


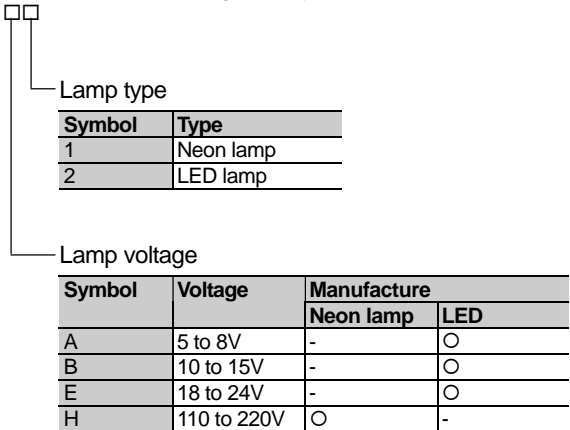
■ Limit Switches

● AL type

a. Type

Standard	Series	Type	Name of actuator	Ratings	UL File No.	Standard																																			
	General-purpose	AL-N11□□UL	Roller lever type	<table border="1"> <tr> <td rowspan="3">DC</td> <td colspan="4">Make and break currents [A]</td> </tr> <tr> <td>Voltage</td> <td>30V</td> <td>125V</td> <td>250V</td> </tr> <tr> <td colspan="2">Load type</td> <td colspan="2">Resistive load</td> </tr> <tr> <td rowspan="3">AC</td> <td colspan="4">Continuous current</td> </tr> <tr> <td>5A</td> <td>5</td> <td>0.4</td> <td>0.2</td> </tr> <tr> <td>Contact current code</td> <td>Voltage</td> <td>Make</td> <td>Break</td> </tr> <tr> <td rowspan="2">B300</td> <td>120V</td> <td>30A</td> <td>3A</td> <td></td> </tr> <tr> <td>240V</td> <td>15A</td> <td>1.5A</td> <td></td> </tr> </table>	DC	Make and break currents [A]				Voltage	30V	125V	250V	Load type		Resistive load		AC	Continuous current				5A	5	0.4	0.2	Contact current code	Voltage	Make	Break	B300	120V	30A	3A		240V	15A	1.5A		E44592	UL508
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		AL-N21□□UL	Adjustable roller lever type																																						
		AL-N31□□UL	Rod lever type																																						
		AL-P11□□UL	Push plunger type																																						
	AL-P21□□UL	Roller plunger type																																							
	AL-P31□□UL	Ball plunger type																																							
	AL-F11□□UL	Fork roller lever type																																							
	AL-S11□□UL	Coil spring type																																							
	AL-S21□□UL	Spring rod type																																							
	AL-W11□□UL	Wire spring type																																							
	AL-Y11□□UL	Side push plunger type																																							
	AL-Y21□□UL	Side roller plunger type																																							
	AL-Y31□□UL	Side ball plunger type																																							
	Small	AL-SN11□□UL	Roller lever type																																						
		AL-SN21□□UL	Adjustable roller lever type																																						
		AL-SN31□□UL	Rod lever type																																						
AL-SP11□□UL		Push plunger type																																							
AL-SP21□□UL		Roller plunger type																																							
AL-SK11□□UL		Roller arm type																																							
AL-SK21□□UL		Reverse roller arm type																																							
AL-SS11□□UL		Spring rod type																																							

Note: Symbols for lamp voltage and type are filled in □□.



b. Performance

Item	General-purpose (AL)	Small (AL-S)
Insulation resistance	Min. 100M (by 500V DC megger) between non-continuous terminals or between each terminal and uncharged metal part.	
Withstand voltage	1500V between each terminal and uncharged metal part	
Vibration resistance <sup>*1</sup>	Double amplitude 1.5mm, 10 to 55 Hz	
Impact resistance <sup>*1</sup>	300 m/s <sup>2</sup>	
Permissible operation cycle	120 cycle/min.	
Temperature rise	50°C or less	
Life	Mechanical 30 million cycles (N1 type) 10 million cycles (other types)	10 million cycles
Ambient temperature	-10°C to +80°C	
Ambient humidity	95% RH or less	

<sup>\*1</sup> Except coil spring, spring rod and wire spring types

Contact reliability:

It was confirmed that these switches work without problem under the circuit conditions of 5V AC/DC and 2mA. However, operation ranges may change depending on environmental conditions and load types. For details, contact Fuji Electric.

c. Operational characteristics

- General-purpose (AL)

Item \ Type	AL-N11UL	AL-N21UL <sup>*1</sup>	AL-N31UL <sup>*2</sup>	AL-P11UL	AL-P21UL	AL-P31UL	AL-F11UL
Required operating force: OF max.	9N	9N	2.9N	15N	15 N	15 N	9.5 N
Return force: RF min.	0.5N	0.5N	1.5N	8.2N	8.2N	8.2N	-
Movement before operation: PT min.	12°	12°	12°	2mm	2mm	2mm	55°
Movement after operation: OT min.	65°	65°	65°	5mm	5mm	5mm	35°
Differential movement: MD max.	7°	7°	7°	1mm	1mm	1mm	-
Overall movement: TT min.	75°	75°	75°	-	-	-	90±10°

<sup>\*1</sup> When lever length is 38 mm

<sup>\*2</sup> When rod lever length is 135 mm

Item \ Type	AL-Y11UL	AL-Y21UL	AL-Y31UL	AL-S11UL	AL-S21UL	AL-W11UL
Required operating force: OF max.	40N	40N	40N	1.5N	1.5N	1.5N
Return force: RF min.	9N	9N	9N	-	-	-
Movement before operation: PT min.	2.8mm	2.8mm	2.8mm	30mm	30mm	40mm
Movement after operation: OT min.	4mm	4mm	4mm	-	-	-
Differential movement: MD max.	1mm	1mm	1mm	-	-	-

- Small (AL-S)

Item \ Type	AL-SP11UL	AL-SP21UL	AL-SK11UL	AL-SK21UL	AL-SN11UL	AL-SN21UL <sup>*1</sup>	AL-SN31UL <sup>*1</sup>	AL-SS11UL
Required operating force: OF max.	4.5N	8.5N	4N	4N	7N	7N	7N	1.5N
Return force: RF min.	2N	4.5N	1.8N	1.8N	0.5N	0.5N	0.5N	-
Movement before operation: PT min.	2mm	2mm	2.5mm	2.5mm	30°	30°	30°	30mm
Movement after operation: OT min.	4mm	3mm	5mm	5mm	40°	40°	40°	-
Differential movement: MD max.	1mm	1mm	1.3mm	1.3mm	8°	8°	8°	-

<sup>\*1</sup> When lever/rod length is 25 mm