

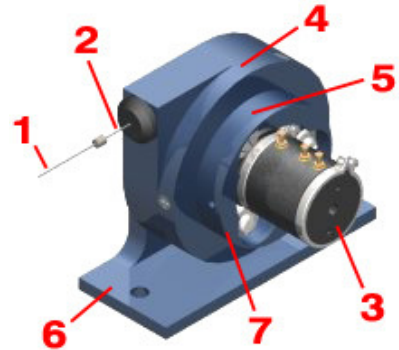
## Data Sheet - Series 161H and 162H Miniature Position Transducers with High Cable Tension

### Analog-Output Miniature Position Transducers

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

#### Key Features

1. High Cable Tension for Enhanced Frequency Response
2. 42.5-Inch (1080-mm) Maximum Travel (Series 162)
3. Analog Signal Using Precision Conductive Plastic or Hybrid Potentiometers
4. AccuTrak™ Threaded Drum for Enhanced Repeatability
5. Bearing-Mounted Rotating Components
6. Optional Flexible Mounting Bases
7. DirectConnect™ Sensor-To-Drum Technology = Zero Backlash, No Torsion Springs or Clutches



#### Potentiometer Specifications

	1-turn	3-turn	5-turn
Potentiometer Type	1-turn, precision, conductive plastic	3-turn, precision, hybrid	5-turn, precision, hybrid
Resistance: Value, Tolerance	5K ohms, ±20%	5K ohms, ±5%	5K ohms, ±5%
Travel: Electrical, Mechanical	340°, 360°	1080°, 1080° +10° -0°	1800°, 1800° +10° -0°
Mechanical Life	10 million shaft revolutions min	5 million shaft revolutions min	5 million shaft revolutions min
Output Signal	analog signal from 0 to supply voltage (voltage divider circuit)		
Power Rating	1.0 W at 158° F (70° C)	1.5 W at 158° F (70° C)	2.0 W at 158° F (70° C)
Supply Current	12 mA max		
Supply Voltage	35 VDC max (using voltage divider circuit)		
Independent Linearity Error	±1.0% max per VRCI-P-100A	±0.5% max per VRCI-P-100A	±0.35% max per VRCI-P-100A
Output Smoothness	< 0.1% max	0.5% max	0.35% max
Insulation Resistance	100 Mohms at 1000 VDC min	1000 Mohms at 500 VDC min	1000 Mohms at 500 VDC min
Dielectric Strength	1000 VDC min	1000 VDC min	1000 VDC min
Resolution	infinite signal	infinite signal	infinite signal
Operating Temperature	-40° to 257° F (-40° to 125° C)	-67° to 257° F (-55° to 125° C)	-67° to 257° F (-55° to 125° C)
Electrical Connection	3-terminal (1, 2, 3)	3-terminal (CW, CCW, S)	3-terminal (CW, CCW, S)
Shock	50 g for 11 ms	100 g for 6 ms	100 g for 6 ms
Vibration	10 to 2000 Hz at 15 g	10 to 2000 Hz at 15 g	10 to 2000 Hz at 15 g
Temperature Coefficient	±400 ppm/°C max	±0.007%/°C max	±0.007%/°C max

The potentiometer type of a specific position transducer part number is designated by the 8th digit of the part number counting left to right. Example: 161-0361H-AND contains a 1-turn potentiometer while 162-3405H-BSD contains a 5-turn potentiometer.

## Other Specifications

Case/Drum Materials	precision-machined anodized 2024 aluminum						
Displacement Cable	0.027-inch (0.69-mm) dia., 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="#">160032 copper sleeve</a> , <a href="#">300688 ball-end plug</a> , <a href="#">300495 pull ring</a> , and <a href="#">301003 nickel swivel</a> ; all items provided uncrimped						
Electrical Connections	three solder terminals; electrical cable and connector options available						
Nominal Mass	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;">Series 161H</td> <td style="width: 50%; text-align: center;">Series 162H</td> </tr> <tr> <td style="text-align: center;">7 oz</td> <td style="text-align: center;">198 g</td> </tr> <tr> <td style="text-align: center;">10 oz</td> <td style="text-align: center;">284 g</td> </tr> </table>	Series 161H	Series 162H	7 oz	198 g	10 oz	284 g
Series 161H	Series 162H						
7 oz	198 g						
10 oz	284 g						
Environmental Protection	NEMA 4 / IP 56, DO-160D (ED-14D) Env. Cat. E1E1ABXHRFDFSAXXXXXXXXXXX (with optional sensor cover)						

## Model Numbers and Ordering Codes

Model	Range		Nominal Displacement Cable Tension Range (Full Extraction to Full Retraction)			
	inches	mm	Opt A: -090 spring		Opt B: -100 spring	
			oz.	N	oz.	N
161-0361H	4.50	114	<b>65 to 95</b>	<b>18 to 26</b>	79 to 170	22 to 47
161-0461H	5.75	146	<b>65 to 95</b>	<b>18 to 26</b>	70 to 150	19 to 42
161-1143H	14.25	362	<b>75 to 180</b>	<b>21 to 50</b>	75 to 300	21 to 83
161-1283H	16.00	406	<b>50 to 130</b>	<b>14 to 36</b>	75 to 200	21 to 56
161-1443H	18.00	457	<b>35 to 150</b>	<b>10 to 42</b>	70 to 130	19 to 36
161-1915H	23.88	606	<b>45 to 215</b>	<b>13 to 60</b>	50 to 245	14 to 68
161-2145H	26.75	679	<b>40 to 190</b>	<b>11 to 53</b>	65 to 240	18 to 67
161-2405H	30.00	762	<b>30 to 160</b>	<b>8 to 44</b>	50 to 260	14 to 72
162-0521H	6.50	165	<b>55 to 85</b>	<b>15 to 24</b>	105 to 135	29 to 38
162-0651H	8.13	206	<b>75 to 120</b>	<b>21 to 33</b>	105 to 135	29 to 38
162-2735H	34.13	867	<b>40 to 140</b>	<b>11 to 39</b>	75 to 160	8 to 44
162-2945H	36.75	933	<b>56 to 130</b>	<b>16 to 36</b>	75 to 160	8 to 44
162-3205H	40.00	1016	<b>25 to 120</b>	<b>7 to 33</b>	35 to 175	10 to 49
162-3405H	42.50	1080	<b>10 to 105</b>	<b>3 to 29</b>	30 to 145	8 to 40

**Bolded** entries are standard cable tension.

### Order Codes

16_ _ _ _ H-abc (example: 161-0361H-BSB (cable tension: -100, sensor cover, and base: big foot))
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Series 161H	a	A	cable tension: -090
		B	cable tension: -100
	b	N	no sensor cover (_61)
		S	sensor cover (_61); pn <a href="#">160060</a>
	c	D	base: mounting disk (_6_); pn <a href="#">160040-1</a>
		S	base: standard (_61); pn <a href="#">160015-3</a>
		U	base: universal (_61); pn <a href="#">160030-3</a>
		B	base: big foot (_60/_61); pn <a href="#">160015-13</a>

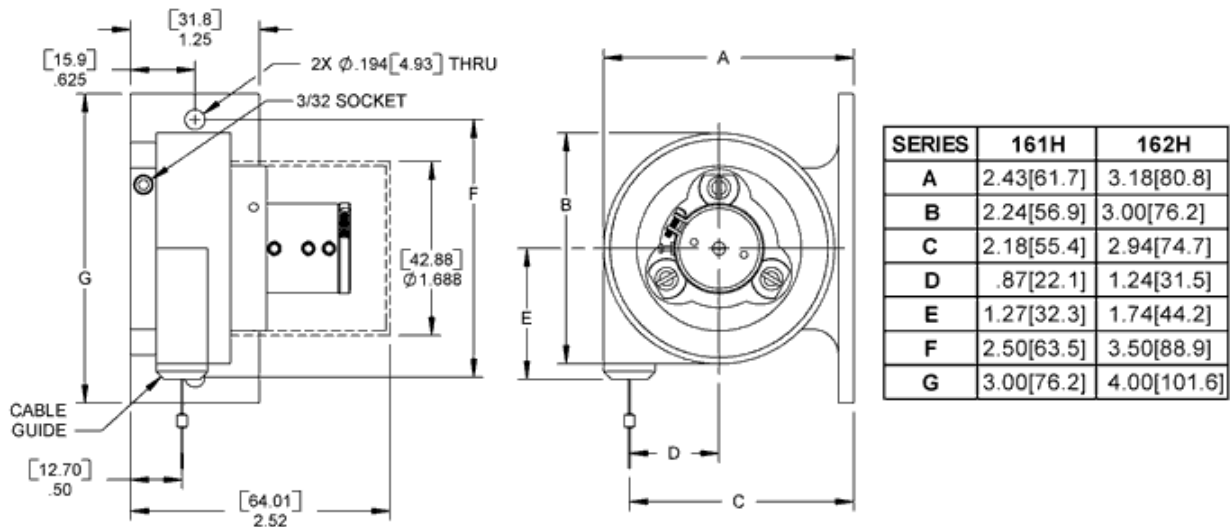
Series 162H	a	A	cable tension: -090
		B	cable tension: -100
	b	N	no sensor cover (_62)
		S	sensor cover (_62); pn <a href="#">160060</a>
	c	D	base: mounting disk (_6_); pn <a href="#">160040-1</a>

S	base: standard (_62); pn <a href="#">160015-5</a>
U	base: universal (_62); pn <a href="#">160030-5</a>
B	base: big foot (_62); pn <a href="#">160015-15</a>

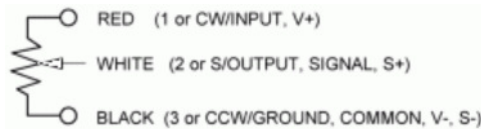
## Displacement Cable Maximum Acceleration by Model Number

Model	Max Cable Acceleration (g)	
	Opt A: -090 spring	Opt B: -100 spring
161-0361H	100+	100+
161-0461H	100+	100+
161-1143H	337	100+
161-1283H	346	100+
161-1443H	215	100+
161-1915H	256	512
161-2145H	401	1354
161-2405H	100+	397
162-0521H	100+	100+
162-0651H	83	109
162-2735H	100+	100+
162-2945H	100+	100+
162-3205H	157	184
162-3405H	100+	100+

## Drawing



Shown with big foot base (pn 160015-13).



For crimping of hardware to displacement cable, consider the [160001-01 installation kit](#). Need something not shown? Complete a [Custom Solution Request](#).

All dimensions are REFERENCE and are in inches [mm] • Data Sheet Series 161H and 162H Rev. A

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