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Support Levels

Improvisation support levels are as follows:

Full	Recommended for use with Openlab.
Not Recommended	Not recommended for use with Openlab.
Deprecated	Has worked with Openlab in the past, but is no longer recommended by Improvisation.
Not Supported	Will not work with Openlab.

Any device not on this list should be considered “Not Supported”.

Devices by Type

For detailed information, see “Devices by Manufacturer”.

Video Devices

<i>Manufacturer</i>	<i>Device Name</i>	<i>Support Level</i>
Active Silicon	Phoenix AS-PHX-D36-PCI32	Deprecated
Active Silicon	Snapper-24	Deprecated
Active Silicon	Snapper-8	Deprecated
Active Silicon	Snapper-DIG16	Deprecated
Dage MTI	DC330 Color Video Camera	Deprecated
Diagnostic Instruments	SPOT 2 Color Digital Camera	Deprecated
Diagnostic Instruments	SPOT RT Monochrome camera	Deprecated
Diagnostic Instruments	SPOT RT Slider Color Digital Camera	Deprecated
Diagnostic Instruments	SPOT RT-KE 2MP Color Mosaic Digital Camera	Deprecated
Hamamatsu	Argus-20 Digital Image Processor	Deprecated
Hamamatsu	C4742-80-AG (Orca ERG Deep Cooling)	Full
Hamamatsu	C4742-95-10/12 NRB (Orca) Camera connected via Snapper	Deprecated
Hamamatsu	C4742-95-10/12 NRB (Orca) Camera connected via Phoenix	Full
Hamamatsu	C4742-95-12ERG (Orca ERG)	Full
Hamamatsu	C4742-95-12NRG (Orca NRG)	Full
Hamamatsu	C4742-80-AG (Orca ERG Deep Cooling)	Full
Hamamatsu	C4742-95-12G04 (Orca 285 FireWire)	Full
Hamamatsu	C4742-95-ER (Orca ER) Camera connected via Snapper	Deprecated

Hamamatsu	C4742-95-ER (Orca ER) Camera connected via Phoenix	Full
Hamamatsu	C4742-95-SC (Orca Illm) Camera	Deprecated
Hamamatsu	C4742-98-24ERG (Orca 2 ERG)	Full
Hamamatsu	C4742-98-24-NR (Orca 2) Camera	Deprecated
Hamamatsu	C4880-06 Camera	Deprecated
Hamamatsu	C4880-40 Camera	Deprecated
Hamamatsu	C4880-80-22/24 Camera	Deprecated
Hamamatsu	C4880-81/82 Camera	Deprecated
Hamamatsu	C4880-96 Camera	Deprecated
Hamamatsu	C5810 Analog Color Camera	Deprecated
Hamamatsu	C5985 Analog Monochrome Camera	Deprecated
Hamamatsu	C7190-43/53 Cameras	Full
Hamamatsu	C7780 Camera (3-chip Orca)	Not Supported
Hamamatsu	C8484-05G Camera	Full
Hamamatsu	C9100-01	Full
Hamamatsu	C9100-02	Full
Hamamatsu	Photon Counting Image Intensifier	Deprecated
Jenoptik	ProgRes C14 Digital Camera	Deprecated
JVC	KY55 Color Video Camera	Deprecated
Kodak	DC120 Color Digital Camera	Deprecated
Leica Microsystems	DC500 Digital Camera	Deprecated
Leica Microsystems	DFC300 Digital Camera	Deprecated
Leica Microsystems	DFC300F Digital Camera	Deprecated
Leica Microsystems	DFC300FX Digital Camera	Deprecated
Leica Microsystems	DFC300FX R2 Digital Camera	Deprecated
Leica Microsystems	DFC320 Digital Camera	Deprecated
Leica Microsystems	DFC350F Digital Camera	Deprecated
Leica Microsystems	DFC350FX Digital Camera	Deprecated
Leica Microsystems	DFC350FX R2 Digital Camera	Deprecated
Leica Microsystems	DFC480 Digital Camera	Deprecated
Leica Microsystems	DFC480 R2 Digital Camera	Deprecated
N/A	Any analog color video camera	Deprecated
N/A	Any analog monochrome video camera	Deprecated

Optronics	MagnaFire	Deprecated
Photonic Science	Coolview Video Camera	Deprecated
Photonic Science	Coolview-12 Digital Camera	Deprecated
QImaging	Intensified Retiga	Deprecated
QImaging	MicroPublisher	Deprecated
QImaging	MicroPublisher 5.0	Deprecated
QImaging	QICAM	Deprecated
QImaging	Retiga 1300 Model A	Deprecated
QImaging	Retiga 1300C Model A	Deprecated
QImaging	Retiga 1300 Model B	Deprecated
QImaging	Retiga 1300C Model B	Deprecated
QImaging	Retiga EX	Deprecated
QImaging	Retiga EXi	Deprecated
QImaging	Retiga EXi "Fast 1394"	Deprecated
QImaging	Retiga-SRV	Deprecated
QImaging	Retiga 2000R	Deprecated
Qimaging	Retiga 4000R	Deprecated
QImaging	RGB Filter Module for Retiga Cameras	Deprecated
Roper Scientific	CoolSNAP cf Digital Camera	Deprecated
Roper Scientific	CoolSNAP Digital Cameras	Deprecated
Roper Scientific	CoolSNAP FX Digital Camera	Deprecated
Roper Scientific	CoolSNAP HQ Digital Camera	Deprecated
Roper Scientific	MicroMAX Digital Cameras	Deprecated
Roper Scientific	PentaMAX Digital Cameras	Deprecated
Roper Scientific	Quantix Digital Cameras	Deprecated
Roper Scientific	Sensys Digital Cameras	Deprecated
Scion	AG-5 Framegrabber Card	Deprecated
Scion	CG-7 Framegrabber Card	Deprecated
Scion	LG-3 Framegrabber Card	Deprecated
Xillix	MicroImager 10/12 Digital Camera	Deprecated
Zeiss	AxioCam HRc / HRm Cameras	Deprecated
Zeiss	AxioCam MRc / MRm Cameras	Not Supported

Computers

<i>Manufacturer</i>	<i>Device Name</i>	<i>Support Level</i>
Apple	Any other Macintosh computer	Deprecated
Apple	iMac	Full
Apple	iBook	Full
Apple	Macintosh G4	Full
Apple	Macintosh G5	Full
Apple	Macintosh Mac Pro	Full
Apple	Powerbook G4	Full
Apple	XServe	Not Supported

Electronic Microscopes

<i>Manufacturer</i>	<i>Device Name</i>	<i>Support Level</i>
Leica Microsystems	DM5000B	Full
Leica Microsystems	DM6000B	Full
Leica Microsystems	DMIRBE	Full
Leica Microsystems	DMIRE2	Full
Leica Microsystems	DMRA	Full
Leica Microsystems	DMRBE	Full
Leica Microsystems	DMRXA	Full
Leica Microsystems	DMRXA2	Full
Nikon	E1000 / E1000M	Full
Nikon	TE2000	Full
Olympus	BX61	Full
Olympus	IX81	Full
Zeiss	Axio Imager.Z1 and .M1	Full
Zeiss	Axiophot 2	Full
Zeiss	Axioplan 2	Full
Zeiss	Axioplan 2 Imaging	Full
Zeiss	Axioplan 2ie	Full
Zeiss	Axioskop 2 MOT	Full
Zeiss	Axioskop 2 MOT Plus	Full
Zeiss	Axiovert 100M	Full
Zeiss	Axiovert 200M	Full

Microscope Automation

<i>Manufacturer</i>	<i>Device Name</i>	<i>Support Level</i>
ASI	MS-2000 stage controller	Full
Conix	99640 Focus Drive	Full
CRI	Micro*Color RGB Filter	Deprecated
CRI	VariSpec Filter	Deprecated
EasySync	UC232-R10 USB to Serial Adaptor	Full
Improvision	ORBIT 1 10 position filter wheel (25mm)	Full
Improvision	ORBIT 1 8 position filter wheel (32mm)	Full
Improvision	ORBIT 1 Controller	Full
Improvision	ORBIT 1 Shutter (25mm or 32mm)	Full
Improvision	ORBIT 1 X-Y Stage Controller	Full
Improvision	ORBIT 2 Controller	Full
Improvision	ORBIT 2 Piezo Focus System	Full
Improvision	ORBIT 2 USB Controller	Full
Keyspan	4 Port Serial Adapter	Full
Leica	DMSTC X-Y stage	Full
Ludl	Biopoint controller	Deprecated
Ludl	99A360 DC filter wheel (10 position)	Full
Ludl	DC or stepper filter wheels (6 position)	Full
Ludl	Focus drive for Zeiss Axiovert and Axioplan	Full
Ludl	Focus drive for Axioskop 2 with linear encoder	Full
Ludl	Focus drive for non-Axio microscopes	Full
Ludl	MAC2002 controller	Full
Ludl	MAC5000 controller	Full
Ludl	MAC6000 controller	Full
Ludl	Shutter (25mm or 32mm)	Full
Ludl	X-Y Stage (DC servo or stepper motor)	Full
Märzhäuser	L-Step 12 controller and X-Y Stage	Deprecated
Märzhäuser	MultiControl 2000 controller and X-Y	Deprecated

	Stage	
National Instruments	DIO-96 PCI Card	Deprecated
National Instruments	PCI-1200 PCI Card	Deprecated
Sutter	Lambda 10-2 Filter Changer	Full
Sutter	Lambda 10-C Filter Changer	Full
Sutter	DG-4 Filter Changer	Full
Sutter	DG-5 Filter Changer	Full
TILL Photonics	Polychrome II	Full
TILL Photonics	Polychrome IV	Full
TILL Photonics	Polychrome Junior	Deprecated
Vincent Associates	Uniblitz VMM-D1 Single Channel shutter controller	Full
Vincent Associates	Uniblitz VMM-D3 Three Channel shutter controller	Full
Zeiss	FluoArc Arc Lamp Controller	Full
Zeiss	MCU-28 X-Y stage	Full

Devices by Manufacturer

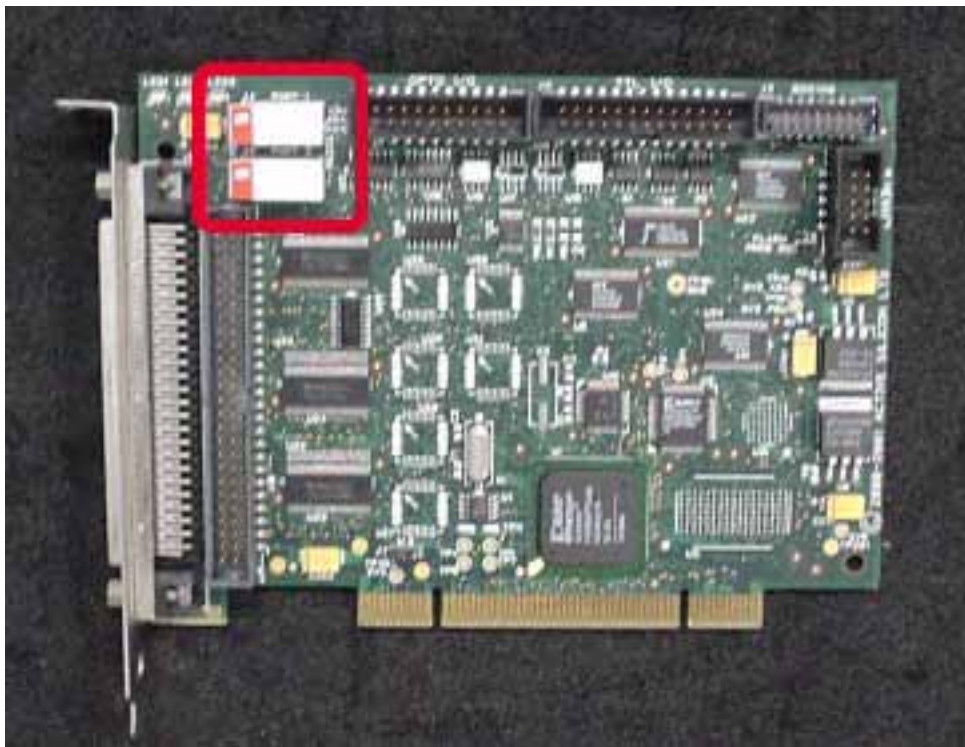
Active Silicon

Phoenix AS-PHX-D36-PCI32

Description:	36-bit digital PCI framegrabber card.
Support Level:	Deprecated. This card will only work in G4 and G5 Macintosh computers with PCI slots.
Mac OS Version:	10.3.x onwards
Openlab version:	4.0.2 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Available from http://www.dcamapi.com/
Mac OS 9 drivers:	Available from http://www.dcamapi.com/

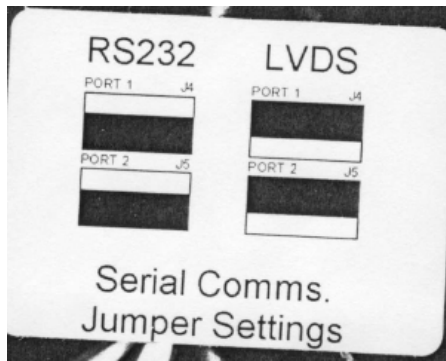
This card is sold by Hamamatsu to connect older (non-FireWire) Hamamatsu cameras to computers. Cable WB3020 from Hamamatsu is required.

For this card to work correctly with Hamamatsu cameras, the serial communications must be set to "LVDS". This is changed using jumpers on the card:



The red bars must be as shown in the diagram.

Newer Phoenix cards may have a different style of jumper block:



Snapper-24

Description:	RGB color analog PCI framegrabber card
Support Level:	Deprecated. This card will not work in a G5 Macintosh.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

A pony-tail cable (available separately) may be required to connect a camera to this card.

This card is 5V only and will not work in any G5 Macintosh.

Snapper-8

Description:	Monochrome analog PCI framegrabber card
Support Level:	Deprecated. This card will not work in a G5 Macintosh.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

This card is 5V only and will not work in any G5 Macintosh.

Snapper-DIG16

Description:	Monochrome digital PCI framegrabber card
Support Level:	Deprecated. This card will not work in a G5 Macintosh.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

This card is used within Openlab to provide support for a variety of RS422 Hamamatsu, Xillix and Photonic Science digital cameras.

This card is 5V only and will not work in any G5 Macintosh.

Apple

Macintosh Computers

Openlab is compatible with all currently shipping Macintosh computers except the XServe.

Openlab is compatible with any G3, G4, G5 or Intel Macintosh that has built-in USB ports. Ensure the version of Mac OS X required by Openlab is supported by the computer.

ASI

MS-2000 Stage Controller



Description:	XYZ stage controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ASI Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

We have tested the MS-2000-XY-ZLE configuration for Leica DMRB microscopes. Tested firmware version 7.2-AF4.

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

The cable is a crossover female-to-male DB-9 type.

Switches 4 and 5 on the controller should be up, setting it to 9600 baud. The serial setting in Openlab should be 9600 baud, 8 bits, 1 stop bit, no parity.

Conix

99640 Focus Drive



Description:	Focus drive
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Focus Drive
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Controllers manufactured after Jan 1999 are supported.

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

The cable is a RJ11 to female DB-9 type.

Switches 1 and 2 on the controller should be up, setting it to 9600 baud. The serial setting in Openlab should be 9600 baud, 8 bits, 1 stop bit, no parity.

CRI

Micro*Color RGB Filter

Description:	Wavelength changer
Support Level:	Deprecated
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	CRI Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

VariSpec Filter



Description:	Wavelength changer
Support Level:	Deprecated
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	CRI Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Due to the poor transmission characteristics of the filter this device is not recommended for fluorescence spectral analysis.

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

Dage MTI

DC330 Color Video Camera



Description:	RGB color analog video camera
Support Level:	Deprecated. This camera requires a Snapper-24 which will not work in a G5 Macintosh.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Dage Hardware Support, Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

A serial cable is required to connect the camera to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

To control the exposure time on this camera the "INDEX" output from the camera must be connected to the trigger input (orange) on the Snapper-24. An adapter cable from Dage may be required to make this connection.

Diagnostic Instruments

SPOT 2 Color Digital Camera



Description:	Color digital camera
Support Level:	Deprecated
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	SPOT Video
Mac OS X drivers:	SPOT Drivers from http://www.diaginc.com/
Mac OS 9 drivers:	Included in Openlab installer

This camera connects using a PCI card. G5 Macs will require the universal version of the PCI card.

This camera will work with Openlab, however Diagnostic Instruments have stated that they are no longer willing to provide support for Improvion customers. Improvion will endeavour to ensure SPOT cameras continue to work in future versions of Openlab, however we do not recommend that this camera is used in new systems.

SPOT RT Monochrome Digital Camera



Description:	Monochrome digital camera
Support Level:	Deprecated
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	SPOT Video
Mac OS X drivers:	SPOT Drivers from http://www.diaginc.com/
Mac OS 9 drivers:	Included in Openlab installer

This camera connects using a PCI card. G5 Macs will require the universal version of the PCI card.

This camera will work with Openlab, however Diagnostic Instruments have stated that they are no longer willing to provide support for Improvion customers. Improvion will endeavour to ensure SPOT cameras continue to work in future versions of Openlab, however we do not recommend that this camera is used in new systems.

SPOT RT Slider Color Digital Camera



Description:	Color RGB Filter digital camera
Support Level:	Deprecated
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	SPOT Video
Mac OS X drivers:	SPOT Drivers from http://www.diaginc.com/
Mac OS 9 drivers:	Included in Openlab installer

This camera connects using a PCI card. G5 Macs will require the universal version of the PCI card.

This camera will work with Openlab, however Diagnostic Instruments have stated that they are no longer willing to provide support for Improvion customers. Improvion will endeavour to ensure SPOT cameras continue to work in future versions of Openlab, however we do not recommend that this camera is used in new systems.

SPOT RT-KE 2MP Color Mosaic Digital Camera



Description:	Digital color camera with Bayer mask
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Support Level:	Deprecated
Mac OS Version:	10.3.x
Openlab version:	4.0.3 onwards
Openlab modules:	SPOT Video
Mac OS X drivers:	SPOT Drivers from http://www.diaginc.com/
Mac OS 9 drivers:	Not available

This camera connects using a PCI card. G5 Macs will require the universal version of the PCI card.

This camera will work with Openlab, however Diagnostic Instruments have stated that they are no longer willing to provide support for Improvisation customers. Improvisation will endeavour to ensure SPOT cameras continue to work in future versions of Openlab, however we do not recommend that this camera is used in new systems.

EasySync

UC232R-10 USB to Serial Adapter



Description:	USB to serial adapter
Support Level:	Full
Mac OS Version:	10.3.x
Openlab version:	
Openlab modules:	
Mac OS X drivers:	http://www.ftdichip.com/drivers/VCP.htm
Mac OS 9 drivers:	Not available

A free USB port is required for each serial adaptor. Multiple serial adaptors can be used on the same system.

Hamamatsu

Argus-20 Digital Image Processor

Description:	Analogue monochrome video processing unit. Provides video manipulation such as real-time averaging, subtraction, photon-counting etc.
Support Level:	Deprecated. This device will not work on Mac OS X.
Mac OS Version:	9.2.2
Openlab version:	2.2.5 onwards
Openlab modules:	Argus-20
Mac OS X drivers:	Not available
Mac OS 9 drivers:	Requires build-in SCSI-1 controller

This device connects using SCSI-1.

C4742-95-10/12 NRB (Orca) Camera connected via Snapper



Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C4742-95-10/12 NRB (Orca) Camera connected via Phoenix



Description:	Digital monochrome video camera.
Support Level:	Full
Mac OS Version:	10.3.x
Openlab version:	4.0.2 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Available from http://www.dcamapi.com/
Mac OS 9 drivers:	Not available

This camera connects to the computer via an Active Silicon Phoenix PCI card. This card will work in G3, G4 and G5 Macs as long as the computer has a spare PCI slot. Requires Active Silicon AS-PHX-D36-PCI32 Phoenix card and Hamamatsu WB3020 cable. The Phoenix card must be configured for LVDS serial communications. For more information about this, see the "Active Silicon" section above.

C4742-95-12ERG (Orca ERG)



Description:	Digital monochrome video camera.
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Available from http://www.dcamapi.com/
Mac OS 9 drivers:	Available from http://www.dcamapi.com/

This camera connects to the computer via IEEE1394 (FireWire 400). A spare FireWire port is required for connection. If a spare FireWire port is not available, a FireWire PCI card can be added to most systems. See appendix B for more detailed information on IEEE 1394.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

C4742-95-12NRG (Orca NRG)



Description:	Digital monochrome video camera.
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Available from http://www.dcamapi.com/
Mac OS 9 drivers:	Available from http://www.dcamapi.com/

This camera connects to the computer via IEEE1394 (FireWire 400). A spare FireWire port is required for connection. If a spare FireWire port is not available, a FireWire PCI card can be added to most systems. See appendix B for more detailed information on IEEE 1394.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

C4742-80-AG (Orca ERG Deep Cooling)



Description:	Digital monochrome video camera
Support level:	Full

Mac OS version:	10.4.7 or later
Openlab version:	5.5 onwards
Mac OS X drivers:	DCAM Drivers 2006-09/V2.1.3 point fix or later available from: http://www.dcamapi.com/

This camera connects to the computer via IEEE1394 (FireWire 400). A spare FireWire port is required for connection. If a spare FireWire port is not available, a FireWire PCI card can be added to most systems. See appendix B for more detailed information on IEEE 1394.

C4742-95-12G04 (Orca 285 FireWire)



Description:	Digital monochrome video camera.
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Available from http://www.dcamapi.com/
Mac OS 9 drivers:	Available from http://www.dcamapi.com/

This camera connects to the computer via IEEE1394 (FireWire 400). A spare FireWire port is required for connection. If a spare FireWire port is not available, a FireWire PCI card can be added to most systems. See appendix B for more detailed information on IEEE 1394.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

C4742-95-ER (Orca ER) Camera connected via Snapper



Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C4742-95-ER (Orca ER) Camera connected via Phoenix



Description:	Digital monochrome video camera.
Support Level:	Full
Mac OS Version:	10.3.x
Openlab version:	4.0.2 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Available from http://www.dcamapi.com/
Mac OS 9 drivers:	Not available

This camera connects to the computer via an Active Silicon Phoenix PCI card. This card will work in G3, G4 and G5 Macs as long as the computer has a spare PCI slot. Requires Active Silicon AS-PHX-D36-PCI32 Phoenix card and Hamamatsu WB3020 cable. The Phoenix card must be configured for LVDS serial communications. For more information about this, see the "Active Silicon" section above.

C4742-95-SC (Orca III) Camera

Description:	Digital color (Bayer mosaic) video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C4742-98-24ERG (Orca 2 ERG)



Description:	Digital monochrome video camera.
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Available from http://www.dcamapi.com/
Mac OS 9 drivers:	Available from http://www.dcamapi.com/

This camera connects to the computer via IEEE1394 (FireWire 400). A spare FireWire port is required for connection. If a spare FireWire port is not available, a FireWire PCI card can be added to most systems. See appendix B for more detailed information on IEEE 1394.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

C4742-98-24-NR (Orca 2)



Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C4880-06 Camera

Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers. This camera is relatively slow and does not perform well with Openlab.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C4880-40 Camera

Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers. This camera is relatively slow and does not perform well with Openlab.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C4880-80-22/24 Camera

Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C4880-81/82 Camera



Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C4880-96 Camera

Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and CBL-68-HAM-A-2M.

C5810 Color Camera

Description:	Color analog video camera.
Support Level:	Deprecated. The Snapper-24 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper-24.

C5985 Analog Monochrome Camera

Description:	Monochrome analog video camera.
Support Level:	Deprecated. The Snapper-8 and Snapper-24 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper-8 or Snapper-24.

C7190-43/53 Cameras



Description:	Digital monochrome electron-bombardment video camera.
Support Level:	Full
Mac OS Version:	10.3.x
Openlab version:	4.0.3 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Installer Jan 2005 or later available from http://www.dcamapi.com/
Mac OS 9 drivers:	Not available

This camera connects to the computer via an Active Silicon Phoenix PCI card. This card will work in G3, G4 and G5 Macs as long as the computer has a spare PCI slot. Requires Active Silicon AS-PHX-D36-PCI32 Phoenix card and special Hamamatsu cable. The Phoenix card must be configured for RS232 serial communications. Only gain, offset and sensitivity control are supported from software.

C7780 Camera (3-chip Orca)

Description:	Color 3-chip digital video camera.
Support Level:	Not Supported
Mac OS Version:	n/a
Openlab version:	n/a
Openlab modules:	n/a
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

C8484-05G Camera



Description:	Digital monochrome video camera.
Support Level:	Full
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5.2 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	Available from http://www.dcamapi.com/
Mac OS 9 drivers:	Available from http://www.dcamapi.com/

This camera connects to the computer via IEEE1394 (FireWire 400). C8484-xxG01 models (June 2008) and later may use the built-in Firewire port on desktop Macintosh computers.

Note: Older camera models must not be connected to the built-in FireWire port on any desktop Macintosh or XServe computer including the G3, G4 and G5. These ports use high voltages and will damage the camera.

Built-in FireWire ports on iBook and Powerbook computers use a lower voltage and will not damage the camera.

C9100-02 Electron Multiplier CCD Camera



Description:	Digital monochrome electron multiplier frame transfer camera
Support Level:	Full
Mac OS Version:	10.3.9
Openlab version:	4.0.3 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	DCAM Installer Jan 2005 or later available from www.dcamapi.com
Mac OS 9 drivers:	Not available

This camera connects to the computer via an Active Silicon Phoenix PCI card. This card will work in G3, G4 and G5 Macs as long as the computer has a spare PCI slot. Requires Active Silicon Phoenix ASPHX-D24CL-PCI32 CameraLink PCI card and a CameraLink cable.

C9100-12 Electron Multiplier CCD Camera



Description:	Digital monochrome electron multiplier frame transfer camera
Support Level:	Full
Mac OS Version:	10.3.9
Openlab version:	4.0.3 onwards
Openlab modules:	DCAM Video
Mac OS X drivers:	DCAM Installer Jan 2005 or later available from www.dcamapi.com
Mac OS 9 drivers:	Not available

This camera connects to the computer via an Active Silicon Phoenix PCI card. This card will work in G3, G4 and G5 Macs as long as the computer has a spare PCI slot. Requires Active Silicon Phoenix ASPHX-D24CL-PCI32 CameraLink PCI card and a CameraLink cable.

Photon Counting Image Intensifier

Description:	Controller for image-intensifier module.
Support Level:	Deprecated
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Image Intensifier
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

This device connects via RS232 serial. A cable will be required to connect the controller to a free serial port. For computers without built-in serial ports, a USB to serial adapter will be required.

Improvisation

ORBIT 1 10 position filter wheel (25mm)



Description:	Filter wheel
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

ORBIT 1 8 position filter wheel (32mm)



Description:	Filter wheel
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

ORBIT 1 Controller



Description:	Filter / Shutter / Focus controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

This controller can drive:

- Up to 2 x Orbit 25 or 32 mm filter wheels
- Up to 3 x Orbit 25 or 32 mm shutters
- Orbit focus drive (with integral anti backlash)

Notes:

- 32mm filter wheels require a controller with firmware versions 1 or higher
- 32mm shutters require additional power from the controller. Users who obtained their controller before March 2001 may need an upgrade. This can be confirmed by providing the serial number.

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. DB-9 to mini-DIN and DB-9 to DB-9 variants are available.

ORBIT 1 Shutter (25mm or 32mm)

Description:	Fluorescence shutter
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

ORBIT 1 X-Y Stage Controller



Description:	Filter / Shutter / Focus / XY controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

This controller can drive:

- Up to 2 x Orbit 25 or 32 mm filter wheels
- Up to 3 x Orbit 25 or 32 mm shutters
- Orbit focus drive (with integral anti backlash)
- ORBIT X-Y stage

Notes:

- 32mm filter wheels require a controller with firmware versions 1 or higher
- 32mm shutters require additional power from the controller. Users who obtained their controller before March 2001 may need an upgrade. This can be confirmed by providing the serial number.

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. DB-9 to mini-DIN and DB-9 to DB-9 variants are available.

ORBIT 2 Controller



Description:	TTL / Piezo / Polychrome controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

This controller includes:

- 8 TTL inputs
- 8 TTL outputs
- Analogue output for polychrome devices
- High-voltage output for PI piezo focus system (optional)

This device must be connected either to a National Instruments PCI1200 DIO PCI card or to an ORBIT 2 USB controller.

ORBIT 2 Piezo Focus System



Description:	Piezo focus drive
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

The piezo focus system controls the movement of a single objective and is compatible with Zeiss, Olympus and Leica microscopes. The piezo focus system is not compatible with DIC optics on the Zeiss Axioskop 2 FS. The quality of DIC imaging with many other microscopes may also be impaired.

An ORBIT 2 controller is required to drive the focus head.

ORBIT 2 USB Controller

Description:	USB to ORBIT 2 interface
Support Level:	Full
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	Orbit2USBShim.framework 1.3 or higher, installed by Openlab installer.
Mac OS 9 drivers:	n/a

This controller replaces the National Instruments PCI1200 card. The PCI1200 card is not compatible with Mac OS X or the G5.

Jenoptik

ProgRes C14 Digital Color Camera



Description:	Digital colour camera (scanning Bayer mask)
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Jenoptik Video
Mac OS X drivers:	Drivers are not available for Intel Macs. For PowerPC Macs ProgResC14 Driver Installer 1.4 included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire 400). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera may need calibrating if mosaic patterns appear in the image. This can be done using the Jenoptik software.

Support deprecated because an API change means the drivers are no longer compatible with Openlab.

JVC

KY55 Analog Color Video Camera

Description:	RGB color analog video camera
Support Level:	Deprecated. This camera requires a Snapper-24 which will not work in a G5 Macintosh.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Keyspan

4 Port Serial Adapter



Description:	USB to 4 port serial adapter
Support Level:	Full. Note drivers are not available for Mac OS 10.5.x
Mac OS Version:	9.2.2, 10.2.x, 10.3.x, 10.4.x and 10.6.x onwards
Openlab version:	N/A
Openlab modules:	N/A
Mac OS X drivers:	Available from http://www.tripplite.com
Mac OS 9 drivers:	Available from http://www.tripplite.com

Leica Microsystems

DC500 Digital Camera



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC300 Digital Camera



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC300F Digital Camera



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC300FX Digital Camera



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC300FX R2 Digital Camera



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC320 Digital Camera



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC350F Digital Camera



Description:	Digital monochrome camera
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC350FX Digital Camera



Description:	Digital monochrome camera
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC350FX R2 Digital Camera



Description:	Digital monochrome camera
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC480 Digital Camera



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DFC480 R2 Digital Camera



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated
Mac OS Version:	10.2.x, 10.3.x
Openlab version:	3.5 onwards
Openlab modules:	Leica Video
Mac OS X drivers:	LeicaDrivers 1.6.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	n/a

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Openlab cannot be used with Leica driver versions after 1.6 due to an API change. Drivers up to and including version 1.6 are not compatible with Intel Macs.

DM5000B Electronic Microscope



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5.2 onwards
Openlab modules:	Leica CTRMIC Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Objective nosepiece
- TL-Field diaphragm
- TL-Aperture diaphragm
- TL-Polarizer
- Condenser turret 7 position
- Condenser top lens 2 position
- DIC turret 4 position

Features may vary between microscope models.

Requires the following firmware revision or higher:

"DM5000B" MAN1.HEX V01.19

"TL-FIELDDIAPH" MAN1.HEX V01.19

"TL-APERDIAPH" MAN1.HEX V01.19

"TL-POLARIZER" KONDSCH.HEX V01.06.2004

"COND-TOP (2-POS)" MAN1.HEX V01.19

"DIC-TURRET" MAN2.HEX V01.04

"COND-TURRET (7-POS)" KONDSCH.HEX V01.06.2004

"IL-TURRET (5-POS)" MAN1.HEX V01.19

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvision mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

DM6000B Electronic Microscope



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	4.0.1 onwards
Openlab modules:	Leica CTRMIC Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Objective nosepiece
- TL-Field diaphragm
- TL-Aperture diaphragm
- TL-Polarizer
- Condenser turret 7 position
- Condenser top lens 2 position
- DIC turret 4 position
- Focus drive

Features may vary between microscope models.

Requires the following firmware revision or higher:

"DM5000B" MAN1.HEX V01.19

"TL-FIELDDIAPH" MAN1.HEX V01.19

"TL-APERDIAPH" MAN1.HEX V01.19

"TL-POLARIZER" KONDSCH.HEX V01.06.2004

"COND-TOP (2-POS)" MAN1.HEX V01.19

"DIC-TURRET" MAN2.HEX V01.04

"COND-TURRET (7-POS)" KONDSCH.HEX V01.06.2004

"IL-TURRET (5-POS)" MAN1.HEX V01.19

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvision mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

DMI6000B Electronic Microscope



Description:	Electronic inverted microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	4.0.3 onwards
Openlab modules:	Leica CTRMIC Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Objective nosepiece
- Focus drive
- Contrast modes

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

DMIRBE Electronic Microscope



Description:	Electronic inverted microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Leica Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Encoded nosepiece 6 position
- Focus drive
- TL intensity

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 "microscope" cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

DMIRE2 Electronic Microscope



Description:	Electronic inverted microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1.5 onwards
Openlab modules:	Leica CTRMIC Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret 4 position
- Motorised nosepiece 7 position
- Lightpath changer 2 position [beamsplitter]
- Halogen lamp voltage
- Focus drive

Electronic condenser features supported in Openlab 3.1.5 or higher:

- Aperture diaphragm
- Condenser turret 6 position
- Polarizer
- IC turret 4 position coarse only

Note: Openlab does not control the fine position of the motorised IC turret.

Features may vary between microscope models.

Requires following firmware or better:

MAST_DM.HEX 01.26

XYZ_MOD.HEX 01.27_b1

IRESLAV.HEX 01.15

FLUOAMOD.HEX 01.18

XYZ_MOD.HEX 01.27_b1 is required for correct functioning of motorized focus drive on microscopes with motorized condensor.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 "microscope" cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

DMRA Electronic Microscope



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Leica Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Halogen lamp voltage
- Focus drive

Features may vary between microscope models.

Requires following firmware or better:

M 02.60 12.08.98

R 02.52 17.09.98;

Z 02.53 14.10.98;

F 02.00 05.02.97

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

This microscope may require top and/or bottom limits to be set on the stand before the focus drive will work correctly with Openlab.

DMRBE Electronic Microscope



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Leica Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Focus drive
- Objective turret
- Halogen lamp voltage

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

This microscope may require top and/or bottom limits to be set on the stand before the focus drive will work correctly with Openlab.

DMRXA Electronic Microscope



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Leica Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Focus drive
- Objective turret
- Halogen lamp voltage

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 "microscope" cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

DMRXA2 Electronic Microscope



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Leica CTRMIC Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret 8 position
- Focus drive
- Objective turret 7 position
- Halogen lamp voltage
- Optivar magnification changer 3 position
- Lightpath changer 3 position (beamsplitter)
- Field diaphragm
- Aperture diaphragm
- Condenser top lens

Features may vary between microscope models.

Requires following firmware or better:

- MAST_DM.HEX V01.31
- XYZ_MOD.HEX V01.22
- FLUOAMOD.HEX V01.23
- RXASLAV1.HEX V01.31
- RXASLAV2.HEX V01.02

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 "microscope" cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

DMSTC X-Y Stage

Description:	Electronic XY stage
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Leica Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

If used with an older (non-CTRMIC) electronic Leica microscope, the stage controller should be connected to the F-bus connector on the microscope.

If used with a newer CTRMIC or DMx000 microscope, the controller should be connected to its own serial port.

Note: This is a “Leica XY Stage” not a “Leica CTRMIC XY Stage”.

A serial cable may be required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Ludl

Biopoint Controller



Description:	Filter wheel / Shutter / XY / Focus controller
Support Level:	Deprecated. This device is no longer in production.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be the manufacturer's standard cable. It is available in mini-DIN and DB-9 variants.

99A360 DC Filter Wheel (10 position)

Description:	10 position high-speed filter wheel
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	4.0.0 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Requires MAC5000 controller with firmware version 5.1, filter module version 2.9 or higher.

DC or stepper filter wheels (6 position)



Description:	6 position filter wheels
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Requires MAC5000, MAC2002 or MAC2000 controller. Not all controllers support all wheels – refer to Ludl for more information.

Stepper wheels require a stepper controller. DC servo wheels require a DC servo controller.

Focus drive for Zeiss Axiovert and Axioplan

Description:	Focus drive with rotary encoder
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Ludl focus drive for Zeiss Axio microscopes except Axioskop 2 / Axiophot 2.

Requires MAC5000, MAC2002 or MAC2000 controller with appropriate module.

Focus drive for Axioskop 2 with linear encoder



Description:	Focus drive with linear encoder
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Requires MAC5000, MAC2002 or MAC2000 controller with appropriate module.

Focus drive for non-Axio microscopes

Description:	Focus drive without encoder
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Requires MAC5000 or MAC2002 or MAC2000 controller with appropriate modules and correct focus sleeve.

MAC2002 Controller



Description:	Filter wheel / Shutter / XY / Focus controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be the manufacturer's standard cable. It is available in mini-DIN and DB-9 variants.

The switches in the controller must be set correctly for the controller to work properly. Improvisation technical note 409 describes how to do this.

The correct settings are 9600 baud, odd parity, 1 stop bit.

MAC5000 Controller



Description:	Filter wheel / Shutter / XY / Focus controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be the manufacturer's standard cable. It is available in mini-DIN and DB-9 variants.

The switches in the controller must be set correctly for the controller to work properly. Improvisation technical note 409 describes how to do this.

The correct settings are 9600 baud, odd parity, 1 stop bit.

MAC6000 Controller



Description:	Filter wheel / Shutter / XY / Focus controller
Support Level:	Full
Mac OS Version:	10.4.6 onwards
Openlab version:	5.5.2 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be the manufacturer's standard cable. It is available in mini-DIN and DB-9 variants.

Openlab serial port preferences for the MAC 6000 controller must be set to 'no parity'.

Shutter (25mm or 32mm)

Description:	Shutter
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Requires MAC5000, MAC2002, MAC2000 or BioPoint controller with appropriate modules.

X-Y Stage (DC servo or stepper motor)

Description:	Shutter
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards

Openlab version:	2.2.5 onwards
Openlab modules:	Ludl Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Requires MAC5000, MAC2002, MAC2000 or BioPoint controller with appropriate modules. Not all controllers support all stages.

Large stages may require Openlab 4.0.2 or higher to calibrate successfully.

Märtzhäuser

L-Step 12 controller and X-Y Stage

Description:	X-Y stage controller
Support Level:	Deprecated
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Märtzhäuser Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

Improvisation has tested only with the SCAN IM 120x100 stage.

Firmware version 1.00-00 99 99 3d or higher required.

The dipswitches on the controller must be set to DIP1 off, DIP2 on.

MultiControl 2000 controller and X-Y Stage

Description:	X-Y stage controller
Support Level:	Deprecated. This stage is no longer in production.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Märtzhäuser Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

National Instruments

DIO-96 PCI Card

Description:	TTL digital I/O card
Support Level:	Deprecated. This card is not compatible with Mac OS X or with the G5.
Mac OS Version:	9.2.2
Openlab version:	2.2.5 onwards
Openlab modules:	Digital IO Tasks
Mac OS X drivers:	n/a
Mac OS 9 drivers:	Installed by Openlab installer.

PCI-1200 PCI Card

Description:	Digital and analog I/O card
Support Level:	Deprecated. This card is not compatible with Mac OS X or with the G5.
Mac OS Version:	9.2.2
Openlab version:	2.2.5 onwards
Openlab modules:	Digital IO Tasks / ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	Installed by Openlab installer.

Nikon

E1000 / E1000M Electronic Microscope



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Nikon Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter slider 5 positions
- Focus Drive
- Motorized condenser 3 positions
- Motorized objective turret 6 positions
- Field stop
- Aperture diaphragm
- Variable neutral density filter
- Halogen lamp voltage (when dial in Preset position only)

Features may vary between microscope models.

Requires firmware version 1.2 or higher.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable part number 97017. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

The cable is a special type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket). The connections are as follows:

<i>Computer</i>	<i>E1000</i>
2	3
3	2
5	7
1 – 4 – 6 (short these together in the connector)	4 – 5 (short these together in the connector)
7 – 8 (short these together in the connector)	

TE2000 Electronic Microscope



Description:	Electronic inverted microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Nikon Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Epi-Fluorescence filter turret
- Epi-illumination shutter
- Barrier filters
- Excitation filters
- Objective Turret
- Light path
- Focus drive
- Analyzer
- Optical path prism
- Transmitted light intensity

Features may vary between microscope models.

Requires firmware version V1.01-V1.01-V1.10 or higher.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

Olympus

BX61 Electronic Microscope



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	4.0.3 onwards
Openlab modules:	Olympus Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter cube
- Focus drive
- Filter wheel 1
- Filter wheel 2
- Filter wheel 3
- Objective turret
- Condenser turret
- Condenser top lens
- Halogen lamp voltage

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

The cable is a straight-connected female to female type.

All the switches on switch block 2 of the UCB control unit should be switched off. This sets the microscope to 19200 baud, 8 bits, even parity, 2 stop bits, CR+LF termination.

IX81 Electronic Microscope



Description:	Electronic inverted microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	4.0.3 onwards
Openlab modules:	Olympus Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Shutter 2
- Fluorescence filter cube
- Focus drive
- Filter wheel
- Objective turret
- Condenser turret
- Halogen lamp voltage
- Side port / eyepiece switching

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

The cable is a straight-connected female-to-female DB-9 type.

All the switches on switch block 2 of the UCB control unit should be switched off. This sets the microscope to 19200 baud, 8 bits, even parity, 2 stop bits, CR+LF termination.

**Optronics
MagnaFire**



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated. This camera is not supported on Mac OS X.
Mac OS Version:	9.2.2
Openlab version:	3.5 onwards
Openlab modules:	Optronics Video
Mac OS X drivers:	n/a
Mac OS 9 drivers:	Included in Openlab installer.

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

Photonic Science

CoolView Video Camera

Description:	Monochrome analog video camera.
Support Level:	Deprecated. The Snapper-8 and Snapper-24 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper-8 or Snapper-24.

CoolView-12 Digital Camera

Description:	Monochrome digital video camera.
Support Level:	Deprecated. The Snapper-DIG16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper-DIG16

QImaging Intensified Retiga



Description:	Digital monochrome camera with image intensifier
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

MicroPublisher



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

MicroPublisher 5.0



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

QICAM



Description:	Digital monochrome camera
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga 1300 Model A



Description:	Digital monochrome camera
Support Level:	Deprecated. Model A cameras do not perform well with Openlab.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga 1300C Model A



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated. Model A cameras do not perform well with Openlab.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga 1300 Model B



Description:	Digital monochrome camera
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Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga 1300C Model B



Description:	Digital color camera with Bayer mask
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga EX



Description:	Digital monochrome camera
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga EXi



Description:	Digital monochrome camera
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga EXi “Fast 1394”



Description:	Digital monochrome camera
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga 2000R



Description:	Digital monochrome camera
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	4.0.4 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga 4000R



Description:	Digital monochrome camera
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	4.0.4 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

Retiga-SRV



Description:	Digital monochrome camera
Support Level:	Deprecated. Drivers are not available for Mac OS 10.6 or later.
Mac OS Version:	9.2.2, 10.2.x – 10.5.x
Openlab version:	5.0.1 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

This camera connects to the computer via IEEE1394 (FireWire). A spare FireWire port is required for connection.

The built-in FireWire ports on older G3 Macintosh computers may not work with this camera. In this case, a separate PCI FireWire card can be used.

This camera can be powered directly from the FireWire port on desktop computers. Portable Macs (e.g. iBook or PowerBook) may require an additional power supply.

The 'Blackout' and 'Temperature' features on this camera are not currently supported.

RGB Filter Module for Retiga Cameras



Description:	Solid-state RGB filter module for QImaging Retiga cameras. Allows a monochrome camera to take high-quality color images.
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	QImaging Video
Mac OS X drivers:	QCam Drivers from http://www.qimaging.com
Mac OS 9 drivers:	QCam Drivers from http://www.qimaging.com

Roper Scientific
CoolSNAP cf Digital Camera



Description:	Digital camera available in color and monochrome variants.
Support Level:	Deprecated. No PCIe card available for use with Intel Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	PVCAM Video
Mac OS X drivers:	Photometrics.dmg included in Openlab Hardware Drivers pack.
Mac OS 9 drivers:	PVCAM "Model 2" drivers installed via Openlab installer

This camera connects to the computer using a proprietary PCI card available from Roper Scientific. The 3.3V-compatible version of this card is required for the camera to work with a G5 Macintosh.

CoolSNAP Digital Cameras



Description:	Digital cameras available in color and monochrome variants.
Support Level:	Deprecated. No PCIe card available for use with Intel Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	PVCAM Video
Mac OS X drivers:	Photometrics.dmg included in Openlab Hardware Drivers pack.
Mac OS 9 drivers:	PVCAM "Model 2" drivers installed via Openlab installer

This camera connects to the computer using a proprietary PCI card available from Roper Scientific. The 3.3V-compatible version of this card is required for the camera to work with a G5 Macintosh.

CoolSNAP FX Digital Cameras



Description:	Digital cameras available in color and monochrome variants.
Support Level:	Deprecated. No PCIe card available for use with Intel Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	PVCAM Video
Mac OS X drivers:	Photometrics.dmg included in Openlab Hardware Drivers pack.
Mac OS 9 drivers:	PVCAM "Model 2" drivers installed via Openlab installer

This camera connects to the computer using a proprietary PCI card available from Roper Scientific. The 3.3V-compatible version of this card is required for the camera to work with a G5 Macintosh.

CoolSNAP HQ Digital Cameras



Description:	Digital monochrome camera
Support Level:	Deprecated. No PCIe card available for use with Intel Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	PVCAM Video
Mac OS X drivers:	Photometrics.dmg included in Openlab Hardware Drivers pack.
Mac OS 9 drivers:	PVCAM "Model 2" drivers installed via Openlab installer

This camera connects to the computer using a proprietary PCI card available from Roper Scientific. The 3.3V-compatible version of this card is required for the camera to work with a G5 Macintosh.

MicroMAX Digital Cameras



Description:	Digital monochrome camera
Support Level:	Deprecated. The PCI card required by this camera will not work in a G5 Macintosh. This camera will not work in Mac OS X.
Mac OS Version:	9.2.2
Openlab version:	2.2.5 onwards
Openlab modules:	PI Video
Mac OS X drivers:	n/a
Mac OS 9 drivers:	Drivers installed by Openlab installer

This camera connects to the computer using a proprietary PCI card available from Roper Scientific.

PentaMAX Digital Cameras



Description:	Digital monochrome camera
Support Level:	Deprecated. The PCI card required by this camera will not work in a G5 Macintosh. This camera will not work in Mac OS X.
Mac OS Version:	9.2.2
Openlab version:	2.2.5 onwards
Openlab modules:	PI Video
Mac OS X drivers:	n/a
Mac OS 9 drivers:	Drivers installed by Openlab installer

This camera connects to the computer using a proprietary PCI card available from Roper Scientific.

Quantix Digital Cameras



Description:	Digital monochrome camera
Support Level:	Deprecated. The PCI card required by this camera will not work in a G5 Macintosh.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	PVCAM Video
Mac OS X drivers:	Photometrics.dmg included in Openlab Hardware Drivers pack.
Mac OS 9 drivers:	PVCAM "Model 2" drivers installed via Openlab installer

This camera connects to the computer using a proprietary PCI card available from Roper Scientific.

Sensys Digital Cameras



Description:	Digital monochrome camera
Support Level:	Deprecated. The PCI card required by this camera will not work in a G5 Macintosh.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5 onwards
Openlab modules:	PVCAM Video
Mac OS X drivers:	Photometrics.dmg included in Openlab Hardware Drivers pack.
Mac OS 9 drivers:	PVCAM "Model 2" drivers installed via Openlab installer

This camera connects to the computer using a proprietary PCI card available from Roper Scientific.

Scion

AG-5 Framegrabber Card

Description:	Analog PCI monochrome framegrabber card with on-board image processing.
Support Level:	Deprecated. This PCI card will not work in a G5 Macintosh. This card will not work in Mac OS X.
Mac OS Version:	9.2.2
Openlab version:	2.2.5 onwards
Openlab modules:	Scion Video
Mac OS X drivers:	n/a
Mac OS 9 drivers:	Not required

CG-7 Framegrabber Card

Description:	Analog PCI color framegrabber card
Support Level:	Deprecated. This PCI card will not work in a G5 Macintosh. This card will not work in Mac OS X.
Mac OS Version:	9.2.2
Openlab version:	2.2.5 onwards
Openlab modules:	Scion Video
Mac OS X drivers:	n/a
Mac OS 9 drivers:	Not required

LG-3 Framegrabber Card

Description:	Analog PCI monochrome framegrabber card
Support Level:	Deprecated. This PCI card will not work in a G5 Macintosh. This card will not work in Mac OS X.
Mac OS Version:	9.2.2
Openlab version:	2.2.5 onwards
Openlab modules:	Scion Video
Mac OS X drivers:	n/a
Mac OS 9 drivers:	Not required

Sutter

Lambda 10-2 Filter Changer



Description:	High-speed filter wheel
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Sutter Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

Lambda 10-C Filter Changer



Description:	High-speed filter wheel
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Sutter Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

DG-4 Filter Changer



Description:	High-speed filter changer
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.5.2 onwards
Openlab modules:	Sutter Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

DG-5 Filter Changer



Description:	High-speed filter changer
Support Level:	Full
Mac OS Version:	10.4.x onwards
Openlab version:	5.5 onwards
Openlab modules:	Sutter Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

TILL Photonics

Polychrome II

Description:	High-speed excitation wavelength changer
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

An ORBIT 2 controller and ORBIT 2 USB (Mac OS X) or National Instruments card (Mac OS 9) are required to drive the polychrome.

Polychrome IV

Description:	High-speed excitation wavelength changer
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

An ORBIT 2 controller and ORBIT 2 USB (Mac OS X) or National Instruments card (Mac OS 9) are required to drive the polychrome.

Polychrome Junior

Description:	High-speed excitation wavelength changer
Support Level:	Deprecated
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	ORBIT Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

An ORBIT 2 controller and ORBIT 2 USB (Mac OS X) or National Instruments card (Mac OS 9) are required to drive the polychrome.

Vincent Associates

Uniblitz VMM-D1 Single Channel shutter controller



Description:	Shutter controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	4.0.2 onwards
Openlab modules:	Uniblitz Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

Uniblitz VMM-D3 Three Channel shutter controller



Description:	Shutter controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	4.0.2 onwards
Openlab modules:	Uniblitz Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

A serial cable is required to connect the controller to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable must be the manufacturer's own cable. The Macintosh will need a Keyspan USA49W or similar PC-style serial adapter that has DB-9 connectors rather than mini-DIN.

Xillix

Microlmager 10/12 Digital Camera

Description:	Digital monochrome video camera.
Support Level:	Deprecated. The Snapper DIG-16 will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Snapper Video
Mac OS X drivers:	snapper_4_02_07.dmg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Requires Active Silicon Snapper DIG-16 and cable CBL-68-XILLIX-1400-3M.

Zeiss

AxioCam HRc Camera



Description:	Digital color camera with scanning Bayer mask.
Support Level:	Deprecated. The PCI card supplied with this camera will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Axiocam Video
Mac OS X drivers:	Axiocam_HR_Package.mpkg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Comes supplied with PCI card and fibre-optic cable.

AxioCam HRm Camera



Description:	Digital monochrome camera with scanning CCD.
Support Level:	Deprecated. The PCI card supplied with this camera will not work in G5 Macintosh computers.
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1 onwards
Openlab modules:	Axiocam Video
Mac OS X drivers:	Axiocam_HR_Package.mpkg included in Openlab Hardware Drivers pack
Mac OS 9 drivers:	Included in Openlab installer

Comes supplied with PCI card and fibre-optic cable.

AxioCam MRc Camera

Description:	Digital color camera
Support Level:	Not supported. The Mac drivers released by Zeiss do not support this camera.
Mac OS Version:	n/a
Openlab version:	n/a
Openlab modules:	n/a
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

AxioCam MRm Camera

Description:	Digital monochrome camera
Support Level:	Not supported. The Mac drivers released by Zeiss do not support this camera.
Mac OS Version:	n/a
Openlab version:	n/a
Openlab modules:	n/a
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Axio Imager.Z1 and .M1



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards, 10.4.x
Openlab version:	4.0.4 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Transmitted light shutter
- Fluorescence filter turret

- Condenser turret
- Focus Drive
- Objective turret
- Light Path control (100% Tubus/50% Tubus, 50% Side Port)
- Halogen lamp voltage

Features may vary between microscope models.

These firmware versions or better are required:

- PHX_MasterControl, with version number 01.002

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvision mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Axiophot 2



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Focus Drive
- Objective turret
- Aperture diaphragm
- Field diaphragm

- Halogen lamp voltage

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Axioplan 2



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Focus Drive
- Objective turret
- Aperture diaphragm
- Halogen lamp voltage

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)

- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Axioplan 2 Imaging



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Focus Drive
- Objective turret
- Aperture diaphragm
- Halogen lamp voltage

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Axioplan 2ie



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Focus Drive
- Objective turret
- Aperture diaphragm
- Halogen lamp voltage
- Filter wheels 1 and 2
- Condenser aperture

Features may vary between microscope models.

These firmware versions or better are required:

- Axioplan 2ie firmware 2.12 BIOS 4.08
- Focus drive firmware ZM_V2.03 stepsize 25nm

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Axioskop 2 MOT



Description:	Electronic upright microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret (encoded only)
- Focus Drive
- Objective turret (encoded only)
- Aperture diaphragm (encoded only)
- Halogen lamp voltage

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Axioskop 2 MOT Plus



Description:	Electronic upright microscope
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Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Focus Drive
- Objective turret (encoded only)
- Condenser turret
- Condenser top lens
- Halogen lamp voltage

Features may vary between microscope models.

These firmware versions or better are required:

- Zeiss AxioskopFirmware 1_12 BIOS 3.02
- Focus drive firmware AX_V1_12 step size 25nm

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Axiovert 100M

Description:	Electronic inverted microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter

- Fluorescence filter slider
- Focus Drive
- Objective turret
- Aperture diaphragm
- Field diaphragm
- Halogen lamp voltage

Features may vary between microscope models.

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Axiovert 200M



Description:	Electronic inverted microscope
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

Supported electronic features include:

- Fluorescence shutter
- Fluorescence filter turret
- Condenser turret
- Optovar turret
- Focus Drive
- Objective turret
- Aperture diaphragm
- Condenser aperture
- Base port slider
- Side port turret
- Halogen lamp voltage

Features may vary between microscope models.

These firmware versions or better are required:

- Zeiss Axiovert 200M Firmware 1.13 BIOS 4.08
- Focus drive firmware ZM_V2.03

A serial cable is required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

FluoArc Arc Lamp Controller



Description:	Electronic arc lamp controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	3.1.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

An Openlab Automator task allows the intensity of the active FluoArc level to be set.

If the FluoArc is used with an electronic microscope, it should be connected to the CAN-Bus on the microscope.

If the FluoArc is used without an electronic microscope, it should be connected directly to a serial port.

A serial cable may be required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvisation mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

MCU-28 X-Y Stage

Description:	X-Y stage controller
Support Level:	Full
Mac OS Version:	9.2.2, 10.2.x onwards
Openlab version:	2.2.5 onwards
Openlab modules:	Zeiss Hardware
Mac OS X drivers:	n/a
Mac OS 9 drivers:	n/a

If the MCU-28 is used with an electronic microscope, it should be connected to the CAN-Bus on the microscope.

If the MCU-28 is used without an electronic microscope, it should be connected directly to a serial port.

A serial cable may be required to connect the microscope to a serial port on the Macintosh. For Macintosh computers that do not have built-in serial ports, a Keyspan serial adapter (or similar) will be required.

The cable should be one of:

- Standard Improvision mini-DIN to female DB-9 “microscope” cable (for connection to a Mac-style mini-DIN port)
- Manufacturers female DB-9 to female DB-9 cable (for connection to a PC-style DB-9 port)

The cable is a crossover type terminated with a female DB-9 plug at the microscope end (the microscope has a male DB-9 socket).

Appendix A: PCI and PCI Express Cards

Some devices require an expansion card to connect to the computer. This section discusses the different types of cards that are available, the different types of slots that are available in the computer, and which card is compatible with which slot.

PCI

PCI is the oldest and most common type of expansion slot. It is available in two variants – 5 V and 3.3 V. 5 V PCI cards will only work in a 5 V slot, 3.3 V PCI cards will only work in a 3.3 V slot and universal PCI cards will work in either. The cards are “keyed” which means that it is not possible to fit a card into a slot that uses the wrong voltage.

PCI-X

PCI-X is a revision to PCI that runs at much higher speed. PCI-X is backwards compatible with PCI, PCI cards will fit into PCI-X slots. The same voltage rules that apply to PCI also apply to PCI-X.

PCI-X is most commonly found on PC workstations, G4 and older G5 Macs.

PCI Express (PCIe)

PCIe is a replacement for PCI and PCI-X that uses a completely different electrical design. It offers much higher speeds and physically smaller connectors. PCIe is not backwards compatible with PCI – PCI and PCI-X cards will not work in PCIe slots.

PCIe is found on most new PCs, late-model G5 Macs and new Macs such as the Mac Pro. The most common arrangement is to have one 16x slot for the graphics card and then one or more 1x slots for expansion cards. Most cards used for cameras are 1x cards (these provide more than enough bandwidth).

It is expected that PCIe will completely replace PCI and PCI-X over the next few years.

Compatibility

This table shows what cards are compatible with each slot type. Note that electrical compatibility may not mean that the card will work – it is important to check that drivers are available for the operating system that will be used.

		Slot Type							
		PCI 5 V	PCI 3.3 V	PCI-X 5 V	PCI-X 3.3 V	PCIe 1x	PCIe 4x	PCIe 8x	PCIe 16x
Card Type	PCI 5 V	√		√					
	PCI 3.3 V		√		√				
	PCI Universal	√	√	√	√				
	PCI-X 5 V			√					
	PCI-X 3.3 V				√				
	PCI-X Universal			√	√				
	PCIe 1x					√	√	√	√
	PCIe 4x						√	√	√
	PCIe 8x							√	√
	PCIe 16x								√

Appendix B: IEEE 1394 (FireWire)

Some devices require an IEEE 1394 (FireWire) port to connect to the computer. This section discusses the different IEEE 1394 standards and compatibility issues.

IEEE 1394 (FireWire 400)

IEEE 1394 (FireWire 400) refers to an interface standard capable of data transfer rates of up to 400 Mbits/s.



Only IEEE 1394 devices can be connected through IEEE 1394 ports. IEEE 1394 expansion cards are widely available for most systems.

IEEE 1394b (FireWire 800)

IEEE 1394b (FireWire 800) refers to an interface standard capable of data transfer rates of up to 800 Mbits/s.



IEEE 1394b expansion cards are widely available for most systems.

IEEE 1394b ports can be used to connect IEEE 1394b devices (directly) or IEEE 1394 (FireWire 400) devices via a low cost adaptor or an IEEE 1394b to IEEE 1394 cable.

