

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

TACT Switch™

Custom-
Products



Typical Specifications

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

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 order unit (pcs.)	Product No.	Drawing No.
Flat	15	8 ± 5	30	15	Vertical	Without	—	700	EC09E1520406	1
	With					0.5	EC09E1524405		2	
						1.5	EC09E1524404			

Note

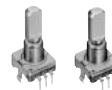
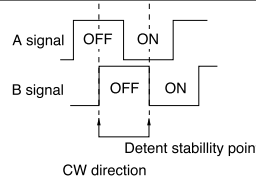
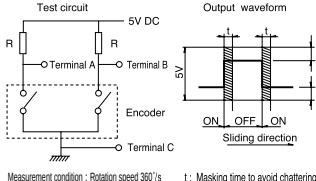
Products other than those listed in the above chart are also available. Please contact us for details.

Dimensions

Unit:mm

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

List of Varieties

Type		Metal shaft									
		9mm size		11mm size							
Series		EC09E		EC11B	EC11E		EC111	EC11EH			
Photo											
Output		Incremental						Self-return switch		ABC	
Outline specifications	Shaft types	Single-shaft				Dual-shaft		Single-shaft			
	Operating direction	Vertical		Horizontal		Vertical					
	Number of pulse/ Number of detent	15/30			9/18 15/30 18/36					6×ABC/18 10×ABC/30	
	Push switch (Travel mm)	Without/With(0.5, 1.5)									
	Optional functions				Push-lock mechanism Without detent						
	Changeover angle							17 to 40°			
Dimensions (mm)	W	9.5		12.3	11.7						
	D			13.8	12			13		12	
	H	4.5		5.4	4.5	8.5		5		4.5	
Soldering	Manual soldering	350 max. 3s max.									
	Dip soldering	260 ± 5 , 3 ± 1s			260 ± 5 , 5 ± 1s						
Operating temperature range		-40 to +85			-30 to +85					-40 to +85	
Maximum operating current(Resistive load)		10mA									
Electrical performance	Output signal	Output of A and B signals, proportionate to phase difference						Self-return switch		Three phase A, B and C	
	Output wave				Please see P.191						
	Sliding noise	 $V_1 = V_2 = 1.5V \text{ max.}$ At R = 5 kΩ Chattering: 5ms max. Bounce : 2ms max.			Please see P.191						
	Insulation resistance	100MΩ min. 250V DC									
	Voltage proof	300V AC for 1minute									
Mechanical performance	Rotational torque				$7 \pm \frac{3}{4} \text{ mN} \cdot \text{m}$			3 to 30mN·m		—	
	Detent torque	8 ± 5mN·m		12 ± 7mN·m		10 ± 7mN·m		—		10 ± 7mN·m	
	Push-pull strength	100N									
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	Circuit · number of contacts	Single pole and single throw(Push-on)									
	Travel (mm)	0.5 ± 0.3	1.5 ± 0.5	$0.5 \pm \frac{0.4}{0.3}$	1.5 ± 0.5	0.5 ± 0.3	$1.5 \pm \frac{0.5}{0.8}$	0.5 ± 0.3	1.5 ± 0.5	$0.5 \pm \frac{0.4}{0.3}$	1.5 ± 0.5
	Operating force(N)	$6 \pm \frac{2.5}{2}$	4 ± 2	6 ± 3	5 ± 2	$6 \pm \frac{2.5}{2}$	$4 \pm \frac{2}{8 \text{ max.}}$	$6 \pm \frac{2.5}{2}$	4 ± 2	6 ± 2.5	4 ± 2
	Rating	10mA 5V DC			$3A \text{ } 16V \text{ DC}$ (10mA 16V DC min. ratings)		0.5A 16V DC(1mA 16V DC min. ratings)		0.5A 12V DC		$20mA \text{ } 16V \text{ DC}$ (1mA 16V DC min. ratings)
	Contact esistance	100mΩ max. for initial period; 200mΩ max. after operating life.									
	Operating life	10,000times min.			25,000 times min.	20,000times min. 10,000times min.					20,000 cycles
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Note

marked specification is only applicable to EC11E152U402.