

All together NOW

French temperature-controlled specialist Chereau has created a way to improve the 'dialogue' between tractors and reefer trailers, making life easier and safer for operators and drivers.

Brian Weatherley reports

Multiplexing is nothing new. In electronics engineering, the term refers to the process of combining several electrical signals or digital data streams together on a single cable or channel. With multiplexing, it's possible to not only reduce the length of cables but also the number of connections on a vehicle - in the passenger car sector it's said to have already reduced vehicle wiring by up to 30%.

Chereau's latest multiplexing system is claimed to provide superior connectivity, giving drivers and operators more control, greater efficiency and improved safety. "When we look at the future, we see more connected vehicles," says marketing and communication manager Christophe Danton. "That's one of the main trends for the coming years. Our customers need more and more interactivity between their vehicles."

Its multiplexing offering, the result of a three-year project, launches this month at Solutrans in Lyon, France (21-25 November). However, the author was given a sneak preview of the prototype,

based on one of Chereau's regular 13.6m reefer trailers coupled to a new Scania S580 tractor. This unit is the first time the technology has been applied to a temperature-controlled semi-trailer.

What Chereau's multiplexing effectively does is to gather all the data connections relating to the semi-trailer's refrigeration system, along with information from sensors on other items of equipment like the tail-lift and rear doors, into one main data control box located close to the front bulkhead. Using the standard 15-pin electrical Susie as the data bridge between trailer and tractor, the agglomerated trailer data, including information from the fridge unit and other sources, can then be displayed on the large driver information screen typically found within the dashboard of most modern tractors.

Chereau has been working closely with the truck manufacturers to ensure that the data captured within its multiplexing system is compatible with their dashboard units, which differ from one another. On the prototype Scania installation, the multiplexed trailer data is displayed on the central screen section

between the rev counter and speedo. (It is pictured above. Translated, the alert message reads: 'The box is opened or unlocked'.) However, ultimately the system is expected to be capable of recognising any tractor it is connected to, presenting the data in an appropriate format for that unit's dashboard display.

With Chereau's new system, there's no need to fit a separate read-out unit for the fridge in the cab, as the information can now be displayed on the truck's dashboard.

Until now, communication between a tractor and trailer has been effectively limited to data concerning braking and lighting. With multiplexing, drivers can now see, on the dashboard, much more key trailer data. That list includes trailer height or axle loadings, reefer data including body temperature, fridge alarms or fault codes, fridge fuel-tank levels and open-door warnings. Chereau reports that it is currently working closely with Carrier and Thermo King on this multiplexing project.

The system's connectivity should appeal to temperature-controlled sector operators and drivers alike. For example,





having detected that the reefer's rear doors have been opened, the fridge unit and blower can be set to automatically switch off. Why stop the air circulating? Because with the doors open and blower still working, it takes only 55 seconds to empty the trailer of all the accumulated cold air. "There's no point having the fridge running if all the air is going out," Danton points out.

By installing CAN-Bus sensors to other pieces of equipment like the rear doors, engineers can also create other automatic trailer functions that improve driver ergonomics. For instance, if the tail-lift is activated or the rear driver step is pulled out, the trailer can automatically open the SmartOpen-C rear door and switch on the trailer's LED interior and exterior lighting. Or turning off the fridge

unit can be set up to spontaneously trigger Chereau's optional AirShutter-C air-blind, which blows a wall of cold air down from the top of the open door aperture.

Multiplexing offers safety benefits, too. The system could warn the drivers in the cab (both visually and audibly) if they try to set off with the tail-lift lowered, or rear doors open; in those circumstances it could also prevent the tractor's engine from starting. With appropriate sensors fitted, the system could even be configured to keep applying the vehicle's brakes until the lift is raised or the door is shut. Another example: when the SmartOpen-C rear door closes, it flashes the interior LED lights as a warning to anyone still working inside the trailer, because internal door controls and a



built-in anti-trapping device are standard with the SmartOpen-C.

One other notable benefit of Chereau's multiplexing system is its provision of a single, hand-held, 'master' controller (pictured) that is capable of operating a number of functions from the back of the trailer, including suspension height, tail-lift, fridge temperature, interior lighting and so on. And while Danton confirms there'll be a cost for adding unique operator-requested functions to the basic system, he adds that it still offers an advantage over the old way. He says: "You won't need extra cables everywhere. With one control unit you can do several functions. With this system we have greater integration."

Two months ago, Chereau began to supply customers with pre-production demonstration multiplexed reefer trailers ahead of the official Solutrans launch.

Incidentally, one advantage of Chereau's multiplexing system is that it offers the opportunity for bundles of reefer trailer data to be communicated back to an operator's base, in real time, via a telematics link. It can also share vehicle data, according to Danton, as long as the equipment partners agree to share the data. What it will not do is become a telematics provider.

"Our core business is building a trailer and providing solutions around the trailer," maintains Damien Destremau, CEO of The Reefer Group, parent company of Chereau in France and SOR in Spain. "We're collecting data from the running of the trailer and we're giving it to the telematics specialists who will then give all the information to the customer." [TE](#)

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Intelligent Mobility Accelerator R&D project – <https://is.gd/ojumes>