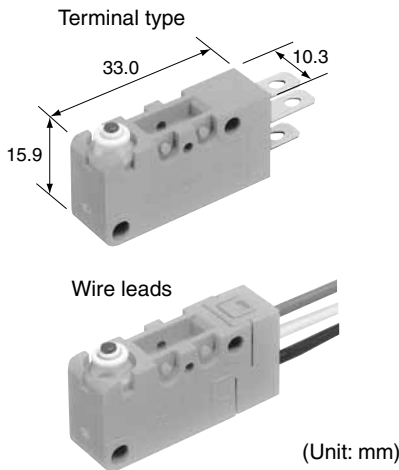




### Miniature Size Sealed Switches

### TURQUOISE SWITCHES ABV (BV) SWITCHES



RoHS compliant

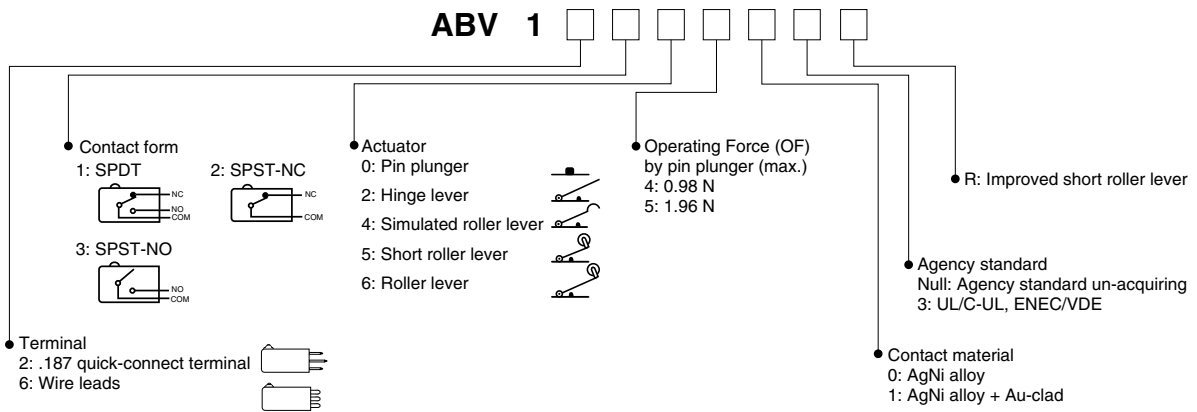
### FEATURES

- Integral construction of body and cover, sealed switches
- Long life (Mechanical life: Min.  $5 \times 10^6$ )
- Wide variation.

### TYPICAL APPLICATIONS

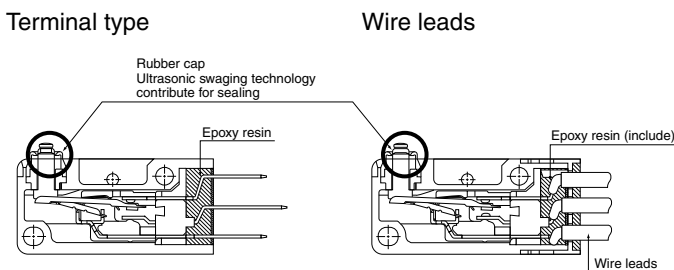
- Automotive
- Agricultural machinery (Combine, Rice planting machine)
- Ice maker, etc.

## ORDERING INFORMATION

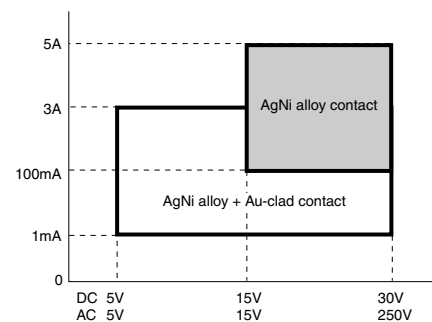


Notes: 1. Standard packing: Dust protected type 50 pcs./carton, 500 pcs./case; Immersion protected type 50 pcs./case.  
2. Not every combination is available. Please refer to the following table, "PRODUCT TYPES".

## CONSTRUCTION



## APPLICABLE CURRENT RANGE (Reference)



## PRODUCT TYPES

### ■ AgNi alloy contact type

Actuator	Contact form	Operating Force OF, Max.	.187 Quick-connect terminal	
			Part number	Wire Leads Part number
Pin plunger	SPDT	0.98 N	ABV1210403	ABV1610403
		1.96 N	ABV1210503	ABV1610503
	SPST-NC	0.98 N	ABV1220403	ABV1620403
		1.96 N	ABV1220503	ABV1620503
	SPST-NO	0.98 N	ABV1230403	ABV1630403
		1.96 N	ABV1230503	ABV1630503
Hinge lever	SPDT	0.59 N	ABV1212403	ABV1612403
		1.18 N	ABV1212503	ABV1612503
	SPST-NC	0.59 N	ABV1222403	ABV1622403
		1.18 N	ABV1222503	ABV1622503
	SPST-NO	0.59 N	ABV1232403	ABV1632403
		1.18 N	ABV1232503	ABV1632503
Simulated roller lever	SPDT	0.59 N	ABV1214403	ABV1614403
		1.18 N	ABV1214503	ABV1614503
	SPST-NC	0.59 N	ABV1224403	ABV1624403
		1.18 N	ABV1224503	ABV1624503
	SPST-NO	0.59 N	ABV1234403	ABV1634403
		1.18 N	ABV1234503	ABV1634503
Short roller lever	SPDT	1.08 N	ABV121540R3	ABV161540R3
		2.16 N	ABV121550R3	ABV161550R3
	SPST-NC	1.08 N	ABV122540R3	ABV162540R3
		2.16 N	ABV122550R3	ABV162550R3
	SPST-NO	1.08 N	ABV123540R3	ABV163540R3
		2.16 N	ABV123550R3	ABV163550R3
Roller lever	SPDT	0.59 N	ABV1216403	ABV1616403
		1.18 N	ABV1216503	ABV1616503
	SPST-NC	0.59 N	ABV1226403	ABV1626403
		1.18 N	ABV1226503	ABV1626503
	SPST-NO	0.59 N	ABV1236403	ABV1636403
		1.18 N	ABV1236503	ABV1636503

### ■ AgNi alloy + Au-clad contact type

Actuator	Contact form	Operating Force OF, Max.	.187 Quick-connect terminal	
			Part number	Wire Leads Part number
Pin plunger	SPDT	0.98 N	ABV1210413	ABV1610413
		1.96 N	ABV1210513	ABV1610513
	SPST-NC	0.98 N	ABV1220413	ABV1620413
		1.96 N	ABV1220513	ABV1620513
	SPST-NO	0.98 N	ABV1230413	ABV1630413
		1.96 N	ABV1230513	ABV1630513
Hinge lever	SPDT	0.59 N	ABV1212413	ABV1612413
		1.18 N	ABV1212513	ABV1612513
	SPST-NC	0.59 N	ABV1222413	ABV1622413
		1.18 N	ABV1222513	ABV1622513
	SPST-NO	0.59 N	ABV1232413	ABV1632413
		1.18 N	ABV1232513	ABV1632513
Simulated roller lever	SPDT	0.59 N	ABV1214413	ABV1614413
		1.18 N	ABV1214513	ABV1614513
	SPST-NC	0.59 N	ABV1224413	ABV1624413
		1.18 N	ABV1224513	ABV1624513
	SPST-NO	0.59 N	ABV1234413	ABV1634413
		1.18 N	ABV1234513	ABV1634513
Short roller lever	SPDT	1.08 N	ABV121541R3	ABV161541R3
		2.16 N	ABV121551R3	ABV161551R3
	SPST-NC	1.08 N	ABV122541R3	ABV162541R3
		2.16 N	ABV122551R3	ABV162551R3
	SPST-NO	1.08 N	ABV123541R3	ABV163541R3
		2.16 N	ABV123551R3	ABV163551R3
Roller lever	SPDT	0.59 N	ABV1216413	ABV1616413
		1.18 N	ABV1216513	ABV1616513
	SPST-NC	0.59 N	ABV1226413	ABV1626413
		1.18 N	ABV1226513	ABV1626513
	SPST-NO	0.59 N	ABV1236413	ABV1636413
		1.18 N	ABV1236513	ABV1636513

# SPECIFICATIONS

## Rating

	Standard rating	Low-level rating
AgNi alloy + Au-clad contact Plunger color: Red	3 A 250 V AC (OF 1.96 N), 1 A 250 V AC (OF 0.98 N)	6 V DC 5 mA, 12 V DC 2 mA, 24 V DC 1 mA
AgNi alloy contact Plunger color: Black	5 A 250 V AC (OF 1.96 N), 3 A 250 V AC (OF 0.98 N)	—

## Characteristics

Item		Specifications	
Expected life	Mechanical life (OT: Specified value)	Min. $5 \times 10^6$ (at 60 cpm)	
	Electrical life	Nominal rating (OT: Max.)	Min. $10^5$ (at 20 cpm)
		Low-level rating (OT: Specified value)	Min. $10^6$ (at 20 cpm) OF 0.98N type is Min $5 \times 10^5$ (at 20 com)
Insulation resistance		Min. 100 MΩ (at 500 V DC insulation resistance meter)	
Dielectric strength	Between non-continuous terminals	1,000 Vrms	
	Between each terminal and other exposed metal parts	2,000 Vrms	
	Between each terminal and ground	2,000 Vrms	
Vibration resistance		10 to 55 Hz at single amplitude of 0.75 mm (Contact opening: max. 1 msec.)	
Shock resistance		Min. 294 m/s <sup>2</sup> (Contact opening: Max. 1 msec.)	
Contact resistance	AgNi alloy contact type	Terminal type: Max. 50 mΩ Wire leads: Max. 100 mΩ (by voltage drop 1 A 6 to 8 V DC)	
	AgNi alloy + Au-clad contact type	Terminal type: Max. 50 mΩ Wire leads: Max. 100 mΩ (by voltage drop 0.1 A 6 to 8 V DC)	
Allowable operating speed		1 to 500 mm/sec.	
Max. operating cycle rate		120 cpm	
Ambient temperature		-40°C to +85°C	
Unit weight		Approx. 7 g (Terminal type)	
Protection grade		IP67 (except exposed terminal part of terminal type)	

Note: Test conditions and judgement are complying with "NECA C4505".

## Operating characteristics

Actuator	8th 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
Pin plunger	4	0.98N	0.25N	1.6 mm	0.4 mm	0.8 mm	14.7±0.6 mm
	5	1.96N	0.39N	1.6 mm	0.4 mm	0.8 mm	14.7±0.6 mm
Hinge lever	4	0.59N	0.098N	3.2 mm	1.2 mm	1.2 mm	15.3±1.2 mm
	5	1.18N	0.13N	3.2 mm	1.2 mm	1.2 mm	15.3±1.2 mm
Simulated roller lever	4	0.59N	0.098N	3.2 mm	1.2 mm	1.2 mm	18.5±1.2 mm
	5	1.18N	0.13N	3.2 mm	1.2 mm	1.2 mm	18.5±1.2 mm
Short roller lever	4	1.08N	0.20N	1.6 mm	0.5 mm	0.8 mm	20.7±0.8 mm
	5	2.16N	0.39N	1.6 mm	0.5 mm	0.8 mm	20.7±0.8 mm
Roller lever	4	0.59N	0.098N	3.2 mm	1.2 mm	1.2 mm	20.7±1.2 mm
	5	1.18N	0.13N	3.2 mm	1.2 mm	1.2 mm	20.7±1.2 mm

# DIMENSIONS

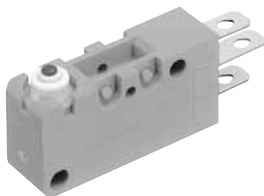
(Unit: mm) General tolerance: ±0.4

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

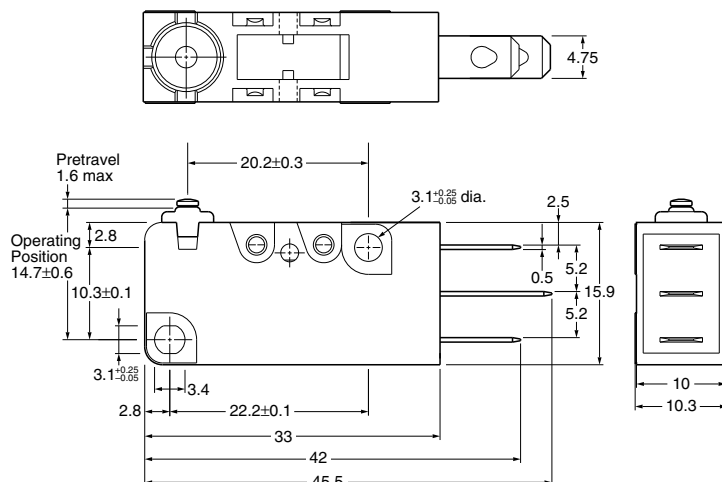
## .187 quick-connect terminal

Pin plunger

**CAD Data**



External dimensions



Pretravel PT, Max.	1.6mm
Movement Differential MD, Max.	0.4mm
Overtravel OT, Min.	0.8mm
Operating Position OP	14.7±0.6mm

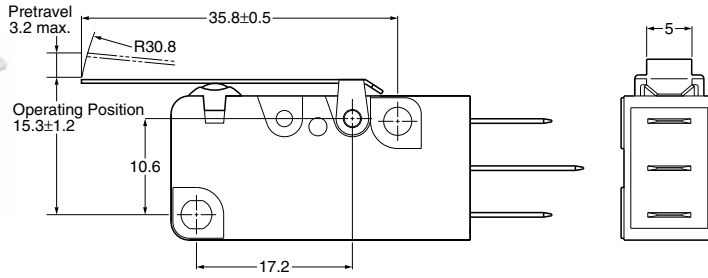
# ABV (BV) Turquoise Switches

## Hinge lever

### CAD Data



### External dimensions



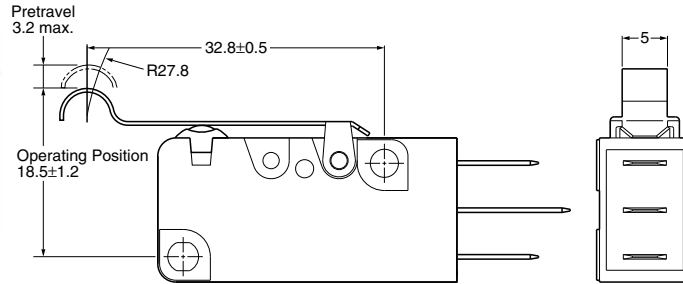
Pretravel PT, Max.	3.2mm
Movement Differential MD, Max.	1.2mm
Overtravel OT, Min.	1.2mm
Operating Position OP	15.3±1.2mm

## Simulated roller lever

### CAD Data



### External dimensions



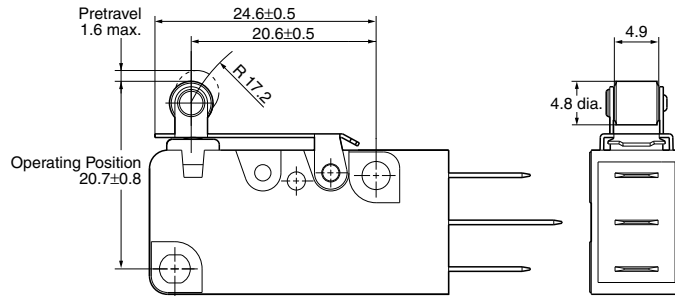
Pretravel PT, Max.	3.2mm
Movement Differential MD, Max.	1.2mm
Overtravel OT, Min.	1.2mm
Operating Position OP	18.5±1.2mm

## Short roller lever

### CAD Data



### External dimensions



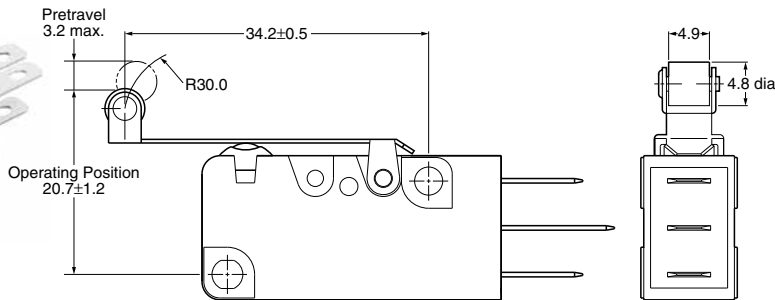
Pretravel PT, Max.	1.6mm
Movement Differential MD, Max.	0.5mm
Overtravel OT, Min.	0.8mm
Operating Position OP	20.7±0.8mm

## Roller lever

### CAD Data



### External dimensions



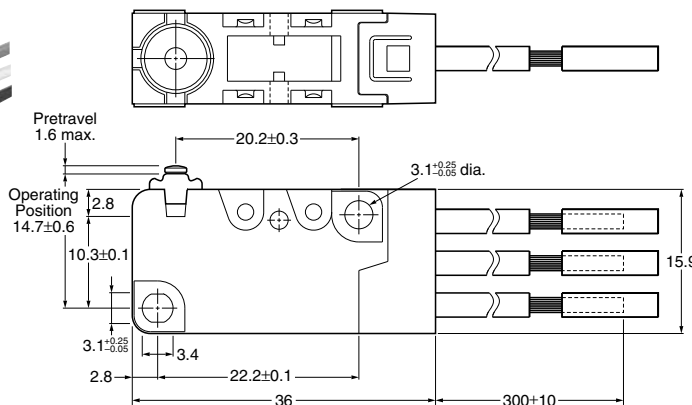
Pretravel PT, Max.	3.2mm
Movement Differential MD, Max.	1.2mm
Overtravel OT, Min.	1.2mm
Operating Position OP	20.7±1.2mm

## Wire Leads

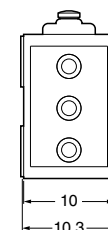
### CAD Data



### External dimensions



Notes: 1. Dimensions of the actuator types are the same as those of corresponding solder and .187 quick-connect terminal types.  
2. With UL and CSA approved products, lead wire is changed to UL compliant (AWG18).



Thickness of the lead wire:  
0.75mm<sup>2</sup> (Note 2)  
Color of the lead wire  
NC .....red  
NO .....white  
COM ...black