

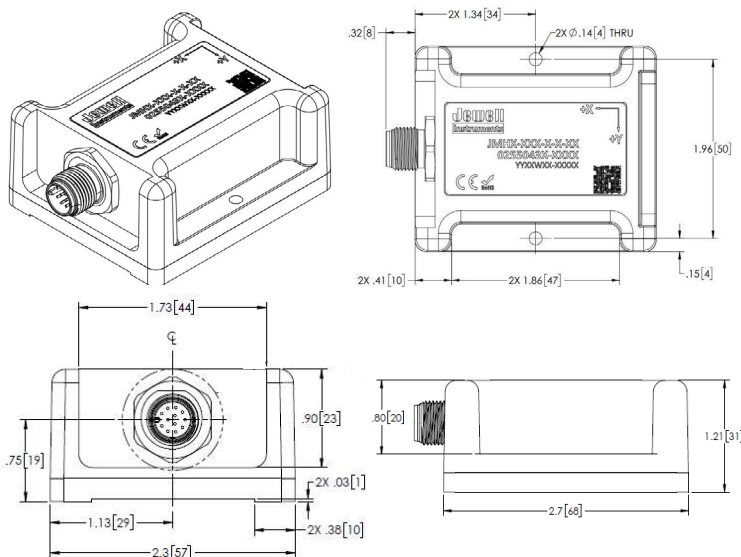
## JDHI-100/200

### Ruby MEMS Digital Inclinometer

The NEW Ruby MEMS digital inclinometers represent the next generation of high-performance inertial sensors from Jewell Instruments. With an improved Price-Performance, the new Ruby inertial sensors offer outstanding resolution, frequency response, and bandwidth – all in a IP67 package that utilizes the same mounting configuration of Jewell's current MEMS sensors.

#### FEATURES:

- Ranges:  $\pm 1^\circ$  to  $\pm 90^\circ$
- Temperature Compensated
- Digital Interface Options: ASCII (RS-485/RS-232) and Modbus (RS-485)
- High-Precision with  $0.0001^\circ$  resolution
- Operating Temp Range:  $-40^\circ$  to  $+85^\circ\text{C}$
- Seal: IP67
- M12 and DB9 termination options
- CE and RoHS compliant



Dimensions: in [mm]



#### APPLICATIONS:

- Radar & Antenna Position Control
- Mining
- Bridge and Structural Monitoring
- Platform Leveling
- Tunneling Biaxial Machine Tool Levelling
- Construction
- Offshore Platform Stability
- Production/Manufacturing Process
- Geotechnical Monitoring
- Industrial Measurement & Control

# JDHI SPECIFICATIONS

## STATIC/DYNAMIC

| INPUT RANGE (°)                         | ±1                | ±3 | ±14.5 | ±30 | ±60 | ±90 |
|-----------------------------------------|-------------------|----|-------|-----|-----|-----|
| DIGITAL RESOLUTION (°, max)             | 0.0001            |    |       |     |     |     |
| REPEATABILITY (°)                       | 0.01              |    |       |     |     |     |
| TRANSVERSE AXIS MISALIGNMENT (°, max)   | 0.25              |    |       |     |     |     |
| BANDWIDTH (HZ NOM) (-3 dB)              | (Sample Rate) / 4 |    |       |     |     |     |
| ACCURACY - TEMPERATURE SENSOR (°C, max) | ±2                |    |       |     |     |     |

## ELECTRICAL/PROTOCOL

|                                               |                                                                                     |
|-----------------------------------------------|-------------------------------------------------------------------------------------|
| NUMBER OF AXES                                | 1, 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                                      | ASCII (RS-485); ASCII (RS-232); MODBUS-RTU                                          |
| BAUD3 (bps)                                   | 2400, 4800, 9600, <u>19200</u> , 38400, 57600, 115200, 230400, 460800, 500000 (max) |
| COMMUNICATION SETTINGS <sup>2</sup>           | 8 bits, 1 stop bit, even   odd                                                      |
| DATA SAMPLE RATE <sup>3</sup> (Hz)            | <u>3.9</u> , 7.8, 15.6, 31.2, 62.5, 125                                             |
| NODE ID <sup>3</sup>                          | <u>0+last 2 digits of serial number</u>                                             |
| FILTERING                                     | User selectable                                                                     |
| BUS TERMINATION- INTERNAL <sup>2</sup> (120Ω) | On / Off                                                                            |

## ENVIRONMENTAL

|                       |                            |
|-----------------------|----------------------------|
| OPERATING TEMP. RANGE | -40° to +85°C              |
| STORAGE TEMP. RANGE   | -55° to +105°C             |
| SHOCK                 | 100 g, 0.011 sec, 1/2 sine |

## ENCLOSURE

|                                |          |
|--------------------------------|----------|
| WEIGHT (g)                     | 140      |
| PROTECTION CLASS (per IEC 529) | IP67     |
| CONNECTOR                      | DB9, M12 |

### NOTES:

- Observed using noise reduction methods.
- User selectable; default underlined
- NIST Certification Range up to ±45°, Calibrated

Temperature Range of -30 °C to +60 °C.

\*Specifications subject to change without notice on account of continued product development

# ORDERING INFORMATION

## HOW TO ORDER

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

**EXAMPLE 1:** JDHI Series, Single Axis, DB9 termination, ASCII RS-485,  $\pm 30^\circ$  Input

| SERIES | - | AXIS | - | TERMINATION | - | INTERFACE | - | INPUT RANGE |
|--------|---|------|---|-------------|---|-----------|---|-------------|
| JDHI   | - | 100  | - | 1           | - | F         | - | 30          |

### INTERFACE OPTIONS

|   |       |                |
|---|-------|----------------|
| F | RS485 | ASCII (RS-485) |
| T | RS232 | ASCII (RS-232) |
| M | MB485 | MBRTU (RS-485) |

### TERMINATION OPTIONS

|   |     |                 |
|---|-----|-----------------|
| 1 | DB9 | DB9             |
| 4 | M12 | 8-pin M12, Male |

**EXAMPLE 2:** JDHI Series, Dual Axis, M12 Male termination, ASCII RS-232 Interface,  $\pm 90^\circ$

| SERIES | - | AXIS | - | TERMINATION | - | INTERFACE | - | INPUT RANGE |
|--------|---|------|---|-------------|---|-----------|---|-------------|
| JDHI   | - | 200  | - | 4           | - | T         | - | 90          |

# ACCESSORIES

## CABLE

| CONNECTOR | MODEL #     | LENGTH (m) |
|-----------|-------------|------------|
| M12       | F848873-03M | 3          |
| M12       | F848873-10M | 10         |
| DB9       | F848874-03M | 3          |
| DB9       | F848874-10M | 10         |

## 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+   |

## 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    |