MODEL 802S – STAINLESS STEEL ENCODER

FEATURES

Industry Standard Size 20 (2” Diameter) Stainless Steel Package

Flange and Servo Mounting

Up to 30,000 CPR

80 lb Maximum Axial and Radial Shaft Loading

IP67 Sealing Available

The Model 802S Accu-Coder™ is a heavy duty, industry standard Size 20 (2.0” diameter) encoder specifically designed for harsh factory and plant floor environments. The Model 802S is available with a variety of flange and servo mounting styles, making it easy to use in a broad range of applications. Its heavy duty, double-shielded ball bearings are rated at 80 pounds maximum axial and radial shaft load, ensuring long operating life. This ultra-rugged yet compact encoder is housed in a Type 316 Stainless Steel enclosure, making it ideal for applications where contamination or exposure to caustic chemicals is a concern.

Even with its tough exterior, the Model 802S provides the precise, reliable output you’ve come to expect from Accu-Coder™.

COMMON APPLICATIONS

Food Processing, Oil, Gas & Chemical Processing, Material Handling, Conveyors, Robotics, Elevator Controls, Textile Machines

MODEL 802S 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 802S Size 20 (2.0”)</th>
<th>OPERATING TEMPERATURE</th>
<th>CYCLES PER REVOLUTION 1-30,000 Price adder for CPR&gt;1270 (See table below)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHAFT SIZE</td>
<td>S</td>
<td>0° to 70° C</td>
</tr>
<tr>
<td>07</td>
<td>1/4”, 0.250”</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>3/8”, 0.375”</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>10 mm</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>3/8”, 0.375”</td>
<td></td>
</tr>
</tbody>
</table>

MODEL 802S CPR OPTIONS

<table>
<thead>
<tr>
<th>0001*</th>
<th>0002*</th>
<th>0004*</th>
<th>0005*</th>
<th>0006*</th>
<th>0007*</th>
<th>0008*</th>
<th>0010*</th>
<th>0011*</th>
<th>0012*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0014*</td>
<td>0020</td>
<td>0021*</td>
<td>0024*</td>
<td>0025*</td>
<td>0028*</td>
<td>0030*</td>
<td>0032*</td>
<td>0033*</td>
<td>0034*</td>
</tr>
<tr>
<td>0035*</td>
<td>0038*</td>
<td>0040*</td>
<td>0042*</td>
<td>0045*</td>
<td>0050*</td>
<td>0060*</td>
<td>0064*</td>
<td>0100*</td>
<td>0120</td>
</tr>
<tr>
<td>0125</td>
<td>0128*</td>
<td>0144*</td>
<td>0155*</td>
<td>0160*</td>
<td>0192*</td>
<td>0200*</td>
<td>0240*</td>
<td>0250*</td>
<td>0254*</td>
</tr>
<tr>
<td>0256*</td>
<td>0300</td>
<td>0333*</td>
<td>0336*</td>
<td>0360</td>
<td>0400</td>
<td>0500</td>
<td>0512</td>
<td>0600</td>
<td>0625*</td>
</tr>
<tr>
<td>0635</td>
<td>0665*</td>
<td>0720</td>
<td>0780*</td>
<td>0800</td>
<td>0889</td>
<td>1000</td>
<td>1024</td>
<td>1200</td>
<td>1204*</td>
</tr>
<tr>
<td>1250</td>
<td>1270</td>
<td>1440</td>
<td>1500</td>
<td>1800</td>
<td>2000</td>
<td>2400</td>
<td>2400</td>
<td>2500</td>
<td>2540*</td>
</tr>
<tr>
<td>2880</td>
<td>3000</td>
<td>3600</td>
<td>4000</td>
<td>4096</td>
<td>5000</td>
<td>5000</td>
<td>6000</td>
<td>7200</td>
<td>7500*</td>
</tr>
<tr>
<td>8000</td>
<td>10,240</td>
<td>12,000</td>
<td>12,500</td>
<td>14,400</td>
<td>15,000</td>
<td>18,000</td>
<td>20,000</td>
<td>24,000</td>
<td>25,000</td>
</tr>
</tbody>
</table>

*Contact Customer Service for High Temperature Option.

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:

1. Contact Customer Service for special options.
2. Shaft with Size 25 Mounting Adapter, J or K mounting only.
3. Low temperature option not available with resolutions of 3000 CPR or higher.
4. 0° to 85° C for certain resolutions, see CPR Options.
5. Contact Customer Service for non-standard index gating options.
6. 24 VDC max for high temperature option.
7. Line Driver Outputs not available with 5-pin M12 connector.
8. Standard temperature, 60 to 3000 CPR only. Not available with 2540 CPR.
9. CE not available with H5/P5 output type options.
11. For mating connectors, cables, and cordsets see Accessories at encoder.com.
12. For Connector Pin Configuration Diagrams, see Technical Information at encoder.com.
13. M12 connector available on side mount option only.

High Temperature Option (H) limited to 85° C maximum for these CPR options.

Contact Customer Service for High Temperature Option.

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.

For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: G/S = 6 feet of cable.
**MODEL 802S 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 and 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 2.2 kΩ 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**
- Up to 1 MHz.

**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; 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 30,000 CPR: 180° (±36°) electrical

**Quad Phasing**
- 1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output
- 6001 to 30,000 CPR: 90° (±36°) electrical

**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, 0.01° 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.
- Radial Shaft Load: 80 lb max. Rated load of 20 to 40 lb for bearing life of 1.5 x 10^7 revolutions
- Axial Shaft Load: 80 lb max. Rated load of 20 to 40 lb for bearing life of 1.5 x 10^7 revolutions
- Starting Torque: 1.0 oz-in typical with IP64 shaft 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
- Housing: Type 316 Stainless Steel
- Bearings: Precision ABEC ball bearings
- Weight: 1.5 lb typical

**Environmental**
- Storage Temp: -25° to 85° C
- Humidity: 98% RH non-condensing
- Vibration: 20 g @ 58 to 500 Hz
- Shock: 75 g @ 11 ms duration
- Sealing: IP50 standard; IP64, IP66, IP67 optional

**Waveform Diagrams**
- All dimensins are in inches with a tolerance of ±0.005" or ±0.1 mm unless otherwise specified.

**WIRING TABLE**
- For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.
- Open Collector and Pull-Up

**Models**
- **MODEL 802S SERVO MOUNT (S)**
- **MODEL 802S FLANGE MOUNT (F)**
- **MODEL 802S SIZE 25 (2.5") SERVO MOUNT (J)**
- **MODEL 802S SIZE 25 (2.5") FLANGE MOUNT (K)**