

Series 210-220

Long Stroke AC LVDTs

The Series 210-220 AC LVDTs offer precision linear displacement measurements for applications with strokes from 0.5 to 60 inches. The transducers have been designed with an extremely low temperature coefficient, and non-linearity of less than $\pm 0.25\%$ F.S. Variable pitch secondary windings are incorporated into the design with computer controlled winding machines to minimize package length to stroke ratio, and assure a uniform product.



KEY FEATURES

Ranges from $\pm 0.25"$ to $60"$	Stainless Steel Construction
Non-linearity $\leq 0.25\%$	High Sensitivity
Low Temperature Coefficient	Splashproof

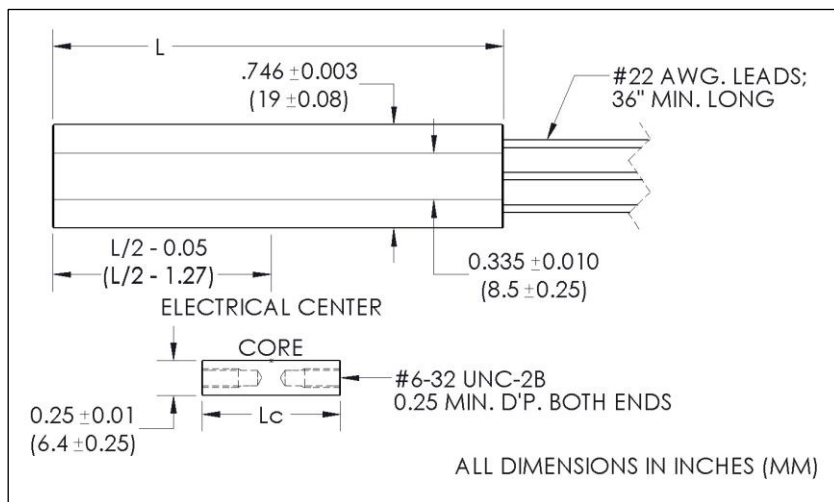
TRANSDUCER SPECIFICATIONS

MODEL NUMBER	FULL STROKE \pm Inches (mm)	MAX. USABLE STROKE \pm Inches (mm)	BODY LENGTH, L, Inches (mm)	CORE P/N	CORE LENGTH, Lc, Inches (mm)	CORE MASS Grams	INPUT IMPEDANCE Ohms	DC INPUT IMPEDANCE Ohms	OUTPUT IMPEDANCE Ohms	PHASE ANGLE Degrees
0215-0000	0.25 (6.4)	0.65 (16.5)	2.50 (63.5)	C005-0108	1.00 (25.4)	5.1	205	22	265	13
0216-0000	0.50 (12.7)	0.95 (24.1)	3.25 (82.6)	C005-0108	1.00 (25.4)	5.1	235	31	310	17
0217-0000	1.00 (25.4)	1.45 (36.8)	4.50 (114.3)	C005-0113	1.25 (31.8)	6.6	195	36	205	19
0218-0000	2.00 (50.8)	2.70 (68.9)	7.50 (190.5)	C005-0107	1.50 (38.1)	8.1	200	46	255	22
0219-0000	3.00 (76.2)	3.80 (96.5)	10.00 (254.0)	C005-0106	1.90 (48.3)	10.9	225	57	285	25
0220-0000	5.00 (127.0)	5.95 (151.1)	15.00 (381.0)	C005-0105	2.50 (63.5)	14.7	360	89	460	31
0221-0000	7.50 (190.5)	8.45 (214.6)	21.50 (546.1)	C005-0104	4.00 (101.6)	24.5	235	55	235	30
0222-0000	10.00 (254.0)	11.00 (279.4)	28.00 (711.2)	C005-0103	5.50 (139.7)	34.4	330	72	285	31
0223-0000	15.00 (381.0)	16.40 (416.6)	40.00 (1016)	C005-0100	7.00 (177.8)	44.4	450	57	395	25
0224-0000	20.00 (508.0)	21.30 (541.0)	50.00 (1270)	C005-0100	7.00 (177.8)	44.4	660	100	580	30
0225-0000	25.00 (635.0)	26.20 (665.5)	60.00 (1524)	C005-0100	7.00 (177.8)	44.4	210	41	355	28
0226-0000	30.00 (762.0)	31.30 (795.0)	70.00 (1778)	C005-0100	7.00 (177.8)	44.4	200	45	410	30

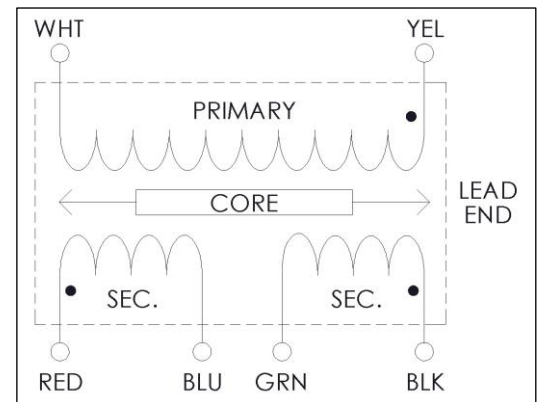
(SPECIFICATIONS AT REFERENCE FREQUENCY)

NON-LINEARITY	< $\pm 0.25\%$ FS (BEST FIT STRAIGHT LINE)
REFERENCE FREQUENCY	MODELS 0215-0000 THRU 0222-0000, 7.0KHz; MODELS 0223-0000 THRU 0226-0000, 3.0KHz
SENSITIVITY	0.50 V/V $\pm 10\%$ AT FULL SCALE
INPUT VOLTAGE	20 VRMS, MAX.
NULL VOLTAGE	< 1.0% EXCITATION VOLTAGE
TEMPERATURE COEFFICIENTS	< $\pm 0.001\%$ FS/ $^{\circ}$ F ZERO, < $\pm 0.01\%$ READING/ $^{\circ}$ F SPAN
OPERATING TEMPERATURE RANGE	-67 $^{\circ}$ F TO +257 $^{\circ}$ F (-55 $^{\circ}$ C TO +125 $^{\circ}$ C)
STORAGE TEMPERATURE RANGE	-67 $^{\circ}$ F TO +275 $^{\circ}$ F (-55 $^{\circ}$ C TO +135 $^{\circ}$ C)
OUTER HOUSING AND BORE LINER	300 SERIES STAINLESS STEEL
CORE	CHROME PLATED IRON/NICKEL ALLOY

DIMENSIONAL DIAGRAM



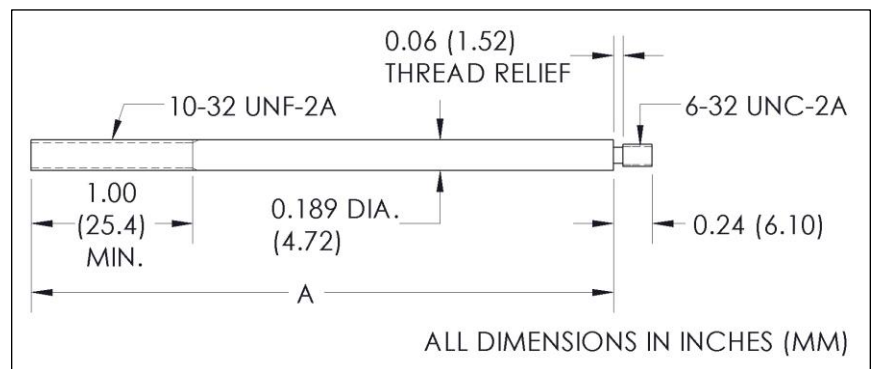
DIMENSIONAL DIAGRAM



CORE EXTENSION RODS (Sold Separately)

MODEL NUMBER	RECOMMENDED CORE EXTENSION ROD	DIMENSION A Inches (mm)
0215-0000	C006-0174	3.00 (76.2)
0216-0000	C006-0175	3.60 (91.4)
0217-0000	C006-0176	4.70 (119.4)
0218-0000	C006-0177	7.20 (182.8)
0219-0000	C006-0178	9.30 (236.2)
0220-0000	C006-0179	13.70 (348.0)
0221-0000	C006-0180	19.00 (482.6)
0222-0000	C006-0181	24.20 (614.7)
0223-0000	C006-0182	35.00 (889.0)
0224-0000	C006-0183	45.50 (1156)
0225-0000	C006-0184	56.00 (1422)
0226-0000	C006-0185	66.50 (1689)

The recommended core extension rods are made of nonmagnetic stainless steel and are sized to allow the transducers to operate over their full range. Extension rods from models with longer strokes may be used to facilitate installation. Using extension rods shorter than recommended may reduce the LVDTs usable measurement range.



DC-DC OPERATION WITH OPTIONAL OSCILLATOR/DEMODULATOR

To facilitate prototyping, or in instances where a DC in – DC out system is preferred, any of the standard, high temperature or vented Series 210-220 can be used in conjunction with the Series 1000 Oscillator/Demodulator. The DC system provides the same level of performance as a stand-alone AC LVDT. The high level DC output voltage can be directly interfaced with analog circuits as well as data acquisition cards, PLCs, or A/D converters. Each Oscillator/Demodulator can be customized to provide a zero-offset and nonstandard gain, meeting specific user requirements. Detailed connection information can be found in the Sales portion of the datasheet.

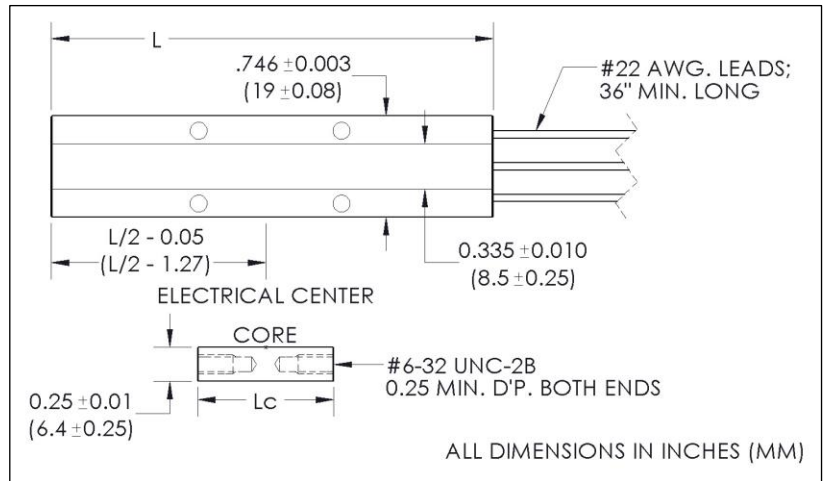
(Combined Performance of LVDT and Oscillator/Demodulator)

SELECTED OSCILLATOR/DEMODULATOR	MODEL 1000-0011: MODELS 0223-0000 THRU 0226-0000 MODEL 1000-0012: MODELS 0215-0000 THRU 0222-0000
NON-LINEARITY	< ±0.25% FS (BEST FIT STRAIGHT LINE)
INPUT	±14.5 TO ±28.0 VDC, ±100mA MAX., INTERNAL REGULATION AND INPUT REVERSAL PROTECTION PROVIDED
OUTPUT	ADJUSTABLE TO ±5.0 VDC AT END OF LINEAR STROKE, VIA SPAN ADJUSTMENT
FREQUENCY RESPONSE (-3dB)	SYSTEMS WITH 1000-0011: 500Hz MIN.; SYSTEMS WITH 1000-0012: 1000Hz MIN.
OUTPUT RIPPLE	< 0.03 VRMS MAX.
TEMPERATURE COEFFICIENTS	< ±0.0035% FS/°F ZERO, < ±0.02% READING/°F SPAN
TEMPERATURE RANGE	LVDT: -67°F TO +257°F (-55°C TO +125°C) OPERATING LVDT: -67°F TO +275°F (-55°C TO +135°C) STORAGE OSC/DEM: +32°F TO +158°F (0°C TO +70°C) OPERATING OSC/DEM: -67°F TO +257°F (-55°C TO +125°C) STORAGE

SERIES 210-220 MODIFIED FOR USE IN HIGH PRESSURE ENVIRONMENTS

MODEL NUMBER	STROKE ±Inches (mm)
0215-0003	0.25 (6.4)
0216-0005	0.50 (12.7)
0217-0005	1.00 (25.4)
0218-0010	2.00 (50.8)
0219-0014	3.00 (76.2)
0220-0011	5.00 (127)
0221-0005	7.50 (191)
0222-0007	10.00 (254)
0223-0005	15.00 (381)
0224-0004	20.00 (508)
0225-0004	25.00 (635)
0226-0003	30.00 (762)

The high pressure version of the Series 210-220 is suitable for operation in nonconductive and noncorrosive fluids or gasses at pressures up to 5000 P.S.I. The vented housing eliminates pressure differentials between the environment and the transducer's interior, allowing rapid and extreme pressure changes without damage or degradation in performance.



NOTE: All electrical and physical specifications are the same as the standard Series 210-220 LVDTs.

SERIES 210-220 MODIFIED FOR USE IN HIGH TEMPERATURE ENVIRONMENTS

The high temperature version of the Series 210-220 has been designed to operate in temperatures from -67°F to +400°F. The LVDTs are identical electrically and mechanically to the standard Series 210-220 transducers, providing the same high level of performance and reliability. To achieve the elevated operating temperature, materials such as the epoxy, solder, and magnet wire have been replaced by their high temperature equivalents.

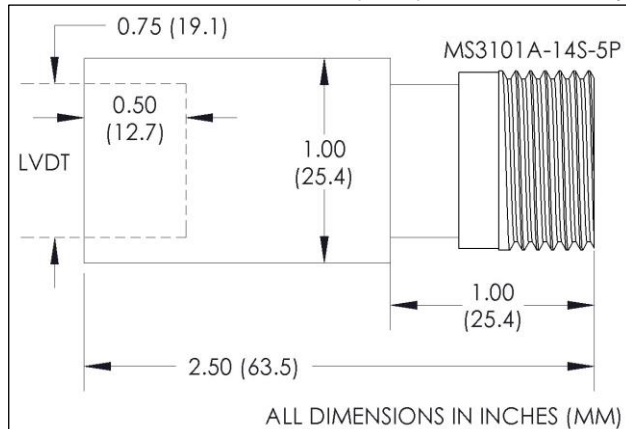
NOTE: All electrical and physical specifications are the same as the standard Series 210-220 LVDTs.

SALES OPTIONS

The following options are available with this series of transducer. The option must be specified at the time an order is placed.

OPTION #	DESCRIPTION
X0006	±0.10% MAX. NON-LINEARITY
X0009	PROVIDE LONGER LEADS TO A SPECIFIED LENGTH
X0012	REPLACE LEADS WITH AN INTEGRAL CONNECTOR TYPE MS3101A-14S-6P; ADAPTOR FOR CONNECTOR HAS 1.00" O.D.; MATING CONNECTOR INCLUDED; REFER TO SCHEMATIC ABOVE FOR COLOR CODE REFERENCE; CONNECTOR PINOUT: A - YELLOW, B - WHITE, C - BLACK, D - GREEN, E - BLUE, F - RED

For more detailed information about these options, please contact the factory.



MODEL NUMBER	STROKE ±Inches (mm)
0215-0004	0.25 (6.4)
0216-0006	0.50 (12.7)
0217-0006	1.00 (25.4)
0218-0011	2.00 (50.8)
0219-0015	3.00 (76.2)
0220-0012	5.00 (127)
0221-0006	7.50 (191)
0222-0008	10.00 (254)
0223-0006	15.00 (381)
0224-0005	20.00 (508)
0225-0005	25.00 (635)
0226-0004	30.00 (762)

Series 230

0.375" O.D. AC LVDTs

The Series 230 3/8" AC LVDTs offer precision linear displacement measurements for applications with strokes from 0.01 to 2.0 inches. The transducers have been designed with an extremely low temperature coefficient, and non-linearity of less than $\pm 0.25\%$ F.S. The small size of these transducers make them ideal for weight critical applications and placement in tight spaces. The core is light enough to be used in systems with low driving forces or high accelerations without adversely affecting the system performance.



KEY FEATURES

Ranges from $\pm 0.005"$ to 2.0"	0.375" Outer Diameter
Non-linearity $\leq 0.25\%$	High Sensitivity
Low Temperature Coefficient	Low Mass Core

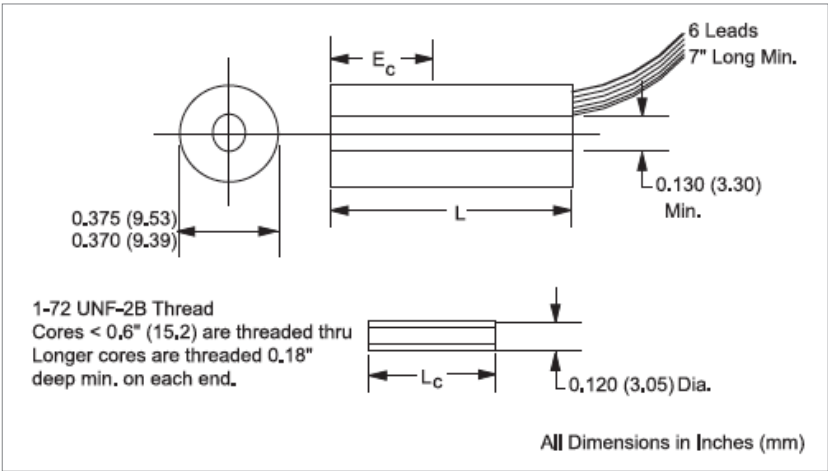
SPECIFICATIONS *(Reference frequency 7.0 KHz)*

MODEL		0230-0000	0231-0000	0232-0000	0233-0000	0234-0000	0235-0000	0236-0000	0237-0000
NON-LINEARITY		$\leq \pm 0.25\%$ Total Stroke (Best Fit Straight Line)							
LINEAR RANGE	\pm Inches \pm (mm)	0.005 (0.13)	0.01 (0.26)	0.025 (0.64)	0.05 (1.27)	0.1 (2.54)	0.25 (6.35)	0.5 (12.7)	1.0 (25.4)
BODY LENGTH	L Inches (mm)	0.85 (21.6)	0.85 (21.6)	0.85 (21.6)	0.85 (21.6)	0.95 (24.1)	2.6 (66.0)	3.1 (78.7)	4.3 (109.2)
CORE LENGTH	Lc Inches (mm)	0.45 (11.4)	0.45 (11.4)	0.45 (11.4)	0.45 (11.4)	0.55 (14.0)	1.19 (30.2)	1.19 (30.2)	1.19 (30.2)
CORE MASS	Grams	0.5	0.5	0.5	0.5	0.6	1.3	1.3	1.3
CORE P/N		C005-0125	C005-0125	C005-0125	C005-0125	C005-0126	C005-0058	C005-0058	C005-0058
ELECTRICAL CENTER	Ec Inches (mm)	0.385 (9.8)	0.385 (9.8)	0.385 (9.8)	0.385 (9.8)	0.435 (11.0)	1.21 (30.7)	1.46 (37.1)	2.06 (52.3)
TEMPERATURE RANGE		-65°F to +257°F (-55°C to +125°C) (OPERATING); -65°F to +275°F (-55°C to +135°C) (STORAGE)							
TEMP. COEFFICIENTS		ZERO $< \pm 0.001\%$ Total Stroke /°F; SENSITIVITY $< \pm 0.01\%$ Output /°F							
SENSITIVITY	V/in./V $\pm 10\%$	4	4	4	4	4	2	1	0.5
PHASE ANGLE <i>(Output voltage LEADS input voltage)</i>	Degrees	5	5	5	5	5	0	0	0
INPUT IMPEDANCE	Ohms	260	255	250	245	480	320	300	355
INPUT RESISTANCE	Ohms DC	36	36	36	36	60	22	30	40
OUTPUT RESISTANCE	Ohms DC	135	135	135	135	205	210	170	185
NULL VOLTAGE	% V Ex.	<0.2	<0.25	<0.3	<0.4	<0.8	<1.0	<1.0	<1.0
MAXIMUM EXCITATION		15 VRMS							

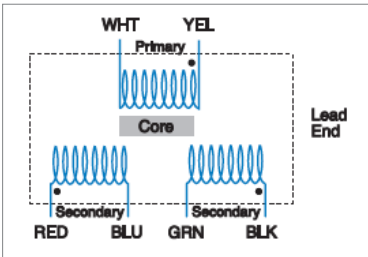
MATERIALS

SERIES 230 LVDT		1000-0014 OSCILLATOR/DEMODULATOR	
CASE	Iron-nickel alloy	CASE	Pheonolic
INNER DIAMETER	Pheonolic	THREADED INSERTS	Aluminum
END SEALS	Epoxy		
LEADS	#30 Awg teflon insulated copper	TERMINAL STRIPS	X
CORE	Iron-nickel alloy		

DIMENSIONAL DIAGRAM

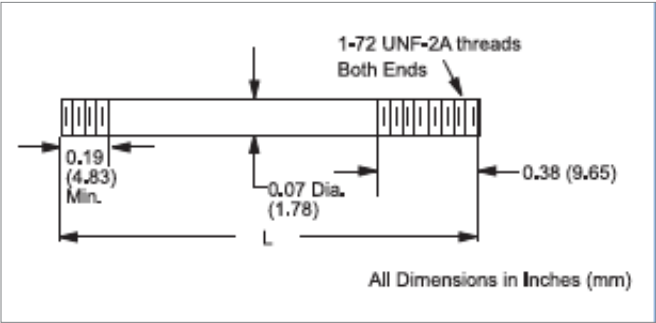


SCHEMATIC



CORE EXTENSION RODS (Sold Separately)

The recommended core extension rods are made of nonmagnetic stainless steel and are sized to allow the transducers to operate over their full range. Extension rods from models with longer strokes may be used to facilitate installation. Using extension rods shorter than recommended may reduce the LVDT's usable measurement range.



MODEL	PART NUMBER	LENGTH L Inches (mm)
0230-0000	C006-0244	0.84 (21.3)
0231-0000	C006-0244	0.84 (21.3)
0232-0000	C006-0244	0.84 (21.3)
0233-0000	C006-0244	0.84 (21.3)
0234-0000	C006-0245	1.34 (34.0)
0235-0000	C006-0246	2.04 (51.8)
0236-0000	C006-0247	2.54 (64.5)
0237-0000	C006-0248	3.64 (92.5)

Series 230

DC-DC System Operation Modified Versions

DC-DC OPERATION WITH OPTIONAL OSCILLATOR/DEMODULATOR

To facilitate prototyping, or in instances where a DC in - DC out system is preferred, any of the standard, high temperature or vented Series 230 can be used in conjunction with the Model 1000-0014 Oscillator/Demodulator. The DC system provides the same level of performance as a stand-alone AC LVDT. The high level

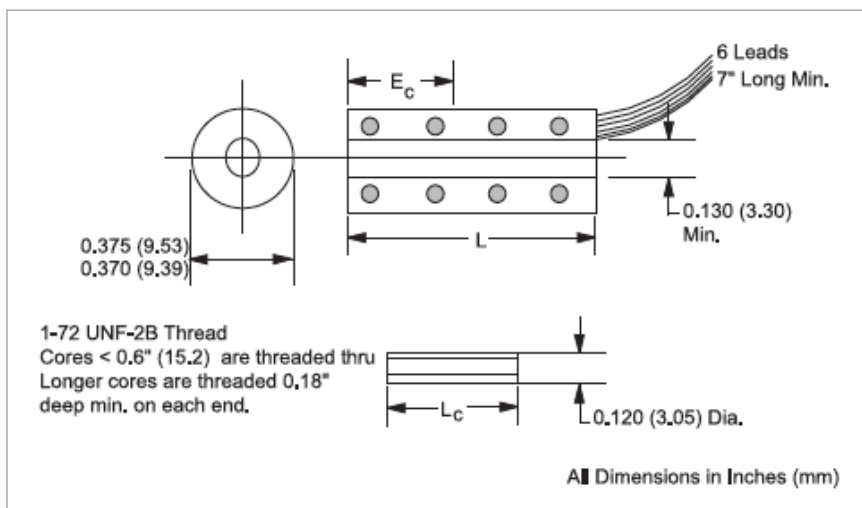
DC output voltage can be directly interfaced with analog circuits as well as data acquisition cards, PLCs, or A/D converters. Each Oscillator/Demodulator can be customized to provide a zero-offset and nonstandard gain, meeting specific user requirements. Detailed connection information can be found in the Accessories portion of this catalog.

SPECIFICATIONS (Reference frequency 7.0 KHz)

MODEL		0230-0000	0231-0000	0232-0000	0233-0000	0234-0000	0235-0000	0236-0000	0237-0000
NON-LINEARITY		$\leq \pm 0.25\%$ Total Stroke (Best Fit Straight Line)							
POWER INPUT	VDC	± 14 to ± 28 @ ± 100 mA Max., Input polarity protected							
SIGNAL OUTPUT	\pm VDC	0.2	0.4	1	2	4	5	5	5
FREQUENCY RESPONSE	-3dB	1000 Hz Min.							
OUTPUT RIPPLE	VRMS	<0.004	<0.008	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03
OUTPUT CURRENT	mA	± 3 without distortion							
TEMP. COEFFICIENTS	1000-0014	ZERO < ± 0.00025 V/ $^{\circ}$ F Total Stroke / $^{\circ}$ F; SENSITIVITY < $\pm 0.01\%$ Output / $^{\circ}$ F							
TEMPERATURE RANGE	1000-0014	+32 $^{\circ}$ F to +158 $^{\circ}$ F (0 $^{\circ}$ C to +70 $^{\circ}$ C) (OPERATING); -65 $^{\circ}$ F to +257 $^{\circ}$ F (-55 $^{\circ}$ C to +125 $^{\circ}$ C) (STORAGE)							

SERIES 230 MODIFIED FOR USE IN HIGH PRESSURE ENVIRONMENTS

The high pressure version of the Series 230 is suitable for operation in nonconductive and noncorrosive fluids or gasses at pressures up to 5,000 P.S.I. The vented housing eliminates pressure differentials between the environment and the transducer's interior, allowing rapid and extreme pressure changes without damage or degradation in performance.



MODEL	STROKE \pm Inches (mm)
0230-0001	0.005 (0.13)
0231-0001	0.010 (0.25)
0232-0001	0.025 (0.64)
0233-0002	0.050 (1.27)
0234-0003	0.100 (2.54)
0235-0001	0.25 (6.35)
0236-0001	0.50 (12.7)
0237-0001	1.00 (25.4)

Note: All electrical and physical specifications are the same as the standard Series 230 LVDTs.

SERIES 230 MODIFIED FOR USE IN HIGH TEMPERATURE ENVIRONMENTS

The High Temperature version of the Series 230 has been designed to operate in temperatures from -67°F to +400°F. The LVDTs are identical electrically and mechanically to the standard Series 230 transducers, providing the same high level of performance and reliability. To achieve the elevated operating temperature, materials such as the epoxy, solder, and magnet wire have been replaced by their high temperature equivalents.

Note: All electrical and physical specifications are the same as the standard Series 230 LVDTs.

MODEL	STROKE ±Inches (mm)
0230-0002	0.005 (0.13)
0231-0002	0.010 (0.25)
0232-0002	0.025 (0.64)
0233-0003	0.050 (1.27)
0234-0005	0.100 (2.54)
0235-0002	0.25 (6.35)
0236-0002	0.50 (12.7)
0237-0002	1.00 (25.4)

SALES OPTIONS

The following options are available with this series of transducer. The option must be specified at the time an order is placed.

Option #	Description
X0009	Provide longer leads to a specified length

Series 280

Economy AC LVDTs

The Series 280 AC LVDTs are designed and manufactured to provide an accurate, yet economical, means of measuring linear displacement. The transducers are available in working ranges of 0.1 to 2.0 inches. Maximum non-linearity is specified as $\pm 0.4\%$ of full scale.



KEY FEATURES

Ranges from $\pm 0.05"$ to $2.0"$	Large Core to Bore Clearance
Non-linearity $\leq 0.4\%$	Low Cost

TRANSDUCER SPECIFICATIONS

MODEL	LINEAR RANGE \pm Inches (mm)	REFERENCE FREQUENCY	SENSITIVITY V/in./V	INPUT IMPEDANCE Ohms	OUTPUT IMPEDANCE Ohms	PHASE ANGLE UNCOMPENSATED	FREQUENCY FOR ZERO PHASE SHIFT	MAXIMUM NON- LINEARITY	MAXIMUM EXCITATION
0280-0000	0.050 (1.27)	1.0 KHz	4.5	71	935	3°	1.6 KHz	$\pm 0.4\%$ Full Scale	1.0 V.A.
0281-0000	0.100 (2.54)	1.0 KHz	3.2	70	372	3°	1.4 KHz		
0282-0000	0.250 (6.35)	2.4 KHz	2.9	46	160	25°	17 KHz		
0283-0000	0.500 (12.7)	2.4 KHz	1.8	107	265	15°	10 KHz		
0284-0000	1.00 (25.4)	2.4 KHz	0.95	100	134	9.5°	7.8 KHz		

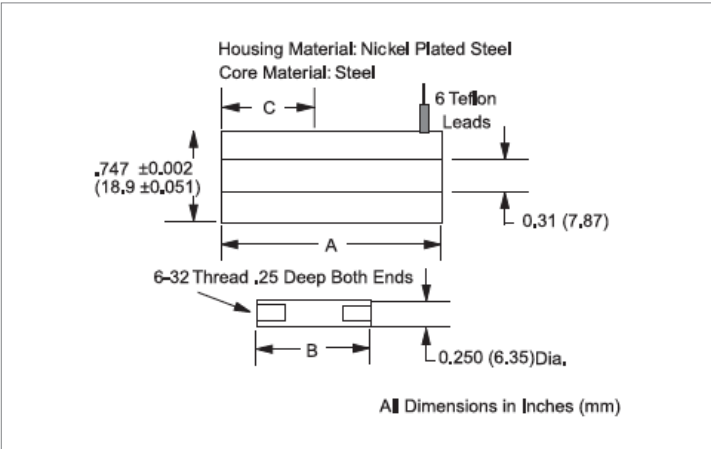
Notes:

1. Electrical specifications are based on energizing the primary coil with the specified excitation frequency.
2. Nominal values are given for sensitivity.
3. Operating Temperature -50°F to $+250^{\circ}\text{F}$ (-46°C to $+121^{\circ}\text{C}$)

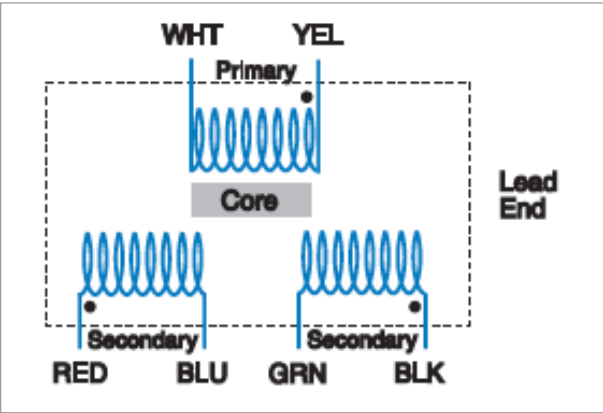
SPECIFICATIONS - MECHANICAL

MODEL	HOUSING LENGTH A Inches (mm)	CORE LENGTH B Inches (mm)	ELECTRICAL CENTER C Inches (mm)	INNER SLEEVE MATERIAL	TOTAL NET WEIGHT W/O CORE Grams	CORE NET WEIGHT Grams	CORE PART NUMBER	LEAD LENGTH, GAUGE
0280-0000	1.63 (41.4)	1.00 (25.4)	0.63 (16.0)	PHENOLIC	40	5.4	C005-0046	7" AWG #26
0281-0000	1.94 (49.3)	1.19 (30.2)	0.78 (19.8)	PHENOLIC	48	6.4	C005-0045	7" AWG #26
0282-0000	3.31 (84.1)	1.25 (31.8)	1.47 (37.3)	PHENOLIC	67	7.0	C005-0044	7" AWG #26
0283-0000	4.88 (124)	2.00 (50.8)	2.25 (57.2)	PHENOLIC	105	12.1	C005-0037	7" AWG #26
0284-0000	6.88 (175)	3.00 (76.2)	3.25 (82.6)	PHENOLIC	120	18.4	C005-0038	7" AWG #26

DIMENSIONAL DIAGRAM

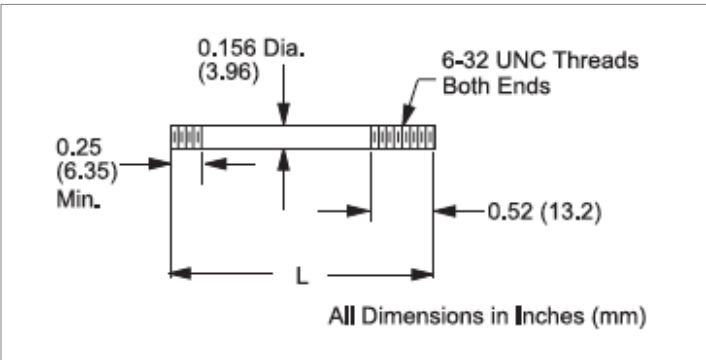


SCHEMATIC



CORE EXTENSION RODS *(Sold Separately)*

The recommended core extension rods are made of nonmagnetic stainless steel and are sized to allow the transducers to operate over their full range. Extension rods from models with longer strokes may be used to facilitate installation. Using extension rods shorter than recommended may reduce the LVDT's usable measurement range.



MODEL	RECOMMENDED CORE EXTENSION ROD	DIMENSION A Inches (mm)
0215-0000	C006-0174	3.00 (76.2)
0216-0000	C006-0175	3.60 (91.4)
0217-0000	C006-0176	4.70 (119.4)
0218-0000	C006-0177	7.20 (182.8)
0219-0000	C006-0178	9.30 (236.2)
0220-0000	C006-0179	13.70 (348.0)
0221-0000	C006-0180	19.00 (482.6)
0222-0000	C006-0181	24.20 (614.7)
0223-0000	C006-0182	35.00 (889.0)
0224-0000	C006-0183	45.50 (1156)
0225-0000	C006-0184	56.00 (1422)
0226-0000	C006-0185	66.50 (1689)

SALES OPTIONS

The following options are available with this series of transducer. The option must be specified at the time an order is placed.

Option #	Description
X0009	Provide longer leads to a specified length
X0012	Replace leads with an integral connector type MS3101A-14S-6P; adaptor for connector has 1.00" O.D.; mating connector included

For more detailed information about these options, please contact the factory.

Series 290

General Purpose AC LVDTs

The Series 290 AC LVDTs are general purpose transducers designed to operate in most industrial environments. All units are terminated in 6 leads, allowing convenient connection to most conditioning electronics.



KEY FEATURES

Ranges from $\pm 0.05"$ to $6.0"$	High Input Impedance
Non-linearity $\leq 0.5\%$	0.5" and 0.75" Outer Diameter

SPECIFICATIONS - ELECTRICAL

MODEL	LINEAR RANGE \pm Inches (mm)	REFERENCE FREQUENCY	SENSITIVITY V/in./V	INPUT IMPEDANCE Ohms	OUTPUT IMPEDANCE Ohms	PHASE ANGLE UNCOMPENSATED	FREQUENCY FOR ZERO PHASE SHIFT	MAXIMUM EXCITATION
0290-0000	0.050 (1.27)	10.0 KHz	2.6	1550	860	-3.6°	7.0 KHz	1.0 V.A.
0291-0000	0.100 (2.54)	5.0 KHz	3.9	740	1790	0°	5.0 KHz	1.0 V.A.
0292-0000	0.250 (6.35)	2.4 KHz	1.6	2100	813	9.3°	30 KHz	1.0 V.A.
0293-0000	0.500 (12.7)	2.4 KHz	0.75	800	156	11°	10 KHz	1.0 V.A.
0294-0000	1.00 (25.4)	2.4 KHz	0.61	458	194	9.3°	9.3 KHz	1.0 V.A.
0295-0000	2.00 (50.8)	2.4 KHz	0.41	2050	520	7°	6.4 KHz	1.0 V.A.
0296-0000	3.00 (76.2)	2.4 KHz	0.23	1360	356	14°	6.8 KHz	1.0 V.A.

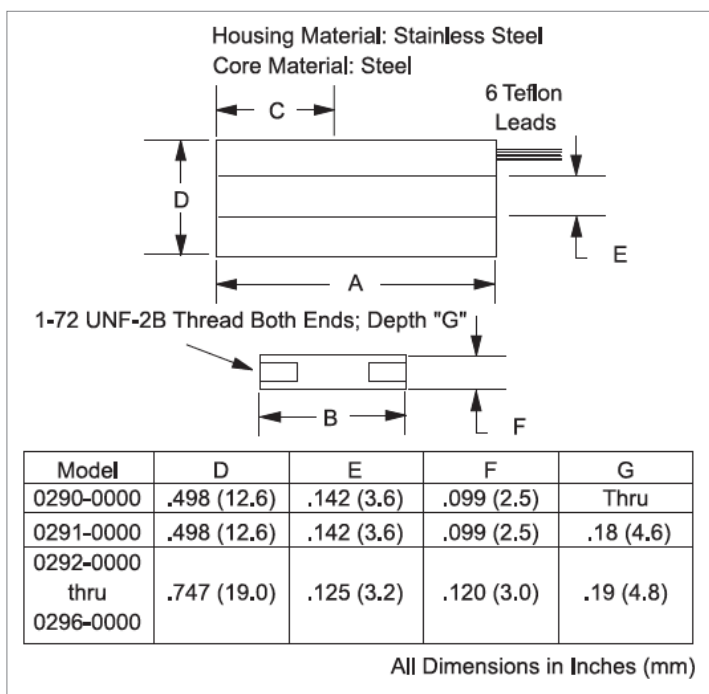
Notes:

1. Electrical specifications are based on energizing the primary coil with the specified excitation frequency.
2. Nominal values are given for sensitivity.
3. Operating Temperature -50°F to +250°F (-46°C to +121°C)

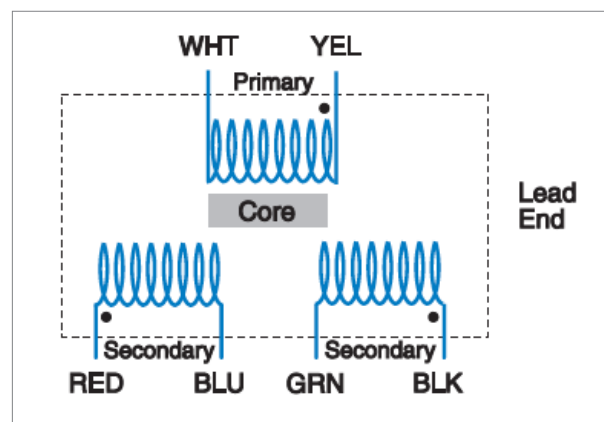
SPECIFICATIONS - MECHANICAL

MODEL	HOUSING LENGTH A Inches (mm)	CORE LENGTH B Inches (mm)	ELECTRICAL CENTER C Inches (mm)	INNER SLEEVE MATERIAL	TOTAL NET WEIGHT W/O CORE Grams	CORE NET WEIGHT Grams	CORE PART NUMBER	LEAD LENGTH, GAUGE
0290-0000	0.88 (22.3)	0.56 (14.2)	0.34 (8.64)	PHENOLIC	14	0.4	C005-0003	7" AWG #30
0291-0000	1.06 (27.0)	0.81 (20.6)	0.46 (11.7)	PHENOLIC	17	0.7	C005-0007	7" AWG #30
0292-0000	3.21 (81.5)	1.75 (44.5)	1.40 (35.6)	S.S.	56	2.5	C005-0054	18" AWG #26
0293-0000	3.71 (94.2)	1.50 (38.1)	1.65 (41.9)	S.S.	65	2.0	C005-0055	18" AWG #26
0294-0000	4.71 (120)	1.75 (44.5)	2.15 (54.6)	S.S.	74	2.5	C005-0054	18" AWG #26
0295-0000	8.21 (209)	2.50 (63.5)	3.90 (99.1)	S.S.	116	3.6	C005-0056	18" AWG #26
0296-0000	10.52 (267)	2.00 (50.8)	5.30 (134)	S.S.	136	2.8	C005-0048	18" AWG #26

DIMENSIONAL DIAGRAM

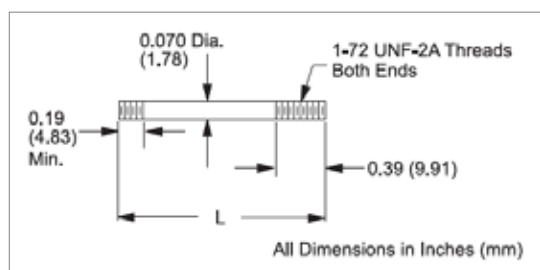


SCHEMATIC



CORE EXTENSION RODS *(Sold Separately)*

The recommended core extension rods are made of nonmagnetic stainless steel and are sized to allow the transducers to operate over their full range. Extension rods from models with longer strokes may be used to facilitate installation. Using extension rods shorter than recommended may reduce the LVDT's usable measurement range.



MODEL	LENGTH L Inches (mm)	CORE EXTENSION ROD
0290-0000	2.00 (50.8)	C006-0056
0291-0000	2.00 (50.8)	C006-0056
0292-0000	2.00 (50.8)	C006-0056
0293-0000	3.25 (82.6)	C006-0057
0294-0000	5.25 (133)	C006-0058
0295-0000	8.40 (213)	C006-0059
0296-0000	8.40 (213)	C006-0059

SALES OPTIONS

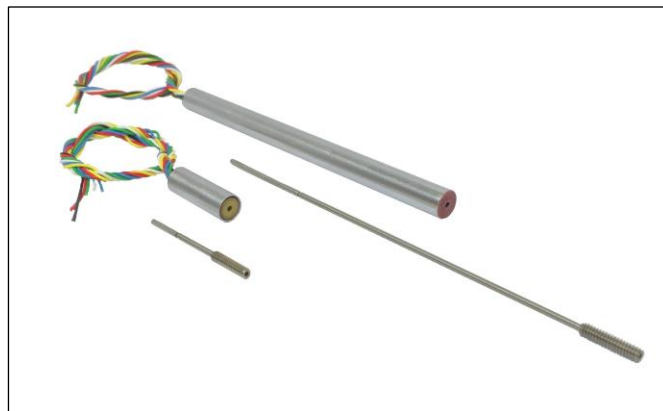
Option #	Description
X0001	Splashproof - protects the unit from washdown environments or outdoor applications. Applies to Models 0292-0000 through 0296-0000
X0009	Provide longer leads to a specified length
X0012	Replace leads with an integral connector type MS3101A-14S-6P; adaptor for connector has 1.00" O.D.; mating connector included
X0036	Welded non-lead end. Applies to Models 0292-0000 through 0296-0000

For more detailed information about these options, please contact the factory.

Series 430

0.3" O.D. AC LVDTs

The Series 0430, 0.3" O.D. miniature AC LVDTs offer precision linear displacement measurements for applications with strokes from $\pm 0.01"$ to $\pm 1.0"$. The small size of these transducers make them ideal for weight critical applications and placement in tight spaces. The core is light enough to be used in systems with low driving forces or high accelerations without adversely affecting the system performance.



KEY FEATURES

Ranges from $\pm 0.010"$ to $1.0"$	Non-linearity $\leq \pm 0.25\%$
0.3" Outer Diameter	Carbon Steel Construction
Lightweight Core Assembly	Low Temperature Coefficient

TRANSDUCER SPECIFICATIONS

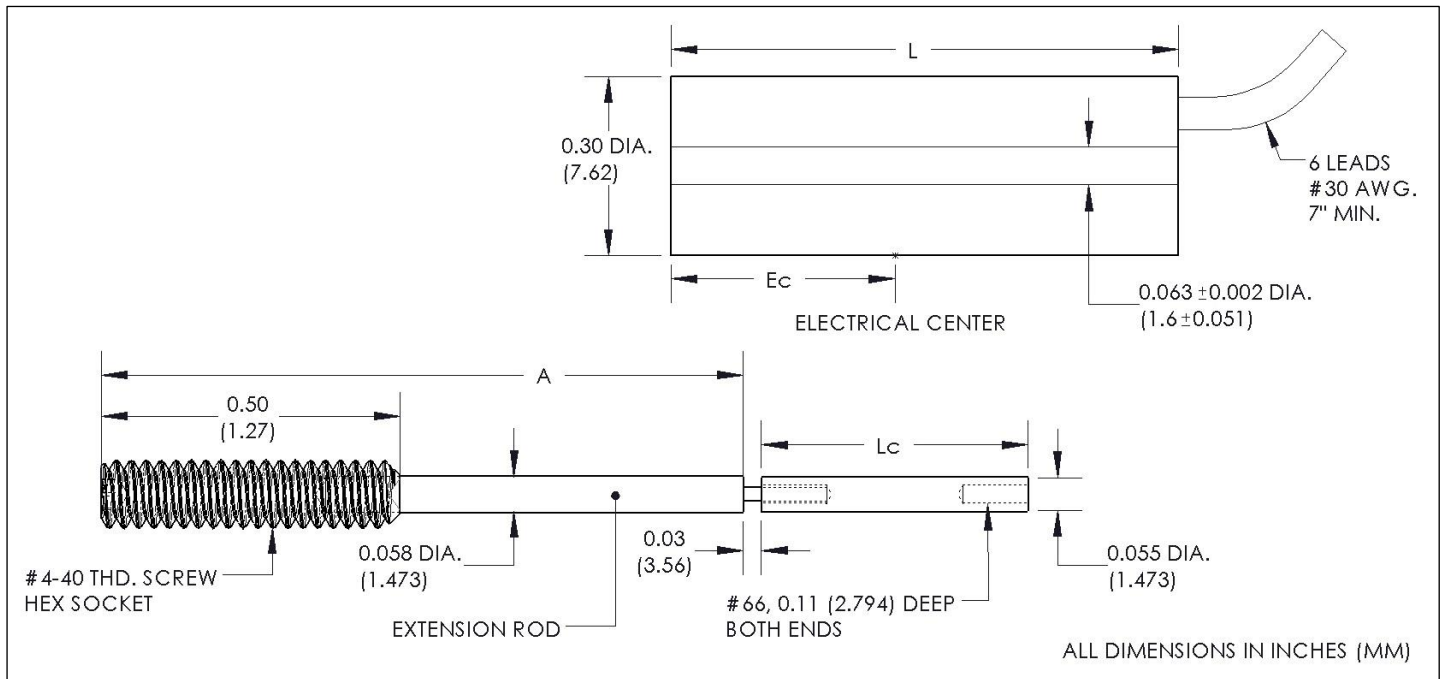
MODEL	FULL STROKE, \pm Inches (mm)	* STROKE OVERTRAVEL, Min., Inches (mm)	BODY LENGTH, L, Inches (mm)	CORE P/N	CORE LENGTH, Lc, Inches (mm)	CORE MASS, Grams	INPUT IMPEDANCE, Ohms	DC INPUT RESISTANCE, Ohms	OUTPUT IMPEDANCE, Ohms	PHASE ANGLE Degrees
0431-0000	0.010 (0.254)	0.150 (3.81)	0.85 (21.59)	C005-0158	0.45 (11.43)	0.14	149	24	98	-6
0432-0000	0.025 (0.635)	0.150 (3.81)	0.85 (21.59)	C005-0158	0.45 (11.43)	0.14	149	24	98	-6
0433-0000	0.050 (1.27)	0.150 (3.81)	0.85 (21.59)	C005-0158	0.45 (11.43)	0.14	149	24	98	-6
0434-0000	0.100 (2.54)	0.150 (3.81)	0.95 (24.13)	C005-0157	0.55 (13.97)	0.17	318	42	152	-5
0435-0000	0.250 (6.35)	0.600 (15.24)	2.40 (60.96)	C005-0155	1.19 (30.23)	0.40	133	15	170	0
0436-0000	0.500 (12.7)	0.500 (12.7)	3.10 (78.74)	C005-0155	1.19 (30.23)	0.40	139	18	124	0
0437-0000	1.000 (25.4)	0.500 (12.7)	4.30 (109.22)	C005-0155	1.19 (30.23)	0.40	245	31	190	5

*Monotonic output voltage past each end of linear stroke.

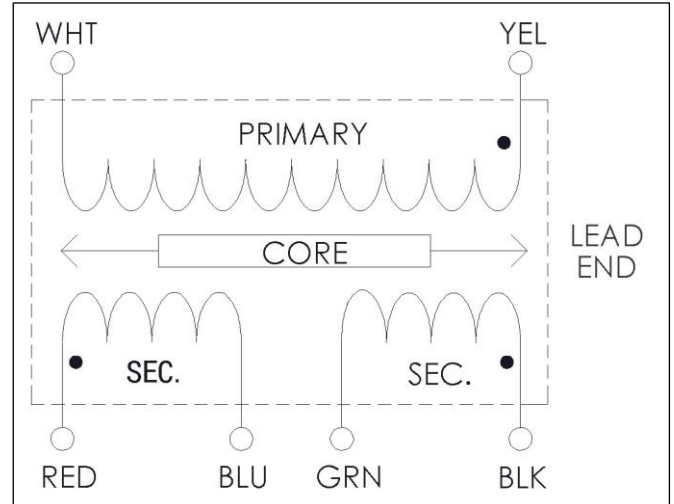
(Specifications at reference frequency)

MODELS	0431-0000	0432-0000	0433-0000	0434-0000	0435-0000	0436-0000	0437-0000
NON-LINEARITY	$\leq \pm 0.25\%$ FS (Best Fit Straight Line)						
REFERENCE FREQUENCY	7.0kHz Sinusoidal Voltage Excitation						
SENSITIVITY, $V_{in}/IN/V_{out} \pm 10\%$	5.25	5.25	5.25	5.04	1.95	1.0	0.50
INPUT VOLTAGE	15 VRMS, Max.						
NULL VOLTAGE, % V Ex.	0.25%	0.3%	0.4%	0.8%	1%	1%	1%
ELECTRICAL CENTER, Ec, Inches (mm)	0.385 (9.78)	0.385 (9.78)	0.385 (9.78)	0.435 (11.05)	1.21 (30.73)	1.46 (37.08)	2.06 (52.32)
TEMPERATURE COEFFICIENTS	$\pm 0.003\%$ FS/ $^{\circ}$ F	$\pm 0.003\%$ FS/ $^{\circ}$ F	$\pm 0.0012\%$ FS/ $^{\circ}$ F	$\pm 0.0012\%$ FS/ $^{\circ}$ F	$\pm 0.0012\%$ FS/ $^{\circ}$ F	$\pm 0.0012\%$ FS/ $^{\circ}$ F	$\pm 0.0012\%$ FS/ $^{\circ}$ F
TEMPERATURE RANGE	-67 $^{\circ}$ F to +257 $^{\circ}$ F (-55 $^{\circ}$ C to +125 $^{\circ}$ C) Operating -67 $^{\circ}$ F to +275 $^{\circ}$ F (-55 $^{\circ}$ C to +135 $^{\circ}$ C) Storage						
OUTER HOUSING	DOM 1018 Carbon Steel Housing.						
BORE LINER	Torlon	Torlon	Torlon	St. St. 300	St. St. 300	St. St. 300	St. St. 300
CORE	Chrome Plated Iron/Nickel Alloy						

DIMENSIONAL DIAGRAM



SCHEMATIC

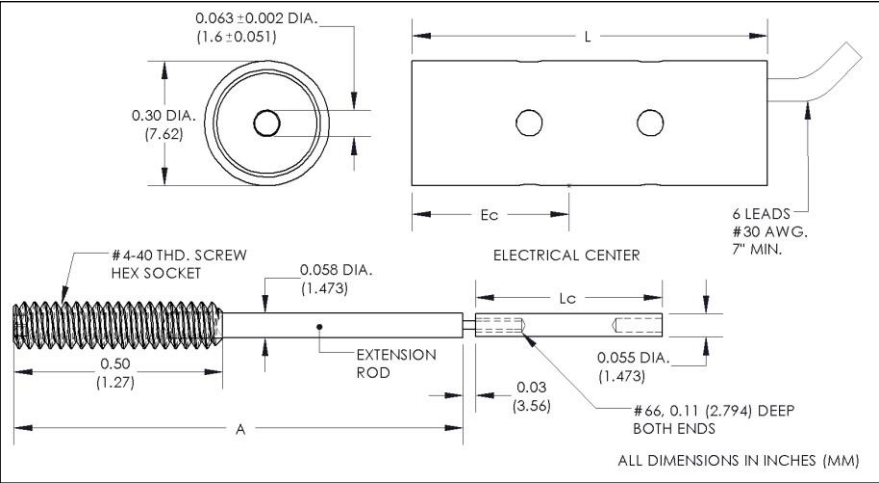


CORE OPTIONS

MODEL	CORE, OPTION 0	CORE ASSEMBLY, OPTION 1
0431-0000_	C005-0158	A = 1.075 (27.31), C004-0211
0432-0000_	C005-0158	A = 1.075 (27.31), C004-0211
0433-0000_	C005-0158	A = 1.075 (27.31), C004-0211
0434-0000_	C005-0157	A = 1.575 (40.01), C004-0212
0435-0000_	C005-0155	A = 2.275 (57.79), C004-0213
0436-0000_	C005-0155	A = 2.775 (70.49), C004-0214
0437-0000_	C005-0155	A = 3.875 (98.43), C004-0215

The core is constructed from a soft, high permeability iron-nickel alloy. Non-magnetic stainless steel is used as the extension rod material. Core assemblies are sized for use over the maximum working range of the LVDT. The core is drilled at both ends with #66 (.033), shown above. Option 0, core only, should be used in applications when a separate extension rod is desirable. Option 1, core assembly, has a #4-40 thread screw brazed to the extension rod which is brazed to the appropriate core.

SERIES 430 MODIFIED FOR USE IN HIGH PRESSURE ENVIRONMENTS



Note: All electrical and physical specifications are the same as the standard Series 430 LVDTs.

The high pressure version of the Series 430 is suitable for operation in nonconductive and noncorrosive fluids or gasses at pressures up to 5,000 P.S.I. The vented housing eliminates pressure differentials between the environment and the transducer's interior, allowing rapid and extreme pressure changes without damage or degradation in performance. Refer to the table on the previous page for core options.

MODEL	STROKE ± Inches (mm)
0431-0001_	0.010 (0.254)
0432-0001_	0.025 (0.635)
0433-0001_	0.050 (1.27)
0434-0001_	0.100 (2.54)
0435-0001_	0.250 (6.35)
0436-0001_	0.500 (12.7)
0437-0001_	1.000 (25.4)

MODEL	STROKE ± Inches (mm)
0431-0002_	0.010 (0.254)
0432-0002_	0.025 (0.635)
0433-0002_	0.050 (1.27)
0434-0002_	0.100 (2.54)
0435-0002_	0.250 (6.35)
0436-0002_	0.500 (12.7)
0437-0002_	1.000 (25.4)

SERIES 430 MODIFIED FOR USE IN HIGH TEMPERATURE ENVIRONMENTS

The high temperature version of the Series 430 has been designed to operate in temperatures from -67 °F to +400°F. The LVDTs are identical electrically and mechanically to the standard Series 430 transducers, providing the same high level of performance and reliability. To achieve the elevated operating temperature, materials such as the epoxy, solder, and magnet wire have been replaced by their high temperature equivalents. Refer to the table on the previous page for core options.

Note: All electrical and physical specifications are the same as the standard Series 430 LVDTs.

ORDERING INFORMATION

0	4	3		-	0	0	0		
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STROKE	HOUSING	CORE
[1] ±0.010"	[0] Standard	[0] Standalone Core
[2] ±0.025"	[1] High Pressure	[1] Core Assembly
[3] ±0.050"	[2] High Temperature	
[4] ±0.100"		
[5] ±0.250"		
[6] ±0.500"		
[7] ±1.000"		