

# RK168 Rotary Motor-driven Type

Remote controllable and available in a wide variety of products



## Typical Specifications

Items	Specifications
Total resistance tolerance	±20%
Maximum operating voltage	50V AC
Total rotational angle	300° ±5°
Rotational torque	10 to 40mN·m
Operating life	15,000 cycles
Operating temperature range	-10°C to +70°C
Motor voltage	4 to 6V DC (Stander: 4.5V DC)
Potentiometer rotational speed (sec./300°)	12±3 (4.5V DC)
Maximum operating current	At rotation: 100mA / At end slip: 150mA

## Product Line

Number of resistor elements	Shaft type	Length of the shaft L <sub>1</sub> (mm)	Total resistance (kΩ)	Resistance taper	Motor print terminal	Minimum order unit (pcs.)		Products No.	Drawing No.
						Japan	Export		
Dual-unit	Flat	25	100	3B	With	200	200	<b>RK16812MG099</b>	1
			10		Without			<b>RK16812MG09T</b>	2
Quad-unit			100	15A				<b>RK16814MGA0K</b>	3

### Note

Other varieties are also available. Refer to "Other Specifications" (P.308, 309).

## Packing Specifications

Tray

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case /export packing	
200	200	527×368×215

## Dimensions

Unit:mm

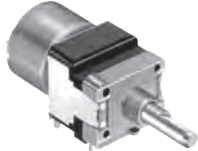
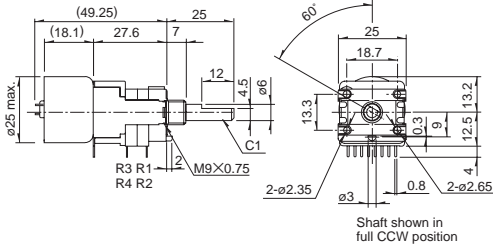
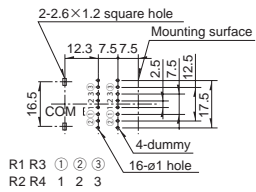
No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1	<p><b>16mm size Single-shaft, dual-unit RK16812MG</b></p>	<p>Shaft shown in full CCW position</p>	
2	<p><b>16mm size Single-shaft, dual-unit RK16812MG</b></p>	<p>Shaft shown in full CCW position</p>	

Refer to P.308 for other specifications.  
Refer to P.309 for attached parts.  
Refer to P.310 for ordering products not listed.  
Refer to P.311 for soldering conditions.

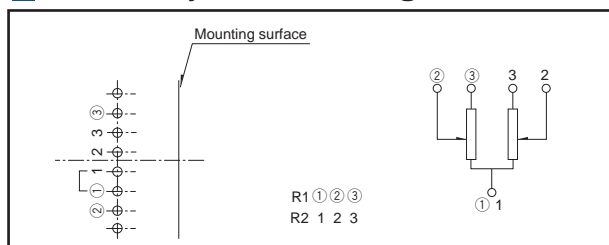
# RK168 Rotary Motor-driven Type

## Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
3	 <p><b>16mm size Single-shaft, quad.-unit RK16814MG</b></p>	 <p>Shaft shown in full CCW position</p>	 <p>2-2.6×1.2 square hole Mounting surface COM R1 R3 ① ② ③ R2 R4 1 2 3 4-dummy 16-φ1 hole</p>

## Terminal Layout / Circuit Diagram



## Rotary Motor-driven Type / Other Specifications

In addition to the Product Line, we accommodate the following specifications. Combinations not included in the Product Line are treated as semi-standard products.

### Basic Motor Specifications

Number of unit	Model	Motor type		Motor voltage	Potentiometer rotational speed	Max. operating current
		Sealed case	Motor printed terminal			
Single-shaft, dual-unit	RK16812MG	Available	Available	4 to 6V DC (Standard: 4.5V DC)	12±3s/300° (4.5V DC)	At rotation 100mA At end slip 150mA (4.5V DC)
Single-shaft, quad-unit	RK16814MG					

### Total Resistance Variety

Total resistance (kΩ)	10	20	50	100

### Resistance Taper

Resistance taper	15A	3B

Rotary Potentiometers / Slide Potentiometers

Metal Shaft / Insulated Shaft

Knob Operating

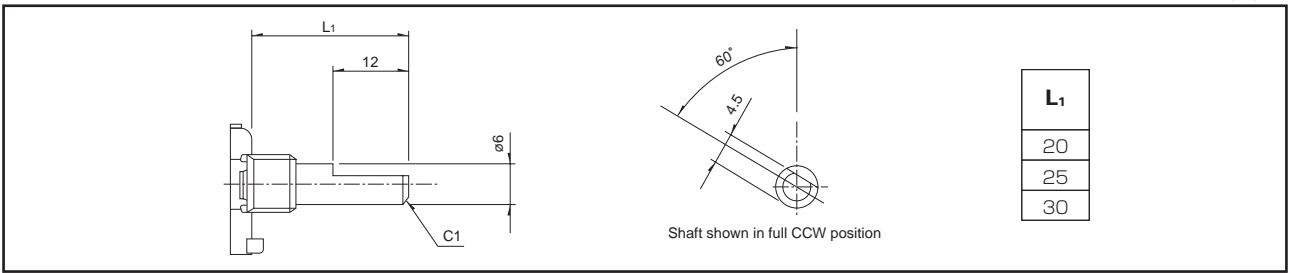
Through Shaft Type

Ring Type

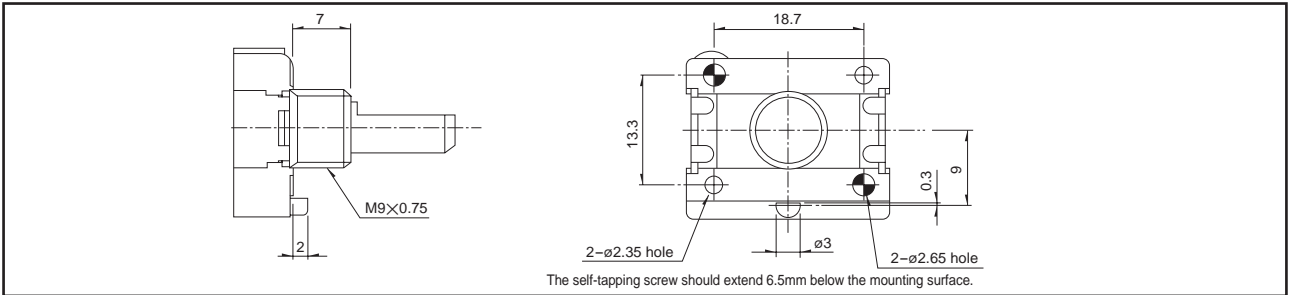
# Rotary Motor-driven Type / Other Specifications

In addition to the Product Line, we accommodate the following specifications. Combinations not included in the Product Line are treated as semi-standard products.

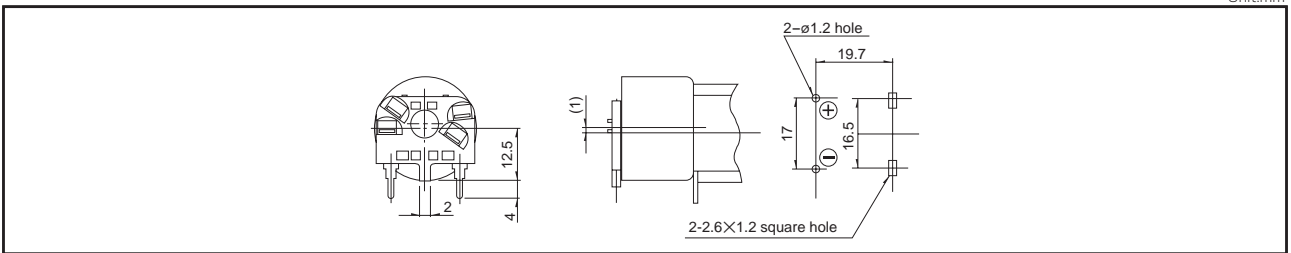
## Shaft Variety



## Standard Dimensions of Bushing and Fixing Lug



## Style of Printed Terminal for Motor

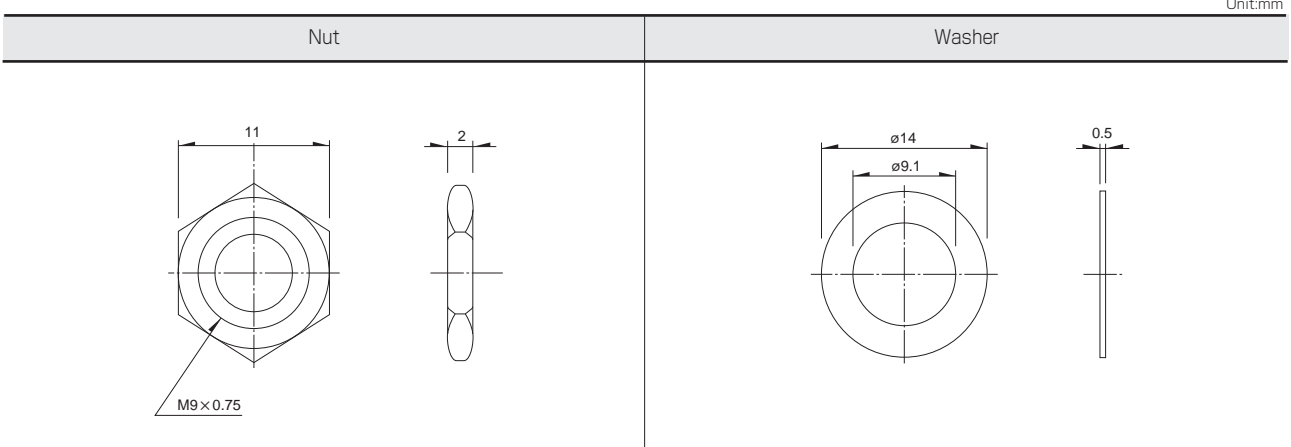


### Note

Marked are specifications recommended by Alps Alpine.

# Rotary Motor-driven Type / Attached Parts

The following parts are included with the product.



# Rotary Motor-driven Type / Ordering Products Not Listed

In addition to the Product Line, we accommodate the following specifications. Combinations not included in the Product Line are treated as semi-standard products. Please refer to the notation example below.

## Sample Part Number

**R K 1 6 8 1 2 M G** - **F 2 0** - **B 1 0 3** - **M 0**

Model type

Code	Model type
12	Single-shaft, dual-unit
14	Single-shaft, quad-unit

Shaft type

Code	Shaft type
F	Flat

※ Flat shaft only

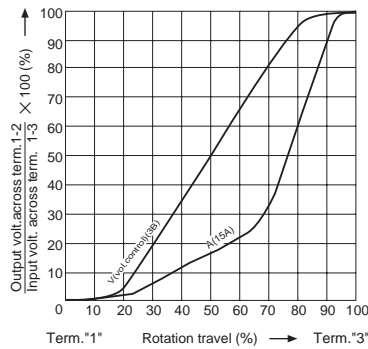
Length of the shaft L<sub>1</sub> (mm)

Code	Length of the shaft
20	20
25	25
30	30

Resistance taper

Code	Resistance taper
A	15A
V	3B

※ 1B can be accommodated on request. Please inquire.



Total resistance

Code	Total resistance (k Ω)
103	10
203	20
503	50
104	100

Printed terminal for motor

Code	Printed terminal for motor
M0	without
M1	with

## Note

Marked are specifications recommended by Alps Alpine.

Rotary Potentiometers

Slide Potentiometers









Metal Shaft

Insulated Shaft

Knob Operating

Through Shaft Type

Ring Type

Type	16mm size	27mm size	50mm size	Rotary motor-driven	
Series	<b>RK163</b>	<b>RK271</b>	<b>RK501</b>	<b>RK168</b>	
	Single-shaft				
Number of resistor elements	Single/dual	Single/dual/quad	Dual/quad		
Photo					
Control part orientation	Horizontal				
Fixing method of bushing	Bushing screw clamp				
Operating temperature range	-10°C to +70°C				
Operating life	15,000 cycles				
Available for automotive use	—	—	—	—	
Life cycle (availability)					
Electrical performance	Total resistance (kΩ)	5, 10, 20, 50, 100, 200	5, 10, 20, 50, 100, 250	10, 20, 50, 100	
	Resistance taper	15A, 1B, 3B, 15C	15A, 3B		
	Rated Power	0.1W 0.05W (15A)	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.
	Gang error applicable to Dual-unit parts for audio volume control purposes	-40dB to 0dB 3dB max.	-70dB to -60dB 3dB max. -60dB to 0dB 2dB max.	-100dB to 0dB 3dB max. ※	-60dB to -40dB 5dB max. -40dB to 0dB 3dB max.
	Insulation resistance	100MΩ min. 500V DC			100MΩ min. 250V DC
	Voltage proof	500V AC for 1 minute			300V AC for 1 minute
	Center-taps	Without			
Mechanical performance	Detent	Without, Cente	Without, Center, 21, 31, 41	Without	
	Stopper strength	0.9 N·m		1.5 N·m 0.9 N·m	
	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 for 2 hours respectively			
Shaft style	Serrated type. Flat type, Slotted type	Slotted type, Flat type	Slotted type	Flat type	
Terminal style	Insertion, Lead	Insertion			
Attached switch	—				
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**Note**

○ Indicates applicability to some products in the series.

※ Gang error of 4-gang (quad) model: - 100dB to 0dB 3dB max. (applies only between R1 and R2 and between R3 and R4)

## Reference for Manual Soldering

Series	Tip temperature	Soldering time	No. of solders
<b>RK09L, RK097</b>	350°C max.	3s max.	1 time
<b>RK271</b>	350°C max.	5s max.	1 time
<b>RK501</b>	350±10°C	5 <sup>+1</sup> <sub>0</sub> s	1 time
<b>RK163</b>	350°C max.	5s max.	1 time
<b>RK168</b>	<b>Potentiometer terminal</b>	300°C max.	1 time
	<b>Motor terminal</b>	350°C max.	

## Reference for Dip Soldering

Series	Preheating		Dip soldering		No. of solders
	Soldering surface temperature	Heating time	Soldering temperature	Soldering time	
<b>RK09L, RK097</b>	100°C max.	2 min. max.	260±5°C	5±1s	2 times max.
<b>RK501</b>	120±10°C	2 min. max.	260±5°C	5±1s	2 times