Cable-Extension Position Transducer

- **Medium to Long Range**
- **Industrial Grade**
- **Positon and Velocity Transducer**

PT9301

Specification Summary:

Full Stroke Ranges-*on this datasheet*..... 0-75 to 0-550 inches, see ① next page

POSITION

Output Signal ..... voltage divider (potentiometer)
Accuracy ..... ± 0.10% full stroke
Repeatability ..... ± 0.02% full stroke
Resolution ..... essentially infinite
Sensor ..... plastic-hybrid precision potentiometer
Input Resistance ..... 500, 1K, 5K, and 10K ohms ±10%, see ⑦
Power Rating, Watts ..... 2.0 at 70° F (derated to 0 @ 250°F)
Recommended Maximum Input Voltage ..... 30 V(AC or DC)
Output Signal Change Over Measurement Range ..... 94% ±4% of input voltage

VELOCITY

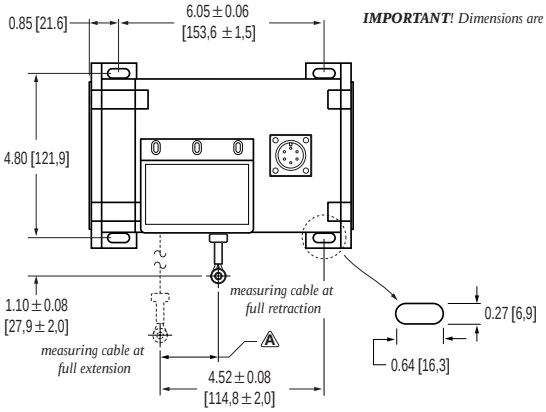
Output Signal ..... DC tachometer output
Linearity ..... better than ± 0.10% of output at any velocity
Repeatability ..... ± 0.10% of reading
Maximum velocity ..... see ④
Sensor ..... tach generator
Input Voltage ..... none
Output Voltage @ 100 IPM ..... 361 mV ±3%
Output Impedance ..... 350 ohm ± 10%
Output Ripple .. ± 3% rms of velocity output (for velocities ≥ 1.29 inches per second)

GENERAL

Measuring Cable ..... nylon-coated stainless steel or thermoplastic, see ⑥
Enclosure Material ..... powder-painted aluminum or stainless steel, see ②
Maximum Retraction Acceleration ..... see ⑤
Weight, Aluminum (Stainless Steel) Enclosure ..... 8 lbs. (16 lbs.), max.

ENVIRONMENTAL

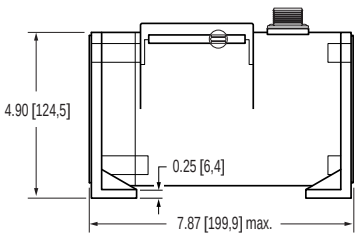
Enclosure Design ..... NEMA 4/4X/6, IP 65/67/68, see ⑧ and ⑨
Operating Temperature ..... -40° to 200°F
Vibration ..... up to 10 G's to 2000 Hz maximum

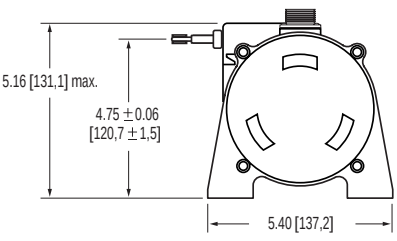


***IMPORTANT!** Dimensions are only valid for Enclosure/Cable-Tension Options 1 & 3 only refer to Supplement 9-A for increased cable tension*

"A" DIMENSION			
	MEASURING CABLE DIAMETER		
RANGE	**0.034 in.**	**0.047 in.**	**0.062 in.**
75	0.22	0.29	0.37
100	0.29	0.39	0.49
150	0.44	0.59	0.73
200	0.58	0.79	0.98
250	0.73	0.98	1.22
300	0.88	1.18	1.47
350	1.02	1.38	1.71
400	1.17	1.57	1.96
450	1.31	1.77	N/A
500	1.46	1.97	N/A
550	1.61	N/A	N/A

DIMENSIONS ARE IN INCHES (MM)
TOLERANCES ARE ± 0.02 IN. (±0.5 MM)
UNLESS OTHERWISE NOTED

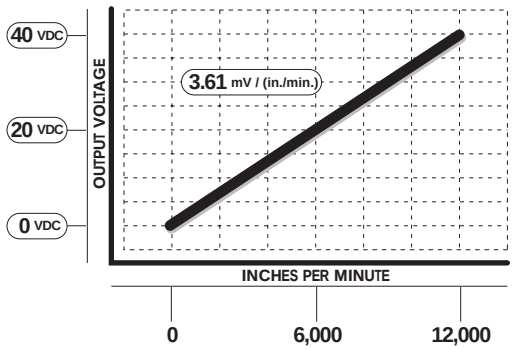




The PT9301 is a combination position and velocity transducer for demanding long-range applications requiring a linear position measurements in ranges up to 1700". A precision plastic-hybrid potentiometer provides accurate position feedback while a self-generating DC tachometer provides a velocity signal 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, works without perfect parallel alignment, and when it's stainless-steel cable is retracted, it measures only 6".

Velocity Output Signal:



Latin Tech, Inc.

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▼ Ordering Information

Model Number:

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

Full Stroke Range:

Ⓡ *order code:*	**0075**	**0100**	**0150**	**0200**	**0250**	**0300**
① full stroke range, min:	75 inches	100 inches	150 inches	200 inches	250 inches	300 inches

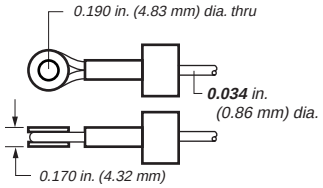
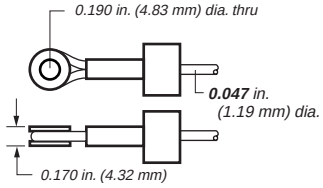
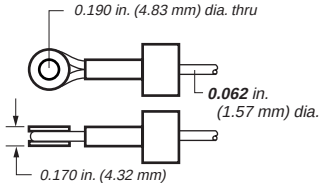
Ⓡ *order code:*	**0350**	**0400**	**0450***	**0500***	**0550***	
full stroke range, min:	350 inches	400 inches	450 inches	500 inches	550 inches	

*note: *****42 oz. cable tension*** *(see ③ below) for these ranges is strongly recommended!*

Enclosure Material and Measuring Cable Tension:

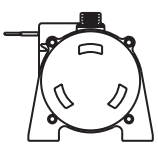
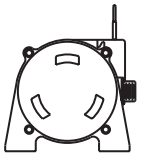
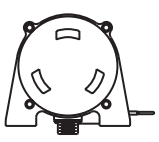
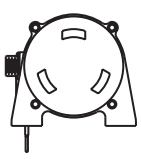
Ⓐ *order code:*	**1**	**2**	**3**	**4**
enclosure:	see drawing (front page)	see Supplement 9-A	see drawing (front page)	see Supplement 9-A
② enclosure material:	powder-painted aluminum		303 stainless steel	
③ cable tension (±30%):	26 oz.	42 oz.	26 oz.	42 oz.
④ maximum velocity:	60 inches per second	200 inches per second	20 inches per second	80 inches per second
⑤ max. retraction acceration:	1 G	5 G's	0.33 G	2 G's

Measuring Cable:

Ⓑ *order code:*	**1***	**2****	**3*****
⑥ cable construction:	.034 nylon-coated stainless steel	.047 stainless steel	.062 thermoplastic
			

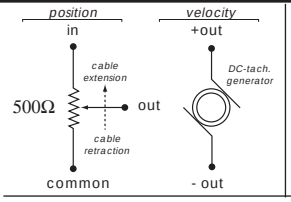
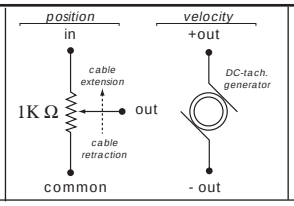
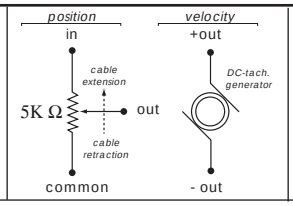
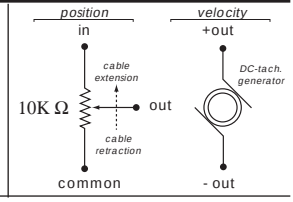
notes: **available in **all** ranges* ***available in ranges up to **500-inches** only* ****available in ranges up to **400-inches***

Cable Exit:

Ⓒ *order code:*	**1**	**2**	**3**	**4**
direction:	front	top	rear	bottom
				

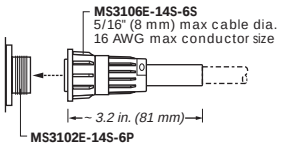
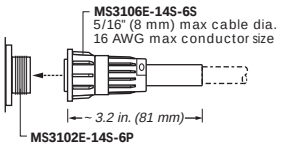
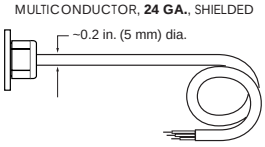
Output Signals:

Ⓓ *order code:*

	1	2	3	4
⑦ position & velocity circuits:				

Electrical Connection:

Ⓕ *order code:*

	1	3	4
electrical connection:	6-pin plastic connector and mating plug	6-pin metal connector and mating plug	25 ft. instrumentation cable
			
	MS3106E-14S-6S 5/16" (8 mm) max cable dia. 16 AWG max conductor size; ~ 3.2 in. (81 mm); **MS3102E-14S-6P**	**MS3106E-14S-6S** 5/16" (8 mm) max cable dia. 16 AWG max conductor size; ~ 3.2 in. (81 mm); **MS3102E-14S-6P**	MULTICONDUCTOR, **24 GA.**, SHIELDED; ~0.2 in. (5 mm) dia.
	contact view 	*contact view* 	
	connections: ***position*** / ***velocity*** A = +IN / E = +OUT; B = COMMON / F = -OUT; C = +OUT; D = n/c	connections: ***position*** / ***velocity*** A = +IN / E = +OUT; B = COMMON / F = -OUT; C = +OUT; D = n/c	connections: ***position*** / ***velocity*** RED = +IN / WHT = +OUT; BLK = COMMON / BRN = -OUT; GRN = +OUT
⑧ **IP** rating:	67	65	67
⑨ **NEMA** rating:	6, 4X*	4	6

*note: *applies to stainless steel enclosure, see ②*

▼ Sample Model Number

PT9301- **0200** (R) **-** **1** (A) **1** (B) **1** (C) **-** **1** (D) **1** (E) **1** (F) **0** (G)

order code:

Specifications:
Full Stroke Range: 200 inches
Enclosure Material: powder-painted aluminum
Measuring Cable: 0.034-in dia. nylon coated stainless steel cable
Cable Exit: front
Output Signals: DC tachometer generated velocity signal and 500 ohm potentiometer for position
Electrical Connection: 6-pin plastic connector

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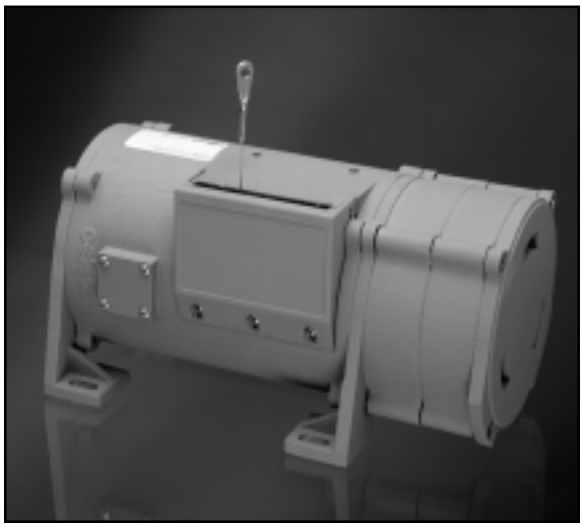
▼ All High Acceleration Applications

▼ 450-550 inch Full Stroke Applications

General:



Celesco strongly recommends increased cable tension for:

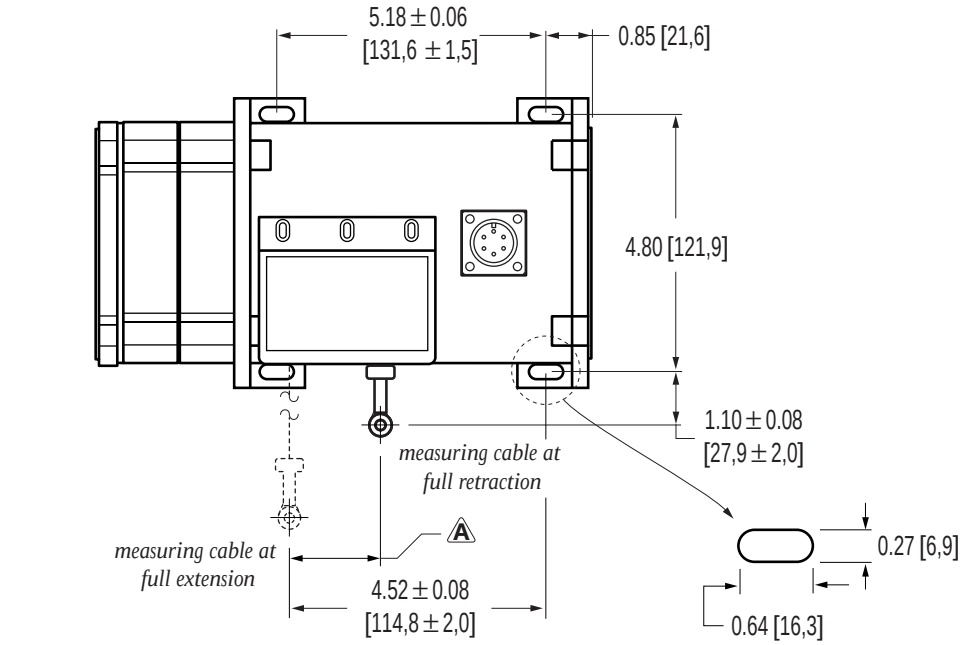
- Cable velocities greater than 60 inches per second
- Cable retraction accelerations exceeding:
  - 1 G (for aluminum enclosure)
  - 0.33 G (for stainless-steel enclosure)
- Applications with ranges 450 inches and greater to minimize cable sag and maintain dynamic capabilities.

Transducer Models:

PT9101	PT9150	PT9301
PT9420	PT9510	PT9600

Available Ranges:

75 to 550 inches



"A" DIMENSION			
	MEASURING CABLE DIAMETER		
RANGE	**0.034 in.**	**0.047 in.**	**0.062 in.**
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450	1.31	1.77	N/A
500	1.46	1.97	N/A
550	1.61	N/A	N/A
DIMENSIONS ARE IN INCHES (MM) TOLERANCES ARE ± 0.02 IN. (±0.5 MM) UNLESS OTHERWISE NOTED