

# PT8510

Heavy Industrial • 0...5, 0...10 Vdc

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

Full Stroke Range Options	0-2 to 0-60 inches
Output Signal Options	0...5, 0...10, -5...+5, -10...+10 VDC
Accuracy	see ordering information
Repeatability	± 0.05% 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	see ordering information
Maximum Retraction Acceleration	see ordering information
Weight, Aluminum (Stainless Steel) Enclosure	3 lbs. (6 lbs.) max.

## ELECTRICAL

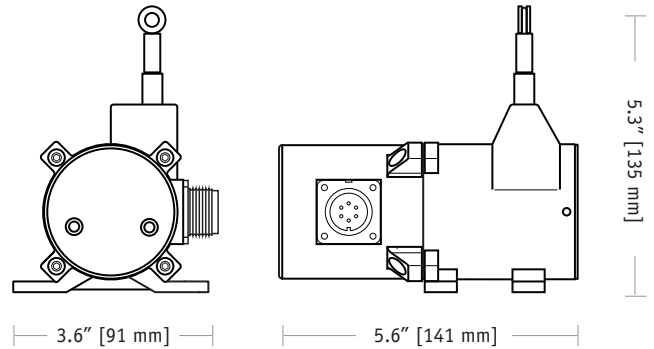
Input Voltage	see ordering information
Input Current	10 mA maximum
Output Impedence	1000 ohms
Maximum Load	5000 ohms
Zero and Span Adjustment	see ordering information

## EMC COMPLIANCE PER DIRECTIVE 89/336/EEC

Emission/Immunity	EN50081-2 / EN50082-2
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## ENVIRONMENTAL

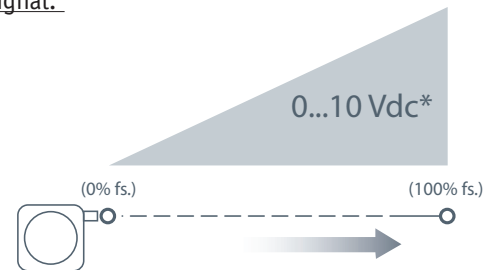
Enclosure	NEMA 4/4X/6, IP 67/68
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 G's to 2000 Hz maximum



The PT8510 can operate from an unregulated 14.5 to 40 VDC power supply while providing an output signal that is proportional to the linear movement of its measuring cable. The PT8510 has a maximum measurement range up to 60" and has 4 output signal options to choose from: 0...10, 0...5, -10...+10 and -5...+5 Vdc.

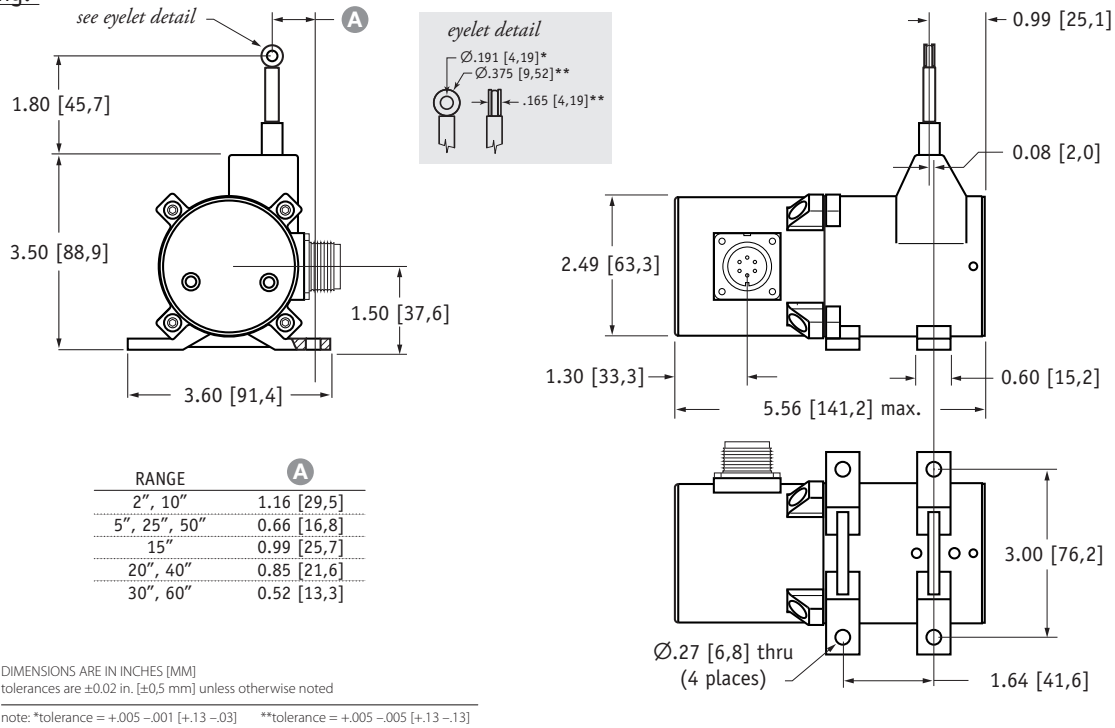
As a member of Celesco's innovative family of NEMA-4 rated cable-extension transducers, the PT8510 offers numerous benefits. It installs in minutes, fits into areas unsuited for rod-type measurement devices, and works without perfectly parallel alignment.

### Output Signal:



\*Additional Output Options: 0...5, -5...+5, -10...+10 Vdc

**Outline Drawing:**



**Ordering Information:**

**Model Number:**

**PT8510-** \_\_\_\_\_ **1 - 1** \_\_\_\_\_  
order code:                      R                      A                      B                      C                      D                      E                      F                      G

Sample Model Number:

**PT8510 - 0030 - 111 - 1110**

- R** range: 30 inches
- A** enclosure/cable tension: aluminum/standard (9 oz.)
- B** measuring cable: .034 nylon-coated stainless
- E** output signal: 0...10 vdc
- 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 in.	60 in.
accuracy (% of f.s.):	0.28%	0.28%	0.18%	0.18%	0.18%	0.18%	0.18%	0.15%	0.15%	0.15%
potentiometer cycle life*:	2.5 x 10 <sup>6</sup>	2.5 x 10 <sup>6</sup>	5 x 10 <sup>5</sup>	5 x 10 <sup>5</sup>	5 x 10 <sup>5</sup>	5 x 10 <sup>5</sup>	5 x 10 <sup>5</sup>	2.5 x 10 <sup>5</sup>	2.5 x 10 <sup>5</sup>	2.5 x 10 <sup>5</sup>

\*-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:	1	5	2	3	6	4	8	7	9		
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%

Ordering Information (cont.):

**Measuring Cable:**

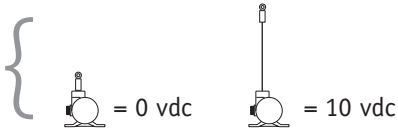
③ order code:	1	2	3	4
	Ø.034-inch nylon-coated stainless steel <i>available in all ranges</i>	Ø.047-inch non-coated stainless steel <i>5, 15, 20, 25, 30-inch ranges only</i>	Ø.062-inch thermoplastic <i>all ranges up to 30 inches only</i>	Ø.031-inch non-coated stainless steel <i>40, 50, 60-inch ranges only</i>

**Output Signals:**

③ order code:	1	2	3	4	5	6	7	8
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 factory set span				to 75% of factory set span			
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



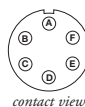
**Electrical Connection:**

③ order code:	1	2	3	4
	6-pin plastic connector w/mating plug <b>IP 67, NEMA 4X**, 6</b>  3.0 in. [78 mm]	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>  2.4 in. [60 mm]	25-ft. [7.5 M] instrumentation cable <b>IP 67, NEMA 6</b> 
	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.] 3-conductor, 18 AWG type SJTW	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.] 6-conductor, 24 AWG shielded

③ 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 SJTW	10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 3-conductor, 18 AWG type SJTW	100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 3-conductor, 18 AWG type SJTW

**6-pin Mating Plug**

pin	signal
A	input voltage
B	output signal
C	common



**Waterproof Cable**

color code	signal
WHITE	input voltage
GREEN	output signal
BLACK	common

**Instrumentation Cable**

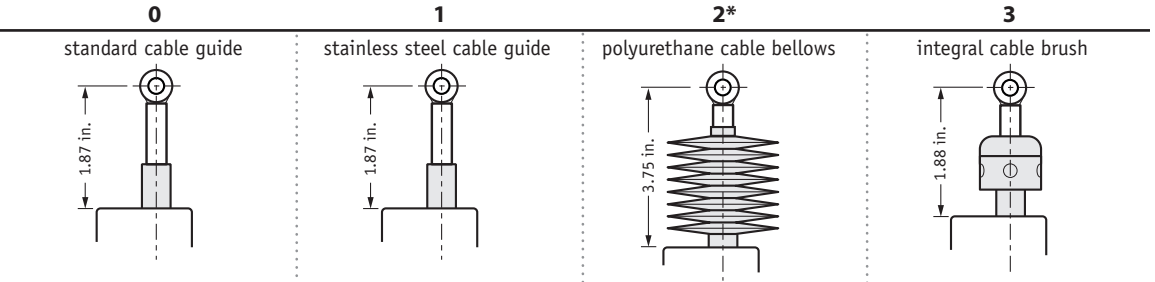
color code	signal
RED	input voltage
GREEN	output signal
BLACK	common

Note: WHITE, BLUE, BROWN are not used.

\*—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:

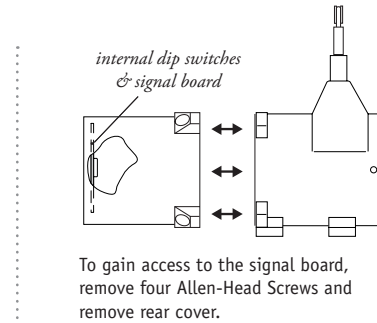
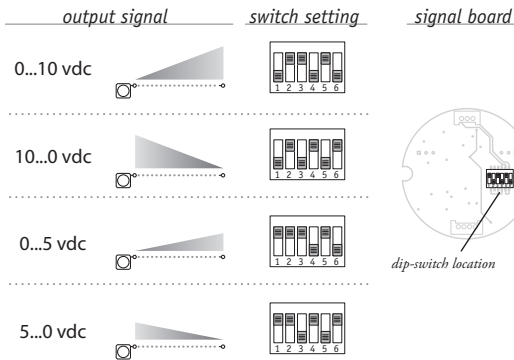
Ⓞ order code:



\*note: all ranges up to 25 inches only

## Output Signal Selection (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 trimpots will be required to precisely match signal values to the beginning and end points of the stroke.



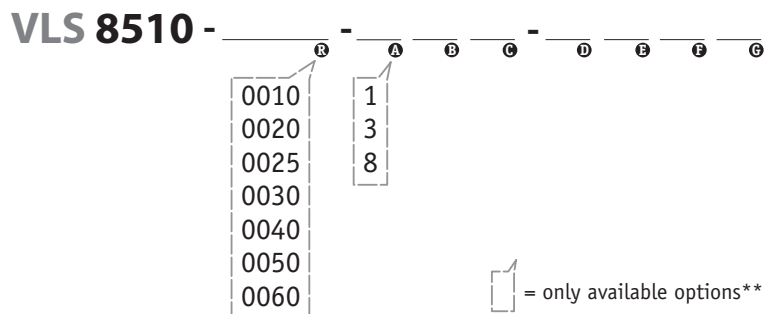
## VLS Option - Free Release Protection

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 or 2, 5 and 15-inch stroke ranges.

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



creating VLS model number (example):

1. select PT8420 model **PT8510-0060-111-1110**
2. remove "PT" from the model number ~~PT~~ **8510-0060-111-1110**
3. add "VLS" **VLS + 8510-0060-111-1110**
4. completed model number ! **VLS8510-0060-111-1110**

version: 7.0 last updated: November 5, 2012

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