



ISO 9001/AS9100 Certified

# LYU61X

**SUBMERSIBLE LONG STROKE LVDT DISPLACEMENT TRANSDUCER,  
DC/DC, UNGUIDED ARMATURE**

YOUR ENGINEERED SOLUTION SOURCE <sup>SM</sup>



## DESCRIPTION

The Series LYU61X submersible, long stroke, DC powered LVDT is designed specifically for applications requiring displacement measurements while submerged in fresh water or most other non-corrosive liquids and gases for prolonged periods.

Pressure ratings range from 145 psi to 3000 psi. The armature is loose fit in the bore of the LVDT and is attached to the moving part by a threaded end. Precise alignment along the bore produces a frictionless movement. This design allows the armature to be separated from the body without disconnecting either part.

This type of LVDT is most suited for applications where dynamic measurements are to be made. This position sensor operates from unregulated power supplies of +24 Vdc to +40 Vdc or dual  $\pm 12$  Vdc to  $\pm 20$  Vdc and utilizes an internal amplifier to generate a  $\pm 5$  Vdc output signal. These displacement transducers are ruggedly constructed of all stainless steel and are able to withstand harsh underwater environments such as mining, upstream oilfield, geophysical, and industrial processes.

All Series LYU61X displacement transducers are shipped with traceable calibration certificates.

## PERFORMANCE

### STROKE RANGES

$\pm 0.1$  inches to  $\pm 8$  inches

### LINEARITY

$\pm 0.5\%$  of full stroke max

$\pm 0.25\%$  or  $\pm 0.1$  options on some ranges

### OUTPUT VOLTAGE

$\pm 5$  Vdc

## STANDARD FEATURES

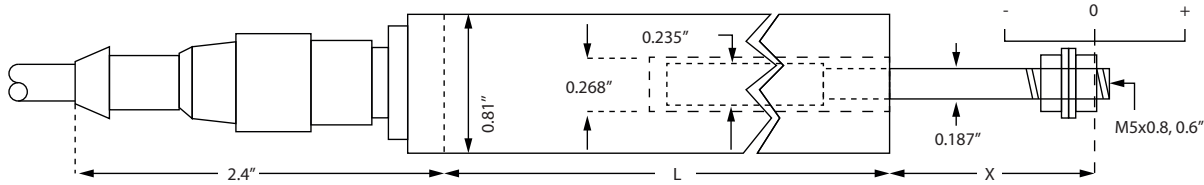
- Stroke ranges from  $\pm 0.1$  inches to  $\pm 8$  inches
- $\pm 5$  Vdc – F.S. output
- Unguided Armature
- Frictionless Movement
- DC/DC
- $\pm 0.5\%$  Linearity
- High Resolution
- Encapsulated Integral Electronics
- All Stainless Steel Construction
- Traceable Calibration Certificate

## OPTIONAL FEATURES

- Improved Linearity
- Cable and Connector Offerings
- Mounting Blocks



A US Manufacturer of: Pressure, Temperature, Load/  
Force/Torque, and Displacement Sensors.



| RANGE | LINEARITY ERROR (% F.S.) | L     | X     | TOTAL WEIGHT | ARMATURE WEIGHT | INWARD OVER-TRAVEL |
|-------|--------------------------|-------|-------|--------------|-----------------|--------------------|
| ±0.1" | <± 0.5                   | 2.7"  | 1.28" | 4oz          | 0.05oz          | 0.4"               |
| ±0.2" | <± 0.5                   | 2.7"  | 1.28" | 4oz          | 0.06oz          | 0.3"               |
| ±0.3" | <± 0.5                   | 2.7"  | 1.28" | 4oz          | 0.06oz          | 0.2"               |
| ±0.4" | <± 0.5                   | 2.7"  | 1.28" | 4oz          | 0.07oz          | 0.1"               |
| ±0.5" | <± 0.5                   | 8.0"  | 1.5"  | 9oz          | 0.7oz           | 0.4"               |
| ±1"   | <± 0.5                   | 9.1"  | 2.5"  | 11oz         | 0.9oz           | 0.9"               |
| ±2"   | <± 0.5                   | 13.9" | 3.0"  | 14oz         | 1.4oz           | 0.4"               |
| ±3"   | <± 0.5                   | 18.5" | 4.5"  | 1.2lb        | 2.0oz           | 0.9"               |
| ±4"   | <± 0.5                   | 19.8" | 5.0"  | 1.4lb        | 2.5oz           | 0.4"               |
| ±6"   | <± 0.5                   | 27.8" | 7.0"  | 1.9lb        | 3.7oz           | 0.4"               |
| ±8"   | <± 0.5                   | 35.8" | 10.0" | 2.8lb        | 5.0oz           | 1.4"               |

## MECHANICAL CHARACTERISTICS

### CASE MATERIAL

Stainless steel.

### ARMATURE TYPE

Free Unguided.

### PROBE THREAD

M5 x 0.8.

### PRESSURE RATING

145 psi (standard).

3000 psi (maximum) – depends on cable exit option.

## SET-UPS

Please Specify Set-up Required:

| SET-UP          | (-) POSITION | (0) POSITION | (+) POSITION |
|-----------------|--------------|--------------|--------------|
| <b>STANDARD</b> |              |              |              |
| 1               | 0V           | 5V           | 10V(+0%-5%)  |
| 2               | -5V(+0%-5%)  | 0V           | +5V(+0%-5%)  |
| <b>OPTIONAL</b> |              |              |              |
| 3               | 10V(+0%-5%)  | 5V           | 0V           |
| 4               | +5V(+0%-5%)  | 0V           | -5V(+0%-5%)  |

## ELECTRICAL CHARACTERISTICS

### SUPPLY VOLTAGE (DUAL)

±12 to ±20 Vdc, 30 mA.

### SUPPLY VOLTAGE (SINGLE)

24Vdc to 40Vdc (must be floating), 30 mA.

### OUTPUT IMPEDANCE

2 Ohms.

### OUTPUT LOAD (OPTIMUM)

10K Ohms.

### OUTPUT RIPPLE

30mV peak to peak (typical).

### ELECTRICAL OUTPUT BANDWIDTH

200 Hz.

### ELECTRICAL TERMINATION

Underwater connector with fitted cable (16 ft.) 145 psi maximum static pressure (standard)

Axial connector (standard)

(Consult factory for available optional terminations)

## ENVIRONMENTAL CHARACTERISTICS

### OPERATING TEMPERATURE RANGE

-58°F to +176°F.

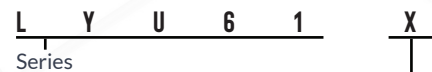
### TEMPERATURE EFFECT ON ZERO

±0.006% /°F (typical).

### TEMPERATURE EFFECT ON SPAN

±0.017% /°F (typical).

## MODEL IDENTIFICATION



### ELECTRICAL TERMINATIONS

Please specify termination required:

- 1 Axial Cable Exit (Optional)
- 2 Radial Cable Exit (Optional)
- 3 Axial Connector (Standard)
- 4 Radial Connector (Optional)
- 5 Pins Only for Customer Wiring (Optional)

## MODIFICATIONS AND WARRANTY

MODIFICATIONS: We realize transducer applications vary greatly and as such our designs are flexible. Choice of pressure port, 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.



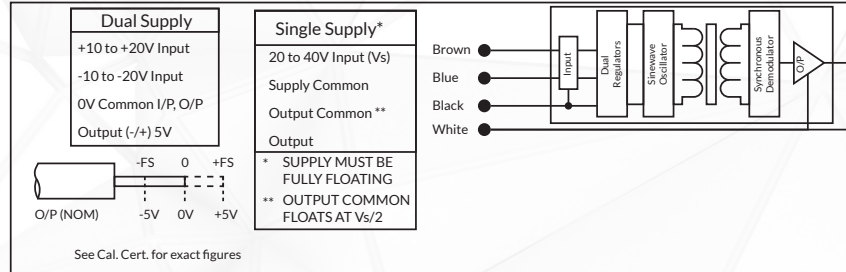
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Due to the nature of technology, changes are inevitable.  
For latest technical specifications, see our website.

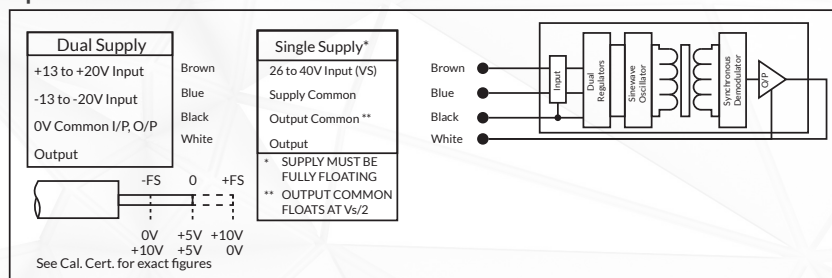


## CONNECTION DETAILS

### Standard



### Optional



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