

## Dual Axis Analog and RS-232 Inclinometer

Part Number: 0729-1765-99

### Operating Specifications<sup>1</sup>

Analog Interface	Analog 0 to 5 VDC
Digital Interface	RS-232
Supply Voltage	7 to 16 V DC
Supply Current	20 mA @ 12 V DC
Operating range	±25°
Linear Range	±10°
Axes of Measurement	2
Linearity (% of ±10°)	≤1.0%
Repeatability	±0.005°
Resolution	≤0.0003°
Null Offset	±2°
Cross-Axis Sensitivity	≤0.03% per degree
Long Term Stability/Drift	≤0.005°
Null Temperature Offset	0.0002° per °C
Scale Temperature Offset	0.075% per °C
Operating Temperature	-40° to +85° C
Storage Temperature	-40° to +100° C
Time Constant (63.2% of final output)	≤1 second

### Physical Characteristics

Housing	None
Electrical Connections	8 pin, 0.1" spacing
Weight	20 grams
Length	45 mm (1.78")
Width	45 mm (1.78")
Height	17 mm (0.65")
Hole Center	39 mm (1.53")

### Electrical Connections

Pin 1	GND	RS-232 ground
Pin 2	GND	Analog output ground
Pin 3	Vcc	Supply voltage (+)
Pin 4	GND	Supply voltage (-)
Pin 5	RX	RS-232 receive
Pin 6	X	X axis analog out (0 V to 5 V DC)
Pin 7	Y	Y axis analog out (0 V to 5 V DC)
Pin 8	TX	RS-232 transmit

### Certifications and Ratings

- RoHS

### Benefits

- Very low power consumption
- Extremely long life
- Highly precise and accurate
- Minimal drift over lifetime compared to MEMS devices
- Excellent resolution and repeatability
- Superior performance in extreme temperatures and environments
- Excellent customer support
- Designed and manufactured in the United States of America

<sup>1</sup> See The Fredericks Company website for a list of term definitions.



### Description

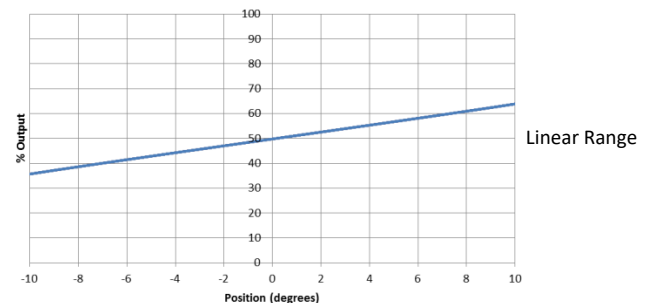
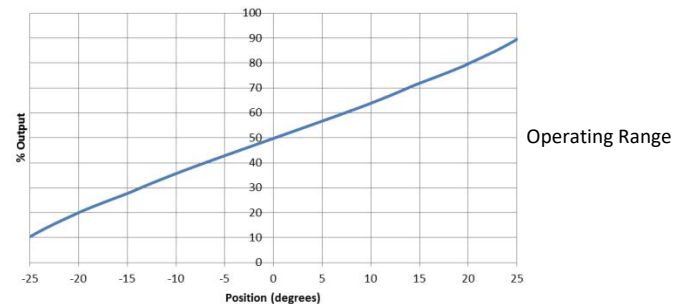
The 0729-1765-99 analog and RS-232 inclinometer utilizes Fredericks 0703-1602-99 TrueTilt™ mid-range single axis electrolytic tilt sensors and the 1-6200-012 16 bit analog and RS-232 signal conditioner. The use of high accuracy single axis sensors and 16 bit ADCs and DACs make this inclinometer ideal for high precision tilt measurement. This inclinometer has superior tolerances and unit to unit performance with an economic design, making it an excellent solution for a versatile range of applications in many sectors.

### Applications

- Aerial lift platform leveling monitor or control
- Railway monitoring
- Robotic controls
- Satellite dish alignment
- Solar panel position and elevation control
- Wheel alignment systems

View a full list of applications on The Fredericks Company website at [www.frederickscompany.com](http://www.frederickscompany.com).

### Operating and Linear Range Output Behavior



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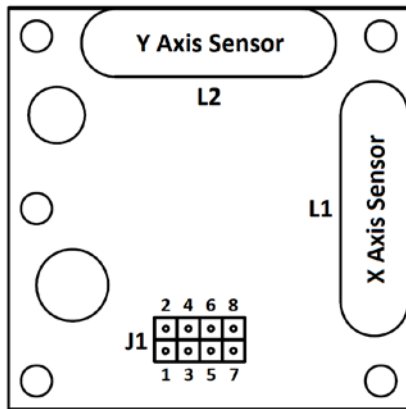
### RS-232 Settings

Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1

### RS-232 Commands

'X'	X axis output (0 to 65535)
'Y'	Y axis output (0 to 65535)
'T'	Temperature output (0 to 1023)
'S'	Output X, Y, temperature at set intervals
'R'	Stop timed interval output
'1' to '5'	Delay (in seconds) for set intervals

### Direction of Measurement



### Related Products

0729 series inclinometers - These inclinometers utilize Fredericks TrueTilt™ wide range electrolytic tilt sensors. They have a variety of outputs including analog, RS-232, and RS-485. These inclinometers have a low profile and a robust plastic housing with epoxy potting to provide excellent durability and environmental protection.

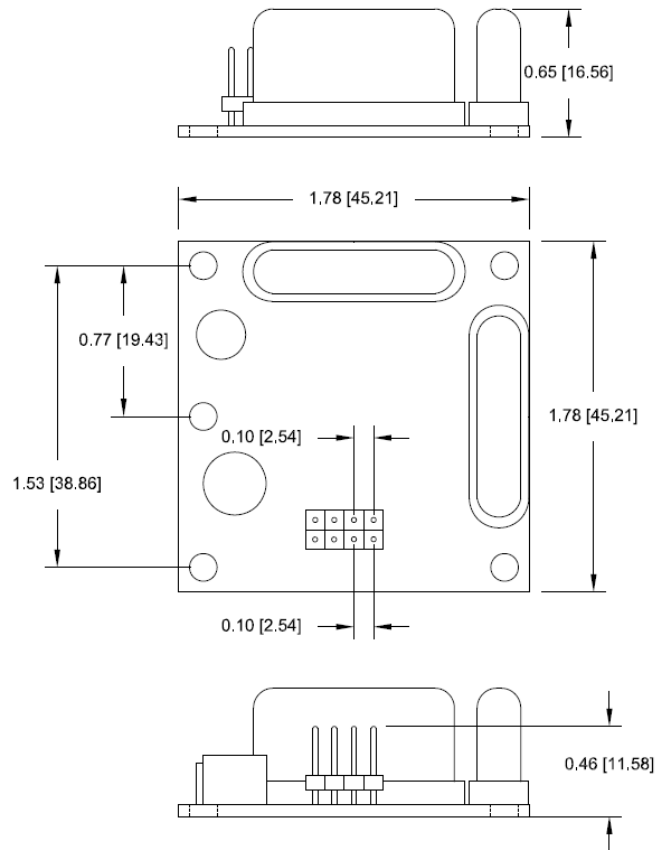
6200 series signal conditioners - These signal conditioners can be configured with any Fredericks electrolytic tilt sensor. They have a variety of outputs including analog, PWM, RS-232, RS-485, and SPI. The electrolytic tilt sensor and signal conditioner are provided separately or as an assembly with the sensor already installed at the customer's request.

View a full list of products on The Fredericks Company website at [www.frederickscompany.com](http://www.frederickscompany.com).

### Mounting Notes

The 0729-1765-99 and all inclinometers in this series must be mounted horizontally (parallel to the surface of the earth and perpendicular to the force of gravity). For best performance, isolate the unit from vibrations when mounting it.

### Dimensional Drawings



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