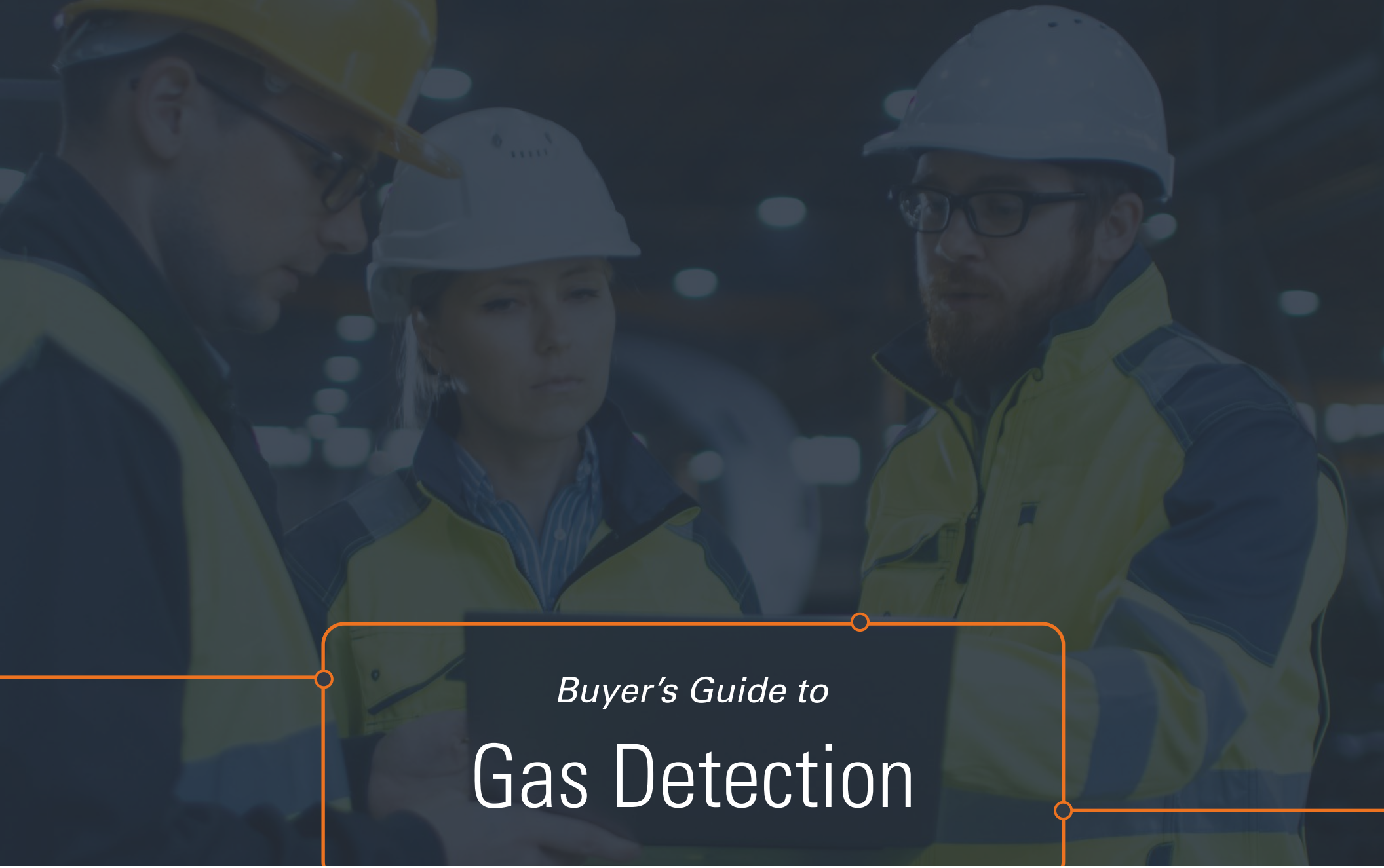

*Buyer's Guide to*

# Gas Detection

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**60% of worker deaths**

involve would-be rescuers who are overcome by dangerous gases themselves.

# Know Your Worksite's OSHA Requirements

As a safety professional, you have an obligation to protect workers from hazards of all types, including potentially dangerous gases. Simply put, alerting workers to the presence of gas hazards can be a matter of life and death.

This is true regardless of the area where work is being done, but is especially important in areas designated as confined spaces by the Occupational Safety and Health Administration. When workers must enter confined spaces, companies are required to provide gas monitors that will alert them to the presence of hazardous gases.

The latest data from the National Institute for Occupational Safety and Health shows that **60% of worker deaths in confined spaces were those of would-be rescuers who attempted to save a team member overcome by dangerous gases**, only to be overcome themselves.

To help prevent situations like this, all workers need to know the requirements for gas monitor use and be aware of the gas hazards they could encounter on the job.

# Know Your Hazards

There is a constant need to test for the presence of hazardous gases in environments where they may be present. A space that was safe and gas-free when work began might not remain that way throughout the project.

When exposed to gas hazards, workers can experience dizziness; irritation of the eyes, nose, or throat; poisoning; choking; unconsciousness and more.

You must therefore educate everyone who will work around dangerous gases — and those who will monitor them remotely — to potential hazards and their side effects. Without gas monitors, it can be difficult or even impossible to properly assess these risks.

**Commonly monitored gases include:**

- Ammonia ($NH_3$)
- Carbon dioxide ($CO_2$)
- Carbon monoxide (CO)
- Chlorine ($Cl_2$)
- Chlorine dioxide ($ClO_2$)
- Hydrogen ($H_2$)
- Hydrogen chloride (HCl)
- Hydrogen cyanide (HCN)
- Hydrogen sulfide ($H_2S$)
- Methane ($CH_4$)
- Nitric oxide (NO)
- Nitrogen dioxide ($NO_2$)
- Oxygen ($O_2$)
- Phosphine ($PH_3$)
- Sulfur dioxide ($SO_2$)

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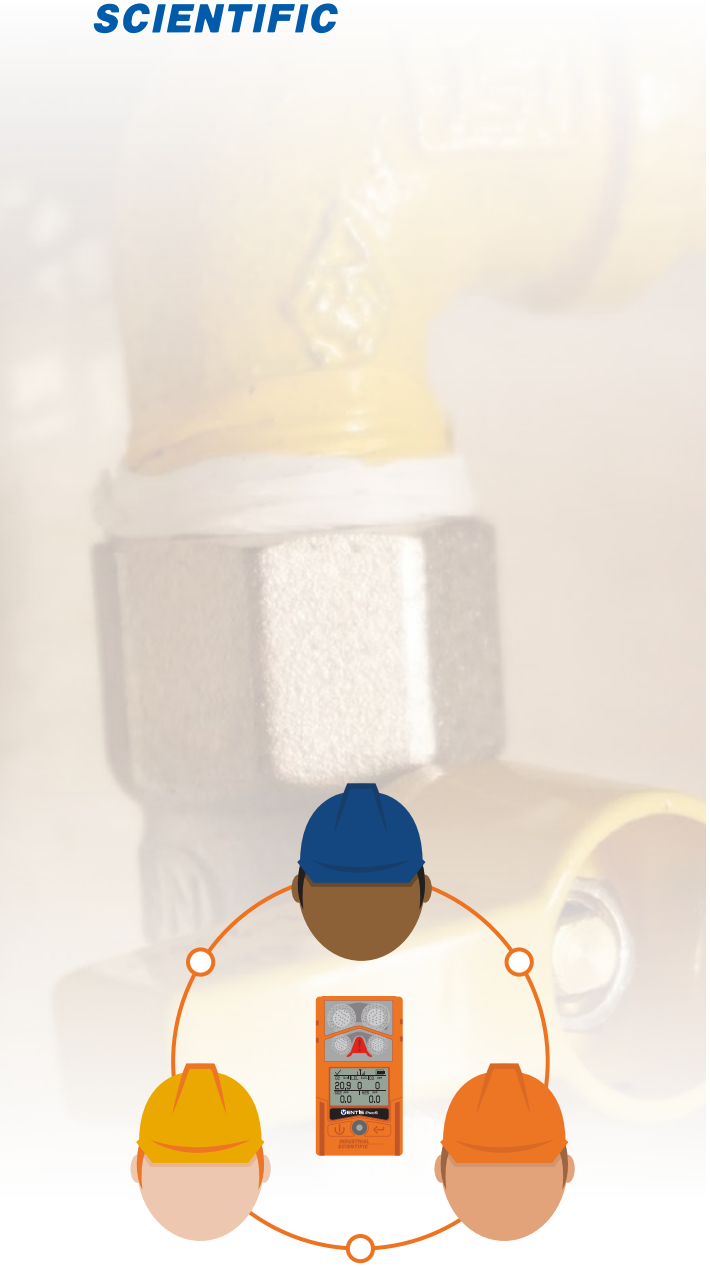


# Should Your Team Use Single- or Multi-Gas Monitors?

Just like anything else, it's important to use **the right gas monitor for the job.**

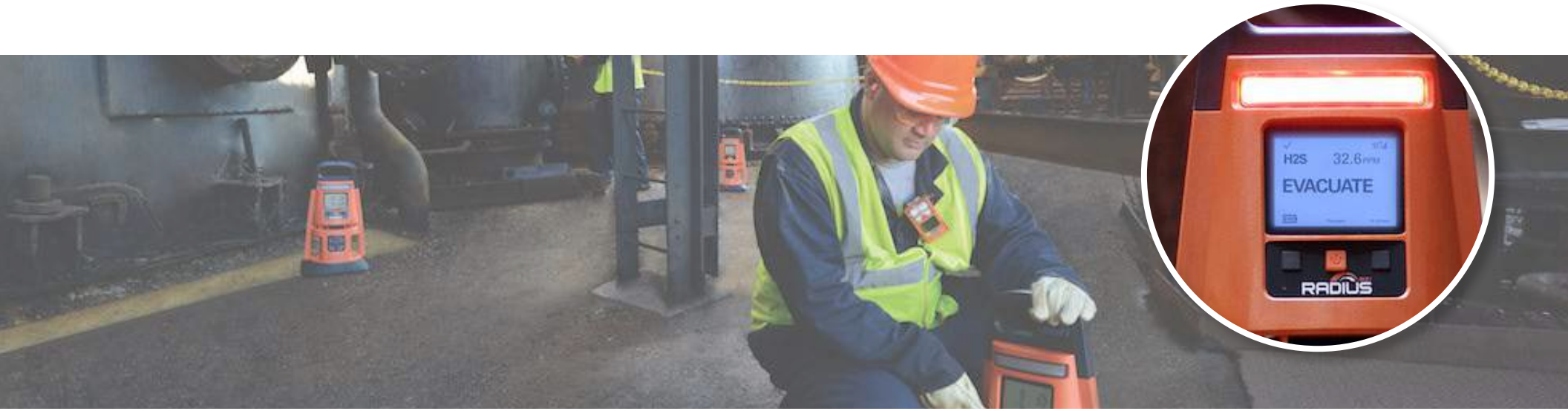
If workers on your site risk exposure to one common gas, a single-gas monitor is ideal. However, if they could encounter multiple gases simultaneously, a multi-gas monitor is essential.

In both cases, it's important that workers have personal monitors they can attach to their clothing within their breathing zone to alert them to the presence of a dangerous gas. This gives your workers the flexibility and peace of mind they need to do their jobs.

Connected gas monitors can take personal monitoring a step further by alerting all team members when one monitor is in alarm. Monitors that send real-time location and alarm data to a live monitoring network can be particularly helpful to keeping remote safety managers informed of site conditions.

# When Area Monitors Work Best

Area monitors can be used to monitor an open space or to create a "fenceline," evaluating the atmosphere and alerting your workers or remote safety managers when conditions shift. Area monitors are especially useful for monitoring gas concentrations in places where people cannot easily or safely work.




Because they are often used in noisy or busy work areas, you should look for an area monitor with loud alarms and bright warning lights. Some area monitors can also display customizable warnings such as "Evacuate" and "Ventilate" so everyone knows exactly what to do. That way, when dangerous levels of gas are detected, the monitor will quickly and clearly alert everyone in the space.


## SAFETY NEEDS BEYOND GAS DETECTION:

# Panic, Man-Down, and Team-Based Safety

Modern gas detectors can do more than monitor exposure to gas hazards. They can also alert workers and remote supervisors to other dangerous situations.

A **panic button** built into a monitor can be useful in many situations, including if a worker is caught in equipment, feels dizzy, or falls.

Some gas detectors can **send and receive signals** to peer monitors up to a mile away or, if connected to a cloud network, to a control room hundreds of miles away. This functionality not only alerts nearby teammates that someone is in trouble, but also who it is, where they are, and what kind of trouble they're in. That makes it ideal for informing peers before they attempt to rescue someone.


Automated data collection systems can record

**five times as many alarms**

as manual reports

# Do You Need Historical Data, Real-Time Data, or Both?

When you manually track gas exposure data for your site and employees, you're likely spending a lot of time on a process that yields little insight. Manual reports rely on workers remembering and reporting all the gas alarms they received that day, so they're often incomplete or unreliable.

Industrial Scientific statistics suggest that **automated data collection systems can record five times as many alarms as manual reports.**

To get the most out of your gas detection program you will often find that you need automated data collection. Putting together historical data — that is, all the gas events collected over months or years of work — and real-time information can allow you to see trends that would not be visible in a manual report.

# Proper Maintenance of Safety Equipment

All gas detection programs, no matter how big or how small, require maintenance to ensure the equipment is working properly.

It's not always an easy job, especially when you consider the need for daily bump tests and monthly calibration. However, it's the only way you can be sure your gas monitors will detect the presence of gases and alert workers to the hazards they face.

You need a system in place that allows workers to bump test their monitors before every use and calibrate them as needed. The most common solution is a docking station that can charge the gas monitor, automatically bump test before each use, and calibrate on a schedule you set.

As an added bonus, these docking stations can also generate reports on worker exposure, alarm activity, and maintenance history, reducing the time you need to spend maintaining your gas detection program.

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## GAS DETECTION OWNERSHIP OPTIONS:

# Purchase, Rent, or Lease

Once you decide which monitors are right for you, you'll need to choose an ownership option. Purchasing, renting, and leasing are the most common.

A purchase is ideal when your gas detection needs are long-term, relatively stable, and you have workers who can maintain the monitors. You can work with a manufacturer or distributor partner to choose the right gas detectors, sensors, and accessories, then buy them directly.

Rentals are perfect if your gas detection needs are short-term or irregular, like:

- Temporary maintenance jobs
- Replacing gas detectors under repair
- Testing monitors before a purchase
- Turnarounds and shutdowns

Some companies also offer leasing options, such as Industrial Scientific's iNet® Exchange program. With iNet Exchange, Industrial Scientific manages all gas detection maintenance and repair — even replacing the instruments before they fail to eliminate downtime.

**iNet® Exchange** gives you the flexibility to adjust your gas detection fleet, eliminates the cost of keeping extra parts and equipment on-hand, and gives you back the time you would spend on maintenance and repair.

# Training Programs For Your Team

Even if you have the best gas monitors in the world, they're not going to be effective if workers don't know how to use them properly.

While technology is making gas detection easier, your workers must be trained to ensure their own — and their team's — safety. At Industrial Scientific there are plenty of training options to meet your specific needs, including:

- In-person sessions
- Videos
- Webinars

No matter your gas detection needs, we're here to help.

**Get in touch** with our experts today to learn how we can help you find the right gas detection solutions to meet your needs now and in the future.

https://www.osha.gov/SLTC/directreadinginstruments/standards.html | https://www.osha.gov/dts/osta/otm/otm_ii/otm_ii_3.html#MultigasMonitors | https://www.osha.gov/SLTC/confinedspaces/index.html

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