

## 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.

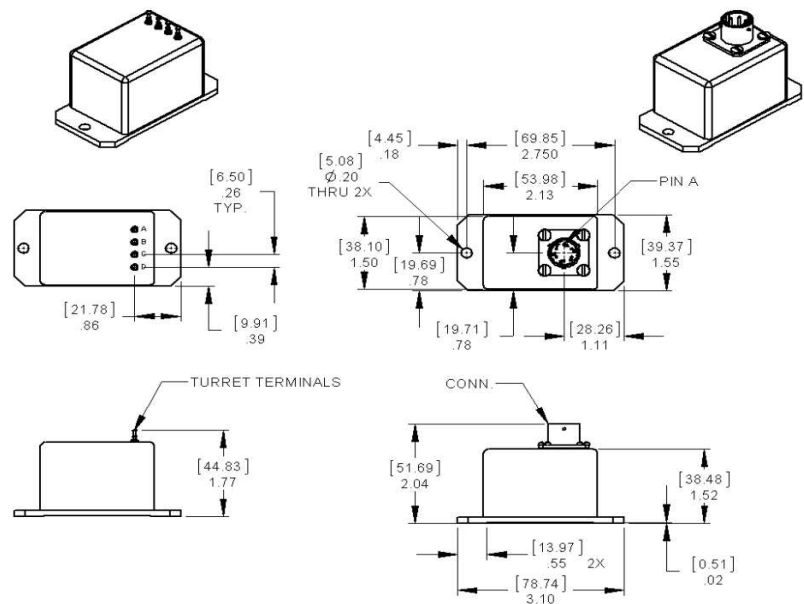
### Features

- 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

### Applications

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

### Outline Diagram



Dimensions in inches [mm]

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

Pin Option		Connector Option	
A	Input Power	A	Input Power
B	Power/Signal Common	B	Power/Signal Common
C	N/C	C	N/C
D	Signal	D	Signal
		E	N/C
		F	N/C

## Performance Specifications

### STATIC/DYNAMIC

Input Range (deg.)	±3	±14.5	±30	±45	±60	±90
Full Range Output (mA, +/-1%) <sup>1</sup>	4-20	4-20	4-20	4-20	4-20	4-20
Non-linearity (% FRO) <sup>2</sup>	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 (deg. max)	0.25	0.5	0.5	0.5	0.5	0.5
Pendulous Axis Misalignment (deg. max)	0.25	0.5	0.5	0.5	0.5	0.5
0° Output nominal (mA)	11.7 to 12.3					
0° Output Temp. Sensitivity (mA/°C max)	0.01	0.003	0.002	0.0015	0.0015	0.0015
Resolution & Threshold (µradians) <sup>3</sup>	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

### ENCLOSURE

Seal:	IP65
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### ENVIRONMENTAL

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

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

## Custom Capabilities

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

## How to Order

Connector Version		Pin Version	
Model #	Part #	Model #	Part #
SMIC-L-3	02550331-001	SMIP-L-3	02550330-001
SMIC-L-14.5	02550331-002	SMIP-L-14.5	02550330-002
SMIC-L-30	02550331-003	SMIP-L-30	02550330-003
SMIC-L-45	02550331-004	SMIP-L-45	02550330-004
SMIC-L-60	02550331-005	SMIP-L-60	02550330-005
SMIC-L-90	02550331-006	SMIP-L-90	02550330-006