

MODEL 755A NEMA - INCREMENTAL SHAFT ENCODER



FEATURES

- Standard NEMA mounting
- Up to 30,000 CPR
- High temperature option

With its integral shaft coupling, the Model 755A NEMA Mount Accu-Coder® mounts directly onto NEMA motors. It is designed for easy installation on industrial size 23 or 34 motor frames. It features standard bolt circle patterns, and can accommodate shaft sizes of 0.250", 0.375", or 6 mm. With its rugged all metal housing and wide range of CPR options, it will fit in many different applications, providing years of trouble free use.

COMMON APPLICATIONS

Robotics, Assembly Machines, Motor-Mounted Feedback, Phototypesetters, Printers and Digital Plotters, Elevator Controls, Medical Diagnostic Equipment

MODEL 755A NEMA ORDERING GUIDE

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

755A	31	S	1000	R	HV	1	23A	S	CE
MODEL 755A Model 755A	SHAFT/BORE SIZE 31 Internal Shaft	OPERATING TEMPERATURE L -40° to 70° C S 0° to 70° C H 0° to 100° C ¹	CYCLES PER REVOLUTION 1-30,000 See CPR Options below Price adder for >1270	NUMBER OF CHANNELS² A Channel A Channel A Leads B Q Quadrature A & B R Quadrature A & B with Index Channel B Leads A K Reverse Quadrature A & B D Reverse Quadrature A & B with Index	OUTPUT TYPE 5 - 28V In/Out ³ OC Open Collector PU Pull-Up Resistor PP Push-Pull HV Line Driver ⁴ 8 - 28V In/SV Out ^{5, 6} H5 Line Driver ⁴ P5 Push-Pull	MAXIMUM FREQUENCY 1 Standard 100 kHz 2 200 kHz ≤ 3000 CPR 5 250 kHz, > 3000 CPR 3 500 kHz, > 6000 CPR ⁷ 4 1 MHz, > 10,000 CPR ⁷	CONNECTOR TYPE⁸ S Standard 18" Cable ⁹ C01 8-pin Molex C02 Terminal Block J00 18" Cable with 5-pin M12 ⁴ K00 18" Cable with 8-pin M12	CERTIFICATION N None CE CE Marked ^{6, 10}	MOUNTING 23A NEMA 23 - 0.250" coupling 23B NEMA 23 - 0.375" coupling 23C NEMA 23 - 6 mm coupling 34A NEMA 34 - 0.250" coupling 34B NEMA 34 - 0.375" coupling 34C NEMA 34 - 6 mm coupling

NOTES:

- 0° to 85° C for certain resolutions, see CPR Options.
- Contact Customer Service for index gating options.
- 24 VDC max for high temperature option.
- Line Driver outputs not available with 5-pin M12 connector. Additional cable lengths available. Please contact Customer Service.
- Standard temperature, 60 to 3000 CPR only. Not available with 2540 CPR.
- HS 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 Distortion Considerations encoder.com.
- For mating connectors, cables, and cordsets see Accessories at encoder.com. For Connector Pin Configuration Diagrams, see Technical Information or see Connector Pin Configuration Diagrams at encoder.com.
- For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: S/6 = 6 feet of cable.
- Please refer to Technical Bulletin TB-100: When to Choose the CE Mark at encoder.com.

Model 755A NEMA 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	0889	1000	1024	1200	1204*	1250*	1270*	1440
1500	1800	2000	2048	2400*	2500	2540*	2880*	3000*	3600*
4000*	4096*	5000*	6000*	7200*	7500*	9000*	10,000*	10,240*	12,000*
12,500*	14,400*	15,000*	18,000*	20,000*	20,480*	25,000*	30,000*		

* Contact Customer Service for High Temperature Option (H).

^a 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.

MODEL 755A NEMA - INCREMENTAL SHAFT ENCODER

MODEL 755A NEMA 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 0-100 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 Waveform Diagrams.
Output Types.....	Open Collector – 100 mA max per channel Pull-Up – Open Collector with 2.2K ohm internal resistor, 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 Waveform Diagrams.
Max Frequency.....	Up to 1 MHz.
Electrical Protection.....	Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.
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
Quad Phasing.....	1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output 6001 to 20,480 CPR: 90° (±36°)
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)

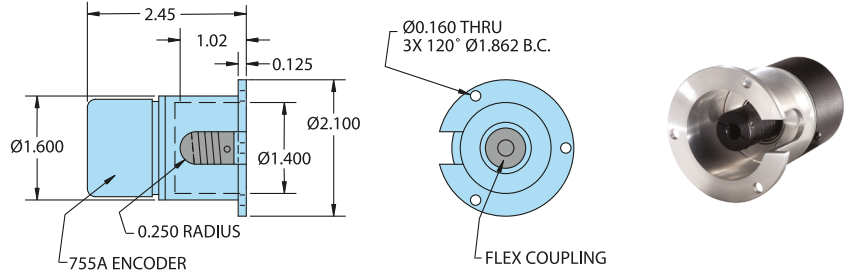
Mechanical

Max Shaft Speed.....	7500 RPM. Higher shaft speeds may be achievable, contact Customer Service.
Starting Torque.....	0.14 oz-in typical 4.0 oz-in typical for -40° C operation
Moment of Inertia.....	2.8 x 10 ⁻⁴ oz-in-sec ²
Max Acceleration.....	1 x 10 ⁵ rad/sec ²
Housing.....	Black non-corrosive finish
Bearings.....	Precision ABEC ball bearings
Weight.....	4.50 oz typical on NEMA 23 6.75 oz typical on NEMA 34

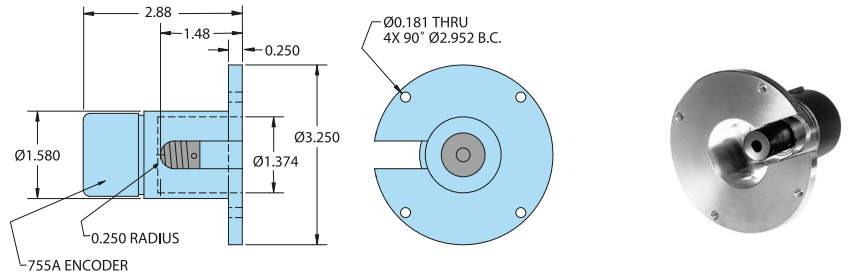
Environmental

Storage Temp.....	-25° to 85° C
Humidity.....	98% RH non-condensing
Vibration.....	10 g @ 58 to 500 Hz
Shock.....	50 g @ 11 ms duration

MODEL 755A SIZE 23 NEMA MOUNT (23A, 23B, 23C)



MODEL 755A SIZE 34 NEMA MOUNT (34A, 34B, 34C)

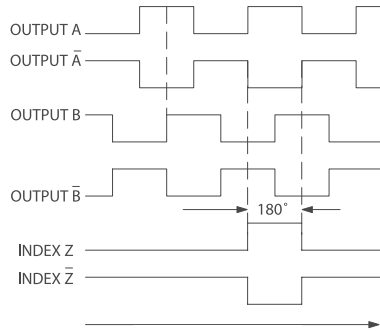


All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified. Metric dimensions are given in brackets [mm].

MODEL 755A NEMA - INCREMENTAL SHAFT ENCODER

WAVEFORM DIAGRAMS

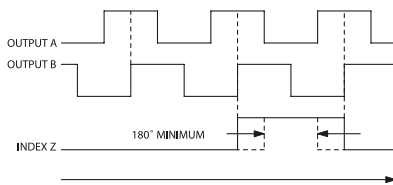
Line Driver and Push-Pull



CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE

NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. Waveform shown with optional complementary signals \bar{A} , \bar{B} , \bar{Z} for HV output only.

Open Collector and Pull-Up



CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE

NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. Index is positive going.

WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.

Function	Flying Leads Cable† Wire Color	Terminal Block	8-pin Molex	5-pin M12**	8-pin M12**
Com	Black	7	2	3	7
+VDC	White	8	1	1	2
A	Brown	1	8	4	1
A'	Yellow	2	7	--	3
B	Red	3	4	2	4
B'	Green	4	3	--	5
Z	Orange	6	6	5	6
Z'	Blue	5	5	--	8
Shield	Bare*	--	--	--	--

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

** CE Option: Use cable cordset with shield connected to M12 connector coupling nut.

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