

# PT1DC

## Cable Actuated Sensor

### Instrument Grade • 0..10, 0..5 Vdc

**Absolute Linear Position to 50 inches (1270 mm)**

**Aluminum and Polycarbonate Enclosure**

**Compact Design**

**IP65 • NEMA 4 Protection**

#### General

<b>Full Stroke Range</b>	0-2 to 0-50 inches
<b>Options</b>	
<b>Output Signal Options</b>	0...5, 0...10, -5...+5, -10...+10 VDC
<b>Accuracy</b>	± 0.28% to ± 0.15% full stroke (see ordering information)
<b>Repeatability</b>	± 0.05% full stroke
<b>Resolution</b>	essentially infinite
<b>Measuring Cable</b>	.019-in. dia. nylon-coated stainless steel
<b>Enclosure</b>	glass-filled polycarbonate and black anodized aluminum
<b>Sensor</b>	plastic-hybrid precision potentiometer
<b>Potentiometer Cycle Life</b>	see ordering information
<b>Maximum Retraction</b>	see ordering information
<b>Acceleration</b>	
<b>Weight</b>	1 lb. max.

The PT1DC can operate from an unregulated 14.5 to 40 VDC power supply while providing an output signal that is proportional to the linear movement of its measuring cable. The PT1DC has a maximum measurement range up to 50" and has 4 output signal options to choose from: 0...10, 0...5, -10...+10 and -5...+5 Vdc.

Just like the rest of the PT1 series, the PT1DC also offers several options including forward and reverse output signals, zero and span adjustments and alternate measuring cable exits.

#### Electrical

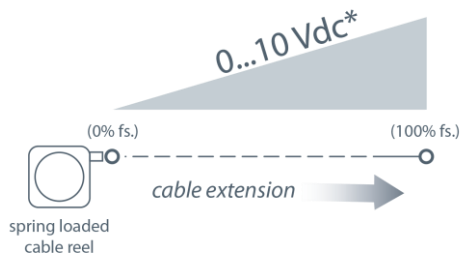
<b>Input</b>	14.5-40 VDC (10.5-40 VDC for 0...5 and -5...+5 volt output)
<b>Input Current</b>	10 mA maximum
<b>Output Impedance</b>	1000 ohms
<b>Maximum Load</b>	5000 ohms
<b>Zero and Span Adjustment</b>	see ordering information

#### Environmental

<b>Enclosure</b>	NEMA 4, IP 65
<b>Operating Temperature</b>	0° to 200°F (-17° to 90°C)
<b>Vibration</b>	up to 10 g to 2000 Hz maximum

#### EMC Compliance Per Directive 89/336/EEC

<b>Emission/Immunity</b>	EN50081-2 / EN50082-2
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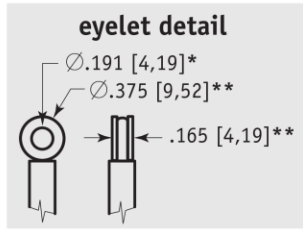


\*Also Available: 0...5, -5...+5, -10...+10 Vdc

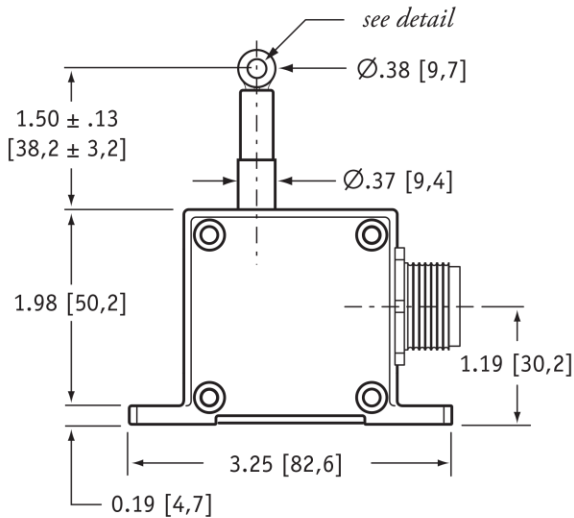
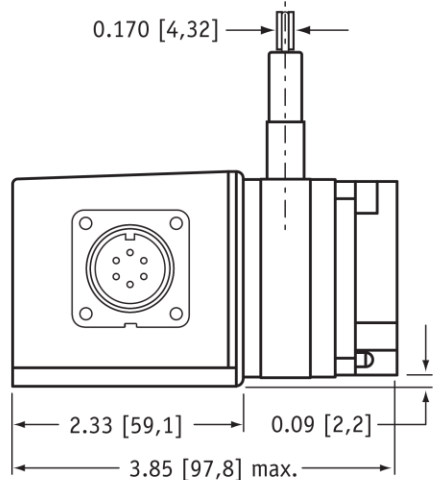
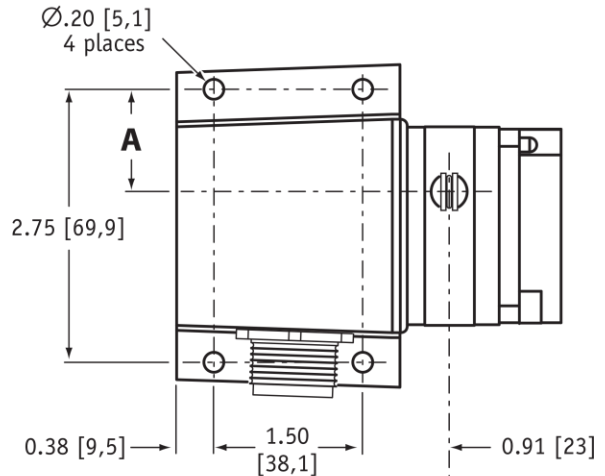
# PT1DC

Instrument Grade • 0..10, 0..5 Vdc

## Outline Drawing



Range	A
2, 10	1.04 [26,4]
5, 25, 50	0.58 [14,7]
15, 30	0.82 [20,8]
20, 40	0.74 [18,8]
<i>inches [mm]</i>	



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]

## Ordering Information

### Model Number:

**PT1DC** -      -      -      -      -       
order code:      **R**      **A**      **B**      **C**      **D**

Sample Model Number:

**PT1DC - 30 - UP - Z10 - MC4 - SG**

- R** range: 30 inches
- A** measuring cable exit: up
- B** output signal: 0...10 VDC
- C** electrical connection: 4-pin micro connector
- D** cable guide: spring-loaded guide

### Full Stroke Range:

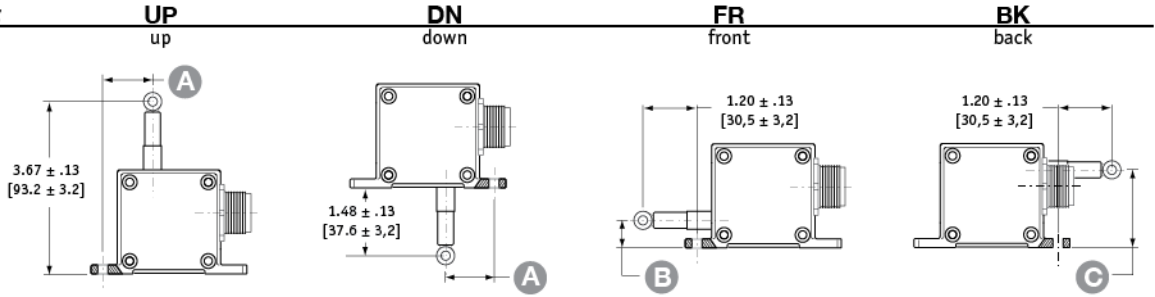
<b>R</b> order code:	2	5	10	15	20	25	30	40	50
full stroke range, min:	2 in.	5 in.	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.
accuracy (% of f.s.):	0.28%			0.18%			0.15%		
potentiometer cycle life:	2,500,000 cycles			500,000 cycles			250,000 cycles		
cable tension (20%):	12 oz.	5 oz.	12 oz.	9 oz.	6 oz.	5 oz.	9 oz.	6 oz.	5 oz.
max. cable acceleration:	11 g	3 g	11 g	5 g	4 g	3 g	5 g	4 g	3 g

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## Cable Exit:

**A** order code:  
direction:



measurement range	2	5	10	15	20	25	30	40	50
<b>A</b>	1.04 in. 26,4 mm	0.58 in. 14,7 mm	1.04 in. 26,4 mm	0.82 in. 20,8 mm	0.74 in. 18,8 mm	0.58 in. 14,7 mm	0.82 in. 20,8 mm	0.74 in. 18,8 mm	0.58 in. 14,7 mm
<b>B</b>	0.75 in. 19,1 mm	0.29 in. 6,1 mm	0.75 in. 19,1 mm	0.53 in. 13,5 mm	0.45 in. 11,5 mm	0.29 in. 6,1 mm	0.53 in. 13,5 mm	0.45 in. 11,5 mm	0.29 in. 6,1 mm
<b>C</b>	1.43 in. 36,3 mm	1.89 in. 48,0 mm	1.43 in. 36,3 mm	1.65 in. 41,9 mm	1.73 in. 43,9 mm	1.89 in. 48,0 mm	1.65 in. 41,9 mm	1.73 in. 43,9 mm	1.89 in. 48,0 mm

## Output Signals:

**B** order code:

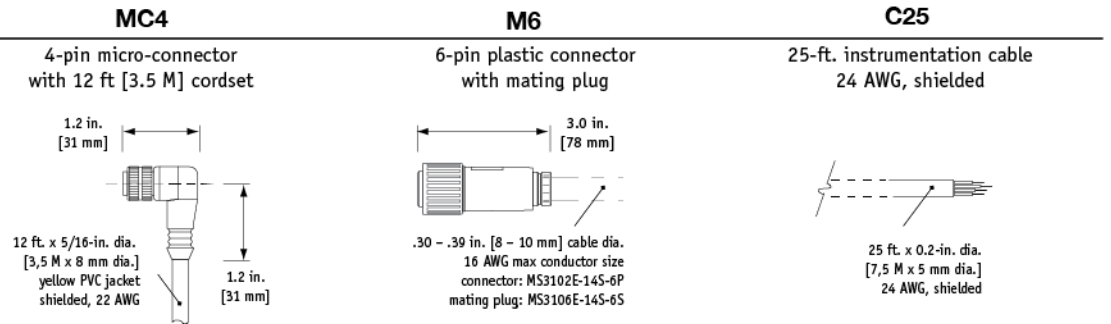
output signal options:	Z10	10Z	Z5	5Z	M0P0	P0M0	M5P5	P5M5
	0...10 VDC	10...0 VDC	0...5 VDC	5...0 VDC	-10...+10 VDC	+10...-10 VDC	-5...+5 VDC	+5...-5 VDC
input voltage:	14.5 – 40 vdc		10.5 – 40 vdc		14.5 – 40 vdc		10.5 – 40 vdc	
span adjustment:	from 100% to 50% of full stroke range				from 100% to 75% 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:



## Electrical Connection:

**C** order code:

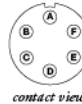


### 4-pin mating plug and cord sets:



pin	color code	signals
1	RED-BLK TR.	input voltage
2	RED-WHT TR.	output signal
3	RED	common

### 6-pin mating plug:



pin	signals
A	input voltage
B	output signal
C	common

### 25-ft. cable:

color code	standard
RED	input voltage
BLACK	common
GREEN	output signal

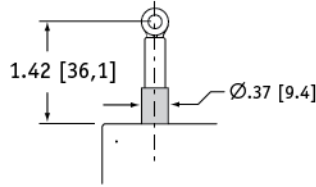
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## Cable Guide:

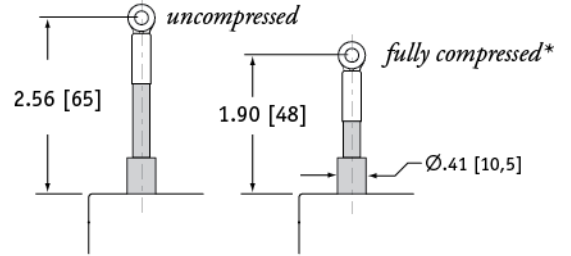
① *order code:*

**blank**  
standard cable guide



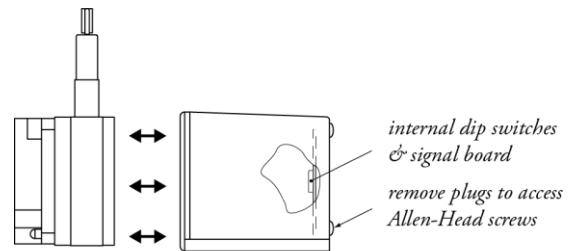
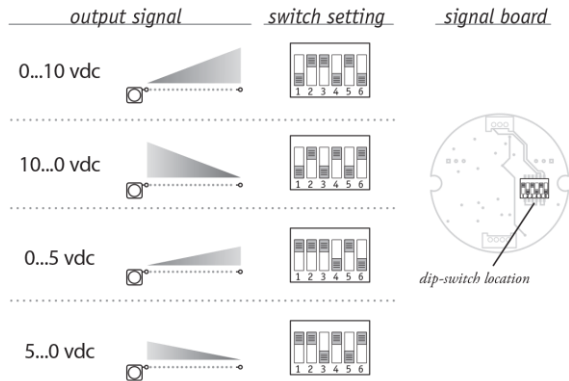
**SG**  
spring-loaded guide

*cable-guide cushions impact from accidental free release*



*\*note: start of full stroke range begins at full compression point (except 2-inch and 5-inch ranges).*

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



to gain access to the signal board, remove the two Allen-Head Screws and remove rear cover.

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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PT1DC 12/01/2015

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