RD6R1A Rotary Type

Long-life sensor supporting absolute linearity

Typical Specifications

Items	Specifications
Rated Voltage	5V DC
Operating life	500,000 cycles
Total resistance	3.8kΩ
Operating temperature range	−40℃ to +85℃

Product Line

Mounting method	Linearity guarantee range	Linearity	Hollow shaft variation	Minimum order unit (pcs.)		Model No.
				Japan	Export	
Connector type	310°	±2%	φ3.53	1,800	1,800	**RD6R1A0008**

Note

Please ask about linearity with variable ranges other than 320° .

Packing Specifications

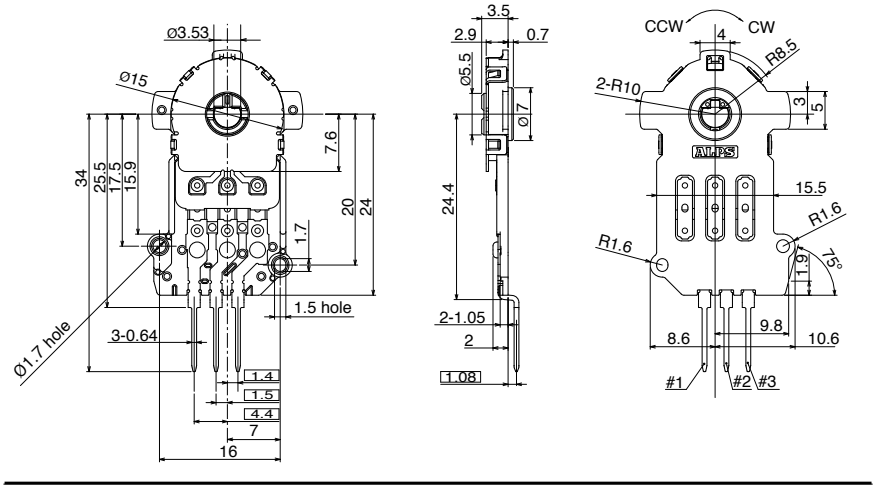
Tray

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case /export packing	
1,800	1,800	540×360×250

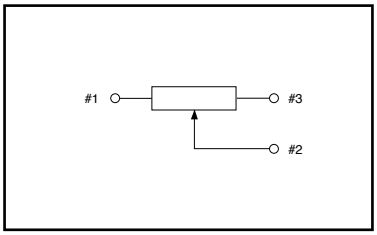
Dimensions

Unit:mm

Style



Circuit Diagram



Refer to P.466 for product specifications.

Resistive Position Sensors

List of Varieties

Type		Rotary Type			
Series		**RDC40**	**RDC50**	**RDC90**	**RD6R1A**
Photo					
Direction of lever		Horizontal	Vertical Horizontal	Vertical	
Effective electrical angle (°)		5,400 (15 rotations)	333.3	80, 260	320
Linearity guarantee range (°)		4,680 (13 rotations)	320	60, 244	310
Travel		—	—	—	—
Operating temperature range		−30℃ to +80℃	−40℃ to +120℃		−40℃ to +85℃
Operating life		100,000 cycles	1,000,000 cycles	10,000,000 cycles	500,000 cycles
Available for automotive use		—	●	●	●
Life cycle (availability)		★2	★2	★2	★2
Mechanical performance	Operating force	—	—	—	—
	Rotational torque	1.96mN·m max.	2mN·m max.		100mN·m
Electrical performance	Total resistance tolerance	±30%			±20%
	Linearity (%)	±1	±2	±3	±2 (320°)
	Rated voltage (V DC)	5			
Environmental performance	Cold	−30℃ 240h	−40℃ 168h		
	Dry heat	80℃ 240h	120℃ 168h		85℃ 168h
	Damp heat	60℃, 90 to 95%RH 240h	60℃, 90 to 95%RH 96h		80℃, 90 to 95%RH 96h
Terminal style		Connector	Insertion / Reflow	Reflow	Connector
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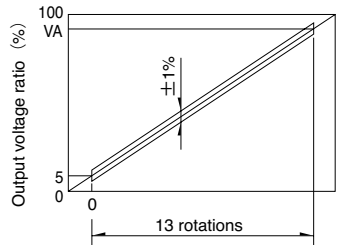
Note

● Indicates applicability to all products in the series.

Method for Regulating the Linearity

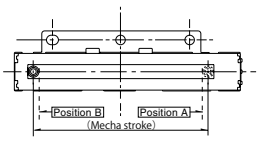
Model RDC40

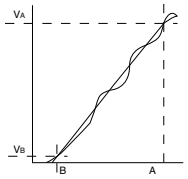
1. Reference taper : 90%/13rotations
2. VA is measured output value



Model RDC10 / RD7

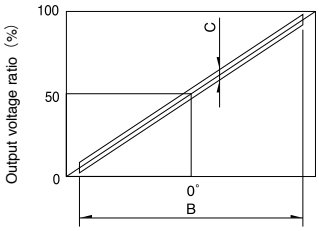
With rated voltage applied between terminals 1 and 3, the straight line which connects the measured output values VB and VA at specified reference positions B and A is assumed to be an ideal straight line, so that deviation against the ideal straight line when the voltage applied between terminals 1 and 3 is assumed to be 100% can be expressed as a percentage.





Model RDC50 / RDC90 / RD6R1A / RDCC0

1. Reference taper : 100%/A
2. Index point (0°) is 50% output point (RDC50/RDC90/RDCC0)
   The center (0°) is in the configuration diagram condition (RD6R1A)



Series	A	B	C
RDC50	333.3°	±160°	±2%
RDC90	80°	±30°	±3%
	260°	±122°	
RD6R1A	320°	±155°	±2%
RDCC0	30°	±15°	±2%

Resistive Position Sensors / Measurement and Test Methods

Resistive Position Sensor

(Total Resistance)

The total resistance, with the shaft (lever) placed at the end of terminal 1 or 3, shall be determined by measuring the resistance between the resistor terminals 1 and 3 unless otherwise specified.

(Rating Voltage)

The rating voltage corresponding to the rated power shall be determined by the following equation. When the resulting rated voltage exceeds the maximum operating voltage of a specific resistor, the maximum operating voltage shall be taken as the rated voltage.

$$E=\sqrt{P \cdot R}$$

E : Rated voltage (V)
P : Rated power (W)
R : Total nominal resistance (Ω)