

**Technical Bulletin # 23****To:** Coulometrics Support Personnel**From:** Engineering Dept.**Date:** December 17, 1997**Subject:** Importance of Electronic Calibration on Analytical Performance CM5011/ CM5012.

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The calibration procedure for a Coulometer consists of calibration of the electronics so that they control and measure properly.

There are two major electronic systems in the Coulometer. One system uses the %T measured to determine a Proportional output current to be applied to the cell. The second system measures this current and converts to a frequency for processing by the Microcontroller system.

The calibration of the Coulometer consists of making both these circuits perform to specifications.

From an analytical standpoint the most important is the second measuring circuit.

This circuit consists of a Precision resistance that converts the current to a voltage. The voltage is then buffered and amplified and fed to the voltage to frequency converter. Because low-level signals are harder to measure, the signal is gained up by 16.000 whenever a corresponding cell current of 10.5 ma or less exists. The gain multiplier can vary and needs to be adjusted by calibration. The gain divider is by nature of the hardware fixed and cannot be adjusted.

In the calibration procedure this gain is specified as 16.000. If the gain is not correct then the gain of this signal will cause the values to be wrong when ever the cell current is less then 10.5 ma