

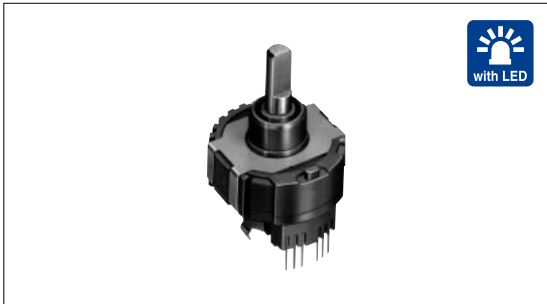
Encoder 20mm Size Metal Shaft Magnetic Type

EM20B Series



Highly reliable non-contact structure applicable to 31-point LED level indicator mounting.

- Detector
- Push
- Slide
- Rotary
- Encoders



Typical Specifications

Items	Specifications
Rating	5V ± 5% DC
Operating life	500,000rotations

Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products

Product Line

Actuator length (mm)	Torque (mN·m)		Number of detent	Number of pulse	Operating direction	Push switch (N)	Display function	Response time	Minimum order unit (pcs.)	Product No.	Drawing No.
	Rotational torque	Detent torque									
15.5	7 max.	—	Without	40	Vertical	Without	Without	1.3 μ sec. (TYP)	480	EM20B4000000	1
16	—	8 ± 5	40							EM20B4010000	
10	—	8 ± 5	40			With (Switch operating force 6 ± 3)	With (Color : orange)			EM20B4014000	2
						EM20B4014A01	3				

Incremental
Type


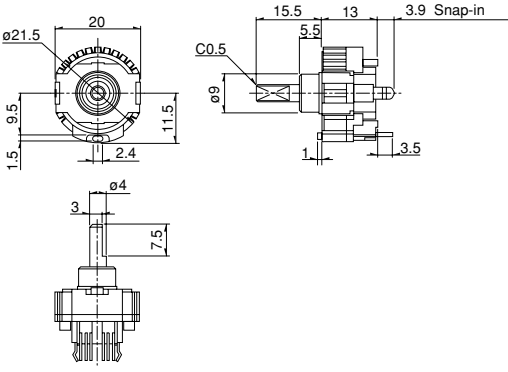
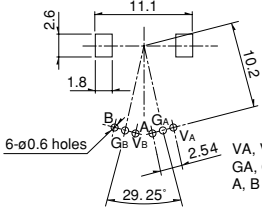
Absolute
Type

Notes





- This product uses a Hall IC. Be aware of ESD damages.
- Custom design for shaft configuration and mount height are available upon request.

Dimensions

Unit:mm

No.	Style	PC board mounting hole dimensions (Viewed from mounting side)
1	without switch type  	 6-ø0.6 holes VA, VB ... Power supply GA, GB ... Ground A, B Out put

List of Varieties

Type	Hollow shaft		Magnetic			
	5mm size	10mm size	11mm size	20mm size		
Series	EC05E	EC10E	EM11B	EM20B		
Detector						
Push						
Slide	Incremental					
Rotary Encoders Power Dual-in-line Package Type TACT Switch™ Custom-Products	Outline specifications	Hollow shaft		Single-shaft		
		Shaft types	Hollow shaft		Single-shaft	
		Operating direction	Vertical/Horizontal	Horizontal	Vertical	
		Number of pulse/ Number of detent	12/12	12/24	16/16	40/40
		Push switch (Travel mm)	Without		With(0.5)	Without/With(0.5)
		Optional functions				Display function
Dimensions (mm)	W	5.7	9.8	10.8	20	
	D	2.7	12.6	11	22.25	
	H	6.5	4.4	7.5	13	
Soldering	Manual soldering	350 max. 3s max.				
	Dip soldering	—	260 ± 5 , 3 ± 1s	260 max. 3s max.		
	Reflow soldering	Please see P.189				
Operating temperature range	- 30 to + 85			-10 to + 70		
Maximum operating current(resistive load)	0.55mA	1mA	V _{HI} : + 4.0V min. V _{LO} : 0.5V max. (Isink=5mA)			
Incremental Type Absolute Type	Electrical performance	Output signal	Output of A and B signals, proportionate to phase difference		A,B(Square wave)	
		Output type	Incremental			
		Insulation resistance	50M min. 50V DC		100M min. 100V DC	100M min. 250V DC
		Voltage proof	50V AC for 1minute		250V AC for 1minute	300V AC for 1minute
Mechanical performance	Rotational torque	—			7mN·m max.	
	Detent torque	1.6 ± 1.3mN·m	5 ± 3mN·m	10 ± 5mN·m	8 ± 5mN·m	
	Push-pull strength	—			100N	
Environmental performance	Cold	- 40 ± 3 for 240h		- 40 ± 3 for 96h	- 30 ± 3 for 240h	
	Dry heat	85 ± 3 for 240h		85 ± 3 for 96h	80 ± 3 for 240h	
	Damp heat	40 ± 2 , 90 to 95%RH for 240h		40 ± 2 , 90 to 95%RH for 96h	40 ± 2 , 90 to 95%RH for 240h	
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Push-on Switch Specifications

Items	EM11B	EM20B
Contact arrangement	Single pole and single throw(Push-on)	
Travel(mm)	0.5 ^{+0.3} / _{-0.2}	0.5 ^{+0.4} / _{-0.3}
Operating force (N)	5.5 ± 3	6 ± 3
Rating	5mA 5V DC (50mA 12V DC)	
Contact resistance	500m max for initial period;5 max after operating life	100m max for initial period;200m max after operating life
Operating life	1,000,000times min.	
		25,000times min.

Encoders Attached Parts	209
Encoders Cautions	210, 211

Note

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