

This quick start guide provides basic setup and configuration procedure for the *Keyence IV-G 2D Vision System* when used with either the V-TEK laptop option or a customer supplied computer. The system is designed to inspect parts that have been placed in carrier tape on the TM-50/TM-50XL for mark and orientation prior to the tape being sealed. To prepare for inspection, follow the steps below.

**Note:** If using the Keyence Monitor instead of a laptop to view the vision system HMI, proceed to the **Keyence IV-G Monitor Quick Start** for setup instructions.

### Connect Computer

1. Connect Vision Computer

**Note:** If using a customer supplied computer, ensure it meets the system requirements listed on the right.

Position the Laptop on top of the Controller for easy access.

Attach the Laptop power cord to a power source.

Using the M12 ethernet cable which was provided with the Keyence IV-G system, connect the vision computer to the Keyence Controller.

**System Requirements:**

- Windows 7TM (32 or 64 bit)
- 128 MB RAM
- 1024 x 768 (96 DPI) or 1280 x 1024 (120 DPI)
- Ethernet port



2. Install Vision Software

**Note:** Keyence IV-G Vision software is pre-loaded on the optional V-TEK Laptop. **Skip this step if using the V-TEK Laptop.**

Turn the computer **ON**. Insert the *Keyence IV-G Software Installation CD or Dongle* which is provided with the Vision Kit. When the software installation screen appears, follow the prompts to install the Keyence software.



3. Connect the Camera

To select a stored inspection or configure a new inspection, open the Keyence Inspection System software by double-clicking on the IV Navigator icon on the computer desktop.

Select **Direct Connection**, then press **Connect**.

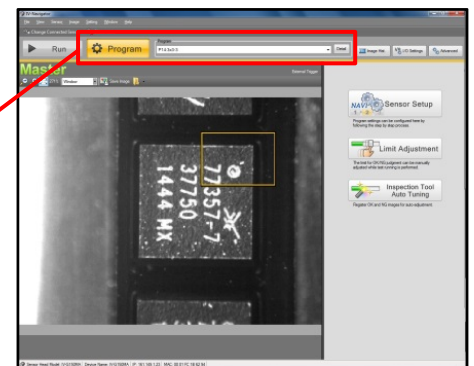
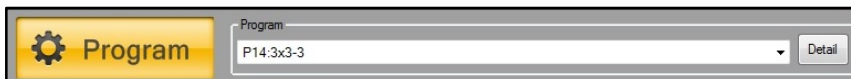


### Configure Inspection

1. Select/Create Program

The *Run/Program* window will open. Click **Program**. If prompted to proceed, click **OK**.

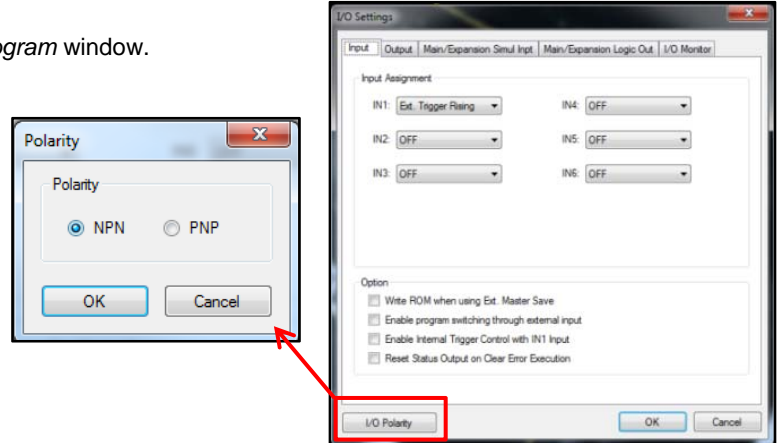
Select or create a program from the Program drop-down menu. A yellow **Selection Box** will appear over the part image.



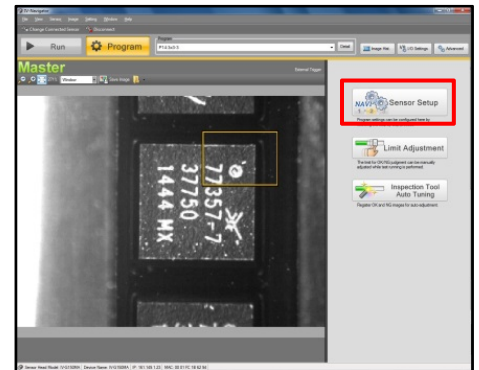
2. I/O Settings  
Click the **I/O Settings** button on the right side of the *Run/Program* window.

The *I/O Settings* window will open. Click the **I/O Polarity** button in the bottom left corner.

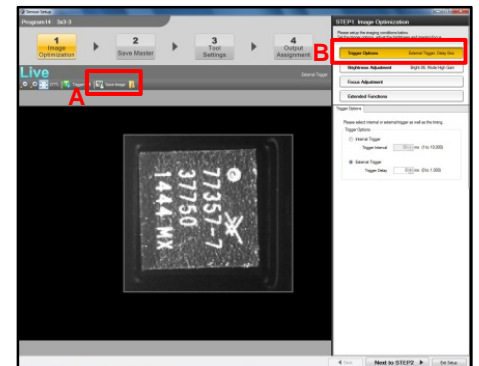
Set Polarity to **NPN**. Click **OK** twice to return to the *Run/Program* window.



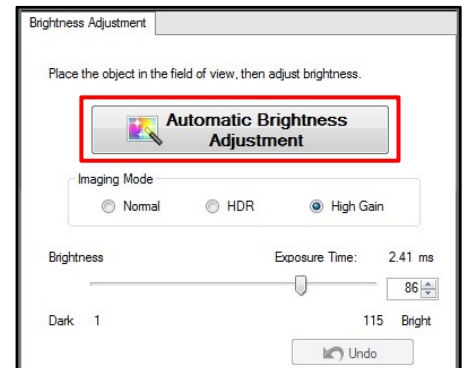
3. Sensor Setup  
Click the **NAVI Sensor Setup** button on the right side of the *Run/Program* window. The *Step 1: Image Optimization* window will open.



4. Step 1: Image Optimization  
Click **Trigger ON (A)**, then center a part under the camera.  
Select the **Trigger Options** button **(B)** on the right side of the *Run/Program* window.  
Adjust *Trigger Options* to **External Trigger** with a **0ms Trigger Delay**.



5. Brightness Adjustment  
Select the **Brightness Adjustment** button on the right side of the *Run/Program* window.  
Click the **Automatic Brightness Adjustment** button.  
Adjust the *Exposure Time* as needed to achieve the best contrast between the mark and the part.

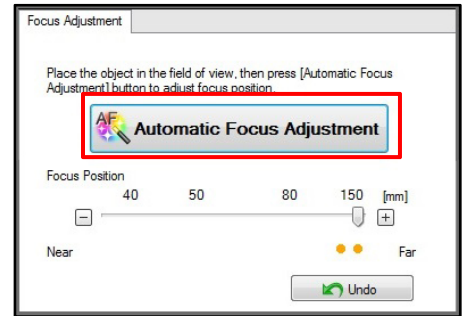


### 6. Focus Adjustment

Select the **Focus Adjustment** button on the right side of the *Run/Program* window.

Click the **Automatic Focus Adjustment** button.

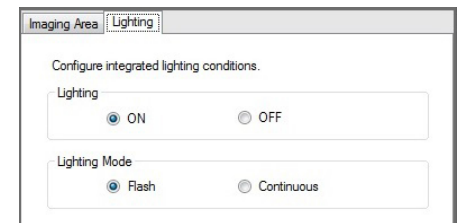
One or more yellow dots may appear above the **Undo** button, representing the best focus point(s). Click on the yellow dot(s) to jump to the associated focus point and select the best one. Adjust *Focus Position* as needed using the **plus/minus** buttons.



### 7. Extended Functions

Click on the Lighting tab and select *Lighting ON* and *Lighting Mode Flash*.

Click the **Next to STEP2** button which is located in the bottom right corner of the *Run/Program* window. The *Save Master* window will open.



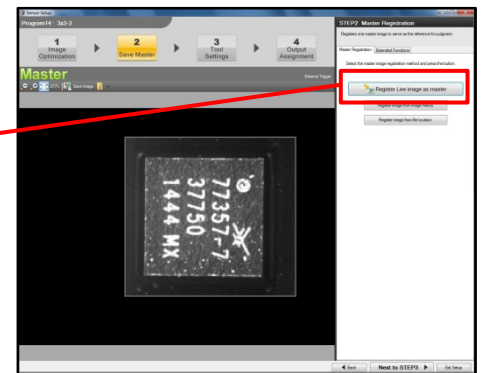
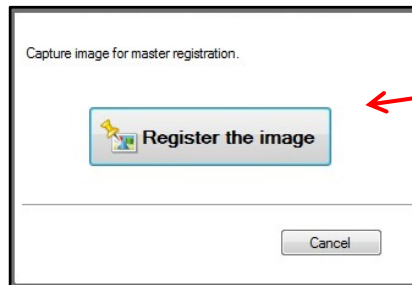
### 8. Step 2: Save Master

Select **Register Live image as master**.

Select **Register the image**.

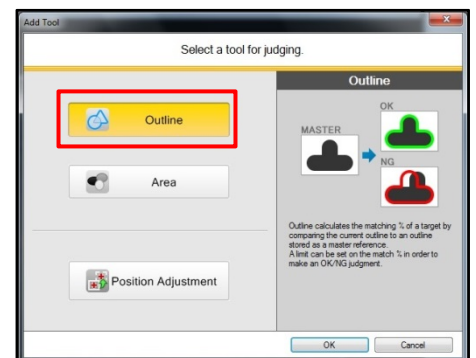
Once the image has been registered, click **OK**.

Click **Next to STEP3**. The *Tool Settings* window will open



### 9. Step 3: Tool Settings

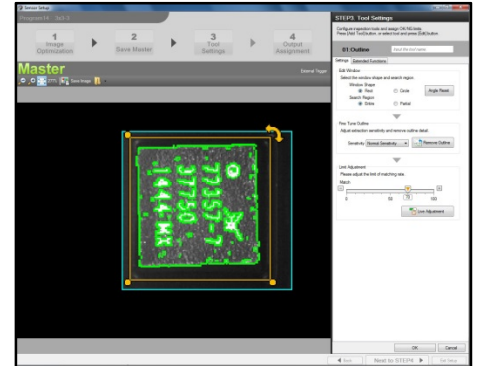
Select **Add Tool**. Select the Outline tool, then click **OK**.



### 10. Outline Mark

A **green** outline will now appear around the selected mark. Click **OK**. The *Tool Settings* section on the right will now include Outline Tool options.

Adjust the yellow *Selection Box* so it surrounds the selected mark.  
In the *Fine Tune Outline* section, click the **Remove Outline** button.



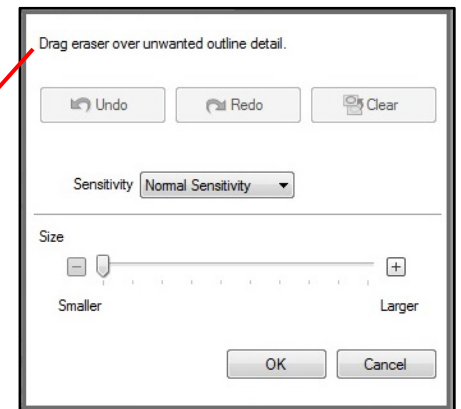
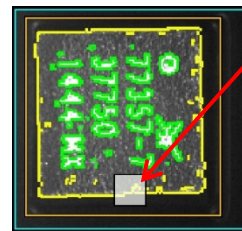
### 11. Erase Unwanted Data

The *Eraser Settings* window will open.

The Eraser appears as a white square on the image. Adjust eraser size as needed, then click and drag it over any unwanted data that is outlined in green on the image.

Reduce Eraser size to remove any smaller green spots of unnecessary data.

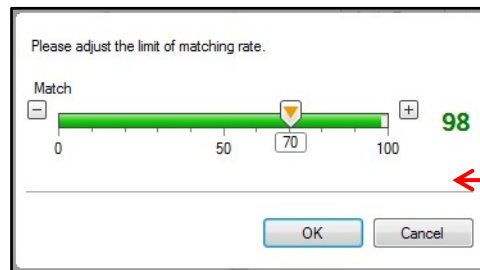
Click **OK** to finalize edit.



### 12. Adjust Threshold

Click **Live Adjustment** and the sensor will continuously take measurements.

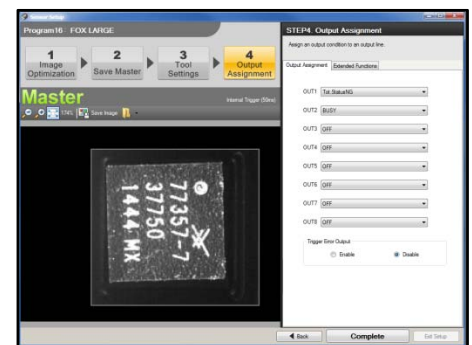
Adjust the threshold to yield the highest difference between good and bad parts, then click **OK**.



### 13. Step 4: Output Assignment

The *Output Assignment* window will open. Set up the Outputs as shown below:

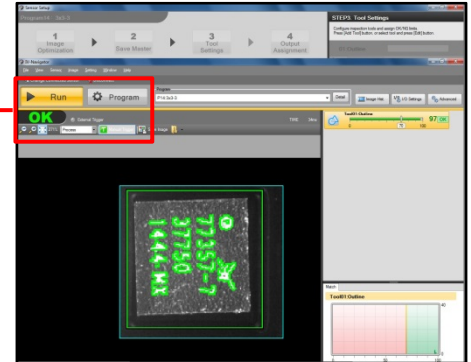
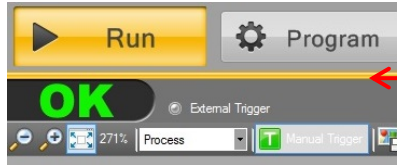
- Set *OUT1* to **Tot.StatusNG**.
- Set *OUT2* to **Busy**.
- Set all remaining output to **OFF**.
- Set *Trigger Error Output* to **Disable**.



### 14. Test Inspection Criteria

Click **Complete** to return to the *Run/Program* window. Select **Run**.

Click the **Manual Trigger** button, which is located under the **Program** button, to test the inspection criteria.



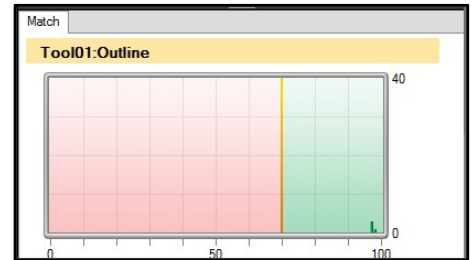
### 15. Test Results

The test results (below) will appear on the right side of the window.



A *Statistics Graph* of all test results will appear in the lower right corner (pictured at right).

Keyence IV Laptop setup is complete. Exit the IV-Navigator software and disconnect the vision computer's ethernet cable from the Keyence IV camera.



### 16. Run Program

Ensure the TM-50 Controller is **ON** and the *Vision Mode* is set to 1.

On the TM-50 Controller press the **ESC** key to return to the welcome menu then select **Run** to begin processing.



Detailed User's Guides, maintenance instructions and troubleshooting are available on the V-TEK, Inc. website: [www.vtekusa.com](http://www.vtekusa.com).

### Vendor Provided Material

Significant portions of this documentation were provided by:

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