# JDI-100/200

MEMS Inclinometer Series

The JDI-100/200 series is a digitally temperature compensated inclinometer available in single and dual axis configurations. The robust and rugged design is great for industrial use, yet includes the low-cost MEMS technology. These units are available with DB9, Pigtail, Deutsch, Double Deutsch, 6-Pin Circular (C06), or M12 connectors for maximum versatility.

FEATURES:

- Ranges: ±1°, ±3°, ±14.5°, ±30°, and ±60°
- Digital Interface Options: ASCII (RS-485/RS-232) and Modbus (RS-485)
- Robust & Rugged Enclosure
- Single or Dual Axis Options
- Low-cost MEMS Technology
- RoHS and REACH Compliant
- Single DC Power Input - Galvanically Isolated
- Integrated Temperature Sensor
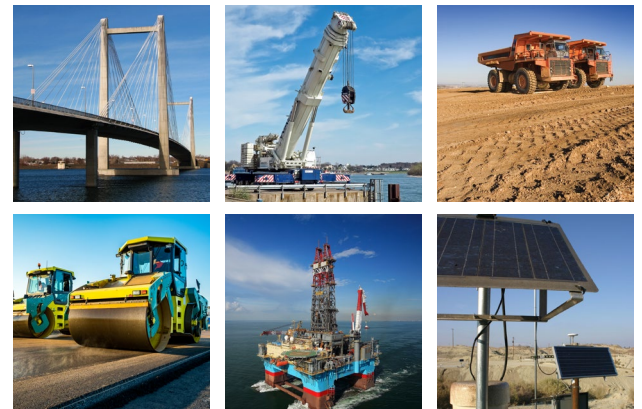- IP67 Seal (when mated to IP67 connector)

M12, C06, Pigtail, & Deutsch Versions
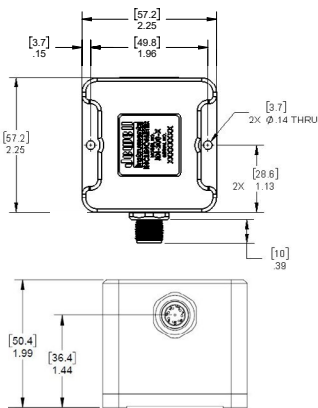
DB9 Version Only
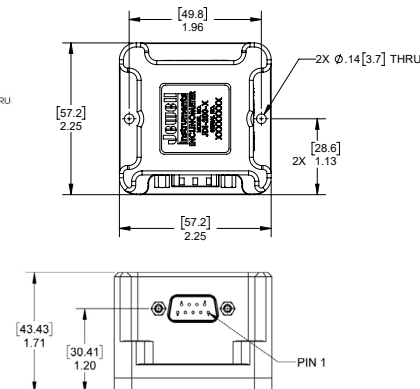
Dimensions: in [mm]

APPLICATIONS:

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

PERFORMANCE SPECIFICATIONS: JDI-100/200

PERFORMANCE STATIC/DYNAMIC

	±1	±3	±14.5	±30	±60
MEASUREMENT RANGE[1] (°)	±1	±3	±14.5	±30	±60
ABSOLUTE ACCURACY[2,4] (°, max)	0.015				
RELATIVE ACCURACY[2] (°, typ)	0.004				
DIGITAL RESOLUTION (°, max)	0.0001				
REPEATABILITY (°)	0.01				
BIAS OVER TEMPERATURE (ppm/°C, typ)	80				
TRANSVERSE AXIS MISALIGNMENT (°, max)	0.25				
BANDWIDTH (Hz nom) (-3 dB)	(Sample Rate) / 4				
NON-LINEARITY (% FS), (-20°C to 50°C)	0.60	0.20	0.05	0.03	0.02
ACCURACY - TEMPERATURE SENSOR (°C, max)	±2				
WARM UP TIME (seconds typ)	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 (rms)	2000
GALVANIC ISOLATION - RS-485/RS-232 (rms)	5000
PROTOCOL	Half Duplex, Proprietary ASCII, & MODBUS-RTU
BAUD[3] (bps)	2400, 4800, 9600, **19200**, 38400, 57600, 115200, 230400, 460800, 500000 (max)
COMMUNICATION SETTINGS[3]	8 bits, 1 stop bit, **even** | odd
DATA SAMPLE RATE[3] (Hz)	**3.9**, 7.8, 15.6, 31.2, 62.5, 125
NODE ID[3]	**0+last 2 digits of serial number**
FILTERING	User selectable
BUS TERMINATION- INTERNAL[3] (120Ω)	On / **Off**

ENVIRONMENTAL/MECHANICAL

OPERATING TEMPERATURE RANGE	-40° to +85°C	VIBRATION	20 grms 5Hz to 2KHz
STORAGE TEMPERATURE RANGE	-55° to +105°C	WEIGHT OZ (G)	up to 10.4 (294.8)
SHOCK	18 g, 0.011 sec, $\frac{1}{2}$ sine	SEAL	IP67 (when mated to IP67 connector)

NOTES:
1. Custom ranges available by request
2. Observed using noise reduction methods
3. User selectable, default is underlined
4. NIST Certification Range up to ±45°, Calibrated Temperature Range of -30 °C to +60 °C.
5. Specifications subject to change without notice on account of continued product development.
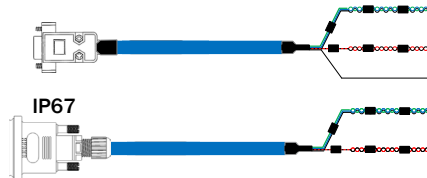
DB9 CONNECTOR

[49.8]
1.96

2X Ø.14 [3.7] THRU

[57.2]
2.25

[28.6]
2X 1.13

[57.2]
2.25

[43.43]
1.71

[30.41]
1.20

PIN 1
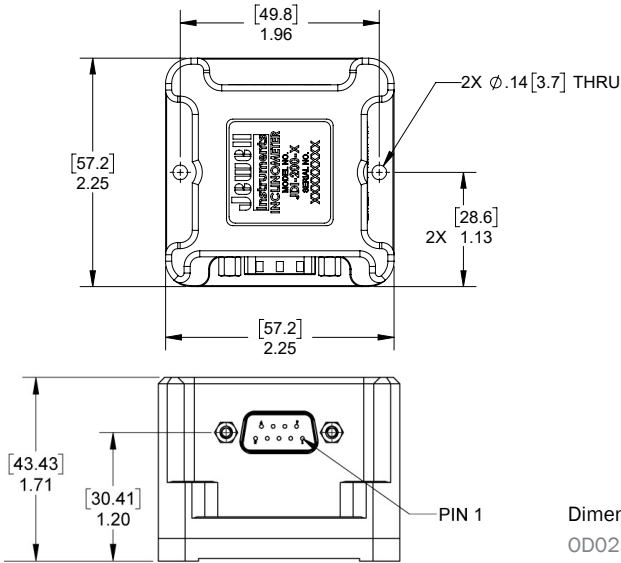
DB9 PIN OUT

	RS-485	RS-232
1	DATA-	N/C
2	DATA+	RXD
3	N/C	TXD
4	N/C	N/C
5	GND	GND
6	N/C	N/C
7	N/C	N/C
8	PWR-	PWR-
9	PWR+	PWR+

Dimensions: in [mm]
0D02550385

ACCESSORIES

DB9 to LEADS

IP67

LEADS

GRN	DATA-
BLUE	DATA+
WHT	GND
BLK	PWR-
RED	PWR+

		PART #	IP67 PART #
RS-485	3m	95055-03	95066-03
	5m	95055-05	95066-05
	15m	95055-15	95066-15
RS-232	3m	95056-03	95076-03
	5m	95056-05	95076-05
	15m*	95056-15	95076-15

*15m maximum for RS-232

DB9 to DB9 & BARREL

PIN OUT

1	DATA-
2	DATA+
5	GROUND

DC PWR & GND

CENTER (+)
RING (-)

5.5MM O.D. X 2.1MM
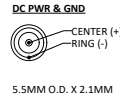
110-240Vac to 12Vdc Transformer sold separately.
Part #: 00254-02

		PART #
RS-485	3m	95051-03
	5m	95051-05
	15m	95051-15
RS-232	3m	95052-03
	5m	95052-05
	15m*	95052-15

*15m maximum for RS-232

DB9 to USB

		PART #
RS-485	1.8m	95053-01
	5m*	95053-05
RS-232	1.8m	95054-01
	5m*	95054-05

*5m maximum

M12 CONNECTOR

Dimensions: in [mm]
0D02550395
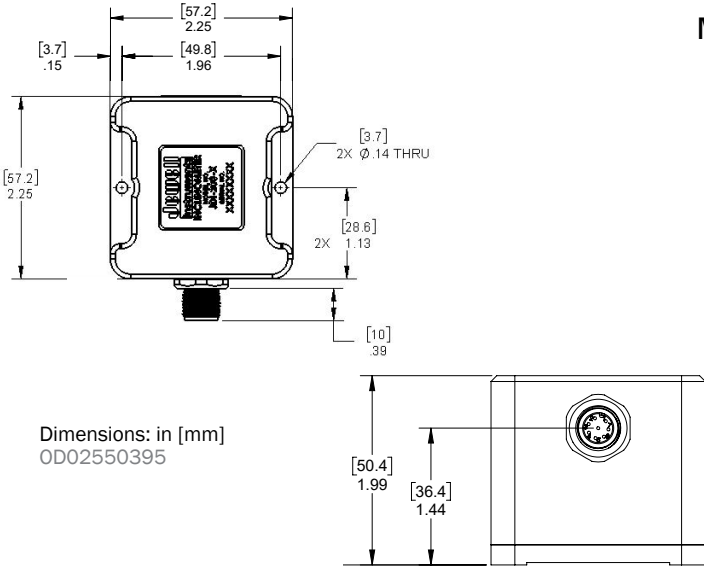
M12 SENSOR PIN OUT

	RS-485	RS-232
1	N/C	TXD
2	PWR+	PWR+
3	PWR-	PWR-
4	DATA-	N/C
5	GND	GND
6	DATA+	N/C
7	N/C	RXD
8	GND	GND

ACCESSORIES

M12 to LEADS
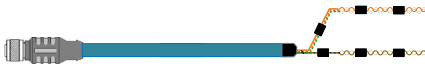
LEADS	RS-485	RS-232
ORG	DATA-	N/C
WHT/ORG	DATA+	N/C
WHT/GRN	GND	GND
BRN	PWR-	PWR-
WHT/BRN	PWR+	PWR+
WHT/BLUE	N/C	TXD
BLUE	N/C	RXD

		PART #
RS-485	3m	95062-03
	5m	95062-05
	15m	95062-15
RS-232	3m	95063-03
	5m	95063-05
	15m*	95063-15

*15m maximum for RS-232

M12 to DB9 & BARREL

PIN OUT

1	DATA-
2	DATA+
5	GROUND

DC PWR & GND

CENTER (+)
RING (-)

5.5MM O.D. X 2.1MM
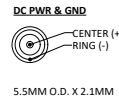
110-240Vac to 12Vdc Transformer sold separately.
Part #: 00254-02

		PART #
RS-485	3m	95057-03
	5m	95057-05
	15m	95057-15
RS-232	3m	95058-03
	5m	95058-05
	15m*	95058-15

*15m maximum for RS-232

M12 to USB
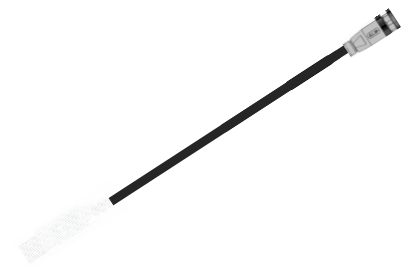
		PART #
RS-485	1.8m	95060-01
	5m	95060-05
RS-232	1.8m	95061-01
	5m	95061-05

*5m maximum

FLYING LEADS ACCESSORIES

Dimensions: in [mm]

0D02550397

[57.2]
2.25

[3.7]
.15

[49.8]
1.96

[50.4]
1.99

[36.4]
1.44

[57.2]
2.25

[3.7]
2X ⌀.14 THRU

[28.6]
2X 1.13

CABLE REMOVED FOR CLARITY
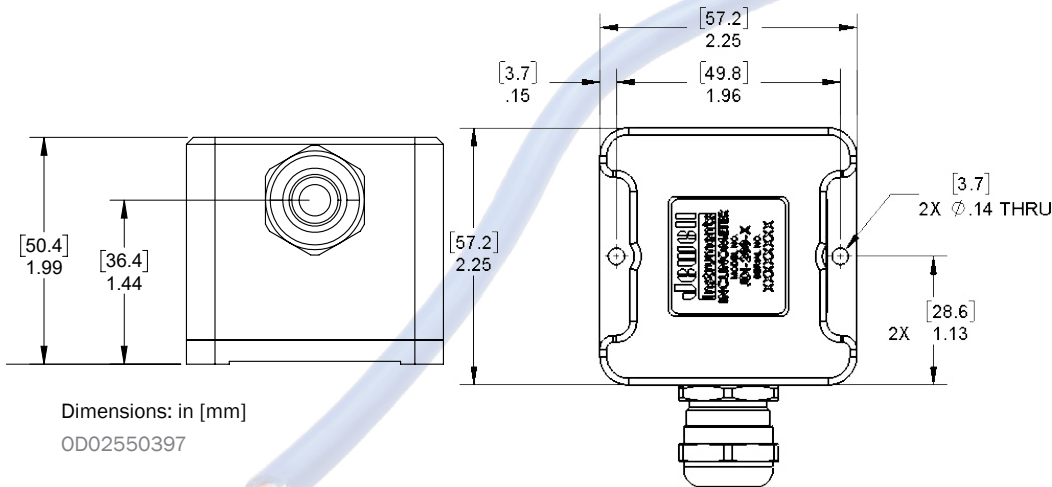
FLYING LEAD SENSOR PIN OUT

	RS-485	RS-232
RED	PWR+	PWR+
BLK	PWR-	PWR-
GRN	DATA+	RXD
BLUE	DATA-	TXD
WHT	GND	GND

ACCESSORIES

FLYING LEADS

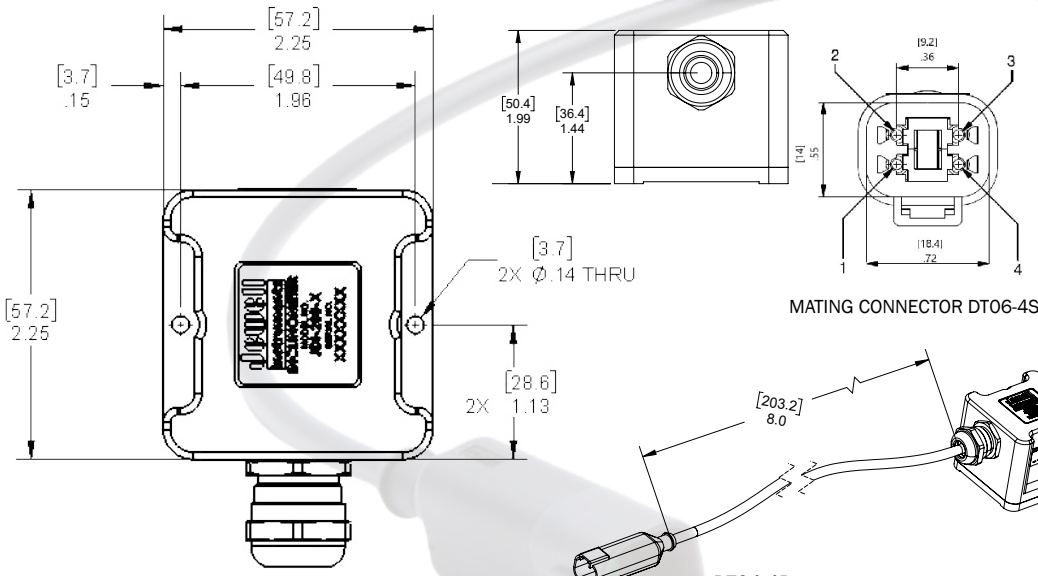This model must be ordered with the exact cable length needed. See table for options.
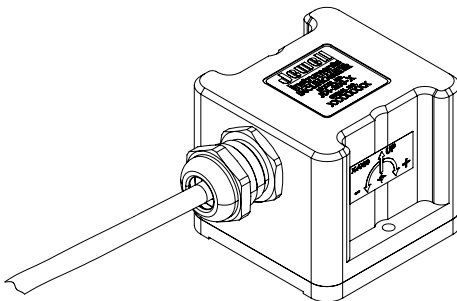
RS-485	3m*
	5m
	15m
RS-232	3m*
	5m
	15m**

*3m standard
**15m maximum for RS-232

DEUTSCH CONNECTOR

MATING CONNECTOR DT06-4S

DEUTSCH CONN ASSY. REMOVED FOR CLARITY

Dimensions: in [mm]
0D02550391

DT04-4P
(MALE CONNECTOR)

DEUTSCH SENSOR PIN OUT RS-485

1	PWR+
2	PWR-
3	DATA+
4	DATA-

ACCESSORIES

RS-485 FEMALE DEUTSCH to FLYING LEADS

LEADS

GREEN	DATA-
BLUE	DATA+
WHITE	GROUND
BLACK	PWR-
RED	PWR+

LENGTH	PART #
3m	95069-03
5m	95069-05
15m	95069-15

RS-485 FEMALE DEUTSCH to DB9 & BARREL

PIN OUT

1	DATA-
2	DATA+
5	GND

DC PWR & GND

CENTER (+)
RING (-)

5.5MM O.D. X 2.1MM
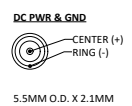
110-240Vac to 12Vdc Transformer sold separately.
Part #: 00254-02

LENGTH	PART #
3m	95068-03
5m	95068-05
15m	95068-15

RS-485 FEMALE DEUTSCH to USB

LENGTH	PART #
1.8m	95067-01
5m*	95067-05

*5m maximum

DOUBLE DEUTSCH CONNECTOR

Dimensions: in [mm]
0D02550393

DEUTSCH SENSOR PIN OUT RS-485

1	PWR+
2	PWR-
3	DATA+
4	DATA-

DT06-4S
(FEMALE CONNECTOR)

DT04-4P
(MALE CONNECTOR)

ACCESSORIES

RS-485 FEMALE DEUTSCH to FLYING LEADS

LEADS

GREEN	DATA-
BLUE	DATA+
WHITE	GROUND
BLACK	PWR-
RED	PWR+

LENGTH	PART #
3m	95069-03
5m	95069-05
15m	95069-15

RS-485 FEMALE DEUTSCH to DB9 & BARREL

PIN OUT

1	DATA-
2	DATA+
5	GROUND

DC PWR & GND

CENTER (+)
RING (-)

5.5MM O.D. X 2.1MM
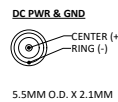
110-240Vac to 12Vdc Transformer sold separately.
Part #: 00254-02

LENGTH	PART #
3m	95068-03
5m	95068-05
15m	95068-15

RS-485 FEMALE DEUTSCH to USB

LENGTH	PART #
1.8m	95067-01
5m*	95067-05

*5m maximum

CIRCULAR (C06) CONNECTOR

Dimensions: in [mm]
0D02550414

CONNECTOR: PT02H-10-6P
MATES WITH: PT06A-10-6S (SR)
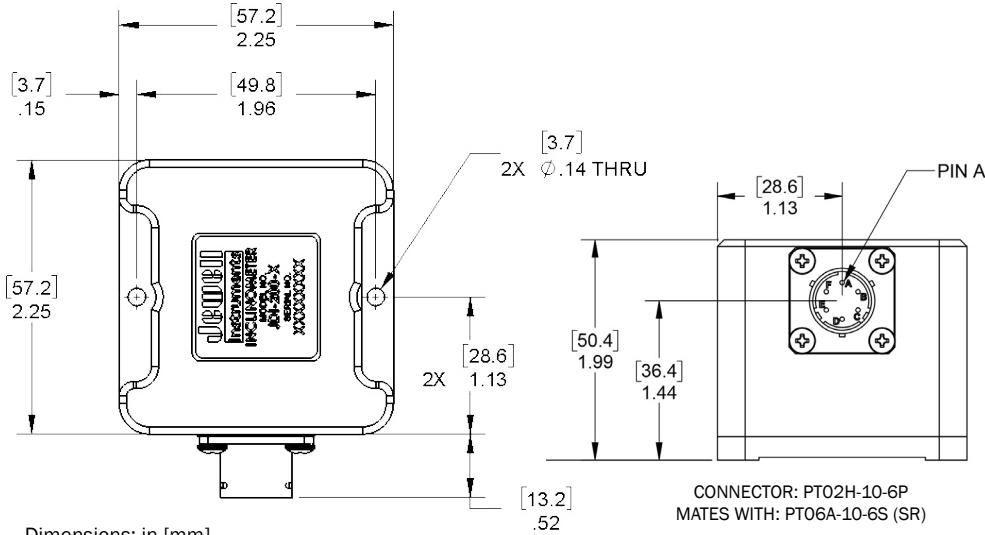
C06 SENSOR PIN OUT

	RS-485	RS-232
A	PWR+	PWR+
B	PWR-	PWR-
C	N/C	N/C
D	DATA+	RXD
E	DATA-	TXD
F	GND	GND

ACCESSORIES

C06 to FLYING LEADS

LEADS

	RS-485	RS-232
RED	PWR+	PWR+
BLK	PWR-	PWR-
GRN	DATA+	RXD
BLUE	DATA-	TXD
WHT	GND	GND

		PART #
RS-485	3m	95074-03
	5m	95074-05
	15m	95074-15
RS-232	3m	95075-03
	5m	95075-05
	15m*	95075-15

*15m maximum for RS-232

C06 to DB9 & BARREL

PIN OUT

1	DATA-
2	DATA+
5	GROUND

DC PWR & GND
CENTER (+)
RING (-)
5.5MM O.D. X 2.1MM
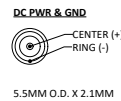
110-240Vac to 12Vdc Transformer sold separately.
Part #: 00254-02

		PART #
RS-485	3m	95070-03
	5m	95070-05
	15m	95070-15
RS-232	3m	95071-03
	5m	95071-05
	15m*	95071-15

*15m maximum for RS-232

C06 to USB
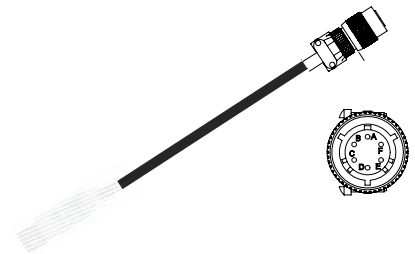
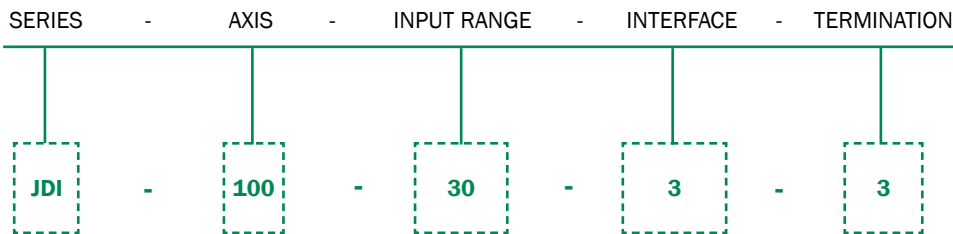|		PART #
RS-485	1.8m	95072-01
	5m	95072-05
RS-232	1.8m	95073-01
	5m	95073-05

*5m maximum

ORDERING INFORMATION

HOW TO ORDER

Model Numbers are comprised of the series, the axes, the input range, interface, and termination options.

EXAMPLE 1: DXI Series, Single Axis, ±30° Input, MBRTU RS-485, and an 4-Pin Double Deutsch termination

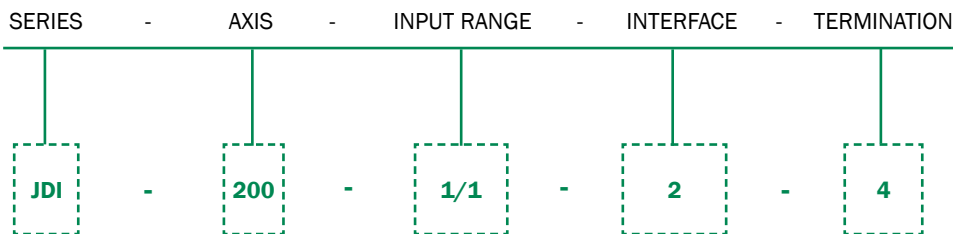| SERIES	-	AXIS	-	INPUT RANGE	-	INTERFACE	-	TERMINATION
JDI	-	100	-	30	-	3	-	3

EXAMPLE 2: DXI Series, Dual Axis, ±1° Input, ASCII RS-232 Interface, and an 8-pin M12 Male termination

SERIES	-	AXIS	-	INPUT RANGE	-	INTERFACE	-	TERMINATION
JDI	-	200	-	1/1	-	2	-	4

INTERFACE OPTIONS

1	RS485	ASCII (RS-485)
2	RS232	ASCII (RS-232)
3	MB485	MBRTU (RS-485)

TERMINATION OPTIONS

1	DB9	DB9
2	4PD	4-Pin Deutsch, Male
3	4DD	4-pin Deutsch, M/F
4	M12	8-pin M12, Male
5	FL5	Flying Leads
6	C06	6-Pin Circular Connector

SEE PREVIOUS PAGES FOR CABLE OPTIONS

Jewell Instruments

ISO**9001** CERTIFIED