

PT9301

Heavy Industrial • Position/Velocity Output

Linear Position/Velocity to 550 inches (1400 cm)

Rugged Powder-Painted Aluminum Enclosure

VLS Option To Prevent Free-Release Damage

IP68 • NEMA 6 Protection

GENERAL

Full Stroke Range Options (on this datasheet)	0-75 to 0-550 inches
Measuring Cable Options	stainless steel or thermoplastic
Enclosure Material	powder-painted aluminum
Sensor, Position	plastic-hybrid precision potentiometer
Sensor, Velocity	DC tach generator
Maximum Retraction Acceleration	see ordering information
Maximum Velocity	see ordering information
Weight, Aluminum (Stainless Steel) Enclosure	8 lbs. (16 lbs.) max.

POSITION

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

VELOCITY

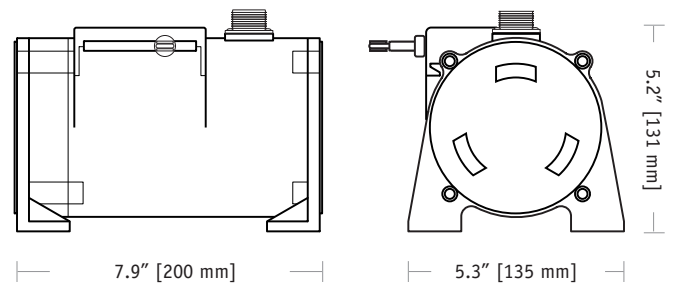
Output Signal	DC tachometer output
Linearity	better than $\pm 0.10\%$ of output at any velocity
Repeatability	$\pm 0.10\%$ of reading
Sensor	tach generator
Input Voltage	none required
Output Voltage @ 100 inches per minute	361 mV $\pm 3\%$
Output Impedance	350 ohms $\pm 10\%$
Output Ripple (for velocity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

ENVIRONMENTAL

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

20630 Plummer Street • Chatsworth, CA 91311 • Meas-Spec.com
tel: 800.423.5483 • +1.818.701.2750 • fax: +1.818.701.2799

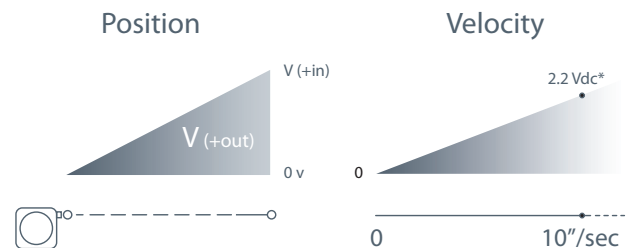
measurement
SPECIALTIES™



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:

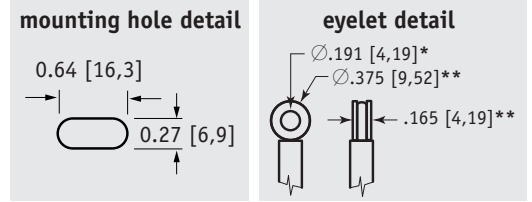
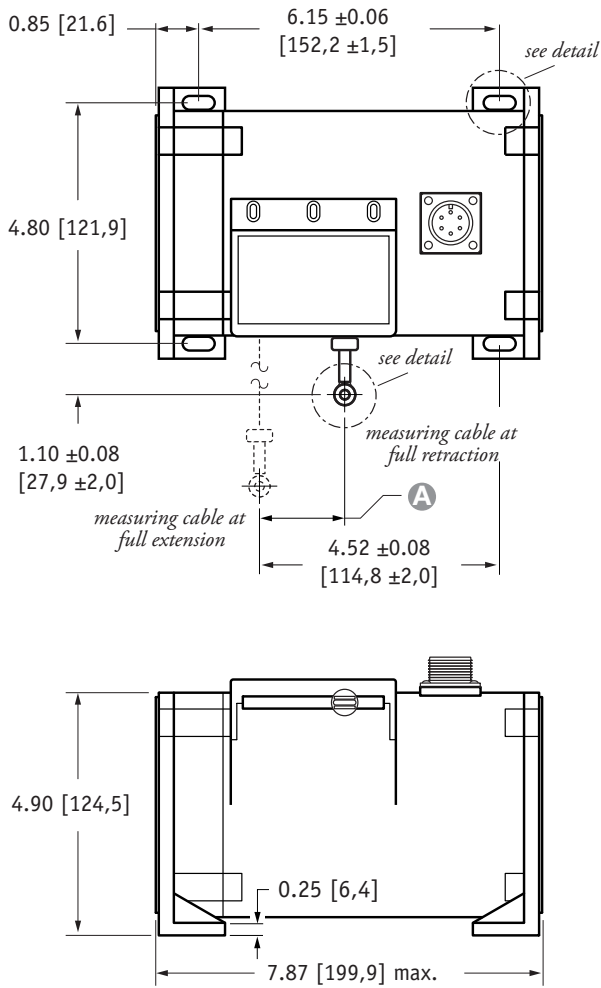


velocity output rate = 361 mV $\pm 3\%$ @ 100 inches per min.



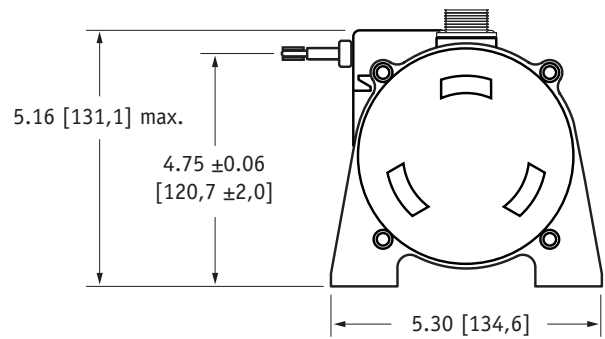
formally Celesco Transducer Products, Inc.
celesco.com • info@celesco.com

Fig. 1 – Outline Drawing (18 oz. cable tension only)



A DIMENSION (INCHES)

RANGE	MEASURING CABLE			
	Ø.031 in.	Ø.034 in.	Ø.047 in.	Ø.062 in.
75	n/a	0.22	0.29	0.37
100	n/a	0.29	0.39	0.49
150	n/a	0.44	0.59	0.73
200	n/a	0.58	0.79	0.98
250	n/a	0.73	0.98	1.22
300	n/a	0.88	1.18	1.47
350	n/a	1.02	1.38	1.71
400	n/a	1.17	1.57	1.96
450	n/a	1.31	1.77	n/a
500	n/a	1.46	1.97	n/a
550	1.61	1.61	n/a	n/a



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 - - - - - - - -
order code: R A B C D E F G

Sample Model Number:

PT9301 - 0500 - 111 - 1110

- R range: 500 inches
- A enclosure/cable tension: aluminum/18 oz.
- B measuring cable: .034 nylon-coated stainless
- C cable exit: front
- D output signal: 500 ohm position / DC tachometer velocity
- F electrical connection: 6-pin plastic connector

Full Stroke Range:

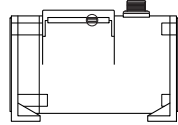
R order code:	0075	0100	0150	0200	0250	0300	0350	0400	0450*	0500*	0550*
full stroke range, min:	75 in.	100 in.	150 in.	200 in.	250 in.	300 in.	350 in.	400 in.	450 in.	500 in.	550 in.

* - 36 oz. cable tension strongly recommended

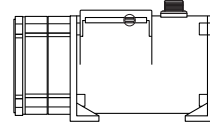
Ordering Information (cont.):

Enclosure Material and Measuring Cable Tension:

Ⓐ order code:	1	2
tension (±30%):	18 oz.	36 oz.
enclosure material:	<i>powder-painted aluminum</i>	<i>powder-painted aluminum</i>
max. acceleration:	1 g	5 g
max. velocity:	60 inches/sec	200 inches/sec



standard housing
see fig 1.



dual-spring housing
see fig 2.

Measuring Cable:

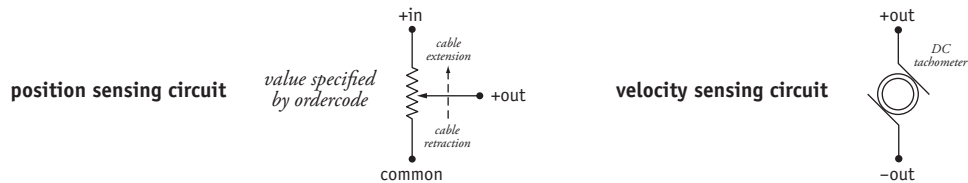
Ⓑ order code:	1	2	3	4
cable construction:	Ø.034-inch nylon-coated stainless steel rope	Ø.047-inch bare stainless steel rope	Ø.058-inch PVC jacketed vectra fiber rope	Ø.031-inch bare stainless steel rope
available ranges:	<i>all ranges</i>	<i>all ranges up to 500 inches</i>	<i>all ranges up to 400 inches</i>	<i>550-inch range only</i>
general use:	indoor	outdoor, debris, high temperature	high voltage or magnetic field	outdoor, debris, high temperature

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*

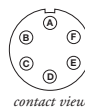


Electrical Connection:

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

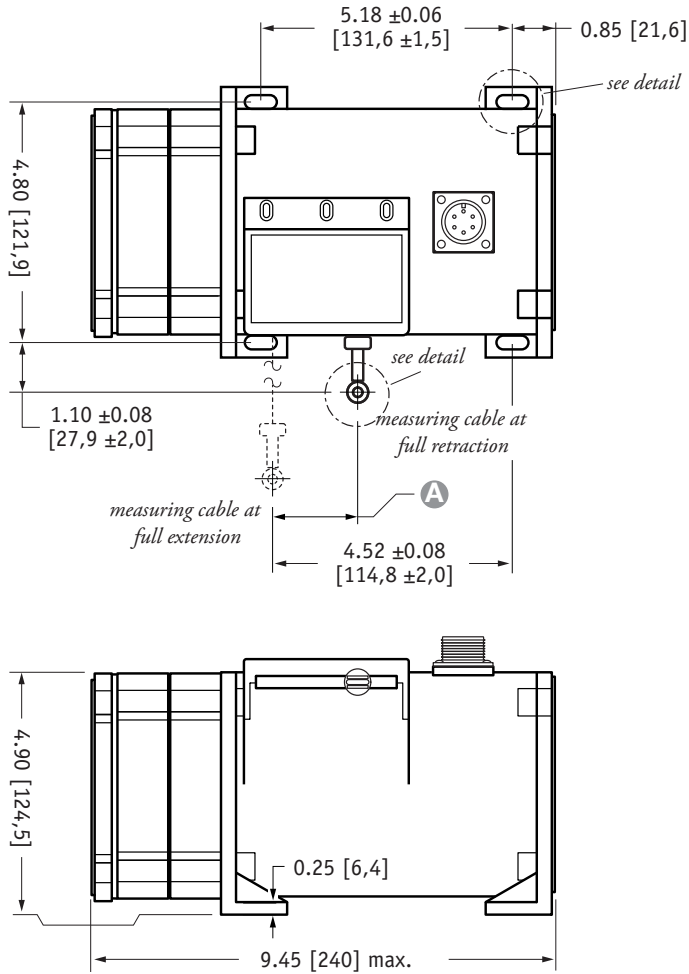


25-ft. instrumentation cable:

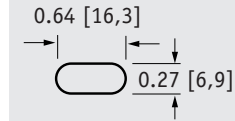
color	signal	} position
red	+ in	
black	common	
green	+ out	
white	+ out	} velocity
brown	- out	

*-tolerance = ±10%

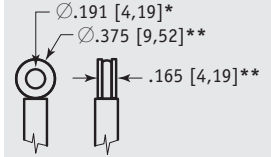
Fig. 2 – Outline Drawing (36 oz. cable tension only)



mounting hole detail

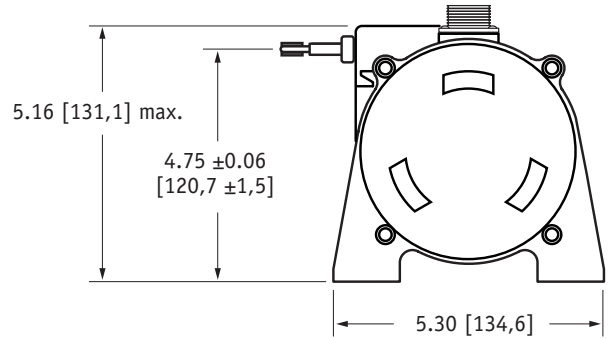


eyelet detail



A DIMENSION (INCHES)

RANGE	MEASURING CABLE			
	Ø.031 in.	Ø.034 in.	Ø.047 in.	Ø.062 in.
75	n/a	0.22	0.29	0.37
100	n/a	0.29	0.39	0.49
150	n/a	0.44	0.59	0.73
200	n/a	0.58	0.79	0.98
250	n/a	0.73	0.98	1.22
300	n/a	0.88	1.18	1.47
350	n/a	1.02	1.38	1.71
400	n/a	1.17	1.57	1.96
450	n/a	1.31	1.77	n/a
500	n/a	1.46	1.97	n/a
550	1.61	1.61	n/a	n/a



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: 11.0 last updated: February 24, 2016