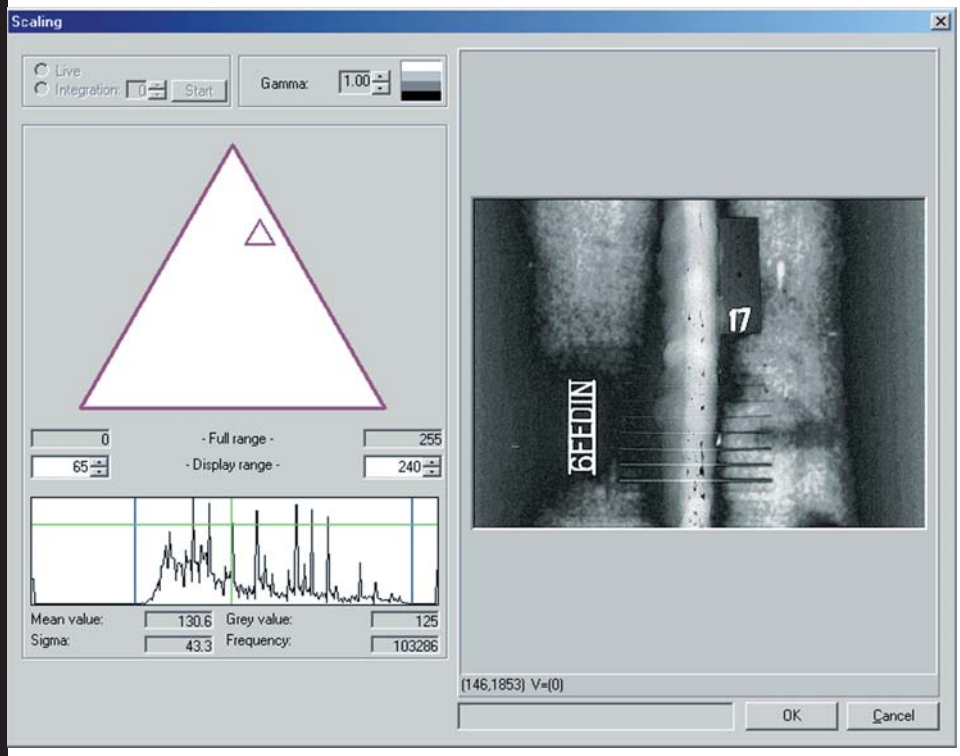
Technical Data

Y.IM/3500-DD

YXLON.IMAGE/3500-DD
Image Enhancement and Storage System



YXLON.IMAGE/3500-DD is especially designed for radioscopic applications with modern digital detectors such as amorphous silicon or linear array scanners. Providing a very high dynamic contrast range, it is suited for any application, where film technique was previously the only alternative.

The system comprises a wide range of image processing and enhancement functions. A reference image can be displayed in a separate window. Several functions applied to the actual image may be applied to the reference image simultaneously. The system fulfills the "Viewing Software Specification" of the ASTM Task Group E07.02.03.

YXLON.IMAGE/3500-DD digitized images may be stored as 8-Bit or 16-Bit files in TIF Format. The system is tailored for shop floor applications as well as for demanding research and development purposes.

- Ideal for film replacement and archiving
- High resolution image quality by 16-Bit technology
- Extensive image enhancement functions
- Parallel processing of actual and reference image
- Quick detail information

Y.IM/3500-DD

YXLON. The reason why

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Y.IM/3500-DD

Detectors

- 16-Bit Detectors from Perkin Elmer (for highest contrast and maximum material thickness range)
- 12- and 14-Bit Detectors from Thales (for high resolution, small details and medium material thickness range)
- 12-Bit Detectors from Varian (for high resolution, small details and flat material)
- 12-Bit Linear Diode Array (LDA) (for highest resolutions and smallest details)
- 12-Bit LDA Scanner (cost effective solution for high resolution)
- Easy to use, menu-controlled detector adjustments, such as
  - Offset
  - Gain
  - Non-Linearity
  - Pixel correction
- Automatic identification and correction of bad pixel *
- Bad Pixel Editor for display of bad pixels with locations and reasons; manual correction possible
- Adjustable 16-Bit gamma correction for different materials (aluminum, steel, titanium, plastics, etc.)
- Inverted 16-Bit gray value image for film-like inspection

Display

- MDI (Multiple Document Interface) display, one for live image default
- Additional window for a reference image with interlinked functions (see *R)
- Automatic gray-scaling: 16- to 8-Bit conversion for monitor display; can be adapted by
  - one mouse click, drawing a rectangle with mouse, adjustable percentage threshold (*R)
  - separate menu with triangular slider for contrast and brightness, showing the range in histogram
  - store and recall with one mouse click up to five individually definable gray value scalings (*R)
- Automatic scaling of the Live image to defined gray values during change of dose
- Local gray value scaling within an ROI (*R)
- Gray Value Movie (preset and individually definable) (*R)
- Contrast and brightness spreading of the output signal to optimize the image for individual operator requirements (Output-LUT) (*R)
- Inverted gray value image for negative display with one mouse click (*R)
- Full screen mode – just the image on the display in maximized size
- Zoom function with one mouse click (*R)
- YXLON Optimized Zoom Function with sub-pixel interpolation (YOZ) for smooth representation at high magnifications
- “Moveable magnifying glass“ (*R)
- Storage of gray value scaling with the image
- Automatic scaling of loaded images to min/max

*R = same function is also done on reference image in parallel

Image Processing Functions

- Noise reduction through integration (up to 300 seconds); one mouse click integrates the image
- 16-Bit Filter technology; 15 predefined 16-Bit filters with different kernel sizes:
  - Low pass
  - Median
  - Crisping
  - Pseudo 3D
  - High pass
  - Difference of Gaussians (DoG)

* *Bad Pixel: Each digital detector has Bad Pixels. YXLON demands the highest detector quality and has special agreements with suppliers to meet these requirements. For bad pixel definition please contact your local YXLON agent.*

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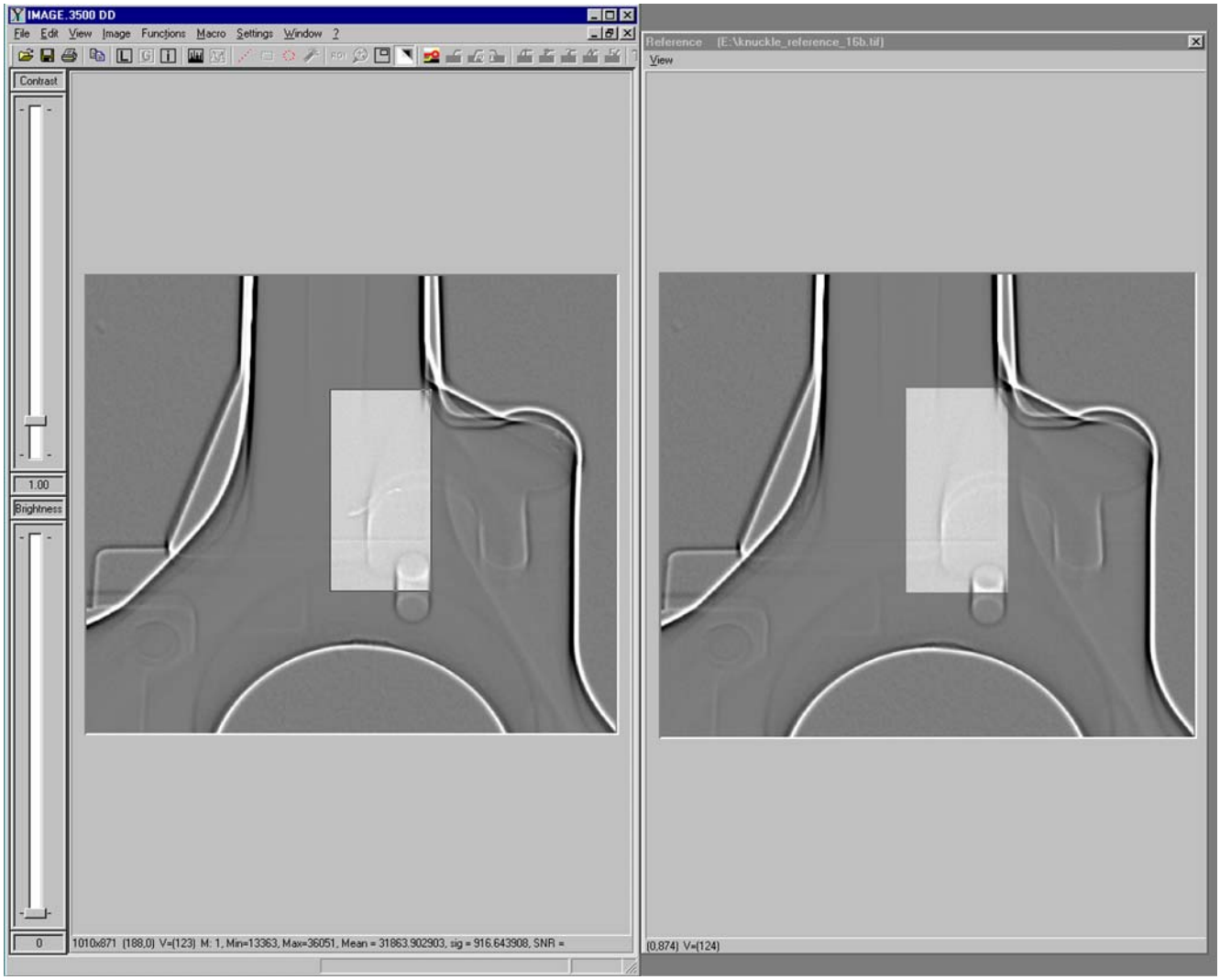

Parallel processing of actual and reference image: e. g. local gray value scaling

- 8-Bit Filters; 25 predefined filters for all types of image processing
- Easy to use filter designer for 8-Bit filter (filter settings as well as filter kernels may be changed by the operator)
- Four 16-Bit and four 8-Bit filters can be linked for direct access with keyboard Function keys
- All filtering functions including UNDO function
- "Shift and Sub" function for identification of small defects/porosities
- Arithmetic linking of two images including min/max values
- Image improvement by Normalization
- Threshold binarization

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Technical Data

Y.IM/3500-DD

Measurement and Marking

- Calibration for length and area measurement (units free definable and selectable measures, floating point)
- Length and area measurement
- Area measurement with magic wand
- Store and recall of calibrations by names
- Graphic marking of error regions
- Text overlay (storage of last remark text for next use)

Other Tools

- Histogram (gray value distribution) for the complete image or an ROI
- Line profile (gray value profile along a line)
- Macro recording of most image processing functions with “Pause“ function and “Key-clock“
- Four macros can be linked for direct access with keyboard function keys
- Storage of digitized images (16- or 8-Bit) in different formats, such as Tagged Image File Format (TIF) or Windows Bitmap (bmp); either Window title or last file name can be prompted
- Export of radioscopic image to text processing software via clipboard
- Print the entire image or an ROI with HP Deskjet® or Laserjet® printers; print preview possible
- Region of Interest (ROI) function. (Local operations: Filtering, Store, Print, Histogram, Normalization, Clipboard)
- Selection of language for all dialogs
- Control through YXLON NC-Controller possible
- Archive images on CD with separate program

Scope of delivery

YXLON.IMAGE.3500-DD is available as an off-line station or as an image acquisition kit together with an amorphous silicon detector (ASD) or Line Diode Array (LDA)

IMAGE.3500-DD Image Acquisition Kit

- PC, mid-tower or rack-mount with
  - Intel Pentium® Processor, Memory ≥ 256MB
  - "High-Speed" Frame grabber
  - Hard disk (HDD) ≥ 40 GB
  - 3.5" Disk drive (1.44MB)
  - CD-RW drive
  - Graphic board ≥ 32MB
  - EMC accessories
  - Mouse, Keyboard
  - IMAGE.3500-DD Software-package
  - Windows® 2000 English edition
- User Manual
- High Resolution SVGA Monitor, min. resolution 1280 x 1024, low radiation acc. TCO'98 or better.
- Amorphous Silicon Detector/LDA with power supply and all necessary cables

For further information about available and implemented ASDs/LDAs, please contact YXLON International.

Options

- "High speed" analog Modem including modem software for service purposes
- DISPLAY.T20 TFT-display with 1600 x 1200 pixel and very high brightness (700cd/sqm)

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