PT9510 (Extended Range)

Extended Ranges • 0...5 Vdc, 0...10 Vdc

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 • Hazardous Area Certification

CE

GENERAL

|	
Full Stroke Range Options (on this datasheet)	0-600 to 0-1700 inches
Output Signal Options	0...10, 0...5, -5...+5, -10...+10 VDC
Accuracy	± 0.12% full stroke
Repeatability	± 0.05% 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
Maximum Retraction Acceleration	see ordering information
Maximum Velocity	see ordering information
Weight, Aluminum (Stainless Steel) Enclosure	14 lbs. (28 lbs.) max.

ELECTRICAL

Input Voltage	14.5-40VDC (10.5-40VDC for 0-5 volt output)
Input Current	10 mA maximum
Output Impedance	1000 ohms
Maximum Output Load	5000 ohms
Output Signal, Zero Adjust	up to 50% of full stroke range
Output Signal, Span Adjust	to 50% of factory set span

ENVIRONMENTAL

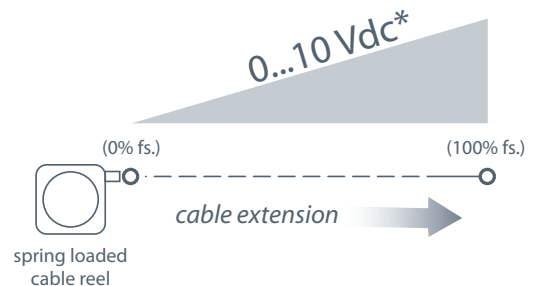|	
Enclosure	NEMA 4/4X/6, IP 67/68
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

EMC COMPLIANCE PER DIRECTIVE 89/336/EEC

Emission / Immunity	EN50081-2 / EN50082-2

12.5" [309 mm]   5.3" [135 mm]   5.2" [131 mm]
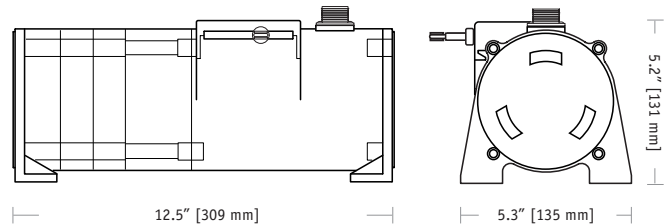
The PT9510 can operate from an unregulated 14.5 to 40 VDC power supply while providing a regulated output signal over it's full extended range of up to 1700". It provides a 0 - 10 VDC position feedback signal proportional to the linear movement of it's stainless steel measuring cable.

As a member of Celesco's innovative family of NEMA-4 rated cable-extension transducers, the PT9510 offers numerous benefits. It installs in minutes, functions properly without perfectly parallel alignment, and when its cable is retracted, it measures only 6".
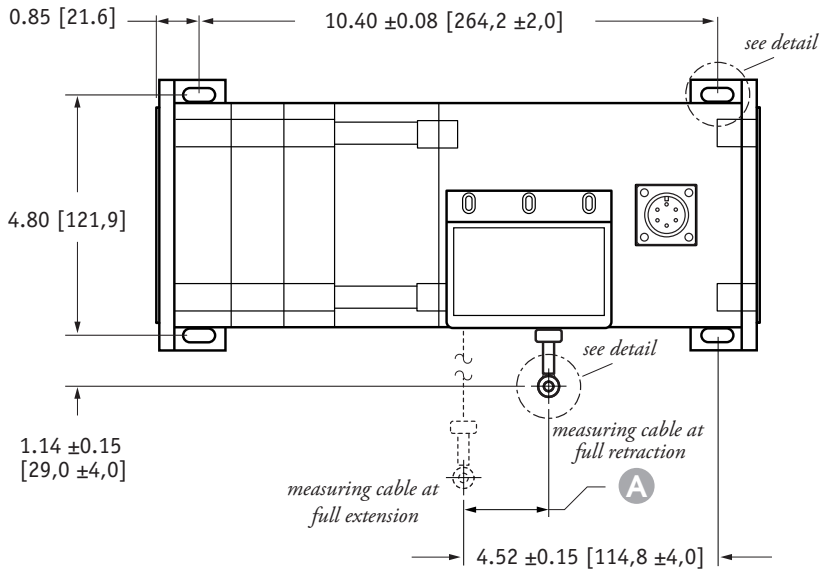
Output Signal:

0...10 Vdc*

(0% fs.)   (100% fs.)

cable extension

spring loaded
cable reel

*Also Available: 0...5, −5...+5, −10...+10 Vdc

Outline Drawing

0.85 [21.6]

10.40 ±0.08 [264,2 ±2,0]

see detail

4.80 [121,9]

see detail

measuring cable at full retraction

Ⓐ

measuring cable at full extension

1.14 ±0.15 [29,0 ±4,0]

4.52 ±0.15 [114,8 ±4,0]

mounting hole detail

0.64 [16,3]

0.27 [6,9]

eyelet detail

⌀.191 [4,85]*
⌀.375 [9,52]**

.165 [4,19]**
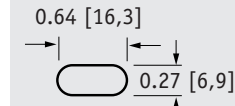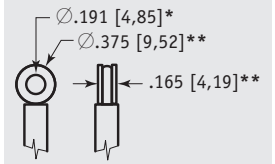
Ⓐ **DIMENSION**

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]

4.90 [124,5]

0.25 [6,4]

12.15 [308,6] max

5.16 [131,1] max.

4.70 ±0.10 [120,7 ±3,0]

5.30 [134,6]
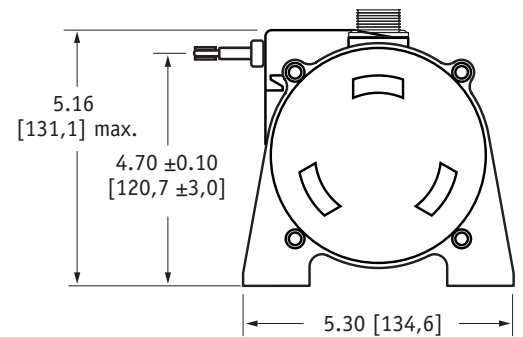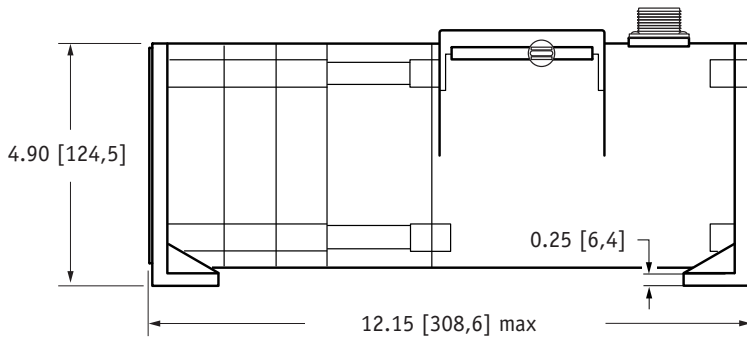
DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.

* 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.

How To Configure Model Number for VLS Option:

1. using guide below, select PT9510 model **PT9510-1200-111-1110**
2. remove "PT" from the model number **P̶T̶ 9510-1200-111-1110**
3. add "VLS" **VLS + 9510-1200-111-1110**
4. completed model number! **VLS9510-1200-111-1110**

VLS9510 - ___ - ___ ___ - 1 ___ ___ 0

	Ⓐ	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ
0600	1		1	1		1	1	
0800	3		2	2		2	2	
1000				3		3	3	
1200				4		4	4	
1500						5	5	
1700						6	6	
						7	7	
						8		

▢ = available options.

Ordering Information:

Model Number:

PT9510-

order code: ___ - ___ ___ - **1** ___ ___ **0**
           ®   Ⓐ Ⓑ Ⓒ   Ⓓ Ⓔ Ⓕ   Ⓖ

Full Stroke Range:

® 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:

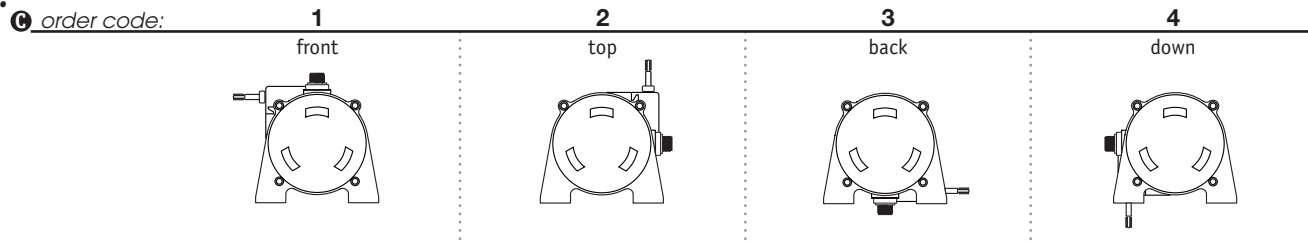| Ⓐ order code:	**1**	**3**
enclosure material:	powder-painted aluminum	303 stainless steel
max. acceleration:	1g	1g
max. velocity:	60 inches/sec.	60 inches/sec.

Measuring Cable:

Ⓑ 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:

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

Output Signals:

Ⓔ 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 full stroke range				to 75% of full stroke range			
zero adjustment:	from factory set zero to 50% of full stroke range				from factory set zero to 25% of full stroke range			

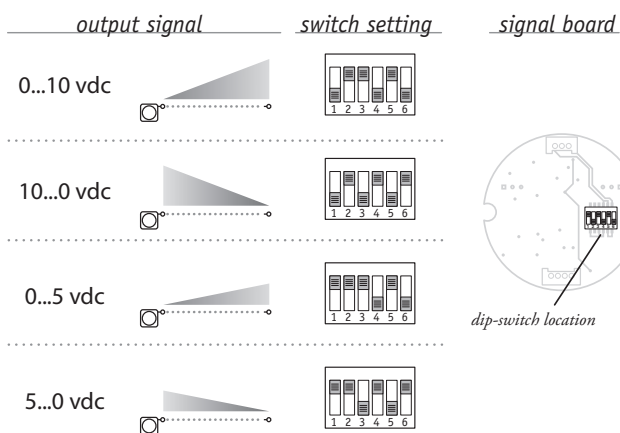*example:*

ordercode = **1** = 0...10 VDC ➡

0 vdc =

10 vdc =

Ordering Information (cont.):

Electrical Connection:

F order code:

1	2	3	4
6-pin plastic connector w/mating plug	10-ft. [3 M] waterproof cable	6-pin metal connector w/mating plug	25-ft. [7.5 M] instrumentation cable
IP 67, NEMA 4X**,6	**IP 67, NEMA 4X**, 6**	**IP 65, NEMA 4**	**IP 67, NEMA 6**

3.0 in. [78 mm]

2.4 in. [60 mm]

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.]
18 AWG, type SJOW

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.]
24 AWG, shielded

F order code:

5	6	7
100-ft. [30 M] waterproof cable	10-ft. [3 M] **pressure tested*** waterproof cable	100-ft. [30 M] **pressure tested*** waterproof cable
IP 67, NEMA 4X**,6	**IP 68, NEMA 4X**, 6P**	**IP 68, NEMA 4X**, 6P**

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

10 ft. x 0.4-in. dia.
[3 M x 10 mm dia.]
18 AWG, type SJTOW

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

6-pin Mating Plug		**Waterproof Cable**		**Instrumentation Cable**	
pin	**signal**	**color code**	**signal**	**color code**	**signal**
A	input voltage	WHITE	input voltage	RED	input voltage
B	output signal	GREEN	output signal	GREEN	output signal
C	common	BLACK	common	BLACK	common

contact view

Notes: {
 * —Test pressure: 100 feet [30 meters] H_2O (40 PSID); Test Medium: Air; Duration: 2 hours.
 ** —NEMA 4X applies to stainless steel enclosure only.

Output Signal Settings (does not apply to -5...+5 & -10...+10 vdc options)

output signal   *switch setting*   *signal board*

0...10 vdc   1 2 3 4 5 6

10...0 vdc   1 2 3 4 5 6

dip-switch location

0...5 vdc   1 2 3 4 5 6

5...0 vdc   1 2 3 4 5 6

To gain access to the signal board, remove four Allen-Head Screws and remove end cover bracket.

internal dip switches and signal board
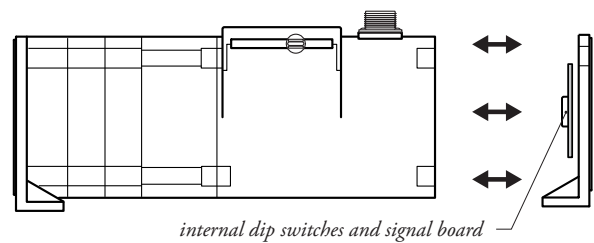
Caution! Do Not Remove Spring-Side End Cover
Removing spring-side end cover could cause spring to become unseated and permanently damaged.

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.

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