

PT9101 (Extended Range)

Cable Actuated Sensor

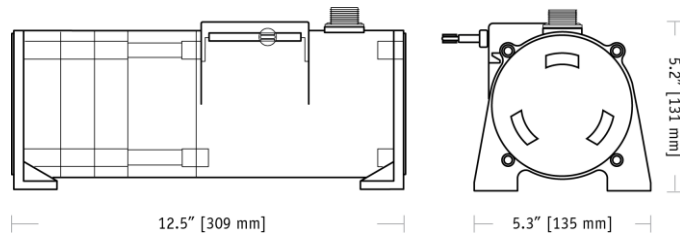
Extended Ranges • Voltage Divider

Absolute Linear Position to 1700 inches (4300 cm)

Stroke Range Options: 0-600 to 0-1700 inches

VLS Option to Prevent Free-Release Damage

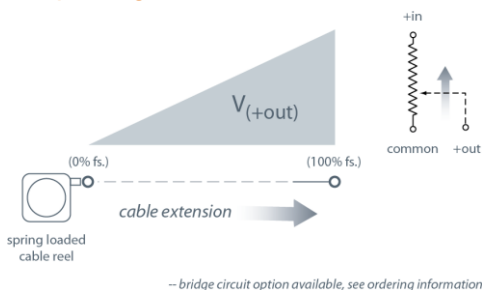
IP68 • NEMA 6 Protection



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 its stainless-steel cable is retracted, it measures only 6".

Output Signal



General

Full Stroke Range	0-600 to 0-1700 inches
Output Signal	voltage divider (potentiometer)
Accuracy	± 0.10% full stroke
Repeatability	± 0.02% 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 cycles
Maximum Retraction	see ordering information
Acceleration	
Maximum Velocity	see ordering information
Weight, Aluminum (Stainless Steel) Enclosure	14 lbs. (28 lbs.), max.

Electrical

Input Resistance Options	500, 1K, 5K, 10K Ω, bridge
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% ±4% of input voltage

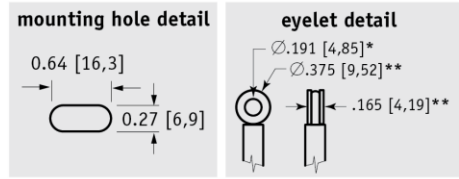
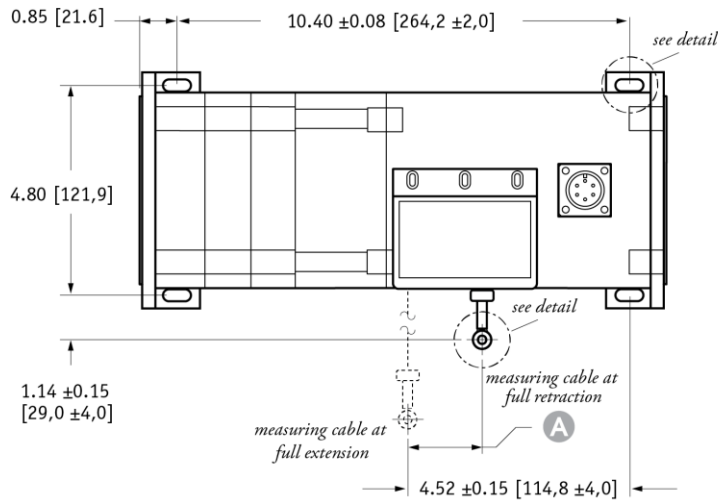
Environmental

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

PT9101

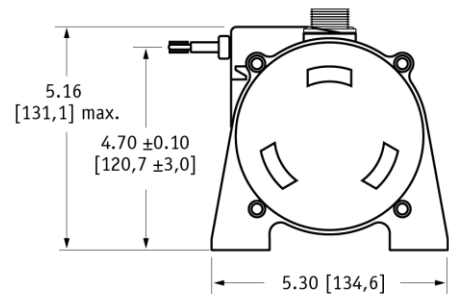
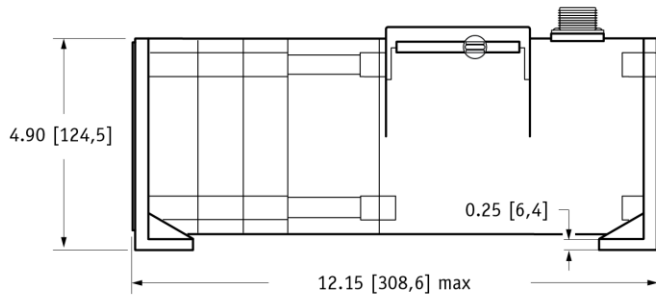
Extended Ranges • Voltage Divider

Outline Drawing



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.

1. using guide below, select PT9101 model **PT9101-1200-111-1110**
2. remove "PT" from the model number ~~PT~~ **9101-1200-111-1110**
3. add "VLS"
VLS + 9101-1200-111-1110
4. completed model number!
VLS9101-1200-111-1110

VLS9101 -	A	B	C	D	E	F	G
0600	1	1	1	1	1	1	1
0800	3	2	2	2	2	2	2
1000			3	3	3	3	3
1200			4	4	4	4	4
1500				5	5	5	5
1700				6	6	6	6
							7

■ = available options.

PT9101

Extended Ranges • Voltage Divider

Ordering Information

Model Number:

PT9101 - **R** - **A** - **B** - **C** - **D** **1** - **E** - **F** **0**
order code:

Sample Model Number:

PT9101 - 1200 - 111 - 1110

- R** range: 1200 inches
- A** enclosure: aluminum
- B** measuring cable: nylon-coated stainless front
- C** cable exit: front
- D** output signal: 500 ohm potentiometer
- F** electrical connection: 6-pin plastic connector

Full Stroke Range:

R order code:	0600	0800	1000	1200	1500	1700
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:

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

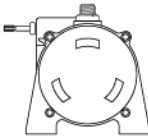
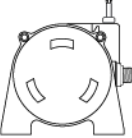
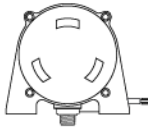
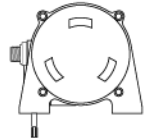
Measuring Cable:

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

*cable diameter:

stroke range:	0600	0800	1000	1200	1500	1700
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.

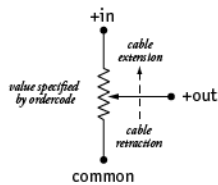
Cable Exit:

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

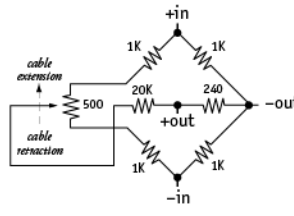
Output Signals:

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 = ±10%					

circuit, options 1-4

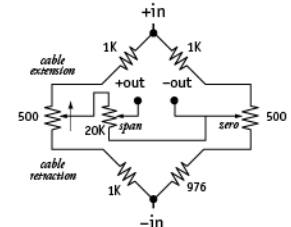


fixed bridge circuit



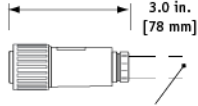
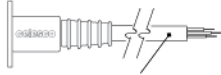
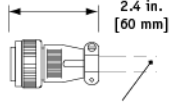

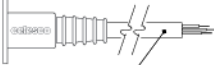
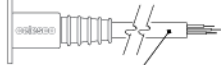
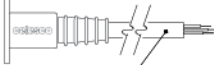
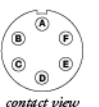
full scale output: 2 mV/V
 zero adjust: not available

adjustable bridge circuit



full scale output: adjustable from 0 to 30mV/V
 zero adjust: to 50% of full stroke

Electrical Connection:

<p>1</p> <p>order code:</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 SJTOW</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>order code:</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>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 SJTOW</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 SJTOW</p>																																											
<p>6-pin Mating Plug</p> <table border="1"> <thead> <tr> <th>pin</th> <th>standard</th> <th>bridge</th> </tr> </thead> <tbody> <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> </tbody> </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"> <thead> <tr> <th>color code</th> <th>standard</th> <th>bridge</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>Instrumentation Cable</p> <table border="1"> <thead> <tr> <th>color code</th> <th>standard</th> <th>bridge</th> </tr> </thead> <tbody> <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> </tbody> </table>		color code	standard	bridge	WHITE	+ in	n/a	BLACK	common	n/a	GREEN	+ out	n/a	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.