The A08 magnetic absolute rotary encoder is designed for light industrial applications that require up to 12-bits of resolution in a very small package.

Major features and advantages:

- Power Supply: +5VDC
- Current consumption: not more than 50mA
- Maximum mechanical speed: 6,000 RPM; operational speed: 1,000 RPM
- Accuracy: ± 60 arcmin
- Operating temperature range: -40C to +85C (-40F to +185F)
- Vibration: 50 m/sec² (55 to 2,000Hz)
- Shock: 100 m/sec² [10G]
- Moment of inertia: 1.1 x 10^(-8) kG x m² [1.56 x 10^(-6) in-oz-s²]
- Starting torque @ 20C: 2 x 10^(-3) Nm
- Protection class: IP50
- Max shaft load: axial & radial 3N (0.7 lb)
## Specifications

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<th>Mechanical Specifications</th>
<th>Units</th>
<th>Limiting Values</th>
<th>See Note</th>
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</thead>
<tbody>
<tr>
<td>Moment of Inertia</td>
<td>in-oz-s² (kg-m²)</td>
<td>1.56 x 10⁶ (1.1 x 10⁴)</td>
<td></td>
</tr>
<tr>
<td>Starting Torque</td>
<td>in-oz (Nm)</td>
<td>0.283 (0.002)</td>
<td></td>
</tr>
<tr>
<td>Radial Shaft Load</td>
<td>lb (N)</td>
<td>0.7 (3)</td>
<td></td>
</tr>
<tr>
<td>Axial Shaft Load</td>
<td>lb (N)</td>
<td>0.7 (3)</td>
<td></td>
</tr>
<tr>
<td>Bearing Arrangement</td>
<td></td>
<td>2 pre-loaded bearings</td>
<td></td>
</tr>
<tr>
<td>Bearings</td>
<td></td>
<td>Grease lubricated and sealed</td>
<td></td>
</tr>
<tr>
<td>Measuring Rotational Element</td>
<td></td>
<td>actuation magnet</td>
<td></td>
</tr>
<tr>
<td>Shock 11 (ms)</td>
<td>g (m/s²)</td>
<td>30 (300)</td>
<td></td>
</tr>
<tr>
<td>Vibration (55-2000Hz)</td>
<td>g (m/s²)</td>
<td>5 (50)</td>
<td></td>
</tr>
<tr>
<td>Protection Class</td>
<td></td>
<td>IP50</td>
<td></td>
</tr>
<tr>
<td>Max. Rotational Speed, RPM</td>
<td></td>
<td>6000</td>
<td></td>
</tr>
<tr>
<td>Recommended Coupling</td>
<td>N/A</td>
<td>SCD</td>
<td></td>
</tr>
</tbody>
</table>

| Environmental Specifications |          |                              |          |
| Operating Temperature      | °F (°C)  | S: 32 to 158 (0 to 70) T: -40 to 185 (-40 to 85) |          |
| Storage Temperature        | °F (°C)  | -40 to 185 (-40 to 85)       |          |
| Relative Humidity, non-condensing | %   | 95                           |          |

| Electrical Specifications |          |                              |          |
| Supply Voltage             | VDC      | 5.00 +/-5%                   |          |
| Current Consumption        | mA       | ≤ 50                        |          |
| Accuracy                   |          | +/-60 arc minutes            |          |

As part of our continuing product improvement program, all specifications are subject to change without notice.

### Timing Diagram

![Timing Diagram]

- T = 0.9-11 μs
- T₁ > 0.45 μs
- T₂ < 0.4 μs
- T₃ = 12-35 μs
- D0 - LSB
- n - 12 bits
## Ordering Information

<table>
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<tr>
<th>MODEL</th>
<th>SHAFT</th>
<th>RES</th>
<th>OF</th>
<th>OC</th>
<th>OD</th>
<th>V</th>
<th>TEMP</th>
<th>BASE</th>
<th>EXIT</th>
<th>CAB</th>
<th>CONN</th>
<th>DIA</th>
<th>SF</th>
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<tbody>
<tr>
<td>A08</td>
<td>S</td>
<td></td>
<td>SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>T</td>
<td>08</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MODEL
- A08 8mm body

### SHAFT
- S Solid shaft
- B Blind hollow shaft

### RES - Resolution
- 04 4-bit resolution
- 08 8-bit resolution
- 10 10-bit resolution
- 12 12-bit resolution

*Consult factory for other resolutions*

### OF - Output Format
- S SSI

### OC - Output Code
- B Binary (for RES = 4 - 12-bit)
- G Gray code (for RES = 4 - 10-bit)

### OD - Output Device
- RS RS Differential (MAX490)

### DIA - Shaft diameter
- 02M 2.0mm
- 25M 2.5mm
- 03M 3.0mm
- 02E 1/8in

### SF - Special features
- N No special features
- # Issued at time of order to cover special customer requirements

### TEMP - Temperature
- N 0 to 70 Celsius
- T -40 to 85 Celsius

*limited to BASE codes D,E,H*

### TEMP - Temperature
- N 0 to 70 Celsius
- T -40 to 85 Celsius

*limited to BASE codes D,E,H*

### SPECIAL CAPABILITIES
For special situations, we can optimize catalog encoders to provide higher frequency response, greater accuracy, wider temperature range, reduced torque, non-standard line counts, or other modified characteristics. In addition, we regularly design and manufacture custom encoders for user-specific requirements. These range from high-volume, low-cost, limited-performance commercial applications to encoders for military, aerospace and similar high-performance, high-reliability conditions. We would welcome the opportunity to help you with your encoder needs.

### WARRANTY
Gurley Precision Instruments offers a limited warranty against defects in material and workmanship for a period of one year from the date of shipment.