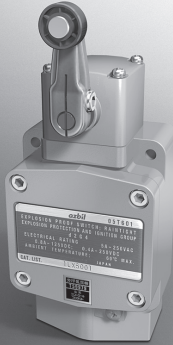


Vertical Explosion-Proof Switches

LX7000 Series

A compact vertical gas/vapor explosion-proof limit switch for outdoor use, with a pressure-resistant and increased-safety explosion-proof structure, conforming to IEC standards, and usable in a hydrogen gas atmosphere.



- KEMA (Europe), Technology Institution of Industrial Safety (Japan), NEPSI (China) and KOSHA (Korea) certification.
- Usable in a hydrogen gas atmosphere.
- Light-weight and robust die-cast case cover made of aluminum alloy
- Die-cast surface with rust prevention treatment and baked finish offers excellent corrosion resistance and weather resistance.
- Corrosion-resistant models made of die-cast anti-corrosive aluminum are also available.
- Compatible with various actuator head shapes, including: roller lever, adjustable roller lever, plunger, roller plunger, fork lever, and non-directional operation types.

External standards	Explosion-proof structure
TIIS (Japan)	Ex d e II C T6
NEPSI (China)	Ex d e II C T6
KOSHA (South Korea)	Ex d e II C T6 IP67
CNS (Taiwan)	Ex d e II C T6

External standards	Explosion-proof structure
ATEX (Europe)	II 2G Ex d e II C T6
IECEX	Ex d e II C T6 Gb
NK (shipping)	Ex d e II C T6

MODEL NUMBERS




Head type	Actuator	Cable lead-in	Contact material	External standards						
				TIIS	NEPSI	KOSHA	CNS	ATEX	IECEX	NK
Roller lever	Standard roller lever	G1/2	Silver alloy	1LX7001-J	1LX7001-P	1LX7001-S	1LX7001-ET	1LX7001	1LX7001-E	1LX7001-N1
			Gold-plated	1LX7001-JK	1LX7001-PK	1LX7001-SK	1LX7001-ETK	1LX7001-K	1LX7001-EK	1LX7001-N1K
		Increased-safety packing	Silver alloy	1LX7001-R						
			Gold-plated	1LX7001-RK						
		Cable Gland	Silver alloy	1LX7001-A1						
			Gold-plated	1LX7001-A1K						
	M20	Silver alloy		1LX7001-Q	1LX7001-V	1LX7001-FT	1LX7001-C	1LX7001-F	1LX7001-N2	
		Gold-plated		1LX7001-QK	1LX7001-VK	1LX7001-FTK	1LX7001-CK	1LX7001-FK	1LX7001-N2K	
	No lever	G1/2	Silver alloy	1LX7002-J	1LX7002-P	1LX7002-S	1LX7002-ET	1LX7002	1LX7002-E	1LX7002-N1
			Gold-plated	1LX7002-JK	1LX7002-PK	1LX7002-SK	1LX7002-ETK	1LX7002-K	1LX7002-EK	1LX7002-N1K
		Increased-safety packing	Silver alloy	1LX7002-R						
			Gold-plated	1LX7002-RK						
		Cable Gland	Silver alloy	1LX7002-A1						
			Gold-plated	1LX7002-A1K						
	M20	Silver alloy		1LX7002-Q	1LX7002-V	1LX7002-FT	1LX7002-C	1LX7002-F	1LX7002-N2	
		Gold-plated		1LX7002-QK	1LX7002-VK	1LX7002-FTK	1LX7002-CK	1LX7002-FK	1LX7002-N2K	
	Adjustable roller lever	G1/2	Silver alloy	1LX7003-J	1LX7003-P	1LX7003-S	1LX7003-ET	1LX7003	1LX7003-E	1LX7003-N1
			Gold-plated	1LX7003-JK	1LX7003-PK	1LX7003-SK	1LX7003-ETK	1LX7003-K	1LX7003-EK	1LX7003-N1K
		Increased-safety packing	Silver alloy	1LX7003-R						
			Gold-plated	1LX7003-RK						
		Cable Gland	Silver alloy	1LX7003-A1						
			Gold-plated	1LX7003-A1K						
	M20	Silver alloy		1LX7003-Q	1LX7003-V	1LX7003-FT	1LX7003-C	1LX7003-F	1LX7003-N2	
		Gold-plated		1LX7003-QK	1LX7003-VK	1LX7003-FTK	1LX7003-CK	1LX7003-FK	1LX7003-N2K	
Plunger	Plunger	G1/2	Silver alloy	2LX7001-J	2LX7001-P	2LX7001-S	2LX7001-ET	2LX7001	2LX7001-E	2LX7001-N1
			Gold-plated	2LX7001-JK	2LX7001-PK	2LX7001-SK	2LX7001-ETK	2LX7001-K	2LX7001-EK	2LX7001-N1K
		Increased-safety packing	Silver alloy	2LX7001-R						
			Gold-plated	2LX7001-RK						
	Cable Gland	Silver alloy	2LX7001-A1							
		Gold-plated	2LX7001-A1K							
	M20	Silver alloy		2LX7001-Q	2LX7001-V	2LX7001-FT	2LX7001-C	2LX7001-F	2LX7001-N2	
		Gold-plated		2LX7001-QK	2LX7001-VK	2LX7001-FTK	2LX7001-CK	2LX7001-FK	2LX7001-N2K	

*For G1/2 cable lead-in with "-J" TIIS certification, use it in combination with a nipple and ceiling fitting. Anti-corrosion models are available for 1LX, 2LX, and 5LX series except for cable gland type A1.

For details, contact the local Azbil branch office or sales office.

Coding of catalog listing: 1LX7000 □ - □ □ M Example: 1LX7001-JKM

↓
Anti-corrosion type

Head type	Actuator	Cable lead-in	Contact material	External standards						
				TIIS	NEPSI	KOSHA	CNS	ATEX	IECEx	NK
Plunger	Roller plunger 	G1/2	Silver alloy	5LX7001-J	5LX7001-P	5LX7001-S	5LX7001-ET	5LX7001	5LX7001-E	5LX7001-N1
			Gold-plated	5LX7001-JK	5LX7001-PK	5LX7001-SK	5LX7001-ETK	5LX7001-K	5LX7001-EK	5LX7001-N1K
		Increased-safety packing	Silver alloy	5LX7001-R						
			Gold-plated	5LX7001-RK						
		Cable Gland	Silver alloy	5LX7001-A1						
			Gold-plated	5LX7001-A1K						
M20	Silver alloy		5LX7001-Q	5LX7001-V	5LX7001-FT	5LX7001-C	5LX7001-F	5LX7001-N2		
	Gold-plated		5LX7001-QK	5LX7001-VK	5LX7001-FTK	5LX7001-CK	5LX7001-FK	5LX7001-N2K		
Fork lever lock		G1/2	Silver alloy	6LX7001-J	6LX7001-P	6LX7001-S	6LX7001-ET	6LX7001	6LX7001-E	6LX7001-N1
			Gold-plated	6LX7001-JK	6LX7001-PK	6LX7001-SK	6LX7001-ETK	6LX7001-K	6LX7001-EK	6LX7001-N1K
		Increased-safety packing	Silver alloy	6LX7001-R						
			Gold-plated	6LX7001-RK						
		Cable Gland	Silver alloy	6LX7001-A1						
			Gold-plated	6LX7001-A1K						
M20	Silver alloy		6LX7001-Q	6LX7001-V	6LX7001-FT	6LX7001-C	6LX7001-F	6LX7001-N2		
	Gold-plated		6LX7001-QK	6LX7001-VK	6LX7001-FTK	6LX7001-CK	6LX7001-FK	6LX7001-N2K		
Nondirectional movement		G1/2	Silver alloy	8LX7001-J	8LX7001-P	8LX7001-S	8LX7001-ET	8LX7001	8LX7001-E	8LX7001-N1
			Gold-plated	8LX7001-JK	8LX7001-PK	8LX7001-SK	8LX7001-ETK	8LX7001-K	8LX7001-EK	8LX7001-N1K
		Increased-safety packing	Silver alloy	8LX7001-R						
			Gold-plated	8LX7001-RK						
		Cable Gland	Silver alloy	8LX7001-A1						
			Gold-plated	8LX7001-A1K						
M20	Silver alloy		8LX7001-Q	8LX7001-V	8LX7001-FT	8LX7001-C	8LX7001-F	8LX7001-N2		
	Gold-plated		8LX7001-QK	8LX7001-VK	8LX7001-FTK	8LX7001-CK	8LX7001-FK	8LX7001-N2K		

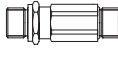
*For G1/2 cable lead-in with "J" TIIS certification, use it in combination with a nipple and ceiling fitting. Anti-corrosion models are available for 1LX, 2LX, and 5LX series except for cable gland type A1.

For details, contact the local Azbil branch office or sales office.

Coding of catalog listing: 1LX700□-□□M Example: 1LX7001-JKM

↓
Anti-corrosion type


●Nipple (increased-safety electrical pipe type, used in combination with □LX□0□-J(K))

Shape	Catalog listing	Dimensions						Material		
		A	B	C	Nickel, width across flats	Tightening nut, width across flats	Screw nominal size	O-ring	Nipple	Tightening nut
	2PA-JEXN16	79.3	15.1	15.5	24	26	G 1/2	Silicone rubber	Brass	Brass

*For product delivery dates, contact one of our sales representatives.



*For wiring and combinations with explosion-proof equipment, refer to product specifications or instruction manuals.

●Pressure-Resistant Packing Connector (use in combination with □LX□0□-R(K))

Appearance	Catalog listing	Protective pipe size	Compatible cable dia.	Catalog listing	Protective pipe size	Compatible cable dia.
	2PA-JEX108PM	G 1/2	7.5 to 8.5 mm dia.	2PA-JEX208PM	G 3/4	7.5 to 8.5 mm dia.
	2PA-JEX109PM		8.5 to 9.5 mm dia.	2PA-JEX209PM		8.5 to 9.5 mm dia.
	2PA-JEX110PM		9.5 to 10.5 mm dia.	2PA-JEX210PM		9.5 to 10.5 mm dia.
	2PA-JEX111PM		10.5 to 11.5 mm dia.	2PA-JEX211PM		10.5 to 11.5 mm dia.
	2PA-JEX112PM		11.5 to 12.5 mm dia.	2PA-JEX212PM		11.5 to 12.5 mm dia.
	2PA-JEX113PM		12.5 to 13.5 mm dia.	2PA-JEX213PM		12.5 to 13.5 mm dia.

*For product delivery dates, contact one of our sales representatives.

● Auxiliary Actuators

Type	Shape	Lever length	Model no.	Roller material	Lever material	Method of attaching lever
roller lever		38.1 mm	6PA-J63	Black nylon	Corrosion-resistant aluminum	Hexagon socket head bolt
		38.1 mm	6PA-J78	Brass	Corrosion-resistant aluminum	Hexagon head bolt
		38.1 mm	LS-6PA44-002	Black nylon	Stainless	Hexagon socket head bolt
		38.1 mm	LS-6PA44-004	Brass	Stainless	Hexagon socket head bolt
		30 mm	6PA-J105	Black nylon	Corrosion-resistant aluminum	Hexagon socket head bolt
		30 mm	LS-6PA107	Brass	Corrosion-resistant aluminum	Hexagon socket head bolt
		30 mm	LS-6PA44-102	Black nylon	Stainless	Hexagon socket head bolt
Adjustable roller lever		26.0 to 89.0 mm	6PA-J79	Black nylon	Stainless/ Corrosion-resistant aluminum	Hexagon socket head bolt
		26.0 to 89.0 mm	6PA-J119	Brass	Stainless/ Corrosion-resistant aluminum	Hexagon socket head bolt

*For product delivery dates, contact one of our sales representatives.

● Shaft cover

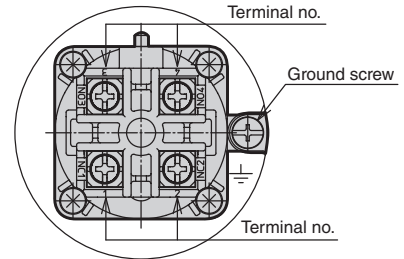
Catalog listing	Material
PA-J239	Silicone (black)

*Sold in sets of 10.

Circuit diagram



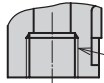
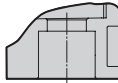
Detailed terminal diagram



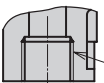
Terminal connections

Terminal no.	Type
1	N.C.
2	N.C.
3	N.O.
4	N.O.

Conduit section details

Conduit section details	
※LX700※-□※※ (Increased-safety conduit type)	1LX700※-□※※ (Increased-safety packing type)
	

※Tolerance for dimensions is ± 0.8 unless otherwise stated.

Conduit section details	
1LX700※-□※※	
	□: Q,V,C,F

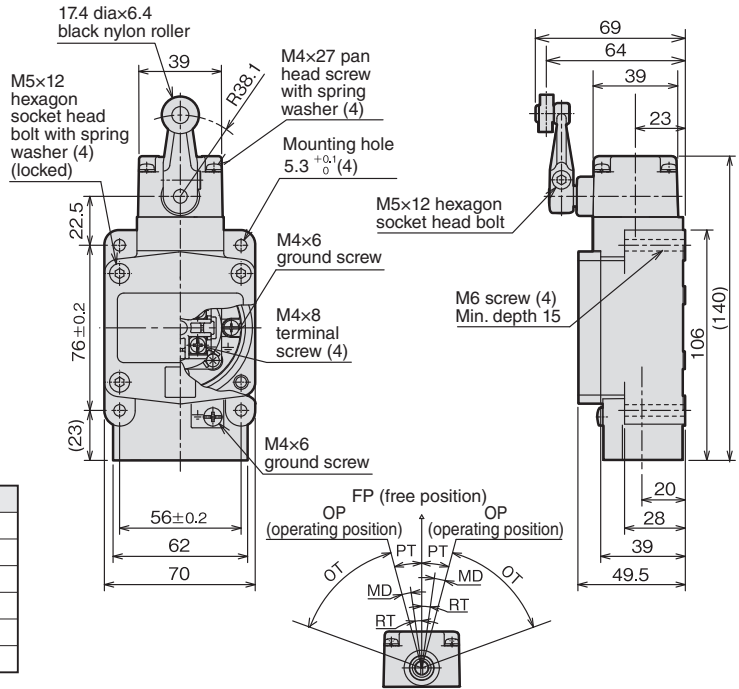
PERFORMANCE

Item		Head type				
		Roller lever 1LX700□-□□	Plunger 2LX7001-□□	Roller plunger 5LX7001-□□	Fork lever lock 6LX7001-□□	Nondirectional movement 8LX7001-□□
External standards	Standards compliance		NECA C 4508			
	Certifications	TIIS	Explosion-proof electrical apparatus (technical standard) (compatible with international standards)			
		NK	Format number: 09T608			
		NEPSI	GB3836. 1-2000, GB3836. 2-2000, GB3836. 3-2000			
			GYJ101011			
		KOSHA	KSCIEC60079-0, KSCIEC60079-1, KSCIEC60079-7			
			09-AV4BO-0327			
CNS	CNS 3376-0(2008) ; CNS 3376-1(2008) ; CNS 3376-7(2008)					
	KEMA: ATEX (CE)	EN60079-0: 2007 (explosion-proof electrical apparatus, general rules) EN60079-1: 2007 (flameproof: "d") EN60079-7: 2006 (increased safety explosion-proof: "e") KEMA09ATEX0107				
KEMA: IECEx		IEC60079-0:2006 (explosion-proof electric apparatus, general rules) IEC60079-1:2007 (flameproof: "d") IEC60079-7:2007 (increased safety explosion-proof: "e") IECEx KEM 09.0040				
	Structure	Contact form		2-circuit double break (2CKT-DBx1)		
Terminal type		M4 pan head screw with square washer				
Contact material		Silver/gold-plated rivet				
Explosion-proof structure		Internal switch: d (explosion-proof), housing: e (increased-safety explosion-proof)				
Protective structure		IP67 (IEC 60529, JIS C 0920)				
Electrical performance	Electrical rating		Silver: 5A at 250 Vac, 0.8A at 125 Vdc, 0.4 A at 250 Vdc Gold-plated: 0.1A at 125 Vac, 0.1 A at 30 Vdc			
	Dielectric strength		Between continuous terminals: 600 Vac, 50/60 Hz for 1 minute Between each terminal and non-live metal part: 2000 Vac, 50/60 Hz for 1 minute Between each terminal and ground: 2000 Vac, 50/60 Hz for 1 minute			
	Insulation resistance		Min. 100 MΩ (by 500 Vdc megger)			
	Initial contact resistance		Silver: max. 50 MΩ (6–8 Vdc, thermal current 1 A, measured by voltage drop method) Gold-plated: max. 100 MΩ (6–8 Vdc, thermal current 0.1 A, measured by voltage drop method)			
	Recommended min. contact operating voltage/current		Silver: 10 mA at 24 V, 20 mA at 12 V Gold-plated: 10 mA at 5 V			
	Mechanical performance	Actuator strength		Withstands loads 5 times O.F. (operating direction for 1 minute)		
Terminal strength		Withstands tightening torque of 1.5 N·m for 1 minute				
Impact resistance		200 m/s ² , contacts open for 1 ms max. in free position and total travel position*1				
Vibration resistance		1.5 mm peak-to-peak amplitude, frequency 10 to 55 Hz, 2 h continuously, contacts open for 1 ms max. in free position and total travel position				
Allowable operating speed		1.0 mm/s to 0.5 m/s*2 At min. speed, unstable state of contacts lasts for 0.1 s max. At max. speed actuator is not damaged.		20 mm/s to 0.3 m/s		
Operating frequency		Max. 120 operations/minute	30 operations/minute	120 operations/minute		
Life		Mechanical		Min. 4 million operations (with overtravel at 70 to 100% of rated value)	Min. 2 million operations	Min. 4 million operations
	Electrical		Silver: min. 200,000 operations, 5 A at 250 Vac, 0.8 A at 125 Vdc, 0.4 A at 250 Vdc (Min. 500,000 operations, 1 A at 250 Vac, 0.2 A at 125 Vdc, 0.1 A at 250 Vdc) Gold-plated: min. 2 million operations, 0.1 A at 125 Vac, 0.1 A at 30 Vdc			
Environment	Operating temperature		-10 to +60°C (no freezing allowed)			
	Operating humidity		45–85%RH			
	Storage temperature		-10 to +60°C			
	Storage humidity		Max. 98% RH (with conduit section plug inserted)			
	Group and temperature class		II C T6			
Recommended tightening torque	Hazardous area classification		Zone 1 and Zone 2 hazardous areas			
	Body		5–6 N·m (M5 hexagon socket head bolt)			
	Cover		5–6 N·m (M5 hexagon socket head bolt with spring washer)			
	Head		1.3–1.7 N·m (M4 pan head screw head with spring washer)			
	Terminals		1.3–1.7 N·m (M4 pan head screw with square washer)			
	Lever		4–5.2 N·m (M5 hexagon socket head bolt)			
	Internal ground		1.3–1.7 N·m (M4 binding head machine screw with spring washer)			
	External ground		1.3–1.7 N·m (M4 binding head machine screw with spring washer)			
Applicable cable size	Terminals	Stranded cable	Nominal cross-sectional area 0.5 mm ² to 1.5 mm ² (AWG20 to AWG16)			
		Single cable	Nominal cross-sectional area 0.5 mm ² to 1.5 mm ² (AWG20 to AWG16)			
	Internal ground		Uses M4 crimp-type terminal with insulating coating			
External ground		Uses M4 crimp-type terminal Cables with a nominal cross-sectional area of up to 4 mm ² can be connected				
Main materials	Housing parts		Aluminum alloy + gray epoxy baked finish			
	External screws		Stainless steel			
	Seal		Silicone rubber			

*1. Not in free position for 8LX

*2. When dock angle is 30° for 5LX.

Standard roller lever type 1LX7001-□□

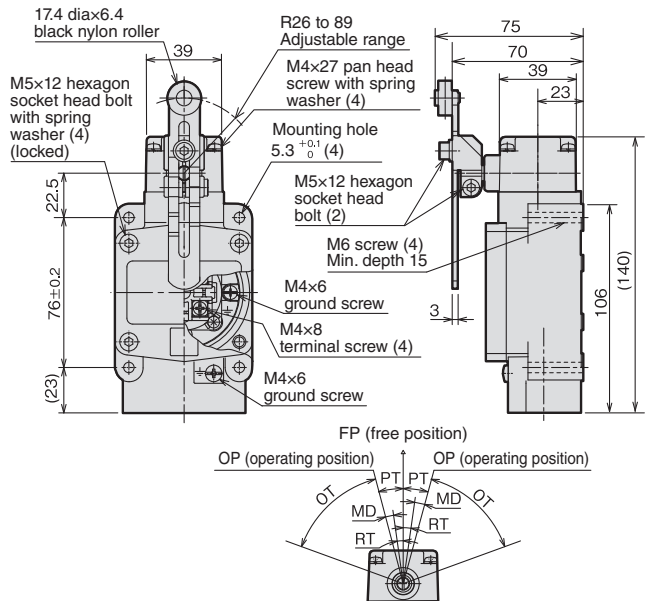


Operational characteristics	
O.F. (operating force)	12.8 N max
R.F. (reset force)	1.1 N min
P.T. (pre-travel)	15 ° max
M.D. (movement differential)	7 ° max
O.T. (overtravel)	55 ° min
R.T. (reset travel)	(5 °)

*When lever length is 38.1 mm

*Dimensional tolerance is ±0.8 unless otherwise specified.

Adjustable roller lever type 1LX7003-□□



Operational characteristics	
O.F. (operating force)	12.8 N max*
R.F. (reset force)	1.1 N min*
P.T. (pre-travel)	15 ° max
M.D. (movement differential)	7 ° max
O.T. (overtravel)	55 ° min
R.T. (reset travel)	(5 °)

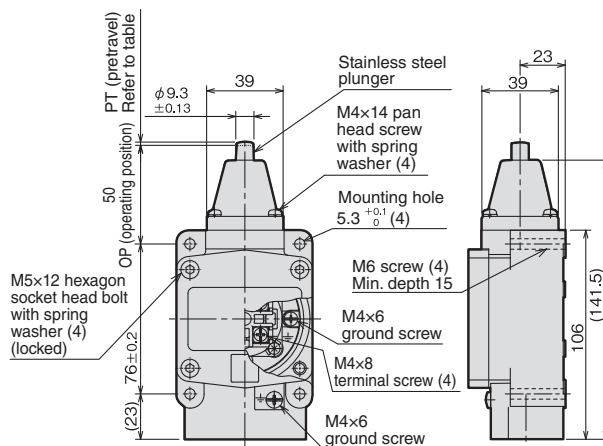
*When lever length is 38.1 mm

*Dimensional tolerance is ±0.8 unless otherwise specified.

Plunger type 2LX7001-□□



Operational characteristics	
O.F. (operating force)	26.7 N max
R.F. (reset force)	8.9 N min
P.T. (pre-travel)	1.65 mm max
M.D. (movement differential)	0.51 mm max
O.T. (overtravel)	5 mm min

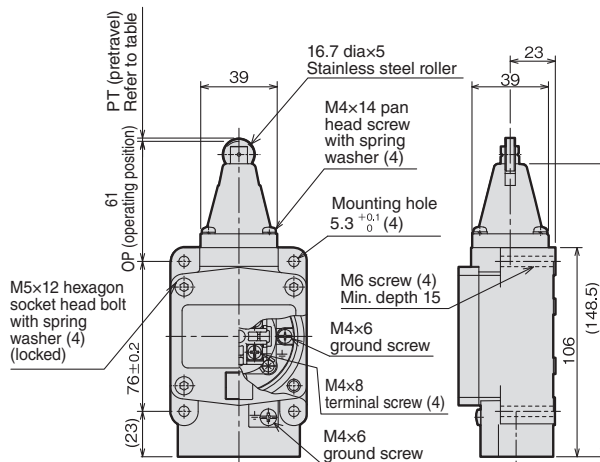


*Dimensional tolerance is ± 0.8 unless otherwise specified.

Roller plunger type 5LX7001-□□

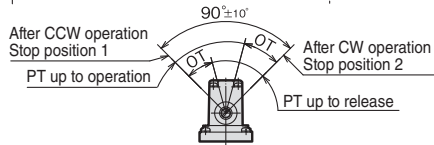
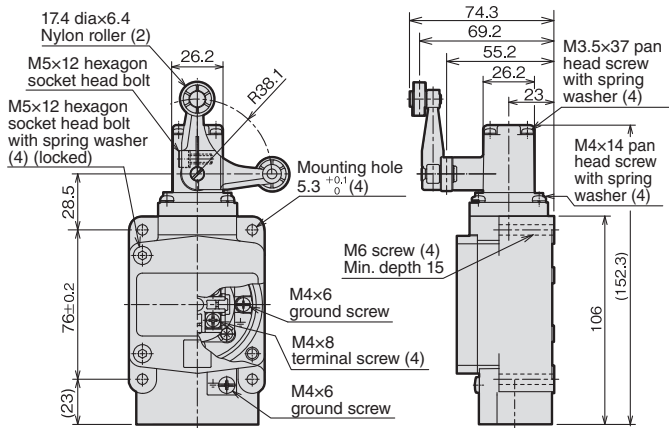


Operational characteristics	
O.F. (operating force)	26.7 N max
R.F. (reset force)	8.9 N min
P.T. (pre-travel)	1.65 mm max
M.D. (movement differential)	0.51 mm max
O.T. (overtravel)	5 mm min



*Dimensional tolerance is ± 0.8 unless otherwise specified.

Fork lever lock type 6LX7001-□□

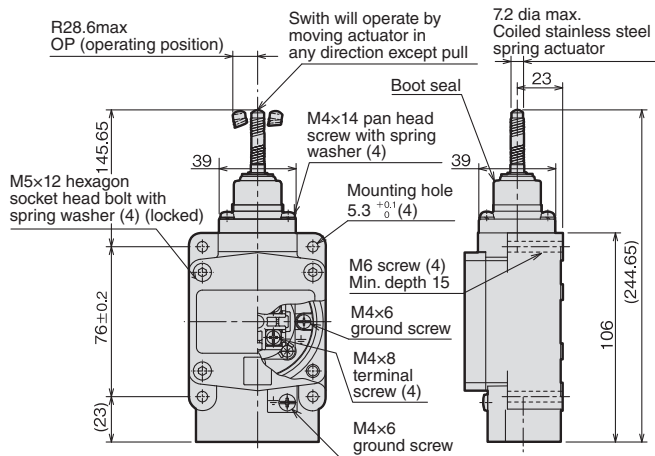


Operational characteristics	
O.F. (operating force)	9.8 N max*
P.T. (pre-travel)	60° mim
O.T. (overtravel)	30° max
M.D. (movement differential)	55° max

*When lever length is 38.1 mm

*Dimensional tolerance is ±0.8 unless otherwise specified.

Nondirectional movement type 8LX7001-□□



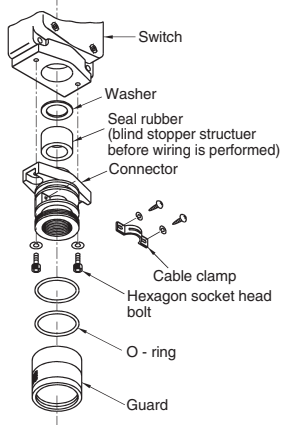
Operational characteristics	
O.F. (operating force)	1.4 N max*
P.T. (pre-travel)	~
M.D. (movement differential)	~
O.T. (overtravel)	~

*At rod end position

*Dimensional tolerance is ±0.8 unless otherwise specified.

EXPLODED VIEW OF PRESSURE-RESISTANT PACKING CONNECTOR

Exploded view



Note: regarding conduits in dimensional drawing

Switches with threaded electrical conduit connections have G3/4 threads, and a protective cap is provided to seal the opening until wiring work is done.

On the pressure-resistant packing pull-in type, the conduit connections are not threaded because this type is used with a separately sold special connector.

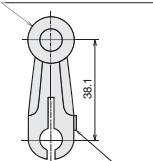
Remove the protective cap and install the special connector.

Auxiliary actuator for LX explosion-proof switches

(unit: mm)

6PA-J63 (black nylon roller)
6PA-J78 (brass roller)
LS-6PA44-002 (black nylon roller)
LS-6PA44-004 (brass roller)

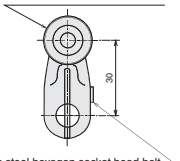
17.4 dia. x 6.4 black nylon roller
 17.4 dia. x 7.1 brass roller



M5 x 12
 stainless steel hexagon socket head bolt

6PA-J105 (black nylon roller)
LS-6PA107 (brass roller)
LS-6PA44-102 (black nylon roller)
LS-6PA44-104 (brass roller)

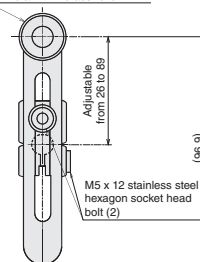
17.4 dia. x 6.4 black nylon roller
 17.4 dia. x 7.1 brass roller



M5 x 12
 stainless steel hexagon socket head bolt

6PA-J79 (black nylon roller)
6PA-J119 (brass roller)

17.4 dia. x 6.4 black nylon roller
 17.4 dia. x 7.1 brass roller



M5 x 12 stainless steel hexagon socket head bolt (2)

NOTES FOR USE OF LX7000 SERIES

- Do not wire while the power is connected. Depending on the voltage used, there is a risk of electrical shock.
- Do not leave the switch unattended or use it with the cover or conduit section open. Doing so may lead to an explosion.
- This switch conforms to IEC-compliant explosion-proof standards. Use it in an area that is appropriate for its explosion-proof structure, in accordance with the standards for the facility or equipment.
- The switch head position can be rotated 90° right or left, or 180°, by removing the four head mounting screws. Retighten the head screws to a torque of 1.3–1.7 N•m.
- To wire the switch, remove the cover by removing the four M5 screws with a 4 mm hex key (Allen wrench), and then connect the wires to the required terminals. Make sure that the switch plunger does not come into contact with a wire. Note that if the cover is unevenly tightened, if the tightening force is insufficient, or if the conduit section after wiring is improperly attached, explosion-proof performance may be impaired.
- To utilize the TIIS certification, electric wires and cables must have an allowable temperature of 70 °C or higher.
- Do not disassemble the switch, except for removing the cover during wiring and removing the operation head to change its direction.
- If the switch has been damaged by a tool or dropped during construction work, do not use it. Also, if there is a large dent or crack in the cover or housing, replace the switch immediately. The explosion-proof performance may be impaired.
- The lever is the only replaceable part. Otherwise the whole switch must be replaced.
- The housing, cover and head, are made of aluminum alloy finished with gray paint.
- External screws are stainless steel.
- Do not remove the protective plug until you begin the wiring work.
- Be sure to ground the switch by the ground screw.
- Hazardous areas where the switch can be used: Category I, Category II
 (Category I: areas that could be hazardous under normal conditions)
 (Category II: areas that could be hazardous under abnormal conditions)
- Do not use the switch in an environment where it may come into direct contact with strong acid or alkali.
- For increased-safety electrical conduit models, it is necessary to do explosion-proofing work by using sealing compound to make a sealed fitting for the electrical conduit close to the conduit section. Note that increased-safety electrical conduit type switches cannot be used in combination with commercially available packing-type connectors.
- Use electric wires or cables made to withstand temperatures of 70 °C or higher.
- When using an increased-safety packing type, use a **2PA-JEX1**L** series connector (protective tube size G1/2) or **2PA-JEX2**L** series connector (protective tube size G3/4) as stipulated in the certification for the switch. As the connector is not included, select an appropriate connector and order it separately.

Before use, thoroughly read the "Precautions for use" and "Precautions for handling" in the Technical Guide on pages D-137 as well as the instruction manual and product specification for this switch.