Jewell Instruments

LCF 196 Inclinometer

BEST OF CLASS

The Jewell LCF 196 Biaxial Inclinometer is a ±14.5 to ±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, °:	±14.5	±30.0	±90.0
Full Range Output (FRO), VDC, ±1%[1]:	±5.0	±5.0	±5.0
Nonlinearity, % FRO[2], 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[3]:	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 µradians		
Electrical			
Input Voltage, VDC,[4]:	±12 to ±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.		

[1] Full Range is defined "from negative full input angle to positive full input angle.
[2] Nonlinearity is specified as deviation of output referenced to theoretical sine function value, independent of misalignment.
[3] Output Phase angle = -90°.
[4] Unit Power connections can be easily adapted for operations from single-ended, floating power supplies of 24 to 36 Volts DC.

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

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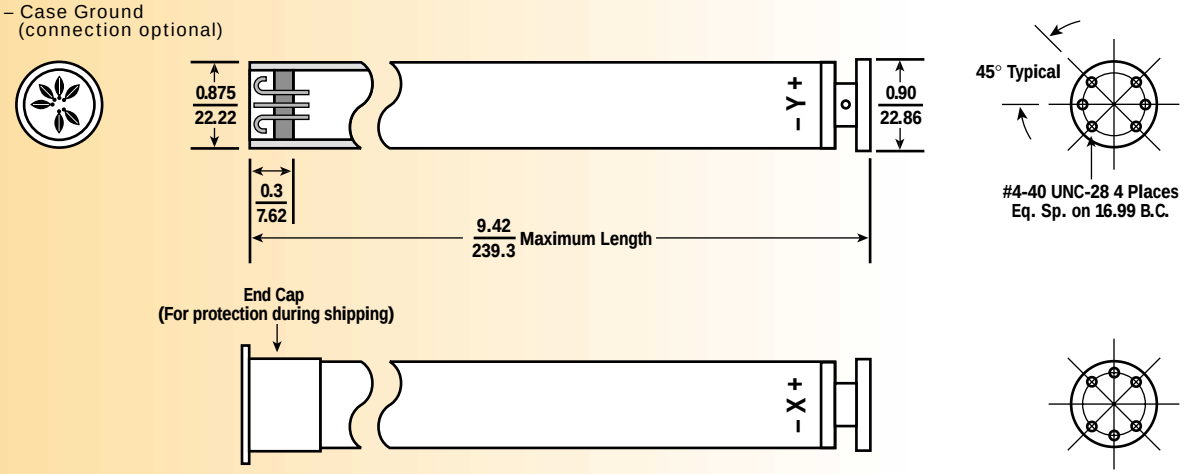
Dimensional Drawing for the LCF 196 Inclinometer (inch/mm)

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)



Block Diagram for the LCF Inertial Sensor