

# Freightliner Factory Will Use RFID to Track Production

The maker of trucks and commercial vehicles will begin using active tags to help improve the manufacturing process at its plant in Portland, Ore.

By Beth Bacheldor

Sept. 15, 2006—Next week, [Freightliner](#), a maker of medium- and heavy-duty trucks and specialized commercial vehicles, will begin utilizing RFID at its Portland, Ore., plant to help synchronize the timing of various points during production when critical components are pieced together.

Freightliner, a [DaimlerChrysler](#) company, will use active RFID tags operating in the 818 MHz to 915 MHz frequency range. Workers will affix tags to the truck cabs and metal frames, or chassis, so their locations and the exact times they arrive and leave those locations can be mapped throughout the production process.

"In production, materials and major components and information flows have to be mapped, and a timeline, or sequence of events, must be orchestrated," says Louis Fleischer, plant automation engineer with Freightliner. "The comparison between the processing times gives you the ability to synchronize major components so they meet each other [on the production line] at the right time. The events are managed like a traffic light would manage traffic flow. With the RFID system, we can predict the impact on delivery [of the truck], or the impact on another stage in the production process."

After considering as many as 12 solutions featuring both passive and active tags, Freightliner opted to work with [Cactus Commerce](#), a software and services company focused on supply-chain management, enterprise collaboration and integration, and e-commerce, and RFID hardware provider [Identec Solutions](#).

Freightliner went with Cactus Commerce and Identec Solutions because the latter's RFID system operated well in the truck-maker's production environment, which includes a lot of heavy metal and "robotic welding that would interfere with a majority of tags and readers," Fleischer says. In addition, the tags had to provide a read distance of more than 100 feet. Freightliner required such a long read range because there are areas within the plant where things such as the robotic spot welders can interfere with the RF signal. To track assets in an area handling 10 chassis, for example, a read range of 210 feet would be required. "Identec Solutions provides the ability to read up to 300 feet with only one reader," says Fleischer. "It does not require a lot of expense for the active RFID infrastructure to read at this kind of distance."

As the cabs and chassis move through production and strategically placed interrogators throughout the assembly line read the RFID tags, the tags' unique ID numbers will help Freightliner determine where each cab and chassis is, along with the time of day the cab or chassis is at that location. Readers are positioned at each pool—a work area with processes grouped together to produce a family of parts or installation process, thus completing the cycle time of a particular production requirement. Each reader has four antennas that can be used and assigned to specific zones to determine location. A total of 12 readers have been deployed, and Freightliner is currently using 32 antennas, positioned throughout the plant.

Freightliner will analyze the tag ID numbers and associated data (times and locations) for each vehicle to improve efficiencies on the factory floor. This is expected to help determine, among other things, which areas on the production floor are underperforming and creating bottlenecks during assembly.

Thus, Freightliner can leverage the RFID implementation to further enhance its lean manufacturing practice. This methodology is intended to eliminate all waste from the manufacturing process, encompasses a number of modern practices, including just-in-time processes that seek to have parts arrive when needed for production, rather than ending up as inventory.

Fleischer says the RFID technology will also be integrated with other systems, including the company's manufacturing execution system (MES), used to track and manage work-in-process functions on the plant floor, and a video-streaming system that documents response times to events during assembly and various production actions. "Video streaming will enhance the real-time RFID data," he says. "You can monitor the actual event with real-time video streaming for a visual verification. You can view events [as they happen] to verify the severity and make a decision right now, instead of waiting for the line to shut down."

Freightliner expects the RFID deployment in the Portland plant to serve as a showcase for other divisions within the company, and is exploring additional RFID applications designed to help track and manage the production of engines, transmissions, hoods and fenders.

Ultimately, RFID will benefit Freightliner, its customers and its suppliers "by making the [supply-chain] process completely transparent, and by generating a pool of real-time data for sound decision-making," Fleischer says. "The adoption of real-time tracking will improve the quality of our products and boost our output, as well."

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