



**mm PT1MA**

**Description**

- 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 our 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 re-verse 0...20 and 4...20 mA output signals, alternate measuring cable exits and a couple different electrical connection options.

**GENERAL**

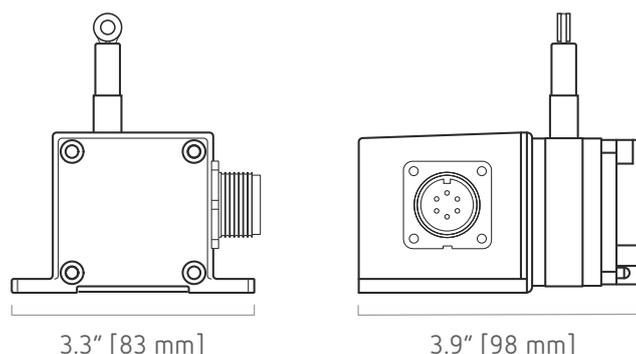
Full Stroke Range Options	0-2 to 0-50 inches
Output Signal Options	4...20 mA (2-wire) and 0...20 mA (3-wire)
Accuracy	see ordering information
Repeatability	± 0.05% full stroke
Resolution	essentially infinite
Measuring Cable	.019-in. dia. nylon-coated stainless steel
Enclosure Material	glass-filled polycarbonate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

**ELECTRICAL**

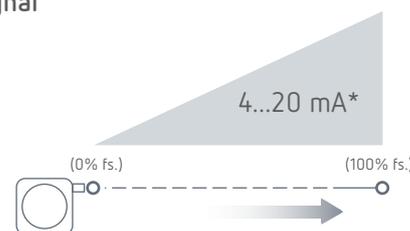
Input Voltage	see ordering information
Input Current	20 mA max.
Maximum Loop Resistance (Load)	(loop supply voltage - 8)/0.020
Circuit Protection	38 mA max.
Impedance	100M ohms@100 VDC, min.
Signal Adjust, Zero	from factory set zero to 50% of full stroke range
Signal Adjust, Span	to 50% of factory set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



**Output signal**

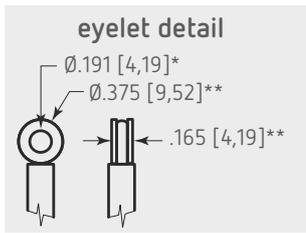


\*Optional 3-wire, 0...20mA output signal

**EMC COMPLIANCE PER DIRECTIVE 89/336/EEC**

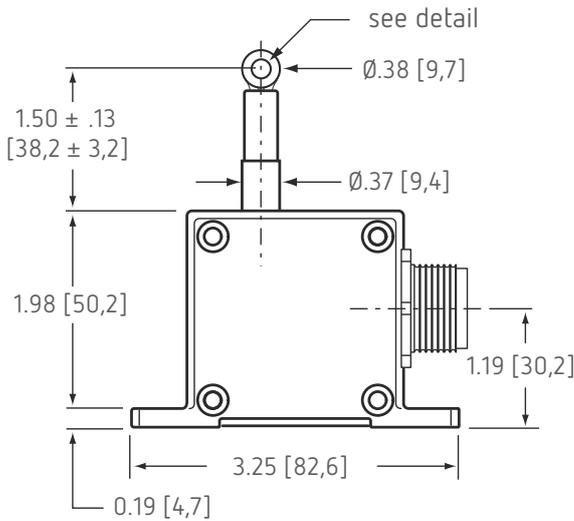
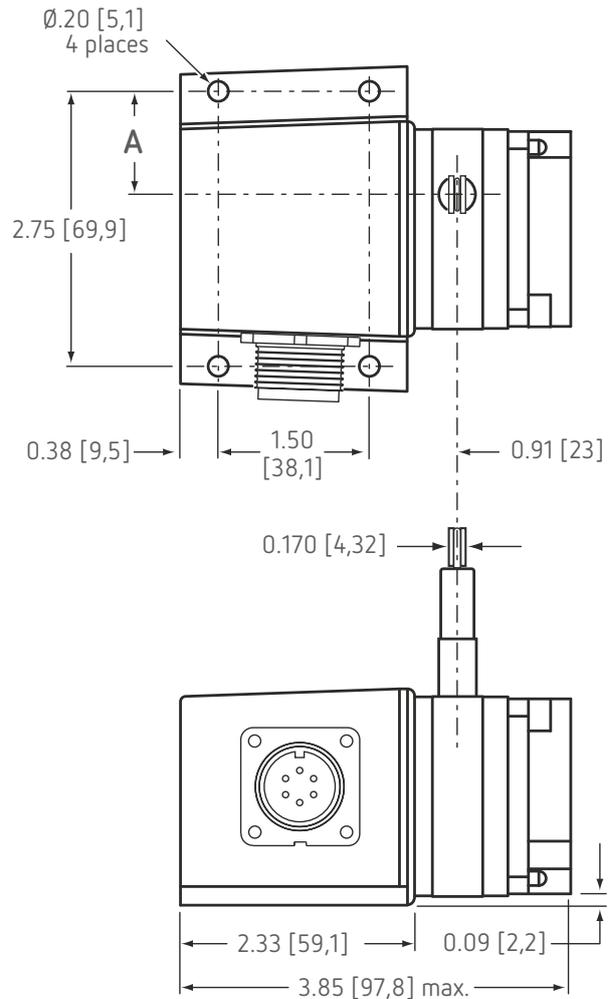
Emission/Immunity EN50081-2/EN50082-2

**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:      **R**      **A**      **B**      **C**      **D**

Sample Model Number:

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

- R** range: 30 inches
- A** measuring cable exit: up
- B** output signal: 4...20mA
- 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

**Ordering information (cont.)**

**Cable Exit:**

A order code: direction:	UP up	DN down	FR front	BK back
	3.67 ± .13 [93.2 ± 3.2]	1.48 ± .13 [37.6 ± 3.2]	1.20 ± .13 [30.5 ± 3.2]	1.20 ± .13 [30.5 ± 3.2]
measurement range	— 2 5 10 15 20 25 30 40 50			
A	1.04 in. 0.58 in. 1.04 in. 0.82 in. 0.74 in. 0.58 in. 0.82 in. 0.74 in. 0.58 in. 26,4 mm 14,7 mm 26,4 mm 20,8 mm 18,8 mm 14,7 mm 20,8 mm 18,8 mm 14,7 mm			
B	0.75 in. 0.29 in. 0.75 in. 0.53 in. 0.45 in. 0.29 in. 0.53 in. 0.45 in. 0.29 in. 19,1 mm 6,1 mm 19,1 mm 13,5 mm 11,5 mm 6,1 mm 13,5 mm 11,5 mm 6,1 mm			
C	1.43 in. 1.89 in. 1.43 in. 1.65 in. 1.73 in. 1.89 in. 1.65 in. 1.73 in. 1.89 in. 36,3 mm 48,0 mm 36,3 mm 41,9 mm 43,9 mm 48,0 mm 41,9 mm 43,9 mm 48,0 mm			

**Output Signals:**

B 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 ±		20 mA/full stroke ±	
wiring configuration:	2 -		3 -	
input voltage:	8 - 34		14 - 29	

example:

ordercode = **420E** = 4...20 mA →

4 mA =

20 mA =

**Electrical Connection:**

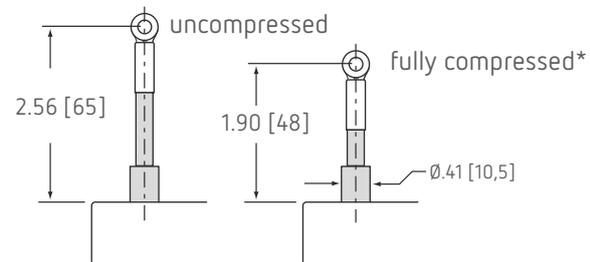
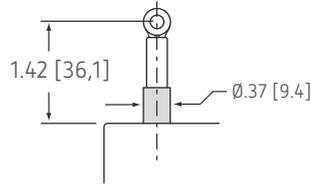
C order code:	MC4	M6	C25																																															
	4-pin micro-connector with 12 ft [3.5 M] cordset	6-pin plastic connector with mating plug	25-ft. instrumentation cable 24 AWG, shielded																																															
	12 ft. x 5/16-in. dia. [3,5 M x 8 mm dia.] yellow PVC jacket shielded, 22 AWG	.30 - .39 in. [8 - 10 mm] 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																																															
	4-pin mating plug and cordset:	6-pin mating plug:	25-ft. cable:																																															
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**Ordering information (cont.)**

**Cable Guide:**

D	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.

