FREIGHTLINER
WORK SMART™

FREIGHTLINER VOCATIONAL

SMARTPLEX™
ELECTRICAL SYSTEM

SmartPlex™
Electrical System

SMART SOLUTIONS.
EXPANDING POSSIBILITIES.

Work Smart.

In this business, hard work is a given. And at Freightliner, we don't just put our backs into it. We put our brains into it. Around here, ingenuity is the name of the game. That's why we've spent a decade developing and refining multiplex electrical wiring. Our latest evolution is the SmartPlex Electrical System expansion. With SmartPlex, we focused on providing Truck Equipment Manufacturers (TEMs) the most efficient and reliable solution that will increase the ease of body integration and application programming, and keep our customers on the road and working smarter, as does the relocation of the Power Distribution Module inside the cab for corrosion prevention.

How does it work?

You're certainly familiar with conventional point-to-point wiring systems. They use separate wires to control each function. And if a typical truck has hundreds of functions, you have a lot of wires to run and maintain.

Multiplex wiring, on the other hand, allows multiple electronic messages to travel back and forth through the J1939 data bus. This reduces the number of wires by nearly 40 percent.
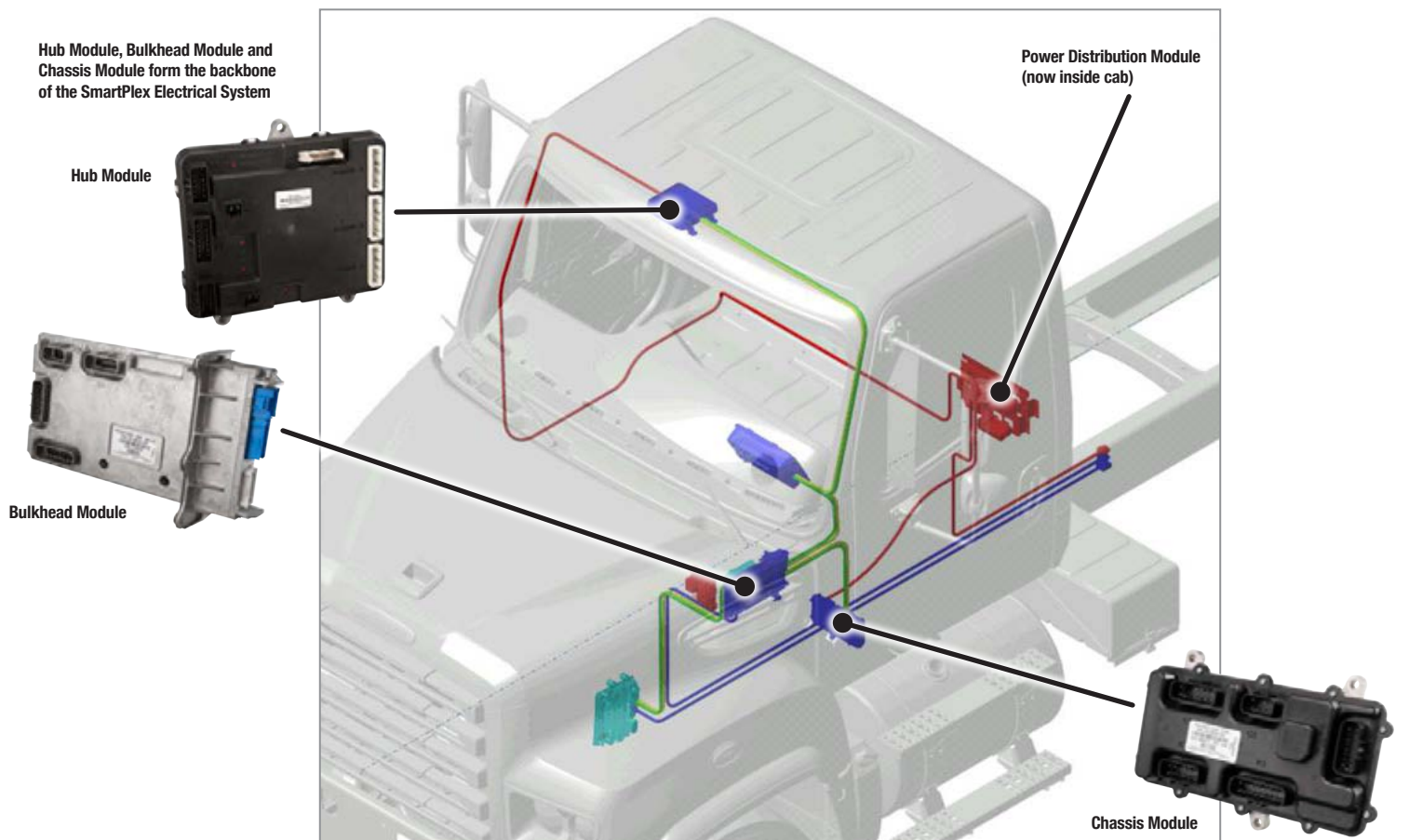
The SmartPlex Electrical System is controlled by Freightliner's proprietary control modules that relay data, sending and receiving commands. Electrical components such as switches and lights are connected to these modules, which monitor and control their operation.

The Bulkhead Module is the primary command module for the SmartPlex Electrical System. It directly controls other component modules, like the Chassis and new SmartPlex Hub Modules.

The Chassis and Hub Modules respond to commands from the Bulkhead Module and broadcast the status of the inputs and outputs that are sent to and delivered by the modules.

Smart switches are low-current switches that communicate with the Bulkhead Module, signaling their status. Each switch is programmed with a unique identifier signal that is recognized by the SmartPlex Electrical System no matter where you choose to install it.

SmartPlex indicator lamps provide the vehicle operator with feedback or warnings regarding the functioning of the truck. These lamps are also interchangeable, so they can be placed in the most effective locations.

Hub Module, Bulkhead Module and Chassis Module form the backbone of the SmartPlex Electrical System

Hub Module

Power Distribution Module (now inside cab)

Bulkhead Module

Chassis Module

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The primary benefits of the SmartPlex Electrical System:
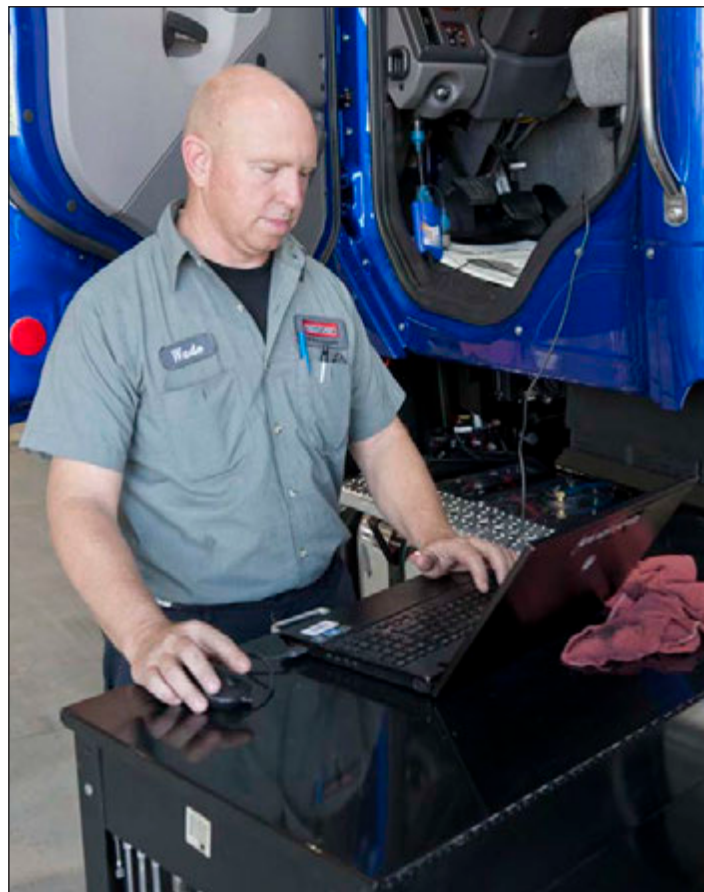
Improved Reliability

The multiplex wiring system has reduced the number of wires by over 40 percent, from 650 to 350. That means 300 fewer possible failure points, as well as fewer connectors, relays and fuses. Advanced solid-state components further enhance the reliability of the multiplex system, as does the relocation of the Power Distribution Module inside the cab for corrosion prevention.

Easier Maintenance

Onboard computers capture data, providing better diagnostic capability. When problems occur, the data is relayed to the dashboard, alerting the operator. This data can also be accessed using Freightliner's ServiceLink® software for diagnosis by a technician.

Greater Flexibility

Configuring a truck's wiring system is easier than ever. Simply install specific switches where they are most convenient; then use ServiceLink to program them to do what you want them to do. This is especially beneficial for vocational body installations. And if you want to reconfigure a truck's switches later, it's a simple process. There's no need to rewire or reprogram.

Freightliner's ServiceLink software allows technicians to easily program and diagnose the SmartPlex Electrical System.

SmartPlex switches are simply connected to the location of your choosing and are ready for operation.

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The brilliance of smart switches.

The ability to operate a vehicle more efficiently and effectively is the ultimate purpose of the SmartPlex Electrical System. That effectiveness could mean getting a construction project done under budget or an ambulance to the hospital more safely. So, at Freightliner, we've focused on making our trucks easy to configure for the truck equipment manufacturer, so they can configure it any way the end user wants.

That begins with the operator's interaction with the system. And the first point of contact is a smart switch, which can be selected, installed and programmed to your precise specifications. Actually, there are two general types of smart switches: pre-labeled smart switches (located in the dash) and SmartPlex switches (located in the overhead compartment), which are installed and labeled by Truck Equipment Manufacturers (TEMs) for specific applications. These new SmartPlex switches are supplied with a set of laser-etched plastic inserts with icons that are appropriate for your industry and/or the type of truck. You simply snap the inserts onto their corresponding switches.

Each SmartPlex switch is simply part of a computerized network and has a unique identifier that the system recognizes. So, if you want to move a SmartPlex switch from the dash to the overhead, or vice versa, go ahead. No additional reprogramming is required. All smart switches are available in two and three position configurations, momentary and latching, to provide ultimate flexibility for truck configuration.

Overhead panels incorporate SmartPlex switches and SmartPlex indicator lamps.

Pre-labeled and programmed smart switches installed in dash panel.

SmartPlex switches are supplied with a set of laser-etched plastic inserts with icons specific to your industry.

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SmartPlex is the smarter way to build, customize and expand.

The SmartPlex Electrical System expansion and new Hub Module enable Truck Equipment Manufacturers (TEMs) unsurpassed flexibility. For starters, Freightliner has pre-engineered standard interfaces for engine wiring, transmission wiring and body lighting. Vehicle Interface Wiring Connectors provide an easy "plug and play" point for TEMs to connect such things as brake lights, turn signals and tail lights. These connectors eliminate the need for splicing and provide an easy access point for wiring. Plus, the body lighting connectors are available in both high and low current options to meet the needs of all TEMs.
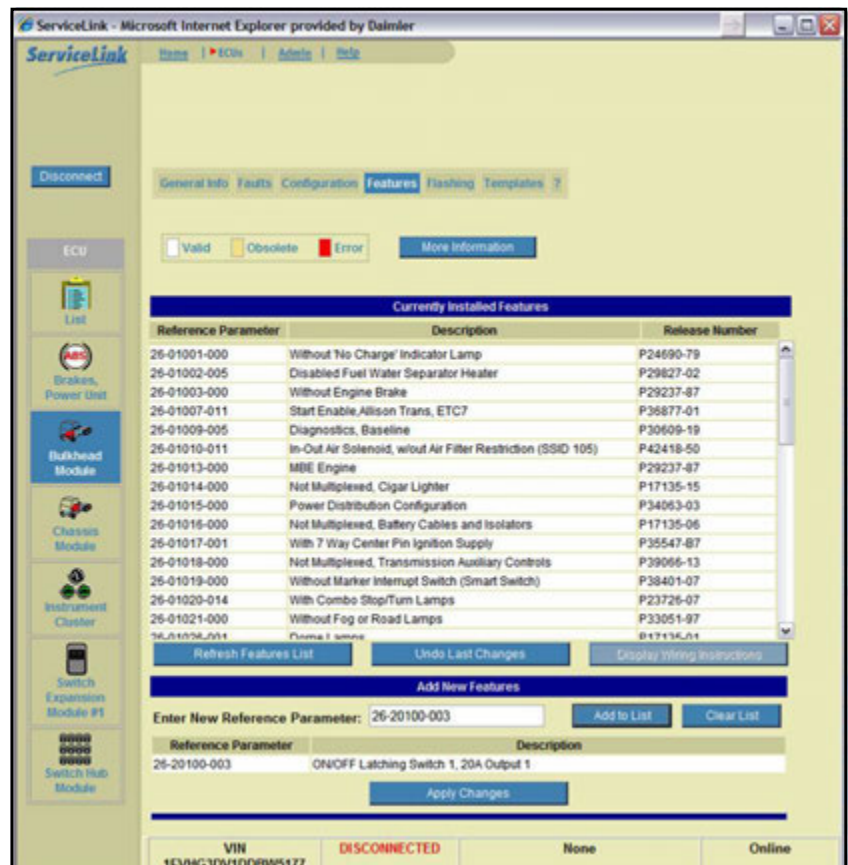

Hub Module provides TEMs the flexibility to add up to 24 additional switches and lamps in overhead console.

ServiceLink®

Freightliner's ServiceLink® software communicates directly with the Freightliner proprietary control modules on vehicles. When you specify a vehicle, we use the software to program its SmartPlex Electrical System. If you want to add additional functionality to SmartPlex, ServiceLink allows you to download new programming to the truck at your facility. You now have the flexibility to add whatever combination of features a customer needs at any time. And Freightliner does all the programming for you.

We have a full suite of features from our SmartPlex Parameter Database for you to choose from as well as the ability to create custom parameters for your unique needs. If you ever need to modify or expand the system for a vehicle, Freightliner will make new parameters conveniently available for you to download from our network.

Freightliner's ServiceLink software provides technicians an easy-to-use computer interface to communicate directly to the vehicle's SmartPlex Electrical System.

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SmartPlex Factory Features:

While there are hundreds of existing standard factory features, a few examples of the most common are listed below.

SAFETY FEATURES

Automatic Headlights when Wipers Engaged

- Feature: Engages headlights when driver turns on the windshield wipers
- Benefit: Increases driver visibility and makes the truck more visible to oncoming traffic

Radio Off in Reverse

- Feature: Cuts power to radio when truck is in reverse or PTO engaged
- Benefit: Removes a driver distraction while backing up and lowers noise level so driver may hear horn warnings from other vehicles

Park Brake Not Set Warning System

- Feature: Horn warning when driver door opened with park brake not set
- Benefit: Helps avoid damage due to vehicle not having park brake set

RELIABILITY FEATURES

Exterior Regen Notification

- Feature: Combination horn and hazard lamp exterior warning for Stage 1 and 2 regen notifications
- Benefits: Notifies driver of manual regen required and avoids potential plugging of Diesel Particulate Filter

Automatic Slowest Wiper Speed with Park Brake

- Feature: Reduces wiper speed to slowest intermittent speed setting when park brake is set regardless of wiper switch position
- Benefits: Reduces wear and tear on wiper motor and decreases frequency of wiper blade replacement

Solutions that keep you working smarter.

Working smart begins on the drawing board with innovative and practical ideas like the SmartPlex Electrical System. But the true test is how these ideas impact our customers in the real world. SmartPlex offers tremendous flexibility for specifying vehicles, so that they can perform more effectively. The simplified design of the system can greatly reduce the time it takes for
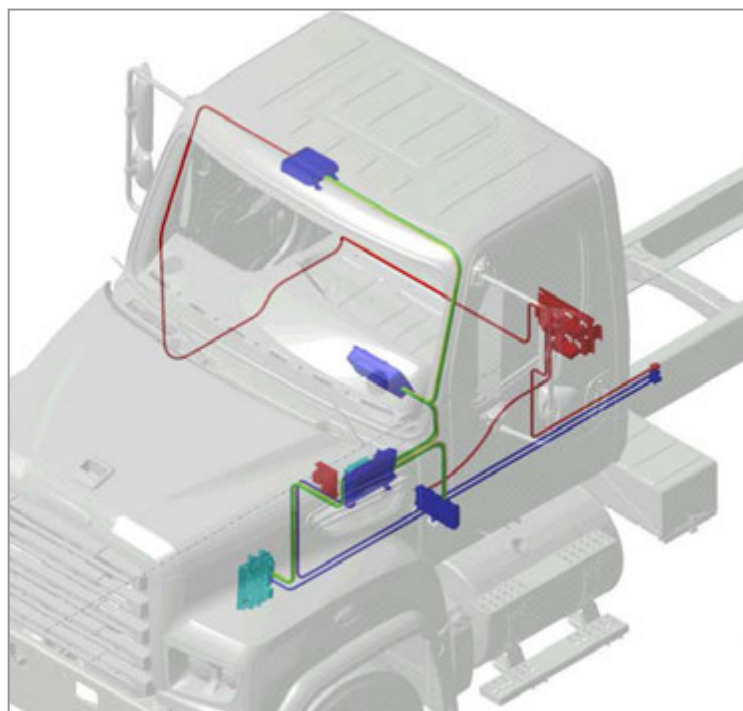
PRODUCTIVITY FEATURES

PreTrip Light Inspection

- Feature: Automated light inspection feature actuated by dash mounted smart switch, including back up lamps
- Benefit: Allows operator to complete a walk around light check without additional person to assist

Alternating Flashing Headlights (Wig Wag)

- Feature: NFPA compliant headlight warning system for emergency vehicles with dash switch actuation or customer-supplied ground input
- Benefits: No 3rd party switches needed for the dash, eases truck equipment manufacturer body integration and provides OEM finish

TEMs to install a body. And the technical support from Freightliner helps ensure a successful partnership, today and into the future.

At Freightliner, we promise to continue to develop innovative solutions like the SmartPlex Electrical System. So you can continue to Work Smart.