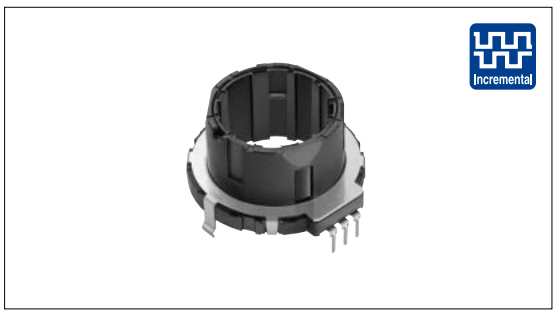
28mm Size Encoder Type

EC28A Series

Car Use RoHS compliant

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



Typical Specifications

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

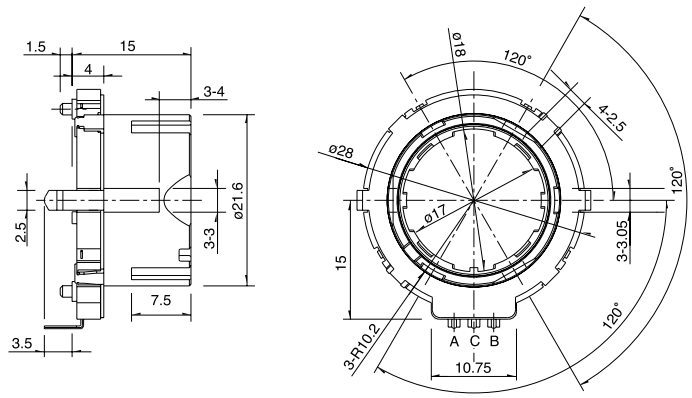
Product Line

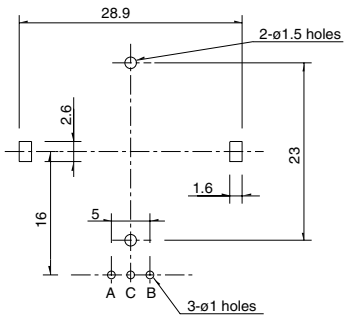
Actuator length (mm)	Detent torque (mN•m)	Number of detent	Number of pulse	Operating direction	Push-on switch	Minimum order unit (pcs.)	Product No.
15	7±5	30	15	Vertical	Without	400	EC28A1520401
	12±7						EC28A1550401
	20±10						EC28A1560401

Dimensions

Unit:mm

Style	PC board mounting hole dimensions





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-returen switch	Incremental	Absolute	Incremental
Outline specifications	Shaft types		Hollow shaft						
	Operating direction		Vertical						
	Number of pulse/ Number of detent		9/18 15/30	15/30	6×ABC／18 10×ABC／30	15/30		31 Position	15／30
	Push switch (Travel mm)		Without						
	Optional functions		———						
	Changeover angle		——			12 °		——	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		11.5
Soldering	Manual soldering		350℃ max. 3s max.						
	Dip soldering		260±5℃, 5±1s				260℃ max. 5s max.		
	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		100MΩ min. 250V DC				10MΩ min. 50V DC		10MΩ 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.	40±20mN·m
	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 °
Ratational torgue	40±25mN·m
Rating	10mA 5V DC
Contact resistance	200mΩ max.
Operating life	15,000cycles

● Hollow Shaft Type Device Cautions ·····465, 466, 467

Note

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