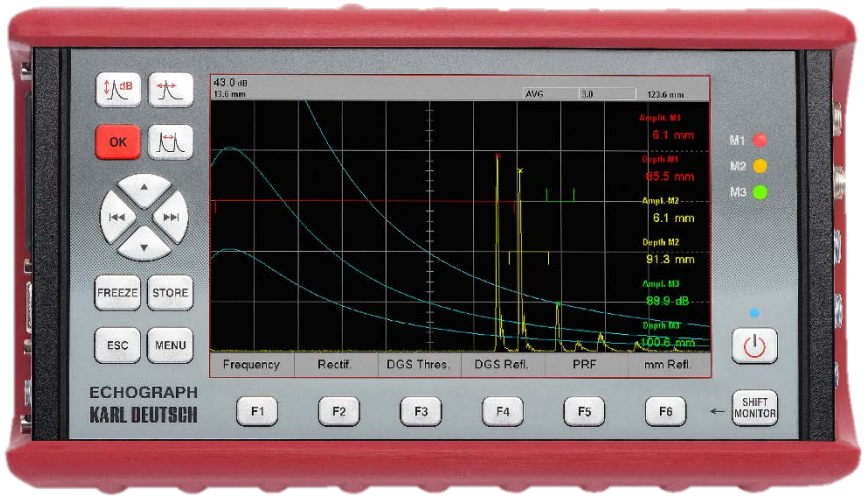
Digital UT Flaw Detector

ECHOGRAPH 1095

Overview

- Very large high-contrast 7” TFT color display (800 x 480 pixel)
- Rugged metal case with rubber frame (IP64, weight: 2 kg)
- Intuitive clear text user interface
- Wizards for adjustment and probe handling
- 3 monitors to measure amplitude and time-of-flight with optical and acoustical alarm
- Separate adjustable gain within monitor 3
- Displays up to 6 measured values on the screen
- Adjustable square pulser
- 6 assignable function keys
- Complies with EN12668-1



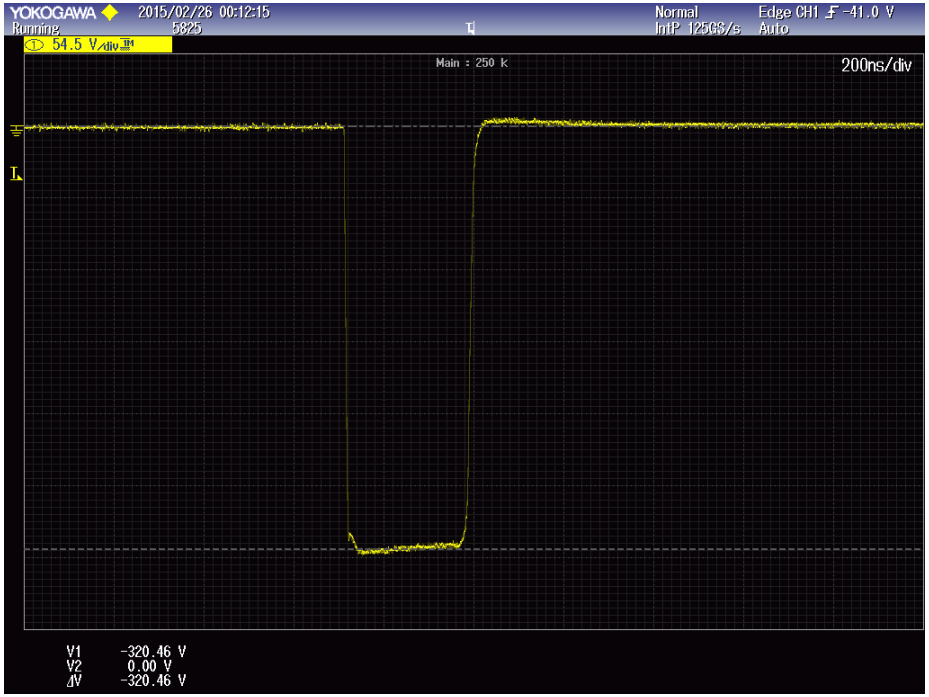
Interfaces and Connectors

- **8 GB SD card (2 .. 32 GB)**
  - Windows BMP files for A-Scans
  - Excel CVS files for measurement data
- **Standard VGA connector**
- **USB interface (mass storage device, no driver needed)**

- **Power supply**
- **Optional analog output (via Interface box)**
- **3 monitors, synchronizing in and out (Level TTL 5V)**
- **2 x LEMO® 1 transducer connectors**

Transmitter/Receiver

- **Adjustable square wave pulser**
- **Pulse width 30 .. 5000 ns (0.1 .. 17 MHz probes)**
- **Output Voltage 60 .. 320 V**
- **Pulse width is automatically set when loading probe configuration**
- **Automatic or Manual PRF of 10 .. 5000 Hz**
- **Range of Gain: 110 dB**
- **7 digital Filters:**
  Low pass (0.2 .. 2 MHz),
  2 MHz,
  4 MHz,
  5 MHz,
  Broadband (1.3 .. 14 MHz),
  10 MHz,
  High pass (4.9 .. 22 MHz)

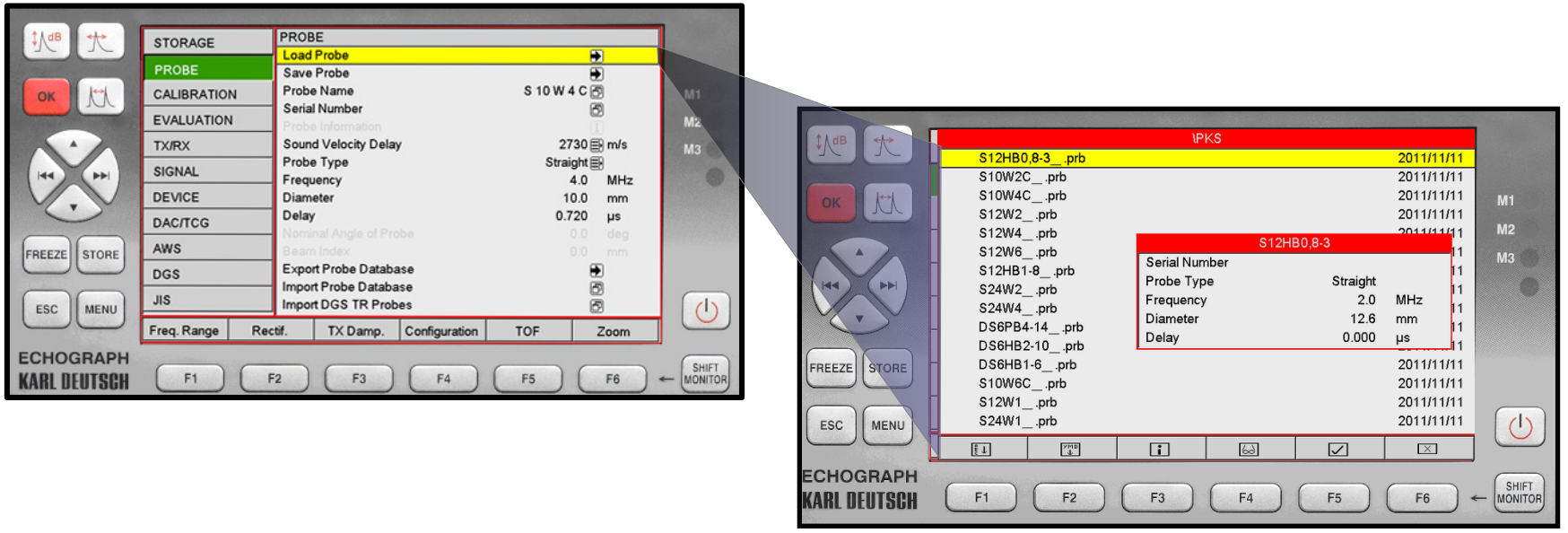


Monitors

- 3 independent monitors to measure amplitude and time-of-flight
- Precise wall thickness measurement with zero crossing gates
- Backwall echo attenuation within monitor 3
- Skip distance marker with monitor 1 and/or monitor 2
- Echo-to-echo measurement with monitor 2 fixed relative to monitor 1
- Visual and acoustical monitor alarms
- In freeze mode monitors can be modified
- 6 Function Keys, easily selecting gate functions

Probe Database

- **Complete Data Set of all available KD standard transducers**
- **Easy adjustment of transducer data without using a PC**
- **Generating and handling of own transducer data sets**

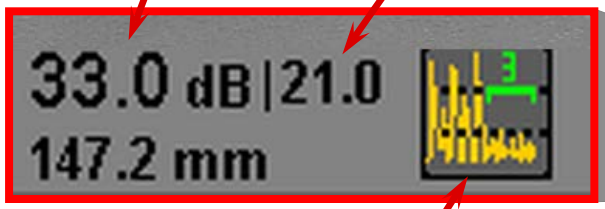


Backwall Echo Attenuation

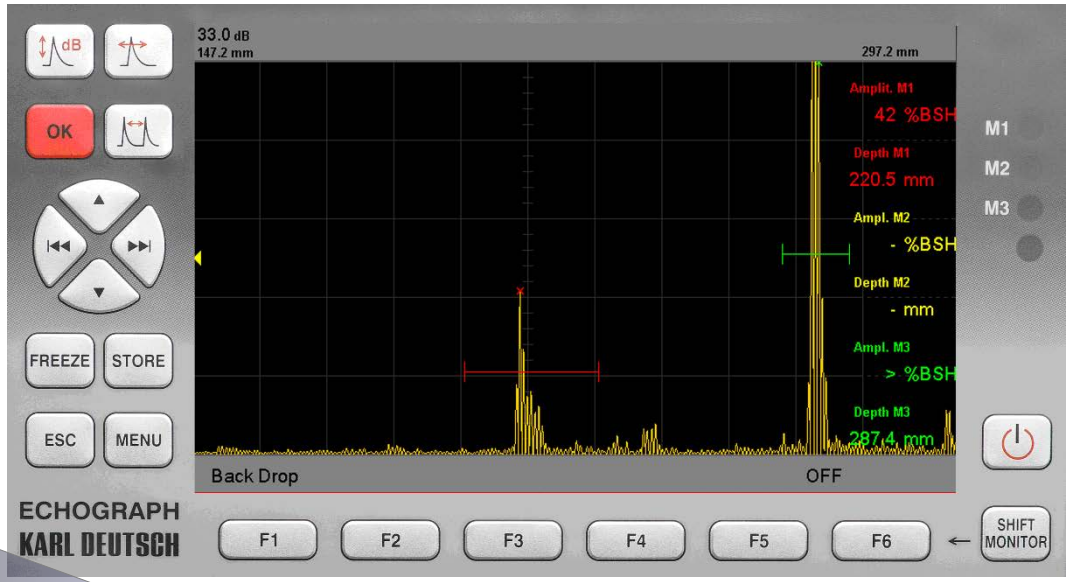
- **Backwall echo usually exceeds screen height, thus a drop is not observable**

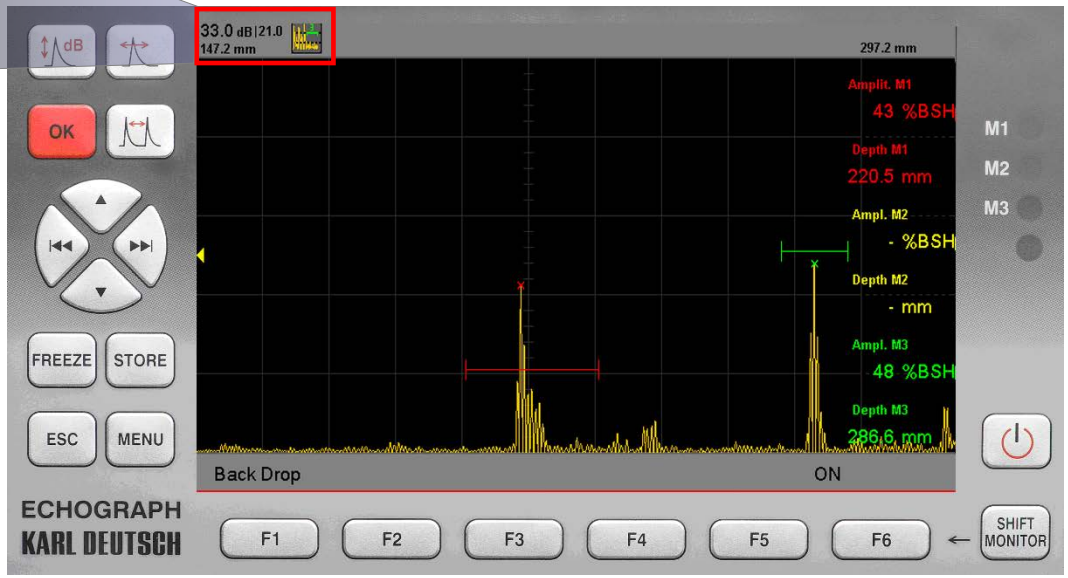
Standard Gain: 33.0 dB

Gate 3 Gain: 21.0 dB



Symbol for monitor attenuation

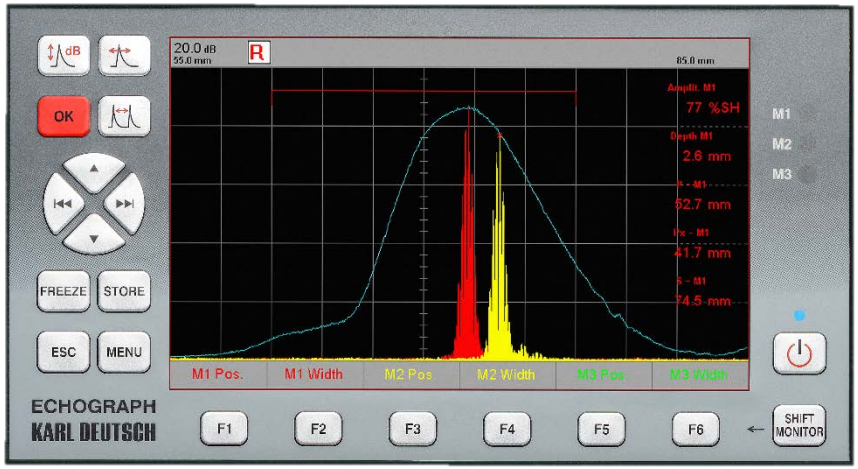


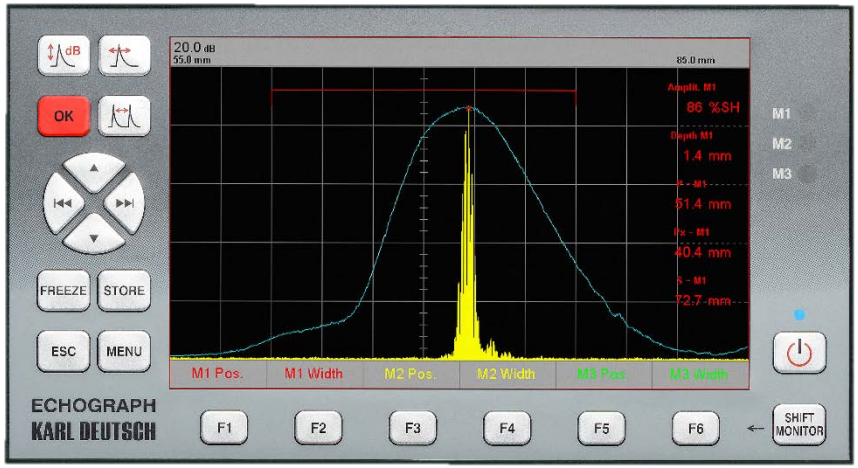


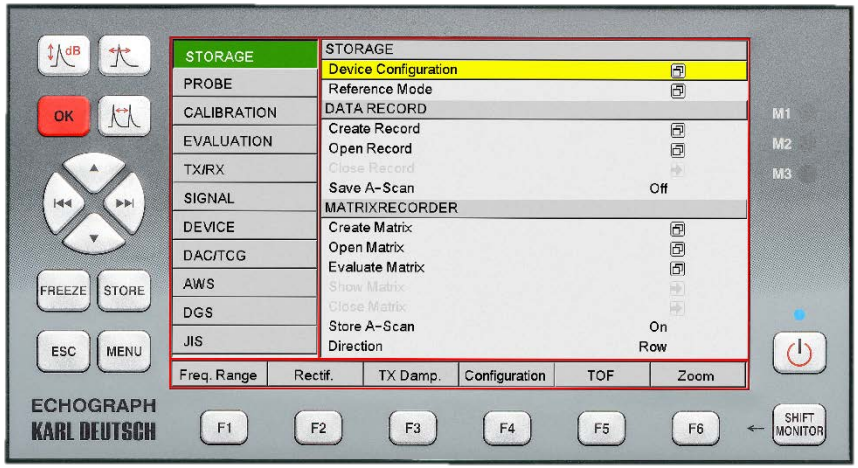
- **Separate gain within monitor 3 (green)**
- **Observable backwall echo**

Envelope Function

- **Record Envelope to specify echo dynamics**
- **Envelope can be stored with configuration**
- **Envelop will be recovered when loading configuration and can be edited or used as reference as well**

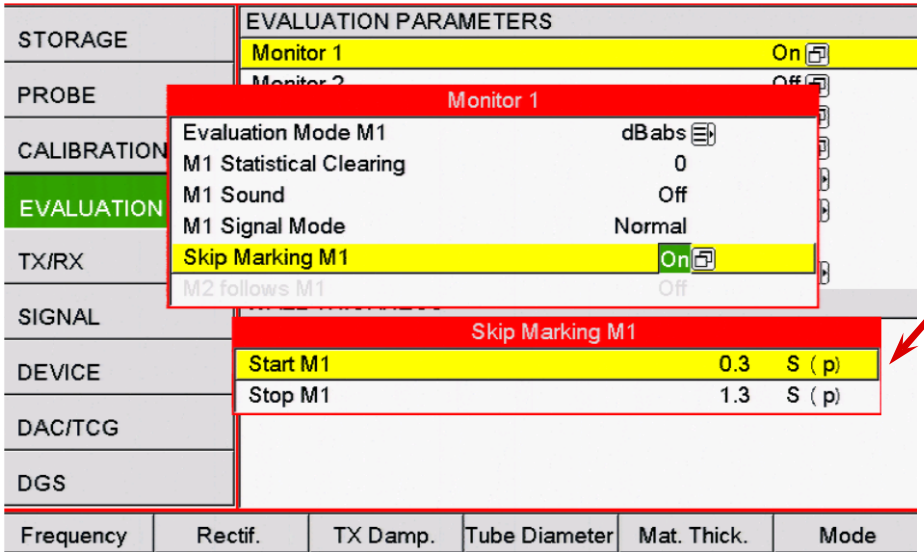




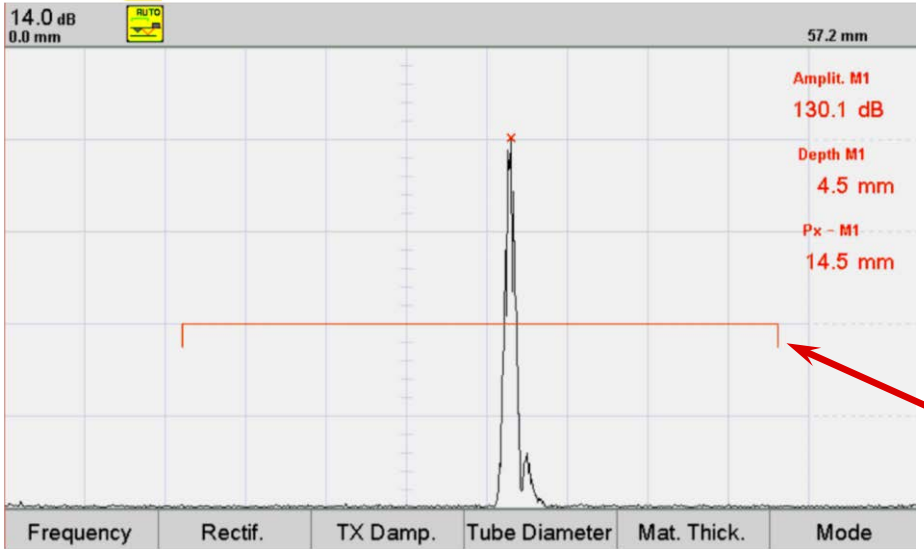


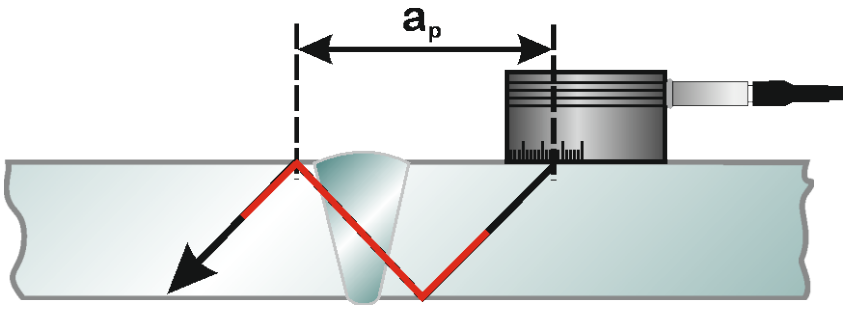
Automatic Monitor Settings for Angled Probes

Symbol to indicate mode



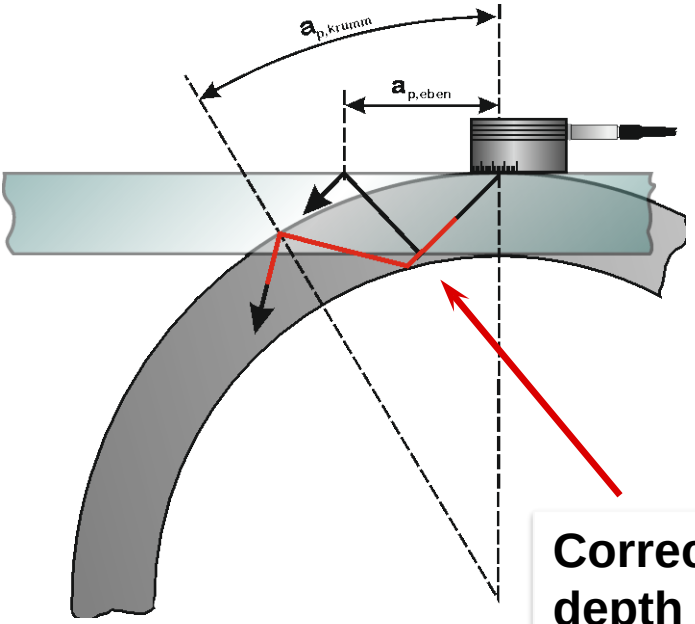
Skip distance factors for the selected monitor

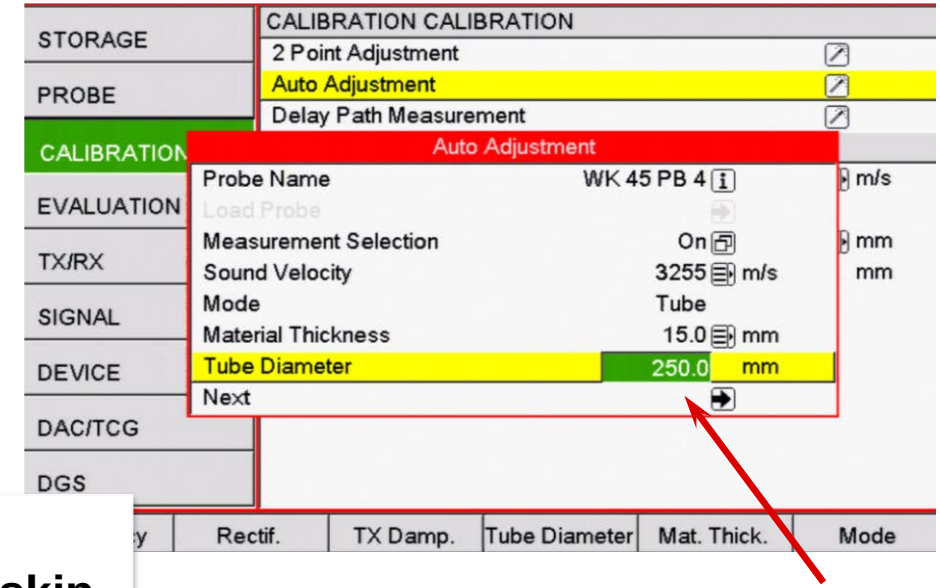




Automatic monitor positioning according to the selected skip distances

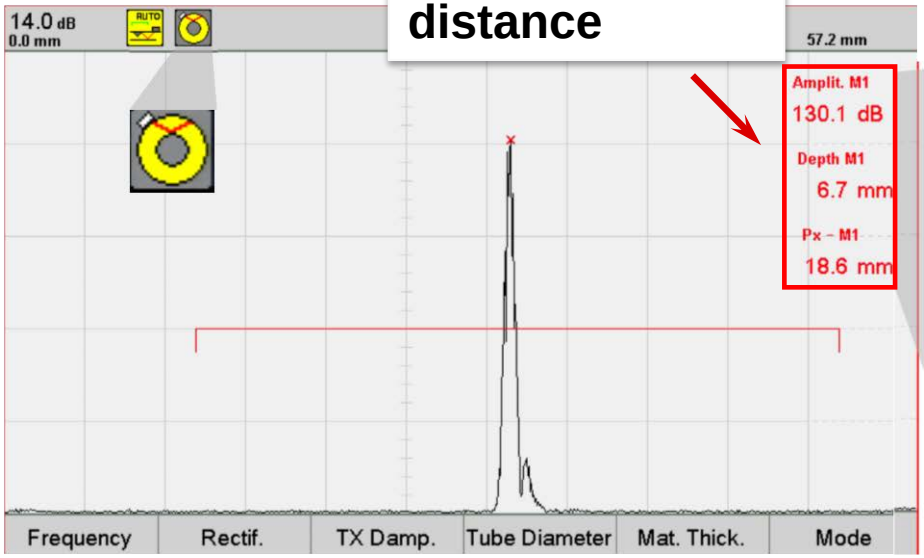
Curved Surfaces



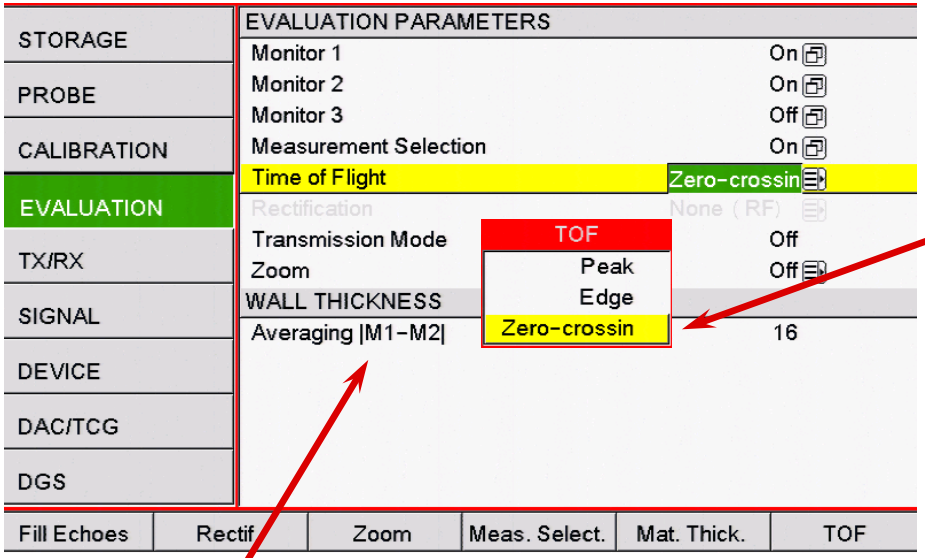


Corrected depth and skip distance

In tube mode: Input of tube diameter and material thickness

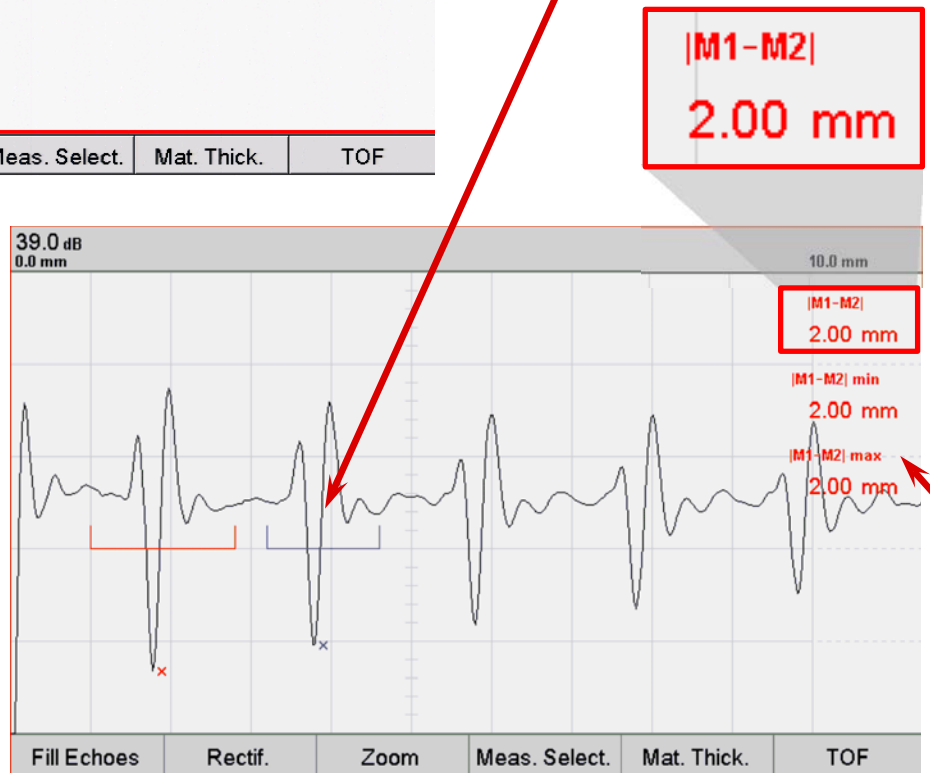


Wall Thickness Measurement



Precision wall thickness measurement with zero crossing gate

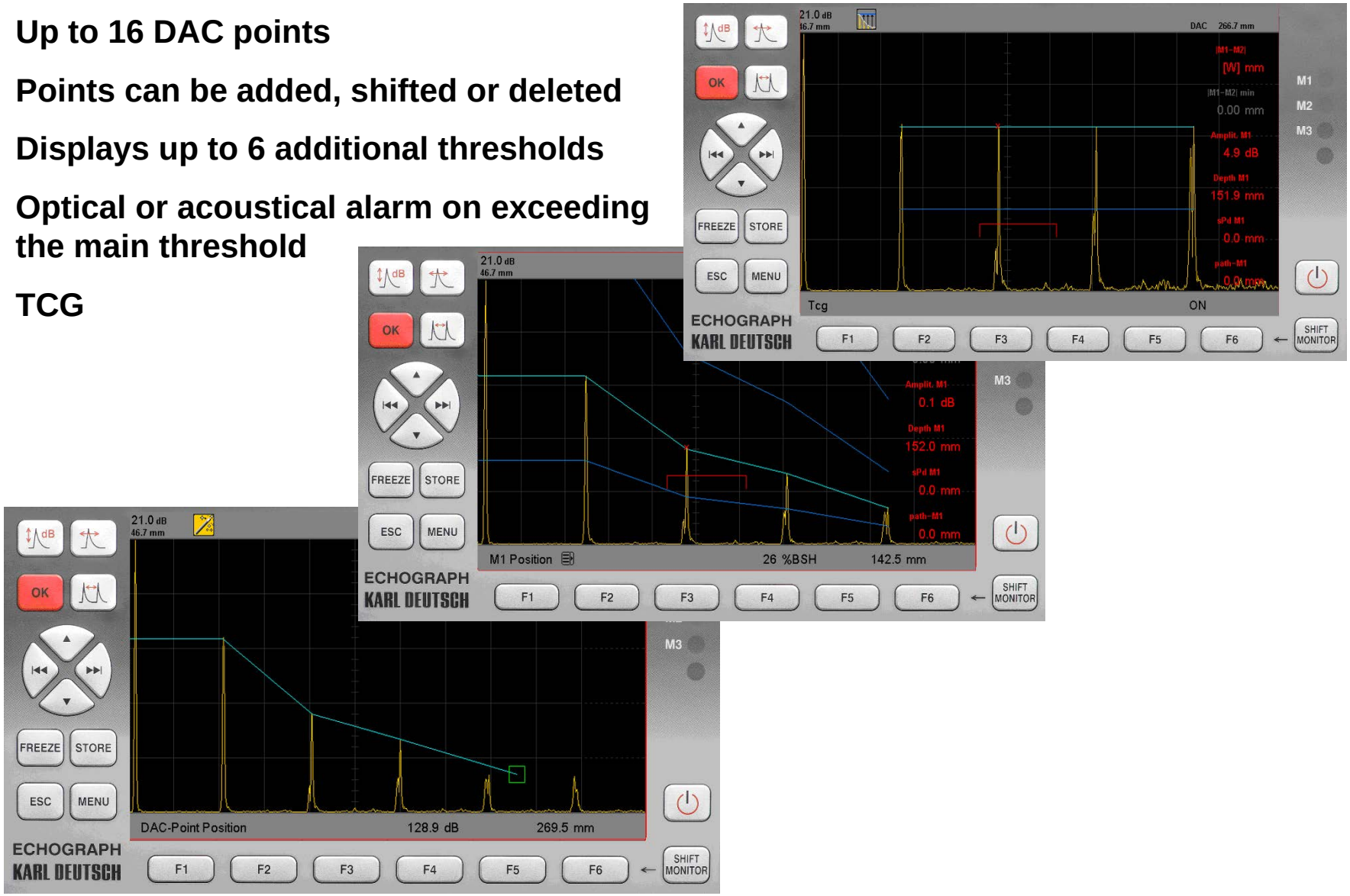
Higher resolution by averaging



Min / Max – storage of wall thickness data

DAC and TCG (Optional)

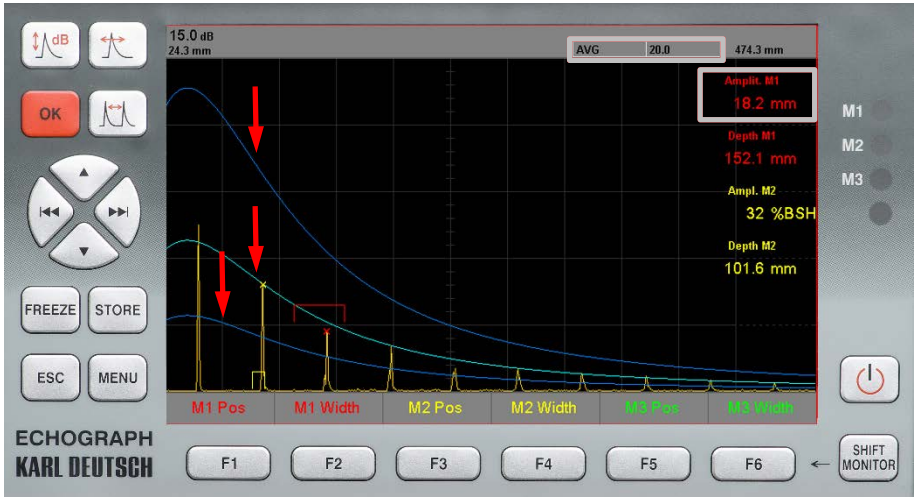
- **Up to 16 DAC points**
- **Points can be added, shifted or deleted**
- **Displays up to 6 additional thresholds**
- **Optical or acoustical alarm on exceeding the main threshold**
- **TCG**



DGS (Optional)

Evaluates the reflected echo in DGS Mode (Distance Gain Size), and calculates the *Equivalent Reflector Size* acc. to EN 1330-4.

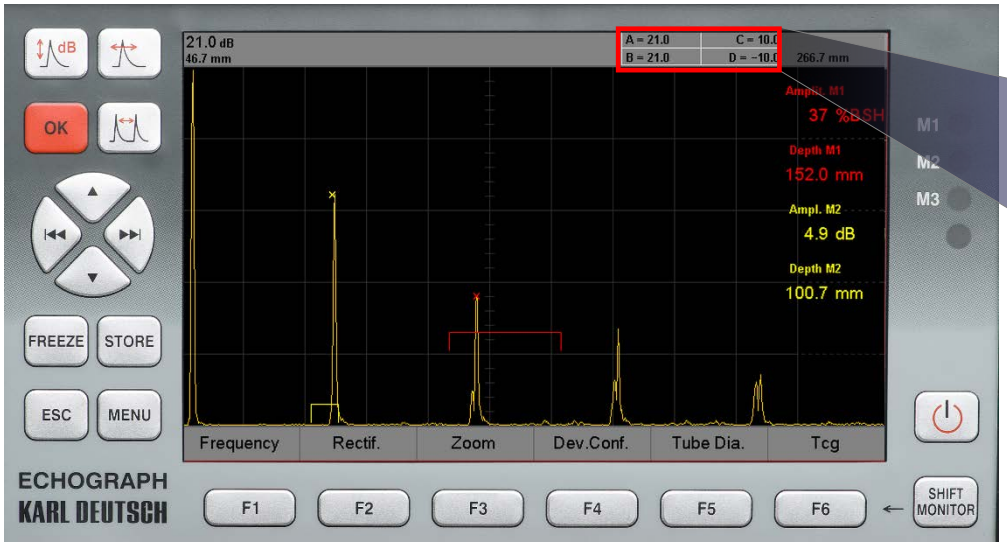
- **DGS curve is calculated and displayed within the instrument**
- **Not restricted to special probes**
- **Equivalent reflector size (FBH = flat bottom hole) is directly calculated**
- **Up to 6 additional curves**
- **TR probes**



AWS (Optional)

AWS D1.1 (American Welding Society)

Weld Rating Software



amplitude evaluation

A = Discontinuity indication level (dB)

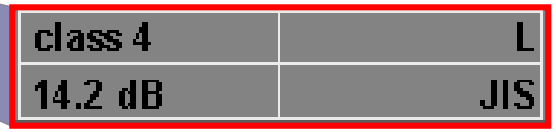
B = Reference indication level (dB)

C = Attenuation factor (dB) [0.079 dB/mm · (s - 25.4 mm)]

D = Indication rating (dB) [A-B-C]

JIS (Optional)

JIS (Japanese Industrial Standard) Z3060



region of echo height (class)

H Line – reference curve

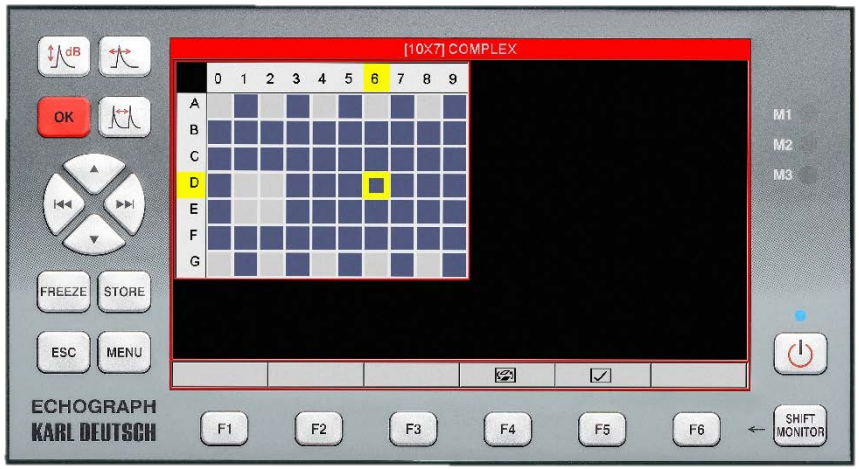
M Line – 6 dB below the H line

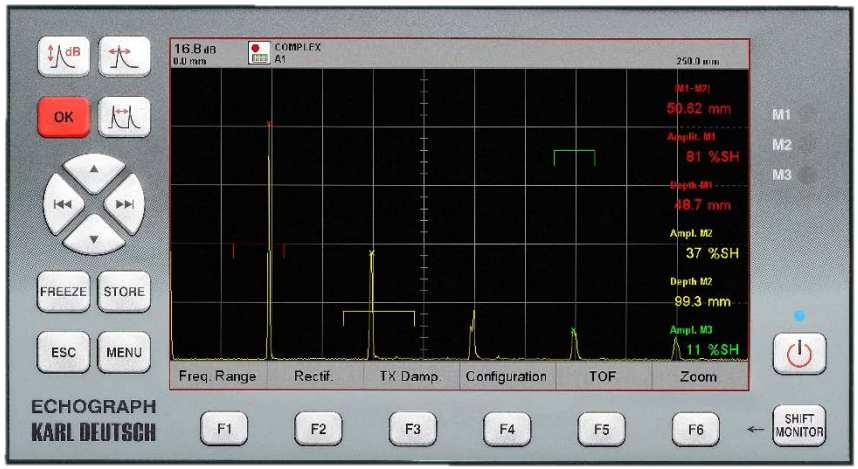
L Line – 12 dB below the H Line

Any of these three lines can be used as reference (the baseline for further measurements). The remaining three offset lines are drawn at 6, 12, and 18 dB above the H line.

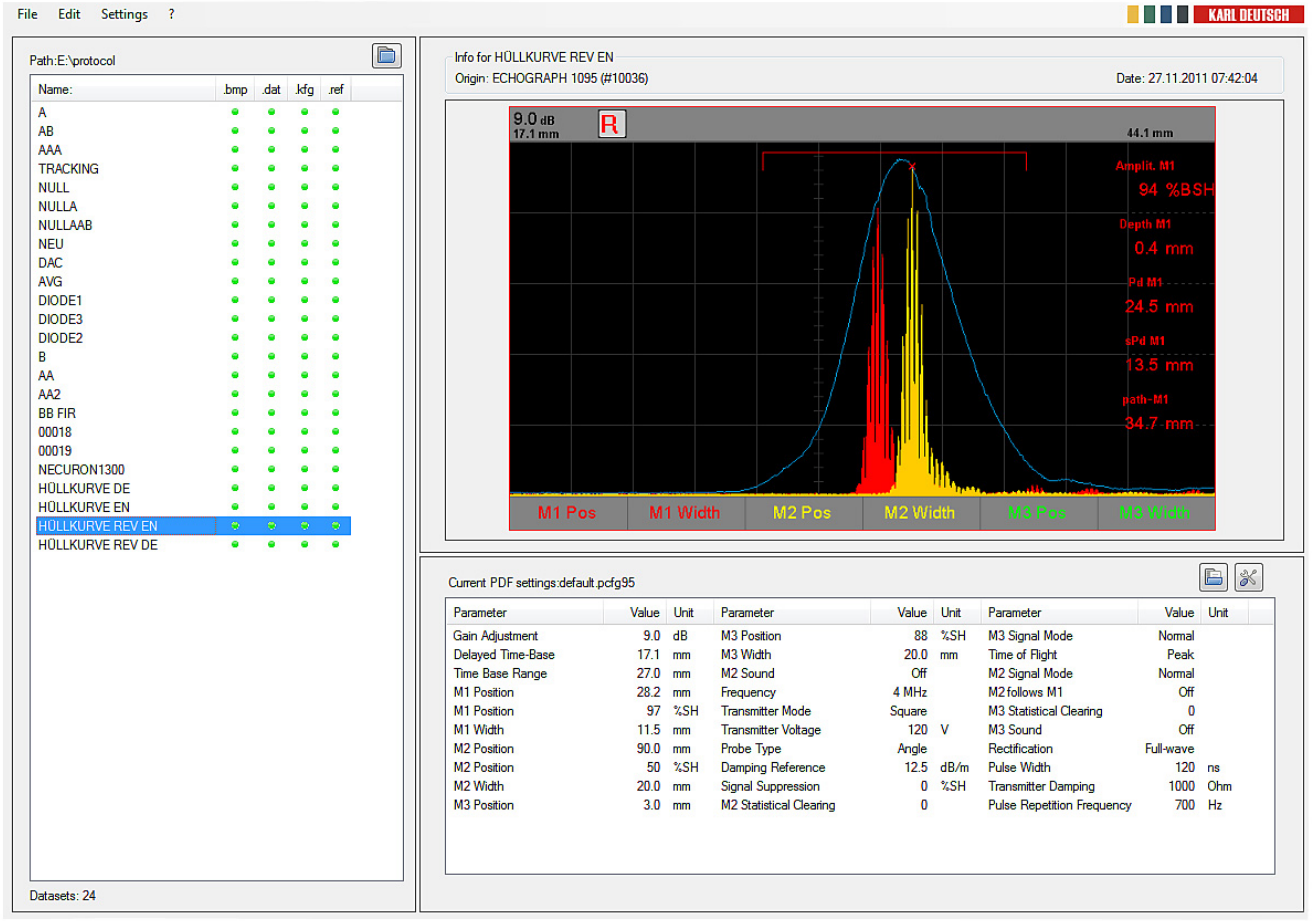
Data and Matrix Recorder (Optional)

- Store linear series of measured data in data recorder
- Create matrix for more complex data arrangement
- Reuse matrix shape as a template
- Store data with A scan
- Evaluate the measurements





Software eCom 95



- **Easy test report creation**
- **Im- / Export and manage device configurations**
- **Export A scan screenshots**