

Cable-Extension Position Transducer

0/4...20 mA Output

Ranges: 0-2 to 0-100 inches

Instrument Grade



PT420



Specification Summary:

GENERAL

Full Stroke Range Options 0-2 to 0-100 inches
 Output Signal Options 4...20 mA (2-wire) and 0...20 mA (3-wire)
 Accuracy $\pm 0.28\%$ to $\pm 0.15\%$ full stroke *see ordering information*
 Repeatability $\pm 0.05\%$ full stroke
 Resolution essentially infinite
 Measuring Cable Options 0.019-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

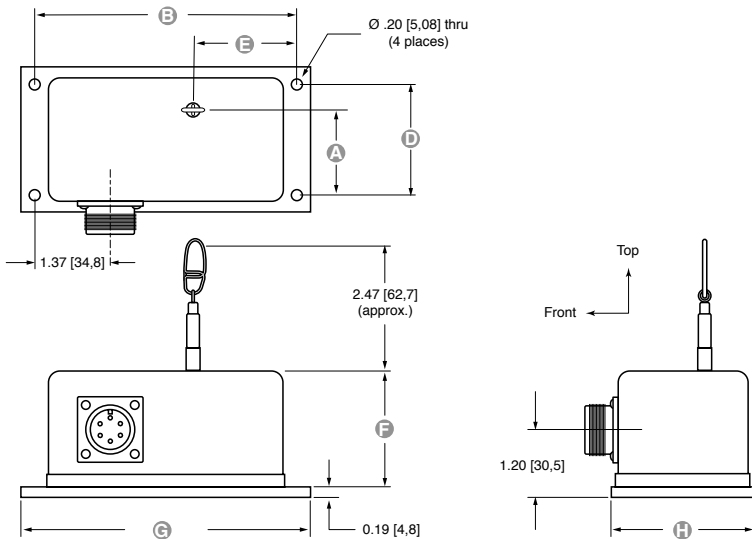
Input Voltage 8-40 VDC
 Input Current 20 mA max.
 Maximum Loop Resistance (Load) (loop supply voltage - 8)/0.020
 Circuit Protection 38 mA max.
 Impedance 100M ohms@100 VDC, min.
 Output Signal Adjustment
 Zero Adjustment from factory set zero to 50% of full stroke range
 Span Adjustment from 100% down to 50% of factory set span
 Thermal Effects
 Zero 0.01% f.s./°F, max.
 Span 0.01% f.s./°F, max.

ENVIRONMENTAL

Enclosure NEMA 1
 Operating Temperature -40° to 200°F (-40° to 90°C)
 Vibration up to 10 G's to 2000 Hz maximum

The PT420 is available with full-scale measurement ranges from 2 to 100 inches, providing a 0/4-20 mA feedback signal that is linearly proportional to the position of a traveling stainless-steel extension cable. Use the PT420 to provide position feedback on hydraulic cylinders in factories and utilities, gate position in fresh or wastewater distribution systems, or valve opening in process-related applications.

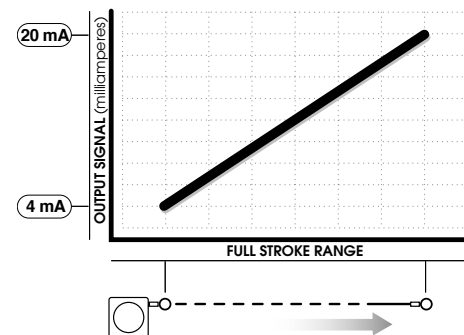
The PT420 installs in minutes by mounting its base to a fixed surface and attaching its cable to the movable object. The PT420 works without perfect parallel alignment, and when its stainless steel cable is retracted, its height is less than 5".



Range	A	B	D	E	F	G	H
2", 10", 20"	1.34 [34,0]	7.00 [177,8]	2.00 [50,8]	3.00 [76,2]	2.10 [53,3]	7.50 [190,5]	2.63 [66,8]
5", 25", 50"	1.85 [47,0]	7.00 [177,8]	2.00 [50,8]	3.00 [76,2]	2.10 [53,3]	7.50 [190,5]	2.63 [66,8]
15", 30"	1.51 [38,4]	7.00 [177,8]	2.00 [50,8]	3.00 [76,2]	2.10 [53,3]	7.50 [190,5]	2.63 [66,8]
40"	1.67 [42,4]	7.00 [177,8]	2.00 [50,8]	3.00 [76,2]	2.10 [53,3]	7.50 [190,5]	2.63 [66,8]
60"	2.19 [55,6]	7.00 [177,8]	2.37 [60,2]	2.81 [71,4]	2.60 [66,0]	7.50 [190,5]	3.25 [82,6]
75", 80"	2.52 [64,0]	6.75 [171,5]	2.50 [63,5]	2.37 [60,2]	2.86 [72,6]	7.50 [190,5]	3.63 [92,2]
100"	3.18 [80,8]	7.38 [187,5]	3.00 [76,2]	3.19 [81,0]	3.80 [96,5]	8.00 [203,2]	4.25 [108,0]

ALL DIMENSIONS ARE IN INCHES [MM] tolerances are ± 0.02 in. [± 0.5 mm] unless otherwise noted

Electrical Output Signal



PT420 Cable-Extension Transducer: 0/4...20 mA Output Signal

Ordering Information:

Model Number:

PT420 - - **1** - **1** - **0**

order code: R A B C D E F G

Sample Model Number:

PT420 - 0025 - 111 - 1110

R range: 25 inches
A measuring cable tension: standard - 5 oz.
C cable exit: top
E output signal: 4...20 mA
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.):	0.28%	0.28%	0.18%	0.18%	0.15%	0.18%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%
potentiometer cycle life*:	2.5 x 10 ⁶	2.5 x 10 ⁶	5 x 10 ⁵	5 x 10 ⁵	5 x 10 ⁵	5 x 10 ⁵	5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵

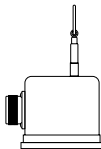
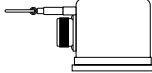

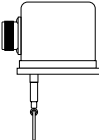
*-1 cycle is defined as the travel of the measuring cable from full retraction to full extension and back to full retraction

Measuring Cable Tension:

A order code:	1	2*	3*	7*
description:	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: ±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
				

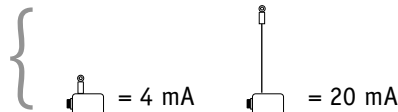
*note: cable exit options 2, 3, 4 available for re-orders only!

Sensing Circuit:

E order code:	1	2	3	4
output signal options:	4...20 mA 	20...4 mA 	0...20 mA 	20...0 mA 
sensitivity:	16 mA/full stroke ±0.25%		20 mA/full stroke ±0.25%	
wiring configuration:	2 - wire		3 - wire	

Example:

ordercode = 1 = 4...20 mA



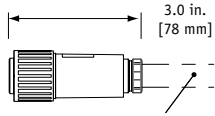
PT420 Cable-Extension Transducer: 0/4...20 mA Output Signal

Ordering Information (cont.):

Electrical Connection:

Order code:

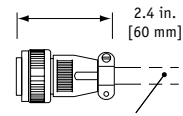
1
6-pin plastic connector
with mating plug



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

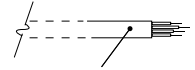
2
terminal strip

3
6-pin metal connector
with mating plug



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

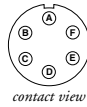
4
25-ft. instrumentation cable
24 AWG, shielded



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

6-pin mating plug:

pin	2-wire	3-wire
A	8...40 vdc	8...40 vdc
B	4...20 mA out	common
C	-	0...20 mA out
D	case ground	-



25-ft. instrumentation cable:

color code	2-wire	3-wire
RED	8...40 vdc	8...40 vdc
BLACK	4...20 mA out	0...20 mA out
WHITE	n/a	common
GREEN	case ground	n/a