

# LSOX-D Precision Fluid Damped Inclinometer

## +/-5V DC Output

The LSOX Series Inclinometer 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 +/-5V, 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**
- **+/-5V Output**
- **±12 to ±18 Volts DC Power Input**
- **RoHS Compliant**
- **CE Certification Pending**

### Applications

- **High-precision Geotech**
- **Oil and Gas/Riser Tilt Monitoring**
- **Railroad MOW Equipment**
- **Pavement Profiling Rigs**
- **Vehicle Wheel Alignment**
- **Robotics**



#### Connector Version

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

#### Pin Terminal Version

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

#### Wired Version

COLOR	FUNCTION
RED	+POWER IN
WHITE	COMMON
BLACK	- POWER IN
GREEN	SIGNAL OUT

# L5OX-D Precision Fluid Damped Incllnometer +/-5V DC Output

## STATIC/DYNAMIC

Input Range (deg.)	±1	±3	±14.5	±30	±60	±90
Full Range Output (VDC) <sup>1</sup>	±5	±5	±5	±5	±5	±5
Non-linearity (% FRO) <sup>2</sup>	0.05	0.02	0.02	0.02	0.02	0.05
Scale Factor (V/g nom.)	285.5	95.5	20.0	10.0	5.8	5.0
Scale Factor Sensitivity (PPM/°C max)	350	300	100	60	60	60
Bandwidth, Hz (-3 dB)	0.5	2	15	20	30	30
Transverse Axis Misalignment (° max)	±0.25	±0.25	±0.5	±0.5	±0.5	±0.5
0° Output nominal (VDC)	±0.10	±0.04	±0.02	±0.02	±0.02	±0.02
0° Output Temp. Sensitivity (V/°C max)	0.015	0.005	0.001	0.0005	0.0004	0.0003
Resolution & Threshold (µradians) <sup>3</sup>	1	1	1	1	1	1

<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

Number of Axes:	1
Input Voltage Range, (VDC):	±12 to ±18
Input Current, mA, max:	40
Noise, Vrms, maximum:	0.002
Output Impedance (ohms)	1
Mass (grams)	370

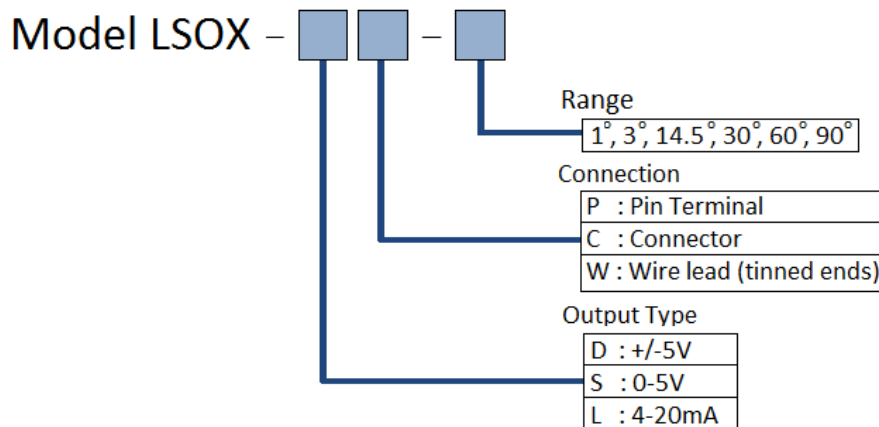
## ENVIRONMENTAL

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

## ENCLOSURE

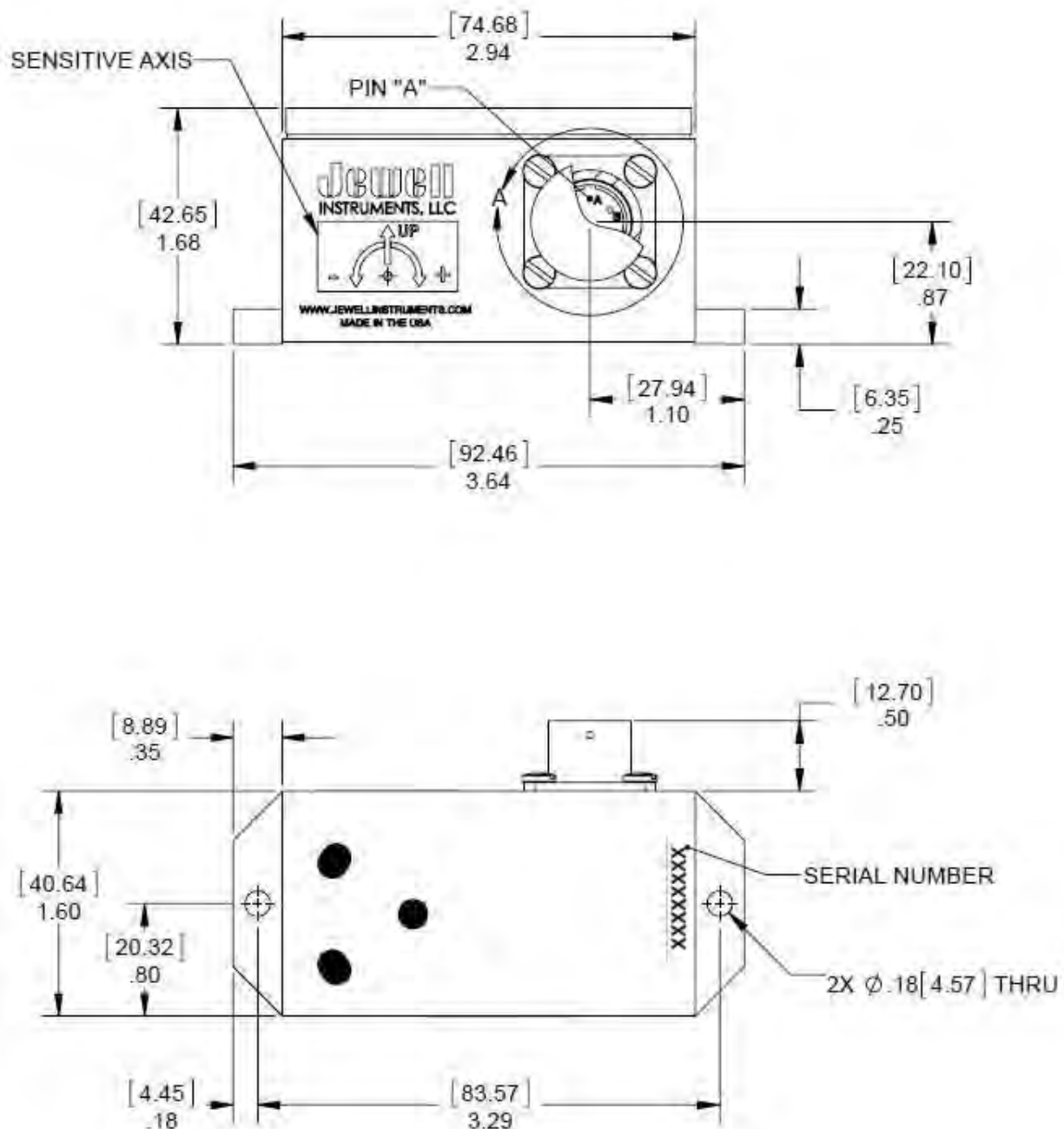
Seal:	IP66
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## Order Code



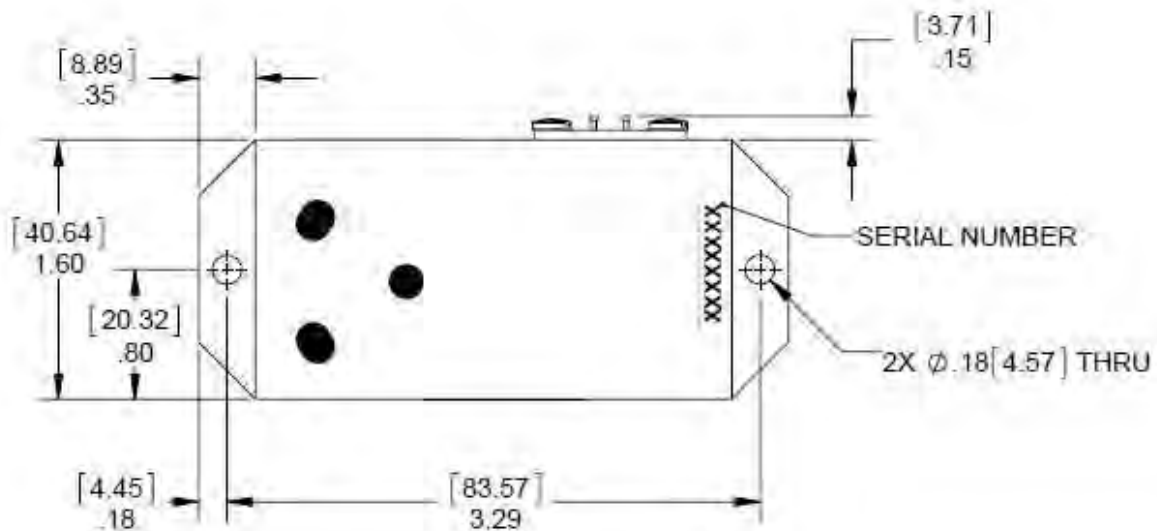
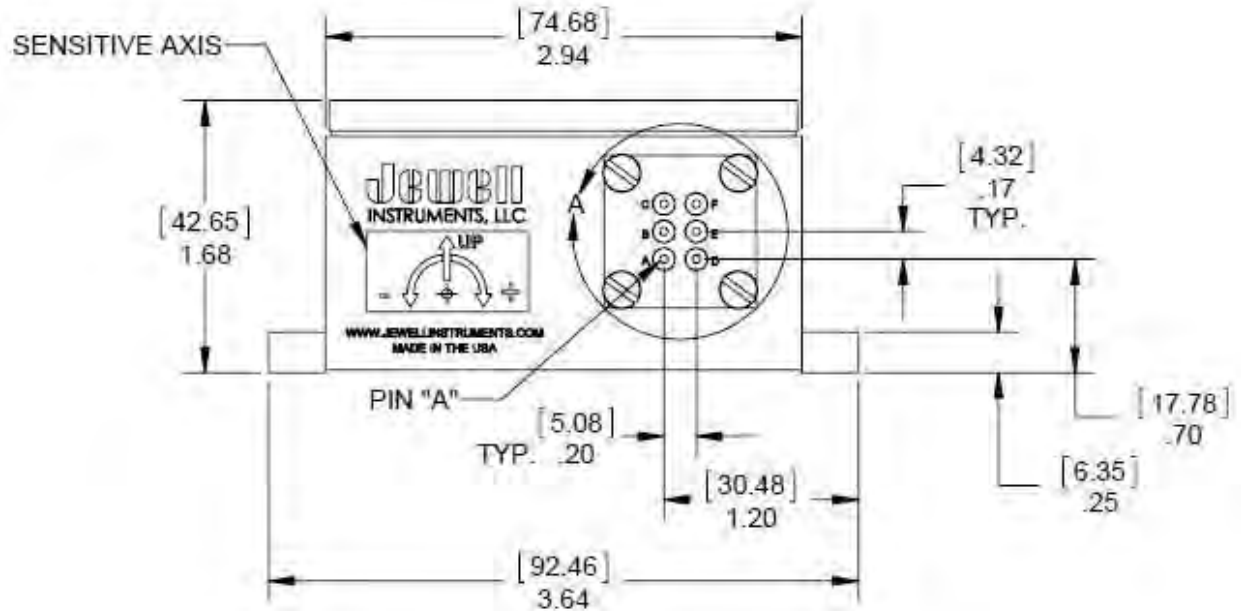
# LSOX-D Precision Fluid Damped Inclinometer +/-5V DC Output

## Outline Drawing: Connector Version



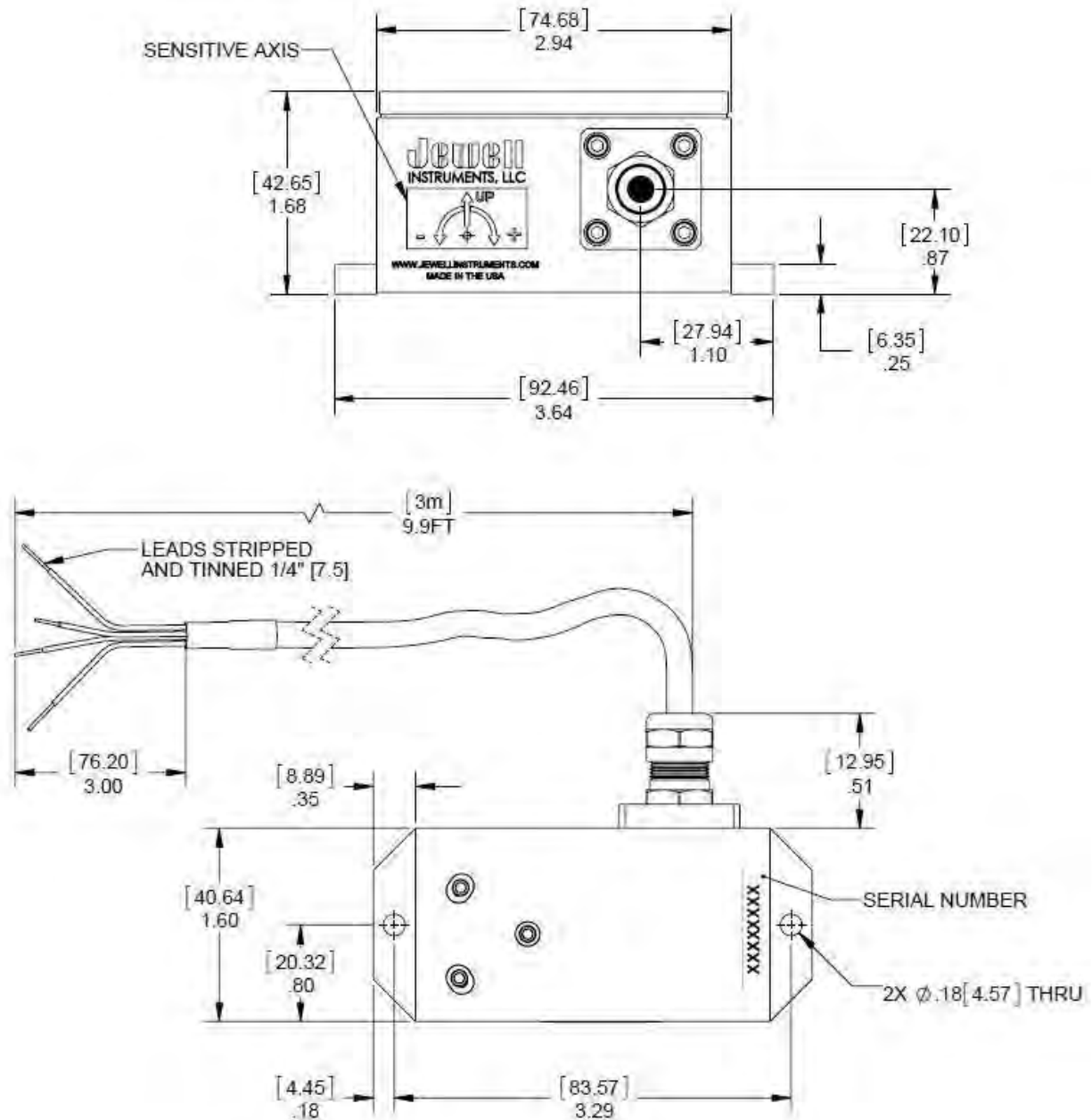
# LSOX-D Precision Fluid Damped Inclinometer +/-5V DC Output

## Outline Drawing: Pin Terminal Version



# LSOX-D Precision Fluid Damped Inclinometer +/-5V DC Output

## Outline Drawing: Wired Version





# LSOX-L Precision Fluid Damped Inclinometer

## 4-20mA Output

The LSOX Series Inclinometer 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 +/-5V, 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**
- **4-20mA Output**
- **+20 to +30 VDC Power Input**
- **RoHS Compliant**
- **CE Certification Pending**

### Applications

- **High-precision Geotech**
- **Oil and Gas/Riser Tilt Monitoring**
- **Railroad MOW Equipment**
- **Pavement Profiling Rigs**
- **Vehicle Wheel Alignment**
- **Robotics**



#### 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

# L5OX-L Precision Fluid Damped InclInometer

## 4-20mA Output

### STATIC/DYNAMIC

Input Range (deg.)	±1	±3	±14.5	±30	±60	±90
Full Range Output (mA) <sup>1</sup>	4-20	4-20	4-20	4-20	4-20	4-20
Non-linearity (% FRO) <sup>2</sup>	0.05	0.03	0.03	0.03	0.03	0.05
Scale Factor (mA/g nom.)	458.4	152.9	32.0	16.0	9.2	8.0
Scale Factor Sensitivity (PPM/°C max)	350	300	100	60	60	60
Bandwidth, Hz (-3 dB)	0.5	2	15	20	30	30
Transverse Axis Misalignment (° max)	±0.25	±0.25	±0.5	±0.5	±0.5	±0.5
0° Output nominal (mA)	12 ±0.6	12 ±0.6	12 ±0.3	12 ±0.3	12 ±0.3	12 ±0.3
0° Output Temp. Sensitivity (mA/°C max)	0.024	0.01	0.002	0.001	0.001	0.0008
Resolution & Threshold (µradians) <sup>3</sup>	1	1	1	1	1	1

<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

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

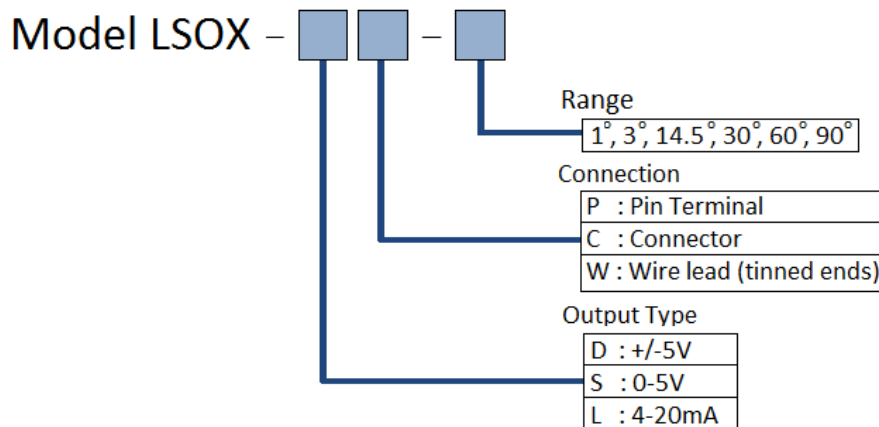
### ENVIRONMENTAL

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

### ENCLOSURE

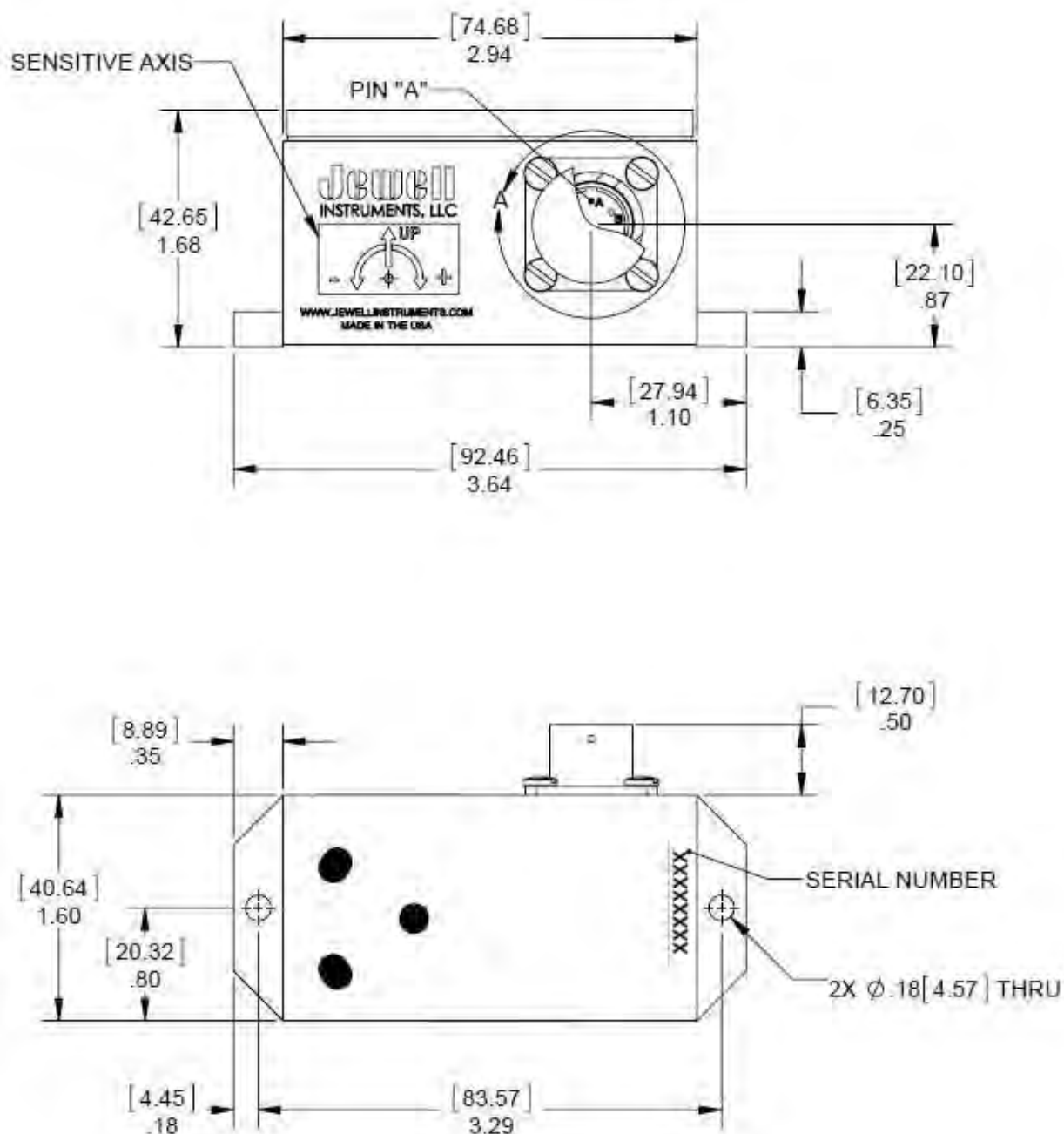
Seal:	IP66
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## Order Code



# LSOX-L Precision Fluid Damped Inclinometer 4-20mA Output

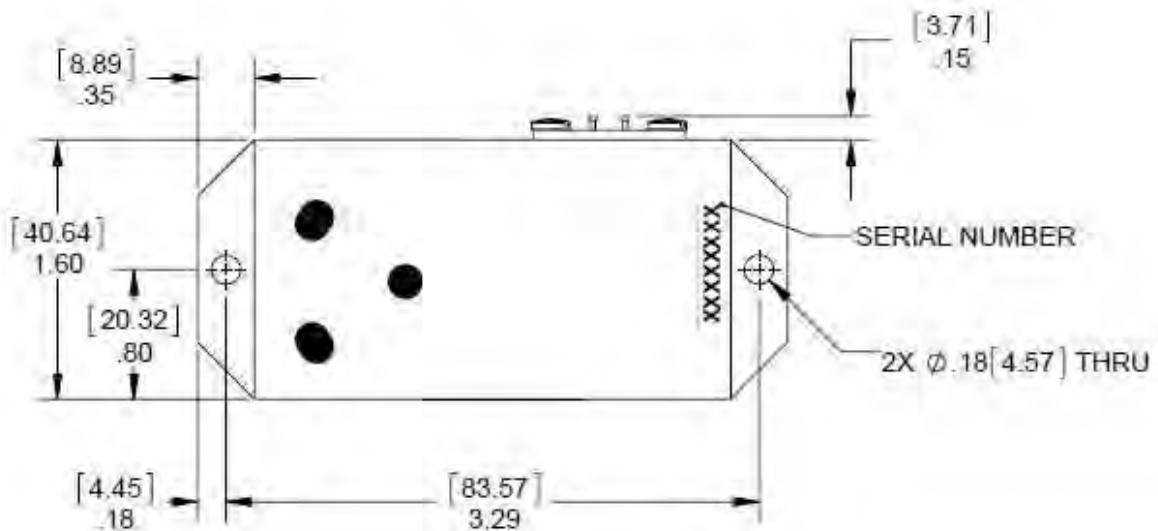
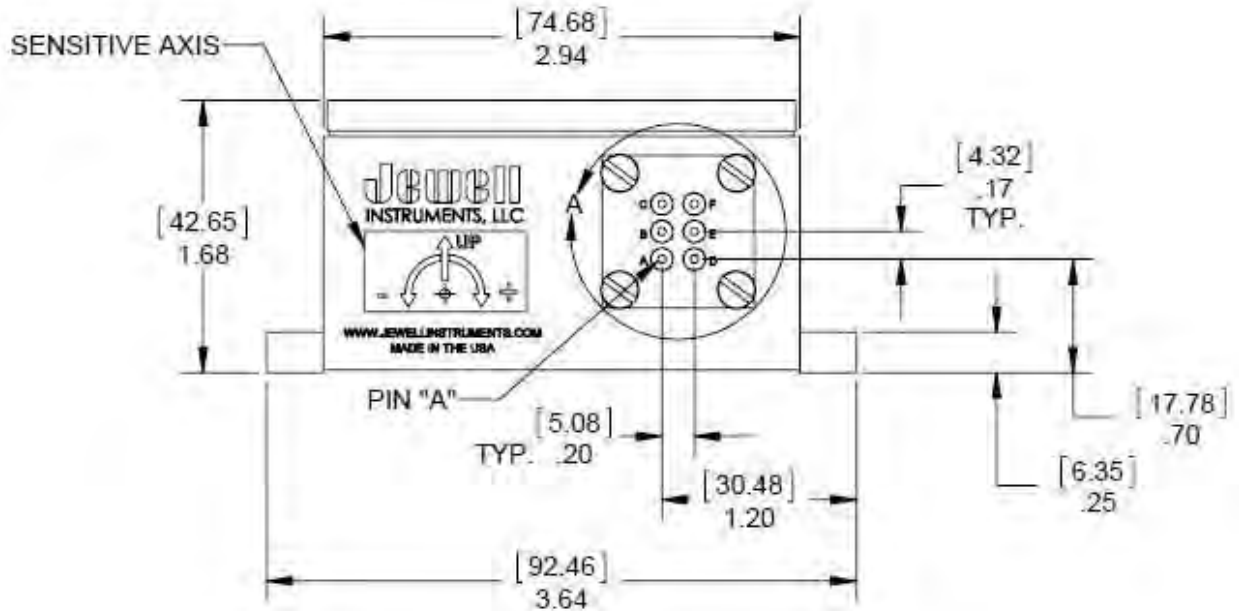
## Outline Drawing: Connector Version





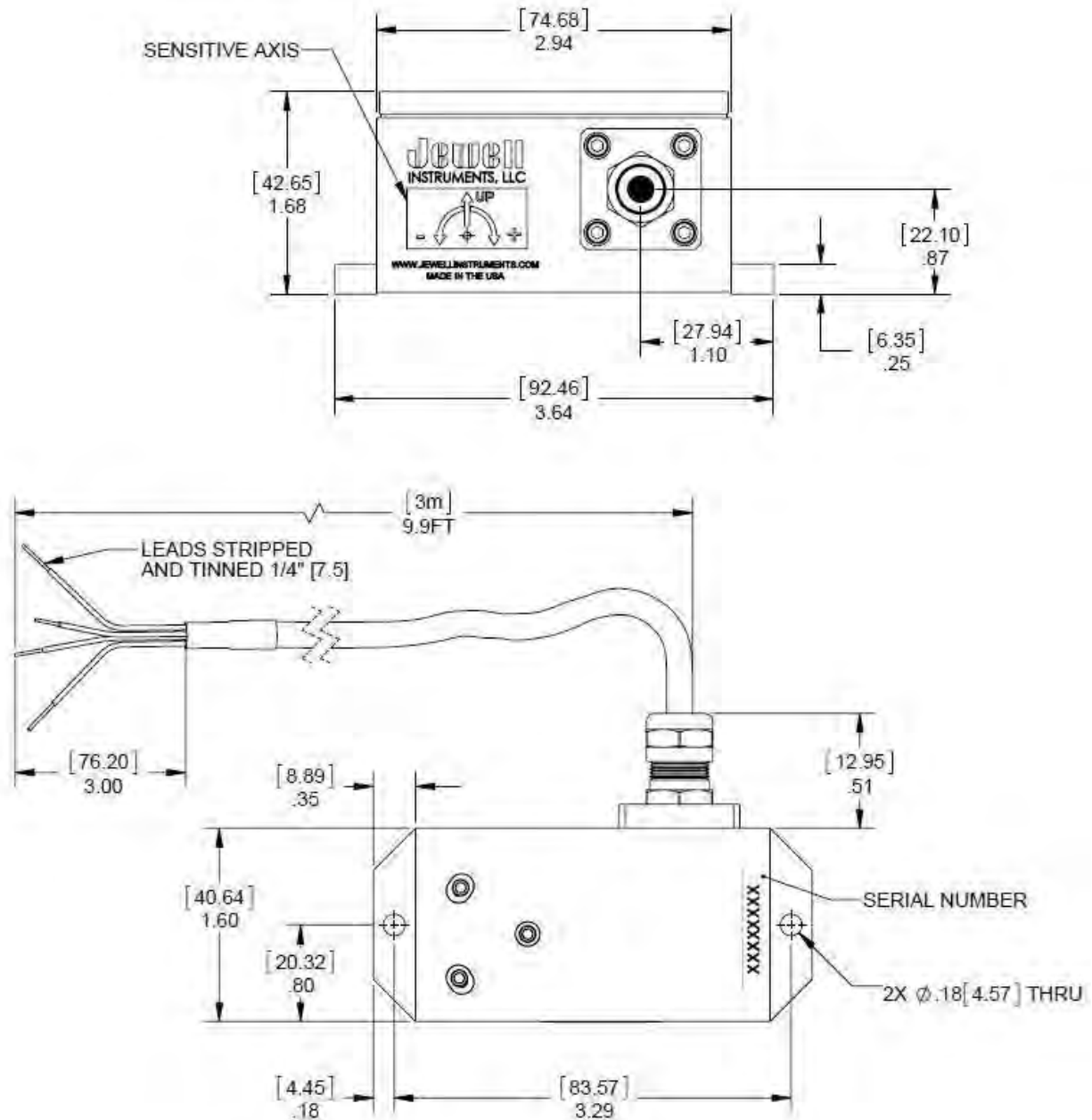
# LSOX-L Precision Fluid Damped Inclinator 4-20mA Output

## Outline Drawing: Pin Terminal Version



# LSOX-L Precision Fluid Damped Inclinometer 4-20mA Output

## Outline Drawing: Wired Version



# LSOX-SCE Precision Fluid Damped Inclinometer

## 0-5V DC Output – CE Marked

**Jewell**  
Instruments

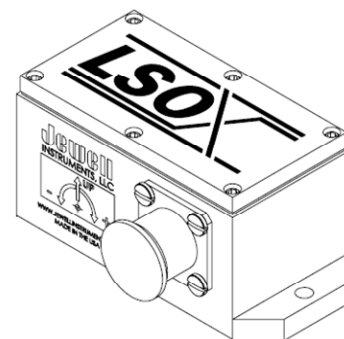
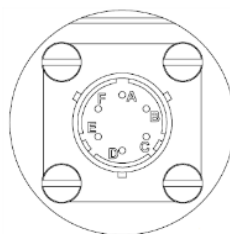
Making Sense out of Motion...

The LSOX Series Inclinometer is a rugged, high performance, single-axis, **CE marked**, 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 +/-5V, 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**
- **0-5Vdc Output**
- **+9 to +18 Volts DC Power Input**
- **RoHS Compliant**
- **CE Marked**



### Applications

- **High-precision Geotechnical**
- **Oil and Gas/Riser Tilt Monitoring**
- **Railroad MOW Equipment**
- **Pavement Profiling Rigs**
- **Vehicle Wheel Alignment**
- **Robotics**

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



# L5OX-SCE Precision Fluid Damped Inclinometer

## 0-5V DC Output – CE Marked

### STATIC/DYNAMIC

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

<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

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

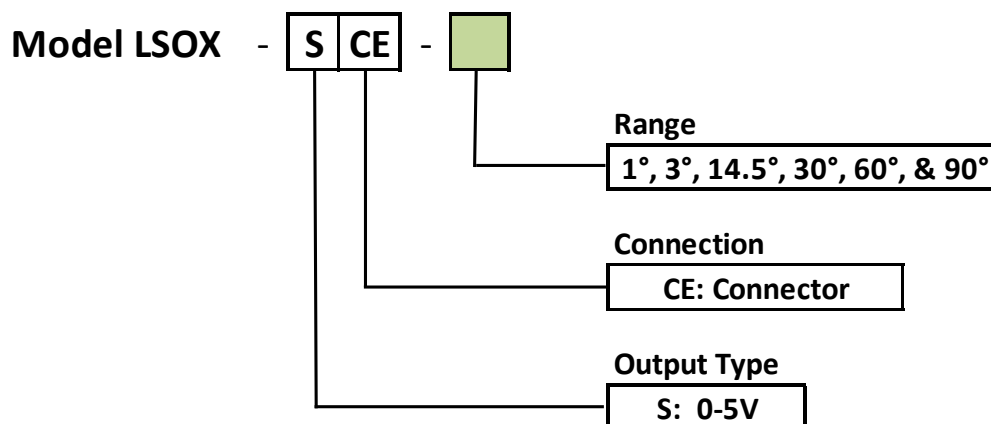
### ENVIRONMENTAL

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

### ENCLOSURE

Seal:	IP66
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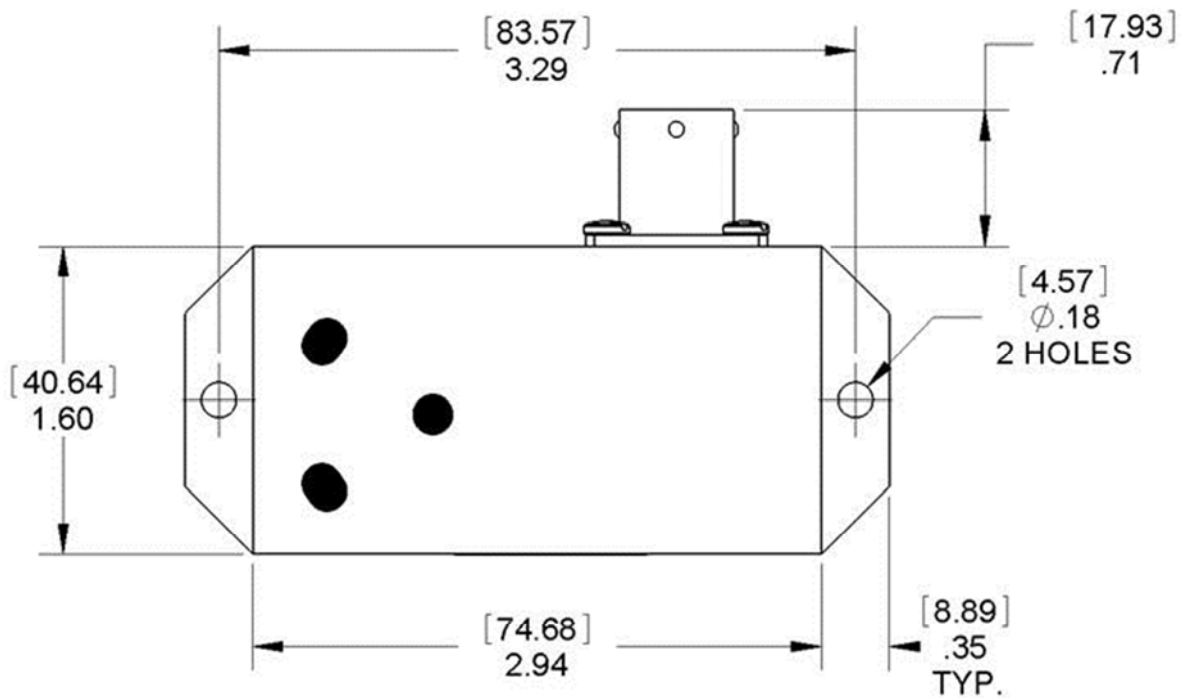
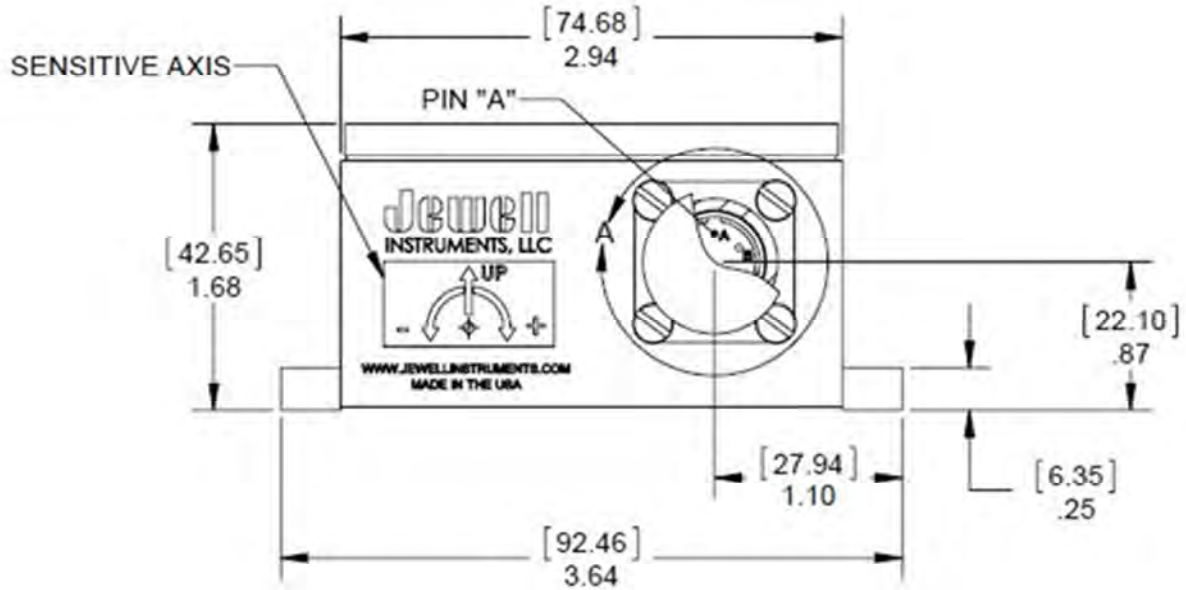
## Order Code



# LSOX-SCE Precision Fluid Damped Inclinometer

## 0-5V DC Output – CE Marked

### Outline Drawing: Connector Version





# LSOX-S Precision Fluid Damped Inclinometer

## 0-5V DC Output

The LSOX Series Inclinometer 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 +/-5V, 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 Geotech**
- **Oil and Gas, Riser Tilt Monitoring**
- **Railroad MOW Equipment**
- **Pavement Profiling Rigs**
- **Vehicle Wheel Alignment**
- **Robotics**



#### 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

# L5OX-S Precision Fluid Damped Inclinometer

## 0-5V DC Output

### STATIC/DYNAMIC

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

<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

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

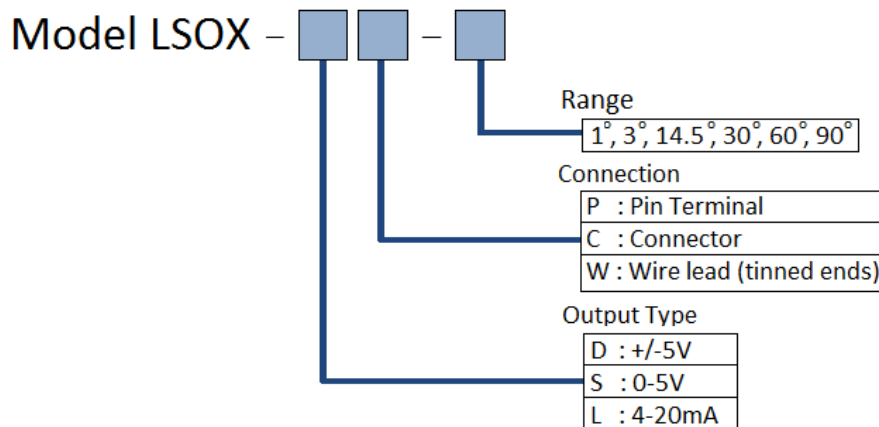
### ENVIRONMENTAL

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

### ENCLOSURE

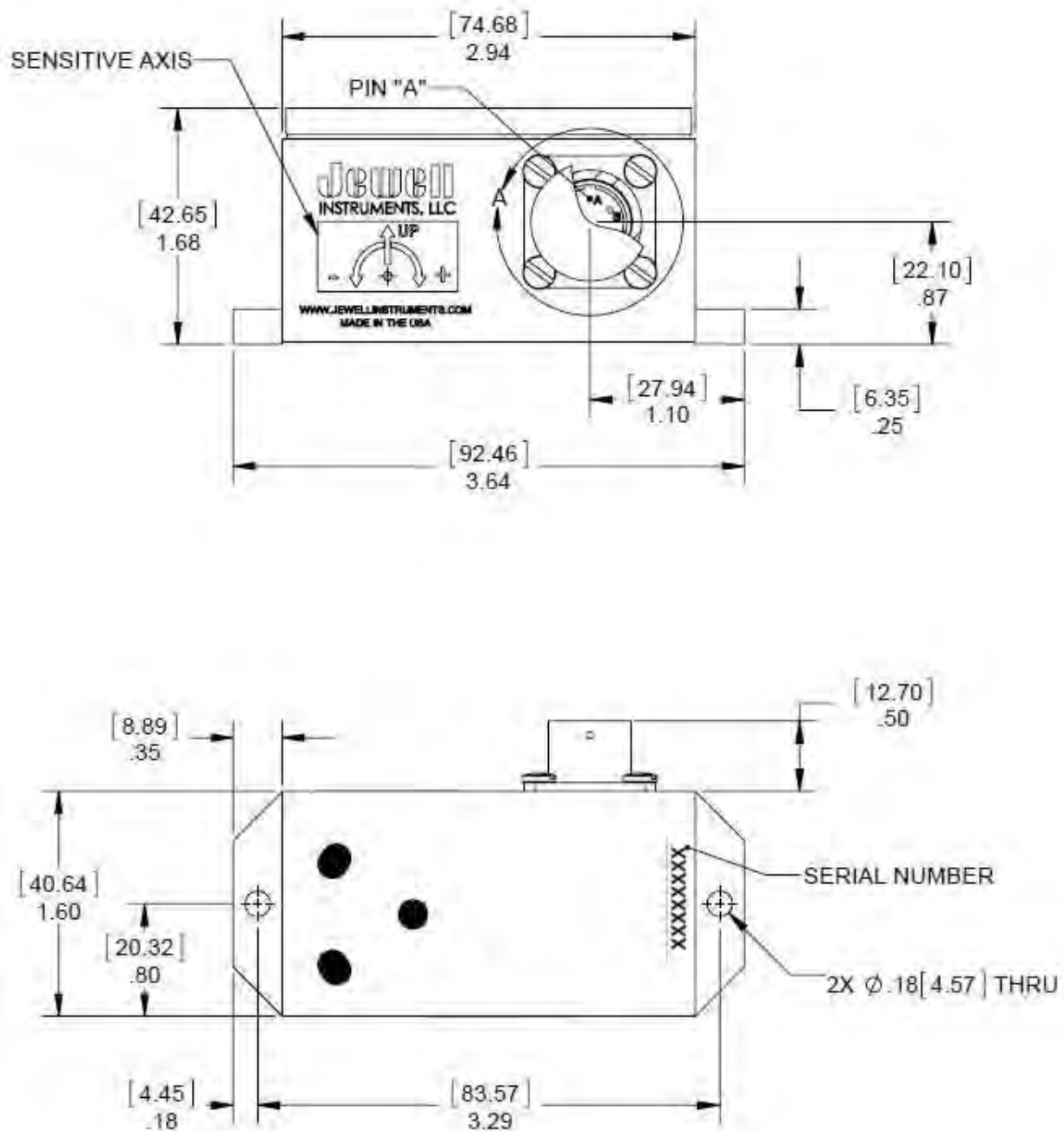
Seal:	IP66
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## Order Code



# LSOX-S Precision Fluid Damped Inclinometer 0-5V DC Output

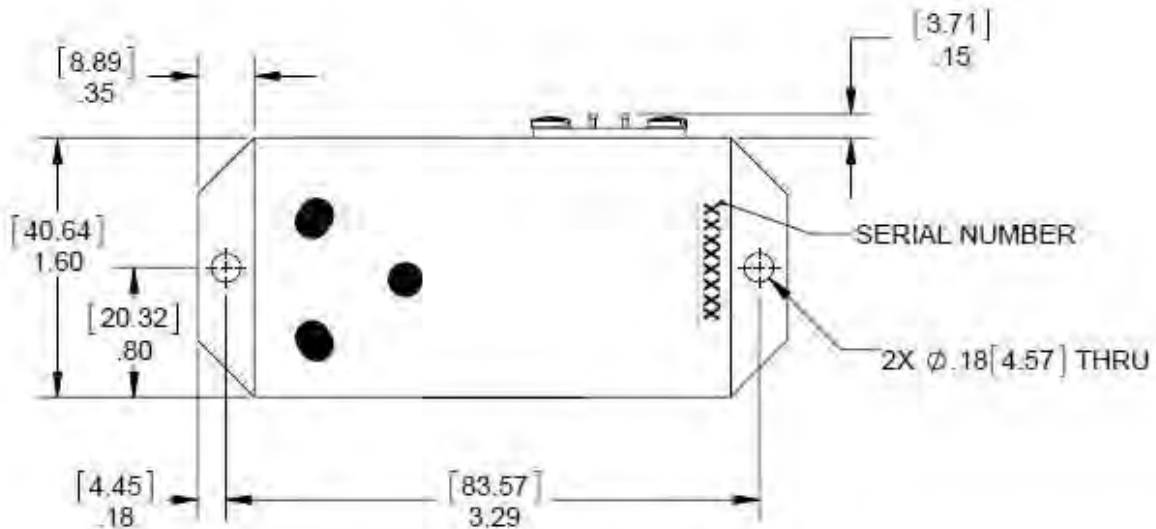
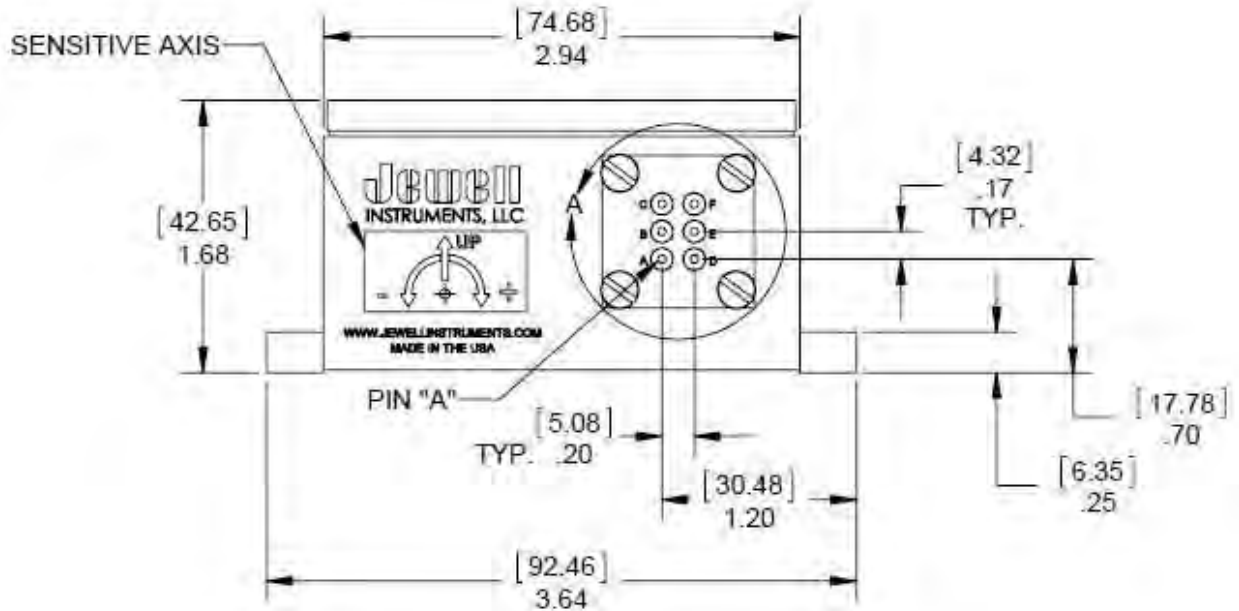
## Outline Drawing: Connector Version



# LSOX-S Precision Fluid Damped Inclinometer

## 0-5V DC Output

### Outline Drawing: Pin Terminal Version



# LSOX-S Precision Fluid Damped Inclinometer

## 0-5V DC Output

### Outline Drawing: Wired Version

