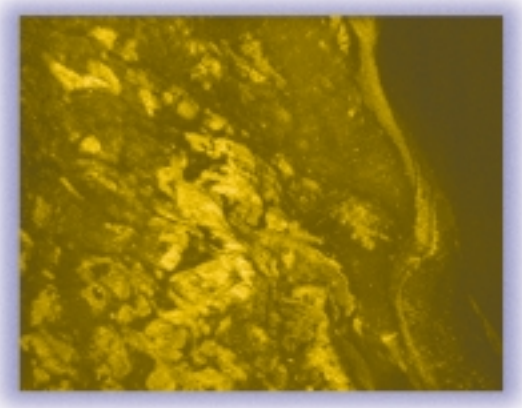
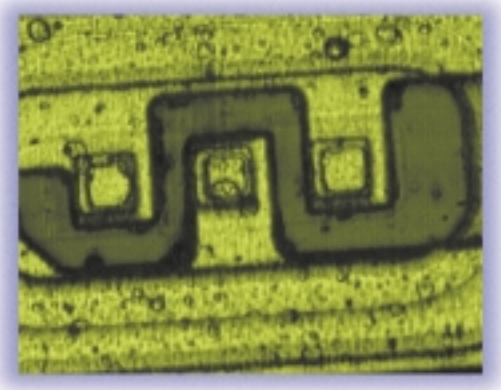
OPTIGRID™

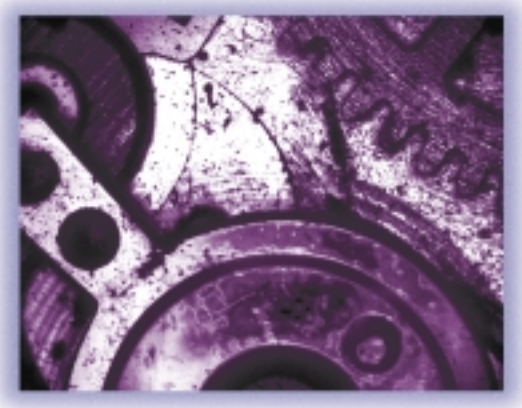


NOW
Also Available for
Biomedical Microscopes

Industrial
Desktop
Confocal Microscopy

Research-Quality
Optical Sectioning &
Full-Focus Composition

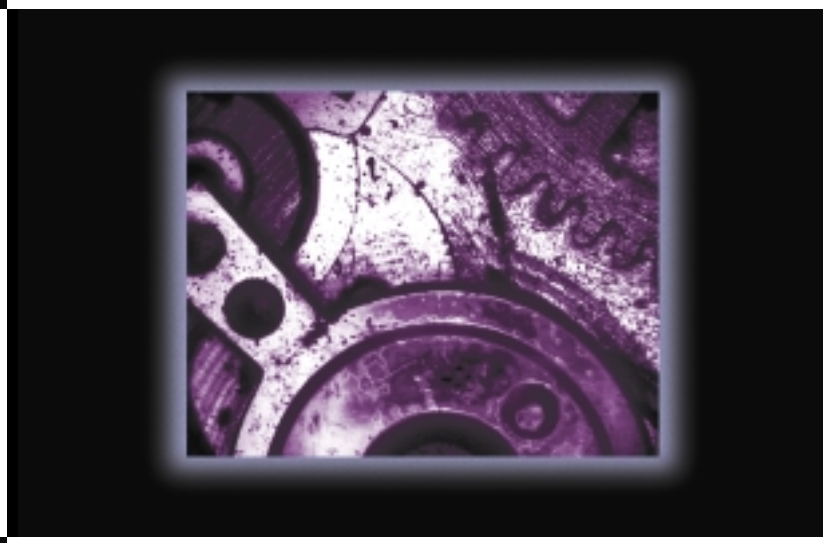


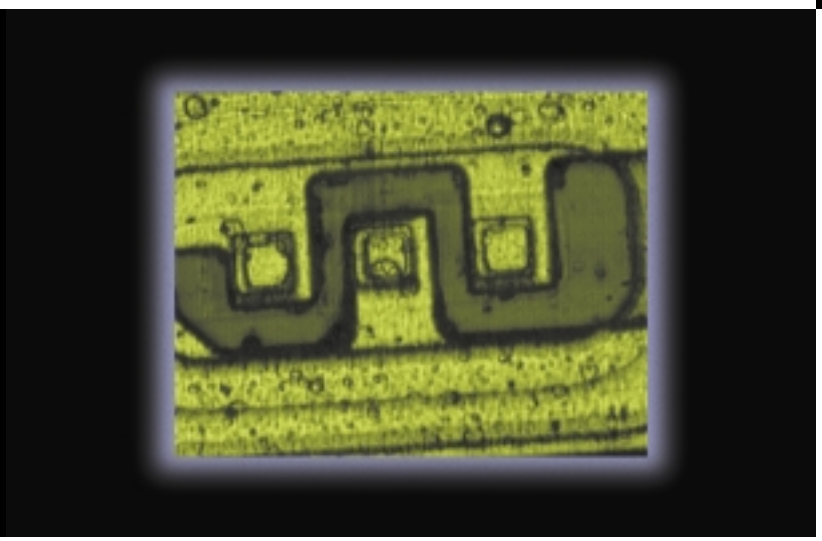


OPTEM
AVIMO PRECISION INSTRUMENTS
Changing The Way The World Views Microscopes

Faster Than
Laser Scanning
Confocal Microscopes

Brighter Than
Nipkow and Laser
Confocal Microscopes





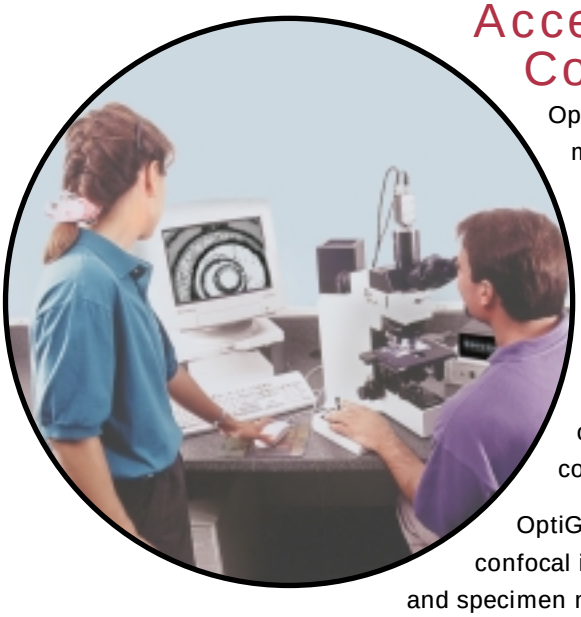
Low-Cost
Confocal Imaging

Adaptable to
Most
Microscopes

OPTIGRID™

System Diagram & Ordering Information

OptiGrid Specifications



Accessible and Affordable Confocal Microscopy

Optem's revolutionary OptiGrid™ heralds a new era in confocal microscopy. Now, anyone who can operate a compound microscope, can have desktop access to real-time*, research-quality confocal imaging.

OptiGrid works in conjunction with a desktop PC (equipped with Windows and Image-Pro® Plus 4.0†) and most any electronic camera. The OptiGrid system converts a standard reflected-light microscope into a fully operational confocal microscope, digitally capable of optical sectioning, image stacking, full-focus compilations, and 3-D rendering... all on your computer.

OptiGrid is the affordable solution for easier access to industrial confocal imaging applications, such as surface inspection, micro-analysis and specimen modeling.

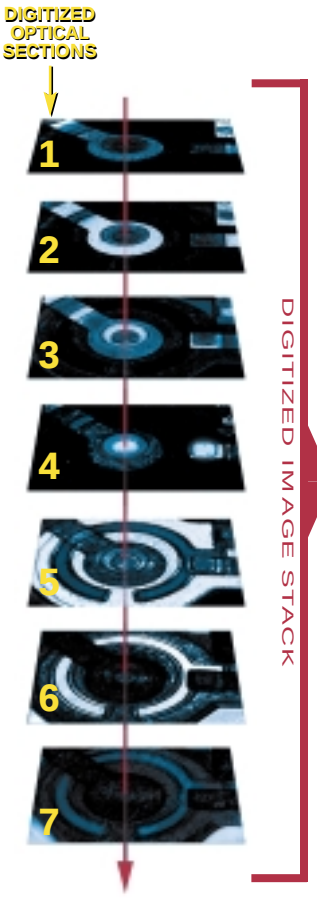
** As fast as 3 Hz confocal refresh rate, depending upon camera specs.*
† Available separately.

Digital Imaging Versatility

Unlike conventional video microscopy, OptiGrid captures only in-focus image data, disregarding all out-of-focus data. OptiGrid captures incremental focal planes, called "optical sections" (adjustable as finely as your microscope stage mechanism allows). These sections are translated to raw image files which can then be projected onto your computer screen via an electronic camera and stored on your hard drive for post acquisition processing with imaging software such as Image-Pro®, MetaMorph® or NIH Image.

With the ability to create digital optical sections, OptiGrid delivers versatility that is ideal for 3D mapping of highly textured specimens. Not only can dimensions along the line of sight be directly measured, but stacks of the optical sections can be used to create 3D models of a specimen.

A set of optical sections can also be collapsed upon itself to produce a 2D view with all levels in simultaneous focus. We refer to such a view as "full focus". Full focus images eliminate the shallow depth-of-focus associated with conventional microscopes, providing crisper, higher-contrast images that are in-focus along the entire depth of your specimen... perfect for R&D, mission-critical inspection and quality control.



3D Digital Projection

OptiGrid Full-Focus Digital Compilation

Collapsing optical sections onto one another provides sharp detail throughout the full specimen depth.

VS.

Conventional Video Microscopy

Shallow depth-of-field is only able to focus on one plane at a time, sacrificing surface detail at lower specimen depths.

The Brightest Confocal System Available

With its unique design, OptiGrid delivers an unprecedented light efficiency of up to 75%, nearly ten-times that of alternative confocal techniques. With this remarkable efficiency, OptiGrid can even capture confocal images using a single paraffin candle as the illuminator! OptiGrid's low light requirements also make it ideal for imaging light-sensitive specimens.

OptiGrid also generates confocal images with high signal-to-noise ratios when used in conjunction with spectral filters and halogen or arc lamps to narrow the spectral region.

COMPARATIVE LIGHT EFFICIENCIES	
OptiGrid	**65 – 75%**
Typical Nipkow System	1 – 10%
Typical Laser Scanning System	1 – 10%

Faster than Laser Scanning Confocal Systems

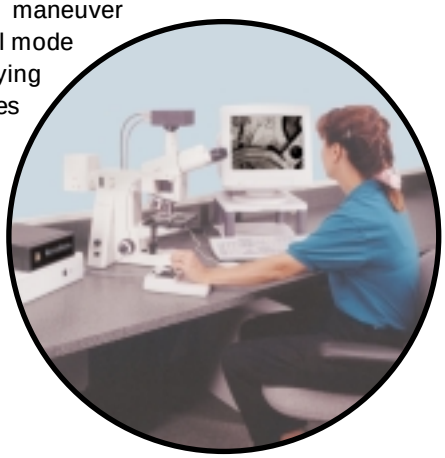
OptiGrid's exceptional light efficiency also significantly reduces exposure requirements, resulting in faster image acquisition.

Coupled with drag-down menus, a user-friendly interface and quick and easy specimen maneuvering, OptiGrid's streamlined image acquisition process makes it one of the fastest confocal systems on the market. *Typically, image acquisition time at 1µm step resolution for a specimen 15µm thick is approximately 40 seconds.*

Easier Specimen Navigation

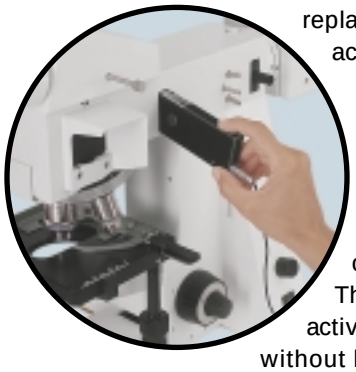
When viewing a specimen through eyepieces, it can be difficult to identify features at a specific focal plane due to extraneous light. With OptiGrid activated, the user can identify the exact focal plane by focusing the projected grid lines to their sharpest detail. Features that remain in sharp focus are coincident to the grid plane and will be captured by OptiGrid during image acquisition.

In addition, because you can quickly switch from confocal to conventional viewing, you can see the specimen in real context. Not having to maneuver your specimen in confocal mode makes finding and identifying x-y specimen coordinates quick and easy.



Quick Setup and Activation

OptiGrid has been designed with the user in mind. For select models, the OptiGrid can be incorporated as simply as any microscope slider accessory. Each standard OptiGrid slider has been carefully designed to replace the existing field diaphragm accessory in your illuminator.



With the slider module inserted, you can view confocal images on your computer monitor. With the OptiGrid slider module removed, your microscope and camera will function normally. This unique feature allows you to activate confocal imaging "on-the-fly" without having to remove the microscope head, and provides fast and reliable setup and removal without compromising your microscope.

In addition, OptiGrid's low-profile design maintains the microscope manufacturer's original eye-piece height, improving ergonomics and productivity.

Adaptable to Most Microscopes

The OptiGrid system can be integrated into most modern microscopes. Optem can either alter your existing vertical illuminator to accept OptiGrid, or provide you with a secondary illuminator that you can quickly switch out with your original illuminator.

For a list of standard compatible microscope models, refer to the back cover of this brochure, or contact Optem to inquire specifically about your microscope make and model.

Maintain Image Quality

Due to its unique design, OptiGrid's imaging quality will be as good as your original microscope's image-forming optics will allow.

OptiGrid creates its confocal imagery by projecting a fine set of parallel lines (called "Ronchi Ruling") through the vertical illuminator and onto your specimen.

Put The Power Of Confocal Microscopy On Your Desktop

OptiGrid delivers research-quality confocal images to your desktop with speed, ease and flexibility. Contact Optem to find out how OptiGrid can improve your imaging performance. Or request a no-obligation, on-site demonstration of the OptiGrid System.

Specifying Your OptiGrid

Using the system diagram below, determine which OptiGrid components you will require in ordering your OptiGrid System. All components are available from Optem, with the exception of the PC. Computer requirements have been provided for your information.

CORE OPTIGRID COMPONENTS

ZEISS AXIOTECH Illuminator
(Customer owned, no modification needed)

LEICA LU 4/25 Illuminator (Modified)
Optem Supplied **37-41-00**
Customer Supplied **37-41-01**

OLYMPUS URLA Illuminator (Modified)
Optem Supplied **37-43-00**
Customer Supplied **37-43-01**

NIKON YM-EPI Illuminator (Modified)
Optem Supplied **37-44-00**
Customer Supplied **37-44-01**

ZEISS AXIOTECH Slider Module **37-12-07**

LEICA Slider Module **37-11-07**

UNIVERSAL Slider Module **37-10-07**

37-01-00 Reference Manual

IMAGE PROCESSING SOFTWARE

37-98-00 Software
OptiGrid Executable (Optem Proprietary)
Computerboards, Univ. Library

37-98-03 Image-Pro Plus v4.0

37-98-04 Scope-Pro v4.0

37-60-90 GRID AMPLIFIER Package
includes cabels and cords (US, UK, EUR)

37-50-00 D/A Board(ISA)
ISA-CIO-DDA06/JR/16

FOCUS CONTROLLERS

Optional for 3D Modeling

Focus Controller Kit PRIOR OPTISCAN **37-81-00** **LEICA**

Focus Controller Kit PRIOR OPTISCAN **37-82-00** **ZEISS**

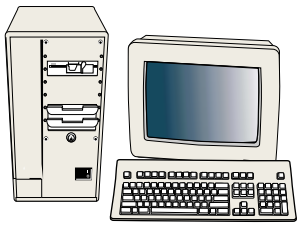
Focus Controller Kit PRIOR OPTISCAN **37-83-00** **OLYMPUS**

Focus Controller Kit PRIOR OPTISCAN **37-84-00** **NIKON**

ISA Slot

COM1 Port

PCI Slot



MINIMUM COMPUTER REQUIREMENTS:

1. Windows NT
2. CPU - 233MHz
3. RAM - 128M
4. VRAM - 4M
5. Cache - 512 Kb
6. Slots: ISA and PCI
7. Port: Open RS232 (COM1 or COM0) for focus controller
8. Monitor: 1028 x 765 minimum
9. Hard Drive - 250Mb available

CAMERA/FRAME GRABBER PACKAGES

All camera packages include power cords and/or controllers/transformers

37-22-90
DVC MEGAPIXEL, 10-BIT, B&W CAMERA PACKAGE

37-22-00
DVC 10 BIT

37-72-00
VIDEO CABLE
PIXCI-D/DVC
digital signal

37-32-00
Frame Grabber
EPIX PIXCI-D

37-21-90
HITACHI VGA, 8-BIT, B&W CAMERA PACKAGE

37-21-00
HITACHI 8 BIT, BW

25-40-49
VIDEO CABLE
BNC to BNC
analog signal

37-33-00
Frame Grabber
FLASHBUS MV Lite

37-21-91
HITACHI VGA, 8-BIT, COLOR CAMERA PACKAGE

37-21-10
HITACHI COLOR

25-40-49
VIDEO CABLE
BNC to BNC
analog signal

37-33-00
Frame Grabber
FLASHBUS MV Lite

37-23-90
SONY VGA, 8-BIT, COLOR CAMERA PACKAGE

37-23-00
Includes C-mount adapter
SONY, COLOR w/ ADAPTER

25-40-49
VIDEO CABLE
BNC to BNC
analog signal

37-33-00
Frame Grabber
FLASHBUS MV Lite

OPTIGRID™

There are three standard OptiGrid Slider Modules to fit a variety of microscope models.

OptiGrid Specs

Confocal Specifications:

Resolution, (Line-of-Sight) .....0.8µ w/ 100x 1.3NA (Optical Section)

Dimensions.....contained within illuminator

Resolution, Transverse.....configuration dependent*

Magnification .....configuration dependent*

Field-of-View.....configuration dependent*

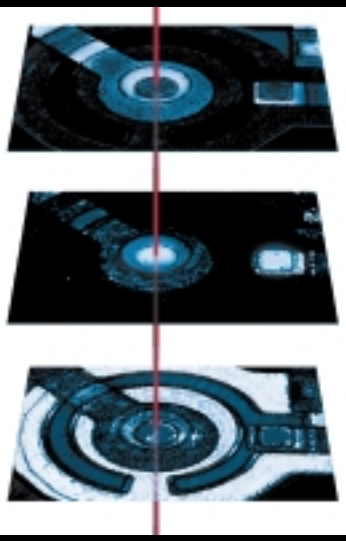
** Depends upon camera format and video coupler magnification combinations. See Optem Video Coupler Series catalog, #VC-450.*

Standard Compatible Microscopes:

MICROSCOPE	MODEL/SERIES
Leica	DM LM
Nikon	Eclipse 400 Eclipse 600
Olympus	BX50 MX40
Zeiss	Axiotech

Contact Optem about microscope models not listed above. Custom retrofit solutions available on an individual basis.

OptiGrid's research-quality digitized optical sections allow full-focus digital compilations and 3-D digital projections.



Computer Requirements:

Processor.....Pentium II or later, 233 MHz min.
Operating System.....Windows® NT
Monitor Resolution.....1028 x 765 (SVGA)
VRAM .....4 Mb
Cache .....512 Kb
RAM .....128 Mb (64 Mb min.)
Hard drive .....250 Mb (available)
CD .....4X (min.)
ISA Slot.....1 required
PCI Slot .....1 required
RS232 Port.....(for cameras & focus controllers where applicable)

OPTEM
AVIMO PRECISION INSTRUMENTS

Changing The Way The World Views Microscopes

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