

# MODEL 702 – INCREMENTAL MOTOR MOUNT



Ø3.5"

## FEATURES

- Up to 30,000 CPR
- IP66 Sealing Available
- Mounting Flange Available With Boss

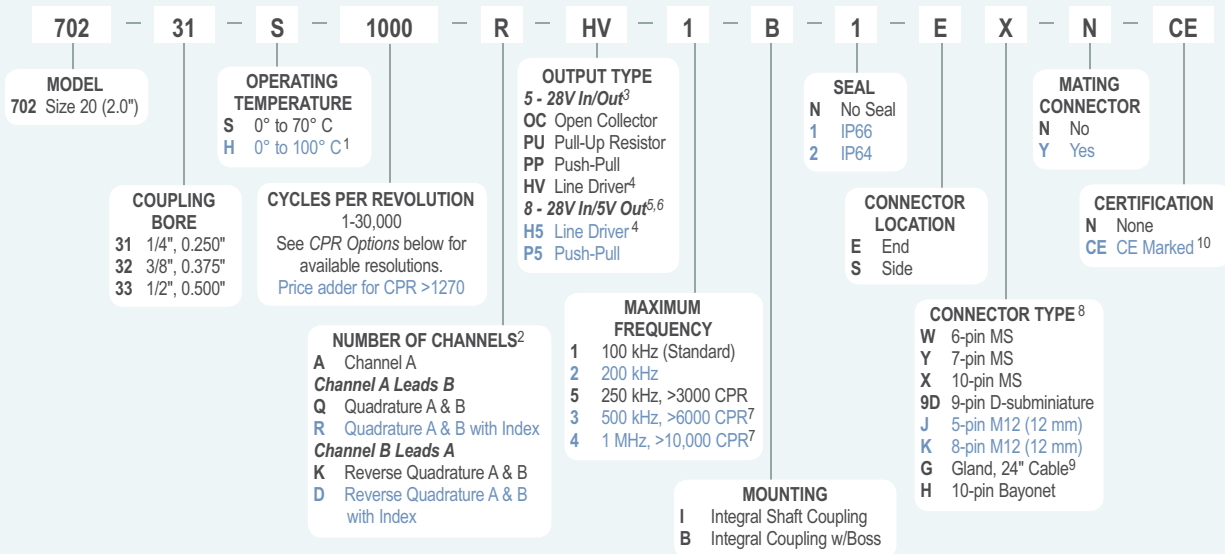
The Model 702 Motor Mount Accu-Coder™ is a heavy duty, ultra-rugged, reliable, yet compact industry standard 2-inch diameter encoder. It is designed to withstand harsh factory and plant floor environments. The mounting flange, with integral shaft and coupling, allows the 702 encoder to be easily installed on a motor or shaft assembly, without the need for additional brackets or couplings. With the ability to handle shaft speeds of up to 8000 RPM and withstand the shock and vibration of high speed servo motors, you are sure to be pleased with the 702 Motor Mount Accu-Coder™.

## COMMON APPLICATIONS

Servo & Stepper Motor Control, Robotics, X-Y Positioning Tables, Machine Tools

## MODEL 702 ORDERING GUIDE

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.



## MODEL 702 MOTOR MOUNT CPR OPTIONS

0001*	0002*	0004*	0005*	0006*	0007*	0008*	0010*
0011*	0012*	0014*	0020	0021*	0024*	0025*	0028*
0030*	0032*	0033*	0034*	0035*	0038*	0040*	0042*
0045*	0050*	0060	0064*	0100	0120	0125	0128*
0144*	0150*	0160*	0192*	0200	0240*	0250	0254*
0256*	0300	0333*	0360	0400	0500	0512	0600
0625*	0635	0665*	0720	0768*	0800	0889	0900*
1000	1024	1200	1201* <sup>a</sup>	1203* <sup>a</sup>	1204* <sup>a</sup>	1250 <sup>a</sup>	1270 <sup>a</sup>
1440	1500	1800	2000	2048	2400 <sup>a</sup>	2500	2540 <sup>a</sup>
2880 <sup>a</sup>	3000 <sup>a</sup>	3600 <sup>a</sup>	4000 <sup>a</sup>	4096 <sup>a</sup>	5000 <sup>a</sup>	6000 <sup>a</sup>	7200 <sup>a</sup>
7500 <sup>a</sup>	9000 <sup>a</sup>	10,000 <sup>a</sup>	10,240 <sup>a</sup>	12,000 <sup>a</sup>	12,500 <sup>a</sup>	14,400 <sup>a</sup>	15,000 <sup>a</sup>
18,000 <sup>a</sup>	20,000 <sup>a</sup>	20,480 <sup>a</sup>	25,000 <sup>a</sup>	30,000 <sup>a</sup>			

\*Contact Customer Service for High Temperature Option.

<sup>a</sup>High Temperature Option (H) limited to 85° C maximum for these CPR options.

New CPR values are periodically added to those listed. Contact Customer Service to determine all currently available CPR values. Special disk resolutions are available upon request. A one-time NRE fee may apply.

## NOTES:

- 0° to 85° C for certain resolutions, see CPR Options.
- Contact Customer Service for non-standard index gating options.
- 24 VDC max for high temperature option.
- Not available with 5-pin M12 or 6-pin MS connector. Available with 7-pin MS connector only without Index Z.
- Standard temperature, 60 to 3000 CPR only.
- H5 and P5 outputs are not available with CE option.
- Standard cable lengths only. For details, please refer to **Technical Bulletin TB 116: Noise and Signal Considerations** on the web at [www.encoder.com](http://www.encoder.com).
- For mating connectors, cables, and cordsets see Encoder Accessories on page 102 or visit [www.encoder.com](http://www.encoder.com). For Pin Configuration Diagrams, see page 107 or visit [www.encoder.com](http://www.encoder.com).
- For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: G/6 = 6 feet of cable.
- Please refer to **Technical Bulletin TB100: When to Choose the CE Option** at [www.encoder.com](http://www.encoder.com).

## MODEL 702 MOTOR MOUNT SPECIFICATIONS

### Electrical

Input Voltage .....	4.75 to 28 VDC max for temperatures up to 70° C 4.75 to 24 VDC for temperatures between 70° C to 100° C
Input Current .....	100 mA max with no output load
Input Ripple .....	100 mV peak-to-peak at 0 to 100 kHz
Output Format.....	Incremental- Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the encoder mounting face. See <i>Waveform Diagrams</i> .
Output Types .....	Open Collector- 100 mA max per channel Pull-Up- 100 mA max per channel Push-Pull- 20 mA max per channel Line Driver- 20 mA max per channel (Meets RS 422 at 5 VDC supply)
Index.....	Occurs once per revolution. The index for units >3000 CPR is 90° gated to Outputs A and B. See <i>Waveform Diagrams</i> .
Max Frequency .....	Up to 1 MHz.
Noise Immunity .....	Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2
Symmetry.....	1 to 6000 CPR: 180° (±18°) electrical at 100 kHz output 6001 to 20,480 CPR: 180° (±36°) electrical at 100 kHz output
Quad Phasing.....	1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output 6001 to 20,480 CPR: 90° (±36°) electrical at 100 kHz output
Min Edge Sep .....	1 to 6000 CPR: 67.5° electrical at 100 kHz output 6001 to 20,480 CPR: 54° electrical >20,480 CPR: 50° electrical
Rise Time.....	Less than 1 microsecond
Accuracy.....	Instrument and Quadrature Error: For 200 to 1999 CPR, 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. For 2000 to 3000 CPR, 0.01° mechanical (0.6 arc minutes) from one cycle to any other cycle. Interpolation error (units > 3000 CPR only) within 0.005° mechanical. (Total Optical Encoder Error = Instrument + Quadrature + Interpolation)

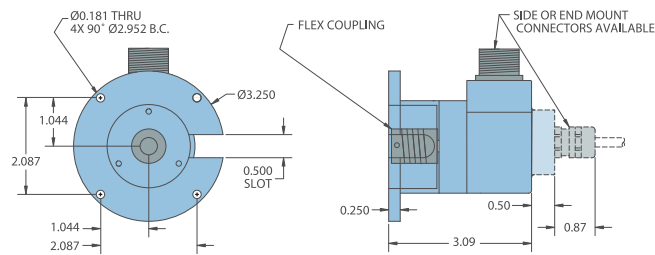
### Mechanical

Max Shaft Speed.....	8000 RPM. Higher shaft speeds may be achievable, contact Customer Service.
Starting Torque .....	1.0 oz-in typical with IP64 seal or no seal 3.0 oz-in typical with IP66 shaft seal
Moment of Inertia.....	5.2 x 10 <sup>-4</sup> oz-in-sec <sup>2</sup>
Max Acceleration.....	1 x 10 <sup>5</sup> rad/sec <sup>2</sup>
Housing .....	Black non-corrosive finish
Bearings .....	Precision ABEC ball bearings
Weight.....	14 oz typical

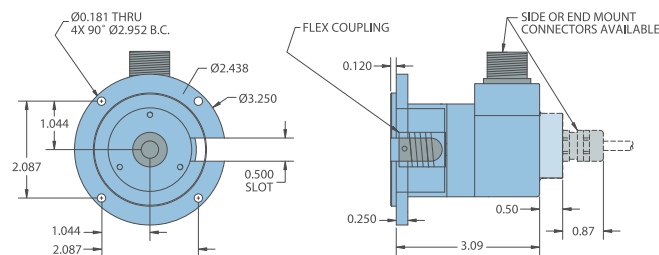
### Environmental

Storage Temp .....	-25° to +85° C
Humidity .....	98% RH non-condensing
Vibration .....	20 g @ 58 to 500 Hz
Shock.....	75 g @ 11 ms duration
Sealing.....	IP66 (NEMA 13 and 4/4X) with shaft seal; IP64 available

## MODEL 702 WITH INTEGRAL COUPLING (I)



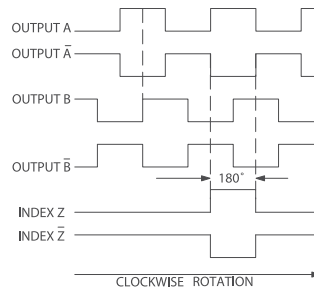
## MODEL 702 WITH INTEGRAL COUPLING AND BOSS (B)



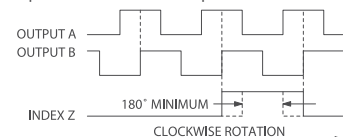
All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.

## WAVEFORM DIAGRAMS

### Line Driver and Push-Pull



### Open Collector and Pull-Up



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES.  
WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS  
A-bar, B-bar, Z-bar FOR HV OUTPUT ONLY.

## WIRING TABLE

Function	Gland Cable† Wire Color	5-pin M12**	8-pin M12**	10-pin MS	7-pin MS HV, H5	7-pin MS PU, PP, OC, P5	6-pin MS PU, PP, OC, P5	9-pin D-sub	10-pin Bayonet
Com	Black	3	7	F	F	F	A, F	9	F
+VDC	Red	1	2	D	D	D	B	1	D
A	White	4	1	A	A	A	D	2	A
A'	Brown	--	3	H	C	--	--	3	H
B	Blue	2	4	B	B	B	E	4	B
B'	Violet	--	5	I	E	--	--	5	J
Z	Orange	5	6	C	--	C	C	6	C
Z'	Yellow	--	8	J	--	--	--	7	K
Case	Green	--	--	G	G	G	--	8	G
Shield	Bare*	--	--	--	--	--	--	--	--

\*CE Option: Cable shield (bare wire) is connected to internal case.

\*\*CE Option: Read Technical Bulletin TB111. Available at [www.encoder.com](http://www.encoder.com).

†Standard cable is 24 AWG conductors with foil and braid shield.