

Smartor



Advanced NDT Limited
Unit 4 Elgar Business Centre
Moseley Road
Hallow, Worcester
WR2 6NJ, England
Tel: 01905 371460

AdvancedNDT

Web: www.advanced-ndt.co.uk
Email: sales@advanced-ndt.co.uk

Ultrasonic Flaw Detector & Thickness Gauge



Upgradeable
One-hand Operation
Flat Weld Simulation
Smart Test Wizard

SIUI

Advanced NDT Limited
Unit 4 Elgar Business Centre
Moseley Road
Hallow, Worcester
WR2 6NJ, England
Tel: 01905 371460

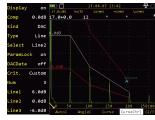
AdvancedNDT

Web: www.advanced-ndt.co.uk
Email: sales@advanced-ndt.co.uk

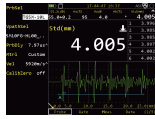
Smarter

Advanced Ultrasonic Testing & Thickness Measurement

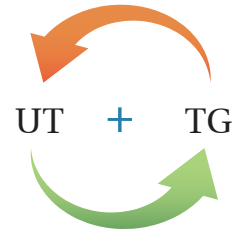
● Upgradeable



Version 1: Ultrasonic Testing



Version 2: Thickness Gauge



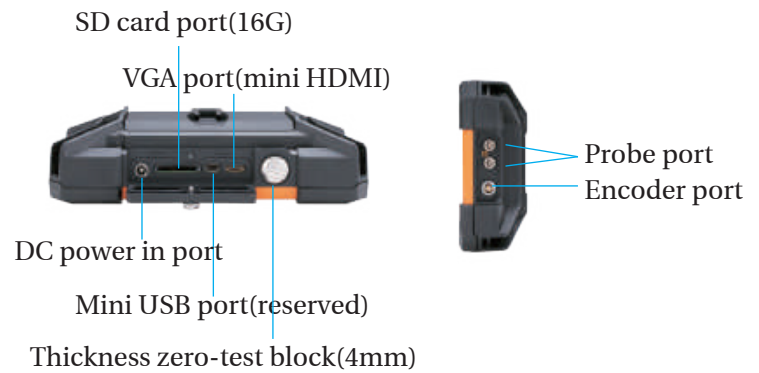
● One-hand Operation



Wrist strap



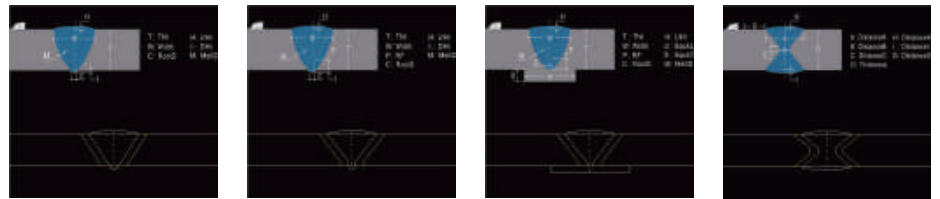
Back strap



● Flat Weld Simulation

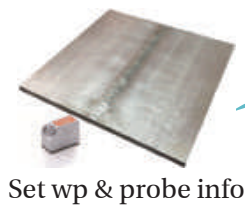


Dynamic beam tracking to visualize the flaw location



Up to 14 types of weld simulation

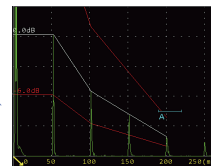
● Smart Test Wizard Guide you step by step for the first time operation.



Set wp & probe info



Calibration



Make DAC/ AVG curve



Detection

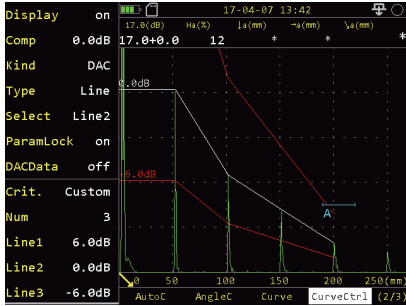
Superior Features

- IP 66 with compact size: 198 (W)* 128 (H) *52 (L) mm
- Light weight: 0.9kg only, including battery
- 5.7" LCD with high resolution 640×480 pixels
- Adjustable pulse width, negative square wave transmission up to 350V.
- Operating frequency range: 0.5~20MHz, multiple steps of wide broadband and narrow-band for selection.
- Easy operation: only a few buttons, intuitive interface and logical menu, support right/left-hand operation, outdoor mode.
- Conventional UT functions
 - ✓ Weld, plate and forging test wizards are available.
 - ✓ Peak memory, DAC curve, AGC (Auto gain control), video record makes convenient flaw inspection.
 - ✓ Optional functions: B-Scan, TCG, FFT (probe spectral analysis), CSC (curved surface correction), flat weld simulation, crack height measurement, BEA(backwall echo attenuator), AWS, API 5UE.
- Thickness measurement functions
 - ✓ A-scan thickness measurement(echo to echo mode, through coating measurement)
 - ✓ Auto-search, velocity measurement, alarm and dataset management.
 - ✓ Optional functions: CoatMode, B-Scan, MultiLayers, Vpath, TDG and temperature compensation.
- Norm compliant: EN12668-1: 2010/ASTME317(for UT) and EN15317-2007(for TG)

Smartor

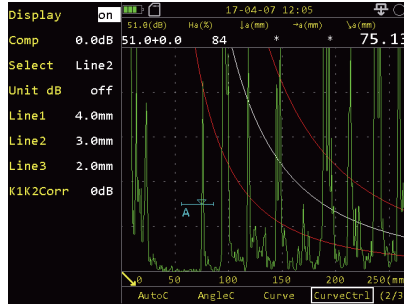
Ultrasonic Testing

DAC



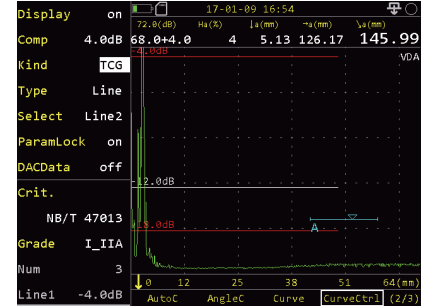
- Bring easier and more convenient flaw evaluation.

AVG/DGS



- Auto created by taking a known flat-bottom hole or large flat-bottom echo for reference.
- GE/Olympus probe listed.

TCG



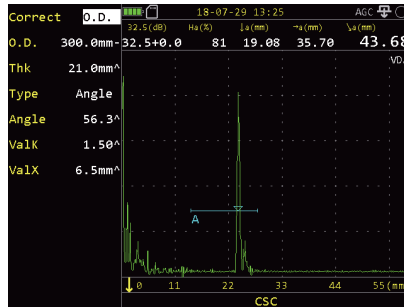
- Up to 6 (curves/ lines), each one max. 10 reference points.

FFT (Probe Spectral Analysis)



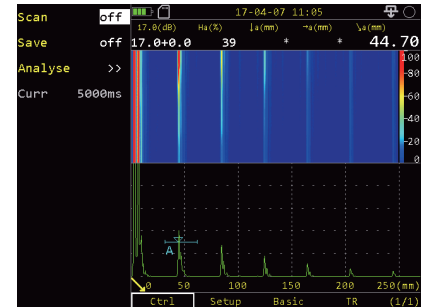
- The probe waveform, spectrum and center frequency of the probe can be measured precisely by capturing echoes.

CSC (Curved Surface Correction)



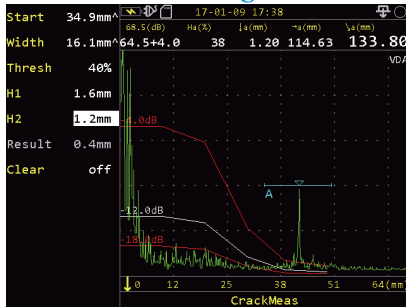
- For depth and horizontal distance correction when testing circumference with an angle probe.

B-Scan



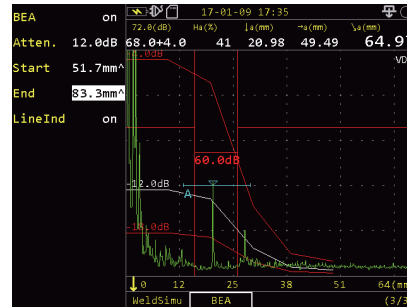
- Display A-scan echo in imaging mode based on time or encoder, so as to achieve more intuitive test result for easy observation and analysis.

CrackMeas (Crack Height Measurement)



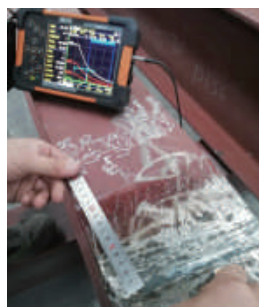
- The crack height is automatically calculated with this function.

BEA (Backwall Echo Attenuator)



- This function is to help set a gate over an area and adjust the gain for this area regardless of the global gain. It is very useful for inspection of Forgings and Castings with allowing independent gain control of the area under the gate with the BEA for backwall echo monitoring.

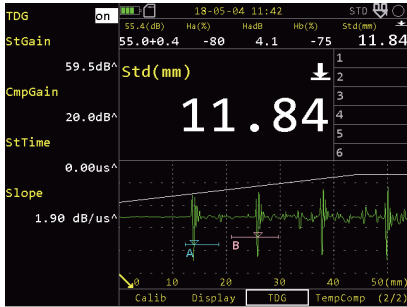
On-site Application



Smartor

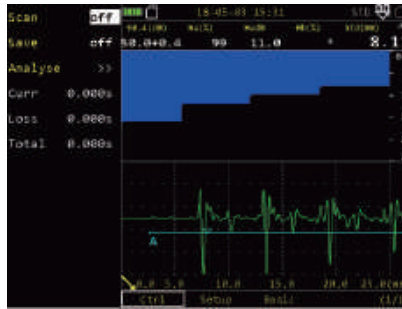
Ultrasonic Thickness Measurement

TDG (Time Distance Gain Curve)



- It can be used for compensating the loss of echo amplitude due to propagation of sound path.

B-Scan



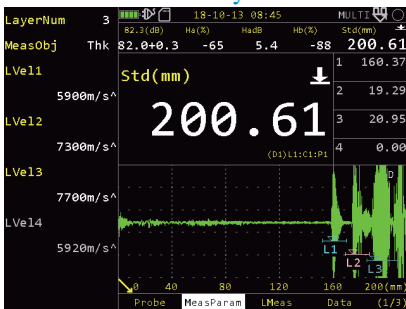
- Based on time interval or encoder, display the measurement readings in B-mode image.

CoatMode



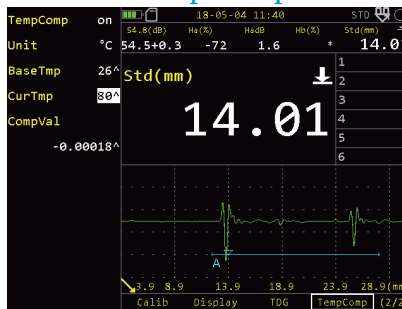
- After setting the coating velocity, coat and base material thickness can be displayed at the same time.

MultiLayers



- Up to 4 layers can be measured at the same time.

TempComp



- When there is temperature difference between the calibration block and the detected workpiece, it can be used for temperature compensation. Adjustable range is -10 to 400 °C.

Vpath

| Finish | Type | Std | BlkThk | MeasRes | BlkThk | MeasRes |
|--------|------|-------|---------|---------|--------|----------|
| off | 1 | 0.75 | 0.81mm | 15 | 24.00 | 23.75mm |
| off | 2 | 0.80 | 0.86mm | 16 | 30.00 | 29.72mm |
| off | 3 | 1.00 | 1.09mm | 17 | 36.00 | 35.71mm |
| off | 4 | 1.50 | 1.59mm | 18 | 42.00 | 41.68mm |
| off | 5 | 2.00 | 2.09mm | 19 | 50.00 | 49.65mm |
| off | 6 | 3.00 | 3.06mm | 20 | 60.00 | 59.62mm |
| off | 7 | 4.00 | 4.06mm | 21 | 70.00 | 69.63mm |
| off | 8 | 5.00 | 4.96mm | 22 | 80.00 | 79.63mm |
| off | 9 | 6.00 | 5.93mm | 23 | 90.00 | 89.61mm |
| off | 10 | 8.00 | 7.90mm | 24 | 100.00 | 99.62mm |
| off | 11 | 10.00 | 9.84mm | 25 | 225.00 | 224.00mm |
| off | 12 | 12.00 | 11.79mm | 26 | 300.00 | 299.00mm |
| off | 13 | 15.00 | 14.81mm | 27 | 425.00 | 424.00mm |
| off | 14 | 20.00 | 19.74mm | | | |

- All the original dual element probes have a set of default V-path calibration curves. Users can make a set of UserVpath curves for a specific probe.

On-site Application



Port dock thickness measurement



TG data sets



MultiLayers-thickness measurement

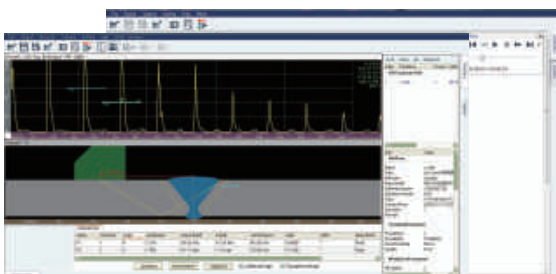


With PES-02D for encoded B-Scan

SuporUp PC Software

Checking data file, Screen capture, Measuring data analysis, Playback. Generating test reports in word or excel format. Abundant report samples are available.

It can be installed in every operator's laptop without extra cost.



Technical Specification

| | Ultrasonic Testing | Thickness Measurement |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No. of Channel | 1 | |
| Probe Connector Type | LEMO 00 (2pcs) | |
| Work Mode | — | Standard (R-B1, measurement from transmit pulse to the first bottom wave). All measurement using Zero Crossing. Echo to Echo (B1-B2, measurement by auto-tracking the second bottom wave according to the first bottom wave). Through coating measurement. |
| Pulse | Negative square, Negative spike pulse | Negative square, Negative spike pulse (auto fits the probe) |
| Transmitting Voltage | 50~350V, step 50V | 50~350V (auto fits the probe) |
| Pulse Width | Negative square: 50~500ns, step 10ns Negative spike pulse: ≤40ns | Negative square: 50~500ns (auto fits the probe) Negative spike pulse: ≤40ns (auto fits the probe) |
| PRF | Negative square: 10~1000Hz adjustable, step 10Hz Negative spike pulse: 10~2000Hz adjustable, step 10Hz | 200Hz |
| Damping | 50/1000Ω, 2 levels | 50/1000Ω, 2 levels (auto fits the probe) |
| A/D Sampling Rate | 240MHz/10bit | |
| Sampling Point | 1024 points, 16bit/point | — |
| Gain | 0~110dB, step: 0.5/2/6/12dB | 0~110dB Manually adjustable, step: 0.5/2/6/12dB Auto adjustable (auto-search or auto-gain) |
| Fine Gain | -4~+4 | — |
| Surface Compensation | Full gain range | — |
| Bandwidth | 0.5~20MHz(-3dB) | |
| Operation Frequency | 1~4/0.5~10/2~20/1/2.5/4/5/10/13/15/20MHz, 11 levels | |
| Rectify | Negative/ Positive/ Full/ RF/ Filter | Negative/ Positive/ Full/ RF |
| Reject | 0~80%, step 1% | — |
| Detection Range | 0~15000mm, min. display range 2.5mm | 0.5~600mm (subject to probe, material, temperature and selected configuration) |
| Indication Resolution | — | 0.001/0.01/0.1 mm (0.0001/0.001/0.01 inch) |
| Indication Precision Error | — | 0.80~9.99mm ± 0.05mm 10.00~99.99mm ± (1%H + 0.04)mm 100.0~400.0mm ± 3%H mm Tested with TGM5-10L probe; H is the measured thickness. |
| Tube Wall Thickness Measurement | — | With TGM5-10L probe, it can measure steel tube with diameter no less than 20mm and wall thickness no less than 2mm. |
| Material Velocity | 100~20000m/s, min. step 1m/s | 100~20000 m/s |
| Display Range | — | 5~1000mm |
| Pulse Shift Range | -10~1000mm, min. step 0.1mm | -10~500mm |
| Probe Zero | 0~200us, min. step 0.01us | 0~200 us |
| Probe Flank | 0~100mm, step 0.1mm | — |
| Wizard | For weld, plate and forging testing | — |
| Test Point | Peak/ Flank/ J Frank | |
| Measurement | Gate: amplitude, amplitude dB difference, sound path, horizontal distance, vertical distance, south path difference between Gate A and B; Cursor: 2 cross cursors, measuring horizontal and vertical positions on B scan image, and distance between cursors (activated for optional B scan) | — |
| Gate Mode | Standard | Gate A is selected in standard measurement mode. |
| No. of Gate | 2 | — |
| Gate Start | Full range | Gate A start: -10~1000mm, min. step 0.1mm |
| Gate Width | Full range | Gate A width: 1~1000mm, min. step 0.1mm |
| Gate Thresh | 10~90%, step 1% | Gate A thresh: 10~90% or -10~-90%(for RF), step 1% |
| Auto Search | — | Off/on; If enabled, auto adjusts to the proper display range, gain and gate position based on the measured wave signals, so as to improve measurement efficiency. |
| Velocity Measurement | — | Velocity dynamic measurement |
| Calibration | zero point/zero point + velocity/ probe angle | Measure the known reference block for fast zero point calibration Custom calibration (zero point/ zero point + velocity calibration) |

| | Ultrasonic Testing | Thickness Measurement |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement Reading Mode | — | Std/ MinVal/ MaxVal/ Avg/ Diff |
| Alarm | Audible and visual alarm: positive/ negative | Upper and lower limit alarm(sound, indicator light) |
| Screen Display Combination | Normal, full screen | A/BVa, A/Ba/SVa, Ba/BVa (AScan+big value/ AScan+data grid+small value/ data grid + big value) |
| Refresh rate of measurement | — | 4/8/16/32Hz |
| Curve Function | DAC up to 6 (curve/ line), each one max. 10 reference points. AVG/DGS | — |
| Auxiliary Function | Full screen, coordinates switch(sound path/ depth/ horizontal), single/continuous auto gain (10~100%, step:10%), SecColor, WaveComp, WaveFill, PeakEnv, PeakEcho, FastScan, Outdoor, gate magnify, CineRec, PrintScreen, Auto freeze(Gate: A, B, A and B, A or B) | Freeze, auto gain, history reading column, last reading maintained, mm/inch switch, outdoor mode. |
| Storage Function | Save, recall and delete the parameter, data files, record files, printscreens, depends on the SD card capacity. | Save, recall and delete the parameter, data sets, printscreens, depends on the SD card capacity. |
| Dataset File | — | 1D/2D/3D file format Measurements recorded and displayed in grids; record length customizable. Each record point data includes measured values, basic parameter settings and A-scan waveform data. |
| Data Post Processing | Playback, analysis, reports of parameters, record files, printscreen files in SuporUp software. | Playback, analysis, reports of parameters, data sets, printscreen files in SuporUp software. |
| Time Base linearity | ≤0.5% | — |
| Vertical Linearity | ≤3% | — |
| Amplitude Linearity | ≤±2% | — |
| Attenuator Precision | 20dB±1dB | — |
| Dynamic Range | ≥32dB | — |
| Optional Software | API 5UE, TCG, AWS, CSC, CrackMeas, FFT, BEA, FlatWeldSim, B-Scan | CoatMode, Vpath, TDG, B-Scan, TempComp, MultiLayers |



| General Technical Specification | |
|---------------------------------|--------------------------------------------------------------------------------------------------|
| Display Screen | 5.7" high brightness TFT LCD, 640×480 pixels |
| Measure Unit | Inch/ mm |
| Peripheral port | Mini USB, SD card (16G) and VGA ports (Sharing with same mini HDMI with I/O signal port) |
| Language | English/ Spanish/ German/ French/ Portuguese/ Polish/ Czech/ Italian/ Turkish/ Russian/ Japanese |
| Power Supply | DC 12V (external power supply); 7.4V (battery) |
| Battery Operating Time | ≥8h (under factory default mode) |
| Operation Temperature | -10°C ~ +45°C |
| Storage Temperature | -20°C ~ +60°C |
| IP Code | IP66 |
| Weight | Approx. 0.9kg (including a 0.24kg battery) |
| Dimension (W×H×L) | 198 × 128 × 52 (mm) |
| Encoder Connector | 1pc (4-core) |
| Internal Storage | 6G |

SIUI



Advanced NDT Limited
Unit 4 Elgar Business Centre
Moseley Road
Hallow, Worcester
WR2 6NJ, England
Tel: 01905 371460



Web: www.advanced-ndt.co.uk
Email: sales@advanced-ndt.co.uk

Specifications and appearance are subject to change without prior notice.
DCY2.781.EN.Smartor. CY/200814