Cable-Extension Position Transducer

Position and Velocity Output Signals
Ranges: 0-600 to 0-1700 inches
Industrial Grade

<Extended Range>

PT9301

Specification Summary:

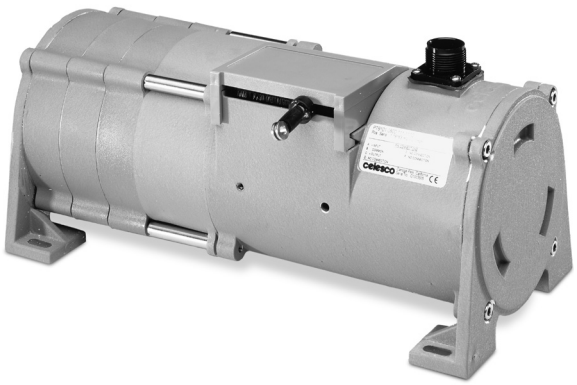
GENERAL
Full Stroke Range Options–*on this datasheet* . . . . . 0-600 to 0-1700 inches

POSITION
Output Signal . . . . . voltage divider (potentiometer)
Accuracy . . . . . ± 0.10% full stroke
Repeatability . . . . . ± 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 70ºF derated to 0 at 250º F
Recommended Maximum Input Voltage . . . . . 30V (AC/DC)
Output Signal Change Over Full Stroke Range . . . . . 94% ±4% of input voltage

VELOCITY
Output Signal . . . . . DC tachometer output
Linearity . . . . . better than ±0.10% of output at any velocity
Repeatability . . . . . ±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 ±3%
Output Impedance . . . . . 350 ohms ±10%
Output Ripple (for velocity ≥ 1.29 inches per second) . . . . . ±3% rms

GENERAL
Measuring Cable . . . . . nylon-coated stainless steel
Enclosure Material . . . . . powder-painted aluminum or stainless steel
Weight, Aluminum (Stainless Steel) Enclosure . . . . . 14 lbs. (28 lbs.) max.

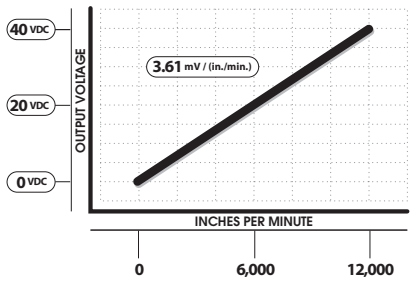
ENVIRONMENTAL
Enclosure . . . . . NEMA 4/4X/6, IP 67/68
Operating Temperature . . . . . -40º to 200ºF (-40º to 90ºC)
Vibration . . . . . up to 10 G's to 2000 Hz maximum



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



Ordering Information:

Model Number:

PT9301- ____ Ⓡ **-** __ Ⓐ **1** Ⓑ __ Ⓒ **-** __ Ⓓ **1** Ⓔ __ Ⓕ **0** Ⓖ
order code:

Sample Model Number:

PT9301 - 1200 - 111 - 1110

Ⓡ	range:	1200 inches
Ⓐ	enclosure	aluminum
Ⓒ	cable exit:	front
Ⓓ	output signal:	500 ohm position / DC tachometer velocity
Ⓕ	electrical connection:	6-pin plastic connector

Full Stroke Range:

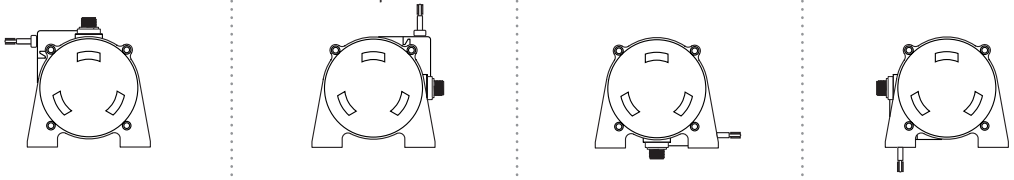
Ⓡ order code:	0600	0800	1000	1200	1500	1700
full stroke range, min:	600 in.	800 in.	1000 in.	1200 in.	1500 in.	1700 in.
cable tension (±35%):	27 oz.	24 oz.	20 oz.	19 oz.	18 oz.	17 oz.
measuring cable:	.034-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.014-in. dia. nylon-coated stainless	.014-in. dia. nylon-coated stainless

Enclosure Material:

Ⓐ order code:	1	3
enclosure material:	powder-painted aluminum	303 stainless steel
max. acceleration:	1G	.33G
max. velocity:	60 inches/sec.	20 inches/sec.

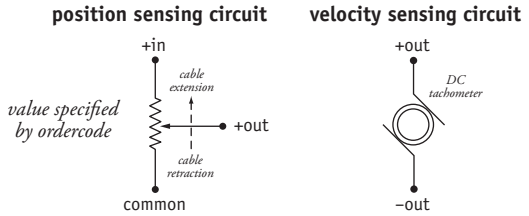
Cable Exit:

Ⓒ order code:	1	2	3	4
	front	top	back	down



Output Signals:

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

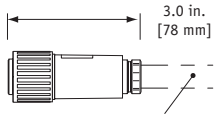
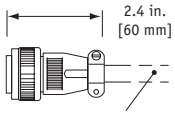
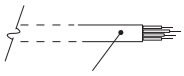


–tolerance = ±10%

Ordering Information:

Electrical Connection:

Ⓕ *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**
		
1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	3/8-in. [9 mm] max cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded

6-pin mating plug:

pin	signal	
A	+ in	position
B	common	position
C	+ out	position
D	-	
E	+ out	velocity
F	- out	velocity

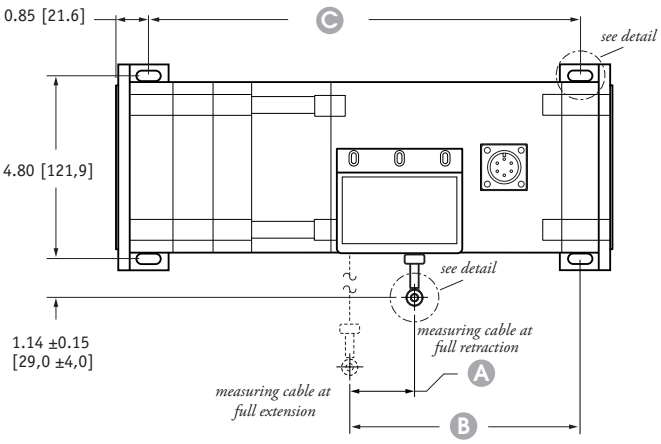
contact view

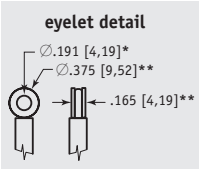
25-ft. instrumentation cable:

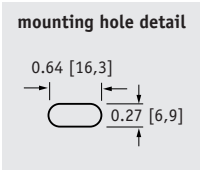
color	signal	
red	+ in	position
black	common	position
green	+ out	position
white	+ out	velocity
brown	- out	velocity

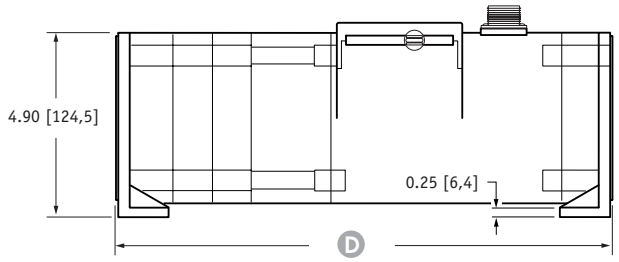
** –applies to stainless steel enclosure only*

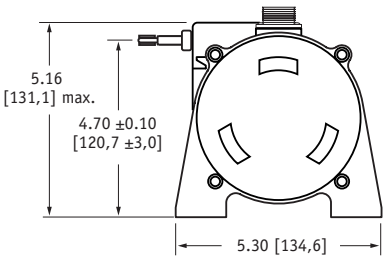
Outline Drawing











full stroke range

	600 in.	800 in.	1000 in.	1200 in.	1500 in.	1700 in.
A	1.76 [44,7]	1.58 [40,1]	1.98 [50,2]	1.49 [37,8]	1.86 [47,2]	2.11 [53,6]
B	4.52 ±0.15 [114,8 ±4,0]	5.46 ±0.15 [138,7 ±4,0]				
C	10.40 ±0.08 [264,2 ±2,0]	11.34 ±0.08 [288,0 ±2,0]				
D	12.15 [308,6] max.	13.09 [332,5] max.				

DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.

* tolerance = +.005 –.001 [+.13 –.03]
** tolerance = +.005 –.005 [+.13 –.13]

version: **4.0** last updated: **September 6, 2011**