the **best** in **ndt**

Ultrasonic Flaw Detector

ADVANSCAN AS-414

- Clarity
- Versatility
- Performance

ADVANSCAN AS-414

The New Generation Ultrasonic Flaw Detector Advanscan AS-414 combines EECI years of experience and commitment to customers to provide the best Flaw Detector in its category by way of most advanced technology, convenience, uniqueness, affordability & technical options for ultrasonic applications in the market. The New Generation Ultrasonic Flaw Detector Model AS-414 incorporates the latest and most advanced Hardware & Software available in its unique friendly Interactive Architecture. The Hardware architecture includes Single Board Computer Circuitry for Best performance. The Software is based on the latest Windows platform with open architecture enabling it to upgrade and configure to any required applications. The Tunable Square pulser offers best S:N ratio. The large, High defination LCD display provides unmatched, stable & clear A-Scan representation in all type of lighting conditions. The rugged, lightweight, ergonomical design enables the operator to use in any environment conditions.

Cost Effective Performance

The Advanscan AS-414 provides the new & experienced user alike easy understanding & use of features. The equipment incorporates basic flaw detection features and with its open architecture enables it to upgrade it to any required features making it most cost effective equipment where in user can upgrade the equipment as per his/her own wish without going for new/separate equipment.

Key Features

- New Generation Technology with a built in powerful single board computer. Windows platform.
- Easy ON LINE update & upgrade of new & revised software with latest features.
- High Power Tunable square wave pulser for optimum S:N ratio.
- Burst Mode: Improved S:N ratio. Burst pulser to get maximum energy generated by the probes.
- Auto Adjusting PRF upto 1000Hz.
- Rectification: RF, Full, Positive or Negative.
- Enhance: Cut off noise and get clear A Scan display.
- User Friendly Interactive Architecture.
- Simplified, easy to access menu based navigation.
- Single Encoder knob for selecting parameters & setting the values in fine or coarse steps.
- Dust proof Ethernet, USB & Charger connections.
- Tough, light weight & durable industrial grade engineering plastic body.
- Large, Bright, High Pixel Density for Crystal clear CRT grade display quality.
- Standard/Dynamic DAC with Echo peak recording.
- Li-Ion battery for long life.
- Quick data transfer software.
- Optional Software to upgrade DGS, AWS, TCG.

Simple & Easy User Interface

The Advanscan AS-414 is constructed to combine simple to use menu based architecture for setting up software, hardware & calibration settings. Also it provides direct access to main /critical inspection settings such as gain, Freeze, Zoom, Parameter display & Frame save. It provides unique menus based design at the base of the screen and respective sub-menus vertically at the right side of the screen, making it easier for the user to navigate through the same. The user architecture helps for any level of operator.

Display

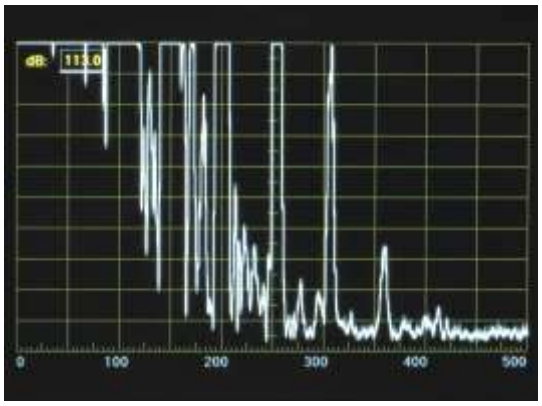
The Advanscan AS-414 provides a LCD (640x480 pixels) display resolution. The display is unique in its category providing display almost similar to a CRT one making it second to none. The display provides excellent A-Scan representation and readability of minute features of the signal. The LCD display also provides excellent clarity in any lighting conditions. The display also incorporates optional 6 colour schemes & grid/graticule patterns to suit all type of individual operator levels / preferences. Operator can use Complete display area of screen for observation along with display parameters using full screen ZOOM function. Only required parameters can only be displayed using Selected parameter display function.

Durable Construction

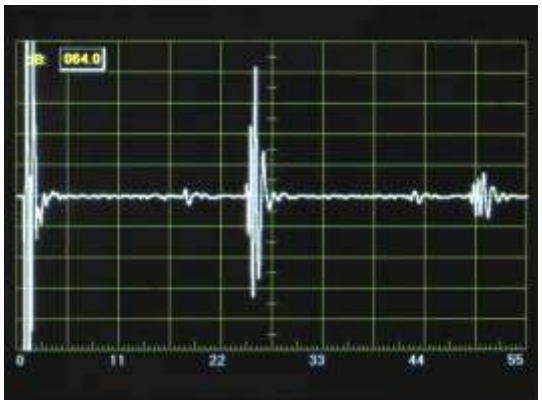
The Advanscan AS-414 is designed to consistently perform in almost every indoor & outdoor environments without affecting its performance. The equipment is tested to meet the required reliable standards to perform optimally. The rugged, durable & dust proof Industrial grade engineering plastic provides all the required protection to meet your environmental needs. The all important output & input ports including USB, Ethernet, Charger, Transducers are adequately protected against dust & hazardous environment.

Performance:

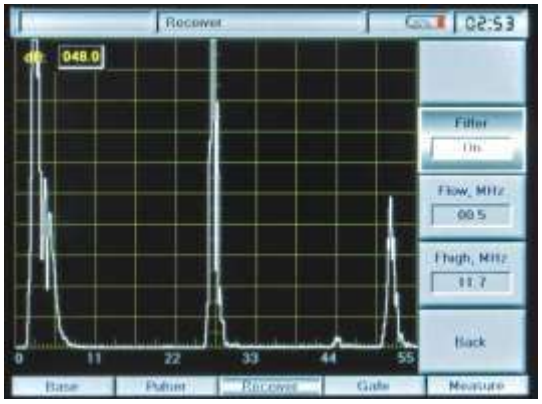
- **Receiver:**
  Create your own Band Pass Filter and optimize the performance of a probe for best resolution, sensitivity or penetration.
- **Tunable Square Wave Pulser:**
  For optimum S:N ratio. Penetrate attenuating material with maximum energy. Low ringing for dead zone & resolution.
- **Pulse Power:**
  Low & high for best results of resolution or penetration.
- **Burst Pulser Mode:**
  Improved S:N ratio for a specific probe. Burst pulser to get best energy generated by the probe. Required for hard to penetrate/attenuating material.
- **Damping:**
  High/Low for filtering the ringing of the crystal.
- **PRF (Pulse Repetition Frequency):**
  Up-to 1000Hz Auto adjusting to selected test range.
- **Rectification:**
  RF, Full, Positive or Negative.
- **Enhance:**
  Cut off noise and get clear A Scan display.
- **Gate:**
  Two gates with freely selectable start, width, threshold, positive/negative mode.
- **Readable parameters:**
  Read parameter of Echo within the gated region, Parameters to be displayed is selectable. Echo location, its height in percentage & dB is displayed.
- **dB over gate level:**
  Unique display of gain in dB of echo height required above the gate level.
- **Display Units:**
  Selectable units in length, mm or travel time in Micro seconds. Values adjusted in coarse or fine steps.
- **RTC:**
  Real Time Clock can be used as time stamp for the reports.



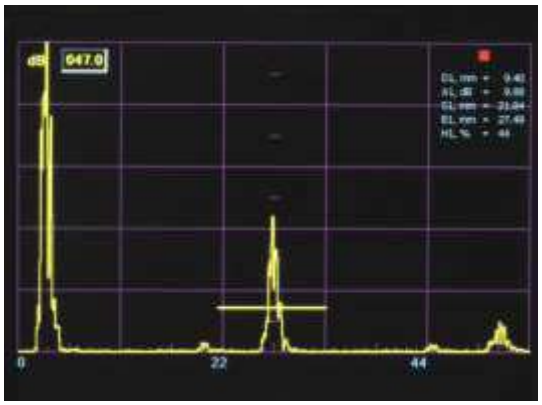
Penetration



RF



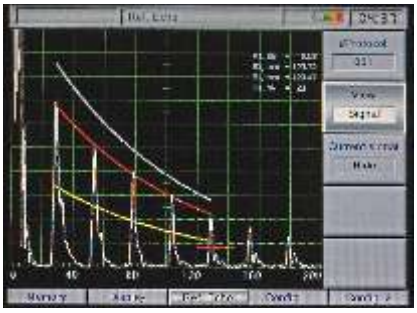
Filter Menu



Readable Parameters

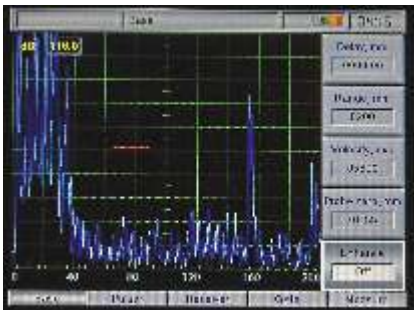
Dynamic DAC with Echo Peak Recorder

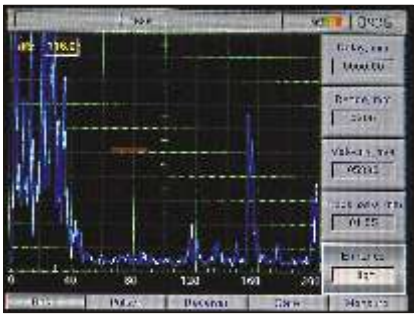
Calculates & displays tolerance curves in db levels compared to a DAC reference curve. Also allows to change in DAC pattern against Gain & Range functions. The peak of A Scan echos used for plotting DAC can be marked & is automatically updated for peak. The offset reference curves can be updated by just changing the tolerance offset values in real time. The DAC pattern are switchable from Peak to Peak to Parabolic to Exponential.



Enhance Function

The Software features helps to enhances the live A Scan pattern to become clear and distinct, also it reduces the noise, thus helping to achieve best A Scan signal representation and to observe the minute defect echoes. The Enhance can be achieved in steps of Low / Mid / High.





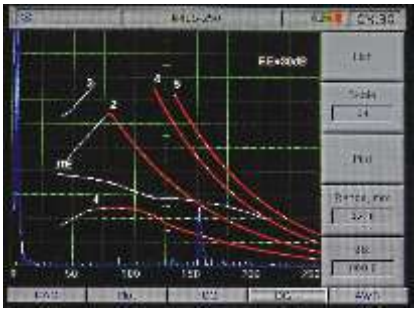
Digital Filtering

The equipment offers the operator to set lower & higher frequency limits to filters. Freely adjustable between 0.1MHz & 12MHz.

Flexi DGS

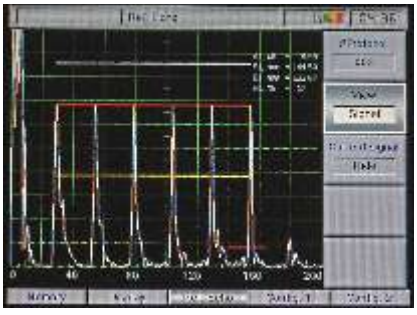
SW-DGS: The software features comparison & evaluation of Echoes against Standard DGS curve for a particular type of Probe. The DGS curve represents relations between echo height, defect size & distance from transducer.

Flexi DGS option sets the scale as per the test range, so no more compromising to fixed scale.



TCG

Time corrected gain feature for flaw sizing.

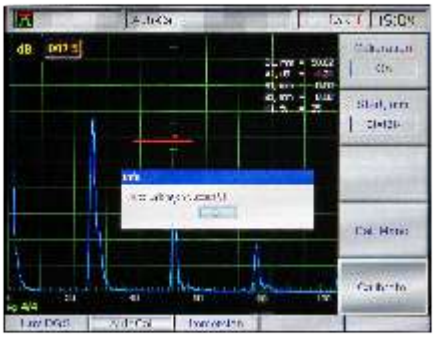


AWS D1.1 / D1.5

Allows Dynamic Reflector Indication for various Welding applications and eliminates the use of manual calculations.

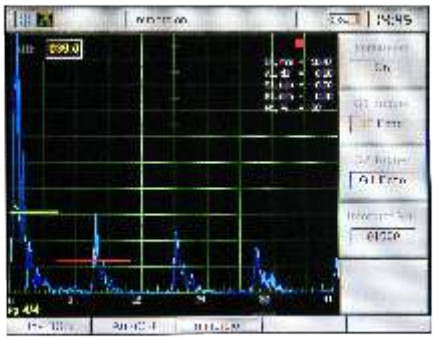
Auto Calibration

Automatically adjust Velocity and Probe Zero parameter.



Immersion Testing

Helps to use for Immersion Applications.
Selection for Interface velocity.
Choice for GATE 1 & GATE 2 trigger.



Skip Distance

Displays the angle Probe sound path in different background color.

Universal DGS

Features the Universal DGS pattern against Standard DGS curve for a particular type of Probe.
It can be plotted by choice of reflector type option include BW, SDH, FBH.
Flawsize occurring above or below the curve is easily visible in ERS parameter.

Customised Software Upgrades

With its windows based open architecture software base, the Advanscan AS-414 is easily upgradable to desired changes / modifications in the standard / non standard features. Example: Gated Echo (defect) parameters are only displayed and all other can be switched OFF.

Data Management

Advanscan AS-414 offers multiple options for data storage in the form of Storing 200 A Scan patterns, which can be used for future reference and transfer to PC using computer connectivity kit, CKP 414 & for report generation.

Portable, Rugged & Durable

Good Built:

Advanscan AS-414 is Compact & Light weight, Portable Flaw Detector. The various features including sturdy & dust proof body made of industrial grade engineering plastic makes it perfect for use in all environmental conditions. AS-414 is also provided with protective cover for further protection & easy of use for the operator.

Easy to replace battery:

The AS-414 has easy replaceable plug in/out rechargeable Li-ion battery.

Standard Kit

- Ultrasonic Flaw Detector, Model AS-414
- Rechargeable Li-Ion Battery Pack
- Charger cum Mains Adaptor (100- 240V AC, 50/60 Hz)
- Hard & Sturdy Carrying/Transport Case
- Protective Cover
- PC Cable & Interface Software
- Standard Calibration Certificate
- Instruction Manual CD

Interface Ports:

USB	: Yes
Ethernet	: Yes
Lemo	: 2 Nos. Dust proof Big Lemo connector ports for Transducers
Charger	: 15V DC, Charger port for Connecting Fast Charger AD 15V

Optional Hardware Accessories:

BAT414L	:Rechargeable LI-ION Battery Pack
AD15V	:Fast Charge Battery Charger cum mains adaptor, I/P 100-240V AC, 50-60Hz.
CC-414	:Hard Carrying Case for rugged & Industrial Use.
PC-414	: Protective Cover.
PALB	:Adaptor Lemo / BNC

ADVANSCAN AS-414 Specifications

Display

Viewing Area (HxW), diagonal	:	115 x 95mm, 149mm
Pixel Density	:	640 x 480
Display Type	:	TFT color LCD
Display Freeze	:	Current display freeze selectable.
Active Freeze	:	Display accumulation selectable.
Reference Pattern	:	Reference A scan pattern can be displayed at the Background from selected location in Memory
Display Pattern	:	Unfilled or Filled.

Pulser

Pulser	:	Tunable Square wave, selectable frequency Single or up to 6 pulses in 'Burst' mode
PRF	:	Variable 1000Hz. Auto limiting for set parameters
Pulse power	:	Hi/Lo selectable
Damping	:	50E/1K selectable

Receiver

Receiver Bandwidth		0.5 to 20MHz by wide band amplifier
Digital Filter Setting		Selectable Low and High cut off frequency in steps of 0.1MHz. Adjustable between 0.1 MHz to 12 Mhz.
Gain	:	0-120dB variable in 0.5dB step. Step size selectable decimal, unit or tens value
Rectification	:	Full wave/Positive Half wave/Negative Half wave, RF, selectable.
Horizontal Linearity	:	±1%.
Rejection Amplitude	:	Linear type (0-99%), 1% step.
Measurement	:	0 to 100% full screen.
Measurement rate	:	Equivalent to PRF in all modes
Vertical Linearity	:	± 3%

Calibration

Operating Mode	:	Single probe, Double probe, T-R mode
Test Mode	:	Pulse, reflection or Pulse Transmission
Units	:	Millimeters or Microseconds Selectable
Range	:	5mm min. - 10mtrs. Max @5890m/sec. Continuous variable in 1mm step. Step size selectable decimal, unit or tens value.
Velocity	:	1000M/sec 10000M/sec.
Display Delay	:	0-2000mm continuous variable in step. Step size selectable decimal, unit or tens value

Monitor Gate

Monitor gate	:	1 interface Gate for Immersion mode
	:	2 independent Gates with selectable Width 1/10 screen to full screen Height 1/10 screen to 90% Gate start measured from initial pulse ± Logic selectable, Audio Alarm/Mute.

Measurements

Trignometric	:	Beam path, Flaw depth and Projection Distance Functions displayed for selected echo within Gate 1 and Gate 2. Angle selection 0° to 90°. Job thickness selection 5 to 999.9mm.
Measurements	:	Within Gate 1 and Gate 2. Echo height displayed in % Echo Amplitude displayed in dB

General

Memory	:	200 'A' scans memory with calibration and Parameters
Interface	:	USB, for connecting flash drive and PC
PC Software	:	EECOWIN PC interface software Can upload current “FRAME” or from Saved set to PC through the USB interface
Keyboard	:	User friendly, Menu driven, limited keys and encoder for value change. Direct access keys for Base & Sub Menu function. Keyboard lock function
Trace Colour	:	Selectable with Black background and Grey background in Yellow / Blue / White / Red / Green
Parameter display	:	Lock, Battery charge level, Zoom, Freeze, Active freeze, Gain, Beam path, Flaw depth/Thickness, Exit point, Filled, Probe zero, DelayRange, Reject, Gate1/Gate2, Gate start, Gate W idth, Threshold, Alarm, On/Of Memory Save, Reference Echo
Graticule	:	Graticule type selectable: 4x4, 5x5, 6x6, 8x8, 10x10 and 12x12
Probe Connector	:	2 LEMO type connectors with dust proof caps
Power Source	:	Removable rechargeable battery pack Model No. BAT414. Operating time 8 Hrs. Battery Charger cum mains adaptor Model No. AD15V 110-240V 50Hz-60Hz
Battery Indicator	:	Battery charge level on LCD Display Red LED for charging. Auto shutdown, when discharged
Operating Temperature	:	0 to 55° C
Dimension	:	200(L) x 164(H) x 92(W)mm.
Weight	:	1.8 kg

Optional Softwares:
1) SW-FLAWSIZING : DGS Scales.
2) SW-AWS : AWS D1.1/1.5 Weld Rating
3) SW-EXT : Immersion Triggering, 10m Test Range
4) SW-ALL : All Softwares including: SW-Flaw sizing, SW-AWS, SW EXT & Universal DGS

All Specifications are subject to change without notice

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