

# Placing the Radius™ B1 Area Monitor for Optimal LENS™ Wireless Performance



## Overview

One of the key elements of a successful wireless gas monitoring system is the placement of the wireless instruments. Radius™ BZ1 Area Monitors are easy to transport, can be placed almost anywhere, and can communicate a wireless signal up to 300 m (~1,000 ft) away. Thinking through a few steps can ensure the most effective gas detection system possible.

## Gas Detection First

Before considering wireless connectivity, first take the time to know the application and make sure that your gas detectors are able to effectively perform their primary task—detecting gas. Understanding the environment, the target gas(es), the structures, and the application is critical.

- Is the gas lighter or heavier than air? If it is heavier than air, the monitor may need to be placed on or near the ground. If it is lighter than air, the monitor may need to be elevated or placed on a stand.
- Where is the target monitoring area or source? Understanding the locations of potential leaks and other prospective gas events will aid in determining where and how many monitors may need to be placed.
- What is the environment? Consider the site's air temperature and its airflow factors, such as velocity and direction, as well as the terrain. Consider hills, valleys, and the type of ground surface.

## Optimize Wireless Second

Once monitors have been positioned to provide maximum protection from gas hazards, wireless connectivity can be optimized. To set up your LENS™ Wireless network, power on your LENS-enabled Radius BZ1 Area Monitors. They will automatically form a wireless mesh network. Check the signal strength on each monitor using the indicator in the top-right

corner of the display. It will show between one and four bars, with four bars indicating the strongest connection. If any units are unable to connect to peers or to improve the wireless signal strength:

- **Mind the distance:** The Radius BZ1 is capable of communicating with other units via LENS Wireless at a distance of up to 300 m (~1000 ft). This range can be extended using additional monitors to create "hops." Hops are the ability of a unit to receive a wireless signal from one unit and send the signal further through the network. Data on LENS Wireless networks can hop up to five (5) times before it can no longer be passed on (up to 1 km or nearly one mile).
- **Add more meters:** Adding additional monitors to the network can strengthen connectivity of all units.
- **Consider structures:** In a LENS Wireless peer group, be aware that LENS communicates in a nonlinear manner. With multiple monitors, wireless transmission may travel between instruments, even if they are separated by a structure. However, aim for line of sight as it provides the best connectivity. If there are any obstructions such as heavy machinery or insulated metal, consider adding units to allow the wireless signal to travel around the obstruction.
- **Look at other environmental factors:** Typical installations show that asphalt performs better than grass or a dirt ground. Water can dampen a wireless signal while metal may improve it. Moving a unit a few feet to the left or right may improve connectivity.
- **Go higher:** Raising a Radius BZ1 as little as one meter can extend the range by up to 50%.

To learn more about the Radius BZ1 Area Monitor and LENS Wireless, visit Industrial Scientific at [www.indsci.com/radius](http://www.indsci.com/radius). For additional assistance for LENS Wireless, please contact your local Industrial Scientific representative. Contact information can be found at [www.indsci.com/offices](http://www.indsci.com/offices).