

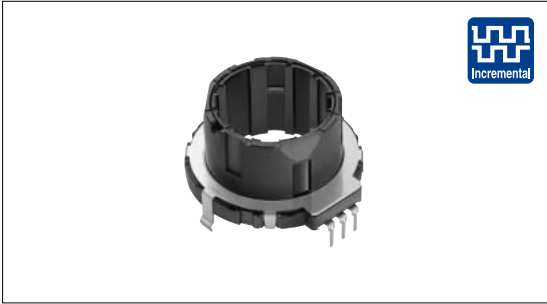
Hollow Shaft Type Devices 28mm Size Encoder Type

EC28A Series



A low-profile unit with 4mm height with good operation feel.

Hollow Shaft
Type Devices



Typical Specifications

Items		Specifications
Rating		10mA 5V DC
Operating life	Without load	50,000cycles
	With load	50,000cycles

Product Line

Actuator length (mm)	Detent torque (mN·m)	Number of detent	Number of pulse	Operating direction	Push-on switch	Minimum order unit (pcs.)	Product No.
15	7 ± 5	30	15	Vertical	Without	400	EC28A1520401
	12 ± 7						EC28A1550401
	20 ± 10						EC28A1560401

Dimensions








Unit:mm

Encoder
Type

Potentiometer
Type

Style	PC board mounting hole dimensions
<p>Technical drawings of the encoder showing side view, top view, and mounting dimensions. The side view shows a total height of 15mm and an actuator length of 15mm. The top view shows a circular body with a diameter of 28mm and a central shaft diameter of 17mm. The mounting holes are arranged in a 2x3 grid with a pitch of 10.75mm between the columns and 23mm between the rows. The mounting holes are 2-ø1.5mm in diameter. The side view also shows a 3-ø10.2mm feature at the bottom.</p>	<p>Technical drawing of the PC board mounting hole dimensions. The mounting holes are arranged in a 2x3 grid. The pitch between the columns is 10.75mm, and the pitch between the rows is 23mm. The mounting holes are 2-ø1.5mm in diameter. The drawing also shows a 3-ø1 holes dimension.</p>

List of Varieties

Type	Encoder									
	21mm size	28mm size	35mm size		40mm size	45mm size	60mm size			
Series	EC21A	EC28A	EC35AH	EC35B	EC40A	EC45A	EC60A			
Photo										
Output	Incremental		ABC	Incremental/ Self-return switch	Incremental	Absolute	Incremental			
Outline specifications	Shaft types									
	Operating direction									
	Number of pulse/ Number of detent		9/18 15/30	15/30	6×ABC / 18 10×ABC / 30	15/30		31 Position		
	Push switch (Travel mm)									
	Optional functions									
	Changeover angle		—		12 °		—			
Dimensions (mm)	W		21.6	28	35	35	40.4	44.5	61.8	
	D		29		37		41.6		45	
	H		4		15		21.35		9	
Soldering	Manual soldering									
	Dip soldering									
	Reflow soldering									
Operating temperature range		-40 to +85								
Electrical performance	Output voltage		2.5V max. at 5V DC, 1mA (resistive load)		2.5V max. at 5V DC, 0.5mA (resistive load)	2.5V max. at 5V DC, 1mA (resistive load)	2.5V max. at 5V DC, 0.5mA (resistive load)			
	Insulation resistance		100M min. 250V DC				10M min. 50V DC		10M min. 500V DC	
	Voltage proof		300V AC for 1minute				50V AC for 1minute		500V AC for 1minute	
Mechanical performance	Rotational torque		16 ± 7mN·m	12 ± 7mN·m 20 ± 10mN·m	18 ± 7mN·m	20 ± 10mN·m	20 ± 11mN·m	Shall be in accordance with individual specifications.		
	Terminal strength		5N for 1minute				3N for 10s.			
	Actuator strength	Rotational direction	100N							
		Push direction	100N				50N			
Vibration		10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively								
Environmental performance	Cold		-40 ± 2 for 240h		-40 ± 3 for 240h					
	Dry heat		85 ± 2 for 240h		85 ± 3 for 240h					
	Damp heat		60 ± 2, 90 to 95%RH for 240h				40 ± 2, 90 to 95%RH for 240h			
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Self-return Switch Specifications

Items	EC35B
Circuit · number of contacts	Single pole and double throw (Self-return)
Travel (mm)	2.8 ± 0.5
Push operating force (N)	3.8 ± 1.5
Switch ON position	15 ± 5 °
Rotational torque	40 ± 25mN·m
Rating	10mA 5V DC
Contact resistance	200m max.
Operating life	15,000cycles

Hollow Shaft Type Device Cautions465, 466, 467

Note

※ The operating temperature range for automotive applications can be raised upon request. Please contact us for requirements of this kind.