

Encoder

11mm Size Metal Shaft Magnetic Type

EM11B Series



A compact 10.8 × 11mm size encoder with long-life of 1,000,000 cycles.



Typical Specifications

Items	Specifications
Rating	5V ± 5% DC
Operating life	1,000,000cycles

Product Line

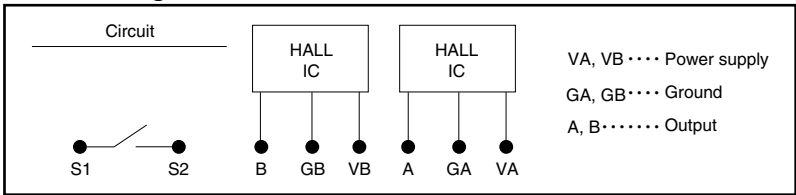
Actuator length (mm)	Detent torque (mN・m)	Number of detent	Number of pulse	Operating direction	Push switch	Response time	Switch contact resistance	Switch operating force (N)	Minimum order unit (pcs.)	Product No.
15	10 ± 5	16	16	Vertical	With	1.3μsec.(TYP)	500mΩ or less	5 ± 3	1,000	EM11B16140A4

Dimensions

Unit:mm

Style	PC board mounting hole dimensions (Viewed from mounting side)

Block Diagram



Notes

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

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products

Incremental
Type

Absolute
Type

List of Varieties

Type	Hollow shaft		Magnetic	
	5mm size	10mm size	11mm size	20mm size
Series	EC05E	EC10E	EM11B	EM20B
Photo				
Output	Incremental			
Outline specifications	Shaft types	Hollow shaft		Single-shaft
	Operating direction	Vertical/Horizontal	Horizontal	Vertical
	Number of pulse/ Number of detent	12/12	12/24	16/16
	Push switch (Travel mm)	Without		With(0.5)
	Optional functions			Display function
	Changeover angle			
Dimensions (mm)	W	5.7	9.8	10.8
	D	2.7	12.6	11
	H	6.5	4.4	7.5
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. (I _{sink} =5mA)
Electrical performance	Output signal	Output of A and B signals, proportionate to phase difference		A,B(Square wave)
	Output type	Incremental		
	Insulation resistance	50MΩ min. 50V DC		100MΩ min. 100V DC
	Voltage proof	50V AC for 1minute		300V AC for 1minute
Mechanical performance	Rotational torque	—		
	Detent torque	1.6 ± 1.3mN·m	5 ± 3mN·m	10 ± 5mN·m
	Push-pull strength	100N		
Environmental performance	Cold	- 40 ± 3 for 240h		- 30 ± 3 for 240h
	Dry heat	85 ± 3 for 240h		80 ± 3 for 240h
	Damp heat	40 ± 2 , 90 to 95%RH for 240h		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)	3A 16V DC
Contact resistance	500mΩ max for initial period;5Ω max after operating life	100mΩ max for initial period;200mΩ max after operating life
Operating life	1,000,000times min.	25,000times min.

- Encoders Attached Parts209
- Encoders Cautions210, 211

Note

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