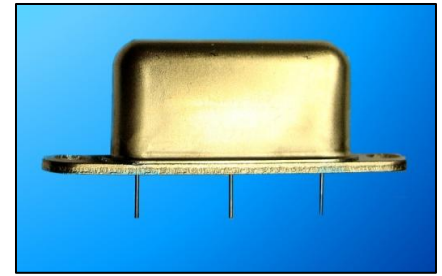


0703-1601-99

MidRange Single Axis Linear Output Electrolytic Tilt Sensor



Patent 6,688,013

TrueTilt™

Description

The 0703-1601-99 TrueTilt™ sensor is designed for applications requiring highly repeatable mid-range angle measurement and a linear output. Long-term stability over its angle and temperature range is a distinctive characteristic of this sensor. The 0703-1601-99 uses patented technology and construction to provide an accurate and robust angle sensor at an attractive price with excellent sensor-to-sensor repeatability and reliability. Unparalleled performance and features compared to any other commercially available product.

- Angle Range $\pm 25^\circ$
- Linear Range $\pm 10^\circ$
- Resolution 1 arc second
- Repeatability ≤ 18 -arc seconds

Applications Include

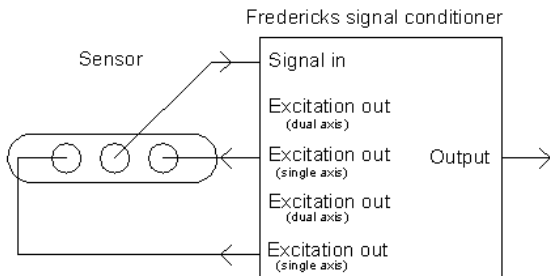
- » Construction Laser Instruments and Transits
- » Aircraft Avionics
- » Geophysical and Structural Monitoring
- » Machine Tool/ Platform Leveling
- » Medical Positioning and Monitoring

Physical Dimensions

Overall length...1.600" (40.6mm)	Height....,0. 510" (14 mm)
Width.....0.300" (7.6mm)	Hole Ctr...1.340" (34 mm)
Hole Dia..... .0.145" (3.7mm)	Lead Spac...0.400 (10.1 mm)

Sensor Test Circuitry

Tests were conducted by exciting the outer electrodes of the sensor in a single axis mode using the Fredericks Universal signal conditioner. Output curve and linearity specifications are shown above. Information on electrolytic tilt sensor signal conditioning is available on the Fredericks web site at www.frederickscom.com.



Caution!-Ensure that all test and operating circuits are entirely free of direct current. Direct current will cause level damage and/or instability.

Note!-The housing (center pin) is the active output signal. The unit must be electrically isolated.

Operating Specifications

Operating Range (max.)(Fig. 1)	$\pm 25^\circ$
Linear Range (Fig. 2)	$\pm 10^\circ$
Max deviation from Linearity	$\leq 0,01^\circ$ from 0° to 3° 1% (FROM 3° TO 10°)
Null Current(max.)	0.2 mA (continuous)
Null Impedance (nom)	50k Ohms (25°C) (measured left to right electrode)
Null Repeatability	≤ 18 arc seconds
Resolution	< 1 arc second
Symmetry	$\leq 20\%$
Mounting Offset ¹	$\leq 1^\circ$
Cross Axis error at null	0.03% / Degree
Operating Temperature	-40°C to $+85^\circ\text{C}$
Storage Temperature	-50°C to $+100^\circ\text{C}$
Time Constant (@66%) ¹	≤ 1 second
Materials	magnetic
Temperature coefficient (null)	≤ 6 arc seconds / $^\circ\text{C}$
Temperature coefficient (scale)	0.075% / $^\circ\text{C}$
Stability 24 Hrs	$\pm 0.01^\circ$

¹ Difference between electrical and mechanical null

