

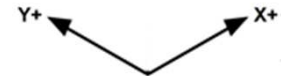
JDI-100/200 MEMS Inclinometer Series

RS485, Digital Output

Making Sense out of Motion...

Jewell has a 40+ year history of providing precision force-balanced inclinometers and is pleased to provide MEMS parts with the same attention to detail that our customers demand.

The JDI-100/200 series is a digitally temperature compensated inclinometer available in single (JDI-100) and dual (JDI-200) axis configurations. This presents a robust and rugged design for industrial use, but with the benefit of low-cost MEMS technology.



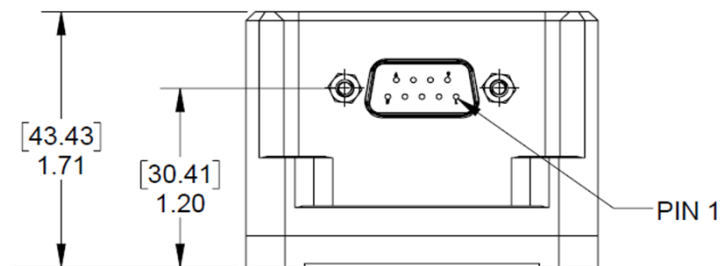
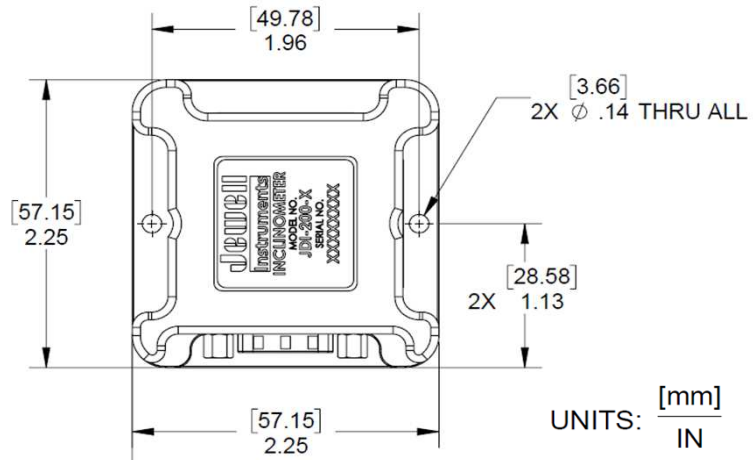
Features

- $\pm 1^\circ$, $\pm 3^\circ$, $\pm 14.5^\circ$, $\pm 30^\circ$ and $\pm 60^\circ$ ranges
- Robust and Rugged Enclosure
- Single and Dual Axis Models Available
- Low-Cost MEMS Technology
- RoHS Compliant
- Filtering Available
- Single DC Power Input, Galvanically Isolated
- RS-485 Half Duplex, Galvanically Isolated
- Integrated Temperature Sensor
- IP67 Seal (when mated to IP67 connector)

Applications

- Industrial Automation & Control
- Construction & Agricultural Equipment
- Solar Tracking
- Mobile Cranes
- Platform Leveling/Positioning
- Mobile Radar Equipment
- Bridge Monitoring

Outline Diagram



Pin Out

9-PIN CONNECTOR	
PIN	ASSIGNMENT
1	DATA-, [RS485]
2	DATA+, [RS485]
3	N/C
4	N/C
5	GND, [RS485]
6	N/C
7	N/C
8	PWR-
9	PWR+

JDI-100/200 MEMS Inclinometer Series

RS485, Digital Output

Making Sense out of Motion...

Performance Specifications

PERFORMANCE STATIC/DYNAMIC

Measurement Range ¹ (°)	±1	±3	±14.5	±30	±60
Absolute Accuracy ² (°, typ)	0.02	0.02	0.02	0.02	0.02
Relative Accuracy ² (°, typ)	0.005	0.005	0.005	0.005	0.005
Digital Resolution (°, max)	0.0001	0.0001	0.0001	0.0001	0.0001
Repeatability (°)	0.01	0.01	0.01	0.01	0.01
Bias Over Temperature (ppm / °C)	100	100	100	100	100
Transverse Axis Misalignment (°, max)	0.25	0.25	0.25	0.25	0.25
Bandwidth (Hz nom) (-3 dB)	(Sample Rate) / 4				
Non-Linearity (% FS)	0.01 (-20°C to 50°C), 0.02 (-40°C to 70°C)				
Accuracy - Temperature Sensor (°C, max)	±1	±1	±1	±1	±1
Warm Up Time (seconds max)	0.5	0.5	0.5	0.5	0.5

ELECTRICAL / PROTOCOL

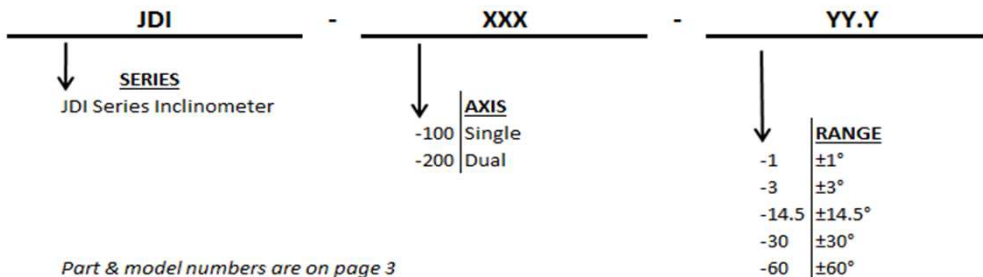
Number of Axes	1 or 2
Input Voltage Range (VDC)	5 min, 9 to 36 typ, 38 max, reverse wiring protected
Power - RS485 termination enabled (mW, max)	800.0
Power - RS485 termination disabled (mW, max)	600.0
Galvanic Isolation - Power Inputs (VAC)	2000
Galvanic Isolation - RS485 (VAC)	5000
Protocol	Half Duplex, Proprietary ASCII, CRC is optional
Baud ³ (bps)	300 (min), 9600, <u>19200</u> , 38400, 57600, 115200, 256000, 500000 (max)
Communication Settings ³	8 bits, 1 stop bit, <u>even</u> odd
Data Sample Rate ³ (Hz)	<u>3.9</u> , 7.8, 15.6, 31.2, 62.5, 125
Node ID ³	<u>001</u> , 002, 003, ... , 250
Filtering	User selectable
Bus Termination - internal ³ (120Ω)	<u>On</u> / Off

ENVIRONMENTAL / MECHANICAL

Operating Temp. Range	-40° to +85°C
Storage Temp. Range	-55° to +105°C
Shock	100 g, 0.011 sec, ½ sine
Vibration	20grms 20Hz to 2KHz
Weight (oz, [grams])	5.6 [160]
Seal	IP67

Notes: 1 - Custom ranges available on request. 2 - Observed using noise reduction methods. 3 - User Selectable, default is underlined.

ORDERING INFORMATION



PART NUMBERS

Part Number	Model	Description
02550385-101	JDI-100-1	Single Axis, $\pm 1^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-103	JDI-100-3	Single Axis, $\pm 3^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-114	JDI-100-14.5	Single Axis, $\pm 14.5^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-130	JDI-100-30	Single Axis, $\pm 30^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-160	JDI-100-60	Single Axis, $\pm 60^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-201	JDI-200-1/1	Dual Axis, $\pm 1^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-203	JDI-200-3/3	Dual Axis, $\pm 3^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-214	JDI-200-14.5/14.5	Dual Axis, $\pm 14.5^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-230	JDI-200-30/30	Dual Axis, $\pm 30^\circ$, DB9, Inclinometer, Shippable Assembly
02550385-260	JDI-200-60/60	Dual Axis, $\pm 60^\circ$, DB9, Inclinometer, Shippable Assembly

JDI ACCESSORIES

Model	Part Number	Description
65050	65050	Mating Female D-sub Connector, 9 Pin
65052	65052-01	Connector Hood for a 9 Pin D-sub
84241	849241	IP67 Sealed Connector Backshell for a 9 Pin D-sub
95055	95055-03	JDI Accessory Cable, RS485, Leads, 3m long*
	95055-05	JDI Accessory Cable, RS485, Leads, 5m long*
95051	95051-03	JDI Accessory Cable, RS485, DB9 & DC Pwr, 3m long*
	95051-05	JDI Accessory Cable, RS485, DB9 & DC Pwr, 5m long*
95053	95053-01	JDI Accessory Cable, RS485 to USB, 1.8m long*
	95053-05	JDI Accessory Cable, RS485 to USB, 5m long*

*See page 4 for more information

CABLE OPTION - LEADS (Part Number: 95055-XX)

PIN 1

DB9

12.0"

SEE TABLE

DB9 Female Pin Out		
Pin	Function	Color
1	DATA -	Green
2	DATA +	Blue
3	NO CONNECT	
4	NO CONNECT	
5	GND ISO	White
6	NO CONNECT	
7	NO CONNECT	
8	PWR -	Black
9	PWR +	Red

Model	Part Number	Description
95055	95055-03	JDI Accessory Cable, RS485, Leads, 3m long
	95055-05	JDI Accessory Cable, RS485, Leads, 5m long

CABLE OPTION - DB9 & DC Power (Part Number: 95051-XX)

DB9 Female Pin Out

95051-XX

12in [30cm]

CABLE LENGTH SEE TABLE

Pin	Function
1	DATA -
2	DATA +
3	NO CONNECT
4	NO CONNECT
5	GND ISO
6	NO CONNECT
7	NO CONNECT
8	PWR -
9	PWR +

Model	Part Number	Description
95051	95051-03	JDI Accessory Cable, RS485, DB9 & DC Pwr, 3m long
	95051-05	JDI Accessory Cable, RS485, DB9 & DC Pwr, 5m long

CABLE OPTION - USB (Part Number: 95053-XX)

DB9 Female Pin Out

95053-XX

CABLE LENGTH SEE TABLE

Pin	Function
1	DATA -
2	DATA +
3	NO CONNECT
4	NO CONNECT
5	NO CONNECT
6	NO CONNECT
7	NO CONNECT
8	PWR -
9	PWR +

Model	Part Number	Description
95053	95053-01	JDI Accessory Cable, RS485 to USB, 1.8m long
	95053-05	JDI Accessory Cable, RS485 to USB, 5m long