RMIW-D Series

Input Ranges From ±3° to ±90° Rugged, High Precision, Low Cost, Dual-Ended Power Input Inclinometer

The Jewell **Emerald Series** inclinometer is a low cost, high precision inclinometer designed with higher accuracy than comparable MEMS devices. Applications include robotics, construction equipment, industrial measurement and control, and precision machining.

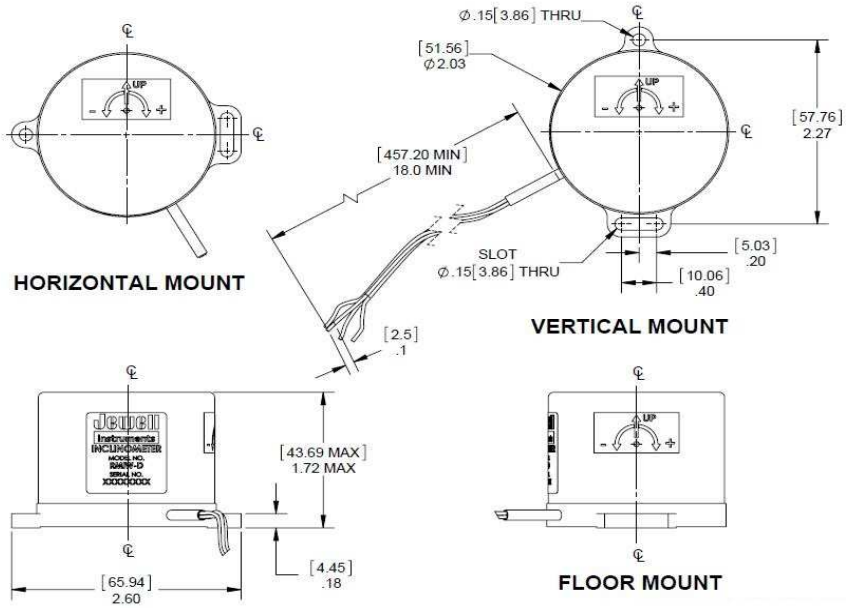
Features

- Mounts horizontally or vertically to match the AccuStar footprint
- Extremely Rugged
- Lower Cost than traditional Force Balanced Inclinometers
- High Accuracy
- Greater Precision than MEMS Technologies
- Withstands up to 500g shock
- ±5 V DC Output
- Dual Input Power

Applications

- Wheel Alignment
- Construction Equipment
- Antenna Positioning
- Robotics
- Cross Rail Management
- Tilt Safety Systems
- Industrial and Machining Equipment
- Stadium Loudspeaker Positioning

Outline Diagram



Dimensions in inches [mm]

Wire Description

Wiring Code

Red	Positive Input Power
Brown	Power/Signal Common
Black	Negative Input Power
Green	Signal

RMIW

Low cost & high precision inclinometer

Performance Specifications

STATIC/DYNAMIC

Input Range, °:	±3	±14.5	±30	±45	±60	±90
Full Range Output (FRO -Note 1) VDC ±0.5%:	±5	±5	±5	±5	±5	±5
Nonlinearity (Note 2) % FRO maximum:	0.05	0.02	0.02	0.02	0.04	0.05
Scale Factor, Volts/g, nominal:	95.5	20.0	10.0	7.1	5.8	5
Scale Factor Temp. Sensitivity (SFTS), PPM /°C maximum:	100	100	100	100	100	100
Bandwidth (-3 dB), Hz nominal:	5.0	5.0	5.0	5.0	5.0	5.0
Output Axis Misalignment, ° maximum:	0.25	0.50	0.50	0.50	0.50	0.50
Pendulous Axis Misalignment, ° maximum:	0.25	0.50	0.50	0.50	0.50	0.50
0° Output, Volts range:	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
0° Output Temp. Sensitivity, Volts /°C maximum:	0.007	0.0017	0.001	0.0008	0.0007	0.0007
Resolution and Threshold (Note 3), µradians maximum:	3.5	3.5	3.5	3.5	3.5	3.5
Weight (oz.):	4.2	4.2	4.2	4.2	4.2	4.2

ELECTRICAL

Number of Axes:	1
Input Voltage Range, (VDC):	±12 to ±18
Input Current, mA, max:	40
Output Impedance, Ohms, nom:	10
Noise, Vrms, maximum:	0.002

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

Custom Capabilities

- +15 to +30 V single-ended input option available
- Pigtail and Connector alternative options available
- Custom ranges and bandwidths available

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.

How to Order

02550305 - 2 0 2

- RMIW-D Series Dual-ended Power with ±5Vdc Output
- Range Options
  - 1 - ±3°
  - 2 - ±14.5°
  - 3 - ±30°
  - 4 - ±45°
  - 5 - ±60°
  - 6 - ±90°
- Mount Options
  - 0 - Floor Mount
  - 1 - Wall, Vertical Mount
  - 2 - Wall, Horizontal Mount

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RMIW-S Series

Input Ranges From ±3° to ±90° Rugged, High Precision, Low Cost, Single-Ended Power Input Inclinometer

The Jewell **Emerald Series** inclinometer is a low cost, high precision inclinometer designed with higher accuracy than comparable MEMS devices. Applications include robotics, construction equipment, industrial measurement and control, and precision machining.

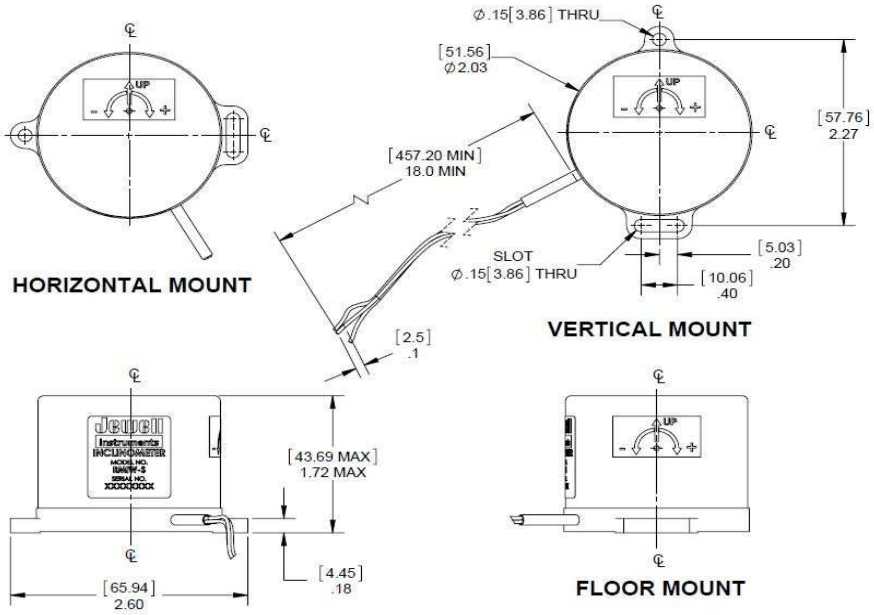
Features

- Mounts horizontally or vertically to match the AccuStar footprint
- Extremely Rugged
- Lower Cost than traditional Force Balanced Inclinometers
- High Accuracy
- Greater Precision than MEMS Technologies
- Withstands up to 500g shock
- 0-5 VDC Output
- Single-Ended Power Input

Applications

- Wheel Alignment
- Construction Equipment
- Antenna Positioning
- Robotics
- Cross Rail Management
- Tilt Safety Systems
- Industrial and Machining Equipment
- Stadium Loudspeaker Positioning

Outline Diagram



Dimensions in inches [mm]

Wire Description

Wiring Code

Red	Input Power
Brown	Power/Signal Common
Black	N/C
Green	Signal

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Performance Specifications

STATIC/DYNAMIC

Input Range, °:	±3	±14.5	±30	±45	±60	±90
Full Range Output (FRO -Note 1) VDC ±0.5%:	0-5	0-5	0-5	0-5	0-5	0-5
Nonlinearity (Note 2) % FRO maximum:	0.05	0.02	0.02	0.02	0.04	0.05
Scale Factor, Volts/g, nominal:	47.8	10.0	5.0	3.5	2.9	2.5
Scale Factor Temp. Sensitivity (SFTS), PPM /°C maximum:	100	100	100	100	100	100
Bandwidth (-3 dB), Hz nominal:	5.0	5.0	5.0	5.0	5.0	5.0
Output Axis Misalignment, ° maximum:	0.25	0.50	0.50	0.50	0.50	0.50
Pendulous Axis Misalignment, ° maximum:	0.25	0.50	0.50	0.50	0.50	0.50
0° Output, Volts range:	2.45 to 2.55					
0° Output Temp. Sensitivity, Volts /°C maximum:	0.0035	0.001	0.0070	0.0005	0.0005	0.0005
Resolution and Threshold (Note 3), µradians maximum:	3.5	3.5	3.5	3.5	3.5	3.5
Weight:	4.2	4.2	4.2	4.2	4.2	4.2

ELECTRICAL

Number of Axes:	1
Input Voltage Range, (VDC):	+15 to +30
Input Current, mA, max:	40
Output Impedance, Ohms, nom:	10
Noise, Vrms, maximum:	0.002

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

Custom Capabilities

- ±15V bipolar input option available
- Pigtail and Connector alternative options available
- Custom ranges and bandwidths available

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.

How to Order

02550290 - 1 0 4

RMIW-S Series
Single-ended Power with 0-5Vdc Output

Range Options
- 1 - ±3°
- 2 - ±14.5°
- 3 - ±30°
- 4 - ±45°
- 5 - ±60°
- 6 - ±90°

Mount Options
- 0 - Floor Mount
- 1 - Wall, Vertical Mount
- 2 - Wall, Horizontal Mount

RMIW-L Series

Input Ranges From ±3° to ±90° Rugged, High Precision, Low Cost, Dual-Ended Power Input Inclinometer

The Jewell **Emerald Series** inclinometer is a low cost, high precision inclinometer designed with higher accuracy than comparable MEMS devices. Applications include robotics, construction equipment, industrial measurement and control, and precision machining.

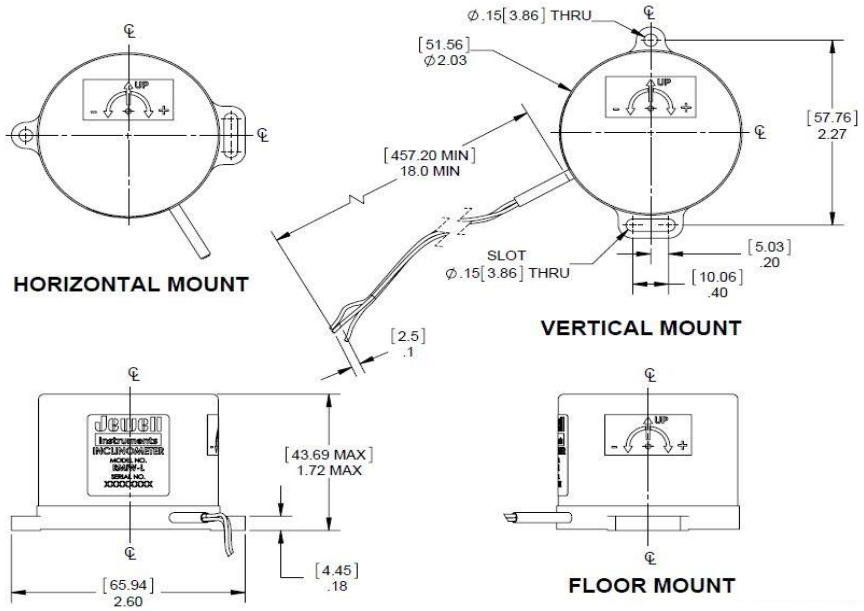
Features

- Mounts horizontally or vertically to match the AccuStar footprint
- Extremely Rugged
- Lower Cost than traditional Force Balanced Inclinometers
- High Accuracy
- Greater Precision than MEMS Technologies
- Withstands up to 500g shock
- ±5 V DC Output
- Single-Ended Power Input

Applications

- Wheel Alignment
- Construction Equipment
- Antenna Positioning
- Robotics
- Cross Rail Management
- Tilt Safety Systems
- Industrial and Machining Equipment
- Stadium Loudspeaker Positioning

Outline Diagram



Dimensions in inches [mm]

Wire Description

WIRE	FUNCTION
Red	Power (+12 to +28 Vdc)
Brown	Power/Signal Common
Green	Output Signal

RMIW

Low cost & high precision inclinometer

Performance Specifications

STATIC/DYNAMIC

Input Range, °:	±3	±14.5	±30	±45	±60	±90
Full Range Output (mA):	4 to 20	4 to 20	4 to 20	4 to 20	4 to 20	4 to 20
Nonlinearity (Note 2) % FRO maximum:	0.05	0.02	0.02	0.02	0.04	0.05
Scale Factor, Volts/g, nominal:	152.9	32.0	16.0	11.3	9.2	8
Scale Factor Temp. Sensitivity (SFTS), PPM /°C maximum:	100	100	100	100	100	100
Bandwidth (-3 dB), Hz nominal:	5.0	5.0	5.0	5.0	5.0	5.0
Output Axis Misalignment, ° maximum:	0.25	0.50	0.50	0.50	0.50	0.50
Pendulous Axis Misalignment, ° maximum:	0.50	0.75	0.75	0.75	0.75	0.75
0° Output, Volts range (mA):	11.7-12.3	11.7-12.3	11.7-12.3	11.7-12.3	11.7-12.3	11.7-12.3
0° Output Temp. Sensitivity, Volts /°C maximum:	0.01	0.0030	0.002	0.0015	0.0015	0.0015
Resolution and Threshold (Note 3), µradians maximum:	3.5	3.5	3.5	3.5	3.5	3.5
Weight (oz.):	4.2	4.2	4.2	4.2	4.2	4.2

ELECTRICAL

Number of Axes:	1
Input Voltage Range, (VDC):	+12 to +28
Input Current, mA, max:	55
Output Impedance, Ohms, nom:	10
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

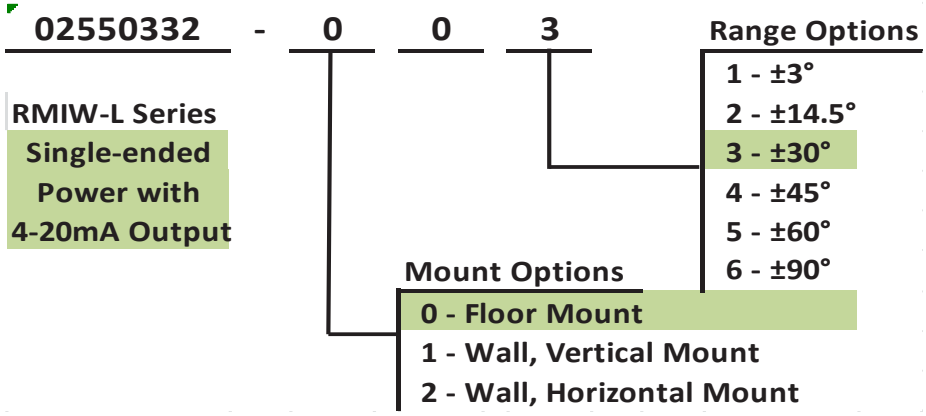
Custom Capabilities

- +15 to +30 V single-ended input option available
- Pigtail and Connector alternative options available
- Custom ranges and bandwidths available

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.

How to Order



Datasheet-RMI_EN.pdf

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