

LX5000 Series

Vertical Type Explosion-proof Switches

FEATURES

Vertical, Compact Explosion-proof Limit Switches for Outdoor Use.

- Case and covers are made of aluminum die-cast to ensure a light and robust structure.
- Die-cast surfaces have been treated against rust and bake-finished for outstanding corrosion resistance and weatherproofing.
- Switches are available in two cord lead-in types, conduit pipe joined type and pressure-resistant packing lead-in type that facilitates wiring of the cord.
- For external screws, stainless steel screws are used for outstanding corrosion resistance.
- Wide variety of actuators.



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ORDER GUIDE

1. Switches

Catalog listing	Actuator shape	O.F. (max.) (operating force)	P.T. (max.) (pretravel)	M.D. (max.) (movement differential)
1LX5001		12.8N	15°	7°
1LX5001-R				
1LX5003		12.8N	15°	7°
1LX5003-R				
2LX5001		26.7N	1.65mm	0.51mm
2LX5001-R				
5LX5001		26.7N	1.65mm	0.51mm
5LX5001-R				

2. Pressure-resistant Packing Connector (use in combination with **□LX500□-R**)

Shape	Catalog listing	Protecting pipe dimensions	Applicable cord diameter	Catalog listing	Protecting pipe dimensions	Applicable cord diameter
	2PA-JEX108	G $\frac{1}{2}$	7.5 to 8.5mm dia.	2PA-JEX208	G $\frac{3}{4}$	7.5 to 8.5mm dia.
	2PA-JEX109		8.5 to 9.5mm dia.	2PA-JEX209		8.5 to 9.5mm dia.
	2PA-JEX110		9.5 to 10.5mm dia.	2PA-JEX210		9.5 to 10.5mm dia.
	2PA-JEX111		10.5 to 11.5mm dia.	2PA-JEX211		10.5 to 11.5mm dia.
	2PA-JEX112		11.5 to 12.5mm dia.	2PA-JEX212		11.5 to 12.5mm dia.
	2PA-JEX113		12.5 to 13.5mm dia.	2PA-JEX213		12.5 to 13.5mm dia.

3. Auxiliary Actuators

Type	Shape	Catalog listing	Roller material	Lever tightening method
Roller lever		6PA-J63	Black nylon roller	Hexagon socket head bolt
		6PA-J105		
		6PA-J78	Brass roller	
Adjustable roller lever		6PA-J79	Black nylon roller	Hexagon socket head bolt
		6PA-J119	Brass roller	

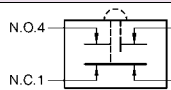
Note: When combining actuators, use combinations made of non-ignitable materials.

PERFORMANCE

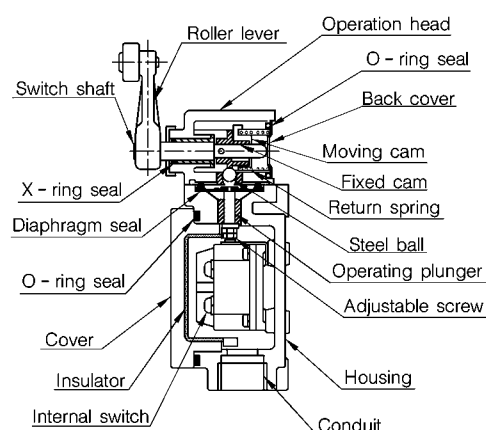
Catalog listing		Details		
Item		1LX5001	2LX5001	5LX5001
Actuator		Roller lever	Plunger	Roller plunger
External standards	Conformed standards	JIS C 4508, JIS C 0903 and the Factory Electrical Facilities Explosion-proofing Guidelines		
Structure	Contact type	2-circuit double break		
	Contact shape	Pure silver rivet		
	Terminal shape	Screw (M4 binding head machine screw with toothed washer)		
	Protective structure	Oil-resistant/immersion-proof type (JIS), IP67 (IEC 529), Pressure-resistant explosion-proof type (d2G4)		
	Pressure-resistant explosion-proof structure	d2G4		
Electrical performance	Electrical rating	See Table 1.		
	Dielectric strength	Between non-continuous terminals: 1,000V, 50/60Hz for 1 minute Between each terminal and non-conducting metal part: 2,000V, 50/60Hz for 1 minute Between each terminal and ground: 2,000V, 50/60Hz for 1 minute		
	Insulation resistance	Min. 100M Ω (by 500Vdc megger)		
	Initial contact resistance	Max. 50m Ω (6 to 8Vdc, energizing current 1A, measured by voltage drop method)		
	Recommended min. contact operating voltage/current	24Vac/dc-10mA, 12Vac/dc-20mA		
Mechanical performance	Actuator strength	Withstand load 5 times O.F. (operating direction for 1 minute)		
	Terminal strength	Withstand tightening torque strength of 1.2N-m for 1 minute		
	Impact resistance*	200m/s ²	—	200m/s ²
		Contact release of 1ms max. at free position and operating limit positions		
	Vibration resistance (2 continuous hours)	1.5mm peak-to-peak amplitude, frequency 10 to 55Hz		
		Contact release of 1ms max. at free position and operating limit positions		
	Allowable operating speed*	1mm/s to 0.5m/s	—	—
		Min. speed: Unstable state of contacts 0.1s max., Max. speed: Actuator damage not allowed		
Life	Mechanical life	Min. 4 million operations. Overtravel is 70 to 100% of standard value.		
	Electrical life	Min. 500,000 operations, 250Vac-5A resistive load		
Environmental conditions	Operating temperature range	-10 to +60°C (No freezing allowed)		
	Environment class	Explosion-proof switch structure for outdoor use satisfies d2G4.		
Recommended tightening torque	Body	5 to 6N-m (M5 hexagon socket head bolt)		
	Cover	5 to 6N-m (M5 hexagon socket head bolt)		
	Actuator	4 to 5.2N-m (M5 hexagon socket head bolt)		

Note: Items marked by * are values for the models listed above. Unmarked items are values common to all models in the **LX** Series.

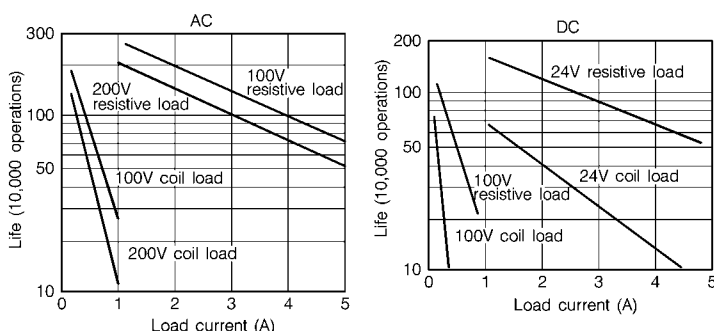
Table 1. Electrical rating and circuit configuration

Item	Rating
Contact type	
Electrical rating	125, 250Vac-5A 125Vdc-0.8A 250Vdc-0.4A

STRUCTURE DIAGRAMS



ELECTRICAL LIFE VS LOAD CURRENT CHARACTERISTICS



Remarks

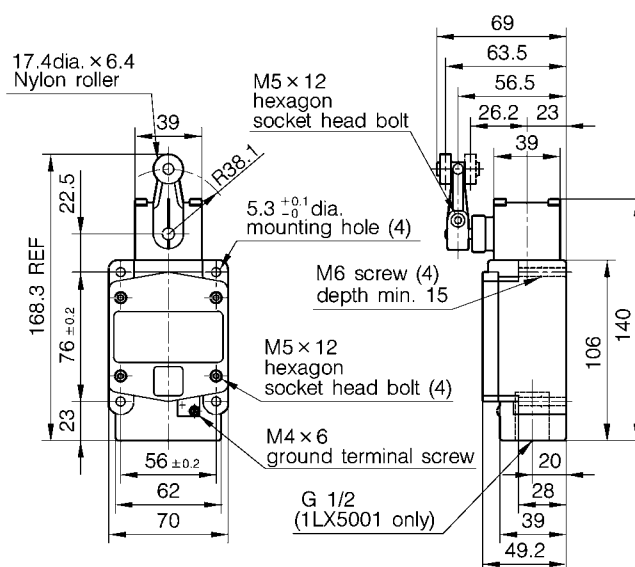
	AC	DC
Coil load	A1*	D1*
Resistive load	A2*	D3*

Note: Operating frequency of 1,800 operations/hour. * indicates compliance with JEM1230-1969.

APPEARANCE, OPERATING CHARACTERISTICS AND EXTERNAL DIMENSIONS

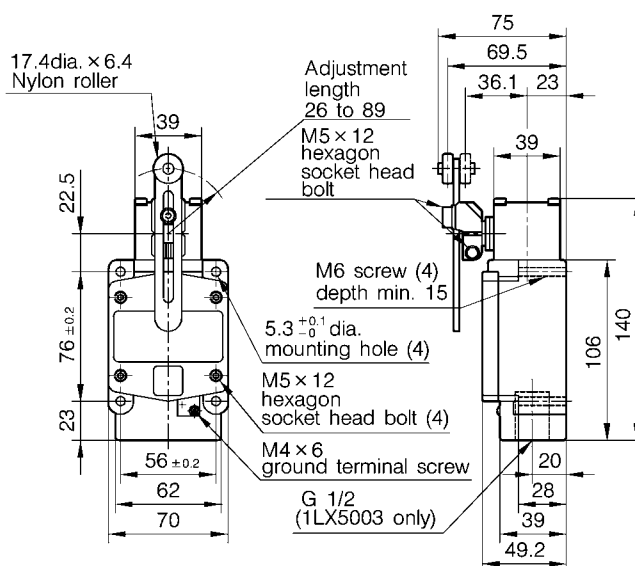
(unit: mm)

Roller lever type



Catalog listing	Conduit pipe	1LX5001
	Pressure-resistant packing	1LX5001-R
O.F.	(N max.)	12.8
R.F.	(N min.)	1.1
P.T.	(° max.)	15
M.D.	(° max.)	7
O.T.	(° min.)	55

Adjustable roller lever type

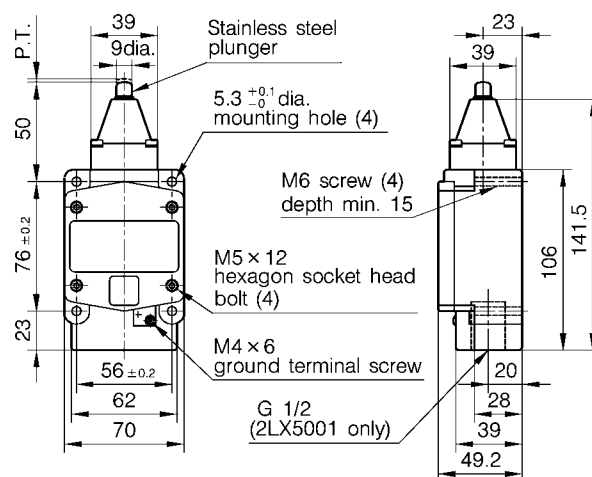


Catalog listing	Conduit pipe	1LX5003
	Pressure-resistant packing	1LX5003-R
O.F.	(N max.)	12.8
R.F.	(N min.)	1.1
P.T.	(° max.)	15
M.D.	(° max.)	7
O.T.	(° min.)	55

Plunger type



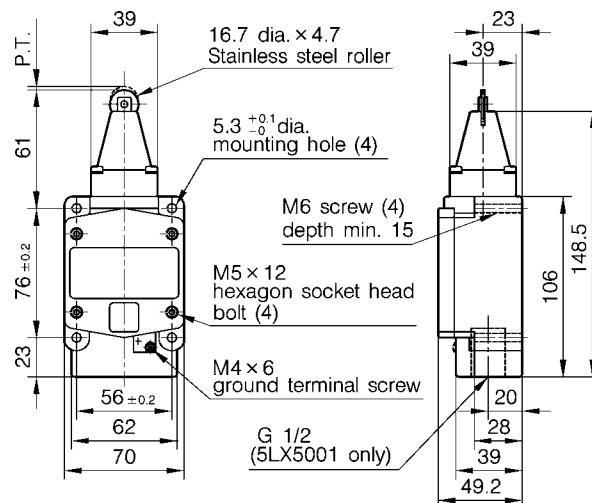
Catalog listing	Conduit pipe	2LX5001
	Pressure-resistant packing	2LX5001-R
O.F.	(N max.)	26.7
R.F.	(N min.)	8.9
P.T.	(mm max.)	1.65
M.D.	(mm max.)	0.51
T.T.	(mm min.)	7



Roller plunger type

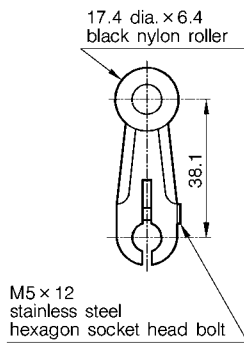


Catalog listing	Conduit pipe	5LX5001
	Pressure-resistant packing	5LX5001-R
O.F.	(N max.)	26.7
R.F.	(N min.)	8.9
P.T.	(mm max.)	1.65
M.D.	(mm max.)	0.51
T.T.	(mm min.)	7

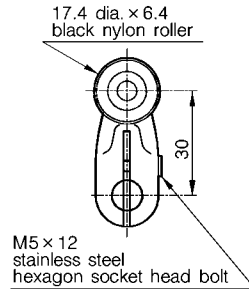


Auxiliary actuator for LX5000 explosion-proof switches

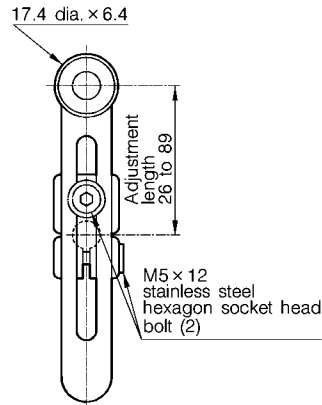
(unit: mm)



6PA-J63
(black nylon roller)
6PA-J78
(brass roller)



6PA-J105



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

Note: About conduit sections in dimension drawings

On conduit pipe joined type switches, a G $\frac{1}{2}$ screw is threaded into the conduit section, and a blind stopper is assembled to ensure sealability up till wiring.

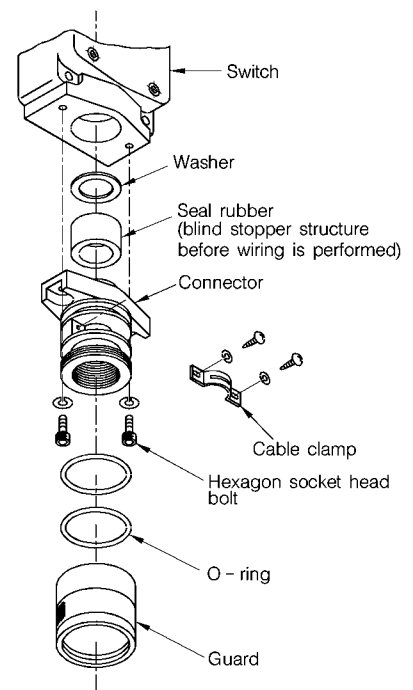
On pressure-resistant packing lead-in type switches, a screw for pipes is not threaded as an exclusive connector (sold separately) is assembled for use. Remove the blind stopper before assembling the exclusive connector.

PRESSURE-RESISTANT PACKING CONNECTOR

The pressure-resistant packing connector is an exclusive connector that is used in combination with pressure-resistant lead-in system explosion-proof switch **LX5000**.

Shape	Catalog listing	Protecting pipe dimensions	Applicable cord diameter
	2PA-JEX108	G $\frac{1}{2}$	7.5 to 8.5mm dia.
	2PA-JEX109		8.5 to 9.5mm dia.
	2PA-JEX110		9.5 to 10.5mm dia.
	2PA-JEX111		10.5 to 11.5mm dia.
	2PA-JEX112		11.5 to 12.5mm dia.
	2PA-JEX113		12.5 to 13.5mm dia.
	2PA-JEX208	G $\frac{3}{4}$	7.5 to 8.5mm dia.
	2PA-JEX209		8.5 to 9.5mm dia.
	2PA-JEX210		9.5 to 10.5mm dia.
	2PA-JEX211		10.5 to 11.5mm dia.
	2PA-JEX212		11.5 to 12.5mm dia.
	2PA-JEX213		12.5 to 13.5mm dia.

Exploded view of pressure-resistant packing connector





RESTRICIONS ON USE

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment. Accordingly, when used in applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- Safety devices for plant worker protection
- Start/stop control devices for transportation and material handling machines
- Aeronautical/aerospace machines
- Control devices for nuclear reactors

Never use this product in applications where human safety may be put at risk.

YAMATAKE

Specifications are subject to change without notice.

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