

MASTERSCAN Series D-70 & 700M

Specifications (subject to change without notice)

Test Range	0-1mm (0.04in) up to 0-20,000 mm (787 in) in steel at 5930m/s (19455ft/s)	Measurement Display	Live display and updates on screen at 3 times per second. Large display of a single measurement available.
Velocity	256 - 16000 m/s continuously variable.	Contour	Trailing-Edge slew-rate control to reduce half cycles in rectified modes. Selectable from one of 6 levels.
Probe Zero	0 to 1000 µs.	Waveform Smoothing	Select from: i) None (both min and max values are displayed in the A-Scan) ii) Fill (Min values set to baseline value, produces a solid A-Scan) iii) Smooth (min values ignored, produces a clear outline A-Scan)
Delay	0-20,000m (800in) in steel at 5930m/s.	Persistence	Causes previous A-scans to "fade out" at a user-determined rate
Gain	0 to 110dB adjustable in 0.1, 0.5, 1, 2, 6, 14 and 20dB steps.	Auto-Cal	Provides automatic calculation of velocity and probe zero from 2 reference echoes.
Test Modes	Pulse echo and transmit/receive. Single Crystal, Double Crystal and Pitch-Catch.	Reference Waveform	Displays a previously stored A-log in a color different from the active display: enabling a quick visual check of the differences.
Damping	50 and 400 Ohm damping selectable.	Clock	Built in, battery-backed RTC keeps time and date. Visible on the status line, always stored with Panels, A-logs etc.
Pulser	100-450V -ve spike and square wave. Pulse Width from 30nS to 2500nS. Rise/Fall times <5nS into 50R load.	Internal Memory	4GByte storage available for A-scans, panels, T-logs, B-logs etc. 450,000 Panels, 200,000 A-Logs, 300,000 B-Charts, 440,000 T-Logs
P.R.F.	Adjustable 5Hz to 6kHz. External sync also available.	Active Peak Memory	Retains all A-scans on screen for echo-dynamic pattern analysis, with the active A-scan displayed in a separate color.
Screen Update Rate	60Hz	Notes	Alphanumeric labelling for panel stores, A-logs, B-logs etc.
Rectification	RF, Full wave, +ve half-wave and -ve half-wave.	Display Freeze	Hold the current waveform on screen for off-line processing.
Frequency Range	8 selectable filter bands. i) 100kHz - 500kHz ii) 200kHz - 800kHz iii) 0.4MHz - 1.6MHz iv) 1.4MHz - 3MHz v) 3MHz - 8MHz vi) 7MHz - 15MHz vii) 9MHz - 21MHz viii) 16 MHz - 33 MHz (Wideband) Additional tuned low frequency pre-amp with Dryscan option.	Help Key	Shows software and hardware information.
System Linearity	Vertical = 0.5% Full Screen Height (FSH). Horizontal ±0.2% Trace Full Screen Width (FSW).	Language Support	Multiple languages are selectable from a list including: English, French, Spanish, Russian, Chinese (Modern). Others are available on request.
Reject (Selectable)	Up to 80% Linear reject (removes baseline noise without affecting indication amplitude)	Encoder Connection	Lemo min 4-pin connector (D70) D-Sub 15 connector (700M)
Or	Up to 50% Suppressive reject (increase zero offset and reduces amplitude of all echoes) LED Warning when active.	Video Output	Standard on 700M. Factory Option on D-70.
Units	Metric (mm), inch (in) or microseconds.	Proportional Outputs	Available on 700M.
Display	Color Transflective VGA (640 x 480) TFT Display area: 116.16 x 87.2 mm (4.57 x 3.43 in). A-Scan Area: 400 x 510 pixels (normal), 460 x 620 (FS). Colors: 9 color options with variable brightness.	External Sync	Available on 700M.
Gate Monitor	Two independant gates for measurement and monitoring. Start and width fully adjustable over the entire range of the instrument. Levels adjustable from 0% to 100%, positive or negative triggering on each gate with audible & visual alarms. Gate resolution is 5nS.	USB Connection	Internal storage shown as Memory Device.
Zoom	Expands range and delay to cover the area set by Gate 1 start & width controls.	Transducer Sockets	BNC or LEMO (factory option).
AGC	Automatic Gain Control automatically sets the signal in Gate 1 to a level between 10% and 90% FSH, tolerance between 5% and 20%.	Power	Lithium Ion 14.4V battery pack. Typically 16 hours for Masterscan and 12 hours for D-70. Indication of battery charge status. Recharge time 3-4 hrs. Battery can be charged separately. Mains pack optional.
Measurement Modes		Charger	100-240 VAC, 50-60 Hz.
Mode 1	Signal monitor, Gate alarms can be active but no measurements are displayed.	Environmental	Designed to meet IP67
Mode 2	Depth and amplitude of first signal in gate.	Temperature	Operating -10°C to 55°C (14°F - 131°F). Storage -40°C to 75°C (-40°F - 167°F).
Mode 3	Echo-Echo distance measurements.	Size	D-70: H172mm x W238mm x D70mm (6.77in x 9.37in x 2.75in). 700M: H145mm x W255mm x D145mm (5.7in x 10 in x 5.7in).
Mode 4	Trigonometric display of beam-path, surface distance (including X-offset) and depth of indication from the inspection surface together with echo amplitude. Curved surface correction can be applied for convex and concave surfaces. Half-skip can be indicated on screen. Gate to Gate distance measurement	Weight	Masterscan D-70: 1.7 kg (3.7lbs) with battery. Masterscan 700M: 2.5kg (5.5lbs) with battery.
Mode 5	Gate to Gate distance measurement	Warranty	2 year
Mode 6	Flank to Flank	Extended Warranty	Sonacover - extended 5 year warranty, including 4 calibrations.
Mode 7	Beam Angle, calculated from beampath, hole radius and hole centre depth.	Calibration Standard	EN12668-1:2010 (Detailed Specification available on request).
		Standards	Vibration to 514.5-5 Proc 1 Annex C Fig 6 Shock 516.5 Proc 1 15g/6ms Explosive atmospheres - MIL-STD 810G Method 511.5 Procedure I

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