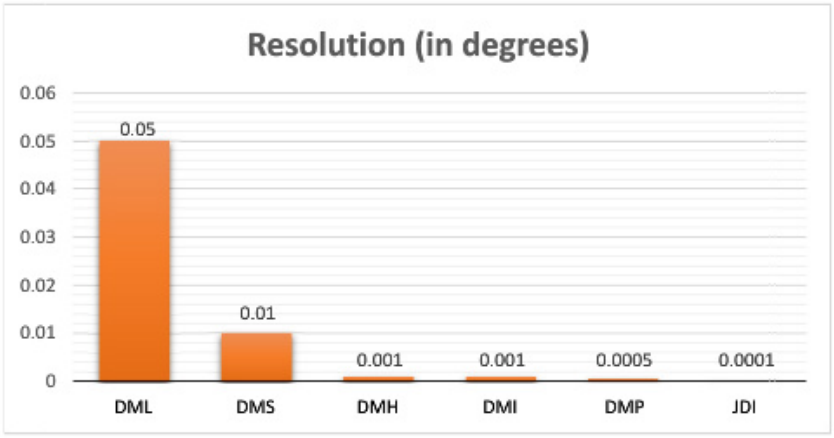
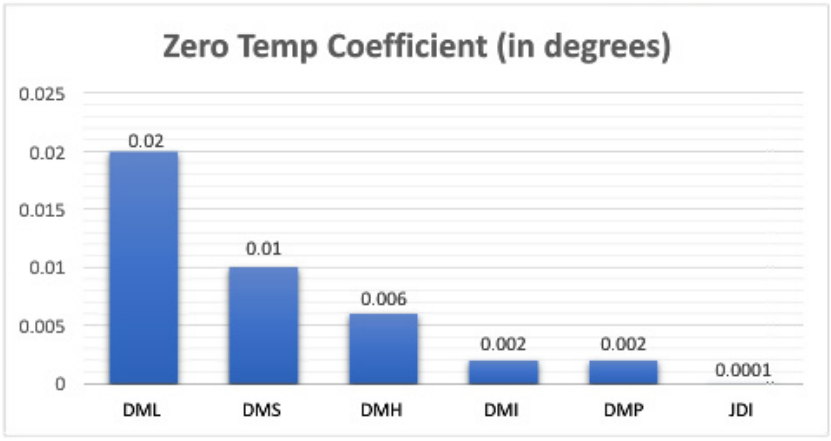
Digital MEMS Inclinometer Comparison Charts

Jewell Instruments





Rev 2

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Digital MEMS Inclinometers

DML Series

DMS Series

DMH Series

Features & Benefits

DML Series

- Single and Dual Axis Available
- **Resolution <0.05°**
- **Zero Temp Coefficient ±0.02°/°C**
- -40° to +85°C Operation and Storage
- Digital RS232, RS485 or UART TTL Outputs

DMS Series

- Single and Dual Axis Available
- **Resolution <0.01°**
- **Zero Temp Coefficient ±0.01°/°C**
- Digital RS232 or RS485 and UART TTL Outputs
- -40° to +85°C Operating Range

DMH Series

- Single and Dual Axis Available
- **Resolution <0.001°**
- **Zero Temp Coefficient ±0.006°/°C**
- Up to ±90° Angular Range
- -40° to +85°C Temperature Range

Applications

DML Series

- Solar Tracking & Panel Positioning
- Vehicle Wheel Alignment
- Industrial Automation & Control
- Radar/Antenna Mast Alignment
- Platform Leveling
- Navigation Pitch/Roll Measurement

DMS Series

- Boom Position and Control
- Radar and Vehicle Platform Leveling
- Drilling Equipment
- Navigation Pitch/Roll Measurement
- Industrial Measurement & Control

DMH Series

- Antenna Deflection Measurement
- Radar and Vehicle Platform Positioning
- Drill Rig Alignment
- Offshore Platform Pitch/Roll
- Industrial Measurement & Control

Performance Specs Static/Dynamic

	DML Series				DMS Series				DMH Series			
Angular Range[1] (°):	±10	±30	±60	±90	±10	±30	±60	±90	±10	±15	±30	±60
Resolution (°):	0.05	0.05	0.05	0.01	0.01				0.001			
Hysteresis:	0.1	0.1	0.2	0.2	0.02	0.05	0.08	0.1	0.005	0.007	0.008	0.01
Zero Temp Coefficient, °/°C:	±0.02				±0.01				±0.006			
Scale Factor Temp Coefficient (PPM/°C):	≤350				≤200				≤200			
Warm Up (s):	0.5				0.5				0.5			
Time Constant (s):	0.05				0.05				0.05			

Electrical & Environmental

	DML Series	DMS Series	DMH Series
Output:	5Hz, 15Hz, 35Hz, 50Hz	5Hz, 15Hz, 35Hz, 50Hz	5Hz, 15Hz, 35Hz, 50Hz
Output Type[2]	RS232, RS485 or TTL	RS232, RS485 or TTL	RS232, RS422, RS485 or TTL
Electromagnetic Compatibility:	EN61000 and GBT17626	EN61000 and GBT17626	EN61000 and GBT17626
Impact Resistance:	100g@11ms, 3 times/axis (½ sinusoid)	100g@11ms, 3 times/axis (½ sinusoid)	100g@11ms, 3 times/axis (½ sinusoid)
Vibration Resistance:	10grms @ 10-1000Hz	10grms @ 10-1000Hz	10grms @ 10-1000Hz
Temperature Rating, Operation:	-40 to +85°C	-40 to +85°C	-40 to +85°C
Temperature Rating, Storage:	-55 to +100°C	-55 to +125°C	-55 to +100°C
Enclosure:			Anodized Aluminum
Seal:	IP67	IP67	IP67
Cables:	1m Cable (standard)	1m Cable (standard)	1m Cable (standard)
Weight:	90g (without cable)	150g	150g (without cable)
Power Requirements:	9-36 VDC @ 60mA	9-36 VDC @ 60mA	9-36 VDC @ 60mA

Notes: 1 - Full range is defined as "from negative full input angle to positive full input angle." The inclinometer output is proportional to the sine of the tilt angle.,
2 - Referenced to theoretical sine value independent of misalignment., 3 - Output phase angle = -90° 4 - Other ranges available upon request

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Digital MEMS Inclinometers

DMI Series

DMP Series

JDI Series

Features & Benefits

- Single and Dual Axis Available
- **Resolution <0.001°**
- **Zero Temp Coefficient ±0.002°/°C**
- Digital RS232, RS422, RS485 or UART TTL Output Options
- High Shock and Vibration Tolerance

- Single and Dual Axis Available
- **Resolution <0.0005°**
- **Minimal Thermal Drift (<0.002°/°C Zero)**
- Digital RS232, RS422, RS485 or UART TTL Output
- -40° to +85°C Operating Range
- High Shock & Vibration Tolerance

- Single and Dual Axis Available
- **Resolution 0.0001°**
- **Full Temperature Compensation to 0.005° Accuracy**
- Digital RS485 Output
- -40° to +85°C Operating Range
- High Shock & Vibration Tolerance
- RoHS Compliant

Applications

- Radar and Vehicle Platform Leveling
- Drill Rig Alignment
- Offshore/Subsea Platform Pitch/Roll
- Industrial Measurement & Control
- Antenna Position Control

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- Industrial Automation & Control
- Construction & Agricultural Equipment
- Solar Tracking
- Mobile Cranes
- Platform Positioning & Leveling

Performance Specs Static/Dynamic

	DMI Series				DMP Series			JDI Series			
Angular Range[1] (°):	±10	±30	±45	±60	±10	±15	±30	±1	±14.5	±30	±60
Resolution (°):	0.001				0.0005			0.0001			
Hysteresis:	0.003	0.005	0.007	0.008	0.001	0.001	0.002				
Zero Temp Coefficient, °/°C:	±0.002	±0.003	±0.004	±0.004	±0.002			0.0001			
Scale Factor Temp Coefficient (PPM/°C):	≤50				≤50			100			
Warm Up (s):	0.5				0.5			0.5			
Time Constant (s):	0.02				0.05			N/A			

Electrical & Environmental

	DMI Series	DMP Series	JDI Series
Output:	5Hz, 15Hz, 35Hz, 50Hz	5Hz, 15Hz, 35Hz, 50Hz	3.9, 7.8, 15.6, 31.2, 62.5, 125 (Hz)
Output Type[2]	RS232, RS422, RS485 or TTL	RS232, RS422, RS485 or TTL	RS485
Electromagnetic Compatibility:	EN61000 and GBT17626	EN61000 and GBT17626	N/A
Impact Resistance:	100g@11ms, 3 times/axis (½ sinusoid)	100g@11ms, 3 times/axis (½ sinusoid)	20grms @ 20Hz to 2KHz
Vibration Resistance:	10grms @ 10-1000Hz	10grms @ 10-1000Hz	20grms @ 20Hz to 2KHz
Temperature Rating, Operation:	-40 to +85°C	-40 to +85°C	-40 to +85°C
Temperature Rating, Storage:	-55 to +100°C	-55 to +100°C	-55 to +105°C
Enclosure:	Anodized Aluminum		Anodized Aluminum
Seal:	IP67	IP67	IP67
Cables:	2m Cable (standard)	2m Cable (standard)	DB9, USB or Wired
Weight:	150g (without cable)	150g (without cable)	160g
Power Requirements:	9-36 VDC @ 60mA	9-36 VDC @ 60mA	800 mW, max - RS485 termination enabled 600 mW, max - RS485 termination disabled

Notes: 1 - Full range is defined as "from negative full input angle to positive full input angle." The inclinometer output is proportional to the sine of the tilt angle.,
2 - Referenced to theoretical sine value independent of misalignment., 3 - Output phase angle = -90° 4 - Other ranges available upon request