

# PT9510 (Extended Range)

Extended Ranges • 0...5 Vdc, 0...10 Vdc

Absolute Linear Position 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 • Hazardous Area Certification



## GENERAL

Full Stroke Range Options (on this datasheet)	0-600 to 0-1700 inches
Output Signal Options	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 Acceleration	see ordering information
Maximum Velocity	see ordering information
Weight, Aluminum (Stainless Steel) Enclosure	14 lbs. (28 lbs.) max.

## ELECTRICAL

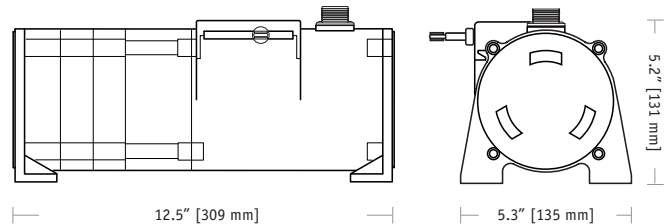
Input Voltage	14.5-40VDC (10.5-40VDC for 0-5 volt output)
Input Current	10 mA maximum
Output Impedance	1000 ohms
Maximum Output Load	5000 ohms
Output Signal, Zero Adjust	up to 50% of full stroke range
Output Signal, Span Adjust	to 50% of factory set span

## 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

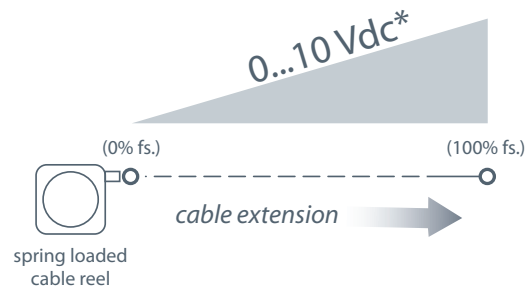
Emission / Immunity	EN50081-2 / EN50082-2
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The PT9510 can operate from an unregulated 14.5 to 40VDC power supply while providing a regulated output signal over its full extended range of up to 1700". It provides a 0 - 10 VDC position feedback signal proportional to the linear movement of its stainless steel measuring cable.

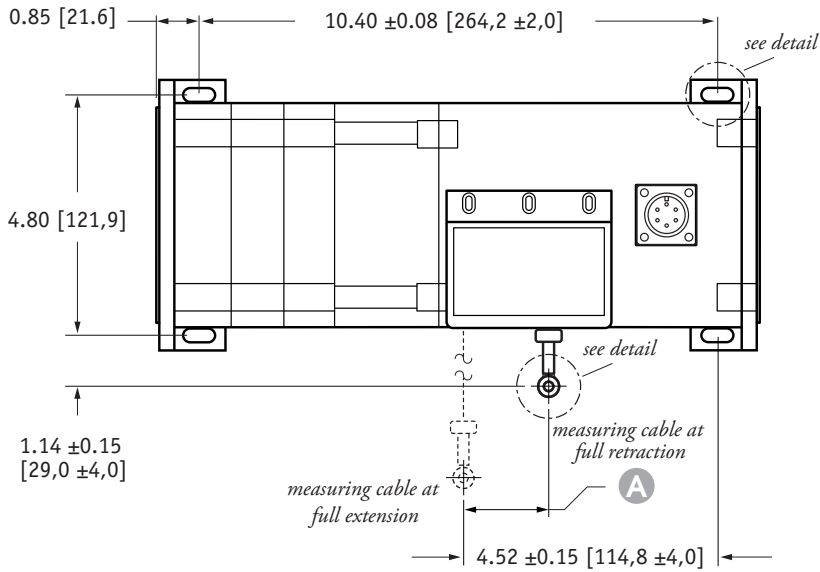
As a member of Celesco's innovative family of NEMA-4 rated cable-extension transducers, the PT9510 offers numerous benefits. It installs in minutes, functions properly without perfectly parallel alignment, and when its cable is retracted, it measures only 6".

## Output Signal:

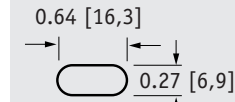


\*Also Available: 0...5, -5...+5, -10...+10 Vdc

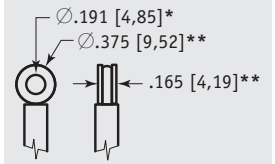
## Outline Drawing



### mounting hole detail

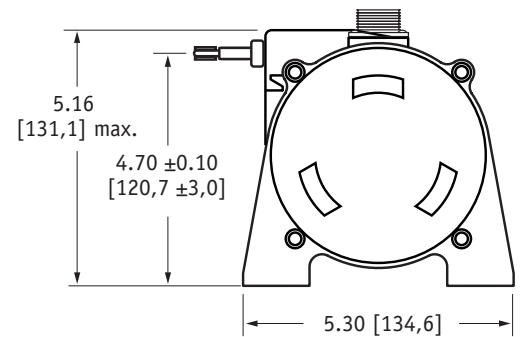
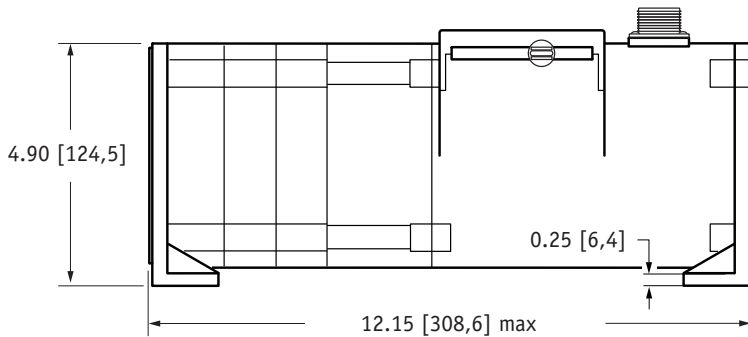


### eyelet detail



### A 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]

## 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.

### How To Configure Model Number for VLS Option:

- using guide below, select PT9510 model **PT9510-1200-111-1110**
- remove "PT" from the model number **FX 9510-1200-111-1110**
- add "VLS" **VLS + 9510-1200-111-1110**
- completed model number! **VLS9510-1200-111-1110**

VLS9510 -	0	1	2	3	4	5	6	7	8	9
0600	1	1	1			1	1			
0800	3	2	2			2	2			
1000				3		3	3			
1200				4		4	4			
1500						5	5			
1700						6	6			
						7	7			
						8				

☐ = available options.

Ordering Information:

Model Number:

**PT9510-** \_\_\_\_\_ **-** \_\_\_\_\_ **-** \_\_\_\_\_ **-** \_\_\_\_\_ **-** **1** \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ **-** **0**

order code:      R      A      B      C      D      E      F      G

Sample Model Number:

**PT9510 - 1200 - 111 - 1110**

- R** range: 500 inches
- A** enclosure/cable tension: aluminum
- B** measuring cable: nylon-coated stainless front
- C** cable exit:
- D** output signal: 0...10 vdc
- E** electrical connection: 6-pin plastic connector

Full Stroke Range:

<b>R</b> order code:	<b>0600</b>	<b>0800</b>	<b>1000</b>	<b>1200</b>	<b>1500</b>	<b>1700</b>
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.

Enclosure Material:

<b>A</b> order code:	<b>1</b>	<b>3</b>
enclosure material:	powder-painted aluminum	303 stainless steel
max. acceleration:	1g	1g
max. velocity:	60 inches/sec.	60 inches/sec.

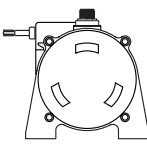
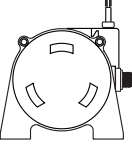
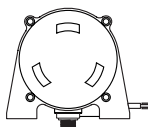
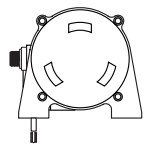
Measuring Cable:

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









\*cable diameter:

stroke range:	<b>0600</b>	<b>0800</b>	<b>1000</b>	<b>1200</b>	<b>1500</b>	<b>1700</b>
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.

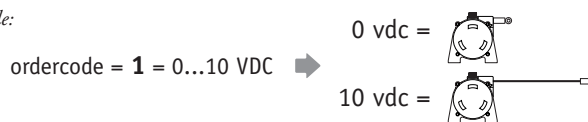
Cable Exit:

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

Output Signals:

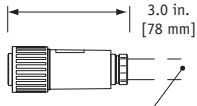
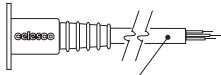
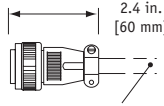

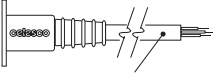
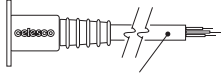
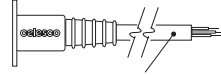

<b>D</b> order code:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
output signal options:	0...10 VDC 	10...0 VDC 	0...5 VDC 	5...0 VDC 	-10...+10 VDC 	+10...-10 VDC 	-5...+5 VDC 	+5...-5 VDC 
input voltage:	14.5 - 40 vdc		10.5 - 40 vdc		14.5 - 40 vdc		10.5 - 40 vdc	
span adjustment:	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:



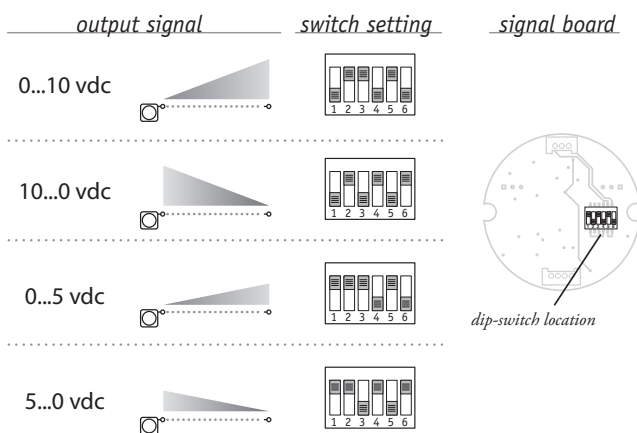
Ordering Information (cont.):

**Electrical Connection:**

① order code:	1	2	3	4
	6-pin plastic connector w/mating plug <b>IP 67, NEMA 4X** , 6</b>	10-ft. [3 M] waterproof cable <b>IP 67, NEMA 4X** , 6</b>	6-pin metal connector w/mating plug <b>IP 65, NEMA 4</b>	25-ft. [7.5 M] instrumentation cable <b>IP 67, NEMA 6</b>
	 3.0 in. [78 mm]		 2.4 in. [60 mm]	
	1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTOW	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
① order code:	5	6	7	
	100-ft. [30 M] waterproof cable <b>IP 67, NEMA 4X** , 6</b>	10-ft. [3 M] <b>pressure tested*</b> waterproof cable <b>IP 68, NEMA 4X** , 6P</b>	100-ft. [30 M] <b>pressure tested*</b> waterproof cable <b>IP 68, NEMA 4X** , 6P</b>	
				
	100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTOW	10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTOW	100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTOW	
	<b>6-pin Mating Plug</b>		<b>Waterproof Cable</b>	<b>Instrumentation Cable</b>
	pin A input voltage B output signal C common	 contact view	color code WHITE GREEN BLACK	color code RED GREEN BLACK
			signal input voltage output signal common	signal input voltage output signal common

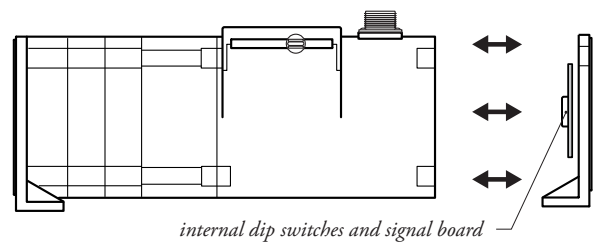
Notes: { \* -Test pressure: 100 feet [30 meters] H<sub>2</sub>O (40 PSID); Test Medium: Air; Duration: 2 hours.  
\*\* -NEMA 4X applies to stainless steel enclosure only.

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



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.

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.

version: 11.0 last updated: February 12, 2016