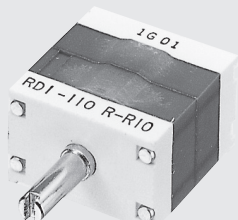


# ROTARY CODED SWITCHES

# RD

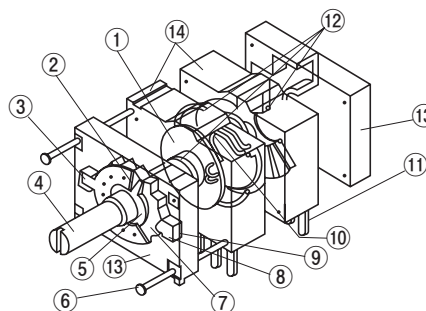
RoHS compliant



## FEATURES

- RoHS compliant
- P.C.B. mounted, compact size and DIP compatible
- Protection by “O” ring (contact block) against dust and washable after soldering
- Precious metal alloy wiping type contacts provide a long life (50000 revolutions at no load) and high reliability (In house comparison)

## INTERNAL STRUCTURE



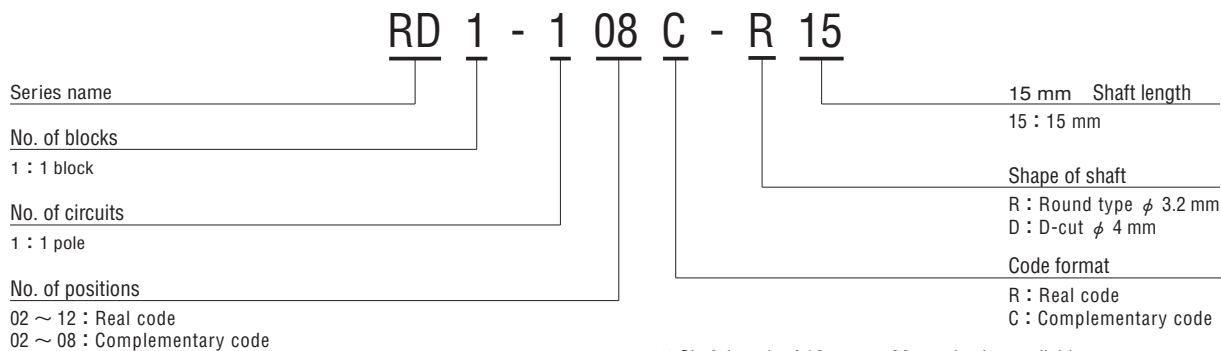
| Part name |                    | Material                         | Flammability |
|-----------|--------------------|----------------------------------|--------------|
| ①         | Rotor              | Polyoxymethylene                 | UL94HB       |
| ②         | Stopper pin        | Copper alloy                     | —            |
| ③         | Stopper pin holder |                                  |              |
| ④         | Shaft              | Copper alloy, Nickel-plated      |              |
| ⑤         | Stopper ring       | Nickel-plated                    |              |
| ⑥         | Linking pin        | Copper alloy, Nickel-plated      |              |
| ⑦         | Click gear         | PA (Polyamide)                   | UL94HB       |
| ⑧         | Click plate        | POM<br>Polyoxymethylene          | —            |
| ⑨         | Click spring       | SWPA (Piano wire)                |              |
| ⑩         | Contact spring     | Multi metal alloy                |              |
| ⑪         | Terminal pin       | Copper alloy, Gold-plated        |              |
| ⑫         | “O” ring           | Silicone rubber                  | UL94HB       |
| ⑬         | Cover              | PBT<br>Polybutyleneterephthalate |              |
| ⑭         | Housing            |                                  |              |

The DIP-TYPE ROTARY CODED SWITCHES RD series listed here are standard versions, but our production will be made upon receipt of your order.

# RD

## ROTARY CODED SWITCHES

### PART NUMBER DESIGNATION



### LIST OF PART NUMBERS

| No. of circuits | Code               | No. of positions |          |          |          |          |          |          |          |          |          |          |  |
|-----------------|--------------------|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
|                 |                    | 02               | 03       | 04       | 05       | 06       | 07       | 08       | 09       | 10       | 11       | 12       |  |
| 1               | Real code          | RD1-102R         | RD1-103R | RD1-104R | RD1-105R | RD1-106R | RD1-107R | RD1-108R | RD1-109R | RD1-110R | RD1-111R | RD1-112R |  |
|                 | Complementary code | RD1-102C         | RD1-103C | RD1-104C | RD1-105C | RD1-106C | RD1-107C | RD1-108C |          |          |          |          |  |

☐ : Not manufactured

※ Verify the above part numbers when placing orders.

※ The above part numbers are all available with a round or D-cut shaft.

### CODE FORMAT

| No. of positions |                    | 1              | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|------------------|--------------------|----------------|---|---|---|---|---|---|---|---|----|----|----|
| Binary code      |                    | 0              | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9  | A  | B  |
| Code             | Real code          | 8              |   |   |   |   |   |   |   | ● | ●  | ●  | ●  |
|                  |                    | 4              |   |   |   | ● | ● | ● | ● |   |    |    |    |
|                  |                    | 2              |   | ● | ● |   |   | ● | ● |   |    | ●  | ●  |
|                  |                    | 1              |   | ● |   | ● |   | ● |   |   | ●  |    | ●  |
|                  | Complementary code | $\overline{4}$ | ● | ● | ● | ● |   |   |   |   |    |    |    |
|                  |                    | $\overline{2}$ | ● | ● |   |   | ● | ● |   |   |    |    |    |
|                  |                    | $\overline{1}$ | ● |   | ● |   | ● |   | ● |   |    |    |    |
|                  |                    |                |   |   |   |   |   |   |   |   |    |    |    |

● ... Contact closed

The DIP-TYPE ROTARY CODED SWITCHES RD series listed here are standard versions, but our production will be made upon receipt of your order.

## STANDARD SPECIFICATIONS

|                             |                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------|
| Circuit type                | Binary code                                                                      |
| Operating temperature range | — 40 ~ 85 °C                                                                     |
| Storage temperature range   |                                                                                  |
| Sealing                     | Washable (only contact block, "O" ring sealed)<br>※ Please refer to page 150,151 |
| Net weight                  | Approx. 7 g                                                                      |

## ELECTRICAL CHARACTERISTICS

|                                                                                            |                                   |
|--------------------------------------------------------------------------------------------|-----------------------------------|
| Contact rating<br>Maximum current<br>Minimum current<br>Maximum voltage<br>Minimum voltage | 1 VA                              |
|                                                                                            | 1 A                               |
|                                                                                            | 1 $\mu$ A                         |
|                                                                                            | 30 V                              |
|                                                                                            | 20 mV                             |
| Contact resistance                                                                         | 100 m $\Omega$ maximum            |
| Insulation resistance                                                                      | 1000 M $\Omega$ (DC500 V) minimum |
| Dielectric strength                                                                        | AC500 V, 60 s                     |
| Electrostatic capacity                                                                     | 4 pF maximum, 10 kHz              |

## MECHANICAL CHARACTERISTICS

|                   |                                                                                                                                                      |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| No. of positions  | Real code: 12 maximum<br>Complementary code: Below 8 maximum                                                                                         |
| Adjustment torque | 60 $\pm$ 30 mN·m (612 $\pm$ 306 gf·cm)                                                                                                               |
| Stepping angle    | 30°                                                                                                                                                  |
| Terminal strength | 10 N {1.02 kgf} minimum                                                                                                                              |
| Solderability     | 245 $\pm$ 3 °C, 2 ~3 s                                                                                                                               |
| Soldering heat    | Flow : 260 $\pm$ 3 °C as the temperature in a pot of molten solder, immersion from head of terminal to backside of board, 5 ~ 6 s, two times maximum |
|                   | Manual soldering :<br>380 $\pm$ 10 °C, 3 ~ 4 s                                                                                                       |

{ } : Reference only

## ENVIRONMENTAL CHARACTERISTICS

|                           |                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Vibration                 | (Amplitude) 3 mmor<br>(Acceleration) 196 m/s <sup>2</sup> ,<br>10-2000-10 Hz, 3 directions for 4 h each                     |
| Shock                     | 980 m/s <sup>2</sup> , 6 ms<br>6 directions for 3 times each                                                                |
| Load life                 | 500,000 steps or 50,000 cycles at 6 positions with no load<br>200,000 steps or 20,000 cycles at 6 positions with rated load |
| Humidity (Steady state)   | 40 °C, Relative humidity 90 ~ 95 %, 240 h                                                                                   |
| High temperature exposure | 85 °C, 16 h                                                                                                                 |
| Low temperature exposure  | — 40 °C, 16 h                                                                                                               |

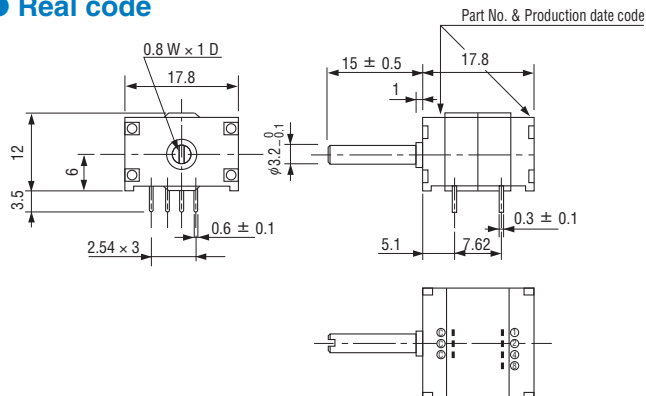
The DIP-TYPE ROTARY CODED SWITCHES RD series listed here are standard versions, but our production will be made upon receipt of your order.

# RD

## ROTARY CODED SWITCHES

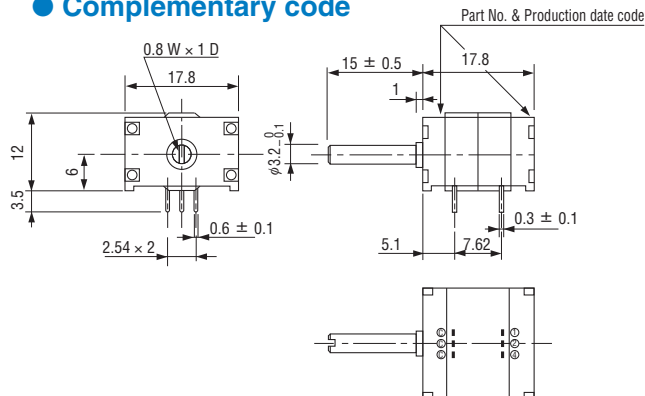
### OUTLINE DIMENSIONS

#### Real code



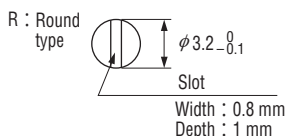
The above shows when a shaft is fully turned to CCW direction.

#### Complementary code



The above shows when a shaft is fully turned to CCW direction.

#### (A) Diameter of shaft



### TERMINAL CONNECTION / P.C.B. THROUGH HOLE DIMENSIONS

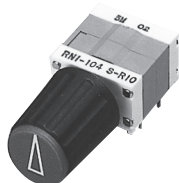
(Unit: mm)

|                                      | Real code | Complementary code |
|--------------------------------------|-----------|--------------------|
| Terminal pin layout<br>(Bottom view) |           |                    |
| P.C.B. dimensions<br>(Bottom view)   |           |                    |

### PACKAGING SPECIFICATIONS

- Boxing is performed with 20 pcs. per box.  
Order will be accept for unit of 20 pcs., ie., 20, 40, 60pcs., etc.

Note: The conventional knob (Round shaft,  $\phi 3.2$  mm) available in the market such as the one in the picture can be used.



The DIP-TYPE ROTARY CODED SWITCHES RD series listed here are standard versions, but our production will be made upon receipt of your order.