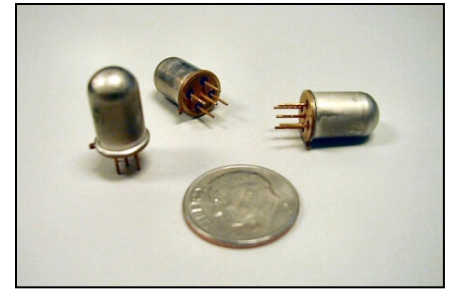




**0717-4316-99**

# Dual Axis Wide Angle Electrolytic Tilt Sensor



Patent 6,249,984

## Description

The **0717-4316-99** TrueTilt™ Sensor™ represents a new advancement in electrolytic tilt sensor technology. Robust all metal construction provides durability as well as superior dimensional tolerances, which equates to excellent sensor-to-sensor electrical performance. This sensor is ideal for economical, commercial market applications requiring high production quantities and first-rate accuracy.

- Angle Range  $\pm 40^\circ$
- Resolution .2 arc minutes
- Repeatability  $\pm 0.05^\circ$

## Applications Include

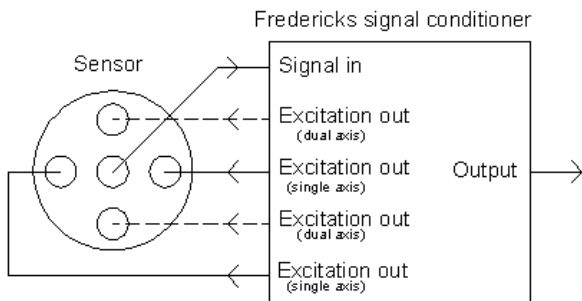
- » Wheel Alignment
- » Navigation and GPS Compensation
- » Automotive Roll Over
- » Game Controllers and Joysticks
- » Medical and Physical Feedback Instruments

## Physical Dimensions

Height	0.530" (13.5mm)
Diameter – Cap	0.325" (8.25mm)
Diameter Flange	0.360" (9.142mm)
Lead Length	0.20" (5.0mm)
Lead Diameter	0.020" (0.5mm)
Lead Spacing (center to center)	0.1" (2.5mm)

## 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](http://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.

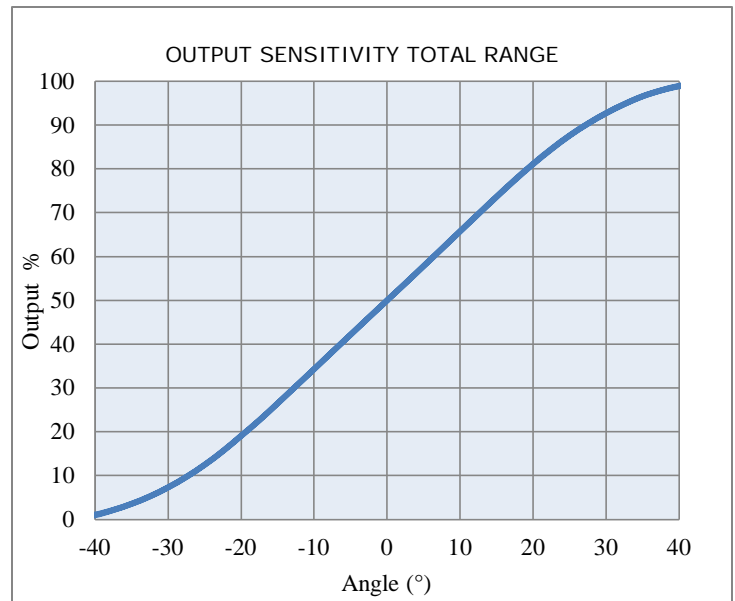
**Note!** – The housing (center pin) is the active output signal. The unit must be electrically isolated.

## Operating Specifications

### TrueTilt™

Operating Range (max.)	$\pm 40^\circ$
Linear Range	$\pm 15^\circ$
Null Voltage	$\leq 0.015$ Volts
Null Current (max.)	0.2 mA (continuous)
Null Impedance (nom)	120 K Ohms (25°C)
	(measured left to right electrode)
Repeatability	0.05°
Resolution	< 0.2 arc minutes
Symmetry (typ)	5 %
Null Offset (max)	4.0°
Mech. Crosstalk/Deg. (to 20°)	0.025°
Temperature coefficient	
Null	20 arc sec /°C
Scale	0.1% /°C
Stability @24 Hrs.	0.05°
Operating Temperature	-40° C to +85° C
Storage Temperature	-55° C to +100° C
Time Constant (1)	$\leq 100$ msec
Materials	magnetic

NOTE: Output sensitivity's scale factor may be modified to individual requirements upon special order.



## Linearity Specifications

Range (0° to 3°)	Linearity $\leq 0.01^\circ$
Range (3° to 8°)	Linearity 1%
Range (8° to 15°)	Linearity 2%