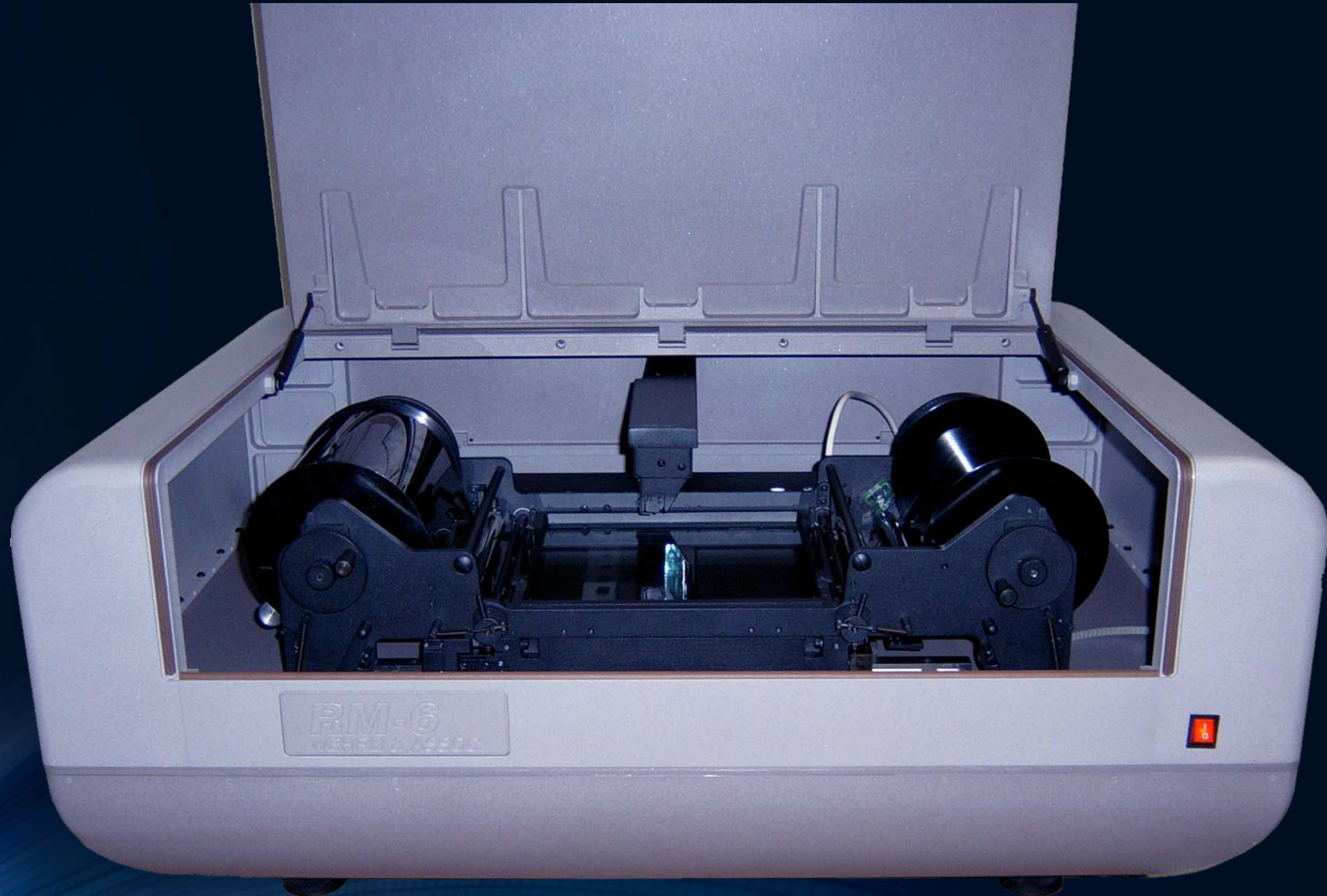


RM-6 AutoScanner

A WEHRLI / ANALYTICA INSTRUMENT

Photogrammetric Scanning



Reel Features



- ❖ Roll film or individual frame (cut sheet) scanning
- ❖ Color, Black/White or Infrared film – Glass plates
- ❖ Motorized spools for automated film advancement
- ❖ Automatic fiducial or image edge detection to find next frame
- ❖ Auto rewind film when scan session complete
- ❖ Pressure plate & film lifted during transport to prevent scratching of film

Illumination Features



- ❖ Cool LED illumination system – no heat
- ❖ Full spectrum light source
- ❖ Calibrated for even light levels – no banding
- ❖ Long lasting – 30,000 hours

Project Management



- ❖ Multiple setups/jobs; scan/skip frames; rotate frames
- ❖ File names count up/down; user defined prefix or mask
- ❖ Histogram Analysis – brightness, contrast, gamma
- ❖ Scan parameters defined automatically for best tonal correction and image quality
- ❖ Auto rewind film when scan session complete
- ❖ Image Editor: rotate, resample, pyramids, remove camera vignetting, etc.

Dust/Scratch Removal Module:

The only way to truly get clean images



Image With Dust & Scratches

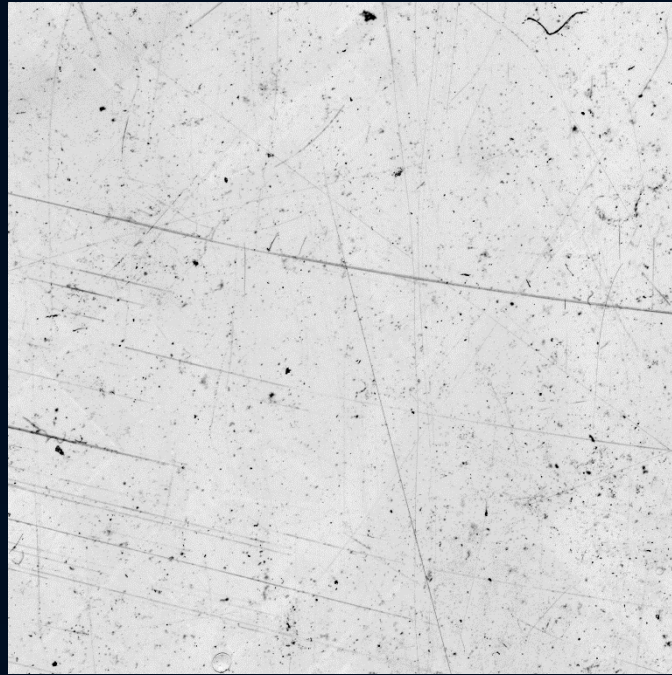


Image Of Only Dust & Scratches



Clean Image - No Dust or Scratches

HOW IT WORKS:

The image is scanned twice – once with RGB light and once with IR light. The IR image is used to detect exactly where and what is foreign from the original image. Software then utilizes surrounding image information to remove the foreign matter from the original RGB image

Operational Software:



Modern User Interface:

- ❖ Templates for quick, easy setup
- ❖ Progress reporting
- ❖ Single window with multi-tabs
- ❖ Real time preview of scanned image



The main window of the ScanMaster software, showing a large aerial image of a city street. The interface includes a menu bar (File, Edit, View, Settings, Tools), a toolbar, and a central image area. On the right, there are tabs for Main, Radiometry, Settings, and Tools. The Settings tab is active, showing various parameters for scanning, including Resolution, Scanning pixel size, Preview scanning pixel size, Scanning area, Width, Height, Left, Top, Orientation, Rotation, Flipping, Data range, Transfer function, Film type, Chromaticity, and File format. At the bottom, there are three smaller windows: a Progress window, a Time window, and a Graph window.

Progress window:

Progress	Time	Graph	Auto
Time left	00:00:30		
Elapsed time	00:09:18		
Total time	00:09:49		

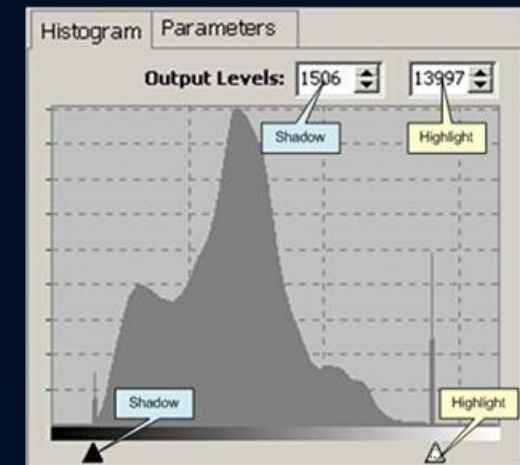
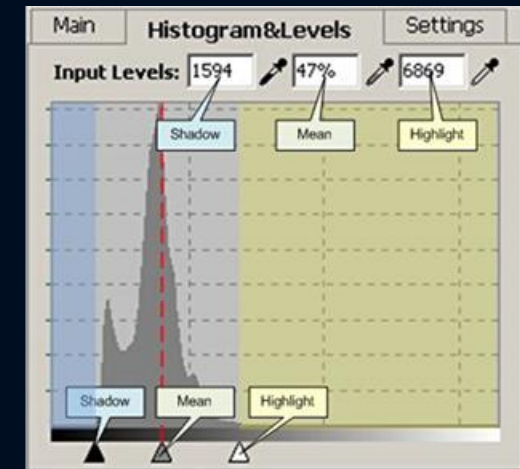
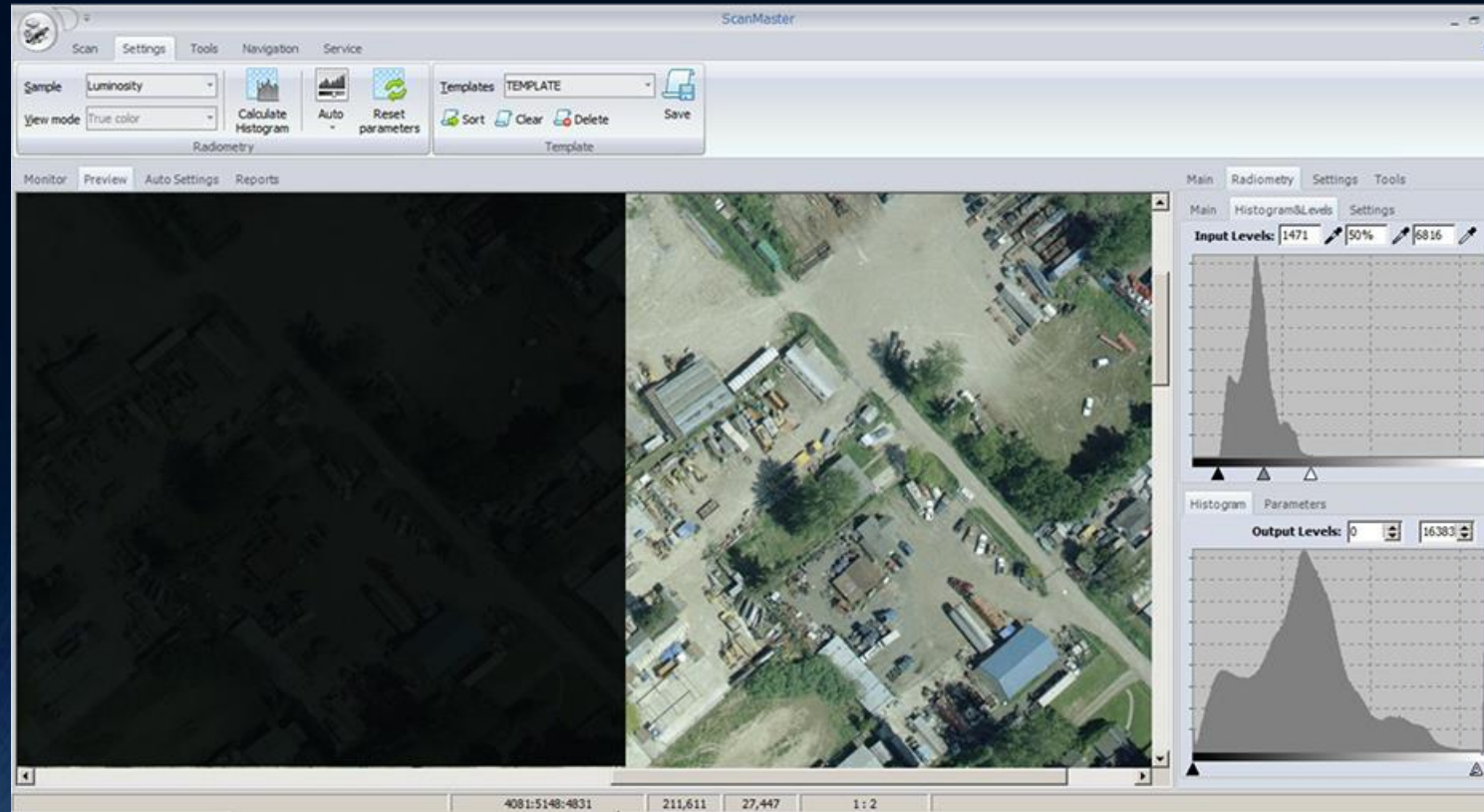
Time window:

Progress	Time	Graph	Auto
143 msec			
29 msec			

Graph window:

Progress	Time	Graph	Auto
Time left	05:16:38:31	Numbers left	390
Total time	06:05:57:21	Total numbers	428
			8%

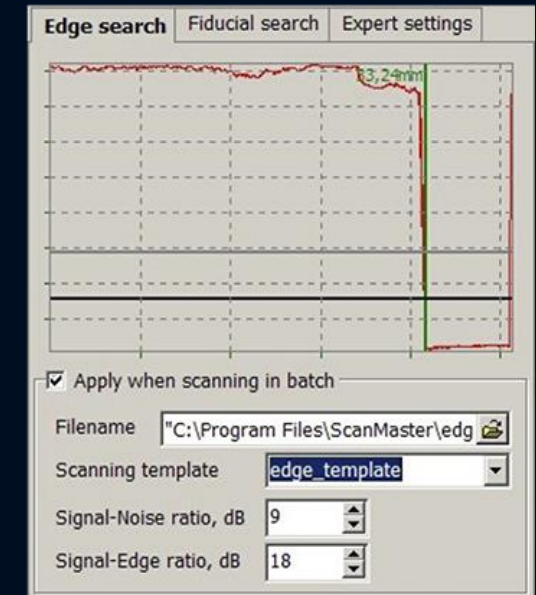
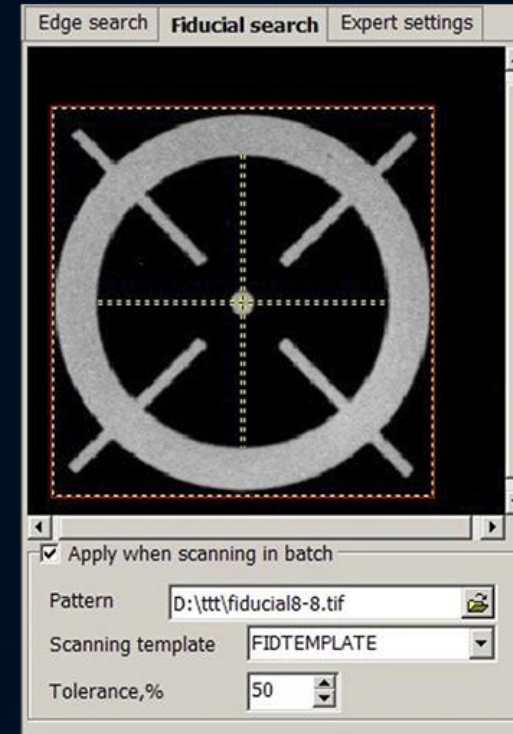
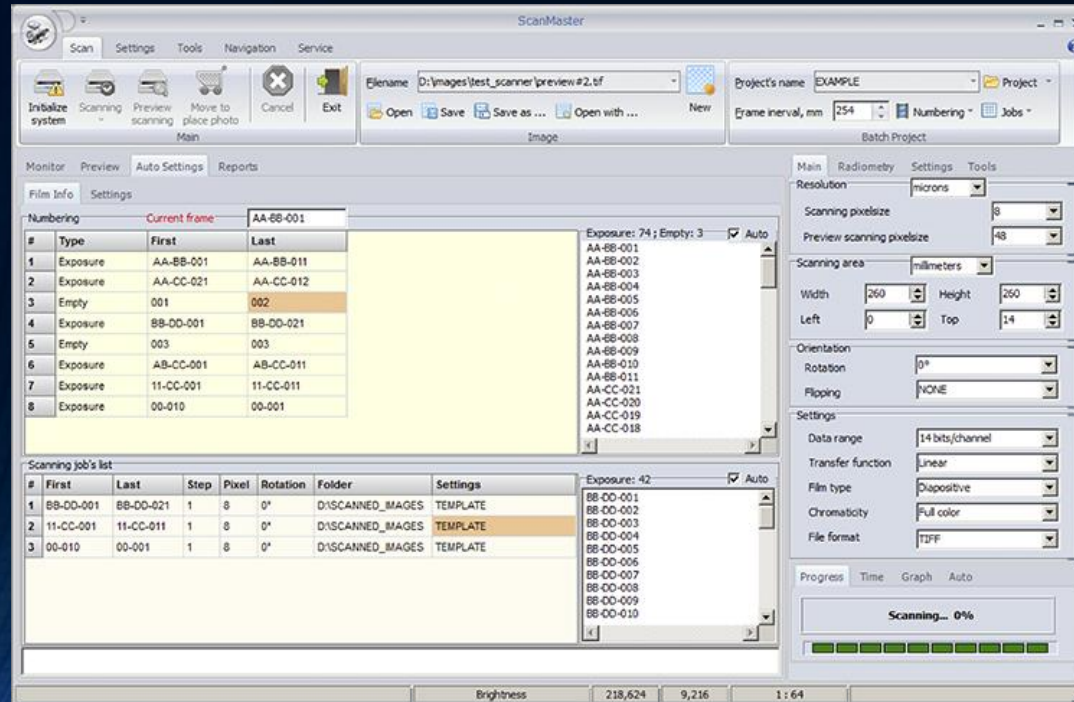
Operational Software:



Easy Scanning Setup:

- ❖ Histogram analysis - Automatic adjustment processing tools such as AutoLevels and AutoColors
- ❖ Preview for adjustment of radiometric parameters – maximize histograms
- ❖ Input / Output levels analysis for image correction

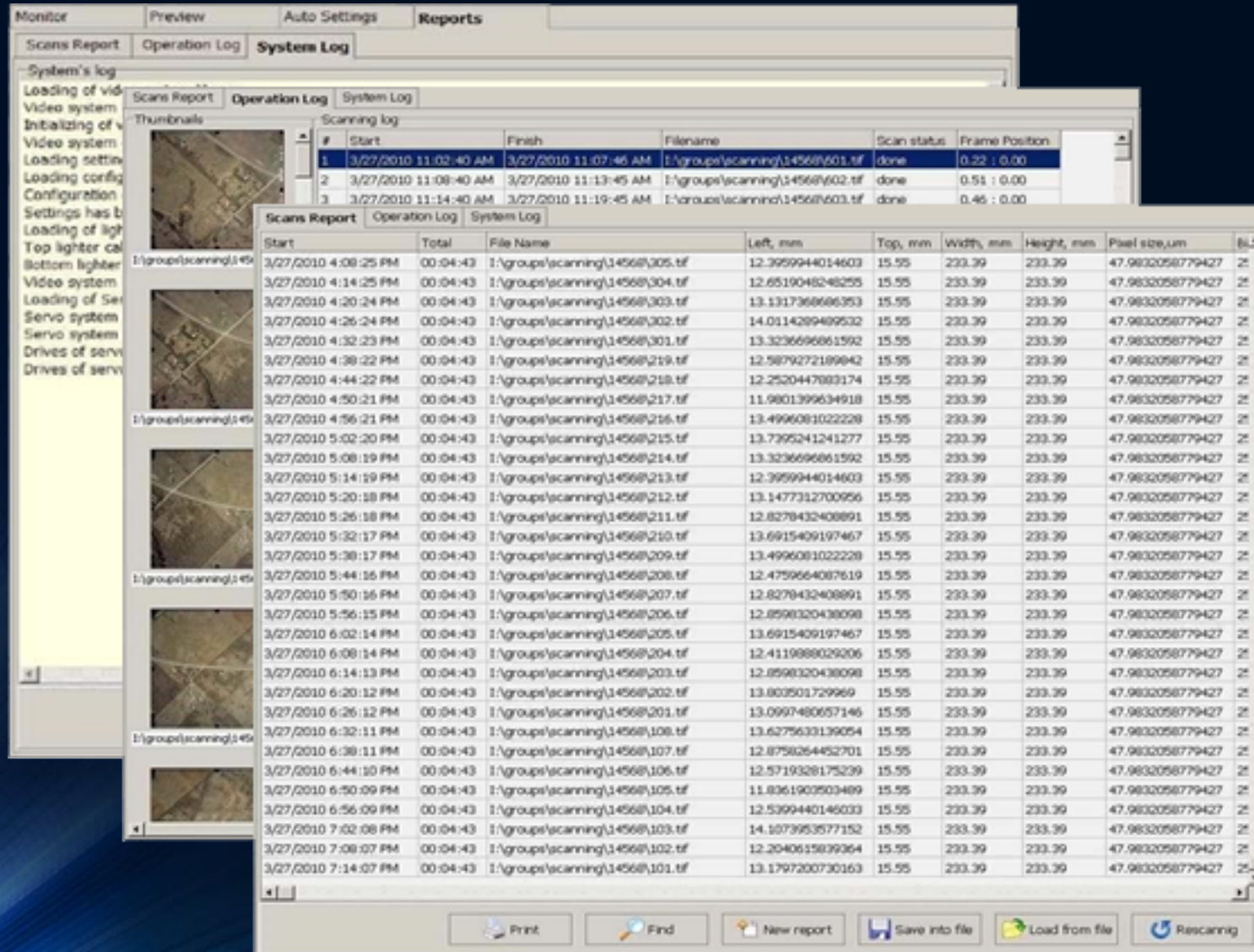
Operational Software:



Automatic Scanning Features:

- ❖ Easy and complete multi-frame scanning session setup
- ❖ Detect next frame via Fiducial or Image Edge
- ❖ Wizards walk operator step-by-step for setting up scan session

Operational Software:



The screenshot displays the 'Operational Software' interface, specifically the 'Scans Report' window. The window is divided into several sections:

- Monitor**: A tab at the top left.
- Preview**: A tab at the top center.
- Auto Settings**: A tab at the top right.
- Reports**: A tab at the top right, which is currently active.
- System's log**: A section on the left side of the window, showing a list of system events.
- Scans Report**: A table in the center of the window, listing scan data.
- System Log**: A section on the right side of the window, showing a list of system events.

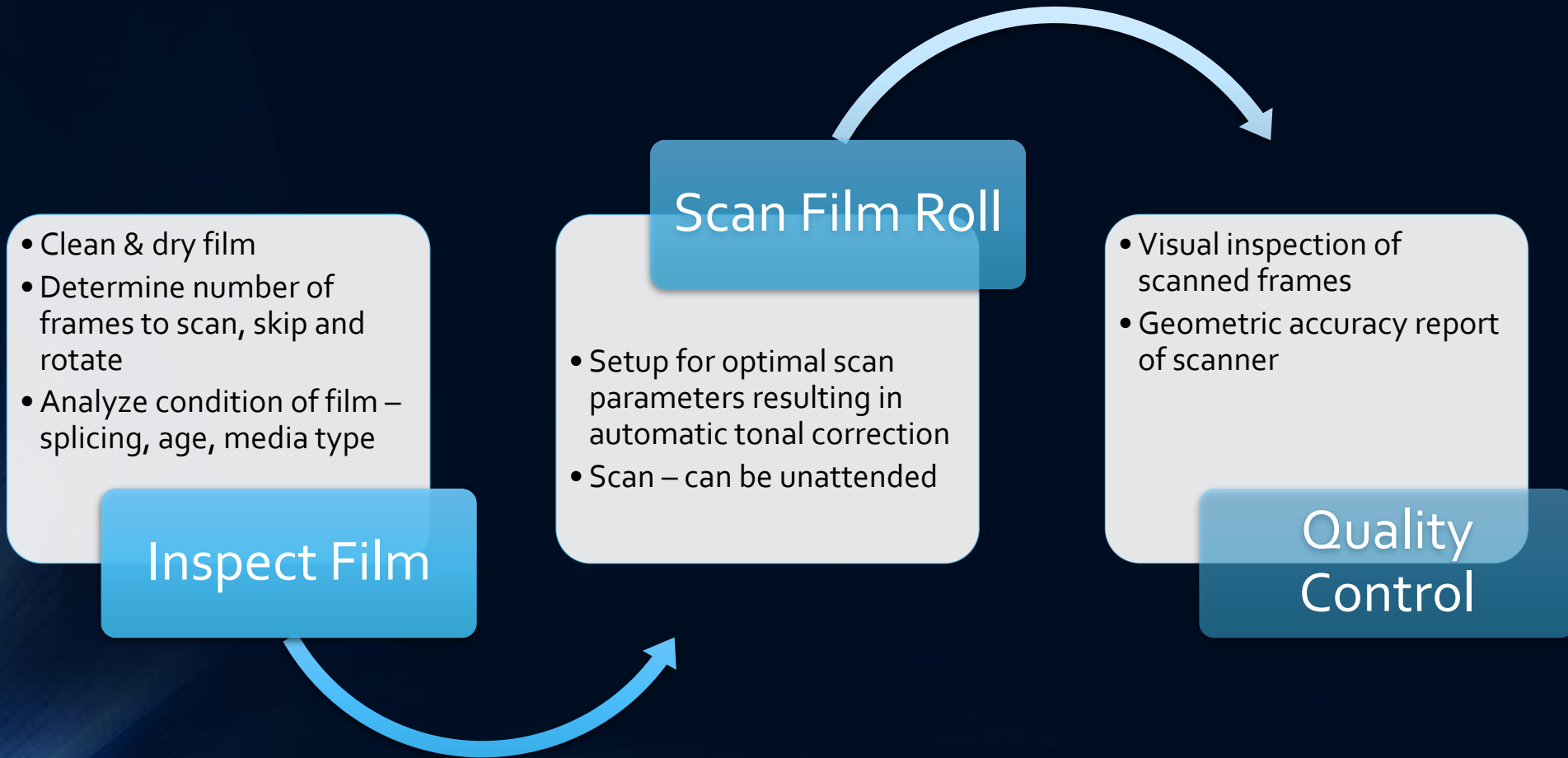
The 'Scans Report' table contains the following data:

Start	Total	File Name	Left, mm	Top, mm	Width, mm	Height, mm	Pixel size,um	BL
3/27/2010 4:08:25 PM	00:04:43	I:\groups\scanning\14568\305.tif	12.3959944014603	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 4:14:25 PM	00:04:43	I:\groups\scanning\14568\304.tif	12.6519048248255	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 4:20:24 PM	00:04:43	I:\groups\scanning\14568\303.tif	13.1317368686353	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 4:26:24 PM	00:04:43	I:\groups\scanning\14568\302.tif	14.0114289489532	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 4:32:23 PM	00:04:43	I:\groups\scanning\14568\301.tif	13.3236696861592	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 4:38:22 PM	00:04:43	I:\groups\scanning\14568\219.tif	12.5879272189842	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 4:44:22 PM	00:04:43	I:\groups\scanning\14568\218.tif	12.2520447883174	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 4:50:21 PM	00:04:43	I:\groups\scanning\14568\217.tif	11.9801399634918	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 4:56:21 PM	00:04:43	I:\groups\scanning\14568\216.tif	13.4996081022228	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:02:20 PM	00:04:43	I:\groups\scanning\14568\215.tif	13.7395241241277	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:08:19 PM	00:04:43	I:\groups\scanning\14568\214.tif	13.3236696861592	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:14:19 PM	00:04:43	I:\groups\scanning\14568\213.tif	12.3959944014603	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:20:18 PM	00:04:43	I:\groups\scanning\14568\212.tif	13.1477312700956	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:26:18 PM	00:04:43	I:\groups\scanning\14568\211.tif	12.8278432408891	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:32:17 PM	00:04:43	I:\groups\scanning\14568\210.tif	13.6915409197467	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:38:17 PM	00:04:43	I:\groups\scanning\14568\209.tif	13.4996081022228	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:44:16 PM	00:04:43	I:\groups\scanning\14568\208.tif	12.4759664087619	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:50:16 PM	00:04:43	I:\groups\scanning\14568\207.tif	12.8278432408891	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 5:56:15 PM	00:04:43	I:\groups\scanning\14568\206.tif	12.8598320438098	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:02:14 PM	00:04:43	I:\groups\scanning\14568\205.tif	13.6915409197467	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:08:14 PM	00:04:43	I:\groups\scanning\14568\204.tif	12.4119888029206	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:14:13 PM	00:04:43	I:\groups\scanning\14568\203.tif	12.8598320438098	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:20:12 PM	00:04:43	I:\groups\scanning\14568\202.tif	13.803501729969	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:26:12 PM	00:04:43	I:\groups\scanning\14568\201.tif	13.0997480657146	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:32:11 PM	00:04:43	I:\groups\scanning\14568\108.tif	13.6275633139054	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:38:11 PM	00:04:43	I:\groups\scanning\14568\107.tif	12.8758264452701	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:44:10 PM	00:04:43	I:\groups\scanning\14568\106.tif	12.5719328175239	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:50:09 PM	00:04:43	I:\groups\scanning\14568\105.tif	11.8361902503489	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 6:56:09 PM	00:04:43	I:\groups\scanning\14568\104.tif	12.5399440146033	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 7:02:08 PM	00:04:43	I:\groups\scanning\14568\103.tif	14.1073953577152	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 7:08:07 PM	00:04:43	I:\groups\scanning\14568\102.tif	12.2040615839364	15.55	233.39	233.39	47.9832058779427	25
3/27/2010 7:14:07 PM	00:04:43	I:\groups\scanning\14568\101.tif	13.1797200730163	15.55	233.39	233.39	47.9832058779427	25

Log Reports:

- ❖ List of captured images with all scan parameters
- ❖ Log of system status, errors and warnings
- ❖ Thumbnails of scanned image per session

Scanning Process



Technical Specifications

Resolution	8μms optical (3175 ppi) 12,16,20,24,...128μms in real time by binning Other sizes by post process
Media	Roll Film (manual/automatic) - Individual Frame Positive or Negative - B/W or Color transparency
Geometric Accuracy	±3μms RMSE <i>without resampling image data</i>
Geometric Precision	1μm resolution
Radiometry	14 bits/channel
Optical Density	0.001 to 3.7D
Dynamic Range	3.4D
Illumination	Computer controlled LED - 30000 hours
Sensor	Tri-linear CCD, Sony 5300, Fully compensated
Scanning Range	Roll Unit 254x254mm - Cut Sheet 256x254mm
Image Format	Tiled TIFF, Strip TIFF, TIFF 6.0 JPEG, JPEG 2000 Output 8/10/12/14 bits per channel-user selectable (FULL)
Operating System	Windows 7 (32 or 64 bit)™, Windows 10™
Dimensions	0.83x1.10x1.00 M
Weight	165 Kg.

Sample Scan Times for Full Frame

MODE	PIXEL SIZE	TIME
B/W	8 μms	8 minutes
B/W	12 μms	6 minutes
B/W	16 μms	5 minutes
B/W	20 μms	4 minutes
B/W	24 μms	3.5 minutes
Color	8 μms	14 minutes
Color	12 μms	10 minutes
Color	16 μms	8 minutes
Color	20 μms	7 minutes
Color	24 μms	6 minutes

World Wide Scanner Installations

<u>COUNTRY</u>	<u>UNITS</u>	<u>COUNTRY</u>	<u>UNITS</u>	<u>COUNTRY</u>	<u>UNITS</u>
Argentina	1	Iran	5	Russia	83
Armenia	1	Israel	2	Scotland	1
Australia	4	Italy	2	Serbia	2
Azerbaijan	1	Jordan	1	South Korea	4
Belarus	2	Kazakhstan	2	Spain	9
Botswana	2	Korea	1	Sudan	2
Bulgaria	2	Laos	1	Sweden	4
Burkina Faco	1	Malaysia	5	Thailand	4
Canada	7	Mexico	9	Turkey	7
China	19	Mongolia	1	Turkmenistan	1
Croatia	2	Morocco	2	UAE	4
Egypt	1	Nigeria	1	Ukraine	38
France	1	Nouth Korea	1	USA	37
Ghana	1	Poland	3	Vietnam	8
Greece	1	Portugal	1	Zimbabwe	1
India	2	Romania	2		

Company Profile

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Wehrli & Associates, LLC was incorporated in 1991 with the aim to develop, manufacture and sell photogrammetric instruments worldwide. Founded by Hans Wehrli after serving 35 years as Director of Photogrammetry and CEO of the North American branch of Kern & Co. (now part of Leica GeoSystem).

Wehrli and Associates LLC main advantage has always been its ability to take its user knowledge base and put that into the development of a useful, high quality photogrammetric tool. Our philosophy has always been to utilize a COTS strategy (components off-the-shelf) thereby letting larger industries absorb the cost and time developing those components.

Our instrumentation and software packages are used worldwide whether they be industry-ready or custom made instrumentation. Products analytical stereoplotters, RasterMaster (RM) photoscanners series, aerial stabilization platforms, digital aerial cameras, forward motion compensators and automatic 3D mapping software package for ready-to-fly drones.

Since 2000, Wehrli and Associates Inc has partnered with Analytica (Vinnitsa, Ukraine) in the R&D and marketing of photogrammetric instrumentation. This has been most successful, as the marriage of our technical and marketing knowledge base aligned with a low-cost manufacturing source has enabled us to reach a broader worldwide base and provide better instrumentation to the market place.