

Cable-Extension Position Transducer

0/4...20 mA Output

Ranges: 0-2 to 0-50 inches

Compact Size • OEM Applications



PT1MA

Specification Summary:

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 $\pm 0.28\%$ to $\pm 0.15\%$ full stroke *see ordering information*
 Repeatability $\pm 0.05\%$ full stroke
 Resolution essentially infinite
 Measuring Cable019-in. dia. nylon-coated stainless steel
 Enclosure Material 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 Current20 mA max.
 Maximum Loop Resistance (Load) (loop supply voltage - 8)/0.020
 Circuit Protection38 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 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's to 2000 Hz maximum

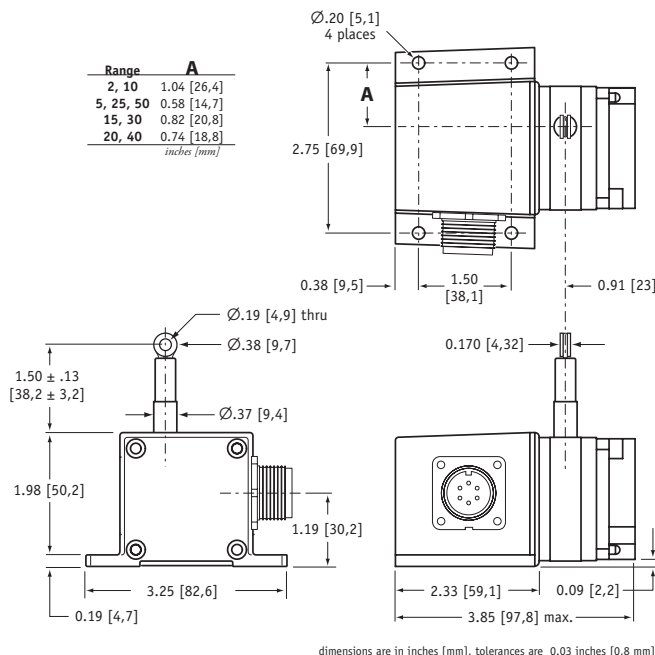
EMC COMPLIANCE PER DIRECTIVE 89/336/EEC

Emission/Immunity EN50081-2/EN50082-2

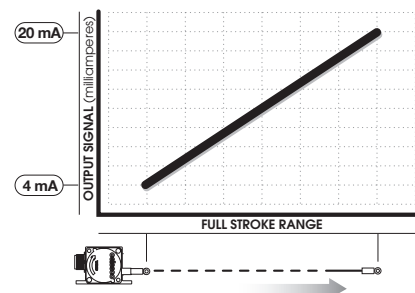


The PT1MA adds 4...20 mA position feedback signal to Celesco's compact line of cable-extension transducers. The PT1MA is available with full stroke ranges from as little as 2 inches on up to 50 inches with adjustable zero and span settings to precisely match the full scale output to your exact measurement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



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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:

R 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.
maximum cable acceleration:	11 G's	3 G's	11 G's	5 G's	4 G's	3 G's	5 G's	4 G's	3 G's

Cable Exit:

A order code: **UP** **DN** **FR** **BK**
 direction: up down front 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 Signals:

B order code:	420E	420R	020E	020R
output signal options:	4...20 mA	20...4 mA	0...20 mA	20...0 mA
sensitivity:	16 mA/full stroke $\pm 0.25\%$		20 mA/full stroke $\pm 0.25\%$	
wiring configuration:	2 - wire		3 - wire	
input voltage:	8 - 40 vdc		14 - 29 vdc	

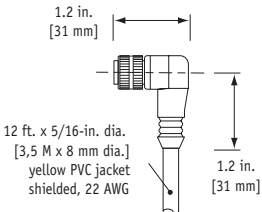
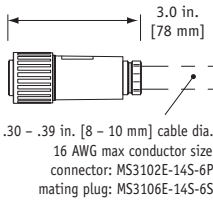
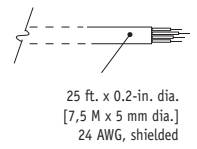

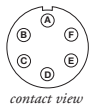
example:

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

Ordering Information (cont.)

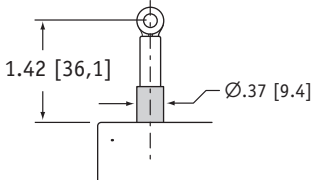
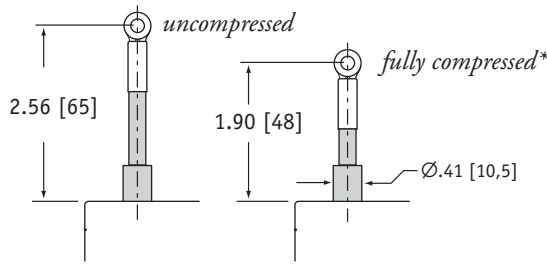
Electrical Connection:

ⓐ *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																																																		
	 <p>1.2 in. [31 mm] 12 ft. x 5/16-in. dia. [3,5 M x 8 mm dia.] yellow PVC jacket shielded, 22 AWG</p>	 <p>3.0 in. [78 mm] .30 - .39 in. [8 - 10 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S</p>	 <p>25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded</p>																																																		
	<p>4-pin mating plug and cordset:</p>  <table border="1"> <thead> <tr> <th>pin</th> <th>color code</th> <th>2-wire</th> <th>3-wire</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>RED-BLK TR.</td> <td>8...40 vdc</td> <td>14...29 vdc common</td> </tr> <tr> <td>2</td> <td>RED-WHT TR.</td> <td>4...20 mA</td> <td>0...20 mA</td> </tr> <tr> <td>3</td> <td>RED</td> <td>-</td> <td>-</td> </tr> <tr> <td>4</td> <td>GREEN</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	pin	color code	2-wire	3-wire	1	RED-BLK TR.	8...40 vdc	14...29 vdc common	2	RED-WHT TR.	4...20 mA	0...20 mA	3	RED	-	-	4	GREEN	-	-	<p>6-pin mating plug:</p>  <table border="1"> <thead> <tr> <th>pin</th> <th>2-wire</th> <th>3-wire</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>8...40 vdc</td> <td>14...29 vdc common</td> </tr> <tr> <td>B</td> <td>4...20 mA</td> <td>0...20 mA</td> </tr> <tr> <td>C</td> <td>-</td> <td>-</td> </tr> <tr> <td>D</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	pin	2-wire	3-wire	A	8...40 vdc	14...29 vdc common	B	4...20 mA	0...20 mA	C	-	-	D	-	-	<p>25-ft. cable:</p> <table border="1"> <thead> <tr> <th>color code</th> <th>2-wire</th> <th>3-wire</th> </tr> </thead> <tbody> <tr> <td>RED</td> <td>8...40 vdc</td> <td>14...29 vdc common</td> </tr> <tr> <td>BLACK</td> <td>4...20 mA</td> <td>-</td> </tr> <tr> <td>WHITE</td> <td>-</td> <td>-</td> </tr> <tr> <td>GREEN</td> <td>-</td> <td>0...20 mA</td> </tr> </tbody> </table>	color code	2-wire	3-wire	RED	8...40 vdc	14...29 vdc common	BLACK	4...20 mA	-	WHITE	-	-	GREEN	-	0...20 mA
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Cable Guide:

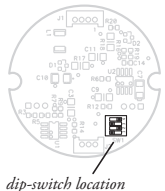
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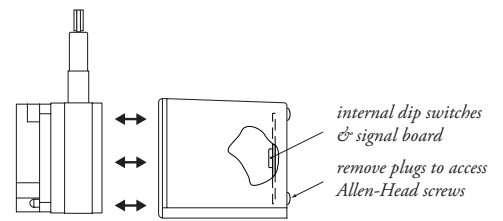
	blank	SG
	standard cable guide	spring-loaded guide
	 <p>1.42 [36,1] \varnothing.37 [9.4]</p>	<p><i>cable-guide cushions impact from accidental free release</i></p>  <p>uncompressed: 2.56 [65] fully compressed*: 1.90 [48] \varnothing.41 [10,5]</p>

*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.

output signal	switch setting	signal board
0...20 mA or 4...20 mA		 <p>dip-switch location</p>
20...0 mA or 20...4 mA		



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

version: 7.0 last updated: May 12, 2010



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