

# LCF-300-L Precision Fluid Damped Inclinometer

## 4-20 mA Output

The LCF-300 Series Inclinometer is a rugged, high performance, single-axis tilt sensor designed for peak performance in extreme conditions. The fluid damped mechanism delivers superior noise rejection in high shock and vibration environments as well as excellent output stability. Units are available with a 6-pin connector or pin-terminals. Available outputs include +/-5V, 0-5V and 4-20mA. Custom input ranges, filters and temperature compensation are also available on request.



### Features

- Resolution of 1  $\mu$ rad
- Temperature Compensation Available
- 4-20 mA Output
- +20 to +30 Volts DC Power Input
- RoHS Compliant

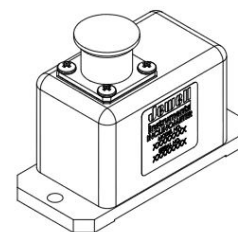
### Applications

- High-precision Geotech
- Oil and Gas, Riser Tilt Monitoring
- Railroad MOW Equipment
- Pavement Profiling Rigs
- Vehicle Wheel Alignment
- Robotics



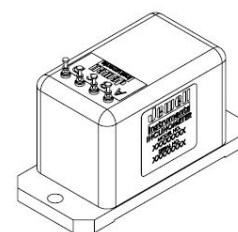
#### Connector Version

| PIN | FUNCTION       |
|-----|----------------|
|     | 4-20 mA OUTPUT |
| A   | + VDC          |
| B   | PWR / SIG COM  |
| C   | N/C            |
| D   | SIG OUT        |
| E   | N/C            |
| F   | N/C            |



#### Pin Terminal Version

| PIN | FUNCTION       |
|-----|----------------|
|     | 4-20 mA OUTPUT |
| A   | + VDC          |
| B   | N/C            |
| C   | PWR / SIG COM  |
| D   | SIG OUT        |



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## 4-20 mA Output

### STATIC/DYNAMIC

| Input Range (deg.)                             | ±1      | ±3      | ±14.5   | ±30     | ±60     | ±90     |
|--|---------|---------|---------|---------|---------|---------|
| Full Range Output (mA) <sup>1</sup>            | 4-20    | 4-20    | 4-20    | 4-20    | 4-20    | 4-20    |
| Non-linearity (% FRO) <sup>2</sup>             | 0.05    | 0.03    | 0.03    | 0.03    | 0.03    | 0.05    |
| Scale Factor (mA/g nom.)                       | 458.4   | 152.9   | 32.0    | 16.0    | 9.2     | 8.0     |
| Scale Factor Sensitivity (PPM/°C max)          | 350     | 300     | 100     | 60      | 60      | 60      |
| Bandwidth, Hz (-3 dB)                          | 0.5     | 2       | 15      | 20      | 30      | 30      |
| Transverse Axis Misalignment (° max)           | ±0.25   | ±0.25   | ±0.5    | ±0.5    | ±0.5    | ±0.5    |
| 0° Output nominal (mA)                         | 12 ±0.6 | 12 ±0.6 | 12 ±0.3 | 12 ±0.3 | 12 ±0.3 | 12 ±0.3 |
| 0° Output Temp. Sensitivity (mA/°C max)        | 0.024   | 0.01    | 0.002   | 0.001   | 0.001   | 0.0008  |
| Resolution & Threshold (µradians) <sup>3</sup> | 1       | 1       | 1       | 1       | 1       | 1       |

<sup>1</sup>Full Range is defined "from negative full input angle to positive full input angle." <sup>2</sup>Nonlinearity is specified as deviation of output referenced to theoretical sine function value, independent of misalignment. <sup>3</sup>Full Resolution is achieved with noise reduction techniques.

### ELECTRICAL

|                             |            |
|-----------------------------|------------|
| Number of Axes:             | 1          |
| Input Voltage Range, (VDC): | +20 to +30 |
| Input Current, mA, max:     | 40         |
| Noise, µArms, maximum:      | 0.002      |
| Mass (grams)                | 230        |

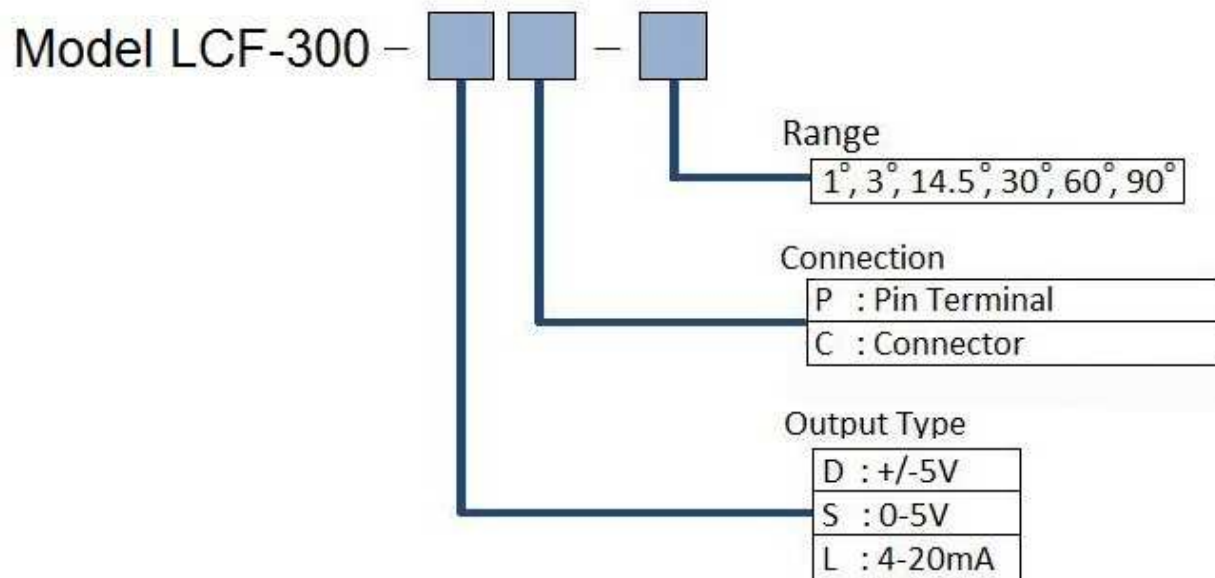
### ENVIRONMENTAL

|                       |                         |
|-----------------------|-------------------------|
| Operating Temp Range: | -40°C to +80°C          |
| Storage Temp Range:   | -60°C to +90°C          |
| Shock:                | 1500g, 0.5 msec, ½ sine |

### ENCLOSURE

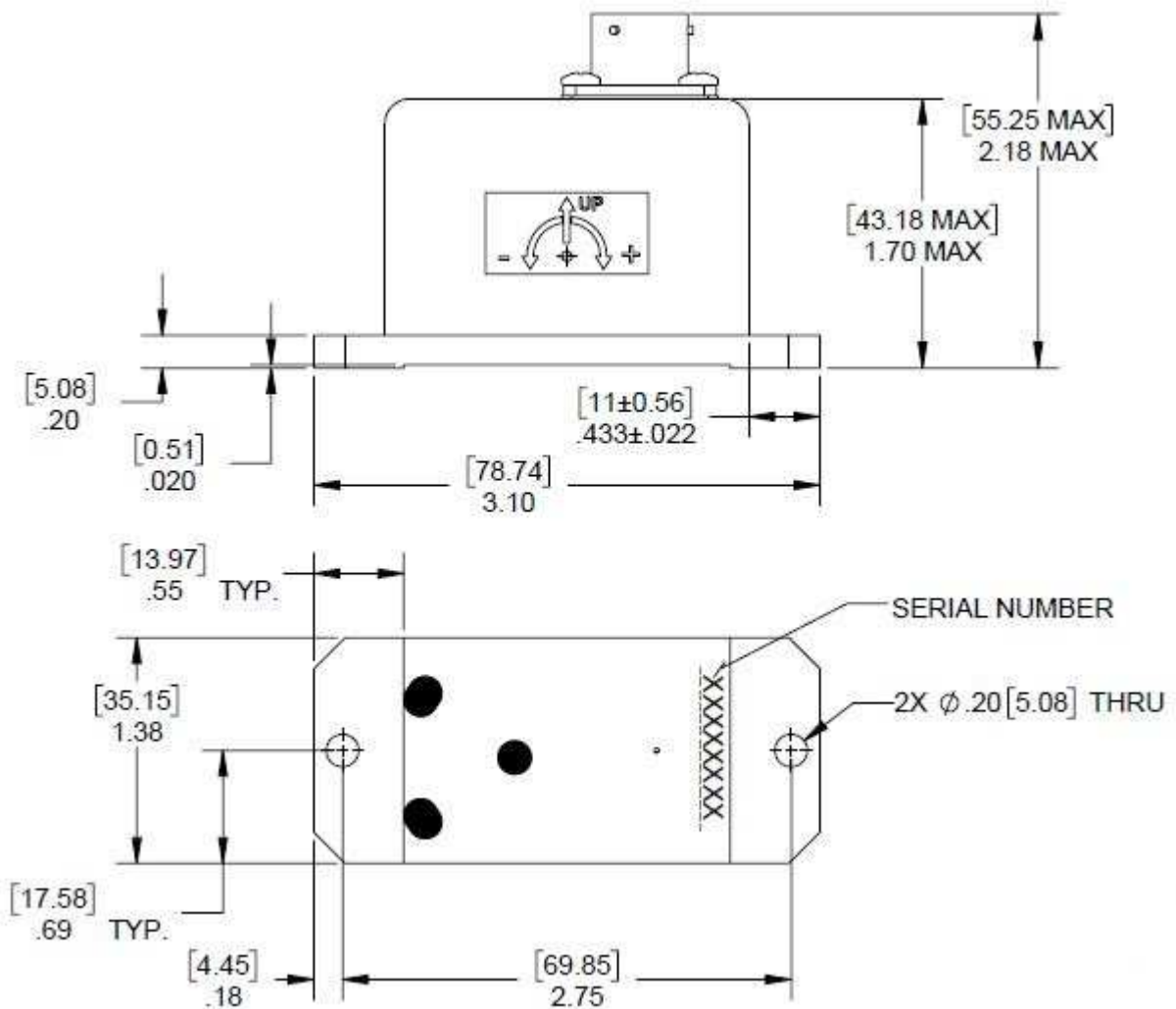
|       |      |
|-------|------|
| Seal: | IP65 |
|-------|------|

## Order Code



# LCF-300-L Precision Fluid Damped Inclinometer 4-20 mA Output

## Outline Drawing: Connector Version



# LCF-300-L Precision Fluid Damped Inclinometer 4-20 mA Output

## Outline Drawing: Pin Terminal Version

