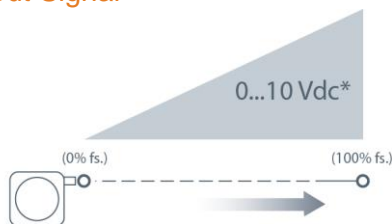


The PT9510 can operate from an unregulated 14.5 to 40 VDC power supply while providing a regulated output signal over its full extended range. It provides a 0 - 5 or 0 - 10 VDC position feedback signal proportional to the linear movement of its stainless steel measuring cable.

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

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

#### Electrical

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

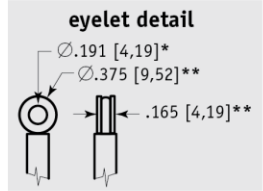
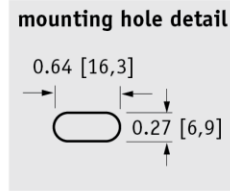
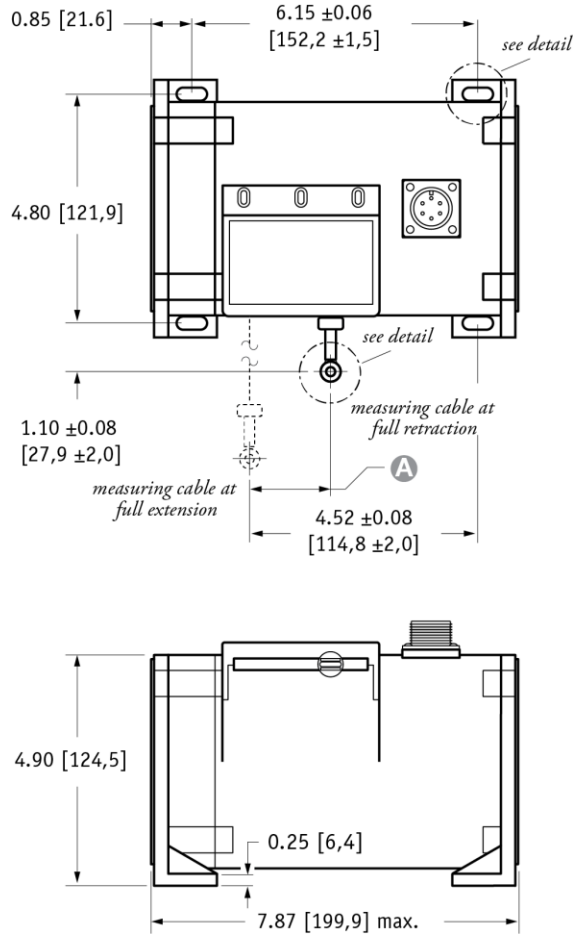
#### Environmental

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

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

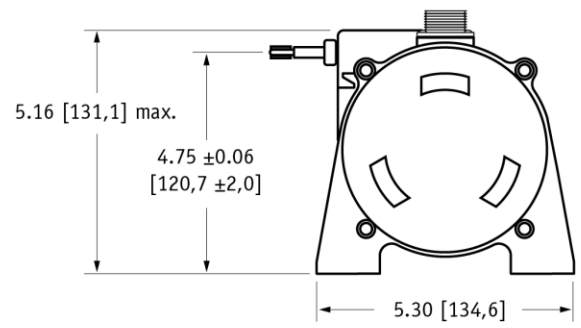
Emission / Immunity	EN50081-2 / EN50082-2
---------------------	-----------------------

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



**A DIMENSION (INCHES)**

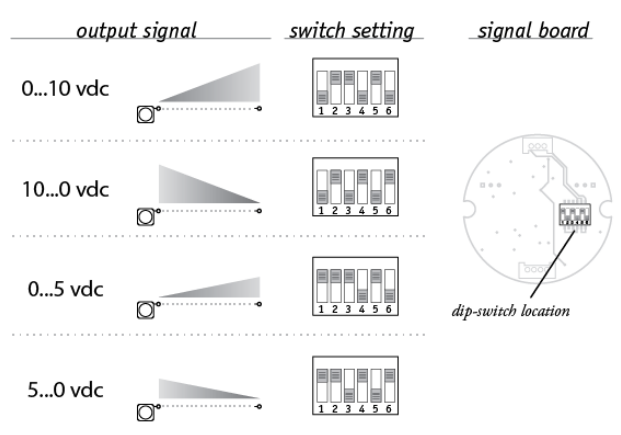
RANGE	MEASURING CABLE			
	Ø.031 in.	Ø.034 in.	Ø.047 in.	Ø.062 in.
75	n/a	0.22	0.29	0.37
100	n/a	0.29	0.39	0.49
150	n/a	0.44	0.59	0.73
200	n/a	0.58	0.79	0.98
250	n/a	0.73	0.98	1.22
300	n/a	0.88	1.18	1.47
350	n/a	1.02	1.38	1.71
400	n/a	1.17	1.57	1.96
450	n/a	1.31	1.77	n/a
500	n/a	1.46	1.97	n/a
550	1.61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



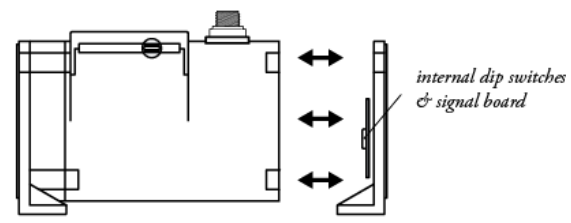
DIMENSIONS ARE IN INCHES [MM]  
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.

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

**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

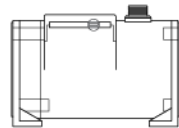
### Full Stroke Range:

<b>R</b> order code:	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.

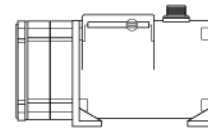
\* - 36 oz. cable tension strongly recommended

### Enclosure Material and Measuring Cable Tension:

<b>A</b> order code:	1	3	2	4
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:	1	2	3	4
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:

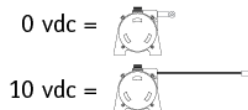
<b>C</b> order code:	1	2	3	4
	front	top	back	down

### Output Signals:

<b>E</b> order code:	1	2	3	4	5	6	7	8
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:

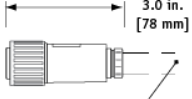
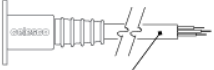
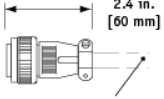
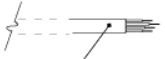
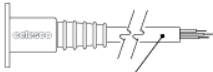
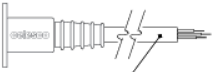
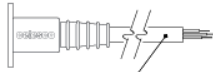
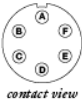
ordercode = **1** = 0...10 VDC



# PT9510

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

## Electrical Connection:

<p><b>1</b></p> <p><b>order code:</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 SJTOW</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>5</b></p> <p><b>order code:</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="1"> <tr> <th>pin</th> <th>signal</th> </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="1"> <tr> <th>color code</th> <th>signal</th> </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	<p><b>Instrumentation Cable</b></p> <table border="1"> <tr> <th>color code</th> <th>signal</th> </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	
pin	signal																										
A	input voltage																										
B	output signal																										
C	common																										
color code	signal																										
WHITE	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.

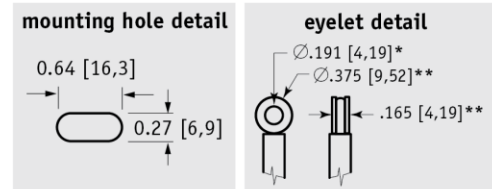
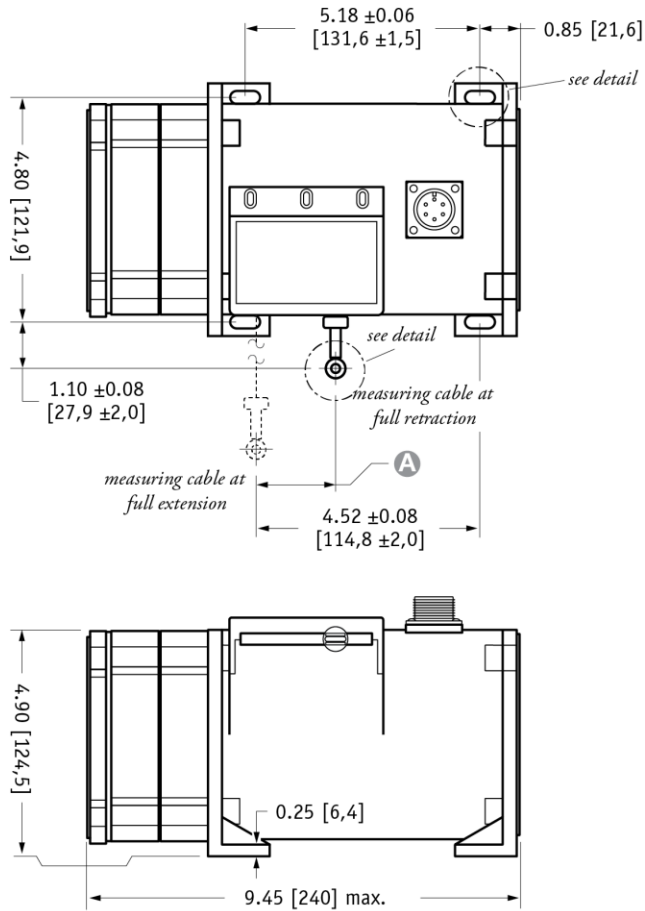
The VLS option prevents the measuring cable from ever reaching a damaging velocity during an accidental free release. This option is ideal for mobile applications that require frequent cable disconnection and reconnection. It prevents expensive unscheduled downtime due to accidental cable mishandling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

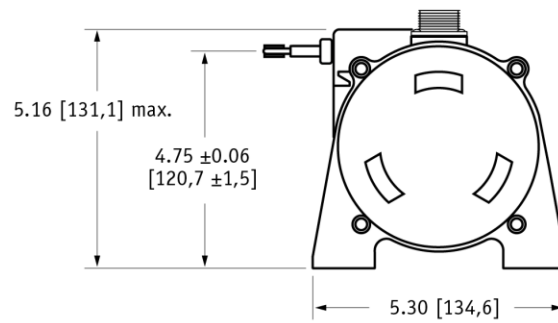
= available options.

**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]

**NORTH AMERICA**

Measurement Specialties, Inc.,  
a TE Connectivity company  
20630 Plummer Street  
Chatsworth, CA 91311  
Tel +1 800 423 5483  
Tel +1 818 701 2750  
Fax +1 818 701 2799  
info@celesco.com

**TE.com/sensorsolutions**

Measurement Specialties, Inc., a TE Connectivity company.

Measurement Specialties, TE Connectivity, TE Connectivity (logo) and EVERY CONNECTION COUNTS are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2015 TE Connectivity Ltd. family of companies All Rights Reserved.

PT9510 12/01/2015