

# ENC-M111 Miniature Commutating Modular Magnetic Encoder w/Index



## FEATURES

- Accepts +/- 0.010" Axial Shaft Play
- 100 to 1,024 Cycles per Revolution (CPR)
- Tracks 0 to 300,000 Counts per Second
- 2-Channel Quadrature Differential Squarewave Outputs
- Third Index Channel
- Operating Temperature of -40° to +125° C
- Powered from a Single +5VDC Power Supply
- RoHS Compliant and REACH Certified

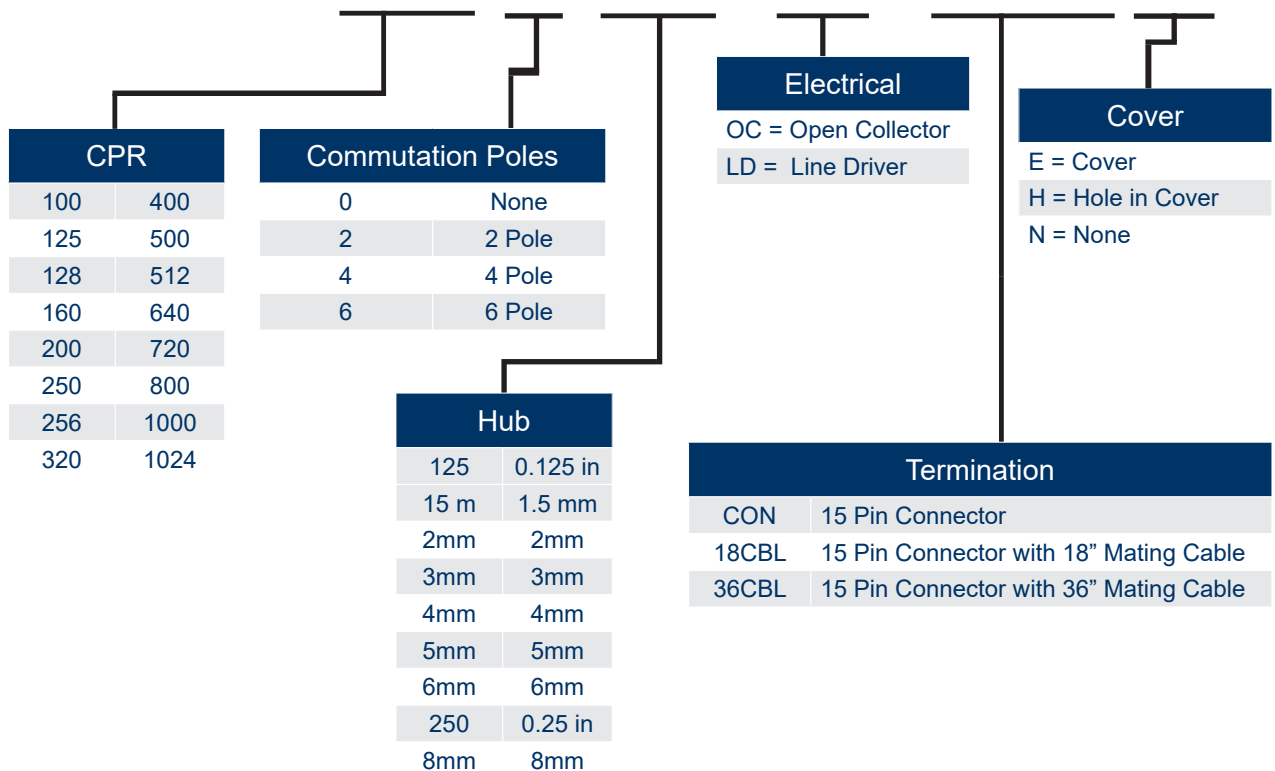


## DESCRIPTION

The ENC-M111 Miniature Commutating Modular Magnetic Encoder is the smallest off-axis commutating modular magnetic encoder on the market. ENC-M111 encoders offer a superior solution to optical encoders with resolutions up to 1024 CPR/12 Bits. With air gap tolerance, it makes installation of the hub quick and easy. Also, the ENC-M111 has electromagnetic interference (EMI) protection circuitry. The 800KHz combined data rate allows up to 12,000 RPM. The ENC-M111 has a 1.1 inch diameter, fits NEMA 11 motors, and has a temperature capability of 125° C. It is the most accurate magnetic encoder in its class, which makes it ideal for small brushless DC motors and Servo Motors. The magnetic technology provides clear operational advantages over conventional optical encoders in tough, dirty or other extreme environments.

## ORDERING INFORMATION

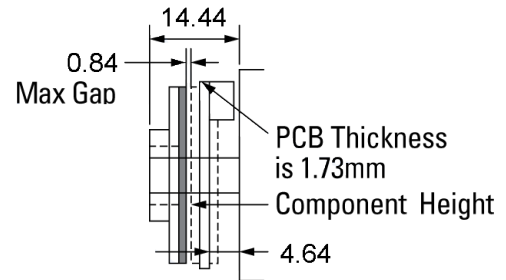
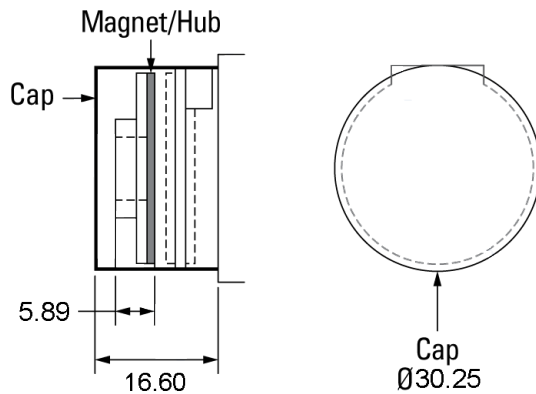
# ENC-M111-100-0-125-OC-CON-H



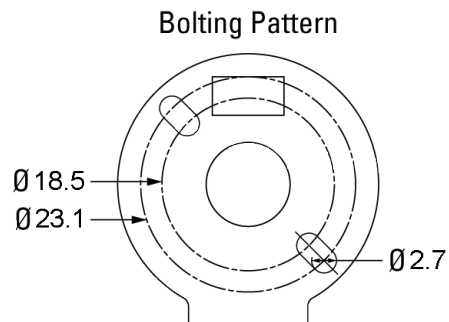
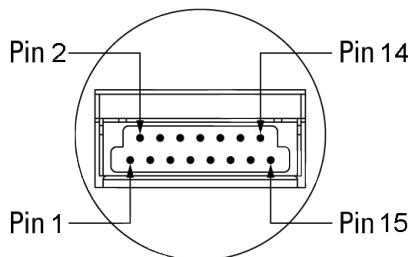
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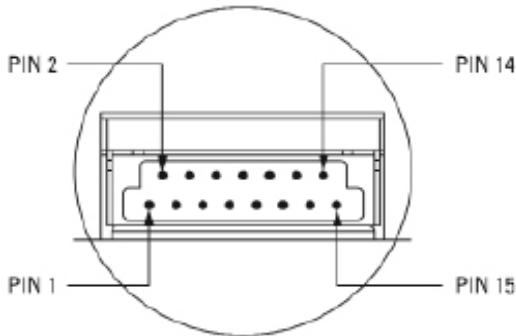
Item	Counts Per Rev (CPR)	Commutation	Bore Size	Index Channel	Cover	Electrical
ENC-M111-100-0-125-OC-CON-N	100	0 Pole	0.125 in	Yes	None	Open Collector
ENC-M111-125-2-2mm-OC-CON-H	125	2 Pole	2mm	Yes	Cover With Center Hole	Open Collector
ENC-M111-128-4-3mm-LD-CON-H	128	4 Pole	3mm	Yes	Cover With Center Hole	Line Driver
ENC-M111-160-6-4mm-LD-CON-N	160	6 Pole	4mm	Yes	None	Line Driver
ENC-M111-200-0-5mm-OC-18CBL-E	200	0 Pole	5mm	Yes	Cover	Open Collector
ENC-M111-256-2-6mm-LD-36CBL-H	256	2 Pole	6mm	Yes	Cover With Center Hole	Line Driver
ENC-M111-360-4-250-OC-CON-N	360	4 Pole	0.250 in	Yes	None	Open Collector
ENC-M111-500-6-8mm-OC-18CBL-H	500	6 Pole	8mm	Yes	Cover With Center Hole	Open Collector
ENC-M111-640-0-125-LD-CON-N	640	0 Pole	0.125 in	Yes	None	Line Driver
ENC-M111-1024-2-3mm-OC-36CBL-H	1024	2 Pole	3mm	Yes	Cover With Center Hole	Open Collector

Note: Dimensions are in millimeters



min. shaft length: 14.4  
max. shaft length with cap/no hole: 15.0

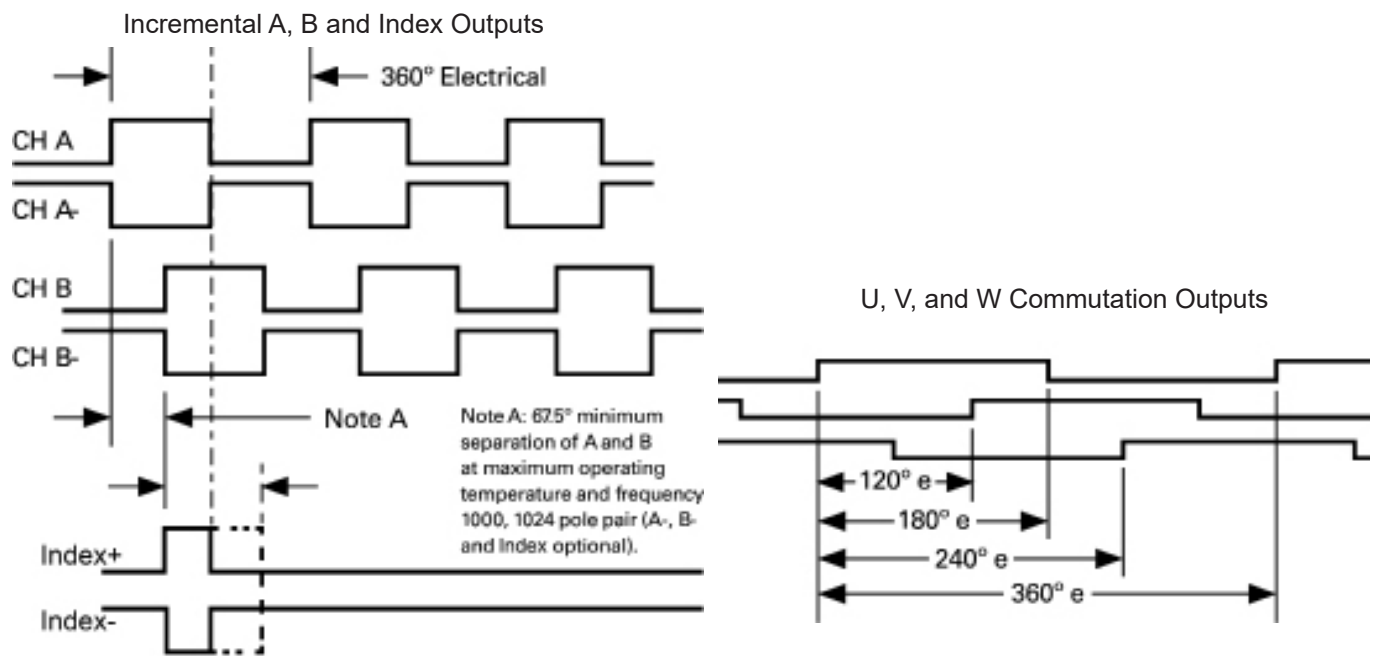




Pin #	Function	Color
1	Yellow	A+
2	Yellow/White	A-
3	Blue	B+
4	Blue/White	B-
5	Orange	RP+
6	Orange/White	RP-
7	Green	U+
8	Green/White	U-
9	Brown	V+
10	Brown/White	V-
11	White	W+
12	White/Grey	W-
13	Red	VCC1
14	Black	GRND
15	Grey	N/A

\*Output on pins 2, 4, 6, 8, 10, 12 available with line driver option only.

\*Output on pins 7-12 available with commutated units only.



Terminology	Description
CPR (N):	The Number of Cycles Per Revolution
One Shaft Rotation:	360 mechanical degrees, N cycles
One Electrical Degree (°e):	1/360th of one cycle
One Cycle (C):	360 electrical degrees (°e). Each cycle can be decoded into 1 or 4 codes, referred to as X1 or X4 resolution multiplication
Symmetry:	A measure of the relationship between (X) and (Y) in electrical degrees, nominally 180°e
Quadrature (Z):	The phase lag or lead between channels A and B in electrical degrees, nominally 90°e
Index (CH I):	The index output goes high once per revolution, coincident with the low states of channels A and B, nominally 1/4 of one cycle (90°e)

Recommended Operating Conditions	Min	Max	Units
Open-Collector Temperature	-40	125	°C
Line Driver Temperature	-40	85	°C
Supply Voltage	4.5	5.5	Volts
Supply Current	-	39	mA
Data Rate	-	200	kHz

Parameter	Max	Units
Vibration (20 to 2kHz)	3	g
Shaft Axial Play	± 0.010	in.
Max Speed	12000	RPM