

# Telemetry Poised to Meet Market Demands

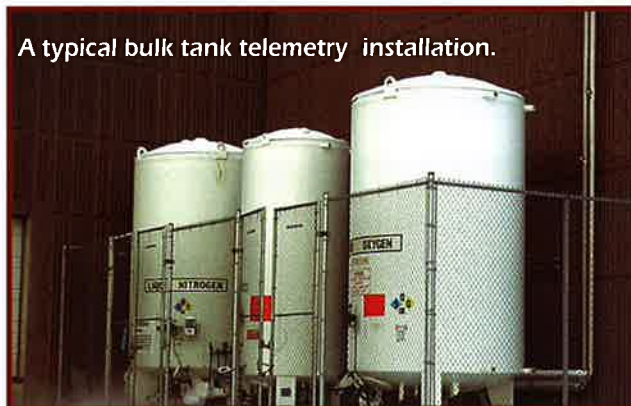
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**T**elemetry is now synonymous with remote level monitoring in the industrial gas market. In just a few years, telemetry systems for microbulk and bulk gas distribution have been perfected and are becoming widely available. Many of these systems integrate state-of-the-art technologies to make the installation and customer interface quick and easy. Manufacturers have developed their own products, or borrowed existing systems from other markets to design tailored solutions to satisfy the industrial gas market. Thus, affordable systems have evolved taking the industrial gas distribution to the next level: automated truck routing and improved service.

## Tank Designs & Sensors

Over the past half-century, the bulk tank has been manufactured using differential pressure (DP) to drive the liquid level system. This design has proven to be so robust, cost effective, and easy to maintain that it is still used today. These attributes provided an easy solution for the microbulk tanks once they came on the scene; hence, the DP system was also adopted to drive its level system. Having a standard design for years and a wide range of sizes made the transition from analog to digital relatively easy. More recently, new technologies in DP and pressure transmitters aided the introduction of telemetry.

In the telemetry value chain, the sensor is the first key component and should not be underestimated. The sensor converts the DP measured from the liquid head into an electrical signal, which is then transmitted by a communication link. The sensor must be reliable and accurate while operating in a relatively harsh industrial environment. Many sensors are integrated into a digital gauge and provide a local readout in selectable, user-friendly units eliminating the calibration chart.



A typical bulk tank telemetry installation.



Bulk tank level and pressure gauge teamed with integrated differential pressure sensors. Cell phone communications link the unit to an Internet server.

## Communication Technologies & Power Systems

The next step in the telemetry link is the communication of the electronic DP and/or pressure sensor to the data collection point. This is done by landline, cell phone, or satellite transmission. At the tank installation, one of these components, called an RMU (Remote Monitoring Unit) or TCU (Telemetry Call Unit) is installed. The landline systems are usually suitable for indoor installation because they are connected to an analog phone line. A communication wire runs from the sensor to the TCU, and the gauge and TCU are usually powered with low voltage.

Cell phone systems are generally integrated into the gauge and are driven by battery-assist solar power. These products are marketed as wireless devices focused on reducing installation time and cost. Satellite systems are available, but the RMU must be installed outdoors to communicate with low-earth orbiting satellites.

## Data Management

Today, the Internet-based data collection and management systems are the most popular. With this system, the TCU calls in several times daily to a server that receives, configures, and posts the data on the supplier's website. Access is password-protected so only distributors can view the accounts. Their customers can also view their own accounts using a password.

Reorder systems, another data management option, are usually landline based and call a receiver PC at the distribution site when a low-level reorder alarm is triggered. The software packages offered by all these systems display account status with reorder and low-level alerts. These systems can graph the tank level history and usage rates. The more

advanced web sites use history to forecast reorder points.

Pressure is sometimes available and helpful to identify operational failure and remote trouble shooting. Some of the advanced Internet-based systems offer automated truck routing. This feature becomes necessary with large accounts that have grown cumbersome to manage.

### System Evaluations

When evaluating systems, research the costs, features, and benefits each has to offer. The hardware cost required at the customer site and the installation costs are the most obvious. Installations can range from running AC power and analog phone lines to the tank to a complete wireless system, where no utilities are required. Communication technology is one of the variables, along with operational costs such as the monthly fee for the dedicated phone line, or cellular-based and/or Internet-based fees.

Data collection software is another variable. If the system is call receiver PC based, there is usually a one-time purchase of the software to be installed on the dedicated PC. If the system is Internet-based no software is purchased. Finally, evaluate administration costs and system flexibility. The call receiver PC may require an internal IT group to maintain and network, whereas the Internet-based system can be accessed by anyone with Internet access. In either case training and basic skills on hardware and software operation is essential.

### Distributor Benefits

For distributors, the financial benefits of telemetry are not as obvious. The key for the distributor is utilizing data to reduce delivery costs. Routing software is the best way to this benefit. As distributor's accounts grow, the expense of routing software can be justified.

The big benefit for distributors is the improvement in customer satisfaction by eliminating the risk of experiencing a product run out. Boosting customer product security boosts customer retention and ultimately helps increase market share. The salesperson offering

telemetry has a premium feature over a competitor.

In addition, the system eliminates emergency deliveries. Not only do emergency deliveries stress supplier-customer relationships, but distributors absorb a portion of the expense, which eventually drives up delivery costs. Hidden costs can be controlled because of planning. Knowing the customers' product level improves scheduling. Employee overtime and holiday pay can be reduced with better planning, further trimming a distributor's costs.



### Customer Benefits

Telemetry benefits the end user as well. The usage capacity of their tank is increased because deliveries are scheduled at a lower product level without the risk of run out. This can lead to the installation of a smaller tank that fits the distributor's delivery schedule. A smaller tank means a lower tank lease payment.

Delivering more product per drop drives other cost savings, such as fewer delivery charges and fewer hazmat charges.

Another hot topic is losses associated with accounts that operate at high pressures such as lasers. These accounts must be "blown down" prior to filling. The savings from telemetry result from having less product in the tank to depressurize. This means it takes less time to service the account, improving driver efficiency and reducing customer downtime. Also, with less product in the tank, less product is lost during servicing. Finally, as customers move toward activ-

ity-based costing, the ability to monitor their own gas consumption on the Internet is viewed as a key value.

### Are you ready for Telemetry?

Evaluating a business to see if it's ready for telemetry is not an easy task. But as costs of deliveries escalate above the rate of inflation, it becomes a priority. Competition, route density, and accounts to truck ratios also drive the need for telemetry. As a business adds accounts, more deliveries must be made by the same truck during the day. This is especially true for microbulk systems where a driver may stop as many as ten times in a day.

Selling the benefits of telemetry to the end user are easy, but getting them to pay for it is another. For existing accounts, customers are reluctant to pay the distributor for keeping their tank full because this has always been their expectation.

However, a good salesperson can help the customer justify the added cost by showing them the savings in delivery charges. This is different for new or existing accounts that include a gas storage mode change such as from high-pressure cylinders to microbulk tanks. It is an easier sale because some of the mode-change cost savings for the customer can be applied toward telemetry. In addition, because a distributor can install a smaller tank while still maintaining their required delivery cycle, the customer saves even more.

When evaluating systems, make sure all accounts identified for telemetry are considered. For example, one telemetry plan is flexible enough to work for the beverage, microbulk, and bulk tank markets. Having one system for all tanks simplifies the adoption process and controls costs.

Telemetry has many benefits for distributors, improving both customer service and operating efficiency. Today these products are poised to make an impact on businesses that are ready. GWD

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