

Metal Shaft Potentiometer

20mm Size Metal Shaft Type

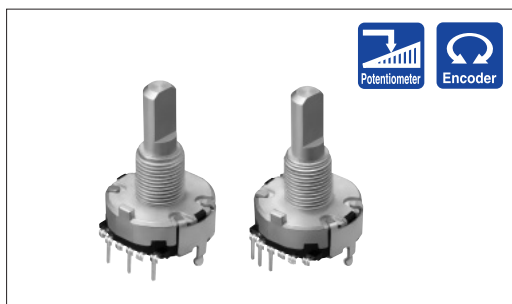
RK203/EC20A Series



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

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 ~ +85°C	-30°C ~ +85°C

Products Line

Potentiometer

Number of resistor elements	Operating section	Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Rotational angle	Operating direction	Minimum order unit (pcs.)	Products No.	Drawing No.
Single-unit	Flat	30	Depending on individual specification		240° max	Vertical	400	RK2031110	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	400	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	525×375×258

Notes

1. All the potentiometer types can be customized. Contact us with the detailed specifications .
2. The same size of the non-switch type can be used as an encoder type. The switch type is an incremental encoder type only.
3. Please place purchase orders per minimum order unit N (integer).



Automotive
Use

Refer to **P.456** for resistance taper.
Refer to **P.377** for attached parts.

Unit:mm

Rotary
Potentiometers

Slide
Potentiometers

Metal Shaft
Insulated Shaft
Knob Operating

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℃ max. 5s max.	300℃ max. 3s max.	350℃ max. 5s max.	300℃ max. 3s max. Motor terminal : 350℃ max 2s max.
	Dip soldering	_____	260±5℃, 5±1s	_____	_____
	Reflow soldering	_____			
Operating temperature range		−10℃ to +70℃	EC20A : −30℃ to +85℃ RK203 : −40℃ to +85℃	−10℃ to +70℃	
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℃ for 192h	−20±3℃ for 96h	−20±2 for 16h
	Dry heat	70±2℃ for 96h	85±3℃ for 192h	70±2℃ for 96h	70±2℃ for 96h
	Damp heat	40±2℃, 90 to 95%RH for 96h	60±3℃, 90 to 95%RH for 240h	40±2℃, 90 to 95%RH for 96h	40±2℃, 90 to 95%RH for 96h
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Rotary
Potentiometers
Slide
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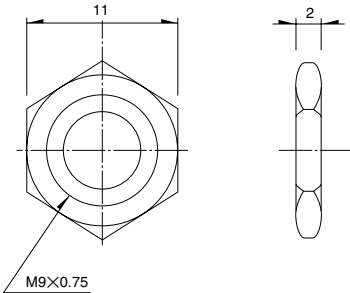
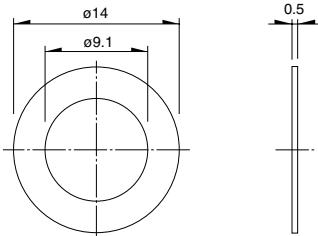
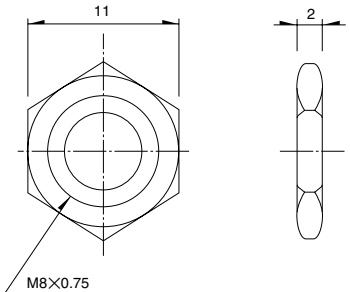
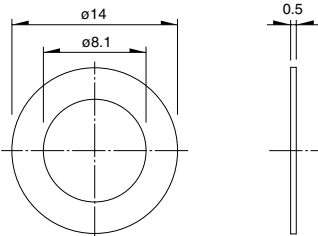
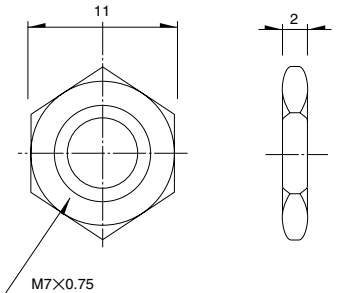
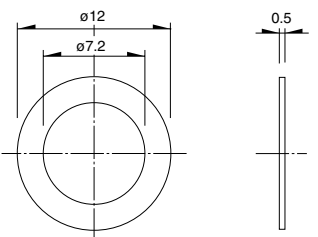
Metal
Shaft
Insulated
Shaft
Knob
Operating

- Metal Shaft Potentiometers Attached Parts377
- Metal Shaft Potentiometers Cautions378, 379

Attached Parts

The following parts are included with the product.

Unit:mm

Applicable products	Bearing screw diameter	Hexagonal nut	Flat washer
RK09L RK168 RK097 RK203	M9		
RK271	M8		
RK097 RK163	M7		
RK097	M6	