



**mm PT5AV**

**Description**

- Linear Position/Velocity to 250 inches (6350 mm)
- Hard Anodized Aluminum Enclosure
- High Cycle Applications
- IP67 · NEMA 6 Protection

The PT5AV is a combination position and velocity transducer. A precision plastic-hybrid potentiometer provides accurate position feedback while a self-generating DC tachometer provides a velocity signal that is proportional to the speed of the traveling measuring cable.

Like our other transducers, the PT5AV installs in minutes, functions properly without perfectly parallel alignment, and fits easily into small areas. The PT5AV also has an optional unique thermoplastic measuring cable that has virtually an infinite fatigue life for high-cycle applications.



**GENERAL**

Full Stroke Range Options 0-10 to 0-250 inches

**POSITION**

Output Signal voltage divider (potentiometer)

Accuracy see ordering information

Repeatability see ordering information

Resolution essentially infinite

Sensor plastic-hybrid precision potentiometer

Potentiometer Cycle Life see ordering information

Input Resistance Options 500, 1K, 5K or 10K  $\Omega$

Power Rating, Watts see ordering information

Recommended Maximum Input Voltage see ordering information

Output Signal Change Over Full Stroke Range 94%  $\pm$ 4% of input voltage

**VELOCITY**

Output Signal DC voltage

Linearity better than  $\pm$ 0.10% of output at any velocity

Repeatability  $\pm$ 0.10% of reading

Maximum Velocity · Retraction Acceleration see ordering information

Sensor tach generator

Input Voltage none required

Output Voltage @ 100 in. per minute (varies slightly w/measuring cable)

N34 cable option 354 mV  $\pm$ 4%

S47 cable option 352 mV  $\pm$ 4%

V62 cable option 351 mV  $\pm$ 4%

Output Impedance 350 ohms  $\pm$ 10%

Output Ripple (for velocity  $\geq$  1.35 inches per second)  $\pm$ 3% rms

**GENERAL**

Measuring Cable Options stainless steel, nylon-coated or thermoplastic

Enclosure Material hard anodized aluminum

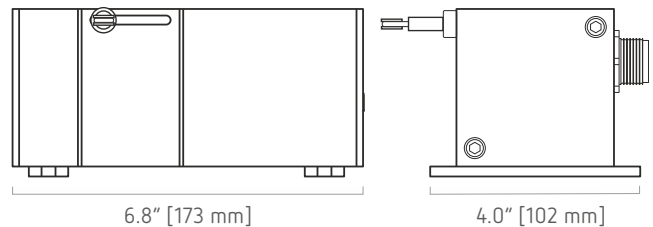
Weight 5 lbs. max.

**ENVIRONMENTAL**

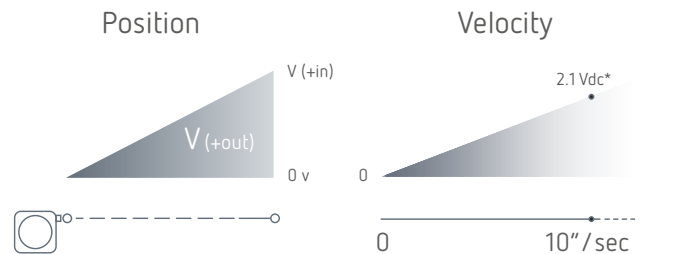
Enclosure NEMA 4/6, IP 65/67

Operating Temperature  $-40^{\circ}$  to  $200^{\circ}$ F ( $-40^{\circ}$  to  $90^{\circ}$ C)

Vibration up to 10 g to 2000 Hz maximum



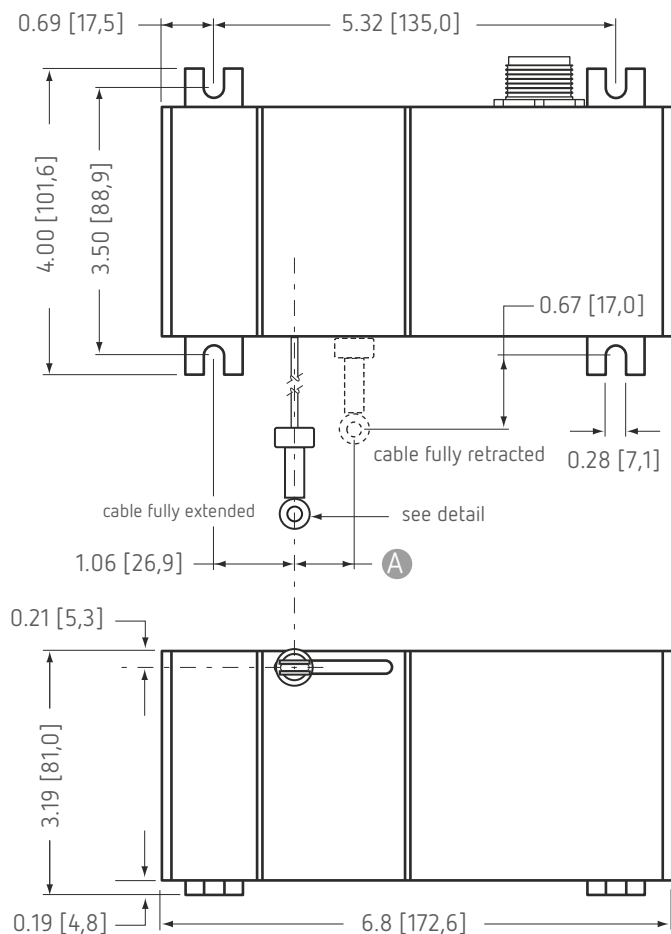
**Output signal**



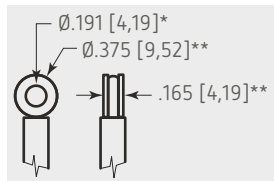
\*velocity output rate = 354 mV  $\pm$  4% @ 100 inches per min.

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**Outline drawing**

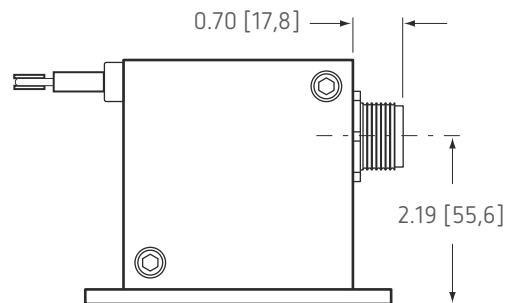


**eyelet detail**



**A DIMENSION (inches[mm])**

RANGE	N34 measuring cable	S47 & V62 measuring cable
10	0.05 [1,2]	0.08 [2,0]
15	0.07 [1,8]	0.12 [3,0]
20	0.09 [2,4]	0.16 [3,9]
30	0.14 [3,5]	0.23 [5,9]
40	0.19 [4,7]	0.31 [7,9]
50	0.23 [5,9]	0.39 [9,9]
60	0.28 [7,0]	0.47 [11,8]
80	0.37 [9,4]	0.62 [15,8]
100	0.46 [11,7]	0.78 [19,7]
125	0.58 [14,7]	0.97 [24,7]
150	0.69 [17,6]	1.16 [29,6]
200	0.92 [23,5]	n/a
250	1.16 [29,3]	n/a



**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:**

**PT5AV** -      -      -      -      -       
order code:            **R**            **A**            **B**            **C**            **D**

Sample Model Number:

**PT5AV - 100 - N34 - FR - 500 - M6**

- R** range: 100 inches
- A** measuring cable: .034 nylon-coated stainless
- B** cable exit: front
- C** output signal: 500 ohm potentiometer
- D** electrical connection: 6-pin plastic connector

**Full Stroke Range:**

<b>R</b> order code:	10	15	20	25	30	40	50	60	80	100	125	150	200	250	
full stroke range, min:	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.	60 in.	80 in.	100 in.	125 in.	150 in.	200 in.	250 in.	
accuracy (± % of f.s.):	.75%	.6%	.5%	.5%	.5%	.3%	.3%	.25%	.25%	.25%	.25%	.18%	.18%	.18%	
repeatability (± % of f.s.):	.1%	.1%	.05%	.05%	.05%	.05%	.05%	.02%	.02%	.02%	.02%	.02%	.02%	.02%	
potentiometer cycle life:	2,500,000 cycles					500,000 cycles					250,000 cycles				
cable tension (20%):						41 ounces					21 ounces				
max. cable velocity/acceleration:						300 in./sec • 5 g					120 in./sec • 2 g				

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Ordering information (cont.)

Measuring Cable:

A order code:	N34	S47	V62
	.034 nylon-coated stainless steel available in all ranges	.047 stainless steel all ranges up to 150 inches	.062 thermoplastic all ranges up to 150 inches

Cable Exit:

B order code:	UP up	DN down	FR front	BK back
	inches [mm]			

Output Signals:

C order code:	500	1K	5K	10K						
position sensing potentiometer:	500 ohms*	1000 ohms*	5000 ohms*	10,000 ohms*						
	<p>position sensing circuit</p> <p>value specified by ordercode</p>	<p>position circuit max input voltage &amp; power rating</p> <table border="1"> <thead> <tr> <th>10 to 30-inch range</th> <th>40 to 250-inch range</th> </tr> </thead> <tbody> <tr> <td>500-ohms: 20V AC/DC (1W)</td> <td>30V AC/DC (2W)</td> </tr> <tr> <td>1K to 10K-ohms: 30V AC/DC (1W)</td> <td>30V AC/DC (2W)</td> </tr> </tbody> </table>	10 to 30-inch range	40 to 250-inch range	500-ohms: 20V AC/DC (1W)	30V AC/DC (2W)	1K to 10K-ohms: 30V AC/DC (1W)	30V AC/DC (2W)		<p>velocity sensing circuit</p>
10 to 30-inch range	40 to 250-inch range									
500-ohms: 20V AC/DC (1W)	30V AC/DC (2W)									
1K to 10K-ohms: 30V AC/DC (1W)	30V AC/DC (2W)									
	*—tolerance = ±10%									

Electrical Connection:

D order code:	M6	M6M	C25																										
	6-pin plastic connector with mating plug IP 67, NEMA 6	6-pin metal connector with mating plug IP 65, NEMA 4	25-ft. instrumentation cable 24 AWG, shielded IP 67, NEMA 6																										
	.30 - .39 in. [8 - 10 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	.375 in. [9 mm] max cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S																											
	<p>6-pin mating plug:</p> <table border="1"> <thead> <tr> <th>pin</th> <th>signal</th> </tr> </thead> <tbody> <tr><td>A</td><td>+ in</td></tr> <tr><td>B</td><td>common</td></tr> <tr><td>C</td><td>+ out</td></tr> <tr><td>D</td><td>-</td></tr> <tr><td>E</td><td>+ out</td></tr> <tr><td>F</td><td>- out</td></tr> </tbody> </table> <p>} position } velocity</p>	pin	signal	A	+ in	B	common	C	+ out	D	-	E	+ out	F	- out	<p>contact view</p>	<p>25-ft. instrumentation cable:</p> <table border="1"> <thead> <tr> <th>color</th> <th>signal</th> </tr> </thead> <tbody> <tr><td>red</td><td>+ in</td></tr> <tr><td>black</td><td>common</td></tr> <tr><td>green</td><td>+ out</td></tr> <tr><td>white</td><td>+ out</td></tr> <tr><td>brown</td><td>- out</td></tr> </tbody> </table> <p>} position } velocity</p>	color	signal	red	+ in	black	common	green	+ out	white	+ out	brown	- out
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The information provided herein is to the best of our knowledge true and accurate, it is provided for guidance only. All specifications are subject to change without prior notification.