



Electro-Chemical (EC) for TIC and CWA detection:

EC is a mature technology. Historically, EC sensors have been used to detect and monitor low levels of toxic gases in both Domestic and Industrial situations where it is essential to ensure that the air is safe to breathe. The most common type of Electro Chemical sensor is the 3-Electrode fuel Cell. This is a noteworthy benefit for EC technology in fixed detection of uncontrolled environments. Instead of a molecule being sensed in a chamber and algorithmically calculating the presence thereof, the air being measured diffuses directly into the sensor cell through the diffusion barrier. When it comes into contact with the sensing electrode, the toxic gas present in the air causes an electro-chemical reaction and an electric current is generated which is measured as directly proportional to the concentration of toxin in the sample air. This renders EC technology having the ability to detect at the 3rd degree of actual "quantity". For example: If a sensor has a range of 0-10 parts per million of a certain compound (ppm), if 5 ppm of this compound is presented to the sensor, the sensor will generate a signal of 50% of the whole output range – not a guess or mathematical algorithm. This ability allows the end-user to select a "trigger point" somewhere within the range of the sensor.

It is also how such a technology can be void of false alarms. This is done by understanding the environmental air of the detected space. With this in hand, one simply needs to set a trigger point above the nuisance levels of the compound being sensed for. Example: should a cleaning solution yield a 1 ppm "off gas" of a certain compound like Chlorine or Ammonia, if the given sensor had a 0-5 ppm range, the end user would simply set the trigger level above the 1 ppm level thus avoiding costly false positive alarms.

At the end of the day, EC technology is the most tried and true sensing medium on the market today. Virtually every chip manufacturing plant, petro-chem facility and other uncontrolled environmental businesses utilize EC sensors and will do into the unforeseeable future as the other technologies just do not match the performance. EC is the most robust and lowest cost of maintenance or ownership of all the technologies discussed. Additionally, if deployed correctly, EC also offers the lowest false positive or false negative alarm potential as well.

Why the BPSI Sentry One is the best option for "Fixed Detection" today:

- The BPSI Sentry One Solution is not only a detector based on mature EC technology. It is a system that ties together all of the sensors deployed with capability to connect infinite numbers of them. It is a PLC based infrastructure where the detectors all communicate on their very robust network that it piped anywhere you would like to see it. Most all the others sell you a detector and integration is up to you which is usually not much fun. Virtually any function you want to see from an operational perspective can happen – Examples: you want to trend a certain station or sensor - you enable it, you want the system to notify you when a filter is getting dirty – done, you want to eventually tie the Sentry One into a SCADA network or the like – the PLC infrastructure allows for this with little work, you find you want some other data not currently being gathered – usually a simple program change and it is there.
- The BPSI CSA utilizes EC technology which is the most mature on the market, is robust and works as intended. The individual EC sensors within the CSA (12 of them) are made by one of the oldest EC sensor

manufacturer and are the best performing on the market. The BPSI CSA utilized (2) EC sensor array engines in each detector as well as other critical components.

- The BPSI CSA allows you have the ability to set your own trigger points as you see fit; from station to station or sensor to sensor – your choice.
- The only maintenance needed for the CSA for the 48 months of operation is 2 external filter changes when the system advised of a dirty filter. The swapping of these filters takes no more than 5 minutes and should last 12-24 months. We have a transit pilot where the filters are still in place after 24 months.
- The BPSI CSA has an operational life of 48 months and is *warranted for the 48 months that it is installed.
- The BPSI Sentry One system is a US Department of Homeland Security SAFETY Act designate Qualified Anti-Terrorism Technology (QATT). This offers the end user extraordinary liability protections should a qualified act of terrorism take place and lawsuits are filed. This could save the end user multi-millions of dollars if there was ever a true terrorist event where there was loss of life. www.safetyact.gov