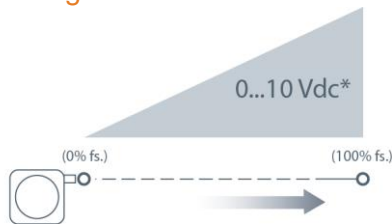


The PT9510 can operate from an unregulated 14.5 to 40 VDC power supply while providing a regulated output signal over its full extended range. It provides a 0 - 5 or 0 - 10 VDC position feedback signal proportional to the linear movement of its stainless steel measuring cable.

As a member of Celesco's innovative family of NEMA-4 rated cable-extension transducers, the PT9510 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



\*Additional Output Options: 0...5, -5...+5, -10...+10 Vdc

## PT9510

### Cable Actuated Sensor

Heavy Industrial • 0...5 Vdc, 0...10 Vdc

**Absolute Linear Position to 550 inches (1400 cm)**

**Aluminum or Stainless Steel Enclosure Options**

**VLS Option to Prevent Free-Release Damage**

**IP68 • NEMA 6 Protection**

#### General

<b>Full Stroke Range</b>	0-75 to 0-550 inches
<b>Output Signal</b>	0...10, 0...5, -5...+5, -10...+10 VDC
<b>Accuracy</b>	± 0.12% full stroke
<b>Repeatability</b>	± 0.05% full stroke
<b>Resolution</b>	essentially infinite
<b>Measuring Cable Options</b>	stainless steel or thermoplastic
<b>Enclosure Material</b>	powder-painted aluminum or 303 stainless steel
<b>Sensor</b>	plastic-hybrid precision potentiometer
<b>Potentiometer Cycle Life</b>	≥ 250,000
<b>Maximum Retraction</b>	see ordering information
<b>Acceleration</b>	
<b>Maximum Velocity</b>	see ordering information
<b>Weight, Aluminum (Stainless Steel) Enclosure</b>	8 lbs. (16 lbs.) max.

#### Electrical

<b>Input Voltage</b>	14.5-40VDC (10.5-40VDC for 0-5 volt output)
<b>Input Current</b>	10 mA maximum
<b>Output Impedance</b>	1000 ohms
<b>Maximum Output Load</b>	5000 ohms
<b>Output Signal, Zero Adjust</b>	up to 50% of full stroke range
<b>Output Signal, Span Adjust</b>	to 50% of factory set span

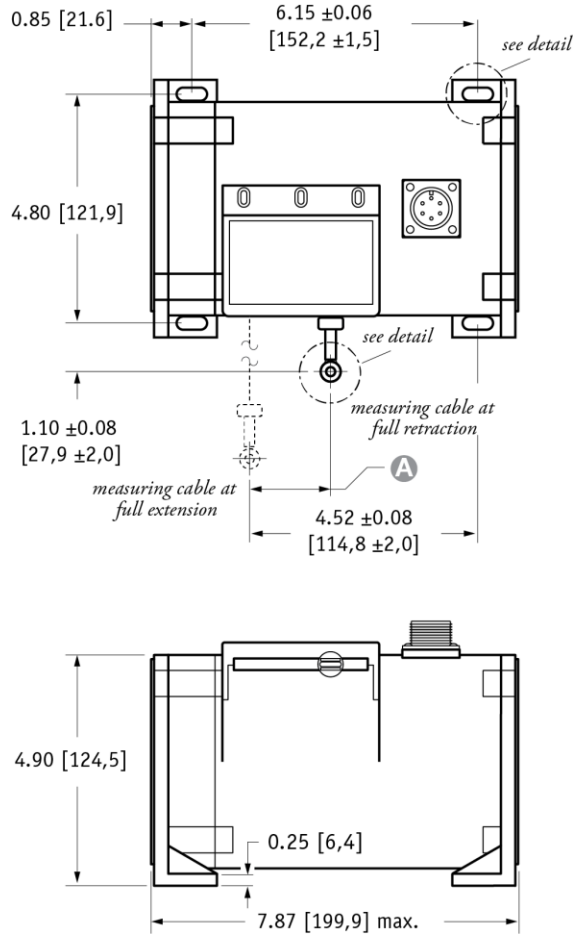
#### Environmental

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

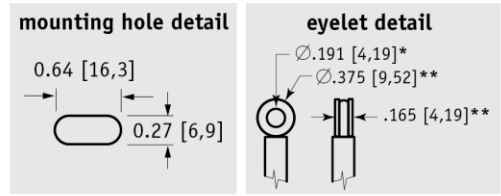
#### EMC COMPLIANCE PER DIRECTIVE 89/336/EEC

<b>Emission / Immunity</b>	EN50081-2 / EN50082-2
----------------------------	-----------------------

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

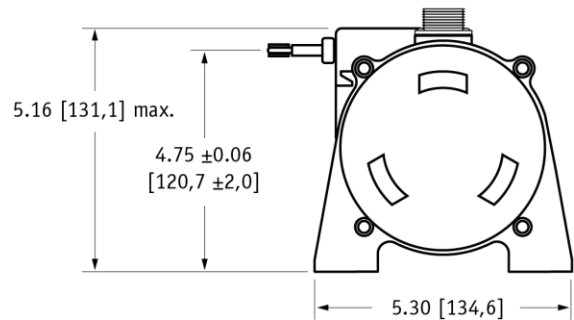


DIMENSIONS ARE IN INCHES [MM]  
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.



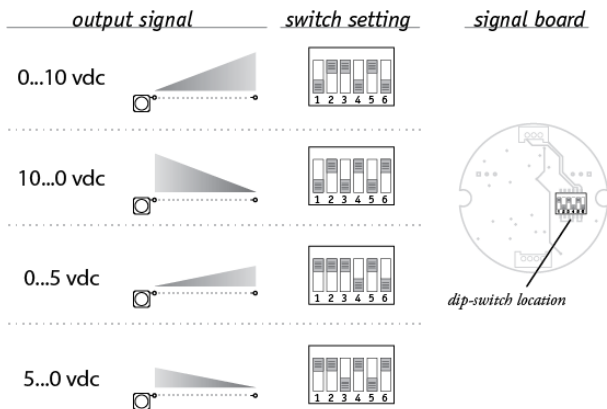
**A DIMENSION (INCHES)**

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

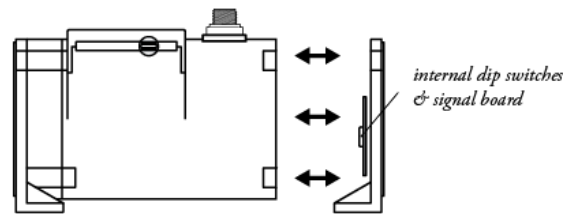


\* tolerance = +.005 -.001 [+.13 -.03]  
\*\* tolerance = +.005 -.005 [+.13 -.13]

**Output Signal Selection (does not apply to -5...+5 & -10...+10 vdc options)**



To gain access to the signal board, remove four Allen-Head Screws and remove end cover bracket.



**Caution! Do Not Remove Spring-Side End Cover**  
Removing spring-side end cover could cause spring to become unseated and permanently damaged.

The output signal direction can be reversed at any time by simply changing the dip-switch settings found on the internal signal board. After the settings have been changed, adjustment of the Zero and Span trim pots will be required to precisely match signal values to the beginning and end points of the stroke.

# PT9510

Heavy Industrial • 0...5 Vdc, 0...10 Vdc

## Ordering Information

### Model Number:

**PT9510-**                                                         
*order code:*            **R**            **A**            **B**            **C**            **D**            **E**            **F**            **C**

Sample Model Number:

**PT9510 - 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
- E** output signal: 0...10 vdc
- F** electrical connection: 6-pin plastic connector

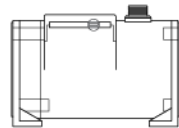
### Full Stroke Range:

<b>R</b> order code:	<b>0075</b>	<b>0100</b>	<b>0150</b>	<b>0200</b>	<b>0250</b>	<b>0300</b>	<b>0350</b>	<b>0400</b>	<b>0450*</b>	<b>0500*</b>	<b>0550*</b>
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.

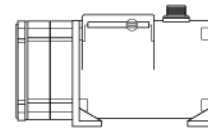
\* - 36 oz. cable tension strongly recommended

### Enclosure Material and Measuring Cable Tension:

<b>A</b> order code:	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>
tension (±30%):	18 oz.		36 oz.	
enclosure material:	powder-painted aluminum	303 stainless steel	powder-painted aluminum	303 stainless steel
max. acceleration:	1 g	1 g	5 g	5 g
max. velocity:	60 inches/sec	60 inches/sec	200 inches/sec	200 inches/sec



standard housing  
see fig 1.



dual-spring housing  
see fig 2.

### Measuring Cable:

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

### Cable Exit:

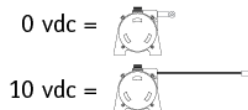
<b>C</b> order code:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
	front	top	back	down

### Output Signals:

<b>E</b> order code:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
output signal options:	0...10 VDC	10...0 VDC	0...5 VDC	5...0 VDC	-10...+10 VDC	+10...-10 VDC	-5...+5 VDC	+5...-5 VDC
input voltage:	14.5 - 40 vdc		10.5 - 40 vdc		14.5 - 40 vdc		10.5 - 40 vdc	
span adjustment:	to 50% of full stroke range				to 75% of full stroke range			
zero adjustment:	from factory set zero to 50% of full stroke range				from factory set zero to 25% of full stroke range			

example:

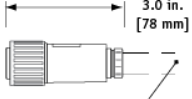
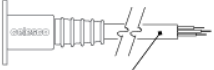
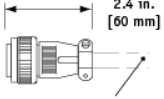
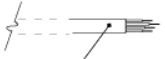
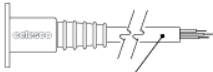
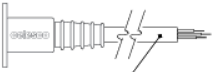
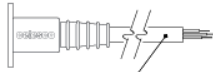
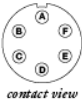
ordercode = **1** = 0...10 VDC



# PT9510

Heavy Industrial • 0...5 Vdc, 0...10 Vdc

## Electrical Connection:

<p><b>order code:</b></p> <p><b>1</b></p> <p>6-pin plastic connector w/mating plug IP 67, NEMA 4X**,6</p>  <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><b>2</b></p> <p>10-ft. [3 M] waterproof cable IP 67, NEMA 4X**, 6</p>  <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJOW</p>	<p><b>3</b></p> <p>6-pin metal connector w/mating plug IP 65, NEMA 4</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><b>4</b></p> <p>25-ft. [7.5 M] instrumentation cable IP 67, NEMA 6</p>  <p>25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded</p>																
<p><b>order code:</b></p> <p><b>5</b></p> <p>100-ft. [30 M] waterproof cable IP 67, NEMA 4X**,6</p>  <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTOW</p>	<p><b>6</b></p> <p>10-ft. [3 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P</p>  <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTOW</p>	<p><b>7</b></p> <p>100-ft. [30 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P</p>  <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTOW</p>																	
<p><b>6-pin Mating Plug</b></p> <table border="0"> <tr> <td>pin</td> <td>signal</td> </tr> <tr> <td>A</td> <td>input voltage</td> </tr> <tr> <td>B</td> <td>output signal</td> </tr> <tr> <td>C</td> <td>common</td> </tr> </table>  <p>contact view</p>		pin	signal	A	input voltage	B	output signal	C	common	<p><b>Waterproof Cable</b></p> <table border="0"> <tr> <td>color code</td> <td>signal</td> </tr> <tr> <td>WHITE</td> <td>input voltage</td> </tr> <tr> <td>GREEN</td> <td>output signal</td> </tr> <tr> <td>BLACK</td> <td>common</td> </tr> </table>		color code	signal	WHITE	input voltage	GREEN	output signal	BLACK	common
pin	signal																		
A	input voltage																		
B	output signal																		
C	common																		
color code	signal																		
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BLACK	common																		
		<p><b>Instrumentation Cable</b></p> <table border="0"> <tr> <td>color code</td> <td>signal</td> </tr> <tr> <td>RED</td> <td>input voltage</td> </tr> <tr> <td>GREEN</td> <td>output signal</td> </tr> <tr> <td>BLACK</td> <td>common</td> </tr> </table>		color code	signal	RED	input voltage	GREEN	output signal	BLACK	common								
color code	signal																		
RED	input voltage																		
GREEN	output signal																		
BLACK	common																		

Notes: { \* -Test pressure: 100 feet [30 meters] H<sub>2</sub>O (40 PSID); Test Medium: Air; Duration: 2 hours.  
\*\* -NEMA 4X applies to stainless steel enclosure only.

## VLS Option - Free Release Protection

The patented Celesco Velocity Limiting System (VLS) is an option for PT9000 Series cable extension transducers that limits cable retraction to a safe 40 to 55 inches per second for the single spring option and 40 to 80 inches per second for the higher tension dual spring option.

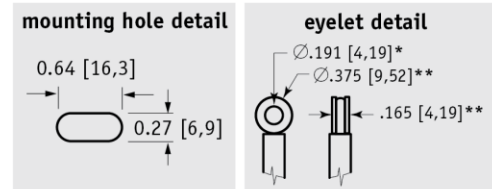
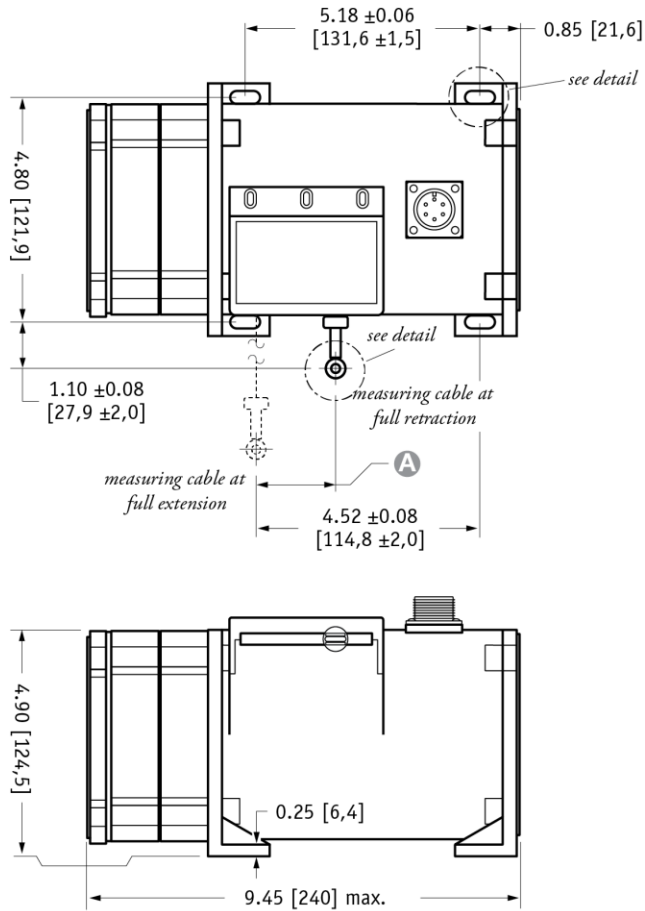
The VLS option prevents the measuring cable from ever reaching a damaging velocity during an accidental free release. This option is ideal for mobile applications that require frequent cable disconnection and reconnection. It prevents expensive unscheduled downtime due to accidental cable mishandling or attachment failure.

- using guide below, select PT9510 model **PT9510-0100-111-1110**
- remove "PT" from the model number ~~PT~~ **9510-0100-111-1110**
- add "VLS" **VLS + 9510-0100-111-1110**
- completed model number! **VLS9510-0100-111-1110**

<b>VLS9510 -</b>	<b>0</b>	<b>1</b>	<b>0</b>
	<b>A</b>	<b>B</b>	<b>C</b>
	<b>D</b>	<b>E</b>	<b>F</b>
	<b>G</b>		
0075	1	1	1
thru	2	2	2
0550	3	3	3
	4	4	4
			5
			6
			7
			8

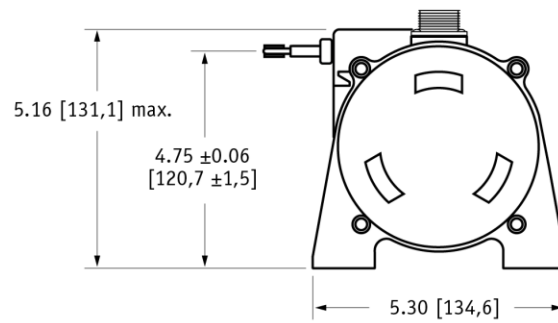
= available options.

**Fig. 2 – Outline Drawing (36 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]

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PT9510 12/01/2015