

## **Calibration Questions and Policies for the *ELECTROLEVEL* and other Tilt sensors.**

The *ELECTROLEVEL* is a robust, stable, gravity referenced, tilt transducer. The system combines the dependable principle of the simple spirit level with modern, reliable solid state electronics. The sensing element is a hermetically sealed glass vial which is mounted in a variety of standard or custom designed metal housings. There are no delicate moving parts - only a self repairing bubble. Because there are no wear-out mechanisms associated with the sensor, an *ELECTROLEVEL* system will continue to operate for many years without any scheduled maintenance.

Where the application requires the measurements made to be of a known accuracy for quality control purposes, then the equipment should have its calibration checked at regular intervals.

The calibration interval appropriate to any given equipment depends on the nature of the application and the amount of mechanical handling and temperature cycling which it receives.

### **Mechanical Handling**

While the sensors are very robust and unlikely to sustain physical damage from rough handling, the effects of abrasion and mechanical damage to the reference surface can cause inaccuracies in the reading. A dirt particle or burr of 100 microns diameter on the reference surface will cause a datum error of 3 arc minutes for a typical sensor.

The remedy for this is to have the sensors calibrated after known mechanical damage or at regular intervals.

### **Electronic Drift**

Over a period of years, electronic circuits drift slightly both in their zero reading and their scale factor. This is primarily due to temperature cycling of the circuit components. While these drifts in modern electronic circuits are small, there is always a possibility that they will accumulate over the years to cause a significant error for a given application.

The remedy for this is to have the electronics calibrated at regular intervals.

### **Calibration Intervals**

For general applications, the recommended first calibration interval is 12 months. At the time of this first calibration, the drift rate and the effects of mechanical handling can be assessed after 12 months of usage, and the recommended calibration interval increased or reduced accordingly. For the vast majority of applications, the calibration interval is increased to two or more years.

## **Calibration Service**

Tilt Measurement provides a calibration service for customer's equipment using test equipment in a known state of calibration traceable to international standards.

Where required a certificate of calibration can be issued

To arrange for an equipment calibration with minimum turn round time, please contact the sales office.

All information herein is believed to be correct but no liability is accepted by Tilt Measurement Limited for any application in respect of fitness of purpose, infringement of intellectual property rights, or consequential loss or damage howsoever caused.

***TILT*** **MEASUREMENT LIMITED**

**HORIZON HOUSE LONDON ROAD BALDOCK HERTS.. SG7 6NG U.K.**  
**TELEPHONE - 44-(0) 1462-894566 FAX - 44-(0) 1462-895990**  
**e-mail [sales@tilt-measurement.com](mailto:sales@tilt-measurement.com) [www.tilt-measurement.com](http://www.tilt-measurement.com)**  
**© *TILT* Measurement Limited 2000**