

**0737-0101-99**  
**Single Axis, Linear**  
**Output, Electrolytic**  
**Tilt Sensor**



*Angle Range*      $\pm 10^\circ$

*Resolution*      $< 1.0$  arc-second

*Null Repeat*      $< 2.0$  arc-seconds

The **0737-0101-99** Sensor has been used successfully in applications that demand ultra high accuracy, excellent null repeatability, 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 hermetic glass to metal construction and platinum electrodes guarantee a long operating life and stable operating characteristics.

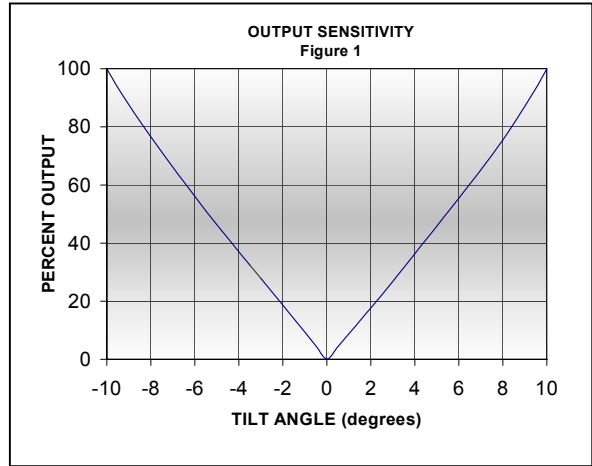
**Applications Include:**

- ◆ Geophysical Monitoring
- ◆ Construction Laser Instruments and Transits
- ◆ Aircraft Avionics
- ◆ Machine Tool Leveling
- ◆ Medical Positioning and Monitoring

**0737-0101-99 Linear Output, Electrolytic Tilt Sensor**

**Operating Specifications:**

Operating Range (max.).....± 10 degrees  
 Linear Range.....± 5 degrees  
 Null Voltage.....≤ 0.030 Volts  
 Null Current (max.)..... 5.0mA (continuous)  
 Null Impedance (nom)<sup>1</sup>..... 3600Ω @ 25° C  
 Null Repeatability .....< 2.0 arc seconds  
 Resolution .....< 1.0 arc seconds  
 Symmetry @ ½ scale ..... 5 % max.  
 Operating Temperature ..... -40° C to +80° C  
 Storage Temperature..... -50° C to +100° C  
 Time Constant <sup>2</sup> ..... ≤ 500 ms  
 Materials ..... non-magnetic  
 Temperature coefficient at null.....0.02% / °C max.

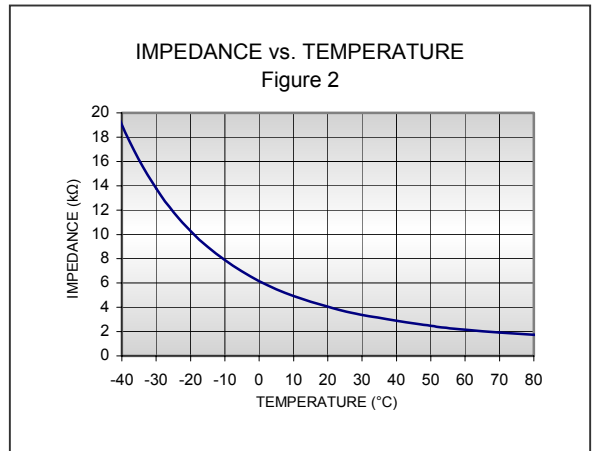


<sup>1</sup> Measured left to right electrode. Impedance of the electrolyte may be changed to limit null current.

<sup>2</sup> Viscosity of the electrolyte may be modified to meet individual requirements for time constant or vibration.

**Physical Dimensions:**

Vial length.....1.13” max (28.70 mm)  
 Vial diameter.....0.320” max (8.13mm)  
 Lead length.....15.0” max (381mm)  
*custom lead length is available*

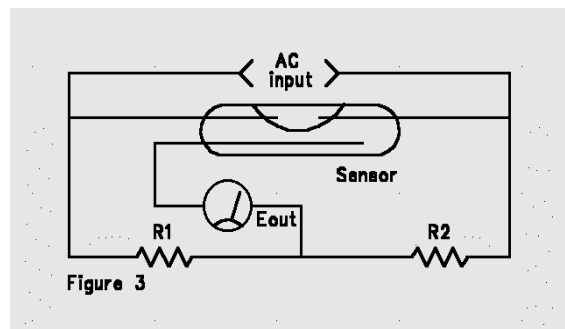


**Sensor Test Circuitry**

Tests were conducted by exciting the left and right electrodes with an AC signal of 400 Hz and an RMS voltage to produce the maximum current at null as per operating specifications. Output readings are taken between the center electrode and the center of the balanced resistors R1 and R2. Tests were conducted at a temperature of +25° C. See sensor test circuitry in figure 3. Output curve is shown in figure 1.

**Description of Test Values**

*AC input voltage = Null Current (max) times  
 Null Impedance (nom)*  
*E<sub>out</sub> = Angle of tilt from null (Direction of tilt  
 determined by phase of E<sub>out</sub>)*  
*R1 = R2 = ½ Null Impedance (nom)*



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