

*Ultimate*

# Ultrasonic Flaw Detector **ADVANSKAN AS-414** *Pro*



- TOFD
- CSCR
- CSC
- Enhance Function
- Smooth Function
- Tunable Square Wave Pulser
- Digital Filtering
- Universal DGS
- Immersion Testing
- Customized Software Upgrades
- Feature Packed
- Unmatched Performance



## ADVANSKAN AS-414 Pro

The New Generation Ultrasonic Flaw Detector ADVANSKAN AS-414 Pro combines EECl 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 ADVANSKAN AS-414 Pro incorporates the latest & 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 ADVANSKAN AS-414 Pro 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. Window platform
- Easy ON LINE update & upgrade of new & revised software with latest features
- High Power Tunable square wave pluser 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 Pro is constructed to combine simple to use menu based architecture for setting up software, hardware & calibration setting. Also it provides direct access to main/ critical inspection setting such as Gain, Freeze, Zoom, Parameter display & Frame save. It provides unique means 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 architecture helps ease of use to any level of operator.

### Display

The ADVANSCAN AS-414 Pro 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 simple. The 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 level/ 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 Pro is designed to consistently perform 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 environment needs. All important outputs & inputs including USB, Ethernet, Charger, Transducers are adequately protected against dust & hazardous environment.



## Performance

### Tunable Square Wave Pulsar:

For optimum S:N. Penetrate attenuating material with maximum energy. Low ringing for Dead Zone & Resolution.

### Burst Pulsar mode:

Improved S:N ratio for a specific probe. Burst pulsar to get best energy generated by the probe. Required for hard to penetrate/attenuating material.

PRF(Pulse Repetition Frequency):

Up-to 1000hz Auto adjusting to selected test range.

### Enhance:

Cut off noise and get clear A scan display.

### Readable parameters:

Read parameters of Echo within the gated region, parameters to be displayed is selectable. Echo location, its height in percentage & dB is displayed.

### Gate:

Two gates with freely selectable start, width, threshold, positive/negative mode.

### Rectification:

RF, Full, Positive or Negative.

### Damping:

High/Low for filtering the ringing of the crystal.

### Pulse Power:

Low & high for best results of resolution or penetration.

### Receiver:

Create your own Band Pass Filter and Optimize the performance of a probe for best resolution, sensitivity or penetration.

### Display Units:

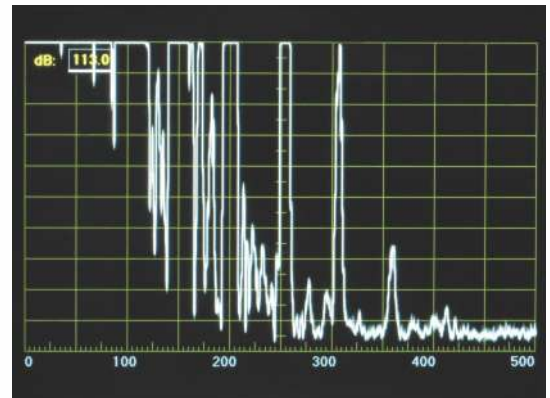
Selectable units in length, mm or travel time in Micro seconds. Values adjusted in coarse or fine steps.

### dB over gate level:

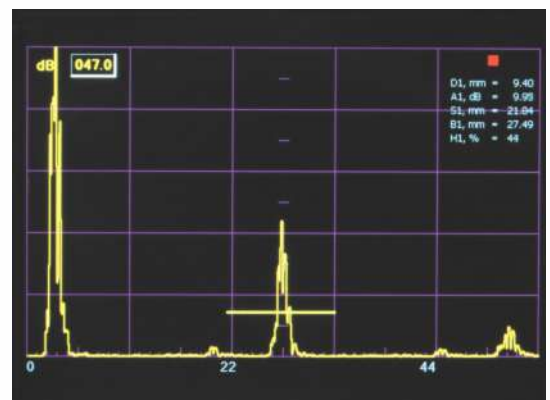
Unique display of gain in dB of echo height required above the gate level

### RTC:

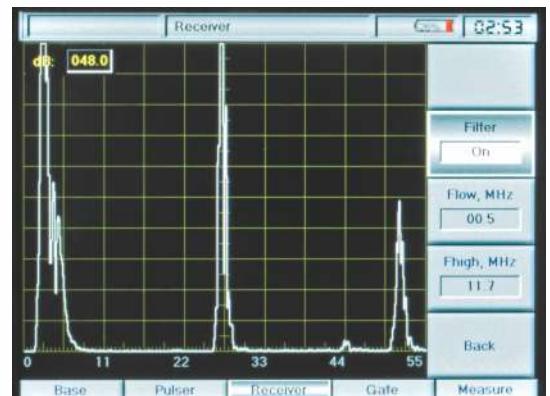
Real time Clock be used as time stamps for the reports.



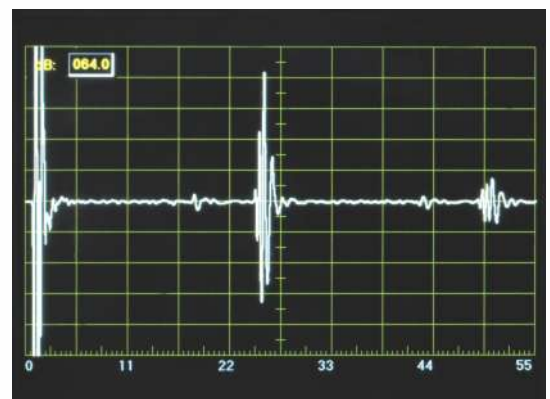
Penetration



Readable Parameters



Filter Menu



RF

## Enhance Function:

The software features helps to enhance 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 0.1 MHz & 12MHz.

## FlexiDGS

**SW-DGS:** The software features comparison & evaluation of Echoes against standard DGS curve for a particular type of probe. The DGS curve represents relation between echo height, defect size & distance from transducers.

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

## AWS D1.1/1.5:

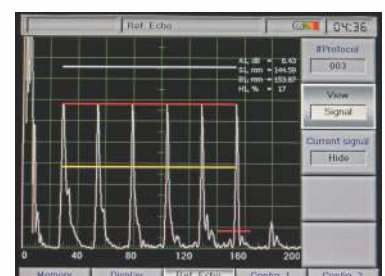
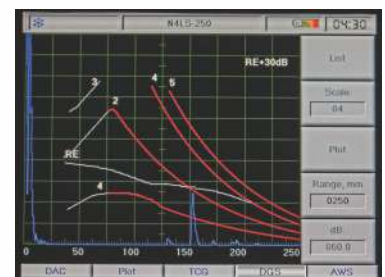
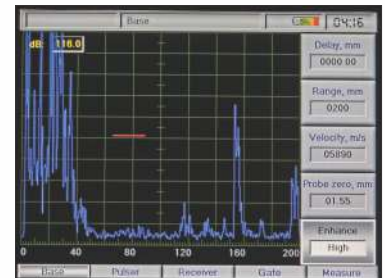
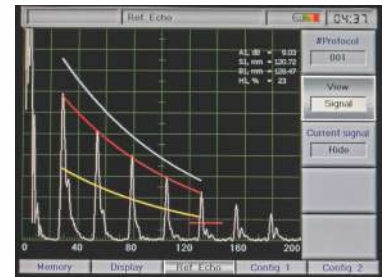
Allows Dynamic Reflector Indication for various Welding applications and eliminates the use of manual calculations.

## 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 echoes 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.

## TCG

Time corrected gain features for flaw sizing. For precise flaw, this modern feature is highly useful.



## 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. Flaws size occurring above or below the curve is easily visible in ERS parameter.



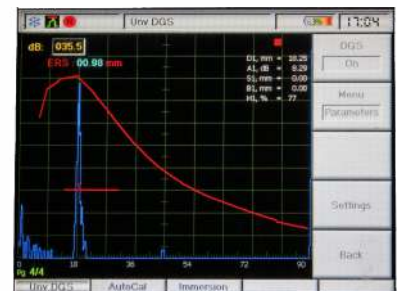
## Curved surface correction (CSC)

Curved surface correction (CSC) software is used to provide accurate measurement of reflector depth & position when working on curved test pieces.



## Immersion Testing

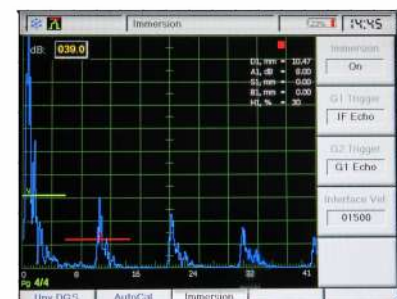
Useful for Immersion Applications. Selection for Interface velocity. Choice for GATE 1 & GATE 2 trigger.



## Auto Calibration

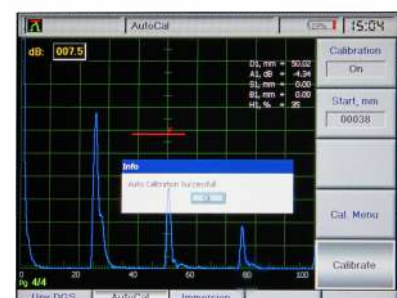
Automatically adjust Velocity and Probe Zero parameter.

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. Flaws size occurring above or below the curve is easily visible in ERS parameter.



## Continuous Strip Chart Recorder (CSCR)

Continuous recording for full proof scan record. 2 axis information of proportional echo amplitude and scanning time. Up to 20 sets of recording each of 60 minutes with built in memory. Capture, Store, Retrieve, Analyze, Print.



## Data Management

ADVANSKAN AS-414 Pro 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 Pro & for report generation.

## Customized Software Upgrades

With its windows based open architecture software base, the ADVANSKAN AS-414 Pro is easily up gradable to desired changes/modification in the standard/ non standard features. Example: gated echo (defect) parameters are only displayed and all others can be switched OFF.

## Portable, Rugged & Durable

### Good built

ADVANSKAN AS-414 Pro 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. ADVANSKAN AS-414 Pro is also provided with Protective Cover for further protection & easy to use for the operator.

## Replaceable battery

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

## Standard kit

- Ultrasonic Flaw Detector, Model AS-414 Pro
- 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 pro : Hard Carrying Case for Rugged & Industrial use.
- PC-414 pro : Protective Cover



# ADVANSKAN AS-414 PRO SPECIFICATIONS

## LCD DISPLAY

Display	5.7 Inch VGA (640X480) LED 400 Digital landscape TFT LCD module
Display freeze	Current display freeze selectable
Active freeze	Display accumulation selectable
Reference Echo pattern	Reference A scan pattern can be displayed in the background from selected location in memory
Display Pattern	Unfilled or Filled.

## PULSER / RECEIVER

Receiver bandwidth	0.5 to 20MHz by wide band amplifier. Selectable Low and High cut off frequency, in steps of 0.1MHz.
Gain	0-120dB variable in 0.5dB step. Step size selectable decimal, unit or tens value
Rejection	Linear type (0-99%), 1% step, partial type (0-25%), 1 % step
Operating mode	Single probe, Double probe, T-R mode.
Test mode	Pulse reflection or Pulse Transmission.
Pulse Power	Hi/Low selectable.
Damping	High/Low selectable.
Vertical linearity	± 3%.
Probe connector	LEMO type with dust proof cap.
Echo display	RF, Rectified – Full/Positive/Negative selectable.
Pulser	Square wave, selectable frequency. Single or up to 6 pulses in 'Burst' mode.

## TIME BASE

Range	<ul style="list-style-type: none"> <li>5mm min - 5mtrs max (@5890M/sec)</li> <li>Continuous variable in 1mm step. Step size selectable decimal, unit or tens value</li> </ul>
Delay	<ul style="list-style-type: none"> <li>0-2000mm continuous variable in step.</li> <li>Step size selectable decimal, unit or tens value.</li> </ul>
PRF	Variable 1000Hz. Auto limiting for set parameters
Velocity	1000M/sec – 10000M/sec
Time base linearity	± 1%
Zoom	Gated portion (min. 10mm)
Triggering	Internal

## MONITOR GATE

Monitor Gates	<ul style="list-style-type: none"> <li>2 Gates with selectable:</li> <li>Width 1/10 screen to full screen</li> <li>Height 1/10 screen to 90%</li> <li>Gate start measured from initial pulse</li> <li>± Logic selectable</li> <li>Audio Alarm/Mute</li> </ul>
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## DAC

DAC	<ul style="list-style-type: none"> <li>10 points auto plotting curve, (min 2 points)</li> <li>Simultaneous 3 curves with selected attenuation i.e. +12dB to -20dB point to point or smooth curved</li> </ul>
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## TOFD

TOFD Module Consisting of	<ul style="list-style-type: none"> <li>TOFD Setup</li> <li>Encoder Interface</li> <li>PC software for TOFD module</li> </ul>
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## CSCR

Continuous Strip Chart Recording	<p>Functional Model 'CSCR'</p> <ul style="list-style-type: none"> <li>Continuous recording for scanning large jobs to record</li> <li>2 axis information of defect amplitude Vs its location.</li> <li>PC software with CSCR module for archiving and report purpose.</li> <li>Up to 25 sets each of 60 minutes can be stored in instrument memory.</li> </ul>
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## SOFTWARE MODULES

SW-STD (Standard Version)	<ul style="list-style-type: none"> <li>Standard DAC – Two offsets</li> <li>Filters – As a Standard Feature</li> <li>Auto Calibration</li> <li>Trigonometric Parameters reading irrespective of Gate Logic</li> </ul>
SW- FLAW SIZING	<ul style="list-style-type: none"> <li>Standard</li> <li>Static and Dynamic DAC with 2 Offsets</li> <li>TCG software</li> <li>DGS scale suitable for N/NM/A/AM type probes</li> <li>Skip Distance Color Scheme</li> <li>SW FLAW SIZING, AWS D1.1/1.5 Weld Rating</li> </ul>
SW-AWS	Standard
SW-EXT	<ul style="list-style-type: none"> <li>IF Trigger</li> <li>10Mtr Range</li> </ul>
SW-ALL	SW FLAW SIZING, SW-AWS, SW-EXT & Universal DGS
SW-CSCR	Continuous Strip Chart Recorder
Optional Accessories	Runner X-2 Scanner with Magnetic Wheel & Carrying Box

## GENERAL

Trigonometric Functions	<ul style="list-style-type: none"> <li>Beam path, Flaw depth and Projection Distance displayed for selected echo within Gate 1 and Gate 2</li> <li>Angle selection 0° to 90°</li> <li>Job thickness selection 5 to 999.0 mm within Gate 1 and Gate 2</li> </ul>
Measurements	<ul style="list-style-type: none"> <li>Echo height displayed in %</li> <li>Echo Amplitude displayed in dB</li> </ul>
Measurement Units	Millimeter and microseconds
Memory	200 'A' scans memory with calibration and Parameters
Interface	USB, for connecting flash drive and PC
PC software	ProWin PC interface software compatible with Windows 8, 64bit can upload "FRAME" from saved set to PC through the USB interface
Key Board	<ul style="list-style-type: none"> <li>User friendly, Menu driven, limited keys and encoder for value change. Direct access keys for main function</li> <li>Keyboard lock function</li> </ul>
Trace Color	<ul style="list-style-type: none"> <li>Selectable with Black background and Grey background:</li> <li>Background Black:</li> <li>Trace:- Yellow / Blue / White / Red / Green</li> <li>Graticule :- Violet / Green / Yellow / Green / Red</li> <li>Gate 1:- Red</li> <li>Gate 2:- Yellow</li> <li>Background Grey:</li> <li>Trace:- Black with Black graticule</li> <li>Gate 1:- Yellow/Red/White/Red/Green</li> <li>Gate 2:- Green/Yellow/Green/White/White</li> </ul>
Graticule	Graticule type selectable: 4X4, 5X5, 6X6, 8X8, 10X10 and 12X12
Dimension	200(L)X164(H)X92(W)mm
Weight	1.8 kg
Power Source	<ul style="list-style-type: none"> <li>Removable rechargeable battery pack model no. BAT414</li> <li>Operating time 8 Hrs. Battery charger cum mains adaptor model no. AD15V 110-240V, 50Hz-60Hz</li> <li>Battery charge level on LCD Display</li> <li>Red LED for charging. Auto shutdown, when discharged 0 to 55° C</li> </ul>
Battery Indicator	Lock, Battery charge level, Zoom, Freeze, Active freeze.
Operating Temperature	Gain, Beam path, Flaw depth/Thickness, Exit point, Filled, Probe zero, Delay, Range, Reject, Gate1/Gate2, Gate start, Gate Width, Threshold, Alarm On/Off, Memory Save, Reference Echo
Parameter display	<ul style="list-style-type: none"> <li>Rechargeable Battery pack model no. BAT414</li> <li>Battery Charger cum mains adaptor model no. AD15V</li> <li>PC cable</li> <li>Protective cover</li> <li>PC software</li> </ul>
Accessories	