



TrueTilt™ Dual Axis Wide Range Electrolytic Tilt Sensor

Part Number: 0717-4313-99

Operating Specifications¹

Operating range	±50°
Linear Range	±20°
Axes of Measurement	2
Linearity (±50°)	≤5%
Linearity (±20°)	≤1%
Repeatability	≤0.05°
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	-55 °C to 125 °C
Null Impedance	50 kΩ
Time Constant (63.2% of final output)	≤100 ms
Materials	Magnetic metals
Maximum Current at Null	0.2 mA (continuous)

Physical Characteristics

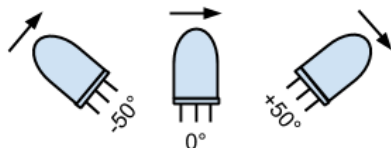
Height (including leads)	0.74" [18.8 mm]
Diameter (cap)	0.325" [8.3 mm]
Diameter (flange)	0.360" [9.1 mm]
Lead Spacing (center to center)	0.200" [5.1 mm]
Lead Diameter	0.020" [0.5 mm]
Lead Length	0.200" [5.1 mm]
Weight	1.5 g

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

Functional Diagram

Side Views:



Description

The 0717-4313-99 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.

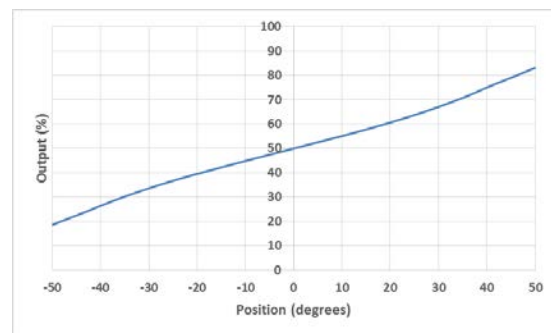
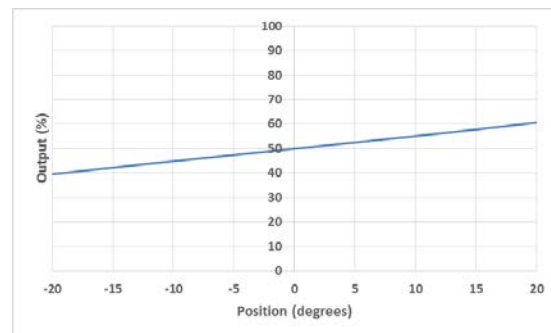
This is a passive sensor that requires signal conditioning electronics to provide an output. For a list of compatible signal conditioners, see the Related Products section on page 2.

Applications

- Recreational vehicle leveling (also known as an RV, caravan, camper van, or motorhome)
- Construction machinery and equipment
- Railway monitoring
- Mobile satellite positioning
- Agricultural machinery and equipment

View a full list of applications for our sensors on our website at www.frederickscompany.com.

Linear and Operating Range Behavior



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

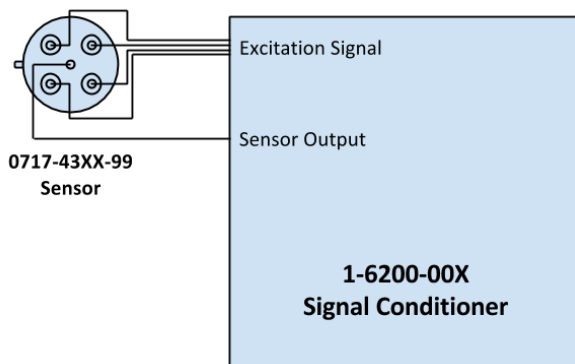
When using an excitation circuit not designed by The Fredericks Company, ensure that no direct current passes through the sensor. Direct current will lead to sensor damage, output drift, and general instability. For a description of hardware and software design for this sensor, see application note AN1000.

The 0717-4313-99 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.

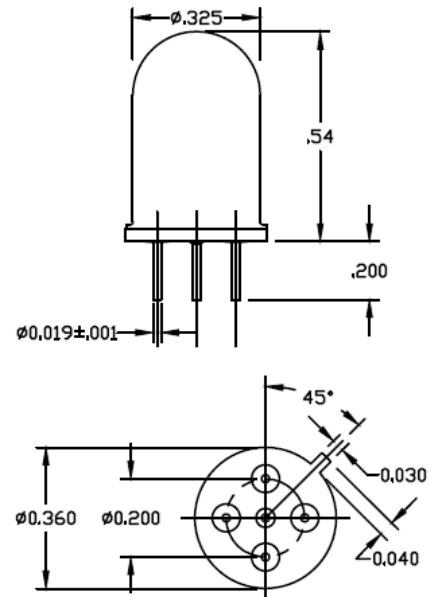
Further information on electrolytic tilt sensor basics is provided on our website at www.frederickscompany.com.

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 is provided below. Further information on sensor excitation and excitation circuitry is provided on The Fredericks Company website and in the application note AN1000.



Dimensional Drawings



Contact Us

The Fredericks Company
 2400 Philmont Avenue
 Huntingdon Valley, PA 19006
 tel: +1 215 947 2500
 fax: +1 215 947 7464
 email: sales@frederickscompany.com
 web: www.frederickscompany.com

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Related Products

Signal Conditioners (PCB, no sensor)

1-6200-005	SPI interface
1-6200-006	RS-232 interface
1-6200-007	Analog/PWM interface
1-6200-008	RS-485 interface

PCB Inclometers (sensor mounted on PCB, no enclosure)

0729-1751-99	SPI interface
0729-1752-99	RS-232 interface
0729-1753-99	Analog/PWM interface
0729-1754-99	RS-485 interface

Environmentally Sealed Inclometers (IP66 or higher rating)

0729-1755-99	Analog interface
0729-1759-99	RS-232 interface
0729-1760-99	RS-485 interface
0729-1761-99	CAN Bus SAE J1939 interface

Visit our website at www.frederickscompany.com for a full list of products.