

Cable-Extension Position Transducer

Precision Potentiometric Output

Ranges: 0-2 to 0-100 inches

Instrument Grade



PT101



Specification Summary:

GENERAL

Full Stroke Range Options.....0-2 to 0-100 inches
 Output Signal Options..... voltage divider (potentiometer)
 Accuracy $\pm 0.25\%$ to $\pm 0.10\%$ full stroke *see ordering information*
 Repeatability $\pm 0.02\%$ full stroke
 Resolution essentially infinite
 Measuring Cable Options019-in. dia. nylon-coated stainless steel
 Enclosure Material powder-painted and anodized aluminum
 Sensor plastic-hybrid precision potentiometer
 Potentiometer Cycle Life *see ordering information*
 Maximum Retraction Acceleration..... *see ordering information*
 Weight 2 lbs. max.

ELECTRICAL

Input Resistance Options..... 500, 1K, 5K, 10K or bridge, *see ordering information*
 Power Rating, Watt 2.0 at 70°F derated to 0 at 250°
 Recommended Maximum Input Voltage 30 V (AC/DC)
 Output Signal Change Over Full Stroke Range..... 94% $\pm 4\%$ of input voltage

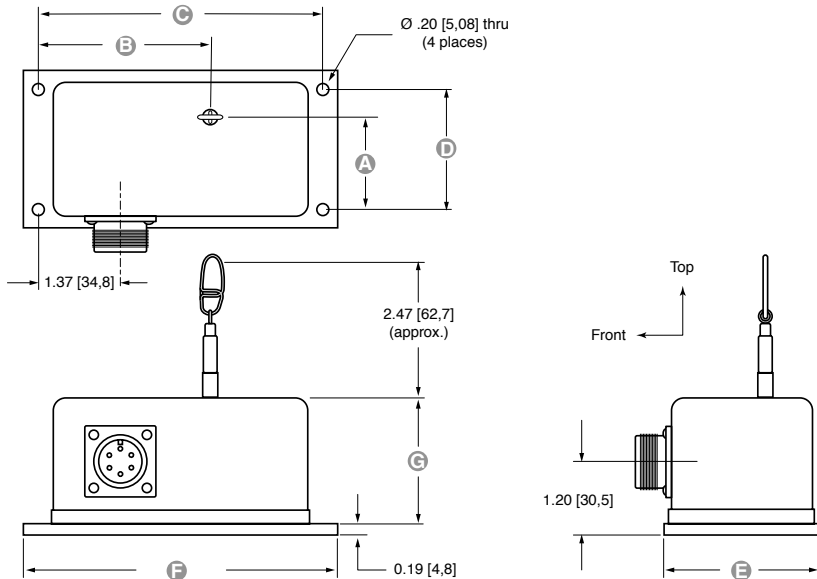
ENVIRONMENTAL

Enclosure NEMA 1
 Temperature Coefficient of Sensing Element 88 PPM/°F
 Humidity 100% RH @ 90°F (32 C)
 Operating Temperature -40° to 200°F (-40° to 90°C)
 Vibration up to 10 G's to 2000 Hz maximum

The PT101 is available with full-scale measurement ranges from 2 to 100 inches, providing a voltage feedback signal that is linearly proportional to the position of a traveling stainless steel extension cable. The PT101 has been applied to literally thousands of applications, including automotive suspension testing, saw-blade depth, valve stem opening and aircraft structural testing.

The PT101 installs in minutes by mounting its base to a fixed surface and attaching its cable to the movable object. The PT101 works without perfect parallel alignment, and when its stainless steel cable is retracted, its height is less than 5".

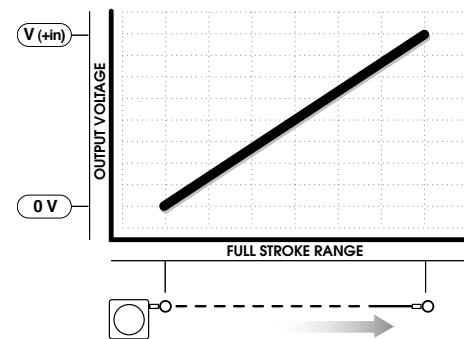
Outline Drawing



Range	A	B	C	D	E	F	G
2", 10", 20"	1.34 [34,0]	2.87 [72,9]	4.75 [120,6]	2.00 [25,4]	2.63 [66,8]	5.25 [133,4]	2.10 [53,3]
5", 25", 50"	1.83 [46,5]	2.87 [72,9]	4.75 [120,6]	2.00 [25,4]	2.63 [66,8]	5.25 [133,4]	2.10 [53,3]
15", 30"	1.56 [39,6]	2.87 [72,9]	4.75 [120,6]	2.00 [25,4]	2.63 [66,8]	5.25 [133,4]	2.10 [53,3]
40"	1.64 [41,6]	2.87 [72,9]	4.75 [120,6]	2.00 [25,4]	2.63 [66,8]	5.25 [133,4]	2.10 [53,3]
60"	2.16 [54,9]	2.88 [73,1]	6.75 [171,4]	2.37 [60,2]	3.25 [82,5]	7.50 [92,2]	2.60 [66,0]
75", 80"	2.45 [62,2]	2.38 [60,4]	6.75 [171,4]	2.50 [63,5]	3.63 [92,2]	7.50 [92,2]	2.86 [72,6]
100"	3.10 [78,7]	2.47 [62,8]	7.38 [187,5]	3.00 [76,2]	4.25 [108,0]	8.00 [203,2]	3.79 [96,3]

ALL DIMENSIONS ARE IN INCHES [MM] tolerances are ± 0.02 in. [$\pm 0,5$ mm] unless otherwise noted

Electrical Output Signal



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PT101 Cable-Extension Transducer: Precision Potentiometric Output

Ordering Information:

Model Number:

PT101 - - **1** - **1** - **0**

order code: R A B C D E F G

Sample Model Number:

PT101 - 0025 - 111 - 1110

- R** range: 25 inches
- A** measuring cable tension: standard - 5 oz.
- C** cable exit: top
- D** sensing circuit: 500 ohms
- F** electrical connection: 6-pin plastic connector

Full Stroke Range:

R order code:	0002	0005	0010	0015	0020	0025	0030	0040	0050	0060	0075	0100
full stroke range, min:	2 in.	5 in.	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.	60 in.	75 in.	100 in.
accuracy (% of f.s.):	0.25%	0.25%	0.15%	0.15%	0.10%	0.15%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
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	2.5×10^5	2.5×10^5

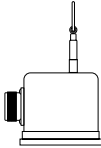
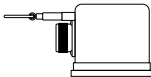
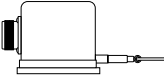
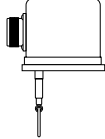
*-1 cycle is defined as the travel of the measuring cable from full retraction to full extension and back to full retraction

Measuring Cable Tension:

A order code:	1	2*	3*	7*
	standard tension* (max. acceleration)	increased tension*	high tension*	decreased tension*
2, 10, 20 inch range:	12 oz. (11 G)	72 oz.	144 oz.	12 oz.
5, 25, 50 inch range:	5 oz. (2 G)	30 oz.	60 oz.	5 oz.
15, 30 inch range:	8 oz. (3 G)	48 oz.	96 oz.	8 oz.
40 inch range:	6 oz. (4 G)	36 oz.	72 oz.	6 oz.
60 inch range:	13 oz. (4 G)	78 oz.	156 oz.	13 oz.
75, 80 inch range:	10 oz. (3 G)	60 oz.	120 oz.	10 oz.
100 inch range:	13 oz. (5 G)	78 oz.	156 oz.	13 oz.

*- tolerance: $\pm 20\%$ **- cable tension options 2, 3, 7 available for re-orders only!

Measuring Cable Exit:

G order code:	1	2*	3*	4*
description:	top exit	front	rear	bottom
				

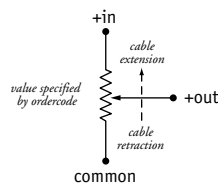
*note: cable exit options 2, 3, 4 available for re-orders only!

Sensing Circuit:

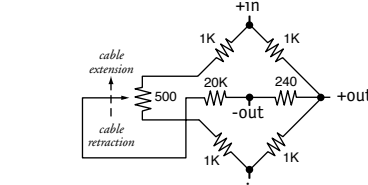
D order code:	1	2	3	4	5	6
	500 ohm*	1000 ohm*	5000 ohm*	10,000 ohm*	fixed bridge (2 mV/V)	adjustable bridge (0...30 mV/V)

*tolerance = $\pm 10\%$

circuit, options 1-4

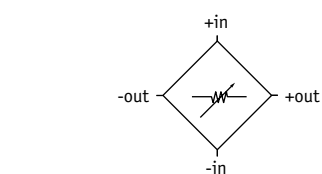


fixed bridge circuit



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

adjustable bridge circuit



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

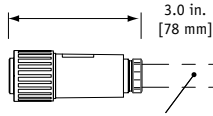
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Ordering Information (cont.):

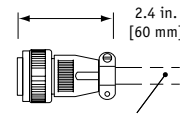
Electrical Connection:

Order code:

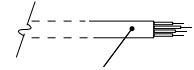
1	2	3	4
6-pin plastic connector with mating plug	terminal strip	6-pin metal connector with mating plug	25-ft. instrumentation cable 24 AWG, shielded



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



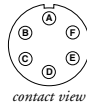
3/8-in. [9 mm] max cable dia.
16 AWG max conductor size
connector: MS3102E-14S-6P
mating plug: MS3106E-14S-6S



25 ft. x 0.2-in. dia.
[7,5 M x 5 mm dia.]
24 AWG, shielded

6-pin mating plug:

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



25-ft. instrumentation cable:

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