

What is the Radius of my Area Monitor?

By: **Kyle Krueger**, Contributor

Over the past two years, demand for area monitors has increased. Now more than ever, companies can place durable, easy-to-use sensing devices with advanced technology throughout their facilities at a lower price point. This is giving companies better awareness of their environments, while also helping them drive safety improvements.

Accordingly, a common and very good question seems to be popping up: What is the radius of my area monitor? How much area can these sensors cover? Will the area monitor cover 10ft? 100ft? 1,000ft? My entire job site?

To answer these questions, we need to first understand how sensors work. Then, we need to consider the characteristics of your application.

Sensing Basics: The only way that a sensor can detect gas is if that gas passes directly over the sensor. This applies to both personal monitors and area monitors, because they use the same sensor technology. Many people believe that because the area monitor is bigger than the personal monitor, then it must provide more coverage. This is false. Unlike fixed gas detection points, area monitors can be used in far more dynamic environments, so static assumptions on airflow and gas source don't apply.

What if the instrument has a pump? A common misconception is that placing a pump on a monitor will greatly increase the monitor's overall coverage. Even though pumps sound powerful, they aren't so mighty. Pumps draw 500cc/minute on average. A good way to think of this is to take a breath, then exhale. The pump brings in that volume of air over several minutes. With that low volume, the pump itself isn't strong enough to pull in and sample significantly more air than a diffusion-style monitor in an open area.

However, pumps do allow you to remotely sample an area through tubing. For example, a pumped monitor allows you to place tubing in a confined space to remotely



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sample the air inside, while the monitor and operator remain outside. But again, this only samples the air where tubing is placed—not the whole space.

Application-specific questions: Unlike fixed-point gas detection systems, area monitors are commonly moved to different locations or are used in emergency response situations. Accordingly, each time you deploy an area monitor, you need to consider a few key factors:

1. Source identity and placement location: Different gases can have different atmospheric characteristics that you need to consider. For example, some gases are lighter than air, while others are heavier. Because of this, it's crucial that you place an area monitor at the correct distance and height for the gas that needs to be measured. Additionally, if you are using LEL or PID sensors (which are not gas-specific) in your area monitors, you will need to know the source gas and factor its characteristics into the monitor's reading.

2. Wind direction: Environmental factors like wind direction are very important for monitor placement—and they're always changing. Just because you have an area monitor placed correctly one day does not mean it will be in the correct place the next day. A common solution is placing area monitors in multiple locations, so you still have adequate coverage when environmental conditions change.

3. Notification: When placing your area monitors, think about the situation in which a gas alarm occurs. How will this system relay critical alarm information to the appropriate personnel? Can devices be networked together? Advances in technology now allow area monitors to connect to one another and to personal gas monitors, as well as prompt real-time alerts via text message and e-mail.

Before you deploy an area monitoring solution, conduct a site survey to assess these factors. If you still have questions about how to place your area monitors to properly detect gas hazards, we can help you determine the right solution. When implemented correctly, these solutions can dramatically improve site awareness, driving better safety and operational decisions. **WMHS**

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