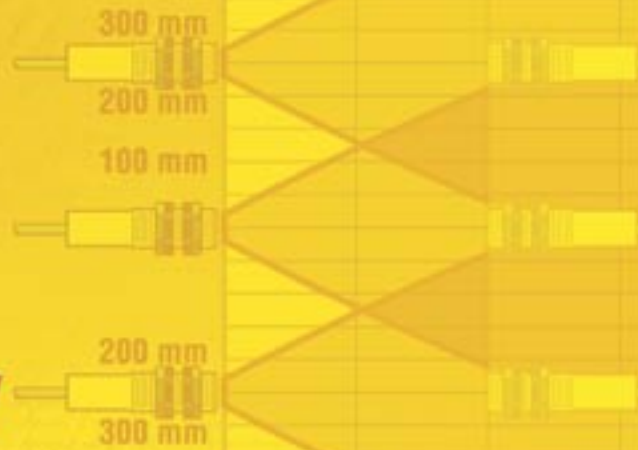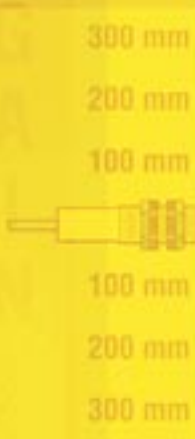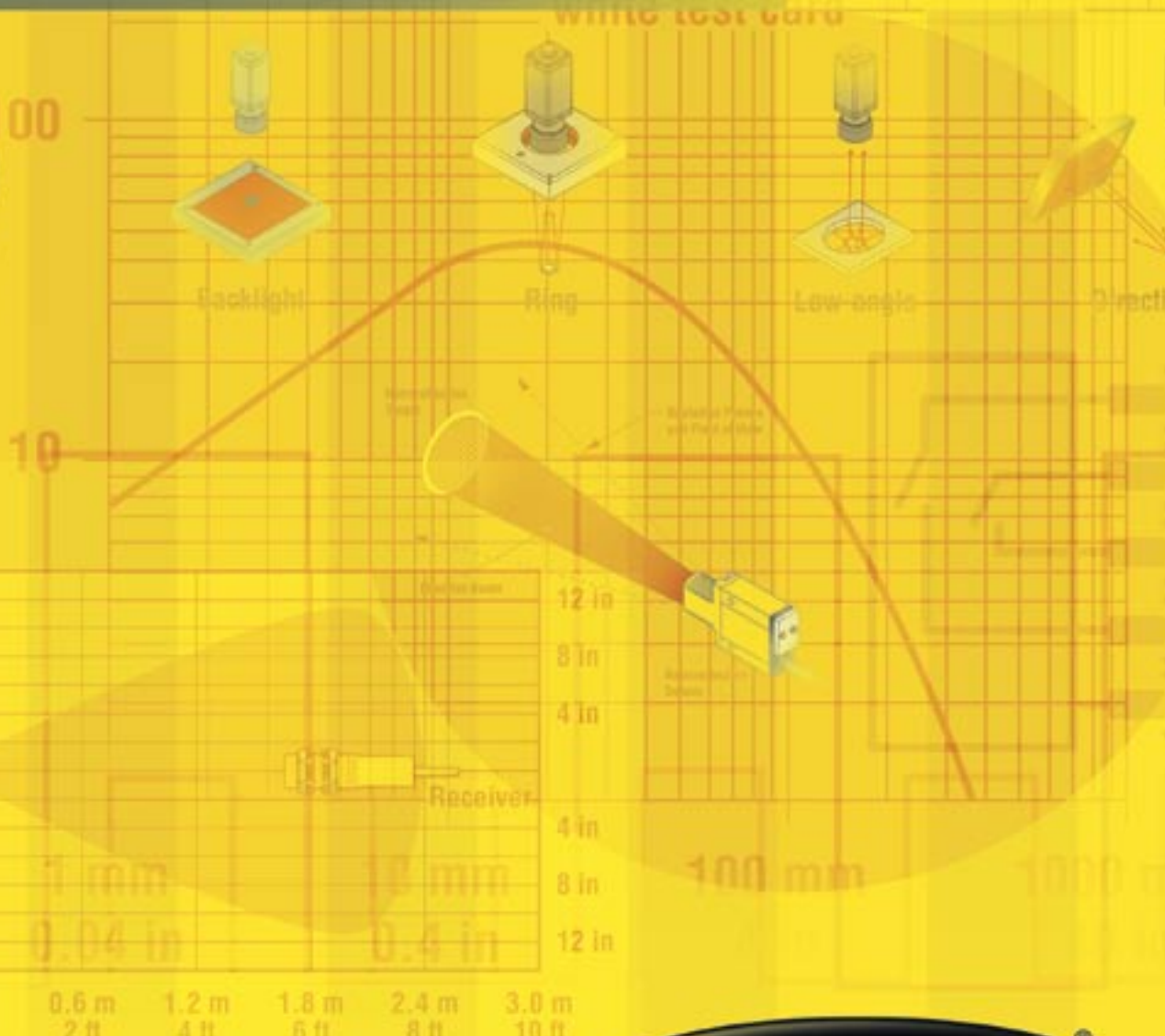# iKnow™

BANNER

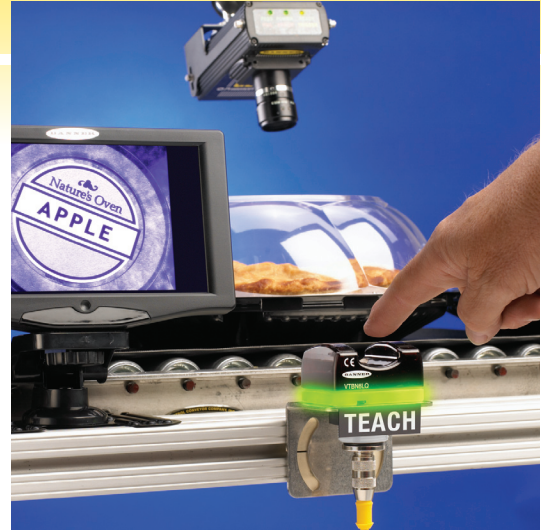## Vision Sensor Software Training

Increasing P4 GEO Count Tool Sensitivity

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PresencePLUS® P4 GEO
Increasing GEO Count Tool Sensitivity

Purpose:

The GEO Count Tool is an inspection tool that finds patterns in an image. The following steps explain how to increase GEO Count Tool sensitivity in an inspection scenario to better distinguish between good and bad patterns.

Overview: Inspection Process using P4 Software

Before You Start:

- Install Software
- Confirm PC & Sensor are communicating
- Fixture Sensor & Target
- Setup a P4 GEO Basic Inspection*

Set Up
Create Reference Image

Tools
GEO Count
- -Determine Minimum Acceptance level
- -Check for Missing Edges
- -Check for Extra Edges
- -Check for both Missing & Extra Edges

Run
Begin Inspection Process

Application Example

Example of a GEO Count Tool using the minimum acceptable sensitivity to verify a part number
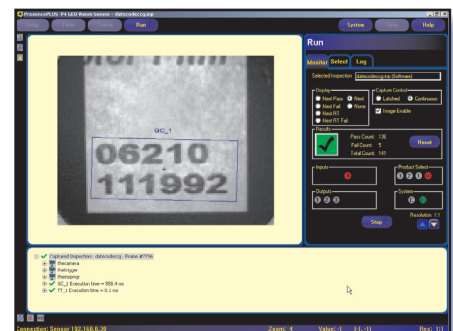
- Three different part numbers all pass. ☑

- The default Minimum Acceptance Level does not provide enough sensitivity.

- Use the "Extra Edges" and "Missing Edges" features to increase the GEO Count Tool's sensitivity.

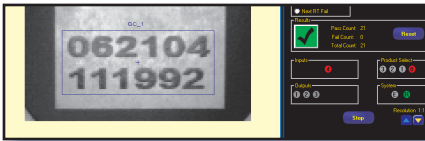☑ Incorrect part number "062**2**04"

☑ Correct part number "062104"

☑ Missing character "06210_"

*See "Setting Up a P4 GEO Basic Inspection Setup Guide" P/N 120211.

TOOLS >> GEO COUNT
Check for Missing Edges

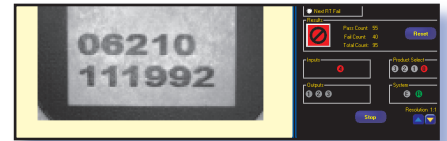| SCREEN	USER ACTION	NOTES
	1 Click **GC_1** **2** Click **Advanced** tab **3** Select **Check For Missing Edges** **4** Click **Apply**	• "Check for Missing Edges" configures the P4 GEO to "fail" the pattern if one edge segment of at least 5 pixels (default) or more is missing. In the failed example below, the edges from the "4" are missing. • If the tool is too sensitive (rejects "good" parts), increase the "Minimum Edge Length", located on the Advanced tab above the 5 pixel default. • If the tool is not sensitive enough (passes "bad" parts), decrease the "Minimum Edge Length", located on the Advanced tab below the 5 pixel default.

GO TO RUN MODE * **AND VIEW FOLLOWING EXAMPLES:**
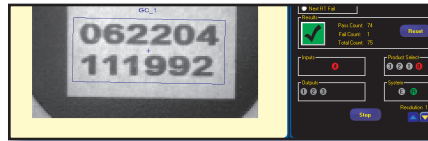
✔ Correct part number "062104" passes   ✔ Incorrect part number "062**2**04" passes   ⊘ Missing character "06210_" fails
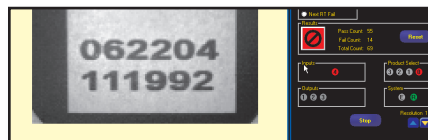
TOOLS >> GEO COUNT
Check for Extra Edges

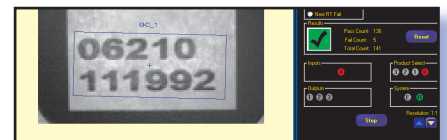| SCREEN	USER ACTION	NOTES
	1 Return to the **Tool** Screen (not shown) **2** Click **GC_1** **3** Click **Advanced** tab **4** Unselect **Check For Missing Edges** **5** Select **Check For Extra Edges** **6** Click **Apply**	• "Check for Extra Edges" configures the P4 GEO to "fail" the pattern if an edge is found that is 5 pixels (default) or more in a location that did not have an edge before. In the failed example, below the "2" has more edge content than the "1" so the inspection fails. • If the tool is too sensitive (rejects "good" parts) increase the "Minimum Edge Length", located on the Advanced tab above the 5 pixel default. • If the tool is not sensitive enough (passes "bad" parts) decrease the "Minimum Edge Length", located on the Advanced tab below the 5 pixel default.

GO TO RUN MODE * **AND VIEW FOLLOWING EXAMPLES:**

✔ Correct part number "062104" passes   ⊘ Incorrect part number "062**2**04" fails   ✔ Missing character "06210_" passes
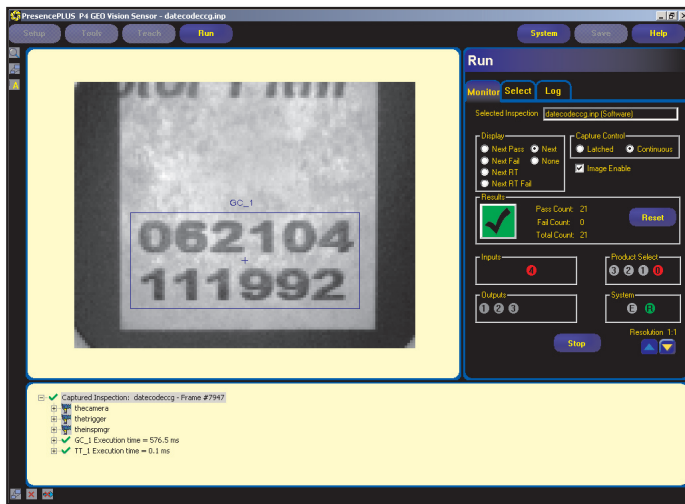
*See "Setting Up a P4 GEO Basic Inspection Setup Guide" P/N 120211.

More information online at **bannerengineering.com/iknow**

TOOLS >> GEO COUNT
Check for Missing and Extra Edges

SCREEN	USER ACTION	NOTES

USER ACTION

1. Return to the **Tool** Screen (not shown)
2. Click **GC_1**
3. Click **Advanced** tab
4. Select **Check For Extra Edges**
5. Select **Check For Missing Edges**
6. Click **Apply**

NOTES

- It is generally a good practice to check both Missing and Extra Edges in a single GEO Count Tool.

- If the tool is too sensitive (rejects "good" parts) increase the "Minimum Edge Length", located on the Advanced tab above the 5 pixel default.

- If the tool is not sensitive enough (passes "bad" parts) decrease the "Minimum Edge Length", located on the Advanced tab below the 5 pixel default.
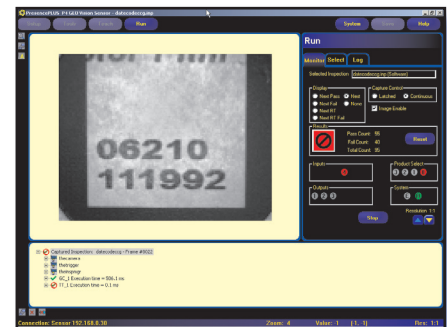

GO TO RUN MODE * AND VIEW FOLLOWING EXAMPLES:

✅ Correct part number "062104" passes

⊘ Incorrect part number "062**2**04" fails

⊘ Missing character "06210_" fails

*See "Setting Up a P4 GEO Basic Inspection Setup Guide" P/N 120211.