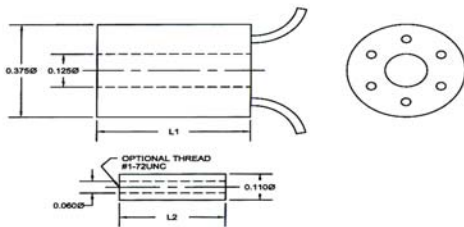


# Linear Variable Differential Transformers

# Series M

- **Displacement Ranges**  
 **$\pm 0.005''$  to  $\pm 0.15''$**
- **Small Size, Lightweight**
- **Magnetic Shielding**
- **AC Operation**



The Columbia M Series LVDTs are specially designed for applications demanding the highest levels of reliability while performing in the rugged environments that are characteristic of military programs and industrial construction equipment. These transducers consist of a coil assembly potted and mechanically swaged into a 3/8" diameter housing with a separate moveable core. The small size and low mass of the moveable core permits its use on small, high-speed mechanisms and in sensitive, low-displacement applications. Linear motions over the ranges of  $\pm 0.005''$  to  $\pm 0.150''$  are translated into precise proportional voltage levels for purposes of measurement and control.

### Electrical Specifications:

**INPUT VOLTAGE:** 4.0V RMS Nominal (0.5 VA Max.)  
**FREQUENCY RANGE:** 400 Hz To 10KHz  
**EXTENDED OPERATING RANGE:** 1.5X Linear Range  
**NULL VOLTAGE:** 0.5% Full Scale  
**INSULATION RESISTANCE:** 20 Megohms Min. @ 500 VDC

### Environmental Specifications:

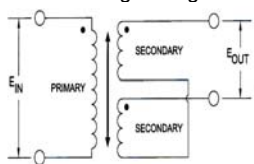
**TEMPERATURE RANGE:** -65 Deg F To +275 Deg F  
**SHOCK:** 1500 G, 0.5 mSec  
**VIBRATION:** 30 G, 10 Hz To 2KHz  
**HUMIDITY:** 90% R.H., 240 Hours

### Materials:

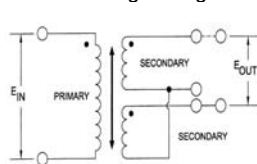
**HOUSING:** Corrosion-resistant nickel-iron alloy  
**CORE:** Hi-permeability nickel-iron alloy  
**COIL FORM:** Ceramic / Plastic  
**LEAD WIRES:** #30 AWG Teflon insulated, 8" long  
**MAGNET WIRE:** Film insulated copper

Model	Linear Range ( Inch )	Excitation Frequency ( Hz )	Sensitivity (mV OUT/V IN) Per 0.001 Inch	Impedance (ohms)		Phase Shift (Degrees)	Linearity (% Full Range)	Length ( Inch )		Weight ( Gm )	
				Input	Output			Coil L1	Core L2	Coil	Core
M005	0.010	400	1.25	58	250	+90 Deg	0.25%	0.53	0.18	7.2	0.17
		5000	5.82	115	280	+32 Deg					
M010	0.020	400	0.93	55	245	+83 Deg	0.25%	0.60	0.21	7.4	0.2
		5000	6.1	100	275	+29 Deg					
M020	0.040	400	1.5	38	145	+73 Deg	0.25%	0.63	0.42	7.5	0.4
		5000	5.2	128	175	+11 Deg					
M050	0.100	400	1.47	35	95	+68 Deg	0.25%	0.75	0.48	9.2	0.4
		5000	4.05	140	145	+6 Deg					
M100	0.200	400	2.7	42	165	+58 Deg	0.25%	1.0	0.68	11	0.6
		5000	5.4	230	470	0 Deg					
M150	0.300	400	2.8	85	250	+36 Deg	0.25%	1.5	1.04	13.2	0.9
		5000	3.45	610	1275	-15 Deg					

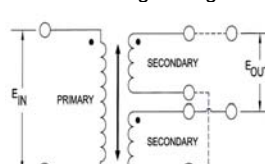
#1 – Optional 4-Wire Winding Configuration



#2 – Optional 5-Wire Winding Configuration



#3 – Standard 6-Wire Winding Configuration



### Ordering Information:

Series	<b>M</b>	<b>xxx</b>	-	<b>Sx</b>	<b>R</b>	<b>C</b>
Stroke: +/-0.xxx Inch						
Winding Configuration = <b>x</b>						
1 = Optional 4-Wire Winding						
2 = Optional 5-Wire Winding						
3 = Standard 6-Wire Winding						
R = Standard Temperature Range						
Optional Threaded Core (See Outline)						

R51205

