

26. XYZ Stage tool



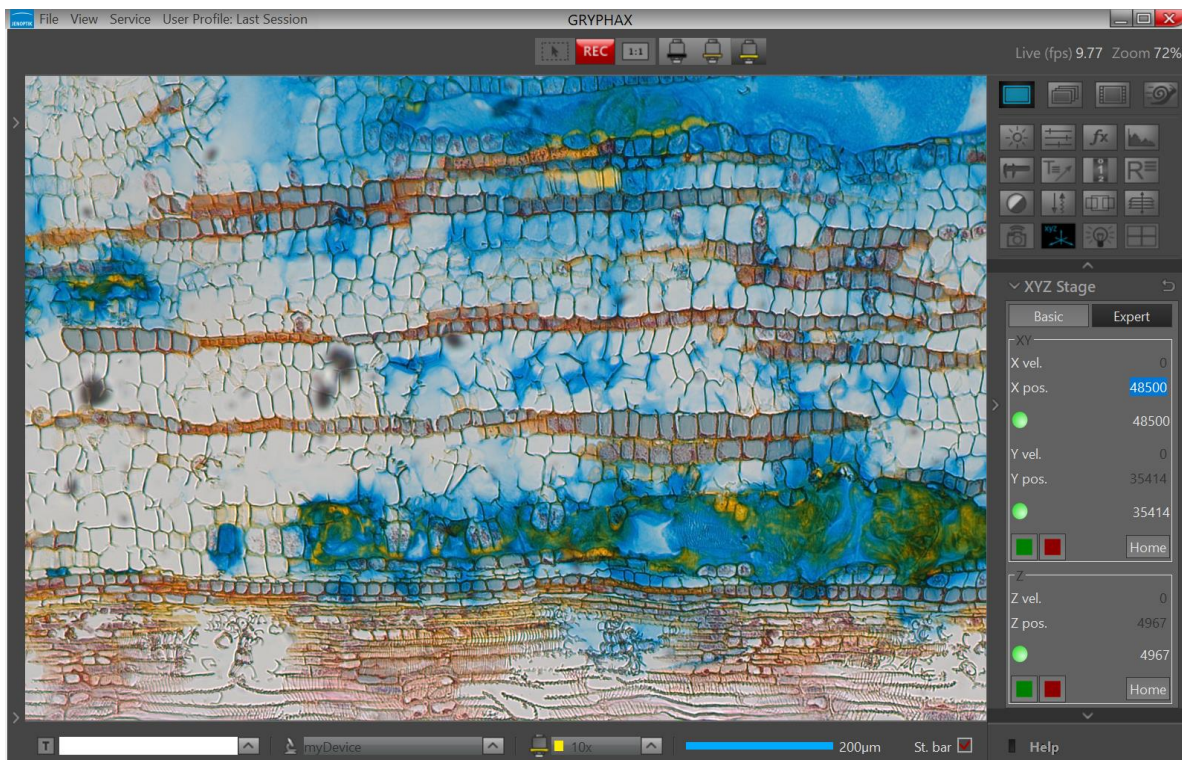
XYZ Stage tool of JENOPTIK GRYPHAX® software

General description:

The “XYZ stage tool” of JENOPTIK GRYPHAX software enables user to control **automation systems include motorized stages** from 3rd party manufacturers.


The motorized stage devices are supported to intuitive controls manually X, Y and Z-axis directly inside at GRYPHAX application by fly-by-wire control.

Overview JENOPTIK GRYPHAX software with activated XYZ Stage tool:



Open Tool bar:

All JENOPTIK GRYPHAX tools are located at the “Toolbar”.

To **activate** the “XYZ stage tool” open the software “Toolbar” by pressing the arrow  on right-hand software site or use keyboard short cut (**ctrl / cmd + T**)



General preparation:

To detect and operate with connected motorized stages from 3rd party manufacturers the correct COM port for communication must be pre-set at the default software settings file "default.ini".

To observe the correct COM port, open System preferences / device manager of Operating System (OS).

Check the section "Ports (COM)" and notice the valid com port number of connected stage controller.




Go to GRYPHAX target folder e.g. C:\Program Files\Jenoptik\GRYPHAX-V2.2.0.xxx\bin\Settings\

Open "default.ini" file by editor and add the used COM port number under line:

PriorDevices\ScanPort="number"

```
#PRIOR device communication port
PriorDevices\ScanPort=7
```

Figure 1 default.ini


Afterwards save file and restart GRYPHAX application. The PRIOR stage would be detected and XYZ stage tool  will be available.

Note: Permission of full control is necessary to save or change file under system folder C:\Program Files\.

In the unlikely case that the tool does not appear, please check whether the correct port number is used and the stage controller is turned on. Test stage and controller by manufacturer demo application.

Important Note: Do not change any other entry at file "default.ini"! Otherwise, the whole software would not work anymore!

26.1 Open Stage tool:

To open XYZ stage tool* click to the tool icon  at the "Toolbar", the stage widget will be opened and contains two separate mode tabs for:



"Basic" – for manually stage control to control X, Y and Z-axis with joystick slider

"Expert" – for manually stage control by using specific positions, speed settings and additional expert options



26.2 Preparation:

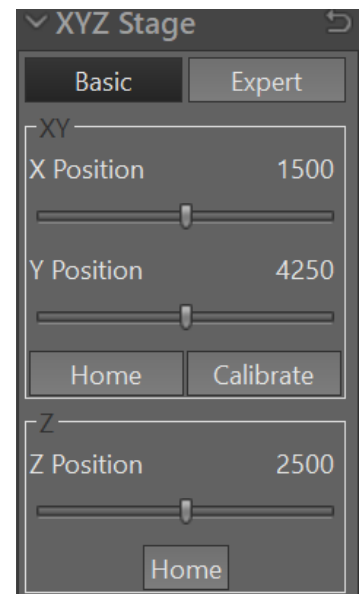
To **operate** with XYZ Stage tool the motorized stage device must be calibrated for home position for all axis's (X, Y ,Z) after each software start! Otherwise, tool controls are not available.

To **perform** home position calibration and re-calibrate of stage – press the according buttons

“Home”  on the tool widget!

Basic tab is activated as default; it contains **software joystick control** of XYZ:

- **X Position slider** – to control X-axis by joystick slider and display the current position; sider combines speed and increment
- **Y Position slider** – to control Y-axis by joystick slider and display the current position; sider combines speed and increment
- **Home button** – to reset X- and Y-axis home position and re-calibrate stage – necessary to operate with stage after each software start!
- **Calibrate button** – to optionally calibrate device for measurement calibration **automatically by stage control**
- **Z Position slider** – to control Z-axis by joystick slider and display the current position; sider combines speed and increment
- **Home button** – to reset Z-axis home position and re-calibrate stage – necessary to operate with stage after each software start




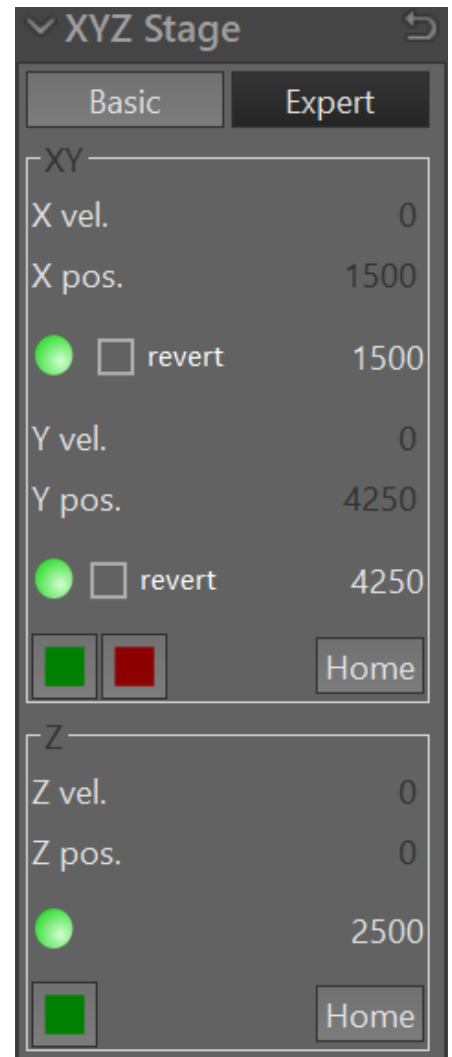
Note: To operate with XYZ-stage tool the COM port must configured beforehand and re-calibrate for home position of stage is necessary after each software start! Otherwise, tool controls are not available.

Important Note: Always keep attention to the motorized stage and microscope during automatic home calibration and auto measurement calibration. User is always responsible for any stage movement during operation!



Expert tab contains the following expert functions:

- **X velocity** – set X-axis velocity by enter value if supported
- **X position** – set X-axis position by enter value
- **Status LED**
 - grey – no stage support or no home calibration done
 - green – target position reached
 - orange – indicates stages movement
 - red – emergency stop or error occur (restart home calibr.)
- **Revert check box** – to invert X-axis movement
- **Y velocity** – set Y-axis velocity by enter value if supported
- **Y position** – set Y-axis position by enter value
- **Status LED** – see description above
- **Revert check box** – to invert Y-axis movement
- **Stop & Emergency Stop buttons** – to force the X/Y axis of stage to stop movement gently or promptly
- **Home button** – to reset X- and Y-axis home position and re-calibrate stage – necessary to operate with stage after each software start!
- **Z velocity** – set Z-axis velocity by enter value if supported
- **Z position** – set Z-axis position by enter value
- **Stop & Emergency Stop buttons** – to force the Z-axis of stage to stop movement gently or promptly
- **Home button** – to reset Z-axis home position and re-calibrate stage – necessary to operate with stage after each software start!
-  **Reset button** – to reset back to factory settings



*(Available as of JENOPTIK GRYPHAX version 2.2 or newer)

Note: To operate with XYZ Stage tool the COM port must configured beforehand and re-calibrate for home position of stage is necessary after each software start! Otherwise, tool controls are not available.

Important Note: Always keep attention to the motorized stage and microscope during automatic home calibration and auto measurement calibration. User is always responsible for any stage movement during operation!



26.3 Perform Auto-Calibration:

Automatic-(measurement)-Calibration – option is supposed to calibrate measurement for the active device configuration **automatically** by stage movement within a regular specimen under microscope.

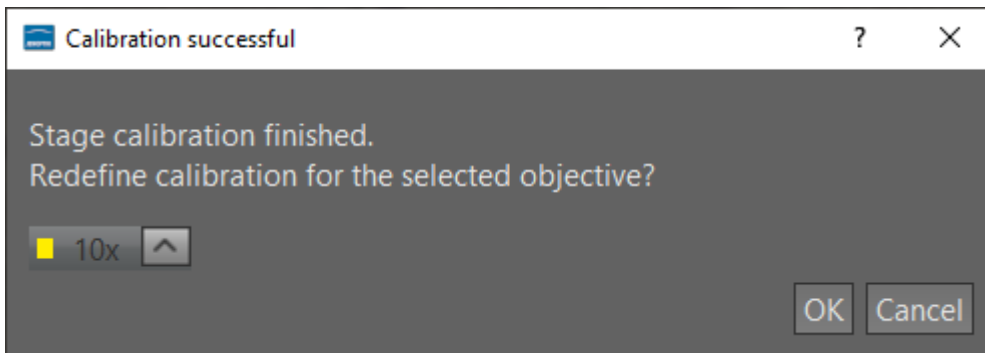
Insert a specimen with a well-defined and non-recurring structure. Set image brightness to regular and well-exposed value.

Press the “Calibrate”  button to **start** the automatic calibration procedure. This will takes several seconds.

The stage will move in X- and Y-axis and calibrate the device setup. During process, an overlaid rectangle will be displayed and user can observe the movement on image window.

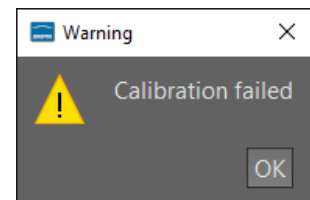


After successfully calibration, a pop-up message window will appear to **define** the current used magnification from the microscope. **Select** the magnification according from drop down list and accept by “OK” button.



Now the used magnification is calibrated and other lens / objectives can be calibrated as well. All calibrations and updates are synchronized to the current “**device configuration**” and user settings.

In the unlikely case that the automatic calibration failed, a warning message will be displayed. Please change stage position or change specimen and proceed the calibration once again.





Note: **Do not remove** the specimen **before** procedure is finished. Avoid any vibrations to the scope! Otherwise, the calibration results would be incorrect!



Tool status:

- Activated tools are highlighted in **blue**. Click on tool icon again to deactivate appropriate tool.
- Tools which are not access able are “greyed out” by software automatically and cannot be reached.

Collapse / expand  button on each tool to hide separate widgets on active tool section.

Reset button  on a tool sets all properties to their initial values. Initial values are fixed.

Video tutorial:

Not available, yet.

Limitations:

- Only PRIOR Scientific motorized stages supported. More 3rd party device support planed.
- Deactivated during XY scan tool operation.