

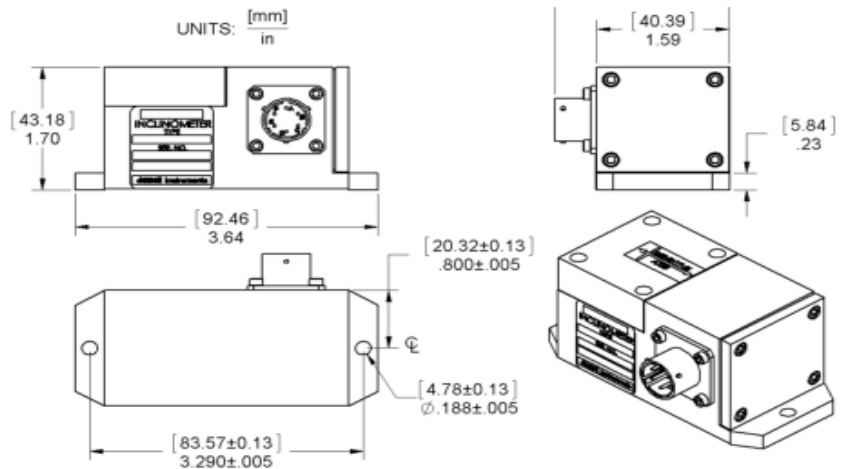
LSOC/LSOP Series Inclinometer

Input Ranges From $\pm 1.0^\circ$ to $\pm 90^\circ$ With High Reliability, High Resolution, and Low Non-Linearity

The Jewell **LSOC/LSOP Series** fluid damped, flexure suspension, servo inclinometer is a precision inertial-grade sensing instrument and is Jewell's most robust solution designed to meet the needs of a variety of commercial, industrial, and aerospace applications.



Outline Diagram



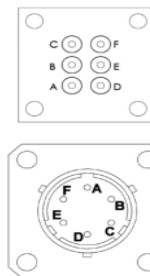
Features & Benefits

- Extremely high resolution and low hysteresis of less than 0.0005% of full range output.
- Extremely robust designed to withstand shocks in excess of 1500g and vibration of 20 grms.
- Responds to changes of slope as small as 0.000006"/ft.
- High accuracy closed-loop force balanced sensor technology.
- Low white noise spectral density of better than 0.15 μ V/Sq. Root HZ

Applications

- Steel processing: continuous casting, electric arc furnace and idle control
- Heavy construction: paving, grading, mining, tunneling, and overturn detection
- Structural monitoring: walls of dams, support, columns, bridges, and others
- Railway: automated train controls, rail leveling and grinding, and rail bed analysis

Pin Out (Options: C-Connector, P-Pin)



| | |
|-------|---------------|
| Pin A | Supply +15Vdc |
| Pin B | 0V Common |
| Pin C | Supply -15Vdc |
| Pin D | Output |
| Pin E | Not Used |
| Pin F | Self Test |

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Performance Specifications

STATIC/DYNAMIC

| | | | | | |
|---|--------|--------|--------|---------|---------|
| Input Range (°) | ± 1.0 | ± 3.0 | ± 14.5 | ± 30.0 | ± 90.0 |
| Full Range Output (FRO V± 1.0% ¹) | ± 5.0 | ± 5.0 | ± 5.0 | ± 5.0 | ± 5.0 |
| Non Linearity (%FRO ² Max.) | 0.05 | 0.05 | 0.02 | 0.02 | 0.05 |
| Scale Factor (V/g, Nom.) | 286.5 | 95.5 | 20.0 | 10.0 | 5.0 |
| Scale Factor Temp Sens (% reading/°C, Max.) | ±0.04 | ±0.03 | ±0.01 | ±0.06 | ±0.06 |
| Bandwidth (-3db) (Hz, Nom.) | 0.5 | 2.0 | 15.0 | 20.0 | 40.0 |
| Transverse Axis Misalignment (° Max.) | ±0.1 | ±0.15 | ±0.25 | ±0.5 | ±1.00 |
| Output @ 0° Tilt (Bias) (V, Max.) | ±0.1 | ±0.04 | ±0.02 | ±0.02 | ±0.02 |
| 0° Output Temp Sensitivity (V/°C, Max.) | ±0.005 | ±0.003 | ±0.001 | ±0.0005 | ±0.0003 |
| Resolution and Threshold (µrad Max.) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

ELECTRICAL

| | |
|-------------------------------|--------------|
| Number of Axis | 1 |
| Input Voltage (Vdc) | ± 12 to ± 18 |
| Input Current (mA, Nom.) | ± 15 |
| Output Impedance (Ohms, Nom.) | 100 |
| Noise (Vrms, Max.) | 0.002 |

ENVIRONMENTAL

| | |
|----------------------|----------------|
| Operating Temp Range | -20°C to +70°C |
| Survival Temp Range | -40°C to +70°C |
| Vibration | 20 grms |

Shock 1500g, 05 msec, 1/2 sine

- Notes: 1 - Full range is defined as "from negative full input angle to positive full input angle."
 The Inclinometer output is proportional to the sine of the tilt angle.
 2 - Referenced to theoretical sine value independent of misalignment.
 3 - Jewell Instruments recommendations
 4 - Manufacture is Amphenol or equivalent

ENCLOSURE

| | |
|---|----------------------|
| Housing material | Anodized Aluminum |
| Weight | 13 oz. (368.5g) |
| Protection Class per IEC 529 | IP 68 |
| Connector Type ⁴ | PT02H-10-6P |
| Mating Connector ^{3,4} | PT06A-10-6S(SR) |
| Fastener Size ³ | #8-32 (M4X0.7) |
| Torque for Steel fasteners ⁴ | 10 inch-lbs. (1.0Nm) |
| Jewell Connector Part # | 62101011-000 |
| Surface Flatness ³ | 0.003 (0.0765mm) |

Custom Capabilities

- 4-20mA output signal with single-ended 24 Vdc input
- Internal temperature sensor and thermal modeling for the highest levels of accuracy over a wide temperature range
- Available in LSR Series package configuration for applications requiring a more compact solution
- Factory set zero biasing for non-horizontal measurements
- Solder terminals and flying leads in place of military connector
- Custom input ranges from ±0.5° to ±90° available
- Custom output impedances available
- Custom bandwidths available on certain ranges

How to Order

| | |
|-----------|--------------|
| LSOC-1 | 02550278-206 |
| LSOC-3 | 02550278-207 |
| LSOC-14.5 | 02550278-208 |
| LSOC-30 | 02550278-209 |
| LSOC-90 | 02550278-210 |
| LSOP-1 | 02550278-201 |
| LSOP-3 | 02550278-202 |
| LSOP-14.5 | 02550278-203 |
| LSOP-30 | 02550278-204 |
| LSOP-90 | 02550278-205 |

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