

## Canary-Zero™ for Rapid Chemical Screening

Canary-Zero™ combines two microfabricated components: a micro chemical preconcentrator and a SAW microbalance detector. A designer chemical coating on the preconcentrator collects target analytes and ignores interfering chemicals. Canary-Zero™ cycles every 30 seconds reporting on the concentration of analytes like methyl salicylate. The system self cleans after each analysis. The complete Canary-Zero™ system is shown in figure 1. The entire system is approximately the size of a pager. Figure 2 shows the sensor output for 10 ppmv of methyl salicylate (MeS).

Canary-Zero™ is engineered to be very compact and lightweight. This system requires a 6-9 volt input. Lights on the device indicate high/low concentration or all clear. Alternatively, the chemical name and concentration are reported via RS-232.

### A Compact System for Compact Applications

The compact size of this system makes it an excellent choice for deployments where size is an issue; for instance,

- Deploying several small systems within a protective suit to monitor its resistance to contamination
- UAV or UGV sensor payloads.
- Monitoring in HVAC systems

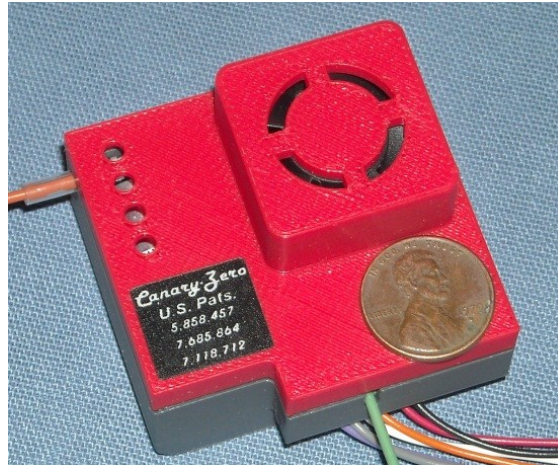


Figure 1: This is the Canary-Zero™ system. Color LEDs indicate all clear or low/high concentration. This system can be packaged with an optional display and user interface to provide more detailed information to the end user.

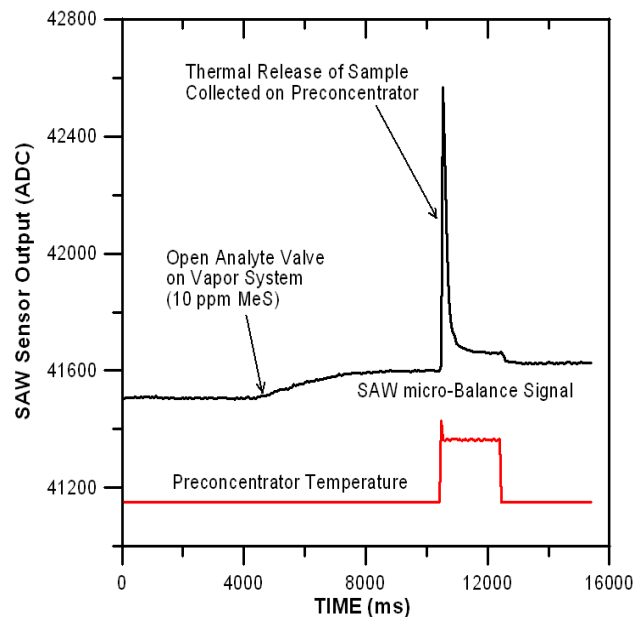


Figure 2: The data above shows detection of 10 ppmv methyl salicylate. The red line is preconcentrator power. Black is SAW response. While one can notice a change in the baseline when MeS is introduced, actual detection occurs during the firing of the preconcentrator.

### Special points of interest:

- 30 second analysis cycle screening
- Compact gas module available for OEM applications
- Ambient air is the carrier gas, no need for specialty gases
- Upload you own calibration
- Integrate Canary-Zero™ into your system or monitor Canary-Zero™ with an optional display
- Software is included to view results on a computer.
- Semi volatile chemical detection
- Sensor system stable over weeks

### Brief List of Applications

- Methyl Salicylate
- Phosphonates
- Pesticides
- Flavor additives
- Fragrances
- JP-10
- Chemical Weapons

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