The DPT250 Cable-Extension Transducer offers a highly accurate incremental encoder output signal that can provide both position and velocity information. The output is a digital pulse stream that can provide resolution down to less than a thousandth’s of an inch!

Delivering high accuracy and fine resolution without the need for perfect parallel alignment, this compact device offers the additional benefits of ease of installation and ability to interface to any PLC or controller. These features make the DPT250 the perfect choice for many applications that range from hydraulic cylinder positioning to robotic arm motion feedback.

**Electrical Output Signal Options**

- **Full Stroke Range Options**: 0-25 to 0-50 inches [0-625 to 0-1250 mm]
- **Output Signal**: Incremental encoder (quadrature)
- **Output Driver Options**: TTL/CMOS, Open Collector, Line Driver
- **Accuracy**: .01 to .02 in. (see ordering information)
- **Repeatability**: .005 to .010 in. (see ordering information)
- **Resolution**: 25 to 1250 pulses per inch
- **Measuring Cable**: 0.019-in. dia. nylon-coated stainless steel
- **Enclosure Material**: Powder-painted and anodized aluminum
- **Sensor**: Optical encoder
- **Weight**: 2 lbs. max.

**Environmental**

- **Enclosure**: IP 55, NEMA 12
- **Operating Temperature**: 0°F to 160°F (-20°C to 70°C)
- **Vibration**: up to 10 g to 2000 Hz
- **Humidity**: 98% RH, no condensation

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**Other countries**
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Outline Drawing:

Ordering Information

Model Number:

Sample Model Number:

DPT250 - 0025 - 111 - 1130

- range: 25 inches
- standard: 12 oz.
- TTL/CMOS, A, 8
- resolution: 500 pulses per inch
- electrical connection: 6-pin plastic connector
## Full Stroke Range:

<table>
<thead>
<tr>
<th></th>
<th>0025</th>
<th>0050</th>
<th>0625</th>
<th>1250</th>
</tr>
</thead>
<tbody>
<tr>
<td>full stroke range, min:</td>
<td>25 in.</td>
<td>50 in.</td>
<td>625 mm</td>
<td>1250 mm</td>
</tr>
<tr>
<td>accuracy:</td>
<td>±0.010 in. (max)</td>
<td>±0.020 in. (max)</td>
<td>±0.25 mm (max)</td>
<td>±0.50 mm (max)</td>
</tr>
<tr>
<td>repeatability:</td>
<td>±0.005 in. (max)</td>
<td>±0.010 in. (max)</td>
<td>±0.12 mm (max)</td>
<td>±0.25 mm (max)</td>
</tr>
<tr>
<td>cable tension* (±30%):</td>
<td>13 oz.</td>
<td>6 oz.</td>
<td>3.6 N</td>
<td>1.6 N</td>
</tr>
<tr>
<td>cable acceleration, max.:</td>
<td>11 g</td>
<td>4 g</td>
<td>11 g</td>
<td>4 g</td>
</tr>
<tr>
<td>resolution options:</td>
<td>50, 500, 1000, 1250 pulses per inch</td>
<td>25, 250, 500, 625 pulses per inch</td>
<td>2, 20, 40, 50 pulses per mm</td>
<td>1, 10, 20, 25 pulses per mm</td>
</tr>
</tbody>
</table>

*note: increased cable tension options available (see below)

## Measuring Cable Tension:

<table>
<thead>
<tr>
<th></th>
<th>25 inch range</th>
<th>50 inch range</th>
<th>625 mm range</th>
<th>1250 mm range</th>
</tr>
</thead>
<tbody>
<tr>
<td>order code:</td>
<td>1</td>
<td>H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standard tension*</td>
<td>13 oz.</td>
<td>6 oz.</td>
<td>3.6 N</td>
<td>1.6 N</td>
</tr>
<tr>
<td>high tension*</td>
<td>65 oz.</td>
<td>33 oz.</td>
<td>18.1 N</td>
<td>9.2 N</td>
</tr>
</tbody>
</table>

*note: spring tension tolerance: ±30%

## Sensing Circuit / Channels:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>order code:</td>
<td>TTL / CMOS</td>
<td>open collector</td>
<td>line driver</td>
<td>universal line driver</td>
</tr>
<tr>
<td>description:</td>
<td>Input voltage (V+): 4.5...13.2 Vdc</td>
<td>Input voltage (V+): 10.8...26.4 Vdc</td>
<td>Input voltage (V+): 5 Vdc</td>
<td>Source/Sink: 5...30 Vdc</td>
</tr>
<tr>
<td></td>
<td>Sink current: 20 mA max.</td>
<td>Sink current: 20 mA max.</td>
<td>Sink current: 20 mA max.</td>
<td>Sink current: 20 mA max.</td>
</tr>
<tr>
<td></td>
<td>Input current: 80 mA max.</td>
<td>Input current: 80 mA max.</td>
<td>Input current: 150 mA max.</td>
<td>Input current: 50 mA max, no load</td>
</tr>
</tbody>
</table>

## Resolution:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>order code:</td>
<td>25 in. range</td>
<td>50 in. range</td>
<td>625 mm range</td>
<td>1250 mm range</td>
</tr>
<tr>
<td></td>
<td>500 ppi</td>
<td>1000 ppi</td>
<td>625 ppi</td>
<td>20 ppi</td>
</tr>
<tr>
<td></td>
<td>250 ppi</td>
<td>500 ppi</td>
<td>50 pppm</td>
<td>2 pppm</td>
</tr>
<tr>
<td></td>
<td>20 ppi</td>
<td>20 pppm</td>
<td>25 pppm</td>
<td>1 pppm</td>
</tr>
</tbody>
</table>
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### Electrical Connection:

<table>
<thead>
<tr>
<th>Order code:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-inch, shielded instrumentation cable</td>
<td>15-inch, multiconductor cable</td>
<td>6-pin plastic connector with mating plug</td>
<td>18-pin plastic connector with mating plug</td>
<td></td>
</tr>
</tbody>
</table>

#### 15-inch, shielded instrumentation cable

- **Color Code**
  - **Red**: Positive
  - **White**: Negative
  - **Blue**: Shield
  - **Brown**: Safety
  - **Yellow**: Index
  - **Orange**: +5 V

#### 6-pin plastic connector with mating plug

- **Pin Configuration**
  - **Pin 1**: A (TTL/CMOS), Universal Line Driver
  - **Pin 2**: B (TTL/CMOS), Universal Line Driver
  - **Pin 3**: C (TTL/CMOS), Universal Line Driver
  - **Pin 4**: D (TTL/CMOS), Universal Line Driver
  - **Pin 5**: E (TTL/CMOS), Universal Line Driver
  - **Pin 6**: F (TTL/CMOS), Universal Line Driver

#### 18-pin plastic connector with mating plug

- **Pin Configuration**
  - **Pin 1**: G (TTL/CMOS), Universal Line Driver
  - **Pin 2**: H (TTL/CMOS), Universal Line Driver
  - **Pin 3**: I (TTL/CMOS), Universal Line Driver
  - **Pin 4**: J (TTL/CMOS), Universal Line Driver
  - **Pin 5**: K (TTL/CMOS), Universal Line Driver
  - **Pin 6**: L (TTL/CMOS), Universal Line Driver
  - **Pin 7**: M (TTL/CMOS), Universal Line Driver
  - **Pin 8**: N (TTL/CMOS), Universal Line Driver
  - **Pin 9**: O (TTL/CMOS), Universal Line Driver
  - **Pin 10**: P (TTL/CMOS), Universal Line Driver
  - **Pin 11**: Q (TTL/CMOS), Universal Line Driver
  - **Pin 12**: R (TTL/CMOS), Universal Line Driver
  - **Pin 13**: S (TTL/CMOS), Universal Line Driver
  - **Pin 14**: T (TTL/CMOS), Universal Line Driver
  - **Pin 15**: U (TTL/CMOS), Universal Line Driver
  - **Pin 16**: V (TTL/CMOS), Universal Line Driver
  - **Pin 17**: W (TTL/CMOS), Universal Line Driver
  - **Pin 18**: X (TTL/CMOS), Universal Line Driver

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