



Invocon, Inc.

Application Spotlight – IWIS

Monitoring Structural Integrity of the Space Station

The complexity, size, and location of the International Space Station (ISS) have made it impossible for engineers to accurately model its on-orbit structural characteristics. Therefore, NASA must carefully monitor the ISS each time its configuration changes and during significant events such as when visiting vehicles dock and un-dock.

Furthermore, the ISS must be monitored from many different locations in a synchronized manner in order to determine its structural modes. These monitoring locations change as the structure changes, so it is imperative that the monitoring system be flexible, easily reconfigurable, and synchronized.



International Space Station

Invocon's extensive experience with wireless instrumentation for aerospace applications prompted NASA to commission the Internal Wireless Instrumentation System (IWIS). This system has several unique features that enable it to meet the requirements of this challenging application.

They include:

- Easily portable throughout the ISS
- Micro-g level measurement accuracy
- Wireless communication
 - Automated networking
 - 300 nano-second synchronization
- Software configurable



IWIS Installed in the ISS

IWIS has been used by NASA to insure the integrity of the ISS in spite of multiple concerns. Some of these applications include:

- Reboosting the ISS to a higher orbit
- Docking and undocking events
- Vibration from exercise equipment

The wireless capability of IWIS simplifies reconfiguration of the system for these different applications.