The Fredericks Company

TrueTilt™ Dual Axis Wide Range Electrolytic Tilt Sensor
Part Number: 0717-4318-99

Operating Specifications[1]

Operating range	±60°
Linear Range	±25°
Axes of Measurement	2
Linearity (±60°)	≤6%
Linearity (±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]	≤20 arc seconds per °C
Scale Temperature Coefficient	0.1% per °C
Operating Temperature	-40° to +85° C
Storage Temperature	-50° to +100° C
Null Impedance	40 kΩ
Time Constant (63.2% of final output)	≤100 ms
Materials	Magnetic metals
Maximum Current at Null	0.2 mA (continuous)

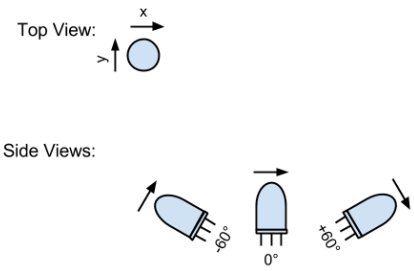
Physical Characteristics

Height (including leads)	18.8 mm (0.740”)
Diameter (cap)	8.26 mm (0.325”)
Diameter (flange)	14.2 mm (0.360”)
Lead Spacing (center to center)	2.54 mm (0.100”)
Lead Diameter	0.48 mm (0.019”)
Lead Length	5.08 mm (0.200”)
Weight	1.5 g

Benefits

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

Direction of Measurement



Description

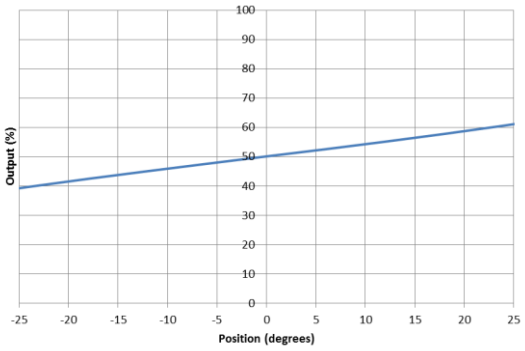
The 0717-4318-99 TrueTILT™ dual axis, wide range electrolytic tilt sensor has a robust, all metal construction providing durability while maintaining superior tolerances and sensor to sensor performance. It is an economical tilt sensor ideal for a versatile range of applications in many markets.

Applications

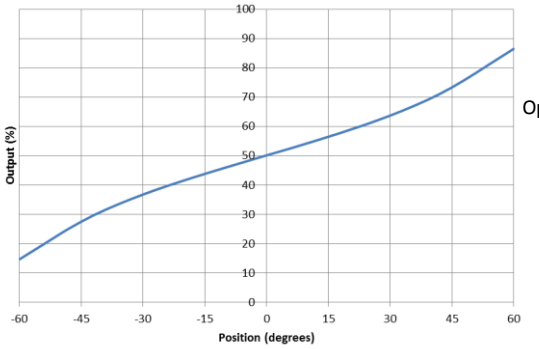
- Construction machinery and equipment
- Railway monitoring
- Laser leveling systems
- Mobile satellite positioning
- Mining machinery and equipment
- Agricultural machinery and equipment

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

Linear and Operating Range Behavior



Linear Range



Operating Range

Certifications and Ratings

- RoHS Compliant

[1] See application note AN1002 for operating specification definitions.
[2] See application note AN1001 for a description of temperature compensation.

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Notes

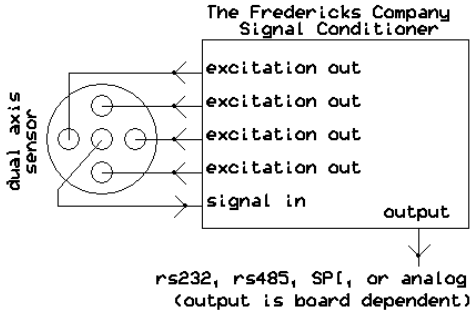
When using an excitation circuit not designed by The Fredericks Company, ensure that no direct current passes through the sensor. Direct current will lead to sensor damage, output drift, and general instability. For a description of hardware and software design for this sensor, see application note AN1000.

The 0717-4318-99 and all sensors in the TrueTilt™ series must be mounted horizontally (parallel to the surface of the earth and perpendicular to the force of gravity). For best performance, isolate the sensor from vibrations when mounting it.

Further information on sensor basics is provided on The Fredericks Company website at www.frederickscom.com.

Test Circuit

All data was acquired with a Fredericks Company Dual Axis 6200 Series Signal Conditioner in single axis mode at 20° C. A general schematic of our signal conditioners in single axis mode is provided below. Further information on sensor excitation and excitation circuitry is provided on The Fredericks Company website.



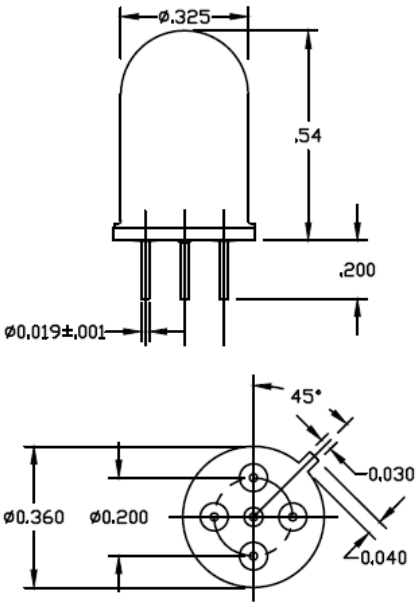
Related Products

6200 series signal conditioners - These signal conditioners can be configured with the 0717-4318-99 or any other Fredericks Company tilt sensor. They have a variety of outputs, including RS-232, RS485, SPI, and analog. The sensor and board are provided separately or as an assembly with the sensor already installed at the customer's request.

TrueTILT™ series sensors - The 0717-4318-99 is part of this series which includes narrow, mid, and wide range metal sensors which have different operating specifications to fit the customer's needs.

See The Fredericks Company website at www.frederickscom.com for a full list of products.

Dimensional Drawings



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