

MODEL 755A* – INCREMENTAL SHAFT ENCODER



Ø1.5"

FEATURES

- Miniature Size (1.5" Diameter)
- Up to 30,000 CPR
- Servo or Flange Mounting
- 1 MHz Frequency Response Available
- Extended Temperature Operating Range Available

The Model 755A Size 15 Accu-Coder™ is ideal for applications requiring a small, high precision, high performance encoder. Approximately 1.5" in diameter and 1.5" long, it will fit where many encoders cannot. Designed with all-metal construction and shielded ball bearings, it will provide years of trouble-free use. The standard servo mount (S) version is available with a variety of shaft sizes and lengths. Three additional servo style mounts (S1, S2, S3) are also available. The optional flange mounting (MF) is ideal for applications requiring a bolt-on, high precision encoder. With its high reliability and quick delivery, the Model 755A encoder is the perfect replacement encoder in this size category.

COMMON APPLICATIONS

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

MODEL 755A ORDERING GUIDE

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

755A	07	S	1000	R	HV	1	S	S	CE
MODEL 755A Model 755A	SHAFT SIZE¹ 07 1/4", 0.250" 08 5 mm 06 6 mm 32 1/4", 0.250" Servo 1,2,or 3 only 20 6 mm x 0.500" 19 1/4", 0.250" x 0.500"	CYCLES PER REVOLUTION 1-30,000 See CPR Options below for available resolutions. Price adder for CPR >1270	OUTPUT TYPE 5 - 28V In/Out ⁴ OC Open Collector PU Pull-Up Resistor PP Push-Pull HV Line Driver ⁵ 8 - 28V In/5V Out ⁶ H5 Line Driver ^{5,7} P5 Push-Pull ⁷	CERTIFICATION N None CE CE Marked ^{7,12}	CONNECTOR TYPE⁹ S Standard 18" Cable ¹⁰ C01 8-pin Molex C02 Terminal Block J00 18" Cable with 5-pin M12 ^{5,11} K00 18" Cable with 8-pin M12 ¹¹	NUMBER OF CHANNELS³ 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	MAXIMUM FREQUENCY 1 Standard 100 kHz 2 200 kHz 5 250 kHz, >3000 CPR 3 500 kHz, >6000 CPR ⁸ 4 1 MHz, >10,000 CPR ⁸	MOUNTING & HOUSINGS S Standard Servo Mount MF Square Flange S1 Servo Mount (Choose shaft 32) S2 Servo Mount (Choose shaft 32) S3 Servo Mount (Choose shaft 32)	OPERATING TEMPERATURE L -40° to 70° C S 0° to 70° C H 0° to 100° C ²

MODEL 755A 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* ^a	1203* ^a	1204* ^a	1250 ^a
1270 ^a	1440	1500	1800	2000	2048	2400 ^a	2500	2540 ^a
2880 ^a	3000 ^a	3600 ^a	4000 ^a	4096 ^a	5000 ^a	6000 ^a	7200 ^a	7500 ^a
9000 ^a	10,000 ^a	10,240 ^a	12,000 ^a	12,500 ^a	14,400 ^a	15,000 ^a	18,000 ^a	20,000 ^a
20,480 ^a	25,000 ^a	30,000 ^a						

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

^aHigh 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:

- Contact Customer Service for additional options.
- 0° to 85° C for certain resolutions, see CPR Options.
- Contact Customer Service for index gating options.
- 24 VDC max for high temperature option.
- 5-pin not available with Line Driver (HV, H5) outputs.
- 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 TB116: Noise and Signal Distortion Considerations** at www.encoder.com.
- For mating connectors, cables, and cordsets see **Accessories** or visit www.encoder.com. For Connector Pin Configuration Diagrams, see **Technical Information** or visit www.encoder.com.
- For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: S/6 = 6 feet of cable.
- Additional cable lengths available. Please consult Customer Service.
- Please refer to **Technical Bulletin TB100: When to Choose the CE Mark**.

MODEL 755A 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 *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 100 kHz std; Up to 1 MHz optional.

(See Ordering Guide for availability)

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 Speed 7500 RPM. Higher shaft speeds may be achievable, contact Customer Service.

Shaft Rotation Bi-directional

Radial Shaft Load 5 lb

Axial Shaft Load 3 lb

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-sec²

Housing Black non-corrosive finish

Bearings..... Precision ABEC ball bearings

Weight..... 3.10 oz servo mount, typical

Environmental

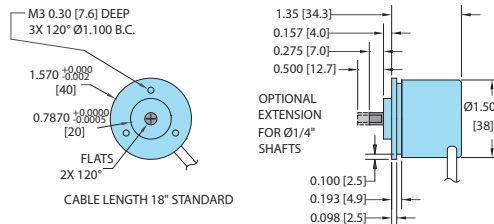
Storage Temp -25° to 85° C

Humidity..... 98% RH non-condensing

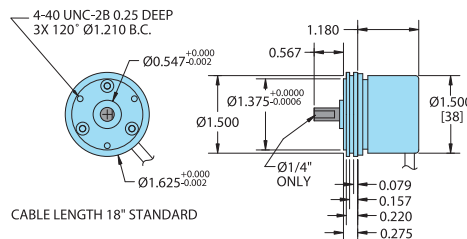
Vibration..... 10 g @ 58 to 500 Hz

Shock..... 50 g @ 11 ms duration

MODEL 755A STANDARD SERVO MOUNT (S)



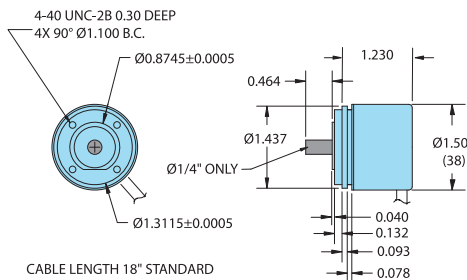
MODEL 755A SERVO MOUNTS (S1 & S2)



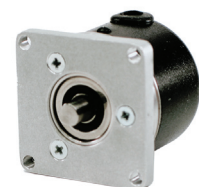
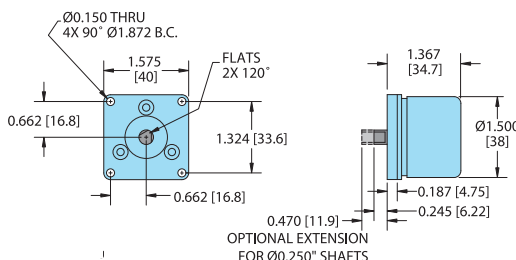
S2 Pictured below has a 0.750" Boss. S1 has a 0.547" Boss. See www.encoder.com to download drawings



MODEL 755A SERVO MOUNT (S3)



MODEL 755A 1.575" SQUARE FLANGE (MF)



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

WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable.

Function	Wire Color	Gland Cable†	Term. 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*	--	--	--	--	

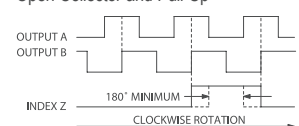
*CE Option: Cable shield (bare wire) is connected to internal case.

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

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

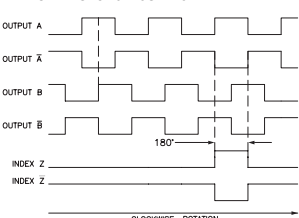
WAVEFORM DIAGRAMS

Open Collector and Pull-Up



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. INDEX IS POSITIVE GOING.

Line Driver and Push-Pull



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