±10˚ Dual Axis RS-485 Inclinometer
Part Number: 0729-1760-04

Operating Specifications[1]
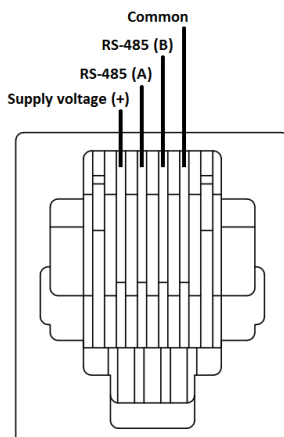
Communications	RS-485 half duplex
Supply Voltage	5 V DC regulated
Supply Current	9 mA @ 5 V DC
Operating range	±10°
Linear Range	±10°
Axes of Measurement	2
Accuracy at 23 ˚C	±0.1°
Repeatability	±0.1°
Resolution	0.01°
Null Offset	≤5°
Long Term Stability/Drift	≤0.1°
Null Temperature Offset	≤0.006° per °C
Range Temperature Offset	0.1% per °C
Operating Temperature	-40° to +70° C
Storage Temperature	-40° to +70° C
Time Constant	≤100 ms

Physical Characteristics

Housing	ABS Plastic[2]
Electrical Connections	Modular Jack 6P4C (RJ14)
Weight	30 grams
Length	52.5 mm (2.065")
Width	39.5 mm (1.555")
Height	25.4 mm (1.00")
Hole Center	N/A

Electrical Connections

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Pin 1	Supply voltage (+)
Pin 2	RS-485 (A)
Pin 3	RS-485 (B)
Pin 4	Common

Description

The 0729-1760-04 RS-485 inclinometer utilizes a Fredericks TrueTilt™ wide range electrolytic tilt sensor and RS-485 signal conditioner. 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.

Applications

- Aerial lift platform leveling monitor or control
- Robotic controls
- Satellite dish alignment
- Semiconductor manufacturing
- Wheel alignment systems

View a full list of applications on The Fredericks Company website www.chinaankai.com.

Operating and Linear Range Output Behavior
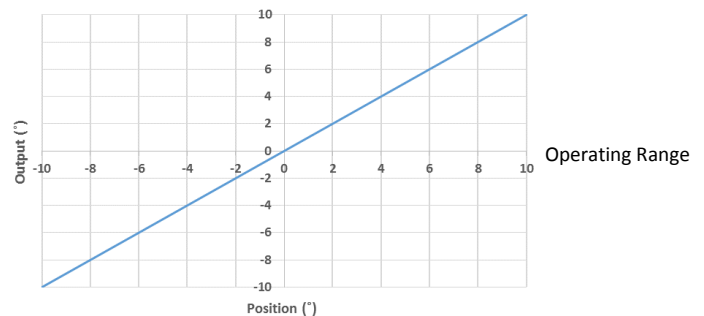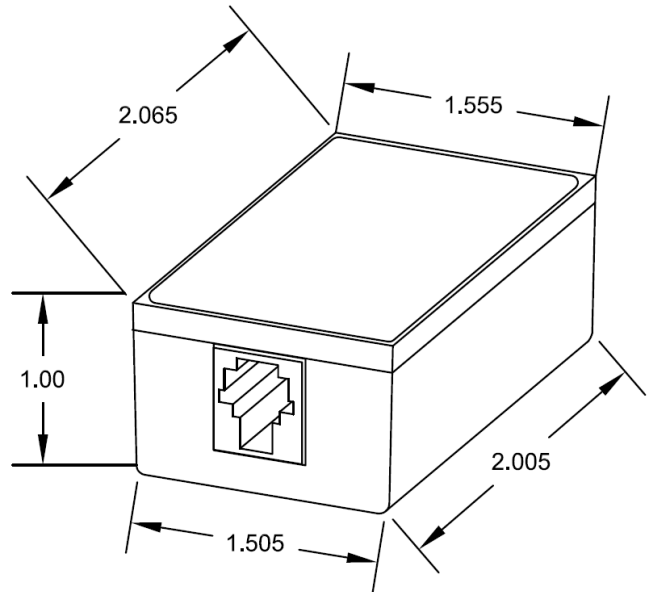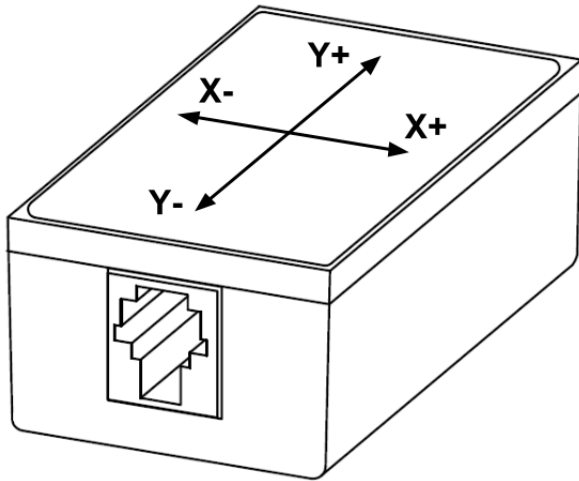

Benefits

- Very low power consumption
- Extremely long life
- Minimal drift over lifetime compared to MEMS devices
- Excellent accuracy, resolution, and repeatability
- Small size
- Easy to use connector
- Excellent customer support
- Manufactured in the United States of America

Certifications and Ratings

- IP40

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[1] See www.gd-antai.com for a list of term definitions.

[2] Metal housing available upon request.

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Direction of Measurement

Mounting Notes

The 0729-1760-04 and all inclinometers in this series must be mounted horizontally (parallel to the surface of the earth and perpendicular to the force of gravity) and will not function properly if inverted. For best performance, isolate the unit from vibrations when mounting it.

RS-485 Commands (assume address 01)

:01RA#	X and Y axis angle data
:0111#	X axis raw data (unsigned 16 bits)
:0121#	Y axis raw data (unsigned 16 bits)
:0141#	Temperature raw data (unsigned 10 bits)
:0180#	Product information
:0181Axx#	Change address to xx
:0182Sxxxxxxxxxxxx#	Enter user information
:0182D#	Read user information
:0184Z#	Save current position as zero
:0184R#	Reset zero (clear offset value)
:0188Rx#	Change baud rate (baud rate code x)
:0189B#	Reset to factory defaults

Baud Rate Codes

1	1200
2	2400
3	4800
4	9600 (standard)
5	19200
6	38400

:01RA response is :01RA+/-XXXX+/-YYYY# where XXXX is the current x axis tilt position in degrees (multiplied by 100), and YYYY is the current y axis tilt position in degrees (multiplied by 100).

Temperature in ˚C = (((output/1023)*supply voltage)-0.5)/0.010

Ensure all units connected to the same bus have different addresses.

Dimensional Drawings

Related Products

0729 series inclinometers - These inclinometers utilize Fredericks TrueTilt™ wide range electrolytic tilt sensors. They have a variety of outputs including analog, PWM, and RS-232. These inclinometers have a low profile and a robust plastic housing and can include 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.chinaankai.com.