PT9301 (Extended Range)

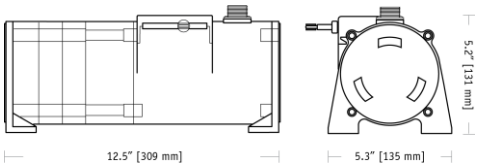
Cable Actuated Sensor
Extended Ranges • Position/Velocity Output

Linear Position/Velocity to 1700 inches (4300 cm)

Stroke Range Options: 0-600 to 0-1700 inches

VLS Option to Prevent Free-Release Damage

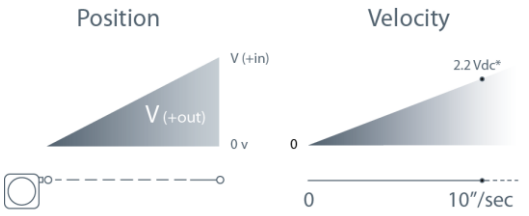
IP68 • NEMA 6 Protection



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".

Output Signal



*velocity output rate = 361 mV ± 3% @ 100 inches per min.

General

Full Stroke Range	0-600 to 0-1700 inches
Measuring Cable	stainless steel or thermoplastic
Enclosure Material	powder-painted aluminum
Sensor, Position	plastic-hybrid precision potentiometer
Sensor, Velocity	DC tach generator
Potentiometer Cycle Life	≥ 250,000 cycles
Maximum Retraction Acceleration	see ordering information
Maximum Velocity	see ordering information
Weight, Aluminum (Stainless Steel) Enclosure	14 lbs. (28 lbs.), max.

Position

Output Signal	voltage divider (potentiometer)
Accuracy	± 0.10% full stroke
Repeatability	± 0.02% full stroke
Resolution	essentially infinite
Sensor, Position	plastic-hybrid precision potentiometer
Potentiometer Cycle Life	≥250,000
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% ±4% of input voltage

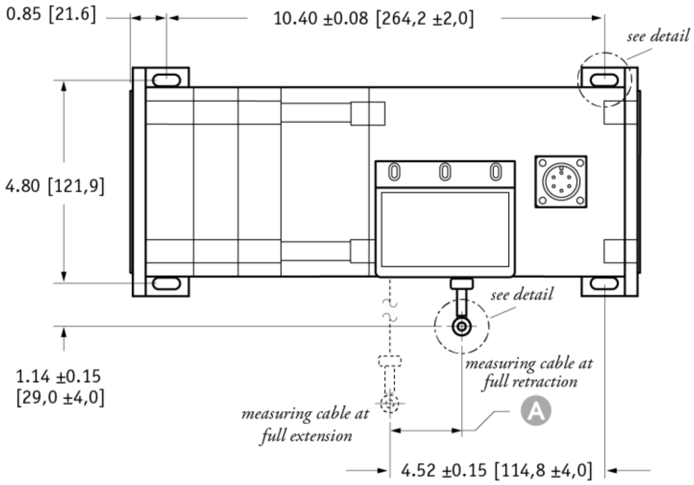
Velocity

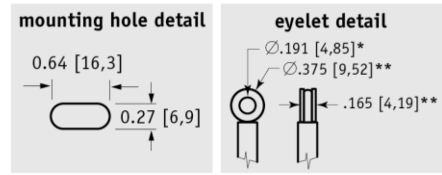
Output Signal	DC tachometer output
Linearity	better than ±0.10% of output at any velocity
Repeatability	±0.10% of reading
Sensor	tach generator
Input Voltage	none required
Output Voltage @ 100 inches per minute	361 mV ±3%
Output Impedance	350 ohms ±10%
Output Ripple (for velocity ≥ 1.29 inches per second)	±3% rms

Environmental

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

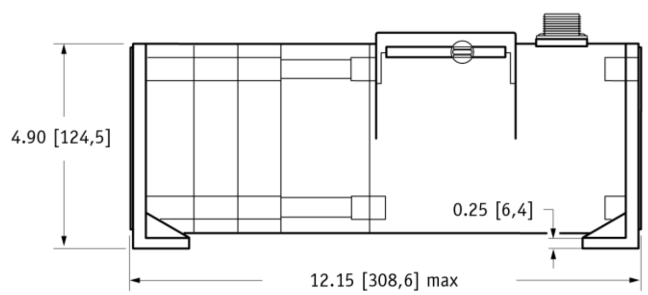
Outline Drawing

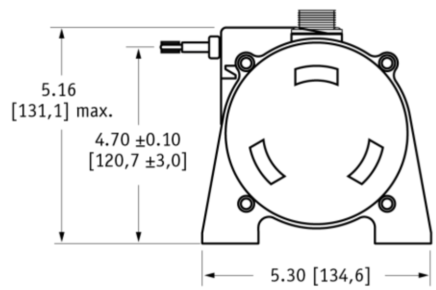




Ⓐ **DIMENSION**

RANGE	inches [mm]
600	1.76 [44,7]
800	1.58 [40,1]
1000	1.98 [50,2]
1200	1.98 [50,2]
1500	1.86 [47,2]
1700	2.11 [53,6]





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]

Ordering Information

Model Number:

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

Sample Model Number:

PT9301 - 1200 - 111 - 1110

Ⓡ range:	1200 inches
Ⓑ measuring cable:	nylon-coated stainless
Ⓒ 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:

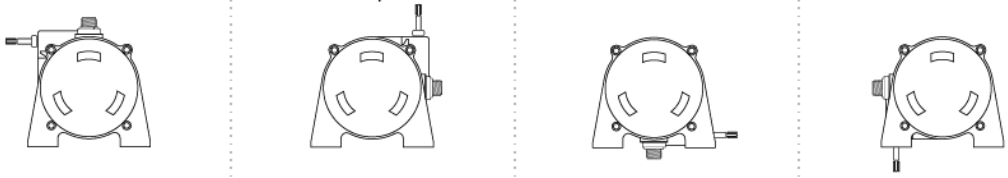
Ⓑ order code:	1	2
cable construction:	nylon-coated stainless steel rope*	bare stainless steel rope*
general use:	*indoor*	*outdoor, debris, high temperature*

**cable diameter:*

stroke range:	0600	0800	1000	1200	1500	1700
nylon-coated stainless:	.034 in.	.019 in.	.019 in.	.019 in.	.014 in.	.014 in.
bare stainless:	.031 in.	.018 in.	.018 in.	.018 in.	.015 in.	.015 in.

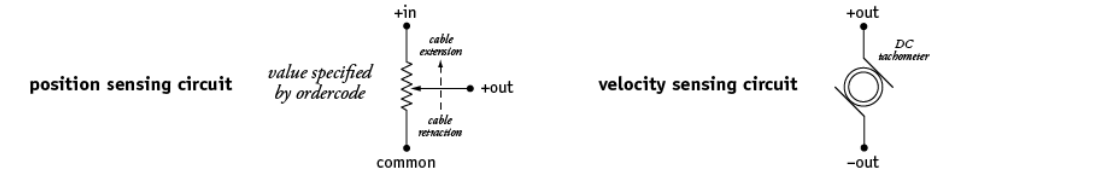
Cable Exit:

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



Output Signals:

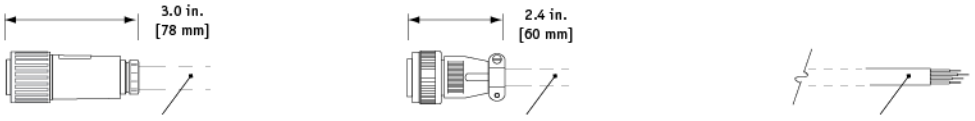
D order code:	1	2	3	4
position sensing potentiometer:	500 ohms*	1000 ohms*	5000 ohms*	10,000 ohms*



*–tolerance = ±10%

Electrical Connection:

F 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**



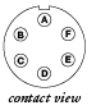
1/2 - 5/16" [14 - 8 mm] cable dia.
16 AWG max conductor size
connector: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

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	
C	+ out	
D	-	
E	+ out	velocity
F	- out	



contact view

25-ft. instrumentation cable:

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

NORTH AMERICA

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