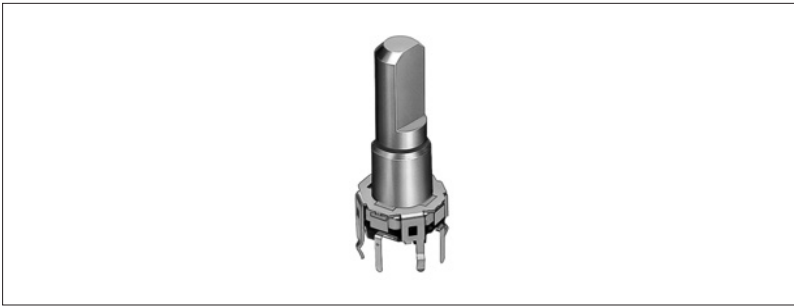


9mm Size Metal Shaft Encoder

EC09E Series

A compact 9.5mm size and round shape reduced the mounting surface.

- Power
- Push
- Slide
- Rotary
- Encoders
- Jog Shuttle
- Telephone-hook
- Detector
- Vibration Sensors
- Dual-in-line Package Type
- Multi Control Devices
- TACT



Car Use

Features

- Compact size and round shape requires 50 % less mounting surface than our conventional products (11mm size encoder series).
- Round shape enables various designs for illuminated functions.
- Compact size of 9.5 mm delivers high resolution, 15 pulse/30 detent.
- Also available with push switch (0.5mm or 1.5mm travel) and without push switch.
- Incremental type.

Applications

- Level controls for car audio and car navigation system. Various controls for devices in automotive
- Controls for image/sound devices, including DVD players, mini component stereos, CD players and portable audio players

Typical Specifications

Items	Specifications
Rating	10mA 5V DC
Operating life	15,000 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	8±5 mN·m	30	15	Vertical	Without	—	700	EC09E1520402	1
						With	0.5		EC09E1524405	2
							1.5		EC09E1524404	

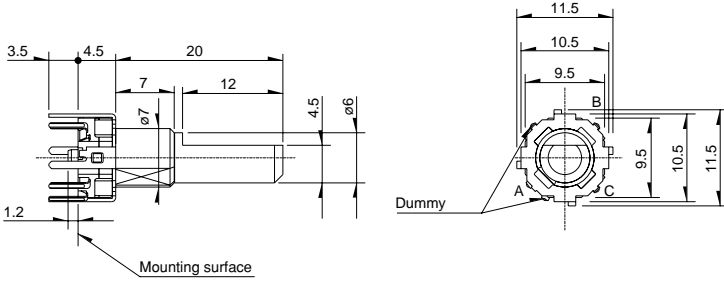
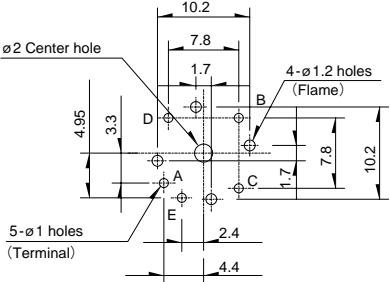
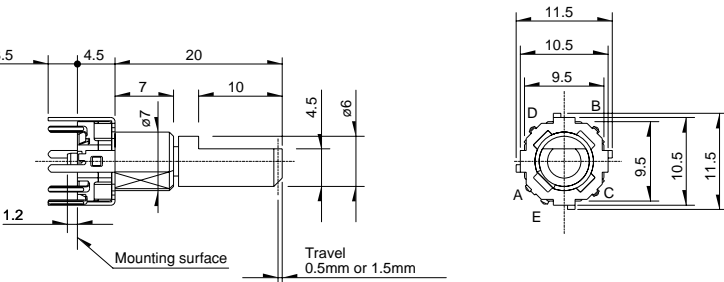
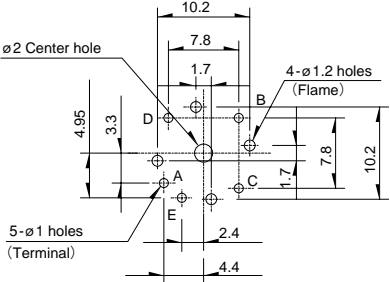
Note

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

For other detailed specifications, see P.182

Dimensions

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from mounting face)
1	<p>Without switch type</p> 	
2	<p>With push-on switch (travel 0.5/1.5mm)</p> 	

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Incremental Type

Absolute Type

Products Specifications

Items	9mm size metal shaft encoders	
	Model EC09E	Model RK097
Power	Operating temperature range	
Push	-30°C to +85°C	
Slide	-30°C to +70°C	
Rotary	Maximum operating current (Resistive load)	
Encoders	10mA	
Jog Shuttle	Rating	
Telephone-hook	10mA 5V DC	
Detector	1mA 5V DC	
Vibration Sensors	Output signal	
Dual-in-line Package Type	Output of A and B signals, proportionate to phase difference	
Multi Control Devices	Output wave	
TACT		
Incremental Type	Sliding noise	
Absolute Type	<p>V1=V2=1.5V max.</p> <p>Measurement condition : Rotation speed 360°/s t : Masking time to avoid chattering</p>	
	At R = 5 kΩ Chattering :5ms max. Bounce :2ms max.	
	At R = 5 kΩ Chattering :5ms max. Bounce :5ms max.	
	Insulation resistance	
	250V DC 100MΩ min.	
	Voltage proof	
	300V AC	
	Rotational torque	
	—	
	Detent torque	
	8±5 mN·m	
	10±8 mN·m	
	Push-pull strength	
	100N	
	Resistance to soldering heat	
	Manual soldering	
	300°C or less, or within 3s	
	Dip soldering	
	260°C ±5°C, 5±1s	
	Reflow soldering	
	—	
	Rotational life	
	15,000 cycles	
	30,000 cycles	
	Cold	
	-40±3°C for 240h	
	Dry heat	
	85±3°C for 240h	
	Damp heat	
	60±2°C, 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.