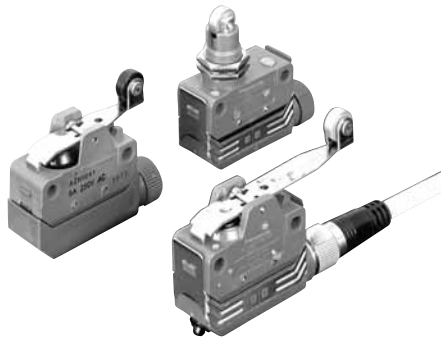


Compact, high-performance limit switch with superior environmental resistance. Broad lineup covers from die casting cases to economical plastic cases.



Prize awarded



FEATURES

1. Broad lineup

Lineup includes reduced-wiring connector type, die casting type with commonly-used screw terminals, and a plastic case type that puts a priority on economy.

2. Superior environmental resistance

The die-cast type has high sealing characteristics that satisfy the IEC IP67.

3. Standardized connector type

We standardized the reduced-wiring and easy-installation connector type. This increases worker efficiency when wiring, maintaining, and replacing.

4. Lineup includes bifurcated (twin contact) type as well as standard load type.

The lineup includes a standard load type (5 A, 250 VAC) and a bifurcated type (0.1 A, 30 VDC). The bifurcated type uses gold-clad twin contacts, which makes it ideal for electronic circuit control.

5. Economical plastic case type

A plastic case IP64 economy type is included as well as the die-cast type. It is perfect for applications in which economy is the priority.

6. UL/CSA certified.

7. TÜV accredited products also available.

Compliance with RoHS Directive

PRODUCT TYPE

1. Limit Switches

Type	Die casting case				Plastic case	
	Screw terminal type		Connector type		Screw terminal type	
	Standard	Bifurcated	Bifurcated		Standard	Bifurcated
Without LED			With LED			
Push plunger	Common to panel mount push plunger				AZH1001	AZH1201
Roller plunger	Common to panel mount roller plunger				AZH1002	AZH1202
Cross roller plunger	Common to panel mount cross roller plunger				AZH1003	AZH1203
Panel mount push plunger	AZH2031	AZH2231	AZH2331	AZH233116	AZH1031	AZH1231
Panel mount roller plunger	AZH2032	AZH2232	AZH2332	AZH233216	AZH1032	AZH1232
Panel mount cross roller plunger	AZH2033	AZH2233	AZH2333	AZH233316	AZH1033	AZH1233
Sealed push plunger	AZH2011	AZH2211	AZH2311	AZH231116	AZH1011	AZH1211
Sealed roller plunger	AZH2012	AZH2212	AZH2312	AZH231216	AZH1012	AZH1212
Sealed cross roller plunger	AZH2013	AZH2213	AZH2313	AZH231316	AZH1013	AZH1213
Short roller lever	AZH2041	AZH2241	AZH2341	AZH234116	AZH1041	AZH1241
Roller lever	AZH2021	AZH2221	AZH2321	AZH232116	AZH1021	AZH1221
One-way short roller lever	AZH2044	AZH2244	AZH2344	AZH234416	AZH1044	AZH1244
One-way short lever	AZH2024	AZH2224	AZH2324	AZH232416	AZH1024	AZH1224
Flexible	—	—	—	—	AZH1066	AZH1266
Remarks			Notes) 1. Lamp with LED is rated at 24 V DC. Please inquire if you need a 12 V DC type. 2. When shipped, the cords are all placed for extension from the right side. If you need cords for the left side, please make the change following the instructions on page 31.			

Notes) 1. For TÜV accredited products, please add "CE" at the end of the part number when ordering.

2. Cadmium free contact types are available on a custom-made basis. Please add an "F" to the end of the part number when ordering.

2. Accessories

Product	Specifications						Application	Part No.
	Pin arrangement	Type	Core No.	Color of wire	Conductor	Length of cable		
Cable connector cord	AC	Straight	4	Brown White Blue Black	0.5 mm ² (Circumference: 6.5 dia.)	3 m 9.843 ft	All connector type	AZH28113
		Angle		AZH28133				

FOREIGN STANDARDS

Standard	Applicable product	Part No.
UL	File no.: E122222 Ratings: Standard: 5 A, 250 VAC (10 ⁵ cycles), Pilot Duty B300 Bifurcated: 0.1 A, 30 VDC Certified products: All models	Order using the standard part number.
CSA	File no.: LR55880 Ratings: Standard: 5 A, 250 VAC, Pilot Duty B300 Bifurcated: 0.1 A, 30 VDC Certified products: All models	
TÜV	File no.: Plastic case type J9650515 Die-cast case type J9650514 Ratings: Standard for plastic case type: AC-15 2A/250V~, DC-12 1A/30V ~ Bifurcated for plastic case type: DC-12 0.1A/30V ~ Standard for die-cast case type: DC-12 1A/30V ~ Bifurcated for die-cast case type: DC-12 0.1A/30V ~ Certified products: All models except those with LED lamps	Place a CE at the end of the part number when ordering.

SPECIFICATIONS

1. Ratings

Rated control voltage	Load	Standard type				Bifurcated type		
		Resistive	Lamp	Inductive	Motor		Without LED	With LED
					N.C.	N.O.		
125 V AC		5 A	1.5 A	3 A	2 A	1 A	0.1 A	—
250 V AC		5 A	1.5 A	3 A	1 A	0.5 A	—	—
8 V DC		5 A	—	1.5 A	—	—	0.1 A	—
14 V DC		5 A	—	1.5 A	—	—	0.1 A	—
24 V DC		—	—	—	—	—	—	0.1 A
30 V DC		5 A	—	1.5 A	—	—	0.1 A	—
125 V DC		0.5 A	—	0.05 A	—	—	—	—
250 V DC		0.25 A	—	0.03 A	—	—	—	—

- Notes) 1. The values above indicate steady-state current.
 2. Parameter of inductive load: AC power factor: Min. 0.4; DC time constant: Max. 7 ms.
 3. Lamp load generates 10 times of inrush current.
 4. Motor load generates 6 times of inrush current.

2. Characteristics

Item	Type	Standard type	Bifurcated type	
			Screw terminal type	Connector type
Contact arrangement		1 Form C	1 Form C (Bifurcated contact)	
Contact resistance		Initial: Max. 15 mΩ	Initial: Max. 100 mΩ	Initial: Max. 150 mΩ
Contact material		AgCdO	Au clad Ag alloy (Cadmium free)	
Insulation resistance		Initial: Min. 100MΩ (at 500 V DC)		
Initial breakdown voltage		1,000 Vrms for 1 min. between non-consecutive terminals 1,500 Vrms for 1 min. between dead metal parts and terminals 1,500 Vrms for 1 min. between ground and terminals		
Shock resistance	Free position	Max. 98 m/s ² {10 G}		
	Full operating position	Max. 294 m/s ² {30 G}		
Vibration resistance		10 to 55 Hz (Double amplitude for max. 1.5 mm)		
Mechanical life		10 ⁷ (at 120 cpm)		
Electrical life		5 × 10 ⁵ (at 20 cpm, 5 A 250 V AC resistive load)	5 × 10 ⁵ (at 20 cpm, 0.1 A 125 V AC resistive load)	
Ambient temperature		-10 to +80°C +14 to +176°F		
Ambient humidity		Max. 95% R.H.		
Max. switching frequency		Max. 120 cpm		

3. Performance data for EN60947-5-1

Item	Plastic case Standard	Plastic case Bifurcated	Die casting case Standard	Die casting case Bifurcated
Rated insulated voltage	250V AC	250V AC	30V DC	30V DC
Impulse withstand voltage	2.5kV	2.5kV	1.5kV	1.5kV
Switching excess voltage	2.5kV	0.8kV	0.8kV	0.8kV
Rated closed thermocurrent	5A	1A	5A	1A
Conditional short-circuit current	100A	100A	100A	100A
Short-circuit protection	10A Fuse	10A Fuse	10A Fuse	10A Fuse
Protective construction	IP64 (switch) IP54 (terminal)	IP64 (switch) IP54 (terminal)	IP67	IP67
Degree of contamination	3	3	3	3

HL (AZH)

4. Operating characteristics

• Die casting case

Characteristics	Operating force, max. N (gf)	Release force, min. N (gf)	Pretravel, max. mm (inch)	Movement differential, max. mm (inch)	Overtravel, min. mm (inch)	Operating position, max. mm (inch)
Panel mount push plunger	11.8 (1200)	4.90 (500)	1.5 (.059)	0.1 (.004)	3.0 (.118)	17.4±0.8 (.685±.031)
Panel mount roller plunger	11.8 (1200)	4.90 (500)	1.5 (.059)	0.1 (.004)	3.0 (.118)	23.4±0.8 (.921±.031)
Panel mount cross roller plunger	11.8 (1200)	4.90 (500)	1.5 (.059)	0.1 (.004)	3.0 (.118)	23.4±0.8 (.921±.031)
Sealed push plunger	11.8 (1200)	4.90 (500)	1.5 (.059)	0.1 (.004)	3.0 (.118)	30.0±0.8 (1.181±.031)
Sealed roller plunger	11.8 (1200)	4.90 (500)	1.5 (.059)	0.1 (.004)	3.0 (.118)	41.3±0.8 (1.626±.031)
Sealed cross roller plunger	11.8 (1200)	4.90 (500)	1.5 (.059)	0.1 (.004)	3.0 (.118)	41.3±0.8 (1.626±.031)
Short roller lever	3.92 (400)	0.78 (80)	2.0 (.079)	0.3 (.012)	4.0 (.157)	23.1±0.8 (.909±.031)
Roller lever	2.45 (250)	0.39 (40)	4.0 (.157)	0.6 (.024)	7.0 (.276)	23.1±0.8 (.909±.031)
One-way short roller lever	3.92 (400)	0.78 (80)	2.0 (.079)	0.3 (.012)	4.0 (.157)	34.3±0.8 (1.350±.031)
One-way short lever	2.45 (250)	0.39 (40)	4.0 (.157)	0.6 (.024)	7.0 (.276)	34.3±0.8 (1.350±.031)

• Plastic case

Characteristics	Operating force, max. N (gf)	Release force, min. N (gf)	Pretravel, max. mm (inch)	Movement differential, max. mm (inch)	Overtravel, min. mm (inch)	Operating position, max. mm (inch)
Push plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	25.4±0.8 (1.000±.031)
Roller plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	31.4±0.8 (1.236±.031)
Cross roller plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	31.4±0.8 (1.236±.031)
Panel mount push plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	17.4±0.8 (.685±.031)
Panel mount roller plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	23.4±0.8 (.921±.031)
Panel mount cross roller plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	23.4±0.8 (.921±.031)
Sealed push plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	30.0±0.8 (1.181±.031)
Sealed roller plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	41.3±0.8 (1.626±.031)
Sealed cross roller plunger	5.88 (600)	0.98 (100)	1.5 (.059)	0.1 (.004)	3.0 (.118)	41.3±0.8 (1.626±.031)
Short roller lever	3.92 (400)	0.78 (80)	2.0 (.079)	0.3 (.012)	4.0 (.157)	23.1±0.8 (.909±.031)
Roller lever	2.45 (250)	0.39 (40)	4.0 (.157)	0.6 (.024)	7.0 (.276)	23.1±0.8 (.909±.031)
One-way short roller lever	3.92 (400)	0.78 (80)	2.0 (.079)	0.3 (.012)	4.0 (.157)	34.3±0.8 (1.350±.031)
One-way short lever	2.45 (250)	0.39 (40)	4.0 (.157)	0.6 (.024)	7.0 (.276)	34.3±0.8 (1.350±.031)
Flexible	0.88 (90)	—	30.0 (1.181)	—	20.0 (.787)	—

5. Protective characteristics

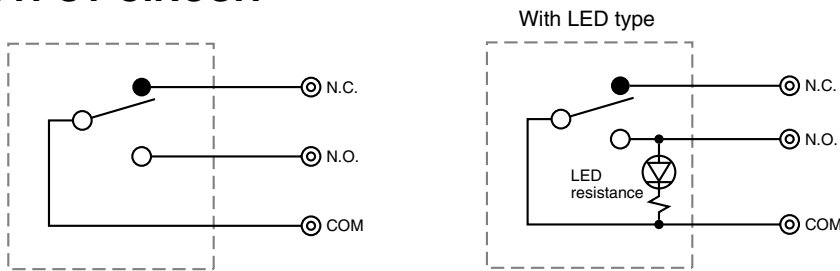
Protective construction	Die cast case	Plastic case
IEC		
IP64	○	○
IP67	○	—

6. LED rating

Rating	Leakage current	Internal resistance
24 V DC	1.5 mA	18 kΩ

The leakage current changes depends on the resistance of load connected in parallel.

OUTPUT CIRCUIT

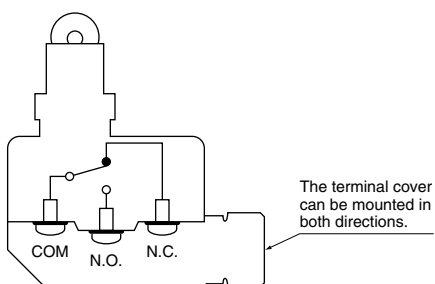


Note: Since LED is connected to N.O. side, the polarity of the load shall be + for N.O.

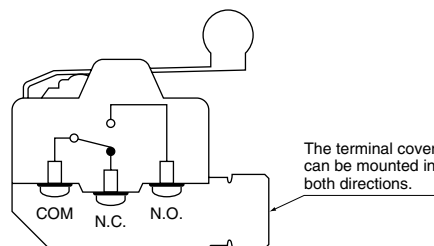
CONTACTS

Screw terminal type

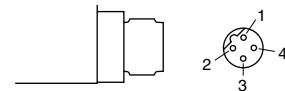
Plunger type



Lever type



Connector type



Contact No.	Terminals	Color of lead-wire
1	—	Brown
2	N.C.	White
3	COM	Blue
4	N.O.	Black

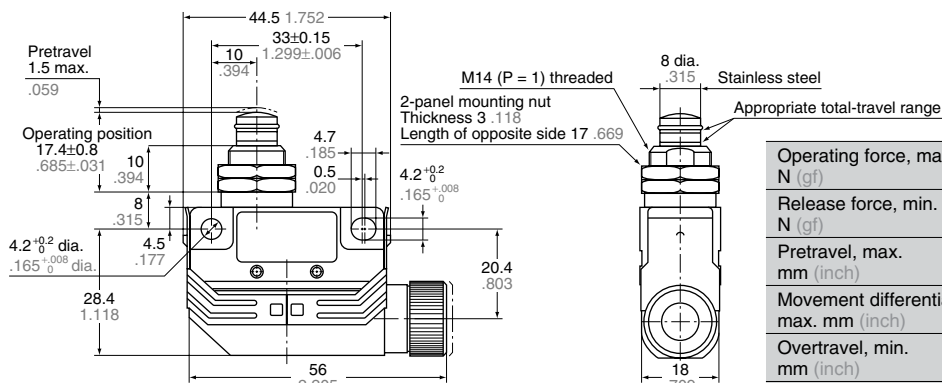
DIMENSIONS

Die cast case

1. Screw terminal type Panel mount push plunger



AZH2031
AZH2231

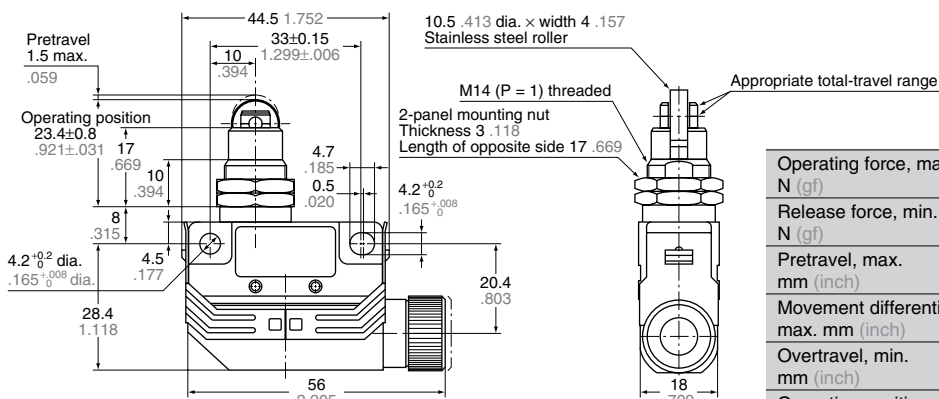


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	17.4 ± 0.8 (.685 ± .031)

Panel mount roller plunger



AZH2032
AZH2232

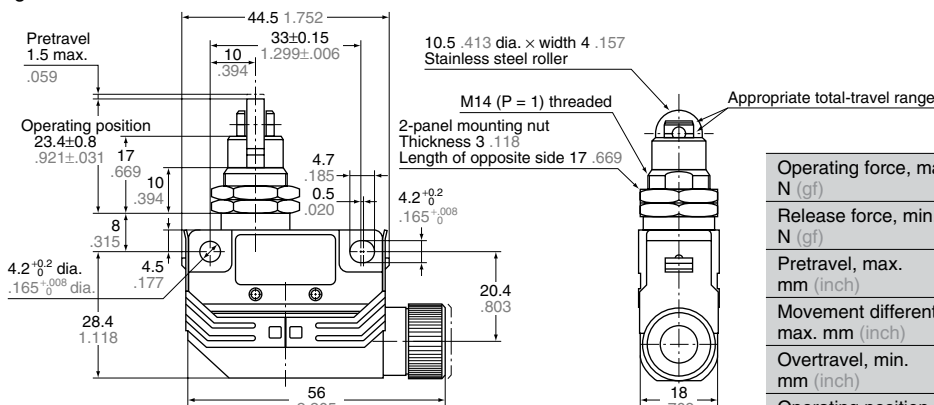


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	23.4 ± 0.8 (.909 ± .031)

Panel mount cross roller plunger



AZH2033
AZH2233

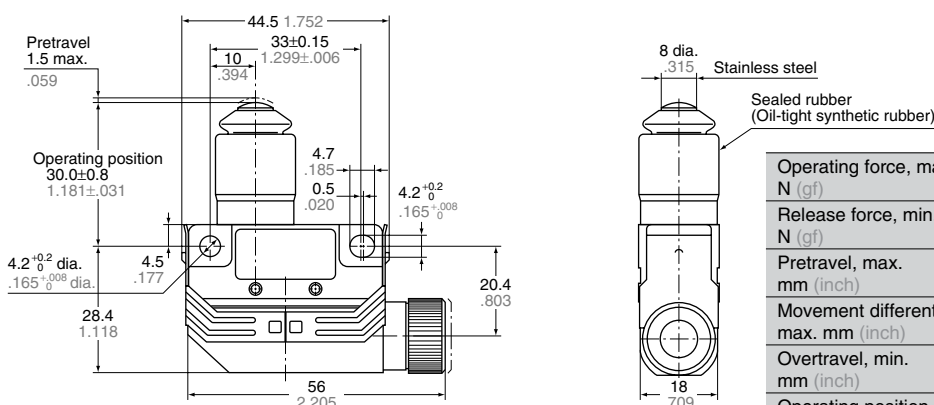


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	23.4 ± 0.8 (.909 ± .031)

Sealed push plunger



AZH2011
AZH2211



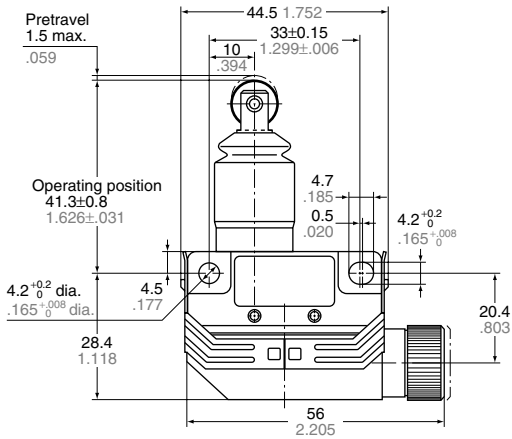
Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	30.0 ± 0.8 (1.181 ± .031)

HL (AZH)

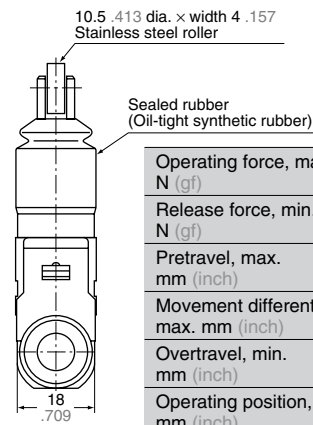
Sealed roller plunger



AZH2012
AZH2212



mm inch General tolerance: $\pm 0.4 \pm .016$

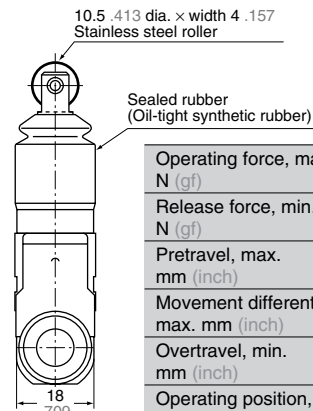
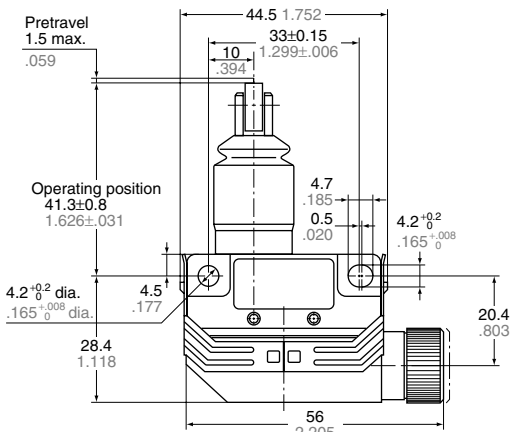


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	41.3±0.8 (1.626±.031)

Sealed cross roller plunger



AZH2013
AZH2213

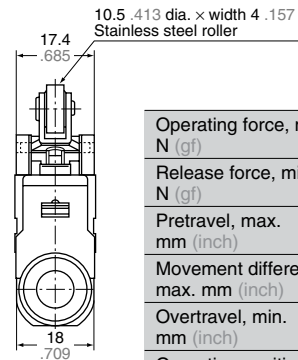
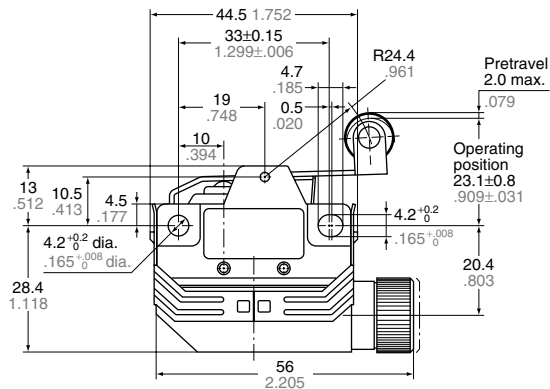


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	41.3±0.8 (1.626±.031)

Short roller lever



AZH2041
AZH2241

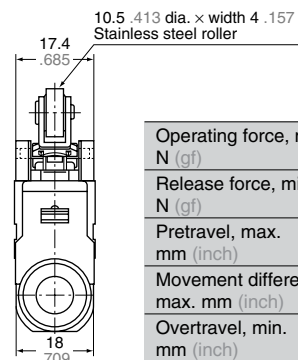
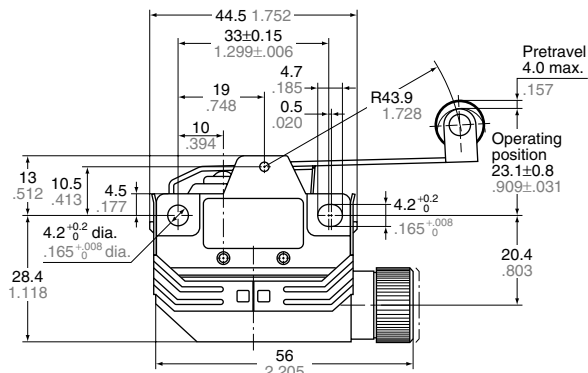


Operating force, max. N (gf)	3.92 (400)
Release force, min. N (gf)	0.78 (80)
Pretravel, max. mm (inch)	2.0 (.079)
Movement differential, max. mm (inch)	0.3 (.012)
Overtravel, min. mm (inch)	4.0 (.157)
Operating position, mm (inch)	23.1±0.8 (.909±.031)

Roller lever



AZH2021
AZH2221



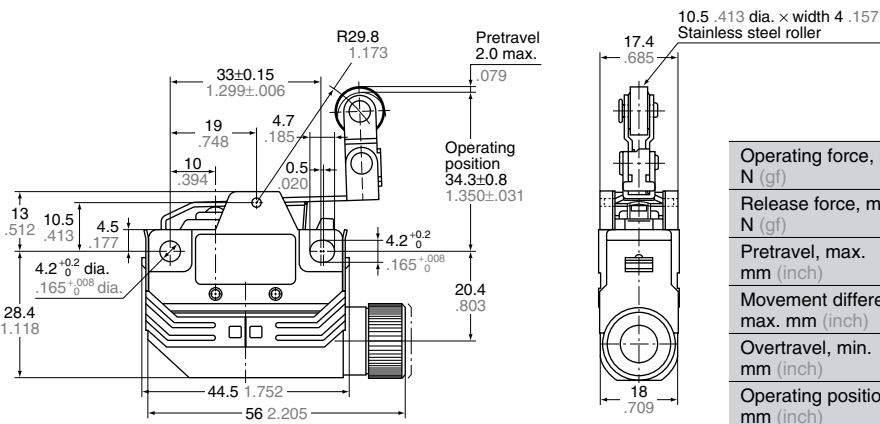
Operating force, max. N (gf)	2.45 (250)
Release force, min. N (gf)	0.39 (40)
Pretravel, max. mm (inch)	4.0 (.157)
Movement differential, max. mm (inch)	0.6 (.024)
Overtravel, min. mm (inch)	7.0 (.276)
Operating position, mm (inch)	23.1±0.8 (.909±.031)

One-way short roller lever

mm inch General tolerance: $\pm 0.4 \pm 0.16$



AZH2044
AZH2244

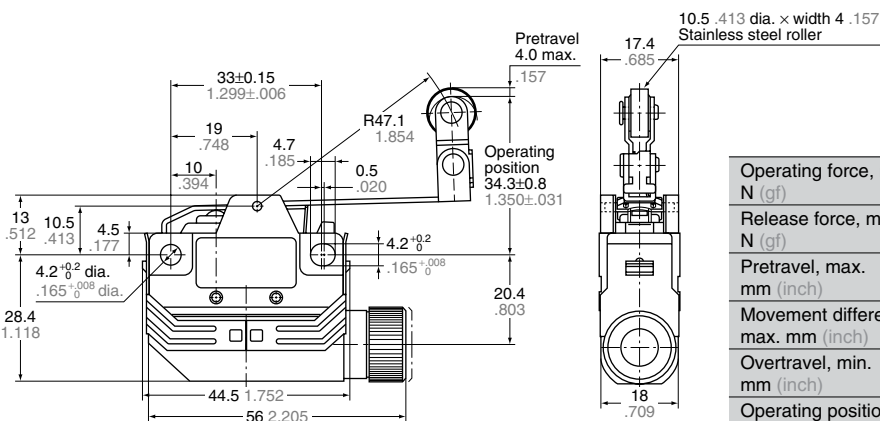


Operating force, max. N (gf)	3.92 (400)
Release force, min. N (gf)	0.78 (80)
Pretravel, max. mm (inch)	2.0 (.079)
Movement differential, max. mm (inch)	0.3 (.012)
Overtravel, min. mm (inch)	4.0 (.157)
Operating position, mm (inch)	34.3 ± 0.8 (1.350 ± 0.031)

One-way roller lever



AZH2024
AZH2224



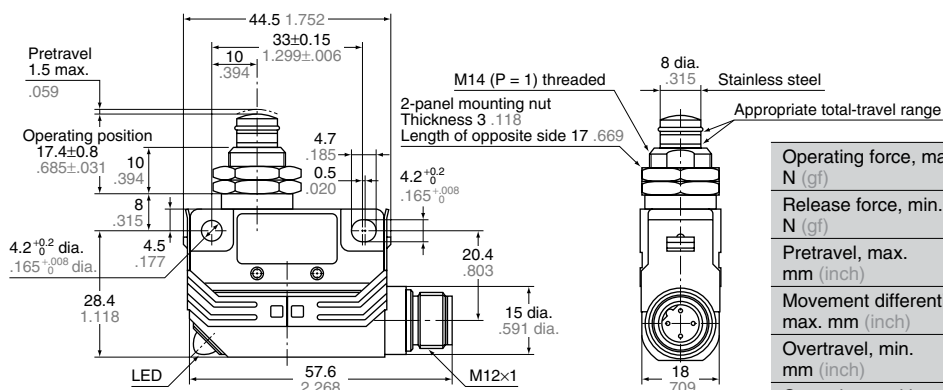
Operating force, max. N (gf)	2.45 (250)
Release force, min. N (gf)	0.39 (40)
Pretravel, max. mm (inch)	4.0 (.157)
Movement differential, max. mm (inch)	0.6 (.024)
Overtravel, min. mm (inch)	7.0 (.276)
Operating position, mm (inch)	34.3 ± 0.8 (1.350 ± 0.031)

2. Connector type

Panel mount push plunger



AZH2331
AZH233116 LED type on the photo

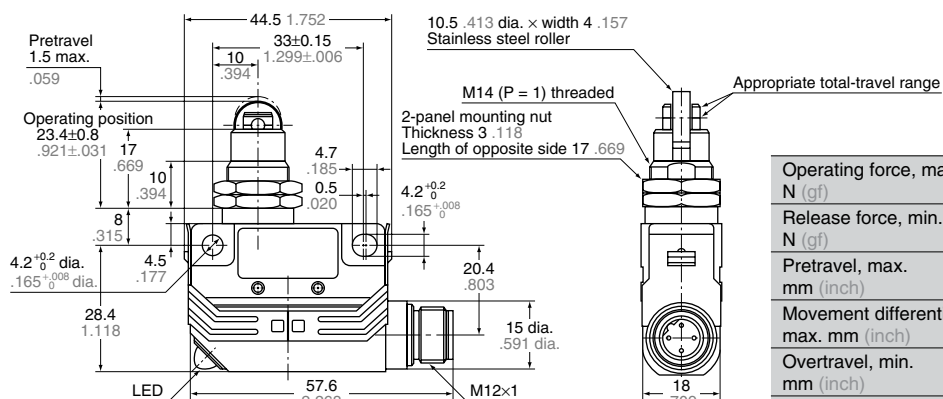


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	17.4 ± 0.8 (.685 ± 0.031)

Panel mount roller plunger



AZH2332
AZH233216 LED type on the photo



Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	23.4 ± 0.8 (.909 ± 0.031)

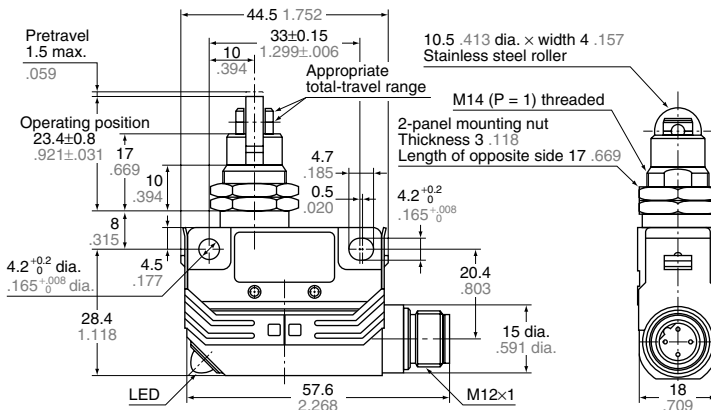
HL (AZH)

Panel mount cross roller plunger

mm inch General tolerance: $\pm 0.4 \pm 0.16$



AZH2333
AZH233316 LED type on the photo

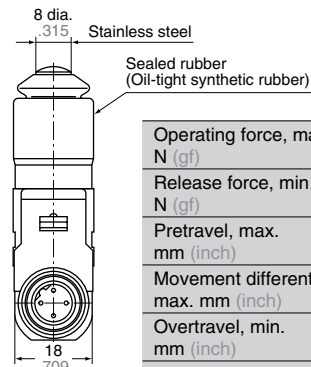
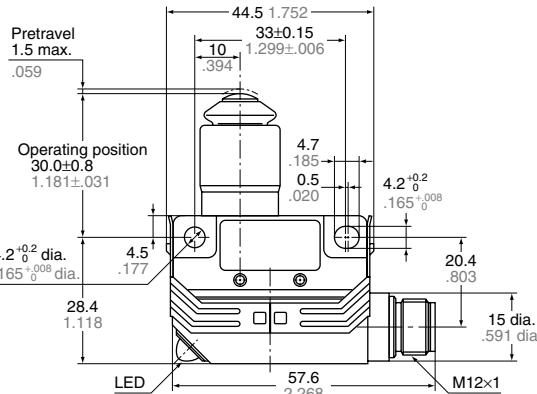


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	23.4±0.8 (.921±.031)

Sealed push plunger



AZH2311
AZH231116 LED type on the photo

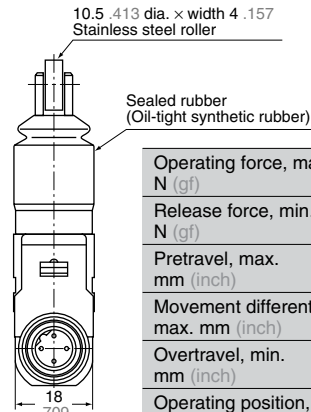
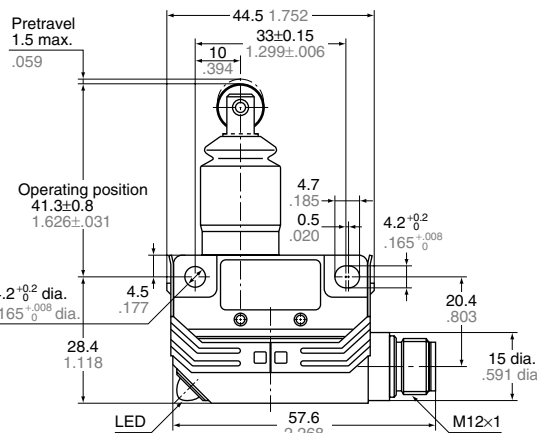


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	30.0±0.8 (1.181±.031)

Sealed roller plunger



AZH2312
AZH231216 LED type on the photo

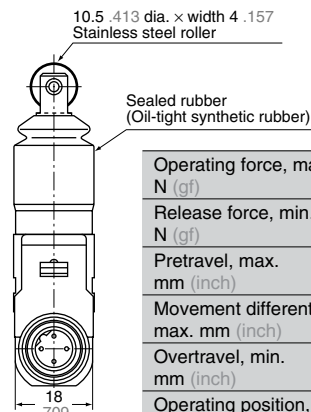
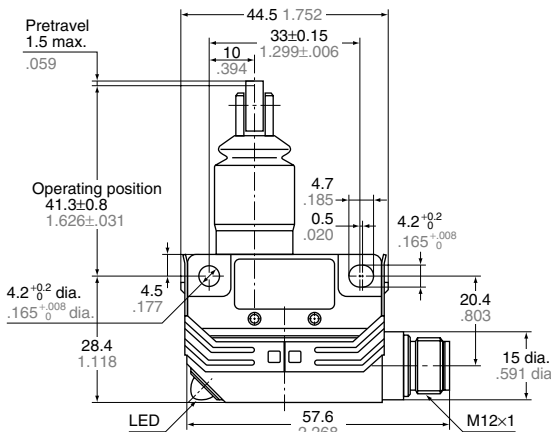


Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	41.3±0.8 (1.626±.031)

Sealed cross roller plunger



AZH2313
AZH231316 LED type on the photo



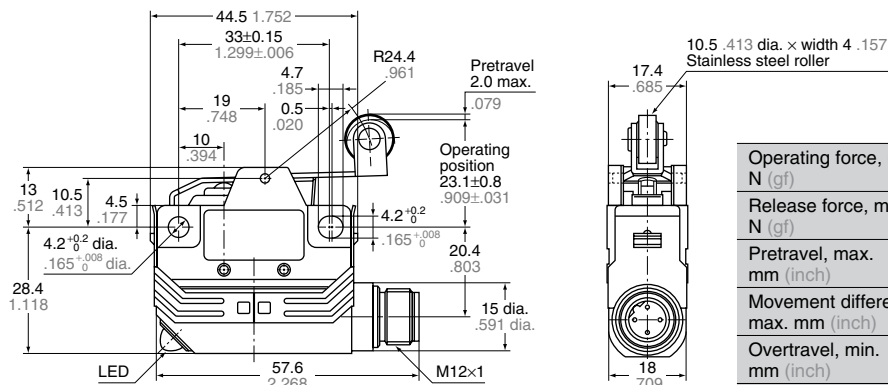
Operating force, max. N (gf)	11.8 (1200)
Release force, min. N (gf)	4.90 (500)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	41.3±0.8 (1.626±.031)

Short roller lever

mm inch General tolerance: $\pm 0.4 \pm 0.16$



AZH2341
AZH234116 LED type on the photo

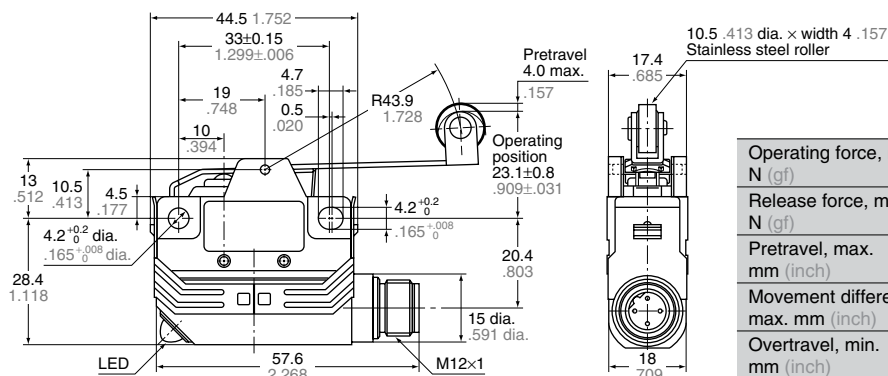


Operating force, max. N (gf)	3.92 (400)
Release force, min. N (gf)	0.78 (80)
Pretravel, max. mm (inch)	2.0 (.079)
Movement differential, max. mm (inch)	0.3 (.012)
Overtravel, min. mm (inch)	4.0 (.157)
Operating position, mm (inch)	23.1±0.8 (.909±.031)

Roller lever



AZH2321
AZH232116 LED type on the photo

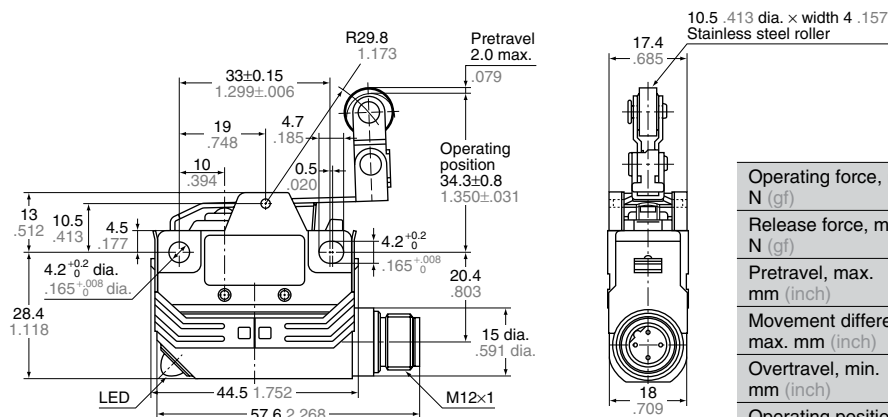


Operating force, max. N (gf)	2.45 (250)
Release force, min. N (gf)	0.39 (40)
Pretravel, max. mm (inch)	4.0 (.157)
Movement differential, max. mm (inch)	0.6 (.024)
Overtravel, min. mm (inch)	7.0 (.276)
Operating position, mm (inch)	23.1±0.8 (.909±.031)

One-way short roller lever



AZH2344
AZH234416 LED type on the photo

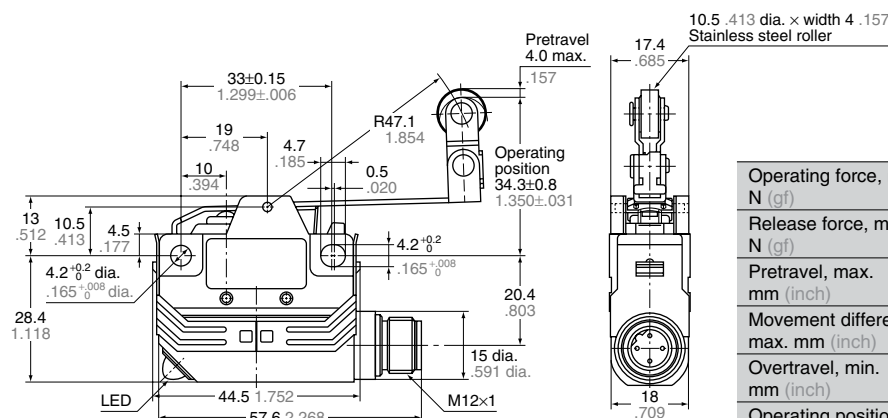


Operating force, max. N (gf)	3.92 (400)
Release force, min. N (gf)	0.78 (80)
Pretravel, max. mm (inch)	2.0 (.079)
Movement differential, max. mm (inch)	0.3 (.012)
Overtravel, min. mm (inch)	4.0 (.157)
Operating position, mm (inch)	34.3±0.8 (1.350±.031)

One-way roller lever



AZH2324
AZH232416 LED type on the photo



Operating force, max. N (gf)	2.45 (250)
Release force, min. N (gf)	0.39 (40)
Pretravel, max. mm (inch)	4.0 (.157)
Movement differential, max. mm (inch)	0.6 (.024)
Overtravel, min. mm (inch)	7.0 (.276)
Operating position, mm (inch)	34.3±0.8 (1.350±.031)

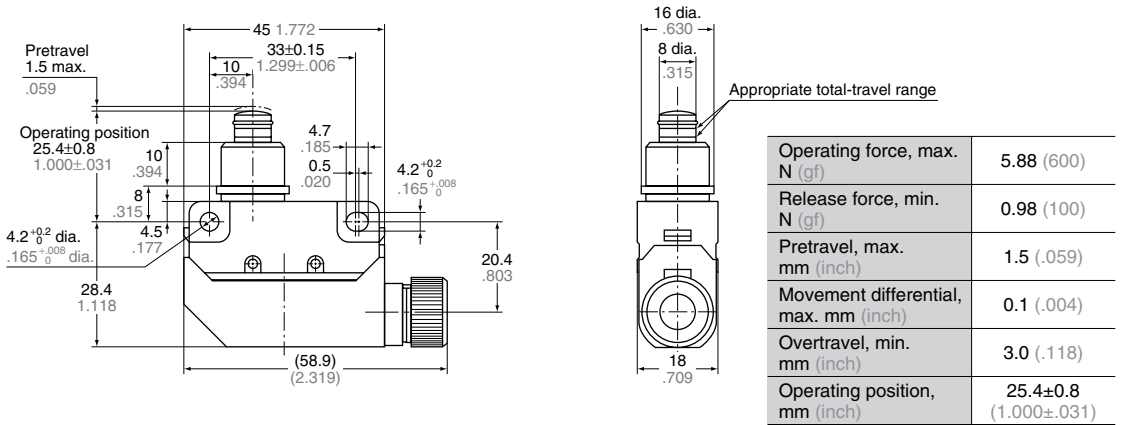
HL (AZH)

Plastic case Push plunger

mm inch General tolerance: $\pm 0.4 \pm 0.16$



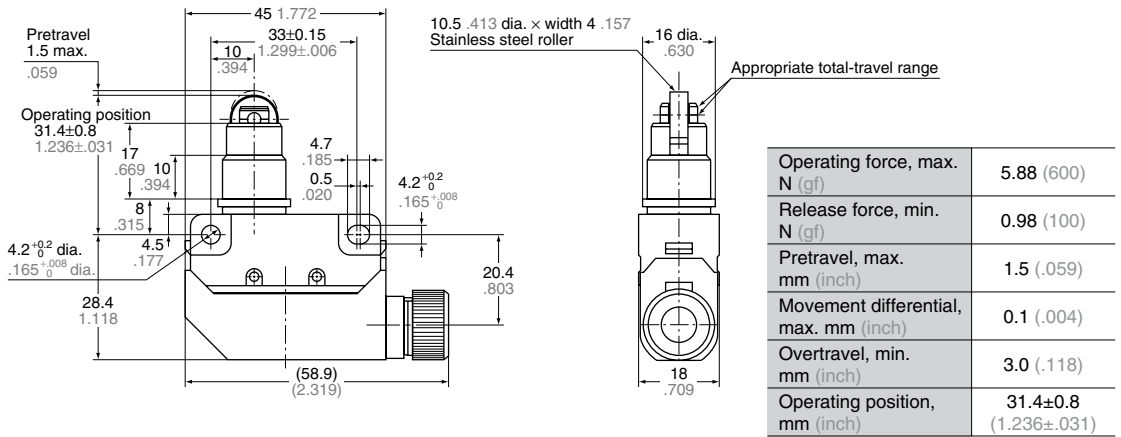
AZH1001
AZH1201



Roller plunger



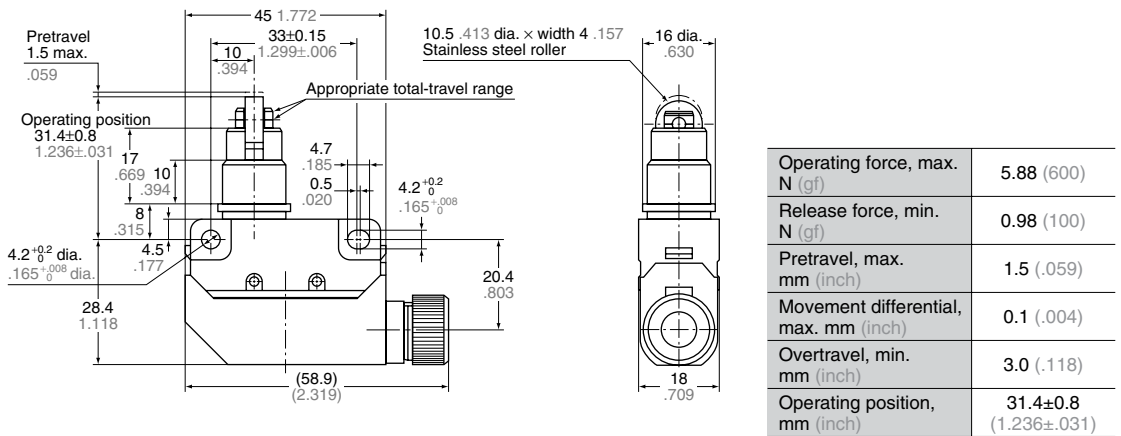
AZH1002
AZH1202



Cross roller plunger



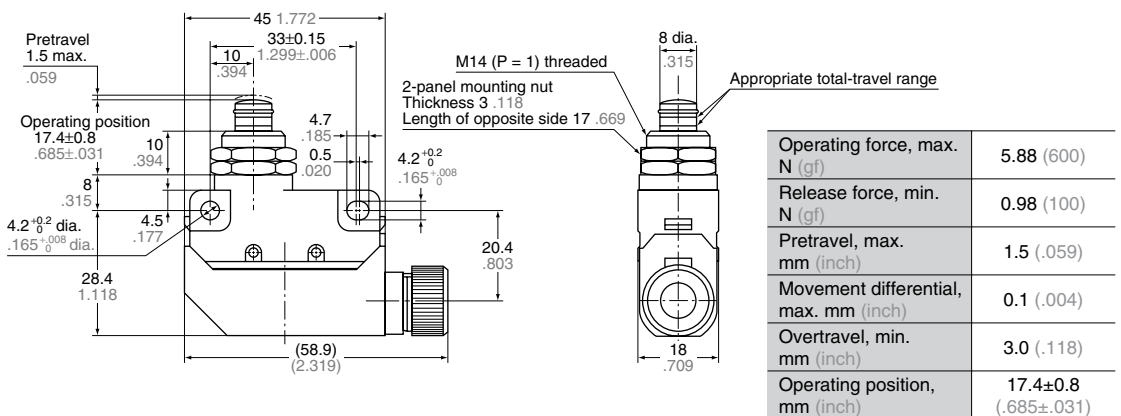
AZH1003
AZH1203



Panel mount push plunger



AZH1031
AZH1231

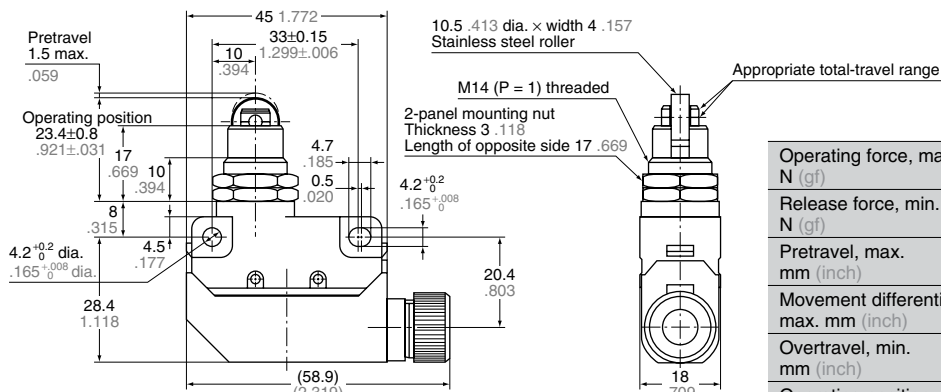


Panel mount roller plunger

mm inch General tolerance: $\pm 0.4 \pm 0.16$



AZH1032
AZH1232

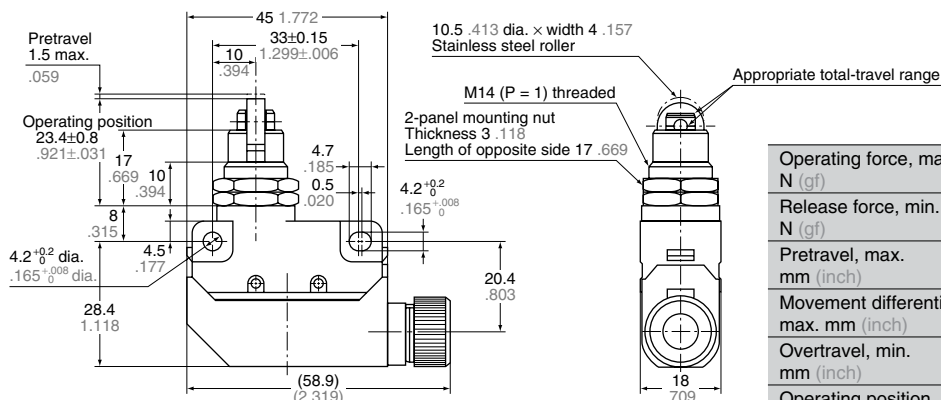


Operating force, max. N (gf)	5.88 (600)
Release force, min. N (gf)	0.98 (100)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	23.4±0.8 (.921±.031)

Panel mount cross roller plunger



AZH1033
AZH1233

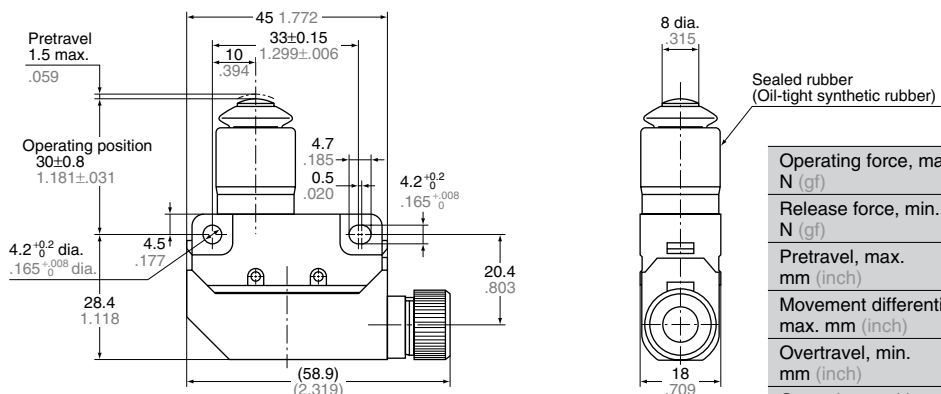


Operating force, max. N (gf)	5.88 (600)
Release force, min. N (gf)	0.98 (100)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	23.4±0.8 (.921±.031)

Sealed push plunger



AZH1011
AZH1211

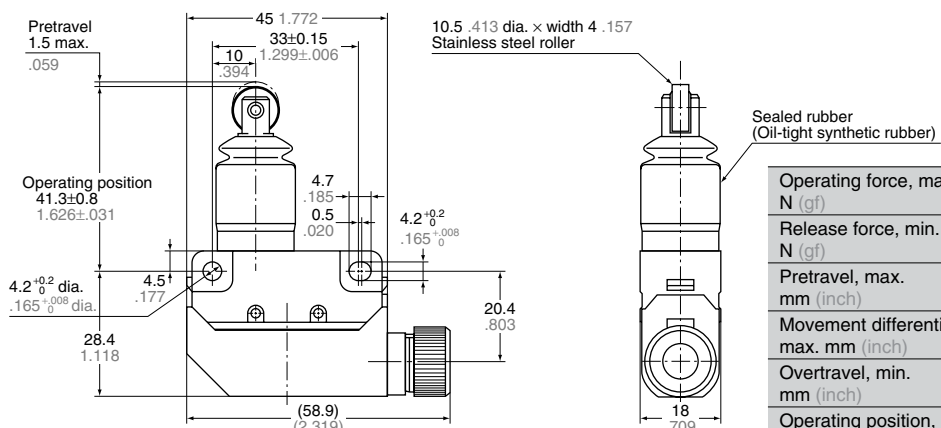


Operating force, max. N (gf)	5.88 (600)
Release force, min. N (gf)	0.98 (100)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	30.0±0.8 (1.181±.031)

Sealed roller plunger



AZH1012
AZH1212



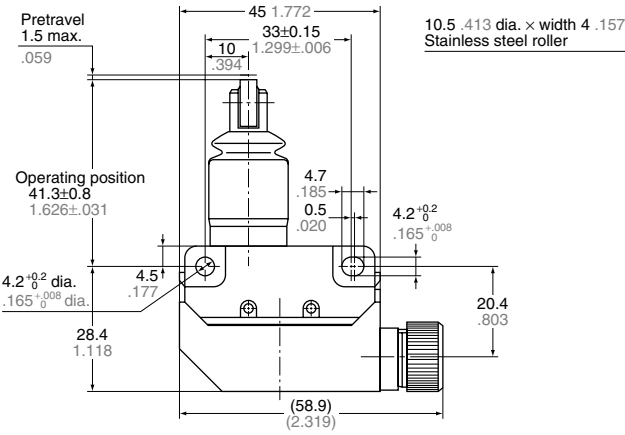
Operating force, max. N (gf)	5.88 (600)
Release force, min. N (gf)	0.98 (100)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	41.3±0.8 (1.626±.031)

HL (AZH)

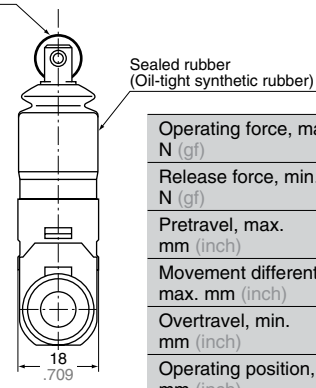
Sealed cross roller plunger



AZH1013
AZH1213



mm inch General tolerance: ±0.4 ±.016

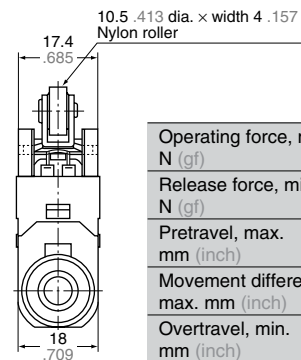
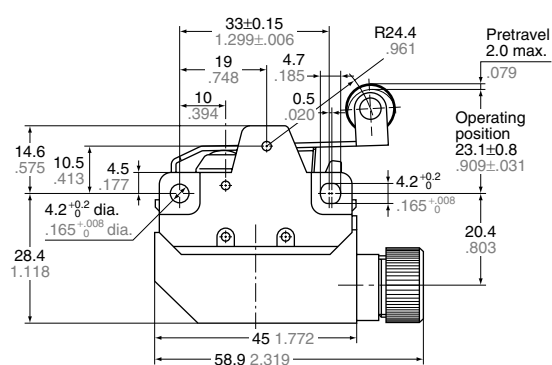


Operating force, max. N (gf)	5.88 (600)
Release force, min. N (gf)	0.98 (100)
Pretravel, max. mm (inch)	1.5 (.059)
Movement differential, max. mm (inch)	0.1 (.004)
Overtravel, min. mm (inch)	3.0 (.118)
Operating position, mm (inch)	41.3±0.8 (1.626±.031)

Short roller lever



AZH1041
AZH1241

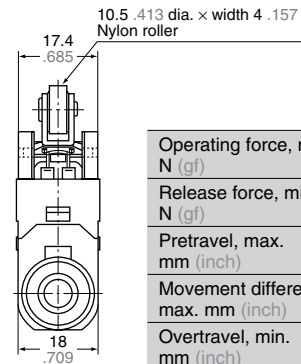
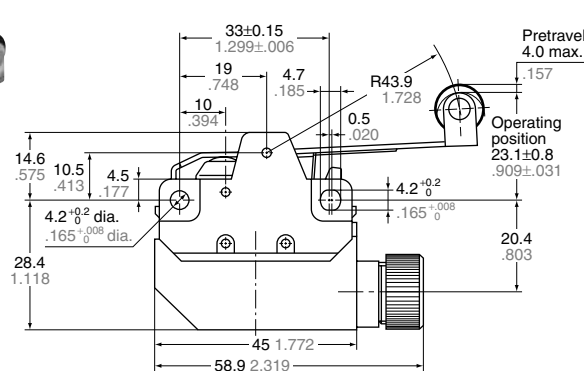


Operating force, max. N (gf)	3.92 (400)
Release force, min. N (gf)	0.78 (80)
Pretravel, max. mm (inch)	2.0 (.079)
Movement differential, max. mm (inch)	0.3 (.012)
Overtravel, min. mm (inch)	4.0 (.157)
Operating position, mm (inch)	23.1±0.8 (.909±.031)

Roller lever



AZH1021
AZH1221

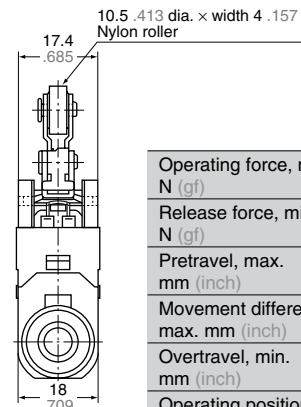
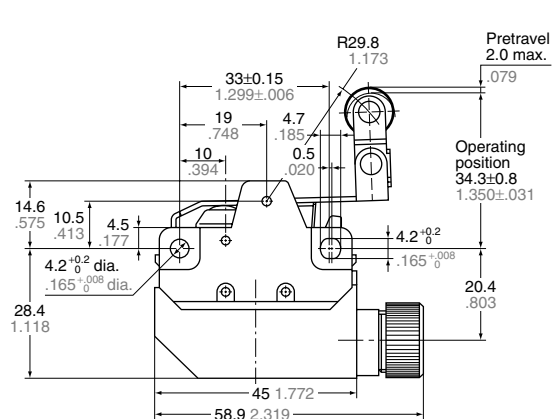


Operating force, max. N (gf)	2.45 (250)
Release force, min. N (gf)	0.39 (40)
Pretravel, max. mm (inch)	4.0 (.157)
Movement differential, max. mm (inch)	0.6 (.024)
Overtravel, min. mm (inch)	7.0 (.276)
Operating position, mm (inch)	23.1±0.8 (.909±.031)

One-way short roller lever



AZH1044
AZH1244



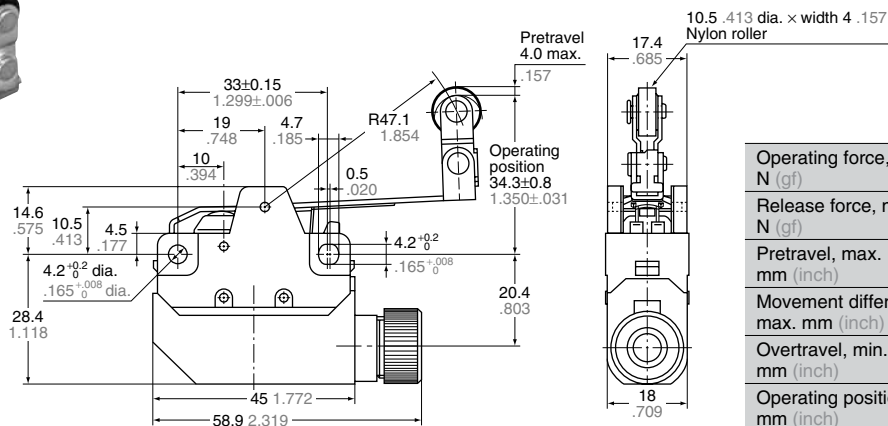
Operating force, max. N (gf)	3.92 (400)
Release force, min. N (gf)	0.78 (80)
Pretravel, max. mm (inch)	2.0 (.079)
Movement differential, max. mm (inch)	0.3 (.012)
Overtravel, min. mm (inch)	4.0 (.157)
Operating position, mm (inch)	34.3±0.8 (1.350±.031)

One-way roller lever

mm inch General tolerance: $\pm 0.4 \pm .016$



AZH1024
AZH1224

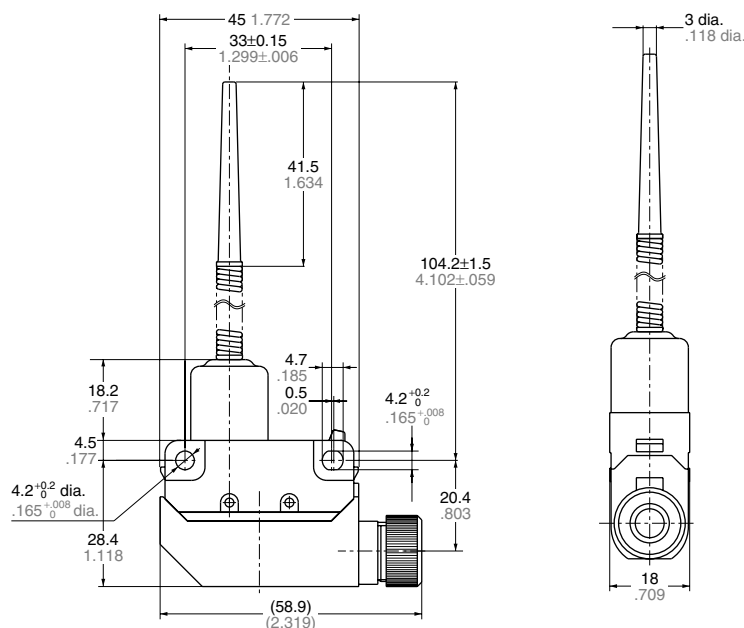


Operating force, max. N (gf)	2.45 (250)
Release force, min. N (gf)	0.39 (40)
Pretravel, max. mm (inch)	4.0 (.157)
Movement differential, max. mm (inch)	0.6 (.024)
Overtravel, min. mm (inch)	7.0 (.276)
Operating position, mm (inch)	34.3±0.8 (1.350±.031)

Flexible



AZH1066
AZH1266

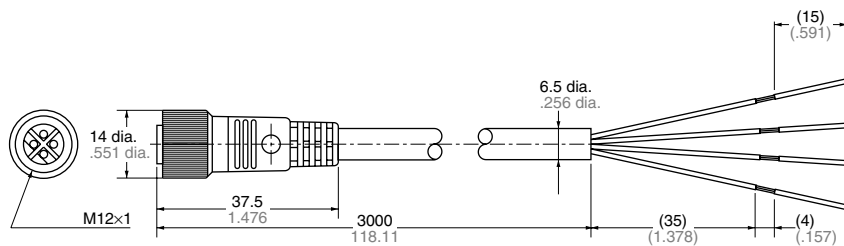


Operating force, max. N (gf)	0.88 (90)
Pretravel, min. mm (inch)	30.0 (1.181)
Overtravel, max. mm (inch)	20.0 (.787)

Cable connected cord Straight type



AZH28113

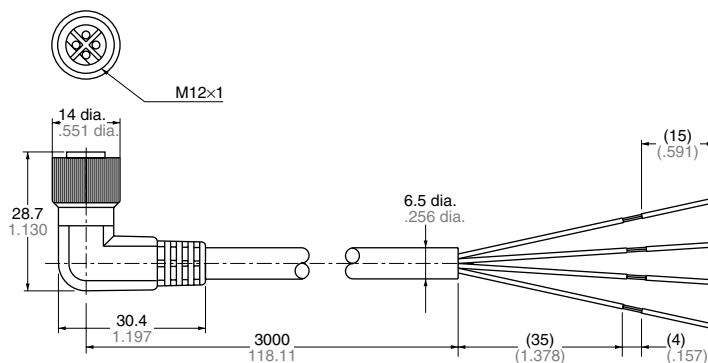


AC type

Angle type



AZH28133



AC type

HL (AZH)

MOUNTING METHOD

Side mounting

1. Die casting case
M4 screw is used for mounting on side.
Mount it firmly with washer. Mounting torque is 1.37 to 1.57 N·m {14 to 16 kg·cm}.

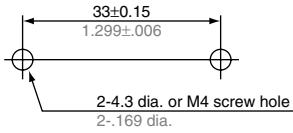
Remove the hexagonal nut when plunger type is used in side mounting.

2. Plastic case
M4 screw is used for mounting on side.
Mount it firmly with washer. Mounting torque is 1.18 to 1.47 N·m {12 to 15 kg·cm}.

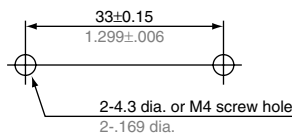
Panel mounting

(Panel plunger type)
When the panel mounting type is fixed on the panel, the torque of hexagonal nut is set under 7.84 N·m {80 kg·cm}.

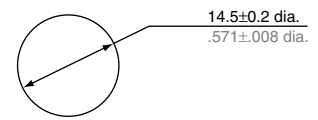
Side mounting hole dimensions



Side mounting hole dimensions



Panel mounting hole dimensions



APPLICABLE WIRE

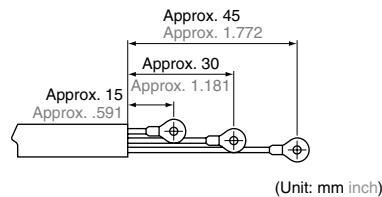
(For screw terminal)

Sealed rubber of the lead wire is applicable for 6 dia. to 8 dia.

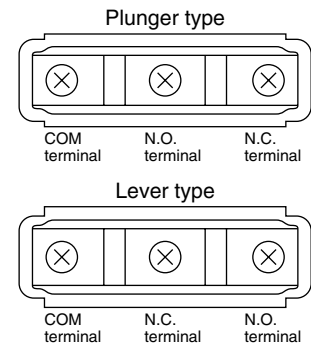
Electric wire name	Applicable wire		
	Wire strand	Conductor	Finished outside diameter
Vinyl cab-tyre cord (VCTF)	2-wire	0.75 mm ² 1.25 mm ² 2.0 mm ²	6.6 mm dia. 7.4 mm dia. 8.0 mm dia.
	3-wire	0.75 mm ² 1.25 mm ²	7.0 mm dia. 7.8 mm dia.

WIRING (For screw terminal)

- M3 small binding screw is used as a terminal screw.
- When wiring, don't connect the lead wire to the terminal directly. Fasten the crimped terminals securely applying a tightening torque of 0.20 to 0.29 N·m {2 to 3 kg·cm}. Avoid using solder when wiring.
- Refer to the following diagram for power supply wiring.



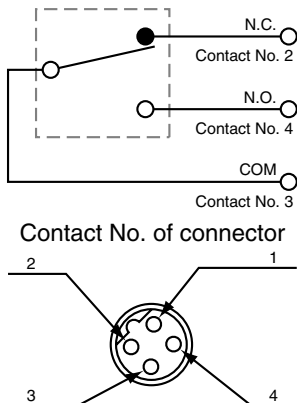
- Take note the terminal arrangement is different between plunger type and lever type. (The arrangement of N.C. and N.O. is reversed.)



- Mount the terminal case securely after ensuring that the rubber seals are attached at the proper positions. Do a visual check to make sure that the retainer is properly inserted on the protrusion of the case. When installing the terminal case of the plastic case type, push the terminal case until it clicks into place, and make sure there is no play afterwards.

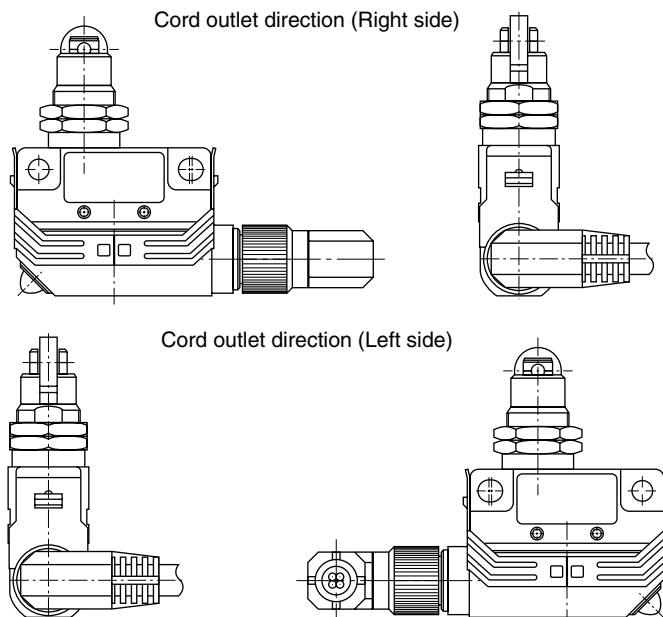
CONNECTOR TYPE

- The cord outlet direction is interchangeable. Refer to "HOW TO CHANGE THE CORD OUTLET DIRECTION FOR CONNECTOR TYPE".
- Do not remove the connector over 50 times.
- Wiring diagram as shown below.



Note: Contact No. 1 is not in use.

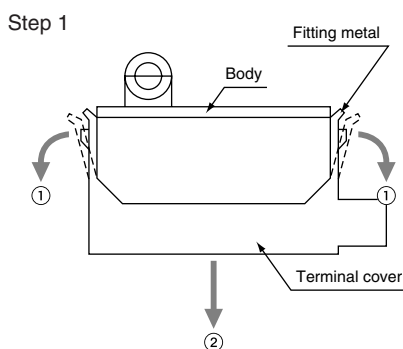
- When the angle type of connector cord is used, the cord outlet direction is as follows.



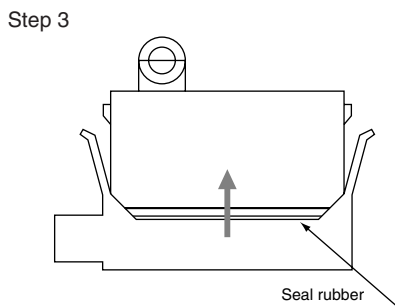
HOW TO CHANGE THE CORD OUTLET DIRECTION FOR CONNECTOR TYPE

The cord outlet direction is interchangeable both right and left sides. The direction of connector cord is set to the right when it is shipped. When it is used left side direction, follow the next procedure.

Cord outlet direction (Right side)



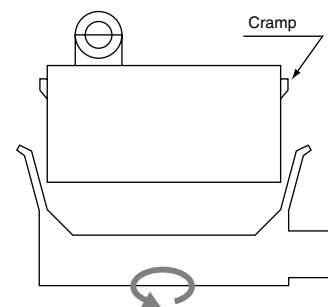
Push down the fitting metal while pulling it horizontal direction.



Press up the terminal cover.

- Do not put the lead wire between terminal cover and body.
- Put the seal rubber at the right place.

Step 2

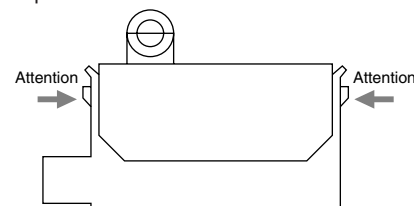


Turn the terminal cover at an angle of 180 degree. Follow the step 3.

- Do not pull the terminal cover.
 - Do not rotate the terminal cover many times.
 - Do not loosen the terminal screw.
- Be careful, because not doing so could cause wire cutoff and contact failure.

Cord outlet direction (Left side)

Step 4



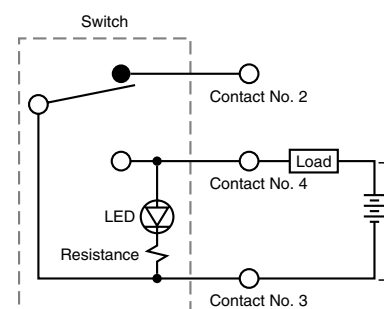
Confirm the fitting metal is on tightly. If it is loosen, it might be cause of the trouble.

INDICATOR LIGHTING CIRCUIT (Connector type only)

- 1) See the circuit diagram.
- 2) The LED only takes 24 DC V, but please use a connector designed for AC.
- 3) Since the LED lamp is connected to the N.O. side (contact No. 4), please connect the load to contact No. 4. The load side should be on the "+" power supply side. Be careful, because the LED will break if the connection is reversed.

- 4) The LED is turned on when the switch is at a free position. The LED is turned off when the switch operates.
- 5) Applicable power source is 24 V DC. Use it with care on leakage current. The leakage current is approx. 1.5 mA at 24 V DC.

Circuit diagram



HL (AZH)

CAUTIONS

Common for all types

1. There are limits to what type of environment can be tolerated.

This limit switch is designed under the premise that it will be used in a standard industrial device. Accordingly, there are limits as to what can be tolerated if used outdoors or where water and oil, etc., may get on the device. The following table indicates how much water and oil can be withstood (classification of protective structure).

	Plastic case (AZH1*)	Die casting case (AZH2*)
Protective classification	IP64	IP67
Testing method	No harmful effect when sprayed with water for 10 minutes from all angles.	Water does not enter product after immersion in water 1m deep for 30 minutes.
Limits on use	Cannot be used outdoors or in a place where water and oil, etc., will continually contact the device.	Cannot be used outdoors where it can be rained on directly and cannot be used submersed in water or in oil, etc.

Note: Although, initially, the protective classification complies under the testing above, due consideration must be taken because great differences may result depending on factors such as duration of operation, installation method, and environment.

2. The internal mechanism will break if the actuator is moved beyond its Total-travel (T.T.). Always use within the T.T.

Die casting case

- 1) Do not expose HL limit switch to hot water (over 60°C 140°F) and in a water vapor environment.
- 2) Avoid the place where organic solvents, strong acid, strong alkali liquid and vapor may attach to the products directly. Prevent using the HL limit switch in place where inflammable or corrosive gas will be generated.
- 3) Do not change the operating position by bending the actuator.
- 4) Use within an ambient temperature of -10 to 80°C. (However, do not allow it to freeze.)
- 5) If OT is too big, the life of limit switch will be shortened by switching friction. Use it with enough margin of OT. 70% of OT standard value will be good.
- 6) Attach the terminal cover securely to the body with the metal stop latch to the projection of the body.
- 7) Confirmation test in the actual application is highly recommended.
- 8) Do not use the switch in a silicon atmosphere. Care should be taken where organic silicon rubber, adhesive, sealing material, oil, grease or lead wire generates silicon.
- 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) Avoid use in excessively dusty environments where actuator operation would be hindered.

Plastic case

- 1) Do not use in water or oil. Do not place the switch where it is always exposed to water or dust splash.
- 2) Do not expose HL limit switch to hot water (over 60°C 140°F) and in a water vapor environment.
- 3) Avoid the place where organic solvents, strong acid, strong alkali liquid and vapor may attach to the products directly. Prevent using the HL limit switch in place where inflammable or corrosive gas will be generated.
- 4) Do not change the operating position by bending the actuator.
- 5) Use within an ambient temperature of -10 to 80°C. (However, do not allow it to freeze.)
- 6) 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.
- 7) Attach the terminal cover securely to the body to the extent you can identify the clicking or locking sound.
- 8) A confirmation test in the actual application is highly recommended.
- 9) 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.
- 10) 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.
- 11) Avoid use in excessively dusty environments where actuator operation would be hindered.