



SMI Analog Inclinometer

Features

- Extremely Rugged
- Lower cost than traditional Force-Balanced Inclinometers
- High Accuracy
- Greater precision than MEMS technologies
- 4-20mA Output
- Single-Ended Power Input
- RoHS Compliant

Application

- Geotechnical Monitoring
- Robotics Pin Option Connector Option
- Academic Research
- Geotechnical Monitoring
- Track Monitoring and Testing
- Vehicle Wheel Alignment



Introduction

Model SMI-L rugged, high precision single-axis force balance 4-20mA inclinometer. The SMI-L offers the same low cost and precision of our Emerald Series in a convenient 4-20mA package. Units operate as a 3-wire current loop for use with any 4-20mA PLC or data logger. The SMI-L is also ideal for geotechnical applications requiring long cable runs. Use the SMI-L in robotics, geotechnical, and industrial measurement and control applications where low cost and peak performance are key.

Performance specifications

Static/dynamic

Input range (°)	±3	±14.5	±30	±45	±60	±90
Full Range Output (mA, ± -1%) ¹	4-20	4-20	4-20	4-20	4-20	4-20
Non-linearity (% FRO) ²	0.05	0.02	0.02	0.02	0.04	0.05
Scale Factor (mA/g nom.)	152.9	32	16	11.3	9.2	8
Scale Factor Temp. Sensitivity (PPM/°C max)	100	100	100	100	100	100
Bandwidth, Hz (-3 dB)	5	5	5	5	5	5
Output Axis Misalignment (° max)	0.25	0.5	0.5	0.5	0.5	0.5
Pendulous Axis Misalignment, ° max	0.25	0.5	0.5	0.5	0.5	0.5
0° Output nominal (mA)	11.7-12.3					
0° Output Temp. Sensitivity (mA/°C max)	0.01	0.003	0.002	0.0015	0.0015	0.0015
Resolution & Threshold (µradians) ³	3.5	3.5	3.5	3.5	3.5	3.5

Electrical

Number of Axes	1
Input Voltage Range, (VDC)	+12 to +28
Input Current, mA, max	55
Noise, Vrms, Maximum	0.006

Environmental

Operating Temp Range	-55°C to +85°C
Storage Temp Range	-60°C to +90°C
Shock	500g, 1 msec, ½ sine

Enclosure

Seal	IP65
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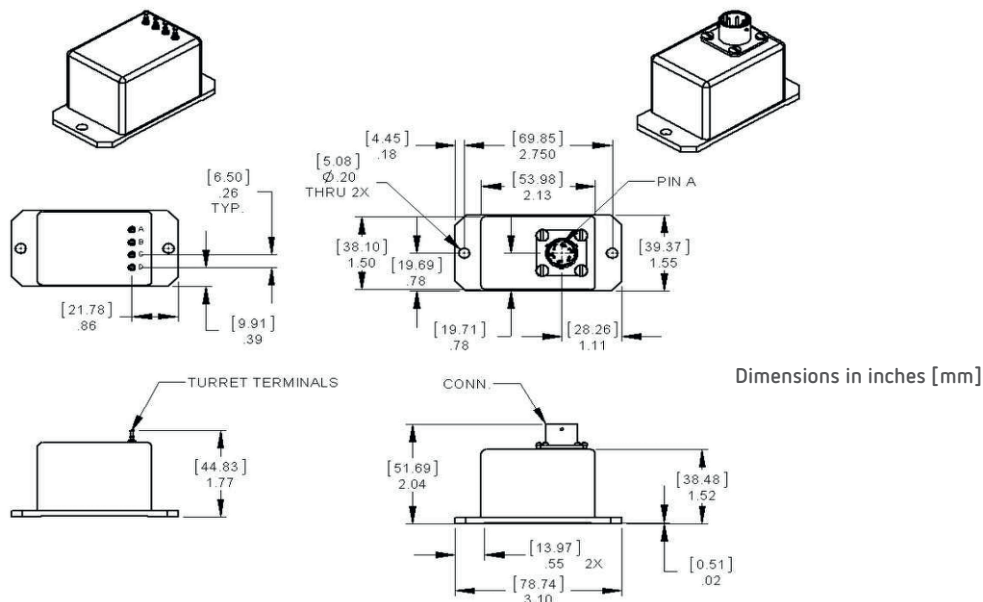
Notes

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. Full Resolution is achieved with noise reduction techniques.

Custom Capabilities

- Pigtail and Connector alternative options available
- Custom ranges and bandwidths available

Outline Diagram



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

Pin option

A	Input power
B	Power/signal common
C	n/c
D	Signal

Connector Option

A	Input power
B	Power/signal common
C	n/c
D	Signal
E	n/c
F	n/c

Ordering information

Connector Version

Model #	Part #
SMIC-L-3	02550331-001
SMIC-L-14.5	02550331-002
SMIC-L-30	02550331-003
SMIC-L-45	02550331-004
SMIC-L-60	02550331-005
SMIC-L-90	02550331-006

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SMIP-L-45	02550330-004
SMIP-L-60	02550330-005
SMIP-L-90	02550330-00