MTI-Torque Systems

ENCODERS
SHAFT-TYPE

DataTorque™ SM7

Performance Benefits:
MTI-Torque Systems is widely recognized for providing high-performance shaft and motor-mounted DataTorque™ Encoder solutions. The new DataTorque SM7 is no exception.

With high-performance high-resolution digital feedback in an extremely small package, the new DataTorque SM7 provides the type of resolution and performance common with much larger encoder packages.

The SM7 has a patent pending new sensing scheme and a much simplified encoder design, resulting in a longer service life with less downtime (from feedback device failure). It delivers high noise immunity.

Design Features:
The DataTorque SM7 is miniature in size, only 0.787 inches (20 mm) in diameter, yet provides resolutions up to 2,048 lines. Output variations include single-ended, open collector, internal pull-ups or RS-422A differential line driver.

DataTorque SM7 has low supply current requirements, 5V or 5 to 26 VDC, reducing inventory requirements. It is constructed of a conductive carbon fiber composite that provides the EMI shielding of an all-metal housing.

Providing High-Resolution Digital Performance in a Miniature Package

- Resolutions up to 2,048 lines
- Miniature size, 0.787 inches (20 mm) in diameter
- Single-ended and differential outputs
- High noise immunity
- Conductive carbon fiber housing
- Low supply current requirements
- Supply voltages of 5 V or 5 to 26 VDC
- IP50 sealing
DataTorque™
SM7

Providing High-Resolution Digital Performance in a Miniature Package

ELECTRICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>PIN</th>
<th>FUNCTION</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>D.C. GROUND</td>
</tr>
<tr>
<td>2</td>
<td>+VDC</td>
</tr>
<tr>
<td>3</td>
<td>Z OUT</td>
</tr>
<tr>
<td>4</td>
<td>Z NOT OUT</td>
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<tr>
<td>5</td>
<td>B OUT</td>
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<td>8</td>
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</tr>
<tr>
<td>9</td>
<td>N/C</td>
</tr>
<tr>
<td>10</td>
<td>CASE GROUND</td>
</tr>
</tbody>
</table>

MECHANICAL SPECIFICATIONS:

- Maximum Shaft Speed: 8,000 RPM
- Shaft Diameter: 0.125 inches (1/8 inches)
- Shaft Material: Stainless Steel
- Bearings: Radial Ball Bearing, R2 Type
- Radial Shaft Load: 2 lbs. Max.
- Axial Shaft Load: 1 lb. Max.
- Housing: Carbon Fiber Composite—10k ohms-cm
- Mounting: Servo/Face
- Moment of Inertia: 9.5 x 10^-6 oz.-in-sec^2
- Acceleration: 1 x 10^-5 Radians per second^2

ENVIRONMENTAL SPECIFICATIONS:

- Operating Temperature: 0 to 70 degrees C Typical, -20 to 100 degrees C Optional
- Storage Temperature: -40 to +125 degrees C
- Humidity: 98% Non-condensing
- Vibration: 20 g’s @ 50 to 500 CPS
- Shock: 50 g’s @ 11 ms. duration

ORDERING INFORMATION:

SM7 - 05/05 - 1000 - 01 - 01 - S1
A Encoder Series:
B. Supply Voltage: 05/05 = 5 VDC +/-5%  
05/26 = 5-26 VDC
B. Line Count: 500, 512, 1000, 1024, 2000, 2048
D. Output Option: 01 = TTL Output  
02 = RS422A Line Driver  
03 = OL7272 5-26 VDC Line Driver
E. Termination: 01 = Straight Pins  
02 = 8 inches Ribbon Cable with Connector
F. Shaft Options: S1 = 0.125 inches

PACKAGE DIMENSIONS:

2-56 x 0.200” Deep  
3 Pls on a 0.550” B.C.

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