

V510 Fiducials



Last Updated: Jan 6th 2010

Duration: 30 – 60 minutes

Learning Objectives

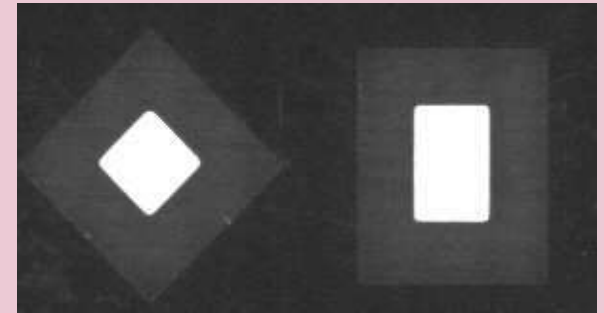
At the end of this module, you will be able to:

- **Identify what fiducials are**
- **Identify how the software uses fiducials**
- **Train fiducials on a board**

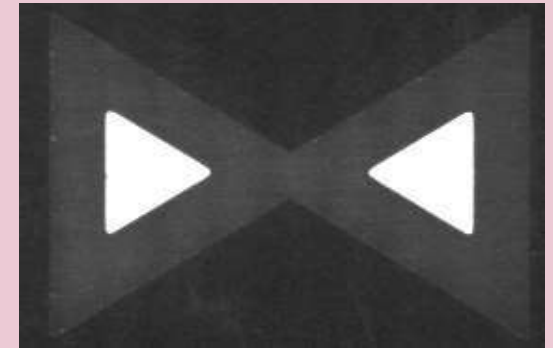
What are Fiducials?

A fiducial is a copper shape on a board that is used for aligning the board in production equipment. Typically, fiducials are placed near the corners of boards so that production equipment can calculate board stretch and rotation.

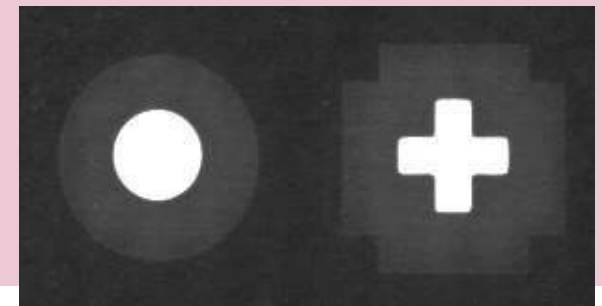
Rectangular
Fiducials



A Bow-tie
Fiducial



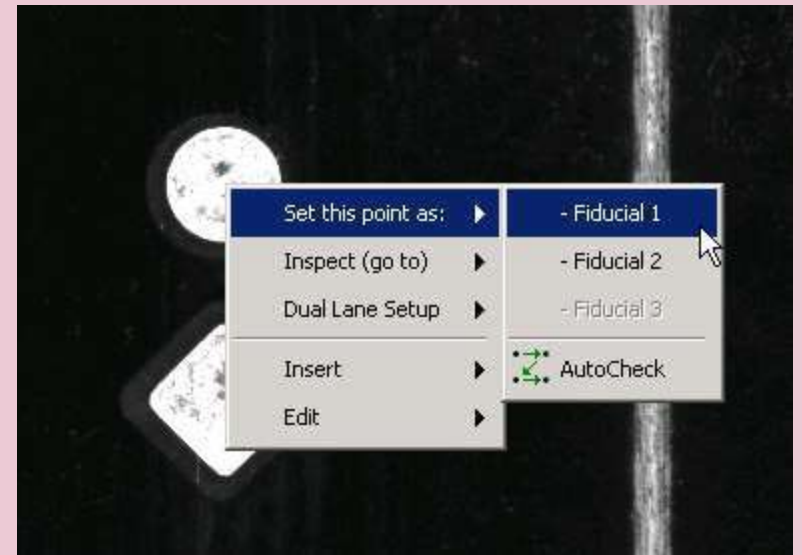
Circular and
Cross Fiducials



Finding the First Fiducial

Navigate the camera over the first fiducial listed in your PLX file. Then right-click on the fiducial and choose *Set this point as: Fiducial 1*.

This writes the .home file for your board program.

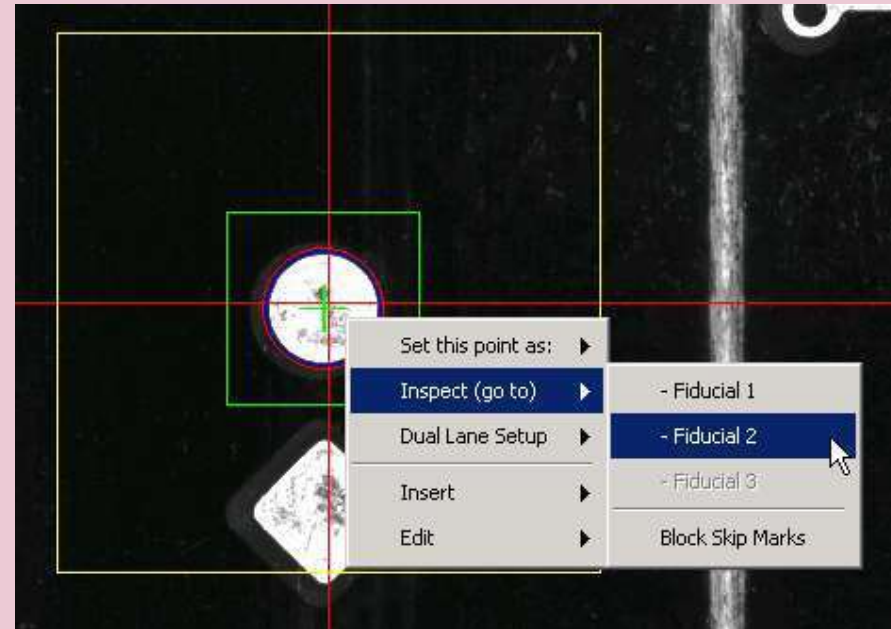


Finding the Second Fiducial

Right-click on the first fiducial and select *Inspect (go to) Fiducial 2*.

This will take you to the second fiducial on the board. If it does not, then either you chose the wrong first fiducial, or something is wrong with your PLX file.

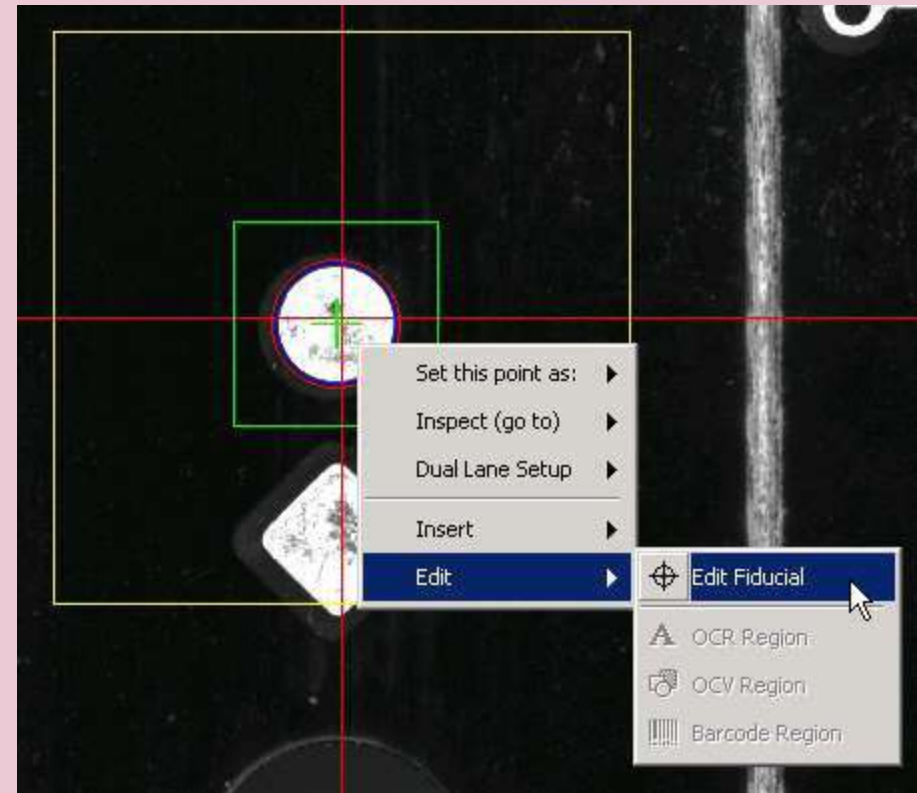
You may also want to verify your third fiducial in the same way, if you have a third fiducial.



Training Fiducials

Right-click on a fiducial, and select *Edit* → *Edit Fiducial*.

This opens the Fiducial Editor.

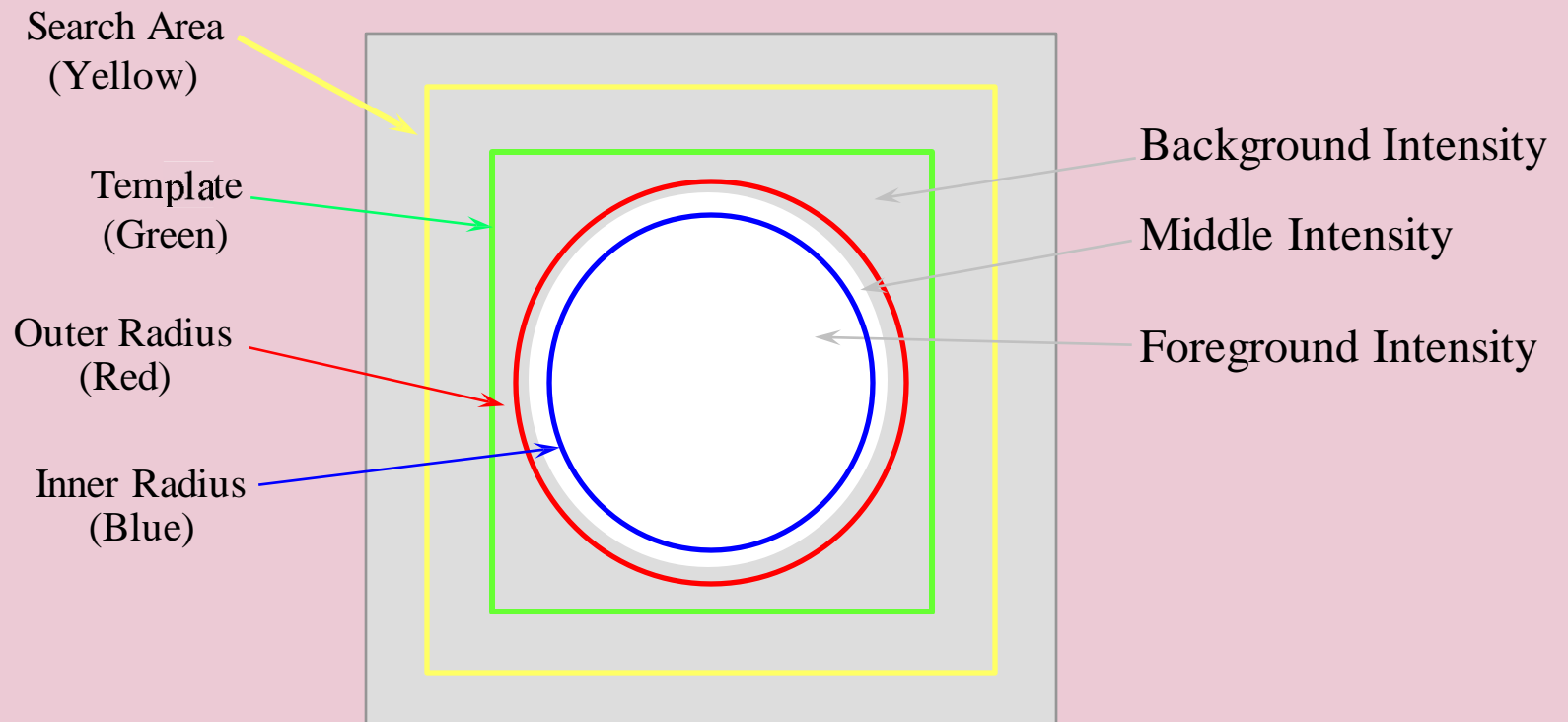


Training Fiducials (cont'd.)

This is the Fiducial Editor.

Training Fiducials (cont'd.)

To train fiducials, you typically identify four shapes (shown on the left) and three grayscale values within those shapes.

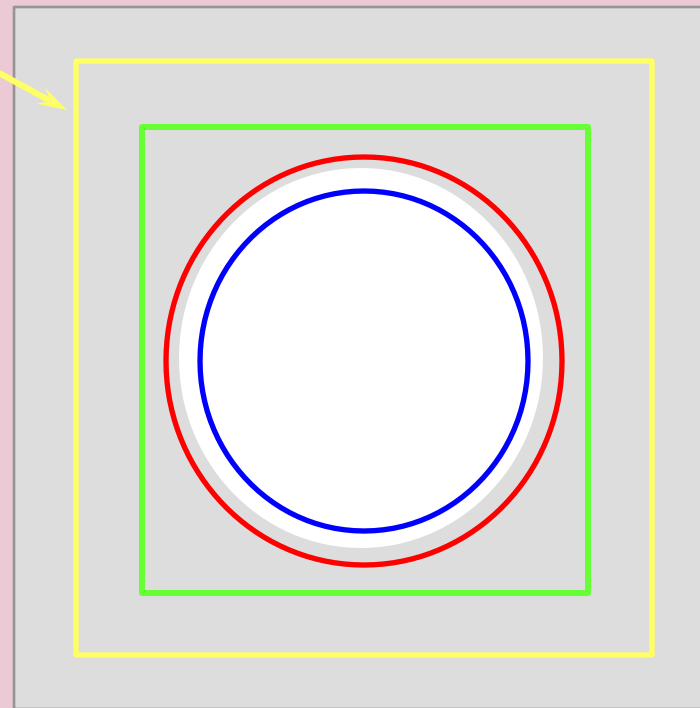


Training Fiducials (cont'd.)

The Search Area should be big enough to locate the fiducial, but not so large that there is a risk of locating on something other than the fiducial.

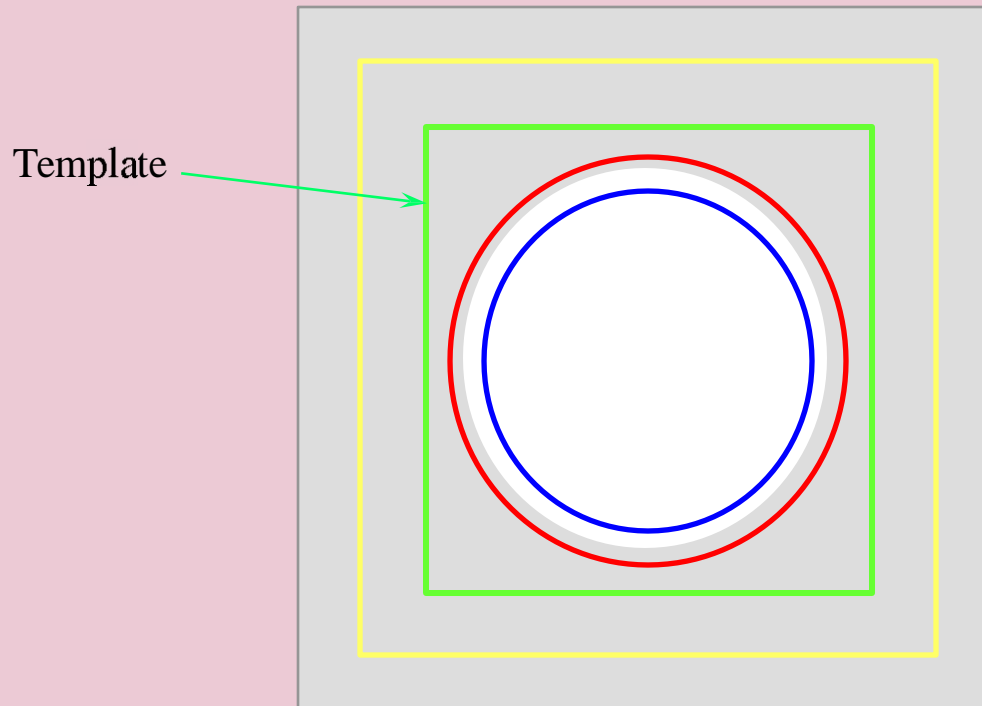


Search Area



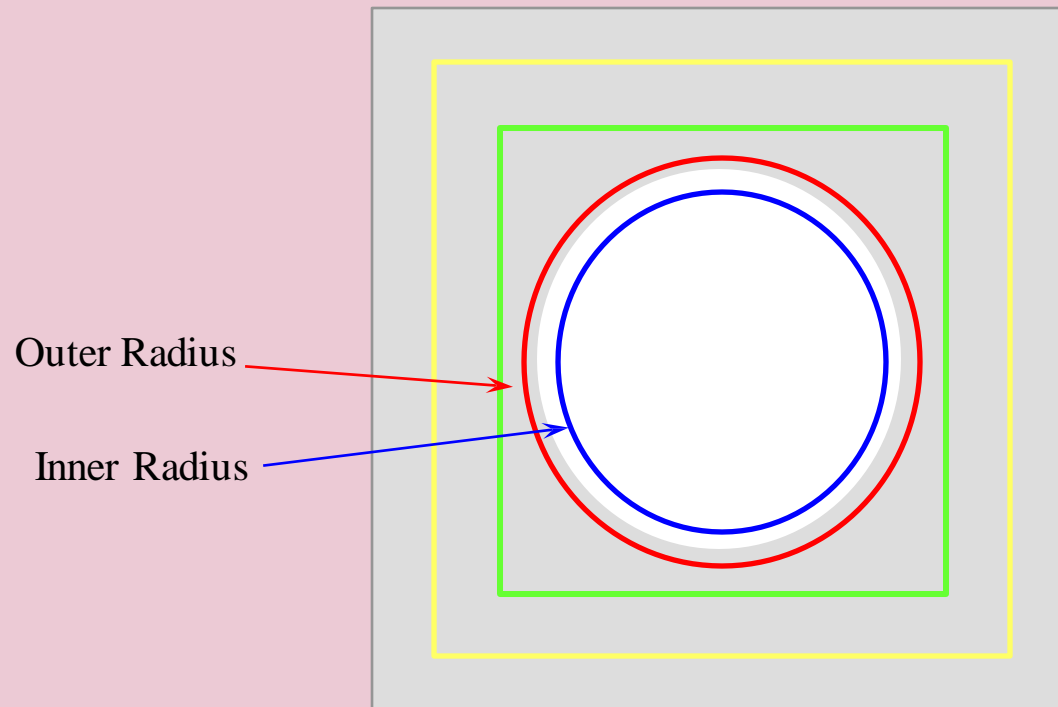
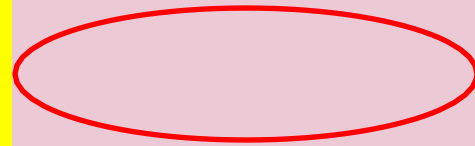
Training Fiducials (cont'd.)

The Template should be big enough to locate the fiducial, but not so large that there is a risk of locating on something other than the fiducial.



Training Fiducials (cont'd.)

The Inner Radius should be just inside the edge of the fiducial, and the Outer Radius should be just outside the edge of the fiducial. The difference between the Inner Radius and the Outer Radius should be 40 or 50 microns.



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