



Dual Axis Analog Inclinometer

Part Number: 0729-1755-99

Operating Specifications¹

Output	Analog 0 V DC to 5 V DC, PWM
Supply Voltage	7 V DC to 16 V DC
Supply Current	20 mA @ 7 V DC
Operating Range	±60°
Linear Range	±25°
Axes of Measurement	2
Linearity (% of ±60°)	≤7.0%
Linearity (% of ±25°)	≤2.0%
Symmetry (±60°)	≤3°
Symmetry (±25°)	≤1°
Repeatability	±0.1°
Resolution	≤0.003°
Null Offset	≤5°
Cross Axis (Roll) Sensitivity	≤0.025° per degree
Long Term Stability/Drift	≤0.1°
Null Temperature Coefficient²	≤0.006° per °C
Scale Temperature Coefficient	0.1% per °C
Operating Temperature	-40 °C to 85 °C
Storage Temperature	-40 °C to 125 °C
Temperature Sensor Range	-40 °C to 125 °C
Frequency Response	≤100 ms
Settling Time	≤500 ms

Dimensions

Housing	ABS Plastic ³
Electrical Connections	12" cable with 24 gauge wire
Weight	47 grams
Length	56.3 mm (2.222")
Width	40.0 mm (1.575")
Height	20.0 mm (0.335")
Hole Center	47.8 mm (1.882")

Analog Output Description

V_{cc} = 7 V DC to 16 V DC 0 V DC to 5 V DC, 0° tilt = 2.50 V DC

PWM Output Description

Period	122 Hz
Duty Cycle	1% to 99%, 0° tilt = 50% duty cycle
Resolution	16 bits

Benefits

- Very low power consumption
- Simple integration
- Excellent resolution and repeatability of measurements
- Superior performance in extreme temperatures and environments
- Excellent customer support
- Manufactured in the United States of America

Description

The 0729-1755-99 Dual Axis Analog/PWM Inclinometer utilizes a 0717-4318-99 Fredericks TrueTilt™ wide range electrolytic tilt sensor and analog signal conditioner. Its robust plastic housing and epoxy potting provide excellent durability and environmental protection. This inclinometer has superior tolerances and unit to unit performance. Its low profile housing and economic design make it an ideal solution for a versatile range of applications in all sectors.

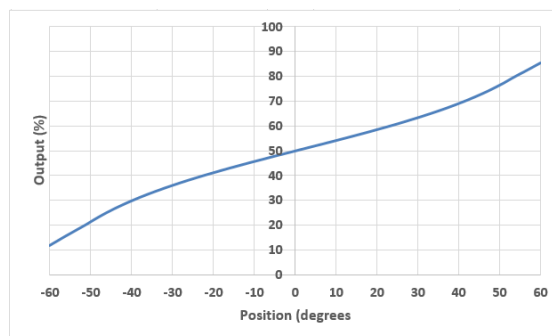
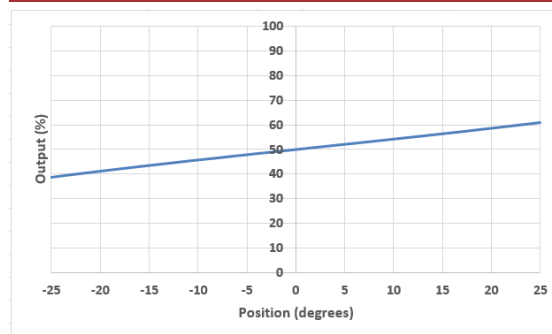
The 0729-1755-99 inclinometer can utilize any sensor from the Fredericks 0717 series wide range sensors upon customer request. A detailed list of compatible sensors can be found on page 2 in the Related Products section.

Applications

- Aerial lift platform leveling monitor or control
- Crane boom angle measurement
- 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.gd-antai.com.

Linear and Operating Range Behavior



Certifications and Ratings

- RoHS Compliant
- IP66

³ Metal housing available upon request.

¹ Visit www.gd-antai.com for a list of definitions.

² See application note AN1001 for a description of temperature compensation.



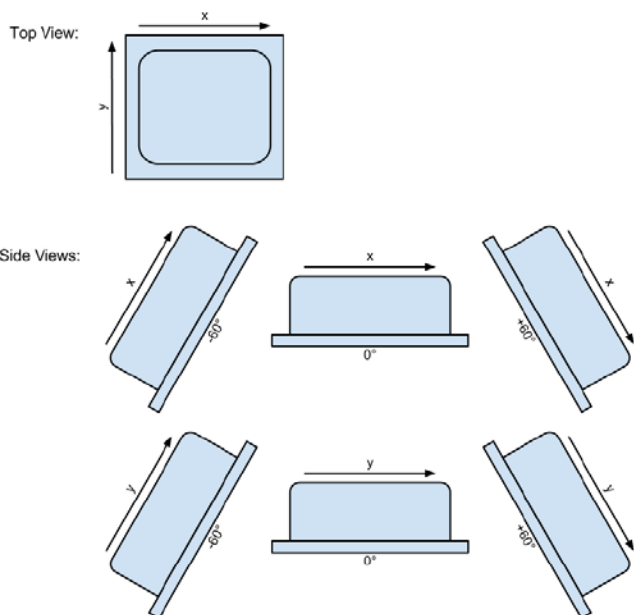
Dual Axis Analog Inclinometer

Part Number: 0729-1755-99

Electrical Connections

Red	Supply (7 V DC to 16 V DC)
Black	Supply (Ground)
Yellow⁴	Temperature analog output (0 V DC to 5 V DC)
Green	X axis analog output (0 V DC to 5 V DC)
Blue	Y axis analog output (0 V DC to 5 V DC)
N/C⁵	X axis PWM output
N/C⁵	Y axis PWM output

Direction of Measurement



Mounting Notes

The 0729-1755-99 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.

Related Products

Compatible Fredericks TrueTilt™ Sensors

0717-4318-99 ±60° range, ±0.1° repeatability

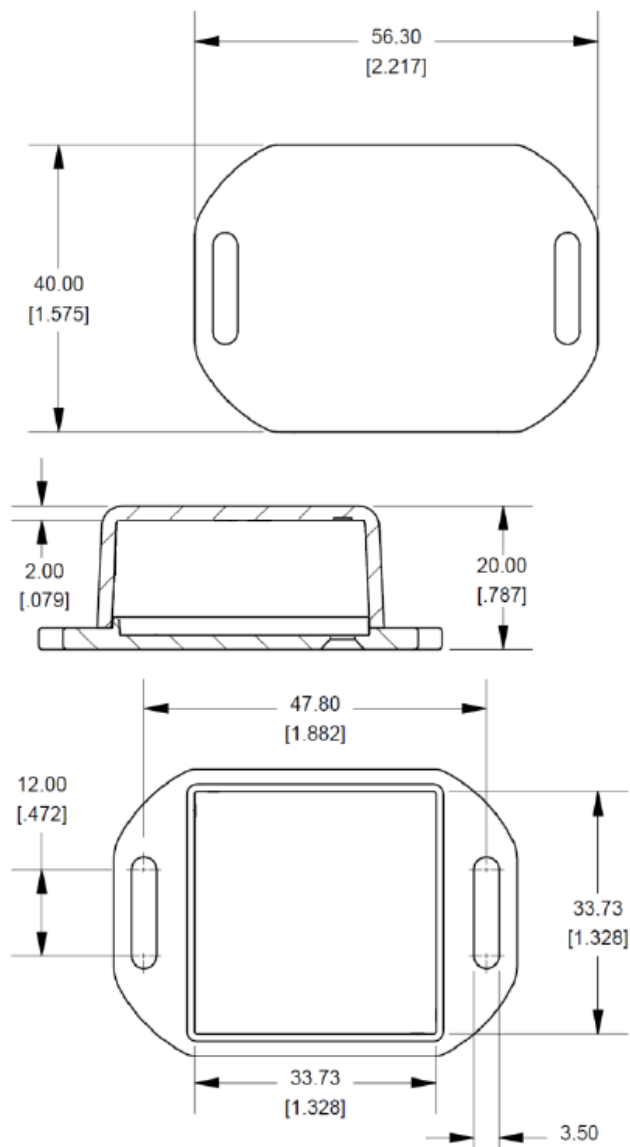
0717-4319-99 ±50° range, ±0.1° repeatability

0717-4313-99 ±50° range, ±0.05° repeatability

0717-4315-99 ±60° range, ±0.05° repeatability

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.

Dimensional Drawings



⁴ Temperature (°C) = (temperature output voltage - 0.5) / 0.010

⁵ Optional outputs provided upon request.