

Impact 11.0 Sample Programs Guide

This document is a guide to the sample Impact vision programs, images, and Control Panels that are provided as part of the Impact software package. These programs are designed so you can get started quickly and to help you understand how to use Impact software to best solve your vision inspection applications.

Impact is the most complete vision system product line that uses the same software for all of its Intelligent cameras. Impact software and hardware provides you with the flexibility that today's quickly changing manufacturing environment requires.

The sample programs and accompanying images are installed by the Impact software installation program. Refer to the Impact installation guide for more details.

After the installation is complete, you start VPM (Vision Program Manager) to access the sample programs. This document provides basic information about how to use VPM to access and learn about the sample programs. For more details about how to use VPM and CPM (Control Panel Manager), refer to the Impact Reference Guide (Part Number 843-0093).

Check our website at <http://www.datalogic.com/> for more sample programs and more recent software releases, as well as information about other Impact software and hardware products.

The three main Impact components that relate to these sample programs are Vision Program Manager (VPM), Control Panel Manager (CPM), and the Emulator.

Vision Program Manager (VPM)

VPM creates, edits, and organizes the vision program, the basic building block of the inspection application. The vision program is organized into tasks and contains all the tools used for the inspection. You can create and use program templates, as well as reuse common tasks within a program. No software programming knowledge is needed to create either simple or complex inspections using VPM's drag and drop interface.

Control Panel Manager (CPM)

CPM also uses drag and drop to create custom Control Panels (operator interfaces) to control and monitor the inspection applications you create with VPM. You can easily create connections between the Control Panel and VPM tools to display inspection results. Only one of the sample programs use CPM.

Impact Emulator

When you start VPM and connect to the Impact Emulator, the Emulator starts and runs in the background. It simulates all the functions of a Datalogic Intelligent camera. While it is running, you can create and test vision programs and Control Panels without using a camera. The sample programs and images are installed on the Emulator along with Impact software, but they will run on either the Emulator or any suitable Datalogic device.

This document contains an overview to the sample programs, as well as information about each of them. Click a link below for details.

Overview

How to look at the sample programs

Sample Code Reader Program

Uses the Blob, Code Reader, and Discrete Output tools to locate, read, and verify various 1D, 2D, and Postal Codes.

Sample Measurement Program

Uses the Origin, Line Gauge, Template, and Discrete Output tools to verify the measurements and shape of connector pins.

Sample Color Program

Uses the Color Blob and Basic tools to recognize and count the number of tablets of each color and the total number of tablets.

Sample OCR Program

Uses the Blob, OCR (Optical Character Recognition), and Discrete Output tools to locate, read, and verify a string of characters.

Sample Bulb Program

This is a complex inspection that combines several tasks and a Control Panel. In this sample program VPM uses 14 different kinds of tools to inspect various aspects of a bulb.

How to look at the Sample Bulb Control Panel

A brief look at the Control Panel that works with the Sample Bulb Program. CPM uses 20 different kinds of controls to display data and control VPM inspection parameters.

Sample Template Program

Uses the Correlation Pattern Find, Greyscale Template, Pass Fail, and Discrete Output tools to locate and verify the print and background on a part.

Sample Pinpoint Verify Program

Uses the Pinpoint Pattern Find, Circle Gauge, and Pass Fail tools to locate and verify the pattern on a rotating part.

Sample Pinpoint Pick and Place Program

Uses the Pinpoint Pattern Find, Morphology Dilate, Data Set, List Loop, Data Instance, Line Find, Line Gauge, Pass Fail, and Branch tools to find multiple patterns (parts) in the Field of View. The output can then be used by a robot to Pick & Place the passing parts.

Overview

The sample programs do not incorporate all the capabilities of Impact software, but altogether they do provide a way to explore most of its functions. You can use VPM to access and run the programs, and to view the results of the inspection on the sample images.

VPM

File Camera

Over 30 sample images are included. You use the VPM File Camera to make these images available to the sample programs.

Vision Program

To help you find and open the supplied vision programs, the names all begin with Sample. You can modify and use these programs if they work for your application. This guide explains how to find and open the programs, what they are doing and, briefly, how each of the tools work.

IMPORTANT NOTE: If you modify a vision program file and want to save your changes, you must save the file in a different directory or with a different name. When you install a new version of Impact Software, these supplied program files may be overwritten.

CPM

Control Panel

Control panels are the interface between the inspection and the operator. Panels can be combined into a Control Panel application. One Control Panel application is included with the sample programs. It is intended for use with the Sample Bulb program, but you can modify and use it if it works for your application. This guide explains how to find and open the Control Panel, what it does and, briefly, how each of the controls work.

IMPORTANT NOTE: If you modify a control panel application file and want to save your changes, you must save the file in a different directory or with a different name. When you install a new version of Impact Software, these supplied control panel application files may be overwritten.

How to look at the sample programs

1. [Start VPM.](#)
2. [Deactivate currently active images](#), if necessary.
3. [Activate the desired sample images.](#)
4. [Close any open programs](#), if necessary.
5. [Open the desired sample program.](#)
6. [Choose the Display tab.](#)
7. [Run the sample program.](#)

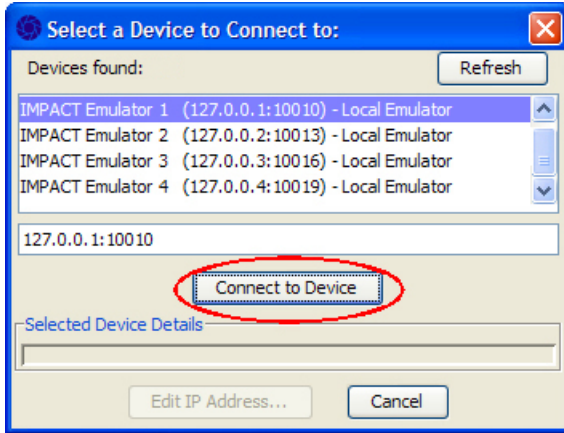
Start VPM

When Impact software is installed, a VPM icon is created on the computer's desktop.

To start VPM and the Emulator



1. Double-click the desktop icon.
2. When the dialog titled "Select a Device to Connect to" is displayed, select the first Emulator in the list and click the button "Connect to Device."



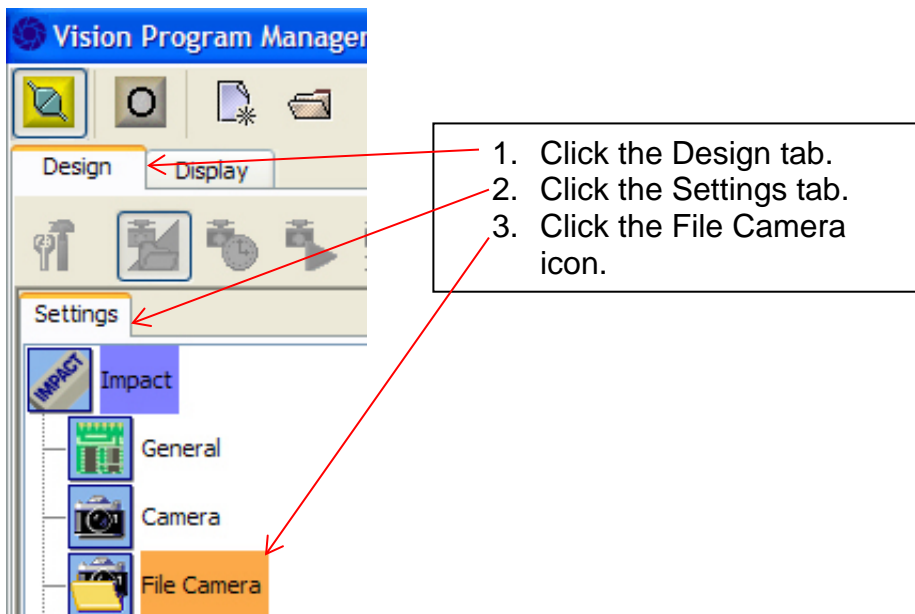
3. Proceed with the next section.

Deactivate Currently Active Images

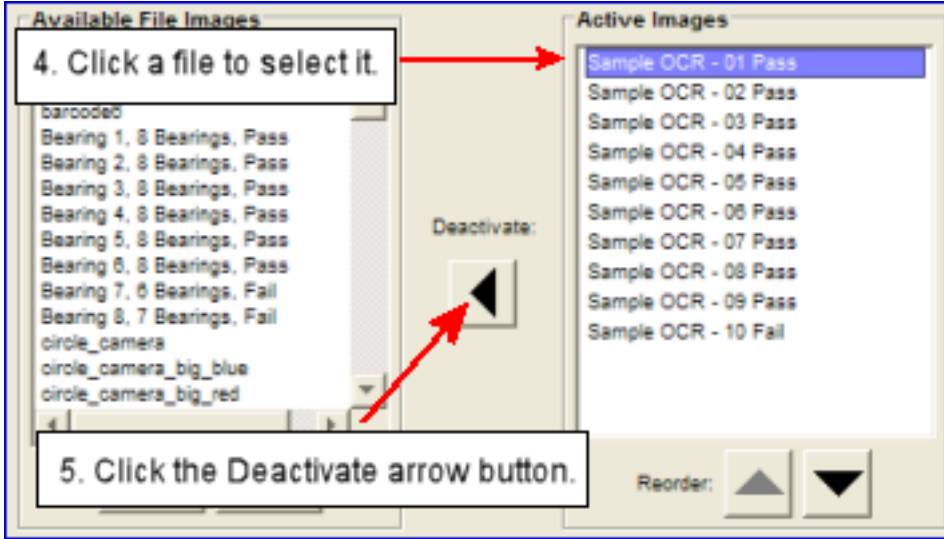
If there are no currently active images, skip to Activate the Desired Sample Images in the next section. If there are active sample images, you should deactivate those images before you activate new images to avoid confusion and incorrect inspection results.

To deactivate currently active images

1. In VPM, click the Design tab.
2. Click the Settings tab.
3. Click the File Camera icon.



4. In the Active Images window, click an image file to select it.
5. Click the Deactivate arrow button.
6. Repeat steps 4 and 5 until the Active Images window is empty.



Activate the Desired Sample Images

The tools in each sample program were configured specifically for the program’s accompanying images. You should activate the appropriate images for the desired sample program, to insure correct inspection results.

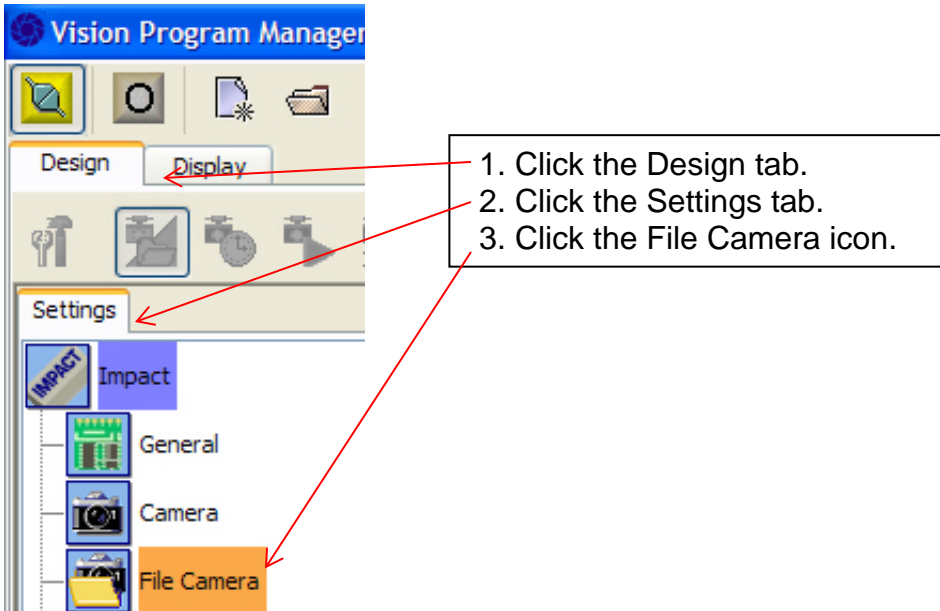
The images that accompany a sample program have the same beginning name as the program. This list shows the name of the sample program and the images that accompany them. (The “vnn” in the program name represents the program’s version number. The Pass or Fail designation indicates whether the image should pass or fail the inspection.)

Sample Program Name	Sample Image Names
Sample Code Reader vnn.vp	Sample Code Reader – 01 through 09 Pass Sample Code Reader – 10 Fail
Sample Measurement vnn.vp	Sample Measurement – 01 through 03 Pass Sample Measurement – 04 through 05 Fail Sample Measurement – 06 through 09 Pass Sample Measurement – 10 Fail
Sample OCR vnn.vp	Sample OCR – 01 through 09 Pass Sample OCR – 10 Fail
Sample Color vnn.vp	Sample Color – 01 through 10
Sample Bulb vnn.vp	Sample Bulb – 01 through 07 Pass Sample Bulb – 08 through 10 Fail
Sample Template vnn.vp	Sample Template – 01 through 04 Pass Sample Template – 05 Fail Sample Template – 06 Pass Sample Template – 07 through 10 Fail
Sample Pinpoint Verify vnn.vp	Sample Pinpoint Verify – 01 through 03 Pass Sample Pinpoint Verify – 04 Fail Sample Pinpoint Verify – 05 and 06 Pass Sample Pinpoint Verify – 07 through 09 Fail Sample Pinpoint Verify – 10 Pass

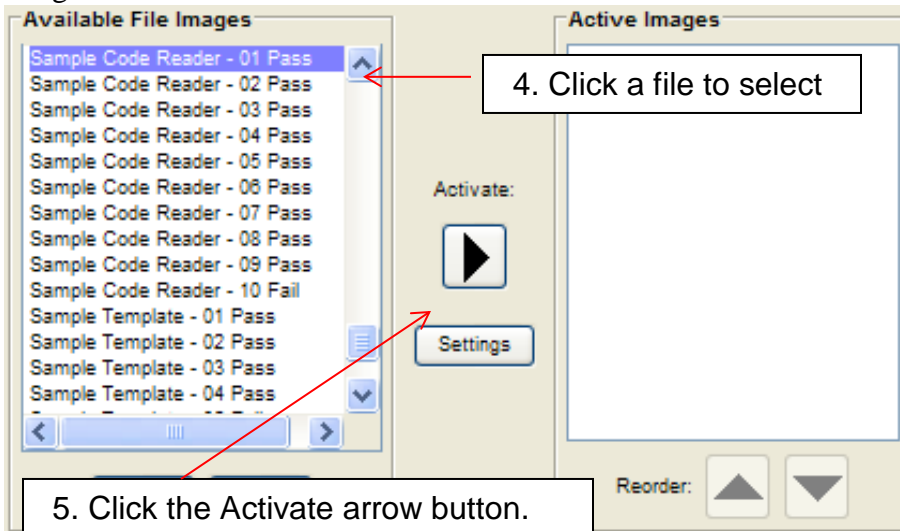
Sample Program Name	Sample Image Names
Sample Pinpoint Pick and Place vnn.vp	Sample Pinpoint PickPlace – 01 through 03 Pass Sample Pinpoint PickPlace – 04 through 06 Fail Sample Pinpoint PickPlace – 07 and 08 Pass Sample Pinpoint PickPlace – 09 Fail Sample Pinpoint PickPlace – 10 Pass

To Activate the Desired Sample Images

1. In VPM, click the Design tab.
2. Click the Settings tab.
3. Click the File Camera icon.



4. In the Available File Images window, click a sample image file to select it.
5. Click the Activate arrow button.
6. Repeat steps 4 and 5 until all the desired sample image files are displayed in the Active Images window.

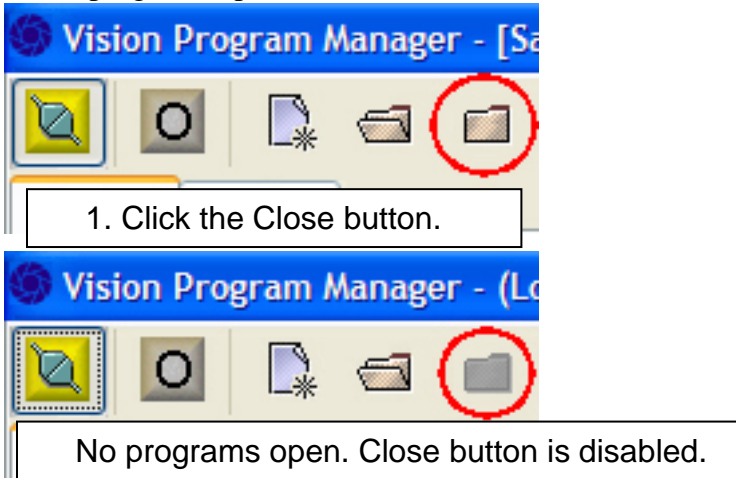


Close Any Open Programs

If there are no currently open programs, skip to Open the Desired Sample Program in the next section. If there are open programs, you should close those programs before you open the new one to avoid confusion and incorrect inspection results.

To Close Open Programs

1. Click the Unload (Close) button in VPM's main toolbar. This button is disabled if there are no programs open.

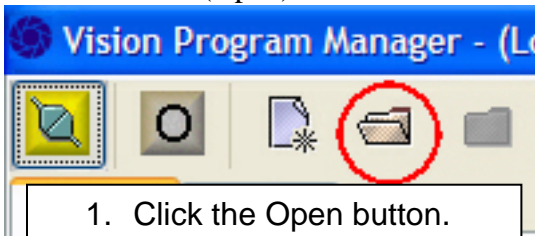


Open the Desired Sample Program

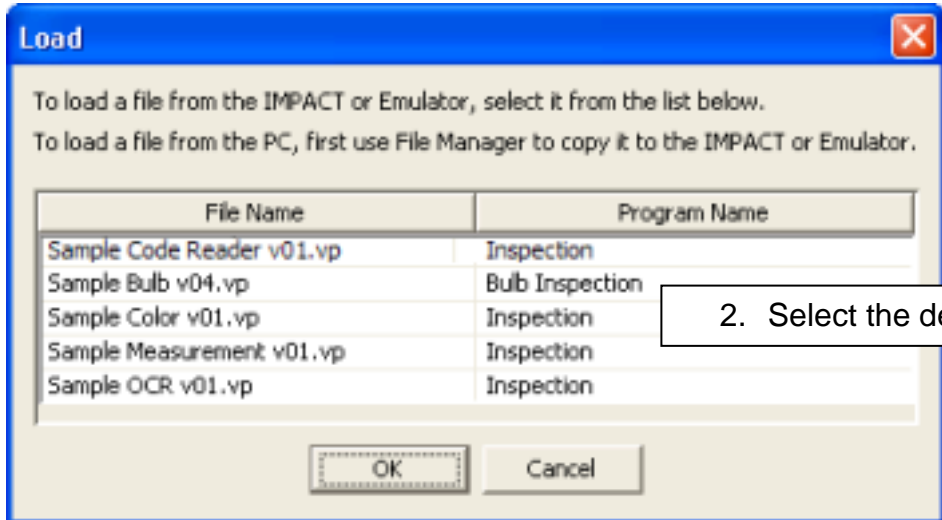
Each of the sample programs is described in the following sections.

To Open A Sample Program

1. Click the Load (Open) button in VPM's main toolbar.

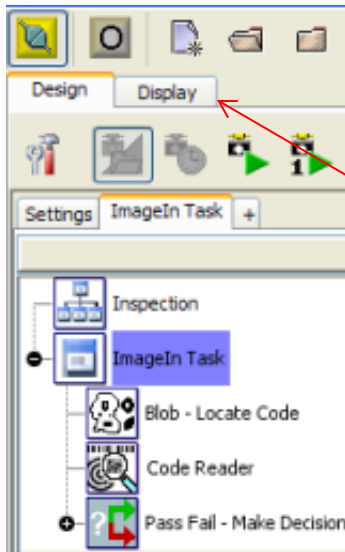


2. Select the desired program from the list.



2. Select the desired program.

Choose the Display Tab



VPM's Display Tab is designed to provide a quick and easy-to-create way to display the information from the inspection. Each sample program Display tab is set up specifically to show information from each tool in that program. Since there are different tools in each program, their respective Display tabs show different information.

The Display tab

Run the Sample Program



To run the Sample Program once on the next image, click the Trigger Once button in the main toolbar. The program runs once and updates the Display tab with a new image, the inspection results, the pass/fail chart, and the most recently inspected images below the image display window.



To run the Sample Program continuously, click the Trigger Continuously button in the main toolbar. When the button is depressed, the program runs continuously and updates the Display tab with a new image, the inspection results, the pass/fail chart, and the most recently inspected images below the image display window.



Sample Code Reader Program

NOTE: This program runs only on the M-Series processor and the Emulator. The Code Reader tool will not load on any other device.

Uses the Blob, Code Reader, and Discrete Output tools to locate, read, and verify 1D and 2D Codes.

[Deactivate any active images.](#)

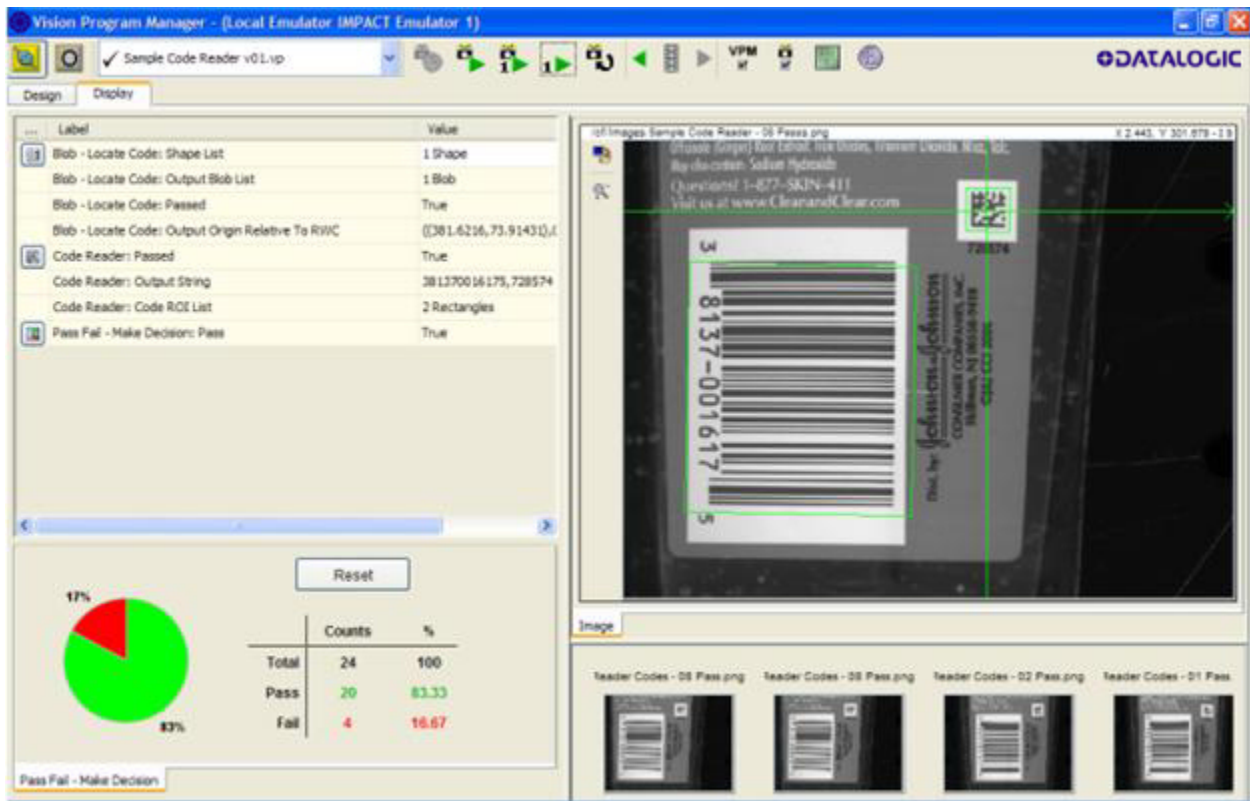
[Activate the images](#) that have a name starting with Sample Code Reader.

[Close any open programs.](#)

[Open the program](#) Sample Code Reader vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)



Sample Measurement Program

This program uses the Origin, Line Gauge, Template, and Discrete Output tools to verify the measurements and shape of connector pins.

[Deactivate any active images.](#)

[Activate the images](#) that have a name starting with Sample Measurement.

[Close any open programs.](#)

[Open the program](#) Sample Measurement vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)

The screenshot displays the Vision Program Manager interface for the 'Sample Measurement v01.vp' program. The interface is divided into several sections:

- Tool List:** A table listing various measurement tools and their results.
- Main Image:** A large image showing a connector pin with a blue measurement overlay and a green crosshair.
- Summary Table:** A table showing the overall results of the measurements.
- Pie Chart:** A pie chart showing the distribution of results: 78% Pass (green) and 22% Fail (red).
- Image History:** A row of small images showing previous measurements, labeled 'Measurement - 04 Fail.png', 'Measurement - 03 Pass.png', and 'Measurement - 02 Pass.png'.

Tool	Label	Result
Origin - Locate Pin:	Success	true
Origin - Locate Pin:	Output Origin Relative To RWC	((31.28972,1
Line Gauge - Insulation Crimp:	All In Tolerance	true
Line Gauge - Insulation Crimp:	Distance List	77.43016
Line Gauge - Insulation Crimp:	Distance Segment List	1 Line Segme
Line Gauge - Wire Crimp:	All In Tolerance	true
Line Gauge - Wire Crimp:	Distance List	54.73604
Line Gauge - Wire Crimp:	Distance Segment List	1 Line Segme
Line Gauge - Large Barrel:	All In Tolerance	true
Line Gauge - Large Barrel:	Distance List	5 Reals: 50.2
Line Gauge - Large Barrel:	Distance Segment List	5 Line Segme
Line Gauge - Small Barrel:	All In Tolerance	true
Line Gauge - Small Barrel:	Distance List	6 Reals: 27.0

	Counts	%
Total	9	100
Pass	7	77.78
Fail	2	22.22

Sample Color Program

This program uses the Color Blob and Basic tools to recognize and count the number of tablets of each color and the total number of tablets.

[Deactivate any active images.](#)

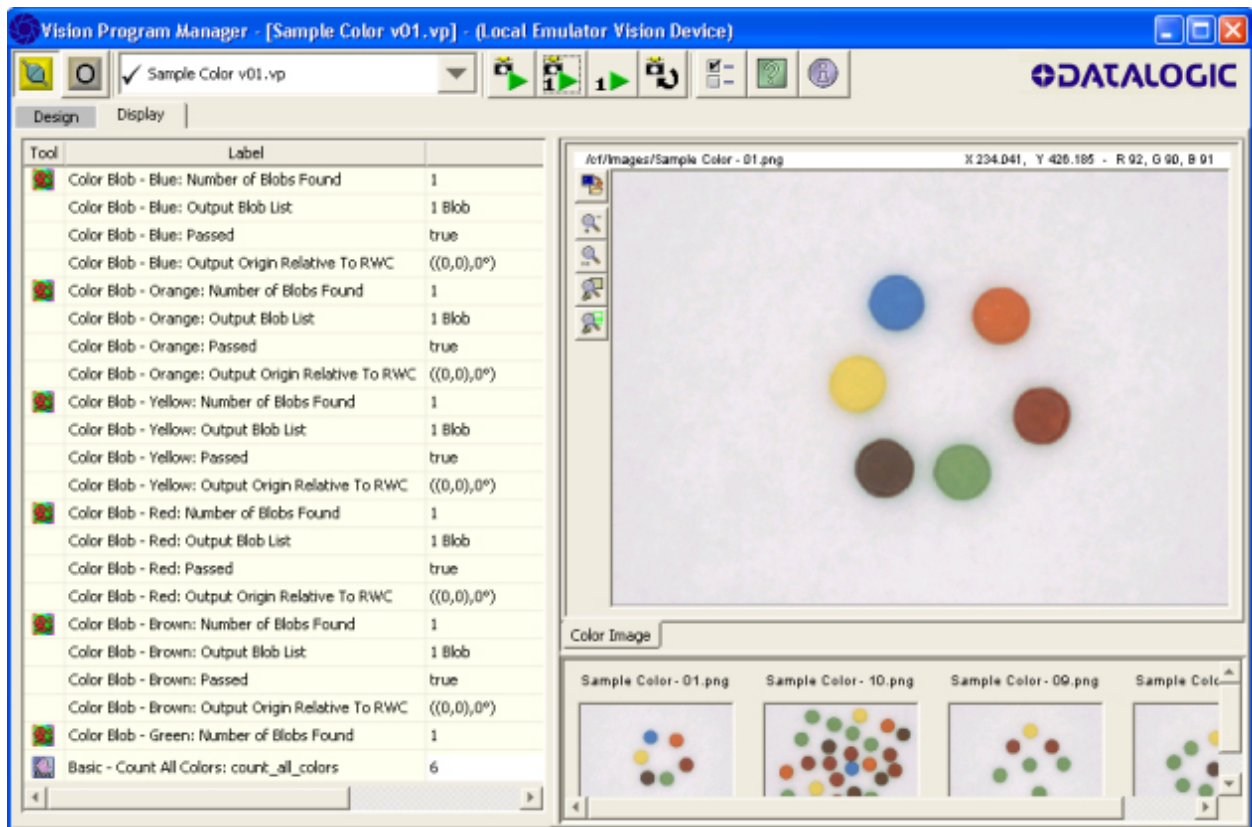
[Activate the images](#) that have a name starting with Sample Color.

[Close any open programs.](#)

[Open the program](#) Sample Color vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)



Sample OCR Program

This program uses Blob, OCR (Optical Character Recognition), and Discrete Output tools to locate, read, and verify a string of characters.

[Deactivate any active images.](#)

[Activate the images](#) that have a name starting with Sample OCR.

[Close any open programs.](#)

[Open the program](#) Sample OCR vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)

The screenshot shows the Vision Program Manager interface for the 'Sample OCR v01.vp' program. The 'Display' tab is active, showing a table of tool results and a main image display area.

Tool	Label	Value	Control
Blob - Locate Characters: Output ...		7 Blobs	Display
Blob - Locate Characters: Passed		true	Display
Blob - Locate Characters: Output ...		((332.3548,281....	Display
OCR - Read Characters: Output St...		LOT2AW7	Display
OCR - Read Characters: Characte...		7 Rectangles	Display
OCR - Read Characters: Match Sc...		7 Reals: 95.5, 9...	Display
OCR - Read Characters: Successf...		true	Display
Pass Fail - Make Decision: Pass		true	Display

The main image display area shows the text 'LOT2AW7' with green bounding boxes around each character. The image is titled 'C:/Images/Sample OCR - 08 Pass.png' with coordinates X 85.43, Y 437.285 - 1100.

A pie chart shows the pass/fail status: 89% Pass (green) and 11% Fail (red).

	Counts	%
Total	19	100
Pass	17	89.47
Fail	2	10.53

At the bottom, there are three image thumbnails labeled 'Sample OCR - 08 Pass.png', 'Sample OCR - 07 Pass.png', and 'Sample OCR - 06 Pass.png', each showing the text 'LOT2AW7'.

Sample Bulb Program

This is a complex inspection that combines several tasks and a Control Panel. In this sample program VPM uses 14 different kinds of tools to inspect various aspects of a bulb. CPM uses 20 different kinds of controls to display data and control VPM inspection parameters.

[Deactivate any active images.](#)

[Activate the images](#) that have a name starting with Sample Bulb.

[Close any open programs.](#)

[Open the program](#) Sample Bulb vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)

The screenshot shows the Vision Program Manager interface. The main window displays a grayscale image of a bulb with green measurement lines overlaid. The interface includes a toolbar at the top, a 'Design' tab with a list of tools and their results, a 'Display' tab showing the image, a 'Counts' table, a pie chart, and a bottom section with thumbnails of sample images.

Tool	Label	Result
Origin_Locate_OuterBulbWall	Success	true
Origin_Locate_OuterBulbWall	Output Origin Relat...	((588.9242,7
Origin_Locate_BottomWireLead	Success	true
Origin_Locate_BottomWireLead	Output Origin Rel...	((545.4994,2
LineGaugeDual_FilamentGap	All In Tolerance	true
LineGaugeDual_FilamentGap	In Tolerance List	true
LineGaugeDual_FilamentGap	Distance List	392.4453
LineGaugeDual_FilamentGap	Distance Segment List	1 Line Segmei
LineGaugeDatum_LeadPosition	All In Tolerance	true
LineGaugeDatum_LeadPosition	In Tolerance List	true
LineGaugeDatum_LeadPosition	Distance List	440.9546

	Counts	%
Total	10	100
Pass	6	60
Fail	4	40

How to look at the Sample Bulb Control Panel

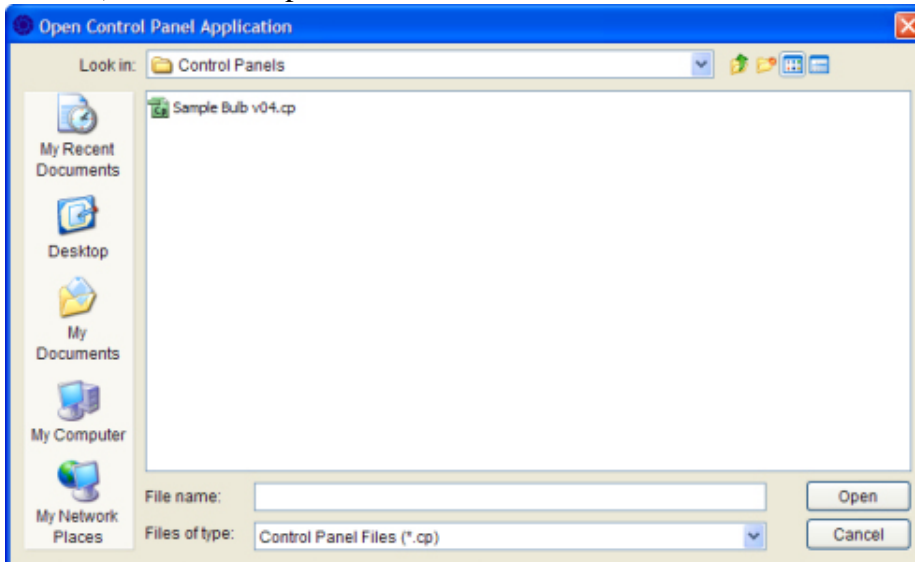
A Control Panel is provided for the Sample Bulb program so you can see how to create a user interface for a vision program. This is not a complex process, but this section of the guide does not provide much detail. For more details on how to create and use a Control Panel, refer to the Impact Reference Guide (Part Number 843-0093).

NOTE: At this point, before you start CPM, you should start VPM, [activate the images](#) that have a name starting with Sample Bulb, and [open the program](#) Sample Bulb vnn.vp (where vnn is the version number).

To use the Sample Bulb Control Panel



1. Be sure that VPM is running, that the Sample Bulb images are active, and that the Sample Bulb Program is loaded. Click the Design tab in VPM.
2. To start CPM, double-click on the desktop icon.
3. Click the Open Control Panel Application button in the main toolbar.
4. From the Open dialog, click on the file Sample Bulb vnn.cp (where vnn is the version number), then click Open.



5. After the Control Panel has finished opening, click the Design/Run Mode button in the main toolbar.
6. In the “Connect to Device” area of the Control Panel, click the Connect button.



7. In the “Connect to Device” area of the Control Panel, click the Go Online button.



8. To run the Sample Bulb program and see the results in the Control Panel, click the One Snap button in the “Connect to Device” area of the Control Panel. The program runs once and updates all the appropriate data in the Control Panel.



To run the Sample Program continuously, click the Continuous button in the “Connect to Device” area of the Control Panel. When the button is depressed, the name of the button changes to “Stop Snaps” and the program runs continuously.



To access the Vision Setup tab on the Control Panel, the Control Panel must be connected to the Emulator.

To access the Vision Setup tab

1. The Control Panel must be connected to the Emulator. Click one of the green Login buttons in the Users area of the Control Panel.
2. In the User Logon dialog, select a User ID.
3. In the Password field, enter the string 123456.
4. Click the Log On button. The Vision Setup tab is enabled.

Sample Template Program

This program uses Correlation Pattern Find, Greyscale Template, Pass Fail, and Discrete Output tools to locate and verify the print and background on a part.

[Deactivate any active images.](#)

[Activate the images](#) that have a name starting with Sample Template.

[Close any open programs.](#)

[Open the program](#) Sample Template vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)

The screenshot shows the Vision Program Manager interface for the 'Sample Template v01.vp' program. The interface is divided into several sections:

- Toolbar:** Contains icons for file operations, execution, and settings.
- Design Tab:** A table listing various tools and their current values.

Tool	Label	Value	Control
Correlation Pattern Find - Find Par...			Display
Correlation Pattern Find - Find Par...		true	Display
Correlation Pattern Find - Find Par...		{{(323.0361,259...	Display
Correlation Pattern Find - Find Par...		95.8952	Display
Greyscale Template - Check Print: ...			Display
Greyscale Template - Check Print: ...		false	Display
Greyscale Template - Check Print: ...		288	Display
Greyscale Template - Check Print: ...		464	Display
Greyscale Template - Check Print: ...		2 Blobs	Display
Greyscale Template - Check Print: ...		19 Blobs	Display
Greyscale Template - Check Backg...			Display
Greyscale Template - Check Backg...		true	Display
- Image Display:** Shows a large image of a black oil cap with a white crown logo and the text 'SAE 5W-30'. A green crosshair is overlaid on the image.
- Results Section:**
 - A pie chart showing a 50% red section and a 50% green section.
 - A table with the following data:

	Counts	%
Total	10	100
Pass	5	50
Fail	5	50
 - A 'Pass Fail - Make Pass Fail Decision' field.
- Image Gallery:** A row of three small thumbnail images labeled 'Sample Template - 08 Fail.png', 'Sample Template - 07 Fail.png', and 'Sample Template - 06 Pass.png'.

Sample Pinpoint Verify Program

This program uses the Pinpoint Pattern Find, Circle Gauge, and Pass Fail tools to locate and verify the pattern on a rotating part.

[Deactivate any active images.](#)

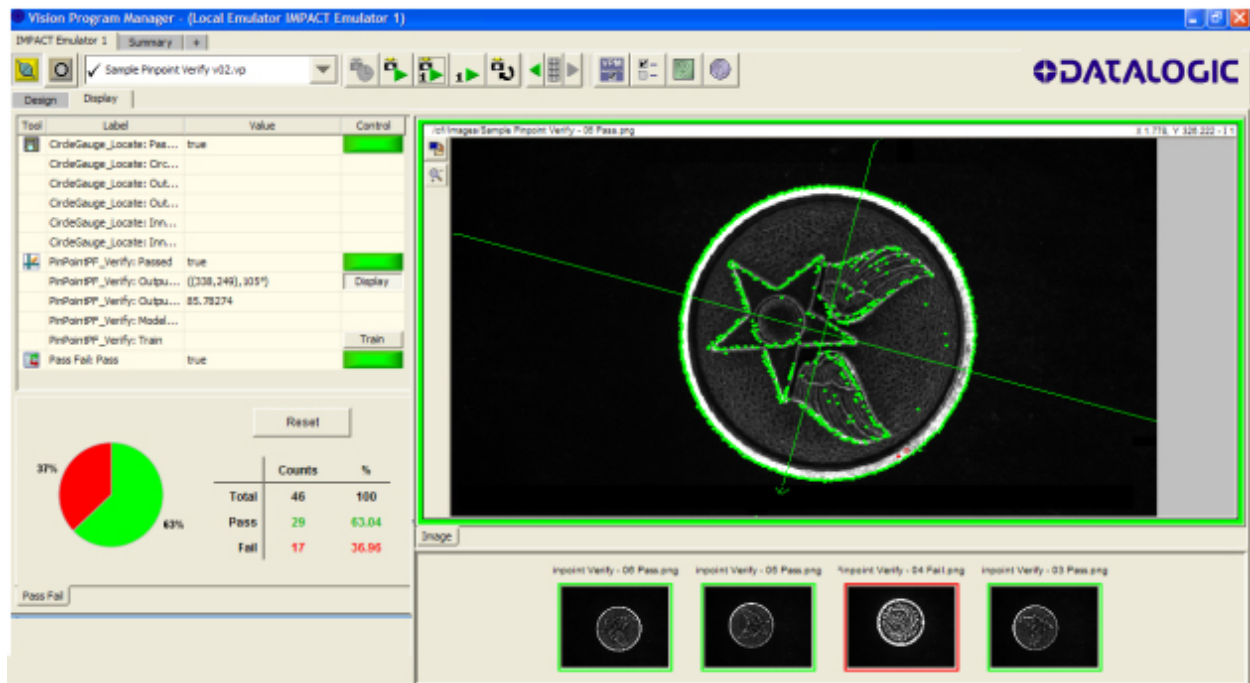
[Activate the images](#) that have a name starting with Sample Pinpoint Verify.

[Close any open programs.](#)

[Open the program](#) Sample Pinpoint Verify vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)



Sample Pinpoint Pick and Place Program

This program uses the Pinpoint Pattern Find, Morphology Dilate, Data Set, List Loop, Data Instance, Line Find, Line Gauge, Pass Fail, and Branch tools to find multiple patterns (parts) in the Field of View. The output can then be used by a robot to Pick & Place the passing parts.

[Deactivate any active images.](#)

[Activate the images](#) that have a name starting with Sample Pinpoint PickPlace.

[Close any open programs.](#)

[Open the program](#) Sample Pinpoint PickPlace vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)

The screenshot displays the Vision Program Manager interface for the 'Sample Pinpoint PickPlace v02.vp' program. The interface includes a control panel with various icons, a main image window showing a part with detection lines, and a summary table with a pie chart.

Tool	Label	Value	Control
MorphDilate_Separation:	...	1	
PinPointFP_LocateMatch:	...	true	Display
PinPointFP_LocateMatch:	...	[[321.125,177],153°]	
PinPointFP_LocateMatch:	...	84.73237	
PinPointFP_LocateMatch:	...		
LineFind_TipAngle: Line	[[5° 0° 5° true,true]	
LineFind_TipAngle: Passed	...	false	Display
LineFind_TipAngle: Line S...	...	[[36.80251,-5.354669],81...	
LineGauge_BaseWidth: A...	...	true	Display
LineGauge_BaseWidth: I...	...		
LineGauge_BaseWidth: D...	...		
LineGauge_BaseWidth: D...	...		
BASIC_Check_Results: R...	...	TOTAL:1 GOOD:0 BAD:1	
Pass Fail: Pass	...	false	Display

Counts	%
Total	29 100
Pass	18 62.07
Fail	11 37.93