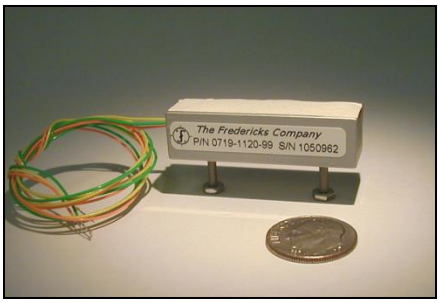
0719-1138-99

Single Axis Narrow Angle Low Current, Encapsulated Electrolytic Tilt Sensor



Description

The **0719-1138-99** Sensor is an encapsulated 0711-0763-99. It has been used successfully in applications that demand a high accuracy for small angle ranges and excellent null repeatability. The sensor offers excellent stability over time and wide range of temperatures. The hermetic glass to metal construction and solid platinum (platinized) electrodes guarantee a long operating life and stable operating characteristics. The aluminum housing design provides easy mounting and enhanced temperature stability.

- *Angle Range* *± 1°*
- *Resolution* *1 arc sec.*
- *Null Repeat* *≤ 3 arc sec.*

Applications Include

» Construction Laser Instrument and Transits
» Aircraft Avionics
» Geophysical Monitoring
» Machine Tool Leveling
» Medical Positioning and Monitoring

Physical Dimensions

Length	1.63" (41.4mm)
Width	0.5" (12.7mm)
Height	0.44" (11.2mm)

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)

Eout = Angle of tilt from null (Direction of tilt determined by phase of Eout)

R1 =R2 = ½ Null Impedance (nom)

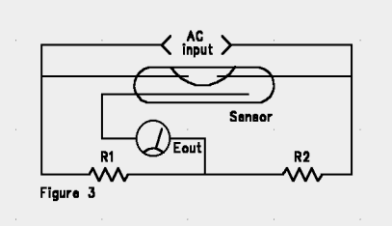


Figure 3

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

Operating Specifications

Operating Range (max.)	± 1°
Linear Range	± 5 arc minute
Null Voltage	≤0.005 Volts
Null Current(max.)	0.5 mA (continuous)
Null Impedance (nom)[1]	21 KOhms (25°C)
(measured left to right electrode) see fig. 2	
Null Repeatability	≤ 3 arc seconds
Resolution	< 1 arc second
Symmetry (typ)	≤ 20%
Operating Temperature	-20° C to +50° C
Storage Temperature	-50° C to +100° C
Time Constant (1)[2]	≤ 500 msec
Materials	non-magnetic
Temperature coefficient	±0.5 arc sec /°C
At null	

[1] Impedance of the electrolyte may be changed to limit null current
[2] Viscosity of the electrolyte may be modified to meet individual requirements to reduce vibration.