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Overview - Defectobook DIO1000

DEFECTOBOOK DIO 1000 is the newest instrument fully developed and designed by STARMANS electronics Ltd. company. This ultrasonic device is a suitable compromise between high-end ultrasonic testing and dimensions (often limited in industrial applications). The DEFECTOBOOK DIO 1000 implies both conventional ultrasonic and EMAT generators for contact, non-contact ultrasonic and through-transmission testing.

Technical specification:

Display: Color TFT sunlight, 1024 pixels (W) X 768 pixels (H)
Display Characteristics: High resolution screen with brightness adjustment. Excellent visibility on sunlight
Display Update Rate: Minimum 60 Hz
True Sampling Rate: 200 MHz, 12-bit
Gain Control: 110 dB Max and reference gain level control in 6 dB, 1 dB, 0.5 dB and 0.1 dB selectable steps
Auto Transducer Calibration: Automated calibration of transducer, zero offset and/or velocity
Reject: 0 % to 80 % of full scale in 1 % increments
Units: English, metric, or microseconds

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Material Velocity: From 100 to 15240 m/s in steel
Range: Standard 1 mm to 60,000 mm
Refracted Angle: Fixed settings of 0°, 30°, 45°, 60°, 70°, or variable from 10° to 90° in 0.1° steps for calculations
Peak Memory: Pulse repetition rate up to 20 kHz and peak envelope of A-Scan display
Peak Hold: Freezes Peak Memory echo envelope for recorded waveform comparison with live A-Scan
Pulser Type, User Selectable: Tunable square wave, negative spike excitation, burst
Pulser Energy: Low (100 V) and Max (400 V)
Damping: 50, 57, 200, and 1000 Ohms
Rectification: Full Wave, Half Wave Positive or Negative rectified, and RF waveform
Analog Bandwidth: 0.5 MHz to 30 MHz at –3 dB
Gate Monitors: Four independent flaw gates controllable over entire sweep range

- Floating gate,
- Interface gate,
- Measuring gate – relative, absolute, amplitude, time
- Back-wall echo attenuator

Filters: Broadband, Narrowband, or Custom Selectable Low and High Pass Filters – 1 MHz, 2 MHz, 2.25 MHz, 4 MHz, 5 MHz, 10 MHz
Test Modes: Pulse Echo, Dual, or Through Transmission
Alarms: Selectable threshold positive/negative or minimum depth modes
Operating Temperature: -10 °C to 50 °C
Storage Temperature: -40 °C to 70 °C
Power Requirements: AC Mains: 100-120 V AC, 200-240 V AC, 50-60 Hz
Battery: Built-in and external rechargeable **LiIon** battery pack rated at 3.6 V at 16 Ah
Battery Operating Time: 8 hours, depending on display brightness.
Transducer Cable Connectors: Lemo®
Keypad: Graphic symbols, International
Languages: Selectable in menu, user-defined custom language
USB Communications Port: Hi-speed interfacing with PC
Communication ports:

- RS232
- Ethernet
- Wireless Ethernet
- Bluetooth

Memory: 4 – 16 GB
B-scan input: Encoder, A, B – pulses, start, TTL 5 V, Encoder supply – switchable 5V
B-scan memory: 10 km of B-scan, 1 mm resolution
A-scan memory: 5 000 000 A-scan
High Speed Parallel and TTL Port: Alarm outputs, trigger in/out control
Analog Output: Selectable voltage output of depth or amplitude data
Dimensions: 224×188×37 mm
Display dimensions: 99×130 mm
Weight: 0.74 Kg without battery + 0.54 kg battery for 8 working hours
PC Requirements: PC running minimum Microsoft® Windows® Vista®, Microsoft® Windows® XP®, Microsoft Windows 2000®,

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Warranty: Two years warranty, battery not included. Optional three year warranty available

DIO1000 LF – Low Frequency Version

This DIO low frequency version is suited for testing materials with high attenuation of ultrasonic waves, as concrete, plastic materials with enhanced attenuation, construc-tions and coarse-grained materials in general.

The principal feature of this equipment is its low operation frequen-cy from 20 kHz to 1 MHz. The other features – see DIO1000 family overview.

The above mentioned materials are being inspected in transmission methods with separated transmitter and receiver probes.