

# Sensors

## Linear Type

### RDC10 Series



High precision space-saving design contributes to reduce size and weight of the set.



#### Features

- High-precision linearity is attained by high-precision printing technology.
- Light operation force contributes to reduce torque load in motor driven mode.

#### Applications

- For detecting feedback from motor drive units in digital camcorders and CD changers, MD changers
- For detecting various types of size in copy machines, multifunctional printers and projectors

Rotary Potentiometers

Slide Potentiometers

Multi Control Devices

Sensors

Rotary Type

Linear Type

#### Typical Specifications

| Items                      | Specifications |
|----------------------------|----------------|
| Rating voltage             | 5V DC          |
| Operating force            | 0.25N max.     |
| Operating life             | 200,000cycles  |
| Total resistance           | 10kΩ           |
| Total resistance tolerance | ±30%           |

#### Recommended Products List

| Travel (mm) | Linearity (Independent) | Length of lever (mm) | Length of terminal (mm) | Minimum packing unit (pcs.) ※ | Model No.  |
|-------------|-------------------------|----------------------|-------------------------|-------------------------------|------------|
| 14          | ±0.5%                   | 4.5                  | 2                       | 2,400                         | RDC1014A09 |
| 22          |                         |                      |                         | 2,100                         | RDC1022A05 |
| 32          |                         |                      |                         | 900                           | RDC10320RB |
| 47          |                         | 4.4                  |                         | 1,000                         | RDC1047A03 |


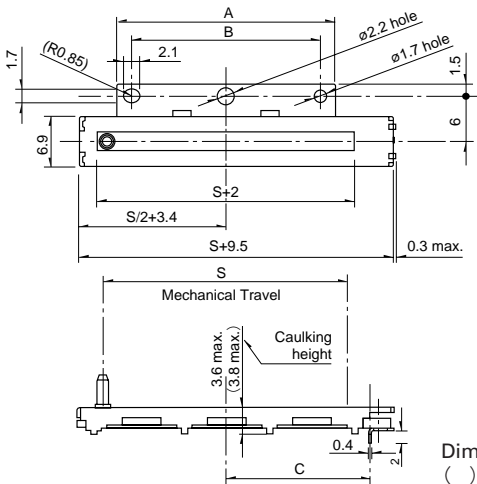
#### Note

※ For the switch attached, inner axis of the single-shaft or the dual-shaft type can be chosen. Please place purchase order per minimum packing unit. Please contact us for export packing details.

Refer to P.200 for product varieties.  
Refer to P.201 for product specifications.

**Dimensions**

Unit:mm

| Photo   | Style  |           |    |      |   |   |         |    |    |    |    |         |    |    |    |    |         |    |    |    |    |         |    |    |    |      |
|---|--|-----------|----|------|---|---|---------|----|----|----|----|---------|----|----|----|----|---------|----|----|----|----|---------|----|----|----|------|
|  |  <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Dimension</th> <th>S</th> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>RDC1014</td> <td>14</td> <td>19</td> <td>15</td> <td>10</td> </tr> <tr> <td>RDC1022</td> <td>22</td> <td>19</td> <td>15</td> <td>14</td> </tr> <tr> <td>RDC1032</td> <td>32</td> <td>29</td> <td>25</td> <td>19</td> </tr> <tr> <td>RDC1047</td> <td>47</td> <td>37</td> <td>33</td> <td>26.5</td> </tr> </tbody> </table> <p style="font-size: small;">Dimensions surrounded by parentheses ( ) are applicable to RDC1047 only.</p> | Dimension | S  | A    | B | C | RDC1014 | 14 | 19 | 15 | 10 | RDC1022 | 22 | 19 | 15 | 14 | RDC1032 | 32 | 29 | 25 | 19 | RDC1047 | 47 | 37 | 33 | 26.5 |
| Dimension   | S  | A         | B  | C    |   |   |         |    |    |    |    |         |    |    |    |    |         |    |    |    |    |         |    |    |    |      |
| RDC1014   | 14   | 19        | 15 | 10   |   |   |         |    |    |    |    |         |    |    |    |    |         |    |    |    |    |         |    |    |    |      |
| RDC1022   | 22   | 19        | 15 | 14   |   |   |         |    |    |    |    |         |    |    |    |    |         |    |    |    |    |         |    |    |    |      |
| RDC1032   | 32   | 29        | 25 | 19   |   |   |         |    |    |    |    |         |    |    |    |    |         |    |    |    |    |         |    |    |    |      |
| RDC1047   | 47   | 37        | 33 | 26.5 |   |   |         |    |    |    |    |         |    |    |    |    |         |    |    |    |    |         |    |    |    |      |

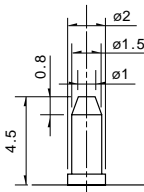
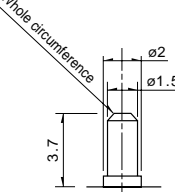
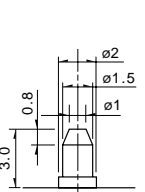
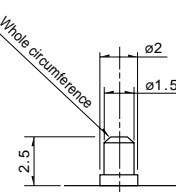
**Circuit Diagram**



**Product Varieties**

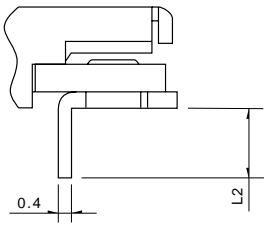
In addition to the recommended products, the following specifications can also be accommodated.

**Lever Variety** \* Size in ( ) are applicable to RDC1047 only. Unit:mm

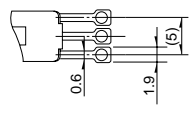
| Length     | 4.5<br>(4.4)  | 3.7<br>(3.6)  | 3<br>(2.9)   | 2.5<br>(2.4)  |
|------------|---|---|--|---|
| Dimensions |  |  |  |  |

**Terminal Variety**

For printed wiring Unit:mm

|            |   |   |   |     |
|------------|---|---|---|-----|
| Dimensions |  |   |   |     |
| Length L2  | 1.5   | 2 | 4 | 5.5 |

For lead wiring Unit:mm

|            |   |
|------------|---|
| Dimensions |  |
|------------|---|

**Note**

marked are specifications recommended by ALPS.

## Products Specifications

| Items                              | Type<br>Model              | Rotary type    |                   |               |             |                                  |                    | Linear type |
|------------------------------------|----------------------------|----------------|-------------------|---------------|-------------|----------------------------------|--------------------|-------------|
|                                    |                            | RDC40          | RDC501            | RDC502        | RDC503      | RDC506                           | RDC80              | RDC10       |
|                                    |                            | Multiple turns | Horizontal type   | Vertical type | Reflow type | Reflow type (Thin shape)         | Reflow type        |             |
| <b>Operating temperature range</b> |                            | -30°C to +80°C | -40°C to +120°C   |               |             |                                  | -30°C to +85°C     |             |
| <b>Electric performance</b>        | Total resistance tolerance | ±30%           |                   |               |             |                                  |                    |             |
|                                    | Resistance taper           | Linear         |                   |               |             |                                  |                    |             |
|                                    | Rated voltage              | 5V DC          |                   |               |             |                                  |                    |             |
|                                    | Max. operating voltage     | 18V DC         | 16V DC            |               |             |                                  | 5V DC              |             |
| <b>Mechanical performance</b>      | Linearity                  | ±1%            | ±2%               |               |             | ±3%                              | ±0.5%              |             |
|                                    | Effective variable range   | 13 rotations   | 320°              |               |             | 330° (1-phase)<br>360° (2-phase) | S (Travel)<br>-2mm |             |
|                                    | Rotational angle           | —              | (Without stopper) |               |             |                                  | —                  |             |
|                                    | Rotational torque          | 2mN·m max.     |                   |               |             | 10mN·m max.                      | —                  |             |
| <b>Durability</b>                  | Operating force            | —              |                   |               |             | 0.25N max.                       |                    |             |
|                                    | 100,000cycles              | ●              | —                 |               |             | ●                                | —                  |             |
|                                    | 200,000cycles              | —              |                   |               |             | —                                | ●                  |             |
|                                    | 1,000,000cycles            | —              | ●                 |               |             | —                                |                    |             |

Rotary Potentiometers

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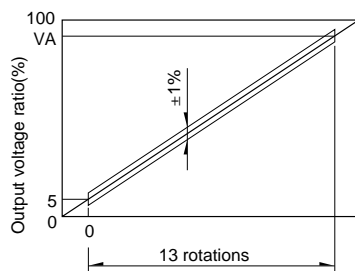
Rotary Type

Linear Type

### Method for Regulating the Linearity

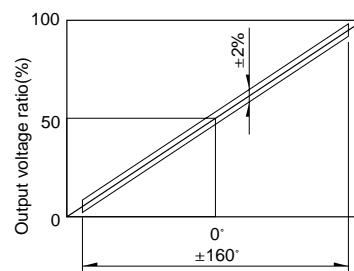
#### Model RDC40

- Reference taper : 90%/13 rotations
- VA is measured output value



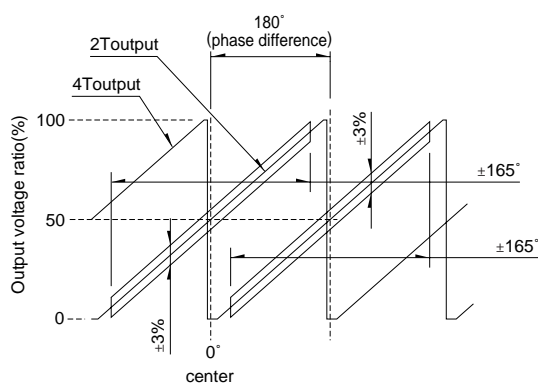
#### Model RDC50

- Reference taper : 100%/333.3°
- Output level of reference point is 50% .



#### Model RDC80

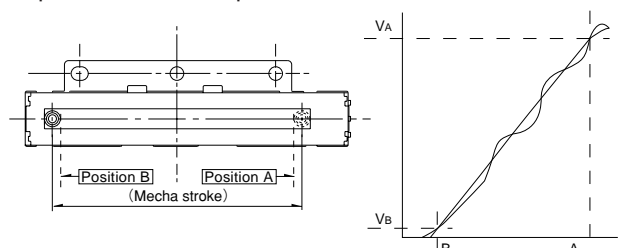
- Reference taper : 100%/340°
- The center position depends on the position depicted in the product drawing.



#### Model RDC10

This is the deviation to an ideal line shown below when the voltage applied between terminals 1 and 3 is assumed to be 100%. (Unit:percentage)

With rated voltage applied between terminals 1 and 3, the ideal line is assumed to be the straight line drawn between the measured output values  $V_B$  and  $V_A$  at specified reference positions B and A.



# AMEYA360

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