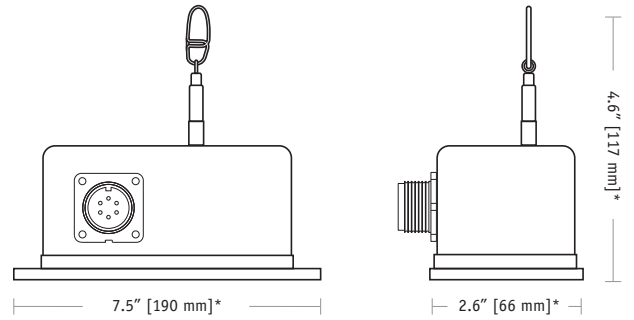


DV301

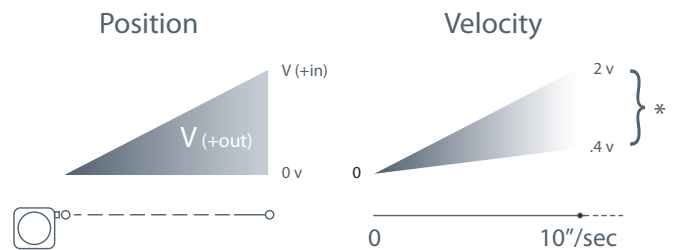
Instrument Grade • Position/Velocity

Position and Velocity Output Signals
 Stroke Range Options: 0–2 to 0–100 inches
 Powder Painted & Anodized Aluminum Enclosure
 Industrial Automation & Testing Applications



The DV301 is a combination position and velocity transducer for full-scale measurement ranges from 2 to 100 inches. 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 stainless-steel measuring cable.

Electrical Output Signals



GENERAL

Full Stroke Range Options	0-2 to 0-100 inches
Measuring Cable	see ordering information
Enclosure Material	powder-painted and anodized aluminum
Weight	2 lbs. max.

POSITION

Output Signal	voltage divider (potentiometer)
Accuracy	$\pm 0.25\%$ to $\pm 0.10\%$ full stroke (see ordering information)
Repeatability	$\pm 0.02\%$ full stroke
Resolution	essentially infinite
Sensor	plastic-hybrid precision potentiometer
Input Resistance Options	500, 1K, 5K or 10K Ω
Power Rating, Watts	2.0 at 70°F derated to 0 at 250° F
Maximum Input Voltage	see ordering information
Output Signal Change Over Full Stroke Range	94% $\pm 4\%$ of input voltage

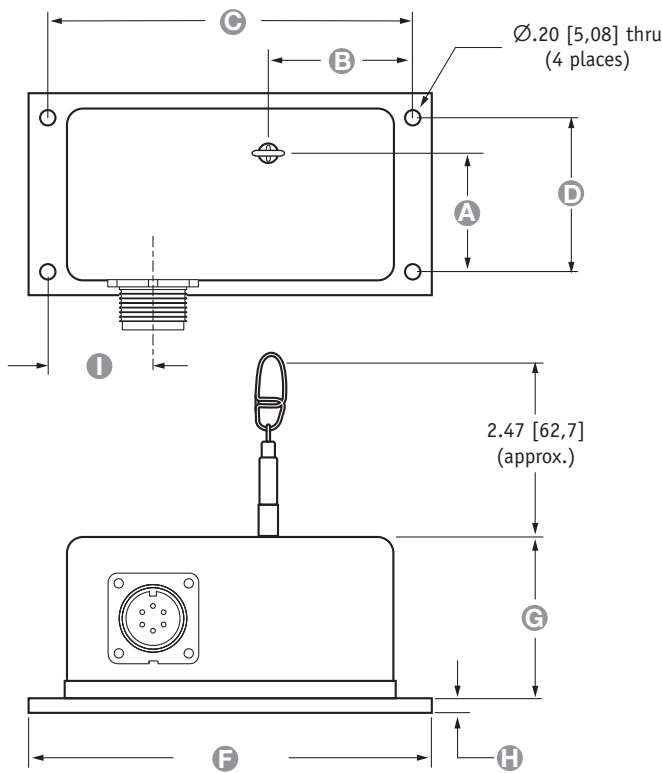
VELOCITY

Output Signal	DC tachometer output
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 inches per minute	see ordering information
Output Impedance	350 ohms $\pm 10\%$
Output Ripple (when output ≥ 280 mV)	$\pm 3\%$ rms

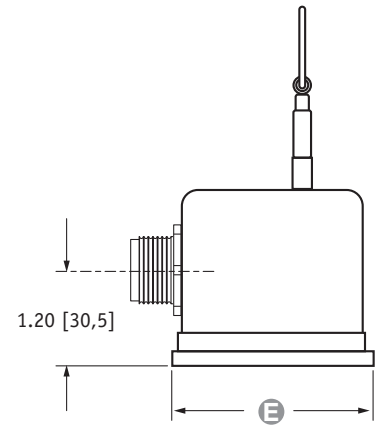
ENVIRONMENTAL

Enclosure	IP50, NEMA 1
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

Fig. 1, Top Exit:



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



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

Range	A	B	C	D	E	F	G	H	I
2", 10", 20"	1.34 [34,0]	4.00 [101,6]	7.00 [177,8]	2.00 [50,8]	2.63 [66,8]	7.50 [190,5]	2.10 [53,3]	.16 [4,1]	1.37 [34,8]
5", 25", 50"	1.85 [47,0]	4.00 [101,6]	7.00 [177,8]	2.00 [50,8]	2.63 [66,8]	7.50 [190,5]	2.10 [53,3]	.16 [4,1]	1.37 [34,8]
15", 30"	1.51 [38,4]	4.00 [101,6]	7.00 [177,8]	2.00 [50,8]	2.63 [66,8]	7.50 [190,5]	2.10 [53,3]	.16 [4,1]	1.37 [34,8]
40"	1.67 [42,4]	4.00 [101,6]	7.00 [177,8]	2.00 [50,8]	2.63 [66,8]	7.50 [190,5]	2.10 [53,3]	.16 [4,1]	1.37 [34,8]
60"	2.19 [55,6]	3.88 [98,5]	7.00 [177,8]	2.37 [60,2]	3.25 [82,5]	7.50 [190,5]	2.60 [66,0]	.19 [4,8]	1.37 [34,8]
75", 80"	2.52 [64,0]	4.38 [111,3]	6.75 [171,4]	2.50 [63,5]	3.63 [92,2]	7.50 [190,5]	2.86 [72,6]	.19 [4,8]	1.37 [34,8]
100"	3.18 [80,7]	5.18 [131,5]	7.38 [187,5]	3.00 [76,2]	4.25 [108,0]	8.00 [203,2]	3.80 [96,5]	.19 [4,8]	3.69 [93,7]

Ordering Information:

Model Number:

DV301 - - - 1 - 1 - 0
order code: R A B C D E F G

Sample Model Number:

DV301 - 0025 - 111 - 1110

- R range: 25 inches
- A measuring cable tension: standard - 5 oz.
- C cable exit: top
- D output signals: 500 ohm position / DC tachometer velocity
- E 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.
position accuracy (% of f.s.):	0.25%	0.25%	0.15%	0.15%	0.10%	0.15%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
potentiometer cycle life*1:	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
velocity output signal (±3%)*2:	322 mV	130 mV	322 mV	217 mV	322 mV*3	130 mV	217 mV*3	165 mV*3	130 mV*3	112 mV	91 mV	66 mV

*1 - 1 cycle is defined as the travel of the measuring cable from full retraction to full extension and back to full retraction *2-at the rate of 100 inches per minute
 *3 - output signal is reduced by 50% when Measuring Cable Tension options 2 or 3 is selected below

Ordering Information (cont.):

Measuring Cable Tension:

order code:	1	H	M	2*	3*
	standard tension tension, ±30% • max. acceleration	high tension tension, ±40%	max tension tension, ±40%	medium tension tension, ±40%	high tension tension, ±40%
2, 10, 20 inch range:	39 oz. • 25g	65 oz.	116 oz.	65 oz.	116 oz.
5, 25, 50 inch range:	16 oz. • 5g	26 oz.	47 oz.	26 oz.	47 oz.
15, 30 inch range:	26 oz. • 6g	44 oz.	78 oz.	44 oz.	78 oz.
40 inch range:	21 oz. • 11g	33 oz.	61 oz.	34 oz.	61 oz.
60 inch range:	13 oz. • 4g	22 oz.	40 oz.	22 oz.	40 oz.
75, 80 inch range:	17 oz. • 5g	31 oz.	n/a	31 oz.	61 oz.
100 inch range:	24 oz. • 10g	n/a	n/a	47 oz.	47 oz.
measuring cable:	.019-in. dia. nylon-coated stainless steel			.024-in. diameter stainless steel	

*note – outline dimensions for these options are **not** controlled on this datasheet!

Measuring Cable Exit:

order code:	1	2	3	4
	top exit (see fig. 1)	front exit*	rear exit*	bottom exit*

*–note: dimensions for optional cable exits not controlled on this datasheet, please contact factory

Output Signals:

order code:	1	2	3	4									
position sensing potentiometer:	500 ohms*	1000 ohms*	5000 ohms*	10,000 ohms*									
	position sensing circuit	velocity sensing circuit	max. input voltage & power rating										
			<table border="1"> <tr> <td></td> <td>2-inch, 5-inch range</td> <td>10-inch to 100-inch range</td> </tr> <tr> <td>500-ohms:</td> <td>20 V AC/DC (1 W)</td> <td>30 V AC/DC (2 W)</td> </tr> <tr> <td>1K to 10K-ohms:</td> <td>30 V AC/DC (1 W)</td> <td>30 V AC/DC (2 W)</td> </tr> </table>			2-inch, 5-inch range	10-inch to 100-inch range	500-ohms:	20 V AC/DC (1 W)	30 V AC/DC (2 W)	1K to 10K-ohms:	30 V AC/DC (1 W)	30 V AC/DC (2 W)
	2-inch, 5-inch range	10-inch to 100-inch range											
500-ohms:	20 V AC/DC (1 W)	30 V AC/DC (2 W)											
1K to 10K-ohms:	30 V AC/DC (1 W)	30 V AC/DC (2 W)											

*–tolerance = ±10%

Electrical Connection:

order code:	1	3	4																																			
	6-pin plastic connector with mating plug	6-pin metal connector with mating plug	25-ft. instrumentation cable 24 AWG, shielded																																			
	1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	3/8-in. [9 mm] max 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																																			
	6-pin mating plug:	25-ft. instrumentation cable:																																				
	<table border="0"> <tr> <td>pin</td> <td>signal</td> <td rowspan="2">} position</td> </tr> <tr> <td>A</td> <td>+ in</td> </tr> <tr> <td>B</td> <td>common</td> <td rowspan="2">} velocity</td> </tr> <tr> <td>C</td> <td>+ out</td> </tr> <tr> <td>D</td> <td>-</td> <td></td> </tr> <tr> <td>E</td> <td>+ out</td> <td></td> </tr> <tr> <td>F</td> <td>- out</td> <td></td> </tr> </table>	pin	signal	} position	A	+ in	B	common	} velocity	C	+ out	D	-		E	+ out		F	- out		<table border="0"> <tr> <td>color</td> <td>signal</td> <td rowspan="2">} position</td> </tr> <tr> <td>red</td> <td>+ in</td> </tr> <tr> <td>black</td> <td>common</td> <td rowspan="2">} velocity</td> </tr> <tr> <td>green</td> <td>+ out</td> </tr> <tr> <td>white</td> <td>+ out</td> <td></td> </tr> <tr> <td>brown</td> <td>- out</td> <td></td> </tr> </table>		color	signal	} position	red	+ in	black	common	} velocity	green	+ out	white	+ out		brown	- out	
pin	signal	} position																																				
A	+ in																																					
B	common	} velocity																																				
C	+ out																																					
D	-																																					
E	+ out																																					
F	- out																																					
color	signal	} position																																				
red	+ in																																					
black	common	} velocity																																				
green	+ out																																					
white	+ out																																					
brown	- out																																					

联系方式



深圳市亿为测控电子有限公司
Shenzhen Bill-Well Measurement & Control Electronics Co., Ltd.

广东省深圳市南山区创业路怡海广场东座2407 邮编：518000

电话：+86 755 2641 9890 传真：+86 755 2641 9680

电子邮箱：sales@bill-well.com