MODEL 755A - INCREMENTAL HOLLOW BORE ENCODER

FEATURES

Miniature size (1.5” diameter)
Up to 30,000 cycles per revolution
Flex mounting & large hollow bore option (up to 0.750”)
High temperature option

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. All metal construction and shielded ball bearings provide years of trouble-free use. A variety of blind hollow bore sizes are available with large bores allowing for shafts up to 0.750” or 14 mm. Attaching directly to a motor is quick and simple with the innovative flex mount, first developed by EPC. This industry-standard mount eliminates couplings and increases reliability, while reducing overall length and cost. Where critical alignment is required, a Slotted Flex (SF) is available. A perfect replacement encoder where high reliability is required.

COMMON APPLICATIONS

Robotics, Assembly Machines, Motor-Mounted Feedback, Phototypesetters, Printers and 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>MODEL 755A</th>
<th>OPERATING TEMPERATURE</th>
<th>CYCLES PER REVOLUTION</th>
<th>OUTPUT TYPE</th>
<th>MOUNTING</th>
<th>CERTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>755A</td>
<td>L -40° to 70° C</td>
<td>1-30,000</td>
<td>5 - 28V In/Out</td>
<td>S Standard Flex Mount</td>
<td>CE Marked®</td>
</tr>
<tr>
<td>755A</td>
<td>S 0° to 70° C</td>
<td>See CPR Options below</td>
<td>OC Open Collector</td>
<td>SF Slotted Flex Mount</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H 0° to 100° C</td>
<td>Price adder for &gt;1270</td>
<td>PP Push-Pull</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BORE SIZE</th>
<th>NUMBER OF CHANNELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø1.5”</td>
<td>A Channel A</td>
</tr>
<tr>
<td>15</td>
<td>Channel A Leads B</td>
</tr>
<tr>
<td>16</td>
<td>Quadrature A &amp; B</td>
</tr>
<tr>
<td>17</td>
<td>Channel B Leads A</td>
</tr>
<tr>
<td>18</td>
<td>Quadrature A &amp; B with Index</td>
</tr>
<tr>
<td>19</td>
<td>Reverse Quadrature A &amp; B</td>
</tr>
<tr>
<td>20</td>
<td>Reverse Quadrature A &amp; B with Index</td>
</tr>
</tbody>
</table>

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.
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.

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MODEL 755A SPECIFICATIONS

**Electrical**

- **Input Voltage**: 4.75 to 28 VDC max for temperatures up to 70° 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
- **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
- **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
- **Quad Phasing**: 1 to 6000 CPR: 10° (±22.5°) electrical at 100 kHz output
- **Min Edge Separation**: 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 (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.
- **Bore Tolerance**: -0.0000" / +0.0006"
- **User Shaft Tolerances**
  - Radial Runout: 0.007" max
  - Axial End Play: 0.030" max
- **Starting Torque**: 0.14 oz-in typical
- **Moment of Inertia**: 2.8 x 10^-4 oz-in^2

**Environmental**

- **Storage Temp**: 25° to 85° C
- **Humidity**: 98% RH non-condensing
- **Vibration**: 16 g at 50 to 500 Hz
- **Shock**: 50 g at 11 ms duration

MODEL 755A FLEX MOUNT (S)

- Ø0.125 THRU 2x 180° for #4 or 3mm mounting screws
- Cable Length: 18" (450 mm)
- Bore Depth: 0.500 (12.7)

OPTIONAL SLOTTED FLEX MOUNT (SF)

- Slot Width: 0.150 (3.8)
- Cable Length: 18" (450 mm)
- Bore Depth: 0.500 (12.7)

MODEL 755A LARGE BORE FLEX MOUNT (S)

- Ø0.250 THRU 2x 180° for #4 or 3mm mounting screws
- Cable Length: 18" (450 mm)
- Bore Depth: 0.750 (19.1)

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

**Line Driver and Push-Pull**

![Diagram of line driver and push-pull waveform](image)

**Open Collector and Pull-Up**

![Diagram of open collector and pull-up waveform](image)

**NOTE:** All degree references are electrical degrees. Waveform shown with optional complementary signals A, B, Z for HV output only.

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### WIRING TABLE

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Flying Leads Cable†</th>
<th>Wire Color</th>
<th>Terminal 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>
<td></td>
</tr>
<tr>
<td>+VDC</td>
<td>White</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Brown</td>
<td>1</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>A'</td>
<td>Yellow</td>
<td>2</td>
<td>7</td>
<td>--</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Red</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>B'</td>
<td>Green</td>
<td>4</td>
<td>3</td>
<td>--</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Z</td>
<td>Orange</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Z'</td>
<td>Blue</td>
<td>5</td>
<td>5</td>
<td>--</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Shield</td>
<td>Bare*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

* 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.