

Cable-Extension Position Transducer

Precision Potentiometric Output
Ranges: 0-2 to 0-60 inches
Industrial Grade



PT8101

Specification Summary:

GENERAL

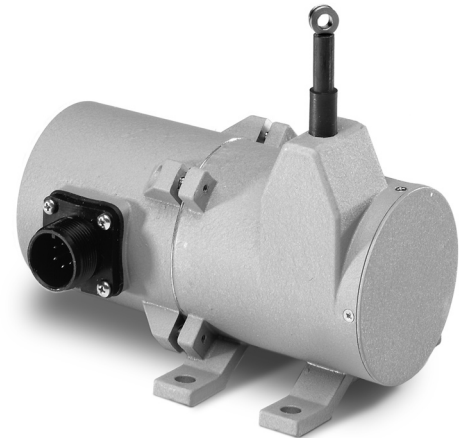
Full Stroke Range Options 0-2 to 0-60 inches
 Output Signal Options voltage divider (potentiometer)
 Accuracy $\pm 0.25\%$ to $\pm 0.10\%$ full stroke *see ordering information*
 Repeatability $\pm 0.02\%$ full stroke
 Resolution essentially infinite
 Measuring Cable Options nylon-coated stainless steel 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 500, 1K, 5K, 10K or bridge, *see ordering information*
 Power Rating, Watt *see ordering information*
 Recommended Maximum Input Voltage *see ordering information*
 Output Signal Change Over Full Stroke Range $94\% \pm 4\%$ of input voltage

ENVIRONMENTAL

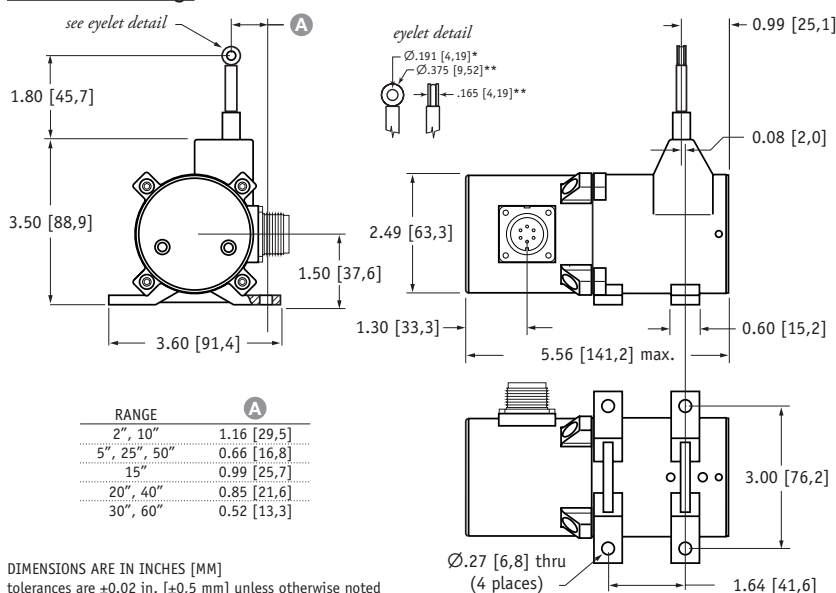
Enclosure NEMA 4/4X/6, IP 67/68
 Operating Temperature -40° to 200° F (-40° to 90° C)
 Vibration up to 10 G's to 2000 Hz maximum



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".

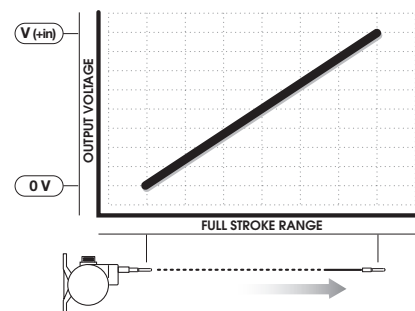
As a member of Celesco's innovative family of NEMA 4 rated cable-extension transducers, the PT8101: installs in minutes by mounting it's body to a fixed surface and attaching it's cable to the movable object, works without perfect parallel alignment, and when it's stainless-steel cable is retracted,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

Outline Drawing



DIMENSIONS ARE IN INCHES [MM]
 tolerances are ± 0.02 in. [$\pm 0,5$ mm] unless otherwise noted
 note: *tolerance = $+0.005 -0.001$ [$+0,13 -0,03$] **tolerance = $+0.005 -0.005$ [$+0,13 -0,13$]

Output Signal



Ordering Information:

Model Number:

PT8101- _____ - _____ **1** - _____ **1** - _____ **G**
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 (9 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.):	0.25%	0.25%	0.15%	0.15%	0.15%	0.15%	0.15%	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

*-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	3	8	5	6	7	2	4	9
enclosure:	aluminum	303 stainless	316 stainless	aluminum	303 stainless	316 stainless	aluminum	303 stainless	316 stainless
cable tension ($\pm 30\%$)	standard tension			medium tension			high tension		
2, 10-inch ranges:	39 oz. [35 G max. acceleration]			65 oz. [53 G max. acceleration]			116 oz. [100 G max. acceleration]		
15-inch range:	26 oz. [13 G max. acceleration]			43 oz. [23 G max. acceleration]			77 oz. [40 G max. acceleration]		
20, 40-inch ranges:	20 oz. [10 G max. acceleration]			33 oz. [16 G max. acceleration]			60 oz. [32 G max. acceleration]		
5, 25, 50-inch ranges:	16 oz. [6 G max. acceleration]			26 oz. [11 G max. acceleration]			47 oz. [19 G max. acceleration]		
30, 60-inch ranges:	13 oz. [4 G max. acceleration]			22 oz. [8 G max. acceleration]			40 oz. [13 G max. acceleration]		

Measuring Cable:

B order code:	1	2	3
	\varnothing .034-inch nylon-coated stainless steel available in all ranges	\varnothing .047-inch stainless steel 5, 15, 20, 25, 30-inch ranges only	\varnothing .062-inch thermoplastic all ranges up to 30 inches only

Output Signals:

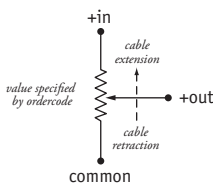
D order code:	1	2	3	4	5	6
	500 ohm*	1000 ohm*	5000 ohm*	10,000 ohm*	fixed bridge (2 mV/V)	adjustable bridge (0...30 mV/V)

*tolerance = $\pm 10\%$

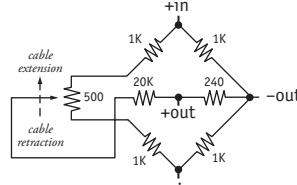
max. input voltage and power rating, options: 1 - 4

	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

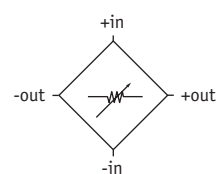


fixed bridge circuit



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

adjustable bridge circuit



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

Ordering Information:

Electrical Connection:

1 order code: 6-pin plastic connector w/mating plug
IP 67, NEMA 4X**, 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

2 10-ft. [3 M] waterproof cable
IP 67, NEMA 4X**, 6
10 ft. x 0.4-in. dia. [3 M x 10 mm dia.]
18 AWG, type SJTW

3 6-pin metal connector w/mating plug
IP 65, NEMA 4
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

4 25-ft. [7.5 M] instrumentation cable
IP 67, NEMA 6
25 ft. x 0.2-in. dia. [7.5 M x 5 mm dia.]
24 AWG, shielded

5 order code: 100-ft. [30 M] waterproof cable
IP 67, NEMA 4X**, 6
100 ft. x 0.4-in. dia. [30 M x 10 mm dia.]
18 AWG, type SJTW

6 10-ft. [3 M] pressure tested* waterproof cable
IP 68, NEMA 4X**, 6P
10 ft. x 0.4-in. dia. [3 M x 10 mm dia.]
18 AWG, type SJTW

7 100-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.]
18 AWG, type SJTW

6-pin Mating Plug			Waterproof Cable			Instrumentation Cable		
pin	standard	bridge	color code	standard	bridge	color code	standard	bridge
A	+ in	+ in	WHITE	+ in	n/a	RED	+ in	+ in
B	common	- in	BLACK	common	n/a	BLACK	common	- in
C	+ out	- out	GREEN	+ out	n/a	GREEN	+ out	+ out
D	-	+ out				WHITE	-	- out

contact view

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

Cable Guide Options:

0 order code: standard cable guide
1.87 in.

1 stainless steel cable guide
1.87 in.

2* polyurethane cable bellows
3.75 in.

3 integral cable brush
1.88 in.

*note: all ranges up to 25 inches only