



**MRT-1045.2S**  
**"SWAK-OS Calibrate Video Scale"**

To perform the video calibration for the online software you will need to print the document "100 thou grid" at 100% scale. You should double check the print by measuring the distance between the grid lines to be 0.100". You will also need a flat object that you can attach the grid to as seen in figure 1. Ensure that the grid is as flat as possible (no sagging when turned upside down).

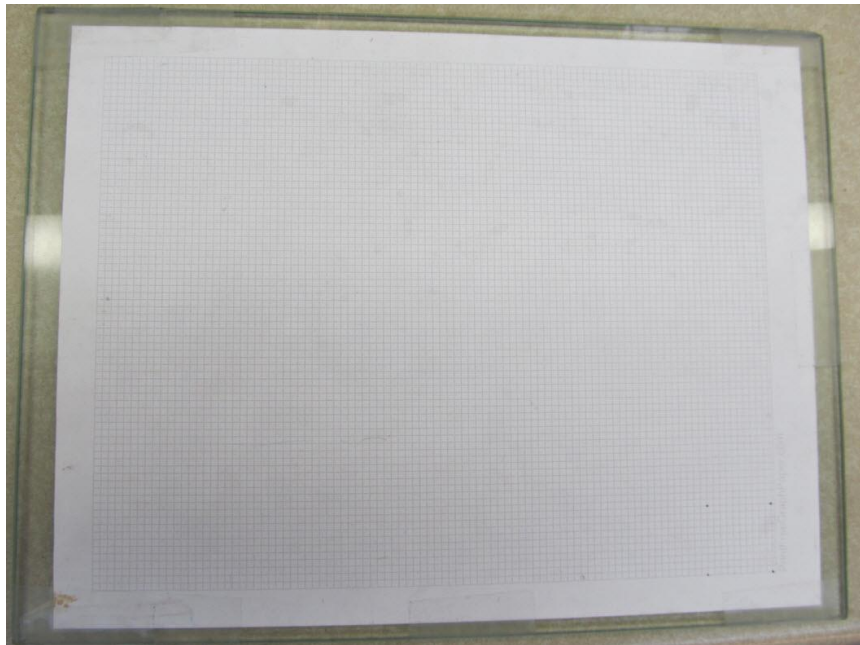


Figure 1: Printed grid taped to glass plate

Start up the software and allow the machine to home. Adjust the rails as needed to place the grid onto the machine, grid side down. Ensure the machine is at focus height - press Camera Mode in Process Control tab, it should be at camera height just after the homing sequence. (Which is 0.010" above the bottom hard limit) You can press ctrl button and drive the gantry down until it stops. Then bring it up 10 thou of an inch. This is camera height. Then drive the camera crosshair to a grid line intersection as seen in figures 2 and 3 and click the "set fiducial" button.

If pressing camera mode puts the table at an incorrect height, set video scale at the correct height and the button follow, it is linked.

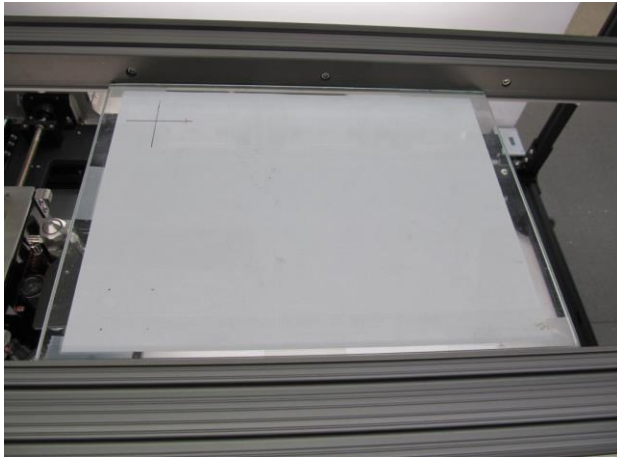


Figure 2: Grid side down on machine

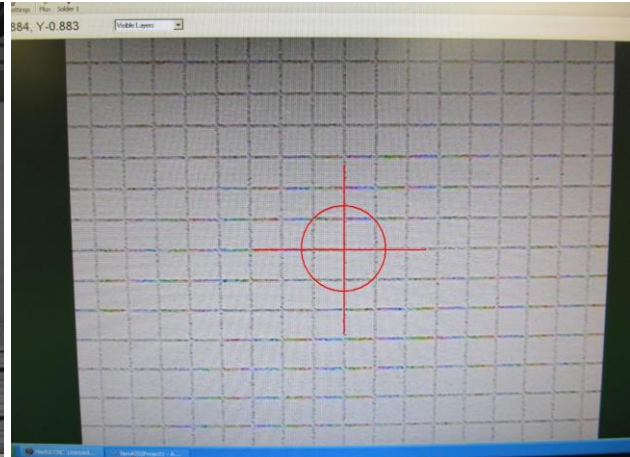


Figure 3: Zero position at grid intersection.

Next click on the **“Tools” (V3)** click on **“Config” (V4)** on the upper left of the screen then **“Set video scale”**. This will open a new window, as well as change your cursor to a “bullseye”. Find the farthest left or right vertical grid line, and click on the center of the grid line. As you drag the mouse over to the farthest opposite side vertical line, you should see a white tracer line following the bullseye. Then click on the farthest vertical grid line visible on the screen, so your screen looks as you see in figure 4 (color enhanced for document viewing).

This grid line would be counted as zero.

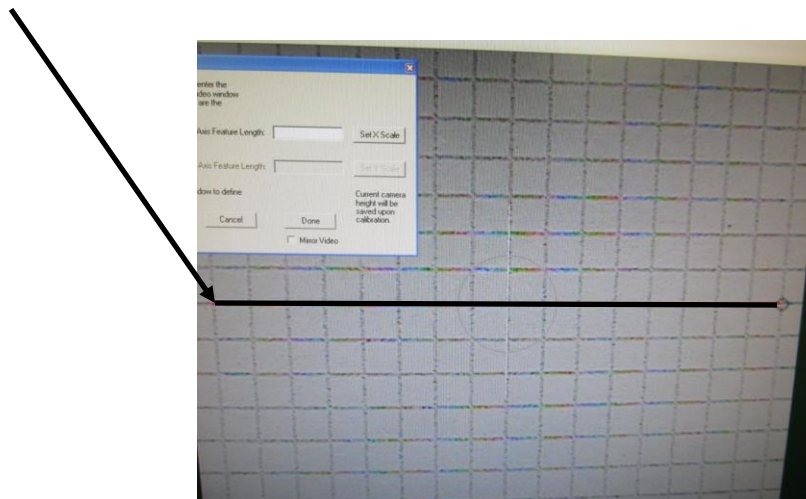


Figure 4: X axis distance line placement

**NOTE: The line should go across the entire screen so the end lines are still visible!**

Next count the number of vertical lines on the monitor screen in the X Axis, the start point of the drag is ZERO from where the line stretches across the screen. For example: if you counted 16 lines, this equals a distance of 1.6". Example: you must enter **1.6**. Then enter the correct distance into the **X Axis Feature Length** box. Next click the **Set X Scale** button. Then click the **Define Y Feature** button, and repeat the above process, but dragging the bullseye in the Y direction. Then enter the correct distance into the **Y Axis Feature Length** box. Next click the **Set Y Scale** button. Once the Y scale as been set, click **Save** and the calibration is finished.

To verify that the calibration is correct, you can then click on the "customize" tab then "hover the mouse over "grid display" then left click on "lines". This will post another computer generated white line grid on top of the printed grid. It should basically line up. There may be a very slight variance as you get to the extreme left or right of the video screen, but if it stays within the thickness of the printed grid, this is normal. If needed you can repeat the calibration process starting at paragraph 3 of this document. If the lines match up as described, click again on "customize" then "grid display" and select "none" to clear the drawn grid from the video display.

**NOTE:**

You may need to reset the fiducials in each program because each camera is slightly different.

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