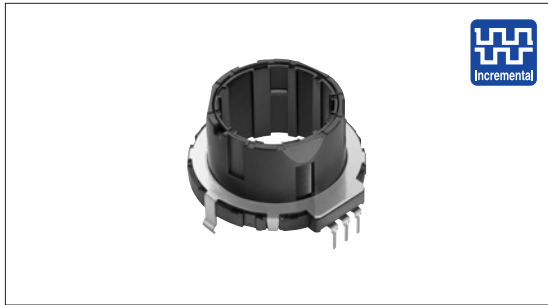


# Encoder 28mm Size Hollow Shaft Type

EC28A Series



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



## Features

- Contributes to add flexibility in set design.
- Excellent operation feel when rotating.

## Applications

- For various types of controlling in DVD players/recorders, car AV equipment and home audio equipment
- For level controlling in telephones, facsimile machines, industrial wireless radios and various communication 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 packing unit (pcs.)	Product No.
15	12±7	30	15	Vertical	Without	400	EC28A1550401
	20±10						EC28A1560401

## Dimensions

Unit:mm

Style	PC board mounting hole dimensions

Refer to P.213 for product specifications.

Detector  
Push  
Slide  
Rotary  
Encoders  
Power  
Dual-in-line Package Type  
Multi Control Devices  
TACT Switch™  
Custom-Products

Incremental Type  
Absolute Type

## Product Specifications

Type		SRGP30※	SRGP40	EC21A	SRGP20	EC28A	SRGPWJ	
Items								
Operating temperature range		-10°C to +60°C			-40°C to +85°C			
Rating		10mA 5V DC	1mA 5V DC	10mA 5V DC				
Electrical performance	Output voltage	1V max. at 5V DC, 1mA (resistive load) 		2.5V max. at 5V DC, 1mA (resistive load)	1V max. at 5V DC, 1mA (resistive load) 	2.5V max. at 5V DC, 1mA (resistive load)	1V max. at 5V DC, 1mA (resistive load) 	
	Insulation resistance	100MΩ min. 100V DC		100MΩ min. 250V DC	100MΩ min. 100V DC	100MΩ min. 250V DC	100MΩ min. 100V DC	
	Voltage proof	100V AC for 1minute		300V AC for 1minute	100V AC for 1minute	300V AC for 1minute	100V AC for 1minute	
Mechanical performance	Detent torque		5±2.5mN·m	2±1mN·m 3.5±1mN·m	16±7mN·m	7±3mN·m	12±7mN·m 20±10mN·m	13±4mN·m 6.5±4mN·m
	Terminal strength		—————		5N for 1minute			
	Actuator strength	Pushing direction	20N		100N	40N	100N	40N
		Pulling direction	20N		100N	40N	100N	40N
	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					
	Resistance to soldering heat	Manual soldering	350±5°C, 3s max.	350±10°C, 3 <sup>+</sup> 1s	350°C max, 3s max	350±10°C, 3 <sup>+</sup> 1s	350°C max, 3s max	350±10°C, 3 <sup>+</sup> 1s
Dip soldering		—————		260±5°C, 5±1s				
Reflow soldering		Please see P.215						
Durability	Operating life without load	50,000cycles	100,000cycles	50,000cycles				
	Operating life with load	50,000cycles	100,000cycles	50,000cycles				
Environmental performance	Cold	-40±2°C for 96h	-20±2°C for 96h	-40±2°C for 240h	-20±2°C for 96h	-40±2°C for 240h	-20±2°C for 96h	
	Dry heat	85±2°C for 96h		85±2°C for 240h	85±2°C for 96h	85±2°C for 240h	85±2°C for 96h	
	Damp heat	40±2°C, 90 to 95%RH for 96h		60±2°C, 90 to 95% RH for 240h	40±2°C, 90 to 95% RH for 96h	60±2°C, 90 to 95% RH for 240h	40±2°C, 90 to 95% RH for 96h	

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line

Package Type

Multi Control

Devices

TACT Switch™

Custom-

Products

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Type

### Note

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