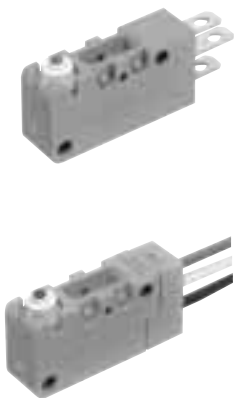


NAIS

HIGH ENVIRONMENTAL RESISTANCE

TURQUOISE SWITCHES V TYPE (ABV)



FEATURES

- **Miniature size (33×15.9×10.3 mm) (1.299×.626×.406 inch)**
- **Sealed construction for use in adverse environment—Sealed construction by epoxy resin and rubber cap keeps off the cause of miscontact such as dust Conforming to IP67* of IEC protective construction classification**
- **Elastomer double molding technology, an industry first and ultrasonic swaging technology contribute to uniform seling in high production quantities**
- **UL/CSA/VDE/SEMKO approved**

*Based on the protective construction classification of IED, items which satisfy the test requirements are denoted with an IP designation.

TYPICAL APPLICATIONS

- **Automotives**
- **Agricultural devices**
- **Industrial equipment**

ORDERING INFORMATION

Ex. ABV1 2 1 0 6 1

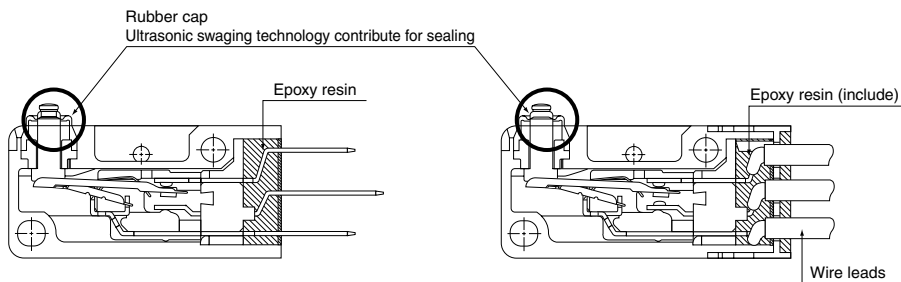
Type of switch	Terminal	Contact arrangement	Actuator	Operating force by pin plunger (max.)	Contact
ABV1: Turquoise switch V type	2: .187 quick-connect terminal 6: Wire leads	1: SPDT 2: SPST-NC 3: SPST-NO	0: Pin plunger 2: Hinge lever 4: Simulated roller lever 5: Short roller lever 6: Roller lever	4: 100 gf 5: 200 gf 6: 300 gf	1: Gold-clad 0: Silver-alloy

Remarks: 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

.187 quick-connect terminal

Wire leads



ABV1

PRODUCT TYPES

Silver-alloy

Contact	Actuator	Contact Arrangement	Operating force, max. gf oz (by pin plunger)	187 Quick-connect terminal	Wire Leads
Silver-alloy	Pin plunger	SPDT	100 3.527	ABV121040	ABV161040
			200 7.055	ABV121050	ABV161050
			300 10.582	ABV121060	ABV161060
		SPST-NC	100 3.527	ABV122040	ABV162040
			200 7.055	ABV122050	ABV162050
			300 10.582	ABV122060	ABV162060
		SPST-NO	100 3.527	ABV123040	ABV163040
			200 7.055	ABV123050	ABV163050
			300 10.582	ABV123060	ABV163060
	Hinge lever	SPDT	60 2.116	ABV121240	ABV161240
			120 4.233	ABV121250	ABV161250
			180 6.349	ABV121260	ABV161260
		SPST-NC	60 2.116	ABV122240	ABV162240
			120 4.233	ABV122250	ABV162250
			180 6.349	ABV122260	ABV162260
		SPST-NO	60 2.116	ABV123240	ABV163240
			120 4.233	ABV123250	ABV163250
			180 6.349	ABV123260	ABV163260
	Simulated roller lever	SPDT	60 2.116	ABV121440	ABV161440
			120 4.233	ABV121450	ABV161450
			180 6.349	ABV121460	ABV161460
		SPST-NC	60 2.116	ABV122440	ABV162440
			120 4.233	ABV122450	ABV162450
			180 6.349	ABV122460	ABV162460
		SPST-NO	60 2.116	ABV123440	ABV163440
			120 4.233	ABV123450	ABV163450
			180 6.349	ABV123460	ABV163460
	Short roller lever	SPDT	110 3.880	ABV121540	ABV161540
			220 7.760	ABV121550	ABV161550
			320 11.288	ABV121560	ABV161560
		SPST-NC	110 3.880	ABV122540	ABV162540
			220 7.760	ABV122550	ABV162550
			320 11.288	ABV122560	ABV162560
		SPST-NO	110 3.880	ABV123540	ABV163540
			220 7.760	ABV123550	ABV163550
			320 11.288	ABV123560	ABV163560
Roller lever	SPDT	60 2.116	ABV121640	ABV161640	
		120 4.233	ABV121650	ABV161650	
		180 6.349	ABV121660	ABV161660	
	SPST-NC	60 2.116	ABV122640	ABV162640	
		120 4.233	ABV122650	ABV162650	
		180 6.349	ABV122660	ABV162660	
	SPST-NO	60 2.116	ABV123640	ABV163640	
		120 4.233	ABV123650	ABV163650	
		180 6.349	ABV136660	ABV163660	

Remarks: When ordering UL/CSA approved types, please attach suffix "9" to the part number.
When ordering VDE/SEMKO approved types, please attach suffix "8" to the part number.

Gold-clad

Contact	Actuator	Contact Arrangement	Operating force, max. gf oz (by pin plunger)	187 Quick-connect terminal	Wire Leads
Gold-clad	Pin plunger	SPDT	100 3.527	ABV121041	ABV161041
			200 7.055	ABV121051	ABV161051
			300 10.582	ABV121061	ABV161061
		SPST-NC	100 3.527	ABV122041	ABV162041
			200 7.055	ABV122051	ABV162051
			300 10.582	ABV122061	ABV162061
		SPST-NO	100 3.527	ABV123041	ABV163041
			200 7.055	ABV123051	ABV163051
			300 10.582	ABV123061	ABV163061
	Hinge lever	SPDT	60 2.116	ABV121241	ABV161241
			200 7.055	ABV121251	ABV161251
			300 10.582	ABV121261	ABV161261
		SPST-NC	60 2.116	ABV122241	ABV162241
			200 7.055	ABV122251	ABV162251
			300 10.582	ABV122261	ABV162261
		SPST-NO	60 2.116	ABV123241	ABV163241
			200 7.055	ABV123251	ABV163251
			300 10.582	ABV123261	ABV163261
	Simulated roller lever	SPDT	60 2.116	ABV121441	ABV161441
			200 7.055	ABV121451	ABV161451
			300 10.582	ABV121461	ABV161461
		SPST-NC	60 2.116	ABV122441	ABV162441
			200 7.055	ABV122451	ABV162451
			300 10.582	ABV122461	ABV162461
		SPST-NO	60 2.116	ABV123441	ABV163441
			200 7.055	ABV123451	ABV163451
			300 10.582	ABV123461	ABV163461
	Short roller lever	SPDT	110 3.880	ABV121541	ABV161541
			200 7.055	ABV121551	ABV161551
			300 10.582	ABV121561	ABV161561
		SPST-NC	110 3.880	ABV122541	ABV162541
			200 7.055	ABV122551	ABV162551
			300 10.582	ABV122561	ABV162561
		SPST-NO	110 3.880	ABV123541	ABV163541
			200 7.055	ABV123551	ABV163551
			300 10.582	ABV123561	ABV163561
Roller lever	SPDT	60 2.116	ABV121641	ABV161641	
		200 7.055	ABV121651	ABV161651	
		300 10.582	ABV121661	ABV161661	
	SPST-NC	60 2.116	ABV122641	ABV162641	
		200 7.055	ABV122651	ABV162651	
		300 10.582	ABV122661	ABV162661	
	SPST-NO	60 2.116	ABV123641	ABV163641	
		200 7.055	ABV123651	ABV163651	
		300 10.582	ABV136661	ABV163661	

Remarks: When ordering UL/CSA approved types, please attach suffix "9" to the part number.

When ordering VDE/SEMKO approved types, please attach suffix "8" to the part number.

ABV1

SPECIFICATIONS

1. Contact rating

Type	Standard rating	Low-level rating
Gold-clad contact	3 A 250 V AC (O.F. 200g, 300g.) 1 A 250 V AC (O.F. 100g)	5 mA 6 V DC 2 mA 12 V DC 1 mA 24 V DC
Silver-alloy	5 A 250 V AC (O.F. 200g, 300g) 3 A 250 V AC (O.F. 100g)	—

2. Characteristics

Mechanical life (O.T.: Specified value)	Min. 5x10 ⁶ (at 60 cpm)	
Electrical life	Nominal rating (O.T.: Max.)	Min. 10 ⁵ (at 20 cpm)
	Low-level rating (O.T.: Specified value)	Min. 10 ⁶ (at 20 cpm)
Insulation resistance	Min. 100 MΩ (at 500 V DC)	
Dielectric strength	1,000 Vrms	
Between non-continuous terminals	2,000 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. 30 G (Contact opening: Max. 1 msec.)	
Contact resistance	Dust protected type	Max. 50 mΩ (By voltage drop 0.1 A 6 to 8 V DC)
	Immersion protected type	Max. 100 mΩ (By voltage drop 0.1 A 6 to 8 V DC)
Allowable operating speed (at no load)	1 to 500 mm/sec.	
Ambient temperature (at no load)	-40°C to +85°C -40°F to +185°F	
Unit weight	Approx. 7 g .247 oz (IP50 type)	

3. Operating characteristics

Type of actuator	Operating force, Max.			Release force, Min.			Pretravel, Max. mm inch	Movement differential, Max. mm inch	Overtravel, Min. mm inch	Operating position, mm inch
	()	()	()	()	()	()				
Pin plunger	2.94N {300gf}	1.96N {200gf}	0.98N {100gf}	0.59N {60gf}	0.39N {40gf}	0.25N {25gf}	1.6 .063	0.4 .016	0.8 .031	14.7±0.6 .579 ± .024
Hinge lever	1.77N {180gf}	1.18N {120gf}	0.59N {60gf}	0.20N {20gf}	0.13N {13gf}	0.098N {10gf}	3.2 .126	1.2 .047	1.2 .047	15.3±1.2 .602 ± .047
Simulated roller lever	1.77N {180gf}	1.18N {120gf}	0.59N {60gf}	0.20N {20gf}	0.13N {13gf}	0.098N {10gf}	3.2 .126	1.2 .047	1.2 .047	18.5±1.2 .728 ± .047
Short roller lever	3.14N {320gf}	2.16N {220gf}	1.08N {110gf}	0.59N {60gf}	0.39N {40gf}	0.20N {20gf}	1.6 .063	0.5 .020	0.8 .031	20.7±0.8 .815 ± .031
Roller lever	1.77N {180gf}	1.18N {120gf}	0.59N {60gf}	0.20N {20gf}	0.13N {13gf}	0.098N {10gf}	3.2 .126	1.2 .047	1.2 .047	20.7±1.2 .815 ± .047

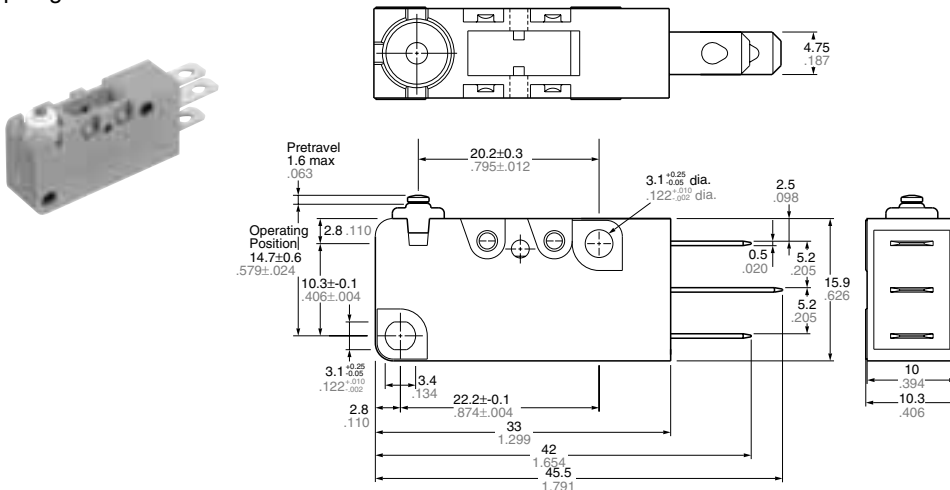
(): Low force type

DIMENSIONS

mm inch General tolerance: ±0.25 ± .010

1. Dust protected type

1-(1) .187 quick-connect terminal
Pin plunger

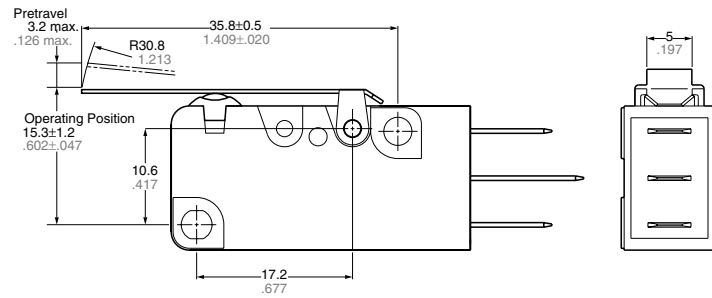


Pretravel, Max. mm inch	1.6 .063
Movement differential, Max. mm inch	0.4 .016
Overtravel, Min. mm inch	0.8 .031
Operating position, mm inch	14.7±0.6 .579 ± .024

ABV1

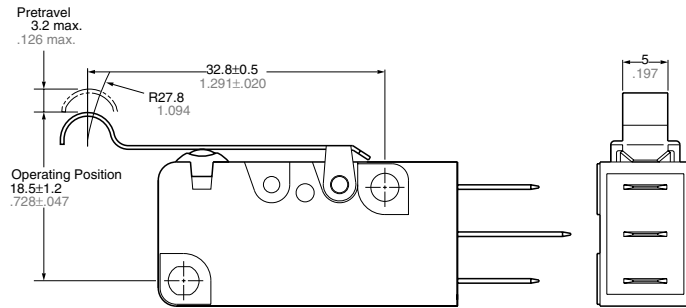
Hinge lever

mm inch General tolerance: $\pm 0.25 \pm .010$



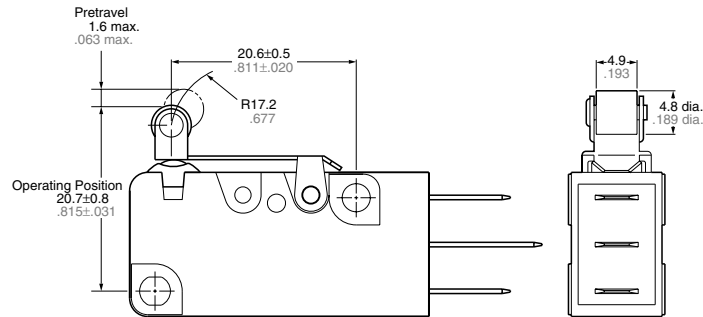
Pretravel, Max. mm inch	3.2 .126
Movement differential, Max. mm inch	1.2 .047
Overtravel, Min. mm inch	1.2 .047
Operating position, mm inch	15.3±1.2 .602 ± .047

Simulated roller lever



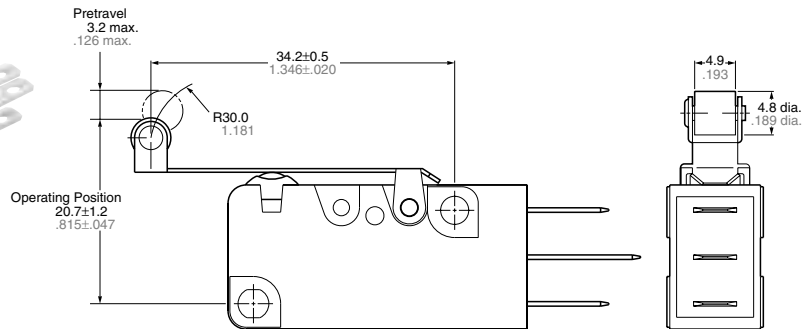
Pretravel, Max. mm inch	3.2 .126
Movement differential, Max. mm inch	1.2 .047
Overtravel, Min. mm inch	1.2 .047
Operating position, mm inch	18.5±1.2 .728 ± .047

Short roller lever



Pretravel, Max. mm inch	1.6 .063
Movement differential, Max. mm (inch)	0.5 .020
Overtravel, Min. mm (inch)	0.8 .031
Operating position, mm inch	20.7±0.8 .815 ± .031

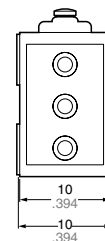
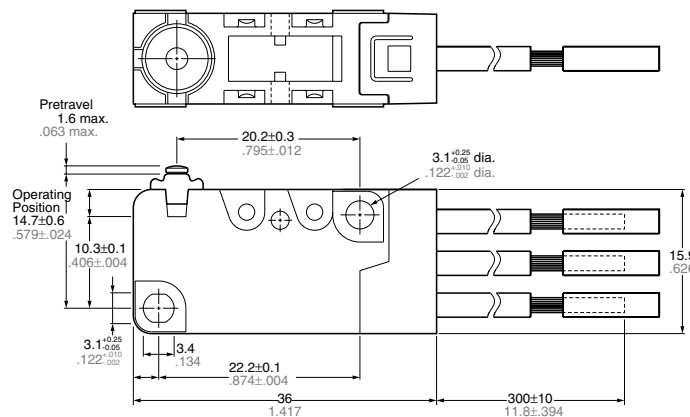
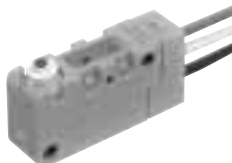
Roller lever



Pretravel, Max. mm inch	3.2 .126
Movement differential, Max. mm inch	1.2 .047
Overtravel, Min. mm (inch)	1.2 .047
Operating position, mm inch	20.7±1.2 .815 ± .047

2. Immersion protected type

Wire Leads



Thickness of the lead wire:
 Standard type: 0.75mm²
 UL/CSA approved type:
 AWG #18
 Color of the lead wire
 COM .. black
 N.C. ... red
 N.O. white

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