Changing the game

Evolving the way that tracking and telemetry is delivered

John H. Palmer interviews **Eric Wise,** founder and CEO of **Wise Telemetry**

If Eric Wise has taken a while to get back to you, he can be forgiven. The founder of Pittsburgh's Wise Telemetry has been a busy guy, fielding inquiries about launches of its new Elite series and the E9200, telemetry products that are expected to change the game when it comes to remote monitoring for the entire gas distribution chain from bulk gas tanks to individual cylinders.

The E9200 is touted as the first fully integrated telemetry system for microbulk tanks and liquid cylinders available in the industry. With a built-in differential pressure sensor, LCD display, and cellular communications equipment, the E9200's form factor is ideal for monitoring beverage carbon dioxide (CO_2). The system fits entirely within the tank's protective "bull ring," requires no solar panels or external cords, and can be installed in minutes. The system is also a first in its affordability, with prices as low as $250 per system.

As part of the Elite Series, Wise Telemetry's communication boxes now include features such as an LCD display screen for easy device readings and 4-20mA compatibility for long wire applications. In addition, the new communication boxes will have LTE-M connectivity, a new low-power, low-cost method of data communication that dramatically extends the communication box's battery life.

"I think one of the most important trends in the gas industry as a whole is digitization, specifically regarding its ability to improve operational efficiency and customer satisfaction," Wise said. "For the first time, it is now easy and cost-effective to monitor assets besides large bulk tanks. With the introduction of more power efficient and less expensive communication networks (such as LTE-M, Sigfox, LoRA, NB-IoT) and lower cost sensors, assets can now be monitored for a small fraction of what it would previously have cost. As these networks continue to be implemented, the number of applications where monitoring can be used to increase efficiency will continue to dramatically rise."

> **"I think one of the most important trends in the gas industry as a whole is digitization..."**

Changes in the industry

Wise says that one of the biggest changes in the custom solutions in the industry are the ways that tracking and telemetry are being done. New communication networks are springing up, where traditionally there were only 3G cellular networks such as Verizon to work with. Telemetry is an automated process of collecting important data and transmitting it to a place where it can be monitored and utilized to make better decisions.

"The industrial gases industry is beginning to adopt new technologies, with leading companies already embracing telemetry and reaping the benefits," he said. "Telemetry has already changed the way that bulk products are delivered. Now smaller assets like microbulk tanks and dewars are being monitored."

Costs traditionally didn't support a data and telemetry system investment, and so many distributors and suppliers went without a way to keep track of tank metrics. "That's starting to change, as new communication protocols are becoming available," he said.

As an example, Low Power Wider Area Networks, or LPWAN, are being offered by carriers such as Sigfox and Comcast that are less expensive; in some cases data costs are down to 10% of what they once were. "There is much less power draw which means your batteries can last for years instead of months," he said. "In the US gas industry, we can now monitor things that were once nice to know, but not cost effective. There's a benefit to automating the entire supply chain, and we are approaching a time when it will be cost-effective."

Telemetry takes information from sensors installed on your company's assets and puts it into the hands of decision makers to create a more efficient distribution system and happier customers. It allows your already existing equipment to give you an update on day-to-day usage, levels, status, and more. Plus, it's all automated, you don't have to send someone out to check the level of a tank. Customizing these alerts allows you to know via email or SMS, the exact time your vessel is low so you can avert emergency deliveries due to run-outs. The status of your vessel is always available at the tips of your fingers. You can check in with your assets on your phone or computer, providing ease of mind no matter your location.

A key function of telemetry for gas distributors is using the data collected to help route gas distribution trucks more efficiently. Imagine knowing where your trucks need to go and how much product they need to deliver at any given time. Monitoring data like this has proven to help companies save up to 30% on their distribution costs. Telemetry can also be a great up-sell opportunity to offer your end customers. For example, microbreweries use the data to know

© Wise Telemetry | **CEO Eric Wise says the company will continue to develop new ways to provide gas companies and distributors with higher value, lower cost telemetry solutions.**

how much CO_2 they used during a brewing process.

A key example of one of his customers using the technology is the restaurant and bar industry. It's often difficult to get a gas delivery during their business hours—traditionally at night. "When it goes down, it's a big issue," he said. "This is a way to resolve that issue."

Monitoring internal operations of tanks is also a way to provide better customer service, he said. In the past, the technology was only commercially viable on bulk vessels, where it was easy to absorb additional costs. Technology has advanced, so costs have come down and distributors are now able to use data sensors to improve efficiency.

"It's a big change, admittedly, for the industry, he said. "But it's an exciting future, and there's much more profit."

"It's hard to find a sensor that can live in the 'real world'," he said, because cylinders and tanks are constantly being subject to the elements as well as the abuse of being transported and moved around. The challenge has been to design a small package with low power draw.

"More customers are adopting systems to deliver top-notch service which your competitors might not be doing." He said that often end-users are willing to pay the passed on costs of telemetry, and it gives distributors a marketing advantage.

"We will continue to develop new ways to provide gas companies with higher value, lower cost telemetry solutions. We are currently seeing strong market share growth and will likely need to hire more people to keep up with demand."

"The larger trends that are affecting us are the increase in demand for low cost remote monitoring and the level of consolidation in the industry. Both of these are fostering competition among distributors, and our customers are looking for a way to compete on service rather than just price." Wise Telemetry's products fill that need.

Success born out of necessity

Wise joined the telemetry business full time back in 2015 after founding Wise Telemetry (formerly BreatheWise). Initially, he said the company was started based on independent research he did

while a mechanical and biomedical engineering student at Carnegie Mellon University and after watching family members require medical oxygen therapy. He realized that many of the problems facing these patients could be solved through the application of technology. This led to his involvement in the compressed gas industry.

"We were trying to develop a device to make oxygen therapy more convenient for patients," he said. "Based on our initial industry conversations, we changed our track to remote monitoring for the people delivering oxygen to these patients. Continuing to follow industry feedback, we quickly expanded to monitoring every method of gas delivery (bulk, microbulk, dewars, manifolds, individual cylinders)."

Wise Telemetry now offers remote monitoring products for the entire gas distribution chain from bulk gas tanks to beverage CO_2 dewars to individual cylinders. Each of its products senses and communicates critical information about assets such as fill level and tank pressure. These readings can then be used to improve delivery planning, usage tracking, automated reordering, and end-user satisfaction. Customers range from small to large gas producers and distributors in the US, Canada, and Australia, and the company is expecting to launch in Europe soon.

Prior to founding BreatheWise, Wise worked as a mechanical engineer in the robotics industry. At Intuitive Surgical, he designed robots to test various aspects of the da Vinci surgical robotics platform and worked on autonomous robotic vehicles at Aethon. He also completed data analysis work in Westinghouse's nuclear component engineering division and assisted with research at the Carnegie Mellon Robotics Institute.

Wise earned a double major bachelor's degree in mechanical and biomedical engineering as well as a master's degree in mechanical engineering from Carnegie Mellon University. He also chairs Wise Telemetry's Board of Directors. He said he is an avid traveler, enjoys many genres of music, and enjoys getting outside when Pittsburgh's weather permits. **gw**