

## LCF 196 Inclinometer



**BEST OF  
CLASS**

The Jewell LCF 196 Biaxial Inclinometer is a  $\pm 14.5$  to  $\pm 90$  device, with lower ranges available with customization. It is a high accuracy sensor: designed for applications where high levels of shock and vibration are present. The LCF 196 is a two-axis tilt sensor in a 22 mm diameter stainless steel package. It is characterized by excellent turn-on-repeatability and very low hysteresis.

### LCF 196 Inclinometer Specifications

#### Performance

Input Range, °:	$\pm 14.5$	$\pm 30.0$	$\pm 90.0$
Full Range Output (FRO), VDC, $\pm 1\%$ <sup>1</sup> :	$\pm 5.0$	$\pm 5.0$	$\pm 5.0$
Nonlinearity, % FRO <sup>2</sup> , maximum:	0.02	0.02	0.10
Scale Factor, volts/g, nominal:	20.0	10.0	5.0
Scale Factor Temp Sensitivity, PPM/°C, maximum:	100.0	100.0	100.0
Natural Frequency, Hz, nominal <sup>3</sup> :	30.0	30.0	30.0
Bandwidth (-3dB) Hz, nominal:	30.0	30.0	30.0
Input Axis Misalignment, °, maximum:	1.00	1.00	1.00
Bias, volts, maximum:	0.040	0.020	0.020
0° Output Temp Sensitivity, volts/°C, maximum:	0.001	0.0005	0.0003
Resolution and Threshold:	3 $\mu$ radians		

#### Electrical

Input Voltage, VDC, <sup>4</sup> :	$\pm 12$ to $\pm 18$
Input Current, mA, nominal:	15
Output Impedance, ohms, nominal:	100
Noise, Vrms, maximum:	0.002      0.001      0.001

#### Environmental

Operating Temp Range:	-40° C to +80° C
Survival Temp Range:	-60° C to +90° C
Vibration:	10 grms
Shock:	500 G, 0.001 sec
Seal:	MIL-STD 202, Method 112
Weight:	11.0 oz.

#### Applications

- ▶ Geophysical Measurement
- ▶ Earth Movement Monitoring
- ▶ Oil & Gas Well Logging
- ▶ Dam Monitoring
- ▶ Heavy Construction, Grading
- ▶ Ship & Barge Leveling
- ▶ Deviation Surveys
- ▶ Continuous Casting
- ▶ Weapons Platform Leveling

<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> Output Phase angle = -90°.

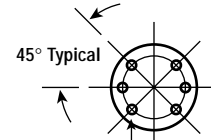
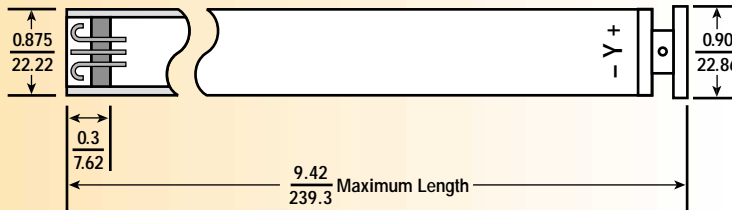
<sup>4</sup> Unit Power connections can be easily adapted for operations from single-ended, floating power supplies of 24 to 36 Volts DC.

## LCF 196 Inclinometer

Dimensional Drawing for the LCF 196 Inclinometer (inch/mm)

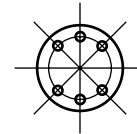
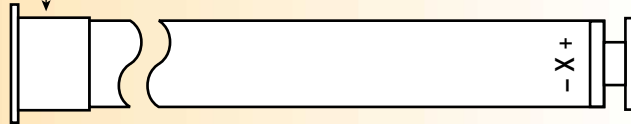
### Pin-Out

- 1 - -12 to -18 Vdc
- 2 - Common
- 3 - Output, Axis X
- 4 - Output, Axis Y
- 5 - +12 to +18 Vdc
- 6 - Case Ground (connection optional)



#4-40 UNC-28 4 Places  
Eq. Sp. on 16.99 B.C.

End Cap  
(For protection during shipping)



### Block Diagram for the LCF Inertial Sensor

