

# Cable-Extension Position Transducer

0...5, 0...10, -5...+5, -10...+10 VDC Output Options  
 Ranges: 0-600 to 0-1700 inches  
 Industrial Grade



# <Extended Range> PT9510

## Specification Summary:

**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 ..... nylon-coated stainless steel  
 Enclosure Material ..... powder-painted aluminum or stainless steel  
 Sensor ..... plastic-hybrid precision potentiometer  
 Potentiometer Cycle Life ..... 250,000, min.—before signal degradation can occur  
 Maximum Retraction Acceleration ..... see ordering information  
 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  
 Zero and Span Adjustment ..... see ordering information

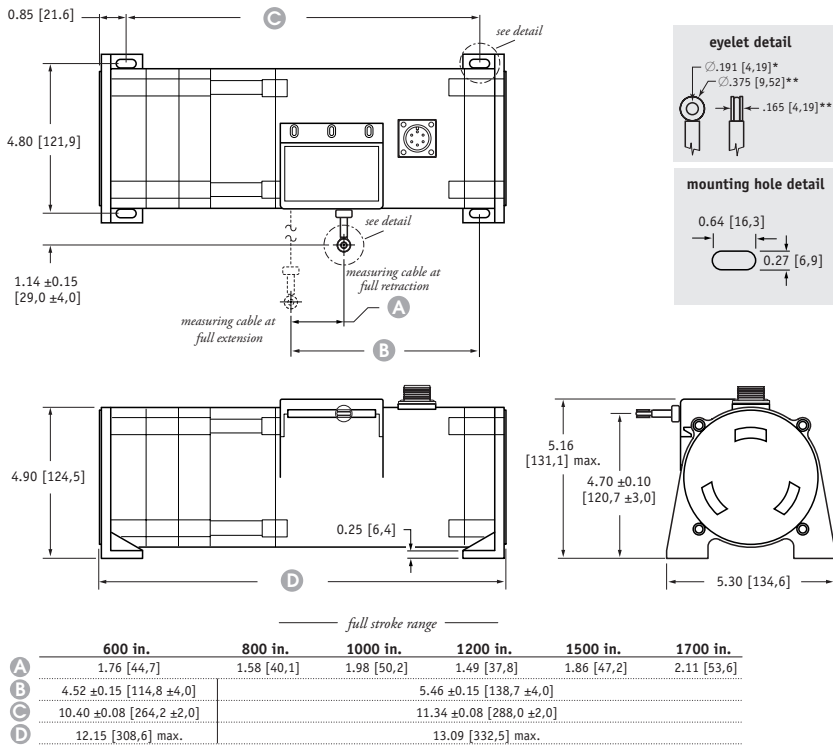
**ENVIRONMENTAL**  
 Enclosure ..... NEMA 4/4X/6, IP 67/68  
 Operating Temperature ..... -40° to 200°F (-40° to 90°C)  
 Vibration ..... up to 10 G's to 2000 Hz maximum

**EMC COMPLIANCE PER DIRECTIVE 89/336/EEC**  
 Emission / Immunity ..... EN50081-2 / EN50082-2

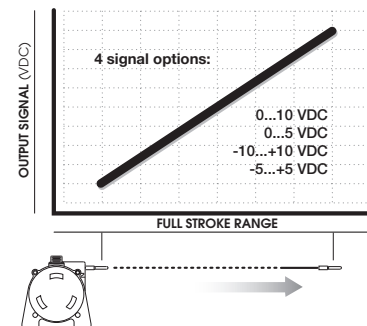


The PT9510 can operate from an unregulated 14.5 to 40 VDC power supply while providing a regulated output signal over its full extended range of up to 1700". It provides a 0 - 10 VDC position feedback signal proportional to the linear movement of its stainless steel measuring cable.

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



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:**

**PT9510-** order code: **1** - **1** **0**

Sample Model Number:

**PT9510 - 1200 - 111 - 1110**

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

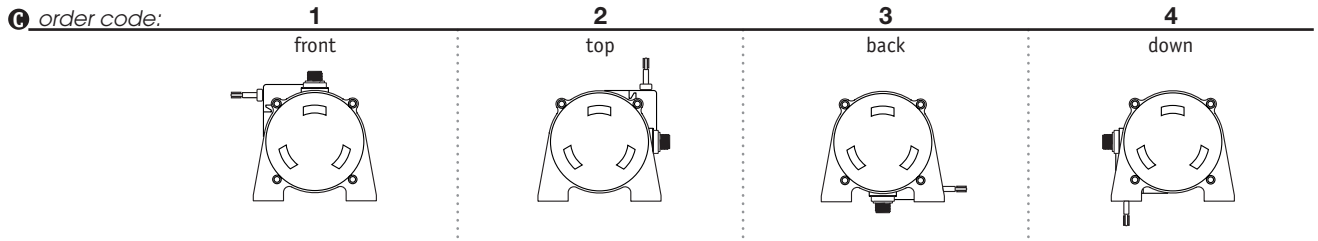
**Full Stroke Range:**

<b>R</b> order code:	<b>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.
measuring cable:	.034-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.014-in. dia. nylon-coated stainless	.014-in. dia. nylon-coated stainless

**Enclosure Material:**

<b>A</b> order code:	<b>1</b>	<b>3</b>
enclosure material:	powder-painted aluminum	303 stainless steel
max. acceleration:	1G	.33G
max. velocity:	60 inches/sec.	20 inches/sec.

**Cable Exit:**

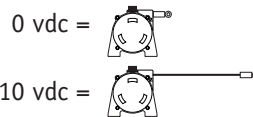


**Output Signals:**

<b>F</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			

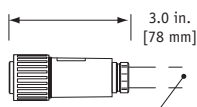
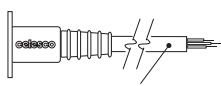
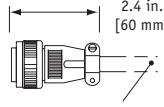

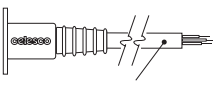
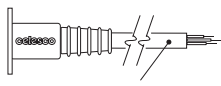
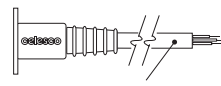

example:

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



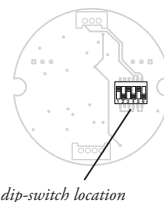
**Ordering Information:**

**Electrical Connection:**

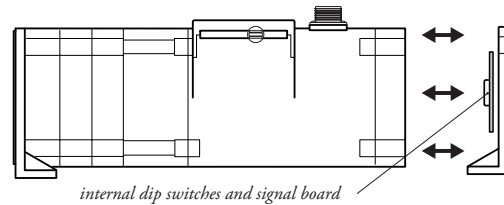
<p><b>1</b></p> <p>6-pin plastic connector w/mating plug <b>IP 67, NEMA 4X** ,6</b></p>  <p>3.0 in. [78 mm]</p> <p>1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S</p>	<p><b>2</b></p> <p>10-ft. [3 M] waterproof cable <b>IP 67, NEMA 4X** , 6</b></p>  <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p><b>3</b></p> <p>6-pin metal connector w/mating plug <b>IP 65, NEMA 4</b></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 <b>IP 67, NEMA 6</b></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>100-ft. [30 M] waterproof cable <b>IP 67, NEMA 4X** ,6</b></p>  <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p><b>6</b></p> <p>10-ft. [3 M] <b>pressure tested*</b> waterproof cable <b>IP 68, NEMA 4X** , 6P</b></p>  <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p><b>7</b></p> <p>100-ft. [30 M] <b>pressure tested*</b> waterproof cable <b>IP 68, NEMA 4X** , 6P</b></p>  <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</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>	pin	signal	A	input voltage	B	output signal	C	common	 <p>contact view</p>	<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	<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
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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 Selection (does not apply to -5...+5 & -10...+10 vdc options)

output signal	switch setting	signal board
0...10 vdc		 <p>dip-switch location</p>
10...0 vdc		
0...5 vdc		
5...0 vdc		

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 trimpots will be required to precisely match signal values to the beginning and end points of the stroke.