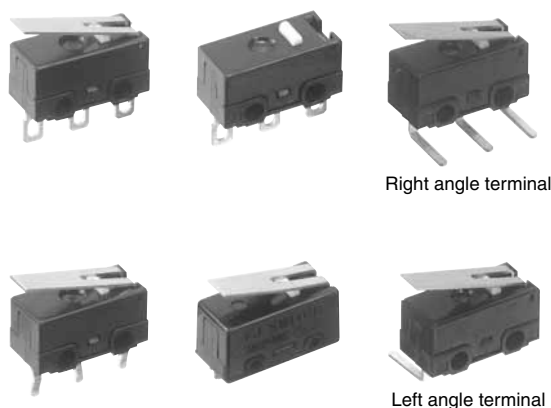




Ultra-miniature Size Switches with High Precision

AH1 (FJ) SWITCHES



RoHS compliant

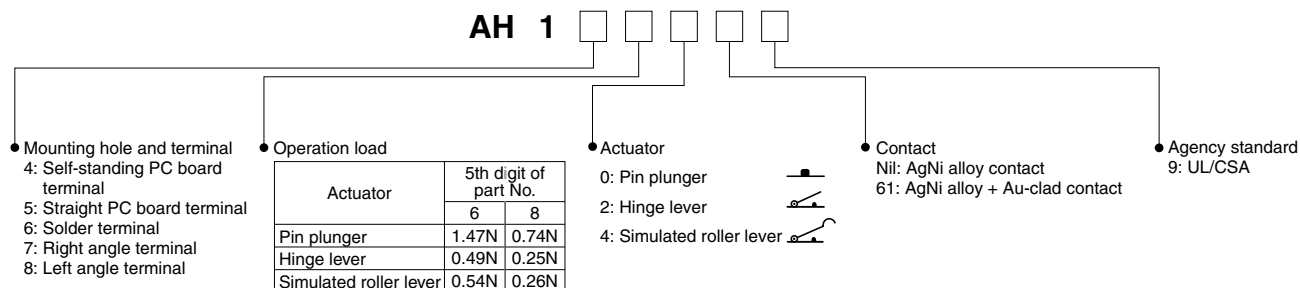
FEATURES

- Compact size, light weight and high precision
- Switches that can be used with M2 general-purpose screws
- Integrally molded terminals that discourage inflow of solder flux provide and also switch body has stand-off
- Lineup also includes low-level circuit types (Au-clad contacts) optimized for low-voltage current loading
- Self-standing terminal easily mounted on PC boards
- Protection grade: IP40

TYPICAL APPLICATIONS

- Computer mouse
- Charger unit for portable terminal
- Electric pot
- Automobiles (Detection of key position), etc.

ORDERING INFORMATION



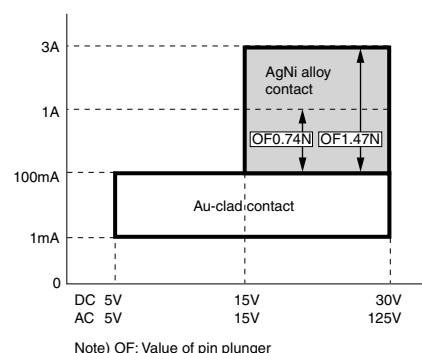
PRODUCT TYPES TABLE

■ Mounting hole M2 mm type (with stand off)

● Available

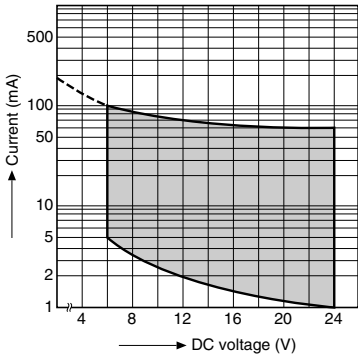
Contact specification	Applicable current range				Operating Force OF (max.)	
	1mA	0.1A	1A	3A	0.74N	1.47N
Standard type (AgNi alloy contact)			●		●	●
Low-level circuit type (AgNi alloy + Au-clad contact)	●				●	●

COMBINATION WITH OPERATING FORCE (OF) AND APPLICABLE CURRENT RANGE (reference)

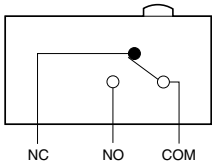


DATA

Range of low-level current and voltage (Low-level circuit type)
(reference)



CONTACT FORM



PRODUCT TYPES

Self-standing PC board terminal

Standard type; Body: black, Cap: black, Plunger: white
Low-level circuit type; Body: black, Cap: black, Plunger: red

Actuators	Operating Force OF, Max.	Standard type (AgNi alloy contact)	Low-level circuit type (AgNi alloy + Au-clad contact)
		Contact form: SPDT	Contact form: SPDT
Pin plunger	0.74 N	AH14809	AH1480619
	1.47 N	AH14609	AH1460619
Hinge lever	0.25 N	AH14829	AH1482619
	0.49 N	AH14629	AH1462619
Simulated roller lever	0.26 N	AH14849	AH1484619
	0.54 N	AH14649	AH1464619

Straight PC board terminal

Actuators	Operating Force OF, Max.	Standard type (AgNi alloy contact)	Low-level circuit type (AgNi alloy + Au-clad contact)
		Contact form: SPDT	Contact form: SPDT
Pin plunger	0.74 N	AH15809	AH1580619
	1.47 N	AH15609	AH1560619
Hinge lever	0.25 N	AH15829	AH1582619
	0.49 N	AH15629	AH1562619
Simulated roller lever	0.26 N	AH15849	AH1584619
	0.54 N	AH15649	AH1564619

Solder terminal

Actuators	Operating Force OF, Max.	Standard type (AgNi alloy contact)	Low-level circuit type (AgNi alloy + Au-clad contact)
		Contact form: SPDT	Contact form: SPDT
Pin plunger	0.74 N	AH16809	AH1680619
	1.47 N	AH16609	AH1660619
Hinge lever	0.25 N	AH16829	AH1682619
	0.49 N	AH16629	AH1662619
Simulated roller lever	0.26 N	AH16849	AH1684619
	0.54 N	AH16649	AH1664619

PC board right angle terminal

Actuators	Operating Force OF, Max.	Standard type (AgNi alloy contact)	Low-level circuit type (AgNi alloy + Au-clad contact)
		Contact form: SPDT	Contact form: SPDT
Pin plunger	0.74 N	AH17809	AH1780619
	1.47 N	AH17609	AH1760619
Hinge lever	0.25 N	AH17829	AH1782619
	0.49 N	AH17629	AH1762619
Simulated roller lever	0.26 N	AH17849	AH1784619
	0.54 N	AH17649	AH1764619

■ PC board left angle terminal

Actuators	Operating Force OF, Max.	Standard type (AgNi alloy contact)	Low-level circuit type (AgNi alloy + Au-clad contact)
		Contact form: SPDT	Contact form: SPDT
Pin plunger	0.74 N	AH18809	AH1880619
	1.47 N	AH18609	AH1860619
Hinge lever	0.25 N	AH18829	AH1882619
	0.49 N	AH18629	AH1862619
Simulated roller lever	0.26 N	AH18849	AH1884619
	0.54 N	AH18649	AH1864619

Notes: 1. The appearance of right and left angle types are as below.



Right angle



Left angle

2. Standard packing: 50 pcs./tube.

SPECIFICATIONS

■ Contact rating

		Standard rating	Minimum rating
Standard type (AgNi alloy contact) Plunger color: White	OF 0.74N type	1A 125V AC, 1A 30V DC	—
	OF 1.47N type	3A 125V AC, 2A 30V DC	—
Low-level circuit type (AgNi alloy + Au-clad contact) Plunger color: Red		0.1A 125V AC, 0.1A 30V DC	5mA 6V DC, 2mA 12V DC, 1mA 24V DC

■ Characteristics

Item		Standard type (AgNi alloy contact)	Low-level circuit type (AgNi alloy + Au-clad contact)
Expected life	Mechanical life (OT: Specified value)	OF 0.74 N type: Min. 10^6 (at 60 cpm) OF 1.47 N type: Min. 5×10^5 (at 60 cpm)	
	Electrica (OT: Max.)	Min. 3×10^4 (at 20 cpm) (at rated load)	Min. 10^5 (at 20 cpm) (at rated load)
Insulation resistance		Min. 100 M Ω (at 500V DC)	
Dielectric strength	Between non-continuous terminals	600 Vrms for 1 min.	
	Between each terminal and other exposed metal parts	1,500 Vrms for 1 min.	
	Between each terminal and ground	1,500 Vrms for 1 min.	
Contact resistance (Initial)		Max. 30 m Ω (by voltage drop, 1A 6 to 8V DC)	Max. 100 m Ω (by voltage drop, 0.1A 6 to 8V DC)
Vibration resistance (Pin plunger type)		10 to 55 Hz at single amplitude of 0.75mm (Contact opening: Max. 1 msec.)	
Shock resistance (Pin plunger type)		Min. 294 m/s ² (Contact opening: Max. 1 msec.)	
Allowable operating speed (No load)		1 to 500 mm/sec.	
Max. operating cycle rate (No load)		120 cpm	
Ambient temperature		-25 to +85°C (no freezing and condensing)	
Unit weight		Approx. 0.5g	
Protection grade		IP40	

Notes: 1. Test conditions and judgement are in accordance with NECA C 4505.

2. OF: Value of pin plunger type

■ Operating characteristics

1) Pin plunger

3th digit of Part No.	Operating Force OF, Max.	Release Force RF, Min.	Pretravel PT, Max.	Movement Differential MD, Max.	Overtravel OT, Min.	Operating Position OP
6	1.47 N	0.20 N	0.5 mm	0.12 mm	0.25mm	7±0.3 mm (Distance from stand-off) 5.5±0.2 mm (Distance from mounting hole)
8	0.74 N	0.098 N				7±0.3 mm (Distance from stand-off) 5.5±0.2 mm (Distance from mounting hole)

2) Hinge lever

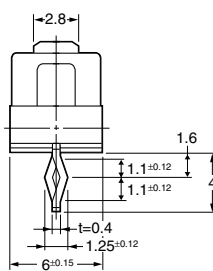
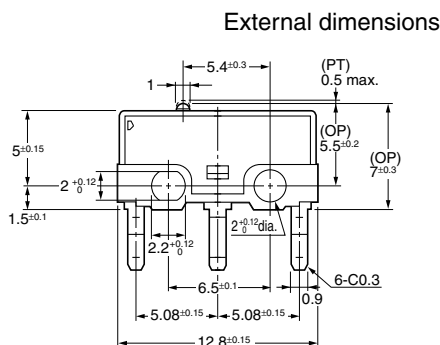
3th digit of Part No.	Operating Force OF, Max.	Release Force RF, Min.	Pretravel PT, Max.	Movement Differential MD, Max.	Overtravel OT, Min.	Operating Position OP
6	0.49 N	0.049 N	2.1 mm	0.5 mm	0.55 mm	8.3±1.2 mm (Distance from stand-off) 6.8±1.0 mm (Distance from mounting hole)
8	0.25 N	0.025 N				8.3±1.2 mm (Distance from stand-off) 6.8±1.0 mm (Distance from mounting hole)

3th digit of Part No.	Operating Force OF, Max.	Release Force RF, Min.	Pretravel PT, Max.	Movement Differential MD, Max.	Overtravel OT, Min.	Operating Position OP
6	0.54 N	0.039 N	2.1 mm	0.5 mm	0.5 mm	11.0±1.2 mm (Distance from stand-off) 9.5±1.0 mm (Distance from mounting hole)
8	0.26 N	0.020 N				11.0±1.2 mm (Distance from stand-off) 9.5±1.0 mm (Distance from mounting hole)

(Unit: mm) General tolerance: ± 0.25

■ Self-standing PC board terminal

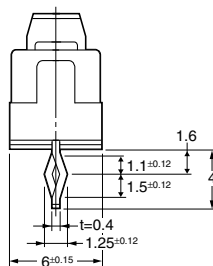
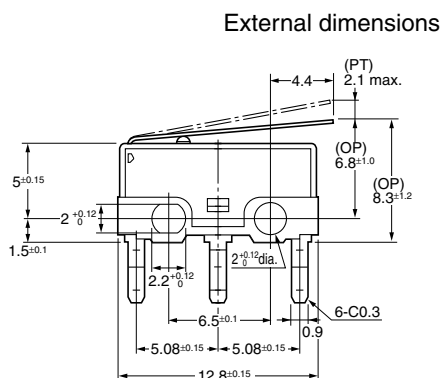
CAD Data



Technical drawing of a 3-hole plate. The plate has three circular holes arranged horizontally. The center-to-center distance between adjacent holes is 5.08 ± 0.1 . The diameter of each hole is $3 \cdot 1.2 \pm 0.05$ dia.

Pretravel PT, Max.		0.5 mm
Movement Differential MD, Max.		0.12 mm
Overtravel OT, Min.		0.25 mm
Operating Position OP	Distance from mounting hole	5.5±0.2 mm
	Distance from stand-off	7±0.3 mm

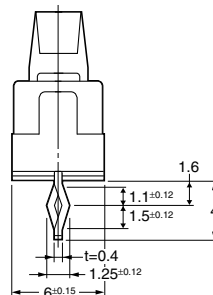
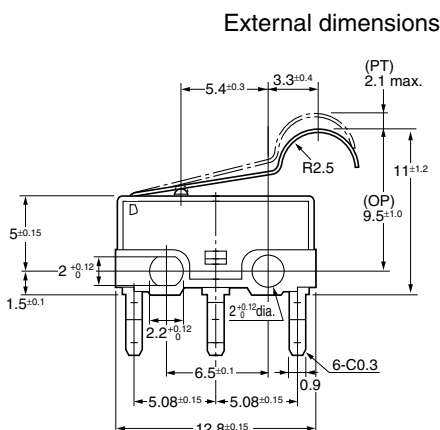
CAD Data



Technical drawing of a 3-hole plate. The plate is rectangular with three circular holes spaced evenly. The distance between the centers of the holes is 5.08 ± 0.1 . The diameter of each hole is $3 \cdot 1.2 \pm 0.05$ dia.

Pretravel PT, Max.		2.1 mm
Movement Differential MD, Max.		0.5 mm
Overtravel OT, Min.		0.55 mm
Operating Position OP	Distance from mounting hole	6.8±1.0 mm
	Distance from stand-off	8.3±1.2 mm

CAD Data



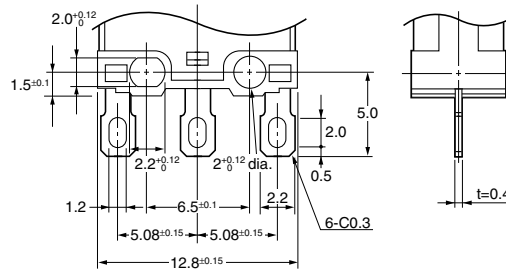
Technical drawing of a 3-hole plate. The plate has a width of 10.00 ± 0.05 and a height of 1.00 ± 0.05. The three holes are arranged in a horizontal line. The center-to-center distance between adjacent holes is 5.08 ± 0.1. The diameter of each hole is 3.12 ± 0.05.

Pretravel PT, Max.		2.1 mm
Movement Differential MD, Max.		0.5 mm
Overtravel OT, Min.		0.5 mm
Operating Position OP	Distance from mounting hole	9.5±1.0 mm
	Distance from stand-off	11.0±1.2 mm

■ Solder terminal

Pin plunger

CAD Data



(Dimensions other than drawn above is same as self-standing PC board terminal.)

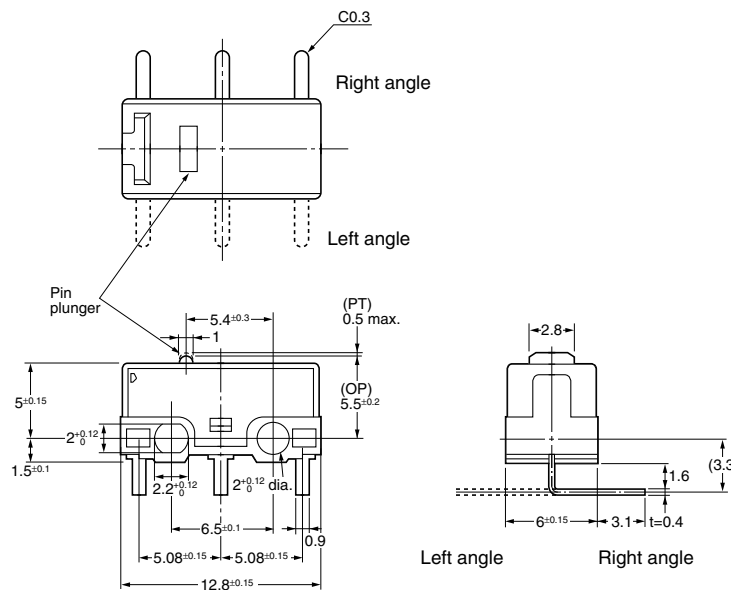
■ PC board right/left angle terminal

Pin plunger

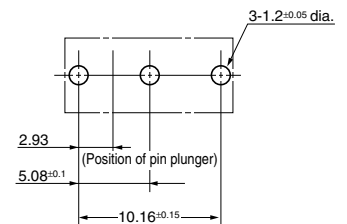
CAD Data



External dimensions



PC board pattern



Note: As for other actuator types, dimensions are the same as those of corresponding self-standing PC board terminal.

CAUTIONS FOR USE

■ Fastening of the switch body

- 1) Use M2 screws to attach switches with Max. 0.098 N·m torque. Use of screw washers or adhesive lock is recommended.
- 2) When the operation object is in the free position, force should not be applied directly to the actuator or to the pin plunger. Also force should be applied to the pin plunger from vertical direction to the switch.
- 3) In setting the movement after operation, the overtravel "OT" should be set from 70% to 100%. Setting the movement less than 70% may cause degrading of the electrical mechanical performance.

■ Selection of switch

Please make your selection so that there will be no problems even if the operating characteristics vary up to $\pm 20\%$ from the standard values.

■ Soldering operation

Manual soldering should be accomplished within 3 seconds with max. 350°C iron.

Care should be taken not to apply force to the terminals during soldering.

■ When switching low-level current and voltage, low-level circuit type (Au-clad contact) is recommended.

■ Environment

Locations where corrosive gases having a bad influence on contacts are present, and locations where there is an excessive amount of siliceous or other abrasive dust should be avoided.