

GASSONIC OBSERVER-*i*

Frequently Asked Questions

GASSONIC



What is Artificial Neural Network (ANN)?

The ANN uses a mathematical algorithm to search for familiarity in large and complex sets of data. ANN works similarly to the way the human brain processes the constant flow of information. For example, when we meet a person, our eyes transfer immense visual data to the brain, and over time, this vast information is recalled to recognize this person over time, even years later. It can also be used to connect that person to their relatives.

In essence, the more we train our brain to recognize familiarity, the better we will be able to recognize or deny a person's face. The brain does not look for an exact match, it looks for familiarity, and so does the ANN. The ANN algorithm of the Gassonic Observer-*i* has the ability to not only recognize the distinct sound signature from a gas leak, but has the ability to discern between that familiar sound signature and those from acoustic background noise not related to gas leaks – and reject them.

Does the Observer-*i* learn the "normal" background noises of a plant?

The Observer-*i* does not learn in field. Utilizing ANN Technology, it has already been taught. To pre-train the unit, we gathered countless readings and samplings in plant noise, e.g., grinders, compressors, machinery, and so on, eliminating the need for further in-field training. It is important to note that some detectors do require training in the field and that can prove to be quite complicated, requiring special PC software.

How do you select between FQHI vs. FQLO ?

The units' default is FQHI (Frequency High) for plug and play mode, over a turbine compressor for instance. You would only use FQHI mode over a compressor or in an area with extremely high and/or Ultra-high noise areas. If used over a well head or places with low, medium or high noise, then set it to FQLO (Frequency Low) mode. This mode will be the norm, applicable with the majority of installations. The unit can be switched from FQHI to FQLO by using magnets to go through the menu structure and toggle between FQHI and FQLO. FQLO will be stable in most installations providing greater coverage distance. In FQHI mode, the detector only listens down to 17 kHz, while in FQLO mode it listens down to 12 kHz, which makes the unit much more sensitive with better coverage distance.

If FQLO is the majority, then why not make it the default?

We market the Gassonic Observer-*i* for compressor houses. Some are turbine compressors which emit high levels of ultrasonic noise. In these ultra-high noise areas, you will need the FQHI setting. We market this unit as "plug and play;" take out of box and put into your application. To help avoid false alarms, we default on the safe side. We want to ensure this works in the worst case application – turbine compressors. We will educate customers so that they can switch to FQLO in most applications. FQHI is basically the safety net.

When would the Classic Mode be recommended?

The Classic Mode option was reintroduced in order to satisfy all customers. This mode remains available for current customers who are using previous versions of the Observer. If these customers do not want to go into Enhanced Mode and use ANN, but just want to plug and play in their existing configuration, the Classic Mode is the most suitable option. New customers will prefer the Enhanced Mode.

Would Enhanced Mode ALWAYS outperform Classic Mode?

Yes, Enhanced Mode delivers better coverage, but still maintains a high level of false alarm immunity. Even in the Enhanced Mode FQHI setting, the Gassonic Observer-i is capable of detecting a 0.1 kg/sec gas leak up to 17 meters (56ft) away. The Classic Mode relies on dB trigger levels set to a safe amplitude above the ambient background noise. For an ultra-high noise area (turbine compressor), a Classic Mode trigger level of up to 84 dB might be needed and this will result in a maximum 0.1 kg/sec gas leak coverage of 7 meters (23ft)

Is there a scenario where the Classic Mode outperforms the Enhanced Mode?

No, even in very low noise areas, where it is possible to set the Classic Mode trigger level as low as 44 dB, which is lower than the ANN operating limit (49dB) and get slightly better coverage, the unit will be too sensitive and will be prone to false alarms. To have a good balance between leak detection coverage and false alarm immunity, it is not recommended to have a Classic Mode trigger level lower than 54dB. In other words, Classic Mode will never outperform Enhanced Mode when combining coverage and false alarm immunity.

What is the comparative advantage to go down to 12 kHz?

Lower frequencies travel further than high frequency. A leak noise has frequencies in the full sound spectrum (20 kHz to 100 kHz), both audible frequency and ultrasonic frequency. If the detector listens to the lower frequency, the detection distance is longer, due to the fact that 12 kHz leak noise is traveling further than that of 20 or 25 kHz leak noise. Earlier generations of Ultrasonic Gas Leak Detectors only "listened" for the gas leak noise in the ultrasonic frequency range from about 25 kHz and up, but by means of the new ANN sound algorithms in the GASSONIC OBSERVER-i, the detector's frequency range can be lowered to 12 kHz without picking up unwanted background noise.

Is a site survey required to select FQHI or FQLO?

No, it is not required; however, to determine which setting works best for that particular application, you can survey the site in the field, on the unit itself. Site surveys are required for UGLD not utilizing ANN technology to determine the trigger level setting

and coverage of the detector. It is important to determine the coverage of the detector in order to allocate the number and positioning of the detectors. Because of the ANN, we know that the Gassonic Observer-i can detect 0.1 kg/sec leaks up to 17 meters away, out of the box with FQHI and 28 meters with a FQLO setting. We do not require a background noise survey, but we can provide guidelines on the number of units needed and the allocation of the units.

Do competitors use the range down to 12 kHz?

No, MSA has the only UGLD that can go down to 12 kHz.

How do we respond to customers who have a service that comes out monthly or quarterly to map their leaks?

Compare costs; getting someone to their facility to preform testing is expensive. To make matters worse, the contractor may miss a pinhole leak, which could become significant when that contractor is no longer on site or a leak can occur during testing intervals. When you install a UGLD, it is always there, listening for leaks, providing around the clock monitoring - not just once a month or once per quarter.

Are there any loaners or rentals available?

Yes, we have evaluation units. If a customer wants to try one, we will provide them with a new unit and request a 90 day Purchase Order. We ask that they complete the evaluation within 90 days after installation. If they are not happy with the performance of the unit, they can return it within 90 days, without getting charged. Please check with MSA as we are always willing to discuss a customer's needs.

Is the 4-20mA = 0-XX kg/sec leak rate or is it simply a step change to indicate a leak is present that exceeds 0.1 kg/sec?

When the unit's ANN algorithm detects a positive leak, any leak - big or small - that is loud enough for the detector to recognize, the Analog output jumps to 16 mA, indicating a warning, and after the internal delay time runs out, it jumps to 20 mA. Either you have a leak or you do not have a leak.

So we should spec a range of 17 meters to be safe?

No, only if the application is over compressor.

Is there a way to calibrate the Observer-i?

Yes, we have a portable test and calibration unit called the Gassonic 1701. If the customer's plant regulations require calibration of ultrasonic gas leak detectors, the 1701 unit can be used. The 1701 itself is a calibrated unit and needs factory calibration every two years.

For more information, visit www.MSAsafety.com

Note: This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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