

Plant Services

A Putman Publication
Reprinted From February 2002

THE BENCHMARK FOR SUCCESSFUL PLANT SYSTEMS & MANAGEMENT



New telemetry technology is making it easier to monitor lift truck fleet operations

By W. Coit Edison

Advanced wireless communications systems, when used in manufacturing and industrial applications, effectively overcome time and distance constraints associated with managing many assets. This is most often achieved using telemetry.

Telemetry applications collect several measurements at a time that are then grouped into a format transmitted as a single stream of data. Once received, this data can be separated into individual measurement parameters for analysis. The transmission medium can be wired or wireless.

Cellular, or wireless, telemetry, allows businesses to track the real-time progress of products, services or assets over great distances or in different locations. This technology already is used effectively in a variety of applications, including pollution monitoring, dispatch services, treatment works for water and supply distribution, sewage treatment and pumping stations.

Inexpensive cellular telemetry applications now are being developed by several companies. Consequently, the technology is no longer limited to large utilities and municipalities. In fact, some companies are applying cellular technology to provide small scale, cost-effective asset management.

For example, the lift truck industry is developing a wireless solution using advanced cellular telemetry technology to monitor lift truck fleets. Placed in each truck, a remote



The lift truck industry is developing a wireless solution using advanced cellular telemetry technology to monitor lift truck fleets.

telemetry unit (RTU) is enabled by cellular telemetry to send real-time information to a centralized location.

The RTU is the interface between the equipment being tracked, its performance sensors and the cellular network. Similar RTUs can use modems, digital/analog sensors, data outputs, outputs to programmable remote switches and connections to PCs, PDAs, printers, video cameras, etc., to collect and receive desired data. The RTU is the interface between the equipment being tracked, its performance sensors and the cellular network.

As asset management continues to be a critical function for businesses with multiple operating units, the collection of data over time and from different locations is a challenge. Current systems use computer technology and manual data entry by employees to collect performance data. Just as the computer revolutionized this information-gathering process years ago, cellular telemetry will offer increased levels of speed and efficiency, and improve accuracy.

Fleet managers using cellular telemetry technology to monitor lift truck fleets can benefit from:

- Real-time measurements of run hours without the onerous manual collection of data at multiple locations.
- Real-time confirmation that each

truck was received at its assigned location, and at what time it began and completed operation.

- Instant idle time versus use time measurements.
- Real-time error or fault-code tracking from one central location.

Although these measurements can be obtained and tracked by conventional means, the speed and accuracy with which they can be collected using cellular telemetry can enhance multiple-location fleet management operations.

Future applications

Looking ahead, cellular technology presents countless opportunities for asset management operations. Companies developing cellular telemetry solutions are updating their technology to leverage other data, such as impact alarms, global positioning systems, operator identification, pre-shift routine and key service interval alerts.

Cellular telemetry technology also is an effective medium for reporting things like theft, mileage, fuel levels, speed and direction, battery status, warning lights and more. As it's developed and implemented, asset managers can find checking truck utilization measurements, operator productivity and the status of allocation plans will be as easy as pushing a button.

And it is getting easier to implement these cellular telemetry applications—as most of them transfer real-time information via the public cellular network. This is a convenient and cost-effective method of transfer, as signal transmission locations (cellular towers) are plentiful across the country and inexpensive to use. Other telemetry applications can be accomplished with wired transmission, but transmission requirements can be costly and limiting in the amount and type of data sent.

In lift truck applications, wired telemetry often is not the best option because it does not permit data to be transferred right from the truck—an operator would have to submit informa-

tion from a static location. The most advanced cellular telemetry systems transfer information directly from the truck via a reduced instruction set chip (RISC) micro-controller custom tailored to the plant's requirements. The chip controls lift truck performance data collection and is the interface between the truck's performance sensors and the fleet manager. Data queries can be requested via the RISC chip from the cellular network at regularly scheduled intervals or at will with a secure Internet portal.

As advancements are made in cellular technology and in assets enabled by RTUs such as RISC micro-controllers,



Cellular telemetry technology is an effective medium for reporting things like theft, mileage, fuel levels, speed and direction, battery status, warning lights and more.

systems can be updated easily. Also, the hardware can be updated to support more advanced applications.

RTUs currently are being tested in lift trucks across the country. Successful cellular telemetry programs are in use in other vehicular applications, including taxicab dispatches, car rental agencies and delivery operations. This technology has proven effective, particularly when used to monitor moving assets, and is as flexible as any other technology solution when developing custom applications and conducting system updates. ☐

W. Coit Edison is president of Greenville, N.C. based, Hyster Co. For additional information, contact Scott Alexander at 252-931-7864 or ahsalex@hyster.com.

Photos: Hyster Co.