

#### Hazardous Location Limit Switches

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### Hazardous Location Limit Switches

#### Product Description

Type LX, CX and CBX limit switches by Eaton’s electrical sector are designed for extreme environmental service in NEMA 7–9 locations where the danger of an internal or external explosion of flammable gases, vapors, metal alloy or grain dust exists. Type CB provides excellent corrosion resistant properties in NEMA 4X applications. Markets served include mining, grain storage, forest products, petrochemical, pharmaceutical and waste and sewage management.

#### Features

- Sealed and unsealed versions available
- One-way gasket on sealed version keeps liquids out, yet allows a harmless release of gases in the event of an internal explosion
- Silicon bronze housing provides excellent corrosion resistant properties in extreme NEMA 4X applications
- Temperature buildup on limit switch surface is dissipated by housing design and materials used
- Utilizes the operating heads and internal switch mechanisms of the 10316 L non plug-in line

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#### Standards and Certifications

- cUL



#### NEMA Ratings Comparison

Switch Type	LX	CX	CBX	CB ①
<b>NEMA 1, 4, 13</b>	—	✓	✓	✓
<b>NEMA 4X</b>	—	—	✓	✓
<b>NEMA 7 Division I, Class I, BCD</b>	✓	✓	✓	—
<b>NEMA 9 Division I, Class II, EFG</b>	✓	✓	✓	—

#### Note

① Not rated for explosive locations.



**DANGER**

**THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safety-related use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.**


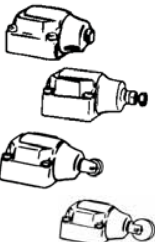
For the most current information on this product, visit our Web site: [www.eaton.com](http://www.eaton.com)

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578. For Application Assistance in the U.S. and Canada call 1-800-426-9184.

Product Selection

Complete Assembled Switches with Spring Return Heads <sup>①</sup>

Operating Data—Nominal

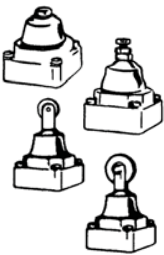
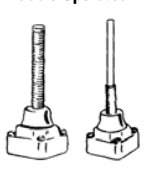
Head Type	Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Body Type	Contacts	Catalog Number
<b>Side Rotary Operated <sup>②</sup></b> 	<b>Standard, 10° Pre-Travel <sup>③</sup></b>							
	10°	4°	50°	3.0 in-lbs	4.5 in-oz	Type LX	1NO-1NC <sup>④</sup>	<b>10316H1002</b>
							2NO	<b>10316H1039</b>
							1NO and 1NC <sup>④</sup>	<b>10316H1049</b>
							2NC	<b>10316H1059</b>
						Type CX	1NO-1NC <sup>④</sup>	<b>10316H2200</b>
							1NO and 1NC <sup>④</sup>	<b>10316H2176</b>
							2NC	<b>10316H2178</b>
						Type CB	1NO-1NC <sup>④</sup>	<b>10316H2149</b>
							2NC	<b>10316H2140</b>
						Type CBX	1NO-1NC <sup>④</sup>	<b>10316H2168</b>
							2NC	<b>10316H2159</b>
	<b>Narrow Differential 5° Pre-Travel <sup>③</sup></b>							
5°	2°	50°	6.0 in-lbs	4.5 in-oz	Type LX	1NO-1NC <sup>④</sup>	<b>10316H1146</b>	
					Type CX	1NO-1NC <sup>④</sup>	<b>10316H2197</b>	
	<b>Neutral Position, 18° Pre-Travel <sup>⑤</sup></b>							
18°	6°	50°	1.8 in-lbs	2.5 in-oz	Type LX	2NO	<b>10316H1071</b>	
						2NC	<b>10316H1072</b>	
					Type CX	2NO	<b>10316H2179</b>	
					Type CBX	2NC	<b>10316H2160</b>	
<b>Side Push Operated</b> 	<b>Pushbutton</b>							
	0.07 in (1.8 mm)	0.03 in (0.76 mm)	0.29 in (7.4 mm)	4 lbs	8 oz	Type LX	1NO and 1NC <sup>④</sup>	<b>10316H1213</b>
	<b>Adjustable Pushbutton</b>							
	0.07 in (1.8 mm)	0.03 in (0.76 mm)	0.29 in (7.4 mm)	4 lbs	8 oz	Type LX	1NO-1NC <sup>④</sup>	<b>10316H1192</b>
	<b>Vertical Roller, 0.44 in (11.2 mm) Diameter</b>							
	0.07 in (1.8 mm)	0.03 in (0.76 mm)	0.29 in (7.4 mm)	4 lbs	8 oz	Type LX	1NO-1NC <sup>④</sup>	<b>10316H1007</b>
<b>Vertical Roller, 0.75 in (19.1 mm) Diameter</b>								
0.07 in (1.8 mm)	0.03 in (0.76 mm)	0.29 in (7.4 mm)	4 lbs	8 oz	Type LX	1NO-1NC <sup>④</sup>	<b>10316H1194</b>	

Notes

- ① Contact Eaton's Sensor Applications Engineering at 1-800-426-9184 for replacement contact blocks.
- ② For operating levers, see **Page V8-T2-80**. Only levers with Nylatron rods or rollers should be used with explosion-proof limit switches.
- ③ Field convertible to clockwise only or counterclockwise only operation.
- ④ 1NO-1NC contacts must be same polarity when both circuits are used—1NO and 1NC contacts have isolated poles and may be used on opposite polarity.
- ⑤ Neutral position switches operate one circuit in each direction.

Complete Assembled Switches with Spring Return Heads, continued <sup>①</sup>

## Operating Data—Nominal

Head Type	Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Body Type	Contacts	Catalog Number
<b>Top Push Operated</b> 	<b>Pushbutton</b>							
	0.04 in (1 mm)	0.02 in (0.5 mm)	0.28 in (7.1 mm)	4 lbs	8 oz	Type LX	1NO-1NC <sup>②</sup>	<b>10316H1004</b>
						Type CX	1NO and 1NC <sup>②</sup>	<b>10316H2188</b>
	<b>Adjustable Pushbutton</b>							
	0.04 in (1 mm)	0.02 in (0.5 mm)	0.28 in (7.1 mm)	4 lbs	8 oz	Type LX	1NO-1NC <sup>②</sup>	<b>10316H1191</b>
							1NO and 1NC <sup>②</sup>	<b>10316H1212</b>
	<b>Roller, 0.44 in (11.2 mm) Diameter</b>							
	0.04 in (1 mm)	0.02 in (0.5 mm)	0.28 in (7.1 mm)	4 lbs	8 oz	Type LX	1NO-1NC <sup>②</sup>	<b>10316H1006</b>
						Type CBX	1NO-1NC <sup>②</sup>	<b>10316H2170</b>
	<b>Roller, 0.75 in (19.1 mm) Diameter</b>							
0.04 in (1 mm)	0.02 in (0.5 mm)	0.28 in (7.1 mm)	4 lbs	8 oz	Type LX	1NO-1NC <sup>②</sup>	<b>10316H1193</b>	
<b>Wobble Operated</b> 	<b>Spring</b>							
	10° <sup>③</sup>	6°	15°	1 in-lb	2.4 in-oz	Type LX	1NO-1NC <sup>②</sup>	<b>10316H1237</b>
	<b>Nylon Rod</b>							
	10° <sup>③</sup>	6°	15°	2 in-lbs	5.6 in-oz	Type LX	1NO-1NC <sup>②</sup>	<b>10316H1009</b>

## Technical Data and Specifications

## Hazardous Location Limit Switches

Description	Specification
Material of construction	
LX, CX	Cast aluminum die cast
CB, CBX	Silicon bronze
Conduit entrance	
LX	1/2 in pipe tap
CB, CBX, CX	3/4 in pipe tap
Mounting	Surface mount
Enclosure rating	
LX, CX, CBX	NEMA 7 Div. 1, Class I BCD; NEMA 9 Div. 1, Class II, EFG <sup>④</sup>
CB, CBX	NEMA 1, 4, 4X, 13 <sup>④</sup>
CX	NEMA 1, 4, 13 <sup>④</sup>
Ambient operating temperature	-20° to 200°F (-29° to 93°C) <sup>⑤</sup>
Approximate shipping weight	
LX	2 lbs
CX	2.5 lbs
CB, CBX	6 lbs

## Notes

- ① Contact Eaton's Sensor Applications Engineering at 1-800-426-9184 for replacement contact blocks.
- ② 1NO-1NC contacts must be same polarity when both circuits are used—1NO and 1NC contacts have isolated poles and may be used on opposite polarity.
- ③ Travel with force applied at one-in (25.4 mm) radius. Applied at end of operator, travel is approximately 14.
- ④ A conduit seal-off kit is required for these switches
- ⑤ Ranges below 32°F (0°C) are based on absence of freezing moisture or water.

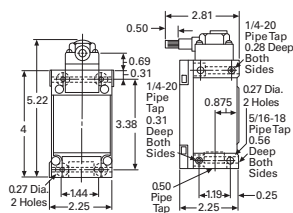
Electrical Data—Maximum Contact Ratings, per Pole

AC Volts	Current, Amperes			Volt Amperes		DC Volts	DC Current, Ampere
	Make	Break	Cont. ①	Make	Break		
<b>1NO-1NC Switches</b>							
NEMA A600, R300 rating							
120	60	6	10	7200	720	125	0.2
240	30	3	10	7200	720	250	0.1
480	15	1.5	10	7200	720	250	0.1
600	12	1.2	10	7200	720	250	0.1
<b>All Other Switches, B600</b>							
120	30	3	5	3600	360	120	0.1
240	15	1.5	5	3600	360	240	0.05
480	7.5	0.75	5	3600	360	240	0.05
600	6	0.60	5	3600	360	240	0.05

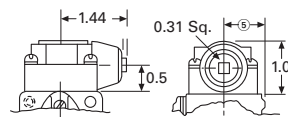
Dimensions

Approximate Dimensions in Inches or Inches (mm)

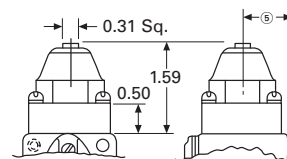
Type LX Switch with Side Rotary Head



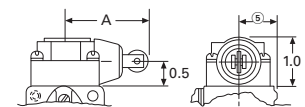
Side Pushbutton Head



Top Pushbutton Head



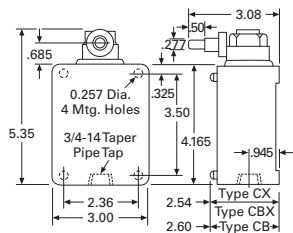
Side Push, Vertical Roller Head



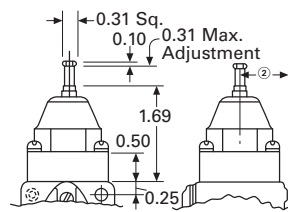
Dimension "A"

With 0.44 (11.2) dia. roller	1.78 (45.2)
With 0.75 (19.1) dia. roller	2.09 (53.1)

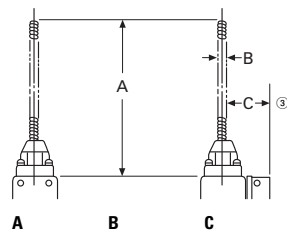
Type CX, CB and CBX Switches with Side Rotary Head



Adjustable Top Pushbutton Head



Wobble Operators

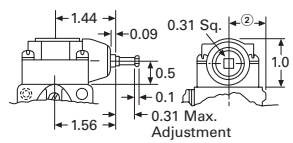


Wobble Spring		
5.44 (138.2)	0.31 (7.9)	0.94 (23.9)
Nylon Red		
4.5 (114.3)	0.25 (6.4)	0.94 (23.9)

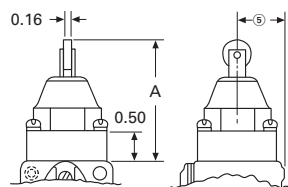
Notes

- ① 1NO-1NC contacts must be same polarity when both circuits are used—1NO and 1NC contacts have isolated poles and may be used on opposite polarities.
- ② Dimension from centerline of head to mounting surface is 0.78 in (20 mm).
- ③ Center to mounting surface.

Adjustable Side Pushbutton Head



Top Push Roller Head



Dimension "A"

With 0.44 (11.2) dia. roller	2.03 (51.6)
With 0.75 (19.1) dia. roller	2.34 (59.4)