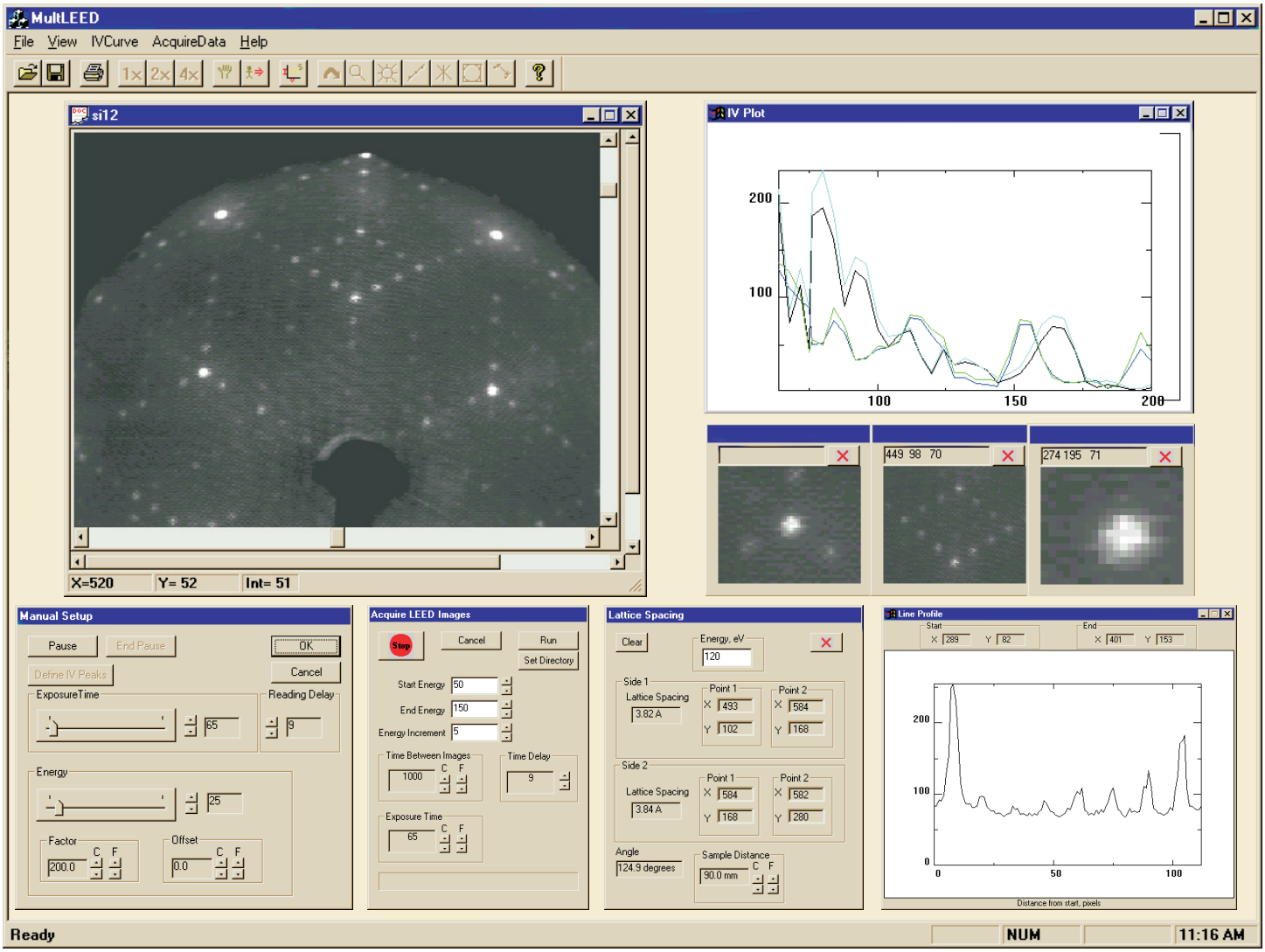
LEED IMAGE ANALYSIS SYSTEM

M O D E L L I M 1 2

Containing low light integration CCD camera, Firewire (TM) interface and ambient light cover



- Integrated image acquisition and beam energy control on regular and zoomed images
- Measurements on “live” or “saved” images
- Lattice constant calculations
- Spot Intensity profile with fine adjustment
- Manual and automatic I-V measurements
- Subtraction and addition of images

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LEED IMAGING SYSTEM SPECIFICATIONS, Model LIM12, Version 7.1

ACQUISITION:
- LEED pattern viewing with instant beam voltage control and integration time at zoom x1, x2, x4 or x8
- control of the integration time of CCD camera up to 2 sec. for low intensity images
- automatic LEED pattern acquisition to the hard disc for pre-set range of electron beam voltages
- video input conditioning
- integrated software for full control of LEED controller LPS075D or LPS300D

MEASUREMENTS AND PROCESSING:
- spot intensity and x-y position measurements at cursor position on live LEED pattern
- lattice constant and angle calculation for selected diffraction spots with pre-set LEED instrument parameters
- intensity profile plotting
- setting the (0,0) spot position for normal electron beam configuration
- adding two images and subtraction
- image zooming (x2, x4 and x8)
- sequential image saving and retrieval
- automatic I-V spectra calculation with background subtraction on saved or live LEED patterns
- manual I-V spectra calculation with background subtraction for set of saved LEED pattern with zoomed spot viewing
- automatic I-T plots measurements for live LEED patterns
- automatic Spot Profile measurements during I-V analysis
- reliability R- factor calculation for I-V spectra

GENERAL:
-Windows 7 and Windows XP operating system
- beam energy value saved to each LEED pattern
- automatic memorization of last operator settings
- images saved in Windows bitmap format
- measurements saved in ASCII text file format
- writing text on the image

HARDWARE SPECIFICATIONS

CAMERA:
- monochrome CCD camera with high spatial resolution 659x494 pixel (horizontal/vertical)
- 1/3-type progressive scan IT CCD sensor with square pixels (7.4 x 7.4 microns cell)
- field integration (shutter) and gain control from software for very high sensitivity
- 12-bit output on digital interface IEEE-1394b (Firewire™) of the camera
- camera power from computer adaptor Firewire™ card
- lens mount: C type, one set of lens to fit LEED screen size and distance
- camera holder mounting kit for 8"CF (CF150), 6" CF (CF100) or 4.5"CF (CF63) flange with adjustable camera position and ambient light cover

COMPUTER INTERFACE:
- PCI express adaptor card (IEEE-1394b) with 10 m cable

LEED controller interface:
- USB interface with integrated software for full control of LPS075-D or LPS300-D
- DAC control for analog LEED controllers with 16 bit digital to analog converter (0-10V output) and serial RS232/ USB communication with PC computer

COMPUTER (minimum spec):
- Windows 7 or Windows XP operating system, 2 GB RAM, 100 GB Hard Disk or better
- PCI Express slot in motherboard

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