

# Series LMU60X

Miniature LVDT Displacement Transducer, AC/AC,  
Unguided Armature



## Description

The Series LMS60X is a miniature size precision LVDT with an unguided armature. The armature is loose fit in the bore of the LVDT and is attached to the moving part by a male thread. Precise alignment along the bore produces a frictionless movement. The Series LMU60X is ideal for mechanical vibration measurements. The armature can be separated from the body without disconnecting either part. This position sensor requires separate signal conditioning and provides optimum performance when powered with between 0.5V and 7V at 5kHz. Because of their small size, the Series LMU60X is ideal for applications with limited space. These displacement transducers are ruggedly constructed of stainless steel and are able to withstand the high ambient temperature and high vibration of many industrial environments. All Series LMU60X displacement transducers are shipped with traceable calibration certificates.

## Standard Features

- Stroke ranges from  $\pm 0.025$  inches to  $\pm 0.5$  inches
- Miniature Size
- Unguided Armature
- Low Friction Bearing Assembly
- AC Power
- $\pm 0.5\%$  Linearity
- Broad Temperature Range
- All Stainless Steel Construction
- Traceable Calibration Certificate
- Axial and Radial Cable Exit

## Optional Features

- Improved Linearity
- Expanded Operating Temperature Range
- Radiation Resistance to 100 M rads
- Mounting Blocks

## Performance

### Stroke Ranges

$\pm 0.025$  inches to  $\pm 0.5$  inches

### Linearity

$\pm 0.5\%$  of full stroke max  
 $\pm 0.25\%$  or  $\pm 0.1$  options on some ranges

### Output (Full scale rms)

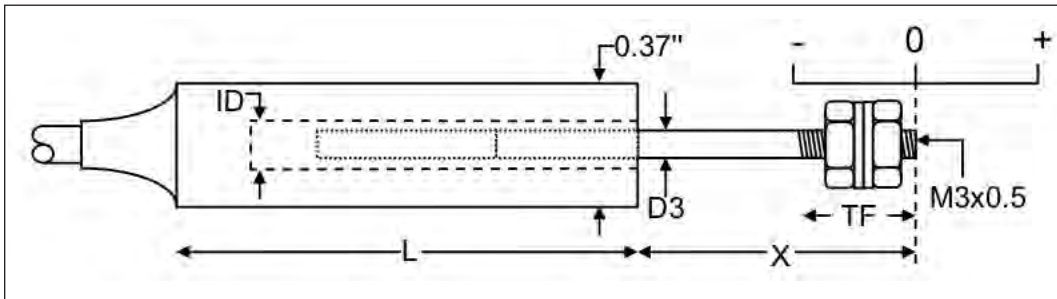
43 mV/V to 775 mV/V  
(dependent on stroke)

LMU60X

# Series LMU60X Specifications

Baseline Configuration Specs Represented.  
Modifications Encouraged - See Below  
Custom Designs Available

## Dimensions (inches)



### AXIAL:

Range	Linearity error (% F.S.)	L	X	D3	ID	Total Weight	Armature Weight	TF	Inward over-travel	Sensitivity (nom)
±0.025"	<± 0.5	1.4"	1.1"	0.08"	0.12"	0.5oz	0.05oz	0.8"	0.31"	43mV/V
±0.1"	<± 0.5	1.7"	0.76"	0.079"	0.11"	0.6oz	0.06oz	0.6"	0.06"	375mV/V
±0.2"	<± 0.5	2.2"	1.00"	0.079"	0.11"	0.7oz	0.06oz	0.7"	0.08"	700mV/V
±0.3"	<± 0.5	2.3"	1.2"	0.08"	0.10"	0.7oz	0.06oz	0.7"	0.15"	502mV/V
±0.4"	<± 0.5	2.5"	1.3"	0.08"	0.10"	0.9oz	0.07oz	0.7"	0.17"	576mV/V
±0.5"	<± 0.5	3.1"	1.4"	0.08"	0.10"	1.2oz	0.08oz	0.7"	0.17"	775mV/V

## Mechanical Characteristics

### Resolution

Infinite.

### Output Sensitivity (typical)

2 mV/V/0.001 inches.

### Residual Null Output

0.1% of full stroke output.

### Repeatability

Within 20 microinches.

### Case Material

Stainless steel.

### Armature Type

Unguided.

### Probe Thread

M3 x 0.5.

## Electrical Characteristics

### Excitation Supply

0.5V to 7V rms, 2kHz to 10kHz, sinusoidal.  
(Calibrated at 5V rms, 5kHz, sinusoidal).

### Electrical Termination

High Quality Polyurethane Shield Cable (6 ft.).

### Phase Shift

10° (Typical).

### Output Load (Optimum)

100K Ohms.

## Environmental Characteristics

### Operating Temperature Range

-4°F to +257°F.

### Temperature Effect on Zero

±0.006%/°F (typical).

### Temperature Effect on Span

±0.006%/°F (typical).

## MODEL IDENTIFICATION

**L M U 6 0 X**

SERIES

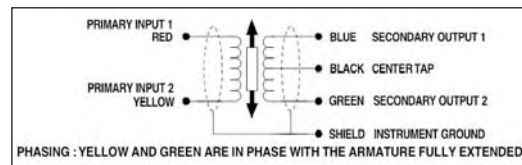
ELECTRICAL TERMINATIONS

Please specify termination required:

X = 1 Axial Cable Exit (Standard)

2 Radial Cable Exit (Optional)

## Connection Details



MODIFICATIONS: We realize LVDT applications vary greatly and as such our designs are flexible. Choice of electrical termination, material compatibility and performance characteristics are a few of the many options available. Specifications on this datasheet represent the standard configuration only. Product and company names listed are trademarks of their respective companies. Specifications subject to change without notice.

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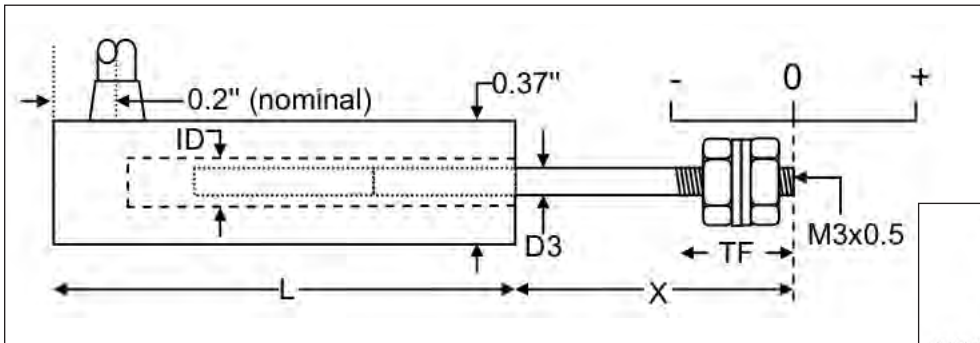
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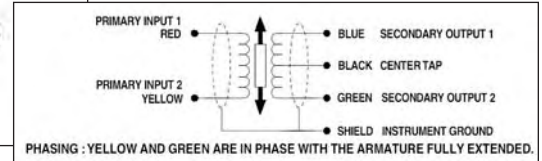
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## Dimensions (inches)



## Connection Details



## RADIAL:

Range	Linearity error (% F.S.)	L	X	D3	ID	Total Weight	Armature Weight	TF	Inward over-travel	Sensitivity (nom)
±0.1"	<± 0.5	1.77"	0.76"	0.079"	0.12"	0.60z	0.06oz	0.6"	0.06"	375mV/V
±0.2"	<± 0.5	2.3"	1.00"	0.079"	0.12"	0.70z	0.06oz	0.7"	0.08"	700mV/V
±0.3"	<± 0.5	2.4"	1.2"	0.079"	0.100"	0.70z	0.06oz	0.7"	0.15"	502mV/V
±0.4"	<± 0.5	2.6"	1.3"	0.079"	0.100"	0.90z	0.07oz	0.7"	0.17"	576mV/V
±0.5"	<± 0.5	3.2"	1.4"	0.079"	0.100"	1.20z	0.08oz	0.7"	0.17"	775mV/V



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