

# PS-710B

## Pulse Ultrasonic Test Unit



## Special Features

A highly advanced, modular and portable flaw scanning unit, specially designed for critical-performance inspection.

- Building-block, multi-functional design for economical use over a range of applications.
- Bright, highly visible CRT display and controls.
- Completely portable and lightweight; uses built-in battery or line voltage.
- Durable, rugged construction; stainless spring lock handle.
- Critical controls are recessed for protection; resettable 10-turn dials.
- Automatic or manual control of pulse repetition frequency.

## Applications

The Centurion NDT PS-710B Pulse Ultrasonic Test Unit provides versatile flaw detection capability for many inspection needs. Its state-of-the-art performance and high reliability under critical inspection conditions are depended on by many nuclear ISI inspection teams. It's also widely used in NDE test labs, as well as throughout the aircraft, automotive and metalworking industries.

The standard PS-710B building block model provides fast, accurate measurements for manual routine manual tests as well as basic systems and laboratory applications. Additional modules offer an economical way to increases capability, including a gate with attenuation correction, AGC and velocity measurement. Analog time and amplitude outputs are available which permit hard copy testing (chart recording) and drive remote displays up to 200 feet away form the main unit.

# Specifications

## PS-710B

Size: 13" (33cm) long, 11" (28cm) wide, and 6" (15cm) high

Weight: 16 lbs. (7.25 kg) with battery

Frequency Range: Broad band tuner with switcher: 1, 2.5, 5, 10, 15 MHz tuning bands

Resolution: 5/64" (.2cm) diameter reflector 1/8" (.3cm) below surface at 5 MHz (contact transducer) in steel

Sensitivity: At least 12 dB reserve at 5 MHz o a 1-0300 ASTM Aluminum block

Vertical Linearity: 2% (ASTM E317)

Horizontal Linearity: Linear from 10% to 90%, ± 25AWS and ASME code conformance to linearity requirements

Display Dynamic Range: At least 30dB within full scale limits

Unit Dynamic Range: 124dB

Sweep Rate: 6 ranges form 3 to 1200 microseconds (.4" (1cm) to > 10" in steel) 10 turn dials

Sweep Delay: from before initial pulse to >150 microseconds (15" (38cm)in steel) 10 turn dials

Pulse Repetition Rate: Automatically controlled by sweep rate or manually adjusted: 125, 250, 1000, 2000 and 4000 pulses per second

Operating Temperature Range: - 10°F (-23°C) to +120°F (+49°C)

Gain dB: 0 to 83dB in one db steps through three gain position switch (0, 8, 14dB) and thumbwheel control (0 to 69dB)

Battery Discharge Duration: Up to 7 hours, at 70°F (21°C) (new cells) for PS-710B (without modules) under continuous operation

Battery Charger: Operates on 115-230V, 50/60 Hz line current. Connects to back of instrument,

## Front Panel Controls

permits PS-710B to operate on line current

Connectors: BNC

- A-scan CRT
- Battery life meter indicator
- Gate alarm indicators (with optional AT-1004)
- Sensitivity (with lock)
- Damping (with lock)
- Reject (with lock)
- Sweep Rate, coarse (six position)
- Sweep Rate, fine (with brake)
- Sweep Delay (with brake)
- dB Attenuation coarse 0, 8, and 14 dB, thumbwheel 0-69 dB
- Dual and Single Transducer Switch
- Receiver and Transmitter transducer cable jacks (BNC)
- On/Off Switch (with lock)

## CRT Controls

- Intensity
- Astigmatism
- Horizontal positioning
- Vertical positioning
- Focus

## Top Compartment Controls

- Video Filter
- Pulse Repetition Rate Manual Adjustment
- Gate Module Controls (with optional AT-1003)
- Thickness Module Controls (with optional DR-1002)
- AGC and Caliper Controls (with optional VC-1000)

## Accessory Modules

### AT-1003 GATE/ATTENUATION CORRECTION

The AT-1003 is a gate module for the PS-710B which allows the user to perform gating functions in the contact mode or interface

(immersion) mode. The threshold point for the alarm, a visual and audible type, can be set at any point on the screen and tripped by an increasing signal (positive) or a decreasing signal (negative). Positive or negative gating is switch selectable.

### VC-1000 AGC and CALIPER INTERFACE

Amplitude Correction: Gain control adjustable to reduce greatest signal in selected area by as much as 25 dB, to within 2dB of selected level.

Range: 1.0-4.5 to 18 microseconds after initial pulse

Caliper Interface: provides interface between DR-1002 thickness/velocity module and standard Centurion NDT velocity caliper. Standard measurement range – ½" (1.5cm) to 3½" (9cm).

### DR-1002 THICKNESS/VELOCITY MODULE

Display: 4-digit LED (.6" (1.5cm) characters)

Accuracy: a) Time or Thickness: ± 0.5% of full scale ± 2 counts  
b) Velocity: Sum of thickness accuracy on percent of measured thickness and time accuracy in percent of measured time

Mode: Three-position switch: mechanical thickness, velocity or ultrasonic thickness

Reject Threshold: .050" (.13cm) to 39.99" (101.5cm) or 050 (130) to 3999 (10150>)(x 100"/sec.) (254cm/sec)

Range (ultrasonic thickness): .050" (.13cm) to 3.99" (10.13cm)

Range (velocity): 1500 to 2500 (x 100"/sec) 3810 to 6350 (x 254cm/sec)

Operation: 115V, 50/60 Hz single phase line current only