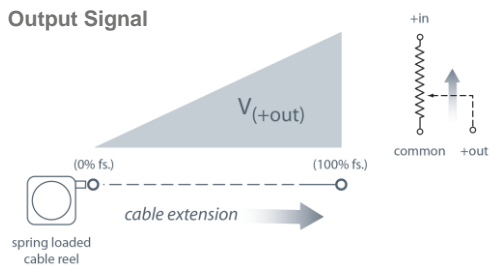




The PT8101, using a high cycle plastic-hybrid potentiometer, operates with any basic panel meter or programmable controller in factories and harsh environments requiring linear position measurements in ranges up to 60".

As a member of our innovative line of cable actuated sensors, the PT8101 installs in minutes by mounting its body to a fixed surface and attaching its cable to the movable object, works without perfect parallel alignment, and when its stainless-steel cable is retracted, it measures only 5". Cable actuated sensors are simple to install, exceptionally reliable and will fit into areas unsuited for rod-type measurement devices.

#### Output Signal



-- bridge circuit option available, see ordering information

## PT8101

### Cable Actuated Sensor Heavy Industrial • Voltage Divider

**Absolute Linear Position to 60 inches (1524 mm)**

**Aluminum or Stainless Steel Enclosure Options**

**VLS Option to Prevent Free-Release Damage**

**IP68 • NEMA 6 Protection**

#### General

<b>Full Stroke Ranges</b>	0-2 to 0-60 inches
<b>Output Signal</b>	voltage divider (potentiometer)
<b>Accuracy</b>	± 1.0% to ± 0.1% full stroke. (see ordering information)
<b>Repeatability</b>	± 0.02% full stroke
<b>Resolution</b>	essentially infinite
<b>Measuring Cable</b>	stainless steel or thermoplastic
<b>Enclosure Material</b>	powder-painted aluminum or stainless steel
<b>Sensor</b>	plastic-hybrid precision potentiometer
<b>Potentiometer Cycle Life</b>	see ordering information
<b>Maximum Retraction Acceleration</b>	see ordering information
<b>Weight, Aluminum (Stainless Steel) Enclosure</b>	3 lbs. (6 lbs.), max.

#### Electrical

<b>Input Resistance</b>	see ordering information
<b>Power Rating, Watts</b>	see ordering information
<b>Recommended Maximum Input Voltage</b>	see ordering information
<b>Output Signal Change Over Full Stroke Range</b>	see ordering information

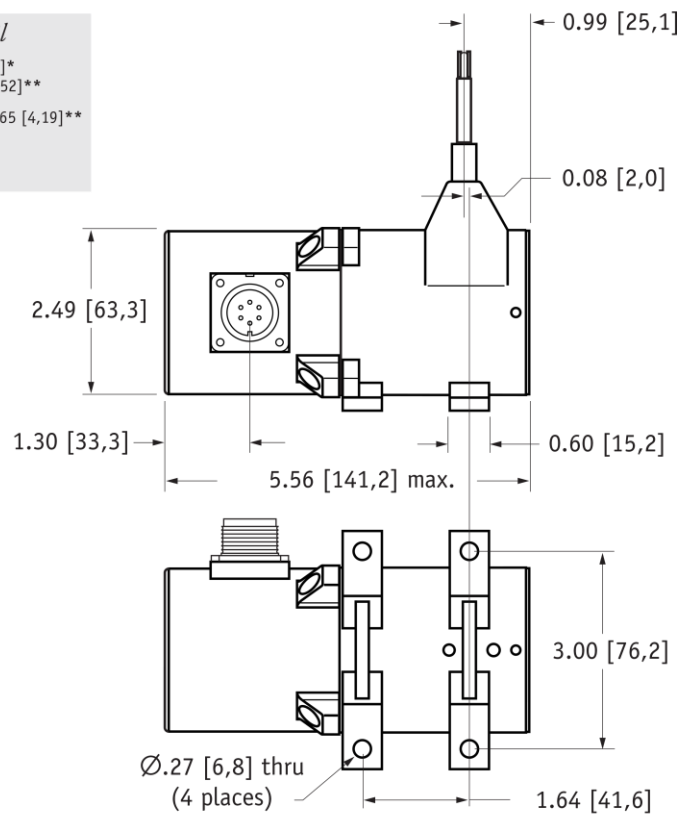
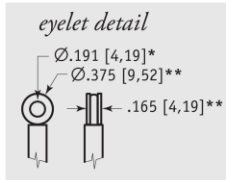
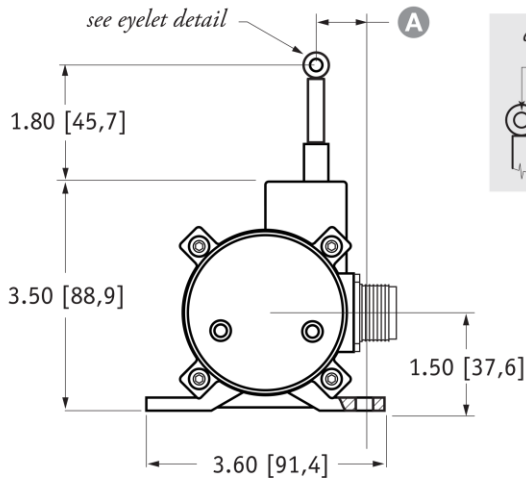
#### Environmental

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

# PT8101

Heavy Industrial • Voltage Divider

## Outline Drawing



RANGE	A
2", 10"	1.16 [29,5]
5", 25", 50"	0.66 [16,8]
15"	0.99 [25,7]
20", 40"	0.85 [21,6]
30", 60"	0.52 [13,3]

DIMENSIONS ARE IN INCHES [MM]  
tolerances are  $\pm 0.02$  in. [ $\pm 0,5$  mm] unless otherwise noted

note: \*tolerance =  $+0.005 -0.001$  [ $+0.13 -0.03$ ] \*\*tolerance =  $+0.005 -0.005$  [ $+0.13 -0.13$ ]

## Ordering Information

### Model Number:

**PT8101-** \_\_\_\_\_ **1** \_\_\_\_\_ **1** \_\_\_\_\_  
order code:      **R**      **A**      **B**      **C**      **D**      **E**      **F**      **G**

Sample Model Number:

**PT8101 - 0030 - 111 - 1110**

- R** range: 30 inches
- A** enclosure/cable tension: aluminum/standard (13 oz.)
- B** measuring cable: .034 nylon-coated stainless
- D** output signal: 500 ohm potentiometer
- F** electrical connection: 6-pin plastic connector
- G** cable guide option: standard nylon cable guide

### Full Stroke Range:

<b>R</b> order code:	0002	0005	0010	0015	0020	0025	0030	0040	0050	0060
full stroke range, min:	2 in.	5 in.	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50	60
accuracy (% of f.s.)	500...10K ohm options:	1.00%	1.00%	0.15%	0.15%	0.15%	0.15%	0.10%	0.10%	0.10%
	bridge circuit options:	0.30%	0.30%	0.20%	0.20%	0.20%	0.15%	0.15%	0.15%	0.15%
potentiometer cycle life*:	$2.5 \times 10^6$	$2.5 \times 10^6$	$5 \times 10^5$	$5 \times 10^5$	$5 \times 10^5$	$5 \times 10^5$	$5 \times 10^5$	$2.5 \times 10^5$	$2.5 \times 10^5$	$2.5 \times 10^5$

\*-1 cycle is defined as the travel of the measuring cable from full retraction to full extension and back to full retraction

**Enclosure Material and Measuring Cable Tension:**

<b>A</b> order code:	<b>1</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>6</b>	<b>4</b>	<b>8</b>	<b>7</b>	<b>9</b>		
enclosure:	aluminum			303 stainless			316 stainless				
cable tension:	standard	medium	high	standard	medium	high	standard	medium	high		
max. acceleration:	15 g	25 g	40 g	6 g	12 g	18 g	6 g	12 g	18 g		
cable tension option specifications	Range:	2 in.	5 in.	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.	60 in.
	Standard:	39 oz.	16 oz.	39 oz.	26 oz.	20 oz.	16 oz.	13 oz.	20 oz.	16 oz.	13 oz.
	Medium:	65 oz.	26 oz.	65 oz.	43 oz.	33 oz.	26 oz.	22 oz.	33 oz.	26 oz.	22 oz.
	High:	116 oz.	47 oz.	116 oz.	77 oz.	60 oz.	47 oz.	40 oz.	60 oz.	47 oz.	40 oz.

tension tolerance: ± 50%

**Measuring Cable:**

<b>B</b> order code:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
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:	<i>all ranges</i>	<i>5, 15, 20, 25, 30-inch only</i>	<i>thru 30 inches only</i>	<i>40, 50, 60-inch only</i>
general use:	indoor	outdoor, debris, high temperature	high voltage or magnetic field	outdoor, debris, high temperature

**Output Signal:**

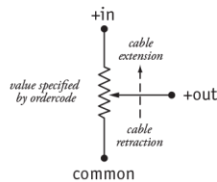
<b>D</b> order code:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	500 ohm*	1000 ohm*	5000 ohm*	10,000 ohm*	fixed bridge (2 mV/V)	adjustable bridge (0...30 mV/V)

\*tolerance = ± 10%

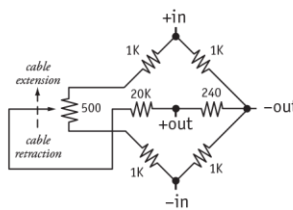
**max. input voltage and power rating, options: 1 – 4**

	<i>2-inch, 5-inch range</i>	<i>10-inch to 60-inch range</i>
500-ohms:	20 V AC/DC (1 W)	30 V AC/DC (2 W)
1K to 10K-ohms:	30 V AC/DC (1 W)	30 V AC/DC (2 W)

**circuit, options 1-4**

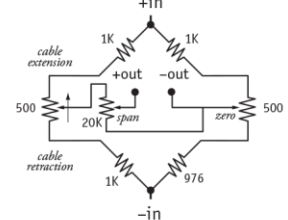


**fixed bridge circuit**



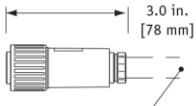
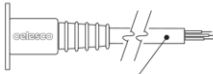
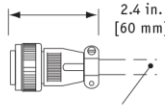

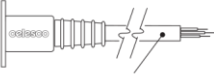
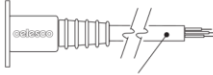
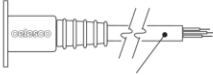

full scale output: 2 mV/V  
zero adjust: not available

**adjustable bridge circuit**



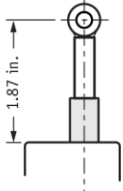
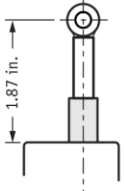
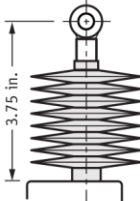
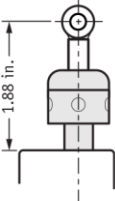
full scale output: adjustable from 0 to 30mV/V  
zero adjust: to 50% of full stroke

**Electrical Connection:**

<p><b>F</b> <i>order code:</i> <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.] 3-conductor, 18 AWG type SJTOW</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.] 6-conductor, 24 AWG shielded</p>																																																
<p><b>F</b> <i>order code:</i> <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.] 3-conductor, 18 AWG type SJTOW</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.] 3-conductor, 18 AWG type SJTOW</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.] 3-conductor, 18 AWG type SJTOW</p>																																																	
<p><b>6-pin Mating Plug</b></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><b>Waterproof Cable</b></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><b>Instrumentation Cable</b></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> <tr> <td>BLUE</td> <td>-</td> <td>-</td> </tr> <tr> <td>BROWN</td> <td>-</td> <td>-</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	BLUE	-	-	BROWN	-	-
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\*-Test pressure: 100 feet [30 meters] H<sub>2</sub>O (40 PSID); Test Medium: Air; Duration: 2 hours. \*\*-Applies to stainless steel enclosure only.

**Cable Guide Options:**

<p><b>G</b> <i>order code:</i> <b>0</b></p> <p>standard cable guide</p>  <p>1.87 in.</p>	<p><b>1</b></p> <p>stainless steel cable guide</p>  <p>1.87 in.</p>	<p><b>2*</b></p> <p>polyurethane cable bellows</p>  <p>3.75 in.</p>	<p><b>3</b></p> <p>integral cable brush</p>  <p>1.88 in.</p>
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\*note: all ranges up to 25 inches only

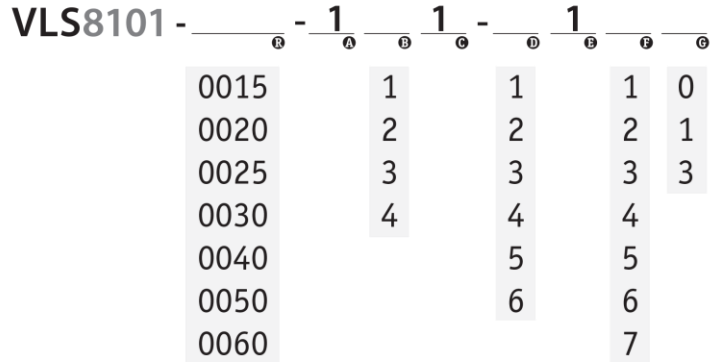
### VLS Option - Free Release Protection

The patented Celesco Velocity Limiting System (VLS) is an option for PT8000 Series cable extension transducers that limits cable retraction to a safe 40 to 55 inches per second.

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.

VLS is NOT available for medium and high cable tension options, steel enclosure, cable bellows or 2, 5 and 15-inch stroke ranges.

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



☐ = available options\*\*

*creating VLS model number (example):*

1. select PT8101 model **PT8101-0060-111-1110**
2. remove "PT" from the model number ~~PT~~ **8101-0060-111-1110**
3. add "VLS" **VLS + 8101-0060-111-1110**
4. completed model number ! **VLS8101-0060-111-1110**

*\*\*Note: please contact factory for a solution to options not supported.*

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PT8101 12/01/2015