

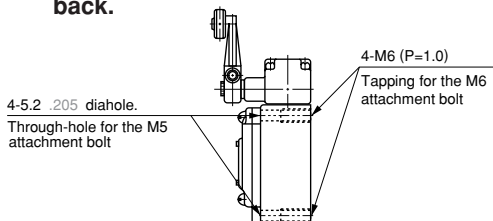
General use vertical limit switch. Type with a lamp which makes maintenance convenient; either a neon AC powered lamp or an LED DC powered lamp.



RoHS Directive compatibility information
<http://www.nais-e.com/>

FEATURES

1. Can be mounting either front or back.



2. Lamps that can be used with a wide range of voltages

- Neon lamp
Comes in two types: 100V AC and 200V AC, sufficient luminosity is achieved through the diamond-cut lens. Also with a long lifespan of more than 20 thousand hours.

- LED lamp
Covers 6V to 48V and comes in three types, 6V AC/DC, 12V AC/DC, and 24 to 48V AC/DC. Uses two highly luminous LEDs and in addition, sufficient luminosity is achieved through the diamond-cut lens.

3. Lamp connection can be either spring type or lead wire type

- Spring type (wiring unnecessary) (With neon or LED lamp type)
Wiring is unnecessary because the lamp is directly connected to the terminals. By simply changing the direction of the lamp cover, it is possible to display both lights during operation (normally closed side) and no operation (normally open side.)

- Lead wiring type <Current leakage: 0> (LED type only)

Because the wiring can be made parallel to the load, current leakage from the lamp can be reduced to 0. Even with a slight leak, the electronic circuit incurring the leak can be used safely.

4. Corrosion-proof, oil-resistant construction

The protective construction is corrosion-proof (conforms to IP67.) Also, the lens and cover are formed simultaneously with the lamp type, and moreover, a nameplate is affixed to the upper surface, thereby improving the already-excellent waterproof capabilities.

TYPICAL APPLICATIONS

Conveyer equipment, conveyer belts, plant facilities, cranes, cleaning plants, etc. The LED lamp type is also compatible with both PC and computer direct current low voltage control circuits.

PRODUCT TYPE

1. Standard type

Actuator		Part No.
Push plunger		AZ5101
Roller plunger		AZ5102
Roller arm	Standard type	AZ5104
	O.T. amplified type	AZ5124
Yoke		AZ5105
Flexible		AZ5106
Adjustable rod	Standard type	AZ5107
	O.T. amplified type	AZ5127
Adjustable roller arm	Standard type	AZ5108
	O.T. amplified type	AZ5128

2. With neon lamp

Lamp connection	Actuator	Lamp rating		
		100V AC	200V AC	
		Part No.		
Spring type	Push plunger	AZ510141	AZ510142	
	Roller plunger	AZ510241	AZ510242	
	Roller arm	Standard type	AZ510441	AZ510442
		O.T. amplified type	AZ512441	AZ512442
	Yoke	AZ510541	AZ510542	
	Flexible	AZ510641	AZ510642	
	Adjustable rod	Standard type	AZ510741	AZ510742
		O.T. amplified type	AZ512741	AZ512742
	Adjustable roller arm	Standard type	AZ510841	AZ510842
		O.T. amplified type	AZ512841	AZ512842

3. With LED

Lamp connection	Actuator		Lamp rating	
			12V DC	24 to 48V DC
			Part No.	
Spring type	Push plunger		AZ5101161	AZ510116
	Roller plunger		AZ5102161	AZ510216
	Roller arm	Standard type	AZ5104161	AZ510416
		O.T. amplified type	AZ5124161	AZ512416
	Yoke		AZ5105161	AZ510516
	Flexible		AZ5106161	AZ510616
	Adjustable rod	Standard type	AZ5107161	AZ510716
		O.T. amplified type	AZ5127161	AZ512716
Adjustable roller arm	Standard type	AZ5108161	AZ510816	
	O.T. amplified type	AZ5128161	AZ512816	
Lead wire type	Push plunger		AZ5101661	AZ510166
	Roller plunger		AZ5102661	AZ510266
	Roller arm	Standard type	AZ5104661	AZ510466
		O.T. amplified type	AZ5124661	AZ512466
	Yoke		AZ5105661	AZ510566
	Flexible		AZ5106661	AZ510666
	Adjustable rod	Standard type	AZ5107661	AZ510766
		O.T. amplified type	AZ5127661	AZ512766
Adjustable roller arm	Standard type	AZ5108661	AZ510866	
	O.T. amplified type	AZ5128661	AZ512866	

Note) Cadmium free contact types are available on a custom-made basis. Please add an "F" to the end of the part number when ordering.
LED rating 6V DC type is available. When ordering, add suffix 162 (spring type) or 662 (lead wire type) to the standard part No..

SPECIFICATIONS

1. Rating

1) Standard type

Types of load Rated load	Resistive load (cos φ≒1)	Inductive load (cos φ≒0.4)	Motor or lamp load	
			N.C. contact	N.O. contact
125V AC	10A	6A	4A	2A
250V AC	6A	4A	2.5A	1.2A
500V AC	2A	1.2A	0.75A	0.5A
125V DC	0.8A	0.1A	-	-

2) Type with lamp

	Rated control voltage	Resistive load (cos φ≒1)	Inductive load (cos φ≒0.4)
With neon lamp	125V AC	10A	6A
	240V AC	6A	4A
With LED	24V DC	6A	-

2. Characteristics

Contact arrangement	1 Form A 1Form B	
Initial contact resistance, max.	15mΩ (By voltage drop 6 to 8V DC 1A)	
Contact material	Silver	
Initial insulation resistance (At 500V DC)	Min. 100MΩ	
Initial breakdown voltage	1,000Vrms for 1 min Between non-consecutive terminals 2,000Vrms for 1 min Between dead metal parts and each terminal 2,000Vrms for 1 min Between ground and each terminal	
Shock resistance	294m/s ² {30G}	
Vibration resistance	Standard type: Max. 55Hz Type with indicator: 10 to 50 Hz, double amplitude of 1.5mm	
Expected life (Min. operations)	Mechanical	10 ⁷ (at 60 cpm)
	Electrical	5×10 ⁵ (at 20 cpm, rated load)
Ambient temperature	Standard type: -5 to +80°C +23 to +176°F With indicator: -5 to +60°C +23 to +140°F	
Ambient humidity	Max. 95%R.H.	
Max. operating speed	120 cpm	

3. Operating characteristics

Characteristics	O.F. (N {gf}) max.	R.F. (N {gf}) min.	Pretravel (P.T.), max. mm inch	Movement Differential (M.D.), max. mm inch	Overtravel (O.T.), min. mm inch	Totaltravel (T.T.), min.	Repeat Accuracy of Operating Position, max. mm inch ^{*1}	
								Actuator
Push plunger	26.67 {2,720}	8.92 {910}	1.7 .067	1.0 .039	6.4 .252	-	0.1 .004	
Roller plunger	26.67 {2,720}	8.92 {910}	1.7 .067	1.0 .039	5.6 .220	-	0.1 .004	
Roller arm	Standard type	13.34 {1,360}	2.23 {227}	15°±5°	12°	-	45°	1°
	O.T. amplified type	8.83 {900}	0.49 {50}	25°±5°	15°	-	90°	1°
Yoke	8.90 {908}	8.90 {908}	50°±5°	-	-	90°±10°	-	
Flexible ^{*2}	1.39 {142}	-	20±10 .787±.394	-	-	-	-	
Adjustable rod ^{*3}	Standard type	1.39 {142}	0.27 {28}	15°±5°	12°	-	45°	1°
	O.T. amplified type	2.39 {244}	0.14 {14}	25°±5°	15°	-	90°	1°
Adjustable roller arm ^{*4}	Standard type	13.34 {1,360}	2.23 {227}	15°±5°	12°	-	45°	1°
	O.T. amplified type	8.83 {900}	0.49 {50}	25°±5°	15°	-	90°	1°

*1) Value between max. and min. value in the operating position at 20 cpm, no-load

*2) Measured at the position within 5mm from the top of actuator.

*3) O.F., R.F.: measured at the center distance of 135mm 5.315inch.

*4) O.F., R.F.: measured at the center distance of 38mm 1.496inch.

*5) For the operating characteristics, refer to the TECHNICAL INFORMATION.

4. Protective characteristics

Protective construction	AZ5 limit switches (Standard type)	AZ5 limit switches (With lamp) (neon/LED)
IP60	○	○
IP64	○	○
IP67	○	○

5. Lamp rating

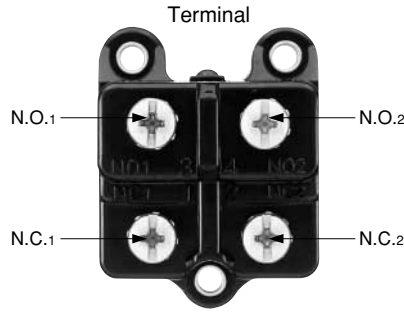
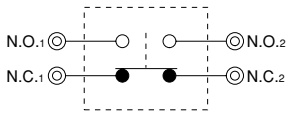
Types	Rated operating voltage	Operating voltage range	Internal resistance
neon lamp	100V AC	80 to 120V AC	120kΩ
	200V AC	160 to 240V AC	240kΩ
LED lamp	6V AC/DC	5 to 15V AC/DC	2.4kΩ
	12V AC/DC	9 to 28V AC/DC	4.7kΩ
	24 to 48V AC/DC	20 to 55V AC/DC	15kΩ

FOREIGN STANDARD

Standard	Applicable product	Part No.	Notes
UL recognized product	File No. : E99838 Ratings : 10A, 1/2HP, 125V AC 6A, 1/2HP, 250V AC Product type : standard model only	Add "9" to the end of the standard part No.	Please ask about the price. Comes fitted with an earth pin.

WIRING DIAGRAM

Output circuit

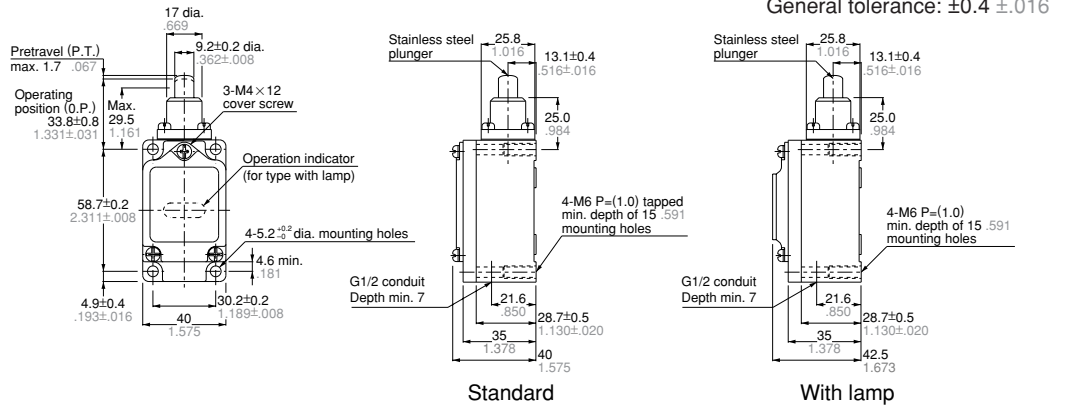


DIMENSIONS

- Push plunger
Standard type



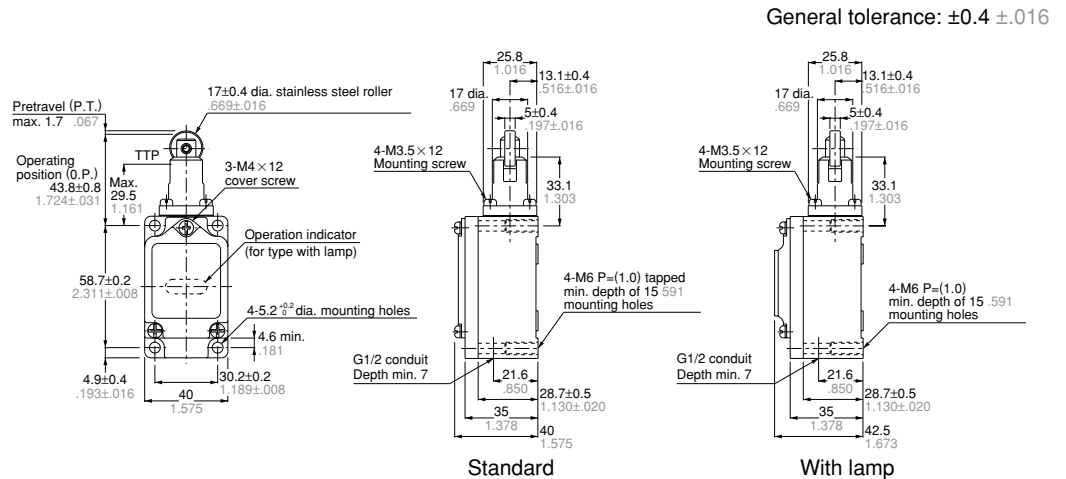
AZ5101



- Roller plunger
Standard type



AZ5102

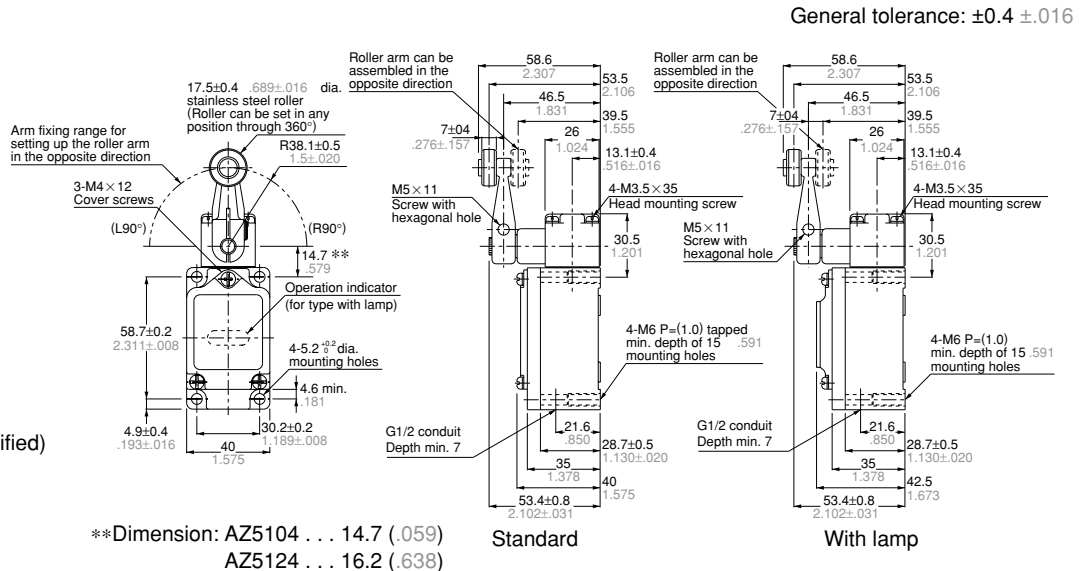


- Roller arm
Standard type



AZ5104

AZ5124 (O.T. amplified)
Weight: 250g



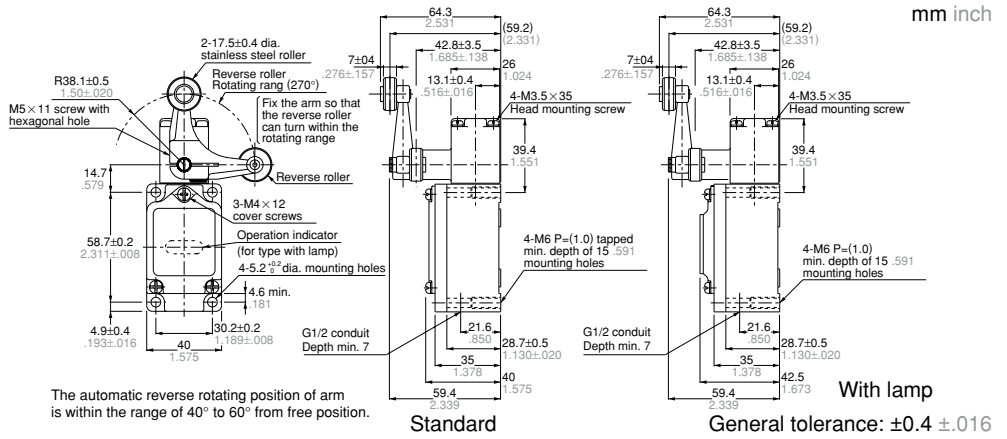
AZ5

STOP Order Discontinued as of August 31, 2009

• Yoke Standard type



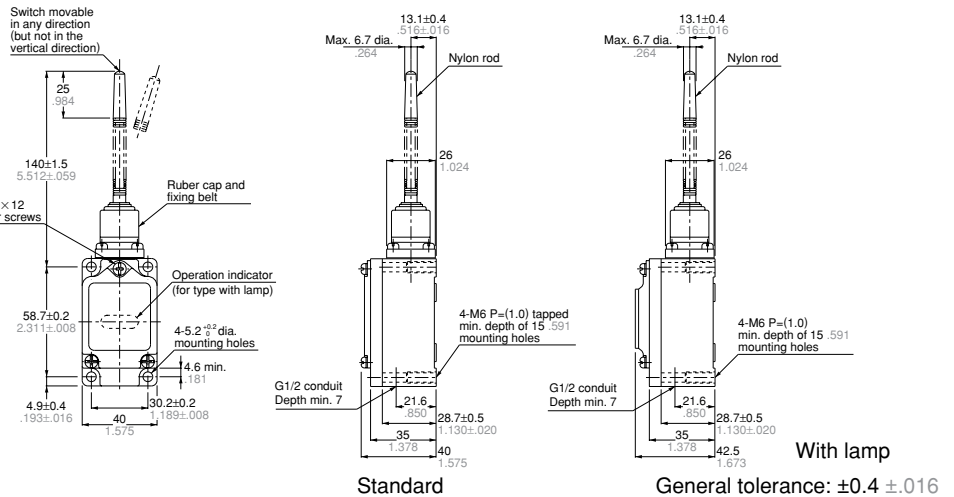
AZ5105



• Flexible rod Standard type



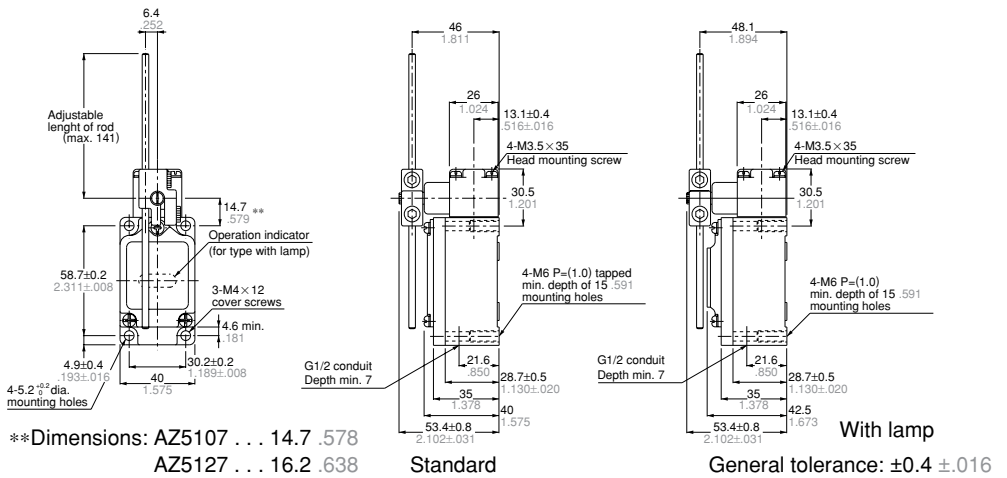
AZ5106



• Adjustable rod Standard type



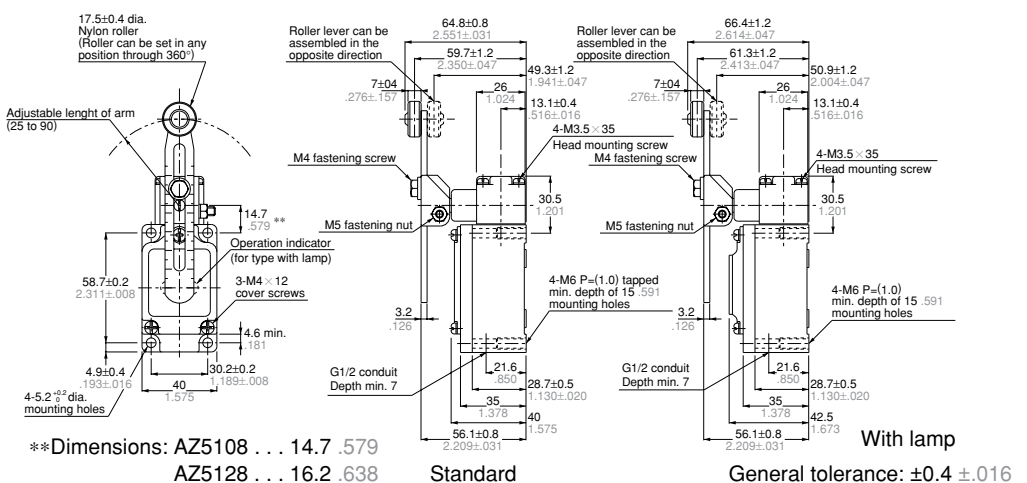
AZ5107
AZ5127
(O.T. amplified)
Weight: 252g



• Adjustable roller arm Standard type



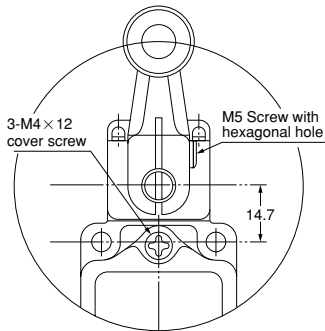
AZ5108
AZ5128 (O.T. amplified)



Arm Setting Position

The roller arm of the arm types (AZ5104, AZ5105, AZ5107, AZ5108, AZ5124, AZ5127, AZ5128 and each type with lamp) can be set in any position through 360°.

Loosen the arm fastening hex. bolt, reposition the arm, and retighten the hex. bolt.

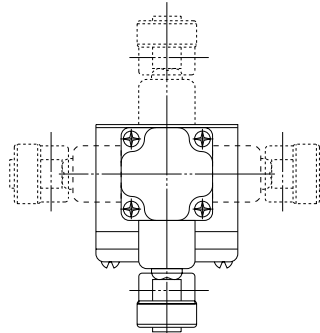


Head Block Direction

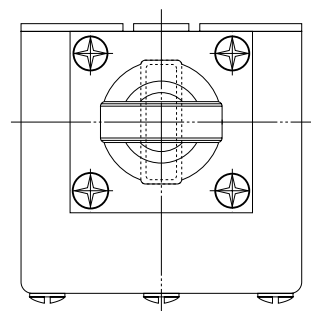
1. The head block of the arm types (AZ5104, AZ5105, AZ5107, AZ5108, AZ5124, AZ5127, AZ5128 and each type with lamp) can be set in any of four directions.

Loosen four screws on the head, and set the head in a desired direction.

At this time, change the operation plunger orientation at the same time.



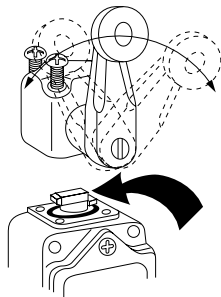
2. The head block of the roller plunger type (AZ5102) can be set in two directions. Remove the four bushing screws, and set the head in a desired direction.



Operating Direction

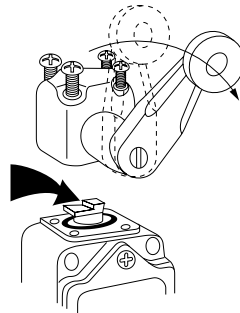
1) Both direction

The arm of AZ5104, AZ5107, AZ5108 and each type with lamp can be set to operate electrically either to both directions or only to the right or the left.



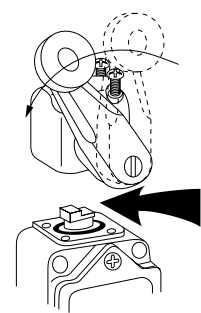
2) Clockwise

Remove the head block, turn the notch of a operating plunger counterclockwise in 90°, and retighten the head block.



3) Counterclockwise

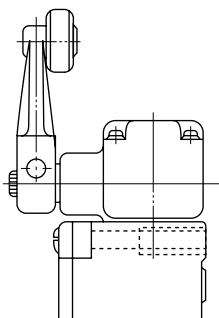
Remove the head block, turn the notch of a operating plunger clockwise in 90°, and retighten the head block.



*O.T. amplified types "AZ5124, AZ5127 and AZ5128": only both directions

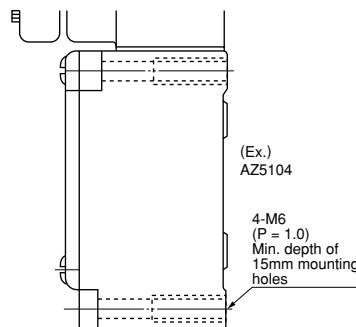
Roller Direction

The roller of the arm types (AZ5104, AZ5108, AZ5124, AZ5128 and each type with lamp) can be mounted on the front and rear side. To set the roller on the rear side, remove the arm fastening hex. nut, and reinsert the arm so as to face the roller in the rear direction. Then, retighten the hex. nut.



REVERSE MOUNTING

When a switch is mounted from the reverse side of a panel, use the mounting holes in the body.



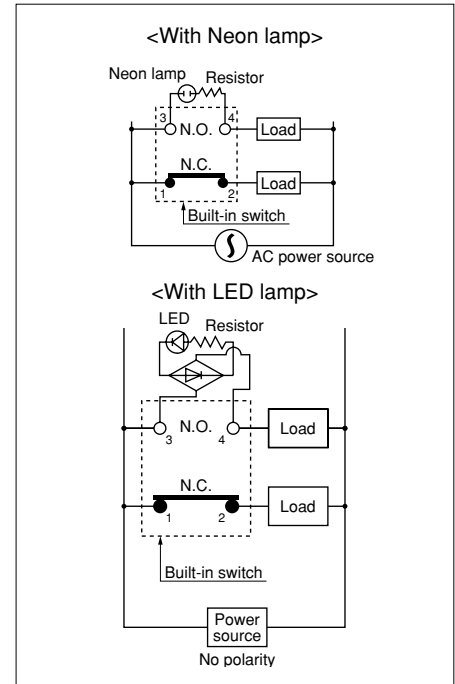
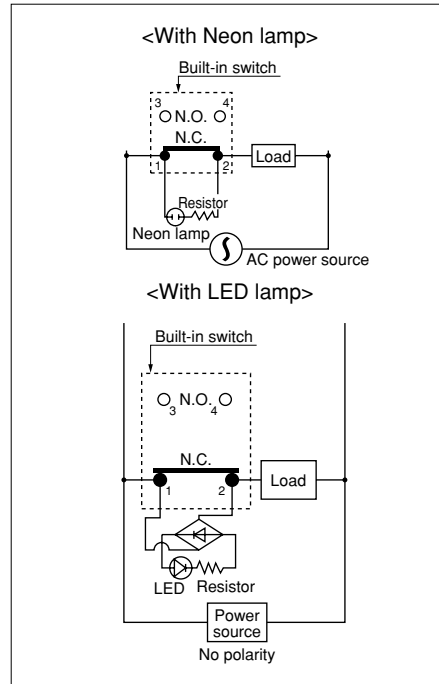
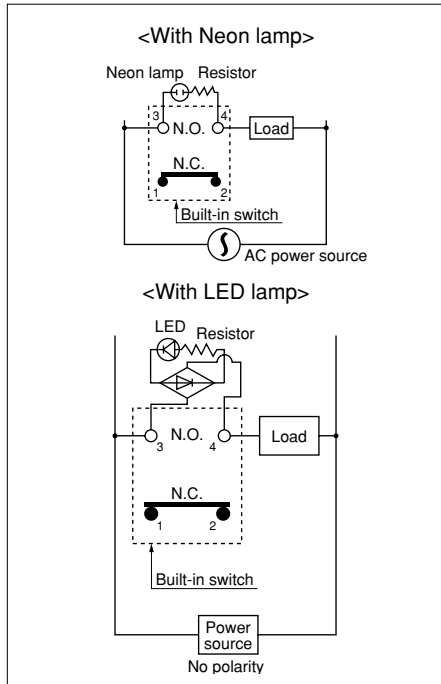
LAMP LIGHTING CIRCUIT

1. Spring type

1) When connecting load to N.O. side:
When the switch is at free position, the lamp is lit, and when the switch operates, the lamp turns off.
(Use the lamp holder in the same condition as when it was at the time of shipment.)

2) When connecting load to N.C. side:
When the switch is at free position, the lamp turns off, and when the switch operates, the lamp is lit.
(Use the lamp holder, changing it direction by 180°.)

3) When connecting loads to both N.O. and N.C. sides:
Same as in 1).
(Use the lamp holder in the same condition as when it was at the time of shipment. In this case, it is impossible to use it, changing its direction by 180°.)

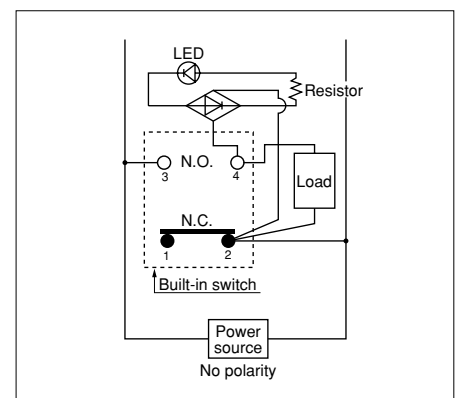


2. Lead wire type (only for types with LED)

1) When giving indication on N.O. side and N.C. side:
Operation is same as that in the case of the spring type. However, when load is connected to both N.O. side and N.C. side, indication can be given on both N.C. side and N.O. side.

2) When the indication circuit is connected with load in parallel:
Load performs the same operation as the indication circuit does.
(When load operates, the lamp is lit, and when load is turned off, the lamp goes out.)

- More loads than for one circuit cannot be controlled.
- There is no leakage current.



CAUTIONS

1. Please use the lamp connection circuit within the lamp ratings.
2. Nylon is used for a lamp cover. Avoid using in the atmospheres containing acid substance.
3. The lamp cover cannot be installed on previous limit switches.
4. Remove the lamp holder with a \ominus driver, and insert it in the opposite direction.



CAUTIONS

- 1) This model uses silver terminals. Therefore, if used at relatively low frequencies for long periods of time, or if used with very small loads, the oxidation that forms on the contact surfaces will not wear away and eventually cause improper contact. For such applications, use limit switches with gold/metal contacts (e.g. VL limit switches) or ones meant for small loads (e.g. HL limit switches).
- 2) This switch is not designed for underwater use. Do not use the unit underwater.
- 3) Do not use the switch where it may come in direct contact with organic solvents, strong acids, strong alkaline liquids or steam, or in atmospheres containing flammable or corrosive gases.
- 4) To improve reliability during actual use, it is recommended that the operation be checked under installation conditions.
- 5) If OT is too big, the life of limit switch will be shortened switching friction. Use it with enough margin of OT. 70% of OT standard value will be good for use.
- 6) Do not use the switch in a silicon atmosphere. Case should be taken where organic silicon rubber, adhesive, sealing material, oil, grease or lead wire generates silicon.
- 7) To protect against entry of foreign matter from the outside, we recommend sealing as much as possible using conduit connectors.
- 8) Avoid use in excessively dusty environments where actuator operation would be hindered.
- 9) When used outdoors (in places where there is exposure to direct sunlight or rain such as in multistory car parks) or in environments where ozone is generated, the influence of these environments may cause deterioration of the rubber material. Please consult us if you intend to use a switch in environments such as these.
- 10) Do not store in places where organic gas might be generated or in places of high dust content or high humidity.