

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.



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	

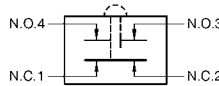
Note: When combining actuators, use combinations made of non-ignitable materials.

PERFORMANCE

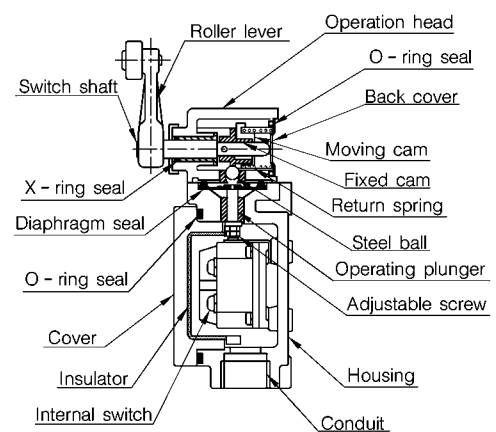
Item		Catalog listing	Details		
			1LX5001	2LX5001	5LX5001
Actuator			Roller lever	Plunger	Roller plunger
External standards	Conformed standards	JIS C 4508, JIS C 0903 and the Factory Electrical Facilities Explosion-proofing Guidelines			
Structure	Contact type	2-circuit double break			
	Contact shape	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. 100MΩ (by 500Vdc megger)			
	Initial contact resistance	Max. 50mΩ (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			
Mechanical operating frequency		Max. 120 operations/minute			
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.

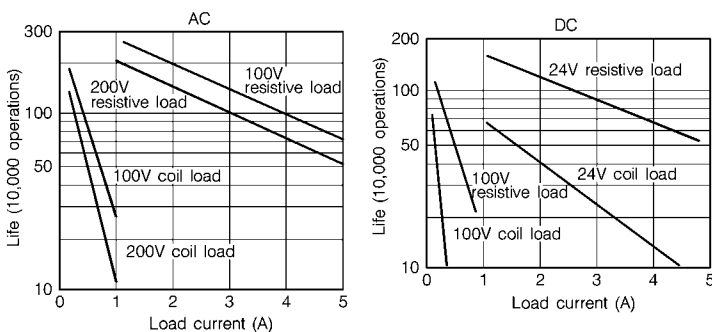
Table 1. Electrical rating and circuit configuration

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

STRUCTURE DIAGRAMS



ELECTRICAL LIFE VS LOAD CURRENT CHARACTERISTICS



Remarks

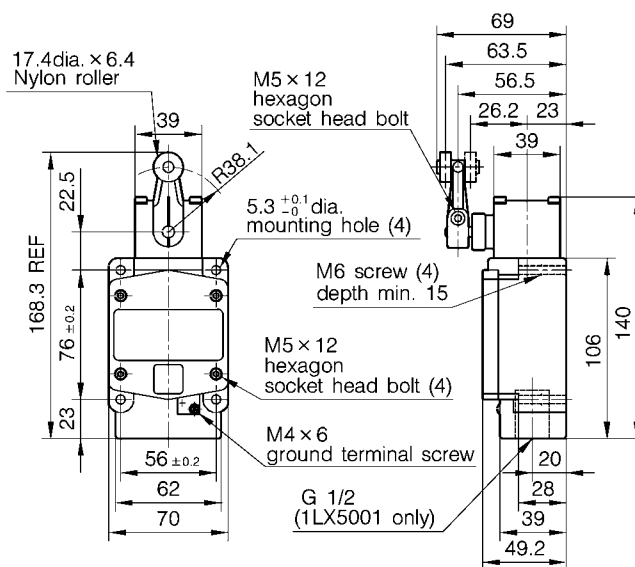
	AC	DC
Coil load	A1*	D1*
Resistive load	A2*	D3*

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

APPEARANCE, OPERATING CHARACTERISTICS AND EXTERNAL DIMENSIONS

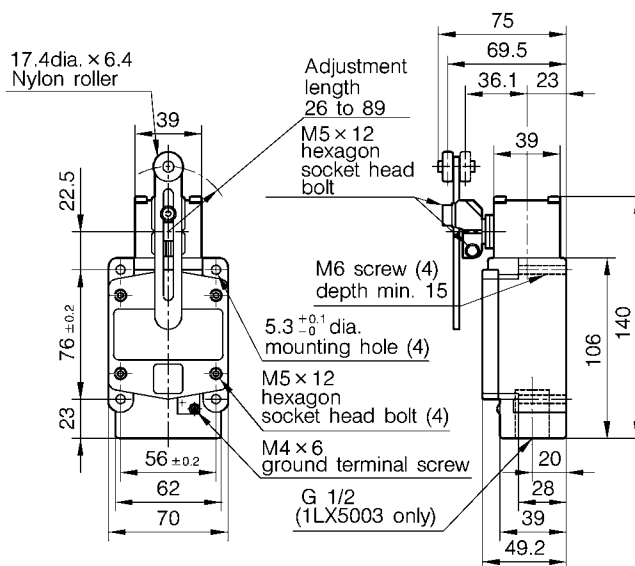
(unit: mm)

Roller lever type



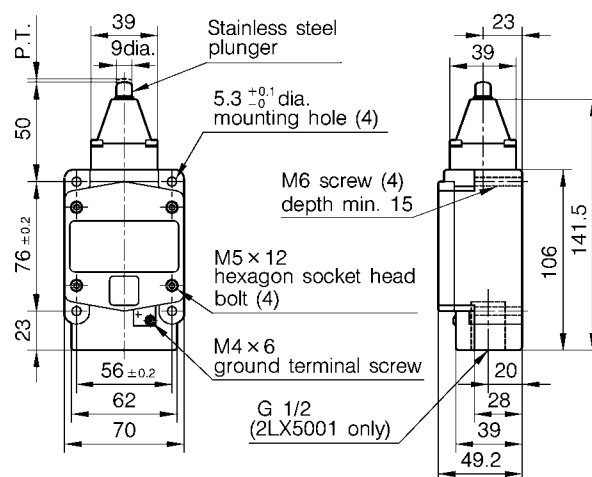
Catalog listing	Conduit pipe	1LX5001
	Pressure-resistant packing	1LX5001-R
O.F.	(N max.)	12.8
R.F.	(N min.)	1.1
P.T.	(° max.)	15
M.D.	(° max.)	7
O.T.	(° min.)	55

Adjustable roller lever type



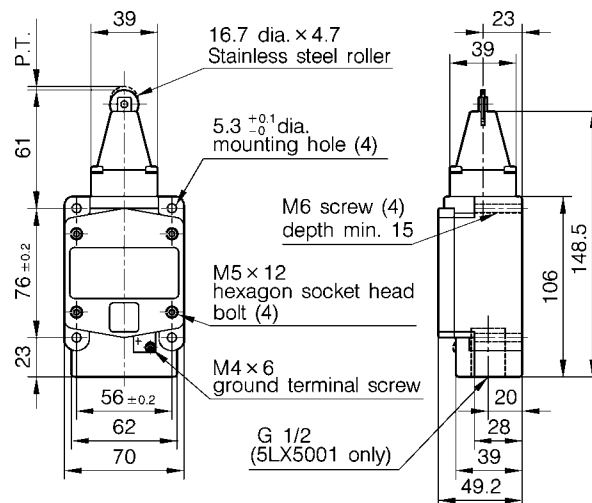
Catalog listing	Conduit pipe	1LX5003
	Pressure-resistant packing	1LX5003-R
O.F.	(N max.)	12.8
R.F.	(N min.)	1.1
P.T.	(° max.)	15
M.D.	(° max.)	7
O.T.	(° min.)	55

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

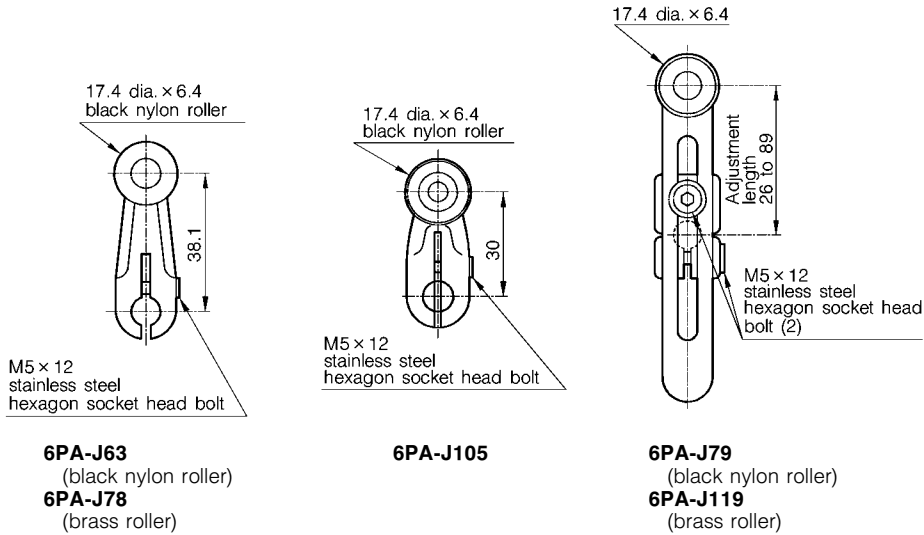
Roller plunger type



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)



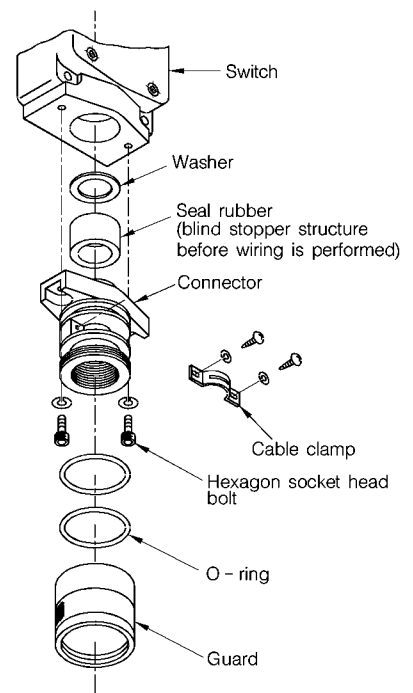
Note: About conduit sections in dimension drawings
On conduit pipe joined type switches, a G $\frac{1}{2}$ screw is threaded into the conduit section, and a blind stopper is assembled to ensure sealability up till wiring.
On pressure-resistant packing lead-in type switches, a screw for pipes is not threaded 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.

Yamatake Corporation
Advanced Automation Company

International Business Headquarters

Totate International Building

2-12-19 Shibuya Shibuya-ku

Tokyo 150-8316 Japan

URL:<http://www.yamatake.com>

This has been printed on 100% recycled paper.

(01)

Printed in Japan (SP)