

Encoder 20mm Size Metal Shaft Type

EC20A/RK203 Series



Heavy torque and comfortable operation feel with compliance to encoder and potentiometer applications.

Detector

Push

Slide

Rotary

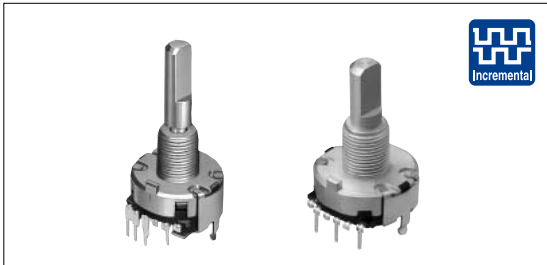
Encoders

Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products



Typical Specifications

Items	Specifications	
	Encoder	Potentiometer
Rating	1mA 5V DC	0.05W
Operating life	30,000cycles	

Product Line

Encoders

Operating section	Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Number of pulse	Operating direction	Travel of push-on switch (mm)	Minimum order unit (pcs.)	Product No.	Drawing No.
Flat	30	40 ± 20	18	18	Vertical	1.5	400	EC20A1824401	1
						—		EC20A1820401	2

Potentiometer

Operating section	Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Rotational angle	Operating direction	Minimum order unit (pcs.)	Product No.	Drawing No.
Flat	30	Shall be in accordance with individual specifications		240°max	Vertical	400	RK203110	3

Notes







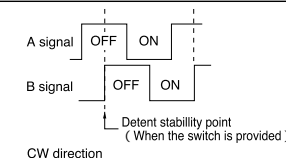
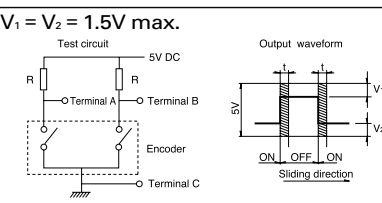
- For with switch type, only the incremental type is available.
- All the potentiometer types can be customized. Contact us with the detailed specifications if you have such requirements.

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (View from mounting face)
1	<p>EC20A with push-on switch (travel 1.5mm) Incremental Type</p>	<p>Switch travel Mounting surface M9×0.75 C1 D E</p>	<p>5-ø1.2 holes</p>
2	<p>EC20A without switch type Incremental Type</p>	<p>Mounting surface M9×0.75 C1</p>	<p>3-ø1.2 holes</p>
3	<p>RK203 without switch type Potentiometer Type</p>	<p>Mounting surface M9×0.75 C1</p>	<p>3-ø1.2 holes</p>

List of Varieties

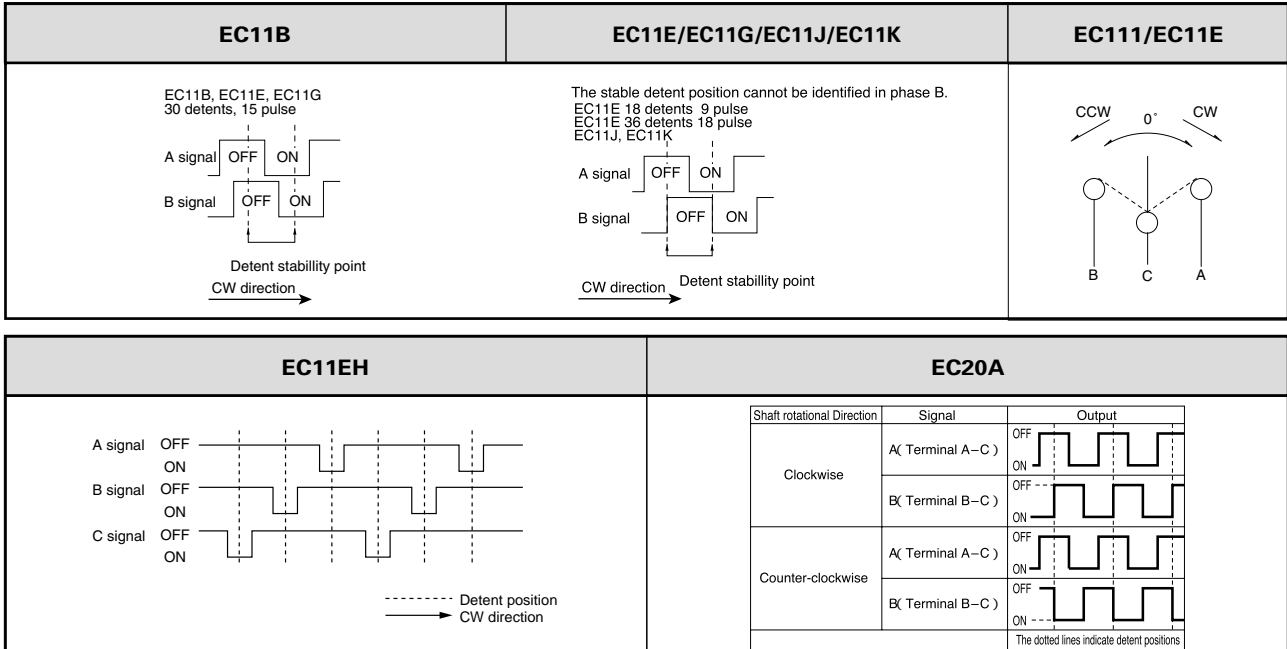
Type	Metal shaft					Insulated shaft			
	11mm size			20mm size	12mm size				
Series	EC11G	EC11J	EC11K	EC20A/RK203	EC12E Standard detent	EC12D Without detent	EC12D With push-on switch		
Photo									
Output	Incremental								
Outline specifications	Shaft types	Single-shaft							
	Operating direction	Vertical							
	Number of pulse/ Number of detent	15/30	9/18 15/30		18/18	12/12 24/24	15/30		
	Push switch (Travel mm)	Without With(1.5)	Without With(0.5, 1.5)		Without With(1.5)	Without	With(0.5)		
	Optional functions								
	Changeover angle								
Dimensions (mm)	W	11.7			2.0	12.4	12.5		
	D	12	14.2		19.2	13.2	11.7		
	H	4.5			10	5			
Soldering	Manual soldering	350 max. 3s max.							
	Dip soldering	260 ± 5 , 5 ± 1s			260 ± 5 , 5 ± 1s	260 ± 5 , 3 ± 1s			
	Reflow soldering	Please see P.189							
Operating temperature range	-30 to +85	-40 to +85		-30 to +80	-10 to +70	-40 to +85			
Maximum operating current(Resistive load)	10mA			1mA	5mA	10mA			
Electrical performance	Output signal	Output of A and B signals, proportionate to phase difference							
	Output wave	Please see P.191							
	Sliding noise	Please see P.191				<p>$V_1 = V_2 = 1.5V$ max.</p>  <p>Measurement condition : Rotation speed 360°/s t : Masking time to avoid chattering</p> <p>At R = 10k Chattering : 3ms max. Bounce : 2ms max. At R = 5k Chattering : 3ms max. Bounce : 2ms max.</p>			
	Insulation resistance	100M min. 250V DC			10M min. 50V DC	100M min. 250V DC			
	Voltage proof	300V AC for 1minute			50V AC for 1minute	300V AC for 1minute or 360V AC for 1s.			
Mechanical performance	Rotational torque	$7 \pm \frac{3}{4} mN \cdot m$				$10 mN \cdot m$ max. $25 \pm 15 mN \cdot m$ $40 \pm 15 mN \cdot m$			
	Detent torque	$10 \pm 7 mN \cdot m$		$12 \pm 5 mN \cdot m$	$40 \pm 20 mN \cdot m$	$3 \pm 2 mN \cdot m$ 3 to 20mN·m			
	Push-pull strength	100N			80N	100N			
Environmental performance	Cold	-40 ± 3 for 240h			-40 ± 3 for 240h ± 10h				
	Dry heat	85 ± 3 for 240h			85 ± 3 for 240h ± 10h				
	Damp heat	60 ± 2 , 90 to 95% RH for 240h			60 ± 2 , 90 to 95%RH for 240h ± 10h				
Push-on Switch Specifications	Circuit · number of contacts	Single pole and single throw (Push-on)					Single pole and single throw (Push-on)		
	Travel(mm)	0.5 ± 0.3	1.5 ± 0.5	0.5 ± 0.3	1.5 ± 0.5	0.5 ± 0.3	0.5 ± 0.3		
	Operating force(N)	$6 \pm \frac{2}{5}$	4 ± 2	5 ± 2	4 ± 2	5 ± 2	$3 \pm \frac{1.5}{1.0}$ $6 \pm \frac{2.5}{2}$		
	Rating	0.5A 16V DC (1mA 16V DC min. ratings)		0.1A 5V DC		0.5A 16V DC (1mA 16V DC min. ratings)		1mA 5V DC	
	Contact esistance	100m for initial period; 200m after operating life					100m for initial period; 200m after operating life		
	Operating life	20,000times min.	1,000,000 times min.	500,000 times min.	1,000,000 times min.	100,000 times min.	20,000times min.		
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- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™
- Custom-Products

- Incremental Type
- Absolute Type

Product Specifications

Output Wave



Detector

Push

Slide

Rotary

Encoders

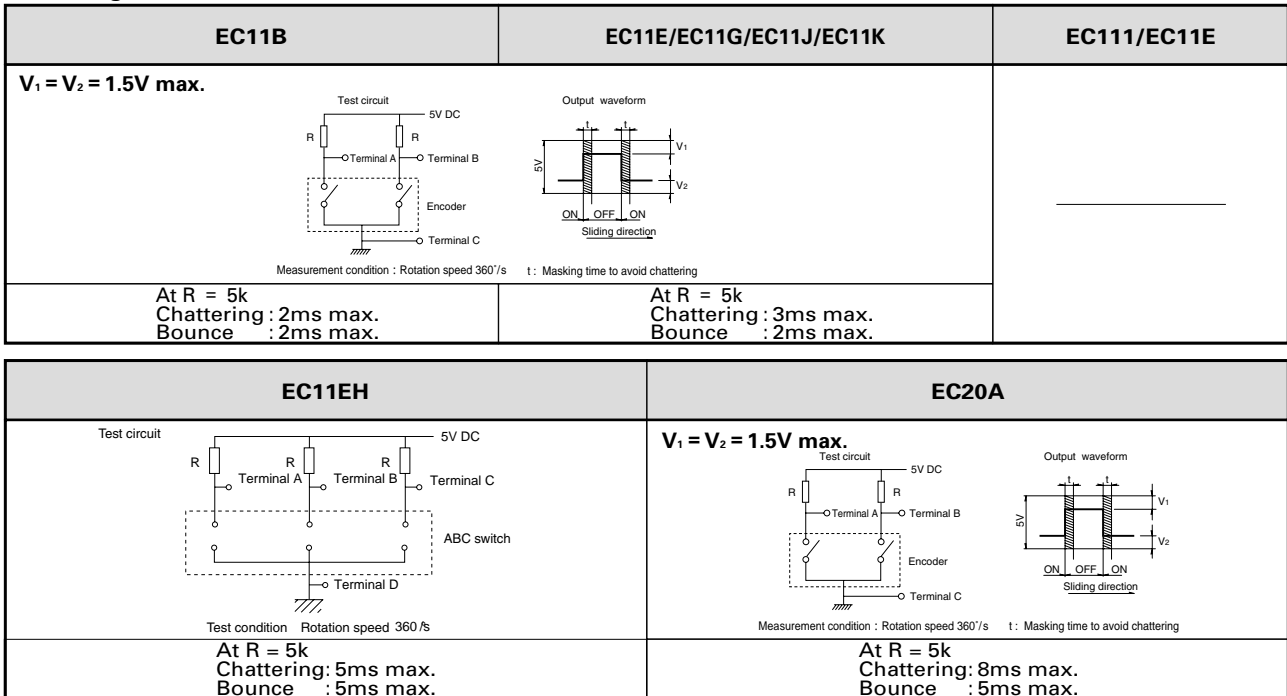
Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products

Sliding Noise



Incremental
Type

Absolute
Type

Attached Parts

EC11B Series

Unit:mm

