

# Series LMS60X

Miniature LVDT Displacement Transducer, AC/AC,  
Spring Armature



## Description

The Series LMS60X is a precision LVDT packaged in a compact size with an internal spring return armature that fully extends the length of the armature. These LVDT's have low-friction, non-rotating ball-ended probes designed to withstand side loads that can occur in many industrial applications. The body and probe are constructed from stainless steel and the internal windings are fully encapsulated with magnetic shielding allowing them to be clamped into steel housings. This design is used where it is not possible to connect the transducer armature to the moving part being measured. This position sensor requires separate signal conditioning and provides optimum performance when powered with between 0.5V and 7V at 5KHz. The compact size of the LMS60X series makes it ideal for applications requiring limited space. All Series LMS60X displacement transducers are shipped with traceable calibration certificates.

## Standard Features

- Stroke ranges from  $\pm 0.01$  inches to  $\pm 0.5$  inches
- Miniature Size
- Spring Return Armature
- Low Friction Bearing Assembly
- AC Power
- $\pm 0.5\%$  Linearity
- Broad Temperature Range
- All Stainless Steel Construction
- Traceable Calibration Certificate
- Axial or Radial Cable Exit

## Optional Features

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

## Performance

### Stroke Ranges

$\pm 0.01$  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)

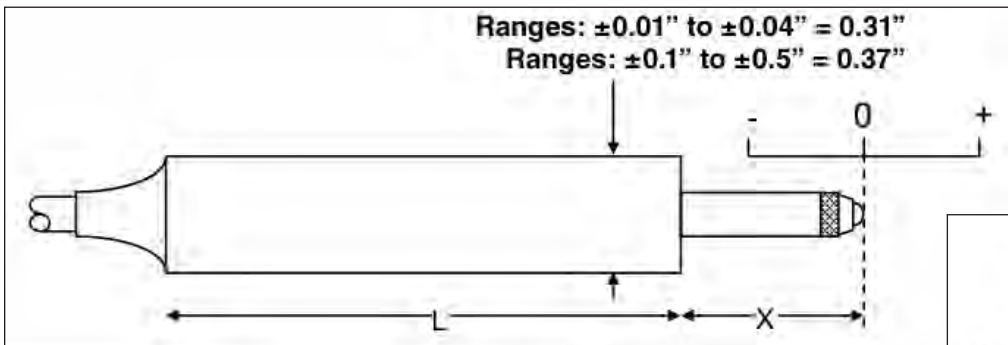
38 mV/V to 775 mV/V  
(dependent on stroke)

LMS60X

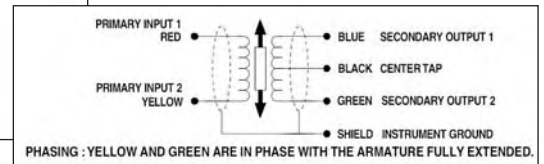
# Series LMS601 Specifications

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

## Dimensions (inches)



## Connection Details



## AXIAL:

Range	Linearity error (% F.S.)	L	X	Total Weight	Spring Force at X	Spring Rate	Inward over-travel	Outward over-travel	Sensitivity (nom)
$\pm 0.01''$	$\leq \pm 0.5$	1.9"	0.48"	0.4oz	2.1oz	11oz/inch	0.02"	0.02"	38mV/V
$\pm 0.02''$	$\leq \pm 0.5$	1.9"	0.48"	0.4oz	2.1oz	11oz/inch	0.01"	0.01"	75mV/V
$\pm 0.04''$	$\leq \pm 0.5$	2.1"	0.52"	0.4oz	1.4oz	11oz/inch	0.10"	0.01"	150mV/V
$\pm 0.1''$	$\leq \pm 0.5$	2.4"	0.45"	0.9oz	3.1oz	9oz/inch	0.05"	0.05"	375mV/V
$\pm 0.2''$	$\leq \pm 0.5$	3.1"	0.48"	1.1oz	3.2oz	7oz/inch	0.04"	0.05"	700mV/V
$\pm 0.3''$	$\leq \pm 0.5$	3.44"	0.60"	1.2oz	4oz	6oz/inch	0.04"	0.06"	502mV/V
$\pm 0.4''$	$\leq \pm 0.5$	3.88"	0.75"	1.4oz	5oz	4oz/inch	0.10"	0.05"	576mV/V
$\pm 0.5''$	$\leq \pm 0.5$	4.76"	0.85"	1.7oz	4.9oz	4oz/inch	0.1"	0.05"	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

Spring Return.

### Probe Type

Ball End.

## 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

$\pm 0.006\%/^{\circ}\text{F}$  (typical).

### Temperature Effect on Span

$\pm 0.006\%/^{\circ}\text{F}$  (typical).

## MODEL IDENTIFICATION

**L M S 6 0 X**

SERIES

ELECTRICAL TERMINATIONS

Please specify termination required:

X = 1 Axial Cable Exit (Standard)

2 Radial Cable Exit (Optional)



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.

WARRANTY: Stellar Technology warrants that its product shall be free from defective workmanship and/or material for a twelve month period from the date of shipment, provided that Stellar Technology's obligation hereunder shall be limited to correcting any defective material FOB our factory. No allowance will be made for any expenses incurred for correcting any defective workmanship and/or material without written consent by Stellar Technology. This warranty is in lieu of all other warranties expressed or implied.

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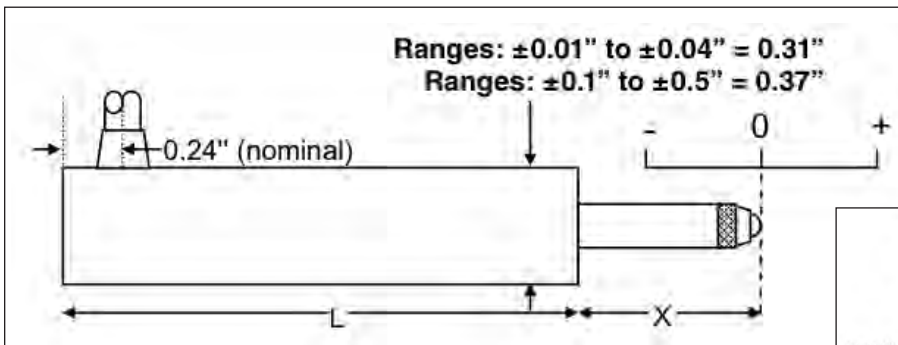
ISO 9001:2000



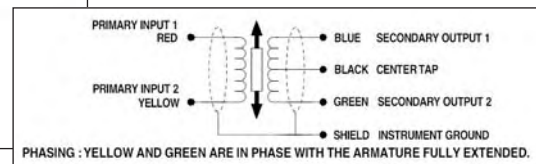
# Series LMS602 Specifications

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

## Dimensions (inches)



## Connection Details



## RADIAL:

Range	Linearity error (% F.S.)	L	X	Total Weight	Spring Force at X	Spring Rate	Inward over-travel	Outward over-travel	Sensitivity (nom)
$\pm 0.01''$	$\leq \pm 0.5$	2.0"	0.48"	0.4oz	2.1oz	11oz/inch	0.02"	0.02"	38mV/V
$\pm 0.02''$	$\leq \pm 0.5$	2.0"	0.48"	0.4oz	2.1oz	11oz/inch	0.01"	0.01"	75mV/V
$\pm 0.04''$	$\leq \pm 0.5$	2.1"	0.52"	0.4oz	1.4oz	11oz/inch	0.10"	0.01"	150mV/V
$\pm 0.1''$	$\leq \pm 0.5$	2.5"	0.45"	0.9oz	3.1oz	9oz/inch	0.05"	0.05"	375mV/V
$\pm 0.2''$	$\leq \pm 0.5$	3.3"	0.48"	1.1oz	3.2oz	7oz/inch	0.04"	0.05"	700mV/V
$\pm 0.3''$	$\leq \pm 0.5$	3.54"	0.60"	1.2oz	4oz	6oz/inch	0.04"	0.06"	502mV/V
$\pm 0.4''$	$\leq \pm 0.5$	4.00"	0.75"	1.4oz	5oz	4oz/inch	0.10"	0.05"	576mV/V
$\pm 0.5''$	$\leq \pm 0.5$	4.88"	0.85"	1.7oz	4.9oz	4oz/inch	0.1"	0.05"	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

Spring Return.

### Probe Type

Ball End.

## 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

$\pm 0.006\%/^{\circ}\text{F}$  (typical).

### Temperature Effect on Span

$\pm 0.006\%/^{\circ}\text{F}$  (typical).

## MODEL IDENTIFICATION

**L M S 6 0 X**

SERIES

ELECTRICAL TERMINATIONS

Please specify termination required:

X = 1 Axial Cable Exit (Optional)

2 Radial Cable Exit (Standard)



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