

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 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 $< 0.25\%$

High Sensitivity

Low Temperature Coefficient

Low Mass Core

SPECIFICATIONS

| MODEL | | 0230-0000 | 0231-0000 | 0232-0000 | 0233-0000 | 0234-0000 | 0235-0000 | 0236-0000 | 0237-0000 |
|---|----------------------------|--|----------------|-----------------|----------------|-----------------|----------------|----------------|----------------|
| NON-LINEARITY | | $< \pm 0.25\%$ 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 $+125^{\circ}\text{C}$) (OPERATING); -65°F to 275°F (-55°C to $+135^{\circ}\text{C}$) (STORAGE) | | | | | | | |
| TEMP. COEFFICIENTS | | ZERO $< \pm 0.001\%$ Total Stroke / $^{\circ}\text{F}$; SENSITIVITY $< \pm 0.01\%$ Output / $^{\circ}\text{F}$ | | | | | | | |
| SENSITIVITY | V/in./V $\pm 10\%$ | 4 | 4 | 4 | 4 | 4 | 2 | 1 | 0.5 |
| PHASE ANGLE (Output voltage LEADS input voltage) | 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 |

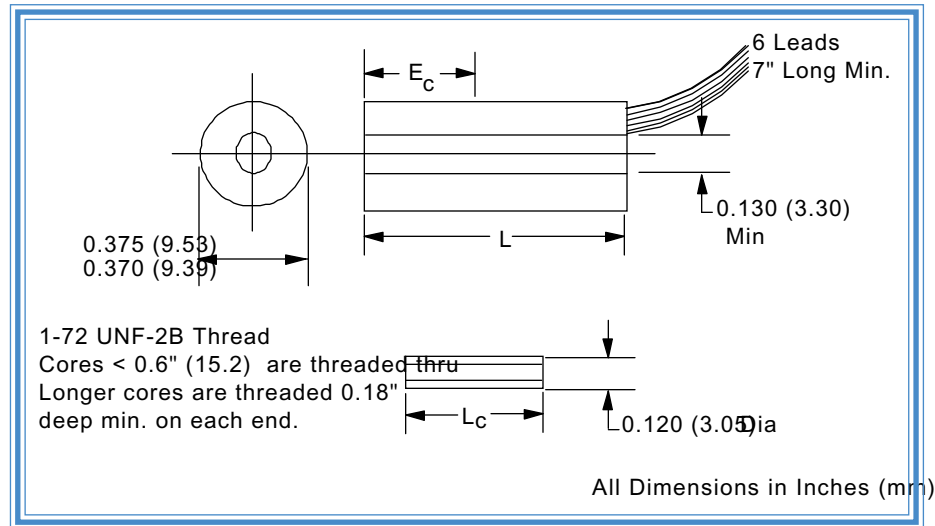
MATERIALS

| | | | |
|-----------------|----------------------------------|------------------|--|
| SERIES 230 LVDT | 1000-0014 OSC./DEM. | | |
| CASE | IRON-NICKEL ALLOY | CASE | PHEONOLIC |
| INNER DIAMETER | PHEONOLIC | THREADED INSERTS | ALUMINUM |
| END SEALS | EPOXY | | |
| LEADS | #30 AWG. TEFLON INSULATED COPPER | TERMINAL STRIPS | POLYAMID AND NICKEL PLATED PHOSPHOR BRONZE |
| CORE | IRON-NICKEL ALLOY | | |

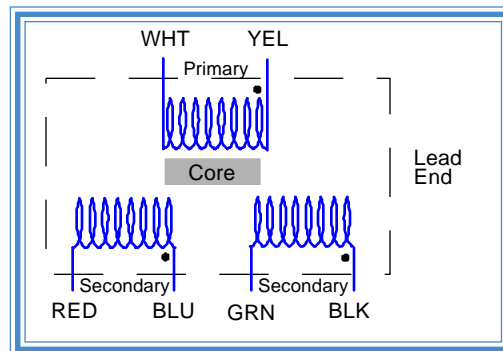
SERIES 230

0.375" O.D.
AC LVDTs

DIMENSIONAL DIAGRAM

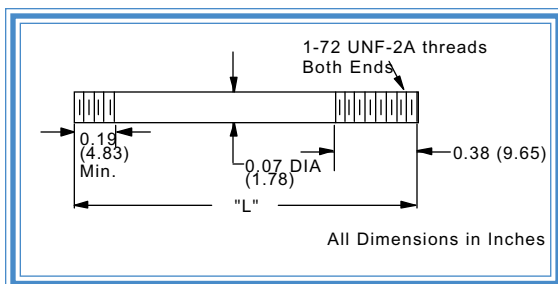


SCHEMATIC



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.

SYSTEM SPECIFICATIONS *(Combined Performance of LVDT and 1000-0014)*

| Model Number | | 0230-0000 | 0231-0000 | 0232-0000 | 0233-0000 | 0234-0000 | 0235-0000 | 0236-0000 | 0237-0000 |
|--------------------|-----------|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| SIGNAL OUTPUT | ±V DC | 0.2 | 0.4 | 1 | 2 | 4 | 5 | 5 | 5 |
| OUTPUT CURRENT | mA | ± 3 without distortion | | | | | | | |
| OUTPUT RIPPLE | V RMS | <0.004 | <0.008 | <0.02 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| POWER INPUT | V DC | ±14 to ±28 @ ± 100 mA Max., Input polarity protected | | | | | | | |
| TEMPERATURE RANGE | 1000-0014 | +32°F to +158°F (0°C to 70°C) (OPERATING); -65°F to +257°F (-55°C to +125°C) (STORAGE) | | | | | | | |
| TEMP. COEFFICIENTS | 1000-0014 | ZERO < ±0.00025V/°F Total Stroke /°F; SENSITIVITY < ±0.01% Output /°F | | | | | | | |

SERIES 230 MODIFIED FOR USE IN HIGH PRESSURE ENVIRONMENTS

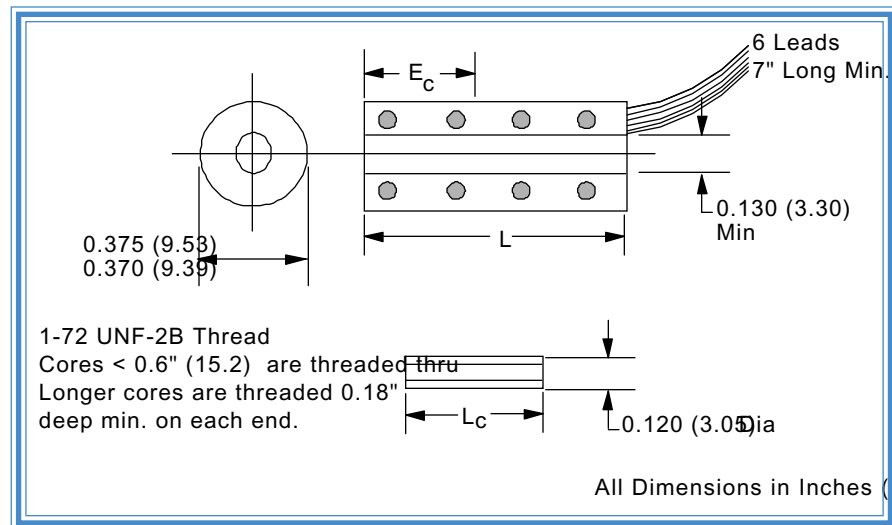
The high pressure version of the Series 230 is suitable for operation in nonconductive and noncorrosive fluids or gasses at pressures up to 5,000 P.S.I. The vented housing eliminates

pressure differentials between the environment and the transducer's interior, allowing rapid and extreme pressure changes without damage or degradation in performance.

| Model # | Stroke ±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.

DIMENSIONAL DIAGRAM



SERIES 230

0.375" O.D.

AC 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.

| 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) |

Note: All electrical and physical specifications are the same as the standard Series 230 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 |
|----------|--|
| X0009 | Provide longer leads to a specified length |

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

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