

3.0 Monitoring Electrochemical Cells for Correct Operation



Innovation, Quality and Expertise for Gas Detection.

Ideally, gas sensors should be tested in the gas being detected on a regular basis to confirm that the sensor is working correctly. This is not always possible especially in a residential environment.

However, it is possible to put in place methods of interrogating electrochemical cells electronically to provide information on the electrical characteristics and so deduce, in many circumstances, alterations in the cell which may lead to a change in the ability of the cell to detect gas. Considerable care must be taken when choosing the parameters to measure and the method of deducing changes in the sensitivity of electrochemical cells. An oversensitive method of measurement may result in cell failure being recorded when the cell is working satisfactorily. Likewise with a method that is not sensitive enough or measuring the wrong parameters, no indication of cell failure will be realised and a false sense of security engendered. The most effective method of interrogation of the cell is to produce a pulse of short duration through the electrodes of the cell and measure either the capacitance or the impedance of the cell.

One residential product is providing a pulse technique to measure the capacitance of the cell and to check the presence of the cell and the continuity of the circuit. This will indicate the absence of the cell, a broken lead wire or the absence of internal components. It can also provide a warning of loss of electrolyte or drying of the cell.

Obviously there are faults such as blockage of the housing which will prevent gas reaching the sensor and thus responding to the gas. Nonetheless, the techniques outlined above gained from an understanding of the performance of the sensor provide a device of greater security for gas sensor operation.

These methods for cell interrogation are covered by patents. For details of circuit designs and patent licensing agreements, please contact Sixth Sense.

Patents

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