**Mechanical**

- **Shaft Speed**: 6000 RPM maximum
- **Shaft Direction**: Bidirectional
- **Standard Shaft Sizes (Dia.)**: .2497", .3747", .4997"
- **Shaft Extension(s)**: 0.80" with .50x.05" flat
- **Shaft Seals**: Neoprene or PTFE options
- **Mounting**: Refer to dimensional drawings
- **Bearings**: ABEC 5 Shielded
  - Radial Loading: (3/8") 30 lbs. Operating, (1/2") 70 lbs. Operating
  - Axial Loading: (3/8") 15 lbs. Operating, (1/2") 35 lbs. Operating
- **Accuracy**: ±0.1º of Shaft Rotation Typical
- **Housing**: Black Anodized Aluminum
- **Weight**: Standard: 17 oz., Sealed: 26 oz.
- **Connector**: 6 Pin MS3102 or 18" Cable Out

**Electrical**

- **Pulse Rate**: 10 kHz, up to 200 kHz
- **Outputs**: NPN w/ pullup; NPN open collector; PNP sourcing
  - Line Drivers (5 Vdc/ TTL level, 8 to 15 Vdc)
- **Output Ratings**
  - Open Collector Transistor: 40 Vdc maximum
  - Line Drivers: 8-15 Vdc (5 Vdc TTL)
  - 5 Vdc maximum
- **Supply Voltage**: 8 to 28 Vdc
  - 5 Vdc with 5V TTL level output
- **Supply Current**: 30 mA typical, 50 mA maximum
- **Current Sinking**: 250 mA maximum
- **Output Duty Cycle**: 50/50 w/ ±20% typical tolerance
  - Tighter to ±5% by spec
- **Pulsed Outputs**: 5-10 µsec or 25-35 µsec
- **Rise/Fall Times**: 1 µsec typical, other options available
  - See Wiring Diagrams for Pin Outs

**Environmental**

- **Operating Temp.**: -40º to +85º C (-40º to +185º F)
- **Shock**: 50 g's for 11 milliseconds
- **Vibration**: 5 to 2000 Hertz at 20 g's
- **Humidity**: 100% Relative Humidity
- **Enclosures (Sealed)**
  - NEMA 4 type — Water-tight
  - NEMA 12/13 equiv. — Dust-, Oil-Tight

**Electrical Connections**

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>+V</td>
<td>B</td>
<td>Red</td>
</tr>
<tr>
<td>Common</td>
<td>A</td>
<td>Black</td>
</tr>
<tr>
<td>Channel A</td>
<td>D</td>
<td>Blue</td>
</tr>
<tr>
<td>Channel B</td>
<td>E</td>
<td>Brown</td>
</tr>
<tr>
<td>Channel A</td>
<td>C</td>
<td>White</td>
</tr>
<tr>
<td>Channel B</td>
<td>F</td>
<td>Green</td>
</tr>
</tbody>
</table>

For the latest specifications visit our website
www.herculesencoders.com
Ordering Information

Series 4000 Standard call for sealed dimensions

Series | Shaft Diameter | Encoder Type | Channel Outputs | Channel Types |
-------|----------------|-------------|----------------|--------------|
1      | 1=1/4" (0.2497") | Standard Encoder | A=NPN 3.3K Pullup | S=Single Output |
3      | 3=3/8" (0.3747") | Sealed (Elastomer) | B=NPN Open Collector | P=Quadrature Output |
4      | 4=1/2" (0.4997") | Sealed (PTFE) | D=NPN 1.5K Pullup | U=1st Output Pulse Train |

Shaft Extension: 1=Single 2=Double

Mounting Type: 1=10-32 BHC on Shaft Ends & Base 2=Flanged Base (BHC on Shaft Ends)

PPR (Pulses per Revolution)
For all Channel Types
0025 0030 0050 0060 0075 0090 0093 0096 0100 0106 0125 0128 0135 0150 0180 0192 0200 0210 0240 0250 0256 0270 0300 0360 0372 0400 0420 0480 0500 0512 0540 0600 0720 0840 0960 1000 1024 1080 1100 1200 1440 1680 1920 2000 2048

Added Channel Types “S” “P” “U” (Square Wave)
0384 0744 0800 1080 1200 1440 1680 1920 2000 2048

Added “S” “P” “U” (5-10 & 25-35 µSec Pulses)
0768 1488 1600 2160 2400 2880 3360 3840 4000 4096

Consult factory for PPR not listed.