MODEL 755A – INCREMENTAL SHAFT ENCODER

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.

<table>
<thead>
<tr>
<th>755A</th>
<th>07</th>
<th>S</th>
<th>1000</th>
<th>R</th>
<th>HV</th>
<th>1</th>
<th>S</th>
<th>S</th>
<th>CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL</td>
<td>ORDER</td>
<td>SHIELD</td>
<td>Cycles</td>
<td>Per</td>
<td>Revolution</td>
<td>Output</td>
<td>Type</td>
<td>-</td>
<td>Certification</td>
</tr>
<tr>
<td>755A</td>
<td>755A Model 755A</td>
<td>1/4&quot;, 0.250&quot;</td>
<td>1,000</td>
<td>1-3,000</td>
<td>5 - 28V In/Out</td>
<td>OC</td>
<td>CE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td></td>
<td>5 mm</td>
<td>See CPR Options below for available resolutions. Price adder for CPR &gt;1270</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td></td>
<td>6 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>1/4&quot;, 0.250&quot; Servo 1,2, or 3 only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>6 mm x 0.500&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>1/4&quot;, 0.250&quot; x 0.500&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of Channels:

- A Channel A
- Channel A Leads B
- Quadrature A & B
- Quadrature A & B with Index
- Channel B Leads A
- Reverse Quadrature A & B
- Reverse Quadrature A & B with Index

Operating Temperature:

- L -40° to 70° C
- S 0° to 70° C
- H 0° to 100° C

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* 0036* 0040* 0042* 0045* 0050* 0060 0064* 0100 0120 0125 0128* 0144* 0150* 0160* 0192* 0200 0240* 0250 0254* 0256* 0300 0333* 0336* 0360 0400 0500 0512 0600 0625* 0635 0665* 0722 0768* 0800 0889 1000 1024 1200 1204 A 1250 A 1270 A 1440 1500 1800 2000 2048 2400 A 2500 2540 A 2880 A 3000 A 3600 A 4096 A 5000 A 6000 A 6000 A 7200 A 7500 A 9000 A 10,000 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

Notes:

1. Contact Customer Service for additional options.
2. Low temperature option not available with resolutions of 3000 CPR or higher.
3. 0° to 85° C for certain resolutions, see CPR Options.
4. Contact Customer Service for index gating options.
5. 24 VDC max for high temperature option.
6. 5-pin not available with Line Driver (HV, H5) outputs.
7. Standard temperature, 60 to 3000 CPR only. Not available with 2540 CPR.
8. HS and PS outputs are not available with CE option.
10. 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.
11. For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: S/6 = 6 feet of cable.
MODELS 755A SPECIFICATIONS

**Electrical**
- Input Voltage: 4.75 to 28 VDC max for temperatures up to 70°C
- Input Current: 0.03 A max @ 28 VDC for temperatures up to 70°C
- Input Ripple: 40 mV peak-to-peak @ 0 to 1 kHz
- Output Format: Incremental – Two square waves in quadrature with channel A leading B by 90° for clockwise shaft rotation, as viewed from the encoder mounting face.
- Output Types:
  - Open Collector – 100 mA max per channel
  - Pull-Up – Open Collector with 2.2 kΩ internal resistor, 100 mA max per channel
  - Push-Pull – 20 mA max per channel
  - Line Driver – 20 mA max per channel
- 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.
- 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; BS EN55022 (with European compliance option); BS EN61000-4-6; BS EN50081-2
  - Symmetry: 1 to 6000 CPR: 180° (±18°) electrical at 100 kHz output
  - Quad Phasing: 1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output
- Min Edge Sep.: 1 to 6000 CPR: 67.5° electrical at 100 kHz output
- Rise Time: Less than 1 microsecond
- Accuracy:
  - Instrument and Quadrature Error: For 200 to 1999 CPR, 0.017° mechanical (0.6 arc minutes) from one cycle to another cycle. For 200 to 3000 CPR, 0.01° mechanical 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
- Moment of Inertia: 2.8 x 10⁻⁴ oz-in-sec²
- Housing: Black non-corrosive finish
- Bearings: Precision ABEC ball bearings
- Weight: 3.1 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)**

**MODEL 755A SERVO MOUNT (S3)**

**MODEL 755A 1.575” SQUARE FLANGE (MF)**

---

**WAVEFORM DIAGRAMS**

Open Collector and Pull-Up
- **S2 Pictured below has a 0.750” Boss. S1 has a 0.547” Boss.** See www.encoder.com to download drawings

---

**WIRING TABLE**

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

- **Function**
  - **Gland Cable**
  - **Term. Block**
  - **8-pin Molex**
  - **5-pin M12**
  - **8-pin M12**

<table>
<thead>
<tr>
<th>Function</th>
<th>Gland Cable</th>
<th>Term. Block</th>
<th>8-pin Molex</th>
<th>5-pin M12**</th>
<th>8-pin M12**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Com</td>
<td>Black</td>
<td>7</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>+VDC</td>
<td>White</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>A</td>
<td>Brown</td>
<td>1</td>
<td>8</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>A’</td>
<td>Yellow</td>
<td>2</td>
<td>7</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>Red</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>B’</td>
<td>Green</td>
<td>4</td>
<td>3</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Z</td>
<td>Orange</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Z’</td>
<td>Blue</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>8</td>
</tr>
</tbody>
</table>

| 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.

---

1-800-366-5412  •  www.encoder.com  •  sales@encoder.com