

PT8101

Heavy Industrial • Voltage Divider

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

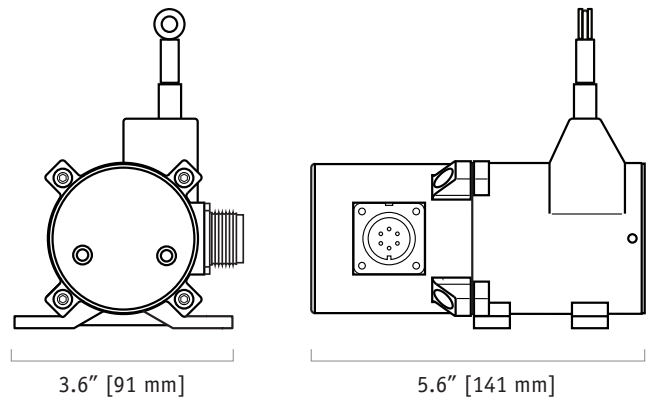
| | |
|--|--|
| Full Stroke Range Options | 0-2 to 0-60 inches |
| Output Signal Options | voltage divider (potentiometer) |
| Accuracy | see ordering information |
| Repeatability | ± 0.02% full stroke |
| Resolution | essentially infinite |
| Measuring Cable Options | stainless steel or thermoplastic |
| 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 Resistance Options | see ordering information |
| Power Rating, Watts | see ordering information |
| Recommended Maximum Input Voltage | see ordering information |
| Output Signal Change Over Full Stroke Range | 94% ±4% of input voltage |

ENVIRONMENTAL

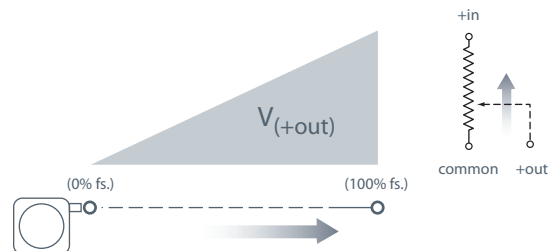
| | |
|-----------------------|------------------------------|
| Enclosure | NEMA 4/4X/6, IP 67/68 |
| Operating Temperature | -40° to 200°F (-40° to 90°C) |
| Vibration | up to 10g to 2000 Hz maximum |



The PT8101, using a high cycle plastic-hybrid potentiometer, operates with any basic panel meter or programmable controller in factories and harsh environments requiring linear position measurements in ranges up to 60".

As a member of Celesco's innovative family of NEMA 4 rated cable-extension transducers, the PT8101: installs in minutes by mounting its body to a fixed surface and attaching its cable to the movable object, works without perfect parallel alignment, and when its stainless-steel cable is retracted, it measures only 5".

Output Signal:



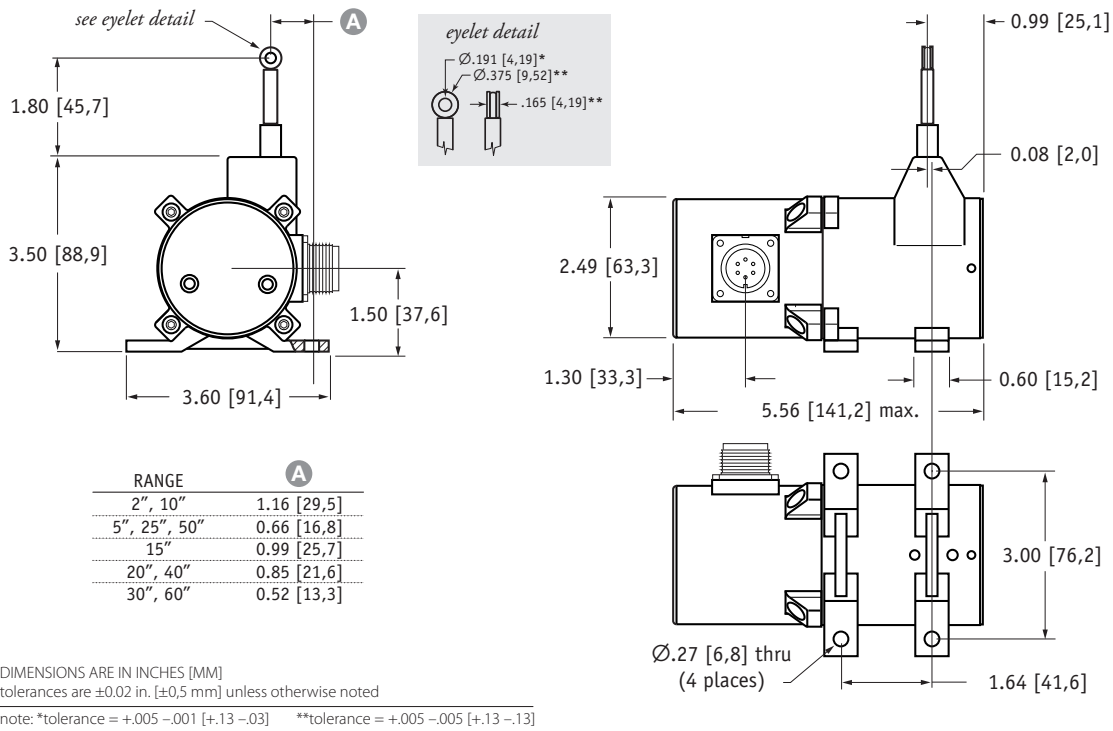
-- bridge circuit option available, see ordering information

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Outline Drawing:



Ordering Information:

Model Number:

PT8101- _____ **1** - _____ **1** _____
 order code: **R** **A** **B** **C** **D** **E** **F** **G**

Sample Model Number:
PT8101 - 0030 - 111 - 1110

- R** range: 30 inches
- A** enclosure/cable tension: aluminum/standard (13 oz.)
- B** measuring cable: .034 nylon-coated stainless
- D** output signal: 500 ohm potentiometer
- F** 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.) | 500...10K ohm options: | 0.25% | 0.25% | 0.15% | 0.15% | 0.15% | 0.15% | 0.15% | 0.10% | 0.10% | 0.10% |
| | bridge circuit options: | 0.30% | 0.30% | 0.20% | 0.20% | 0.20% | 0.20% | 0.15% | 0.15% | 0.15% | 0.15% |
| potentiometer cycle life*: | | 2.5×10^6 | 2.5×10^6 | 5×10^5 | 5×10^5 | 5×10^5 | 5×10^5 | 5×10^5 | 2.5×10^5 | 2.5×10^5 | 2.5×10^5 |

*-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 |

| | | Range: | 2 in. | 5 in. | 10 in. | 15 in. | 20 in. | 25 in. | 30 in. | 40 in. | 50 in. | 60 in. |
|-------------------------------------|-----------|--------|---------|--------|---------|--------|--------|--------|--------|--------|--------|--------|
| cable tension option specifications | 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: $\pm 50\%$

Measuring Cable:

| B order code: | 1 | 2 | 3 | 4 |
|----------------------|--|--------------------------------------|---|--------------------------------------|
| cable construction: | Ø.034-inch nylon-coated stainless steel rope | Ø.047-inch bare stainless steel rope | Ø.058-inch PVC jacketed vectra fiber rope | Ø.031-inch bare stainless steel rope |
| available ranges: | <i>all ranges</i> | <i>5, 15, 20, 25, 30-inch only</i> | <i>thru 30 inches only</i> | <i>40, 50, 60-inch only</i> |
| general use: | indoor | outdoor, debris, high temperature | high voltage or magnetic field | outdoor, debris, high temperature |

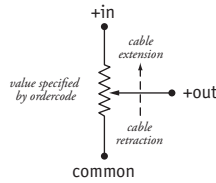
Output Signals:

| D order code: | 1 | 2 | 3 | 4 | 5 | 6 |
|----------------------|----------|-----------|-----------|-------------|-----------------------|---------------------------------|
| | 500 ohm* | 1000 ohm* | 5000 ohm* | 10,000 ohm* | fixed bridge (2 mV/V) | adjustable bridge (0...30 mV/V) |
| *tolerance = ±10% | | | | | | |

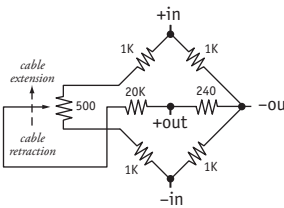
max. input voltage and power rating, options: 1 – 4

| | 2-inch, 5-inch range | 10-inch to 60-inch range |
|-----------------|----------------------|--------------------------|
| 500-ohms: | 20 V AC/DC (1 W) | 30 V AC/DC (2 W) |
| 1K to 10K-ohms: | 30 V AC/DC (1 W) | 30 V AC/DC (2 W) |

circuit, options 1-4

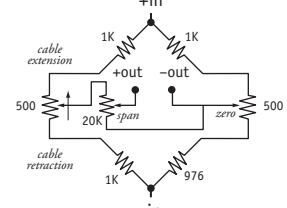


fixed bridge circuit



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

adjustable bridge circuit



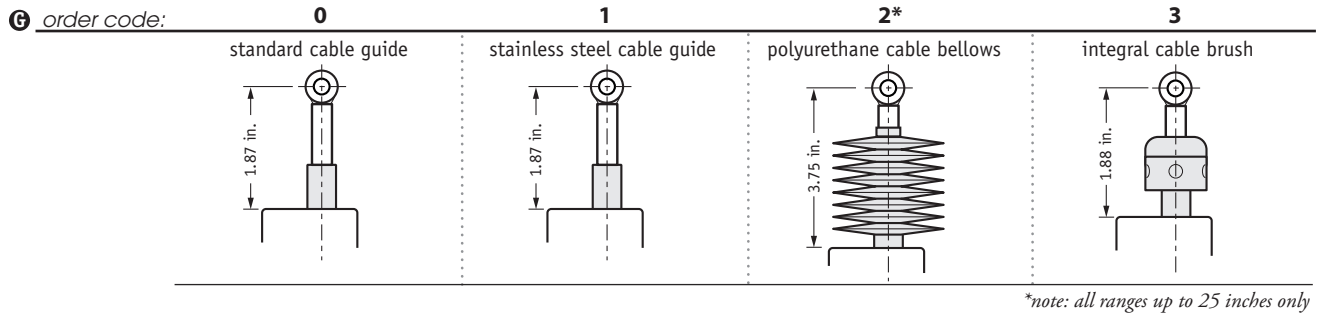
full scale output: adjustable from 0 to 30mV/V
zero adjust: to 50% of full stroke

Electrical Connection:

| F order code: | 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|--|---|---|--------|---|------|------|---|--------|------|---|-------|-------|---|---|-------|---|--|------------|----------|--------|-------|------|-----|-------|--------|-----|-------|-------|-----|---|--|------------|----------|--------|-----|------|------|-------|--------|------|-------|-------|-------|-------|---|-------|------|---|---|-------|---|---|
| | 6-pin plastic connector w/mating plug IP 67, NEMA 4X**, 6 | 10-ft. [3 M] waterproof cable IP 67, NEMA 4X**, 6 | 6-pin metal connector w/mating plug IP 65, NEMA 4 | 25-ft. [7.5 M] instrumentation cable IP 67, NEMA 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3.0 in. [78 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.] 3-conductor, 18 AWG type SJTOW | 2.4 in. [60 mm] 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 100-ft. [30 M] waterproof cable IP 67, NEMA 4X**, 6 | 10-ft. [3 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P | 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.] 3-conductor, 18 AWG type SJTOW | 10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 3-conductor, 18 AWG type SJTOW | 100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 3-conductor, 18 AWG type SJTOW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>6-pin Mating Plug</p> <table border="1"> <thead> <tr> <th>pin</th> <th>standard</th> <th>bridge</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>+ in</td> <td>+ in</td> </tr> <tr> <td>B</td> <td>common</td> <td>- in</td> </tr> <tr> <td>C</td> <td>+ out</td> <td>- out</td> </tr> <tr> <td>D</td> <td>-</td> <td>+ out</td> </tr> </tbody> </table> <p style="text-align: center;">contact view</p> | | pin | standard | bridge | A | + in | + in | B | common | - in | C | + out | - out | D | - | + out | <p>Waterproof Cable</p> <table border="1"> <thead> <tr> <th>color code</th> <th>standard</th> <th>bridge</th> </tr> </thead> <tbody> <tr> <td>WHITE</td> <td>+ in</td> <td>n/a</td> </tr> <tr> <td>BLACK</td> <td>common</td> <td>n/a</td> </tr> <tr> <td>GREEN</td> <td>+ out</td> <td>n/a</td> </tr> </tbody> </table> | | color code | standard | bridge | WHITE | + in | n/a | BLACK | common | n/a | GREEN | + out | n/a | <p>Instrumentation Cable</p> <table border="1"> <thead> <tr> <th>color code</th> <th>standard</th> <th>bridge</th> </tr> </thead> <tbody> <tr> <td>RED</td> <td>+ in</td> <td>+ in</td> </tr> <tr> <td>BLACK</td> <td>common</td> <td>- in</td> </tr> <tr> <td>GREEN</td> <td>+ out</td> <td>+ out</td> </tr> <tr> <td>WHITE</td> <td>-</td> <td>- out</td> </tr> <tr> <td>BLUE</td> <td>-</td> <td>-</td> </tr> <tr> <td>BROWN</td> <td>-</td> <td>-</td> </tr> </tbody> </table> | | color code | standard | bridge | RED | + in | + in | BLACK | common | - in | GREEN | + out | + out | WHITE | - | - out | BLUE | - | - | BROWN | - | - |
| pin | standard | bridge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | + in | + in | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | common | - in | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | + out | - out | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | - | + out | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| color code | standard | bridge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WHITE | + in | n/a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BLACK | common | n/a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN | + out | n/a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| color code | standard | bridge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RED | + in | + in | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BLACK | common | - in | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN | + out | + out | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WHITE | - | - out | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BLUE | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BROWN | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

Cable Guide Options:



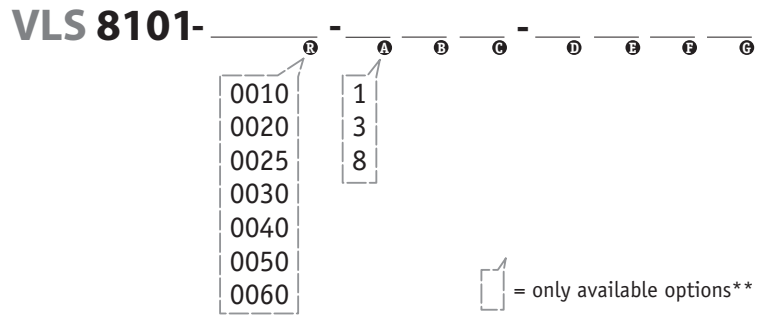
VLS Option - Free Release Protection

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 PT8101 model **PT8101-0060-111-1110**
2. remove "PT" from the model number ~~PT~~ **8101-0060-111-1110**
3. add "VLS" **VLS + 8101-0060-111-1110**
4. completed model number ! **VLS8101-0060-111-1110**

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

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