

Cable-Extension Position Transducer

Precision Potentiometric Output
Ranges: 0-75 to 0-550 inches
Industrial Grade



PT9101



Specification Summary:

GENERAL

Full Stroke Range Options—on this datasheet 0-75 to 0-550 inches
 Output Signal voltage divider (potentiometer)
 Accuracy $\pm 0.10\%$ full stroke
 Repeatability $\pm 0.02\%$ full stroke
 Resolution essentially infinite
 Measuring Cable Options nylon-coated stainless steel or thermoplastic
 Enclosure Material powder-painted aluminum or stainless steel
 Sensor plastic-hybrid precision potentiometer
 Potentiometer Cycle Life 250,000 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 Resistance Options 500, 1K, 5K, 10K Ω , bridge, 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

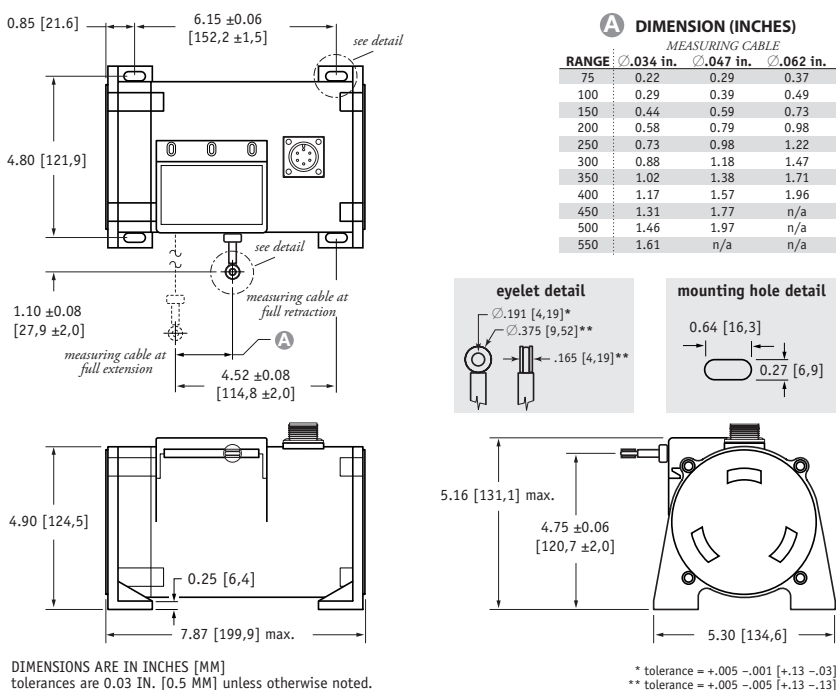
ENVIRONMENTAL

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

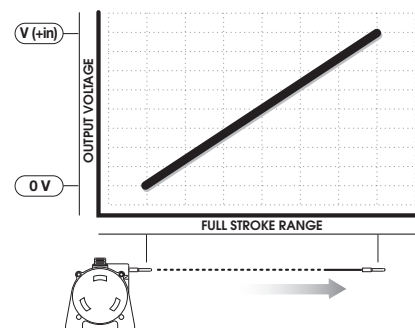
The PT9101 is a work-horse for demanding long-range applications requiring a linear position measurements in ranges up to 1700 inches. Available with either a 500, 1K, 5K, or 10K ohm potentiometer, the PT9101 operates with any basic panel meter or programmable controller.

As a member of Celesco's innovative family of NEMA 4 rated cable-extension transducers, the PT9101 offers numerous benefits. It installs in minutes, works without perfect parallel alignment, and when it's stainless-steel cable is retracted, it measures only 6".

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



Output Signal



Ordering Information:

Model Number:

PT9101- _____ **-** _____ **-** _____ **-** _____ **1** _____ **0**

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

Sample Model Number:

PT9101 - 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 potentiometer
- F** electrical connection: 6-pin plastic connector

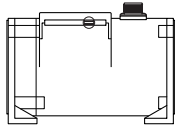
Full Stroke Range:

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.

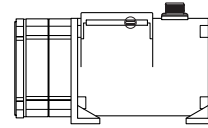
* - 36 oz. cable tension strongly recommended

Enclosure Material and Measuring Cable Tension:

A order code:	1	3	2	4
tension ($\pm 30\%$):	18 oz.		36 oz.	
enclosure material:	powder-painted aluminum	303 stainless steel	powder-painted aluminum	303 stainless steel
max. acceleration:	1 G	.33 G	5 G	2 G
max. velocity:	60 inches/sec	20 inches/sec	200 inches/sec	80 inches/sec



standard housing
see fig 1.

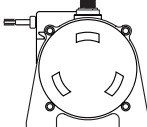

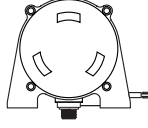
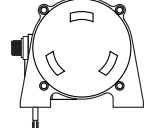


dual-spring housing
see fig 2.

Measuring Cable:

B order code:	1	2	3
	\varnothing .034-inch nylon-coated stainless steel <i>available in all ranges</i>	\varnothing .047-inch stainless steel <i>all ranges up to 500 inches</i>	\varnothing .062-inch thermoplastic <i>all ranges up to 400 inches</i>

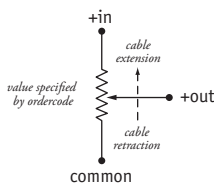
Cable Exit:

C order code:	1	2	3	4
	front	top	back	down
				

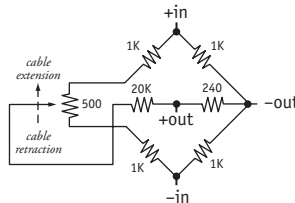
Output Signals:

D order code:	1	2	3	4	5	6
	500 ohm*	1000 ohm*	5000 ohm*	10,000 ohm*	fixed bridge (2 mV/V)	adjustable bridge (0...30 mV/V)
	*tolerance = $\pm 10\%$					

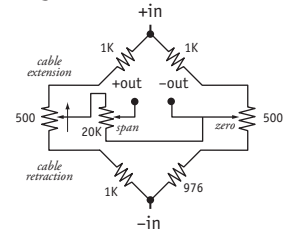
circuit, options 1-4



fixed bridge circuit

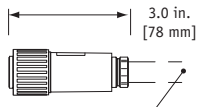
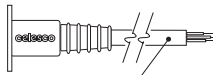
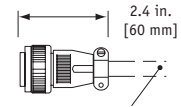

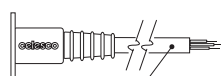
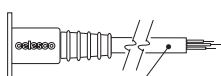
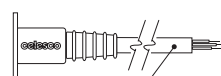



adjustable bridge circuit



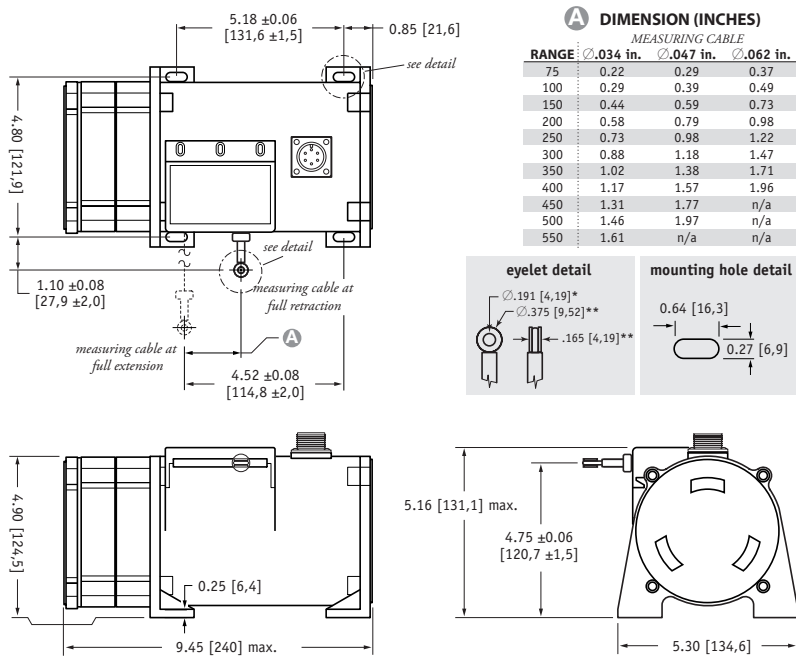
Ordering Information:

Electrical Connection:

<p>1</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>2</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 SJTW</p>	<p>3</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>4</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>5</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 SJTW</p>	<p>6</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 SJTW</p>	<p>7</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 SJTW</p>																												
<p>6-pin Mating Plug</p> <table border="1"> <tr> <th>pin</th> <th>standard</th> <th>bridge</th> </tr> <tr> <td>A</td> <td>+ in</td> <td>+ in</td> </tr> <tr> <td>B</td> <td>common</td> <td>- in</td> </tr> <tr> <td>C</td> <td>+ out</td> <td>- out</td> </tr> <tr> <td>D</td> <td>-</td> <td>+ out</td> </tr> </table>  <p>contact view</p>		pin	standard	bridge	A	+ in	+ in	B	common	- in	C	+ out	- out	D	-	+ out	<p>Waterproof Cable</p> <table border="1"> <tr> <th>color code</th> <th>standard</th> <th>bridge</th> </tr> <tr> <td>WHITE</td> <td>+ in</td> <td>n/a</td> </tr> <tr> <td>BLACK</td> <td>common</td> <td>n/a</td> </tr> <tr> <td>GREEN</td> <td>+ out</td> <td>n/a</td> </tr> </table>		color code	standard	bridge	WHITE	+ in	n/a	BLACK	common	n/a	GREEN	+ out	n/a
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		<p>Instrumentation Cable</p> <table border="1"> <tr> <th>color code</th> <th>standard</th> <th>bridge</th> </tr> <tr> <td>RED</td> <td>+ in</td> <td>+ in</td> </tr> <tr> <td>BLACK</td> <td>common</td> <td>- in</td> </tr> <tr> <td>GREEN</td> <td>+ out</td> <td>+ out</td> </tr> <tr> <td>WHITE</td> <td>-</td> <td>- out</td> </tr> </table>		color code	standard	bridge	RED	+ in	+ in	BLACK	common	- in	GREEN	+ out	+ out	WHITE	-	- out												
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Notes: *—Test pressure: 100 feet [30 meters] H₂O (40 PSID); Test Medium: Air; Duration: 2 hours. **—NEMA 4X applies to stainless steel enclosure only.

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



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: 7.0 last updated: August 30, 2011