

PT9510

Heavy Industrial • 0...5 Vdc, 0...10 Vdc

Absolute Linear Position to 550 inches (1400 cm)

Aluminum or Stainless Steel Enclosure Options

VLS Option To Prevent Free-Release Damage

IP68 • NEMA 6 Protection • Hazardous Area Certification



GENERAL

| | |
|---|--|
| Full Stroke Range Options (on this datasheet) | 0-75 to 0-550 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 | 8 lbs. (16 lbs.) max. |

ELECTRICAL

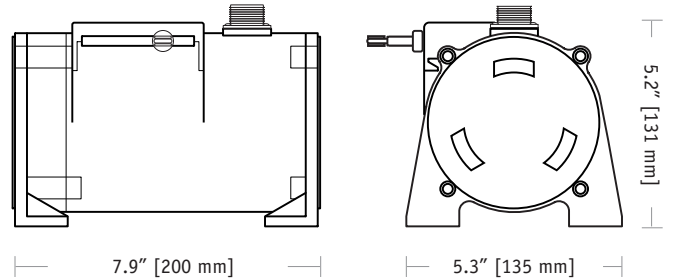
| | |
|----------------------------|---|
| Input Voltage | 14.5-40VDC (10.5-40VDC for 0-5 volt output) |
| Input Current | 10 mA maximum |
| Output Impedance | 1000 ohms |
| Maximum Output Load | 5000 ohms |
| Output Signal, Zero Adjust | up to 50% of full stroke range |
| Output Signal, Span Adjust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

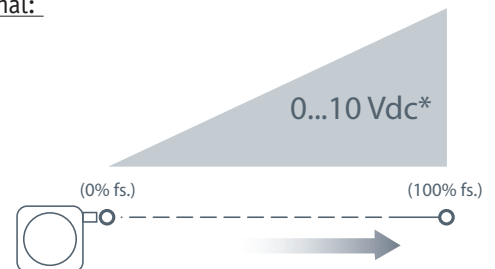
| | |
|---------------------|-----------------------|
| Emission / Immunity | EN50081-2 / EN50082-2 |
|---------------------|-----------------------|



The PT9510 can operate from an unregulated 14.5 to 40 VDC power supply while providing a regulated output signal over its full extended range. It provides a 0 - 5 or 0 - 10 VDC position feedback signal proportional to the linear movement of its 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:

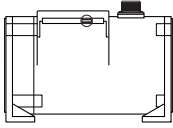
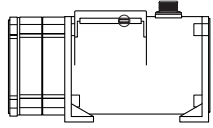


*Additional Output Options: 0...5, -5...+5, -10...+10 Vdc

Ordering Information (cont.):

Enclosure Material and Measuring Cable Tension:

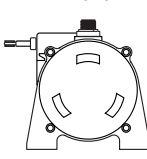
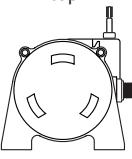
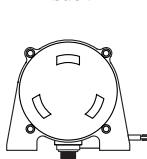
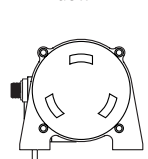
| Ⓐ order code: | 1 | 3 | 2 | 4 |
|---------------------|-------------------------|---------------------|-------------------------|---------------------|
| tension (±30%): | 18 oz. | | 36 oz. | |
| enclosure material: | powder-painted aluminum | 303 stainless steel | powder-painted aluminum | 303 stainless steel |
| max. acceleration: | 1 G | .33 G | 5 G | 2 G |
| max. velocity: | 60 inches/sec | 20 inches/sec | 200 inches/sec | 80 inches/sec |

| | | | |
|---|--------------------------------|---|-----------------------------------|
|  | standard housing see fig 1. |  | dual-spring housing see fig 2. |
|---|--------------------------------|---|-----------------------------------|









Measuring Cable:

| Ⓑ order code: | 1 | 2 | 3 | 4 |
|---------------|---|------------------------------------|------------------------------------|----------------------------|
| | ∅.034-inch nylon-coated stainless steel | ∅.047-inch stainless steel | ∅.062-inch thermoplastic | ∅.031-inch stainless steel |
| | available in all ranges | all ranges up to 500 inches | all ranges up to 400 inches | 550 inch range only |

Cable Exit:

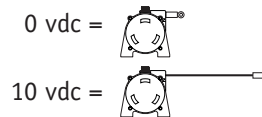
| Ⓒ order code: | 1 | 2 | 3 | 4 |
|---------------|---|---|---|---|
| | front | top | back | down |
| |  |  |  |  |

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 | | | | 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 →

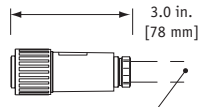


Ordering Information (cont.):

Electrical Connection:

1 order code:

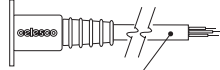
1
6-pin plastic connector w/mating plug
IP 67, NEMA 4X**,6



1/2 - 5/16" [14 - 8 mm] cable dia.
16 AWG max conductor size
connector: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

2

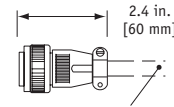
10-ft. [3 M]
waterproof cable
IP 67, NEMA 4X**, 6



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

3

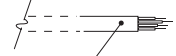
6-pin metal connector w/mating plug
IP 65, NEMA 4



3/8-in. [9 mm] max cable dia.
16 AWG max conductor size
connector: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

4

25-ft. [7.5 M]
instrumentation cable
IP 67, NEMA 6

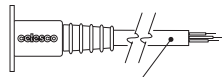


25 ft. x 0.2-in. dia.
[7.5 M x 5 mm dia.]
24 AWG, shielded

5 order code:

100-ft. [30 M]
waterproof cable

IP 67, NEMA 4X**,6

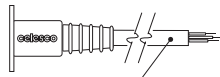


100 ft. x 0.4-in. dia.
[30 M x 10 mm dia.]
18 AWG, type SJTW

6

10-ft. [3 M]
pressure tested*
waterproof cable

IP 68, NEMA 4X**, 6P

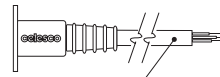


10 ft. x 0.4-in. dia.
[3 M x 10 mm dia.]
18 AWG, type SJTW

7

100-ft. [30 M]
pressure tested*
waterproof cable

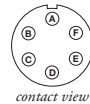
IP 68, NEMA 4X**, 6P



100 ft. x 0.4-in. dia.
[30 M x 10 mm dia.]
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

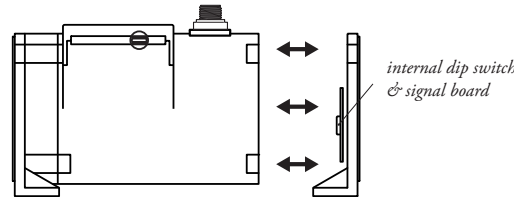
| color code | signal |
|------------|---------------|
| RED | input voltage |
| GREEN | output signal |
| BLACK | common |

Notes: { * -Test pressure: 100 feet [30 meters] H₂O (40 PSID); Test Medium: Air; Duration: 2 hours.
** -NEMA 4X applies to stainless steel enclosure only.

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

| output signal | switch setting | signal board |
|---------------|----------------|--------------|
| 0...10 vdc | | |
| 10...0 vdc | | |
| 0...5 vdc | | |
| 5...0 vdc | | |

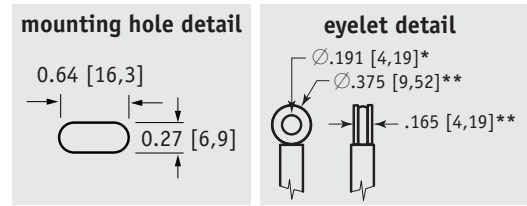
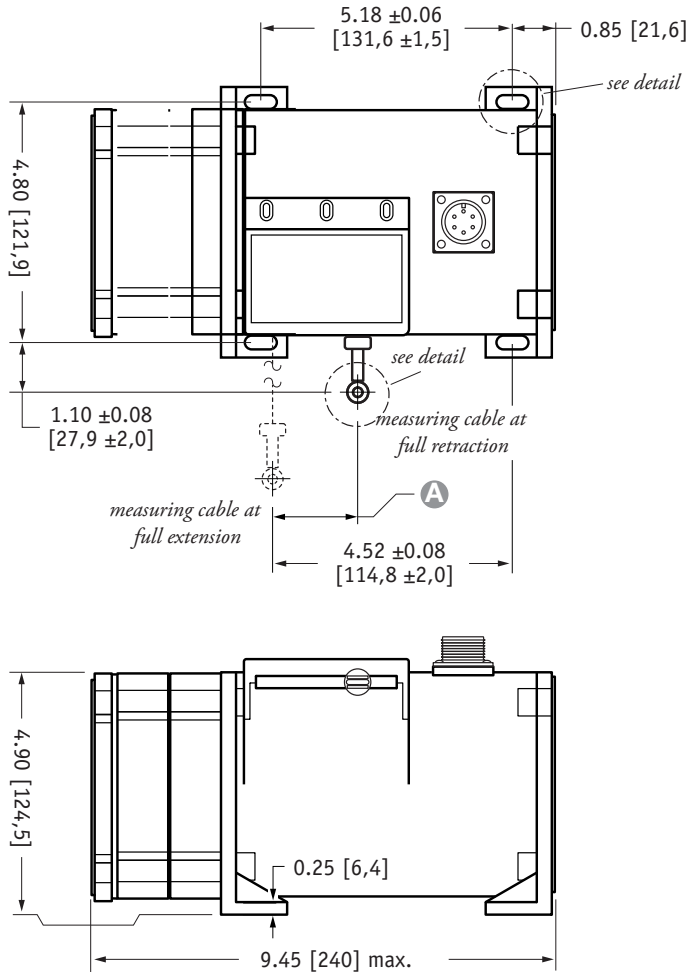
To gain access to the signal board, remove four Allen-Head Screws and remove end cover bracket.



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

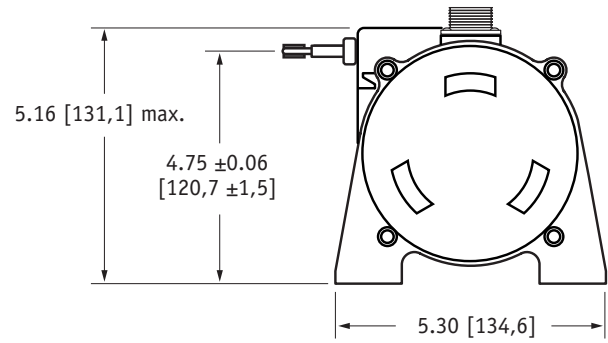
The output signal direction can be reversed at any time by simply changing the dip-switch settings found on the internal signal board. After the settings have been changed, adjustment of the Zero and Span trimpots will be required to precisely match signal values to the beginning and end points of the stroke.

Fig. 2 – Outline Drawing (36 oz. cable tension only)



A DIMENSION (INCHES)

| RANGE | MEASURING CABLE | | | |
|-------|-----------------|-----------|-----------|-----------|
| | Ø.031 in. | Ø.034 in. | Ø.047 in. | Ø.062 in. |
| 75 | n/a | 0.22 | 0.29 | 0.37 |
| 100 | n/a | 0.29 | 0.39 | 0.49 |
| 150 | n/a | 0.44 | 0.59 | 0.73 |
| 200 | n/a | 0.58 | 0.79 | 0.98 |
| 250 | n/a | 0.73 | 0.98 | 1.22 |
| 300 | n/a | 0.88 | 1.18 | 1.47 |
| 350 | n/a | 1.02 | 1.38 | 1.71 |
| 400 | n/a | 1.17 | 1.57 | 1.96 |
| 450 | n/a | 1.31 | 1.77 | n/a |
| 500 | n/a | 1.46 | 1.97 | n/a |
| 550 | 1.61 | 1.61 | n/a | n/a |



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:

VLS9510 - - - - - - - -

creating VLS model number (example)...

- select PT9510 model **PT9510-0100-111-1110**
- remove "PT" from the model number ~~PT~~ **9510-0100-111-1110**
- add "VLS" **VLS + 9510-0100-111-1110**
- completed model number ! **VLS9510-0100-111-1110**

version: 10.0 last updated: August 15, 2013