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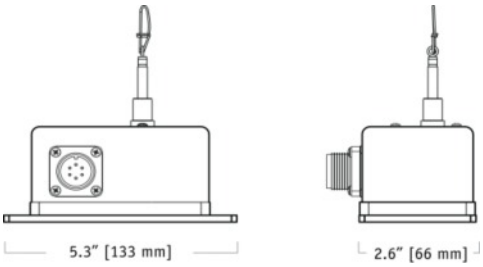
# DPT250

## Cable Actuated Sensor
## Instrument Grade • Incremental Encoder




**Short-Range String Encoder • High Resolution**

**25, 50-inch Stroke Range Options**

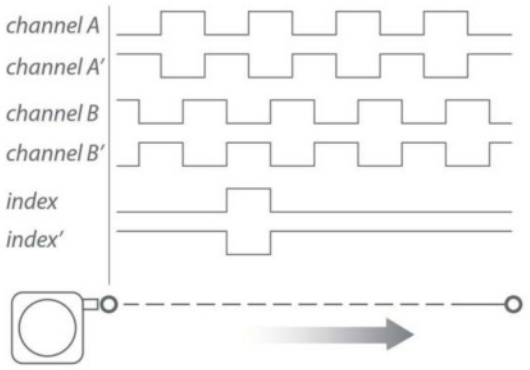
**Powder Painted & Anodized Aluminum Enclosure**

**Perfect Solution for Industrial & Testing Applications**

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




*-- see ordering information for available channels*

## General

| | |
|---|---|
| **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. |

## Electrical

| | |
|---|---|
| **Input Voltage** | see ordering information |

## Environmental

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



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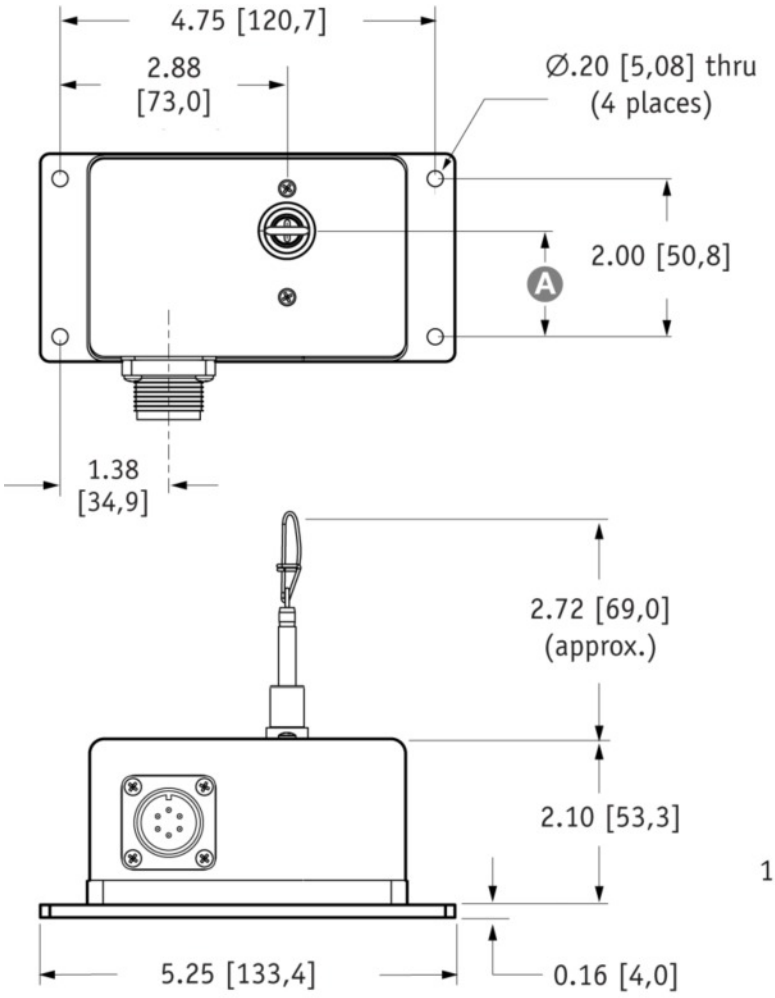
## Outline Drawing:




| Range | A |
|---|---|
| 25", 625mm | 1.31 [33,3] |
| 50", 1250mm | 1.63 [41,4] |

ALL DIMENSIONS ARE IN **INCHES [MM]** • tolerances are ±0.02 in. [±0,5mm]

## Ordering Information

### Model Number:

**DPT250** order code: **-** ___ **-** ___ **1** **1** **-** ___ ___ ___ **0**
R A B C D E F G

Sample Model Number:
**DPT250 - 0025 - 111 - 1130**

| | | |
|---|---|---|
| R | range: | 25 inches |
| A | measuring cable tension: | standard - 12 oz. |
| D | sensing circuit/channels: | TTL/CMOS, A,B |
| E | resolution: | 500 pulses per inch |
| F | electrical connection: | 6-pin plastic connector |



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## Full Stroke Range:

| Ⓡ order code: | 0025 | 0050 | 0625 | 1250 |
|---|---|---|---|---|
| full stroke range, min: | 25 in. | 50 in. | 625 mm | 1250 mm |
| accuracy: | ±0.010 in. (max) | ±.020 in. (max) | ±0.25 mm (max) | ±0.50 mm (max) |
| repeatability: | ±0.005 in. (max) | ±.010 in. (max) | ±0.12 mm (max) | ±0.25 mm (max) |
| cable tension* (±30%): | 13 oz. | 6 oz. | 3,6 N | 1,6 N |
| cable acceleration, max.: | 11 g | 4 g | 11 g | 4 g |
| resolution options: | 50, 500, 1000, 1250 pulses per inch | 25, 250, 500, 625 pulses per inch | 2, 20, 40, 50 pulses per mm | 1, 10, 20, 25 pulses per mm |

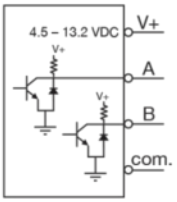
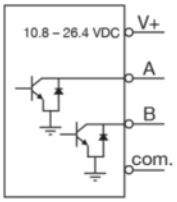
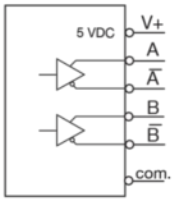
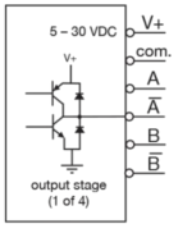
*note: increased cable tension options available (see below)*

## Measuring Cable Tension:

| Ⓐ order code: | 1 | H |
|---|---|---|
| | standard tension* | high tension* |
| 25 inch range: | 13 oz. | 65 oz. |
| 50 inch range: | 6 oz. | 33 oz. |
| 625 mm range: | 3,6 N | 18,1 N |
| 1250 mm range: | 1,6 N | 9,2 N |

*–note: spring tension tolerance: ±30%*

## Sensing Circuit / Channels:

| Ⓓ order code: | 1 | 2 | 4 | 6 |
|---|---|---|---|---|
| description: | TTL / CMOS | open collector | line driver | universal line driver |
| | Input voltage (V+): 4.5...13.2 Vdc<br>Sink current: 20 mA max.<br>Input current: 80 mA max. | Input voltage (V+): 10.8...26.4 Vdc<br>Sink current: 20 mA max.<br>Input current: 80 mA max. | Input voltage (V+): 5 Vdc<br>Sink current: 20 mA max.<br>Input current: 150 mA max. | Input voltage (V+): 5...30 VDC<br>Source/Sink: 20 mA max.<br>Input current: 50 mA max, no load |
| |  |  |  |  |

## Resolution:

| Ⓔ order code: | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 25 in. range: | 500 ppi | 1000 ppi | 1250 ppi | 50 ppi |
| 50 in. range: | 250 ppi | 500 ppi | 625 ppi | 25 ppi |
| 625 mm range: | 20 ppmm | 40 ppmm | 50 ppmm | 2 ppmm |
| 1250 mm range: | 10 ppmm | 20 ppmm | 25 ppmm | 1 ppmm |



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## Electrical Connection:

**F** *order code:* **1**

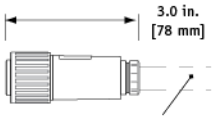
15-inch, shielded instrumentation cable

15-inch, multiconductor cable

| color | TTL/CMOS Open Collector | 5 V Line Driver Universal Line Driver |
|---|---|---|
| red | input voltage | input voltage |
| black | common | common |
| green | channel A | channel A |
| white | channel B | channel B |
| blue | - | channel A' |
| brown | - | channel B' |
| yellow | - | index |
| orange | - | index' |

**3**

6-pin plastic connector with mating plug



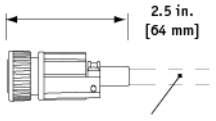
contact view

.30 – .39 in. [8 – 10 mm] cable dia.
16 AWG max conductor size
connector: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

| pin | TTL/CMOS Open Collector | 5 V Line Driver Universal Line Driver |
|---|---|---|
| A | input voltage | input voltage |
| B | common | common |
| C | channel A | channel A |
| D | channel B | channel B |
| E | - | channel A' |
| F | - | channel B' |

**4**

18-pin plastic connector with mating plug



contact view

.26 – .30 in. [6,6 – 7,6 mm] cable dia.
20 – 24 AWG conductor size
connector: Conxall 14282-18PG-300-K
mating plug: Conxall 13282-18SG-326-K

| pin | TTL/CMOS Open Collector | 5 V Line Driver Universal Line Driver |
|---|---|---|
| 1 | input voltage | input voltage |
| 2 | common | common |
| 3 | channel B | channel B |
| 6 | channel A | channel A |
| 7 | - | index |
| 11 | - | channel B' |
| 12 | - | channel A' |
| 15 | - | index' |

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