

# M3 FOV and Shape Calibration



## Note

There are multiple settings files that influence the M3 software. They are all located at *root:/users/public/public documents/metlogix/settings*.

The settings files most pertinent to FOV calibration will be *SettingsM3Vx.xml* (main settings files), *metlogix.ini* (factory parameters for M3 setup), and FOV correction files (produced by the FOV calibration itself).

The *settingsM3Vx.xml* file stores all of the basic M3 software setup, including pixel size, and shape calibration values. The FOV correction stores in their named FOV correction files, when the cal is performed. To enable shape calibration, add the following to the *metlogix.ini* file:

```
[Options]  
ShapeCal=1
```

This will turn on the enable button for shape cal and add the setup menu button to your main M3 settings page.

## Calibration Setup Example

Use standard circle artifact to teach basic pixel size for the system. Following this calibration the diameters should be found to be mostly accurate all around the Field of View range, and from smaller diameters and larger. For example say within 2 or 3 microns.

However when a grid is used to test positional accuracy, it can be seen that the positional error increases as you measure circles out towards the edges of the field of view. For example, you skew the grid, and then zero on a circle at the center of the FOV. As you move toward the 4 corners of the frame measuring circles, the positional error increases, perhaps to as much as 30-50 microns.

Use an FOV Calibration Grid to correct this positional error. Following a successful FOV calibration it should be found that the positional accuracy has improved to say for example +/- 1 or 2 microns from nominal.

However, it can now be seen that the circle diameters on the grid are incorrect, for example 10 microns too large or too small.

Use Shape Correction to remove this added pixel error (caused by the pixel size adjustment that is required by the FOV calibration).



Enable Shape Correction with the *ini* parameter above.

Go into the Shape Cal settings screen and set the required pixel offset, in each X and Y for either the Flat Round or Square selection (they all do the same correction).

For the example above, the error is around 10 microns too large. Add a  $-.005$  to each of the X and Y in the Flat Correction fields.

Exit Shape Cal setup and press the shape cal toggle button in the top right toolbar until the flat icon is shown.

Remeasure your diameters. You should find the result has been corrected. If for some reason the correction is applied in the wrong direction, simply invert the sign for your entered X and Y correction values.



Note

There are some additional settings adjustments that can be made for the shape calibration startup and button behaviors.

| [ShapeCal]   | Default |                         |                                                                                 |
|--------------|---------|-------------------------|---------------------------------------------------------------------------------|
| HideButton   | 0       | 0=False/1=True          | When Shape Cal is enabled, allows the shapecal button to be displayed or hidden |
| StartupMode  | 0       | MagsShapeCalNone-coal   | Sets startup shapecal button to None                                            |
| *            |         | MagsShapeCalRound-coal  | Sets startup shapecal button to Round                                           |
| *            |         | MagsShapeCalSquare-coal | Sets startup shapecal button to Square                                          |
| OverrideMode | 0       | MagsShapeCalNone-coal   | Forces the shape cal to stay at the None mode                                   |
| *            |         | MagsShapeCalRound-coal  | Forces the shape cal to stay at the Round mode                                  |
| *            |         | MagsShapeCalSquare-coal | Forces the shape cal to stay at the Square mode                                 |
| *            |         | MagsShapeCalFlat-coal   | Forces the shape cal to stay at the Flat mode                                   |
| EdgeOff1     | 0       | mm                      | The X and Y offset when in ShapeCalNone mode                                    |

Help and Resources

Please visit the support section at [www.metlogix.com](http://www.metlogix.com) for access to MetLogix product documentation.

Watch tutorial videos for popular Mx functions at <http://www.youtube.com/metlogix>

Join the discussion on Facebook, search "MetLogix".

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