

General Purpose Compact Limit Switches









Model LS | General purpose limit switches with robust construction in an extensive range of models, for use in a wide range of applications.



- UL/CSA/CE /GB (ccc marking) certified (excluding some models)
- UL listing is pending (excluding some models)
- 2-circuit double break basic switch with rugged die-cast aluminum case
- Oil-, water- and dust-proof structure (IP67 protective structure)
- Wide range of options available: with neon lamp, with LED lamp, built-in gold-plated contacts, with double seal, corrosion-resistant, heat-resistant, cold-resistant, spatter-guarded, connector type, etc
- Operation position setting indicator (roller lever and roller plunger types)

LIST OF MODELS

Appearance	Roller lever	Plunger	Side roller plunger	Roller plunger	Fork lever lock	Non-directional operating rod lever	Reference page for individual specifications
							
Model	1LS Series	2LS Series	3LS Series	5LS Series	6LS Series	8LS Series	
General purpose	<input type="checkbox"/> LS <input type="checkbox"/> -J	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D-023
Spatter-guarded	<input type="checkbox"/> LS <input type="checkbox"/> -JW <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D-050
Ultra long life	1LS-J7<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D-058
Weather resistant	1LS-J8<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D-067
All stainless steel	1LS<input type="checkbox"/>-J401	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D-071

STANDARD, GENERAL PURPOSE COMPACT TYPE

Most versatile LS compact limit-switch model, used in a wide range of applications.



- Wide range of models includes standard, high sensitivity, high overtravel, T.T. 90°, light operation and lock operation types.
- Wide range of actuator types.
- Certified compliance with a variety of international standards (excluding some models) (UL/CSA, EN 60947-5-1, GB14048.5-2001 etc.)
- Connector/prelead connector also available.
- With LED lamp (12V to 125 Vac/dc). Neon lamp also available.
- Wide range of models includes double-sealed, corrosion-resistant, heat-resistant, and cold-resistant types.
- Low current load model also available.
- Sequencer-compatible indicator
The energizing current of models with an LED indicator is 0.6 mA max.

STANDARDS COMPLIANCE

Certifying Body	Standard	File No.
UL	UL 1054	E 37559
CSA	CSA C22.2 No.55	LR 61643
TÜV	EN 60947-5-1	R 9451261
CQC	GB14048.5	2003010305083775

* For applicable models, refer to the CATALOG LISTING.

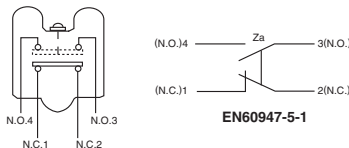
PERFORMANCE

Item	Model	Roller lever	Plunger	Side roller plunger	Roller plunger	Fork lever lock	Non-directional operation type			
Model	Catalog listing	1LS□-J□□□	2LS□-J□	3LS1-J	5LS□-J	6LS□-J	8LS□-J			
Standards	Compliance	NECA C 4508/JIS C 8201-5-1, IEC 60947-5-1								
	Certification *1	UL1054, CSA C22.5 No.55, EN 60947-5-1, GB 14048.5-2001								
Structure	Contact form	2-circuit double break								
	Contact type	Standard load	Silver, rivet							
		Low current load	Gold-plated silver, rivet							
	Terminal type	M4 screw (binding head machine screw with toothed washer), DIN 4-pin connector (M12 size), preleaded								
	Protective structure	IP67 (IEC60529, JIS C 0920)								
Pollution level	3 (EN 60947-5-1)*2									
Electrical performance (1): General characteristics	Electrical rating	See page D-026.								
	Dielectric strength	Between non-continuous terminals : 1,000 Vac, 50/60 Hz for 1 minute (standard operating characteristics type) : 600 Vac, 50/60 Hz for 1 minute (roller lever, high sensitivity characteristics type) Between each terminal and non-live metal part : 2,000 Vac, 50/60 Hz for 1 minute. Between each terminal and ground : 2,000 Vac, 50/60 Hz for 1 minute (only G-type products with ground terminals).								
	Insulation resistance	Min. 100 MΩ (by 500 Vdc megger)								
	Initial contact resistance	Standard load	Max. 50 mΩ (6 to 8 Vdc, thermal current 1A, voltage drop method)							
		Low current load	Max. 100 mΩ (6 to 8 Vdc, thermal current 0.1A, voltage drop method)							
Connector	Max. 40 mΩ (excluding fixed resistance such as cable)									
Contact voltage/min.current	24V 10 mA, 12V 20 mA (standard load), 5V 10 mA (low current load)									
Electrical performance (2) EN60947-5-1 GB140 48.5-2001	Rated operating voltage	120/240 Vac, 30 Vdc								
	Rated thermal current (Ith)	Silver contacts: 10A. Gold-plated contacts: 1A.								
	Rated frequency	45 to 65 Hz and DC								
	Short-circuit protection	TUV F10A fuse (IEC 60127) / CQC instant blowing fuses: silver contacts 15A, gold contacts 3A / TUV								
	Rated insulating voltage (UI)	125 / 250 Vac								
	Rated conditional short-circuit current	1,000A								
	Switching overvoltage	Category III (IEC 60204-1)								
	Rated impulse dielectric strength (Uimp)	Between each terminal and ground, and between terminals: 2,500V.								
	Actuator strength	Withstands load 5 times O.F. for 1 minute (in operating direction)								
	Terminal strength	Withstands tightening torque of 1.5 N·m for 1 minute								
Mechanical performance	Impact resistance	High sensitivity roller lever type	200 m/s ² in free and total travel positions							
		Light operation roller lever & non-directional roller lever types	200 m/s ² in total travel position							
		Non-directional operation type	300 m/s ² in total travel position							
		Models other than the above	300 m/s ² in free and total travel positions							
		Contact opening for 1 ms max. in free and total travel positions (NECA C 4508)								
Vibration resistance	1.5 mm peak-to-peak amplitude, frequency 10 to 55 Hz, for 2 continuous hours (NECA C 4508)									
	High sensitivity roller lever type & non-directional type	In total travel position								
	Models other than the above	In free and total travel positions								
	Contact opening for 1 ms max. in free and total travel positions									
Allowable operating speed	Model	Other than on the right	1LS19-J	2LS1-J	2LS-J6	3LS1-J	5LS1-J/5LS7-J	8LS3-J	8LS125-J	8LS152-J
	Max.	0.5 m/s	0.5 m/s	0.5 m/s	0.2 m/s	0.3 m/s	0.5 m/s	0.5 m/s	0.3 m/s	0.3 m/s
	Min.	1.7 mm/s	0.4 mm/s	1.0 mm/s	1.0 mm/s	0.5 mm/s	0.2 mm/s	10 mm/s	50 mm/s	20 mm/s
	At max. speed, actuator is not damaged. At min. speed, contact instability lasts 0.1 s max.									
Operating frequency	Light operation roller lever/ heat-resistant/ cold-resistant: max. 60 operations/minute, Models other than the above: max. 120 operations/minute									
Cable pullout strength	Min. 100 N									
Life	Model	Other than on the right	1LS-J50, 2LS-J6, cold-resistant type	3LS1-J		6LS□J, heat-resistant type				
	Life	Min. 10 million operations	Min. 1 million operations		Min. 5 million operations		Min. 2 million operations			
	(At 70% to 100% of the rated overtravel.)									
Electrical life	Model	Standard load built-in switch			Standard load double seal built-in switch		Low current load built-in switch			
	Life	Min. 500,000 operations at rated load			Min. 200,000 operations at rated load		Min. 2 million operations at rated load			
Ambient operating conditions	Temperature	Operating frequency: Above conditions must be satisfied at 20 operations/minute.								
		Standard model (standard load and low current load) : -10 to +70°C (freezing not allowed)								
		Double seal type : 1LS19-JS: 0 to +70°C (freezing not allowed) 2LS, 3LS, 5LS, 8LS125-JS: +5 to +70°C (freezing not allowed)								
		Double seal type other than above: -5 to +70°C (freezing not allowed)								
	Heat-resistant type : -10 to +120°C (freezing not allowed)									
	Cold-resistant type : -40 to +70°C (freezing not allowed)									
Humidity	Max. 98% RH*3									
Recommended tightening torque	Body	Front: 5 to 6 N·m (M5 hexagon socket head cap screw). Back: 5 to 6 N·m (M6 screws)								
	Lever	4 to 5.2 N·m (M5 hexagon socket head bolt)								
	Terminal	1.0 to 1.4 N·m (M4 binding head machine screw)								
	Cover	1.3 to 1.7 N·m (M4 small round head screw)								
	Head	0.8 to 1.2 N·m (M3.5 small round head screw)								
	Cap nut	2 to 3 N·m (M22 screw for 3LS)								
	Piano wire lever	0.6 to 0.8 N·m (M3 hexagon head set screw)								
Connector tightening torque	0.4 to 0.6 N·m (M12 ring)									

Notes: Mechanical performance values for the roller lever type are for lever length of 38.1 mm.

*1. Some models do not fall under this category. *2. EN 60947-5-1 and GB 14048.5-2001 applies only to G-type products with a ground terminal. *3. Max. 95% RH for connector and preleaded connector types

● Contact type 2-circuit double break



PHOTOELECTRIC SENSORS & SWITCHES

MEASUREMENT SENSORS

PROXIMITY SWITCHES

LIMIT SWITCHES

SAFETY KEY SWITCHES

LIMIT SWITCHES WITH POSITIVE OPENING MECHANISM

GENERAL PURPOSE LIMIT SWITCHES

TECHNICAL GUIDE FOR LIMIT SWITCHES

EXPLOSION-PROOF SWITCHES

TECHNICAL GUIDE FOR EXPLOSION-PROOF SWITCHES

STANDARD □LS□

SPATTER-GUARDED □LS□□

1LS-J7□□

1LS-J8□□

1LS□-J401

VCL□□□

SL1□□□

SL1□□C












Connector with cable



See page F-001

ORDER GUIDE

● Switch body (contact your dealer for models not listed in the following table)

Actuator		Operating characteristics			Basic catalog listing	Options			
		Max. O.F. (operating force)	Max. P.T. (pretravel)	Min. T.T. (total travel)		With LED lamp, 12 to 125 Vac/dc EC	With neon lamp, 100/200 Vac E	Double seal S	
Name	Shape								
Roller lever		13.4 N	Standard model 20°	Standard travel50°	1LS1-J	1LS1-JEC	1LS1-JE	1LS1-JS	
			High sensitivity 5°	Standard travel50°	1LS19-J	1LS19-JEC	1LS19-JE	1LS19-JS	
		8.9 N	Standard model 20°	High overtravel80°	1LS-J500	1LS-J500EC	1LS-J500E	1LS-J500S	
			High sensitivity 10°	High overtravel80°	1LS-J550	1LS-J550EC	1LS-J550E	1LS-J550S	
			Standard model 30°	High overtravel90°	1LS-J50	1LS-J50EC	1LS-J50E	1LS-J50S	
Adjustable roller lever*1		13.4 N	Standard model 20°	Standard travel50°	1LS3-J	1LS3-JEC	1LS3-JE	1LS3-JS	
		8.9 N	Standard model 20°	High overtravel80°	1LS-J503	1LS-J503EC	1LS-J503E	1LS-J503S	
			High sensitivity 10°	High overtravel80°	1LS-J553	1LS-J553EC	1LS-J553E	1LS-J553S	
Light operation rod lever*2		1.4 N	Standard model 20°	Standard travel50°	1LS10-J	1LS10-JEC	1LS10-JE	1LS10-JS	
Lever-less type		13.4 N *1	Standard model 20°	Standard travel50°	1LS2-J	1LS2-JEC	1LS2-JE	1LS2-JS	
			High sensitivity 5°	Standard travel50°	1LS9-J	1LS9-JEC	—	—	
		8.9 N *1	Standard model 20°	High overtravel80°	1LS-J501	1LS-J501EC	1LS-J501E	1LS-J501S	
			High sensitivity 10°	High overtravel80°	1LS-J551	1LS-J551EC	1LS-J551E	1LS-J551S	
			Standard model 30°	High overtravel90°	1LS-J51	1LS-J51EC	1LS-J51E	1LS-J51S	
1.4 N *2	Standard model 20°	Standard travel50°	1LS23-J	—	1LS23-JE	—			
Plunger		26.7 N	1.7 mm	8.1 mm	2LS1-J	2LS1-JEC	2LS1-JE	2LS1-JS	
Ball plunger		26.7 N	1.7 mm	5.7 mm	2LS-J6	2LS-J6EC	2LS-J6E	—	
Side roller plunger		40.1 N	2.77 mm	8.4 mm	3LS1-J	3LS1-JEC	3LS1-JE	3LS1-JS	
Roller plunger		26.7 N	1.7 mm	7.3 mm	5LS1-J	5LS1-JEC	5LS1-JE	5LS1-JS	
Boot seal roller plunger		15.7 N	1.7 mm	7.3 mm	5LS7-J	5LS7-JEC	5LS7-JE	5LS7-JS	
Fork lever lock		8.9 N	60°	90°	6LS1-J	6LS1-JEC	6LS1-JE	6LS1-JS	
		8.9 N	60°	90°	6LS3-J	6LS3-JEC	6LS3-JE	6LS3-JS	
Non-directional operation type		Spring rod	1.4 N	28.6 mm	—	8LS3-J	8LS3-JEC	8LS3-JE	8LS3-JS
		Steel wire light operation	0.28 N	55 mm	—	8LS125-J	8LS125-JEC	8LS125-JE	8LS125-JS
		Coil spring	1.4 N	28.6 mm	—	8LS152-J	8LS152-JEC	8LS152-JE	8LS152-JS

*1. Values are for lever length of 38.1 mm.

*2. Values are for lever length of 141.2 mm.

UL/CSA/GB (ccc marking) approved products




UL/CSA/CE/GB-approved products

All catalog listing are GB approved products.




Options								
Double seal + LED SEC	Double seal + neon lamp SE	Low current load K	EN/GB-compliant with GND terminal G	EN/GB-compliant with GND + LED GEC	EN/GB-compliant with GND + LED & dbl seal SGEC	Corrosion-resistant type M	Heat-resistant type H	Cold-resistant type L
1LS1-JSEC	1LS1-JSE	1LS1-JK	1LS1-JG	1LS1-JGEC	1LS1-JSGEC	1LS1-JM	1LS1-JH	1LS1-JL
1LS19-JSEC	1LS19-JSE	1LS19-JK	1LS19-JG	1LS19-JGEC	1LS19-JSGEC	1LS19-JM	1LS19-JH	1LS19-JL
1LS-J500SEC	1LS-J500SE	1LS-J500K	1LS-J500G	1LS-J500GEC	1LS-J500SGEC	1LS-J500M	1LS-J500H	1LS-J500L
1LS-J550SEC	1LS-J550SE	1LS-J550K	1LS-J550G	1LS-J550GEC	1LS-J550SGEC	1LS-J550M	1LS-J550H	—
1LS-J50SEC	—	1LS-J50K	1LS-J50G	1LS-J50GEC	1LS-J50SGEC	—	1LS-J50H	—
1LS3-JSEC	1LS3-JSE	1LS3-JK	1LS3-JG	1LS3-JGEC	1LS3-JSGEC	1LS3-JM	1LS3-JH	1LS3-JL
1LS-J503SEC	1LS-J503SE	1LS-J503K	1LS-J503G	1LS-J503GEC	1LS-J503SGEC	1LS-J503M	1LS-J503H	1LS-J503L
1LS-J553SEC	—	1LS-J553K	1LS-J553G	1LS-J553GEC	1LS-J553SGEC	—	—	—
1LS10-JSEC	1LS10-JSE	1LS10-JK	1LS10-JG	1LS10-JGEC	1LS10-JSGEC	—	—	—
—	—	—	—	1LS2-JGEC	1LS2-JSGEC	1LS2-JM	1LS2-JH	—
—	—	1LS9-JK	—	1LS9-JGEC	1LS9-JSGEC	—	—	—
—	—	1LS-J501K	—	1LS-J501GEC	1LS-J501SGEC	—	—	1LS-J501L
1LS-J551SEC	—	—	—	1LS-J551GEC	1LS-J551SGEC	—	—	—
—	—	1LS-J51K	—	1LS-J51GEC	1LS-J51SGEC	—	—	1LS-J51L
—	—	—	—	—	—	—	—	—
2LS1-JSEC	2LS1-JSE	2LS1-JK	2LS1-JG	2LS1-JGEC	2LS1-JSGEC	2LS1-JM	2LS1-JH	—
2LS-J6SEC	2LS-J6SE	2LS-J6K	2LS-J6G	2LS-J6GEC	2LS-J6SGEC	—	—	—
3LS1-JSEC	3LS1-JSE	3LS1-JK	3LS1-JG	3LS1-JGEC	3LS1-JSGEC	—	—	3LS1-JL
5LS1-JSEC	5LS1-JSE	5LS1-JK	5LS1-JG	5LS1-JGEC	5LS1-JSGEC	—	5LS1-JH	5LS1-JL
5LS7-JSEC	5LS7-JSE	5LS7-JK	5LS7-JG	5LS7-JGEC	5LS7-JSGEC	—	—	—
6LS1-JSEC	6LS1-JSE	6LS1-JK	6LS1-JG	6LS1-JGEC	6LS1-JSGEC	—	—	—
6LS3-JSEC	—	6LS3-JK	6LS3-JG	6LS3-JGEC	6LS3-JSGEC	—	—	—
8LS3-JSEC	—	8LS3-JK	8LS3-JG	8LS3-JGEC	8LS3-JSGEC	—	8LS3-JH	—
8LS125-JSEC	8LS125-JSE	8LS125-JK	—	8LS125-JGEC	8LS125-JSGEC	—	—	—
8LS152-JSEC	8LS152-JSE	8LS152-JK	—	8LS152-JGEC	8LS152-JSGEC	—	—	8LS152-JL

● Connector type switch body

Actuator		Operating characteristics			Options			
		Max. O.F. (operating) force	Max. P.T. (pretravel)	Min. T.T. (total travel)	Connector +LED EC-PD	Preleaded connector +LED EC-PD03	Connector+ double seal+LED SEC-PD	Preleaded connector* +dbl seal+LED SEC-PD03
Name	Shape							
Roller lever		13.4 N	Standard model 20°	Standard travel 50°	1LS1-JEC-PD	1LS1-JEC-PD03	1LS1-JSEC-PD	1LS1-JSEC-PD03
			High sensitivity 5°	Standard travel 35°	1LS19-JEC-PD	1LS19-JEC-PD03	1LS19-JSEC-PD	1LS19-JSEC-PD03
		8.9 N	Standard model 20°	High overtravel 75°	1LS-J500EC-PD	1LS-J500EC-PD03	1LS-J500SEC-PD	1LS-J500SEC-PD03
			High sensitivity 10°	High overtravel 75°	1LS-J550EC-PD	1LS-J550EC-PD03	1LS-J550SEC-PD	1LS-J550SEC-PD03
Roller plunger		26.7 N	1.7 mm	7.3 mm	5LS1-JEC-PD	5LS1-JEC-PD03	5LS1-JSEC-PD	5LS1-JSEC-PD03
Boot seal roller plunger		15.7 N	1.7 mm	7.3 mm	5LS7-JEC-PD	5LS7-JEC-PD03	5LS7-JSEC-PD	5LS7-JSEC-PD03

*(UL/CSA(C-UL) approved products)

● Quick Lock type

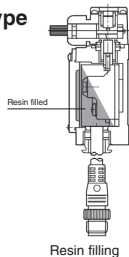
Actuator		Operating characteristics			Options	
		Max. O.F. (operating) force	Max. P.T. (pretravel)	Min. T.T. (total travel)	Preleaded connector* +LED EC-SD03	Connector+ double seal+LED SEC-SD03
Name	Shape					
Roller lever		13.4 N	Standard model 20°	Standard travel 50°	1LS1-JEC-SD03	1LS1-JSEC-SD03
			High sensitivity 5°	Standard travel 50°	1LS19-JEC-SD03	1LS19-JSEC-SD03
		8.9 N	Standard model 20°	High overtravel 80°	1LS-J500EC-SD03	1LS-J500SEC-SD03
			High sensitivity 10°	High overtravel 80°	1LS-J550EC-SD03	1LS-J550SEC-SD03

*(UL/CSA(C-UL) approved products)

Compatible with OMRON Smartclick connectors.

Smartclick  Smartclick is a registered trademark of OMRON Corporation.

● Resin filled type



- Double-seal type has a sealed internal switch
- Places where coolant might seep, like the body cover and conduit, are filled with epoxy resin.
- Resin filling plus an ultra long life limit switch, for enhanced reliability.

		PT	TT	Base catalog listing	Catalog listing			
					DC preleaded connector, 30 cm + LED	DC preleaded connector, 30 cm	Preleaded connector with 4 assignable pins, 30 cm + LED	Preleaded, 5 m +LED
Standard LS	Roller lever	Standard model 20°	80°	1LS-J500	1LS-J500SEC-MD03	1LS-J500S-MD03	1LS-J500SEC-MP03	1LS-J500SEC-N35
		High sensitivity 10°	80°	1LS-J550	1LS-J550SEC-MD03	1LS-J550S-MD03	1LS-J550SEC-MP03	1LS-J550SEC-N35
	Roller plunger	1.7 mm	7.3 mm	5LS1-J	5LS1-JSEC-MD03	5LS1-JS-MD03	5LS1-JSEC-MP03	5LS1-JSEC-N35
	Boot seal roller plunger	1.7 mm	7.3 mm	5LS7-J	5LS7-JSEC-MD03	5LS7-JS-MD03	5LS7-JSEC-MP03	5LS7-JSEC-N35
Long life LS	Roller lever	Standard model 20°	50°	1LS-J700	1LS-J700SEC-MD03	1LS-J700S-MD03	1LS-J700SEC-MP03	1LS-J700SEC-N35
		High sensitivity 5°	50°	1LS-J710	1LS-J710SEC-MD03	1LS-J710S-MD03	1LS-J710SEC-MP03	1LS-J710SEC-N35
		Standard model 20°	80°	1LS-J720	1LS-J720SEC-MD03	1LS-J720S-MD03	1LS-J720SEC-MP03	1LS-J720SEC-N35
		High sensitivity 10°	80°	1LS-J730	1LS-J730SEC-MD03	1LS-J730S-MD03	1LS-J730SEC-MP03	1LS-J730SEC-N35

Note: Specifications and dimensions are the same as those of the base catalog listing.

ELECTRICAL RATING

●2-circuit double break

Indicator type	None		100/200 Vac with neon lamp		12 to 125 Vac/dc with LED lamp	
Model	Catalog listing	Electrical rating	Catalog listing	Electrical rating	Catalog listing	Electrical rating
General-purpose	<input type="checkbox"/> LS <input type="checkbox"/> -J	125, 250, 480 Vac 10A 125 Vac 1/2HP 250 Vac 1HP 125 Vdc 0.8A 250 Vdc 0.4A	<input type="checkbox"/> LS <input type="checkbox"/> -JE	125, 250 Vac 5A	<input type="checkbox"/> LS <input type="checkbox"/> -JEC	125 Vac 5A 125 Vdc 0.8A
General-purpose, double seal	<input type="checkbox"/> LS <input type="checkbox"/> -JS	125, 250 Vac 5A 125 Vac 1/8HP 250 Vac 1/4HP 125 Vdc 0.8A 250 Vdc 0.4A	<input type="checkbox"/> LS <input type="checkbox"/> -JSE	125, 250 Vac 5A	<input type="checkbox"/> LS <input type="checkbox"/> -JSEC	125 Vac 5A 125 Vdc 0.8A
General-purpose, gold plated contacts	<input type="checkbox"/> LS <input type="checkbox"/> -JK	125 Vac 0.1A 30 Vdc 0.1A	<input type="checkbox"/> LS <input type="checkbox"/> -JKE	125 Vac 0.1A	<input type="checkbox"/> LS <input type="checkbox"/> -JKEC	125 Vac 0.1A 30 Vdc 0.1A
General-purpose (high sensitivity)	1LS19-J 1LS-J55 <input type="checkbox"/>	125, 250, 480 Vac 10A 125 Vac 1/8HP 250 Vac 1/4HP 125 Vdc 0.4A 250 Vdc 0.2A	1LS19-JE 1LS-J55 <input type="checkbox"/> E	125, 250 Vac 5A	1LS19-JEC 1LS-J55 <input type="checkbox"/> EC	125 Vac 5A
General-purpose (high sensitivity), dbI seal	1LS19-JS 1LS-J55 <input type="checkbox"/> S	125, 250 Vac 5A 125 Vac 1/8HP 250 Vac 1/4HP	1LS19-JSE 1LS-J55 <input type="checkbox"/> SE	125, 250 Vac 5A	1LS19-JSEC 1LS-J55 <input type="checkbox"/> SEC	125 Vac 5A
General-purpose, DC connector/ preleaded connector	—	—	—	—	<input type="checkbox"/> LS <input type="checkbox"/> -JEC-PD <input type="checkbox"/> LS <input type="checkbox"/> -JEC-PD03	30 Vdc 3A
General-purpose, AC connector/ preleaded connector	—	—	—	—	<input type="checkbox"/> LS <input type="checkbox"/> -JEC-PA <input type="checkbox"/> LS <input type="checkbox"/> -JEC-PA03	125 Vac 3A 30 Vdc 3A

●UL electrical ratings

		Electrical rating	Load	No. of cycles
1LS1-J No indicator lamp	Ag	A300	Pilot Duty	6,000
		3 A, DC 30 V	DC General	6,000
	Au	0.4 A, DC 125 V	DC General	6,000
		0.1 A, AC 125 V	AC General	6,000
1LS1-JEC With a neon lamp	Ag	A300	Pilot Duty	6,000
		0.1 A, AC 125 V	AC General	6,000
	Au	B150	Pilot Duty	6,000
		0.1 A, DC 30 V	DC General	6,000
1LS1-JEC With an LED	Ag	3 A, DC 30 V	DC General	6,000
		0.4 A, DC 125 V	DC General	6,000
	Au	0.1 A, AC 125 V	AC General	6,000
		0.1 A, DC 30 V	DC General	6,000
1LS1-JE7-PD With an LED (with a connector/connector and cable)	Ag	3 A, DC 30 V	DC General	6,000
	Au	0.1 A, DC 30 V	DC General	6,000

Enclosure: Type 1
Maximum allowable ambient temperature: 40 °C

●EN/GB-compliant model ratings (G type, with ground terminal)

	Application category	Rating	Rated thermal current (Ith)
Standard load type	AC-15	3.0A 240 Vac	10A
	DC-12	0.4A 30 Vdc	10A
Low current load type	AC-12	0.1A 125 Vac	1A
	DC-12	0.1A 30 Vdc	1A

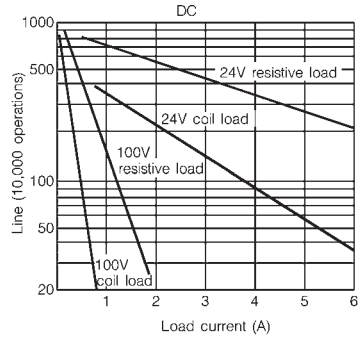
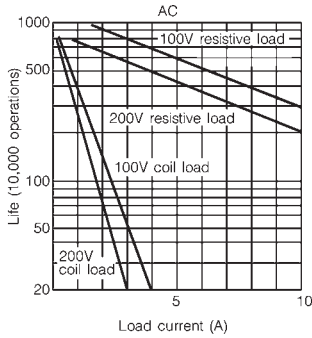
●Reference rating (Ratings fluctuate according to the operating environment and type of load. Verify values on an actual operating unit.)

AC rating	125 Vac				250 Vac				480 Vac	
Typical model: 1LS1-J	Resistance	Induction	Electric motor		Resistance	Induction	Electric motor		Resistance	Induction
			N.C.	N.O.			N.C.	N.O.		
	10	6	4	2	10	6	3	1.5	6	4
DC rating	8 Vdc		14 Vdc		30 Vdc		115 Vdc		230 Vdc	
Typical model: 1LS1-J	Resistance	Induction	Resistance	Induction	Resistance	Induction	Resistance	Induction	Resistance	Induction
	10	6	10	6	6	4	0.8	0.2	0.4	0.1

Note: "Induction" refers to a load having a power factor of 0.4 and time constant of 7 ms (DC). "Electric motor" refers to a load having a value of six times the inrush current.

LIFE VS. LOAD CURRENT CHARACTERISTICS

1LS-J/5LS-J



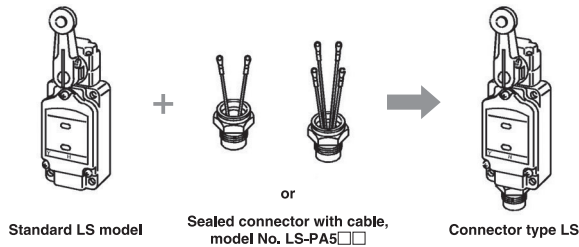
CONNECTORS

LS Series connectors

Models (e.g. 2LS-J, 8LS-J) for which a complete model No. is not given can be modified into the connector type by attaching the separate parts indicated below to a standard LS Series body.

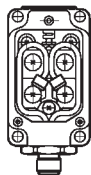
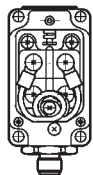
Catalog listing	Name	Appearance	Power supply	Number of leads		Pin layout
				2 leads	4 leads	
LS-PA5A2	PA5 Series sealed connector with cable	 2-lead type 4-lead type	AC	○	—	 Black White
LS-PA5A4				—	○	
LS-PA5D2			DC	○	—	 Green Red
LS-PA5D4				—	○	 Black White

Assembly method

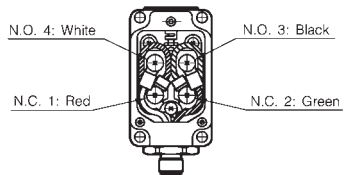


Wiring method

2-lead type: catalog listing LS-PA5



4-lead type: catalog listing LS-PA5



Connector		Internal switch
Contact No.	Lead color	Terminal No.
1	—	—
2	—	—
3	Black	NO.3
4	White	NO.4



Connector		Internal switch
Contact No.	Lead color	Terminal No.
1	Red	NO.1 (N.C.)
2	Green	NO.2 (N.C.)
3	Black	NO.3 (N.O.)
4	White	NO.4 (N.O.)

*Even in an N.C. wiring connection, N.C. contact assignments are Nos. 3 and 4.

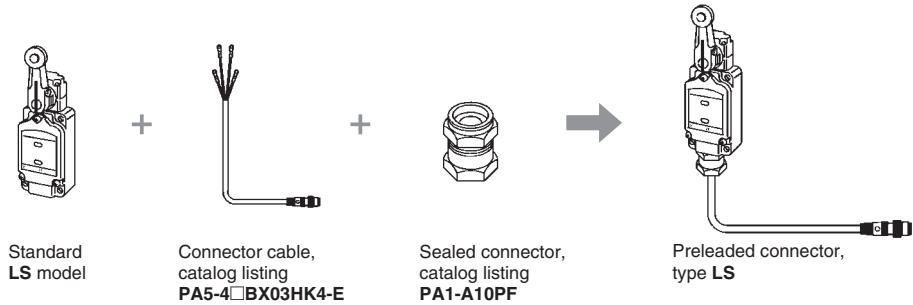


●Preleaded connector for LS Series

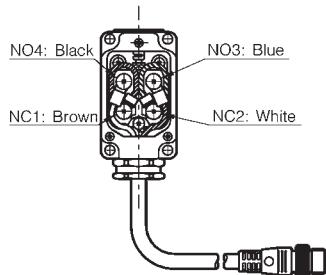
Models (e.g. 2LS□-J□, 8LS□-J) for which a complete model No. is not given can be modified into the preleaded connector type by attaching the separate parts indicated below to a standard LS Series body.

Catalog listing	Name	Appearance	Power supply	Cable length	Number of leads
PA5-4IBX03HK4-E	PA5 Series connector cable		DC	30 cm	4
PA5-4JBX03HK4-E			AC		
PA1-A10PF	Sealed connector		—	—	—

Assembly method

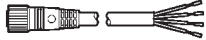


Wiring method



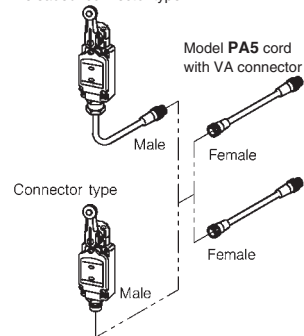
CONNECTOR WITH CABLE



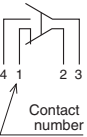
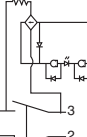
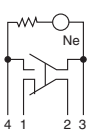





Model PA5 connectors for connector-type limit switches

Appearance	Power supply	Cable features	Cable length	Catalog listing	Lead color
	DC	Vinyl-insulated cord with high resistance to oil and vibration (UL/NFPA79 CM, CL3)	2 m	PA5-4ISX2SK	1: brown, 2: white, 3: blue, 4: black
			5 m	PA5-4ISX5SK	1: brown, 2: white, 3: blue, 4: black
	AC		2 m	PA5-4JSX2SK	1: brown, 2: white, 3: blue, 4: black
			5 m	PA5-4JSX5SK	1: brown, 2: white, 3: blue, 4: black

Contact pin layout and lead color

Preleaded connector type



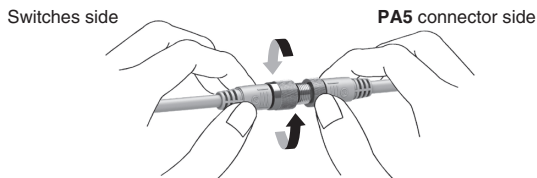
Connector cable	Connector appearance		Pin layout			
			Without indicator lamp	With LED indicator lamp	With neon indicator lamp	Lead colors
AC cable: -PA -PA03	Switch side (male) 	Connector side (female) 				1: brown (N.C.) 2: white (N.C.) 3: blue (N.O.) 4: black (N.O.)
DC cable: -PD -PD03	Switch side (male) 	Connector side (female) 				1: brown (N.C.) 2: white (N.C.) 3: blue (N.O.) 4: black (N.O.)

Note: The shape of the connector plugs and sockets is different for AC and DC cables, which are not mutually compatible.

The contact assignments of limit switches comply with Nippon Electric Control Equipment Industries Association standards (NECA 4202).


Tightening the connector

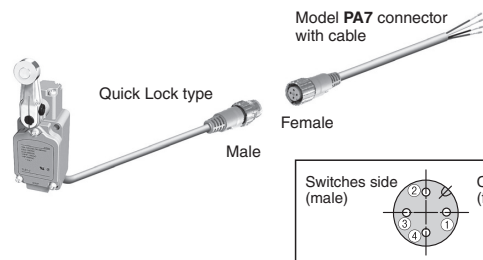
Align the grooves and rotate the fastening nut on the PA5 connector by hand until it fits tightly with the connector on the switches side.



Be sure to use a Model PA7 connector with cable when connecting Quick Lock type switch.

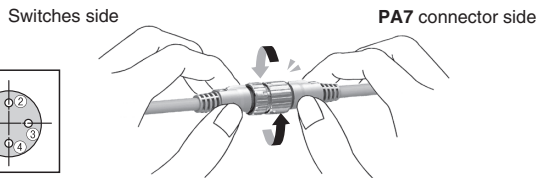
Model PA7 connector with cable

Shape	Power supply	Cord properties	Cord length	Catalog listing	Lead colors
	DC	Vinyl-insulated cord with high resistance to oil and vibration (UL/NFPA79 CM)	2 m	PA7-4ISX2SK	1: brown, 2: white, 3: blue, 4: black
			5 m	PA7-4ISX5SK	1: brown, 2: white, 3: blue, 4: black



Tightening the connector

Align the triangle mark and mate the male and female connector then rotate 45 degree to match the keys on the rings by hand.



Compatible with OMRON Smartclick connectors.

Smartclick is a registered trademark of OMRON Corporation.

● Connector section specifications^{*1}

Item		Preleaded connector type	Quick Lock connector type
Operating voltage/ current range	For AC type	Min. 5V 5 mA. Max. 250 Vac 3A.	
	For DC type	Min. 5V 5 mA. Max. 125 Vdc 3A.	
Insulation resistance		Min. 100 MΩ (by 500 Vdc megger)	Min. 50 MΩ (by 500 Vdc megger)
Dielectric strength		1,500 Vac for 1 minute (between contacts, and between contacts and connector housing)	
Initial contact resistance		Max. 40 mΩ (when 3A current is supplied to connected male and female connectors. Semiconductor lead-specific resistance not included)	
Mating/unmating force		0.4 to 4.0 N per contact	
Mating cycles		50	
Connector nut tightening torque		Max. 0.8 N·m ²	
Cable pullout strength		Min. 100 N	
Vibration resistance		10 to 55 Hz, 1.5 mm peak-to-peak amplitude, 2 hours each in X, Y and Z directions	
Impact resistance		300 m/s ² , 3 times each in X, Y and Z directions	980 m/s ² , 10 times each in X, Y and Z directions
Protective structure		IP67 (IEC 529)	
Operating temperature		-10 to +70°C (freezing not allowed)	
Storage temperature		-20 to +80°C	
Operating humidity		Max. 95% RH	
Material	Contact	Gold-plated brass	
	Contact holder	Glass-lined polyester resin	
	Housing	Polyester elastomer	
	Coupling	Brass (For DC, Ni-plated. For AC, orange coating)	
	O-ring	NBR (nitrile rubber)	
Recommended tightening torque		0.4 to 0.6 N·m	
Connector cable	Catalog listing	for DC	PA5-4ISX□SK ^{*3}
		for AC	PA5-4JSX□SK ^{*3}
	Nominal cross-sectional area, No. of leads		0.5 mm ² , 4 leads

*1. Specifications assume the use of a Azbil connector (PA5/PA7 Series), and apply to 2-circuit double break switches (general-purpose and ultra long-life types).

*2. Tighten firmly by hand. If the connector is not tightened firmly, IP67 protection may be lost, or the connector may come loose.

*3. The number corresponding to □ in the catalog listing indicates the cable length (2 = 2 m, and 5 = 5 m).

PHOTOELECTRIC
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SWITCHES

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SWITCHES

STANDARD
□LS□

SPATTER-GUARDED
□LS□□

1LS-J7□□

1LS-J8□□

1LS□-J401

VCL-□□

SL1-□□

SL1-□C

Connector
with cable



See page
F-001