

Encoder 9mm Size Metal Shaft Type

EC09E Series



A compact 9.5mm size and round shape contribute to space saving.

- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- Multi Control Devices
- TACT Switch™
- Custom-Products



Features

- 50% less mounting surface compared to the conventional 11mm size encoder series.
- Round shaped knob structure enables illumination to spread evenly.
- Compact size of 9.5mm still maintains high resolution of 15 pulse/30 detent.
- Available in push switch type (0.5mm/1.5mm travel) or non-push switch type.
- Incremental type.

Applications

- For controlling volume in car AV equipment, volume and menu selection in car navigation systems and various in-car components where less mounting surface is required.
- For various types of controlling in DVD players/recorders, mini component stereos, CD players, portable audio players and various AV equipment

Typical Specifications

Items	Specifications
Rating	10mA 5V DC
Operating life	15,000cycles

- Incremental Type
- Absolute Type

Product Line

Actuator configuration	Actuator length (mm)	Detent torque (mN·m)	Number of detent	Number of pulse	Operating direction	Push-on switch	Travel of push-on switch (mm)	Minimum packing unit (pcs.)	Product No.	Drawing No.
Flat	20	8±5	30	15	Vertical	Without	—	700	EC09E1520402	1
						With	0.5		EC09E1524405	2
							1.5		EC09E1524404	


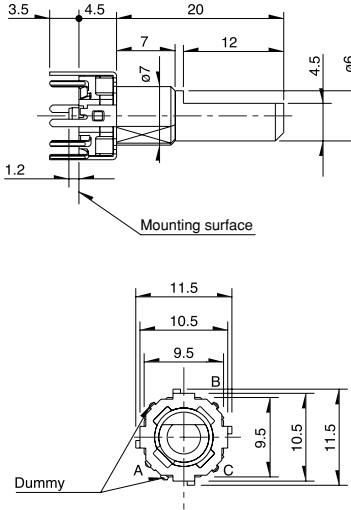
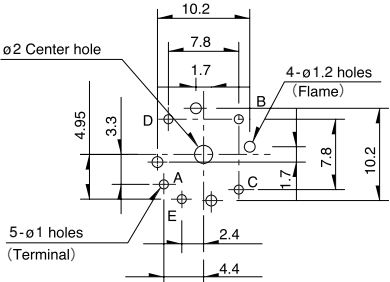

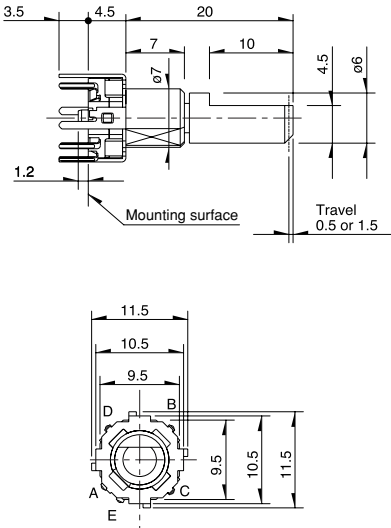
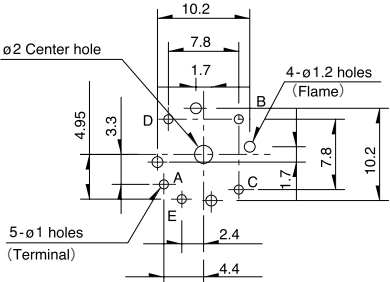
Note

Products other than those listed in the above chart are also available. Please contact us for details.

Refer to P.184 for product specifications.

Dimensions

Unit:mm

No.	Photo	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> 		

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package Type

Multi Control
Devices

TACT Switch™

**Custom-
Products**

**Incremental
Type**

**Absolute
Type**

Product Specifications

Items	9mm size metal shaft	
	EC09E	RK097
Detector	Operating temperature range	
	-40°C to +85°C	-30°C to +70°C
Push	Maximum operating current (Resistive load)	
	10mA	
Slide	Rating	
	10mA 5V DC	1mA 5V DC
Rotary	Output signal	
	Output of A and B signals, proportionate to phase difference	
Encoders	Output wave	
Power	Sliding noise	
Dual-in-line Package Type	$V_1 = V_2 = 1.5V$ max.	
Multi Control Devices	Measurement condition : Rotation speed 360°/s t : Masking time to avoid chattering	
TACT Switch™	At R = 5 kΩ Chattering : 5ms max. Bounce : 2ms max.	
Custom-Products	At R = 5 kΩ Chattering : 5ms max. Bounce : 5ms max.	
Incremental Type	Insulation resistance	
	100MΩ min. 250V DC	
Absolute Type	Voltage proof	
	300V AC for 1minute	
Mechanical performance	Rotational torque	

	Detent torque	
	8±5mN·m	
	10±8mN·m	
Push-pull strength		
100N		
Resistance to soldering heat	Manual soldering	350°C max. 3s max.
	Dip soldering	260±5°C, 3±1s
	Reflow soldering	_____
Durability	Rotational life	
	15,000cycles	30,000cycles
Environmental performance	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			
	EC09E		RK097	
Circuit · number of contacts	Single pole and single throw (Push-on)			
Travel (mm)	0.5±0.3	1.5±0.5	0.5 ^{+0.7} _{-0.3}	1.5±0.5
Operating force (N)	6 ^{+2.5} ₋₂	4±2	4 ⁺⁴ ₋₂	5±2
Rating	10mA 5V DC		10mA 12V DC	
Contact resistance	100mΩ for initial period; 200mΩ after rotational life.			
Operating life	10,000times min.			20,000times min.