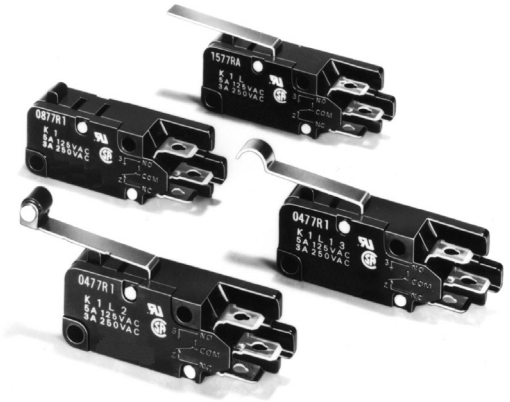
OMRON

Miniature Basic Switch

K

Simple Internal Mechanism Enables Durability of 20,000,000 Mechanical Operations or More

- Long-life design with an OT stopper inside the case and high-precision movable spring.
- A choice of types with right-hand barrier, left-hand barrier and no barrier for the terminals is available.



Ordering Information

■ Model Number Legend

K□□
1 2

1. Barrier
- 1: With right-hand barrier
- 2: With left-hand barrier
- 3: Without barrier

2. Actuator
- None: Pin plunger
- L: Hinge lever
- L13: Simulated roller lever
- L2: Hinge roller lever

■ List of Models

Actuator	OF max.	With right-hand barrier	With left-hand barrier	Without barrier
Pin plunger	0.25 N {25 gf}	K1	K2	K3
Hinge lever	0.15 N {15 gf}	K1L	K2L	K3L
Simulated roller lever		K1L13	K2L13	K3L13
Hinge roller lever		K1L2	K2L2	K3L2

Specifications

■ Ratings

Rated voltage	Resistive load
125 VAC	5 A
250 VAC	3 A

Note: The ratings values apply under the following test conditions:
Ambient temperature: 20±2°C
Ambient humidity: 65±5%
Operating frequency: 30 operations/min.

■ Switching Capacity per Load (Reference Values)

Voltage	Non-inductive load				Inductive load			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	5 A		1.5 A	0.7 A	3 A		1.5 A	0.7 A
250 VAC	3 A		1 A	0.5 A	2 A		1 A	0.5 A
8 VDC	5 A		3 A	3 A	4 A		3 A	
14 VDC	5 A		3 A	3 A	4 A		3 A	
30 VDC	5 A		3 A	3 A	4 A		3 A	
125 VDC	0.4 A		0.05 A	0.05 A	0.4 A		0.05 A	
250 VDC	0.2 A		0.05 A	0.03 A	0.2 A		0.03 A	

Note: 1. The above values are for the steady-state current.
2. Inductive load has a power factor of 0.7 min. (AC) and a time constant of 7 ms max. (DC).
3. Lamp load has an inrush current of 10 times the steady-state current.
4. Motor load has an inrush current of 6 times the steady-state current.

■ Characteristics

Operating speed	0.1 mm to 1 m/s (pin plunger models)
Operating frequency	Mechanical: 300 operations/min max. Electrical: 30 operations/min max.
Insulation resistance	100 MΩ min. (at 500 VDC)
Contact resistance (initial value)	30 mΩ max.
Dielectric strength (see note 2)	1,000 VAC, 50/60 Hz for 1 min between terminals of the same polarities 2,000 VAC, 50/60 Hz for 1 min between current-carrying metal part and ground, and between each terminal and non-current-carrying metal part
Vibration resistance (see note 3)	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance (see note 3)	Destruction: 500 m/s^2 {approx. 50G} max. Malfunction: 300 m/s^2 {approx. 30G} max.
Durability (see note 4)	Mechanical: 20,000,000 operations min. (60 operations/min) (Refer to *Engineering Data*.) Electrical: 100,000 operations min. (30 operations/min) (Refer to *Engineering Data*.)
Degree of protection	IEC IP40
Degree of protection against electric shock	Class I
Proof tracking index (PTI)	175
Ambient operating temperature	–25°C to 80°C (at ambient humidity of 60% max.) (with no icing)
Ambient operating humidity	85% max. (for 5°C to 35°C)
Weight	Approx. 5.9 g (pin plunger models)

Note: 1. The data given above are initial values.
2. The dielectric strength shown in the table indicates a value for models with a Separator.
3. For the pin plunger models, the above values apply for use at both the free position and total travel position. For the lever models, they apply at the total travel position. Contact opening or closing time is within 1 ms.
4. For testing conditions, consult your OMRON sales representative.

■ Approved Standards

Consult your OMRON sales representative for specific models with standard approvals.

UL1054 (File No. E41515)/
CSA C22.2 No. 55 (File No. LR21642)

Rated voltage	K
125 VAC	5 A
250 VAC	3 A

EN61058-1 (File No. 40006539, VDE approval)

Rated voltage	K
125 VAC	5 A
250 VAC	3 A

Testing conditions: 5E4 (50,000 operatings), T80 (0°C to 80°C)

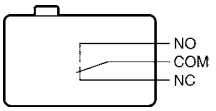
■ Contact Specifications

Contact	Specification	Rivet
	Material	Silver
	Gap (standard value)	0.5 mm
Inrush current	NC	10 A max.
	NO	10 A max.
Minimum applicable load (see note)		160 mA at 5 VDC

Note: For more information on the minimum applicable load, refer to *Using Micro Loads* on page 144.

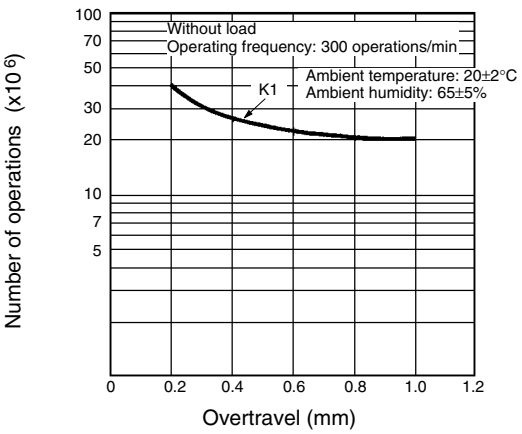
■ Contact Form

SPDT

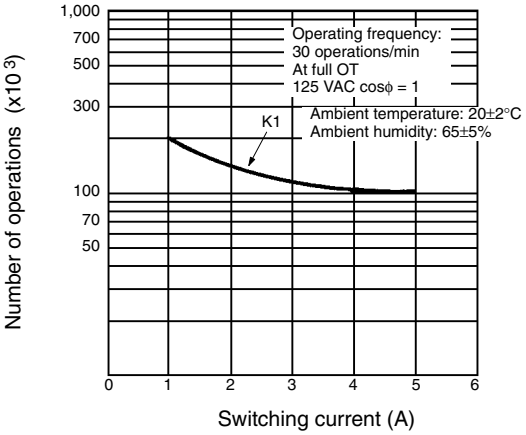


Engineering Data (Reference Values)

Mechanical Durability



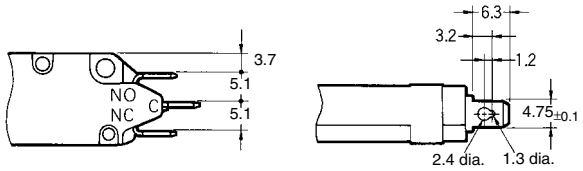
Electrical Durability



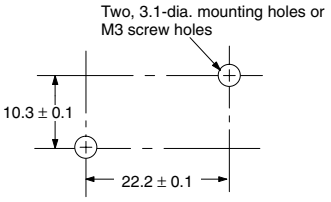
Dimensions

Note: All units are in millimeters unless otherwise indicated.

■ Terminals



■ Mounting Holes

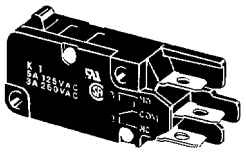


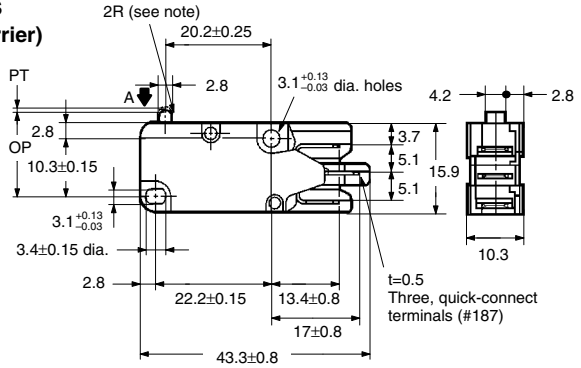
■ Dimensions and Operating Characteristics

Note: 1. All units are in millimeters unless otherwise indicated.
2. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
3. Dimensions of models without barrier are exactly the same as those of models with right- or left-hand barrier except the dimensions of the barrier.
4. Barrier specification symbol will be indicated in the □ of the model number.
5. The operating characteristics are for operation in the A direction (⬇).

Pin Plunger Models

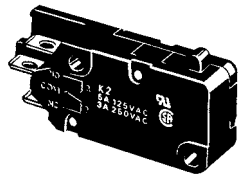
K1 (With Right-hand Barrier)

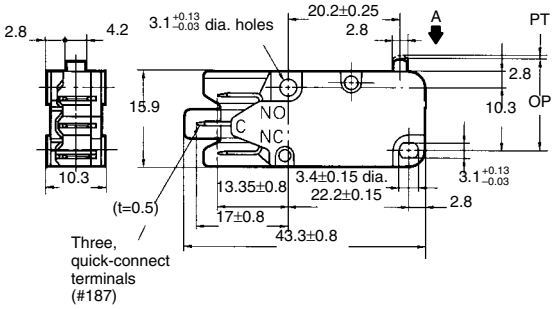




Model	K1
OF max.	0.25 N {25 gf}
RF min.	0.05 N {5 gf}
PT max.	1.6 mm
OT min.	0.8 mm
MD max.	0.8 mm
OP	14.4±0.7 mm

K2 (With Left-hand Barrier)

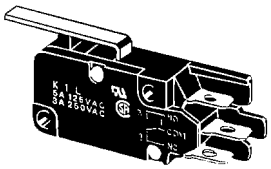


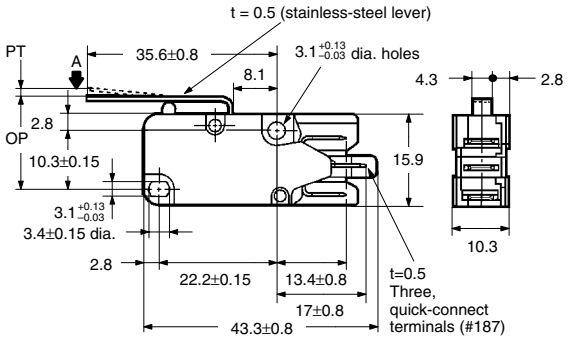


Model	K2
OF max.	0.25 N {25 gf}
RF min.	0.05 N {5 gf}
PT max.	1.6 mm
OT min.	0.8 mm
MD max.	0.8 mm
OP	14.4±0.7 mm

Hinge Lever Models

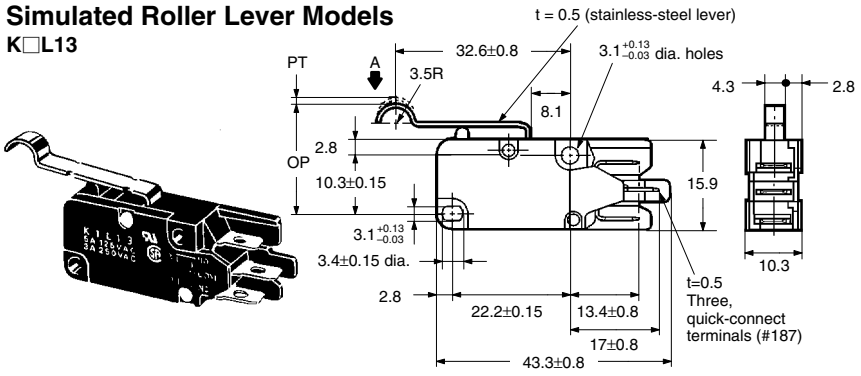
K□L





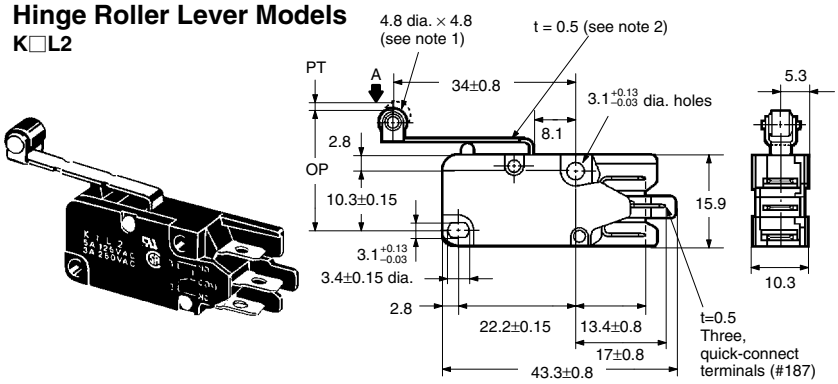
Model	K□L
OF max.	0.15 N {15 gf}
RF min.	0.015 N {1.5 gf}
PT max.	4.7 mm
OT min.	1.3 mm
MD max.	2.4 mm
OP	14.9±2 mm

Simulated Roller Lever Models
K□L13



Model	K□L13
OF max.	0.15 N {15 gf}
RF min.	0.015 N {1.5 gf}
PT max.	4.7 mm
OT min.	1.3 mm
MD max.	2.4 mm
OP	18.4±2 mm

Hinge Roller Lever Models
K□L2



Model	K□L2
OF max.	0.15 N {15 gf}
RF min.	0.015 N {1.5 gf}
PT max.	4.7 mm
OT min.	1.3 mm
MD max.	2.4 mm
OP	20.4±2 mm

Note: 1. Oil-less polyacetal resin roller
2. Stainless-steel lever

Precautions

Refer to pages 26 to 31 for common precautions.

■ Correct Use

Mounting Direction

For a Switch with an Actuator, mount the Switch in a direction where the Actuator weight will not be applied to the Switch.

Since the Switch is designed for a small load, its resetting force is small. Therefore, resetting failure may occur if unnecessary load is applied to the Switch.

Use two M3 mounting screws with plain washers or spring washers to mount the Switch. Tighten the screws to a torque of 0.39 to 0.59 N • m {4 to 6 kgf • cm}.

Using Micro Loads

For details, refer to *General Information.*

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. B014-E1-07B