

Metal Shaft Potentiometer 20mm Size Metal Shaft Type

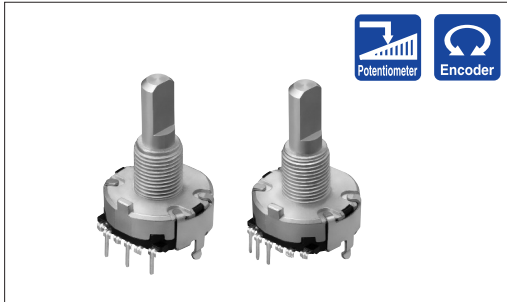
RK203/EC20A Series



Heavy rotation torque and good operational feel, available in potentiometer and encoder types.

Rotary Potentiometers

Slide Potentiometers



Typical Specifications

Items	Specifications	
	Potentiometer	Encoder
Rating	0.05W	1mA 5V DC
Operating life	30,000cycles	
Operating temperature range	-40°C to +85°C	

Products Line

Potentiometer

Number of resistor elements	Operating section	Length of operating section (mm)	Detent torque (mN · m)	Number of positions	Rotational angle	Operating direction	Minimum order unit (pcs.)	Products No.	Drawing No.
Single-unit	Flat	30	40±20	17	220°	Vertical	800	RK203111000V	1

Encoder

Operating section	Length of operating section (mm)	Detent torque (mN · m)	Number of detent	Number of pulse	Travel of push-on switch (mm)	Operating direction	Minimum order unit (pcs.)	Products No.	Drawing No.
Flat	30	40±20	18	18	—	Vertical	800	EC20A1820401	2
					1.5			EC20A1824401	3

Packing Specifications

Tray

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case/export packing	
400	800	374×508×272

Notes

1. The same size of the potentiometer type can be used as an encoder type. The switch type is an incremental encoder type only.
2. Please place purchase orders per minimum order unit N (integer).



Automotive Use

Refer to P.470 for resistance taper.
Refer to P.379 for attached parts.


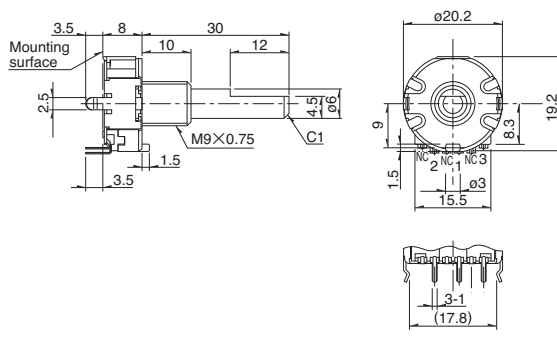
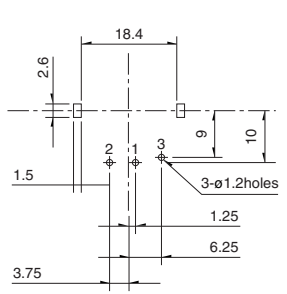

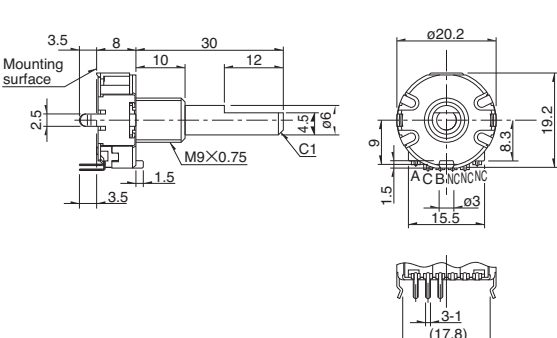
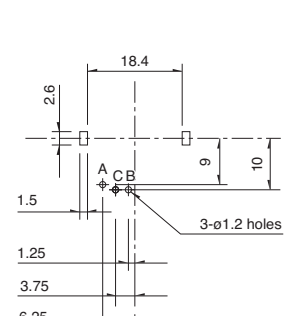

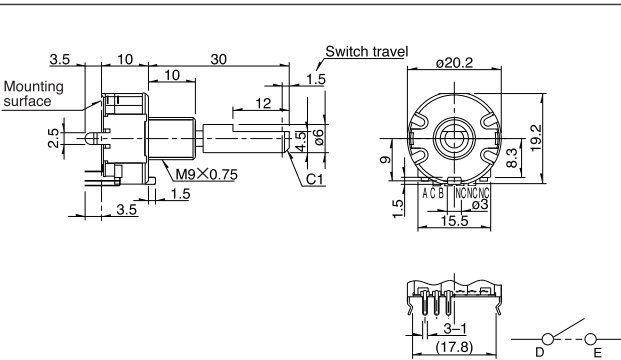
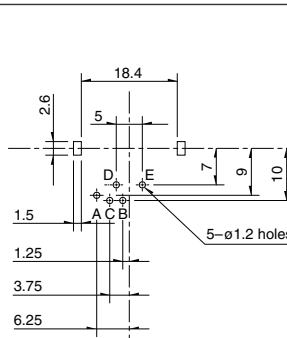
Rotary Potentiometers
Slide Potentiometers

Metal Shaft
Insulated Shaft
Knob Operating
Ring Type Devices







Automotive Use

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1	<p>RK203 Without switch type, Potentiometer type</p> 		
2	<p>EC20A Without switch type, Incremental type</p> 		
3	<p>EC20A With push-on switch (travel 1.5mm), Incremental type</p> 		

List of Varieties

Type	16mm size metal shaft	20mm size metal shaft	27mm size metal shaft	50mm size metal shaft high-quality-audio	Rotary motor-driven	
Number of drive shafts	Single-shaft					
Model	RK1631□1 RK1631□A	RK203 / EC20A	RK2711	RK5011□A	RK1681□ MG0	
Photo						
Fixing method of bushing	Bushing screw clamp					
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.	-100dB to 0dB 2dB 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.	350±10°C, 5 ⁺¹ s 300°C max. 3s max. Motor terminal : 350° max 2s max.	
	Dip soldering	—	260±5°C, 5±1s	—	260±5°C, 5±1s	
	Reflow soldering	—				
Operating temperature range	-10°C to +70°C	-40°C to +85°C	-10°C to +70°C			
Automotive use	—	○	—			
Electrical performance	Rated power	0.05W		0.1W	0.05W	
	Residual resistance	R≤10kΩ 20Ω max. 10kΩ<R<50kΩ 30Ω max. 50kΩ≤R Nominal total resistance of 0.1% or less	—	R≤10kΩ 20Ω max. 10kΩ<R<50kΩ 30Ω max. 50kΩ≤R Nominal total resistance of 0.1% or less	—	
	Maximum attenuation (Volume control)	5kΩ≤R<10kΩ 70dB min. 10kΩ≤R<50kΩ 80dB min. 50kΩ≤R<100kΩ 90dB min. 100kΩ≤R 100dB min.	—	5kΩ≤R<10kΩ 70dB min. 10kΩ≤R<50kΩ 80dB min. 50kΩ≤R<100kΩ 90dB min. 100kΩ≤R 100dB min.	120dB min.	5kΩ≤R<10kΩ 70dB min. 10kΩ≤R<50kΩ 80dB min. 50kΩ≤R<100kΩ 90dB min. 100kΩ≤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	1.5	0.9
	Push-pull strength	100N max.			150N max.	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 240h	-30±3°C for 96h	-20±3°C for 240h	-20±2°C for 96h
	Dry heat	70±2°C for 96h	85±3°C for 240h	70±2°C for 96h	70±2°C for 240h	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	60±2°C, 90 to 95%RH for 240h	40±2°C, 90 to 95%RH for 96h
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Note

○marks in "Available for automotive use" indicate that some of the series products can work at the operating temperature range from -40°C to +85°C.

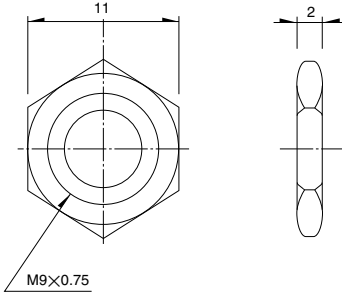
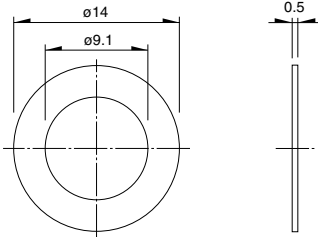
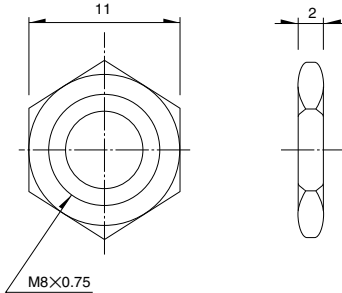
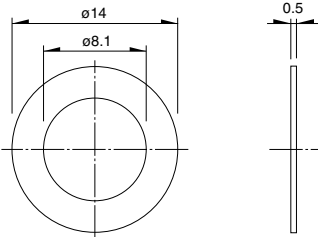
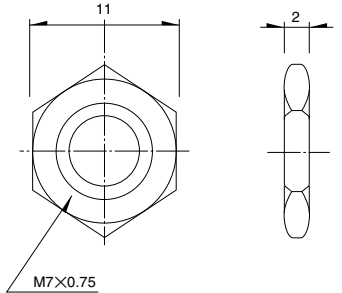
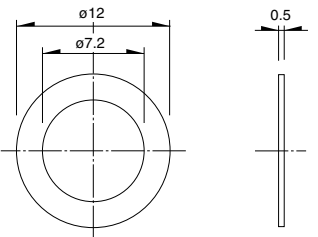
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Attached Parts

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 Ring Type Devices RK271	M8		
RK097 RK163	M7		
RK097	M6	