

# SFD-50



## Universal Ultrasonic Flaw Detector

*with Bright Color Display*



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The **SFD-50** Digital Ultrasonic Flaw Detector combines industry leading conventional flaw detection capabilities with the efficiency of a highly portable, intuitive instrument. The **SFD-50** flaw detector's blend of efficient menus and direct access keys allows the user to take advantage of the highest quality flaw detection platform with exceptional ease of use.

- Simple to use, quick to operate, from basic to challenging inspection requirements.
- From high frequency inspections for thin materials down to low frequency for thicker materials.
- From automotive, power generation, oil and gas to aerospace applications.

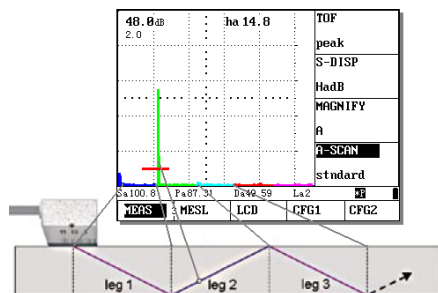
### Harsh field and industrial environments

- Extended temperature range from 0°C to 60 °C.
- Weighs only 2.0 kg.
- Extended battery life to 12 hours under real test conditions.

### Fast and bright color screen

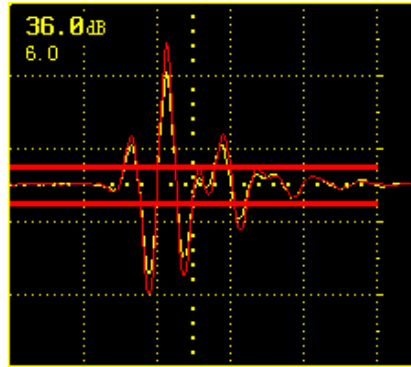
Color brings you many additional benefits in your daily inspection job:

- Color display of monitor gates and curves (DAC, TCG, DGS) for direct recognition
- Color coded display of legs for angle beam inspection of welds



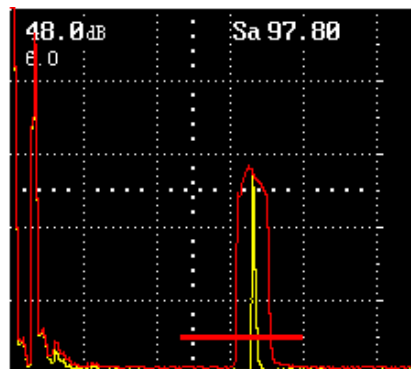
Color-coded display of legs in tests using angle-beam probes

- Use of color to display references (A-scan) to make comparisons easy



A-scan comparison

- Colorized envelope curve display for echo dynamic analysis



Envelope curve

- Multicolor screen combinations for operator preferences and to select best suitable color scheme according to the working environment.

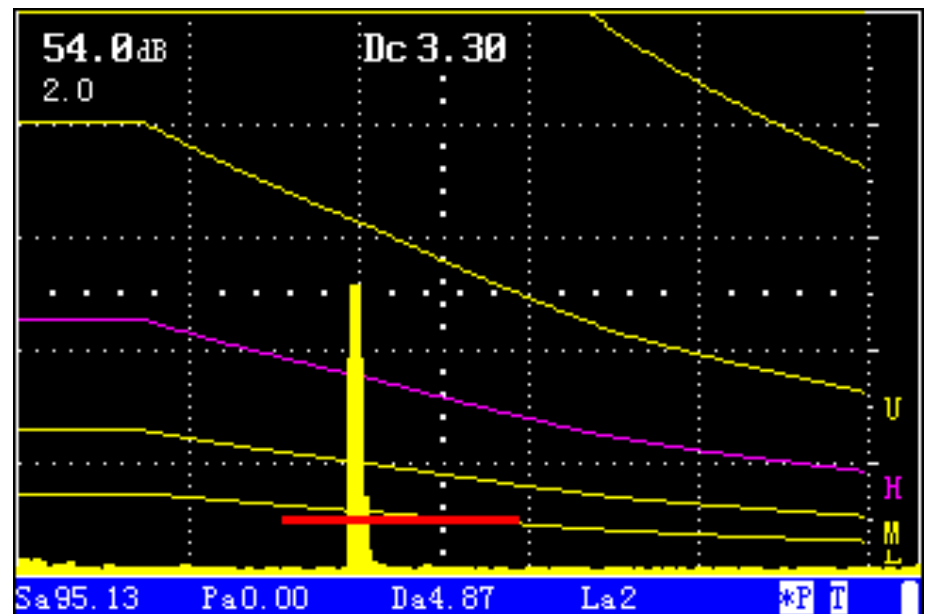
### Square Wave Pulser (option)

Selectable and tunable for optimum probe matching to satisfy a wide range of tough-to-penetrate applications.

- For low frequencies, square wave pulsers allow optimum probe matching by adjusting pulse width and voltage.
- Difficult to penetrate metallic applications and especially non- metals inspection like composite materials are optimized.
- Pulse width is tunable up to 1000 ns in 10 ns steps for optimum probe matching and versatility in meeting a wide range of applications.
- Pulser voltage is adjustable from 25 to 500 V in 10 V steps.

### DAC functions

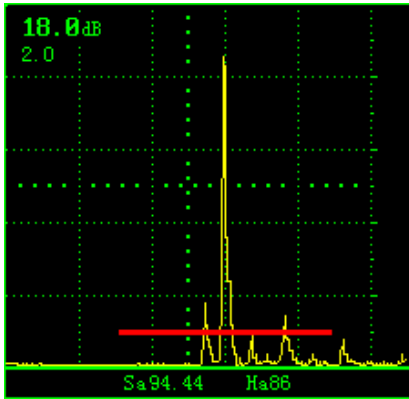
Recording reference echoes in DAC mode will be simplified by automatic gain adjustment. The echo to be recorded will be set automatically at 80 % and stored the dB-difference to the first reference echo can be displayed, if needed. The new JIS-DAC meets the latest JIS Z3060-2002 specifications.



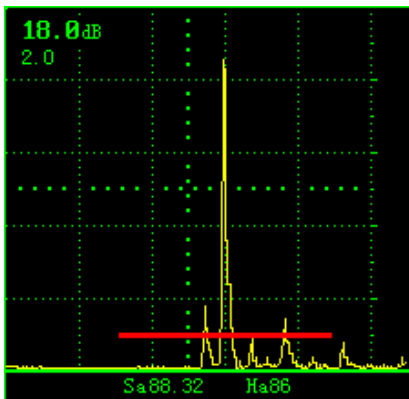
New DAC function according to the latest JIS Z3060-2002 specifications

## Three different time-of-flight measurements

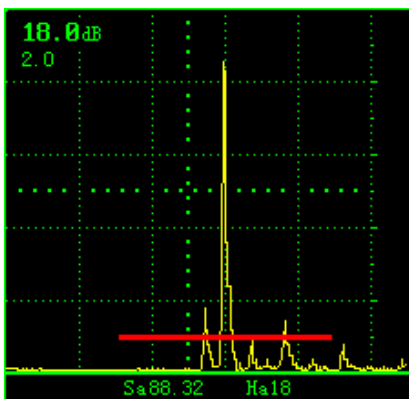
Depending on the time of flight mode selected, the distances and amplitudes will be measured and displayed for the echo in each gate.



*Peak: sound path and amplitude at the highest echo in the gate*



*Flank: sound path at the intersection of the first echo with the gate threshold; amplitude at the highest echo in the gate*



*JFlank: sound path at the intersection of the first echo with the gate threshold; amplitude at the first echo in the gate*

measurements can be carried out instantaneous or behind freeze

## Other benefits

We have also implemented innovations from the computer industry in the battery concept to make your daily work easier: the rechargeable lithium-ion battery pack enables you to carry out your inspections for at least 12 hours. Charging is easily carried out internally within the instrument just by connecting the power adapter to the **SFD 50**.

## Curved surface correction

Corrects sound path information when using an angle beam transducer to circumferentially inspect a curved surface for either tubular or bar inspections.

## Data reporting

200 datasets enable a great number of calibration settings and test results to be stored. 1200 datasets are optional. Each report can be documented with a memo field containing added information for memory and analysis. The report or setting can be uploaded to a computer using an RS-232 or USB (with USB-RS accessory) for saving, reviewing or printing.

## Measurement readings

Up to 20 measurement readings are selected to be displayed on the screen;

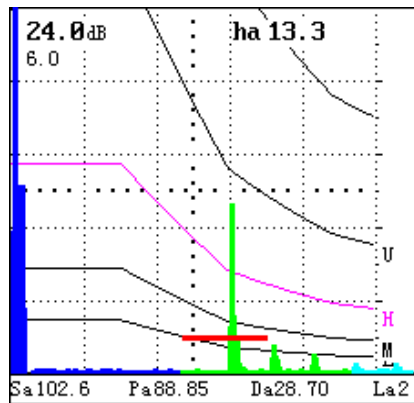
# Examples for the various applications of the high performance Spectrum Instruments Model SFD-50

## Weld inspection in the power generation and petrochemical industries

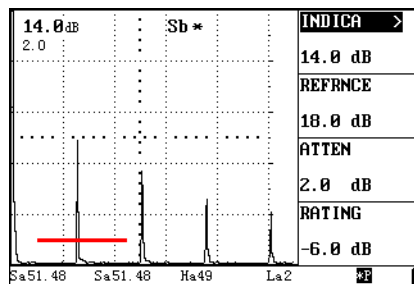
- Flaw location with display of all coordinates, sound path, (reduced) surface distance, depth position and leg number



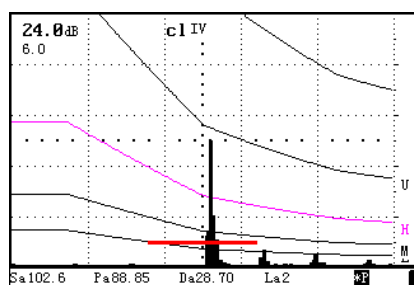
- Display of every sound beam reflection (number of half skip distances or legs) and identification of leg color on the "live" A-scan



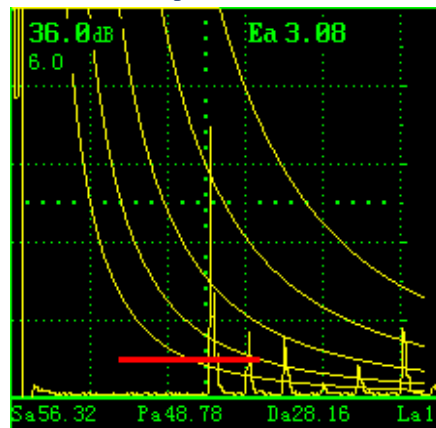
- Amplitude evaluation in dB referring to a previously recorded reference echo or according to AWS D1.1



- New powerful DAC/TCG with JIS DAC module according to JIS Z 3060-2002



- DGS evaluation with direct digital ERS readout (option-- for KFD 50X)



## Precise thickness measurement for the automobile industry

You can measure the sound path difference precisely at the peaks of an echo sequence with a resolution of 0.01 mm.

## Corrosion wall thickness in the power generation and petrochemical sectors

During wall thickness measurement on corroded parts using dual element probes, you simultaneously check the reading together with the A-scan, thus receiving the maximum reliability for the measurement. On hot surfaces you use the auto-freeze function, mini-

mizing the probe's contact time. The minimum capture mode gives you the thinnest measured reading at the end of a continuous scan.

## Inspection of forgings in the power generation and aerospace sectors

The automatic setting of the pulse repetition frequency from 20Hz to 1kHz eliminates phantom echoes while inspecting fine grain and large work pieces. Defects from an equivalent reflector size 0.3 mm onwards will be detected.

## Inspection of special materials in the aerospace and automobile industry

Use probes down to 250 kHz in order to penetrate highly attenuative or composite materials. Our composite probes on the SFD-50 will drastically improve the signal-to-noise ratio on sound scattering materials (glass or carbon reinforced plastics, composites or alloys).

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