

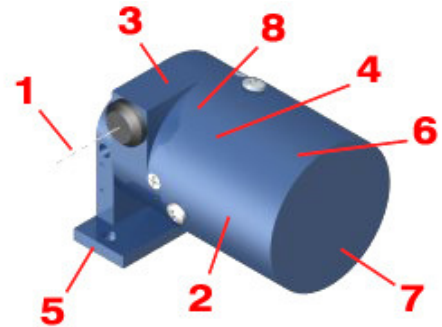
## Data Sheet - Series D60, D61 and D62 Miniature Position Transducers

### High-Resolution, Digital-Output, Miniature Size

Shaded characteristics are verified during production and test. All others are for REFERENCE and information only.

#### Summary Features

- 43-inch (1092-mm) Maximum Travel (Series D62)
- Digital Signal Using Precision, High-Resolution Incremental Optical Encoder
- AccuTrak™ Threaded Drum for Enhanced Repeatability
- Bearing-Mounted Rotating Components
- Optional Flexible Mounting Bases
- Predicted Life: 10 Million Full-Stroke Cycles
- NEMA 4X / IP 66 Environmentally Protected
- DirectConnect™ Sensor-To-Drum Technology = Zero Backlash, No Torsion Springs or Clutches



#### Sensor Specifications

SENSOR SPECIFICATIONS (incremental optical encoder)

|                                |   |
|--------------------------------|---|
| Power Requirement              | 5 to 26 VDC   |
| Current                        | 35 mA max at 5 VDC  |
| Logic Output                   | open collector with Schmitt trigger and 10 Kohm pull-up resistor (push-pull differential line driver) |
| Power Consumption              | 150 mW max, 16 mA sink current at 0.40 VDC  |
| Travel: Electrical, Mechanical | 360° continuous   |
| Mechanical Life                | 100 million shaft revolutions min   |
| Resolution                     | 8192 quadrature pulses per revolution   |
| Output                         | 2-bit (quadrature) code, A leads B by 90° w/CW  |
| Operating Temperature          | -4° to 212° F (-20° to 100° C)  |
| Shock / Vibration              | 50 g for 11 ms / 50 to 500 Hz at 20 g   |
| Humidity                       | 98% non-condensing  |

#### Other Specifications

|                             |   |
|-----------------------------|---|
| Case/Drum Materials         | precision-machined, anodized 2024 aluminum  |
| Displacement Cable          | 0.027 inch (0.6858 mm) diameter, 7-by-7 stranded stainless steel, 90-lb (400-N) min breaking strength   |
| Displacement Cable Hardware | 1 each of <a href="#">300196 loop sleeve</a> , <a href="#">300292 copper sleeve</a> , <a href="#">300688 ball-end plug</a> , <a href="#">300495 pull ring</a> , <a href="#">160026 brass swivel</a> , and <a href="#">301003 nickel swivel</a> ; all items provided uncrimped |
| Nominal Mass                | D60: 6 oz (170 g), D61: 8 oz (227 g), D62: 11 oz (312 g)  |
| Environmental Sealing       | NEMA 4X / IP 66   |

#### Part Numbers

|              |               |                       |                       |                  |
|--------------|---------------|-----------------------|-----------------------|------------------|
| Part Number  | Nominal Range | Nominal Resolution#   | Nominal Cable Tension | max Cable Accel. |
| (Order Code) | in (mm)       | pulses/in (pulses/mm) | oz (N)                | g                |

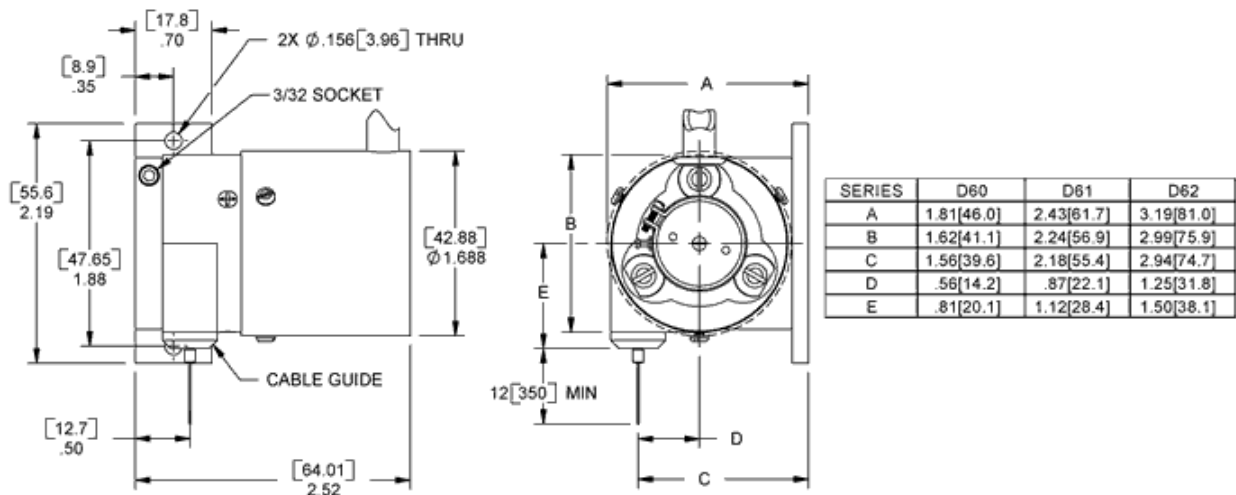
|         |             |            |                  |    |
|---------|-------------|------------|------------------|----|
| D60-090 | 11.25 (286) | 3587 (141) | 8 to 23 (2 to 6) | 40 |
| D60-170 | 21.25 (540) | 1883 (74)  | 8 to 20 (2 to 6) | 40 |
| D61-244 | 30.50 (775) | 1338 (53)  | 9 to 24 (3 to 7) | 71 |
| D62-345 | 43 (1092)   | 951 (37)   | 6 to 19 (2 to 5) | 32 |

# after quadrature decode by user

### Electrical Connection

| Electrical Connection Type   | Pin/Wire Assignment |        |
|--|---------------------|--------|
|  | Wire Color          | Signal |
| 10-conductor dark gray PVC cable with 24 AWG flying leads, 60-in (1524-mm) min length, 0.250 (6.35) nominal diameter, -20° to +80° C operating temperature range | red                 | common |
|  | gray                | +VDC   |
|  | brown               | Z      |
|  | green               | Z'     |
|  | blue                | B      |
|  | orange              | B'     |
|  | yellow              | A      |
|  | white               | A'     |
|  | purple              | N/C    |
|  | black               | case   |

### Drawing



### Related Products

| Part Number                | Description                       |
|----------------------------|-----------------------------------|
| <a href="#">160005</a>     | base: magnet (_6_)                |
| <a href="#">160030-__</a>  | base: universal (_6_)             |
| <a href="#">160040-1</a>   | base: mounting disk (_6_)         |
| <a href="#">160015-1__</a> | base: big foot (_6_)              |
| <a href="#">160015-G1</a>  | base: h (_60)                     |
| <a href="#">300460</a>     | base: universal (miniature) (_60) |
| <a href="#">160001-01</a>  | installation kit                  |

### Options

|                              |   |
|------------------------------|---|
| Electrical Cable Termination | straight pins (two rows of 5 pins on 0.10" centers) |
| Input Signal                 | 5 VDC ±5%   |
| Output Signal                | TTL or RS-422A line driver                          |
| Resolution                   | 50% and 25% resolution                              |
| Operating Temperature        | -40° to +185° F (-40° to +85° C)                    |