



Dual Axis RS-485 Inclinometer

Part Number: 0729-1760-99

Operating Specifications¹

Output	RS-485
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 Coefficient ²	≤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")

RS-485 Commands (Assume Address 99)⁴

*9911#	X axis output (0 to 65535)
*9921#	Y axis output (0 to 65535)
*9941#	Temperature output (0 to 1023)
*9980#	Read product information
*9981Axx#	Change address to xx (01 to 99)
*9982D#	Read user information
*9984Z#	Set current position as zero
*9984R#	Clear saved zero position
*9988Rx#	Change baud rate to x (1 to 6)
*9989B#	Reset to factory default settings

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

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

² See application note [AN1001](#) for a description of temperature compensation.

Description

The **0729-1760-99** Dual Axis RS-485 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.

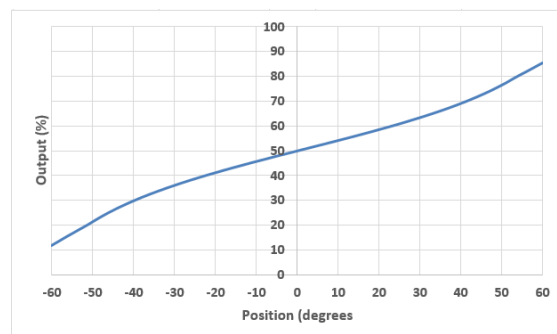
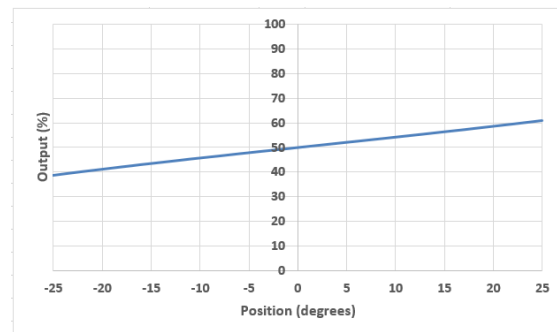
The **0729-1760-99** inclinometer can utilize any sensor from the Fredericks 0717 series wide range sensors upon customer request. A detailed list of compatible sensors can be found on page 2 in the Related Products section.

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.

⁴ See the [1-6200-008](#) manual for additional commands and details



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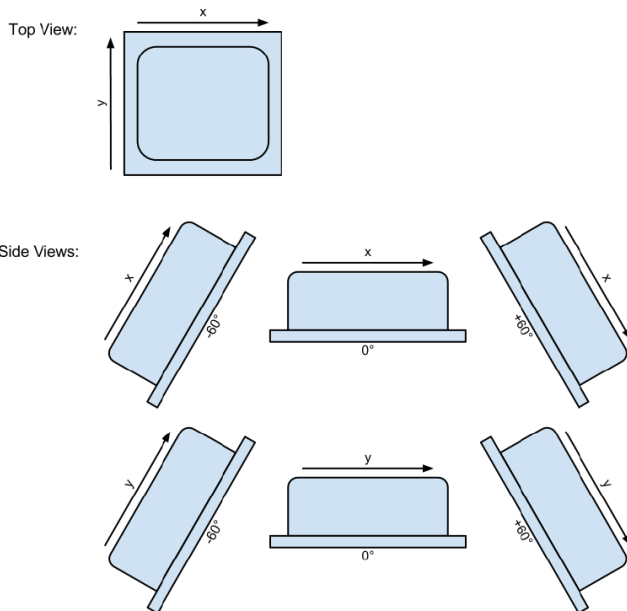
Electrical Connections

Red	Supply (7 V DC to 16 V DC)
Black	Supply (Ground)
Yellow	Ground
Green	RS-485 B (+)
Blue	RS-485 A (-)

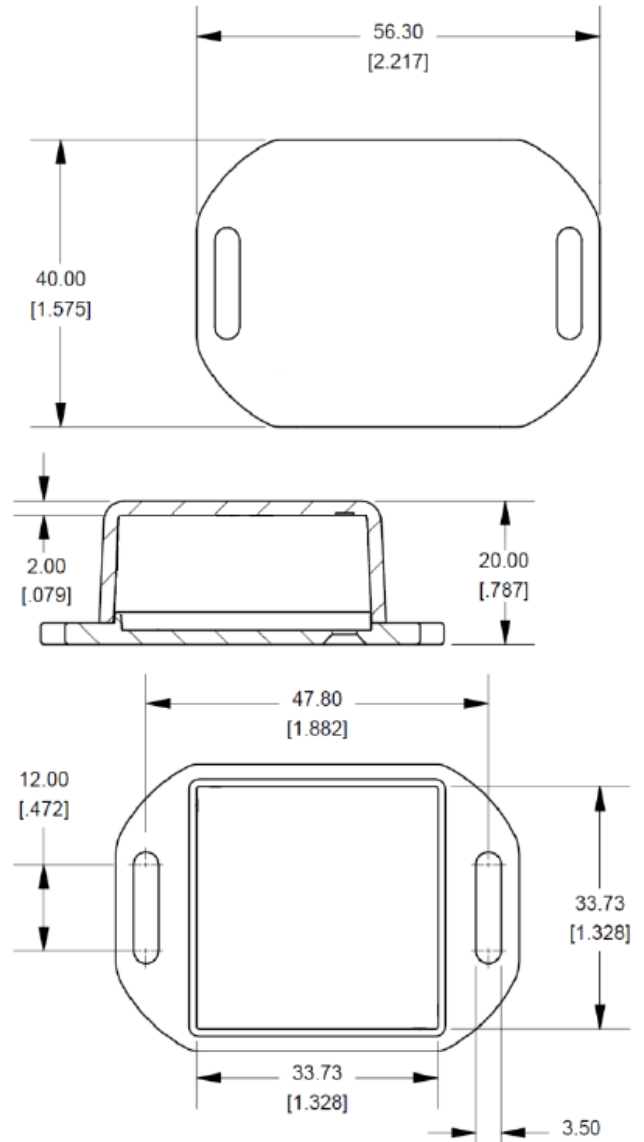
RS-485 Settings

Baud Rate (Default 9600)	1200 to 38400
Data Bits	8
Parity	None
Stop Bits	1
Address (Default 99)	01 to 99
Maximum Signal Conditioners on Bus	32

Direction of Measurement



Dimensional Drawings



Mounting Notes

The [0729-1760-99](#) 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.