

Cable-Extension Position Transducer

0...5, 0...10, -5...+5, -10...+10 VDC Output Options
 Ranges: 0-2 to 0-60 inches
 Industrial Grade



PT8510

Specification Summary:

GENERAL

Full Stroke Range Options 0-2 to 0-60 inches
 Output Signal Options 0...5, 0...10, -5...+5, -10...+10 VDC
 Accuracy $\pm 0.28\%$ to $\pm 0.15\%$ full stroke *see ordering information*
 Repeatability $\pm 0.05\%$ 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 Impedance 1000 ohms
 Maximum 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

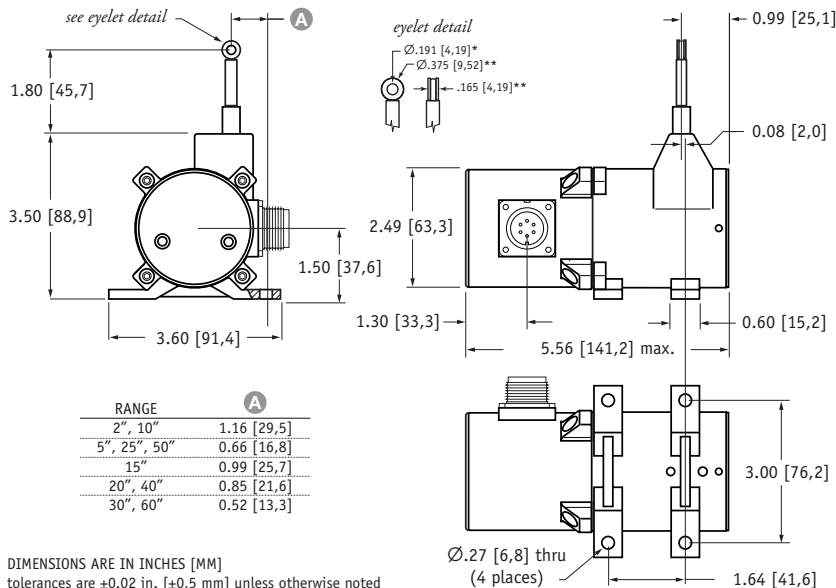
Emission/Immunity EN50081-2 / EN50082-2



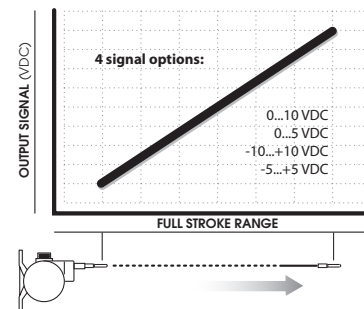
The PT8510 can operate from an unregulated 14.5 to 40 VDC power supply while providing an output signal that is proportional to the linear movement of its measuring cable. The PT8510 has a maximum measurement range up to 60" and has 4 output signal options to choose from: 0...10, 0...5, -10...+10 and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

Outline Drawing



Output Signal



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
- C** output signal: 0...10 vdc
- E** electrical connection: 6-pin plastic connector
- G** cable guide option: standard nylon cable guide

Full Stroke Range:

R 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.):	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 ⁶	2.5 x 10 ⁶	5 x 10 ⁵	5 x 10 ⁵	5 x 10 ⁵	5 x 10 ⁵	5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 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:

A 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: ± 30%

Measuring Cable:

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

Output Signals:

E 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			

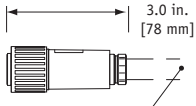
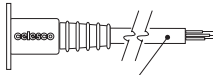
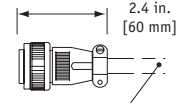

Example:

ordercode = **1** = 0...10 vdc

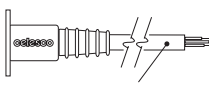
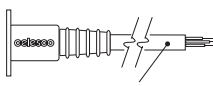
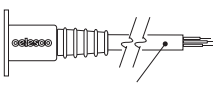


Electrical Connection:

Ⓕ order code:

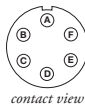
<p>1</p> <p>6-pin plastic connector w/mating plug IP 67, NEMA 4X**, 6</p>  <p>3.0 in. [78 mm]</p> <p>1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S</p>	<p>2</p> <p>10-ft. [3 M] waterproof cable IP 67, NEMA 4X**, 6</p>  <p>10 ft. x 0.4-in. 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>
--	---	---	--

Ⓕ order code:

<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>
---	--	---

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

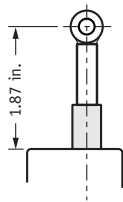
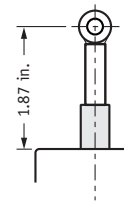
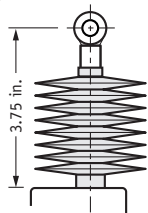
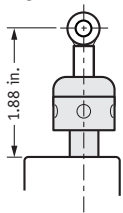
Instrumentation Cable

color code	signal
RED	input voltage
GREEN	output signal
BLACK	common

*-Test pressure: 100 feet [30 meters] H₂O (40 PSID); Test Medium: Air; Duration: 2 hours. **-Applies to stainless steel enclosure only.

Cable Guide Options:

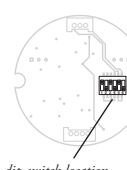
Ⓕ order code:

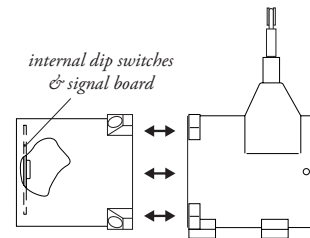
<p>0</p> <p>standard cable guide</p>  <p>1.87 in.</p>	<p>1</p> <p>stainless steel cable guide</p>  <p>1.87 in.</p>	<p>2*</p> <p>polyurethane cable bellows</p>  <p>3.75 in.</p>	<p>3</p> <p>integral cable brush</p>  <p>1.88 in.</p>
---	--	--	---

*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.

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 rear cover.

version: 6.1 last updated: December 2, 2011
PT8510 | 126