

# Model 755A



## Features

- Miniature Size (1.5" Diameter)
- Up to 30,000 Cycles Per Revolution
- 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 for less reliable encoders of this size.

## 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

**CYCLES PER REVOLUTION**  
1-30,000  
See *CPR Options* below for available resolutions.  
Price adder for CPR >1270

**OUTPUT TYPE**  
**5 - 28V In/Out<sup>4</sup>**  
OC Open Collector  
PU Pull-Up Resistor  
PP Push-Pull  
HV Line Driver  
**8 - 28V In/5V Out<sup>5,9</sup>**  
H5 Line Driver  
P5 Push-Pull

**CERTIFICATION**  
N None  
CE CE Marked<sup>8</sup>

**OPERATING TEMPERATURE**  
L -40° to 70° C  
S 0° to 70° C  
H 0° to 100° C<sup>2</sup>

**CONNECTOR TYPE**  
S Standard 18" Cable<sup>7</sup>  
C01 8-pin Molex  
C02 Terminal Block  
J00 18" Cable with 5-pin M12<sup>10</sup>  
K00 18" Cable with 8-pin M12<sup>10</sup>

**SHAFT SIZE<sup>1</sup>**  
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"

**NUMBER OF CHANNELS<sup>3</sup>**  
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<sup>6</sup>  
4 1 MHz, >10,000 CPR<sup>6</sup>

**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)

For enhanced connectivity, available with an M12 in-line connector

**For specification assistance call Customer Service at 1-800-366-5412**

### 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* <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:**
- 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.
  - Standard temperature, 60 to 3000 CPR only.
  - Standard cable lengths only. For details, please refer to **Technical Bulletin TB116: Noise and Signal Considerations** at [www.encoder.com](http://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.
  - Please refer to **Technical Bulletin TB100: When to Choose the CE Option**.
  - H5 and P5 outputs are not available with CE option.
  - 5-pin not available with Line Driver (HV, H5) outputs. Additional cable lengths available. Please consult Customer Service.

# Model 755A

## 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* below.

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 *Waveform Diagrams* below.

Max Frequency.....100 kHz std; Up to 1 MHz optional. (See Ordering Guide for availability)

Noise Immunity.....Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DENV 50141; DENV 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

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 Size.....0.250", 5 mm, 6 mm

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..... $2.8 \times 10^{-4}$  oz-in-sec<sup>2</sup>

Max Acceleration..... $1 \times 10^9$  rad/sec<sup>2</sup>

Electrical Conn.....18" cable (foil and braid shield, 24 AWG conductors), 5- or 8-pin M12 (12 mm) in-line connector with 18" cable (braid shield), 8-pin Molex, Terminal Block

Housing.....Black non-corrosive finish

Bearings.....Precision ABEC ball bearings

Mounting.....Servo or Optional Flange

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

### Environmental

Operating Temp.....0° to 70° C for standard models  
 -40° to 70° C for low temperature option  
 0° to 100° C for high temperature option (0° to 85° C for certain resolutions, see CPR Options.)

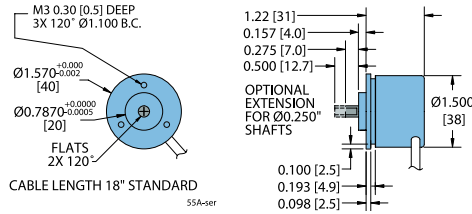
Storage Temp.....-25° to +85° C

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

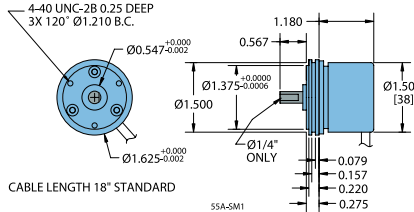
Vibration.....10 g @ 58 to 500 Hz

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

## Model 755A Standard Servo Mount S



## Model 755A Servo Mounts S1 and S2



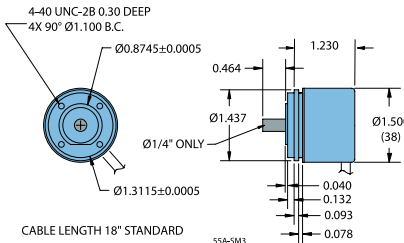
S1

S2 Pictured below has a 0.750" Boss. S1 has a 0.547" Boss. See [www.encoder.com](http://www.encoder.com) to download drawings

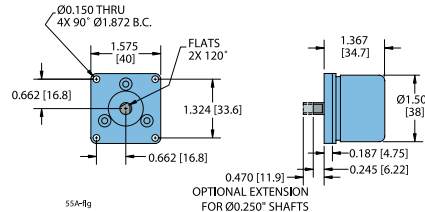


S2

## Model 755A Servo Mount S3

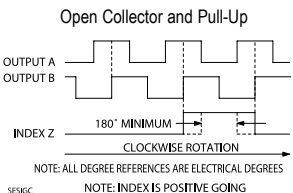
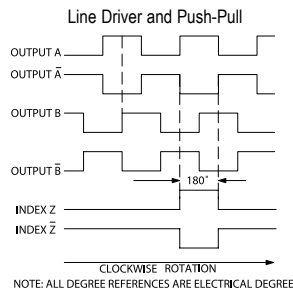


## Model 755A Square Flange MF



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

### Waveform Diagrams



### Wiring Table

Function	Cable Wire Color	Terminal Block	8-pin Molex	5-pin M12 <sup>2</sup>	8-pin M12 <sup>2</sup>
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 <sup>1</sup>	-----	-----	-----	-----

<sup>1</sup>CE Option: Cable shield (bare wire) is connected to internal case  
<sup>2</sup>CE Option: Read Technical Bulletin TB111

Incremental Shaft Encoders