



DIAGNOSTIC NEWS



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Thank you all for your many questions, regarding our Diagnostic Air patrol Systems. From your input we prepared a Q/A sheet, which we would like to share with all of you, our clients.

Q: The accuracy of your system seems to be way better than what we can see from other suppliers. Why is that?

A: All sensors are monitoring at low **ppb** levels **by their design**. The sensor assemblies are made specifically for environmental monitoring, which requires a higher level of sensitivity and accuracy than safety monitoring. All other systems you have experience with, are measuring on a ppm level, and multiply the readings by 1000, to obtain ppb. They are not able to read on ppb levels, *therefore the claims and readings you are presented with are false*.

Q: Who manufactures your sensor assemblies? I know one supplier who is using assemblies made by Net Safety, designated for use in safety market only, another supplier is using sensors made by BW, again made for safety use only. Does it mean that they are using non-adequate sensors for the environmental task?

A: This is really a good question. Very few people understand the difference. First of all, all sensor assemblies we are using are Diagnostic Engineering Inc. proprietary product, **specifically designed and made for environmental testing**. Of course, since safety monitoring is less accurate, our units can handle safety monitoring as well.

To the second part of your question, you are correct. Sensors made for **safety** market **should not be used** for environmental monitoring, since they cannot measure what the Alberta Environment or EUB is asking for.

Q: How do you achieve such an outstanding accuracy of the system?

A: The high accuracy is achieved **through elaborate testing, proprietary methodology**, repeated and periodical calibrations and statistical evaluation of unit specific calibration data for each individual system in our laboratory.

Q: You claim to have a number of unique features, all aimed at improving the accuracy of the system. Which features are proprietary to your systems only?

A: Our units contain a “**stabilized temperature**” (heating/cooling) sensor enclosure that provide more accurate readings in general and enable sensors to operate with environmental monitoring sensitivity in very low (Alberta winter) ambient temperature, as well as hot summer days, when the system is exposed to direct solar heat radiation. This is a very unique solution, proprietary to Diagnostic Engineering Inc. This was developed, because the electrochemical reaction, which is the “engine” behind the measurement of all known industry sensor systems is impaired below 20 deg °C and for example in the case of SO₂, completely stops.

The second significant feature of the system is **the internal pump**, creating accurate uniform flow, which creates unified stable conditions for gas diffusion into the sensors. The diffusion of SO₂, H₂S, and other gases into the sensors without a pump is random, sensors are reading significantly lower values, and in many instances the readings are only zero.

The third significant feature is the capability of an **automatic daily zero air drift adjustment**, which is a similar system to gas analysers, like TECO or API, which are used in the Air Quality Monitoring Stations. This feature also enables it to recognize when sensors need to be calibrated, or when the stations need to be serviced.

Q: Where are the best applications of your system?

A: These systems are designed with three specific target applications in mind:

- oil and gas operations, upstream and downstream
- public awareness and settings like wider area monitoring networks (air sheds)
- urban monitoring networks

Q: Are all units designed the same way?

A: No each project may require a different set of sensors, such as SO₂, H₂S, NO₂, Ozone, CO, etc, some projects need dual sensors for some or for each gas measured. Also the communication used is specific for each area, as well as data collection and delivery to the client. Most often the data are accessible to clients via a secured internet website. However, we provide all data QA/QC and reporting, in desired frequency and format.