

Cable-Extension Position Transducer

Position and Velocity Output Signals

Ranges: 0-75 to 0-550 inches

Industrial Grade

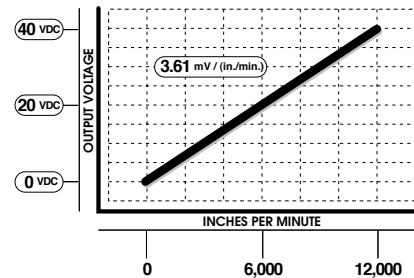
PT9301



The PT9301 is a combination position and velocity transducer for demanding long-range applications requiring a linear position measurements in ranges up to 1700". A precision plastic-hybrid potentiometer provides accurate position feedback while a self-generating DC tachometer provides a velocity signal that is proportional to the speed of the traveling stainless-steel measuring cable.

As a member of Celesco's innovative family of NEMA-4 rated cable-extension transducers, the PT9301 offers numerous benefits. It installs in minutes, functions properly without perfectly parallel alignment, and when its cable is retracted, it measures only 6".

Velocity Output Signal



Specification Summary:

GENERAL

Full Stroke Range Options—on this datasheet 0-75 to 0-550 inches

POSITION

Output Signal voltage divider (potentiometer)
 Accuracy $\pm 0.10\%$ full stroke
 Repeatability $\pm 0.02\%$ full stroke
 Resolution essentially infinite
 Sensor plastic-hybrid precision potentiometer
 Potentiometer Cycle Life 250,000, min. —before signal degradation can occur
 Input Resistance Options 500, 1K, 5K or 10K Ω —see ordering information
 Power Rating, Watts 2.0 at 70°F derated to 0 at 250° F
 Recommended Maximum Input Voltage 30V (AC/DC)
 Output Signal Change Over Full Stroke Range 94% $\pm 4\%$ of input voltage

VELOCITY

Output Signal DC tachometer output
 Linearity better than $\pm 0.10\%$ of output at any velocity
 Repeatability $\pm 0.10\%$ of reading
 Maximum Velocity * Retraction Acceleration see ordering information
 Sensor tach generator
 Input Voltage none required
 Output Voltage @ 100 inches per minute 361 mV $\pm 3\%$
 Output Impedance 350 ohms $\pm 10\%$
 Output Ripple (for velocity ≥ 1.29 inches per second) $\pm 3\%$ rms

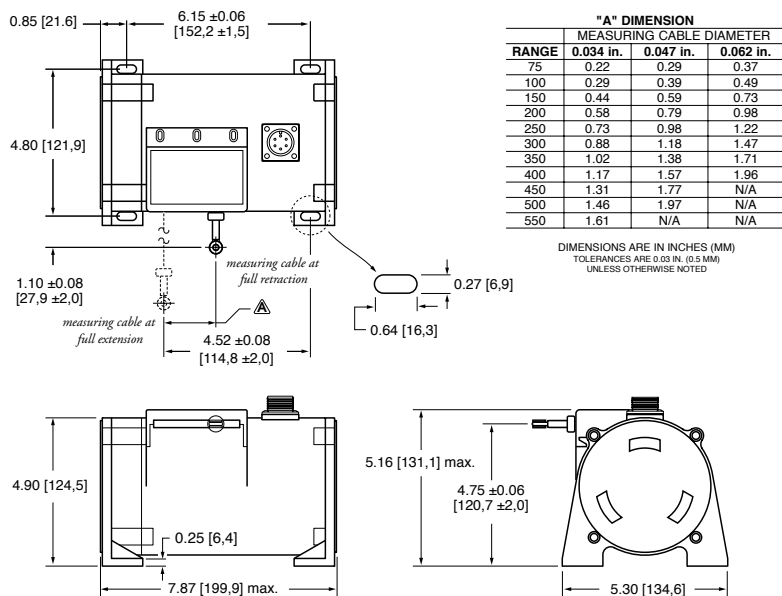
GENERAL

Measuring Cable Options nylon-coated stainless steel or thermoplastic
 Enclosure Material powder-painted aluminum or stainless steel
 Weight, Aluminum (Stainless Steel) Enclosure 8 lbs. (16 lbs.) max.

ENVIRONMENTAL

Enclosure NEMA 4/4X/6, IP 67/68
 Operating Temperature -40° to 200°F (-40° to 90°C)
 Vibration up to 10 G's to 2000 Hz maximum

Fig. 1 – Outline Drawing (26 oz. cable tension only)



Ordering Information:

Output Signals:

① order code:	1	2	3	4
position sensing potentiometer:	500 ohms*	1000 ohms*	5000 ohms*	10,000 ohms*
	position sensing circuit		velocity sensing circuit	

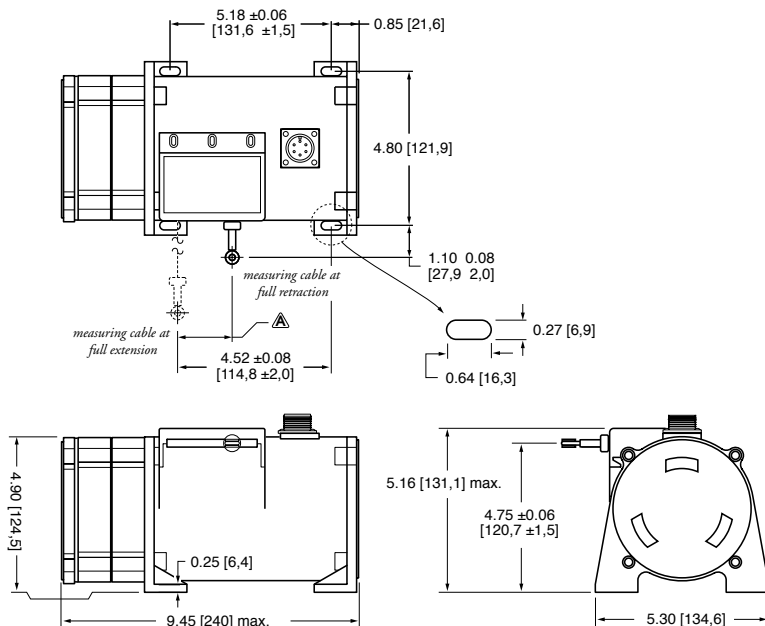
*-tolerance = ±10%

Electrical Connection:

① order code:	1	3	4																																			
	6-pin plastic connector with mating plug IP 67, NEMA 4X*, 6	6-pin metal connector with mating plug IP 65, NEMA 4	25-ft. instrumentation cable 24 AWG, shielded IP 67, NEMA 6																																			
	<p>3.0 in. [78 mm]</p> <p>1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S</p>	<p>2.4 in. [60 mm]</p> <p>3/8-in. [9 mm] max cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S</p>	<p>25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded</p>																																			
	<p>6-pin mating plug:</p> <table border="0"> <tr> <td>pin</td> <td>signal</td> <td rowspan="2">} position</td> </tr> <tr> <td>A</td> <td>+ in</td> </tr> <tr> <td>B</td> <td>common</td> <td rowspan="2">} velocity</td> </tr> <tr> <td>C</td> <td>+ out</td> </tr> <tr> <td>D</td> <td>- out</td> <td></td> </tr> <tr> <td>E</td> <td>+ out</td> <td></td> </tr> <tr> <td>F</td> <td>- out</td> <td></td> </tr> </table> <p>contact view</p>		pin	signal	} position	A	+ in	B	common	} velocity	C	+ out	D	- out		E	+ out		F	- out		<p>25-ft. instrumentation cable:</p> <table border="0"> <tr> <td>color</td> <td>signal</td> <td rowspan="2">} position</td> </tr> <tr> <td>red</td> <td>+ in</td> </tr> <tr> <td>black</td> <td>common</td> <td rowspan="2">} velocity</td> </tr> <tr> <td>green</td> <td>+ out</td> </tr> <tr> <td>white</td> <td>+ out</td> <td></td> </tr> <tr> <td>brown</td> <td>- out</td> <td></td> </tr> </table>	color	signal	} position	red	+ in	black	common	} velocity	green	+ out	white	+ out		brown	- out	
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*-applies to stainless steel enclosure only

Fig. 2 – Outline Drawing (42 oz. cable tension only)



version: 2.0 last updated: February 1, 2005