

# Series LZS60X

Submersible Miniature LVDT Displacement Transducer,  
AC/AC, Spring Armature



*Axial Cable Shown*

## Description

The Series LZS60X is a submersible miniature LVDT designed for applications requiring displacement measurements to be made while submerged in fresh water and most non-corrosive liquids and gases. Fluids which are non-magnetic can be allowed to flood the armature tube without affecting the operation of the transducer. The LZS60X has an internal spring return armature that fully extends the length of the armature. These units have low-friction, non-rotating ball-ended probes designed to withstand side loads that can occur in many submersible applications. This design is used where it is not possible to connect the transducer armature to the moving part being measured. All Series LZS60X units have hermetically sealed stainless steel housings with a cable exit which is double sealed using an internal rubber gland plus a polyolefin shrink tube over the cable and transducer body. The compact size of the LZS60X series makes it ideal for applications requiring limited space. This position sensor requires separate signal conditioning and provides optimum performance when powered with between 0.5 V and 7V at 5KHz. All Series LZS60X displacement transducers are shipped with traceable calibration certificates.

## Standard Features

- Stroke ranges from  $\pm 0.04$  inches to  $\pm 0.5$  inches
- Hermetically Sealed Housings
- Double Sealed Cable Exit
- Spring Guided Armature
- Infinite Resolution
- Compact Size
- AC/AC
- $\pm 0.5\%$  Linearity
- Broad Temperature Range
- All Stainless Steel Construction
- Traceable Calibration Certificate
- Axial or Radial Cable Exit

## Optional Features

- Improved Linearity
- MI Stainless Steel Sheathed Cable
- Cable Length/  
Cable Sheath Lengths
- Mounting Blocks

## Performance

### Stroke Ranges

$\pm 0.04$  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

### Repeatability

$\leq 10$  microinches

### Output Sensitivity

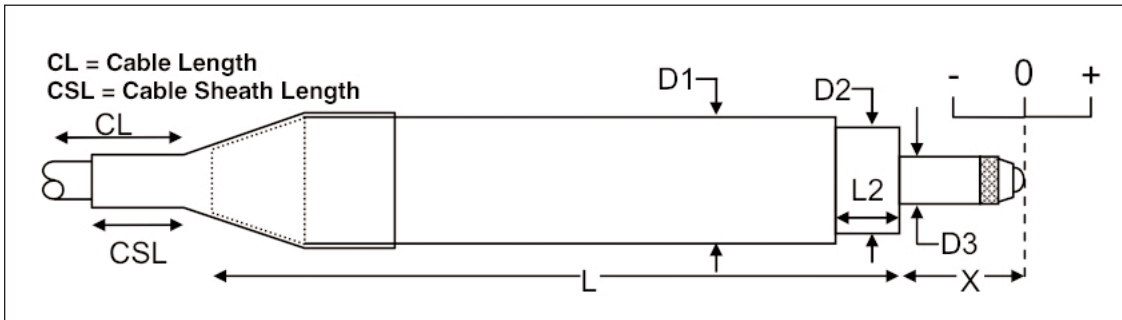
2 mV/V/0.001 inches (typical)

**LZS60X**

# Series LZS601 Specifications

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

## Dimensions (inches)



### AXIAL:

Range	Linearity error (% F.S.)	L	X	D1	D2	D3	L2	Total Weight	Inward over-travel	Outward over-travel	Sensitivity (nom)
±0.04"	<± 0.5	2.3"	0.45"	0.31"	0.28"	0.156"	0.3"	0.4oz	0.04"	0.06"	143mV/V
±0.1"	<± 0.5	2.7"	0.49"	0.37"	0.31"	0.187"	0.3"	1.1oz	0.04"	0.04"	375mV/V
±0.2"	<± 0.5	3.0"	0.54"	0.37"	0.31"	0.187"	0.3"	1.2oz	0.06"	0.01"	320mV/V
±0.3"	<± 0.5	3.9"	0.60"	0.37"	0.31"	0.187"	0.3"	1.3oz	0.06"	0.05"	435mV/V
±0.4"	<± 0.5	4.3"	0.75"	0.37"	0.31"	0.187"	0.3"	1.6oz	0.05"	0.05"	567mV/V
±0.5"	<± 0.5	5.2"	0.85"	0.37"	0.31"	0.187"	0.3"	1.8oz	0.07"	0.05"	773mV/V

## Mechanical Characteristics

### Resolution

Infinite.

### Case Material

Stainless steel.

### Armature Type

Spring Return.

### Probe

Ball end.

(Optional probe tips available).

## Electrical Characteristics

### Excitation Supply

0.5V to 7V rms, 2kHz to 10kHz, sinusoidal.

(Calibrated at 5V rms, 5kHz, sinusoidal).

### Electrical Termination

Hermetically Sealed Waterproof Cable (6 ft.).

### Cable Length

*Standard Cable:*

Standard CL = 6 ft.

Standard CSL = 6 ft.

Rated to 500 psi

*Optional Cable:*

Maximum CSL = 23 ft.

Rated to 500 psi

CSL = 2 in. with cable length from 2 ft. to 3200 ft. Rated to 250 psi.

### 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 Z S 6 0 X**

SERIES

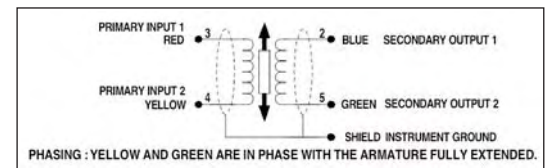
ELECTRICAL TERMINATIONS

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.

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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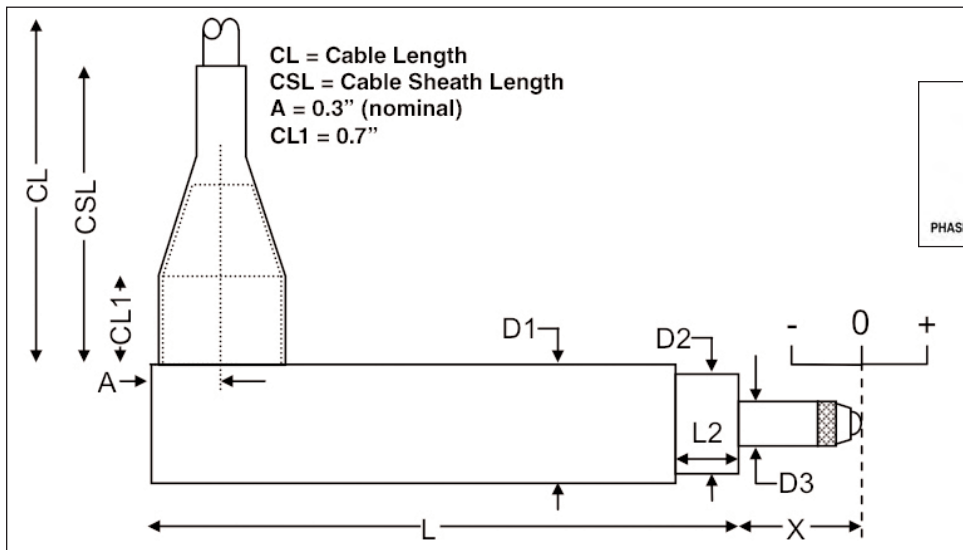
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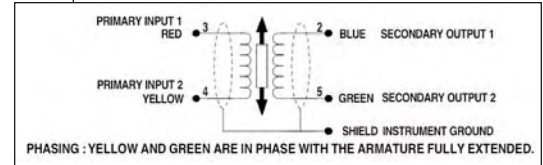
# Series LZS602 Specifications

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

## Dimensions (inches)



## Connection Details



## Cable Length

### Standard Cable:

Standard CL = 6 ft.  
Standard CSL = 6 ft.  
Rated to 500 psi

### Optional Cable:

Maximum CSL = 23 ft.  
Rated to 500 psi  
CSL = 2 in. with cable length  
from 2 ft. to 3200 ft. Rated to 250 psi.

## RADIAL:

Range	Linearity error (% F.S.)	L	X	D1	D2	D3	L2	Total Weight	Inward over-travel	Outward over-travel	Sensitivity (nom)
±0.04"	<± 0.5	2.3"	0.45"	0.31"	0.28"	0.156"	0.3"	0.4oz	0.04"	0.06"	143mV/V
±0.1"	<± 0.5	2.7"	0.49"	0.37"	0.31"	0.187"	0.3"	1.1oz	0.04"	0.04"	375mV/V
±0.2"	<± 0.5	3.0"	0.54"	0.37"	0.31"	0.187"	0.3"	1.2oz	0.06"	0.01"	320mV/V
±0.3"	<± 0.5	3.9"	0.60"	0.37"	0.31"	0.187"	0.3"	1.3oz	0.06"	0.05"	435mV/V
±0.4"	<± 0.5	4.3"	0.75"	0.37"	0.31"	0.187"	0.3"	1.6oz	0.05"	0.05"	567mV/V
±0.5"	<± 0.5	5.2"	0.85"	0.37"	0.31"	0.187"	0.3"	1.8oz	0.07"	0.05"	773mV/V

## Mechanical Characteristics

### Resolution

Infinite.

### Case Material

Stainless steel.

### Armature Type

Spring Return.

### Probe

Ball end.

(Optional probe tips available).

## Electrical Characteristics

### Excitation Supply

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

### Electrical Termination

Hermetically Sealed Waterproof Cable

### Phase Shift

10° (Typical).

### Output Load (Optimum)

100K Ohms.

## Environmental Characteristics

### Operating Temperature Range

-4°F to +257°F.

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### Temperature Effect on Span

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## MODEL IDENTIFICATION

**L Z S 6 0 X**

SERIES

ELECTRICAL TERMINATIONS

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X = 1 Axial Cable Exit (Optional)

2 Radial Cable Exit (Standard)



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