

# PT9150 (Extended Range)

## Cable Actuated Sensor

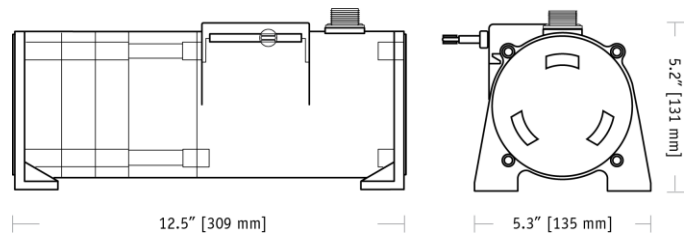
### Extended Ranges • Incremental Encoder

Linear Position to 1700 inches (4300 cm)

Stroke Range Options: 0-600 to 0-1700 inches

VLS Option to Prevent Free-Release Damage

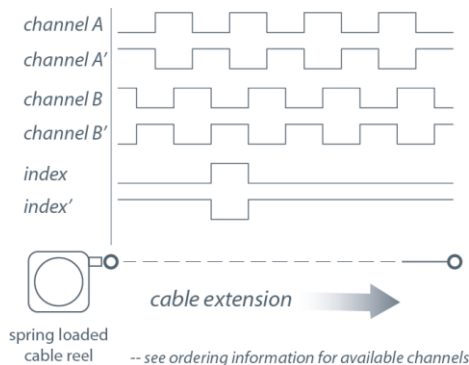
IP67 • NEMA 6 Protection



With its incremental optical encoder and industrial design this rugged transducer provides the highest accuracy and longest life of any measurement device of its kind. This model is available in a wide variety of resolutions and output stages to fit virtually any requirement.

It can measure up to 1700", yet when its cable is retracted it is only 6" long. Its small size and low-cost-to-measurement ratio offers remarkable flexibility and value.

### Output Signal



### General

<b>Full Stroke Range</b>	0-600 to 0-1700 inches
<b>Output Signal</b>	incremental encoder (quadrature)
<b>Output Driver Options</b>	TTL/CMOS, open collector or line driver
<b>Accuracy</b>	0.04% full stroke
<b>Repeatability</b>	± 0.02% full stroke
<b>Resolution</b>	10 to 250 pulses per inch
<b>Measuring Cable</b>	nylon-coated stainless steel
<b>Enclosure Material</b>	powder-painted aluminum or stainless steel
<b>Sensor</b>	optical incremental encoder
<b>Maximum Retraction</b>	see ordering information
<b>Acceleration</b>	
<b>Maximum Velocity</b>	see ordering information
<b>Weight, Aluminum (Stainless Steel) Enclosure</b>	14 lbs. (28 lbs.), max.

### Electrical

<b>Input Voltage</b>	see ordering information
<b>Input Current</b>	see ordering information

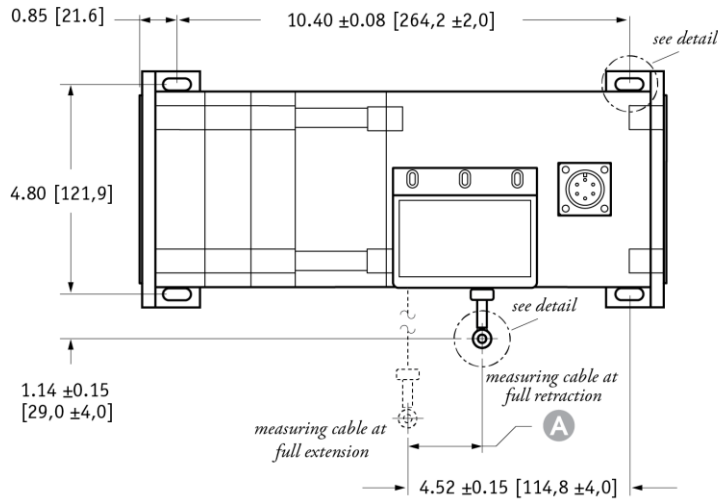
### Environmental

<b>Enclosure</b>	NEMA 4/4X/6, IP 67
<b>Operating Temperature</b>	0° to 160°F (-17° to 71°C)
<b>Vibration</b>	up to 10 g to 2000 Hz maximum

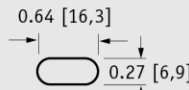
# PT9150

Extended Ranges • Incremental Encoder • Extended Ranges

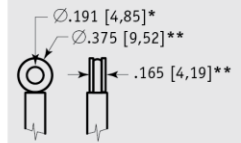
## Outline Drawing



### mounting hole detail

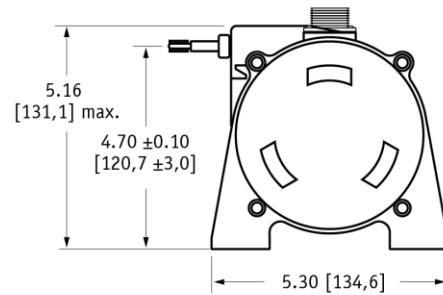
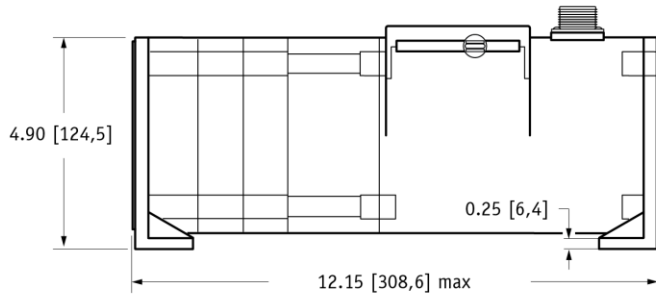


### eyelet detail



### 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 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.

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.

1. using guide below, select PT9150 model **PT9150-1200-111-1110**
2. remove "PT" from the model number **✗ 9150-1200-111-1110**
3. add "VLS" **VLS + 9150-1200-111-1110**
4. completed model number! **VLS9150-1200-111-1110**

VLS9150 -		<sup>B</sup>	<sup>A</sup>	<sup>B</sup>	<sup>C</sup>	<sup>D</sup>	<sup>E</sup>	<sup>F</sup>	<sup>G</sup>
english ranges	0600	1	1	1	1	1	1	1	0
	to	3	2	2	2	2	2	2	
	1700			3	3	3	3	3	
metric ranges	15000			4	4	4	4	4	
	to								
	40000								

■ = available options.

# PT9150

Extended Ranges • Incremental Encoder • Extended Ranges

## Ordering Information

### Model Number:

**PT9150** - **R** - **A** - **B** - **C** - **D** - **E** - **F** - **0**  
*order code:*

### Sample Model Number:

**PT9150 - 0800 - 111 - 1110**

- R** range: 500 inches
- A** enclosure: aluminum
- B** measuring cable: nylon-coated stainless
- C** cable exit: front
- D** output signal: TTL/CMOS driver
- E** resolution: 100 ±2 pulses per inch
- F** electrical connection: 6-pin plastic connector

### Full Stroke Range:

<i>english ranges</i>	<b>R</b> order code:	<b>0600</b>	<b>0800</b>	<b>1000</b>	<b>1200</b>	<b>1500</b>	<b>1700</b>
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.

<i>metric ranges</i>	<b>R</b> order code:	<b>15000</b>	<b>20000</b>	<b>25000</b>	<b>30000</b>	<b>35000</b>	<b>40000</b>
full stroke range, min:		15.000 mm	20.000 mm	25.000 mm	30.000 mm	35.000 mm	40.000 mm
cable tension (±35%):		7,5 N	6,7 N	5,6 N	5,3 N	5,0 N	4,7 N

### Enclosure Material:

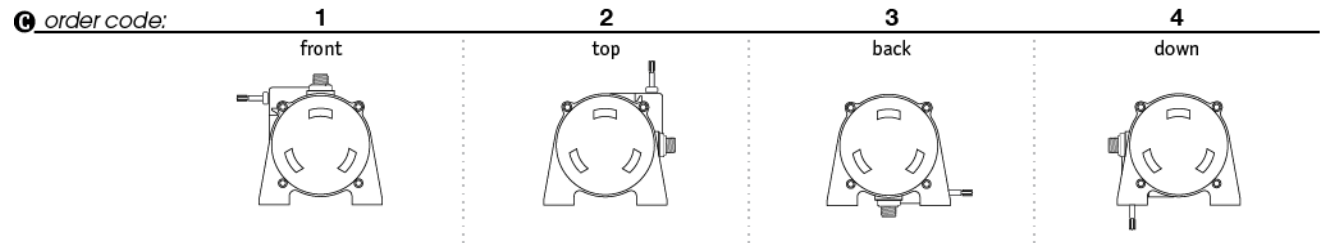
<b>A</b> order code:	<b>1</b>	<b>3</b>
enclosure material:	powder-painted aluminum	303 stainless steel
max. acceleration:	1g	1g
max. velocity:	60 inches/sec.	60 inches/sec.

### Measuring Cable:

<b>B</b> order code:	<b>1</b>	<b>2</b>
cable construction:	nylon-coated stainless steel rope*	bare stainless steel rope*
general use:	indoor	outdoor, debris, high temperature

<i>*cable diameter:</i>	stroke range:	<b>0600</b>	<b>0800</b>	<b>1000</b>	<b>1200</b>	<b>1500</b>	<b>1700</b>
	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:



**Output Signals:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>order code:</b> output driver: <b>TTL - CMOS</b> Input voltage (V+): 4.5...13.2 Vdc Sink current: 20 mA max. Input current: 80 mA max.	<b>Open Collector</b> Input voltage (V+): 10.8...26.4 Vdc Sink current: 20 mA max. Input current: 80 mA max.	<b>5 V - Line Driver</b> Input voltage (V+): 5 Vdc Sink current: 20 mA max. Input current: 150 mA max.	<b>Universal Line Driver</b> Input voltage (V+): 5...28 VDC Source/Sink: 20 mA max. Input current: 100 mA max, no load

**Resolution:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>order code:</b> english ranges: 100 ±2 pulses per in. metric ranges: 5 ±0,1 pulses per mm	200 ±4 pulses per in. 10 ±0,2 pulses per mm	250 ±5 pulses per in. 12,5 ±0,25 pulses per mm	10 ±0,2 pulses per in. 0,5 ±0,01 pulses per mm

**Electrical Connection:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>																																																																										
<b>order code:</b> 6-pin plastic connector with mating plug <b>IP 67, NEMA 4X*,6</b>  3.0 in. [78 mm]	25-ft. instrumentation cable 24 AWG, shielded <b>IP 67, NEMA 6</b>  25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded	18-pin plastic connector with mating plug <b>IP 65, NEMA 4</b>  2.5 in. [64 mm]	6-pin metal connector with mating plug <b>IP 67, NEMA 6</b>  2.4 in. [60 mm]																																																																										
.30 - .39 in. [8 - 10 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S		.26 - .30 in. [6,6 - 7,6 mm] cable dia. 20 - 24 AWG conductor size connector: Conxall 14282-18PG-300-K mating plug: Conxall 13282-18SG-326-K	3/8-in. [9 mm] max cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S																																																																										
<b>6-pin mating plug:</b> <table border="1"> <thead> <tr> <th>pin</th> <th>TTL/CMOS</th> <th>5 V Line Driver</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Open Collector input voltage</td> <td>Universal Line Driver input voltage</td> </tr> <tr> <td>B</td> <td>common</td> <td>common</td> </tr> <tr> <td>C</td> <td>channel A</td> <td>channel A</td> </tr> <tr> <td>D</td> <td>channel B</td> <td>channel B</td> </tr> <tr> <td>E</td> <td>-</td> <td>channel A'</td> </tr> <tr> <td>F</td> <td>-</td> <td>channel B'</td> </tr> </tbody> </table>	pin	TTL/CMOS	5 V Line Driver	A	Open Collector input voltage	Universal Line Driver input voltage	B	common	common	C	channel A	channel A	D	channel B	channel B	E	-	channel A'	F	-	channel B'	<b>18-pin mating plug:</b> <table border="1"> <thead> <tr> <th>pin</th> <th>TTL/CMOS</th> <th>5 V Line Driver</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Open Collector input voltage</td> <td>Universal Line Driver input voltage</td> </tr> <tr> <td>2</td> <td>common</td> <td>common</td> </tr> <tr> <td>3</td> <td>channel B</td> <td>channel B</td> </tr> <tr> <td>6</td> <td>channel A</td> <td>channel A</td> </tr> <tr> <td>7</td> <td>-</td> <td>index</td> </tr> <tr> <td>11</td> <td>-</td> <td>channel B'</td> </tr> <tr> <td>12</td> <td>-</td> <td>channel A'</td> </tr> <tr> <td>15</td> <td>-</td> <td>index'</td> </tr> </tbody> </table>	pin	TTL/CMOS	5 V Line Driver	1	Open Collector input voltage	Universal Line Driver input voltage	2	common	common	3	channel B	channel B	6	channel A	channel A	7	-	index	11	-	channel B'	12	-	channel A'	15	-	index'	<b>25-ft. instrumentation cable:</b> <table border="1"> <thead> <tr> <th>color</th> <th>TTL/CMOS</th> <th>5 V Line Driver</th> </tr> </thead> <tbody> <tr> <td>red</td> <td>Open Collector input voltage</td> <td>Universal Line Driver input voltage</td> </tr> <tr> <td>black</td> <td>common</td> <td>common</td> </tr> <tr> <td>green</td> <td>channel A</td> <td>channel A</td> </tr> <tr> <td>white</td> <td>channel B</td> <td>channel B</td> </tr> <tr> <td>blue</td> <td>-</td> <td>channel A'</td> </tr> <tr> <td>brown</td> <td>-</td> <td>channel B'</td> </tr> <tr> <td>yellow</td> <td>-</td> <td>index</td> </tr> <tr> <td>orange</td> <td>-</td> <td>index'</td> </tr> </tbody> </table>	color	TTL/CMOS	5 V Line Driver	red	Open Collector input voltage	Universal Line Driver input voltage	black	common	common	green	channel A	channel A	white	channel B	channel B	blue	-	channel A'	brown	-	channel B'	yellow	-	index	orange	-	index'
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\*-applies to stainless steel enclosure only.

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**19 Waterman Ave. Toronto, Ont. M4B1Y2**  
**Tel: 416-445-5500 Fax: 416-445-1170**  
**Toll Free: 1-800-465-1600**  
**Email: [sales@intertechnology.com](mailto:sales@intertechnology.com)**  
**Website: [www.intertechnology.com](http://www.intertechnology.com)**

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