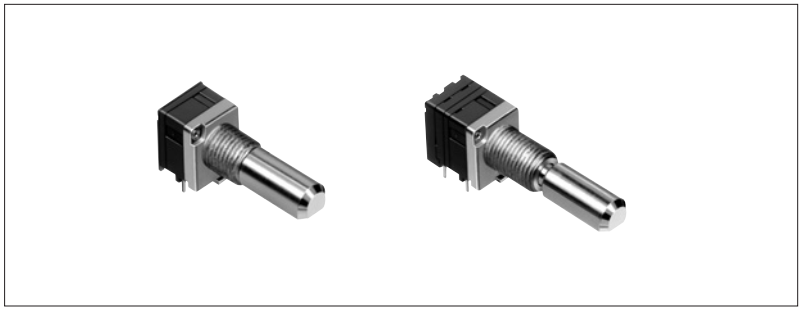
# 9mm Size Metal Shaft Type Encoder Variety

## RK097 Series

**Combination with a 9mm metal shaft potentiometer is available thanks to the same size.**





Car Use

### Features

- Combinations with a 9mm metal shaft potentiometer and switch are also available.
- High-precision, compact, sliding contact type encoder.
- Incremental type.

### Applications

- Controls for AV devices, including DVD players, car audio systems and other audio systems
- Level controls for communication devices including transceivers and industrial wireless radios

### Typical Specifications

| Items | Specifications |
|---|---|
| Rating | 1mA 5V DC |
| Operating life | 30,000 cycles |



### Products Line

| Operating section | Length of operating section (mm) | Detent torque | Number of detent | Resolution | Operating direction | Push-on switch | Travel of push-on switch (mm) | Minimum packing unit (pcs.) | Products No. | Drawing No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Flat | 20 | 10±8 mN・m | 18 | 9 | Horizontal | Without | —— | 1,200 | RK09710EHC08 | 1 |
| | | | | | | With | 0.5 | 700 | RK09710ELC09 | 2 |
| | | | | | | | 1.5 | | RK09710ELC0A | 3 |
| | | | 30 | 15 | | Without | —— | 1,200 | RK09710EHC09 | 1 |
| | | | | | | With | 0.5 | 700 | RK09710ELC07 | 2 |
| | | | | | | | 1.5 | | RK09710ELC0B | 3 |

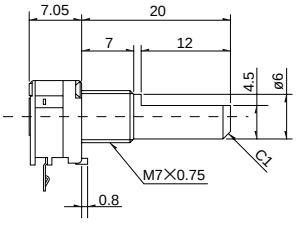
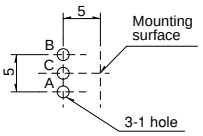
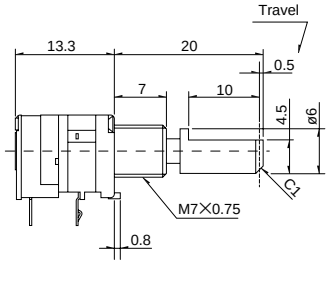
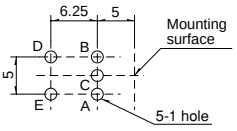
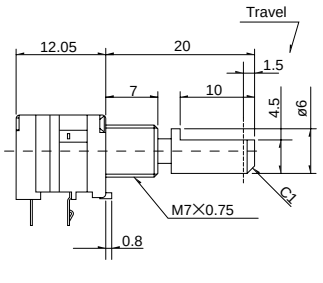
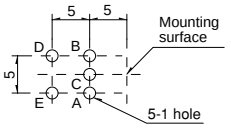
**Note**

Additional products other than listed above are also available. Contact our Sales Department for other products.

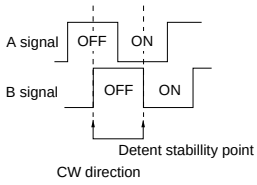
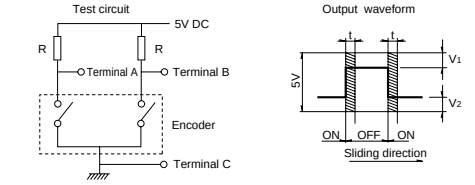

For other detailed specifications, see **P.182**
For attached parts, see **P.233**

## Dimensions

Unit : mm

| No. | Model | Style | PC board mounting hole dimensions (Viwed from mountingside) |
|---|---|---|---|
| 1 | **Single-shaft encoders** |    |   |
| 2 | **Single-shaft encoders with push-on switch (travel 0.5mm)** |    |   |
| 3 | **Single-shaft encoders with push-on switch (travel 1.5mm)** |    |   |

# Products Specifications

| Items | | | 9mm size metal shaft encoders | |
|---|---|---|---|---|
| | | | Model EC09E | Model RK097 |
| Operating temperature range | | | –30℃ to +85℃ | –30℃ to +70℃ |
| Maximum operating current (Resistive load) | | | 10mA | |
| Electrical performance | Rating | | 10mA 5V DC | 1mA 5V DC |
| | Output signal | | Output of A and B signals, proportionate to phase difference | |
| | Output wave | |  | |
| | Sliding noise | | V1=V2=1.5V max.<br>  <br>Measurement condition : Rotation speed 360°/s t : Masking time to avoid chattering | |
| | | | At R = 5 kΩ<br>Chattering :5ms max.<br>Bounce :2ms max. | At R = 5 kΩ<br>Chattering :5ms max.<br>Bounce :5ms max. |
| | Insulation resistance | | 250V DC 100MΩ min. | |
| | Voltage proof | | 300V AC | |
| Mechanical performance | Rotational torque | | —— | |
| | Detent torque | | 8±5 mN・m | 10±8 mN・m |
| | Push-pull strength | | 100N | |
| | Resistance to soldering heat | Manual soldering | 300℃ or less, or within 3s | |
| | | Dip soldering | 260℃±5℃, 5±1s | |
| | | Reflow soldering | —— | |
| Durability | Rotational life | | 15,000 cycles | 30,000 cycles |
| Environmental performance | Cold | | –40±3℃ for 240h | |
| | Dry heat | | 85±3℃ for 240h | |
| | Damp heat | | 60±2℃, 90 to 95%RH for 240h | |

## Push-on Switch Specifications

| Items | 9mm size metal shaft encoders | | | |
|---|---|---|---|---|
| | Model EC09E | | Model RK097 | |
| Switch circuit・the number of contact | Single pole and single throw (Push-on) | | | |
| Travel of switch | 0.5±0.3mm | 1.5±0.5mm | $0.5^{+0.7}_{-0.3}$ mm | 1.5±0.5mm |
| Operating force of switch | $6^{+2.5}_{-2}$ N | 4±2N | $4^{+4}_{-2}$ N | 5±2N |
| Rating | 10mA 5V DC | | 10mA 12V DC | |
| Contact resistance | 100mΩ for initial period; 200mΩ after rotational life. | | | |
| Operating life | 10,000 times min. | | | 20,000 times min. |

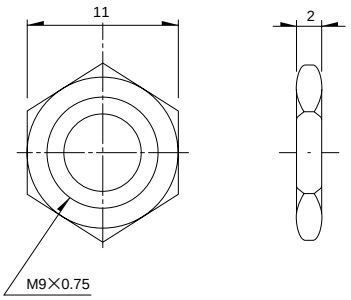
# Attached Parts

These parts are attached to the following products.

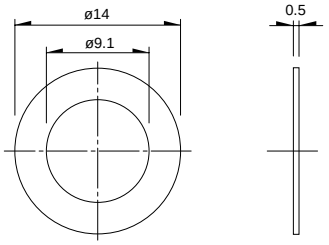
## SRGH Series

Unit : mm

**Hexagonal nut**



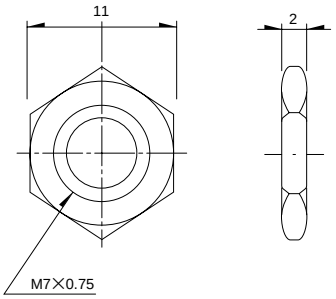

**Flat washer**




## RK09710E, EC11B Series

Unit : mm

**Hexagonal nut**




**Flat washer**