**SLIM Tach ST85**

**Bearingless Encoder**

**Key Features**
- Redesigned using our Revolutionary Sensor Technology to provide a Large Air Gap of 0.060”
- Redesigned Circuitry for On-Board Diagnostics with LED and Alarm Output
- Bearingless Design Mounts to 180 C-Face Motors
- Dual C-Face Versions Available for “Sandwich” Mounting
- Anodized Aluminum Housing with Field-Serviceable Connector
- Single or Dual Isolated Outputs Available

**SPECIFICATIONS**

**STANDARD OPERATING CHARACTERISTICS**

- **Code:** Incremental, Magnetic
- **Pulses per Revolution:** 64-2048 PPR
- **Phasing Sense:** A leads B for Counter-Clockwise rotation (CCW) viewing encoder-mounted end
- **Quadrature Phasing:** 90° ± 45°
- **Symmetry:** 180° ± 54°
- **Index:** Less than phase A/B pulse width
- **Number of Output Modules:** Single or Dual

**ELECTRICAL**

- **Input Voltage Requirement:** 5-26 Volts DC
- **Current Requirement:** 95 mA typical per sensor module plus line driver load
- **Output Signals:**
  - IC-WE Differential Line Driver: 150mA, sink or source
  - Frequency Immunity: 0 - 180kHz Data & Index
  - Noise Immunity: Tested to EN61326-1
  - Electromagnetic Immunity: Reverse polarity and short circuit protected
- **Connector:** 10 pin industrial duty latching, sealed NEMA 4 &12, IP65; MS connector or pig-tail

**MECHANICAL**

- **Bore Size:** 5/8” to 2-7/8”
- **Mounting Configuration:** 8.5” 180 C-Face
- **Mount for NEMA MG1 Standards**
- **Max. Shaft Speed:** 7,000 RPM
- **Shaft Length Required:** 0.7” min
- **Allowable Shaft End-Play:** ± 0.1”
- **Allowable Shaft Runout:** 0.005” TIR
- **Acceleration Rate:** 3,600 rpm/sec max
- **Housing Material:** Aluminum
- **Weight:** 9.2 lbs

**ENVIRONMENTAL**

- **Operating Temperature Range:**
  - Standard: -40°C to +100°C
  - Extended: -40°C to +120°C

- **Storage Temperature Range:** -40°C to +120°C

- **Shock:** 300 G’s Min.
- **Vibration:** 20 G’s @ 5-2000 Hz spectrum
- **Humidity:** Up to 98% (non-condensing)

**ELECTRICAL CONNECTIONS**

<table>
<thead>
<tr>
<th>Signal</th>
<th>Connector Pin</th>
<th>Pigtail Cable</th>
<th>MS 3102E18-IT#</th>
<th>Conduit Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td>1</td>
<td>Black</td>
<td>F</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>Green</td>
<td>B</td>
<td>5</td>
</tr>
<tr>
<td>A</td>
<td>3</td>
<td>Blue</td>
<td>A</td>
<td>3</td>
</tr>
<tr>
<td>Z *</td>
<td>4</td>
<td>Violet</td>
<td>C</td>
<td>7</td>
</tr>
<tr>
<td>No Connection</td>
<td>5</td>
<td>—</td>
<td>E</td>
<td>—</td>
</tr>
<tr>
<td>Vcc (5-26 VDC)</td>
<td>6</td>
<td>Red</td>
<td>D</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>7</td>
<td>Yellow</td>
<td>I</td>
<td>6</td>
</tr>
<tr>
<td>A</td>
<td>8</td>
<td>Gray</td>
<td>H</td>
<td>4</td>
</tr>
<tr>
<td>Z *</td>
<td>9</td>
<td>Orange</td>
<td>J</td>
<td>8</td>
</tr>
<tr>
<td>Shield</td>
<td>10</td>
<td>Braid</td>
<td>G</td>
<td>—</td>
</tr>
</tbody>
</table>

* Index (Z) optional. See Ordering Information
# Ordering Information

To order, complete the model number with code numbers from the table below:

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Motor Mounting on NEMA flange (8.5’), Single Output</td>
<td>ST8</td>
<td>0064</td>
<td>L</td>
<td>No Index</td>
<td>Z</td>
<td></td>
</tr>
<tr>
<td>DT8</td>
<td>Direct Motor Mounting on NEMA flange (8.5’), Dual Output</td>
<td>0128</td>
<td>0256</td>
<td>0512</td>
<td>1024</td>
<td>2048</td>
</tr>
</tbody>
</table>

| Code 8: | |
| Code 9: | |

### Code 4: Wheel Bore
- C04: 0.625”
- C05: 0.875”
- C06: 1.000”
- C07: 1.125”
- C08: 1.250”
- C09: 1.375”
- C10: 1.500”
- C11: 1.625”
- C12: 1.750”
- C13: 1.875”
- C14: 2.000”
- C15: 2.125”
- C16: 2.250”
- C17: 2.375”
- C18: 2.500”
- C19: 2.625”
- C20: 2.875”

### End of Shaft Mounting
- G01: 1.125” EOS
- G06: 2.125” EOS
- G08: 2.375” EOS
- G10: 2.875” EOS

For additional bore sizes up to 3.75” maximum, please consult factory.

### Code 5: Termination
- B: Conduit Box
- C: Latching Industrial Connector with 1/2” NPT
- D: 1” Extended Height Latching Industrial Connector with 1/2” NPT
- E: 3” Extended Height Latching Industrial Connector with 1/2” NPT
- F: Latching Industrial Connector without Mating Connector
- G: 1” Extended Height Latching Industrial Connector without Mating Connector
- H: 3” Extended Height Latching Industrial Connector without Mating Connector
- M: 10 Pin MS Connector
- N: 10 Pin MS 3112 Connector
- P: 18” Pigtail Cable (25” when Code 6 = H)
- Q: Latching Industrial Connector on 18” Pigtail Cable
- R: Latching Industrial Connector on 18” Pigtail Cable without Mating Connector

### Code 6: Electrical
- V: 5-26V in, 5-26V Line Driver (IC-WE) out
- S: 5-26V in, 5V out Line Driver (IC-WE)
- H: Same as V but with High Temperature, Extended Operating Range to 120°C

### Code 7: Cover/Adapter
- CC: Flat No-Hole Cover
- EE: Extra Heavy Duty Steel Cover
- FF: Flat Thru-Hole Cover
- PP: Extra Heavy Duty Steel Pie-Pan Cover

### Note:
See ACCESSORIES Section For Connectors, Spare Parts and Pulse Wheels

### SL85 LEGACY MODELS
Dynapar’s legacy SL85 product line is still available for configurations not currently available in the ST85 product line. For additional bore sizes up to 3.75” maximum, please consult the factory.
SLIM Tach ST85

DIMENSIONS inch

EXPLODED VIEW

SECTION B-B PIE PAN COVER OPTION

ENCODER HOUSING
MAGNETIC WHEEL
WHEEL SCREWS
COVER
ENCODER MOUNTING SCREWS
COVER SCREWS

DIMENSIONS:

- **8.59 TYP**
- **8.06 TYP**
- **4.43**
- **4.37**
- **3.26**
- **1.69 TYP**

Technical Specifications:

- **8.500 +.003 -.000**
- **8.501 +.003 -.000**
- **8.25 .20**