

Insulated Shaft Potentiometer 12mm Size Insulated Shaft Snap-in Type

RK12L Series



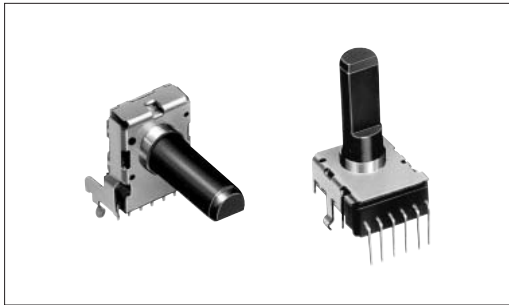
High performance 12mm width type.

Rotary Potentiometers

Slide Potentiometers

Multi Control Devices

Sensors



Features

- Improved cross talk and gang error characteristics achieved by enhanced structural design.
- R-shaped shaft end point makes knob insertion smooth.
- Terminal layout contributes in reducing solder bridging.

Applications

- For volume, tone and balance adjustments in audio equipment
- For various control in DVD players/recorders, mixing consoles and electronic musical instruments

Metal Shaft

Insulated Shaft

Hollow Type

Knob Operating

Typical Specifications

Items	Specifications
Total resistance tolerance	±20%
Maximum operating voltage	50V AC for AC only
Total rotational angle	300±5°
Rotational torque	2 to 15mN·m
Operating life	15,000cycles
Operating temperature range	-10°C to +70°C

Recommended Products List

Number of resistor elements	Mounting direction	Shaft type	Length of the shaft LM ₁ (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Application	Minimum packing unit (pcs.)	Products No.	Drawing No.	
Dual-unit	Vertical type	Flat	20	Without	50	1B	For tone	100	RK12L1230C0K	2	
					10	15A			RK12L1230C0T		
			25	With	20	1B			RK12L1230C1M		
					50				RK12L123000E		
	Horizontal type		30	Without	10	15A			RK12L1210C0R	1	
					50	15C			RK12L12C0C0V	2	
	Vertical type		30	Without	10	15A			For vol.		RK12L12C0A0E
					20						RK12L12C0A0G
		25			RK12L12C0A0A						
		10			RK12L12A0C0R		1				


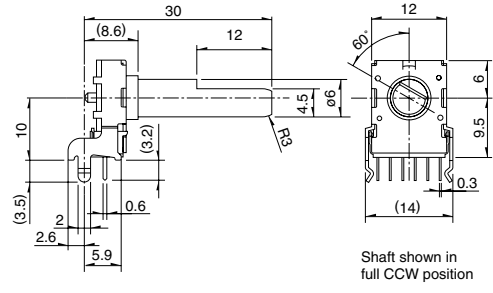
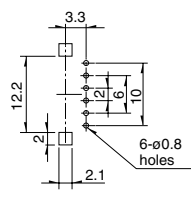

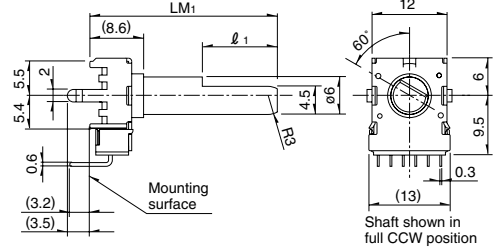
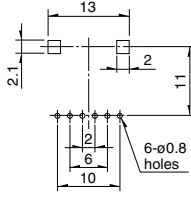
Note

Products other than those listed in above recommended product are also available. Please contact us for details.

Refer to **P.75** for product varieties.
Refer to **P.78** for product specifications.

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)										
1	<p>Horizontal type without bushing RK12L121 (For tone control) RK12L12A (For vol. control)</p> 												
2	<p>Vertical type without bushing RK12L123 (For tone control) RK12L12C (For vol. control)</p> 	<table border="1" data-bbox="638 649 893 705"> <tr> <td>LM₁</td> <td>15</td> <td>20</td> <td>25</td> <td>30</td> </tr> <tr> <td>ℓ₁</td> <td>4.5</td> <td>7</td> <td>12</td> <td>12</td> </tr> </table> 	LM ₁	15	20	25	30	ℓ ₁	4.5	7	12	12	
LM ₁	15	20	25	30									
ℓ ₁	4.5	7	12	12									

Rotary Potentiometers

Slide Potentiometers

Multi Control Devices

Sensors

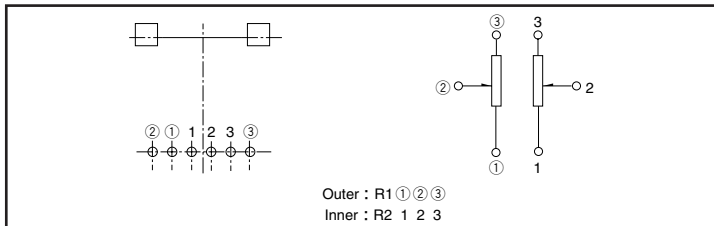
Metal Shaft

Insulated Shaft

Hollow Type

Knob Operating

Terminal Layout/Circuit Diagram



Product Varieties

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

Total Resistance Variety

Total resistance (kΩ)	5	10	20	50	100	200
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Resistance Taper

Resistance taper	15A	1B	3B	15C
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Shaft Variety

Unit:mm

Style	Vertical type		Horizontal type	
	LM ₁	15	20	25
ℓ ₁	4.5	7	12	12

Note

marked are specifications recommended by ALPS.

Refer to P.76, 211 for resistance taper.

Orders Other Than Recommended Products

When ordering product varieties that are not listed in the Recommended Product list, please specify by referring to the below example.

Sample Part Number



Model type

Code	Model type
1	Horizontal type for tone
3	Vertical type for tone
A	Horizontal type for vol.
C	Vertical type for vol.

Shaft type

Code	Shaft type
F	Flat

* Only available in flat format.

Length of the shaft (LM₁) (mm)

Code	Length of the shaft	Code	Length of the shaft
15	15	25	25
20	20	30	30

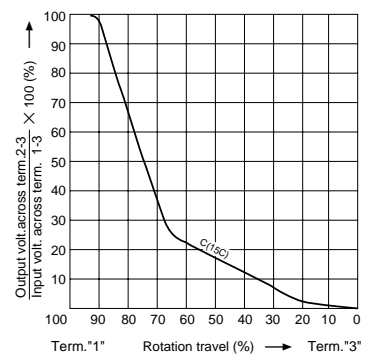
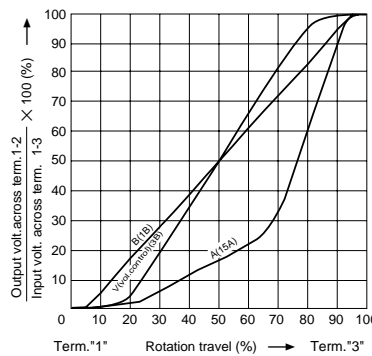
Detent

Code	Center detent
C0	Without
C1	With

Resistance taper

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

B: For tone & general (Model type : 1,3)
V: For vol. (Model type : A,C)



Total resistance

Code	Total resistance (kΩ)	Code	Total resistance (kΩ)
502	5	503	50
103	10	104	100
203	20	204	200

Note

marked are specifications recommended by ALPS.

- Rotary Potentiometers
- Slide Potentiometers
- Multi Control Devices
- Sensors
- Metal Shaft
- Insulated Shaft
- Hollow Type
- Knob Operating

Product Specifications

Type		9mm Size Insulated Shaft Snap-in		11mm Size Insulated Shaft Snap-in	14mm Size Insulated Shaft Snap-in	12mm Size Insulated Shaft Snap-in	9mm Size Insulated shaft Long-life
		RK09K11□ RK09D11□	RK09K12□	RK11K11□	RK14K12□	RK12L12□	RK09Y11L
Items		Single-unit	Dual-unit	Single-unit	Dual-unit	Dual-unit	Single-unit
Operating temperature range		-10°C to +70°C					
Electrical performance	Total resistance tolerance	±20%	±30%	±20%		±30%	
	Rated power	0.05W	0.03W	0.05W		0.01W	
	Maximum operating voltage	50V AC 20V DC	50V AC For AC only	50V AC 20V DC	50V AC For AC only		50V AC 5V DC
	Insulation resistance	100MΩ min. 250V DC		100MΩ min. 500V DC	100MΩ min. 250V DC		
	Voltage proof	250V AC (for 1minute)		500V AC (for 1minute)	300V AC (for 1minute)		250V AC (for 1minute)
	Gang error	—	-40dB to 0dB 3dB max.	—	Volume control -40dB to 0dB 3dB max. For tone control within 2dB at center		—
Mechanical performance	Total rotational angle		RK09K : 280±5° RK09D11□ : 300±5°	300±5°			
	Rotational torque		1 to 8mN·m	3 to 20mN·m		2 to 15mN·m	5mN·m max.
	Strength of the actuator	Stopper strength	0.3N·m	Without bushing 0.5N·m With bushing 0.6N·m	0.6N·m	0.5N·m	—
		Push-pull strength	50N max.	80N max.		30N max.	
	Vibration		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				
	Resistance to soldering heat	Manual soldering	350°C max. 3s max.				
		Dip Soldering	—			260°C max. 5s max.	—
Endurance	Operating life	Single-unit : 5,000cycles Dual-unit : 10,000cycles	15,000cycles			1,000,000 cycles	
Environmental performance	Cold	-30±2°C for 96h				-30±2°C for 240h	
	Dry heat	70±2°C for 96h			70±2°C for 240h		
	Damp heat	40±2°C, 90 to 95% RH for 96h				40°C, 90 to 95% RH for 240h	

Rotary Potentiometers

Slide Potentiometers

Multi Control Devices

Sensors

Metal Shaft

Insulated Shaft

Hollow Type

Knob Operating

12mm Size Snap-in Insulated Shaft Potentiometer

RK12L Series

12mm O.D. type with improved structure for better characteristics.

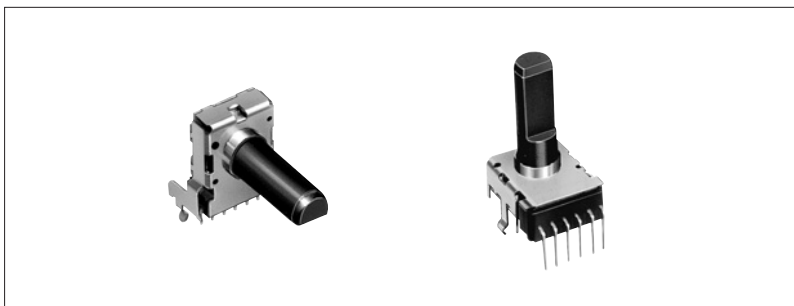
Rotary Potentiometers

Slide Potentiometers

Trimmer Potentiometers

Multi Control Devices

Position Sensors



Metal Shaft

Insulated Shaft

Knob Operating

Features

- Enhanced structural design has improved cross talk and gang error characteristics.
- R-shaped shaft end point prevents catching when inserting the knob.
- Solder bridges can hardly appear thanks to terminal configuration.

Applications

- Sound volume, tone and balance controls for audio devices, including mini component stereos and CD players
- Controls for audio mixes, musical instruments and image devices including DVD players

Typical Specifications

Items	Specifications
Total resistance tolerance	±20%
Maximum operating voltage	50V AC for AC only
Total rotational angle	300±5°
Rotational torque	3 to 20mN·m
Operating life	15,000 cycles
Operating temperature range	-10°C to +70°C

Recommended Products List

Number of resistor elements	Mounting direction	Products No.	Shaft type	Length of the shaft LM ₁ (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Application	Minimum packing unit (pcs.)	Drawing No.
Dual-unit	Vertical type	RK12L1230C0K	Flat	20	Without	50	1B	For tone	100	2
		RK12L1230C0T		30		10	15A			
		RK12L1230C1M		25	With	20	1B			
		RK12L123000E		30		50				
	Horizontal type	RK12L1210C0R		30	Without	10	15A	For vol.		1
	Vertical type	RK12L12C0C0V		15		50	15C			
		RK12L12C0A0E		25		10	15A			2
		RK12L12C0A0G								
		RK12L12C0A0A		30		20				
	Horizontal type	RK12L12A0C0R				30	10	1		

Note

Additional product specifications in response to those not included in the above recommended products are also available.

For product specifications, see P.71
For other detailed specifications, see P.75

Product Varieties

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

Total Resistance Variety

Total resistance (kΩ)	5	10	20	50	100	200
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Resistance Taper

Resistance taper	15A	1B	3B	15C
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Shaft Variety

Unit:mm

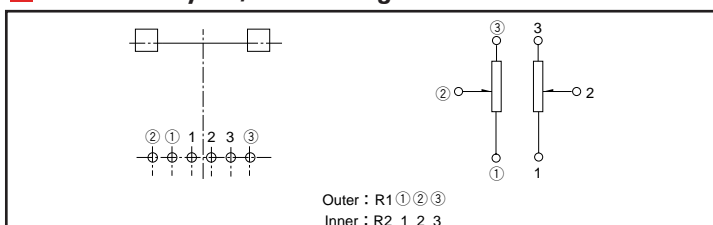
Style	Vertical type			Horizontal type	
Shaft variety	LM ₁	15	20	25	30
	l ₁	4.5	7	12	12

Dimensions

Unit:mm

No.	Model	Style	PC board mounting hole dimensions (View from mounting side)
1	Horizontal type without bushing RK12L121 (For tone control) RK12L12A (For vol. control)		
2	Vertical type without bushing RK12L123 (For tone control) RK12L12C (For vol. control)		

Terminal Layout/Circuit Diagram



For other resistance taper, see P.72, 224

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



Model type

Code	Model type
1	Horizontal type for tone
3	Vertical type for tone
A	Horizontal type for vol.
C	Vertical type for vol.

Shaft type

Code	Shaft type
F	Flat

* Only available in flat format.

Length of the shaft (LM₁) (mm)

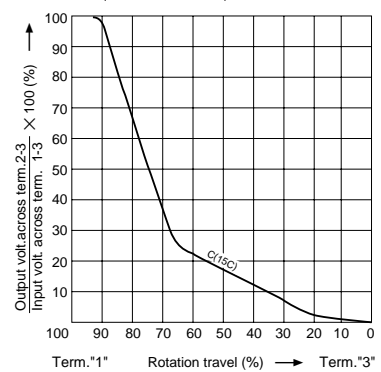
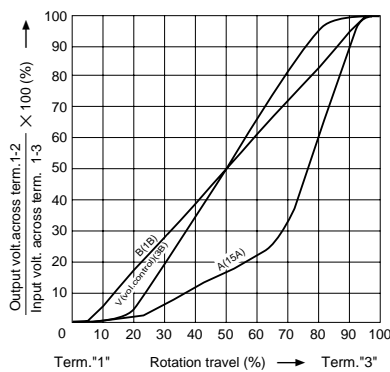
Code	Length of the shaft	Code	Length of the shaft
15	15	25	25
20	20	30	30

Detent

Code	Center detent
C0	Without
C1	With

Resistance taper

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



Total resistance

Code	Total resistance (kΩ)	Code	Total resistance (kΩ)
502	5	503	50
103	10	104	100
203	20		

Note

C Shows the specification recommended by us.

Rotary Potentiometers
Slide Potentiometers
Trimmer Potentiometers
Multi Control Devices
Position Sensors

Metal Shaft
Insulated Shaft
Knob Operating

Products Varieties

Items		Type	9mm size		11mm size	12mm size 14mm size		
		Model	RK09K11□ RK09D11□	RK09K12□	RK11K11□	RK12L12□ RK14K12□		
			Single-unit	Dual-unit	Single-unit	Dual-unit		
Operating temperature range		-10°C to +70°C						
Electrical performance	Total resistance tolerance	±20%	±30%	±20%				
	Rated power	0.05W	0.03W	0.05W				
	Maximum operating voltage	50V AC 20V DC	50V AC For AC only	50V AC 20V DC	50V AC For AC only			
	Insulation resistance	100MΩ min. 250V DC		100MΩ min. 500V DC	100MΩ min. 250V DC			
	Voltage proof	1 minute 250V AC		1 minute 500V AC		1 minute 300V AC		
	Gang error	—	-40dB to 0dB within 3dB	—	Volume control -40dB to 0dB max. 3dB For tone control within 2dB at center			
Mechanical performance	Total rotational angle		280±5° RK09D11□ : 300±5°		300±5°			
	Rotational torque		1 to 8mN·m		3 to 20mN·m			
	Strength of the operating section	Stopper strength	0.3N·m		Without bushing 0.5N·m With bushing 0.6N·m	14mm 0.6N·m 12mm 0.5N·m		
		Push-pull strength	50N max.		80N max.			
	Vibration		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					
	Solder heat resistance	Manual soldering	350°C max. 3s max.					
	Endurance	Operating life	5,000 cycles			15,000 cycles		
Environmental test	Cold	-10°C for 96h						
	Long-term heat resistance	+70°C for 96h						
	Moisture resistance	+40±2°C, 90 to 95%RH for 96h						

Rotary Potentiometers

Slide Potentiometers

Trimmer Potentiometers

Multi Control Devices

Position Sensors

Metal Shaft

Insulated Shaft

Knob Operating