TECHNICAL DATA SHEET

GMIUCS87B02

Ultrasonic console «ELISA» for Non Destructive Tests - NDT

► DESCRIPTION

The console “ELISA” is equipment dedicated for MROs and Airline Maintenance Centres for NDT departments in their tasks of damage assessment on advanced composite structures. It has been designed to meet the complete requirements of the technicians. For this, Elisa groups all the necessary instruments and parts for conducting damage analysis by Ultrasonic Methods on carbon structures.

The objective is to allow the technician to draw the limit of damage (delamination or disbonding) and to specify the depth position of a delamination.

The Ultrasonic Instrument itself is appropriate for working on carbon structures; it is light, not cumbersome, and offers all the sophisticated treatment capabilities of a PC Integrated Instrument. The system is conceived so that a delamination can be detected and its position determined in terms of ply.

The „ELISA” Console is built according to the same principle as other repair equipment from GMI_AERO; which is to offer all the equipment and accessories for an operator to be independent in the field or in the workshop.

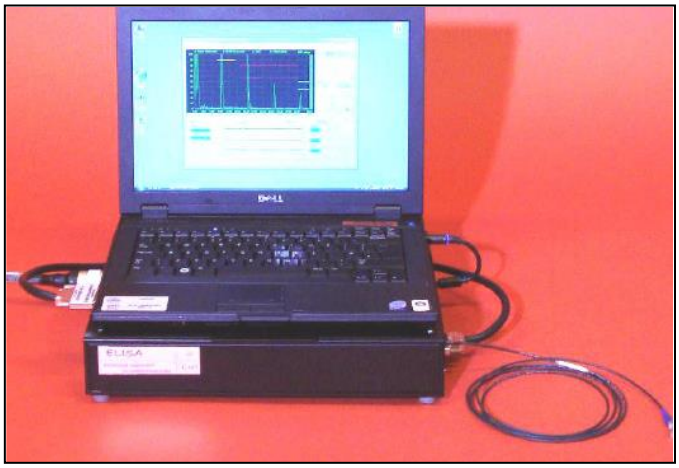
The ultrasonic device “ELISA” was specially developed for an ultrasonic assessment of damages. The sensitivity of this device allows you to define damages of the first or second layer of composite laminate which is often the result after blowing. Definition of signals on the computer screen makes simple analysis in the checked area. The device possesses excellent resolution for surface close area.

In a standard version, the console is built to content:

a. The Ultrasonic Instrument with interface to a PC Laptop,
b. Two Sensors for Carbon Structure Damage analysis,

c. A complete list of necessary accessories to implement the analysis in the field,
d. A Methodological Manual for Ultrasonic Analysis on Carbon Structures,
e. In option, a unique set of comprehensive carbon thickness standard for ply number calibration.

► THE ULTRASONIC INSTRUMENT

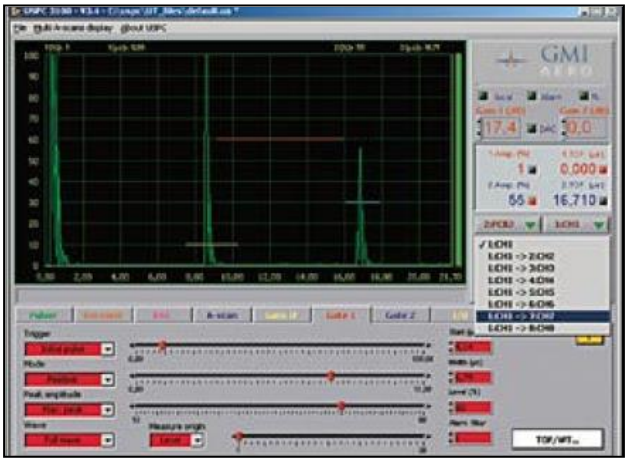


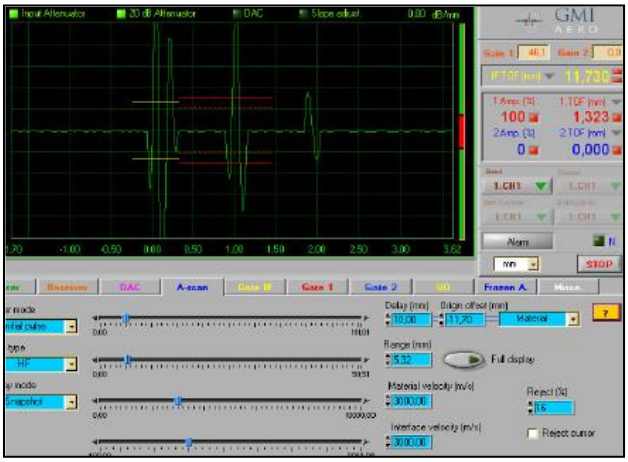
The instrument is integrated into a slim portable metallic case. This case can be installed securely near the working surface.
It has an interface to a laptop that supports the drying software. The PC can be conveniently installed on top of the case.

- Dimensions of the case:
- Weight: 2 Kg
- 220/120 Volts - 600 Watts

► INSTRUMENT SPECIFICATIONS

The Elisa ultrasonic board has been specially developed for the ultrasonic damage assessment. In particular the sensitivity has been studied to get the possibility to discriminate a disbonding after the first or second ply as it is frequently the case in the context of damage on composite structure after an impact. The definition of signals on the PC screen is clear for an easy analysis in the field.



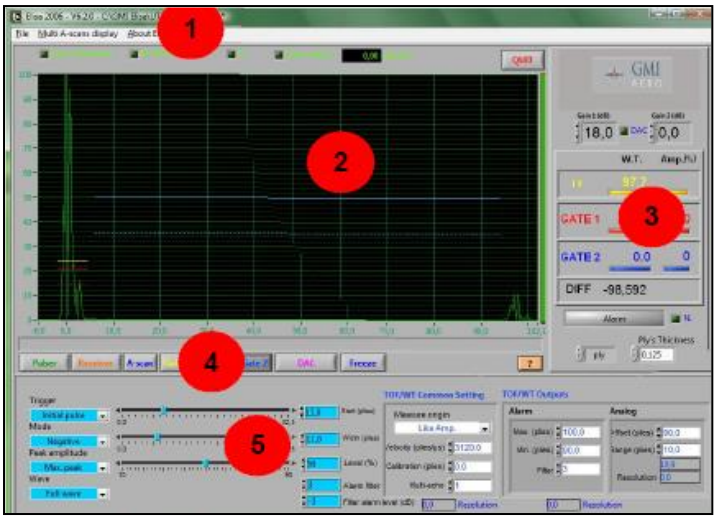


► ELECTRONIC WITH UNIQUE FEATURES

Square wave pulser:	< 5ns fall time
Bandwidth:	0.35 to 30 MHz
200 MHz A/D converter:	10-Bit
Amplifier linearity:	± 0.5 dB
TOF/WT Resolution:	near surface better than 1 Dm
PRF:	20 KHz
Dynamic Range:	105 dB
Low Noise:	< 20% FSH
Display Vertical Linearity:	± 1%
DAC Slope:	± 40 dB/Ds

The PC software has been conceived to offer all the tuning capabilities required to program the parameters of a Scan by transmission. The typical screen (see figure below) displays clearly all the values of the operation from 1 to 5.

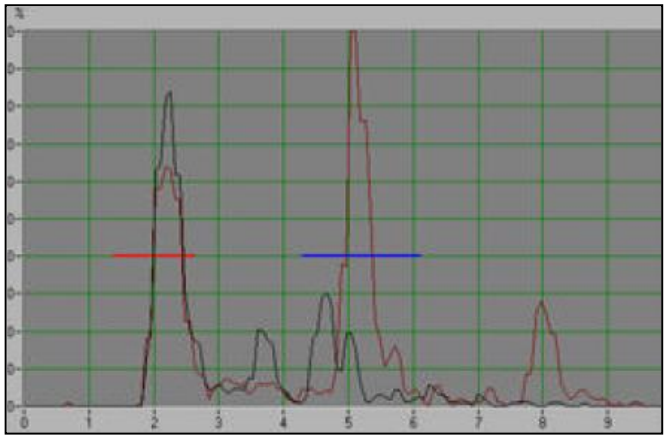
1. The Menu Bar 1
2. The graphic window 2 with the ultrasonic signal displayed.
3. On the right of the screen, the 3 frame indicates the current measured amplitudes and distances, and the alarms.
4. In 4, the line of buttons used to select functions.
5. The lower area in 5 present the settings of the selected functions of the application.



► SOFTWARE FUNCTIONS

The software allows easy operation:

- Easy and instantaneous set up
- Memorization of settings
- Memorisation of reference echoes (use of specimens see picture)
- Triggering alarms
- Display mode: HW+, HW-, FW & RF
- Gates: Yellow (IF), Red (G1) & Blue (G2)
- DAC Curve: 0% to 70% FSH (0-70dB Dyn.)
- Delay: 0 to 655Ds - 20ns step
- A-Scan length : 100 to 512 points
- Units: Ds/mm/inch

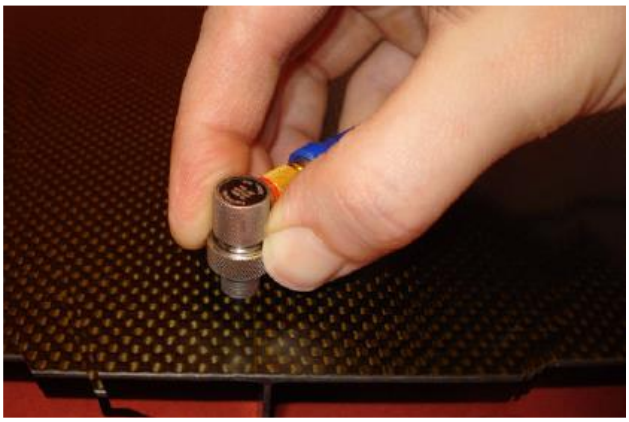


► A COMPREHENSIVE KIT

The Kit is delivered complete for usual inspection.
The instrument with a Laptop with software installed.
Two probes 10 MHz are delivered; they have been selected for optimum performances on carbon skins. Together are grouped a list of accessories useful for any inspection from lamp to mirror. A manual written as a textbook for carbon damage assessment is also included.

► PROBE SPECIFICATIONS

- Delivered with its cable; microdot connector
- Normal beam transducer.
- Longitudinal wave.
- Removable delay line.
- Element diameter: Piece 1: 0.250'' (6,35 mm);
- Piece 2: 3/8 '' (9,5 mm)
- Frequency: 10 MHz
- Medium bandwidth.
- Thickness range: 0.006'' to 0.500'' (0.15 mm to 12.70 mm)
- Connector: Microdot
- Cable length 6 Ft (1.8 m)



► NOTES

The overall packaging box shape and color may vary with time.