











## List of Varieties

Type		Ring Type								
		21mm size	28mm size	35mm size			40mm size	45mm size	60mm size	
Series		EC21A	EC28A	EC35A	EC35AH	EC35B	EC40A	EC45A	EC60A	
Photo										
Output		Incremental			ABC	Incremental/ Self-return switch	Incremental	Absolute	Incremental	
Outline specifications	Number of pulse/ Number of detent	9/18 15/30	15/30		6×ABC/18 10×ABC/30	15/30		31 Position	15/30	
	Changeover angle	—		12°	—	12°		—	12°	
Dimensions (mm)	W	21.6	28	35		35	40.4	44.5	61.8	
	D		29			37	43	45		
	H	4		4.5		12.1	9		11.5	
Soldering	Manual soldering	350°C max. 3s max.								
	Dip soldering	260±5°C, 5±1s				260°C max. 5s max.				
	Reflow soldering	—								
Operating temperature range		-40°C ~ +85°C								
Automotive use		○								
Electrical performance	Output voltage	2.5V max.at 1mA 5V DC (resistive load)				2.5V max.at 0.5mA 5V DC (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	Detent torque	7±5mN·m 16±7mN·m	7±5mN·m 12±7mN·m 20±10mN·m	18±7mN·m	12±5mN·m 18±7mN·m 30±15mN·m	20±10mN·m	20±11mN·m	30±14 mN·m 36±16 mN·m	40±20mN·m	
	Rotational torque	5N for 1minute				3N for 10s.				
	Actuator strength	Pushing direction	100N							
		Pulling 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°C for 240h			-40±3°C for 240h					
	Dry heat	85±2°C for 240h			85±3°C for 240h					
	Damp heat	60±2°C, 90 ~ 95%RH for 240h				40±2°C, 90 ~ 95%RH for 240h				
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Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

Metal  
Shaft

Insulated  
Shaft

Hollow  
Shaft

Ring  
Type

### Self-return Switch Specifications

Items	EC35B
Contact arrangement	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 torque	40±25mN·m
Rating	10mA 5V DC
Contact resistance	200mΩ max.
Operating life	15,000cycles

● Ring Type Device Cautions .....244, 245

#### Note

- ※ The operating temperature range for automotive applications can be raised upon request. Please contact us for details.
- marks in "Available for automotive use" indicate that some of the series products can work at the operating temperature range from -40°C to +85°C.