STARMANS
electronics ltd.

Defectobook® DIO 1000 PA

Phased Array Ultrasonic Flaw Detector

The new advanced DEFECTOBOOK® DIO 1000 PA digital ultrasonic flaw detector is now augmented with phased array imaging capabilities. It is combining all features of conventional ultrasonic with power of phased array. Using the latest generation of electronic components and microprocessors we have brought the thinnest, lightest and really portable phased array instrument, which makes your inspection easy and fast. The standard configuration is 16 parallel (in preparation 32 parallel), and with extendable module 16:64 and 16:128. The DEFECTOBOOK® DIO 1000 PA complies with all common standards as EN12668-1, ASME Code case 2541, ASTM E2491, ASTM E2700. The instrument also combines the powerful advantages of digital design with the detailed dynamic echo information, using sampling rate 200 MHz, 12-bit.

Main applications:

- Weld inspection
- Pipe inspection
- Crack detection and sizing
- Aerospace testing
- Composite testing

Environmental tests:

- Tests for Damp heat / Humidity as per norms EN 600-2-78;02; EN 60068-1
- Vibration tests as per norm EN 60068-2-6 ed 2:08
- Shock tests as per norm EN 60068-2-29:1996+Z1:10

General Specifications

Display	Color TFT sunlight, 1024 (W) X 768 (H)
Display update rate:	60 Hz
Display dimensions:	99 x 130 mm
Focal law quantity	512 (1024)
Synchronization:	Outside synchronization, echo start
Operating temperature:	-10°C to +50°C
Storage temperature:	-40°C to +70°C
Battery operating time:	up to 10 hours
Memory:	2 – 16 GB
Dimensions:	224 x 188 x 34 mm
Weight:	0,74 kg without battery + 0,54 kg battery
Warranty:	Two years standardly, conditioned 3 years

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Specifications:

	Conventional	Phased Array
Pulser		
Pulser type	Tunable square wave, negative spike excitation, burst	
Pulser energy	75 – 275 V (Low 100, High 400)	± 100 V (-200 V)
Pulse repetition frequency	10 Hz – 20 kHz	
Configuration		16:32 (64, 128 PA Module)
Pulse width	15 - 100 ns	15 – 125 ns
Damping	50, 57, 200 and 1 000 Ohms	
Receiver		
Gain control	111 dB in steps 6 dB, 1 dB, 0,5 dB, 0,1 dB	0 – 42 dB Analog, 20 dB Digital
Rectification	RF, Full, Positive HW, Negative HW	
Receiver bandwidth	0,5 – 30 MHz (-3 dB)	1 kHz – 10 MHz
Amplitude measurement	0 – 150 % FSH	
Filters	2 MHz, 2,25 MHz, 4 MHz, 10 MHz	
Input/Output		
Transducer cable connector	Lemo	Molex
Communication ports	USB, RS232, optional Ethernet and Wi-Fi	
B-scan input	Encoder, A and B pulses, TTL 5V	
Calibration		
Auto transducer calibration	Zero offset and velocity	
Units	mm, inch, µs	
Material velocity	100 – 15 240 m/s in steel	
Range	1 – 60 000 mm in steel	Up to 6 500 mm
Test modes	Pulse echo, Dual, Through transmission	Pulse echo, Through transmission
Gates		
Gate monitors	Four independent flaw gates – Floating Gate, Interface Gate, Measuring Gate, Back-wall attenuator	
Alarms	Selectable threshold positive/negative or min. dept	
Cursors		Cursors X, Y
Measurements		
Views	A-scan (40 000 A-scans memory), B-scan	A-scan, B-scan, S-scan, optional C-scan
Scan type		Linear, Sectorial
Auto gate	Thickness	
DAC	20 points, plus 4 sub curves	
TCG	20 points	
Spot weld		Suitable for 2D probe
Colour maps	R-G-B	

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