



**mm PT9101**

**Description**

- 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
- Extended range

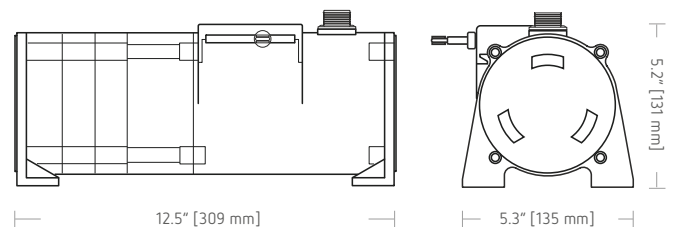


The PT9101 is a work-horse for demanding long-range applications requiring a linear position measurements in ranges up to 1700 inches. Available with either a 500, 1K, 5K, or 10K ohm potentiometer, the PT9101 operates with any basic panel meter or programmable controller.

As a member of our innovative family of NEMA 4 rated cable-extension transducers, the PT9101 offers numerous benefits. It installs in minutes, works without perfect parallel alignment, and when it's stainless-steel cable is retracted, it measures only 6".

**GENERAL**

|   |  |
|---|--|
| Full Stroke Range Options (on this datasheet) | 0-600 to 0-1700 inches                         |
| Output Signal                                 | voltage divider (potentiometer)                |
| Accuracy                                      | ± 0.10% full stroke                            |
| Repeatability                                 | ± 0.02% 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.                         |



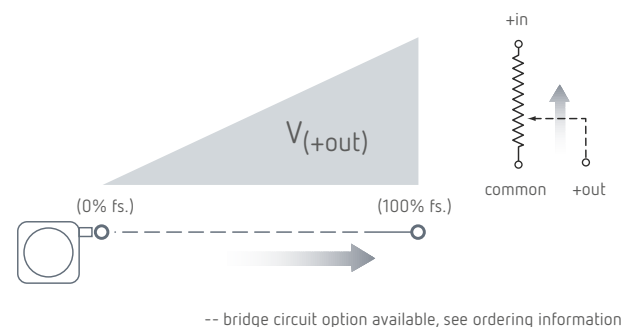
**ELECTRICAL**

|   |                                    |
|---|------------------------------------|
| Input Resistance Options                    | 500, 1K, 5K, 10K Ω, bridge         |
| Power Rating, Watts                         | 2.0 at 70°F derated to 0 at 250° F |
| Recommended Maximum Input Voltage           | 30V (AC/DC)                        |
| Output Signal Change Over Full Stroke Range | 94% ±4% of input voltage           |

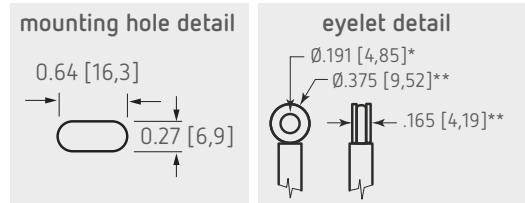
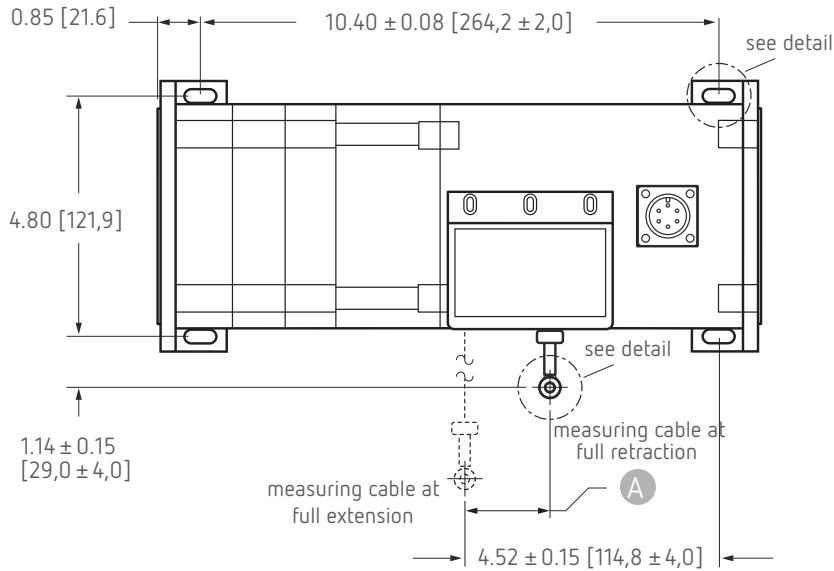
**ENVIRONMENTAL**

|                       |                               |
|-----------------------|-------------------------------|
| 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 |

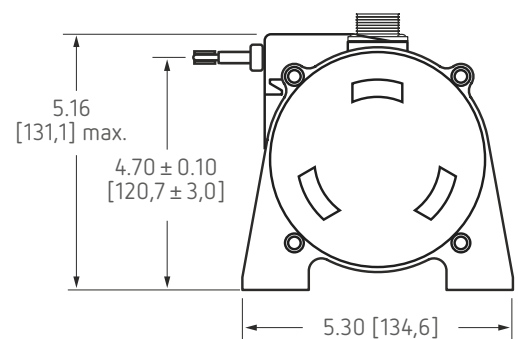
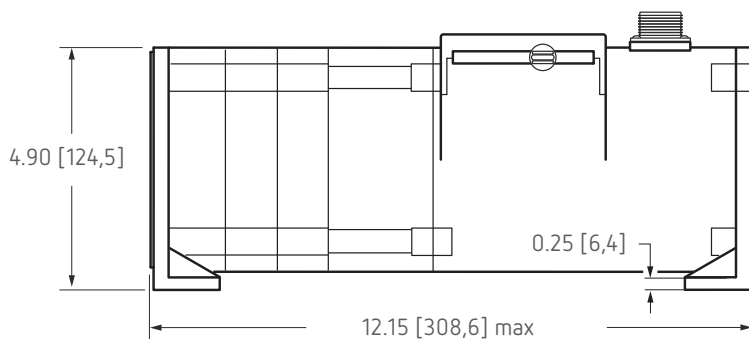
**Output signal**



**Outline Drawing**



| A 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] |



DIMENSIONS ARE IN INCHES [MM]  
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.

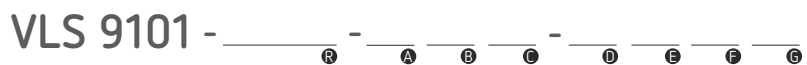
\* tolerance = +.005 -.001 [+.13 -.03]  
\*\* tolerance = +.005 -.005 [+ .13 -.13]

**VLS Option - Free Release Protection**

The patented 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:**



creating VLS model number (example)...

1. select PT9101 model
2. remove "PT" from the model number
3. add "VLS"
4. completed model number !

PT9101-1200-111-1110  
~~PT~~ 9101-1200-111-1110  
 VLS + 9101-1200-111-1110  
 VLS9101-1200-111-1110

01.2016 | version 20141110 - Rev.10

**Ordering Information**

**Model Number**

**PT9101-** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ **1** \_\_\_\_\_ **0**  
order code:                    R                    A                    B                    C                    D                    E                    F                    G

Sample Model Number:

**PT9101 - 1200 - 111 - 1110**

- R** range: 1200 inches
- A** enclosure: aluminum
- B** measuring cable: nylon-coated stainless
- C** cable exit: front
- D** output signal: 500 ohm potentiometer
- F** electrical connection: 6-pin plastic connector

**Full Stroke Range**

| <b>R</b> 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**

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

**Measuring Cable**

| <b>B</b> 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. |

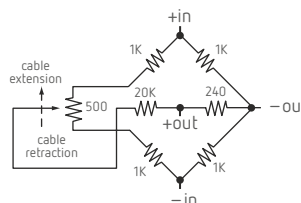
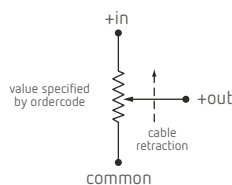
**Cable Exit**

| <b>C</b> order code: | 1     | 2   | 3    | 4    |
|----------------------|-------|-----|------|------|
|                      | front | top | back | down |
|                      |       |     |      |      |

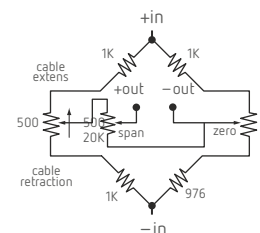
**Output Signals**

**D** order code:

\*tolerance = ±10%



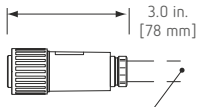
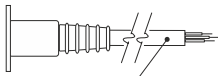
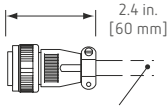

full scale output: 2 mV/V zero  
 adjust: not available

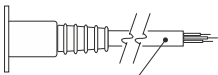
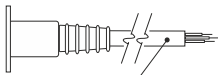
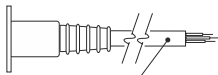


full scale output: adjustable from 0 to  
 30mV/V zero adjust: to 50% of full stroke

Ordering Information (cont.)

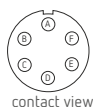
Electrical Connection

| Order code: | 1   | 2   | 3  | 4   |
|-------------|---|---|--|---|
|             | 6-pin plastic connector w/mating plug<br>IP 67, NEMA 4X**,6   | 10-ft. [3 M] waterproof<br>IP 67, NEMA 4X**, 6                                    | 6-pin metal connector w/mating plug<br>IP 65, NEMA 4   | 25-ft. [7.5 M] instrumentation cable<br>IP 67, NEMA 6                               |
|             |    |  |                                      |  |
|             | 1/2 - 5/16" [14 - 8 mm] cable dia.<br>16 AWG max conductor size<br>connector: MS3102E-14S-6P<br>mating plug: MS3106E-14S-6S | 10 ft. x 0.4-in. dia.<br>[3 M x 10 mm dia.]<br>18 AWG, type SJTOW                 | 3/8-in. [9 mm] max cable dia.<br>16 AWG max conductor size<br>connector: MS3102E-14S-6P<br>mating plug: MS3106E-14S-6S | 25 ft. x 0.2-in. dia.<br>[7,5 M x 5 mm dia.]<br>24 AWG, shielded                    |

| Order code: | 5   | 6   | 7  |
|-------------|---|---|--|
|             | 100-ft. [30 M] waterproof<br>IP 67, NEMA 4X**,6                                   | 10-ft. [3 M] pressure tested* waterproof cable<br>IP 68, NEMA 4X**, 6P            | 100-ft. [30 M] pressure tested* waterproof cable<br>IP 68, NEMA 4X**, 6P           |
|             |  |  |  |
|             | 100 ft. x 0.4-in. dia.<br>[30 M x 10 mm dia.]<br>18 AWG, type SJTOW               | 10 ft. x 0.4-in. dia.<br>[3 M x 10 mm dia.]<br>18 AWG, type SJTOW                 | 100 ft. x 0.4-in. dia.<br>[30 M x 10 mm dia.]<br>18 AWG, type SJTOW                |

**6-pin Mating Plug**

| pin | standard | bridge |
|-----|----------|--------|
| A   | + in     | + in   |
| B   | common   | - in   |
| C   | + out    | - out  |
| D   | -        | + out  |



**Waterproof Cable**

| color code | standard | bridge |
|------------|----------|--------|
| WHITE      | + in     | n/a    |
| BLACK      | common   | n/a    |
| GREEN      | + out    | n/a    |

**Instrumentation Cable**

| color code | standard | bridge |
|------------|----------|--------|
| RED        | + in     | + in   |
| BLACK      | common   | - in   |
| GREEN      | + out    | + out  |
| WHITE      | -        | - out  |

Notes: \*—Test pressure: 100 feet [30 meters] H<sub>2</sub>O (40 PSID); Test Medium: Air; Duration: 2 hours.\*\* —NEMA 4X applies to stainless steel enclosure only.