

Microscope Control Program

1. Starting the Program

To run the microscope control software, double-click the desktop icon labeled:

"Microscope Control Program"

Ensure that the microscope hardware and all connected components are powered on and properly connected before launching the program.

2. Features

- **Stage Control:** Move the microscope stage along the X and Y axes (one axis at a time).
- **Focus Control:** Adjust the motorized Z-axis focus.
- **Objective Control:** Change the current objective lens.
- **Reflector Control:** Switch between available reflectors.
- **Light Control:** Toggle the illumination shutter and adjust the light intensity.

Adaptive Stage Speed: The stage movement speed automatically adjusts according to the magnification of the currently selected objective lens. Higher magnifications reduce the stage speed proportionally, and lower magnifications increase it. This adaptive behavior can be disabled by unchecking the *"Use Adaptive Speed?"* checkbox in the interface.

3. Keyboard Shortcuts

3.1. Stage Control

- **W / A / S / D** — Move the stage Up / Left / Down / Right.

3.2. Focus Control

- **Up Arrow / Down Arrow** — Move the focus Up / Down.

3.3. Stage Speed Adjustment

- **Z** — Decrease XY stage speed.
- **X** — Increase XY stage speed.

3.4. Focus Speed Adjustment

- **Left Arrow** — Decrease focus speed.
- **Right Arrow** — Increase focus speed.

3.5. Objective and Reflector Control

- **Q / E** — Change objective to previous / next position.
- **Ctrl + Q / Ctrl + E** — Change reflector to previous / next position.

3.6. Light Control

- **L** — Toggle the light shutter on or off.
- **,** (comma) — Decrease light intensity.
- **.** (period) — Increase light intensity.

4. Potential Issues

Issue: One or more sections are missing from the control program

Cause: The program only adds a section if the corresponding microscope components are detected.

Solution: Check that all components are powered on and plugged into the computer, then restart the program.

Issue: The program appears to be frozen on startup

Solution: Double-click the desktop icon labeled "**Restart MTB Server**" and then restart the program. If the issue persists, restart the computer.

Issue: The buttons in the control program do not match the microscope components (e.g., a reflector position appears as "null")

Cause: The MTB configuration file needs to be updated to reflect the current microscope setup.

Solution:

1. Ensure all components are plugged in and powered on.
2. Open the **MTBConfig2011** program.
3. Begin the **AutoConfig** process and write the configuration to **Main Microscope**.
4. When prompted about the stage (default is "Manual Stage/No Stage"), select **Motorized Stage 130x85 (WSB Piezodrive)**.
5. For all other prompts, choose the default options.
6. Once configuration is complete, save it and ensure it is set as the **active microscope configuration**.

End of Instruction Sheet