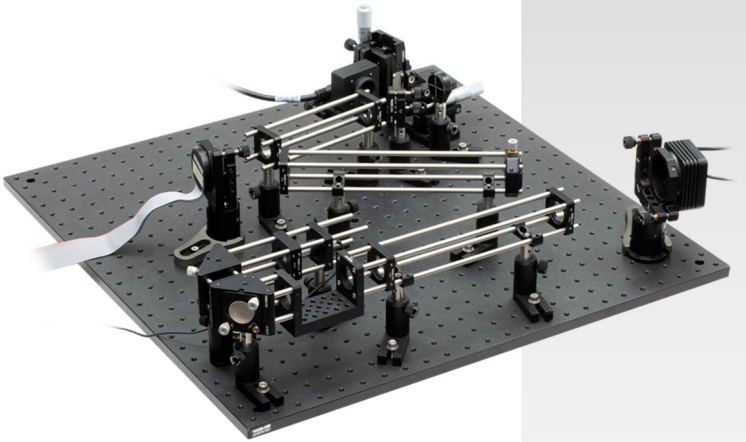
THORLABS

AOK5(/M), AOK8(/M), AOKWT1(/M) Adaptive Optics Kits

Software Quick Start Guide



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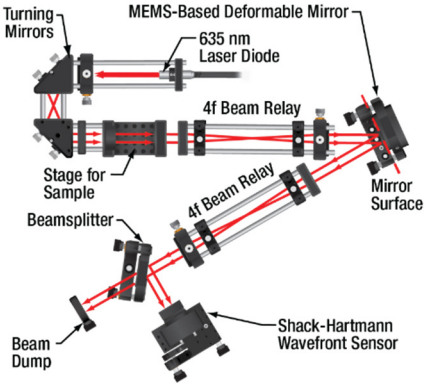
Chapter 1 Assembly

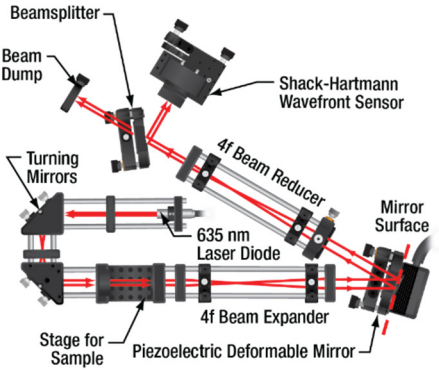
CAUTION

Make sure that the Thorlabs AO Kit software is properly installed, and all the devices are connected and powered on.

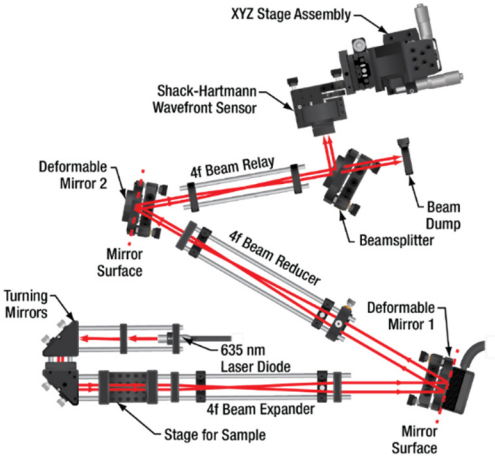
AOK5(/M) Kit Assembly



AOK8(/M) Kit Assembly



AOKWT1(/M) Woofer-Tweeter Kit Assembly



Please see Thorlabs Adaptive Optics Kit User Guide for more information about system assembly.

Chapter 2 AO Kit Software Installation

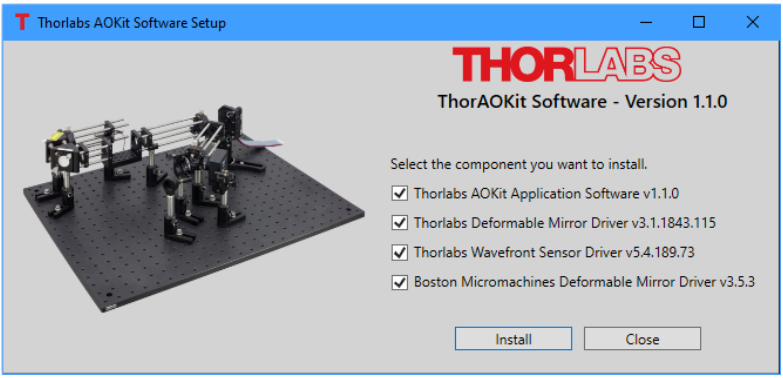


Figure 1 ThorAOKit Software Installation

1. Insert the ThorAOControl Software USB driver into an available USB port.
2. Run “ThorAOKit_Setup.exe” from \Setup folder to launch the setup window as shown in Figure 1.
3. Select the components you want to install.
4. The installation of Thorlabs Wavefront Sensor driver and Thorlabs Deformable Mirror driver may require the restart of the computer. After the restart of the computer, the installation of Thorlabs Wavefront Sensor driver and Thorlabs Deformable Mirror driver will resume. Wait until the installation finishes, and Run “ThorAOKit_Setup.exe” from \Setup folder again.
5. After the installation of the Boston MicroMachines Deformable Mirror driver, user needs to copy the device-specific files to the proper locations. The device-specific file include Deformable Mirror Profile (.dm) and the Flat Map Commands file.

Chapter 3 AO Kit Software Instructions

1. Make sure all the devices are connected and powered on.
2. Start the ThorAOControlApp application. From the Main window, click **User Profiles->Load Default User Profile** button. A user profile titled Default appears on the Main window. See Figure 2.

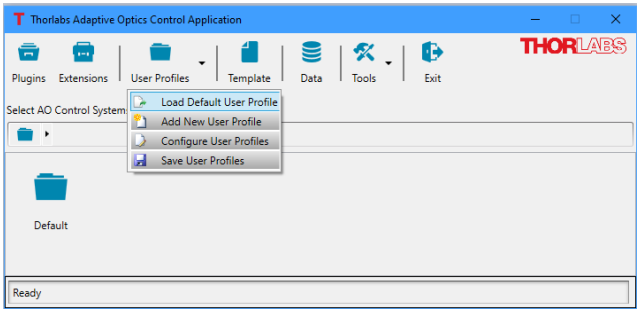


Figure 2 Load Default User Profile

3. From the Main window, click **User Profiles->Configure User Profiles** button. The User Profiles window is displayed. The top-right section of the AO Control Systems Groups panel shows the information of the control groups, the control systems and the Processors (in available) included in the Default user profile. The bottom-right section shows the information of the sensor devices and/or controller devices used in the highlighted control system. At this step, no physical devices have been selected and the information of the Element Provider and the Resource Name are blank. See Figure 3.

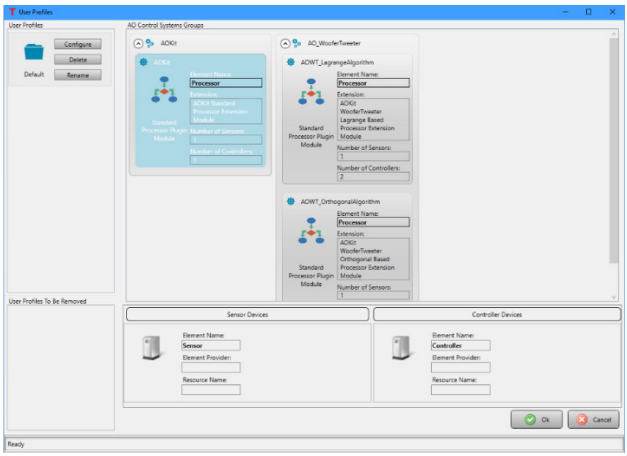


Figure 3 User Profiles Window

4. From the User Profiles window, click **Rename** button within the highlighted Default user profile to change the name of the user profile to the desired one.
5. From the User Profiles window, click **Configure** button within the highlighted Default user profile to select the devices for the AO control systems. This will open the Configure User Profile window. See Figure 4.

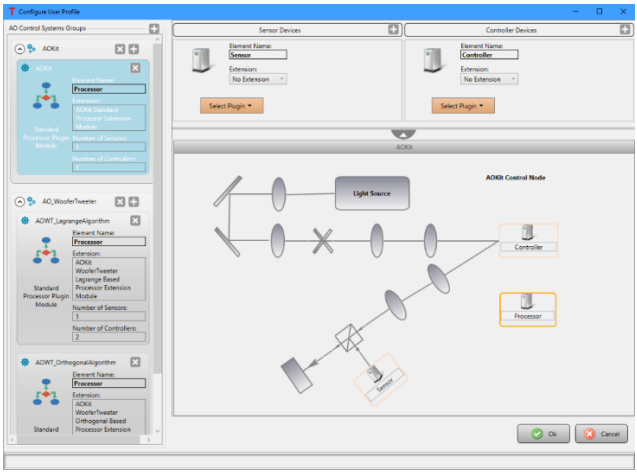


Figure 4 Configure User Profile Window

6. In the Configure User Profile window, from AO Control Systems Groups panel, select the control system to which the devices will be assigned:
   (1) Use one of the following steps to add a Sensor device:
      a. Below the Sensor Devices category, click the Select Plugin button. It will be blinking orange/grey. Select the desired device from the list of available sensor devices.
      b. Or if a template is shown in the template area, right-clicking Sensor element will cause the button to blink orange/grey and bring up a context menu. Click Select Plugin and select the desired device from the list of available sensor devices.
   (2) Use one of the following steps to add a Controller device:
      a. Below the Controller Devices category, click the Select Plugin button. It will be blinking orange/grey. Select the desired device from the list of available controller devices.

   b. Or if a template is shown in the template area, right-clicking Controller element will cause the button to blink orange/grey and bring up a context menu. Click Select Plugin and select the desired device from the list of available controller devices.
7. In Configure User Profile window, click Ok button to close the window, which will update the User Profiles window to include the details about the devices assigned to the control system.
8. In User Profiles window, click Ok button to close the window, which will update the Main window. For the control system with all the devices been assigned, the Open System button is enabled and the control system is ready to operate.
9. Please see Thorlabs Adaptive Optics Kit User Guide for how to use AO Kit software.

Operation Tip: Adjusting the singular values in the software can greatly impact performance and the user should include adjustments to the ranges in optimizing a system. To start, for a BMC mirror try setting the Lower Threshold to 2 and the Upper Threshold to 55 and for the DMH/DMP start with a Lower Threshold of 1 and the Upper Threshold of 8. Refer to the manual for more information

Chapter 4 Thorlabs Worldwide Contacts

For technical support or sales inquiries, please visit us at
www.thorlabs.com/contact for our most up-to-date contact information.

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