

Ring Type Device 35mm Size Composite Operation Type Ring Encoder

EC35B Series



Composite operation device that integrates both ring encoder and self return switch.

Ring Type Devices



Typical Specifications

Items		Specifications
Rating		10mA 5V DC
Operating life	Encoder	30,000cycles
	self-return switch	15,000cycles
Operating temperature range		-40°C to +85°C

Product Line

Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Number of pulse	Operating direction	Switch	Minimum order unit (pcs.)	Product No.
21.35	20±10	30	15	Vertical	Self-return switch	300	EC35B154H401

Packing Specifications

Tray

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case /export packing	
300	600	540×360×380

Ring Encoder

Ring Potentiometer








Dimensions

Unit:mm

Style	PC board mounting hole dimensions
<p>Normal case:(SW01)ENCODER output signal</p> <p>Clockwise rotation</p> <p>A-C Between terminals OFF ON</p> <p>B-C Between terminals OFF ON</p> <p>15ø pulse/30 detent</p>	<p>Self-return case:(SW02)circuit</p> <p>CCW direction:ON between F and D</p> <p>From 15° past the center to the CCW end</p> <p>CW direction:ON between F and E</p> <p>From 15° past the center to the CW end</p> <p>center</p> <p>D F E</p> <p>Total rotation angle 48°</p>

Automotive Use

List of Varieties

Type	Ring 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								
	Ring								
	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	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 to +85°C							
Electrical performance	Output voltage	2.5V max. at 1mA 5V DC (resistive load)		2.5V max. at 0.5mA 5V DC (resistive load)	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	Rotational torque	7±5mN·m 16±7mN·m	7±5mN·m 12±7mN·m 20±10mN·m	12±5mN·m 18±7mN·m 30±15mN·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	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 to 95%RH for 240h				40±2°C, 90 to 95%RH for 240h			
Page	466	467	468	469	470	471	473		

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 Cautions476, 477, 478

Note

※ The operating temperature range for automotive applications can be raised upon request. Please contact us for details.