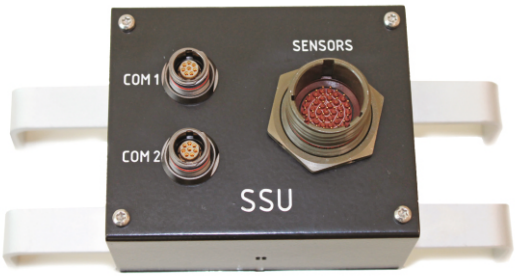
MESIT

GROUP OMNIPOL

Integration of the SHM to System for Ensurance of the Airworthiness

The SHM system is a measuring system acquiring data to determine the current state of airplane parts. The system enables excitation of surface ultrasound waves in the material by means of small and light PZT actuators and sensing of the interaction of these waves with material inhomogeneities using identical PZT elements.

- **Reliable diagnostic system**
- **Hardware meets the RTCA DO-160**
- **Any number of measuring units according to the airplane design**
- **Communication line RS-422 and USB**
- **Complete data for the analysis of airplane structure defects**
- **Regular monitoring of the airplane structure in places that are difficult to reach without dismounting**



System composition

The system consists of a central unit that controls measuring units. Each unit is connected to several PZT elements. The number of measuring units and thus the number of monitored areas is arbitrary and depends on the design of the airplane.

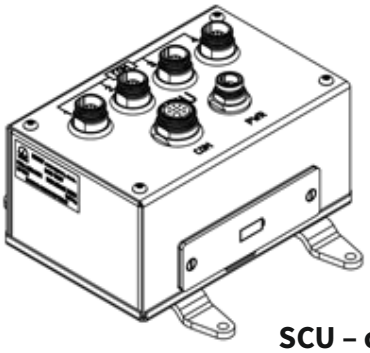
The control centre of the SHM system is an SCU unit equipped with a memory storage for the aggregation of measured signals. The storage also contains measuring configurations that can be used to create measuring scenarios depending, for example, on the number of flight hours.

Description of the function

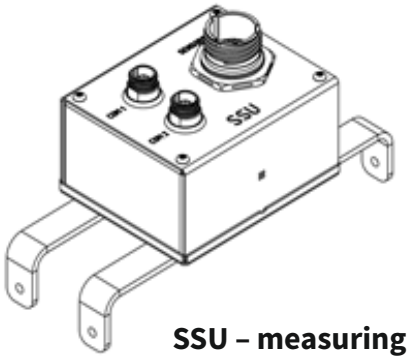
The control unit is accessible by parent systems through communication line RS-422 and standard USB interface.

The USB interface is used to set configuration files for measurement according to the current installation in the airplane. The same interface provides access to the measured data. This data is intended for downloading to a PC and subsequent analysis to determine airplane structure defects or to predict spreading of these defects.

The SCU unit is connected by a digital communication line to SSU units that perform the measurement itself. The SSU units are connected to small and light PZT actuators that can be integrated in the airplane structure or installed in normally inaccessible places. This provides regular monitoring of the airplane structure in places that are difficult to reach without dismounting critical parts.



SCU – control unit



SSU – measuring unit

Technical parameters

Supply voltage	22.5 VDC – 32.2 VDC, emergency 18 VDC
Operating temperature	-55 °C to 70 °C
Weight	max. 0.5 kg (SCU) / max. 0.4 kg (SSU)
Dimensions	80 mm × 120 mm × 59 mm (SCU) / 79 mm × 97 mm × 49 mm (SCU)
Certification	RTCA/DO-160G

Application

The SHM system is supplied for airplane L 410 NG.

519–07/18/EN

MESIT asd, s.r.o.
Sokolovská 573, Mařatice
686 01 Uherské Hradiště
Czech Republic

asd@mesit.cz
T +420 572 522 200

Sales
T +420 572 522 804
F +420 572 522 806

www.mesit.cz