PT1MA

Cable Actuated Sensor
Industrial Grade • 4..20mA • 0..20mA

Absolute Linear Position to 50 inches (1270 mm)

Aluminum and Polycarbonate Enclosure

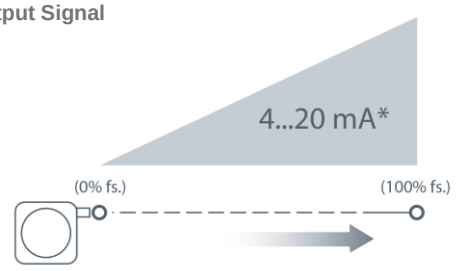
Compact Design

IP65 • NEMA 4 Protection

The PT1MA adds 4...20 mA position feedback signal to Celesco's compact line of cable-extension transducers. The PT1MA is available with full stroke ranges from as little as 2 inches on up to 50 inches with adjustable zero and span settings to precisely match the full scale output to your exact measurement range.

The PT1MA offers several options including forward and reverse 0...20 and 4...20 mA output signals, alternate measuring cable exits and a couple different electrical connection options.

Output Signal



**Optional 3-wire, 0...20mA output signal available.*

General

Full Stroke Range	0-2 to 0-50 inches
Output Signal	4...20 mA (2-wire) and 0...20 mA (3-wire)
Accuracy	± 0.28% to ± 0.15% full stroke (see ordering information)
Repeatability	± 0.05% full stroke
Resolution	essentially infinite
Measuring Cable	.019-in. dia. nylon-coated stainless steel
Enclosure	glass-filled polycarbonate and black anodized aluminum
Sensor	plastic-hybrid precision potentiometer
Potentiometer Cycle Life	see ordering information
Maximum Retraction Acceleration	see ordering information
Weight	1 lb. max.

Electrical

Input Voltage	see ordering information
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.
Signal Adjust, Zero	from factory set zero to 50% of full stroke range
Signal Adjust, Span	to 50% of factory set span
Thermal Effects, Zero	0.01% f.s./°F, max.
Thermal Effects, Span	0.01% f.s./°F, max.

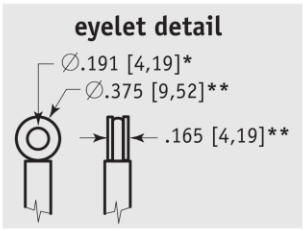
Environmental

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

EMC COMPLIANCE PER DIRECTIVE 89/336/EEC

Emission/Immunity	EN50081-2/EN50082-2

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]

inches [mm]

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:

PT1MA - _____ Ⓡ - _____ Ⓐ - _____ Ⓑ - _____ Ⓒ - _____ Ⓓ
order code:

Sample Model Number:

PT1MA - 30 - UP - 420E - MC4 - SG

Ⓡ	range:	30 inches
Ⓐ	measuring cable exit:	up
Ⓑ	output signal:	4...20mA
Ⓒ	electrical connection:	4-pin micro connector
Ⓓ	cable guide:	spring-loaded guide

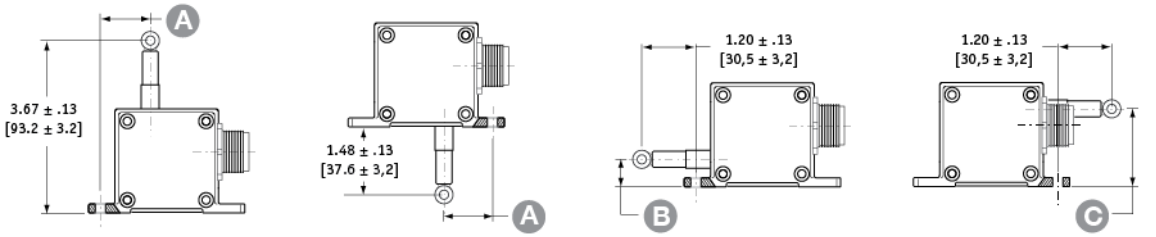
Full Stroke Range:

Ⓡ *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

Cable Exit:

Ⓐ order code:

direction:	UP up	DN down	FR front	BK back



measurement range —	2	5	10	15	20	25	30	40	50
A	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	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
C	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 Signal:

Ⓑ order code:

output signal options:	420E 4...20 mA	420R 20...4 mA	020E 0...20 mA	020R 20...0 mA
sensitivity:	16 mA/full stroke ±0.25%		20 mA/full stroke ±0.25%	
wiring configuration:	2 – wire		3 – wire	
input voltage:	8 – 34 vdc		14 – 29 vdc	

example:

ordercode = **420E** = 4...20 mA

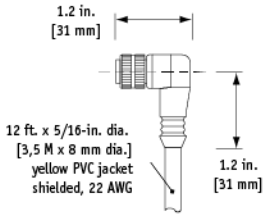
4 mA =

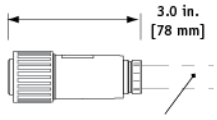
20 mA =

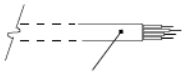
Electrical Connection:

Ⓒ order code:

	MC4	M6	C25
	4-pin micro-connector with 12 ft [3.5 M] cordset	6-pin plastic connector with mating plug	25-ft. instrumentation cable 24 AWG, shielded







4-pin mating plug and cordset:

contact view

pin	color code	2-wire	3-wire
1	RED-BLK TR.	8...34 vdc	14...29 vdc
2	RED-WHT TR.	4...20 mA	common
3	RED	-	0...20 mA
4	GREEN	-	-

6-pin mating plug:

contact view

pin	2-wire	3-wire
A	8...34 vdc	14...29 vdc
B	4...20 mA	common
C	-	0...20 mA
D	-	-

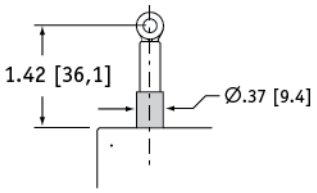
25-ft. cable:

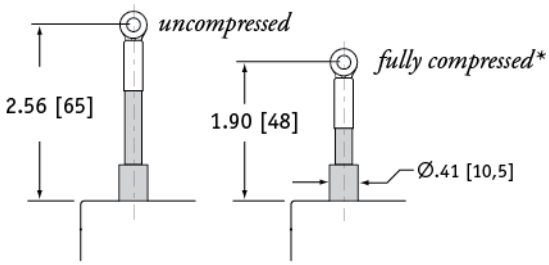
color code	2-wire	3-wire
RED	8...34 vdc	14...29 vdc
BLACK	4...20 mA	common
WHITE	-	-
GREEN	-	0...20 mA

Cable Guide:

order code:

blank	SG
standard cable guide	spring-loaded guide
	cable-guide cushions impact from accidental free release

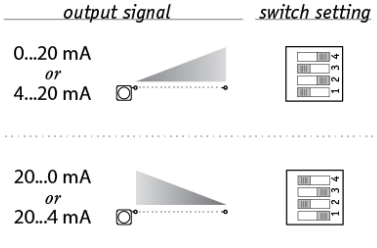


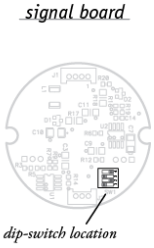


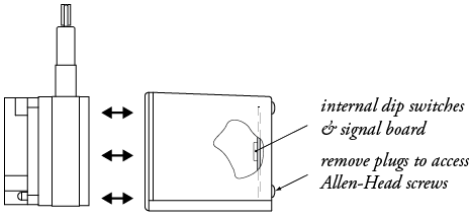
*note: start of full stroke range begins at full compression point (except 2-inch and 5-inch ranges).

Output Signal Selection:

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.







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

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