**Model 725 - Incremental Shaft Encoder**

**Features**
- Standard Size 25 Package (2.5” x 2.5”)
- Up to 30,000 CPR
- Standard and Industrial Housings
- Servo and Flange Mounting

**Model 725** Size 25 Accu-Coder™ optical shaft encoder is specifically designed for the challenges of an industrial environment. But don’t let its tough, industrial package fool you—it still has the performance to reach resolutions up to 30,000 cycles per revolution. The Model 725 offers both flange and servo mounting options, and is available in two distinctive housing styles. The rugged Standard Housing (N) isolates the internal electronics from the shock and stress of the outer environment. The extra heavy-duty Industrial Housing (I) features a fully isolated internal encoder unit that prolongs bearing life by using an internal flexible mount to protect the encoder from severe axial and radial shaft loading. The Industrial Housing option is the recommended solution for applications subject to continuous side loads, such as those that drive the encoder with a measuring wheel, pulley or chain and sprocket.

**Common Applications**
- Motion Control Feedback
- Conveyors
- Elevator Controls
- Machine Control
- Food Processing
- Process Control
- Robotics
- Material Handling
- Textile Machines

**Model 725 Ordering Guide**

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

**Model 725 CPR Options**

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

**Notes:**
1. Available with Industrial Housing (I) only.
2. 0° to 85° C for certain resolutions, see CPR Options.
3. Contact Customer Service for index gating options.
4. 24 VDC max for high temperature option.
5. Not available with 5-pin M12 or 6-pin MS connector. Available with 7-pin MS connector only without Index Z.
6. Standard temperature, 60 to 3000 CPR only.
7. HS and PS outputs not available with CE option, or any End Mount MS connector.
9. IP64 not available in low temp option.
10. For mating connectors, cables, and cordsets see Encoder Accessories on page 102 or visit www.encoder.com. For Pin Configuration Diagrams, see page 107 or visit www.encoder.com.
11. For Non-Standard Cable Lengths add a forward slash (/) plus cable length expressed in feet. Example: SG/6 = 6 feet of cable.
MODEL 725 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- 100 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
Noise Immunity ...... Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; 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
2 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 ...... 8000 RPM. Higher shaft speeds may be achievable, contact Customer Service.
Shaft Material ......... 303 Stainless Steel
Shaft Rotation........ Bi-directional
Radial Shaft Load ... 80 lb max (standard housing)
80 lb max (industrial housing)
Axial Shaft Load ...... 80 lb max (standard housing)
80 lb max (industrial housing)
Starting Torque ...... 1.0 oz-in typical with IP64 seal or no seal
3.0 oz-in typical with IP66 shaft seal
7.0 oz-in typical with IP67 shaft seal
Moment of Inertia ...... 5.2 x 10^-4 oz-in-sec^2
Max Acceleration ...... 1 x 10^7 rad/sec^2
Housing ............... Black non-corrosive finish
Bearings .............. Precision ABEC ball bearings
Weight ................. 20 oz typical
Environmental
Storage Temp ......... -25° to +85° C
Humidity ............... 95% RH non-condensing
Vibration .............. 20 g @ 58 to 500 Hz
Shock .................. 75 g @ 11 ms duration
Sealing ................. IP50 standard; IP64, IP66 or IP67 optional

All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.
**WIRING TABLE**

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<th>Function</th>
<th>Cable† Wire Color</th>
<th>5-pin M12**</th>
<th>8-pin M12**</th>
<th>10-pin MS</th>
<th>7-pin MS HV,HS</th>
<th>7-pin MS PU,PP,OC,P5</th>
<th>6-pin MS PU,PP,OC,P5</th>
<th>9-pin D-sub</th>
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†Standard cable is 24 AWG conductors with foil and braid shield.

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

**Non-CE Option: Cable shield is connected to M12 connector body. CE Option: Cable shield and M12 connector body is connected to internal case.

The optional 5PY adapter is made of all aluminum construction and allows Model 725 encoder to replace DC tachometer technology. The 5PY adapter is mechanically interchangeable with any 5PY tach generator.

All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.

**WAVEFORM DIAGRAMS**

Line Driver and Push-Pull

Open Collector and Pull-Up

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