

OASIS-Glide-S2 Installation Guide



Thank you for your purchase of the OASIS-Glide-S2 Scanning Stage. The Glide stage is a state-of-the-art scanning solution for automated microscopy tasks. The key features of the Glide are:

- Non-contact linear shaft motor technology for fast, quiet operation
- High precision encoded steel rails for precise and accurate positioning
- Built-in OASIS-USBi controller for convenient connection to the host computer
- Z-axis control output to drive external stepper focus drive systems from the integrated OASIS-USBi controller
- Support for Z-axis encoders for more accurate and reproducible focus operations
- Support for camera trigger I/O for advanced performance such as Objective Imaging's Turboscan fast mosaic imaging solution
- Magnetic sample holders for convenient specimen handling
- Compact design with easy sample accessibility

This Installation Guide takes you through the initial steps for unpacking, mounting, and installing the Glide stage and the associated OASIS software drivers and utilities.

Warnings



When the stage has been fitted to the microscope the power jack should be attached to the stage (see detailed instructions below) **BEFORE** connection to the power supply.



The stage motor shafts are strongly magnetic. Do not place any small ferrous objects (such as screws) near the shafts.



The stage rail system has an etched encoder scale on one edge. Avoid touching this as dirt or fingerprints may impair encoder function.



The Glide is fitted with a transit bolt when packed. When not under power the two axes move very freely and this bolt prevents movement in transit. We recommend that the bolt is left in place until the stage is ready to fit to the microscope, but it must be removed before operating the stage under power.



If the Glide stage is to be transported, the transit bolt **MUST** be re-fitted to the stage prior to shipping. Failure to secure the transit bolt prior to shipping can result in damage to the stage.



The Glide on-off slide-switch can be found on the underside of the stage, next to the 26-way high-density expansion connector. This switch slides towards the back of the stage for OFF and towards the dovetail mounting ring for ON. Leave the switch in the OFF position during installation.

Unpacking and Physical Installation

Package Contents

- **Glide Stage**
- **+24V Power Supply**
- **Right-Angled USB Cable**
- **Installation Software USB Thumb Drive**
- **Cable for Focus/Camera Trigger/Joystick (Optional)**

System Requirements

- **Windows XP, Windows Vista (32-bit/64-bit), or Windows 7 (32-bit/64-bit)**
- **USB 2.0 Port**

General Handling and Maintenance

The Glide scanning stage is a sophisticated item of scientific equipment and must be treated accordingly. Care should be taken to avoid shocks, abrasive surfaces, dirty environments, excessive humidity and extreme temperatures. Any normal office or laboratory environment is fine.

In general use the Glide stage requires no maintenance other than periodic gentle cleaning to remove dust and fingerprints. A soft, lint free cloth is recommended. Do not use abrasive cleaning materials or strong chemical cleaners as these may scratch or discolour the surfaces.

Avoid putting fingerprints on the steel guide rails as this may impair encoder function.

Overview of Installation

A few simple steps will get your Glide stage unpacked, mounted, and ready to use. The steps are:

1. Unpacking the Glide and its accessories.

2. Installing the optional Options Cable into the main HD-26 connector on the bottom of the Glide.
3. Removing the Transit Bolt.
4. Fitting the Glide onto the microscope.
5. Fitting the power supply cable first to the Glide and then to the main electrical supply outlet.
6. Installing the Glide driver and utility software.
7. Connecting USB cable to the Glide and then to the host computer.
8. Powering on the Glide.

Step 1—Unpacking

Your Glide stage is packed in a purpose-made box, designed to provide protection from transit damage. Although unlikely to occur, if there are obvious signs of damage to the packaging please notify us.

The top section of the packaging contains a tray with compartments within which will be the power supply module, the cables, a set of Allen (hex) keys, sample holders (if ordered) and a flash memory stick containing all necessary software. Removing this tray and its contents gives access to the Glide stage which is in the lower part of the box.

Please check that all parts are present before commencing installation.



We strongly advise retaining the packing box and transit bolt (see below) in case it should ever be necessary to return the stage or transfer it to another location.



Figure 1. Top layer of Glide packaging, showing power supply on the left, and cabling to the right.



Figure 2. Bottom layer of Glide packaging, showing the Glide stage in its protective foam.

Unpack stage and check for signs of damage. For some mountings, it may be necessary to remove the sub-stage carrier from the microscope stand in order to fit the stage more easily to the carrier.



The OASIS-Glide stage ships with a Transit Bolt that is mounted from the bottom of the stage to prevent movement during shipping. It is useful to keep the Transit Bolt in place during the first steps in installation, but be sure to remove it fully before use.

Step 2—Install Optional Focus/Trigger/Joystick Cable

The Glide stage has 3 connectors. The cable functions are as indicated in Figure 3. The Options Cable has a 26 way high density D-Sub connector. This cable may have various configurations depending on the type of focus and camera on the system. The cable will have clear labeling indicating the focus connector, the camera trigger and the connector for OASIS-Touch joystick.

If required, fit the cable to the expansion connector to the HD-26 socket. This is usually a tight fit, especially when new, so it is recommended to push the cable on just enough to be able to get the thumbscrews started in the mating threads and then use a screwdriver to fully tighten each of them a little bit at a time, until the connector is fully home. Do NOT use force or excessive pressure when connecting the cable.

Due to these concerns it is often best to fit the Options Cable prior to removing the Transit Bolt and mounting the Glide stage on the microscope. This will allow you to rest the stage inverted on a soft surface (e.g., the packaging foam rectangle is ideal) and fit the cable more easily whilst the stage is inverted.

Also, with the stage inverted you can readily notice the small green ON/OFF switch for the internal controller electronics. The OFF position is back towards the nearest edge of the stage.

The power and USB cables will normally be inserted once the stage has been attached to the microscope.

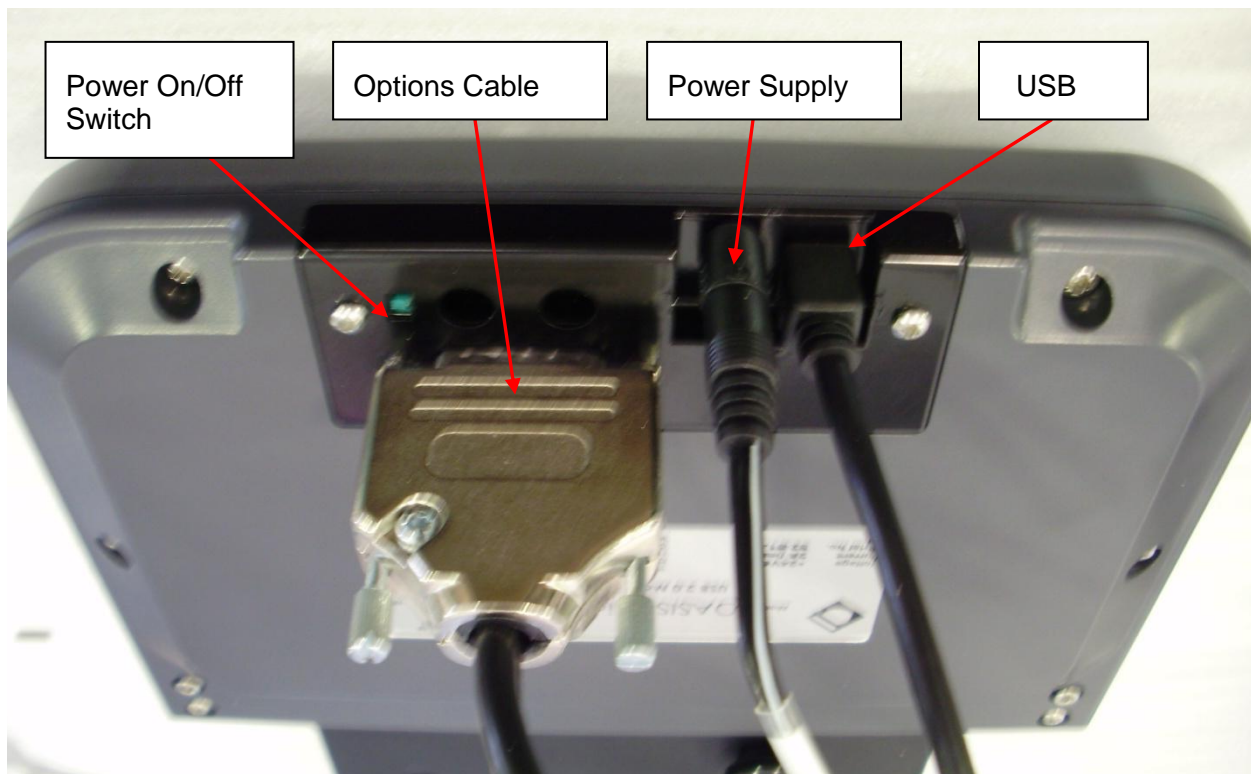


Figure 3. Glide stage cable connections (underside view).

Step 3—Removing the Transit Bolt

The Transit Bolt must be removed before use under power. This bolt is screwed through the base plate and into a hole in the underside of the top plate. To remove the bolt, invert the stage on a flat non-abrasive surface and unscrew the bolt anti-clockwise until completely free of the stage. The bolt should be retained for re-use.

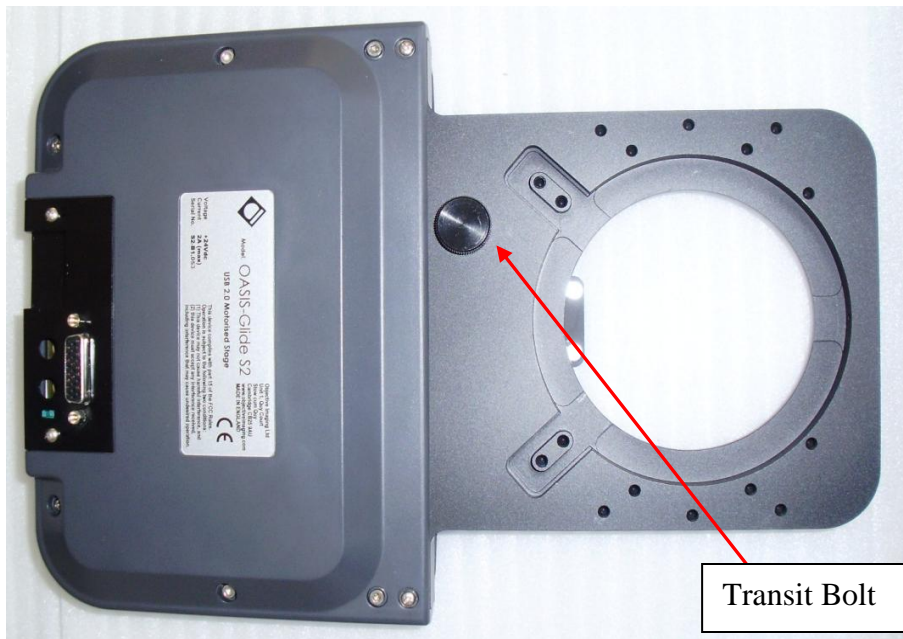


Figure 4. Transit Bolt location on the underside of the Glide stage.

To refit the bolt for transit insert and screw clockwise. It is important to position the stage so that you can see the hole in the top plate and ensure that it is located correctly in the hole. When fitted correctly the black head of the bolt is almost touching the base plate surface. Do **NOT** apply force or continue to screw in the bolt if there is any resistance. This indicates that the bolt is not located in the hole and using force will damage the stage.

Step 4—Fitting the Glide to the Microscope

Different microscope makes and models will require different variations of the actual fitting of the stage. The stage is mounted to the microscope sub-stage carrier either by various length adaptors which fit a circular dovetail or directly by means of the various drilled and tapped holes in the base plate. Mounting kits provide the correct length adaptors or screw mounts are available for various microscope makes and models. Please refer to the Appendices at the end of this guide for more information on particular microscopes. If the particular model of microscope that you wish to use is not shown please contact your local dealer or Objective Imaging directly for advice and assistance.



You may need to remove one or more of the microscope's objective lenses to ensure enough clearance to mount the Glide stage into place and prevent accidental damage to your objective lenses.

Depending on the microscope, you may find it possible to remove the sub-stage carrier and fit it to the Glide stage whilst it has been removed from the microscope stand. Note that in most cases the stage can be mounted so that the bulk of the stage overhangs either to the left or to the right of the microscope, depending on user preference. See Figure 5.

If the sub-stage carrier was removed for installation, fit the sub-carrier, now with the stage attached to it, onto the microscope and make sure that the locking set-screw that holds the sub-carrier onto the microscope stand is reasonably tight and that the Glide stage is secure onto the sub-carrier once the whole assembly is in place.

Alternatively, if the sub-stage carrier was not removed prior to installation, then fit the Glide stage onto the sub-stage carrier. Secure it in place either by the dovetail mounting set-screw or using the included mounting bolts.



Figure 5. The Glide-S2 stage fitted to a Leica Microsystems DM6000 microscope. Note the side mounting of the electronics assembly (under the grey cover). The Glide is designed to allow mounting with the electronics to either the left or right sides. See the Appenices for mounting instructions.

Step 6—Plug in the Glide Power Supply



The power cable should NOT be inserted into the Glide while under power. Instead, first connect the power lead to the Glide stage and then connect the Glide power supply to the mains electrical outlet.

Plug the 1.3mm right-angled power jack into the stage where the little recess is located next to the mini-USB connector.

Plug in the +24V power supply unit to the mains supply.

The Glide stage power supply comes with a number of slide-on adaptors to allow use in various countries. Alternatively, you could obtain a 'figure-of-eight' power lead with the correct mains plug, if a longer PSU lead connection is needed, or the PSU is too bulky to go straight into the wall socket.

Step 7—Install Software from USB Drive

Turn on the PC and insert the Installation Software USB Thumb Drive into an available USB socket. Note that during installation, both the USB Thumb Drive and the Glide stage itself will need to be connected to separate USB sockets.

Run the *Setup.exe* installation found on the USB drive. See the section “Software Driver and Utilities Installation” section below for more details.

Step 8—Connect USB cable

Connect the USB cable between the stage and the PC and also the focus motor, joystick and camera trigger, as necessary.

Step 9—Power on the Stage

At the rear of the Glide stage top cover is a small “window” located above the electronics indicator LEDs. This allows the user to confirm the status of the LEDs and check that power is reaching the electronics.



Switch on the stage using the green on-off slide switch underneath the stage. The blue LED ring around the joystick should illuminate (if fitted), and it should be possible to drive the stage around using the joystick.



There are NO physical limit switches fitted to the stage. Positional initialization is done using home sensors built into the encoder rails. As such it is normal and expected to hit the mechanical limits of travel.

When this happens under joystick control, you may hear a buzzing sound. Again this is normal; it's just the motor power being cut and restored rapidly.

If the end stops are reached during a normal move under PC control, the motor power is cut and that axis will move freely. Position is maintained thanks to the linear encoders etched onto the rails.

If the stage hits an object unexpectedly, or you physically overpower the motor torque, again the motor power is cut and the stage moves freely in the affected axes.

At this point the hardware installation of the Glide stage is complete. See the next section for details on installing the Glide stage device driver and software utilities.

Software Driver and Utilities Installation

Driver and Software Installation

Windows will detect the new device and plug-and-play will start the *Found New Hardware* wizard. Follow the *Found New Hardware* wizard steps. When asked to specify a search location, choose the USB Thumb Drive that contains the installation, or, if you have downloaded the installation files, choose the root folder containing the installation.

Once the plug-and-play installation is finished, you can then run the *Setup.exe* that is found on the installation disk. You will be shown the installation screen. Choose the option to **Install OASIS PCI Controller / Glide USB Stage** to install the interface software required for applications to use the stage. This will launch the OASIS installation wizard. Follow the on-screen prompts to finish the software installation.

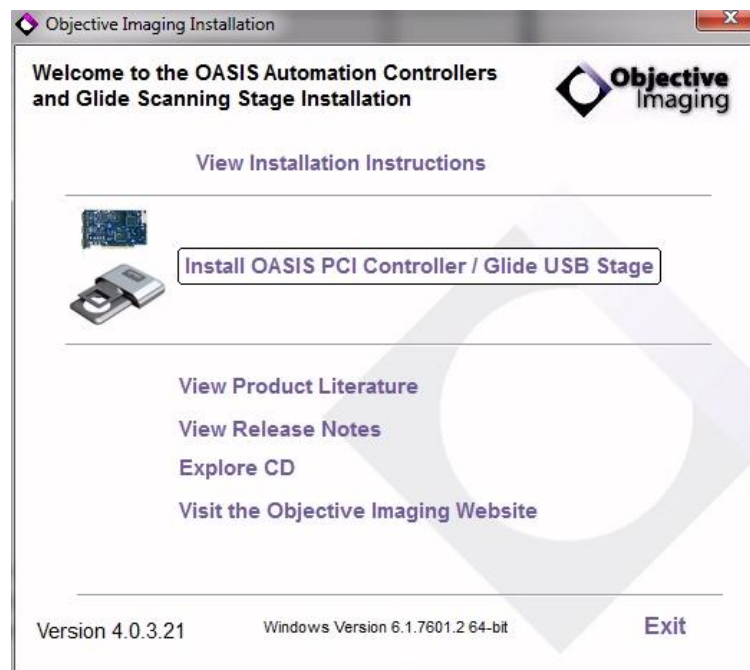


Figure 6. OASIS Controller and Glide Stage Installation Screen.

Installation Wizard

The OASIS installation wizard is used to install all the Objective Imaging automation controllers, including the Glide stage, the OASIS-blue PCI and PCI-express controllers, and the OASIS4i PCI controller. The wizard guides you through the installation with prompts allow you to install only the features you need.



Figure 7. Installation Wizard Welcome screen.

The first screen you see is the Welcome screen (Figure 7). Click Next > to continue.

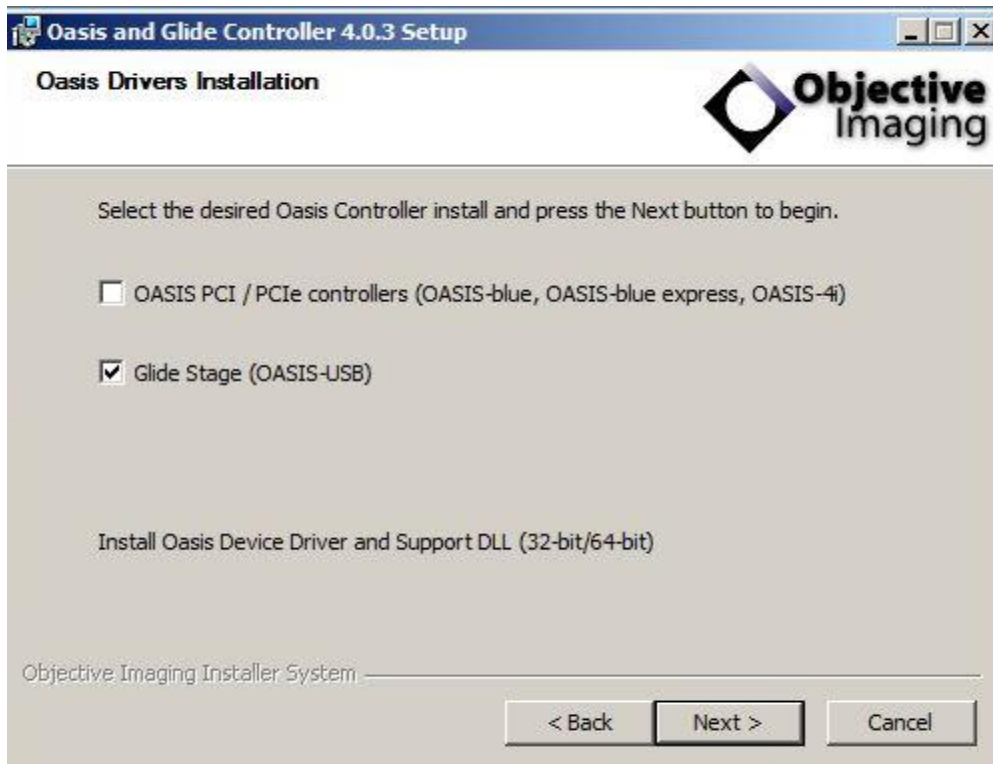


Figure 8. Installation Wizard Oasis Driver Installation Screen. Select the Glide Stage option.

Next you are shown the Oasis Drivers Installation screen (Figure 8). This screen allows you to select which Oasis controllers you wish to install. For the Glide stage, please ensure you click option for “Glide Stage (OASIS-USB)”.



Figure 9. Oasis Utilities Installation. The typical options for the Glide stage are shown selected.

Next you were shown the Oasis Utilities Installation screen (Figure 9). For the Glide stage, you generally would want the Oasis Controller Application, the Oasis Hardware Configuration Wizard, and the Glide Flash Application. These utilities allow you to configure and test the Glide stage and accessories.



Figure 10. Oasis SDK Installation. This installs the interface files for software developers to incorporate the Glide into their applications.

Next you are shown the Oasis SDK Installation (Figure 10). The Oasis SDK provides interface files and examples that allow developers to incorporate the Glide stage into their own applications.

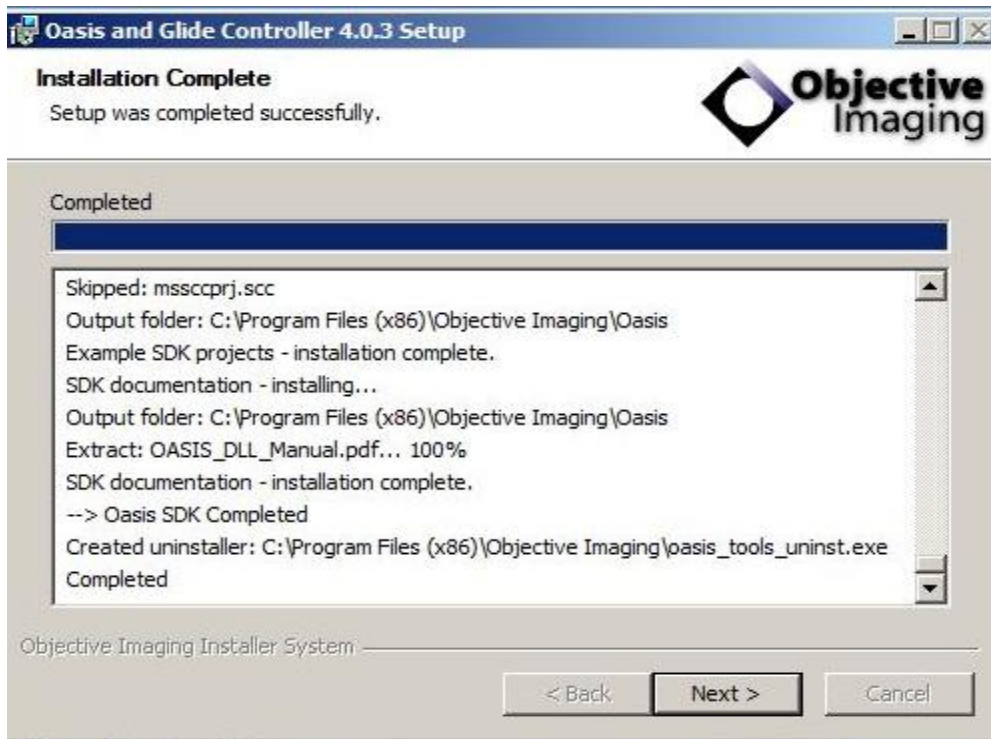


Figure 11. Installation Complete. The required files have been copied to the computer.

Next, the installation of the drivers, utilities, and SDK files commences. You will see the various steps listed in the status area. Once the installation is complete you will see the Installation Complete screen (Figure 11). Click Next > to continue.



Figure 12. Shortcuts screen. Typically both types of shortcuts are installed.

The final step in the installation is to choose which type of shortcuts you would like placed on your system (Figure 12). The Start Menu shortcuts option will place shortcuts to the utility applications under the Windows Start menu, under the Objective Imaging folder.

The desktop shortcuts option will place shortcuts on your desktop:



The Oasis Controller application is a general purpose application allowing you to test and control most aspects of the Oasis Controller hardware and software. It includes features for displaying system status, control of the XY stage and focus, as well as configurations for 3rd party devices such as automated microscopes. The Oasis Controller application includes a simply mark and relocate facility allowing you to store and recall various XY and Z locations.



The Oasis Configuration Wizard provides step-by-step instructions for configuring your Oasis controller's hardware and software. Three wizards guide you through the overall controller system hardware, the setup of encoders, and the configuration of the joystick settings.



The Glide Flash Configuration application allows you to view and change the lower-level settings that are stored in the flash memory of the internal OASIS-USBi controller found in the Glide stage. Examples of flash memory settings include definition of acceleration rates for XY and Z, calibration of the Z-axis motor, encoder settings for the Z-axis motor, and joystick control settings.



Figure 13. Installation finished.

When the installation is complete, you will be shown the Finish page (Figure 13). Click Finish to exit the installation wizard.

Configuration and Test

Configure the stage flash memory settings as necessary using the GlideFlash.exe utility. This might be necessary if the focus mechanism has limit switches and/or you need to reverse the direction of movement etc. Please refer to the *GlideFlash.pdf* document including in the Docs folder of the installation disk for more details of how to use this utility. You will need to power-off and back on the stage for changes made to the flash memory to take effect.

Check out the functionality of the stage using the OASIS Controller application.

Please note some functions may not be applicable to the Glide stage and are usually greyed-out. Please check the Objective Imaging website (www.objectiveimaging.com), or with us directly at support@objectiveimaging.com, for software updates and further information.

APPENDICES

Installation Guides for Certain Microscopes

APPENDIX A

Zeiss AxioImager

These notes describe the method of fitting the Glide stage to the Zeiss AxioImager microscope series which have the circular dovetail sub-stage carrier.

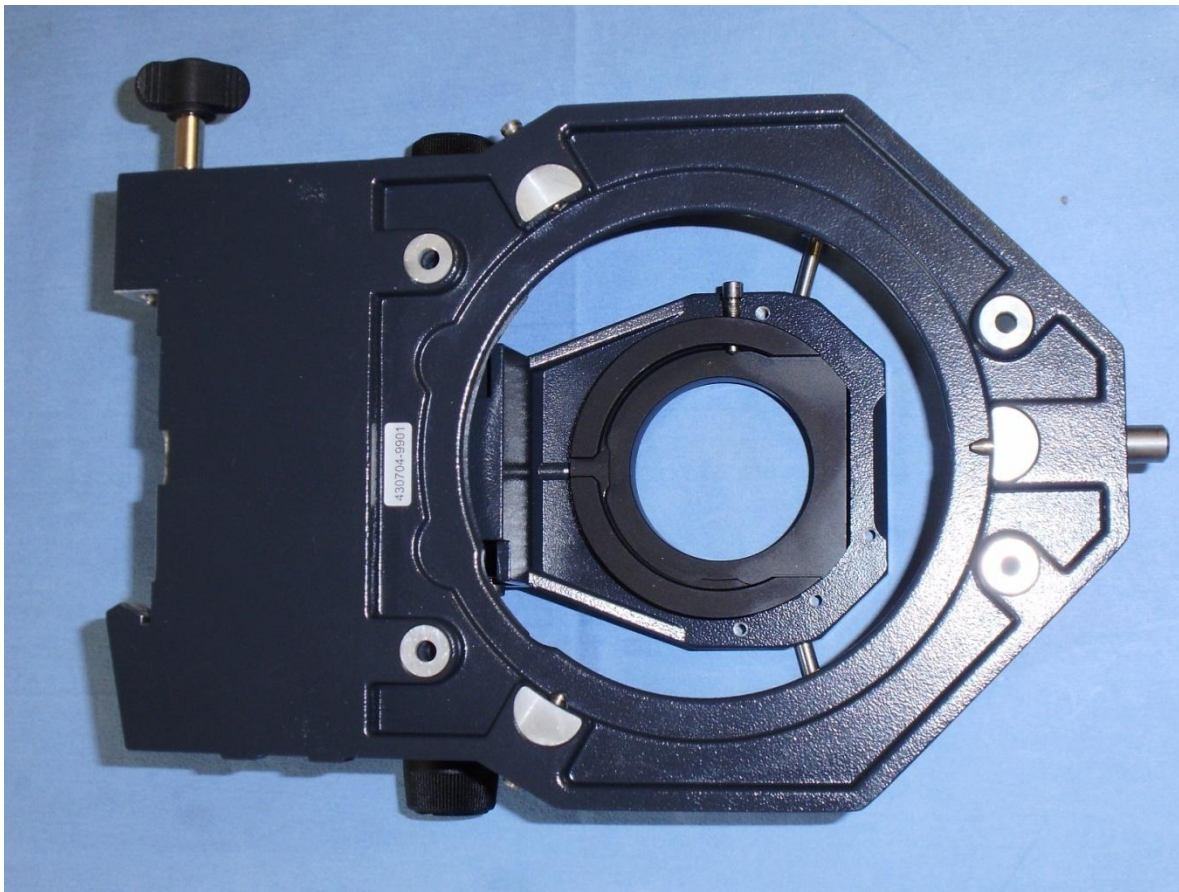


Figure A- 1. Zeiss AxioImager Stage Carrier (viewed from above).

The stage carrier (see photo above) should be removed from the microscope following the manufacturer's instructions.

With the OASIS Glide stage is supplied a small bag of fixing bolts of different lengths. The fixing holes on Zeiss AxioImager are of different lengths with the two rearmost holes requiring significantly longer screws than the two front holes.

Insert bolts into the holes from beneath so that the end of the bolt protrudes through the top surface of the stage carrier. The correct sized bolt should protrude approximately 2 mm above the top surface.

Place the OASIS-Glide stage carefully onto the slide carrier so that the holes in the stage base plate are aligned with the 4 matching holes in the stage carrier.

Insert the selected bolts and gently tighten using the allen key set provided. When correctly fitted the stage base should be resting flush with the top of the stage carrier and there should be no movement or space between the two parts. If necessary, to ensure a perfect fit, one or two washers (supplied) may also be fitted beneath the stage carrier.



Under no circumstances should excessive force be used.

Once the stage is fitted correctly the entire assembly (Stage carrier and stage) should be re-attached to the microscope.

Note that it is possible to fit the Glide stage on either side of the microscope.

It is also possible to fit the stage with the stage carrier attached to the microscope. To do this it is necessary to have a long (screwdriver style) allen key ideally with a ball end.

APPENDIX B

OLYMPUS BX / LEICA DML

These notes describe the method of fitting the Glide stage to either Olympus BX series microscopes or the older Leica DML series. In both of these microscopes the stage carrier comprises a male dovetail ring of 105mm diameter.

Two wedges are required in the stage base plate. Each wedge is secured by 2 M4 x 6 CSK screws. These are highlighted in Fig. 1 below. In the front of the stage is a tapped hole into which a setscrew (M3 x 10) should be inserted. This should not protrude into the area that will be occupied by the dovetail ring.

Where the microscope type was known at the time of stage shipping the wedges and setscrew will normally have been pre-fitted. Where this is not the case they will be provided in the fitting kit with the stage.

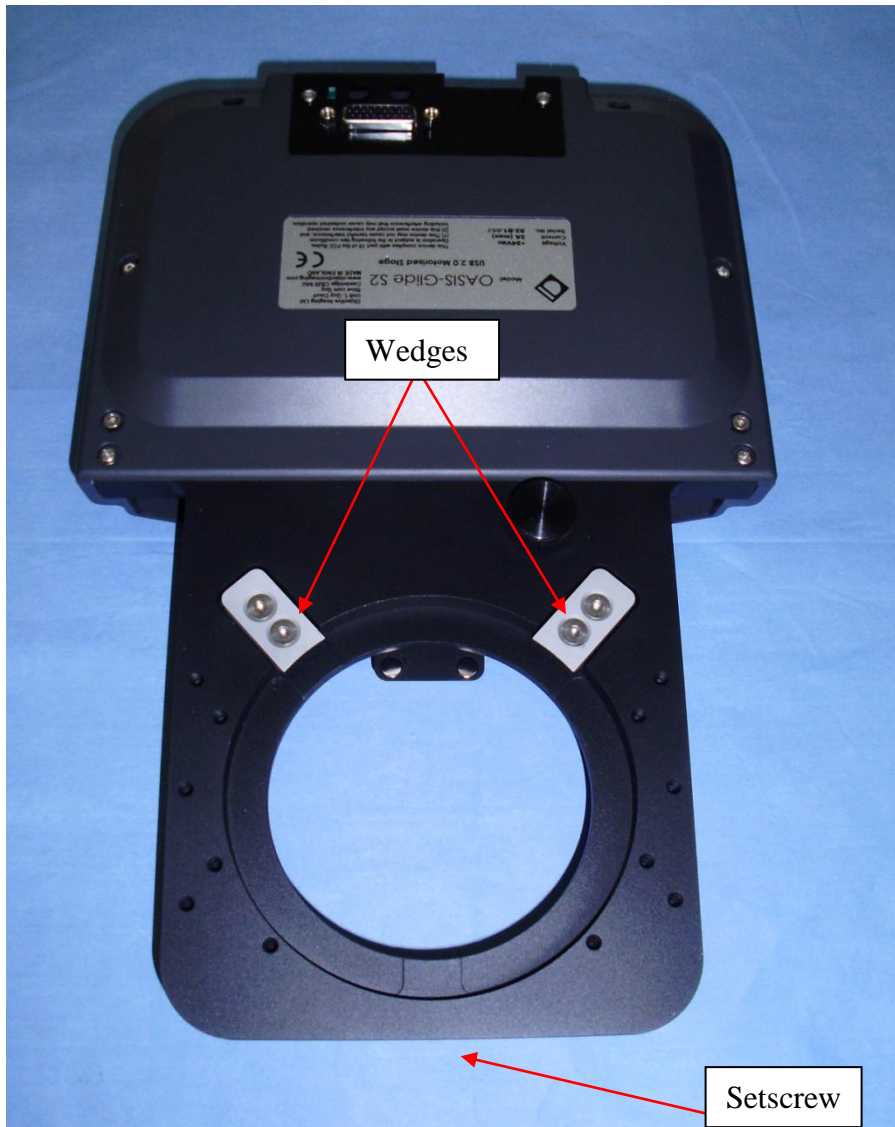


Figure B- 1. Glide base showing wedges fitted and position of setscrew.

With the wedges and setscrew in the correct positions, carefully place the stage over the dovetail ring on the stage carrier making sure that it is properly seated, is level and is at mounted parallel to the throat of the microscope. When in the correct position carefully tighten the setscrew in the front of the stage using a 1.5mm socket driver making sure that it is securely fixed.

Note that the Glide stage can be fitted either on the left or right hand side of the microscope.

The image below shows a Glide stage fitted on an Olympus BX50,



Figure B- 2. Glide stage fitted to Olympus BX50.

APPENDIX C

LEICA DM SERIES (Except DML)

These notes describe the method of fitting the Glide stage to Leica DM4000, DM5000 and DM6000 as well as some older models such as DMR.

For these microscope models the Glide stage is bolted directly to the stage carrier. A picture of the stage carrier is shown below.

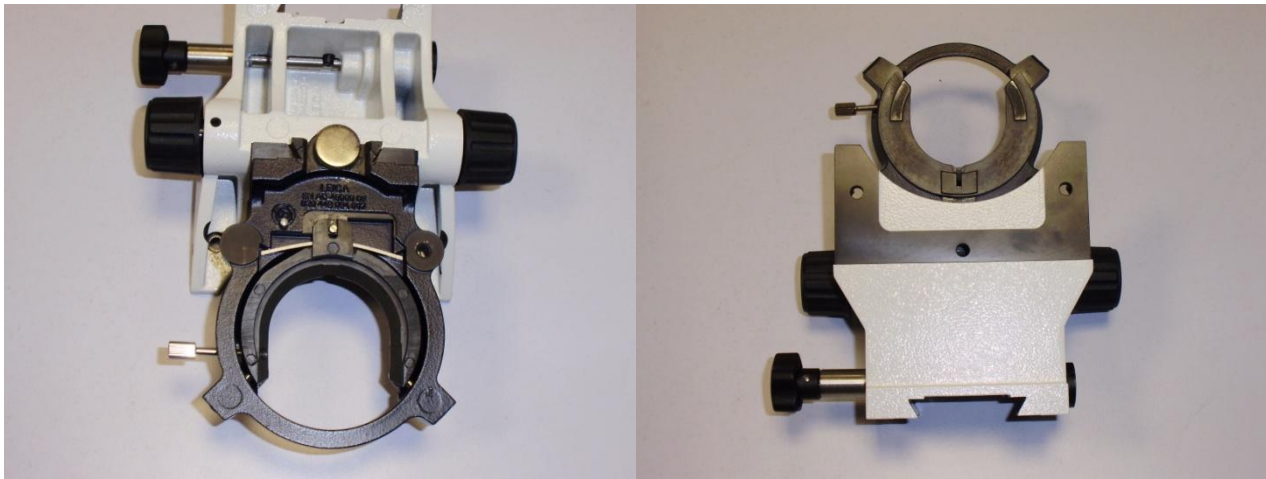


Figure C- 1. DM stage carrier from below (left) and above (right).

To fit the Glide stage to this stage carrier it is necessary to remove it from the microscope. See Leica user manual for instructions on removal and fitting of stage carrier / condenser.

With the stage carrier removed (as shown above) it needs to be bolted directly to the underside of the Glide stage using M4 x 6 SKT CAP screws (provided). See Figure C- 2below.

Since the Glide stage is much lighter than most motorised stages it is normally sufficient to use just 2 of the mounting holes as shown. If, for some reason, mounting using 3 holes is required then the condenser holder will have to be removed to gain access to the bolt hole.

Two of the three holes to match the Leica DM stage carrier are pre-drilled and tapped in the Glide base plate. The position of the third hole coincides with the position where wedges would be fitted for use with dovetail ring fittings. For this reason we have designed a special wedge for use with Leica DM. This is secured to the Glide base plate with a single M4 x 6 SKT CSK screw. This wedge has a pre-drilled and

tapped hole in the position needed for Leica DM stage carrier attachment. This is shown in the photo (Figure C- 2) below.

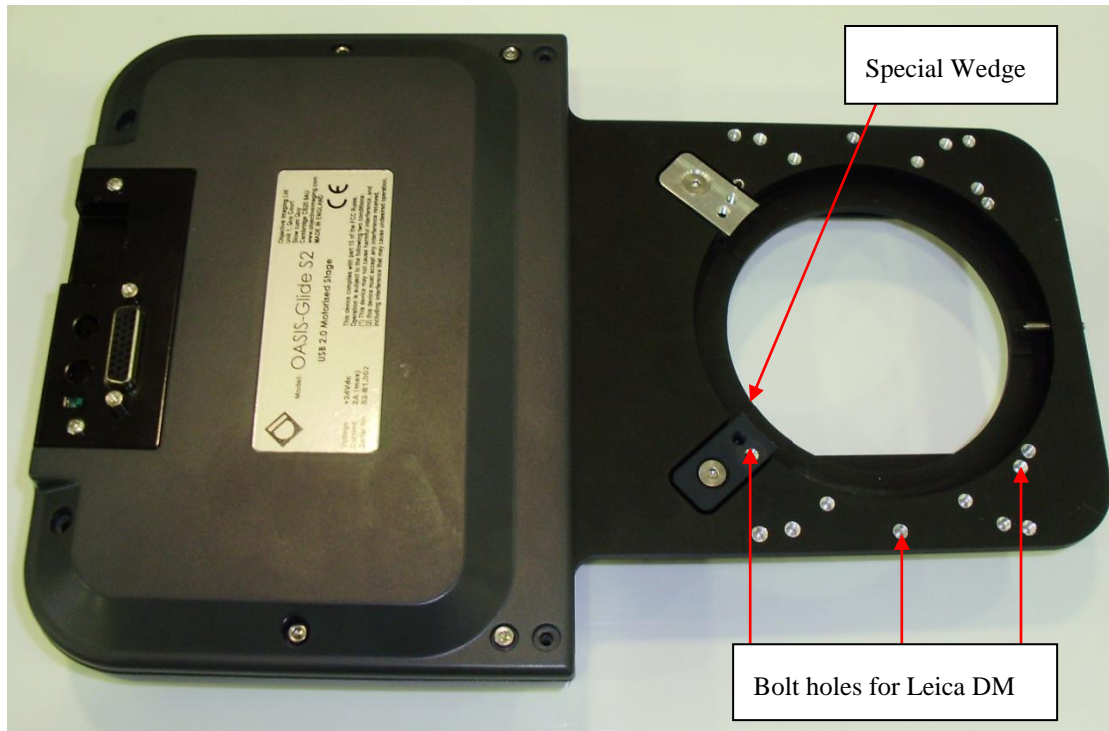


Figure C- 2. Leica DM holes and special wedge fitted to Glide base plate.

Note that the wedge can be fitted on either side of the base plate, allowing the stage to be fitted on the left or right of the microscope. Figure C- 3 shows the DM stage carrier attached to the Glide

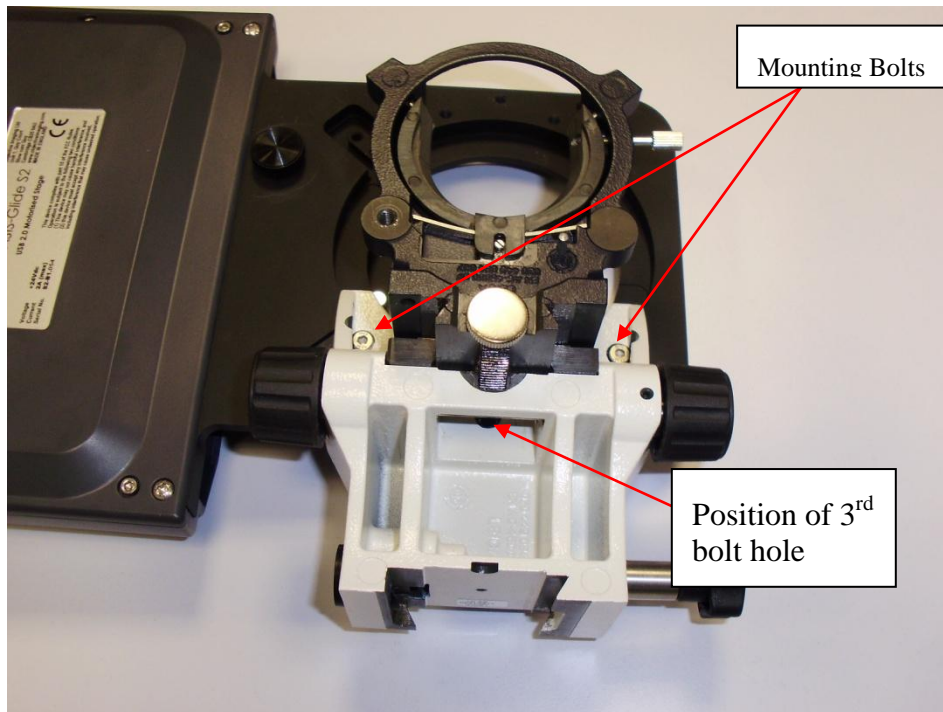


Figure C- 3. Leica DM stage carrier attached to Glide.

Once the stage has been secured to the stage carrier the entire assembly should be mounted to the microscope as normal and in accordance with Leica instructions. A photo of the stage fitted correctly is shown in Figure C- 4.



Figure C- 4. Glide stage on Leica DM6000.

APPENDIX: D

NIKON ECLIPSE SERIES

These notes describe the method of fitting the Glide stage to Nikon Eclipse series microscopes. For these microscopes the stage carrier comprises a male dovetail ring of 95mm diameter.

Two wedges are required in the stage base, each secured by 2 M4 x 6 CSK screws (see Figure D- 1). In the front of the stage is a tapped hole into which a setscrew (M3 x 20) should be inserted. This should not protrude into the area that will be occupied by the dovetail ring.

Where the microscope type was known at the time of stage shipping the wedges and setscrew will normally have been pre-fitted. Where this is not the case they will be provided in the fitting kit with the stage.

The image below shows the Glide base plate with the correct wedges attached.

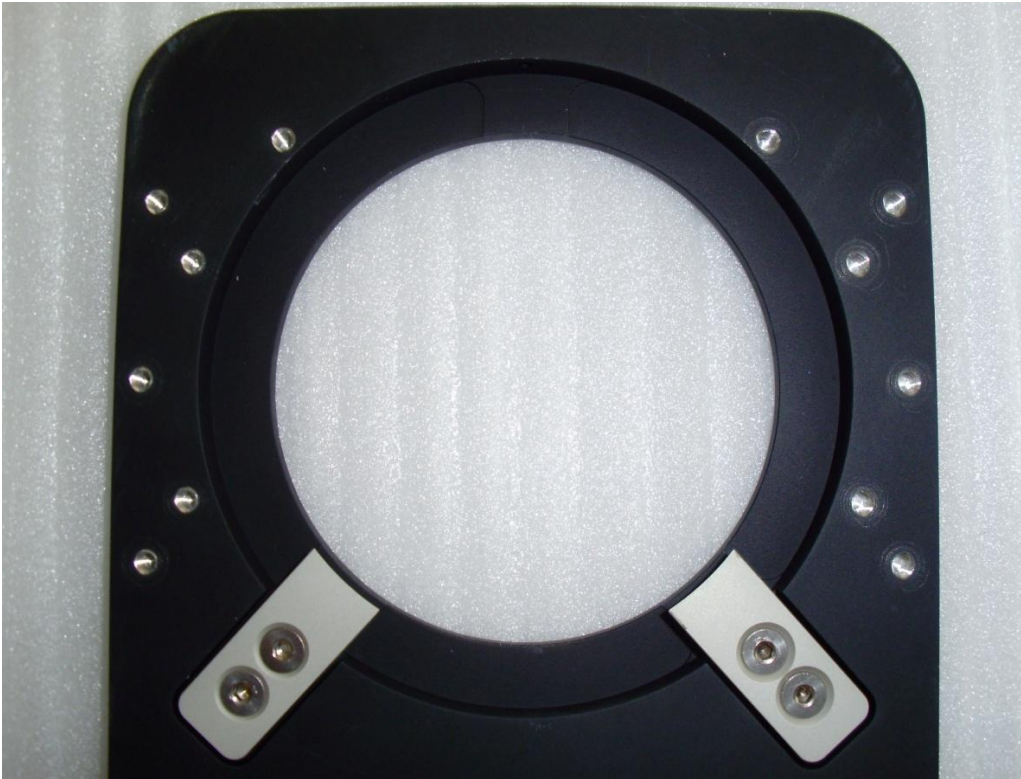


Figure D- 1. Glide base with Nikon Eclipse wedges fitted.

With the wedges fitted the stage is mounted on the dovetail ring of the stage carrier and secured by tightening the setscrew at the front of the stage using an M1.5 socket driver.

Ensure that the stage is mounted level and well secured before attaching cables and using it.

Note that the stage can be fitted on either the left or right side of the microscope.

A correctly mounted stage is shown in Figure D- 2.



Figure D- 2. Glide attached to Nikon Eclipse.