



ApexTwo™ ±60° Dual-Axis Analog Inclinometer

Part Number: F260-21A-018-00

Operating Specifications

Interface	Analog 0.5 to 4.5 V DC
Axes of Measurement	2
Operating Range	±60°
Accuracy (±60° @ -10 °C to 50 °C)	±0.5°
Accuracy (±60° @ -40 °C to -10 °C)	±1°
Accuracy (±60° @ 50 °C to 70 °C)	±1°
Repeatability (±60° @ -40 °C to 70 °C)	±0.1°
Resolution	≤0.01°
Analog Out Gain (Scale Factor)	0.0333 V DC per degree
Null (Zero, 0°) Output (Nominal)	2.500 V DC
Null (Zero, 0°) Offset Tolerance	±5° (±0.1666 V DC)
Response Time	≤250 ms
Supply Voltage	10 to 30 V DC
Supply Current (No Output Load)	10 mA @ 12 V DC
Analog Out Load	≥5 kΩ
Analog Out Source Current	≤2 mA
Operating Temperature	-40 °C to 70 °C
Storage Temperature	-40 °C to 85 °C
Startup Time	<1 second
Environmental Protection	IP67, UV stable
Electrical Protection	Reverse polarity Overvoltage Short circuit

Physical Characteristics

Enclosure	PPS (see dimensional drawings)
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Ordering Information

Part Number	Description
F260-21A-018-00	ApexTwo™ Inclinometer, ±60°, 2 Axis, Analog

Related Products

Part Number	Description
0729-1751-99	Inclinometer, ±60°, 2 Axis, SPI
0729-1752-99	Inclinometer, ±60°, 2 Axis, RS-232
0729-1753-99	Inclinometer, ±60°, 2 Axis, Analog and PWM
0729-1754-99	Inclinometer, ±60°, 2 Axis, RS-485
0729-1755-99	Inclinometer, ±60°, 2 Axis, Analog
0729-1759-99	Inclinometer, ±60°, 2 Axis, RS-232
0729-1760-99	Inclinometer, ±60°, 2 Axis, RS-485
0729-1765-99	Inclinometer, ±25°, 2 Axis, Analog/RS-232
0729-1767-99	Inclinometer, ±60°, 2 Axis, Analog
0729-1768-99	Inclinometer, ±60°, 2 Axis, RS-232, Molex
0729-1769-99	Inclinometer, ±60°, 2 Axis, RS-485, Molex
0729-1736-99	Tilt Switch, ±1° to ±35°, 2 Axis, Relay/RS-232
0729-1757-99	Tilt Switch, ±1° to ±45°, 1 Axis, Open Collector
0729-1758-99	Tilt Switch, ±1° to ±45°, 1 Axis, Open Collector
F203-00A-212-00	Inclinometer, ±3°, 2 Axis, Analog/RS-232
F225-00T-003-01	Inclinometer, ±25°, 2 Axis, UART/TTL

Description

The ApexTwo™ dual-axis analog inclinometer is part of the Apex series of products designed and manufactured by Fredericks at our facility in Huntingdon Valley, PA, USA, specifically for use on heavy industrial machinery. Its wide linear operating range and analog output, combined with a uniquely designed vertically or horizontally mountable enclosure, make it simple to integrate into new or existing equipment.

Our comprehensive tilt measurement product portfolio is engineered to outperform competing technology in the most demanding environments. They serve industries ranging from RV leveling to aerospace applications and everything in between. Visit www.frederickscompany.com for more information.

Key Features and Benefits

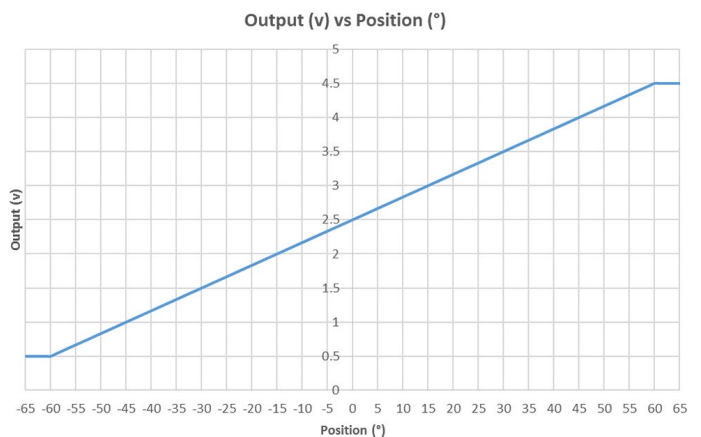
- ±0.1° repeatability, ≤0.01° resolution, very high accuracy
- -40 °C to 70 °C operating temperature for industrial applications
- Live text and video chat technical support

Applications

- Construction machinery and equipment
- Agricultural vehicles
- Aerial work platforms (AWPs), elevating work platforms (EWPs), and mobile elevating work platforms (MEWPS)
- Scissor lifts (height sensor), telescopic and articulating boom lifts (boom angle sensor)

View the full list at www.frederickscompany.com/markets.

Operating and Linear Range Output Behavior



Analog Output Conversion

V_{Out} = 0.5 V DC to 4.5 V DC output

V_{Offset} = V_{Out} at 0° tilt, 2.500 V DC typical ±0.1666 V DC offset tolerance

$$\text{Tilt Angle (°)} = \frac{V_{Out} - V_{Offset}}{0.0333}$$

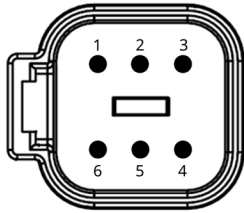
Click to Buy Online from Fredericks Now!



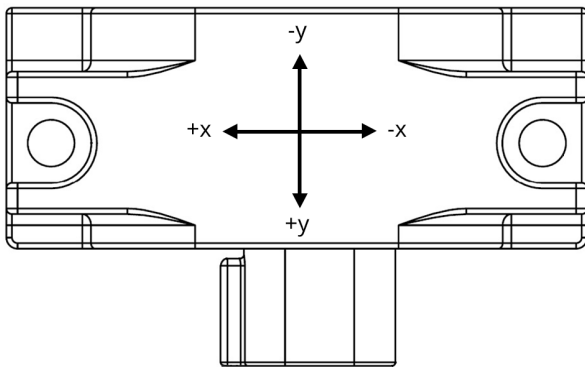
ApexTwo™ ±60° Dual-Axis Analog Inclinometer
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Electrical Connections

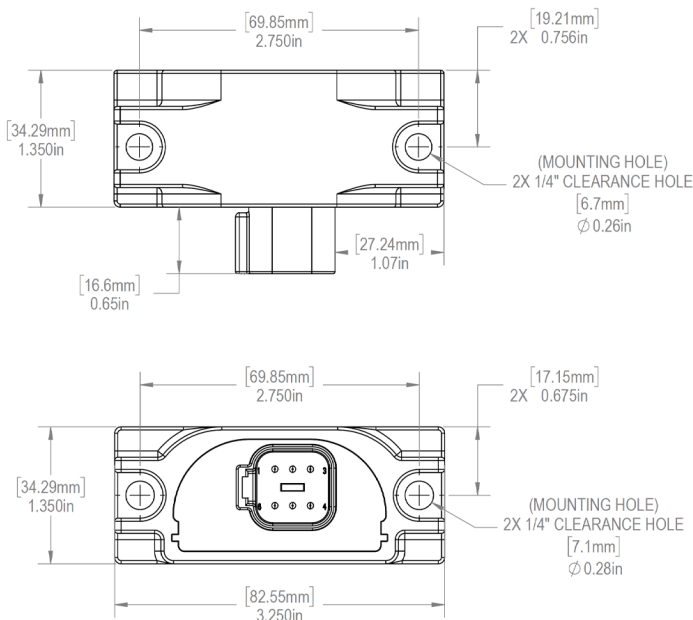
Pin 1	Supply (+), 10 to 30 V DC
Pin 2	Analog Out X Axis (+)
Pin 3	Analog Out Y Axis (+)
Pin 4	Ground
Pin 5	Ground
Pin 6	Shield



Direction of Measurement



Dimensional Drawings



Mounting Notes

The ApexTwo™ inclinometer includes two sets of orthogonal (perpendicular) mounting holes, allowing the end user to mount the unit vertically or horizontally.

Certifications and Ratings

- Pending CE certification to EN 55011, EN 61000
- RoHS, REACH compliant
- IP67 environmentally sealed

Additional Documentation

- [Online Tool](#) [Analog Output Conversion Tool](#)
- [Video](#) [What Is an Electrolytic Tilt Sensor?](#)

Company Information

Specialty Manufacturing Services That Promise Precision - Since 1935, The Fredericks Company has been a global provider and U.S. designer and manufacturer of the highest performance tilt and vacuum measurement products on the market, with manufacturing processes that ensure the reliability of our products.

Tilt Measurement Products and Sensors That Set Standards - Fredericks' comprehensive tilt measurement product portfolio offers [electrolytic tilt sensors](#), [inclinometers](#), and [tilt switches](#). Engineered to outperform competing technology, our tilt sensors are accurate and repeatable with excellent resolution. Our tilt measurement products have no planned obsolescence and serve industries ranging from [construction](#) and [RV leveling](#) to aerospace applications and everything in between.

A Partnership That Prioritizes Uptime, Lead Time, and Service - Fredericks guarantees customer satisfaction and our "not too big, not too small" operation is what enables us to offer a true partnership experience. Our dedicated representatives and engineers offer exceptionally responsive service and the fastest lead times in the industry, knowing that uptime is the key to your success. With anytime access to our leadership team and solutions that enhance your products, you will feel the Fredericks difference.

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Disclaimer: Specifications are subject to change without notice. The Fredericks Company assumes no responsibility for inaccuracies in product specifications or any liability arising from product use.

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