



## SMART SENSING SYSTEM (S3) STRUCTURAL HEALTH MONITORING (SHM)

# ON-DEMAND STRUCTURAL INTEGRITY AWARENESS

## A light, scalable aid for aircraft inspection

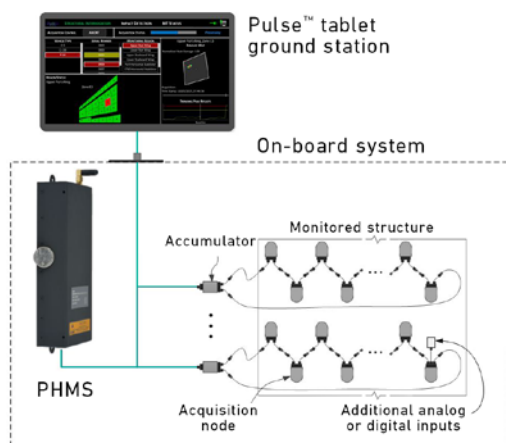
Our Smart Sensing System Structural Health Monitoring (S3-SHM) integrates a Guided Wave-based structural damage detection system to enable total aircraft health management. Designed for ease of installation and durability, the S3-SHM can be permanently installed to aid in the inspection of hard to reach locations.

### KEY BENEFITS

- Improved safety and reliability
  - Detects cracks, holes, composite delamination, loose or removed bolts/rivets, corrosion, dents and strain
- Flexibility
  - The S3-SHM system can be installed as a stand-alone structural health system or can be integrated with a Pulse™ Health Monitoring System (PHMS) vehicle health system

### KEY FEATURES

- On demand non-destructive evaluation of structures
  - Sensor arrays provide on-demand or scheduled inspections
  - Reliable, repeatable and highly accurate evaluation of target structures
  - Collins Aerospace Pulse™ tablet-based ground applications provide sensor status, structural status and easy visualization of structure and fleet trends
- Real-time assessment of structural health: bird strike, contact from ground support or service equipment while on ramp, battle damage
- Hot spot monitoring: track history and current state of known problem areas related to corrosion or fatigue



## SHM SYSTEM COMPONENTS

### Pulse Tablet Ground Station (GS)

- Off-board system used to interface with the PHMS
- Allows users to perform system configuration, reprogramming, acquisition command, BIT status and data management actions for the PHMS and the S3-SHM system
- The GS also serves as a means to analyze, display, trend and archive SHM and Health and Usage Monitoring System (HUMS) data

### Pulse Health Monitoring System

- Central interface to seamlessly manage multiple S3-SHM system networks
- Coordinates all system functions, including system command and control, data storage, BIT processing and system software updates
- Interfaces with other sensor types for traditional health monitoring system capabilities
- Provides data-logging aircraft parametric data

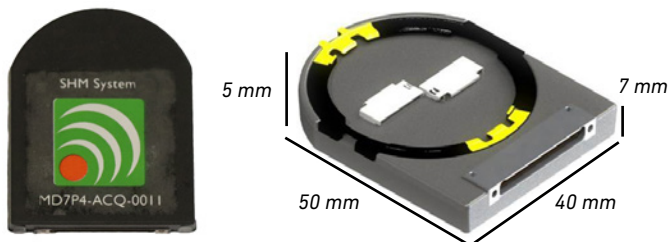
## SPECIFICATIONS

- Up to 512 GB flash memory
- Partitioned processing capable of hosting third party software
- Ethernet or USB data download/transfer
- S3-SHM weighs ~ 3 pounds
- PHMS LRU weighs ~1 pound
- Multiple arrays can be networked in distributed architecture to save wiring weight
- Designed for DO-160G, MIL-STD-810G and MIL-STD-461F environments
- Designed for DO-178B DAL D certification

## COMPATIBLE TECHNOLOGIES

- Collins Pulse Ground Station (tablet or PC)
- Collins Pulse drive train or subsystem health monitor system with diagnostics

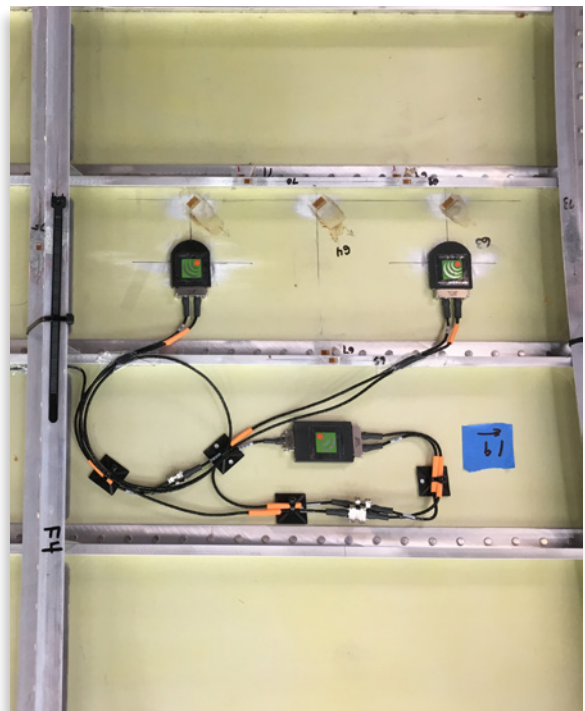
Acquisition Node



Accumulator



Representative installation of sensor array



Specifications subject to change without notice.



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