

Metal Shaft Potentiometer 16mm Size Metal Shaft Type

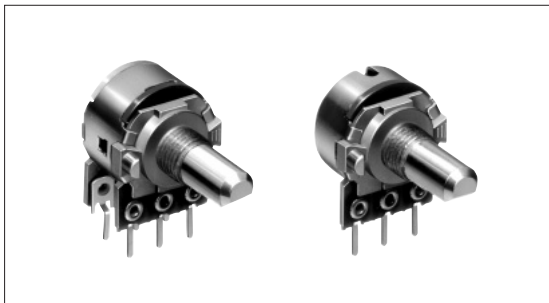
RK163 Series



A wide range of versatility products applicable for various types of control.

Rotary Potentiometers

Slide Potentiometers



Typical Specifications

Items	Specifications
Total resistance tolerance	±20%
Maximum operating voltage	150V AC, 5V DC
Total rotational angle	300±3°
Rotational torque	3 to 25mN·m
Operating life	15,000cycles
Operating temperature range	-10°C to +70°C

Metal Shaft

Insulated Shaft

Knob Operating

Product Line

Number of resistor elements	Mounting direction	Shaft type	Terminal style	Length of the shaft (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Minimum order unit (pcs.)	Products No.	Drawing No.		
Single-unit	Horizontal type	Flat	For PC board	15	Without	10	1B	600	RK1631110TBK	1		
			Lead	20					RK1631110TT3			
									RK1631110U1Q			
		Knurled	For PC board	15				20	600	RK1631110TNP	2	
			Lead							RK1631110TTU		
										RK1631110U0Q		
Dual-unit for tone	Horizontal type	Flat	For PC board	20	With	10	600	RK1631210AWN	5			
								RK1631210A2				
Knurled		15		20	50			3B	RK1631210AX9	6		
									RK16312A0B85			
Dual-unit for vol.		Flat		20	Without			10	15A	600	RK16312A0BKH	5
											RK16312A0BKR	
Knurled	15	25	10	15A	600	600	RK16312A0BKH	6				
							RK16312A0BKR					

Packing Specifications

Bulk

Terminal style	Number of packages (pcs.)		Export package measurements (mm)
	1 case /Japan	1 case/export packing	
For PC board	600	1,200	326×532×386
Lead	200	400	270×360×155


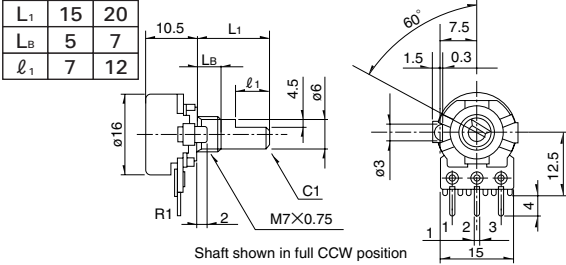
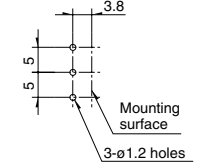

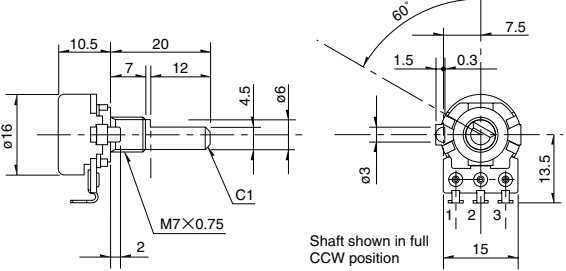
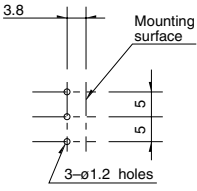

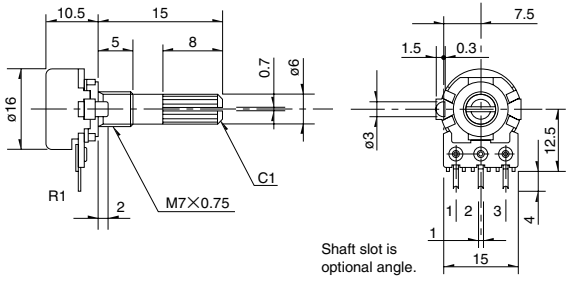
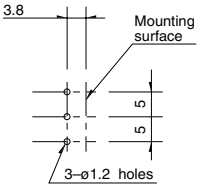

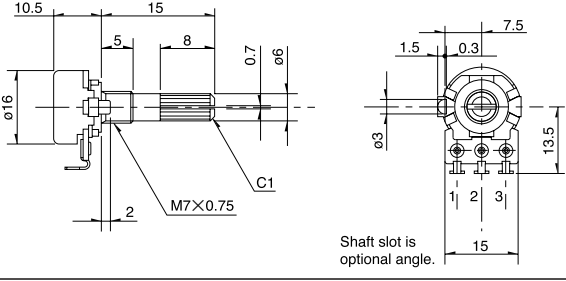
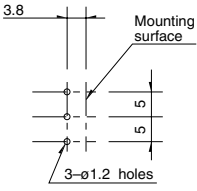
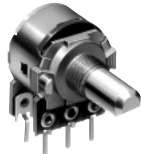
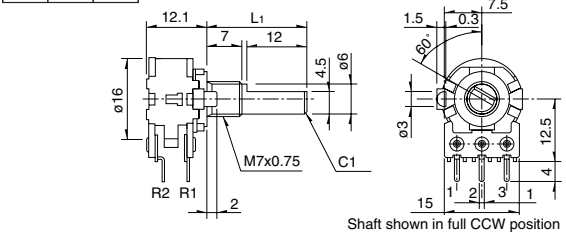
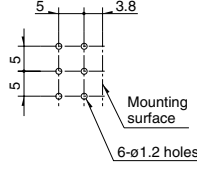
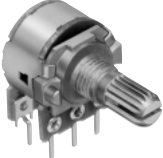
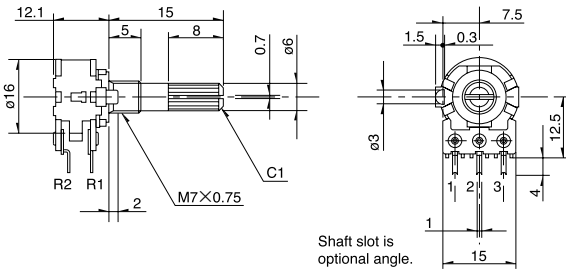
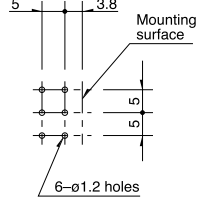
Note

1. Products other than those listed in above products are also available. Please contact us for details.
2. Please place purchase orders per minimum order unit N (integer).

Refer to P.367 for product varieties.
Refer to P.367, 368, 456 for resistance taper.
Refer to P.377 for attached parts.

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)									
1		<table border="1" data-bbox="592 331 727 412"> <tr> <td>L₁</td> <td>15</td> <td>20</td> </tr> <tr> <td>L_B</td> <td>5</td> <td>7</td> </tr> <tr> <td>l₁</td> <td>7</td> <td>12</td> </tr> </table>  <p>Shaft shown in full CCW position</p>	L ₁	15	20	L _B	5	7	l ₁	7	12	
L ₁	15	20										
L _B	5	7										
l ₁	7	12										
2		 <p>Shaft shown in full CCW position</p>										
3		 <p>Shaft slot is optional angle.</p>										
4		 <p>Shaft slot is optional angle.</p>										
5		<table border="1" data-bbox="592 1480 727 1509"> <tr> <td>L₁</td> <td>20</td> <td>25</td> </tr> </table>  <p>Shaft shown in full CCW position</p>	L ₁	20	25							
L ₁	20	25										
6		 <p>Shaft slot is optional angle.</p>										

Product Varieties

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

Product Specifications and Applications

Type	Model	Applications	Detent variety
Single-shaft, single-unit	RK16311	General	Center 21
Single-shaft, dual-unit	RK16312	General or Volume and tone control	31 41

Total Resistance Variety

Total resistance (k Ω)	5	10	20	50	100	200

Resistance Taper

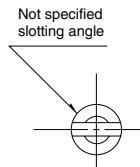
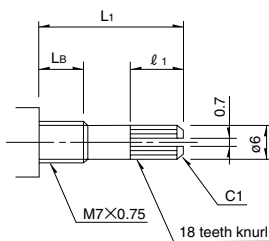
Resistance taper	15A	1B	3B	15C

Dimensions of Shaft

1) 18 teeth knurl

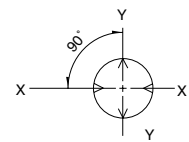
Unit:mm

Die-casting shaft



Detail dimensions

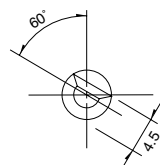
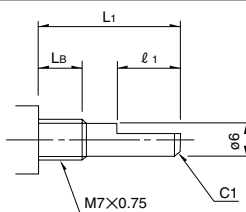
L ₁	L _B	l ₁
15	5	8
20	5	12
25	7	12
30	7	12



Shaft shown in full CCW position
● The serration angle shall be as shown.

2) Flat type

Unit:mm



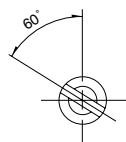
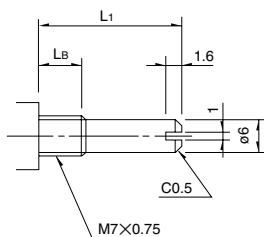
Detail dimensions

L ₁	L _B	l ₁
15	5	7
20	7	12
25	7	12
30	7	12

Shaft shown in full CCW position

3) Slotted type

Unit:mm



Detail dimensions

L ₁	L _B
15	7
20	7
25	7
30	7

Shaft shown in full CCW position

Note

marked are specifications recommended by ALPS.

Refer to P.368, 456 for resistance taper.
Refer to P.377 for attached parts.

Orders Other Than Recommended Products

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

Sample Part Number



Model type

Code	Model type
111	Single-unit
121	Dual-unit for tone
12A	Dual-unit for vol.

Shaft type

Code	Shaft type
F	Flat
S	Slotted
K	Knurled

Length of the shaft (L₁) (mm)

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

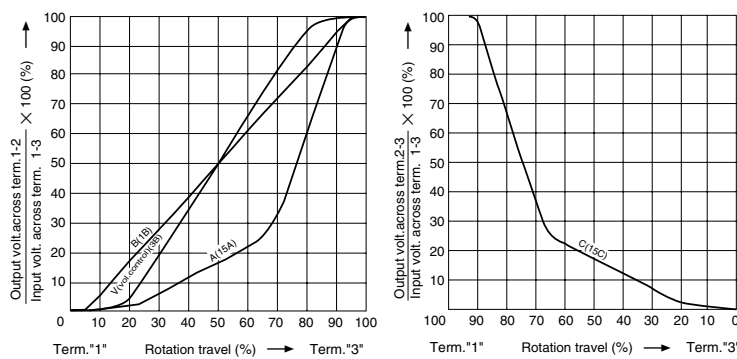
Detent

Code	Detent	Code	Detent
C0	Without	31	31
C1	Center	41	41
21	21		

Resistance taper

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

B: For tone & general(model type : 111,121)
 V: For vol.(model type : 111,12A)



Total resistance

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





Terminal style

Code	Terminal style
P	For PC board
L	Lead terminal

Note

marked are specifications recommended by ALPS.

List of Varieties

Type	16mm size metal shaft	20mm size metal shaft	27mm size metal shaft	Rotary motor-driven	
Number of drive shafts	Single-shaft				
Model	RK1631□1 RK1631□A	RK203 / EC20A	RK2711	RK1681□ MG0	
Photo					
Fixing method of bushing	Bushing screw clamp	The bushing can be fastened by use of screws	Bushing screw clamp	The bushing can be fastened by use of screws	
Terminal mounting	Horizontal type	Vertical type	Horizontal type		
Attached switch	Without				
Gang error applicable to Dual-unit parts for audio volume control purposes	-40dB to 0dB 3dB max.	—————	-60dB to 0dB 3dB max.	-40dB to 0dB 3dB max.	
Solder heat resistance	Manual soldering	350°C max. 5s max.	300°C max. 3s max.	350°C max. 5s max. 300°C max. 3s max. Motor terminal : 350°C max 2s max.	
	Dip soldering	—————	260±5°C, 5±1s	—————	
	Reflow soldering	—————			
Operating temperature range	-10°C to +70°C	EC20A : -30°C to +85°C RK203 : -40°C to +85°C	-10°C to +70°C		
Electrical performance	Rated power	0.05W			0.05W
	Residual resistance	$R \leq 10k\Omega$ 20Ω max. $10k\Omega < R < 50k\Omega$ 30Ω max. $50k\Omega \leq R$ Nominal total resistance of 0.1% or less	—————	$R \leq 10k\Omega$ 20Ω max. $10k\Omega < R < 50k\Omega$ 30Ω max. $50k\Omega \leq R$ Nominal total resistance of 0.1% or less	—————
	Maximum attenuation (Volume control)	$5k\Omega \leq R < 10k\Omega$ 70dB min. $10k\Omega \leq R < 50k\Omega$ 80dB min. $50k\Omega \leq R < 100k\Omega$ 90dB min. $100k\Omega \leq R$ 100dB min.	—————	$5k\Omega \leq R < 10k\Omega$ 70dB min. $10k\Omega \leq R < 50k\Omega$ 80dB min. $50k\Omega \leq R < 100k\Omega$ 90dB min. $100k\Omega \leq R$ 100dB min.	—————
	Insulation resistance	100MΩ min. 500V DC	100MΩ min. 250V DC	100MΩ min. 500V DC	100MΩ min. 250V DC
	Voltage proof	500V AC for 1minute	300V AC for 1minute	500V AC for 1minute	300V AC for 1minute
Mechanical performance	Stopper strength(N·m)	0.9	0.5	0.9	
	Push-pull strength	100N 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			
Environmental performance	Cold	-20±2 for 96h	-40±3°C for 192h	-20±3°C for 96h	-20±2 for 16h
	Dry heat	70±2°C for 96h	85±3°C for 192h	70±2°C for 96h	70±2°C for 96h
	Damp heat	40±2°C, 90 to 95%RH for 96h	60±3°C, 90 to 95%RH for 240h	40±2°C, 90 to 95%RH for 96h	40±2°C, 90 to 95%RH for 96h
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- Metal Shaft Potentiometers Attached Parts377
- Metal Shaft Potentiometers Cautions378, 379

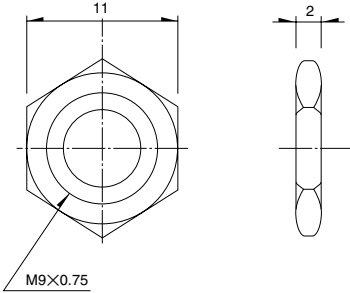
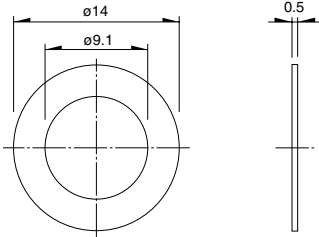
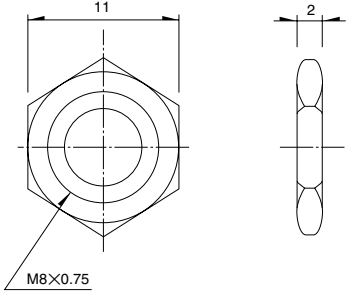
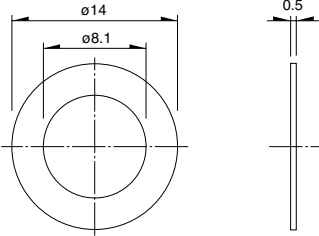
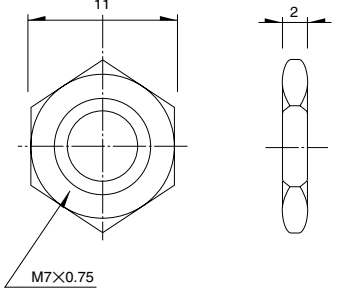
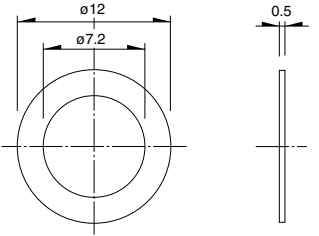
Rotary Potentiometers
Slide Potentiometers

Metal Shaft
Insulated Shaft
Knob Operating

Attached Parts

The following parts are included with the product.

Unit:mm

Applicable products	Bearing screw diameter	Hexagonal nut	Flat washer
Rotary Potentiometers Slide Potentiometers RK09L RK168 RK097 RK203	M9		
Metal Shaft Insulated Shaft Knob Operating RK271	M8		
RK097 RK163	M7		
RK097	M6	