



MIL-STD-1553 “SnS”

BC & RT

Embedded Firewall



Background

By means of enhanced physical layer monitoring, Sital Technology's Safe and Secure (SnS) technology is able to detect instances of cyber authentication "spoofing" violations, and can also detect intermittent open and short circuit wire faults in bus and stub cables, connectors, couplers, termination resistors, and connected LRUs.

Sital provides a portion of its SnS technology in its standard MIL-STD-1553 Firewall BC (bus controller).

If Sital's Firewall BC detects a malicious transmission by a "spoofing" BC, it provides intrusion detection (IDS) capability by alerting its host processor of the cyber authentication violation by means of register and memory bits, along with an optional interrupt request. An added option for the Firewall BC is intrusion protection (IPS) capability. If activated, the firewall BC will transmit on top of detected messages from non-authenticated (spoofing) BCs. This prevents RTs on the bus from validating the reception of data received from the "spoofing" BC.

As a roadmap feature, Sital also plans on introducing its Firewall RT feature into its standard product IP later this year. If the Firewall RT's IDS logic determines that the message's fingerprint matches the stored value, it will accept the received message as authenticated and therefore its data as valid. However, if the Firewall RT IDS logic and software detect a fingerprint mismatch, they will determine that the message was not transmitted by the authenticated BC and therefore could include malicious data. In that case, if the RT's host activated its intrusion protection (IPS) logic, the RT will discard data received from the detected spoofed message and provide indications to its host CPU by setting a Block Status Word bit and issuing an optional interrupt request.

Sital's full-up Safe and Secure (SnS) technology provides all the features and benefits of its Firewall BC and Firewall RT IDS and IPS capabilities along with SnS's capability to detect and locate wire faults. Such faults include intermittent or continuous open or short circuit wire faults in 1553 or 16PP194 bus and stub cables, connectors, couplers, bus terminators or connected LRUs. By detecting and locating such faults while they're still intermittent, Sital's SnS provides the means to alert ground maintenance personnel of impending wire, connector and terminator failures before they evolve into continuous faults and threaten mission readiness. This enables faults to be repaired quickly, thereby reducing repair costs and increasing fleet readiness.