

LCF-2330

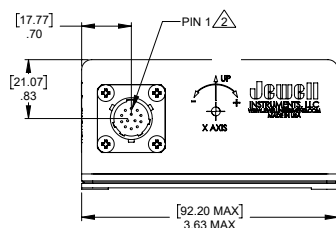
Dual-Axis Analog Inclinometer

The Jewell LCF-2330 Series Inclinometer is a dual axis version of the rugged, high accuracy LCF Series. The design of the LCF-2330 was optimized to provide the high accuracy and superior repeatability of Jewell's rugged, fluid damped, flexure suspension, servo technology in a small and convenient package for applications requiring a compact dual axis solution. With many options to choose from, including a flange base, metric threads, and temperature sensor, this product can be customized to suit your individual needs.

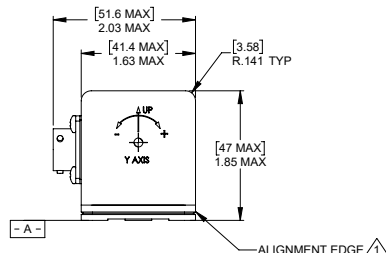
FEATURES:

- $\pm 1^\circ$ to $\pm 90^\circ$ Input Full Range
- Micro Radian Resolution
- Available Internal Temp Sensor
- ± 5 Vdc Output, 4-20mA Output, or 0-5V Output
- Superior 0° Output Stability Over Temperature
- RoHS Compliance Available

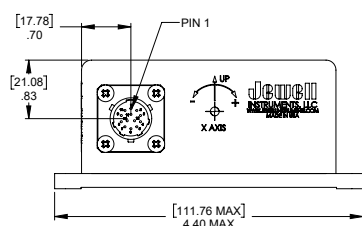
Standard Base



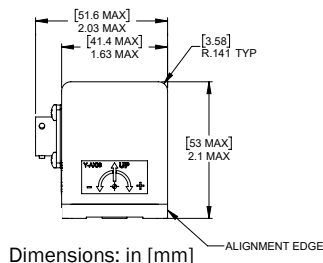
$\pm 5V$ Version



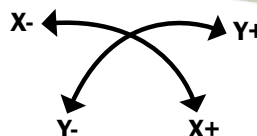
Flanged Base



4-20mA & 0-5V Versions



Dimensions: in [mm]



APPLICATIONS:

- Radar & Antenna Leveling
- Weapons Platform Leveling
- Barge and Offshore Platform Control
- Deviation Surveys
- 2-Axis Machine Tool Leveling
- Bridge Structural Monitoring
- Submersible Control Feedback
- Offshore Platform Stability
- Production/Manufacturing Process
- Equipment for Aerospace Industry

LCF-2330: $\pm 5V$ OUTPUT

PERFORMANCE SPECIFICATIONS

PERFORMANCE

INPUT RANGE (°)	± 1	± 3	± 14.5	± 30	± 60	± 90
FULL RANGE OUTPUT (VDC) ¹	± 5.00					
NONLINEARITY (% FRO) ² max	0.05	0.05	0.02	0.02	0.02	0.02
SCALE FACTOR (V/g) nominal	286.5	95.5	20.0	10.0	5.77	5.0
SCALE FACTOR TEMP SENSITIVITY (PPM/°C max)	300	300	100	100	100	100
BANDWIDTH (-3dB) Hz, nominal	0.5	2	15	20	30	30
TRANSVERSE AXIS MISALIGNMENT, ° max	± 0.25	± 0.50	± 0.50	± 1.00	± 1.00	± 1.00
OUTPUT AT 0° TILT (V) max	± 0.10	± 0.04	± 0.02	± 0.02	± 0.02	± 0.02
0° OUTPUT TEMP. SENSITIVITY (Volts/°C) max	0.015	0.005	0.001	0.0005	0.0003	0.0003
RESOLUTION & THRESHOLD (μ radians) max	1					

NOTES:

- Full range is defined as "from negative full input angle to positive full input angle."
- Nonlinearity is specified as deviation of output referenced to theoretical sine function value, independent of misalignment.

*Specifications subject to change without notice on account of continued product development

ELECTRICAL

NUMBER OF AXES	2
INPUT VOLTAGE RANGE (VDC)	± 12 to ± 18
INPUT CURRENT (mA, max)	30
OUTPUT IMPEDANCE (Ohms) nominal	100
NOISE (V _{rms} , max)	0.002

ENVIRONMENTAL

OPERATING TEMP. RANGE	-40° to +80°C
STORAGE TEMP. RANGE	-60° to +90°C
VIBRATION	20 grms
SHOCK	1000g, 1 msec, 1/2 sine

ENCLOSURE

WEIGHT	280 g
SEAL	IP65

PIN OUTS

1	RED	+12 to +18 VDC
2	BLACK	-12 to -18 VDC
3	WHITE	POWER COMMON
4	ORANGE	X-AXIS OUTPUT SIGNAL
5	GREEN	X-AXIS OUTPUT RETURN
6	RED/BLACK	Y-AXIS OUTPUT SIGNAL
7	BLUE	Y-AXIS OUTPUT RETURN
8	WHITE/BLACK	TEMP SENSOR OUT
9-13		N/C

(Color codes correspond to cable assembly.)

OPTIONS

- Temperature Sensor
 - Type: AD590
 - Scale Factor: 1 μ A/K
 - Spec @ Room Ambient
 - Temperature: 298.2 $\pm$ 10.5 μ A
- Flange Base
- Metric Mounting Threads
- RoHS Compliance
- 0-5V Output

LCF-2330-LC: 4-20mA OUTPUT

PERFORMANCE SPECIFICATIONS

STATIC/DYNAMIC

INPUT RANGE (°)	±1	±3	±14.5	±30	±90
FULL RANGE OUTPUT (FRO) mA $\pm 1.0\%$ ¹	4-20				
NONLINEARITY (% FRO) max	0.05	0.05	0.02	0.03	0.04
SCALE FACTOR (mA/g) nominal	458.40	152.90	31.95	16.00	8.00
SCALE FACTOR SENSITIVITY (PPM/°C max)	300	300	100	100	100
BANDWIDTH (-3dB) Hz, nominal	0.5	2.0	15	20	30
TRANSVERSE AXIS MISALIGNMENT, ° max	±0.5				
OUTPUT AT 0° TILT (mA, max)	12 ± 0.6	12 ± 0.6	12 ± 0.3	12 ± 0.3	12 ± 0.3
OUTPUT AT 0° TILT TEMP. SENSITIVITY (mA/°C) max	0.024	0.009	0.002	0.001	0.001
RESOLUTION & THRESHOLD (μ rad)	1				

NOTES:

- Full range is defined as "from negative full input angle to positive full input angle."
- Nonlinearity is specified as deviation of output referenced to theoretical sine function value, independent of misalignment.

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ELECTRICAL

NUMBER OF AXES	2
INPUT VOLTAGE RANGE (VDC)	20 to 30
INPUT CURRENT (mA, nominal)	90
NOISE (mA rms, max)	0.01

ENVIRONMENTAL

OPERATING TEMP. RANGE	-40° to +80°C
STORAGE TEMP. RANGE	-60° to +90°C
VIBRATION	20 grms
SHOCK	1000g, 1 msec, ½ sine

ENCLOSURE

WEIGHT	280 g
SEAL	IP65

PIN OUTS

1	RED	+20 to +30 VDC
2	BLACK	N/C
3	WHITE	POWER RETURN
4	ORANGE	X-AXIS OUTPUT SIGNAL
5	GREEN	SIGNAL COMMON
6	RED/BLACK	Y-AXIS OUTPUT SIGNAL
7	BLUE	SIGNAL COMMON
8	WHITE/BLACK	TEMP SENSOR OUT
9-13		N/C

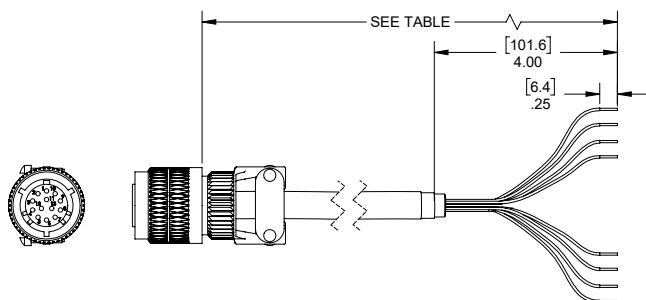
(Color codes correspond to cable assembly.)

OPTIONS

- Temperature Sensor
 - Type: AD590
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 - Temperature: 298.2 $\pm$ 10.5 μ A
- Flange Base
- Metric Mounting Threads
- RoHS Compliance
- 0-5V Output

MATING CONNECTOR AND CABLE ASSEMBLIES

CONNECTOR CABLE



PART #	MODEL #	LENGTH
847774-002	13-Pin Mating Connector	-
879605-003	DSI-CBL-060-2	6 ft
879605-004	DSI-CBL-010-2	10 ft
879605-009	DSI-CBL-02M-2	2 m
879605-010	DSI-CBL-03M-2	3 m

NOTE: Please contact factory for any custom length cable assemblies.

LCF-2330 SERIES ORDERING INFORMATION

SERIES	VERSION	INPUT RANGE	BASE & THREADING	TEMP SENSOR	ROHS COMPLIANT
LCF-2330	[blank] = $\pm 5V$ LC = 4-20mA SC = 0-5V	1/1 = $\pm 1^\circ$ X&Y axis 3/3 = $\pm 3^\circ$ X&Y axis 14.5/14.5 = $\pm 14.5^\circ$ X&Y axis 30/30 = $\pm 30^\circ$ X&Y axis 60/60 = $\pm 60^\circ$ X&Y axis 90/90 = $\pm 90^\circ$ X&Y axis	[blank] = standard base with imperial threading M = metric base with M6 threading FB = flanged base with 3 mounting holes	[blank] = no TS = yes	[blank] = no ROHS = yes

EXAMPLE:

Model: **LCF-2330-30/30-M-TS-ROHS**

Description: $\pm 5V$ output, $\pm 30^\circ$ range, metric threads, temperature sensor, and RoHS compliant

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