

Panasonic
ideas for life

**HIGH CONTACT PRESSURE
WITH LIGHT OPERATING
ACTION**

V-ROTARY ACTION (AHR5) SWITCHES



The AHR5 switch with actuating lever and retainer assembled

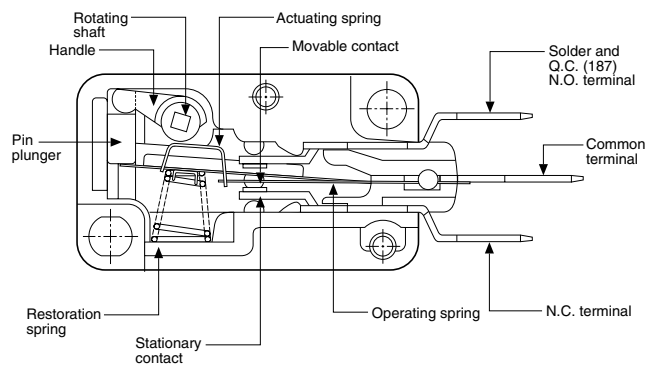
FEATURES

- High contact pressure with light operating action
- Easy installation of the lever—Tools or adhesives are unnecessary for attaching the actuating lever
- Low-level circuit type is also available

TYPICAL APPLICATIONS

- Vending machines

CONSTRUCTION



PRODUCT TYPES

Type	Retainer mounting direction	Operating force (max.)	Release force (min.)	SPDT .187 Quick-connect/solder terminal
Standard (Silver alloy)	Counter-clockwise	0.1N•cm {10.2gf•cm}	0.013N•cm {1.3gf•cm}	AHR5401
	Clockwise			AHR5411
Low-level circuit type (Gold clad)	Counter-clockwise			AHR540161
	Clockwise			AHR541161
Actuator lever	52.3mm 2.059inch	—	—	AHR5801

Remarks: 1. The retainer is provided with the switch body without assembled.
 2. Actuating levers are available separately.
 (AHR5801, length: 52.3mm 2.059inch)
 3. As for International standard, please refer to the "Information".

SPECIFICATIONS

1. Contact rating (Resistive load)

Type	Standard rating	Low-level rating
Standard (Silver alloy)	5A 250V AC	
Low-level circuit type (Gold clad)	1A 250V AC	6V DC 5mA 12V DC 2mA 24V DC 1mA

AHR5

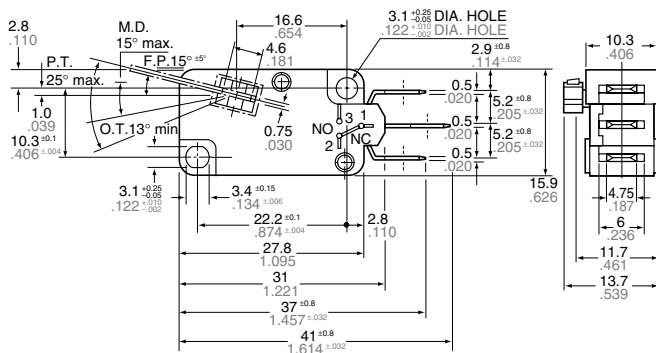
2. Characteristics

Type		Standard type	Low-level circuit type
Expected life (min. operations)	Mechanical (at O.T. rated)	10 ⁶ (at 60 cpm)	
	Electrical (at O.T. max.)	5 × 10 ⁴ (at 20 cpm)	
Insulation resistance		Min. 100MΩ (at 500V DC insulation resistor meter)	
Dielectric strength	Between terminals	600 Vrms for 1 min.	
	Between terminals and other exposed metal parts	2,000 Vrms for 1 min.	
	Between terminals and ground	2,000 Vrms for 1 min.	
Contact resistance (initial)		Max. 50mΩ (by voltage drop at 1A 6 to 8V DC)	Max. 50mΩ (by voltage drop at 0.1A 6 to 8V DC)
Vibration resistance (pin plunger)		10 to 55 Hz at amplitude 0.75mm (Contact opening: max. 1msec.)	
Shock resistance (pin plunger)		294m/s ² {30G}	
Allowable operating speed		1 to 100°/sec.	
Max. operating cycle rate		240	
Ambient temperature		−25°C to +65°C −13°F to +149°F (no freezing below 0°C)	
Ambient humidity		Max. 85% R.H.	
Unit weight		7g .25oz	

DIMENSIONS

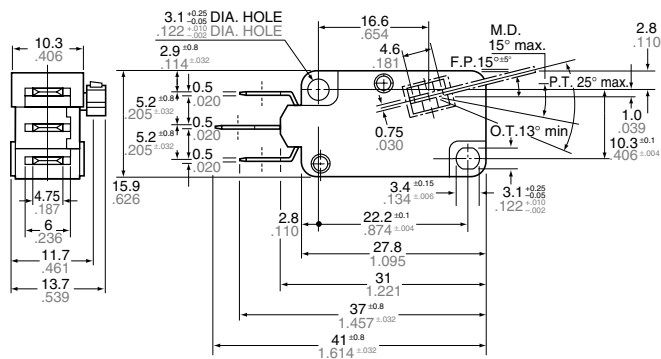
mm inch TOLERANCE: $\pm 0.4 \pm .016$

(Counterclockwise)



Operating force, Max. (Initial value)	0.1 N-cm {10.2 g-cm}
Release force, Min. (Initial value)	0.013 N-cm {1.3g-cm}
Pretravel (Initial value)	25° max.
Movement differential (Initial value)	15° max.
Overtravel (Initial value)	13° min.
Free position (Initial value)	15°±5° (From the horizontal axis)

(Clockwise)

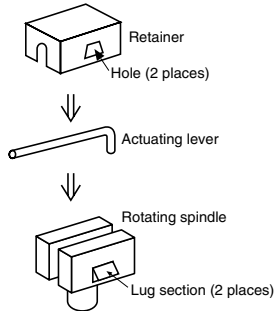


Operating force, Max. (Initial value)	0.1 N·cm {10.2 g·cm}
Release force, Min. (Initial value)	0.013 N·cm {1.3g·cm}
Pretravel (Initial value)	25° max.
Movement differential (Initial value)	15° max.
Overtravel (Initial value)	13° min.
Free position (Initial value)	15°±5° (From the horizontal axis)

NOTES

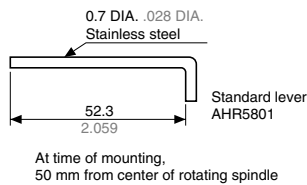
1. Method of attaching actuating lever

Insert the lever in the rotating spindle, then place the retainer over the spindle to lock the lever in place as shown in Fig. 1. Be sure that the retainer has snapped over the lugs on the rotating spindle, with the lugs entering fully into the holes in the retainer.



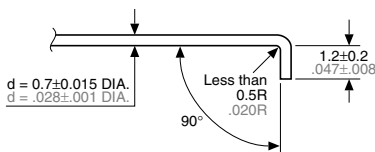
2. Regarding the actuating lever

As an accessory, the standard lever (Product No. AHR5801) is available separately.



3. Cautions regarding design of actuating lever

The dimensions of the lever at the mounting section are as shown in Fig. 2. These dimensions should be used in the design of an alternate actuating lever. The material can be stainless steel wire or piano wire. The standard lever length is 50 mm 1.969 inch. A lever in excess of this length would have a weight which could cause erroneous operation.



4. Regarding switch mounting

Mount the switch to a smooth surface using M3 screws. Tighten the screw with 3 to 5 kg-cm torque. To prevent loosening of the mounting screws, it is recommended that spring washers be used in combination with adhesive material for locking the screws.

In the mounted condition, the insulating distance between each terminal and ground should be checked for assurance of proper distance.

5. Regarding changes in operating characteristics

When selecting the V rotary action switch, allow $\pm 20\%$ to the rated operating and release forces.

(Example)

OF: 10.2 g-cm max. specification

$10.2 \times (100+20\%) = 12.24 \text{ g-cm}$

RF: 1.3 g-cm min. specification

$1.3 \text{ g-cm} \times (100-20\%) = 1.04 \text{ g-cm}$

6. Adjustment of the operating object

The positioning of the operating object should be such that when direct force is not applied to the actuator, the actuator is in its free position. The operating object should apply force in the operating direction. The standard value of overtravel to be used should be set within the range of 70% to 100% of the rated O.T. value. Furthermore, if the operating position limit is exceeded, the electrical and mechanical life of the switch will be shortened.

7. Avoid using V Rotary switches in the following conditions:

- Where the ambient temperature exceeds the range of -25°C to $+65^{\circ}\text{C}$ -13°F to $+149^{\circ}\text{F}$.
- Where the relative humidity exceeds 85%.
- Where the permissible operating speed of 1 to 100°/sec. is exceeded.
- Where the operating speed of 240 cpm. is exceeded.
- Where the lever length of 50mm 1.969inch is exceeded.