pin plunger; momentary<br><b>D</b> * Top roller plunger; momentary<br><b>E</b> * Side pin plunger; momentary<br><b>F</b> * Side roller plunger; momentary<br><b>H</b> * Side rotary; momentary; low PT, low torque<br><b>J</b> Wobble stick<br><b>K</b> Cat whisker<br><b>L</b> * Side rotary; sequential, momentary<br><b>M</b> * Side rotary; central neutral, momentary<br><b>N</b> * Side rotary; maintained<br><b>P</b> * Side rotary; momentary; low PT and DT<br><b>R</b> * Side rotary; momentary; low torque<br><b>V</b> Top pin plunger; adjustable, momentary<br><b>W</b> Side pin plunger; adjustable, momentary | <b>1A</b> 3NC/1NO, slow acting, 3/4 - 14 NPT<br><b>1E</b> 3NC/1NO, slow acting, 3/4 - 14 NPT gold-plated contacts<br><b>3E</b> 1NC/1NO, snap action, 1/2 - 14 NPT gold-plated contacts<br><b>3K</b> 1NC/1NO, snap action, 1/2 - 14 NPT<br><sup>Δ</sup> <b>4K</b> 1NC/1NO, snap action, 3/4 - 14 NPT<br><b>4L</b> 2NC/2NO, snap action, 3/4 - 14 NPT<br><b>4M</b> 2NC/2NO, snap action, sequential, 3/4 - 14 NPT<br><b>4N</b> 2NC/2NO, snap action, center neutral, 3/4 - 14 NPT<br><b>4S</b> 2NC/2NO, snap action, 3/4 - 14 NPT gold-plated contacts<br><b>4T</b> 2NC/2NO, snap action, sequential, 3/4 - 14 NPT, gold-plated contacts<br><b>4U</b> 2NC/2NO, snap action, center neutral, 3/4 - 14 NPT, gold-plated contacts<br><sup>Δ</sup> <b>7L</b> 2NC/2NO, snap action, 1/2 - 14 NPT<br><sup>Δ</sup> <b>7N</b> 2NC/2NO, snap action, center neutral, 1/2 - 14 NPT<br><sup>Δ</sup> <b>7S</b> 2NC/2NO, snap action, 1/2 - 14 NPT gold-plated contacts<br><sup>Δ</sup> <b>7T</b> 2NC/2NO, snap action, sequential, 1/2 - 14 NPT, gold-plated contacts<br><sup>Δ</sup> <b>7U</b> 2NC/2NO, snap action, center neutral, 1/2 - 14 NPT, gold-plated contacts | <b>1</b> CW rotation<br><b>2</b> CCW rotation<br><b>3</b> Right-oriented actuator head assembly<br><b>4</b> Left-oriented actuator head assembly<br><b>5</b> Head assembled with actuator to mounting surface<br><b>6</b> Roller perpendicular to mounting surface<br><b>8</b> Roller parallel to mounting surface | <b>1A</b> Fixed Ø 0.75 in x 0.25 in W nylon roller, 1.5 in radius, front mount<br><b>1C</b> Fixed Ø 0.75 in x 0.25 in W nylon roller, 1.5 in radius, back mount<br><b>2A</b> Adjustable, Ø 0.75 in x 0.25 in W nylon roller, front mount<br><b>2C</b> Adjustable, Ø 0.75 in x 0.25 in W nylon roller, back mount<br><b>2J</b> Adjustable, Ø 1.0 in x 0.5 in W nylon roller, front mount<br><b>2K</b> Adjustable, Ø 1.0 in x 0.5 in W nylon roller, back mount<br><b>3S</b> Yoke, Ø 0.75 in x 0.25 in W nylon rollers, same side, back mount<br><b>4M</b> Hub rod, aluminum<br><b>5A</b> Offset, Ø 0.75 in x 0.25 in W nylon roller, back mount<br><b>5C</b> Offset, Ø 0.75 in x 0.25 in W nylon roller, front mount<br><b>7A</b> Plastic wobble stick<br><b>8A</b> 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:

|                          |                                       |
|--------------------------|---------------------------------------|
| <b>BXA3K</b>             | standard, side-rotary switch          |
| <b>BXA<sub>C</sub>3K</b> | completely FC-sealed version of BXA3K |

# MICRO SWITCH™ Hazardous Area Limit Switches

**Table 1. Specifications**

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

\* Reference operating head styles on page 8 for exceptions.

**Table 2. Agency Certifications**

|                                 |         | ATEX (CE) <sup>2</sup><br>Europe                                                    | CSA , UL, or cULus <sup>4</sup><br>Canada, USA                                      | IEC Ex <sup>2</sup><br>International                                                 | KOSHA <sup>1</sup><br>Korea                                                           | NEPSI EX <sup>3</sup><br>China                                                        |
|---------------------------------|---------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                 |         |  |  |  |  |  |
|                                 | Conduit |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| BX Series<br>(aluminum)         | M20     | •                                                                                   |                                                                                     | •                                                                                    |                                                                                       | •                                                                                     |
|                                 | NPT     | •                                                                                   | •                                                                                   | •                                                                                    | •                                                                                     | •                                                                                     |
| BX2 Series<br>(stainless steel) | M20     | •                                                                                   | •                                                                                   | •                                                                                    |                                                                                       | •                                                                                     |
|                                 | NPT     | •                                                                                   | •                                                                                   | •                                                                                    |                                                                                       | •                                                                                     |

<sup>1</sup> BXA3K, BXA4L, and BXB4L catalog listings are KOSHA certified.

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

<sup>3</sup> NEPSI Ex: GYJ111016

<sup>4</sup> 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

# 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<br>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<br>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

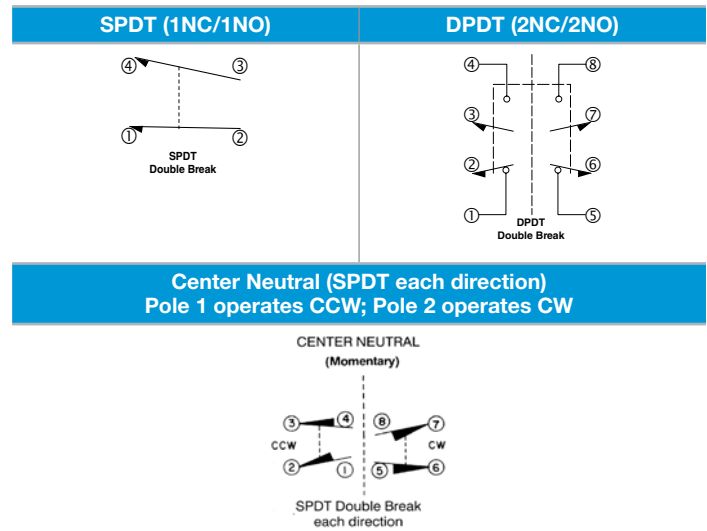
| Circuitry  | Vdc | Amps Inductive | Amps Resistive |
|------------|-----|----------------|----------------|
| SPDT, DPDT | 24  | 10             | 10             |

## 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.

| Operating Head Styles                             | MICRO SWITCH™ BX/BX2      |                 |                                |               |
|---------------------------------------------------|---------------------------|-----------------|--------------------------------|---------------|
|                                                   | Standard (Fluorosilicone) |                 | Optional (Fluorocarbon Sealed) |               |
|                                                   | -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                     | •                         |                 | •                              |               |

## SWITCH CONTACT STYLES, DOUBLE BREAK



NOTE: Same polarity each pole

# MICRO SWITCH™ Hazardous Area Limit Switches

## 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:

|                |                                              |
|----------------|----------------------------------------------|
| <b>BXA3K</b>   | standard, side-rotary switch                 |
| <b>BXAC3K</b>  | FC-sealed version of BXA3K                   |
| <b>BX2A3K</b>  | standard, stainless steel side-rotary switch |
| <b>BX2AC3K</b> | 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).

|                                                                                   |                                                                                                                                                             |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>BXA/BX2A - Standard:</b> 60° minimum overtravel, 15° maximum pretravel, 5° (single pole) and 7° (double pole) maximum differential travel.               |
|                                                                                   | <b>BXR/BX2R - Low operating torque:</b> 60° minimum overtravel, 15° maximum pretravel, 0.19 Nm [1.7 in lb] maximum operating torque.                        |
|                                                                                   | <b>BXN/BX2N - Maintained contact:</b> Maintained on counter-clockwise rotation and reset on clockwise rotation, and vice versa.                             |
|                                                                                   | <b>BXP/BX2P - Low differential:</b> 68° minimum overtravel, 9° maximum pretravel, 3° (single pole) and 4° (double pole) maximum differential travel.        |
|                                                                                   | <b>BXH/BX2H - Low torque, low differential travel:</b> 68° minimum overtravel. Features low operating torque and narrow differential travel.                |
|                                                                                   | <b>BXL/BX2L - Sequential operation:</b> 48° minimum overtravel. Delayed action between operation of two poles.                                              |
|                                                                                   | <b>BXM/BX2M - Center neutral:</b> 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.

|                                                                                    |                                                                                                                                                                                     |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>BXB:</b> 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.

|                                                                                      |                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>BXC/BX2C - Top pin plunger:</b> 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.                                                                               |
|  | <b>BXD/BX2D - Top roller plunger:</b> 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.                                                                                         |
|  | <b>BXV - Adjustable top pin plunger:</b> 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. |

# 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.

|                                                                                   |                                                                                                                                                                                                                                                                                                 |                                                                                    |                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>BXE/BX2E - Side pin plunger:</b> 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. |  | <b>BXW - Adjustable side pin plunger:</b> 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]. |
|  | <b>BXF/BX2F - Side roller plunger:</b> A copper alloy roller plunger fits close quarters under cams and slides. The head may be rotated in any of four positions, 90° apart. <u>The roller can be turned vertical or horizontal to the switch.</u> Boot seal on plunger.                        |                                                                                    |                                                                                                                                                                                                     |

**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.

|                                                                                                                 |                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
|                              |                |
| <b>BXK - Plastic rod:</b><br>Recommended where possible scratching or marring by the actuator is to be avoided. | <b>BXJ - Cat whisker:</b><br>Copper alloy actuator designed for low operating force applications. |

# MICRO SWITCH™ Hazardous Area Limit Switches

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

| BXA /BX2A • Standard CW/CCW Momentary                                                                                                                                                                                                                                                                                                                                                                                                                    |                 | Housing Material | Contacts (snap-action) | Contact Material | Conduit        | Listing |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|------------------------|------------------|----------------|---------|
|  <p>15°</p> <p>1-2<br/>3-4<br/>3-4<br/>1-2</p> <p>0° 10° 75°</p> <p>Pretravel • 15° max.<br/>Diff. travel (SPDT) • 5° max.<br/>Diff travel (DPDT) • 7° max.<br/>Overtravel • 60° min.<br/>Oper. torque • 0,45 Nm [4 in-lb] max.<br/>*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]</p> <p>15°</p> <p>1-2/5-6<br/>3-4/7-8<br/>3-4/7-8<br/>1-2/5-6</p> <p>0° 8° 75°</p> | Aluminum        | 1NC-1NO          | Silver                 | 0.5-14 NPT       | <b>BXA3K</b>   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 1NC-1NO          | Gold plate             | 0.5-14 NPT       | <b>BXA3E</b>   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 1NC-1NO          | Silver                 | 0.75-14 NPT      | <b>BXA4K</b>   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 1NC-1NO          | Silver                 | 20 mm            | <b>BX4A3K</b>  |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 1NC-1NO          | Gold plate             | 20 mm            | <b>BX4A3E</b>  |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Stainless Steel | 1NC-1NO          | Silver                 | 0.5-14 NPT       | <b>BX2A3K</b>  |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Stainless Steel | 1NC-1NO          | Silver                 | 20 mm            | <b>BX24A3K</b> |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 2NC-2NO          | Silver                 | 0.75-14 NPT      | <b>BXA4L</b>   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 2NC-2NO          | Silver                 | 20 mm            | <b>BX4A4L</b>  |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 2NC-2NO          | Gold plate             | 0.5-14 NPT       | <b>BXA7S</b>   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 2NC-2NO          | Gold plate             | 0.75-14 NPT      | <b>BXA4S</b>   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Stainless Steel | 2NC-2NO          | Silver                 | 0.75-14 NPT      | <b>BX2A4L</b>  |         |
| BXP /BX2P • Low Differential CW/CCW Momentary                                                                                                                                                                                                                                                                                                                                                                                                            |                 | Housing Material | Contacts (snap-action) | Contact Material | Conduit        | Listing |
|  <p>9°</p> <p>1-2<br/>3-4<br/>3-4<br/>1-2</p> <p>0° 6° 75°</p> <p>Pretravel • 9° max.<br/>Diff. travel (SPDT) • 3° max.<br/>Diff. travel (DPDT) • 4° max.<br/>Overtravel • 66° min.<br/>Oper. torque • 0,45 Nm [4 in-lb] max.<br/>*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]</p> <p>9°</p> <p>1-2/5-6<br/>3-4/7-8<br/>3-4/7-8<br/>1-2/5-6</p> <p>0° 5° 75°</p>  | Aluminum        | 1NC-1NO          | Silver                 | 0.5-14 NPT       | <b>BXP3K</b>   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aluminum        | 2NC-2NO          | Silver                 | 0.75-14 NPT      | <b>BXP4L</b>   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Stainless Steel | 2NC-2NO          | Silver                 | 0.75-14 NPT      | <b>BX2P4L</b>  |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Stainless Steel | 2NC-2NO          | Silver                 | 20 mm            | <b>BX24P4L</b> |         |

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.

# BX | BX2 Series

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

| BXR • Low Torque,<br>CW and CCW Momentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Housing Material | Contacts<br>(snap-action) | Contact Material | Conduit     | Listing      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------|---------------------------|------------------|-------------|--------------|
|  <p>           1-2 15°<br/>           3-4<br/>           3-4<br/>           1-2<br/>           0° 10° 75°         </p> <p>           Pretravel • 15° max.<br/>           Diff. travel (SPDT) • 5° max.<br/>           Diff. travel (DPDT) • 7° max.<br/>           Overtravel • 60° min.<br/>           Oper. torque • 0,19 Nm [1.7 in-lb] max.<br/>           *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]         </p> <p>           1-2/5-6 15°<br/>           3-4/7-8<br/>           3-4/7-8<br/>           1-2/5-6<br/>           0° 8° 75°         </p>        |  | Aluminum         | 1NC-1NO                   | Silver           | 0.5-14 NPT  | <b>BXR3K</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 1NC-1NO                   | Gold plate       | 0.5-14 NPT  | <b>BXR3E</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 2NC-2NO                   | Silver           | 0.75-14 NPT | <b>BXR4L</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 2NC-2NO                   | Gold plate       | 0.75-14 NPT | <b>BXR4S</b> |
| BXH • Low Differential, Low Torque,<br>CW and CCW Momentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | Housing Material | Contacts<br>(snap-action) | Contact Material | Conduit     | Listing      |
|  <p>           1-2 9°<br/>           3-4<br/>           3-4<br/>           1-2<br/>           0° 6° 75°         </p> <p>           Pretravel • 9° max.<br/>           Diff. travel (SPDT) • 3° max.<br/>           Diff. travel (DPDT) • 4° max.<br/>           Overtravel • 66° min.<br/>           Oper. torque • 0,19 Nm [1.7 in-lb] max.<br/>           *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]         </p> <p>           1-2/5-6 9°<br/>           3-4/7-8<br/>           3-4/7-8<br/>           1-2/5-6<br/>           0° 5° 75°         </p>           |  | Aluminum         | 2NC-2NO                   | Silver           | 0.75-14 NPT | <b>BXH4L</b> |
| BXB • Top Rotary,<br>CW and CCW Momentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Housing Material | Contacts<br>(snap-action) | Contact Material | Conduit     | Listing      |
|  <p>           1-2 35°<br/>           3-4<br/>           3-4<br/>           1-2<br/>           0° 27° 135°         </p> <p>           Pretravel • 35° max.<br/>           Diff. travel (SPDT) • 8° max.<br/>           Diff. travel (DPDT) • 12° max.<br/>           Overtravel • 100° min.<br/>           Oper. torque • 0,28 Nm [2.5 in-lb] max.<br/>           *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]         </p> <p>           1-2/5-6 35°<br/>           3-4/7-8<br/>           3-4/7-8<br/>           1-2/5-6<br/>           0° 23° 135°         </p> |  | Aluminum         | 1NC-1NO                   | Silver           | 0.5-14 NPT  | <b>BXB3K</b> |

Contact closed ■; Contact open □

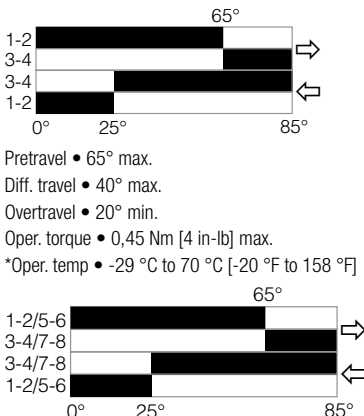
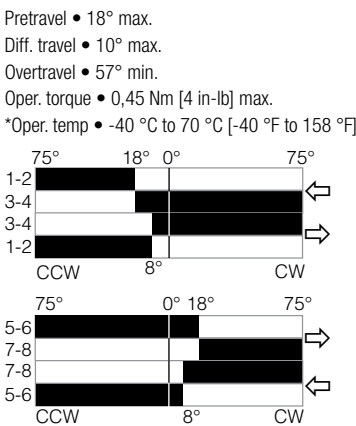
Actuating head is factory set for CW and CCW actuation. Easily field adjusted for CW or CCW per instructions included with switch.

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.

# MICRO SWITCH™ Hazardous Area Limit Switches

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

| BXN • Maintained, Two Position<br>CCW (trip), CW (Reset)                           |                                                                                    | Housing Material | Contacts<br>(snap-action) | Contact Material | Conduit     | Listing       |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------|---------------------------|------------------|-------------|---------------|
|   |   | Aluminum         | 1NC-1NO                   | Silver           | 0.5-14 NPT  | <b>BXN3K</b>  |
|                                                                                    |                                                                                    | Aluminum         | 1NC-1NO                   | Silver           | 20 mm       | <b>BX4N3K</b> |
|                                                                                    |                                                                                    | Aluminum         | 2NC-2NO                   | Silver           | 0.75-14 NPT | <b>BXN4L</b>  |
|                                                                                    |                                                                                    | Aluminum         | 2NC-2NO                   | Silver           | 20 mm       | <b>BX4N4L</b> |
| BXM • Center Neutral,<br>CW and CCW Momentary                                      |                                                                                    | Housing Material | Contacts<br>(snap-action) | Contact Material | Conduit     | Listing       |
|  |  | Aluminum         | 2NC-2NO                   | Silver           | 0.75-14 NPT | <b>BXM4N</b>  |
|                                                                                    |                                                                                    | Aluminum         | 2NC-2NO                   | Silver           | 20 mm       | <b>BX4M4N</b> |

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.

## BX | BX2 Series

**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.

|                                                                                      |                                                                                     |                                                                                      |                                                                                     |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|     |                                                                                     |     |                                                                                     |
| <b>LSZ51A&amp;C</b><br>fixed rotary lever, nylon roller, front/back                  |                                                                                     | <b>LSZ59A&amp;C</b><br>short fixed lever, nylon roller, front/back                   |                                                                                     |
|     |    |     |                                                                                     |
| <b>LSZ55A&amp;C</b><br>offset lever, front/back                                      | <b>LSZ60A</b><br>one-way roller lever                                               | <b>LSZ53A&amp;C</b><br>yoke lever, nylon rollers, front/back placement               |                                                                                     |
|   |  |   |  |
| <b>LSZ52A&amp;C</b><br>adj. lever, nylon, front/back                                 | <b>LSZ52J</b><br>adjustable lever, nylon roller<br>25,4 mm [1 in]                   | <b>LSZ52K</b><br>adjustable lever, nylon roller<br>38,1 [1.5 in]                     | <b>LSZ54M</b><br>aluminum rod<br>140 mm [5.5 in]                                    |
|  |                                                                                     |  |                                                                                     |
| <b>LSZ61</b><br>loop<br>152 mm [6 in]                                                |                                                                                     | <b>LSZ67CA**</b><br>Plastic conveyor roller                                          |                                                                                     |
|  |                                                                                     |                                                                                      |                                                                                     |
|                                                                                      |                                                                                     | <b>LSZ68</b><br>rod w/ spring<br>305 mm [12 in]                                      |                                                                                     |

\* 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.

# MICRO SWITCH™ Hazardous Area Limit Switches

Table 4. BX/BX2 Series Lever Order Guide

|                                                                                     | Catalog Listing                                  | Material                    | Roller Dia. mm [in] | Roller Width mm [in] | Roller Mounting |
|-------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------|---------------------|----------------------|-----------------|
|    | <b>Fixed 38,1 [1.5] inch radius</b>              |                             |                     |                      |                 |
|                                                                                     | 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           |
|                                                                                     | LSZ251A (sst)                                    | Nylon                       | 19 [0.75]           | 6,35 [0.25]          | Front           |
|                                                                                     | LSZ251C (sst)                                    | Nylon                       | 19 [0.75]           | 6,35 [0.25]          | Back            |
|                                                                                     | LSZ251E (sst)                                    | Copper alloy                | 19 [0.75]           | 6,35 [0.25]          | Front           |
|                                                                                     | LSZ251F (sst)                                    | Copper alloy                | 19 [0.75]           | 6,35 [0.25]          | Back            |
|    | <b>Adjustable 38,1 [1.5] in to 3.5 in radius</b> |                             |                     |                      |                 |
|                                                                                     | 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           |
|                                                                                     | LSZ252A (sst)                                    | Nylon                       | 19 [0.75]           | 6,35 [0.25]          | Front           |
|                                                                                     | LSZ252C (sst)                                    | Nylon                       | 19 [0.75]           | 6,35 [0.25]          | Back            |
|                                                                                     | LSZ252E (sst)                                    | Copper alloy                | 19 [0.75]           | 6,35 [0.25]          | Front           |
|                                                                                     | LSZ252F (sst)                                    | Copper alloy                | 19 [0.75]           | 6,35 [0.25]          | Back            |
|   | <b>Yoke - 38,1 [1.5] in radius</b>               |                             |                     |                      |                 |
|                                                                                     | 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       |
|  | <b>Rod</b>                                       |                             |                     |                      |                 |
|                                                                                     | 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             |
|  | <b>Offset - 38,1 [1.5] in radius</b>             |                             |                     |                      |                 |
|                                                                                     | 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           |

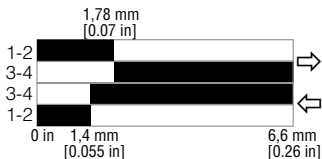
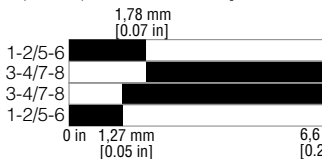
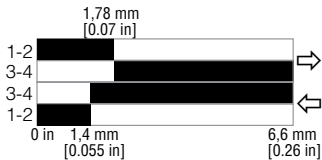
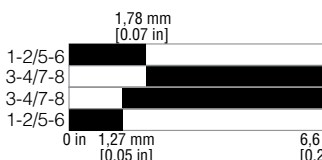
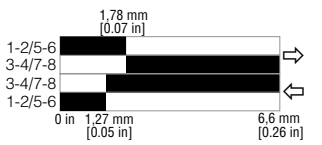
|                                                                                      | Catalog Listing                                    | Material                   | Roller Dia. mm [in]           | Roller Width mm [in] | Roller Mounting |
|--------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------|-------------------------------|----------------------|-----------------|
|     | <b>Short fixed - 1.3 in radius</b>                 |                            |                               |                      |                 |
|                                                                                      | LSZ59A                                             | Nylon                      | 19 [0.75]                     | 6,35 [0.25]          | Front           |
|     | <b>One-way roller lever</b>                        |                            |                               |                      |                 |
|                                                                                      | LSZ60A                                             | Nylon                      | 19 [0.75]                     | 6,35 [0.25]          | Front           |
|     | <b>Flexible loop</b>                               |                            |                               |                      |                 |
|                                                                                      | 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             |
|    | <b>Spring rod</b>                                  |                            |                               |                      |                 |
|                                                                                      | 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             |
|   | <b>Rubber roller levers</b>                        |                            |                               |                      |                 |
|                                                                                      | 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           |
|  | <b>Plastic roller levers</b>                       |                            |                               |                      |                 |
|                                                                                      | 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.

# BX | BX2 Series

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

All top plungers are momentary action.

| BXC /BX2C • Top Pin Plunger                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Housing Material | Contacts (snap-action) | Contact Material       | Conduit          | Listing      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------|------------------------|------------------|--------------|
|    |  <p>1,78 mm [0.07 in]</p> <p>1-2<br/>3-4<br/>3-4<br/>1-2</p> <p>0 in 1,4 mm [0.055 in] 6,6 mm [0.26 in]</p> <p>Pretravel • 1,78 mm [0.07 in] max.<br/>Diff. travel (SPDT) • 0,38 mm [0.015 in] max.<br/>Diff travel (DPDT) • 0,51 mm [0.020 in] max.<br/>Overtravel • 4,83 mm [0.190 in] min.<br/>Oper. point • 58,5 ±0,76 mm [2.305 ±0.030 in]<br/>Oper. force • 17,8 N [4 lb] max.<br/>*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]</p>    | Aluminum         | 1NC-1NO                | Silver                 | 0.5-14 NPT       | <b>BXC3K</b> |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1NC-1NO          | Silver                 | 0.75-14 NPT            | <b>BXC4K</b>     |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1NC-1NO          | Silver                 | 20 mm                  | <b>BX4C3K</b>    |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1NC-1NO          | Gold plate             | 20mm                   | <b>BX4C3E</b>    |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Silver                 | 0.75-14 NPT            | <b>BXC4L</b>     |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Silver                 | 20 mm                  | <b>BX4C4L</b>    |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Gold plate             | 20 mm                  | <b>BX4C4S</b>    |              |
|                                                                                     | Stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2NC-2NO          | Silver                 | 0.75-14 NPT            | <b>BX2C4L</b>    |              |
|                                                                                     | Stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2NC-2NO          | Silver                 | 20 mm                  | <b>BX24C4L</b>   |              |
| BXD /BX2D • Top Roller Plunger (can be rotated at 90° increments)                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Housing Material | Contacts (snap-action) | Contact Material       | Conduit          | Listing      |
|  |  <p>1,78 mm [0.07 in]</p> <p>1-2<br/>3-4<br/>3-4<br/>1-2</p> <p>0 in 1,4 mm [0.055 in] 6,6 mm [0.26 in]</p> <p>Pretravel • 1,78 mm [0.07 in] max.<br/>Diff. travel (SPDT) • 0,38 mm [0.015 in] max.<br/>Diff travel (DPDT) • 0,51 mm [0.020 in] max.<br/>Overtravel • 4,83 mm [0.190 in] min.<br/>Oper. point • 68,6 ±1,02 mm [2.70 ±0.040 in]<br/>Oper. force • 17,8 N [4 lb] max.<br/>*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]</p>  | Aluminum         | 1NC-1NO                | Silver                 | 0.5-14 NPT       | <b>BXD3K</b> |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1NC-1NO          | Silver                 | 20 mm                  | <b>BX4D3K</b>    |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1NC-1NO          | Gold plate             | 20 mm                  | <b>BX4D3E</b>    |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Silver                 | 0.75-14 NPT            | <b>BXD4L</b>     |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Silver                 | 20 mm                  | <b>BX4D4L</b>    |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Gold plate             | 20 mm                  | <b>BX4D4S</b>    |              |
|                                                                                     | Stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2NC-2NO          | Silver                 | 0.75-14 NPT            | <b>BX2D4L</b>    |              |
|                                                                                     | Stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2NC-2NO          | Silver                 | 20 mm                  | <b>BX24D4L</b>   |              |
|                                                                                     | BXV • Top Adjustable Plunger                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  | Housing Material       | Contacts (snap-action) | Contact Material | Conduit      |
|  | <p>Pretravel • 1,78 mm [0.07 in] max.<br/>Diff. travel (SPDT) • 0,38 mm [0.015 in] max.<br/>Diff travel (DPDT) • 0,51 mm [0.020 in] max.<br/>Overtravel • 4,83 mm [0.190 in] min.<br/>Oper. point • 65,66 [2.585] min; 72,01 [2.835] max.<br/>Oper. force • 17,8 N [4 lb] max.<br/>*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]</p>                                                                                                                                                                                         | Aluminum         | 2NC-2NO                | Silver                 | 0.75-14 NPT      | <b>BXV4L</b> |

Contact closed ■; Contact open □

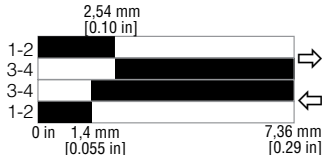
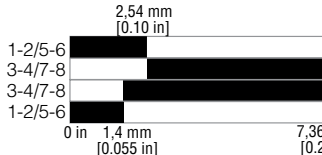
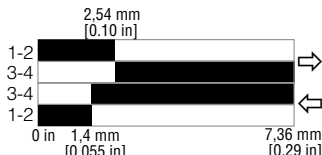
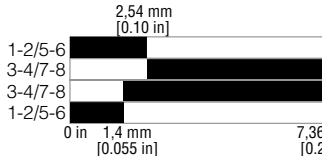
NOTE: Same polarity each pole.

\* 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.

# MICRO SWITCH™ Hazardous Area Limit Switches

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

All side plungers are momentary action.

| BXE /BX2E • Side Pin Plunger                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Housing Material | Contacts (snap-action) | Contact Material | Conduit       | Listing      |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------|------------------|---------------|--------------|
|    |  <p>Pretravel • 2,54 mm [0.10 in] max.<br/>Diff. travel • 1,14 mm [0.045 in] max.<br/>Overtravel • 4,83 mm [0.190 in] min.<br/>Oper. point • 33,02 ±0,76 mm [1.30 ±0.030 in]<br/>Oper. force • 26,79 N [6 lb] max.<br/>*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]</p>      | Aluminum         | 1NC-1NO                | Silver           | 0.5-14 NPT    | <b>BXE3K</b> |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1NC-1NO          | Gold plate             | 0.5-14 NPT       | <b>BXE3E</b>  |              |
|                                                                                     | Stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1NC-1NO          | Silver                 | 0.5-14 NPT       | <b>BX2E3K</b> |              |
|                                                                                     | Stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1NC-1NO          | Gold plate             | 0.5-14 NPT       | <b>BX2E3E</b> |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Silver                 | 0.75-14 NPT      | <b>BXE4L</b>  |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Gold plate             | 0.75-14 NPT      | <b>BXE4S</b>  |              |
| BXF /BX2F • Side Roller Plunger                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Housing Material | Contacts (snap-action) | Contact Material | Conduit       | Listing      |
|  |  <p>Pretravel • 2,54 mm [0.10 in] max.<br/>Diff. travel • 1,14 mm [0.045 in] max.<br/>Overtravel • 4,83 mm [0.190 in] min.<br/>Oper. point • 44,07 ±1,02 mm [1.735 in ±0.040]<br/>Oper. force • 26,79 N [6 lb] max.<br/>*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]</p>  | Aluminum         | 1NC-1NO                | Silver           | 0.5-14 NPT    | <b>BXF3K</b> |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1NC-1NO          | Gold plate             | 0.5-14 NPT       | <b>BXF3E</b>  |              |
|                                                                                     | Stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1NC-1NO          | Silver                 | 0.5-14 NPT       | <b>BX2F3K</b> |              |
|                                                                                     | Stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1NC-1NO          | Gold plate             | 0.5-14 NPT       | <b>BX2F3E</b> |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Silver                 | 0.75-14 NPT      | <b>BXF4L</b>  |              |
|                                                                                     | Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2NC-2NO          | Gold plate             | 0.75-14 NPT      | <b>BXF4S</b>  |              |

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.

# BX | BX2 Series

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

| BXJ • Wobble, Plastic Rod (7A Actuator)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | Housing Material | Contacts (snap-action) | Contact Material | Conduit     | Listing         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------|------------------------|------------------|-------------|-----------------|
|  <p>           1-2 12°<br/>           3-4<br/>           3-4<br/>           1-2<br/>           0° 8° 40°         </p> <p>           Actuator length • 152 mm [6 in]<br/>           Pretravel • 25,4 mm [1.0 in] max.<br/>           Oper. force • 2,8 N [10 oz] max.<br/>           *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]         </p> <p>           1-2/5-6 12°<br/>           3-4/7-8<br/>           3-4/7-8<br/>           1-2/5-6<br/>           0° 8° 40°         </p>   |  | Aluminum         | 1NC-1NO                | Silver           | 0.5-14 NPT  | <b>BXJ3K-7A</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 1NC-1NO                | Silver           | 20 mm       | <b>BXJ3K-7A</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 1NC-1NO                | Gold plate       | 0.5-14 NPT  | <b>BXJ3E-7A</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 2NC-2NO                | Silver           | 0.75-14 NPT | <b>BXJ4L-7A</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 2NC-2NO                | Silver           | 20 mm       | <b>BXJ4L-7A</b> |
| BXK • Wobble, Cat Whisker (8A Actuator)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | Housing Material | Contacts (snap-action) | Contact Material | Conduit     | Listing         |
|  <p>           1-2 25°<br/>           3-4<br/>           3-4<br/>           1-2<br/>           0° 15° 50°         </p> <p>           Actuator length • 152 mm [6 in]<br/>           Pretravel • 50,8 mm [2.0 in] max.<br/>           Oper. force • 1,4 N [5 oz] max.<br/>           *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F]         </p> <p>           1-2/5-6 25°<br/>           3-4/7-8<br/>           3-4/7-8<br/>           1-2/5-6<br/>           0° 15° 50°         </p> |  | Aluminum         | 1NC-1NO                | Silver           | 0.5-14 NPT  | <b>BXK3K-8A</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 1NC-1NO                | Gold plate       | 0.5-14 NPT  | <b>BXK3E-8A</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 2NC-2NO                | Silver           | 0.75-14 NPT | <b>BXK4L-8A</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Aluminum         | 2NC-2NO                | Silver           | 20 mm       | <b>BXK4L-8A</b> |

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.

# MICRO SWITCH™ Hazardous Area Limit Switches

## 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:

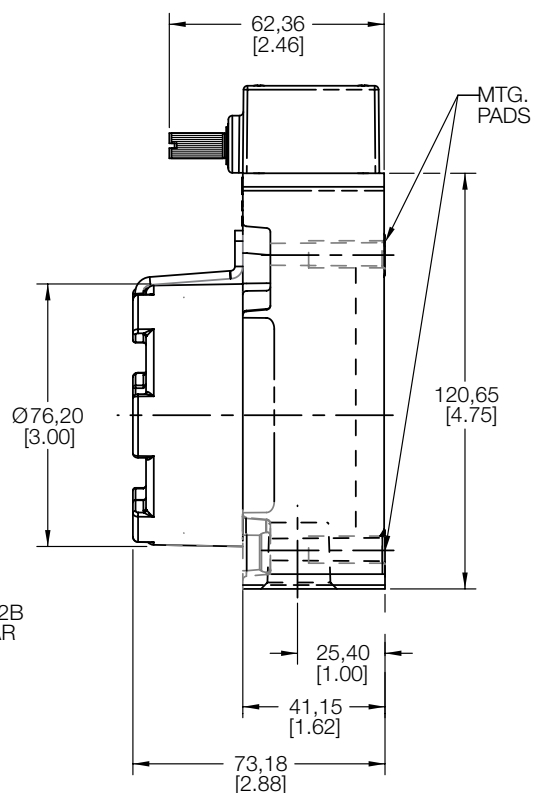
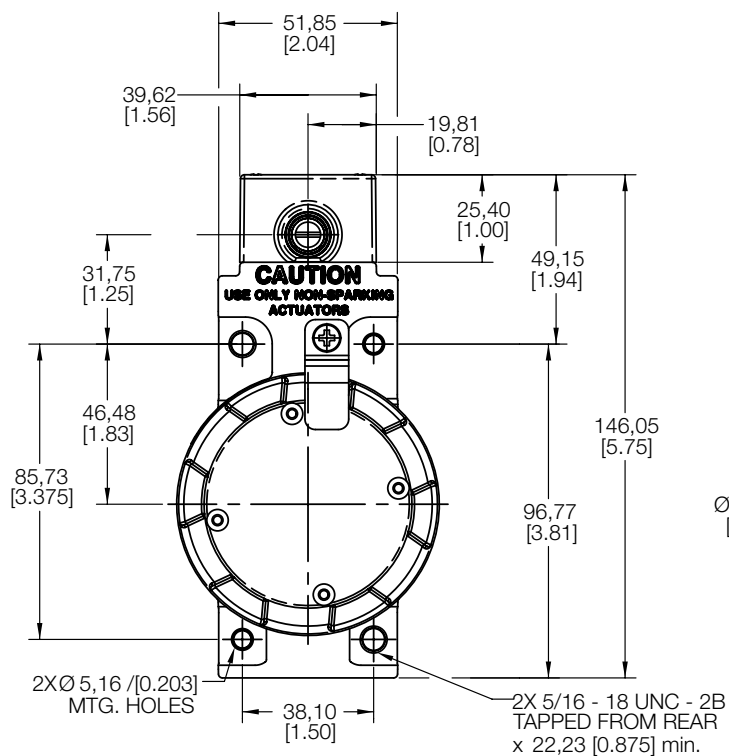
- 3 Side plunger to right of switch front
- 4 Side plunger to left of switch front
- 5 Side plunger to back of switch
- 6 Roller on top plungers perpendicular to mounting surface
- 8 Roller on side plungers in vertical position

### For example,

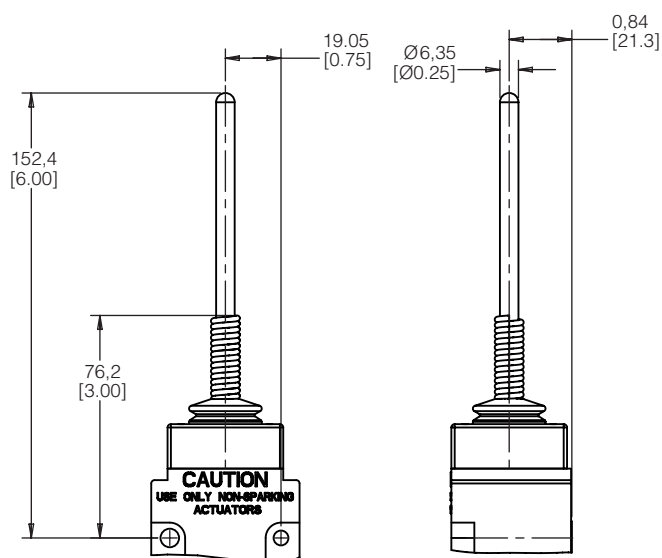
Catalog listing BXF3K**3** is a BXF3K switch with the side roller plunger to the right side.

## BX | BX2 Series

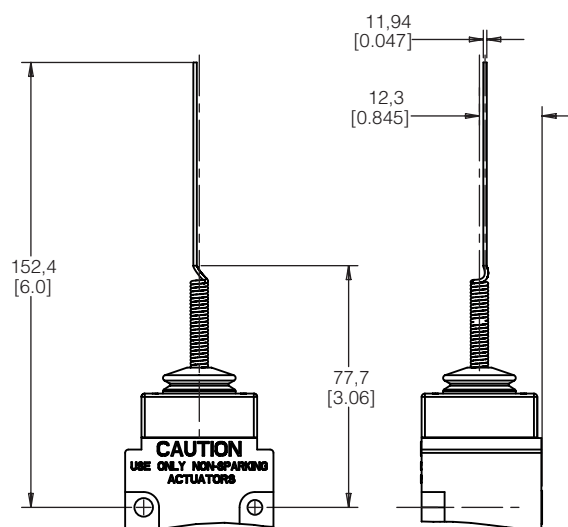
**Figure 3. MICRO SWITCH™ BX Series Side Rotary Product Dimensions • mm [in]**  
**SIDE ROTARY - HEAD CODES: A, H, L, M, N, P, Q, AND R**



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

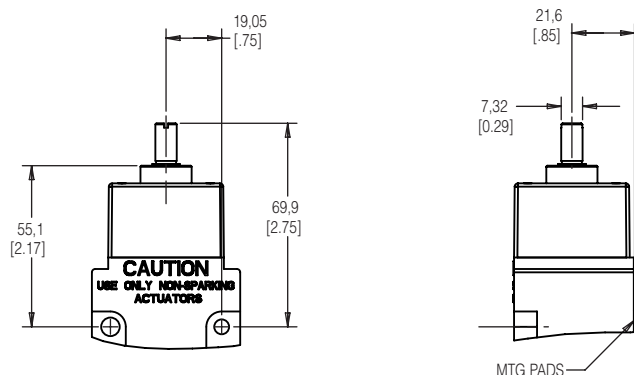


**Figure 5. MICRO SWITCH™ BX SERIES CAT WHISKER  
WOBBLE, HEAD CODE K • mm [in]**

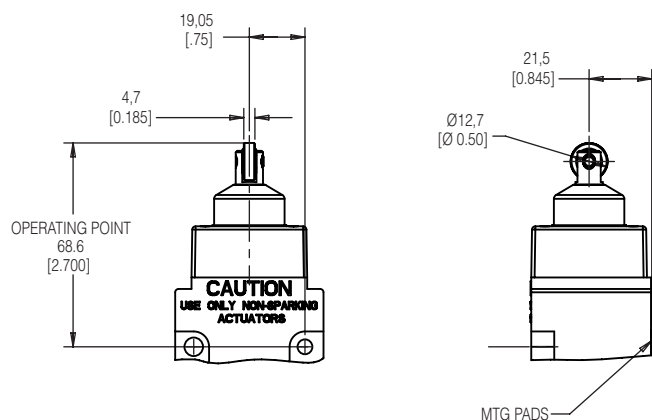


# MICRO SWITCH™ Hazardous Area Limit Switches

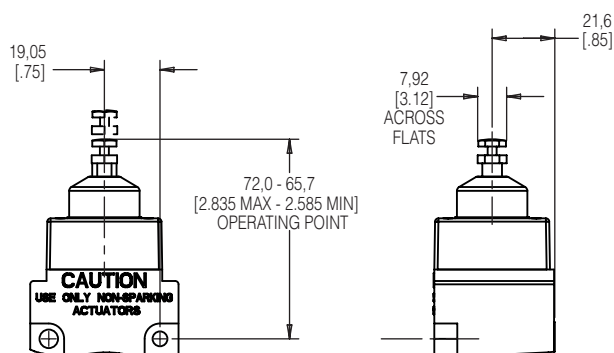
**Figure 6. MICRO SWITCH™ BX SERIES TOP ROTARY, HEAD CODE B • mm [in]**



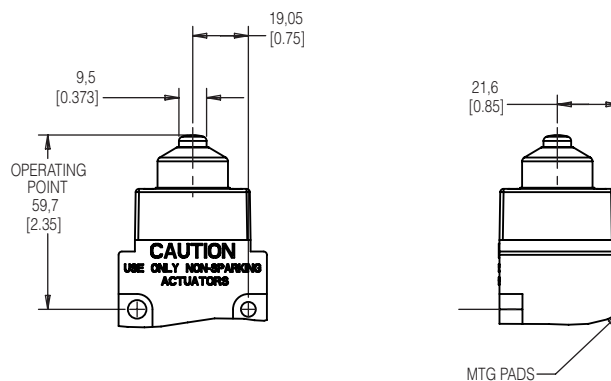
**Figure 8. MICRO SWITCH™ BX SERIES TOP ROLLER PLUNGER, HEAD CODE D • mm [in]**



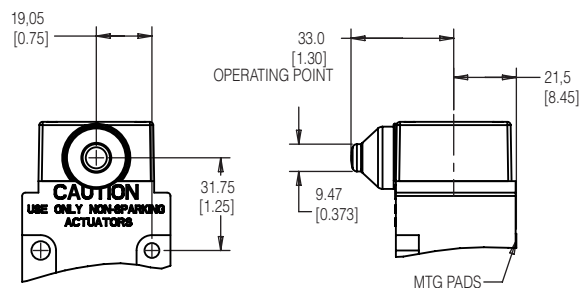
**Figure 11. MICRO SWITCH™ BX SERIES ADJUSTABLE TOP PIN PLUNGER, HEAD CODE V • mm [in]**



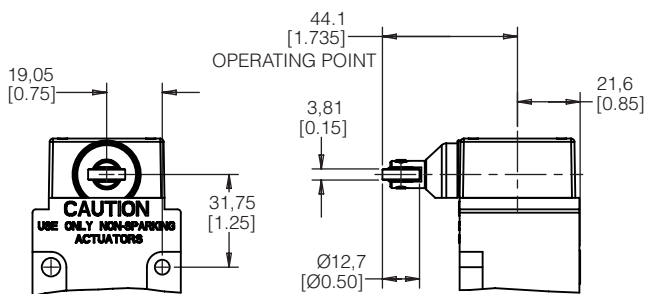
**Figure 7. MICRO SWITCH™ BX SERIES TOP PIN PLUNGER, HEAD CODE C • mm [in]**



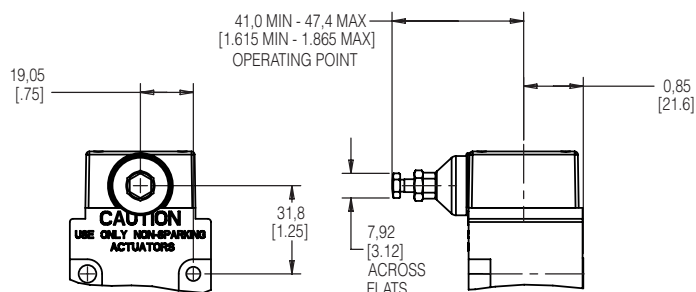
**Figure 9. MICRO SWITCH™ BX SERIES SIDE PLUNGER, HEAD CODE E • mm [in]**



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



|            |           |          |          |           |
|------------|-----------|----------|----------|-----------|
| 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](http://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

### **WARNING**

#### **PERSONAL INJURY**

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

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

### **WARNING**

#### **MISUSE OF DOCUMENTATION**

- The information presented in this 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.**

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