








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 °		—	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	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.	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		
Page		455	456	457	458	459	460	462	

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.