

Gas cylinder telemetry

New system optimises deliveries

Imagine knowing exactly how much gas was at each customer site and being able to plan deliveries with complete efficiency. This would be an ideal scenario for packaged gas distributors, because it would solve one of their biggest delivery challenges. When a gas distributor delivers a shipment of gas cylinders, the distributor has no way of knowing exactly how much gas is remaining at a customer's site or how quickly that gas is being used. The distributor must either approximate deliveries based on past usage, or wait for a phone call from a customer who just ran out.

This lack of knowledge leads to wasted delivery trips, inefficient delivery routes, and ultimately higher operating costs. Given that delivery expenses account for up to 40% of a gas distributor's total costs, it is critical to be as efficient as possible with each delivery.

BreatheWise, a start-up from Pittsburgh, Pennsylvania in the US, has created a solution for this distribution problem. BreatheWise has launched a new telemetry system that not only allows gas distributors to determine exactly how much gas is at each of their customers' sites, it also assists in planning delivery routes and quantities based on this data. Founded by Eric Wise, a mechanical engineer from Carnegie Mellon University, BreatheWise's patent-pending technology uses a combination of fluid mechanics and artificial intelligence to optimise delivery routes and save distributors money.

While telemetry has been discussed in the industry before, BreatheWise's system is the first to provide complete insight into a customer's gas supply while also being completely independent of the gas type or size of the gas cylinder. This is a critical advantage because the system requires no direct interaction from distributors, making it viable on large fleets of cylinders. BreatheWise can show exactly how many litres or cubic feet of gas a customer has

onsite without ever knowing the size of cylinders being used or any special programming after each refill. After the initial 10-minute installation, this information is all determined by the device itself, and a distributor does not need to interact with the device again.

Method

The system uses a straightforward method. First, the BreatheWise sensor is attached to any gas regulator on any gas cylinder.



“The BreatheWise product can give us a unique way of getting the information we need to keep our products performing properly...”

The sensor automatically determines the cylinder's size and fill level without any user input, prior knowledge about the cylinder, or special calibration. Next, the sensor monitors gas consumption and sends the data to BreatheWise's cloud computing system via Wi-Fi or cellular communication. This data is analysed and displayed in a web application that shows distributors exactly how much gas remains at each of their customer's sites. Finally, the data also can be used to suggest optimised delivery routes and schedules. Over time, it can even predict future demand from gas consumers.

Lowering costs

Ultimately, the BreatheWise telemetry system saves distributors money by


minimising the costs associated with delivery. When considering expenses like fuel, drivers, and trucks, gas distributors incur costs of approximately \$2.50 per mile on average delivery trips of 20 miles (32km), so inefficient deliveries can cost distributors hundreds or thousands of dollars per month.

By using the new BreatheWise system, the company says, gas distributors are able to avoid unnecessary trips and uncover additional cost-saving efficiencies in their route planning. Another way that BreatheWise is lowering costs for distributors is through its subscription model plan. The company supplies the sensors for free in exchange for a monthly subscription to its web application where the data and routes from the sensors are displayed. This plan allows distributors to rapidly realise a return on investment, while avoiding large upfront costs.

Proven

BreatheWise has worked with a number of gas companies to develop and test its products. One of those is Industrial Scientific Corporation, a leading global provider of gas sensing equipment.

With its iNet gas detection platform, Industrial Scientific remotely monitors the calibration and usage of gas sensor badges for industrial plant managers and miners. This helps ensure worker safety. As part of this process, Industrial Scientific supplies calibration gas for use with its iNet docking stations. Dave Wagner, Director of Applications Engineering & Product Knowledge at Industrial Scientific, reflected, “Keeping a consistent and reliable supply of calibration gas with our customers is a critical piece of our business and is vital to the overall safety of our customer's workforce.”

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For more information, visit
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