

Cable-Extension Position Transducer

- ▼ Instrument Grade
- ▼ Short to Medium Range
- ▼ Position and Velocity Output

DV301

GENERAL

Full Stroke Ranges 0-2 to 0-100 inches, see ① back page
 Enclosure Materials powder coated or anodized aluminum
 Sensor (Position) plastic-hybrid precision potentiometer
 Sensor (Velocity) tach generator
 Electrical Connection see ⑦
 Weight 3 lbs. max.

ELECTRICAL (Position)

Input Resistance 500, 1K, 5K & 10K ohms $\pm 10\%$, see ⑥
 Maximum Power Rating, Watts 2.0 at 70°F, derated to 0 W @ 250°F
 Recommended Maximum Voltage 30 V (AC or DC)
 Voltage Change Over Measurement Range 94% $\pm 3\%$ of input voltage

ELECTRICAL (Velocity)

Input none
 Output Voltage @ 100 IPM 91 to 322 mV, see ④
 Output Impedance 350 ohms $\pm 10\%$ (880 ohms $\pm 10\%$ for 100 in. range)
 Output Ripple $\leq 3\%$ of velocity output (for velocity outputs ≥ 280 mV)

PERFORMANCE (Position)

Accuracy $\pm 0.25\%$ to 0.10% full stroke, see ②
 Repeatability $\pm 0.02\%$ full stroke
 Resolution essentially infinite

PERFORMANCE (Velocity)

Linearity better than $\pm 0.10\%$ of output at any velocity
 Repeatability (Stability) $\pm 0.10\%$ of reading
 Maximum Velocity 200 inches per second

MEASURING CABLE

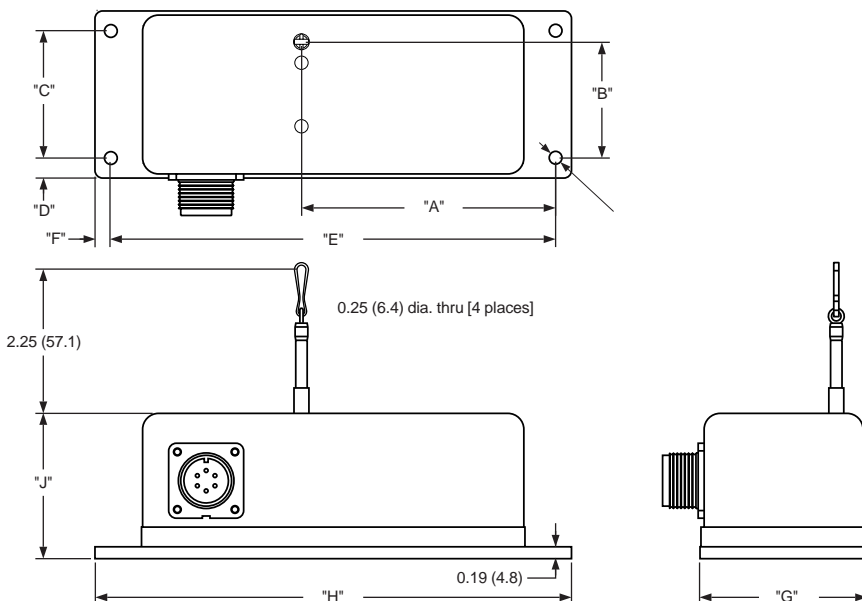
Tension 13 to 160 oz., see ③
 Construction stainless steel rope, see ⑤
 End Fitting crimp and swivel

ENVIRONMENTAL

Operating Temperature -40° F to +200°F
 Temperature Coefficient of Sensing Element 88 P.P.M./°F
 Humidity 100% RH at 90°F
 Vibration up to 10 G's to 2000 Hz
 Enclosure NEMA 1



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.



Outline Drawing Dimensions

	Full Stroke Range						
	2, 10, 20	5, 25, 50	15, 30	40	60	75	100
A	4.00 (101.6)				3.88 (98.5)	4.38 (111.2)	5.18 (131.5)
B	1.34 (34.1)	1.83 (46.5)	1.56 (39.6)	1.64 (41.6)	2.16 (54.9)	2.46 (62.5)	3.10 (78.5)
C	2.00 (50.8)				2.38 (60.5)	2.50 (63.5)	3.00 (76.2)
D	0.31 (7.9)				0.44 (11.2)	0.56 (14.2)	0.62 (15.7)
E	7.00 (177.8)				6.75 (171.4)		7.38 (187.4)
F	0.25 (6.3)				0.38 (9.7)		0.31 (7.9)
G	2.63 (66.8)				3.25 (82.6)	3.63 (92.2)	4.25 (108.0)
H	7.50 (190.5)						8.00 (203.2)
J	2.10 (53.3)				2.60 (66.0)	2.85 (72.4)	3.78 (96.0)

ALL DIMENSIONS ARE IN INCHES (MM)
 tolerances are ± 0.02 in. (± 0.5 mm) unless otherwise noted

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DV301 Short to Medium Range / Position and Velocity Output

▼ Ordering Information

Model Number:

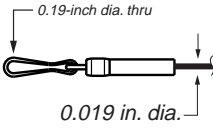
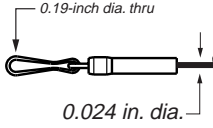
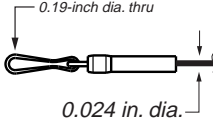
DV301- _____ **1** _____ **1** _____ **0**
 order code: **R** **A** **B** **C** **D** **E** **F** **G**

Full Stroke Range:

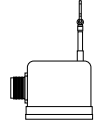
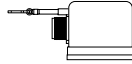
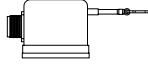
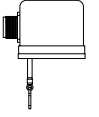
R order code:	0002	0005	0010	0015	0020	0025	0030	0040	0050	0060	0075	0100
① full stroke range, min.:	2 in.	5 in.	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.	60 in.	75 in.	100 in.
② position accuracy--% f.s.:	0.25%	0.25%	0.15%	0.15%	0.1%	0.15%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
③ potentiometer life, cycles:	5×10^6	5×10^6	2.5×10^5	2.5×10^5	2.5×10^5	2.5×10^5	2.5×10^5	2.5×10^5	2.5×10^5	2.5×10^5	2.5×10^5	2.5×10^5
④ cable tension, $\pm 30\%$:	30 oz.	13 oz.	31 oz.	20 oz.	38 oz.	14 oz.	25 oz.	17 oz.	15 oz.	13 oz.	18 oz.	26 oz.
④ velocity output signal, $\pm 3\%$:	322 mV	130 mV	322 mV	217 mV	322 mV*	130 mV	217 mV*	168 mV*	130 mV*	112 mV	91 mV	66 mV

*note**--output signal reduced by 50% when **Measuring Cable** order code **2** or **3** is selected below

Measuring Cable:

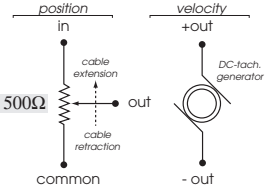
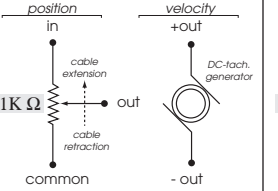
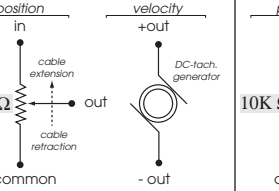
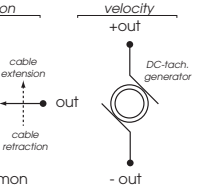
A order code:	1	2*	3*
⑤ cable tension multiplier:	(see ③ above)	2x	4x
cable construction:	.019 nylon-coated stainless 	.024 nylon-coated stainless 	.024 nylon-coated stainless 

Measuring Cable Exit:

C order code:	1	2*	3*	4*
direction:	top 	front 	rear 	bottom 

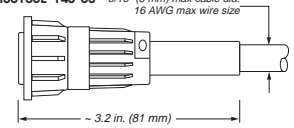
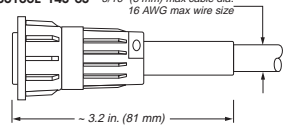

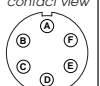
**Note: options 2 and 3 are available for RE-ORDERS only!*

Output Signals:

D order code:	1	2	3	4
⑥ position & velocity circuits:				

**Note: options 2, 3 and 4 are available for RE-ORDERS only!*

Electrical Connection:

E order code:	1	3	4																								
⑦ electrical connection:	6-pin plastic connector  MS3106E-14S-6S 5/16" (8 mm) max cable dia. 16 AWG max wire size ~ 3.2 in. (81 mm)	6-pin metal connector  MS3106E-14S-6S 5/16" (8 mm) max cable dia. 16 AWG max wire size ~ 3.2 in. (81 mm)	instrumentation cable 25-ft. long, 24 AWG Multiconductor, Shielded ~0.2 in. (5 mm) dia.																								
contact view	 <table border="0"> <tr> <td>position</td> <td>velocity</td> </tr> <tr> <td>A = IN</td> <td>E = +OUT</td> </tr> <tr> <td>B = COMMON</td> <td>F = - OUT</td> </tr> <tr> <td>C = OUT</td> <td></td> </tr> </table>	position	velocity	A = IN	E = +OUT	B = COMMON	F = - OUT	C = OUT		 <table border="0"> <tr> <td>position</td> <td>velocity</td> </tr> <tr> <td>A = IN</td> <td>E = +OUT</td> </tr> <tr> <td>B = COMMON</td> <td>F = - OUT</td> </tr> <tr> <td>C = OUT</td> <td></td> </tr> </table>	position	velocity	A = IN	E = +OUT	B = COMMON	F = - OUT	C = OUT		<table border="0"> <tr> <td>position</td> <td>velocity</td> </tr> <tr> <td>RED = IN</td> <td>WHT = + OUT</td> </tr> <tr> <td>BLK = COM.</td> <td>BRN = - OUT</td> </tr> <tr> <td>GRN = OUT</td> <td></td> </tr> </table>	position	velocity	RED = IN	WHT = + OUT	BLK = COM.	BRN = - OUT	GRN = OUT	
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▼ Sample Model Number

DV301- **0025** - **1** **1** **1** - **1** **1** **1** **0**
 order code: **R** **A** **B** **C** **D** **E** **F** **G**

Specifications: Full Stroke Range: 25 inches
 Measuring Cable: 0.019-in dia. nylon coated stainless steel rope, 16 oz. cable tension
 Cable Exit: top
 Output Signals: 500 ohm potentiometer, DC tachometer
 Electrical Connection: 6-pin plastic connector

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