

Smart Link - III White Paper

SmartLink-III™ is the latest evolution of our system architecture for integrated cabin management. SmartLink-III™ (SL-III) is a completely proprietary system developed by DPI Labs in response to the unique requirements of the corporate and private aviation market. It is based on a RS-485 digital data bus and offers unparalleled performance and flexibility. Due to its compact and tightly integrated electronic packaging, SL-III offers a very low installed weight while still providing high reliability and maximum adaptability to the largely custom requirements of corporate aviation aircraft. It sets new technological standards and supports the flexibility required for simple or complex system integration as well as easily accommodating future changes that may occur during the service life of an aircraft.

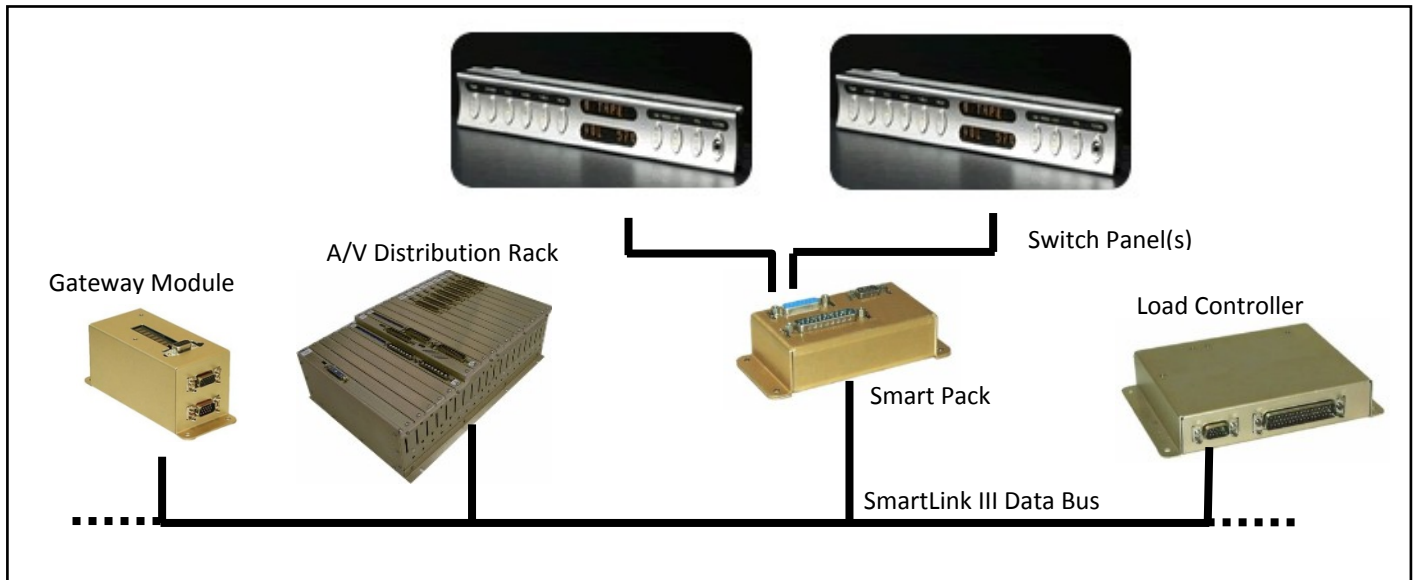
Every component in a SL-III system is a “smart part” and contains its own microprocessor controls. These embedded control modules, which continually perform self-diagnostics, ensure a cabin management system with high reliability.

Typical data bus systems have a single, centralized CPU module controlling the entire system, and should this module fail, the entire system fails. With the SL-III distributed logic design, a system wide outage caused by a “single-point” failure cannot occur. Every device on the SL-III bus automatically and electrically removes itself from the data bus in the event of a failure. This style of architecture prevents a single, malfunctioning module or component from loading or corrupting the data bus, and hence, the entire cabin management system. Every switch panel on SL-III has its own remote electronics module and will retain all local functions in the event of a bus failure. Other SL-III features include a robust “Watchdog Circuit” and an Anti-Collision Code protocol.

The wiring for SL-III is a very simple, single data line bus for the cabin with every component connected via a “T” junction. This data line bus, using a twisted, shielded wire pair, provides the means by which all components communicate. The data bus allows easy handling of complex functions with multiple location controls, which are accomplished without any additional wiring. The SL-III anti-collision code is a proprietary development to handle simultaneous commands in the system so that all commands are processed correctly without any delayed, lost, or unintended commands.

Entertainment system control is accomplished via the same single SL-III data bus. Command codes for the individual headphones, cabin speakers, main video monitors and individual flat screen monitors are processed through the same data bus. The command codes for the entertainment functions travel through the bus to the Audio/Video Distribution Rack.

The SL-III system also provides a tremendous advantage in providing diagnostic capabilities. These diagnostic functions are performed using a Laptop PC. The diagnostic program allows the cabin management system capabilities to be operated from the computer. This allows the system and individual component condition to be evaluated quickly and easily, and should there be a problem, it is pinpointed with minimal effort. This reduces verification time during completion checkout by install shop and also reduces maintenance time for the operator after the aircraft enters service. An optional Gateway module, SL-1968-9, is required for this feature.



A laptop PC can also be utilized for downloading the system configuration and display labeling. This flexibility for making changes with minimal impact is inherent within the SL-III system. Functional characteristics to accommodate the various customer selectable options are easily configured into the system. Virtually any of the basic system default settings can be altered at any time, if desired. The alphanumeric LED dot matrix displays can be easily and quickly downloaded with the specific labels for each display wording and the entertainment source sequencing. Even foreign languages and symbols can be accommodated.