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Honeywell



MICRO SWITCH[™] BX | BX2 Hazardous Area Switches BX | BX2 Series



Datasheet

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, INMETRO, NEPSI Ex (China), and EAC (formerly GOST-R, Russia)
- 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, INMETRO (Brazil), NEPSI Ex (China), KOSHA (select listings - Korea), and EAC (formerly GOST-R, Russia)

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

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.



Figure 2. MICRO SWITCH™ BX SERIES PRODUCT NOMENCLATURE

BX	I	F	3K	J	-
Switch Type	Conduit Threads	Head Style*	Switch Code	Actuator Modification	Actuator Options
BX Series Aluminum	1/2 or 3/4 NPT**	A * Side rotary; momentary	1A 3NC/1NO, slow acting, 3/4 -14 NPT	1 CW rotation	1A [*] Fixed Ø 0.75 in x 0.25 in W nylon roller, 1.5 in radius, front mount
Hazardous Area	4 20 mm	B Top rotary; momentary	3NC/1NO, slow acting, 3/4 -14 NPT gold-plated contacts	2 CCW rotation	1C * Fixed Ø 0.75 in x 0.25 in W nylon roller, 1.5 in radius, back mount
Limit Switch	** see Body/Basic Switch Code column	C * Top pin plunger, momentary	3E 1NC/1NO, snap action, 1/2 -14 NPT gold-plated contacts	3 Right-oriented actuator head assembly	Adjustable, Ø 0.75 in x 0.25 in W nylon roller. front mount
BX2 Series Stainless	NOTE: if 1/2 NPT or 3/4 NPT conduit is	Top roller plunger, momentary	3K 1NC/1NO, snap action, 1/2 - 14 NPT	4 Left-oriented actuator head assembly	Adjustable, Ø 0.75 in x 0.25 in W nylon roller. back mount
Steel	desired, no code is necessary. Leave- blank.	E * Side pin plunger; momentary	^A 4K ^{1NC/1NO, snap action, 3/4 - 14 NPT}	5 Head assembled with actuator to mounting surface	Adjustable, Ø 1.0 in x 0.5 in W nylon roller, front mount
Area	If conduit code "4" in this column is selected, conduit in Body/Basic Switch column does not	F * Side roller plunger; momentary	4L 2NC/2NO, snap action, 3/4 - 14 NPT	6 Roller perpendicular to mounting surface	Adjustable, Ø 1.0 in x 0.5 in W nylon roller, back mount
Linit Owitch		Side rotary, momentary; low PT, low torque	4M 2NC/2NO, snap action, sequential, 3/4 - 14 NPT	8 Roller parallel to mounting surface	3S Yoke, Ø 0.75 in x 0.25 in W nylon rollers, same side, back mount
	арріу.	J Wobble stick	4N 2NC/2NO, snap action, center neutral, 3/4 - 14 NPT		4M Hub rod, aluminum
		K Cat whisker	4S 2NC/2NO, snap action, 3/4 -14 NPT gold-plated contacts		5A Offset, Ø 0.75 in x 0.25 in W nylon roller, back mount
		Side rotary; sequential, momentary	4T 2NC/2NO, snap action, sequential, 3/4 -14 NPT, gold-plated contacts		5C Offset, Ø 0.75 in x 0.25 in W nylon roller, front mount
		Side rotary; central neutral, momentary	4U 2NC/2NO, snap action, center neutral, 3/4 -14 NPT, gold-plated contacts		7A Plastic wobble stick
		N* Side rotary; maintained	A 2NC/2NO, snap action, 1/2 - 14 NPT		8A Cat whisker, 5.5 in
		Side rotary, momentary; low PT and DT	A 2NC/2NO , snap action, center neutral, 1/2 - 14 NPT		
		R* Side rotary, momentary; low torque	A 2NC/2NO, snap action, 1/2 -14 NPT gold-plated contacts		
		V Top pin plunger, adjustable, momentary	A 2NC/2NO, snap action, sequential,1/2 -14 NPT, gold-plated contacts		
		Side pin plunger, adjustable, momentary	A 2NC/2NO, snap action, center neutral, 1/2 -14 NPT, gold-plated contacts		

 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:

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

Table 1. Specifications

Characteristic	Parameter				
Product type	MIC	RO SWITCH™ hazardous area limit sw	vitches		
Actuators	Side pin plunger Side rotary Top pin plunger - adjustable Wobble - cat whisker	Side pin plunger - adjustable Side rotary maintained Top roller plunger Wobble - plastic rod	Side roller plunger Top pin plunger Top rotary		
Circuitry	1NC 1NO SPDT snap action, double break 2NC 2NO DPDT snap action, double break 2NC 2NO DPDT snap action, double break, sequential 2NC 2NO DPDT snap action, double break, center neutral 3NC 1NO slow action, double break				
Electrical	10 A thermal Single and double pole: AC15 A600; DC13 R300 (see table on page 8)				
Housing material		Aluminum (BX) or Stainless Steel (BX2	2)		
Termination types		0.5 in - 14 NPT conduit 0.75 in - 14 NPT conduit 20 mm conduit			
Housing type		BX/BX2 non-plug-in			
Sealing		NEMA 1, 3, 4, 6, 13; IP67			
Operating temperature*	Standard with Optional with	fluorosilicone seals: -40 $^{\circ}\mathrm{C}$ to 70 $^{\circ}\mathrm{C}$ [-fluorocarbon seals: -12 $^{\circ}\mathrm{C}$ to 70 $^{\circ}\mathrm{C}$ [1	40 °F to 158 °F] 0 °F to 158 °F]		
ATEX/IEC Ex protection class	II	2 GD, Ex d IIC T6 Gb, Ex tb IIIC T85°C	Db		
UNSPSC code		302119			
UNSPSC commodity		302119 Switches and controls and rela	ays		

* Reference operating head styles on page 8 for exceptions.

Table 2. Agency Certifications

		ATEX (CE) ² Europe	CSA , UL, or cULus ⁴ Canada, USA	IEC Ex ² International	KOSHA ¹ Korea	NEPSI EX ³ China	INMETRO ² Brazil	EAC ⁵ Russia (formerly GOST-R)
		C € Æx		ÎÊĈEx	₿	Ex NEPSI	INMETRO	EAC
	Conduit							
BX Series	M20	•		•		•	•	•
(aluminum)	NPT	•	•	•	•	•	•	•
BX2 Series	M20	•	•	•		•	•	٠
(stainless steel)	NPT	•	•	•		•	•	•

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

² ATEX & IEC Ex: II 2 GD; Ex d IIC T6 Gb; Ex tb IIIC T85°C Db; Ta -40 °C to 70 °C or -12 °C to 70 °C (dependent on seal material) ³ NEPSI Ex: GYJ111016

⁴ CSA, cUL, UL: NEMA 7 (Gas) Div 1&2, Class I, Groups B, C, & D; NEMA 9 (Dust) Div 1&2, Class II, Groups E, F, & G

⁵ Russia Custom Union Certification per HAHI/O «LICB3» POCC RU.0001.11ГБ05; 1Ex d IIC T6 Gb X, Ex tb IIIC T85°C Db

MICRO SWITCH[™] BX AND BX2 SERIES ELECTRICAL RATINGS: 10 A CONTINUOUS CARRY ac VOLTS; PILOT DUTY: AC15, A600

Electrical Rating	Circuitry	Vac	Amps at 0.35 Power Factor Make	Amps at 0.35 Power Factor Break
AC15,	SPDT DPDT	120	60	6
A600		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,	13, SPDT 00 DPDT	120	0.25	0.8
R300		240	0.15	0.4

 $\mathsf{MICRO}\ \mathsf{SWITCH}^{\mathsf{TM}}\ \mathsf{BX}$ and $\mathsf{BX2}\ \mathsf{limit}\ \mathsf{switches}\ \mathsf{are}\ \mathsf{capable}\ \mathsf{of}\ \mathsf{the}\ \mathsf{following}\ \mathsf{low}\ \mathsf{voltage}\ \mathsf{dc}\ \mathsf{loads}$

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.

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

SWITCH CONTACT STYLES, DOUBLE BREAK







NOTE: Same polarity each pole

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 ${f C}$ in the appropriate places in the standard catalog listing, as shown below:

BXA3K	standard, side-rotary switch
BXA <u>C</u> 3K	FC-sealed version of BXA3K
BX2A3K	standard, stainless steel side-rotary switch
BX2A <u>C</u> 3K	Fluorocarbon-sealed version of BX2A3K

MICRO SWITCH™ BX/BX2 SERIES OPERATING HEADS*

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



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

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

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

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

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

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

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

***BX Series** epoxy-coated zinc heads are shown for illustration. **BX2 Series** heads are 316L stainless steel. **TOP ROTARY:** Available levers provide greater versatility. Heads may be positioned in any one of four positions, 90° increments. All are momentary action.



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

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



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



BXD/BX2D - Top roller plunger: A copper alloy roller plunger is adjustable to 90° angles to accept cam or slide operation from any of two directions. Boot seal on the plunger.



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

MICRO SWITCH™ BX/BX2 SERIES OPERATING HEADS

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



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.



possible scratching or marring by the actuator is to be avoided.

signed for low operating force applications.



BXW - Adjustable side pin plunger: Has the same features of the side plain plunger plus the means to adjust the operating points of the switch from 41 mm to 47,4 mm [1.615 in to 1.865 in].

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

BX <u>A</u> /BX2 <u>A</u> • Sta CW/CCW Mome	andard entary	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
		Aluminum	1NC-1NO	Silver	0.5-14 NPT	ВХАЗК
	15°	Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	BXA3E
	1-2	Aluminum	1NC-1NO	Silver	0.75-14 NPT	BXA4K
	1-2	Aluminum	1NC-1NO	Silver	20 mm	BX4A3K
	Pretravel • 15° max.	Aluminum	1NC-1NO	Gold plate	20 mm	BX4A3E
	Diff. travel (SPDT) • 5° max. Diff travel (DPDT) • 7° max. Overtravel • 60° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F] 15°	Stainless Steel	1NC-1NO	Silver	0.5-14 NPT	BX2A3K
Overtravel • 60° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F	Overtravel • 60° min. Oper. torque • 0,45 Nm [4 in-lb] max.	Stainless Steel	1NC-1NO	Silver	20 mm	BX24A3K
	*Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXA4L
	1-2/5-6 3-4/7-8	Aluminum	2NC-2NO	Silver	20 mm	BX4A4L
	3-4/7-8	Aluminum	2NC-2NO	Gold plate	0.5-14 NPT	BXA7S
	0° 8° 75°	Aluminum	2NC-2NO	Gold plate	0.75-14 NPT	BXA4S
		Stainless Steel	2NC-2NO	Silver	0.75-14 NPT	BX2A4L
BXP /BX2P • Lo CW/CCW Mome	w Differential entary	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	9° 1-2 3-4 1-2 ↓ 1-2 ↓ ↓	Aluminum	1NC-1NO	Silver	0.5-14 NPT	ВХРЗК
3-4 1-2 0° 6° 7 Pretravel ● 9° max. Diff. travel (SPDT) ● 3° max.	0° 6° 75° Pretravel • 9° max. Diff. travel (SPDT) • 3° max. Diff. travel (DPDT) • 4° max.	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXP4L
	Overtravel • 66° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]	Stainless Steel	2NC-2NO	Silver	0.75-14 NPT	BX2P4L
	9° 1-2/5-6 3-4/7-8 3-4/7-8 1-2/5-6 0° 5° 75°	Stainless Steel	2NC-2NO	Silver	20 mm	BX24P4L

Contact closed \blacksquare ; Contact open \square

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.

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

BX <u>R</u> • Low Torq CW and CCW M	ue, omentary	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	15° 1-2 3-4 3-4 1-2 ↓	Aluminum	1NC-1NO	Silver	0.5-14 NPT	BXR3K
	0° 10° 75° Pretravel • 15° max. Diff. travel (SPDT) • 5° max. Diff. travel (DPDT) • 7° max.	Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	BXR3E
	Overtravel • 60° min. Oper. torque • 0,19 Nm [1.7 in-lb] max. *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F] 15°	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXR4L
	1-2/5-6 3-4/7-8 3-4/7-8 1-2/5-6 0° 8° 75°	Aluminum	2NC-2NO	Gold plate	0.75-14 NPT	BXR4S
BX <u>H</u> • Low Diffe CW and CCW M	rential, Low Torque, omentary	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	9° 1-2 3-4 3-4 1-2 0° 6° Pretravel 9° max. Diff. travel (SPDT) \bullet 3° max. Diff. travel (SPDT) \bullet 4° max. Overtravel \bullet 66° min. Oper. torque \bullet 0,19 Nm [1.7 in-lb] max. *Oper. torque {0,19 Nm [1.7 in-lb] max. *Oper. torque {0,19 Nm [1.7 in-lb] max. *Oper. torque	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXH4L
BX <u>B</u> • Top Rotar CW and CCW M	γ, omentary	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Aluminum	1NC-1NO	Silver	0.5-14 NPT	ВХВЗК

Contact closed \blacksquare ; Contact open \square

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.

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

BX <u>N</u> • Maintained, Two Position CCW (trip), CW (Reset)		Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	65° 1-2 3-4 3-4	Aluminum	1NC-1NO	Silver	0.5-14 NPT	ВХN3К
	1-2 0° 25° 85° Pretravel • 65° max. Diff. travel • 40° max.	Aluminum	1NC-1NO	Silver	20 mm	BX4N3K
	Overtravel • 20° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F] 65°	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXN4L
1-2/5-6 3-4/7-8 3-4/7-8 1-2/5-6 0° 25° 85°	1-2/5-6 3-4/7-8 3-4/7-8 1-2/5-6 0° 25° 85°	Aluminum	2NC-2NO	Silver	20 mm	BX4N4L
BX <u>M</u> • Center Neutral, CW and CCW Momentary						
BX <u>M</u> • Center N CW and CCW M	eutral, omentary	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
BXM • Center N CW and CCW M	eutral, omentary Pretravel • 18° max. Diff. travel • 10° max. Overtravel • 57° min. Oper. torque • 0,45 Nm [4 in-lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F] 75° 18° 0° 75° 1-2 3-4	Housing Material	Contacts (snap-action) 2NC-2NO	Contact Material	Conduit	Listing BXM4N

Contact closed ■; Contact open □

NOTE: Same polarity each pole.

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

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



* Non-sparking rollers and actuators must be used in hazardous areas.

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

Table 4. BX/BX2 Series Lever Order Guide

	Catalog Listing	Material	Roller Dia. mm [in]	Roller Width mm [in]	Roller Mounting
	Fixed 38,1 [1.5] inch radiu	IS		
-	LSZ51	Rollerless	n/a	n/a	n/a
100 M	LSZ51A	Nylon	19 [0.75]	6,35 [0.25]	Front
A	LSZ51C	Nylon	19 [0.75]	6,35 [0.25]	Back
	LSZ51F	Nylon	25.4 [1.0]	12.7 [0.50]	Front
	LS751G	Nylon	38.1 [1.5]	6.35 [0.25]	Front
	LS751J	Nylon	25.4 [1.0]	12.7 [0.50]	Back
The second second	LS751M	Nylon	19 [0.75]	31.7 [1.25]	Back
100	LSZ51P	Nylon	19 [0.75]	12.7 [0.50]	Front
Tr	L S2751A (sst)	Nylon	19 [0.75]	6.35 [0.25]	Front
and the	L S2751C (sst)	Nylon	19 [0.75]	6.35 [0.25]	Back
	LS2Z51E (sst)	Copper allov	19 [0 75]	6.35 [0.25]	Front
	LS2751E (sst)	Conner alloy	19 [0 75]	6.35 [0.25]	Back
	Adjustable	38.1 [1.5] in to	3.5 in rad	ius	Duon
~	LSZ52	Rollerless	n/a	n/a	n/a
0	LSZ52A	Nylon	19 [0.75]	6,35 [0.25]	Back
	LSZ52C	Nvlon	19 [0.75]	6.35 [0.25]	Front
	1 S752E	Nylon	19 [0.75]	33.0 [1.30]	Front
	1.8752.1	Nylon	25.4 [1 0]	12.7 [0.50]	Front
6	LS752K	Nylon	38 1 [1.5]	6.35 [0.00]	Front
	LOZUZIN	Nylon	50.8 [2.0]	6 35 [0.25]	Front
	1 9752N	Nylon	10 [0 75]	12.7 [0.60]	Front
	LOZUZIN L \$27524 (00 ⁴)	Nylon	10 [0.75]	6 35 10 251	Front
	LOZZOZA (SSI)	Nylon	10 [0.75]	6 35 10 251	Back
	LOZZOZO (SSI)		10 [0.75]	0,00 [0.20]	Front
San Car	LOZZOZE (SSI)	Copper alloy	19 [0.75]	0,30 [0.25]	FIUIIL
	LSZZSZF (SST)	Copper alloy	19 [0.75]	0,35 [0.25]	Back
	TOKE - 38,1	[1.5] in radius	10 [0 75]	6 0E 10 0E1	Front/Deals
8.9	L5253A	NUION	19 [0.75]	0,35 [0.25]	Front/Back
	LSZ53E	Nylon	19 [0.75]	6,35 [0.25]	Back/Front
	L5253M	NYION	19 [0.75]	31,7 [1.25]	Back/Front
	LSZ53S	Nylon	19 [0.75]	6,35 [0.25]	Back/Back
	Rod				
1	LSZ54	Hub only	n/a	n/a	n/a
	LSZ54M	Alum, 140 mm [5.5 in]	Ø 3,2 [Ø 0.125]	n/a	n/a
	LSZ54N	Stainless, 330 mm [13 in]	Ø 3,2 [Ø 0.125]	n/a	n/a
	LSZ54P	Plastic rod, 305 mm [12 in]	Ø6,85 [Ø 0.27]	n/a	n/a
	LSZ54W	Plastic rod, 183 mm [7.2 in]	Ø6,85 [Ø 0.27]	n/a	n/a
e la					
	Offset - 38	1 [1.5] in radii	IS		
	LSZ55	Rollerless	n/a	n/a	n/a
21-10	LSZ55A	Nylon	19 [0.75]	6,35 [0.25]	Back
		1			

LSZ55C

LSZ55E

LSZ55K

Nylon

Nylon

Nylon

19 [0.75]

19 [0.75]

38,1 [1.5]

6,35 [0.25] Front

12,7 [0.50] Front

6,35 [0.25] Front

	Catalog Listing	Material	Roller Dia. mm [in]	Roller Width mm [in]	Roller Mounting		
Short fixed - 1.3 in radius							
-	LSZ59A	Nylon	19 [0.75]	6,35 [0.25]	Front		
9	LSZ59C	Nylon	19 [0.75]	6,35 [0.25]	Back		
	One-way rol	ler lever					
	LSZ60A	Nylon	19 [0.75]	6,35 [0.25]	Front		
	Flexible loop)					
\cap	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				
V	LSZ54	Hub only	n/a	n/a	n/a		
	Spring rod						
	LSZ68	Delrin rod, 305 mm [12 in]	Ø 6,35 [0.25]	n/a	n/a		
	LSZ617	Delrin rod, 406 mm [16 in]	Ø 6,35 [0.25]	n/a	n/a		
	LSZ686	Delrin rod, 152 mm [6 in]	Ø 6,35 [0.25]	n/a	n/a		
	Rubber rolle	er levers					
0	LSZ51Y 38,1 [1.5] radius (standard)	Rubber	50 [2.0]	12,7 [0.5]	front		
	LSZ55Y 38,1 [1.5] radius (offset)	Rubber	50 [2.0]	12,7 [0.5]	front		
ilian	LSZ52Y 38,1 to 89 [1.5 to 3.5] radius (adjustable)	Rubber	50 [2.0]	12,7 [0.5]	front		
	Plastic rolle	r levers					
	LSZ67AA (conveyor)*	Plastic	38,1 [1.5]	96,5 [3.8]	n/a		

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

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

All top plungers are momentary action.

ВХ <u>С</u> /ВХ2 <u>С</u> • Т	op Pin Plunger	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	1,78 mm [0.07 in]	Aluminum	1NC-1NO	Silver	0.5-14 NPT	ВХСЗК
	1-2 3-4 3-4	Aluminum	1NC-1NO	Silver	0.75-14 NPT	BXC4K
	1-2 1 -2 6 ,6 mm 0 in 1,4 mm 6,6 mm [0.055 in] [0.26 in]	Aluminum	1NC-1NO	Silver	20 mm	BX4C3K
	Pretravel ● 1,78 mm [0.07 in] max. Diff. travel (SPDT) ● 0,38 mm [0.015 in] max.	Aluminum	1NC-1NO	Gold plate	20mm	BX4C3E
2	Diff travel (DPDT) • 0,51 mm (0.020 in) max. Overtravel • 4,83 mm (0.190 in) min.	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXC4L
$(+ \circ)$	Oper. point • 58,5 ±0,76 mm [2.305 ±0.030 in] Oper. force • 17,8 N [4 lb] max. *Oper. temp • .40 °C to 70 °C [.40 °E to 158 °E]	Aluminum	2NC-2NO	Silver	20 mm	BX4C4L
	1,78 mm [0.07 in]	Aluminum	2NC-2NO	Gold plate	20 mm	BX4C4S
	3-4/7-8 3-4/7-8	Stainless steel	2NC-2NO	Silver	0.75-14 NPT	BX2C4L
	0 in 1,27 mm 6,6 mm [0.05 in] [0.26 in]	Stainless steel	2NC-2NO	Silver	20 mm	BX24C4L
BX <u>D</u> /BX2 <u>D</u> • T (can be rotated	op Roller Plunger at 90° increments)	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	1,78 mm [0.07 in] 1-2 3-4 1-2 0 in 1,4 mm 6.6 mm [0.055 in] [0.26 in] Pretravel ● 1,78 mm [0.07 in] max. Diff. travel (SPDT) ● 0,38 mm [0.015 in] max. Diff travel (SPDT) ● 0,51 mm [0.020 in] max. Overtravel ● 4,83 mm [0.190 in] min.	Aluminum	1NC-1NO	Silver	0.5-14 NPT	BXD3K
		Aluminum	1NC-1NO	Silver	20 mm	BX4D3K
		Aluminum	1NC-1NO	Gold plate	20 mm	BX4D3E
		Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXD4L
	Oper. point • $68,6 \pm 1,02 \text{ mm} [2.70 \pm 0.040 \text{ in}]$ Oper. force • $17,8 \text{ N} [4 \text{ lb}] \text{ max.}$	Aluminum	2NC-2NO	Silver	20 mm	BX4D4L
	*Oper. temp ● -40 °C to 70 °C [-40 °F to 158 °F] 1.78 mm [0.07 in] 1-2/5-6 3-4/7-8 3-4/7-8	Aluminum	2NC-2NO	Gold plate	20 mm	BX4D4S
		Stainless steel	2NC-2NO	Silver	0.75-14 NPT	BX2D4L
	1-2/5-6 0 in 1,27 mm 6,6 mm [0.05 in] [0.26 in]	Stainless steel	2NC-2NO	Silver	20 mm	BX24D4L
BX <u>V</u> • Top Adju	stable Plunger	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	Pretravel ● 1,78 mm [0.07 in] max. Diff. travel (SPDT) ● 0,38 mm [0.015 in] max. Diff travel (DPDT) ● 0,51 mm [0.020 in] max. Overtravel ● 4,83 mm [0.190 in] min. Oper. point ● 65,66 [2.585] min; 72,01 [2.835] max. Oper. force ● 17,8 N [4 lb] max. *Oper. temp ● -40 °C to 70 °C [-40 °F to 158 °F] 1-2/5-6 0 in 1,27 mm [0.05 in] 6.6 mm [0.26 in]	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXV4L

Contact closed \blacksquare ; Contact open \square

NOTE: Same polarity each pole.

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

All side plungers are momentary action.

BX <u>E</u> /BX2 <u>E</u> • Side Pin Plunger		Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	2,54 mm [0.10 in] 1-2 3-4 ➡	Aluminum	1NC-1NO	Silver	0.5-14 NPT	ВХЕЗК
3-4 3-4 1-2 0 in 1,4 mm [0.055 in] Pretravel • 2,54 mm [0.1 Diff. travel • 1,14 mm [0 Overtravel • 4,83 mm [0 Overtravel • 4,83 mm [0 Oper. point • 33,02 ±0,7 Oper. force • 26,79 N [6 *Oper. temp • -40 °C to 2,54 mm [0.10 in] 1-2/5-6 3-4/7-8 1-2/5-6 0 in 1,4 mm [0.055 in]	3-4 1-2 0 in 1,4 mm 7,36 mm [0.055 in] [0.29 in] Pretravel ● 2,54 mm [0.10 in] max. Diff. travel ● 1,14 mm [0.045 in] max. Overtravel ● 4,83 mm [0.190 in] min.	Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	BXE3E
		Stainless steel	1NC-1NO	Silver	0.5-14 NPT	BX2E3K
	Oper. point • 33,02 ±0,76 mm [1.30 ±0.030 in] Oper. force • 26,79 N [6 lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]	Stainless steel	1NC-1NO	Gold plate	0.5-14 NPT	BX2E3E
	2,54 mm [0.10 in] 1-2/5-6 3-4/7-8	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXE4L
	3-4/7-8 1-2/5-6 0 in 1,4 mm 7,36 mm [0.055 in] [0.29 in]	Aluminum	2NC-2NO	Gold plate	0.75-14 NPT	BXE4S
BX <u>F</u> /BX2 <u>F</u> • Sid	le Roller Plunger	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
BX <u>F</u> /BX2 <u>F</u> • Sid	2,54 mm [0.10 in] 3-4	Housing Material	Contacts (snap-action) 1NC-1NO	Contact Material Silver	Conduit 0.5-14 NPT	Listing BXF3K
BX <u>F</u> /BX2 <u>F</u> • Sid	2.54 mm [0.10 in] 1-2 3-4 3-4 1-2 0 in 1,4 mm [0.055 in] [0.29 in]	Housing Material Aluminum Aluminum	Contacts (snap-action) 1NC-1NO 1NC-1NO	Contact Material Silver Gold plate	Conduit 0.5-14 NPT 0.5-14 NPT	Listing BXF3K BXF3E
BX <u>F</u> /BX2 <u>F</u> • Sid	2,54 mm [0.10 in] 1-2 3-4 3-4 1-2 0 in 1,4 mm [0.055 in] Pretravel • 2,54 mm [0.10 in] max. Diff. travel • 1,14 mm [0.045 in] max. Overtravel • 4,83 mm [0.190 in] min.	Housing Material Aluminum Aluminum Stainless steel	Contacts (snap-action) 1NC-1NO 1NC-1NO 1NC-1NO	Contact Material Silver Gold plate Silver	Conduit 0.5-14 NPT 0.5-14 NPT 0.5-14 NPT	Listing BXF3K BXF3E BX2F3K
BX <u>F</u> /BX2 <u>F</u> • Sid	2,54 mm [0.10 in] 1-2 3-4 1-2 0 in 1,4 mm [0.055 in] Pretravel • 2,54 mm [0.10 in] max. Diff. travel • 1,14 mm [0.045 in] max. Overtravel • 4,83 mm [0.190 in] min. Oper. point • 44,07 ±1,02 mm [1.735 in ±0.040] Oper. force • 26,79 N [6 lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F]	Housing MaterialAluminumAluminumStainless steelStainless steel	Contacts (snap-action) 1NC-1NO 1NC-1NO 1NC-1NO 1NC-1NO	Contact Material Silver Gold plate Silver Gold plate	Conduit 0.5-14 NPT 0.5-14 NPT 0.5-14 NPT 0.5-14 NPT	Listing BXF3K BXF3E BX2F3K BX2F3E
BX <u>F</u> /BX2 <u>F</u> • Sid	2,54 mm [0.10 in] 1-2 3-4 1-2 0 in 1,4 mm 0.055 in] 7,36 mm [0.29 in] Pretravel • 2,54 mm [0.10 in] max. Diff. travel • 1,14 mm [0.045 in] max. Oper. point • 44,07 ±1,02 mm [1.735 in ±0.040] Oper. force • 26,79 N [6 lb] max. *Oper. temp • -40 °C to 70 °C [-40 °F to 158 °F] 2,54 mm [0.10 in] 1-2/5-6 3-4/7-8	Housing MaterialAluminumAluminumStainless steelStainless steelAluminum	Contacts (snap-action) 1NC-1NO 1NC-1NO 1NC-1NO 1NC-1NO 2NC-2NO	Contact Material Silver Gold plate Silver Gold plate Silver	Conduit 0.5-14 NPT 0.5-14 NPT 0.5-14 NPT 0.75-14 NPT	Listing BXF3K BXF3E BX2F3K BX2F3E BXF4L

Contact closed ■; Contact open □

NOTE: Same polarity each pole.

WOBBLE ● MICRO SWITCH[™] BX/BX2 SERIES ORDER GUIDE/RECOMMENDED LISTINGS

BX <u>J</u> • Wobble, P	Plastic Rod (7A Actuator)	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
1	12° 1-2 3-4	Aluminum	1NC-1NO	Silver	0.5-14 NPT	BXJ3K-7A
3-4 1-2 0° 8° Actuator length • 152 m Pretravel • 25,4 mm [1.0 Oper. force • 2,8 N [10 *Oper. temp • -29 °C to 1-2/5-6 3-4/7-8	3-4 1-2 0° 8° 40°	Aluminum	1NC-1NO	Silver	20 mm	BX4J3K-7A
	Actuator length • 152 mm [6 in] Pretravel • 25,4 mm [1.0 in] max. Oper. force • 2,8 N [10 oz] max. *Oper. temp • 29 °C to 70 °C [-20 °E to 158 °E]	Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	BXJ3E-7A
	1-2/5-6 3-4/7-8	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXJ4L-7A
	3-4/7-8 1-2/5-6 0° 8° 40°	Aluminum	2NC-2NO	Silver	20 mm	BX4J4L-7A
BX <u>K</u> • Wobble, C	Cat Whisker (8A Actuator)	Housing Material	Contacts (snap-action)	Contact Material	Conduit	Listing
	25° 1-2 3-4 3-4 1-2 0° 15° 50° Actuator length • 152 mm [6 in] Pretravel • 50,8 mm [2.0 in] max. Oper. force • 1,4 N [5 oz] max. *Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F] 25° 1-2/5-6	Aluminum	1NC-1NO	Silver	0.5-14 NPT	BXK3K-8A
		Aluminum	1NC-1NO	Gold plate	0.5-14 NPT	BXK3E-8A
	*Oper. temp • -29 °C to 70 °C [-20 °F to 158 °F] 25° 1-2/5-6	Aluminum	2NC-2NO	Silver	0.75-14 NPT	BXK4L-8A

Contact closed ■; Contact open □

NOTE: Same polarity each pole.

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.

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



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



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



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





A

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



[2.87]

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



MICRO SWITCH[™] Hazardous Area Limit Switches

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



ADDITIONAL INFORMATION

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

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

Find out more

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AWARNING 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.

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