

# 11mm Size Metal Shaft Low-profile Potentiometer

RK117 Series

3 types available: without switch, with 0.5mm travel or 1.5mm travel push-on switch.

Rotary Potentiometers

Slide Potentiometers

Trimmer Potentiometers

Multi Control Devices

Position Sensors

Metal Shaft

Insulated Shaft

Knob Operating



Car Use

## Features

- Low-profile (only 7.55mm in height) with a 1.5mm travel push-on switch.
- Rear mounting configuration permits direct mounting on the front side of a PC board.
- Without detent, with center detent, with 41 detents are available.

## Applications

- Sound volume, tone and balance controls for car audio systems and other audio players
- Controls for accessories including dimmers and wipers in vehicle cabins
- Level controls for communication devices including transceivers
- Controls for home appliances

## Typical Specifications

Items	Specifications
Total resistance tolerance	±20%
Maximum operating voltage	50V AC
Total rotational angle	300 <sup>+10°</sup>
Rotational torque	2 to 25 mN·m
Operating life	15,000 cycles
Operating temperature range	-10°C to +70°C

## Recommended Products List

### Single-shaft without switch type

Number of resistor elements	Mounting direction	Products No.	Shaft type	Length of the shaft (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Minimum packing unit (pcs.)	Drawing No.
Single-unit	Vertical type	RK117111000N	Flat	15	Without	10	1B	100	1
		RK1171110W04			With				
		RK1171110W0D			Without	20	15A		
		RK1171110W0L			With				
		RK1171110W03		20	Without	10	1B		2
		RK117111000A				20			

**Recommended Products List**

**Single-shaft push-on (0.5mm stroke) switch type**

Number of resistor elements	Mounting direction	Products No.	Shaft type	Length of the shaft (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Minimum packing unit (pcs.)	Drawing No.
Single-unit	Vertical type	RK117111400C	Flat	20	Without	10	1B	100	3
		RK1171114D01			With				

**Single-shaft push-on (1.5mm stroke) switch type**

Number of resistor elements	Mounting direction	Products No.	Shaft type	Length of the shaft (mm)	Number of detent	Total resistance (kΩ)	Resistance taper	Minimum packing unit (pcs.)	Drawing No.
Single-unit	Vertical type	RK1171114V02	Flat	15	41	50	1B	100	4

**Note**

Additional products other than the above recommended products are available. For inquiries, contact our sales department.

## Product Specifications

In addition to the recommended products, the following specifications can also be accommodated.

**Total Resistance Variety**

Total resistance (kΩ)	10	20	50
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**Resistance Taper**

Resistance taper	15A	1B	3B
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**Detent and Attached switch**

Variety	Items	Detent		Attached switches travel
		Without	Center	41
Single-shaft, Single-unit	Without	Center	41	0.5, 1.5mm

**Dimensions of Shaft**

**Flat type**

Unit : mm

Shaft shown in full CCW position.

L <sub>1</sub>	※L <sub>B</sub>	l
(15)	7	5
(20)	7	10
(25)	7	12

**Note**

※LB is only available in 7mm, and does not support M7 (with screws).

For resistance taper, see P.226  
For other detailed specifications, see P.48, 49

## Specification for Switch

### Mechanical Characteristics

Switch type		Pole-position	Rating	Changeover torque (Operating force)	Changeover angle (travel) (mm)
Momentary push	5R4411	SPST	3A 16V DC	6±3N	0.5
	5R4511			5±2N	1.5

### Electrical Characteristics

Model	Contact resistance		Insulation resistance	Voltage proof
5R4411, 5R4511	100mΩ max.	Measured by a 1A 5V DC voltage drop method.	100MΩ min. Measured with a 250V DC megger.	300V AC 1 minute min.

### Durability

<b>Operating life under load</b>	The switch under a rated resistive load shall be subjected to a total of 10,000 cycles of operation at a speed of 600 to 1,000 cycles per hour. The contact resistance after testing should not exceed 200mΩ.
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### Note

The operating current should be 10mA or greater.

## Orders other than recommended products

Specify orders for varieties that are not listed in the Recommended Product List, referring to the following example.

### Sample part number

R	K	1	1	7	1	1	1	0	-	F	1	5	-	C	0	-	B	1	0	3
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#### Switch

Code	Switch
0	Without switch
4	With push-on switch (0.5mm travel)

#### Length of the shaft (L1) (mm)

Code	Length of the shaft	Code	Length of the shaft
15	15	25	25
20	20		

#### Detent

Code	Detent	Code	Detent
C0	Without	41	41
C1	Center		

#### Resistance taper

Code	Resistance taper
A	15A
B	1B
V	3B

#### Total resistance

Code	Total resistance (kΩ)	Code	Total resistance (kΩ)
103	10	503	50
203	20		

### Notes

1.   Shows the specification recommended by us.
2. Please specify if you need a 1.5mm travel push-on switch.

Dimensions

Unit : mm

No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting side)
1	Single-shaft, single-unit RK1171110	<p>Mounting surface</p> <p>Shaft shown in full CCW position</p>	
2	Single-shaft, single-unit RK1171110	<p>Mounting surface</p> <p>Shaft shown in full CCW position</p>	
3	Single-shaft, single unit with push-on switch travel 0.5mm RK1171114-5R4411	<p>Mounting surface</p> <p>Switch travel</p> <p>Shaft shown in full CCW position</p>	
4	Single-shaft, single unit with push-on switch travel 1.5mm RK1171114-5R4511	<p>Mounting surface</p> <p>Switch travel</p> <p>Shaft shown in full CCW position</p>	

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## Products Specifications

Items		Model	RK09L	RK097 RK098	RK117	RK16
<b>Operating temperature range</b>		-10°C to +70°C				
<b>Electrical performance</b>	<b>Total resistance tolerance</b>	±20%				
	<b>Rated power</b>	0.05W				
	<b>Maximum operating voltage</b>	50V AC			150V AC	
	<b>Residual resistance</b>	$R \leq 10k\Omega$ 20Ω max. $10k\Omega < R \leq 50k\Omega$ 30Ω max. $50k\Omega < R$ Nominal total resistance of 0.1% or less				
	<b>Maximum attenuation (Volume control)</b>	$5k\Omega \leq R < 10k\Omega$ 70dB min. $10k\Omega \leq R < 50k\Omega$ 80dB min. $50k\Omega \leq R < 100k\Omega$ 90dB min. $100k\Omega \leq R$ 100dB min.				
	<b>Insulation resistance</b>	100MΩ min. 250V DC			100MΩ min. 500V DC	
	<b>Voltage proof</b>	1 minute 300V AC			1 minute 500V AC	
<b>Mechanical performance</b>	<b>Total rotational angle</b>	RK09L $300 \pm 5^\circ$ RK097 $300 \pm 5^\circ$ (Axis movement type is $300 \begin{smallmatrix} +10^\circ \\ -5^\circ \end{smallmatrix}$ ) RK098 $300 \begin{smallmatrix} +10^\circ \\ -5^\circ \end{smallmatrix}$			$300 \begin{smallmatrix} +10^\circ \\ -5^\circ \end{smallmatrix}$	$300 \pm 5^\circ$
	<b>Rotational torque</b>	2 to 25mN·m				
	<b>Stopper strength</b>	0.5N·m (For shaft movable type, 0.4N·m)			0.9N·m (For dual-shaft type, 0.6N·m)	
	<b>Push-pull strength</b>	80N max.		100N max.		
	<b>Vibration</b>	10 to 55 to 10Hz / min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z and for 2 hours respectively				
	<b>Solderability</b>	230±5°C, 3±0.5s				
	<b>Solder heat resistance</b>	<b>Manual soldering</b>	350°C or less and within 3 seconds			
<b>Dip soldering (Dip available products)</b>		260±5°C 4±1s				
<b>Endurance</b>	<b>Operating life</b>	15,000 cycles				
<b>Environmental test</b>	<b>Cold</b>	-10°C for 96h				
	<b>Long-term heat resistance</b>	+70°C for 96h				
	<b>Moisture resistance</b>	+40±2°C, 90 to 95%RH for 96h				

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