



**A750-150**  
Precision Fluid Damped Inclinometer / 0-5V DC Output



The 750-150 Series has the highest precision of the Black Diamond tilt sensor line. It is a rugged, high performance, single-axis tilt sensor designed for peak performance in extreme conditions. The fluid damped mechanism delivers superior noise rejection in high shock and vibration environments as well as excellent output stability. Units are available with a 6-pin connector, pin-terminals or flying leads. Available outputs include 0-5V and 4-20mA. Custom input ranges, filters and temperature compensation are also available on request.



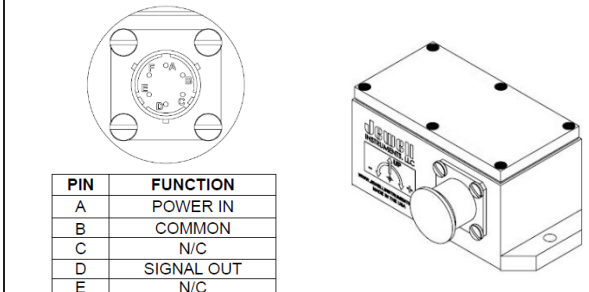
**FEATURES**

- Extremely Rugged
- High Accuracy
- Temperature Compensation Available
- 0-5V Output
- +9 to +18 Volts DC Power Input
- RoHS Compliant
- CE Certification Available

**APPLICATIONS**

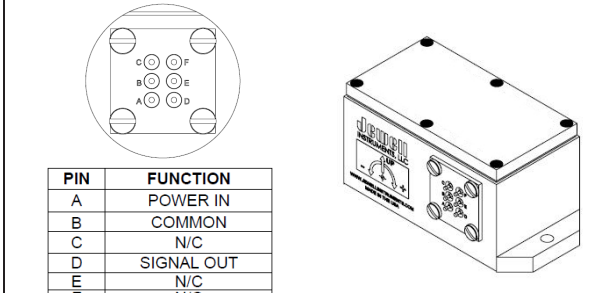
- High-precision Geotechnical
- Oil and Gas/Riser Tilt Monitoring
- Bridge Sag & Sway
- Dam Monitoring
- Structural Analysis
- Platform Leveling

**CONNECTOR VERSION**



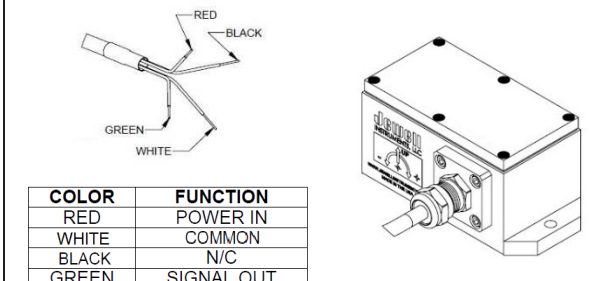
PIN	FUNCTION
A	POWER IN
B	COMMON
C	N/C
D	SIGNAL OUT
E	N/C
F	N/C

**PIN TERMINAL VERSION**



PIN	FUNCTION
A	POWER IN
B	COMMON
C	N/C
D	SIGNAL OUT
E	N/C
F	N/C

**WIRED VERSION**



COLOR	FUNCTION
RED	POWER IN
WHITE	COMMON
BLACK	N/C
GREEN	SIGNAL OUT

**STATIC/DYNAMIC**

<b>Input Range (deg.)</b>	<b>±1</b>	<b>±3</b>	<b>±14.5</b>	<b>±30</b>	<b>±60</b>	<b>±90</b>
<b>Full Range Output (VDC)<sup>1</sup></b>	<b>0-5</b>	<b>0-5</b>	<b>0-5</b>	<b>0-5</b>	<b>0-5</b>	<b>0-5</b>
<b>Non-linearity (% FRO)<sup>2</sup></b>	<b>0.05</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.05</b>
<b>Scale Factor (V/g nom.)</b>	<b>143.2</b>	<b>47.8</b>	<b>10.0</b>	<b>5.0</b>	<b>2.9</b>	<b>2.5</b>
<b>Scale Factor Sensitivity (PPM/°C max)</b>	<b>350</b>	<b>300</b>	<b>100</b>	<b>60</b>	<b>60</b>	<b>60</b>
<b>Bandwidth, Hz (-3 dB)</b>	<b>0.5</b>	<b>2</b>	<b>15</b>	<b>20</b>	<b>30</b>	<b>30</b>
<b>Transverse Axis Misalignment (° max)</b>	<b>±0.25</b>	<b>±0.25</b>	<b>±0.5</b>	<b>±0.5</b>	<b>±0.5</b>	<b>±0.5</b>
<b>0° Output nominal (mA)</b>	<b>±0.10</b>	<b>±0.04</b>	<b>±0.02</b>	<b>±0.02</b>	<b>±0.02</b>	<b>±0.02</b>
<b>0° Output Temp. Sensitivity (V/°C max)</b>	<b>0.015</b>	<b>0.005</b>	<b>0.001</b>	<b>0.0005</b>	<b>0.0004</b>	<b>0.0003</b>
<b>Resolution &amp; Threshold (μradians)<sup>3</sup></b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>

<sup>1</sup>Full Range is defined "from negative full input angle to positive full input angle." <sup>2</sup>Nonlinearity is specified as deviation of output referenced to theoretical sine function value, independent of misalignment. <sup>3</sup>Full Resolution is achieved with noise reduction techniques.

**ELECTRICAL**

<b>Number of Axes:</b>	<b>1</b>
<b>Input Voltage Range, (VDC):</b>	<b>+9 to +18</b>
<b>Input Current, mA, max:</b>	<b>40</b>
<b>Noise, μArms, maximum:</b>	<b>0.002</b>
<b>Output Impedance (ohms)</b>	<b>1</b>
<b>Mass (grams)</b>	<b>370</b>

**ENVIRONMENTAL**

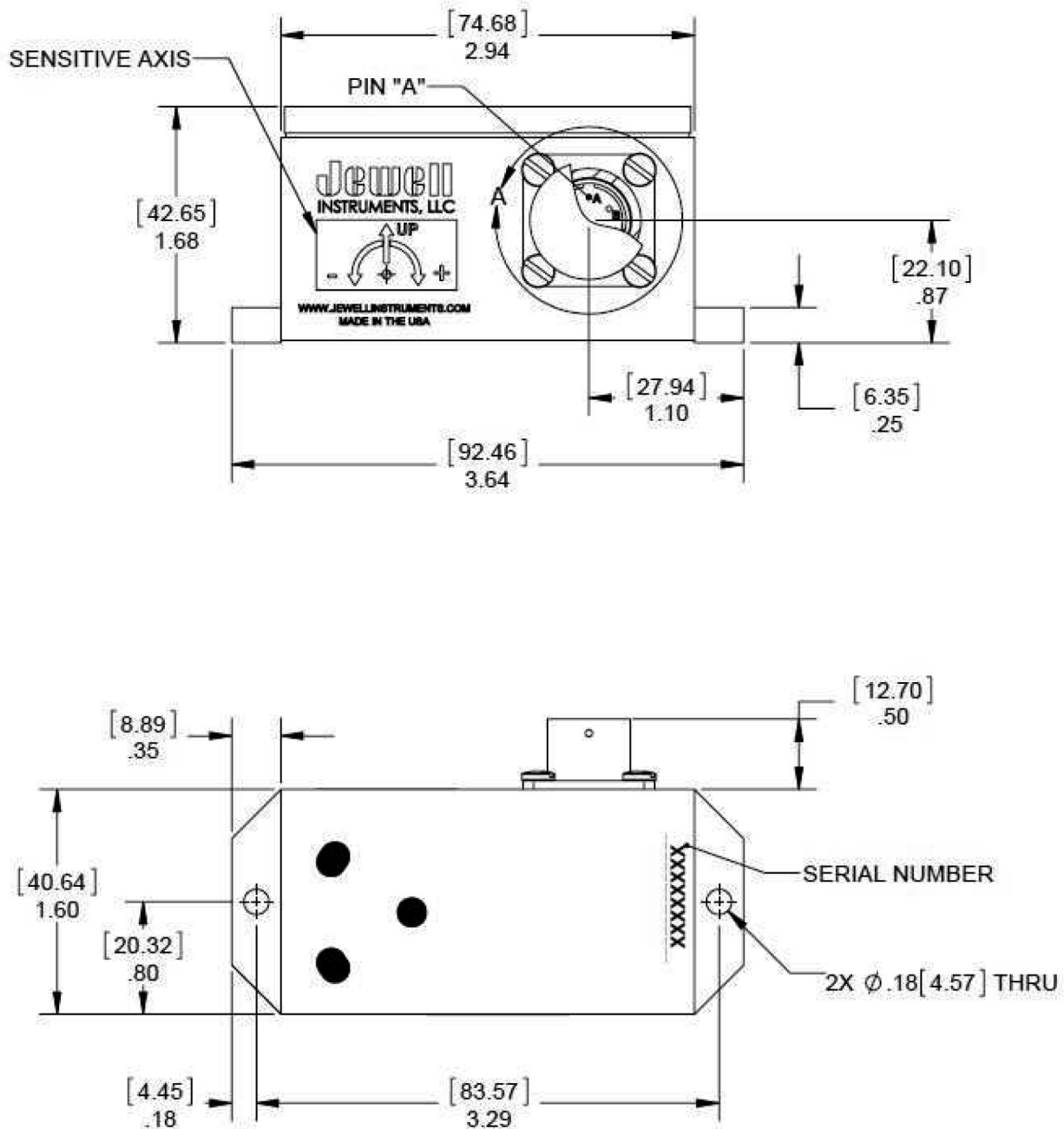
<b>Operating Temp Range:</b>	<b>-40°C to +80°C</b>
<b>Storage Temp Range:</b>	<b>-60°C to +90°C</b>
<b>Shock:</b>	<b>1500g, 0.5 msec, ½ sine</b>

**ENCLOSURE**

<b>Seal:</b>	<b>IP66</b>
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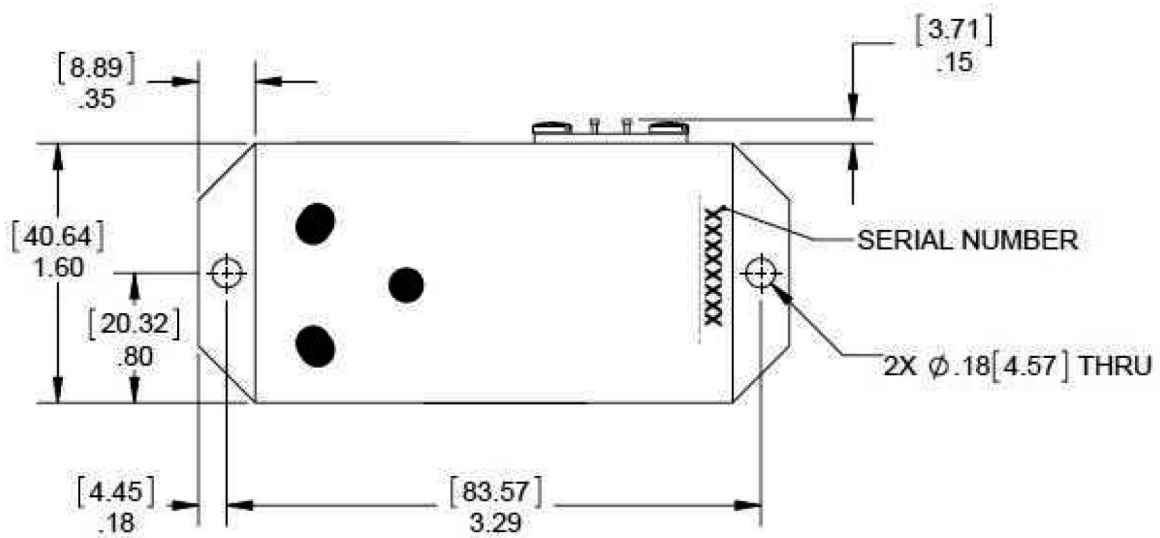
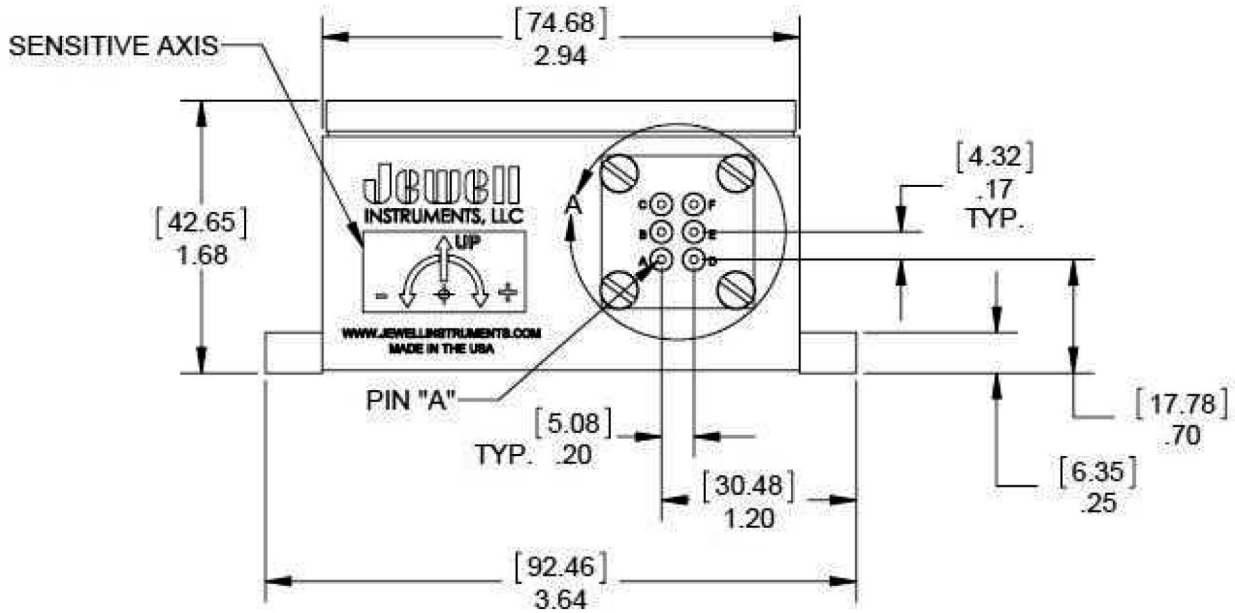


■ OUTLINE DRAWING: CONNECTOR VERSION



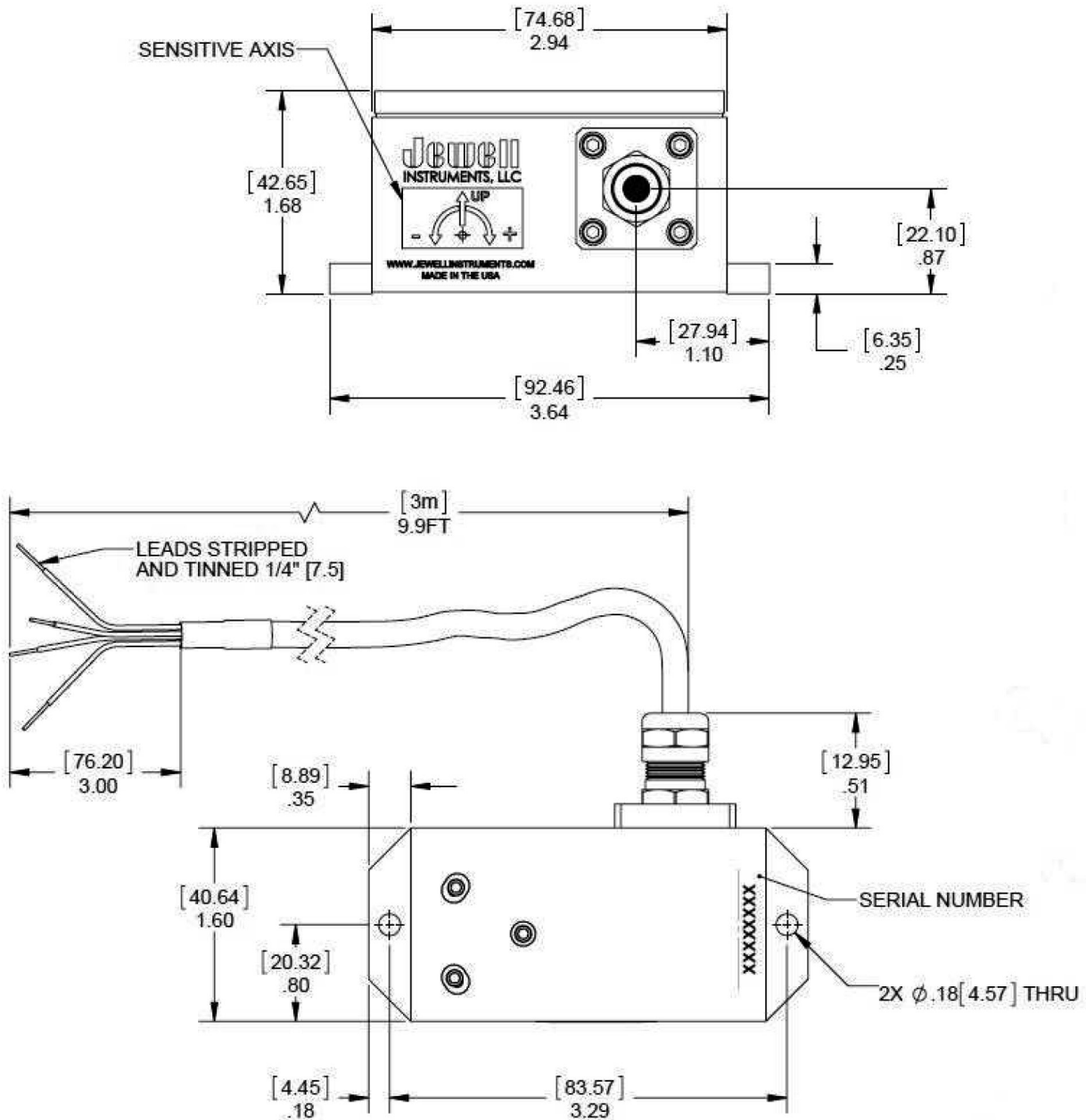


■ OUTLINE DRAWING: PIN TERMINAL VERSION



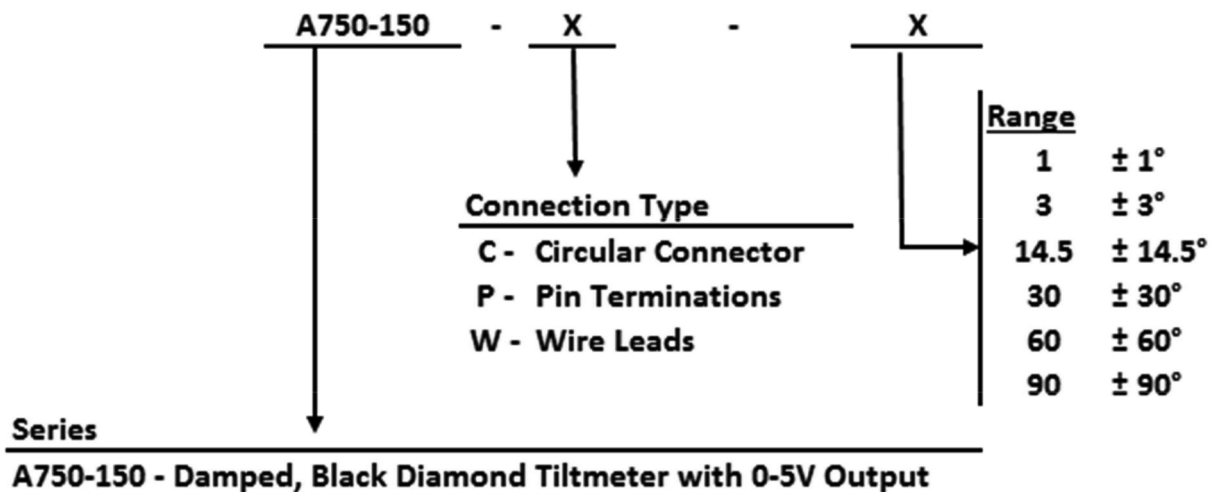


■ OUTLINE DRAWING: WIRED VERSION





■ HOW TO ORDER



**Example:**  
**A750-150-C-1**  
**0-5V output, damped, circular connector & ±1° range**

■ ACCESSORIES

**Mating Connector**

Description	Part Number
Standard 6-pin connector	62101011-001

**Cable Assemblies\***

Description	Part Number
6 Ft Cable	879605-001
10 Ft Cable	879605-002
2 M Cable	879605-007
3 M Cable	879605-008

\*All cable assemblies come with mating connector



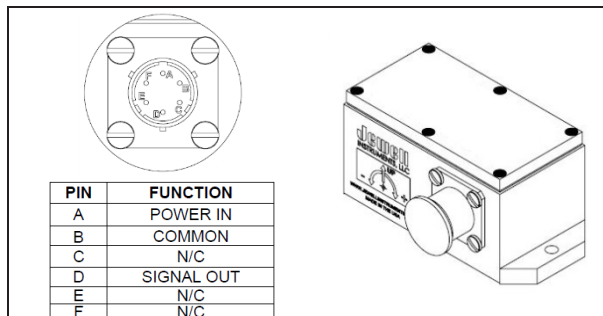
**C750-150**  
Precision Fluid Damped Inclinometer /4-20mA Output



The C750-150 Series has the highest precision of the Black Diamond tilt sensor line. It is a rugged, high performance, single-axis tilt sensor designed for peak performance in extreme conditions. The fluid damped mechanism delivers superior noise rejection in high shock and vibration environments as well as excellent output stability. Units are available with a 6-pin connector, pin-terminals or flying leads. Available outputs include 0-5V and 4-20mA. Custom input ranges, filters and temperature compensation are also available on request.



**CONNECTOR VERSION**

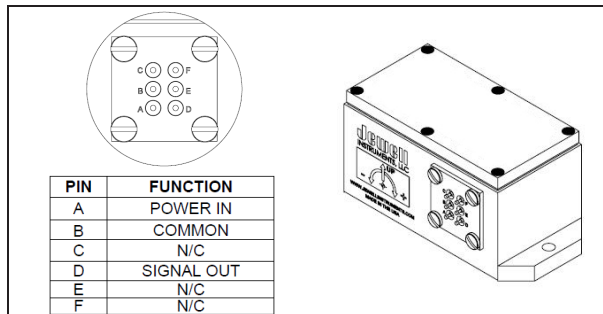


PIN	FUNCTION
A	POWER IN
B	COMMON
C	N/C
D	SIGNAL OUT
E	N/C
F	N/C

**FEATURES**

- Extremely Rugged
- High Accuracy
- Temperature Compensation Available
- 4-20mA Output
- +20 to +30 VDC Power Input
- RoHS Compliant
- CE Certification Pending

**PIN TERMINAL VERSION**

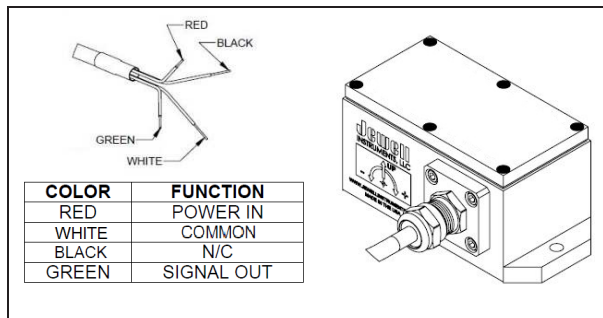


PIN	FUNCTION
A	POWER IN
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**APPLICATIONS**

- High-precision Geotechnical
- Oil and Gas/Riser Tilt Monitoring
- Bridge Sag & Sway
- Dam Monitoring
- Structural Analysis
- Platform Leveling

**WIRED VERSION**



COLOR	FUNCTION
RED	POWER IN
WHITE	COMMON
BLACK	N/C
GREEN	SIGNAL OUT



**STATIC/DYNAMIC**

<b>Input Range (deg.)</b>	<b>±1</b>	<b>±3</b>	<b>±14.5</b>	<b>±30</b>	<b>±60</b>	<b>±90</b>
<b>Full Range Output (mA)<sup>1</sup></b>	<b>4-20</b>	<b>4-20</b>	<b>4-20</b>	<b>4-20</b>	<b>4-20</b>	<b>4-20</b>
<b>Non-linearity (% FRO)<sup>2</sup></b>	<b>0.05</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.05</b>
<b>Scale Factor (mA/g nom.)</b>	<b>458.4</b>	<b>152.9</b>	<b>32.0</b>	<b>16.0</b>	<b>9.2</b>	<b>8.0</b>
<b>Scale Factor Sensitivity (PPM/°C max)</b>	<b>350</b>	<b>300</b>	<b>100</b>	<b>60</b>	<b>60</b>	<b>60</b>
<b>Bandwidth, Hz (-3 dB)</b>	<b>0.5</b>	<b>2</b>	<b>15</b>	<b>20</b>	<b>30</b>	<b>30</b>
<b>Transverse Axis Misalignment (° max)</b>	<b>±0.25</b>	<b>±0.25</b>	<b>±0.5</b>	<b>±0.5</b>	<b>±0.5</b>	<b>±0.5</b>
<b>0° Output nominal (mA)</b>	<b>12 ±0.6</b>	<b>12 ±0.6</b>	<b>12 ±0.3</b>	<b>12 ±0.3</b>	<b>12 ±0.3</b>	<b>12 ±0.3</b>
<b>0° Output Temp. Sensitivity (mA/°C max)</b>	<b>0.024</b>	<b>0.01</b>	<b>0.002</b>	<b>0.001</b>	<b>0.001</b>	<b>0.0008</b>
<b>Resolution &amp; Threshold (µradians)<sup>3</sup></b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>

<sup>1</sup>Full Range is defined "from negative full input angle to positive full input angle." <sup>2</sup>Nonlinearity is specified as deviation of output referenced to theoretical sine function value, independent of misalignment. <sup>3</sup>Full Resolution is achieved with noise reduction techniques.

**ELECTRICAL**

<b>Number of Axes:</b>	<b>1</b>
<b>Input Voltage Range, (VDC):</b>	<b>+20 to +30</b>
<b>Input Current, mA, max:</b>	<b>40</b>
<b>Noise, µArms, maximum:</b>	<b>0.002</b>
<b>Mass (grams)</b>	<b>370</b>

**ENVIRONMENTAL**

<b>Operating Temp Range:</b>	<b>-40°C to +80°C</b>
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<b>Shock:</b>	<b>1500g, 0.5 msec, ½ sine</b>

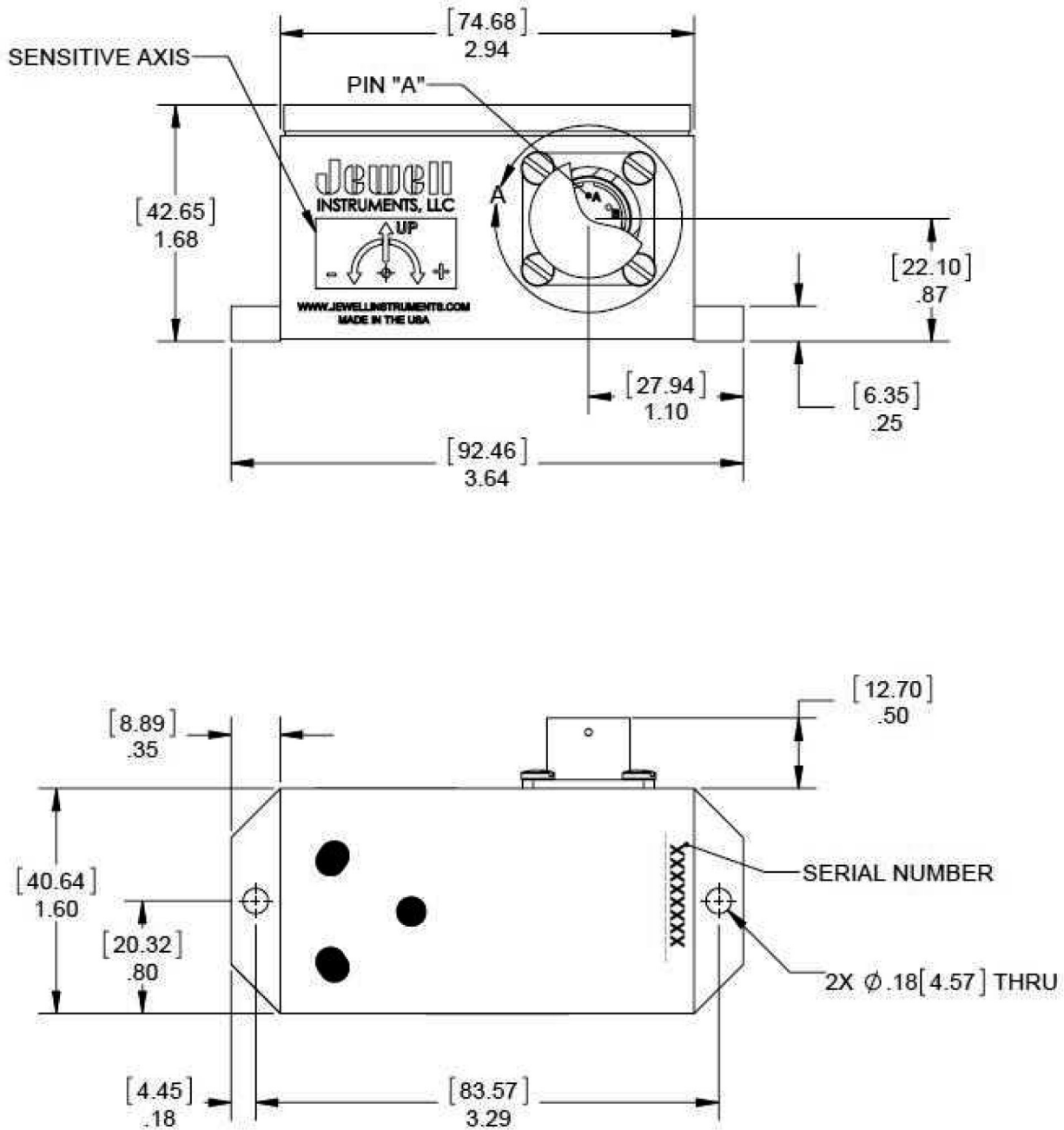
**ENCLOSURE**

<b>Seal:</b>	<b>IP66</b>
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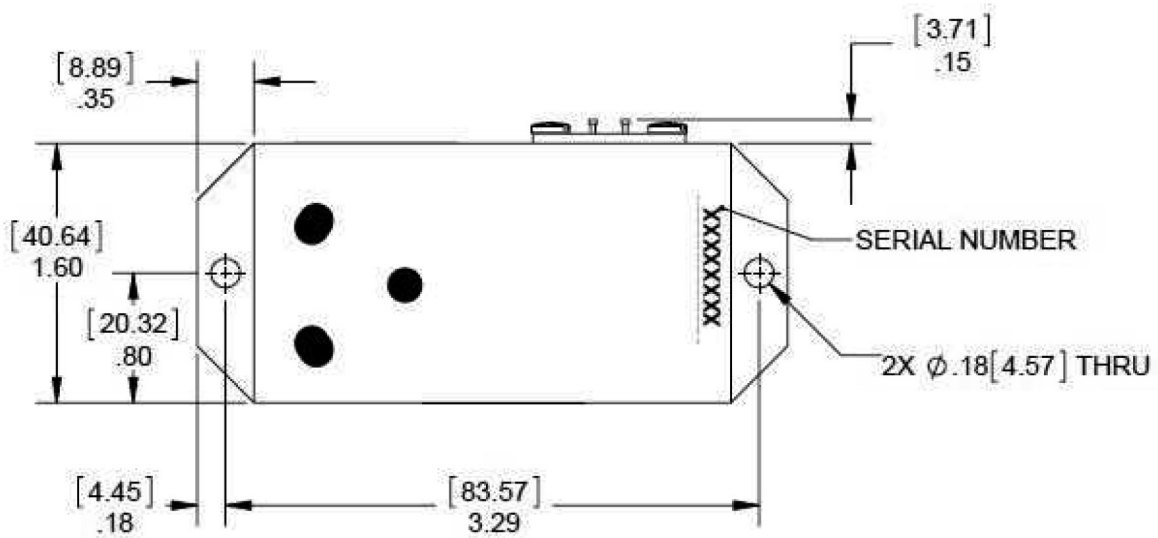
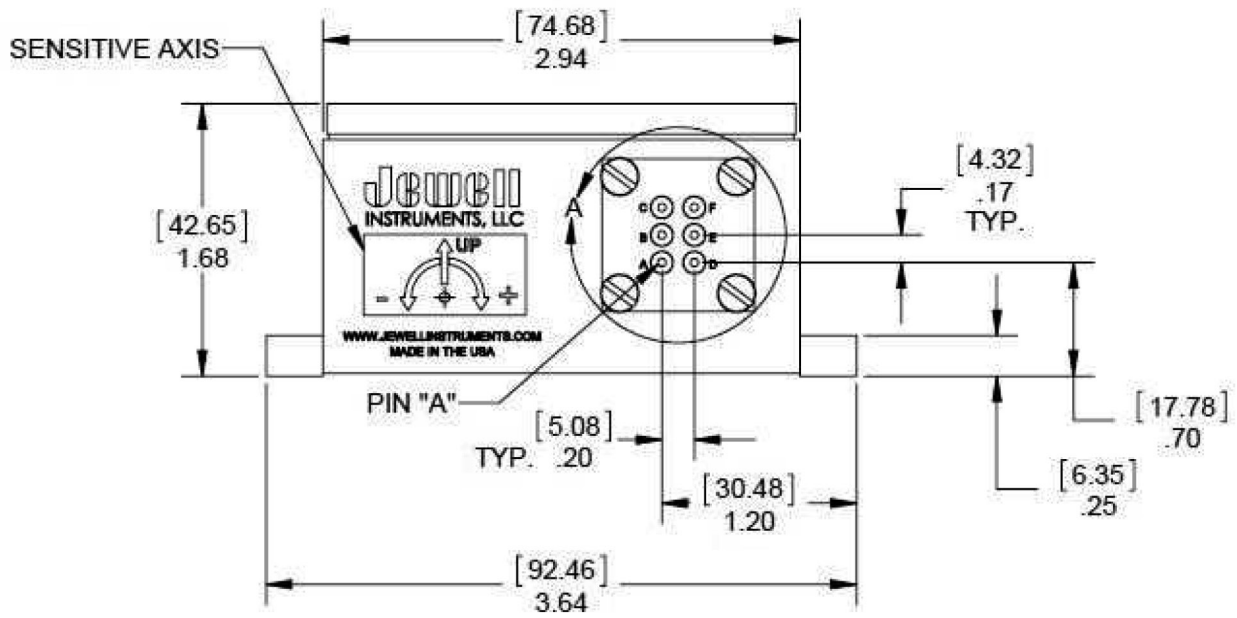


■ OUTLINE DRAWING: CONNECTOR VERSION



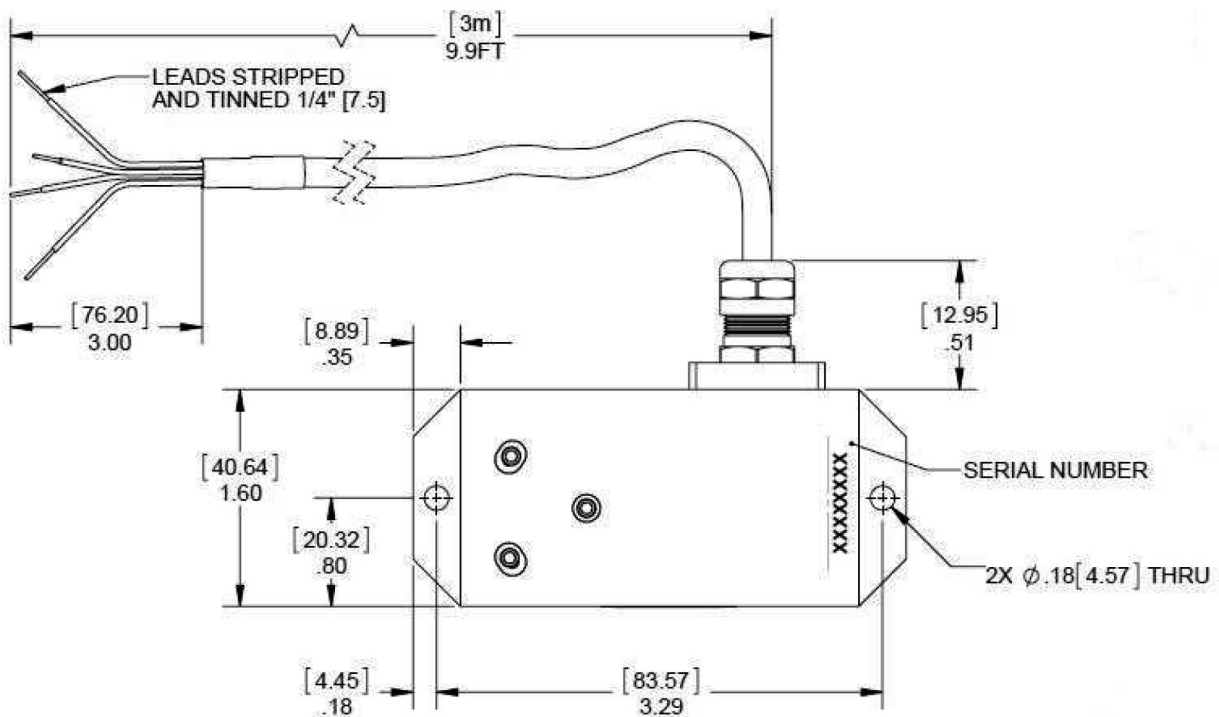
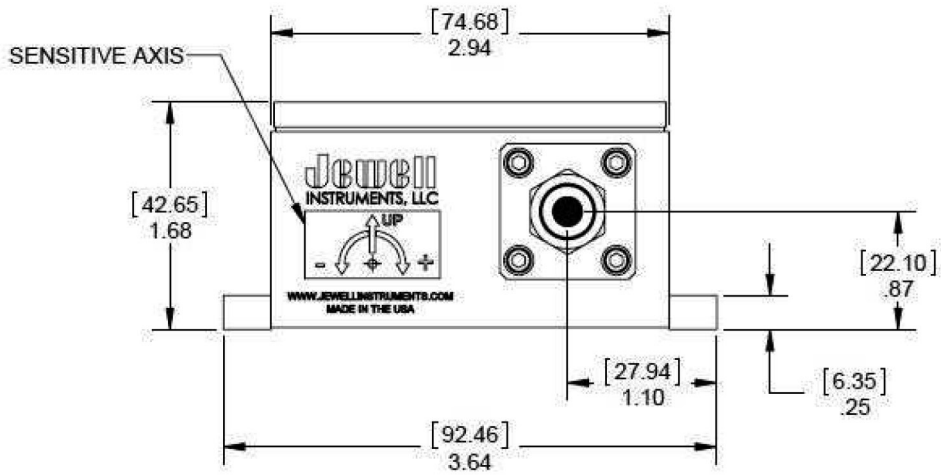


OUTLINE DRAWING: PIN TERMINAL VERSION



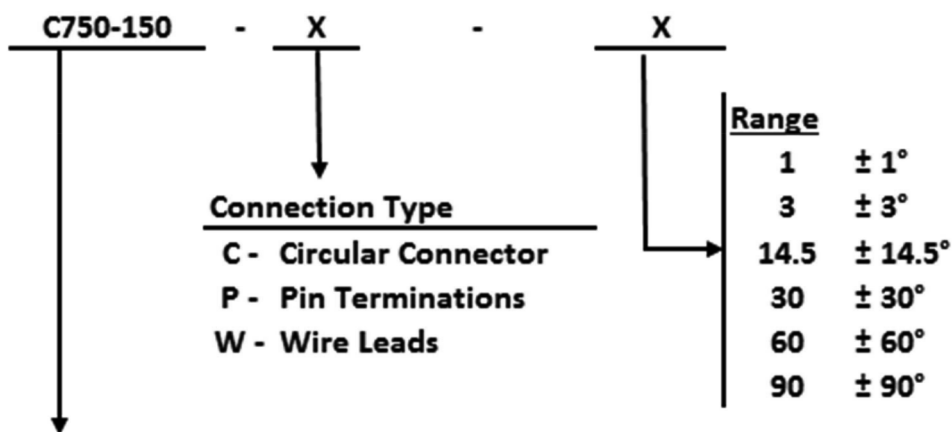


■ OUTLINE DRAWING: WIRED VERSION





■ HOW TO ORDER



**Series**

**C750-150 - Damped, Black Diamond Tiltmeter with 4-20mA Output**

**Example:**

**C750-150-C-1**

**4-20mA output, damped, circular connector & ±1° range**

■ ACCESSORIES

**Mating Connector**

Description	Part Number
Standard 6-pin connector	62101011-001

**Cable Assemblies\***

Description	Part Number
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