iTrue-TQS5000C

Color Vision Inspection System for Passive Components

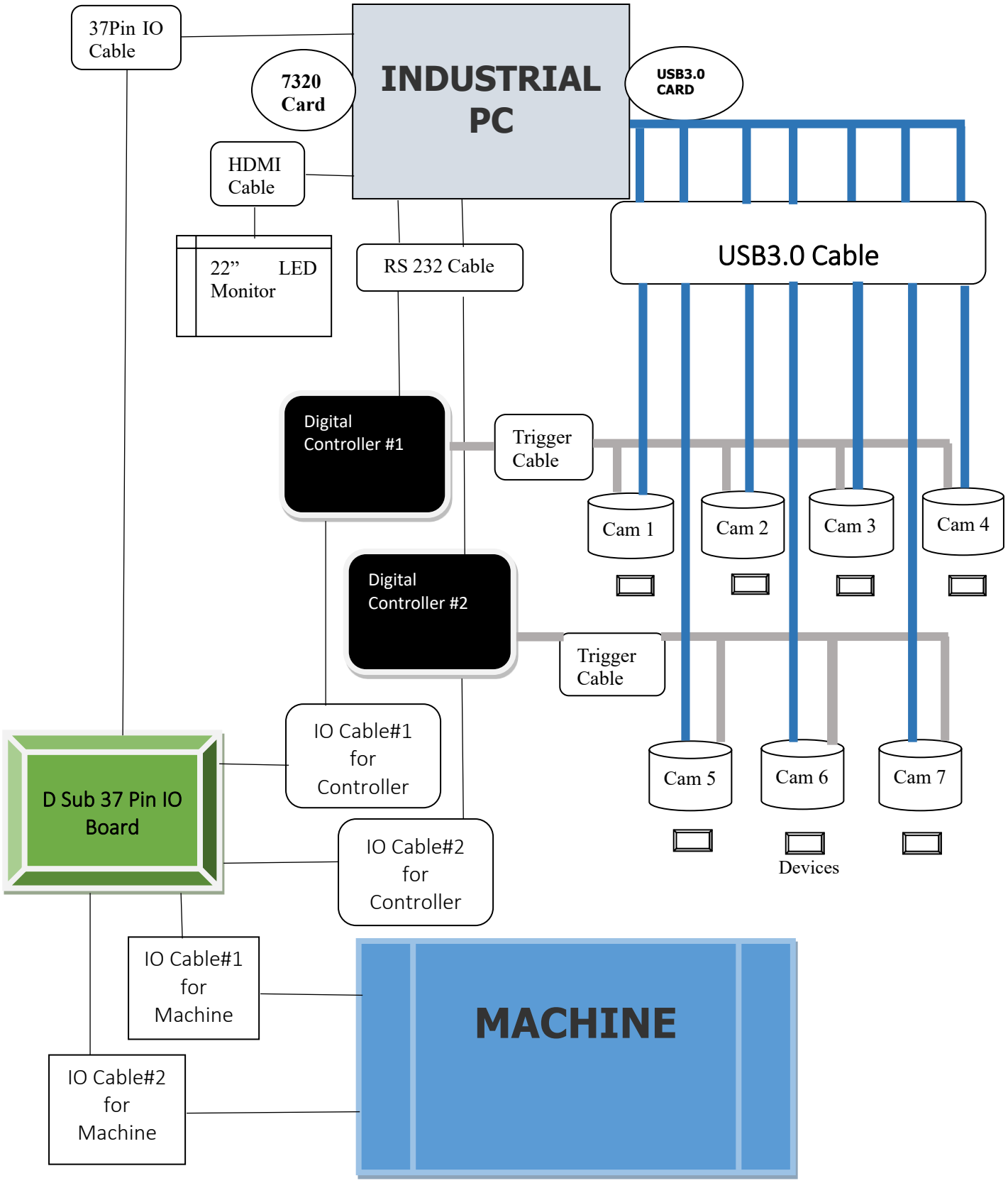
Operation and Installation Manual

Version 2.12.23.02

Foreword

First, thank your company for purchasing the iTrue-TQS5000C chip capacitors, resistors color vision system. This instruction manual outlined the vision system performance and features for better user understanding. If there is any insufficient, we will be consistently updating the system feature and information of this manual.

FULL SET TQS System Basic Structure



FULL SET TQS SPECIFICATION

Software and Hardware Basic Specification		
1	Machine Model	All Tokyo Weld Machine Model
2	Speed	3800 pcs / min (max speed: 5000pcs/min)
3	Inspection Products	All kind of Chip Components, as Chip Capacitor, Chip Resistor, Chip Inductor, Chip LED
4	Chip Size	01005 – 3225. Paper tape and Emboss Tape
5	CPU	Intel Multicore CPU, 4G internal storage, above 120G SSD
6	Camera	USB3.0 Vision Series of CCD / CMOS camera
7	Lighting / Controller	LED lighting / RS232 2 channel digital controller
8	Installation Support	All aluminum material anti-electric rusty scale
9	Memory Ram	64GB Microsoft OS
10	Language	Both English and Chinese Switch

Standard Lenses and Model Number						
Chip Size	**0402 (01005)**	**0603 (0201)**	**1005 (0402)**	**1608 (0603)**	**2012 (0805)**	**3216 (1206)**
Top Index	**3.75X**	**2.50X**	**1.80X**	**1.20X**	**1.00X**	**0.67X**
Model No.	**MLENS375X**	**MLENS250X**	**MLENS180X**	**MLENS120X**	**MLENS100X**	**MLENS067X**
Bottom Index	**3.75X**	**2.50X**	**1.80X**	**1.20X**	**1.00X**	**0.67X**
Model No.	**MLENS375X**	**MLENS250X**	**MLENS180X**	**MLENS120X**	**MLENS100X**	**MLENS067X**
Feed Station	**3.00X**	**2.00X**	**1.20X**	**1.00X**	**1.00X**	**0.67X**
Model No.	**MLENS300X**	**MLENS200X**	**MLENS120X**	**MLENS100X**	**MLENS100X**	**MLENX067X**
3rd Station	**2.50X**	**1.50X**	**1.00X**	**0.67X**	**0.67X**	**0.50X**
Model No.	**MLENS250X**	**MLENS150X**	**MLENS100X**	**MLENS067X**	**MLENS067X**	**MLENS050X**
Pick Up 1	**2.50X**	**1.50X**	**1.00X**	**0.67X**	**0.67X**	**0.67X**
Model No.	**MLENS250X**	**MLENS150X**	**MLENS100X**	**MLENS067X**	**MLENS067X**	**MLENX067X**
Pick Up 2	**2.50X**	**1.50X**	**1.00X**	**0.67X**	**0.67X**	**0.67X**
Model No.	**MLENS250X**	**MLENS150X**	**MLENS100X**	**MLENS067X**	**MLENS067X**	**MLENX067X**
Bottom Sealing	**0.50X**	**0.50X**	**0.50X**	**0.50X**	**0.50X**	**0.50X**
Model No.	**MLENS050X**	**MLENS050X**	**MLENS050X**	**MLENS050X**	**MLENS050X**	**MLENS050X**
Top Sealing	**0.50X**	**0.50X**	**0.50X**	**0.50X**	**0.50X**	**0.50X**
Model No.	**MLENS050X**	**MLENS050X**	**MLENS050X**	**MLENS050X**	**MLENS050X**	**MLENS050X**

Customized Lenses and Model Number					
Chip Size	Top Index	Bottom Index	Feed Station	3rd Station	Remarks
Model No.					

Customized Lenses and Model Number					
Chip Size	Pick Up 1	Pick Up 2	Bottom Sealing	Top Sealing	Remarks
Model No.					

Standard Lighting and Model Number						
Chip Size	**0402 (01005)**	**0603 (0201)**	**1005 (0402)**	**1608 (0603)**	**2012 (0805)**	**3216 (1206)**
Index Top	**18LED (B/R)**	**18LED (B/R)**	**18LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**
Model No.	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT12W**	**MLIGHT12W**	**MLIGHT12W**
Index Bottom	**10LED (W)**	**10LED (W)**	**10LED (W)**	**10LED (W)**	**10LED (W)**	**10LED (W)**
Model No.	**MLIGHT10W**	**MLIGHT10W**	**MLIGHT10W**	**MLIGHT10W**	**MLIGHT10W**	**MLIGHT10W**
Feed Station	**18LED (B/R)**	**18LED (B/R)**	**18LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**
Model No.	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT12W**	**MLIGHT12W**	**MLIGHT12W**
3rd station	**18LED (B/R)**	**18LED (B/R)**	**18LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**
Model No.	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT12W**	**MLIGHT12W**	**MLIGHT12W**
Pick Up 1	**18LED (B/R)**	**18LED (B/R)**	**18LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**
Model No.	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT12W**	**MLIGHT12W**	**MLIGHT12W**
Pick Up 2	**18LED (B/R)**	**18LED (B/R)**	**18LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**	**12LED (B/R)**
Model No.	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT18W**	**MLIGHT12W**	**MLIGHT12W**	**MLIGHT12W**
Bottom Sealing	**6LED (W)**	**6LED (W)**	**6LED (W)**	**6LED (W)**	**6LED (W)**	**6LED (W)**
Model No.	**MTQSLI06W**	**MTQSLI06W**	**MTQSLI06W**	**MTQSLI06W**	**MTQSLI06W**	**MTQSLI06W**
Top Sealing	**12LED (W)**	**12LED (W)**	**12LED (W)**	**12LED (W)**	**12LED (W)**	**12LED (W)**
Model No.	**MTQSLI12W**	**MTQSLI12W**	**MTQSLI12W**	**MTQSLI12W**	**MTQSLI12W**	**MTQSLI12W**

Customized Lighting and Model Number					
Chip Size	Top Index	Bottom Index	Feed Station	3rd Station	Remarks
Model No.					

Customized Lighting and Model Number					
Chip Size	Pick Up 1	Pick Up 2	Bottom Sealing	Top Sealing	Remarks
Model No.					

Software Features

- Products display, in both English and Chinese switch, production statistics show that the choice of inspect items

- Bad image storage, easy to use, multi-functional

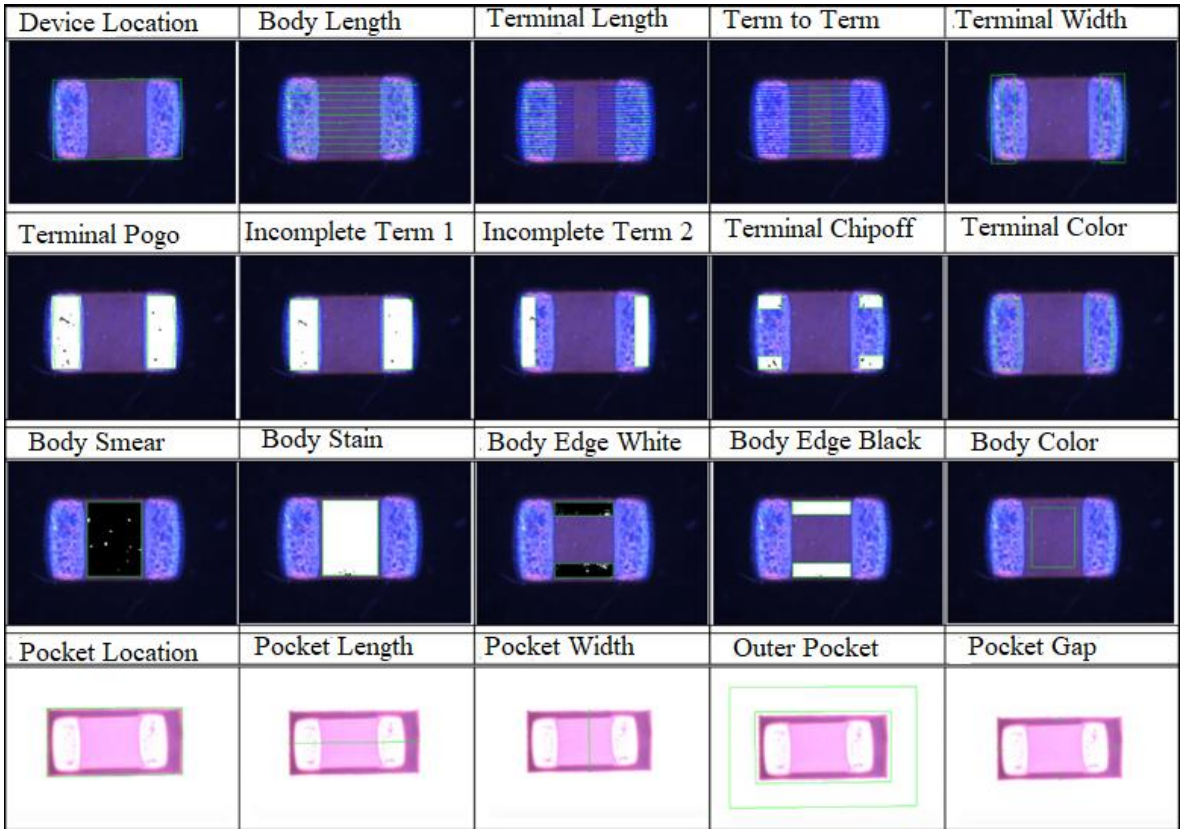
Inspection of major item

For Track 1, 2 and 3

- Device fail in package location, empty pocket, Oxidation, Mark etc.

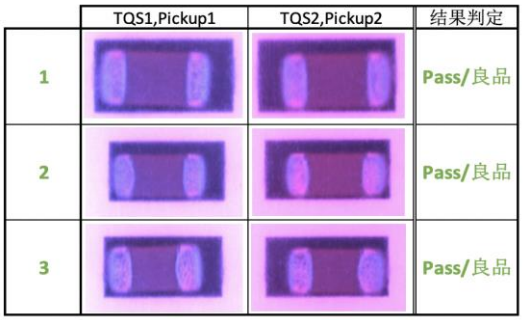
- Device Terminals：
  Terminal width, Terminal Length, Terminal to terminal length，Terminal Pogo, Terminal Incomplete, Terminal Chip off, Terminal Color etc.

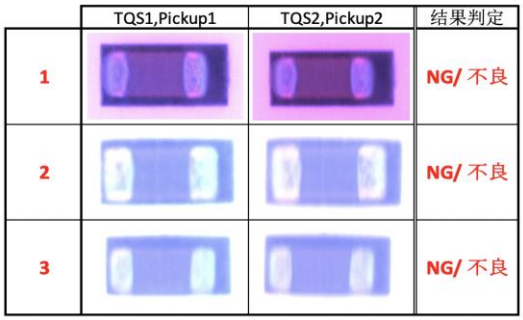
- Device Body：
  Body width，Body Length，Body Smear，Body Stain，Body Crack, Body Scratch etc. To ensure clear transparent cover tape sealed in position and probably sealed.



For Track 4 and 5 – Pick up check.

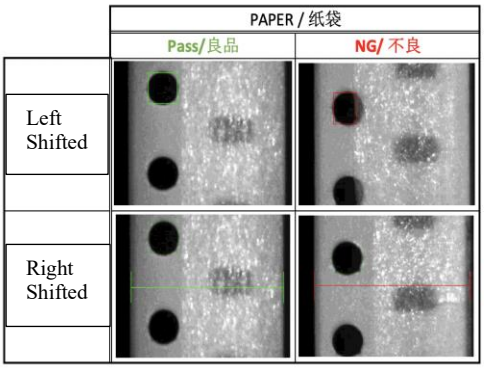
- To ensure chip is 100% able to pick up by SMT machine during the post PCB assembly process.

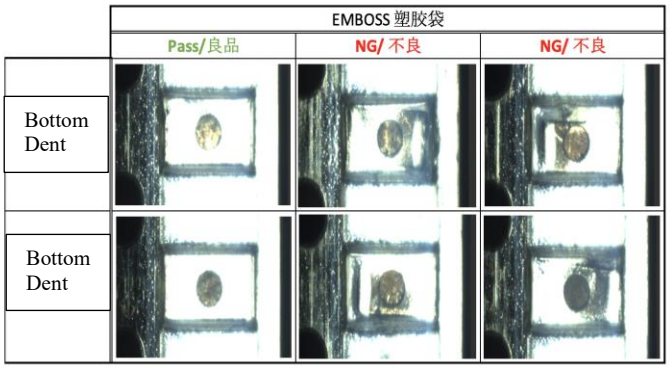




For Track 6 – Bottom sealing check

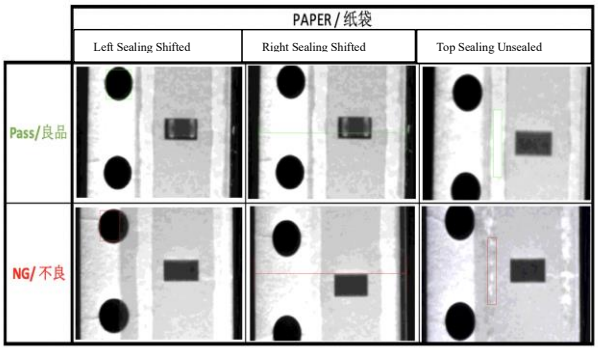
- To ensure white bottom paper tape sealed in right position.
- To ensure no Emboss tape dent.

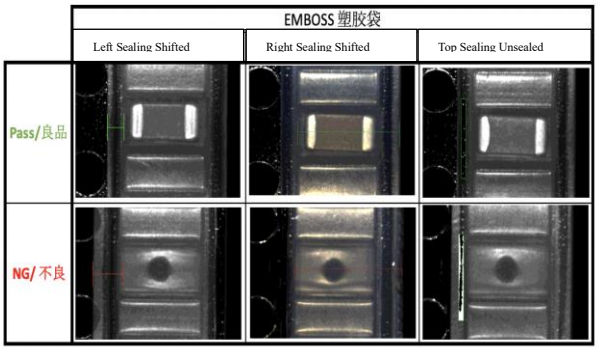




For Track 7 – Top sealing check

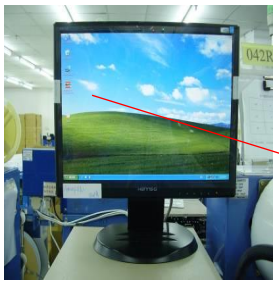
- To ensure clear transparent cover tape sealed in position and properly sealed.





Installation and begin testing operations.

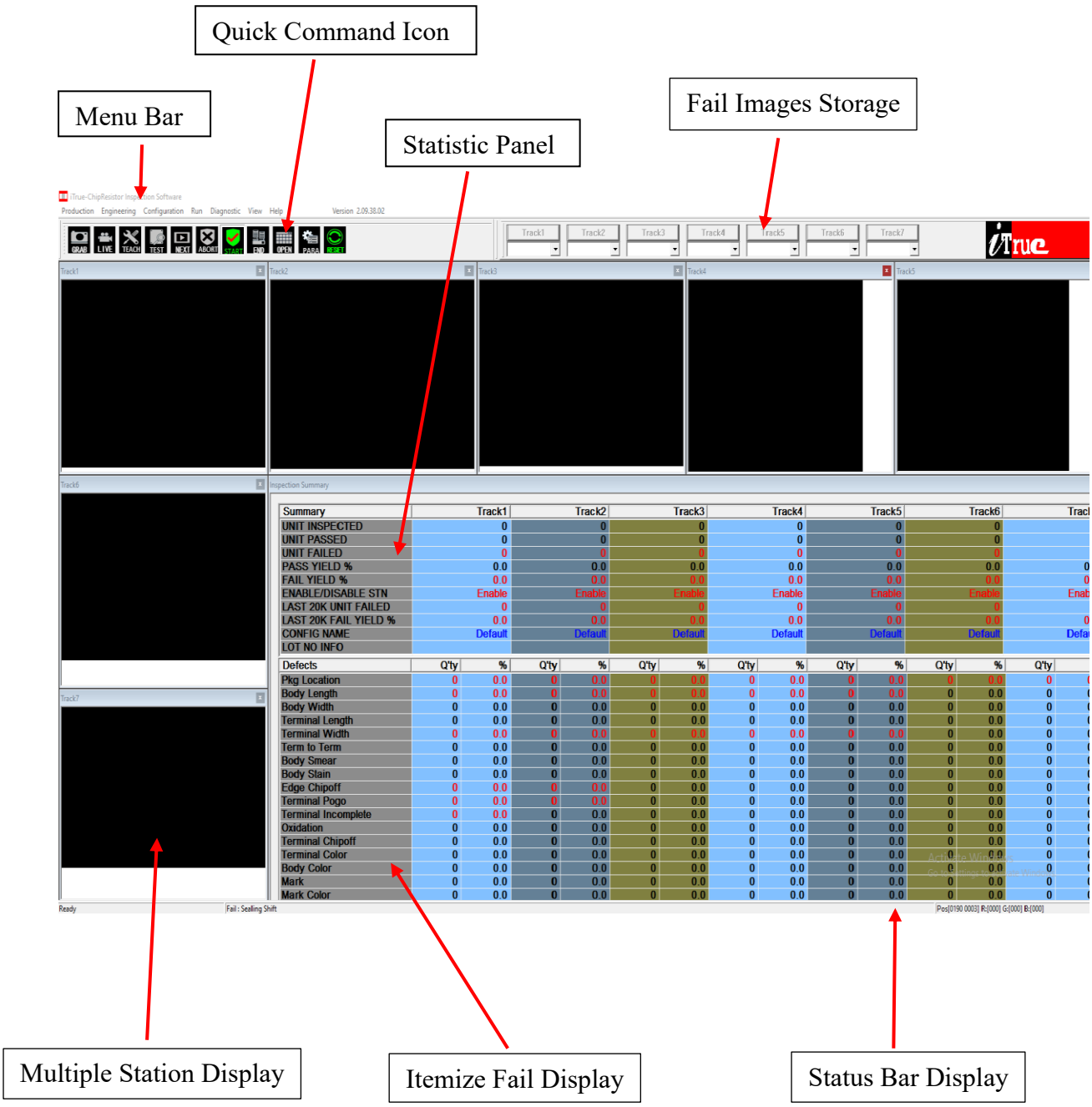
ON PC



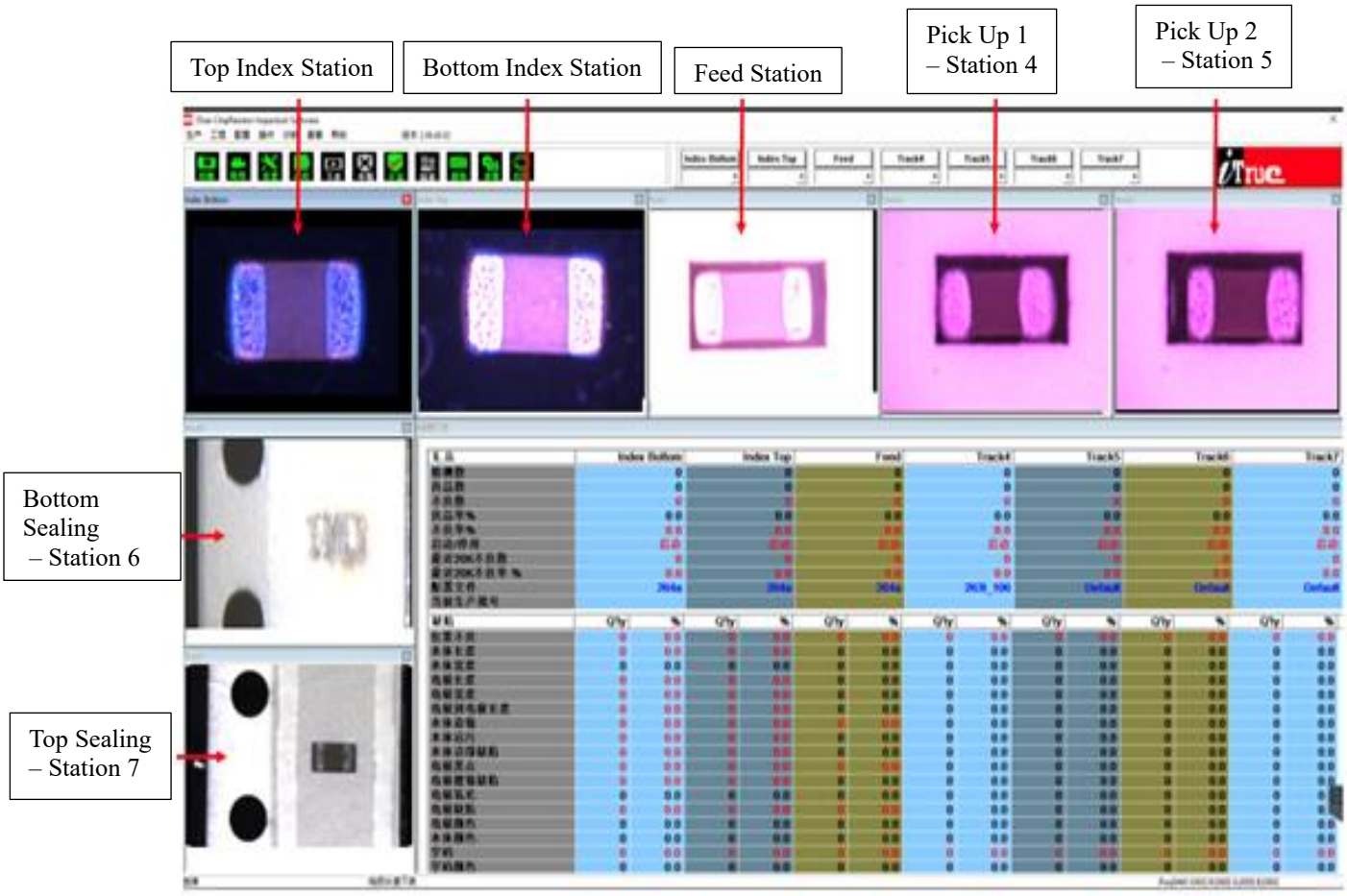
Click 

software to open.

User Graphics Interface



Full Set TQS 7 Station Indication



User Interface—Quick Command Icons operation

Capture a single image from camera.

Enables image capturing continuously.

To train the system for the device

Performs an inspection on the device.

Moves on to the following steps in a debugging or teach process.

Stop the current debugging or teach process.

Set the vision system to production mode for I/O communication with handler. This will also disable user interference.

Closed lot information and recoding inspection data and images.

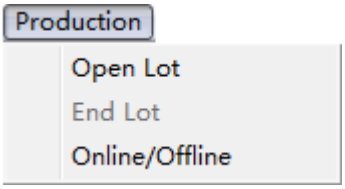
Start a new lot information and enable saving images.

Open the parameter setting dialog box.

Clear statistic data to zero

User Interface—Quick Menu operation

Production Menu



Open Lot

When Open Lot or quick icons below clicked, enable the lot information dialog.

User allowed operation:

1. Machine ID: iTrue#1
2. Operator ID:
3. Order No:
4. Scan No: Process card
5. Lot ID: *
6. Lot size:
7. Package Type: Default
8. Save Images:
   - Pass, Fail or All

All information will be saved in D:\CTester\

Folder name:
DDMMYY_HHMMSSS_LOTID

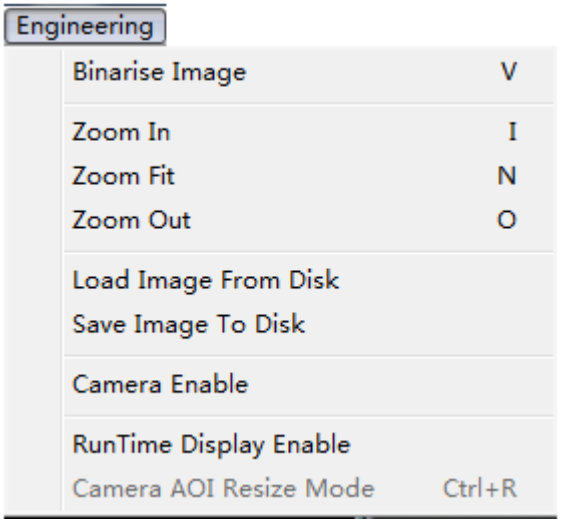
End Lot

Closes current lot of devices

Online / Offline

Online to start inspection
Offline to do parameter setting.

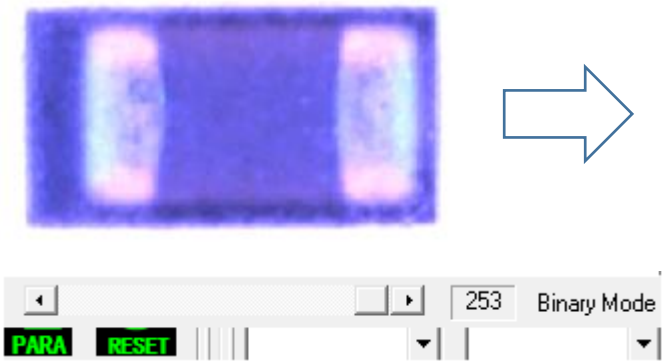
Engineering menu



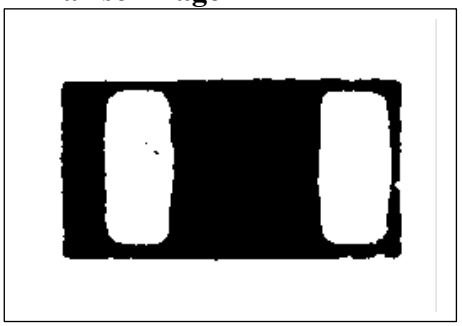
Binarise Image

Toggle image between binary and gray image.

Normal Image



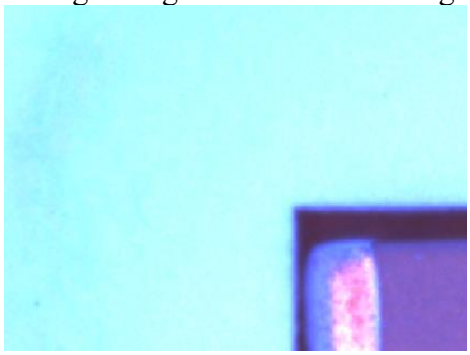
Binarise Image



During this Binary mode no automatic data or fuction, this function only for user viewing or light condition in binary mode for better understanding of images quality.

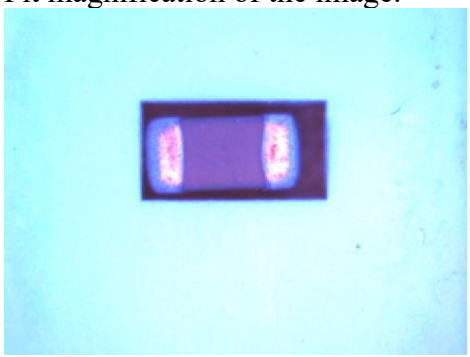
Zoom In

Enlarges magnification of the image.



Zoom Fit

Fit magnification of the image.



Zoom Out

Reduces magnification of the image.

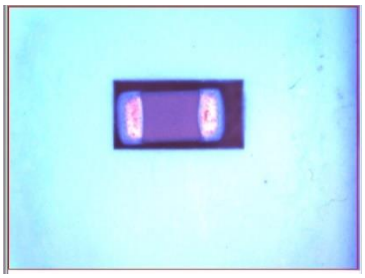
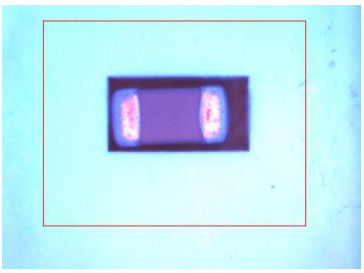
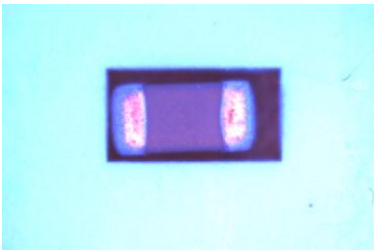
- Zoom in / Zoom out only for debug used.

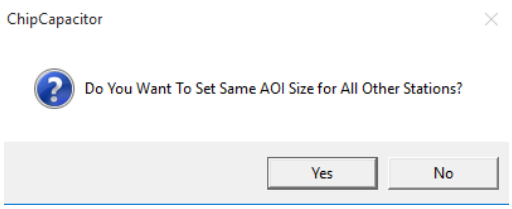
Load Image from Disk	Loads an Image from the hard disk.
Save Image to Disk	Saves a display Image to hard disk.
Camera Enable	Enables image to be captured from camera when a teach or inspection is initiated.
Run Time Display Enable	Enables/Disables the display of image inspected during Production mode.

Camera AOI Resize Mode

Enable user Field of view resizing.

Example:

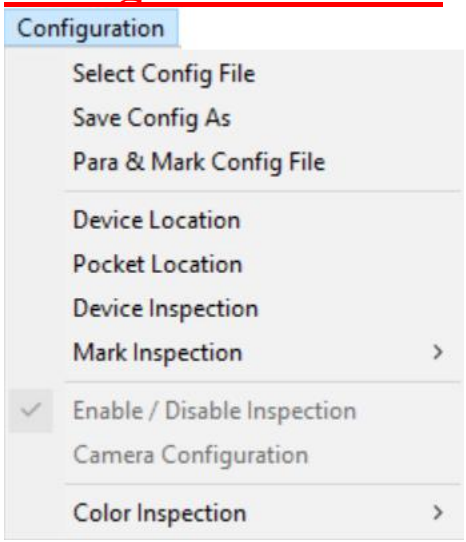
1	Click Camera AOI Resize Mode	
2	Adjust with RED box of view resizing.	
3	Manual bar clicks NEXT	
4	Field of view resizing	



Yes = all station will be same AOI Size

No = only selected station

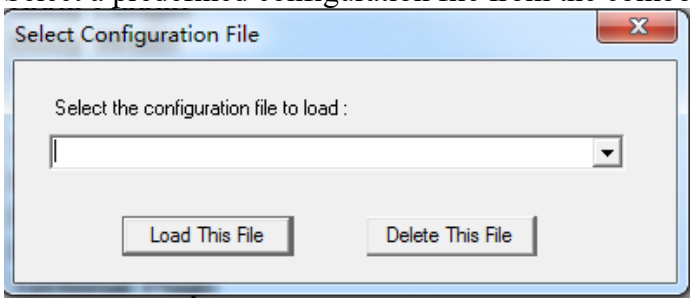
Configuration Menu:



Select Configuration File

For loading, creation, and deletion of configuration files.

Select a predefined configuration file from the combo box.



1. Load This File

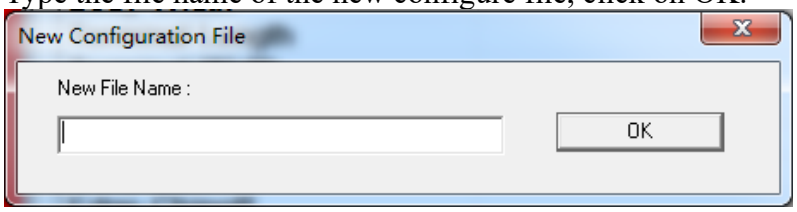
- Choose the file name from the pull-down menu to select the pre-configure setting and parameter and click “Load This File " button.

2. Delete This File

- Choose the file name from the pull-down menu to delete the un-use pre-configure setting and parameter and click “Delete This File " button.

Save Configuration As = Copy a configuration file.

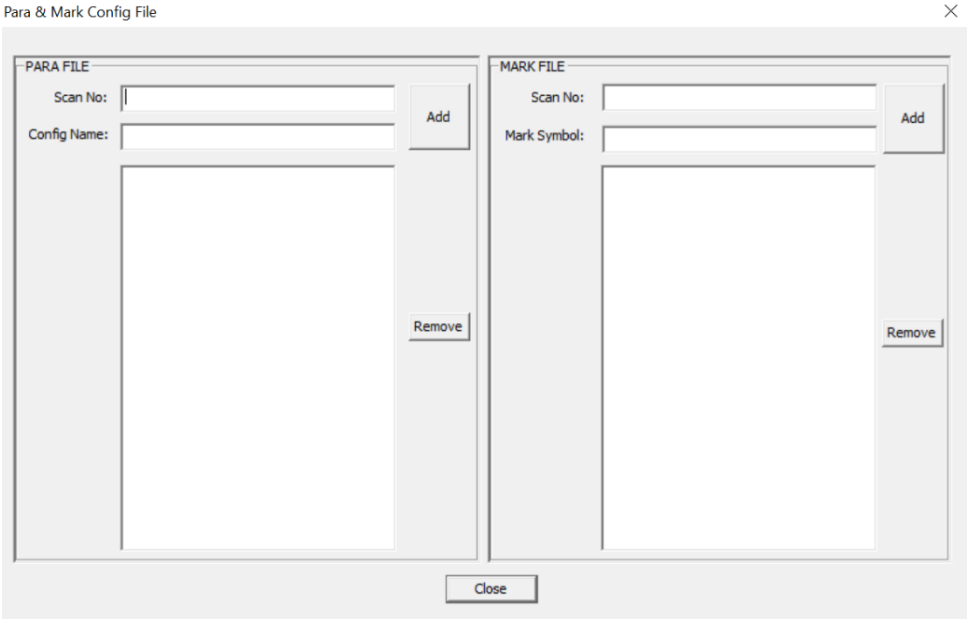
For saving configuration file.
Type the file name of the new configure file, click on OK.



*** The current configuration will be saved as the new file name and the configuration will be loaded with all the pre-configure settings and parameters.**

Para & Mark Config File

Para File: To set of Scan ID information & Configuration file name.
Mark File: To setting of each configuration name assigned with mark string.



Para File:
Scan No = Scan ID information
Config Name = To set config name
Add = add the scan No and Config Name into system

Mark File:
Scan No = Scan ID information
Mark Symbols = product mark number
Add = add the Scan No and Mark Symbol into system

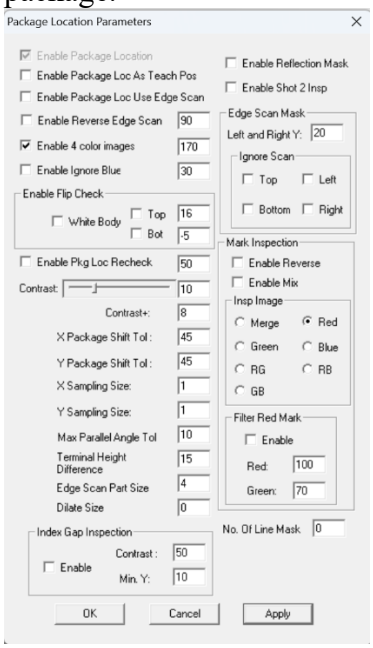
Remove = is to remove the file information

Close = after done close the page

Device Location =Finding the package location.

For configuring the parameter and procedure locating the device location.

The package location parameters are used to determine the characteristics of the location of the package.

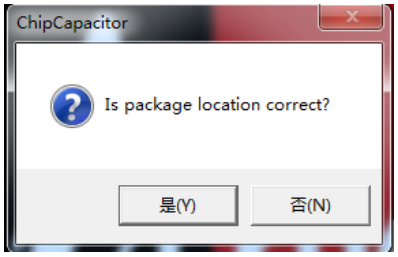


Enable Package Location

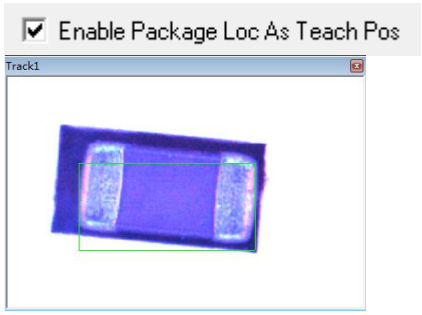
Purpose：Can accurately identify the location of the products, if not enable this, all the inspection items will not be activated.

Enable Package Loc as Teach Pos

If enabled, the package location is fixed during the teaching process, and only the set area is detected. Suitable applicable to fixed product position, not application to product position change. The package location will be set as a teaching position only.

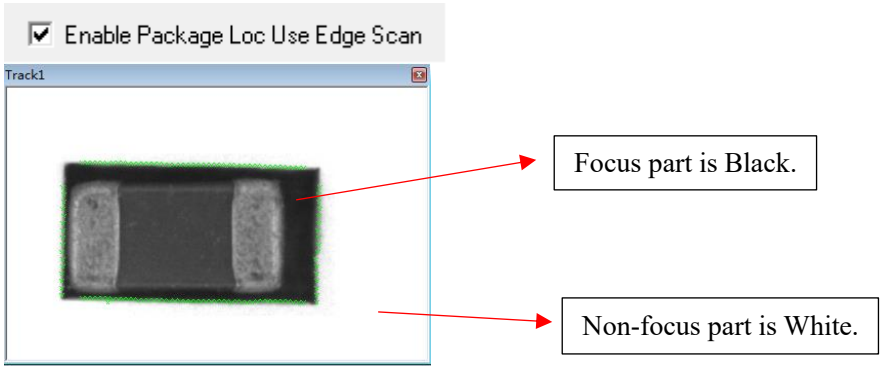


Y = yes to confirm the position
N = no for incorrect position



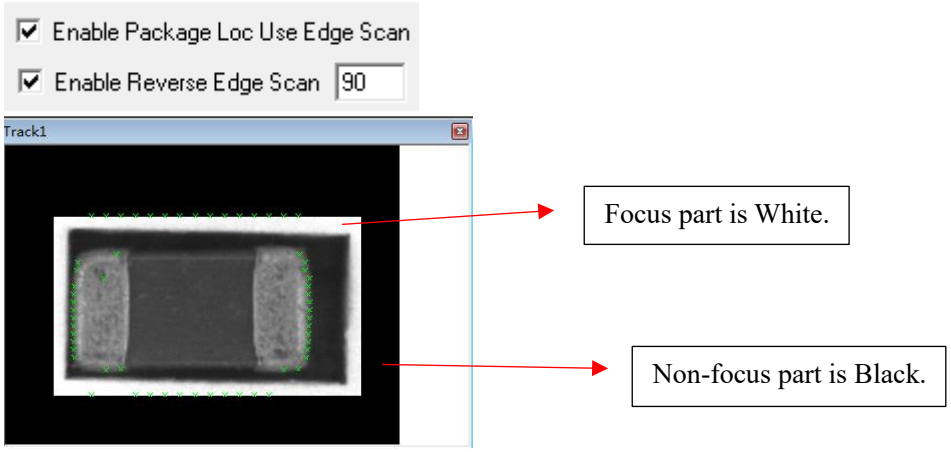
Enable Package Loc Use Edge Scan

If enabled, only the highlight focus part is black, non-focus part will be white. This allows the 5th and 6th side of package in terminal area do not use blob method to find pkg location. It uses four sides edge point to find the package location.



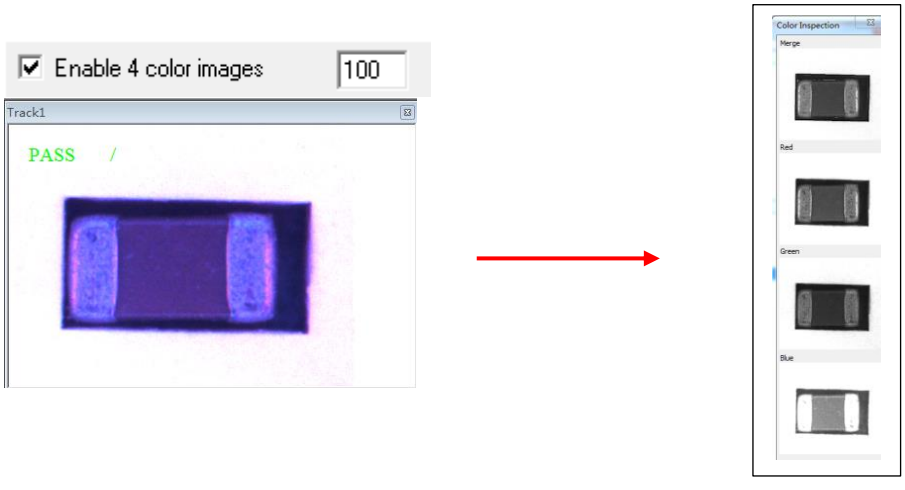
Enable Reverse Edge Scan

Purpose: Only focus part is white, non-focus will be black. Setting value should not more than 255. Black package uses this option to find pkg location using edge scan. It uses four sides edge point to find the package location. It uses when enable "Package loc use Edge scan".



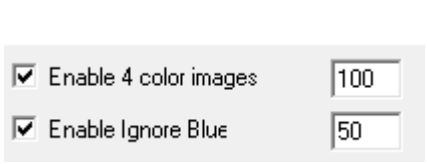
Enable 4 color Images.

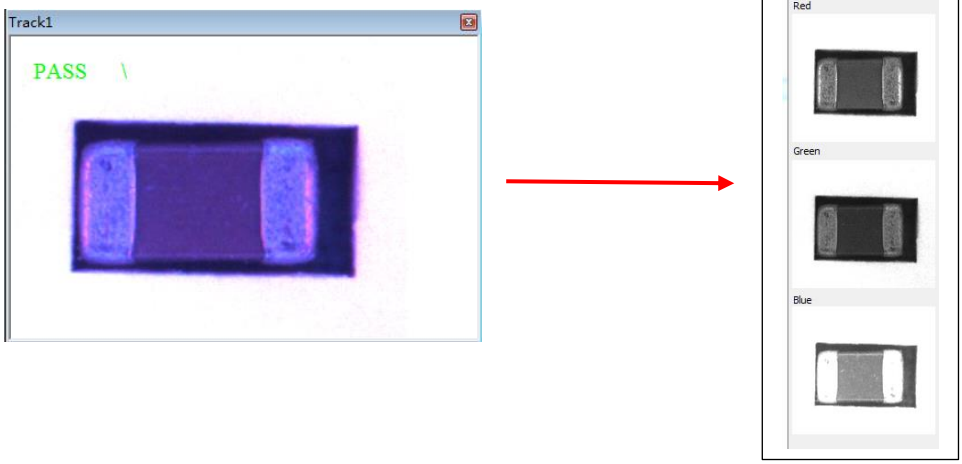
Purpose: If enabled, it will generate 4 different color images. This is to see which image will get better results. Setting value depends on the product clarity adjustment.



Enable Ignore Blue

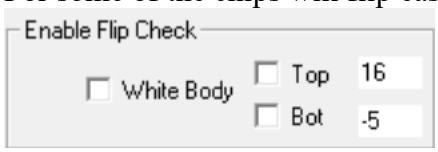
Purpose: If enabled, the pixels of product's blue color is lower than the set value, and the integrated picture on merge color will be Black.
This parameter is used when Red pkg location enabled. To filter the blue color pixels. Some special environment images only use this.





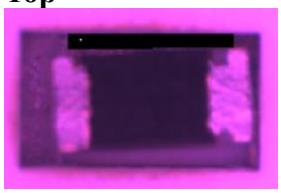
Enable Flip Check

For some of the chips will flip easily, enabled flip check to detect when chip is flipped.

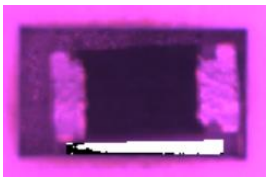


Tick for white body if device is white. Untick for black device inspection.

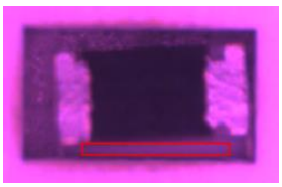
Top



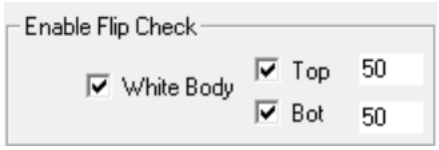
Bottom



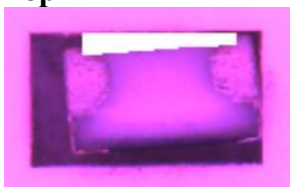
Fail



Input value should set 45-50 for White body inspection so that it can find the black flip defect from white.

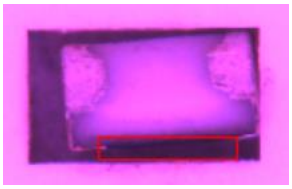


Top



Bottom

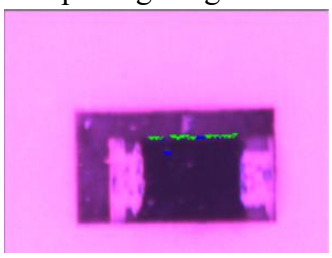
Fail



Enable Pkg Loc Recheck

Enable this feature is to recheck package location again using edge scan. Some chip first locates the wrong device location, it needs to recheck to locate the correct package location to avoid overkill.

Use package edge

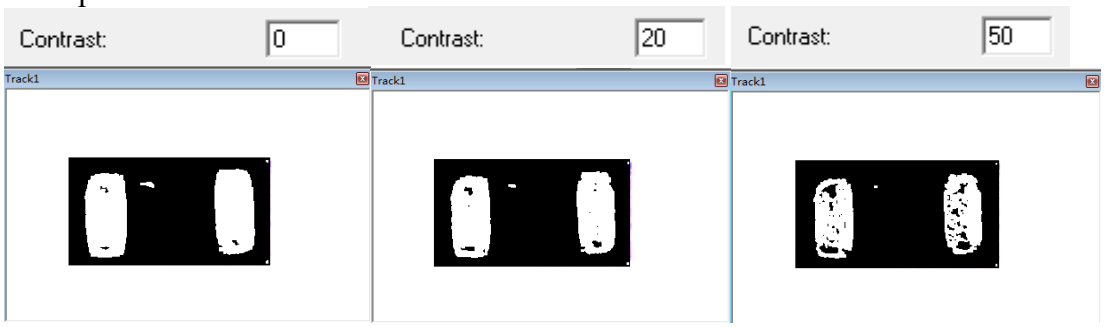


Package Relocated

Contrast

Purpose：To reduce the noise image for accurately identifying the location of the products. If package surrounding having large white pixel, the contrast value should be high such as 50. However, this reduces the accuracy in correctly locating the device. However, the higher the value will reduce the detection of defect at the terminal edge. A suitable setting value will be 0-10.

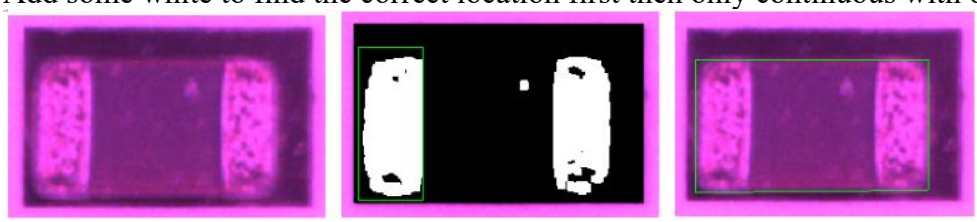
Example:



Contrast+

The purpose of Contrast+ is for some of the devices with thin terminal, contrast+ to add whiter for software to find the correct device location.

This parameter suitable use for those terminals had chipoff, cause locates wrong device location. Add some white to find the correct location first then only continuous with others inspection.



X Package Shift Tol:

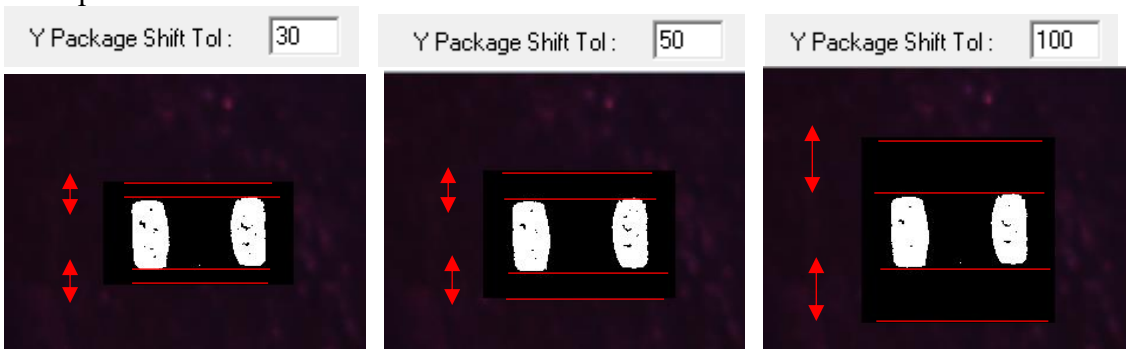
Purpose：Maximum allowable shift for the package horizontally. When you do the teach, the Package Position that is taught is used as the reference position. During inspection, it allows +/- amount of X Package Shift on the Horizontal Axis. Increasing the value will allow a bigger shift on the X axis and vice versa. Too big a shift is not advisable as it might include false package edges to be found. The proposed settings are 50, 30.

Example:

Y Package Shift Tol:

Purpose：Maximum allowable shift for the package horizontally. When you do the teach, the Package Position that is taught is used as the reference position. During inspection, it allows +/- amount of Y Package Shift on the Horizontal Axis. Increasing the value will allow a bigger shift on the Y axis and vice versa. Too big a shift is not advisable as it might include false package edges to be found. The proposed settings are 50, 30.

Example:



X Sampling Size：

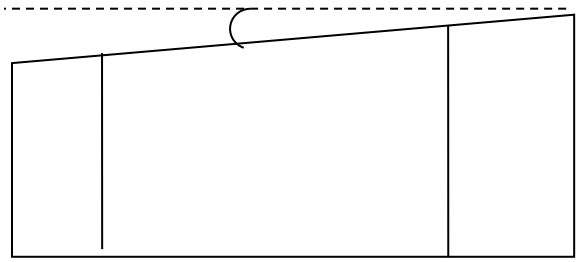
Purpose： Determines the X Sampling Size. It will shrink the image size by this factor on the X direction to speed up the Package Location process. The proposed settings are 1.

Y Sampling Size：

Purpose： Determines the Y Sampling Size. It will shrink the image size by this factor on the Y direction to speed up the Package Location process. The proposed settings are 1.

Max Parallel Angle Tol.: (degree value)

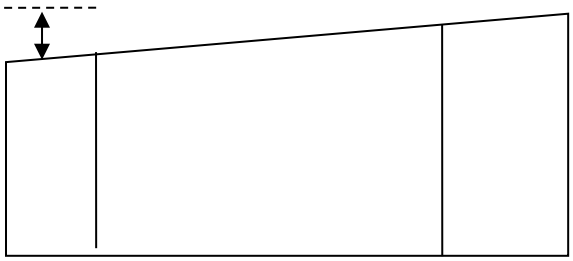
Purpose：Determines the acceptable product shape in terms of parallel angle.



To reduce overkill due to product nature, the value of Max parallel tol angle could be set higher such as 15-20. However, the higher the value will reduce the detection of defect at the terminal edge. A suitable setting value will be 10.

Terminal Height Difference: (Pixel Value)

Purpose：Determines the acceptable product shape in term of height difference between 2 terminals.



To reduce overkill due to product nature, the value of Max parallel tol angle could be set higher such as 15-20. However, the higher the value will reduce the detection of defect at the terminal edge. A suitable setting value will be 10.

Edge Scan Part Size

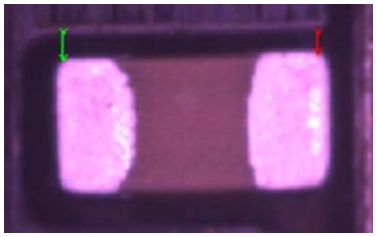
The majority of inspection devices' Body Length is bigger than Body Height. Somehow if device height is bigger than Length. In that case we need to reduce this setting from 4, Initially it was fixed in code. We added as parameter. The default setting value 4 is correct.

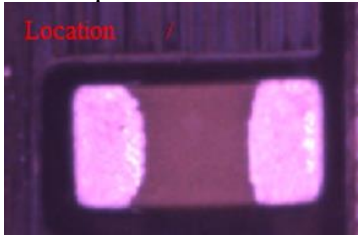
Dilate Size

This is for multi terminal check. For special check to enlarge the size.

Index Gap Inspection

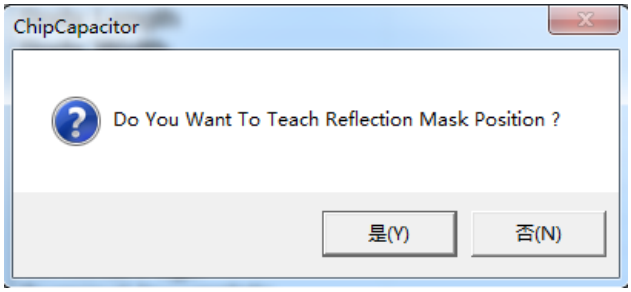
This index gap is to inspect the device inside the index under user's setting value. Any side of the terminal that does not meet the min Y requirement will fail.





Enable Reflection Mask

Purpose: This is to cover reflection areas that cannot be adjusted due to any reason, if enable, when you do the teach, during inspection it can cover the reflection area.



Enable Shot 2 Inspection

Purpose: This is to let the system capture the image under Shutter 1 or 2. If enabled, when setting inspection parameters, select "Enable 2 shot" on whichever defect setting range, and all image defects will capture under "Shutter 2" image.

Edge Scan Mask

This used only to offset bottom of Left and Right side of edge scanning when "Enable Package Location use Edge Scan."

Ignore Scan

Tick to ignore mask Top, Bottom, Left or Right.

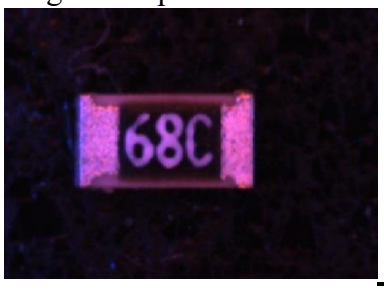
Mark Inspection

Purpose: Determine the Mark, system will detect the defect after select the function

Enable Reverse
When teach under original image as below, if Enable Reverse, the marking still can test as PASS unit.

Example:

Original chip



The marking reverse as compared to original, mean FAIL as Mark

If enable, it will become PASS REVERSE unit.

Enable Mix
Enable mix for Mark with different mark shape, example mark can be horizontal or vertical.

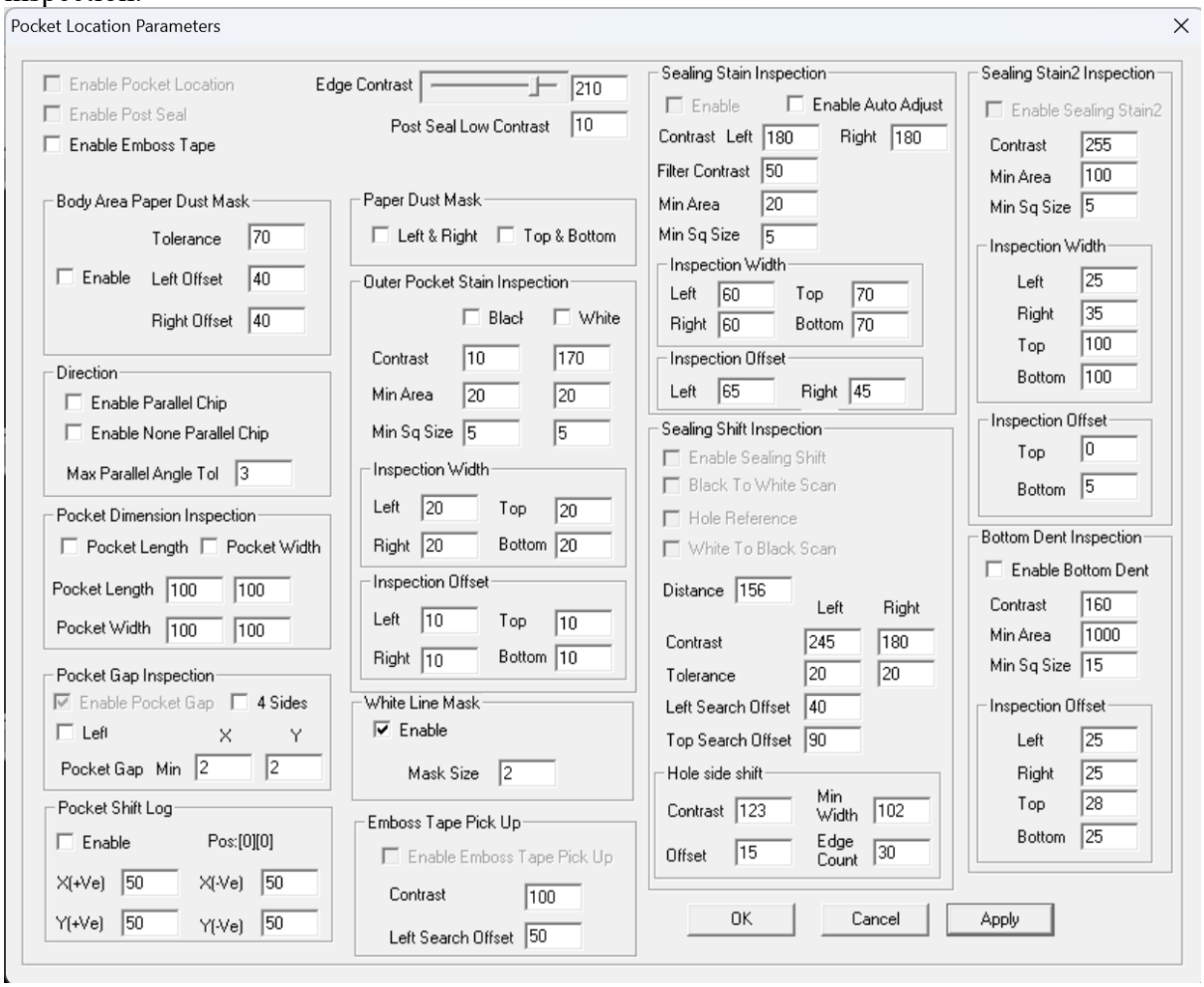
Insp Image
Tick for the color image for mark inspection. Based on the color user chooses, it will get different inspection results.

Filter Red Mark
Enable it to filter red mark under the value to set. RED or Green to filter from the mark area. Suggest setting value filter Red more than Green are acceptable.

No. of Line Mask
The default setting is 0. When this setting is more than 0, then user need to do mask teach at teach time. It is using to do mask some lines at package.

Pocket Location

Click on Pocket location at Configuration Menu -> Pocket Location, Dialog box as below. This dialog enables the user to select inspection items and parameter related to feed pocket inspection.



Enable Pocket Location

Tick on square box (selection on done on “Parameter Range control Page”) to enable Feed pocket inspection. Tick only if the inspection station carried out inspection for pocket station.

Enable Post Seal

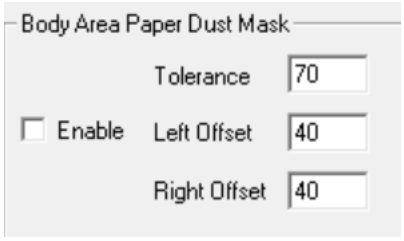
Tick on square box (selection on done on “Parameter Range control Page”) to enable the post seal. Post Seal means camera installed after the Feed pocket station after top cover tape had been sealed up. We usually called through tape inspection. When this function is enabled, vision will automatically save the failed images to D:\PostSealed folder for user viewing.

Enable Emboss Tape

Tick on square box to enable the feed pocket inspection that uses emboss tape as media of packing. When emboss tape is enabled, all other inspections outside the pocket square box will not be able to use. Inspection items such as Pocket length, width, Pocket gap, Pocket Outer stain etc.

Body Area Paper Dust Mask

Enabled this is to filter out all the paper dust falling into Body Area.

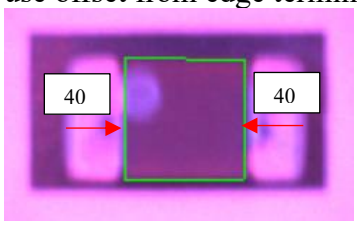


Tolerance

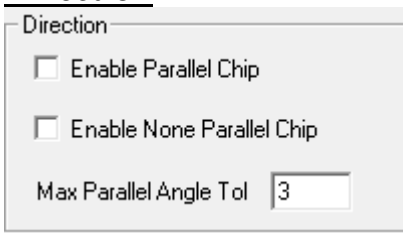
Software will base on the user's setting value to filter the paper dust. Dust will filter during inspection and color image selection to avoid overkill. A suitable setting value be 50-70.

Left and Right Offset

Different chip sizes and body area also will different. The correct setting value for body we use offset from edge terminal toward inside of the terminal.



Direction



Enable Parallel Chip

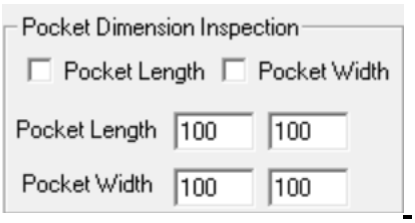
If "Enable Parallel Chip" enable then package location angle must be less than "Max Parallel Angel Tol", otherwise it will fail as package location.

Enable Non-Parallel Chip

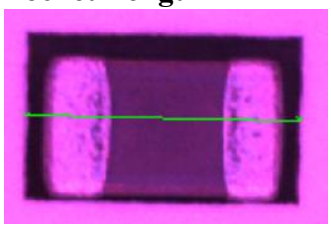
If "Enable Parallel Chip" enable then package location angle must be greater than "Max Parallel Angel Tol", otherwise it will fail as package location.

Pocket Dimension Inspection

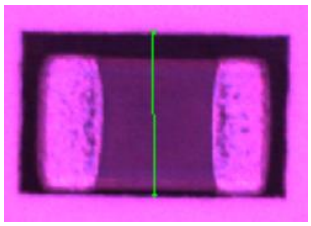
Pocket Dimension Inspection dialog allows user to enable and disable Pocket Length and width inspection. Dialog Show as below:



Pocket Length



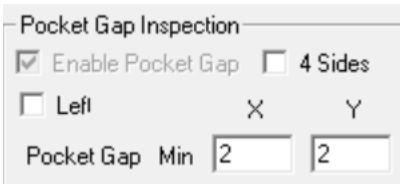
Pocket Width

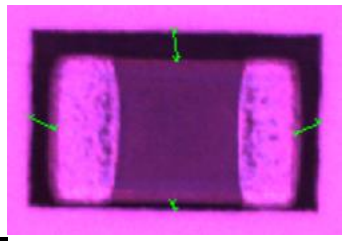


Pocket Gap Inspection

This inspection item allows user to check the product gap inside the pocket, this to make sure the pocket and size of device are match or having suitable allowance to prevent device from stuck inside the pocket.

Pocket Gap Min means minimum gap allowed between the device and pocket. The product will fail only when the entire 4 corners gap is less than the setting value.

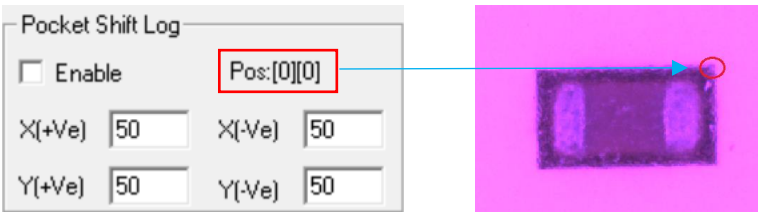




Enabled left or 4 sides only for pickup 1 and 2 station. Others station does not need to enable.

Pocket Shift Log

If "Enable Pocket Shift" then pocket shift of inspecting package compares with average pocket pos show after 100 devices run. If tolerance exceeds the setting value, it will show the alert dialog to inform user. All data will be stored in the Pocket Data file.



Edge Contrast

Edge contrast setting enables user to set a value for effective detection of pocket location. Generally, the brighter the images the higher the edge contrast value for effective location. Maximum value will be 255.

Good pocket location edge contrast defines as green X mark all correctly located at the edge of pocket square box as images below:

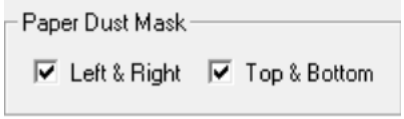
When the edge contrast setting is not correct, the X mark will not be able to locate at the edge of pocket or directly will show up as "Pocket Location" fail.

Post Seal Low Contrast

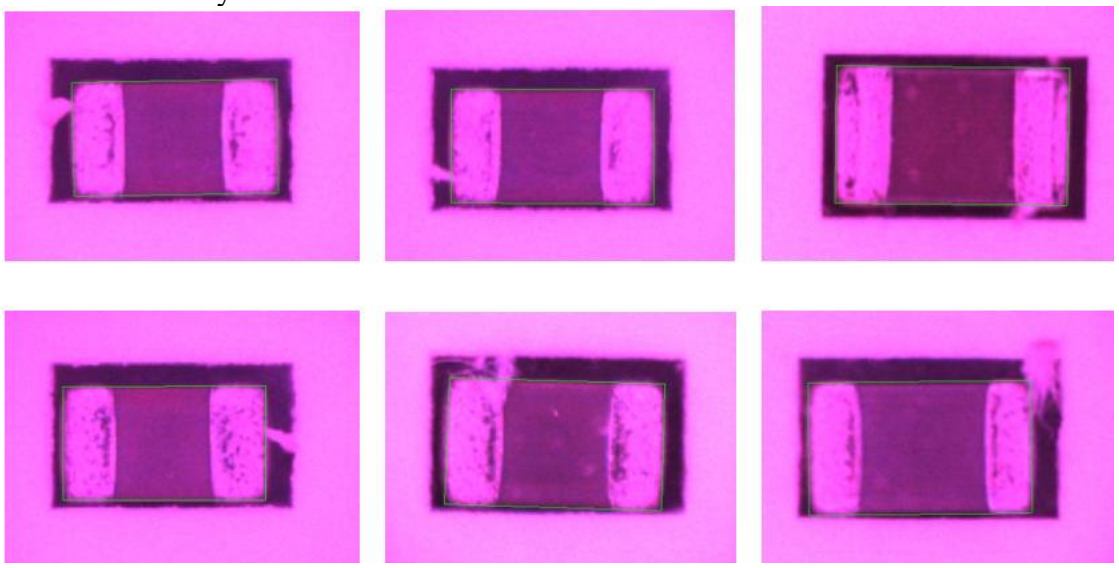
Post seal station low contrast package used to find package location using this contrast from 2nd time when global contrast setting failed for first time.

Paper Dust Mask

Enabled paper dust mask is to filter all the paper dust during inspection to avoid overkill.

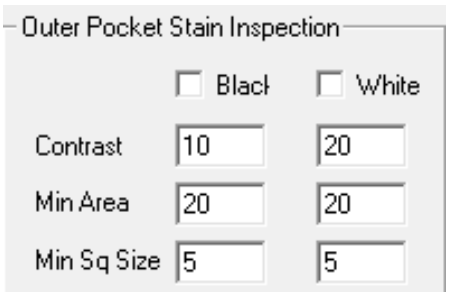


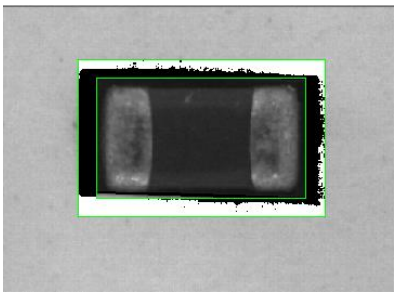
User can flexibly tick to mask the paper dust **Left & Right** or **Top & Bottom**. As paper dust comes from everywhere.



Outer Pocket Stain Inspection

This function enables us to inspect the black stain spots outside the pocket area. Generally, the paper tape should be white or clean but however, in some cases the paper has a dirty stain. Dialogs show as below:

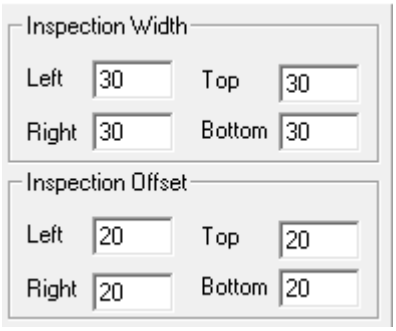


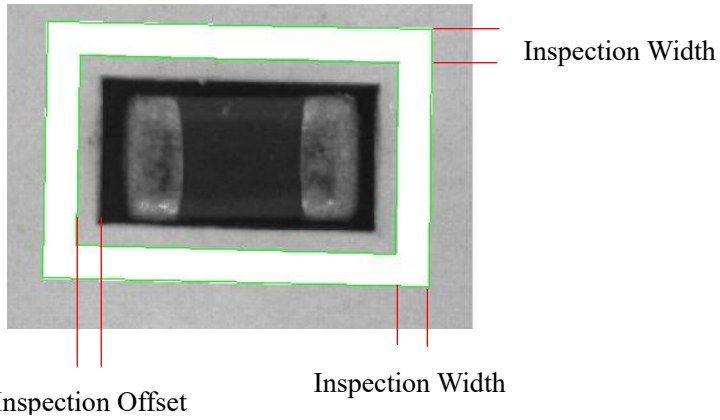


Contrast = Level of stain darkness to detect as fail stain.
Min Area = Minimum acceptable area of stain, detected value greater than set value will treat as fail.
Min Sq. Size = Minimum acceptable length or width size.

Inspection Width & Inspection Offset

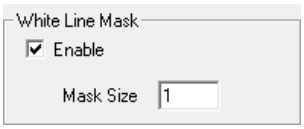
Inspection width and Inspection offset define as images below:





White Line Mask

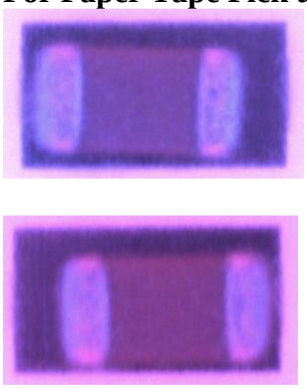
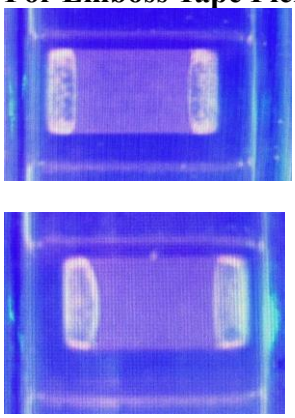
In the feed pocket, often there is a lot of paper dust or paper cutting line residue. To reduce the overkill, a White line masking method was introduced. The method is to mask the line type white line to avoid wrong package location.



Maximum allowable Mask size =3
Optimized setting =1 or 2

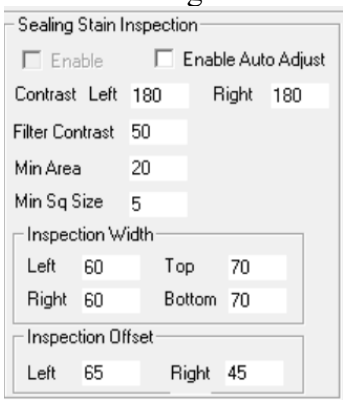
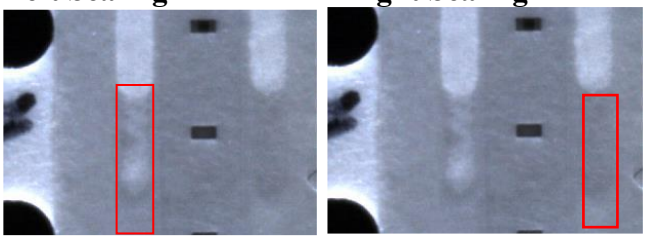
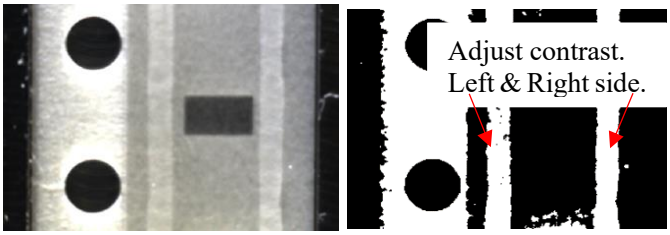
Emboss Tape Pick Up

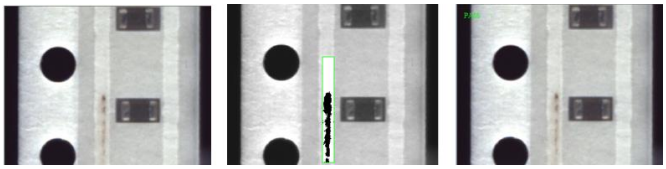
Tick on square box to enable the station 4 & 5 inspection that uses emboss tape as media of packing. If using paper carrier tape for inspection, then should not enable.

<table>
<tr><td> 
</td><td>For Paper Tape Pick up
  </td><td>For Emboss Tape Pick Up
  </td></tr>
<tr><td>Contrast</td><td colspan="2">Determines the minimum gray level between the average pocket and package as compared to defect contrast in gray scale level.</td></tr>
<tr><td>Left Search Offset</td><td colspan="2">Search the product offset from a border of left side.</td></tr>
</table>

Sealing Stain Inspection

Sealing Stain to inspect Left and Right side being sealed properly. Dark stains and unseal also cause Fail sealing stains. A layer of transparent cover tape sealed on white paper carrier tape as black and sealing mark as white and white carried tape as white. Actual image and binaries image as below: -

<table>
<tr><td>Enable Sealing Stain
This is to inspect the sealing stain; sealing mark or sealing unseal.
 
</td><td>Left Sealing Right Sealing
  </td></tr>
<tr><td>Contrast
Level of stain darkness to detect as fail stain on left and right side.
 
</td><td> 
</td></tr>
</table>

Filter Contrast This is to filter the dark stain as determined by user to set the value to judge the sealing are in good condition. Filter Contrast 50	
Min Area	Minimum acceptable area of stain, detected value greater than set value will treat as fail.
Min Sq. Size	Minimum acceptable length or width size.

Inspection Width

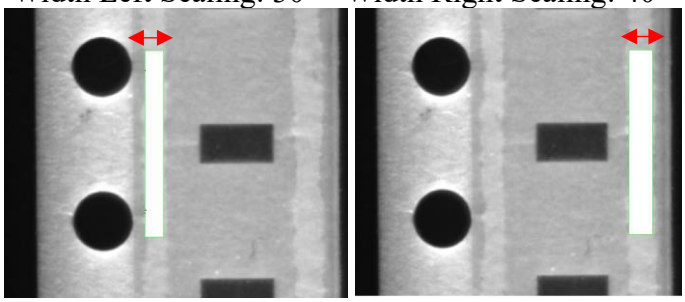
Inspection Width

Left 30 Top 120

Right 40 Bottom 120

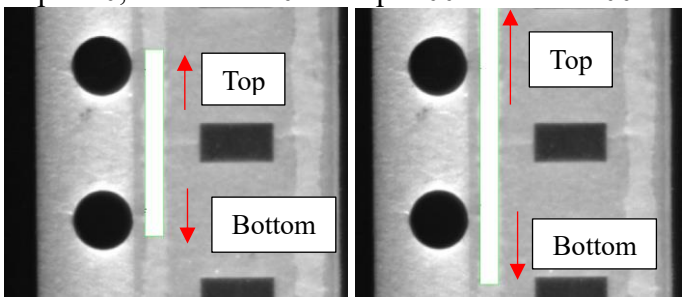
Determines the size or area that user needed to inspect; Inspection Width Left, Right, Top and Bottom sealing.

Width Left Sealing: 30 Width Right Sealing: 40



Top & Bottom Sealing

Top: 120, Bottom: 120 Top: 200. Bottom: 200



Inspection Offset

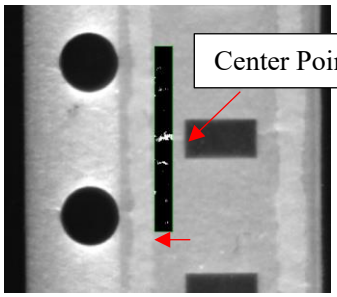
Search the product offset from the center point.

When setting the right offset value, movement adjust with +/- set value.

When adjusting the Green Box to the right sealing mark, key in + value to move toward out to edge direction, and "– "value will move into pocket direction.

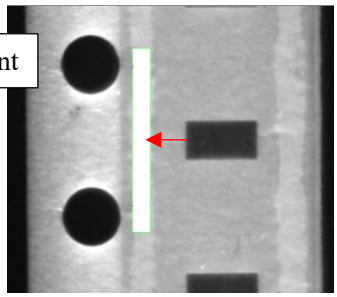
Wrong setting value

Left: 20

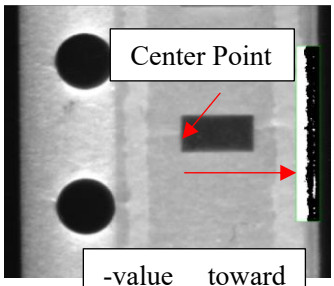


Correct setting value

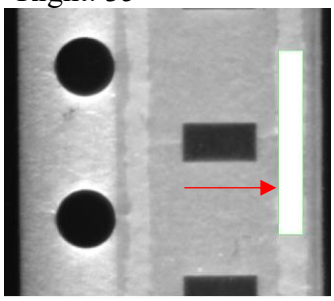
Left: 59



Right: 50



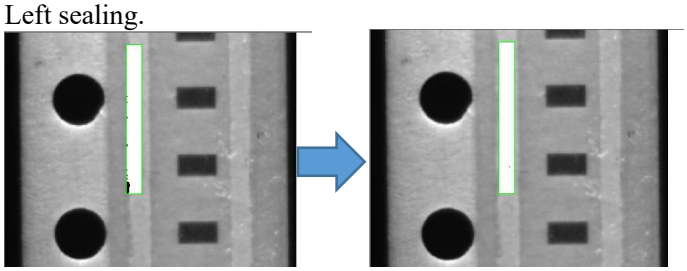
Right: 35



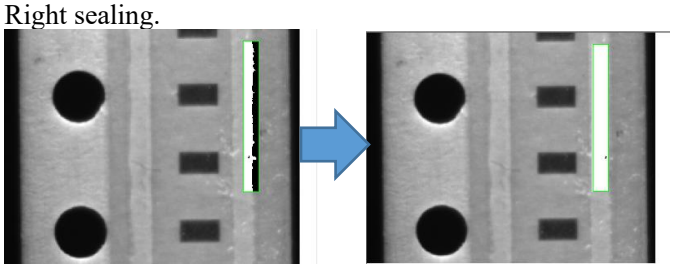
Enable Auto Adjust

Enable this, the system will auto adjust to search the edge of the sealing.

Left sealing.

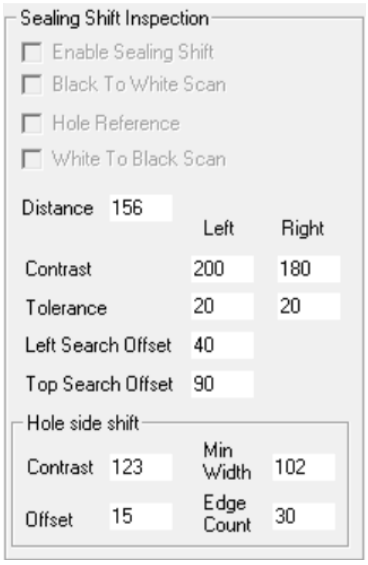
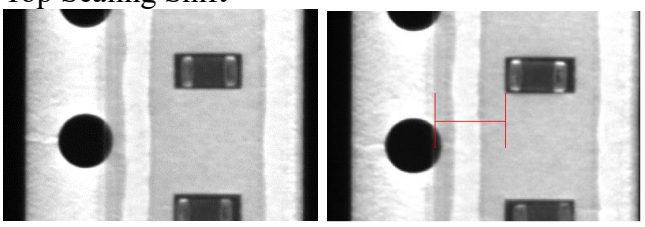
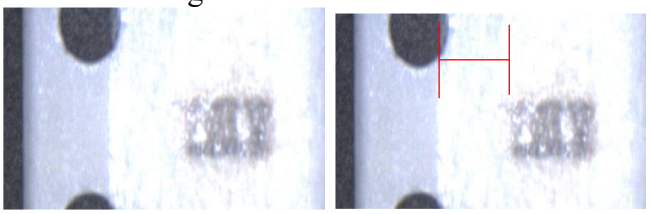
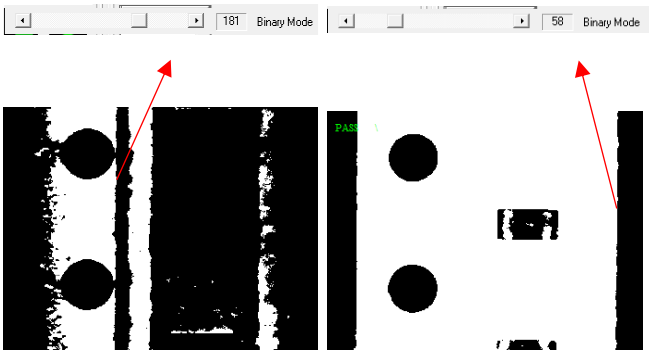


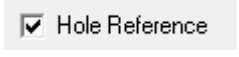
Right sealing.

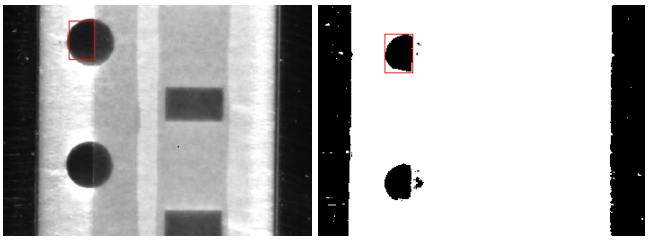


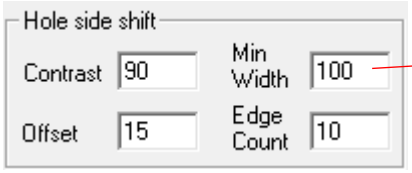
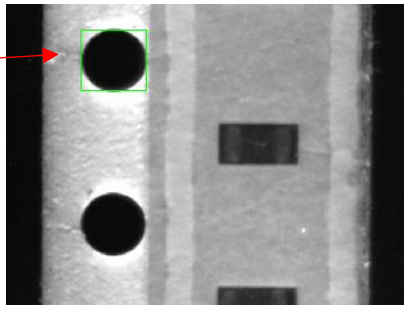
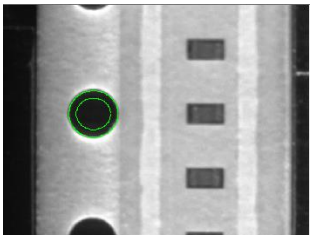
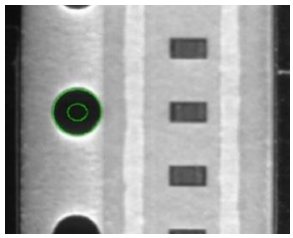
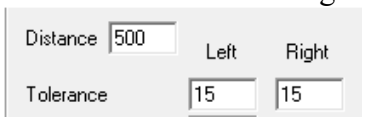
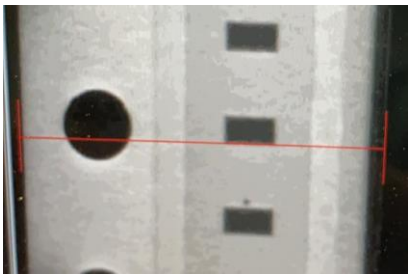
Sealing Shift Inspection

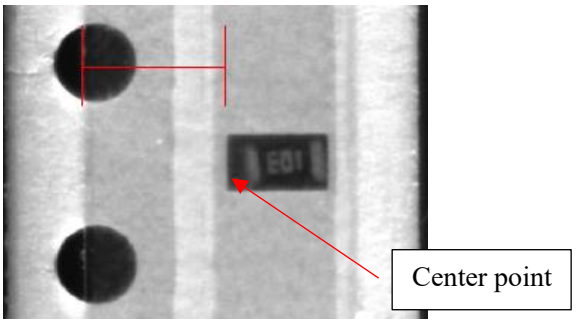
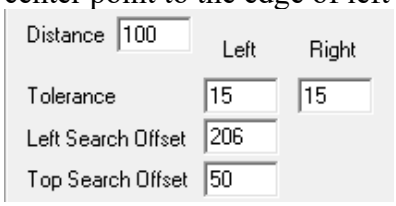
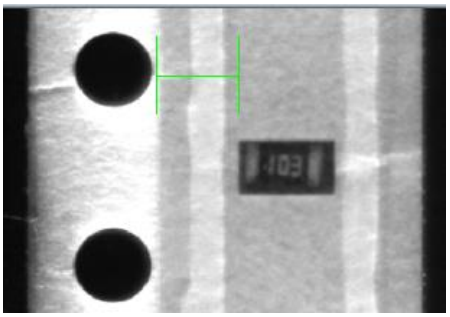
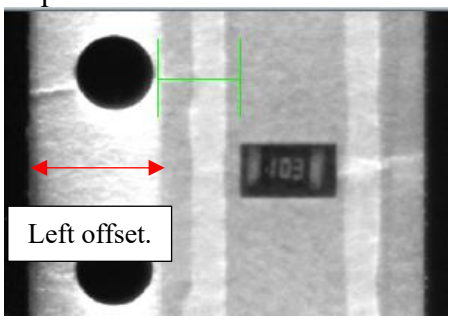
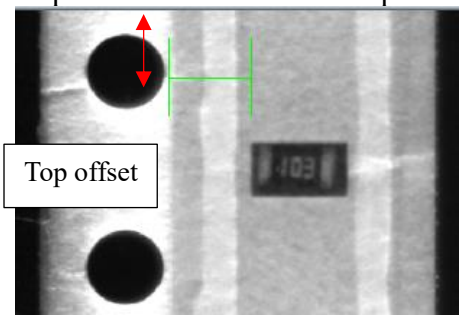
This is to inspect the sealing shift to left or right side and inspect the sealing seal in right position. A layer of transparent cover tape sealed on white paper carrier tape as black and sealing mark as white and white carried tape as white.

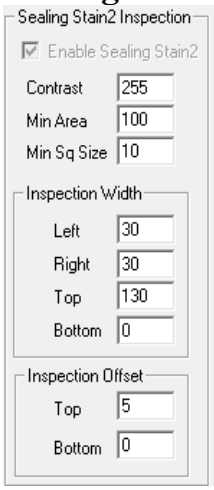
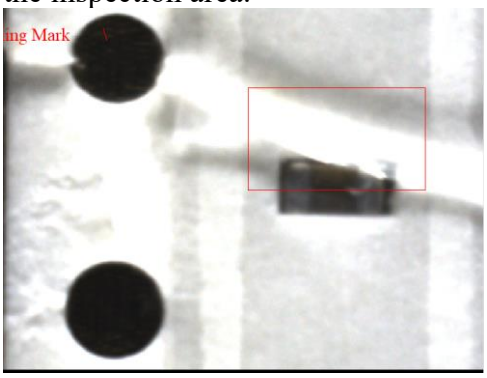
<table>
<tr>
<td>Enable Sealing Shift
This is to inspect the sealing shift, if sealing shift to the left or right side, consider as fail unit.
 
</td>
<td>Top Sealing Shift
 
Bottom Sealing Shift
  </td>
</tr>
<tr>
<td>Contrast
Determines the minimum gray level between the left and right-side sealing edge.</td>
<td> 

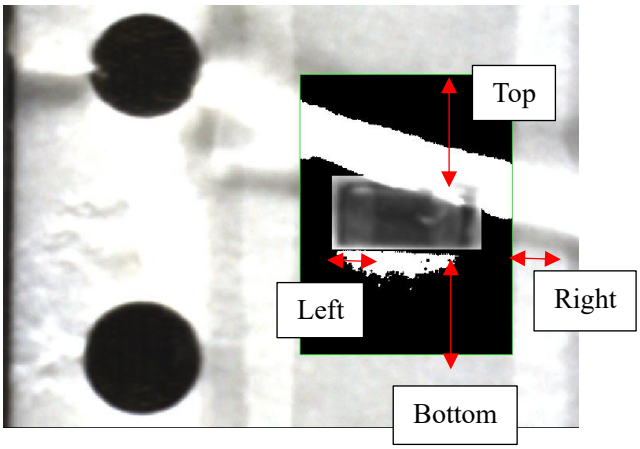
Left sealing edge. Right sealing edge</td>
</tr>
<tr>
<td>Black to White Scan</td>
<td>For paper carrier tape</td>
</tr>
<tr>
<td>White to Black Scan</td>
<td>For Emboss tape</td>
</tr>
<tr>
<td>Hole Reference
 

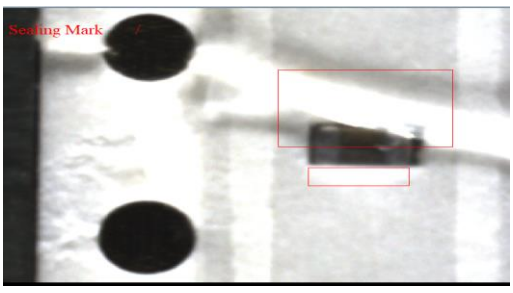
If sealing shift to Left and covered the pitch hole, consider as fail unit, if tick to use hole reference to do inspection of sealing shift.</td>
<td>  </td>
</tr>
</table>

Hole side shift  If there is no sealing shift, the pitch hole should not be covered. Any movement more than the set value of min width is considered as fail unit.	
Contrast	Determines the gray level to see the pitch hole dimension.
Min Width	System will automatize the value of the hole width. Any setting value more than the min width is considered as fail unit.
Offset Search the hole offset from outer round edge to inner round. Outer is actual size found and inner round is offset.	Offset : 15  Offset : 30 
Edge Count	Edge point for finding thin shift defects. The purpose of edge count point inside offset circle. If found edge count more than 30 then will consider as fail unit.
This is to measure sealing tape dimensions.  The distance parameter is auto generated value in pixels when do a setup of the sealing. Any movement more than the set value consider sealing shift to the Right	 Sealing Shifted to the Right
Tolerance	It allow tolerance to left and right side of sealing tape dimension. The distance parameter plus the tolerence value if within the set value of distance consider pass unit. Any value exceed the tolerence level consider fail unit.

Hole Reference Another method to inspect the sealing shift is if untick Hole Reference, system will not set pitch hole as benchmark. This is to measure sealing dimensions from the center point. Any movement more than the setting value consider as sealing shift to the left as fail unit.	
This distance is to mensure sealing from the center point to the edge of left sealing. 	
Tolerance	It allow tolerance to left and right side of sealing shift dimension. The distance parameter plus the tolerence value if within the set value of distance consider pass unit. Any value exceed the tolerence level consider fail unit.
Left Search Offset	Search the product offset from the left side. 
Top Search Offset	Search the product offset from the top side 

<table>
<tr><td>Sealing Stain 2 Inspection
 
</td><td>Sealing Stain 2 is used to inspect the stain area which is sealing stain1 do not cover. The setting value to determine the loss of tight control within the inspection area.
  </td></tr>
<tr><td>Contrast</td><td>Determines the minimum gray level between the average sealing stain as compared to defect contrast in gray scale level. The higher the value the higher chance of the detection level.</td></tr>
<tr><td>Min Area</td><td>Determines the maximum acceptable stain defect area in pixels value. If the found defect area is greater than set value will Fail.</td></tr>
<tr><td>Min. Square Size</td><td>Determines the maximum acceptable width or height value of stain defect area in pixels value. If the found defect area is greater than set value will Fail.</td></tr>
<tr><td>Inspection Width
Determines the size or area that user needed to inspect; Inspection Width Left, Right Top & Bottom.

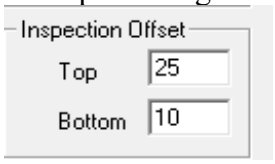
Example setting for this.
 
</td><td> 

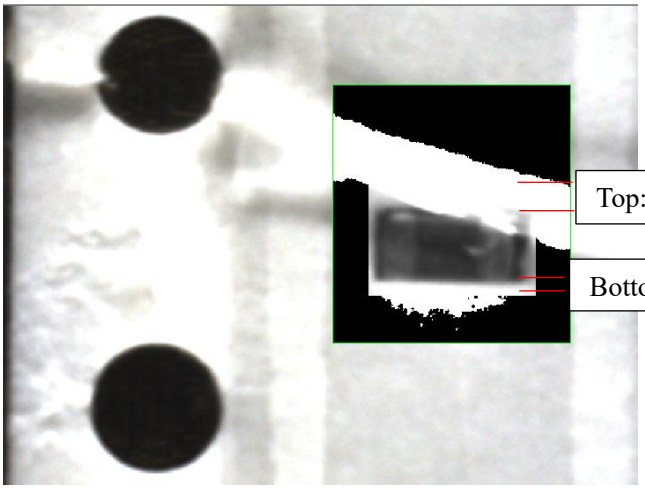
  </td></tr>
</table>

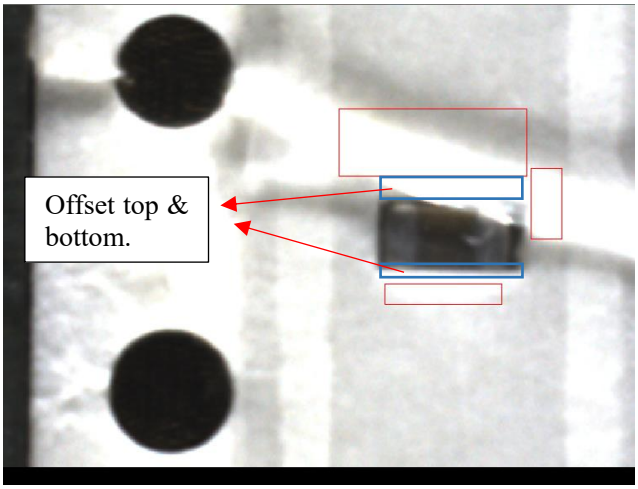
Inspection Offset

This determines the Top and Bottom offset in pixels. This parameter determines the area in pixels where the inspection will be ignored for the offset area to inspect.
For better accuracy of inspect, offset value should not key in more.

Example setting of inspection offset.

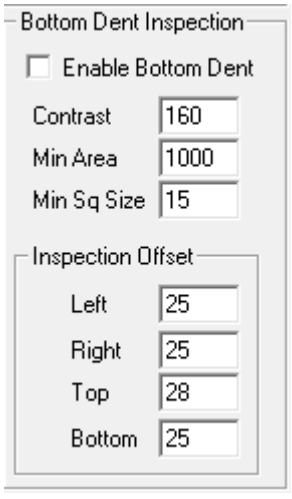




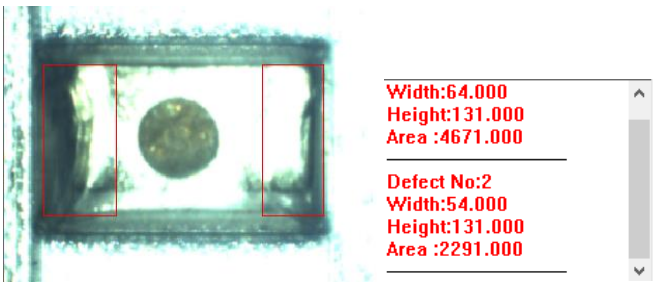


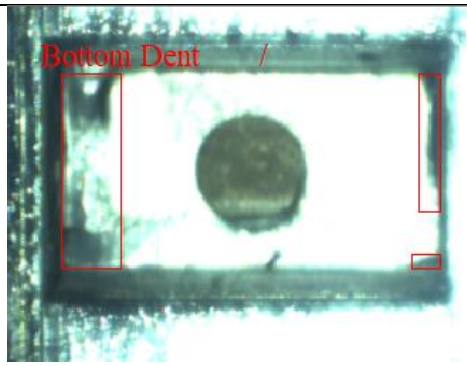
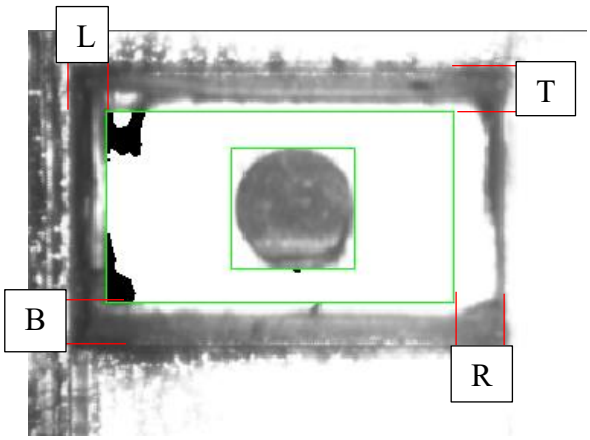
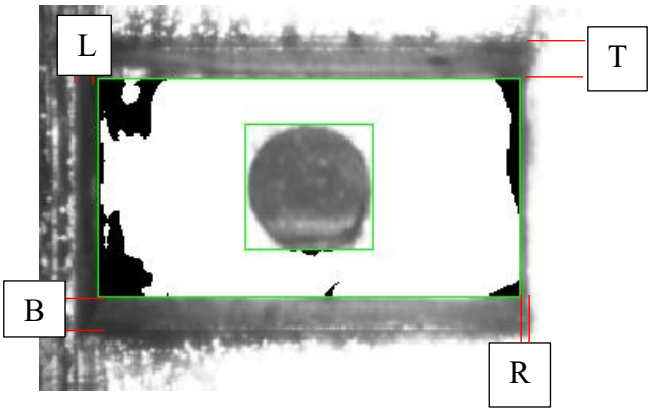
Bottom Dent Inspection

To inspect Emboss tape for bottom station mainly inspection for emboss tape dented.

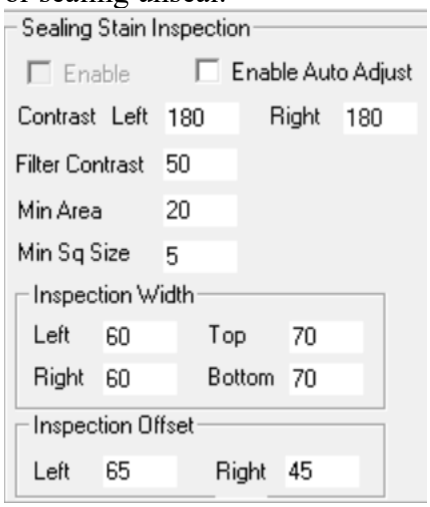
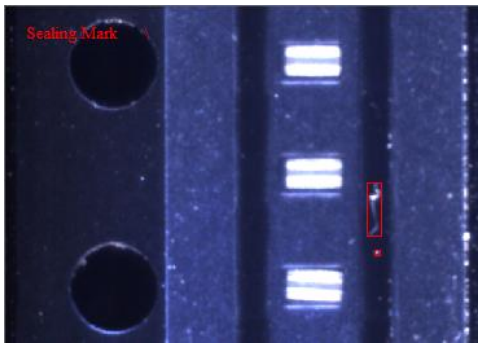


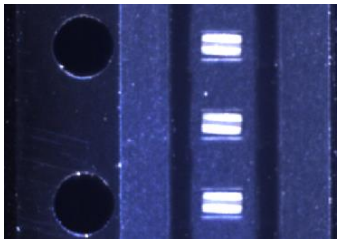
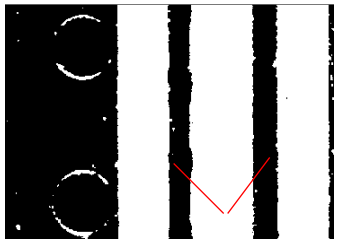
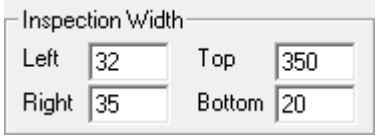
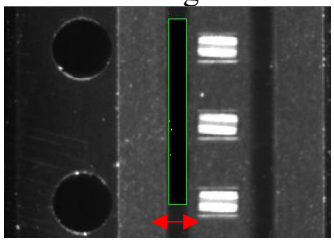
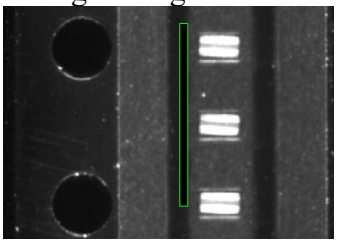
The system will generate out the defect parameters. The setting value to determine the loss of tight control within the inspection area.

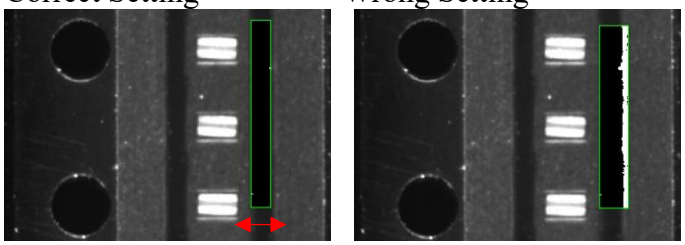
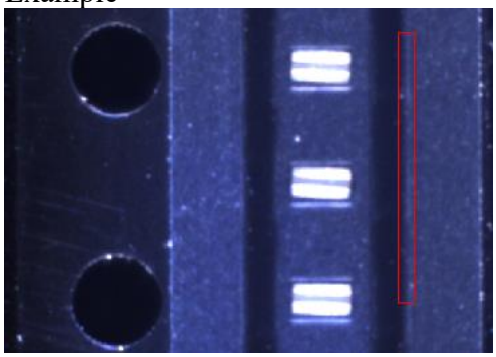
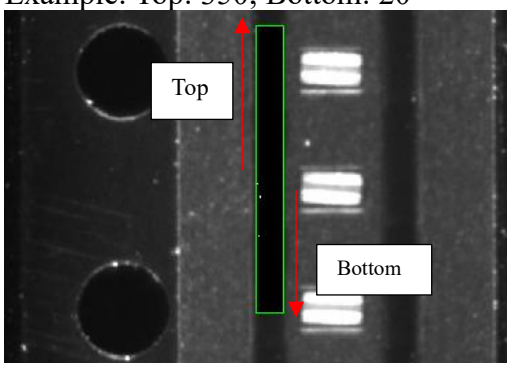
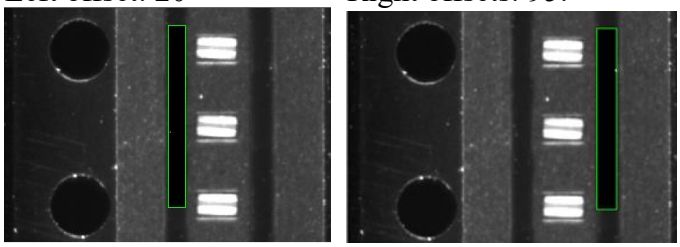
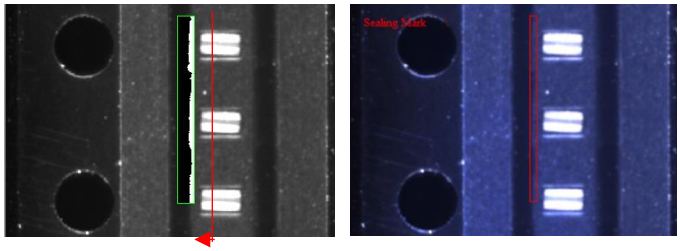


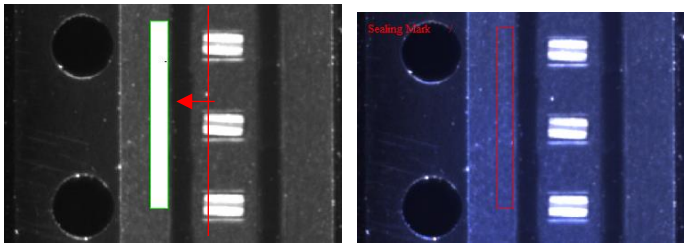
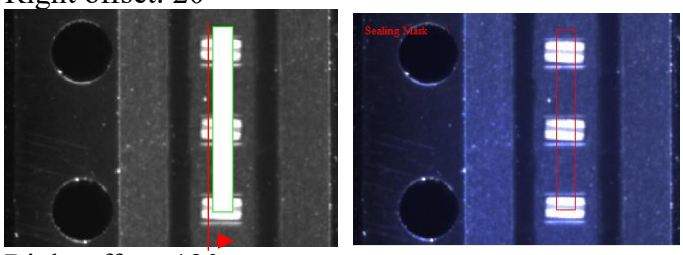
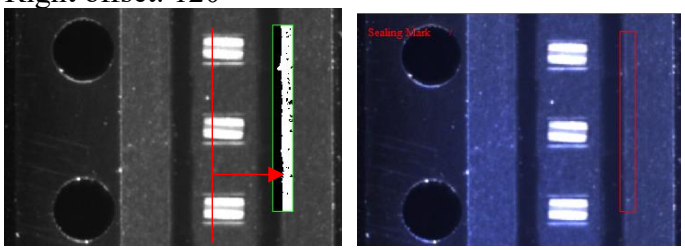
Contrast	Determines the minimum gray level between the average bottom dent as compared to defect contrast in gray scale level. The higher the value the higher chance of the detection level.
Min Area	Determines the maximum acceptable stain defect area in pixels value. If the found defect area are greater than set value will be Fail.
Min. Square Size	Determines the maximum acceptable width or height value of dent defect area in pixels value. If the found defect area is greater than set value will Fail.
Inspection Offset This parameter determines the area in pixels where the inspection will be ignored for the offset area to inspect. If the wrong offset value set, it will affect the inspect dent results. Example of the setting value  Incorrect offset value parameter setting; left and right-side bottom dent area will be ignored.  Correct offset parameter setting to avoid any overkill or ignored area.	  T=Top: 20, B=Bottom: 20, L=Left: 20, R=Right :20  T=Top: 25, B=Bottom: 25, L=Left: 12, R=Right :5

For Special Black Emboss Sealing Tape

<table>
<tr>
<td>Enable Sealing Stain
This is to inspect the sealing stain; sealing mark or sealing unseal.
 
</td>
<td> 


</td>
</tr>
<tr>
<td>Contrast
Level of stain brightness to detect as fail stain on left and right side.
 
</td>
<td> 

Left & Right-side contrast level.</td>
</tr>
<tr>
<td>Min Area</td>
<td>Minimum acceptable area of stain detected value greater than set value will treat as fail.</td>
</tr>
<tr>
<td>Min Sq. Size</td>
<td>Minimum acceptable length or width size.</td>
</tr>
<tr>
<td>Inspection Width
Determines the size or area that user need to inspect; Inspection Width Left, Right, Top and Bottom sealing.
 
</td>
<td>Left
Correct Setting
 
Wrong Setting
  </td>
</tr>
</table>

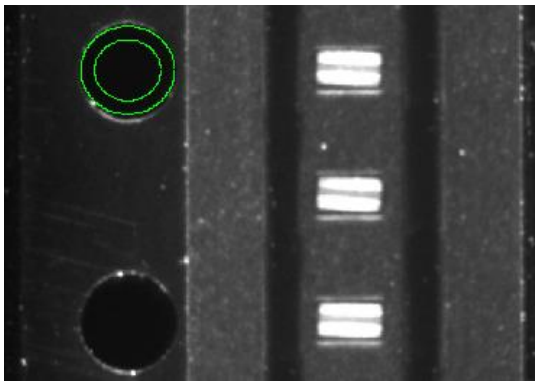
- Wrong setting value of inspection width will cause the inspection fail. Wrong setting value will cause incorrect result. Some area will get ignore or overkill to inspect.	**Right** Correct Setting Wrong Setting  Example 
Top & Bottom Width Top & Bottom width is to adjust the sealing length cover up to top or down to bottom.	Example: Top: 350; Bottom: 20 
Inspection Offset Search the product offset from a left edge of pocket area to set the correct sealing position. When setting right offset value, movement adjust with +/- set value.  Example of wrong setting value of left and right inspection offset Incorrect of setting value will cause fail as sealing mark inspection. Offset setting from the left edge of pocket	Example of correct setting value of left and right inspection offset. Left offset: 20 Right offsets: 95.  Example of wrong setting Left offset: 10. 

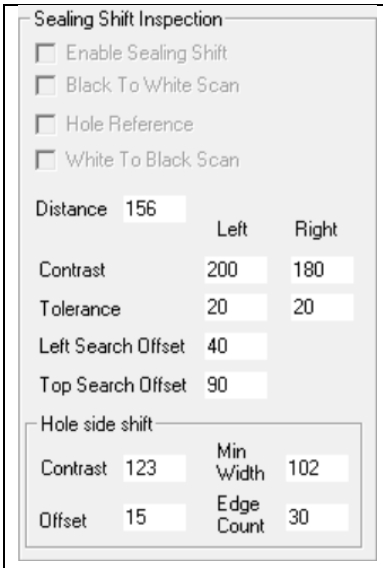
	Left offset: 60.  Right offset: 20  Right offset: 120 

Sealing Shift Inspection

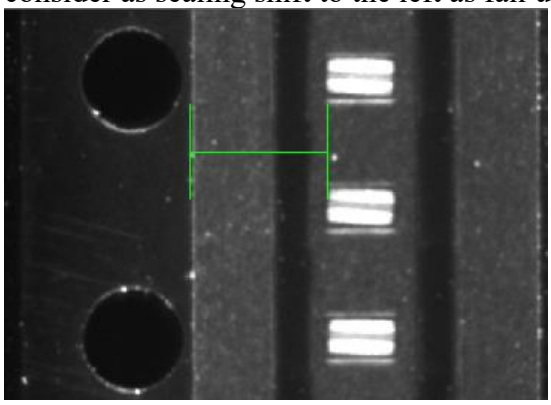
(i) Hole Reference

(ii) Without Hole Reference

Enable Sealing Shift This is to inspect the sealing shift, if sealing shift to the left or right side, consider as fail unit. There are two type of sealing shift inspection matter, user can choose to use either with Hole Reference Inspection or without hole reference inspection. Parameters setting will be different.	With Hole Reference sealing shift inspection. If sealing shift to the left covered the pitch hole, consider as fail unit. 



Without Hole Reference sealing shift inspection. This is to measure sealing dimension from the center point. Any movement more than the setting value consider as sealing shift to the left as fail unit.

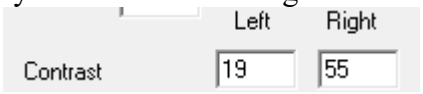


(i) Hole Reference

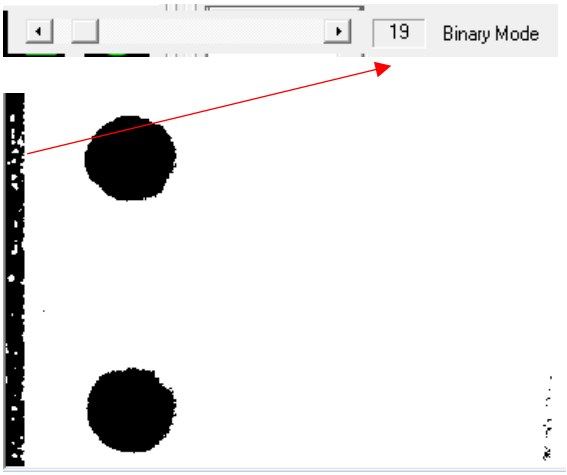
Contrast

Determines the minimum gray level between the left and right-side sealing edge.

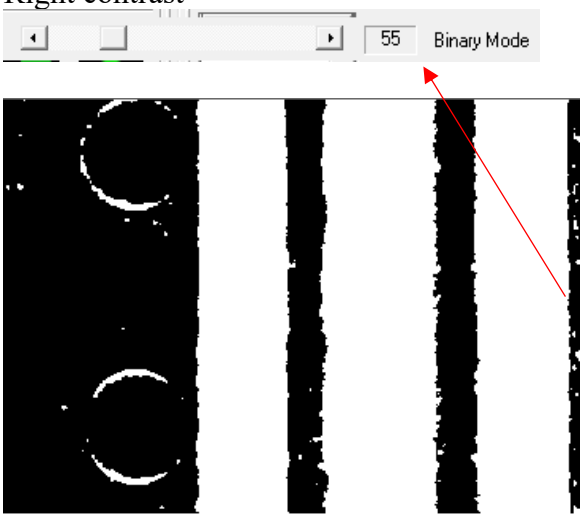
Binary mode adjusts the contrast level to let system allocate the edge of the sealing.



Left contrast.

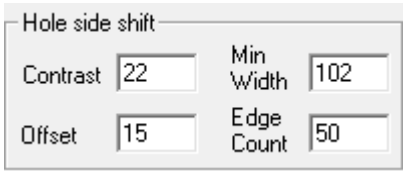


Right contrast

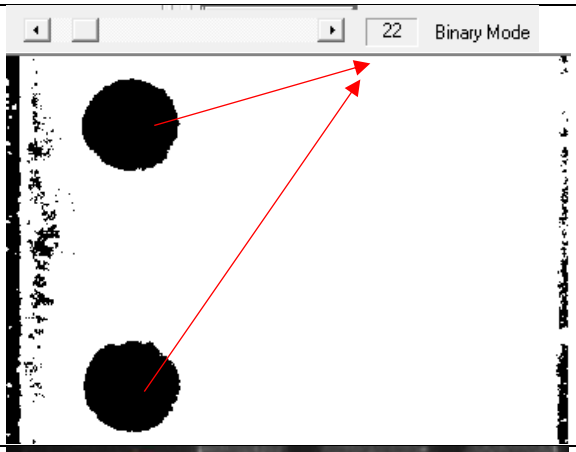


Hole side contrast

Determines the gray level to see the pitch hole dimension.

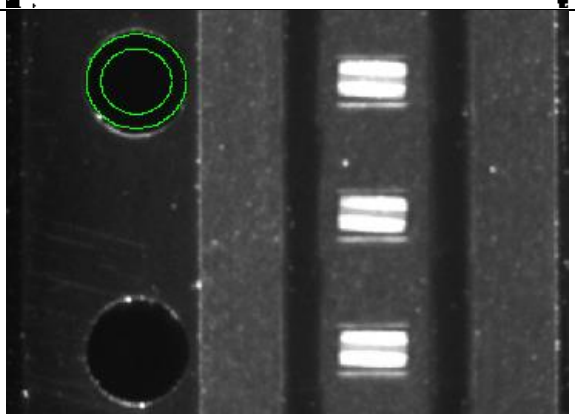


Adjust the Binary Mode to set the right contrast parameters on Pitch Hole.



Min Width: 102

System will automatize come out the value of the hole width. Any setting value more than the min width consider as fail unit.

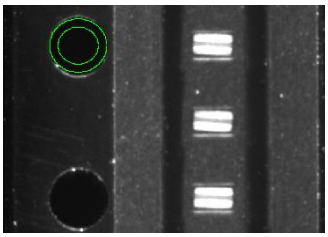


Offset

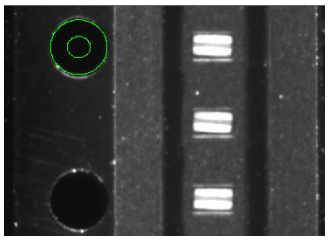
Search the hole offset from outer round edge to inner round. Outer is actual size found and inner round is offset.

Example of setting value

Offset: 15



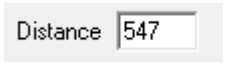
Offset: 30



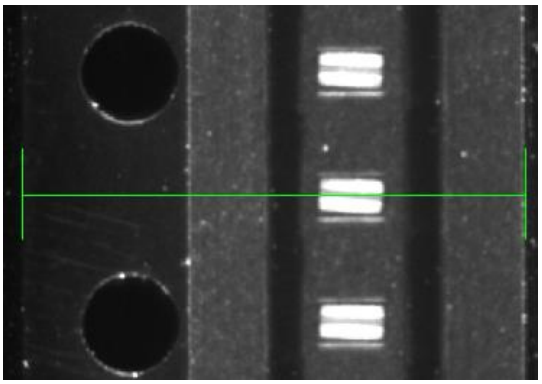
Edge Count

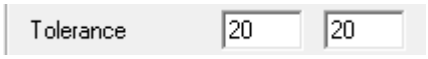
Edge point for finding thin shift defects.
The purpose if edge count point inside offset circle. If found edge count more than 30 then will consider as fail unit.

Distance

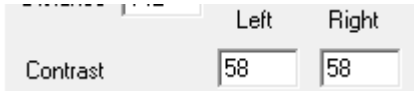
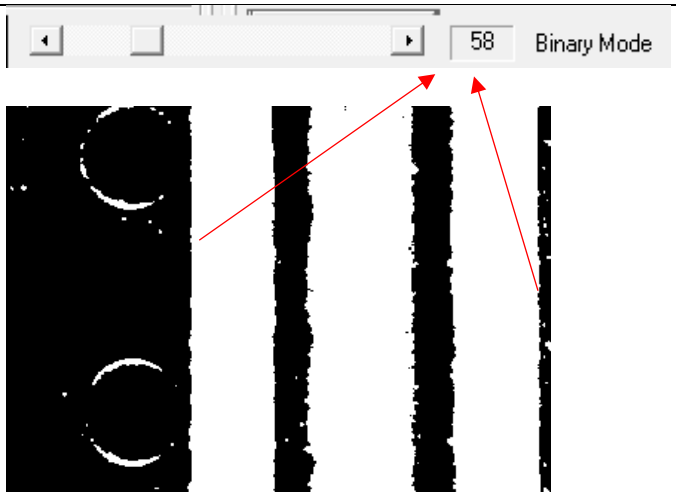
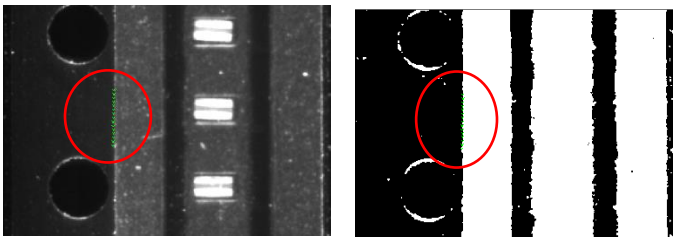
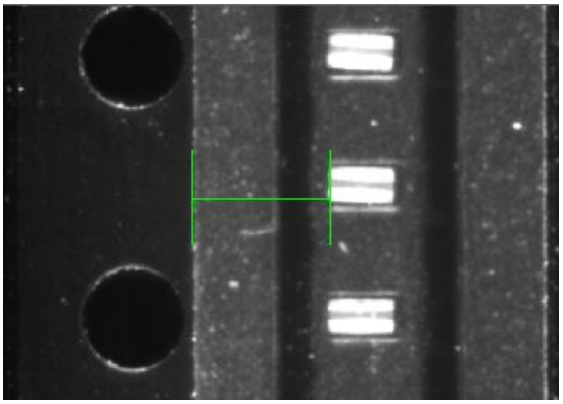


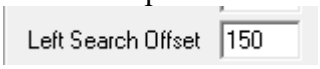
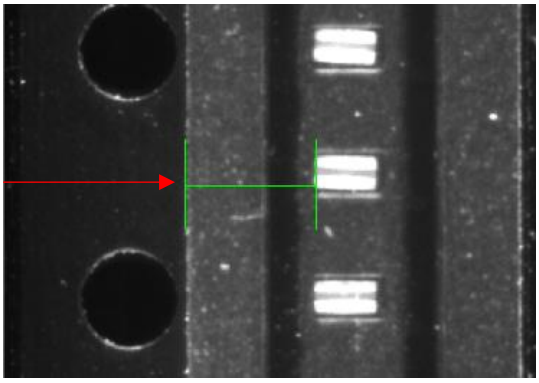
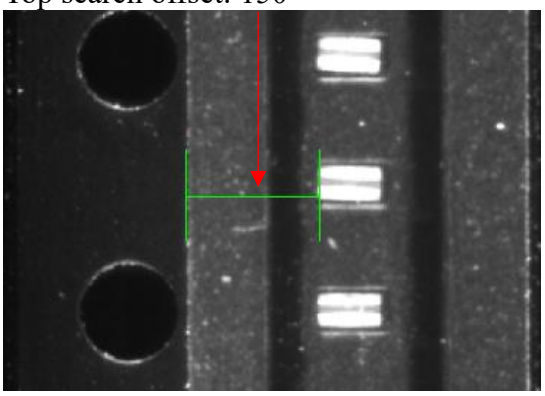
The distance parameter is auto generated value in pixels when do a setup of the sealing contrast correctly.
Any movement more than the set value consider sealing shift to the Right, consider as fail unit.



Tolerance 	It allows tolerance to left and right side of sealing tape dimension. The distance parameter plus the tolerance value if within the set value of distance consider pass unit. Any value exceeds the tolerance level consider fail unit.

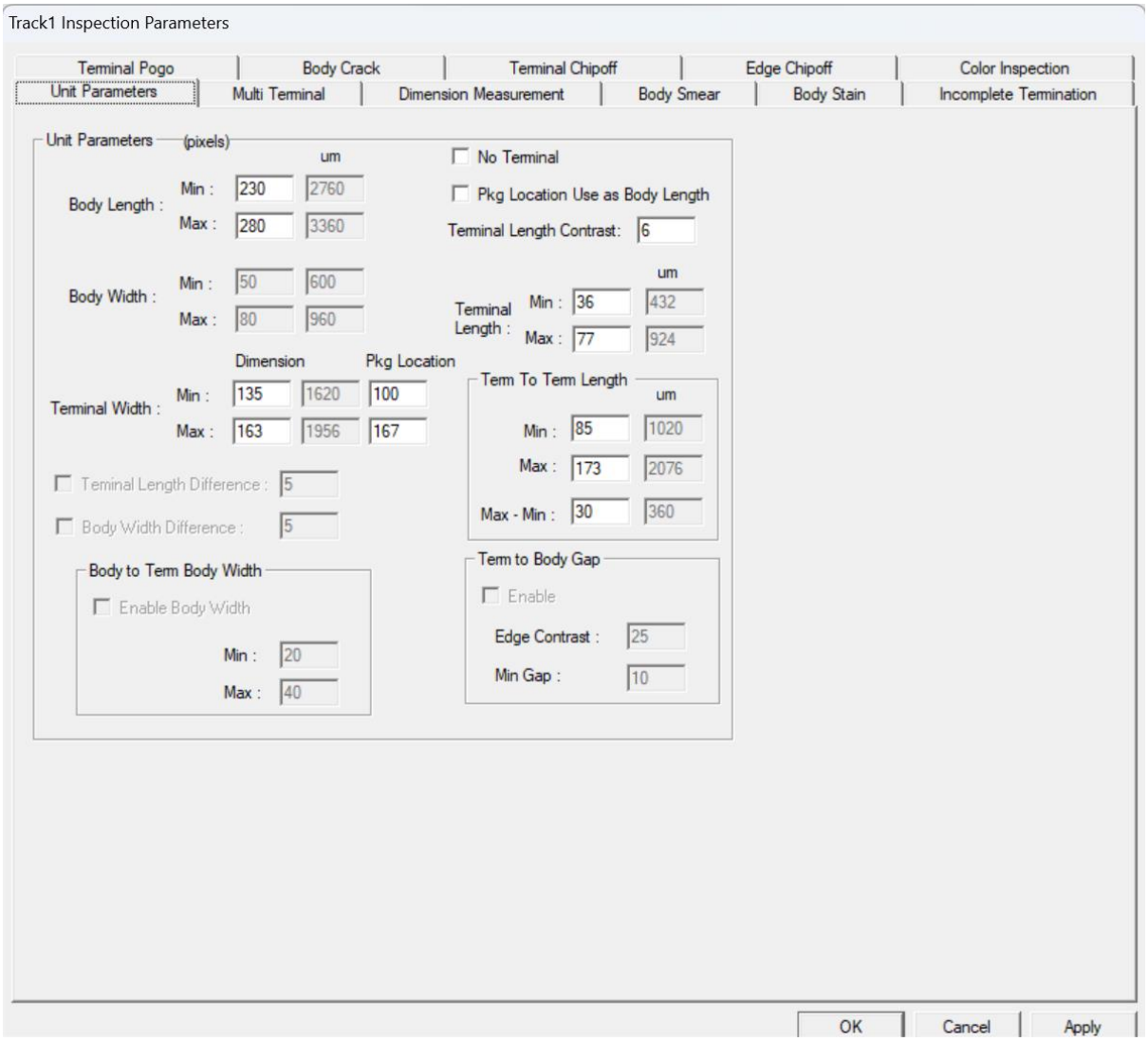
(ii) Without Hole Reference Inspection

Contrast Determines the minimum gray level between the left and right-side sealing edge. Binary mode adjusts the contrast level to let system allocate the edge of the sealing. 	
Once the contrast setting correctly, system will detect the pocket sealing edge.	
Distance  The distance parameter is auto generated value in pixels when do a setup of the sealing contrast correctly. This is to measure sealing dimension from the center point. Any movement more than the setting value consider as sealing shift to the left as fail unit	
Tolerance	It allows tolerance to left and right side of sealing tape dimension. The distance parameter plus the tolerance value if within the set value of distance consider pass unit. Any value exceeds the tolerance level consider fail unit.

Left Search Offset Search the product offset from the left side. 	Left search offset: 150. 
Top Search Offset Search the product offset from the top side.	Example of setting value Top search offset: 150 

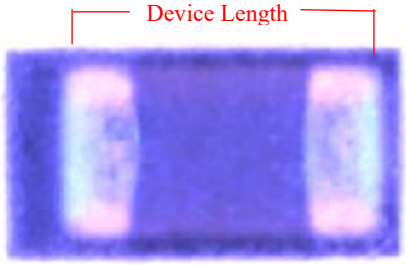
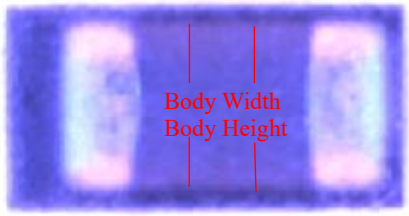
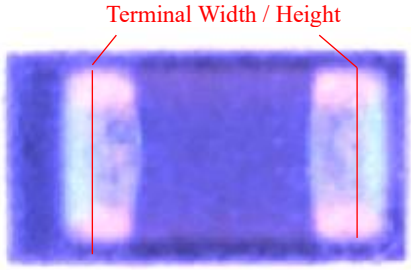
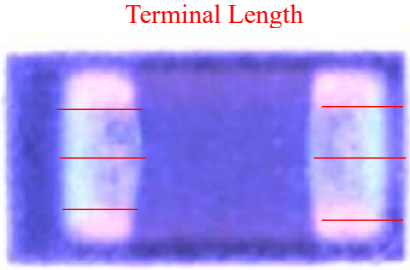
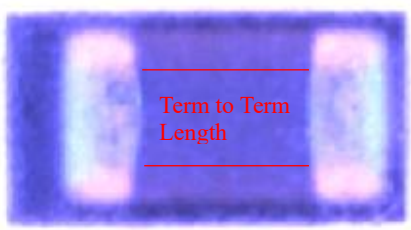
Device Inspection

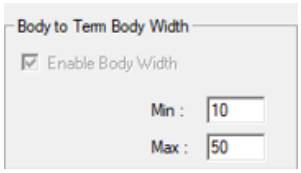
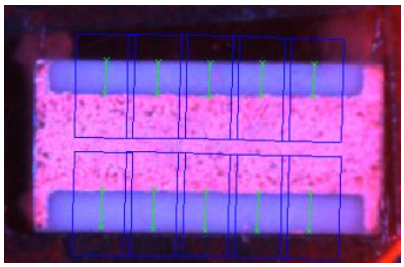
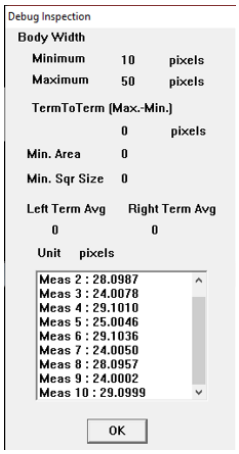
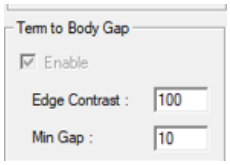
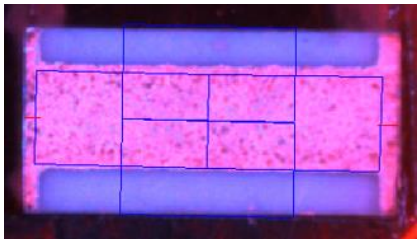
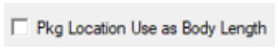
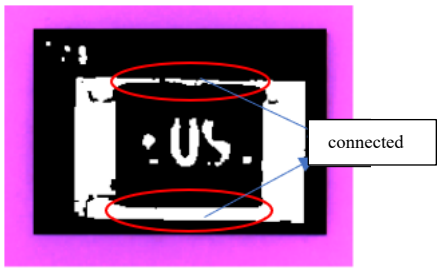
When Click the Device Inspection at Configuration menu, Inspection Parameter setting dialog will show up. All the defects inspection item parameter setting is in this dialog. There will be a shortcut command key “PARA.”



To locate the product correctly, unit parameter needs to be set correctly, else will cause all images fail as “Location”. UM only for viewing. No amend. Details explanation as below:

Unit Parameters

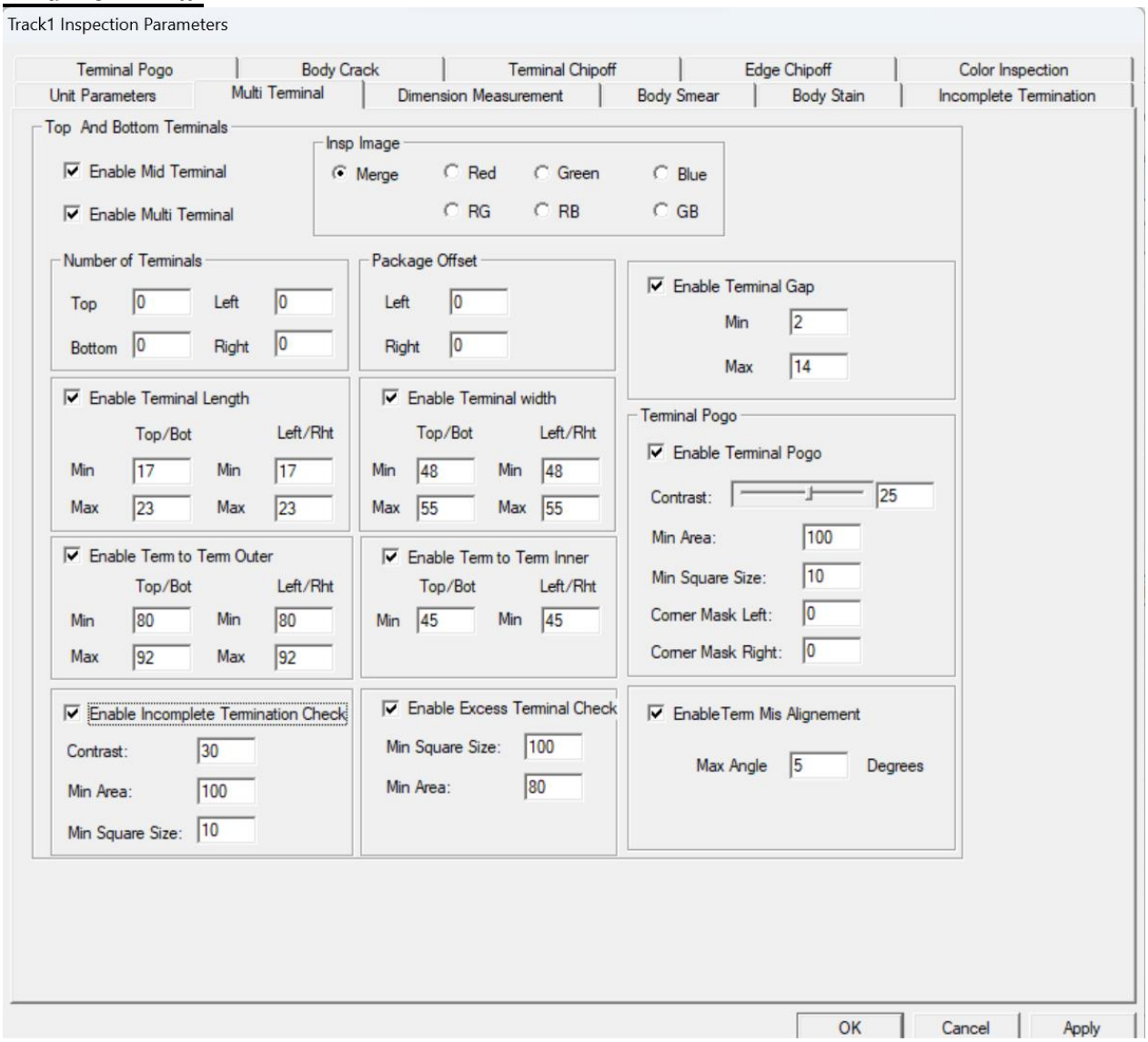
Body Length : Min : 280 Max : 320		Body Length: Setting of minimum and maximum allowable device length for pass/fail judgment. Incorrect setting of this value will result in location fail.
Body Width : Min : 160 Max : 200		Body Width/Height: Setting of minimum and maximum allowable Ceramic Body Width/Height for pass/fail judgment.
Dimension Terminal Width : Min : 160 Max : 200		Terminal Width/Height: Setting of minimum and maximum allowable Terminal Width/Height for pass/fail judgment. Incorrect setting of this value will result in location fail.
Pkg Location Terminal Width : Min : 160 Max : 200		Terminal Width for Pkg Location: Setting of minimum and maximum allowable Blob Height in location Pkg location. Incorrect setting of this value will result in location fail.
Terminal Length : Min : 35 Max : 77		Terminal Length: Setting of minimum and maximum allowable Terminal Length measurement.
Term To Term Length Min : 80 Max : 150 Max - Min : 30		Term to Term Length: Setting of minimum and maximum allowable for measurement Terminal Length measurement.

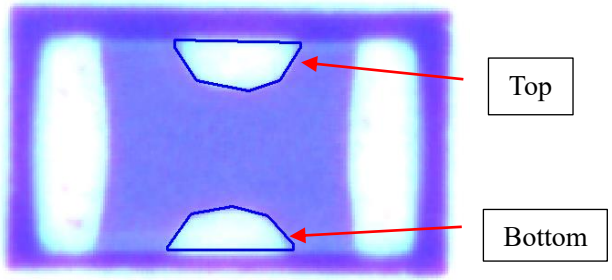
		Body to Term Body Width: For special device that body on top and bottom. Setting of minimum and maximum allowable body to terminal body measurement.
		Body Width Different Terminal Length Difference Use the Max value – Min value. Any value more than the setting value considers as fail. This is for above special device to compare top and bottom body width.
		Term to Body Gap: Setting the Min Gap to measurement from terminal to body gap. Any value less than the Min Gap setting considers as fail.
		Pkg Location Use as Body Length: Tick if the device needs to use connected blob for better device location located.

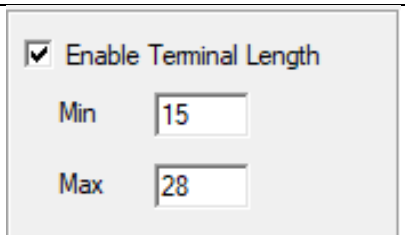
No Terminal:
Tick if the device has no terminal, only body.

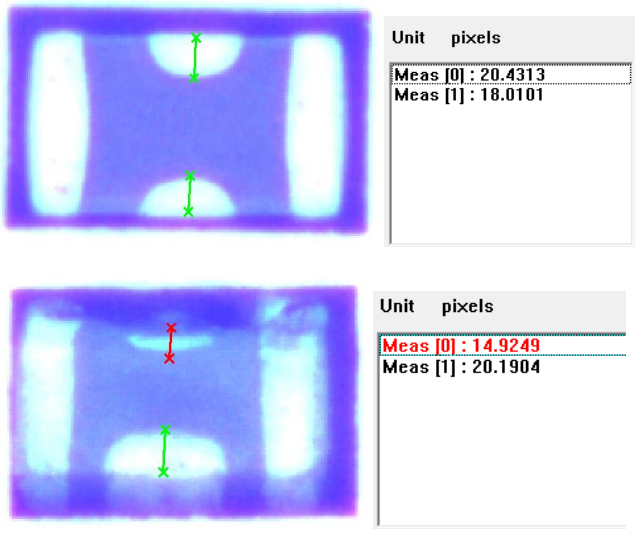
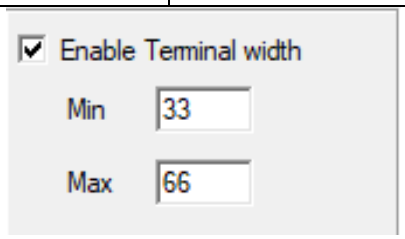
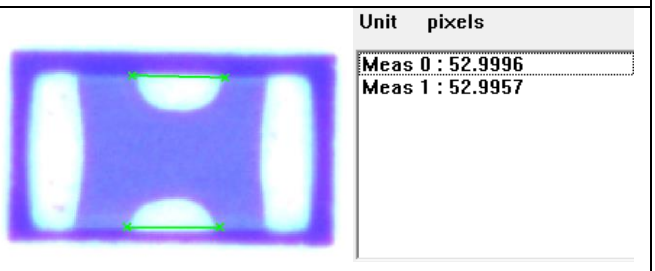
Auto Fill Parameter:
Set the tolerance value for Min and Max. Software will automatically fill in the parameters into Body length, Terminal Width, Terminal Length and Term to Term Length according to the user's settings. (To use this function, registry Autofillpara=1).

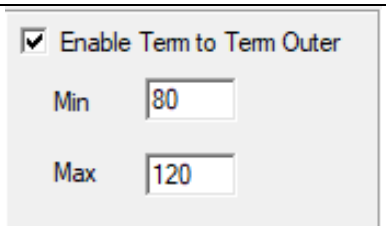
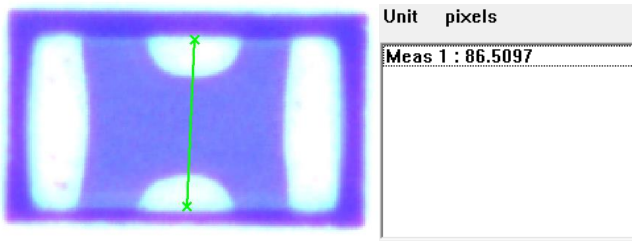
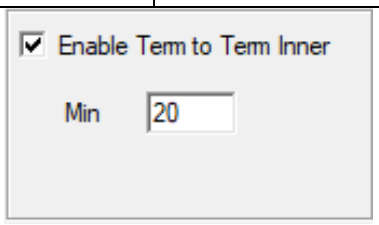
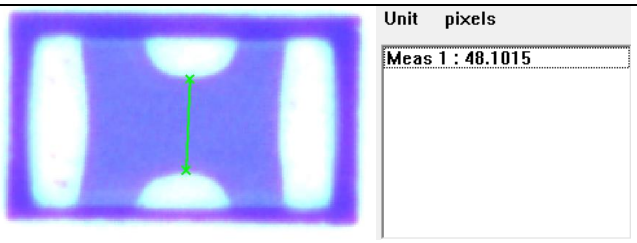
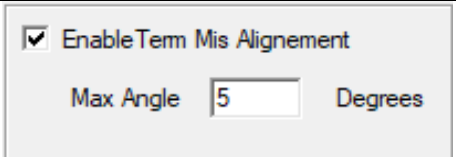
Mid Terminal

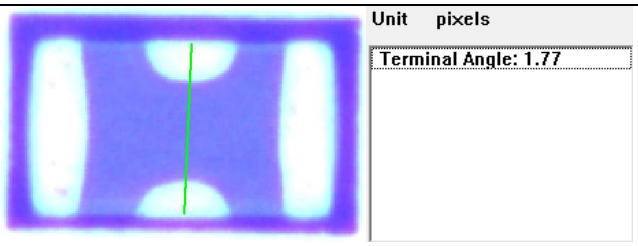
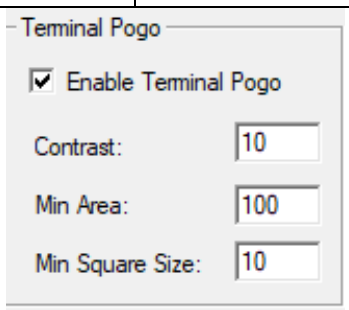
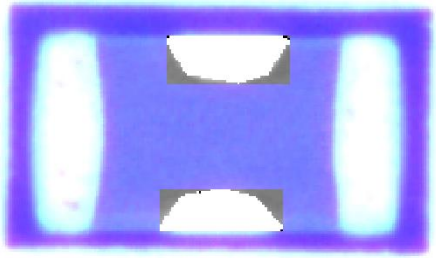
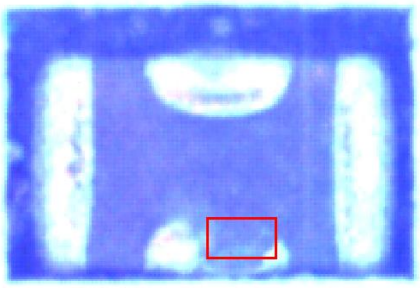


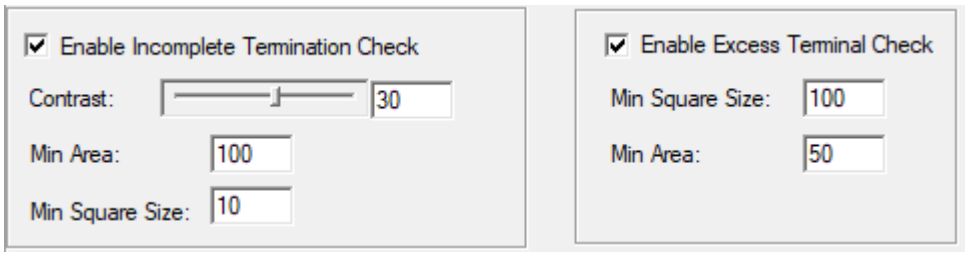
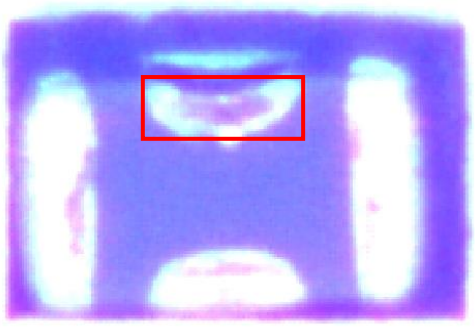
Mid Terminals With 1 terminal on each Top and Bottom terminal only. **Multi Terminals** With multi-terminals on top and bottom.	

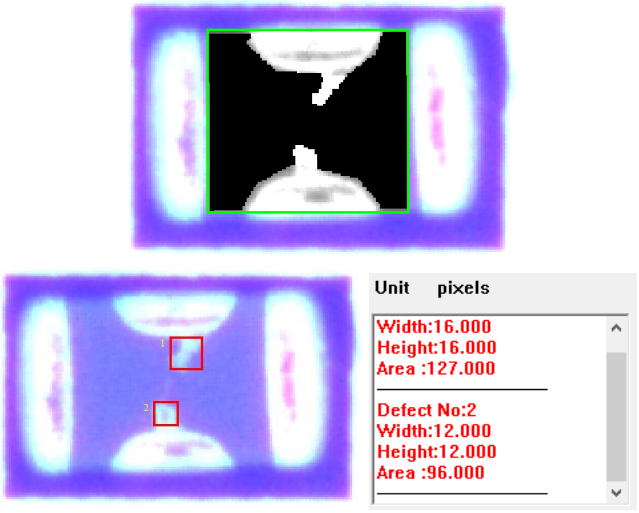
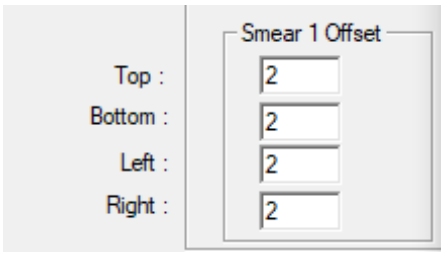
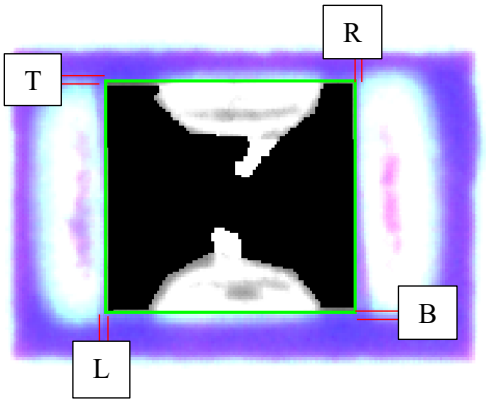
<table>
<tr><td colspan="2"> 
</td></tr>
<tr><td>Enable Terminal Length
Inspect the length of the top & bottom terminals.

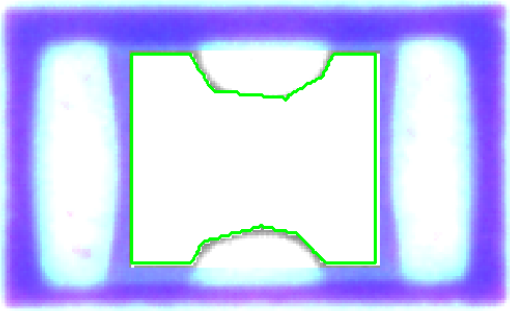
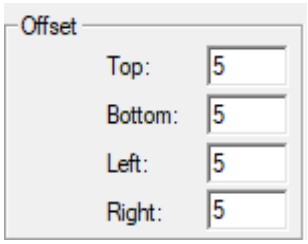
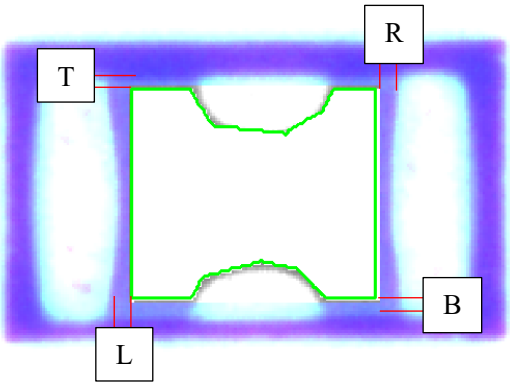
This parameter is auto generated value in pixels when do a setup of the package. This value is less than the setting value will consider as fail unit as Terminal Length.</td><td> 
</td></tr>
<tr><td>Min & Max</td><td>Determines the minimum/maximum terminal length of the device. This parameter is auto generated value in pixels when do a setup of the package. This value will be compared with the calculated Terminal Length as a failing criteria.</td></tr>
<tr><td colspan="2"> 
</td></tr>
<tr><td>Enable Terminal Width
Inspect the width of top & bottom terminals.</td><td> 
</td></tr>
<tr><td>Min & Max</td><td>Determines the minimum/maximum terminal width of the device. This parameter is auto generated value in pixels when do a setup of the package. This value will be compared with the calculated Terminal Width as a failing criteria.</td></tr>
</table>

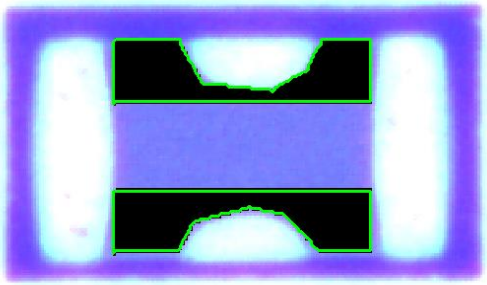
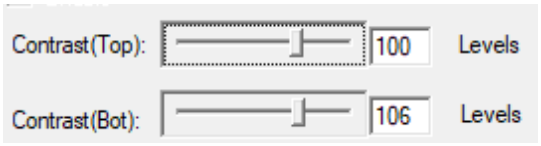
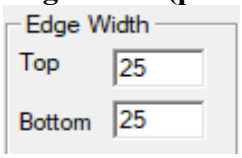
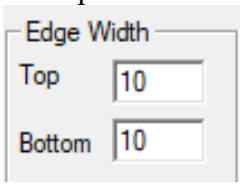
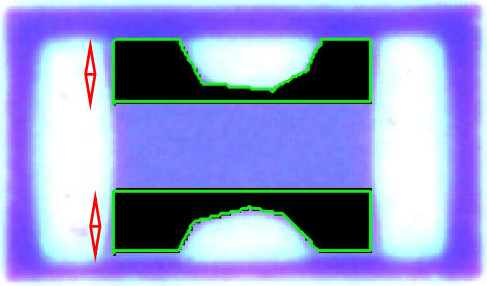
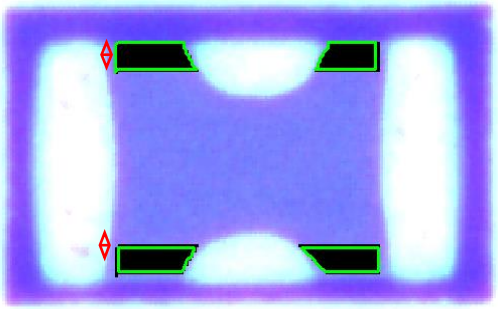
<table>
<tr><td colspan="2"> 
</td></tr>
<tr><td>Enable Term to Term Outer
Inspect the term-to-term length from top to bottom outer terminals.</td><td> 
</td></tr>
<tr><td>Min & Max</td><td>Determines the minimum/maximum term to term outer terminal length of the device. This parameter is auto generated value in pixels when do a setup of the package. This value will be compared with the calculated Term to Term outer length as a failing criteria.</td></tr>
<tr><td colspan="2"> 
</td></tr>
<tr><td>Enable Term to Term Inner
Inspect the body length from terminal-to-terminal inner</td><td> 
</td></tr>
<tr><td>Inner Min</td><td>Determines the Minimum terminal to terminal inner of the device. This parameter is auto generated value in pixels when do a setup of the package. This value will be compared with the calculated Terminal to Terminal as a failing criteria.</td></tr>
<tr><td colspan="2"> 
</td></tr>
</table>

Enable Term Mis Alignment Inspection from top terminal to bottom terminal of the terminal alignment.	
Maximum angle	Determines the terminal alignment of the device. This parameter is auto generated value in degree when do a setup of the package. This value will be compared with the calculated Terminal Alignment as a failing criteria.
	
Enable Terminal Pogo Detection black defect in the top & bottom terminal surfaces.	
Inspection area according to shape of the terminal. The size of the defection area according to the setting value.	
Contrast	Determines the minimum gray level between the average terminal contrast and the terminal pogo defects。Smaller Parameter=Loose for inspection -ve value possible
Min Area	Determines the maximum acceptable pogo defect area in pixels value. If the found defect area is greater than set value will Fail.

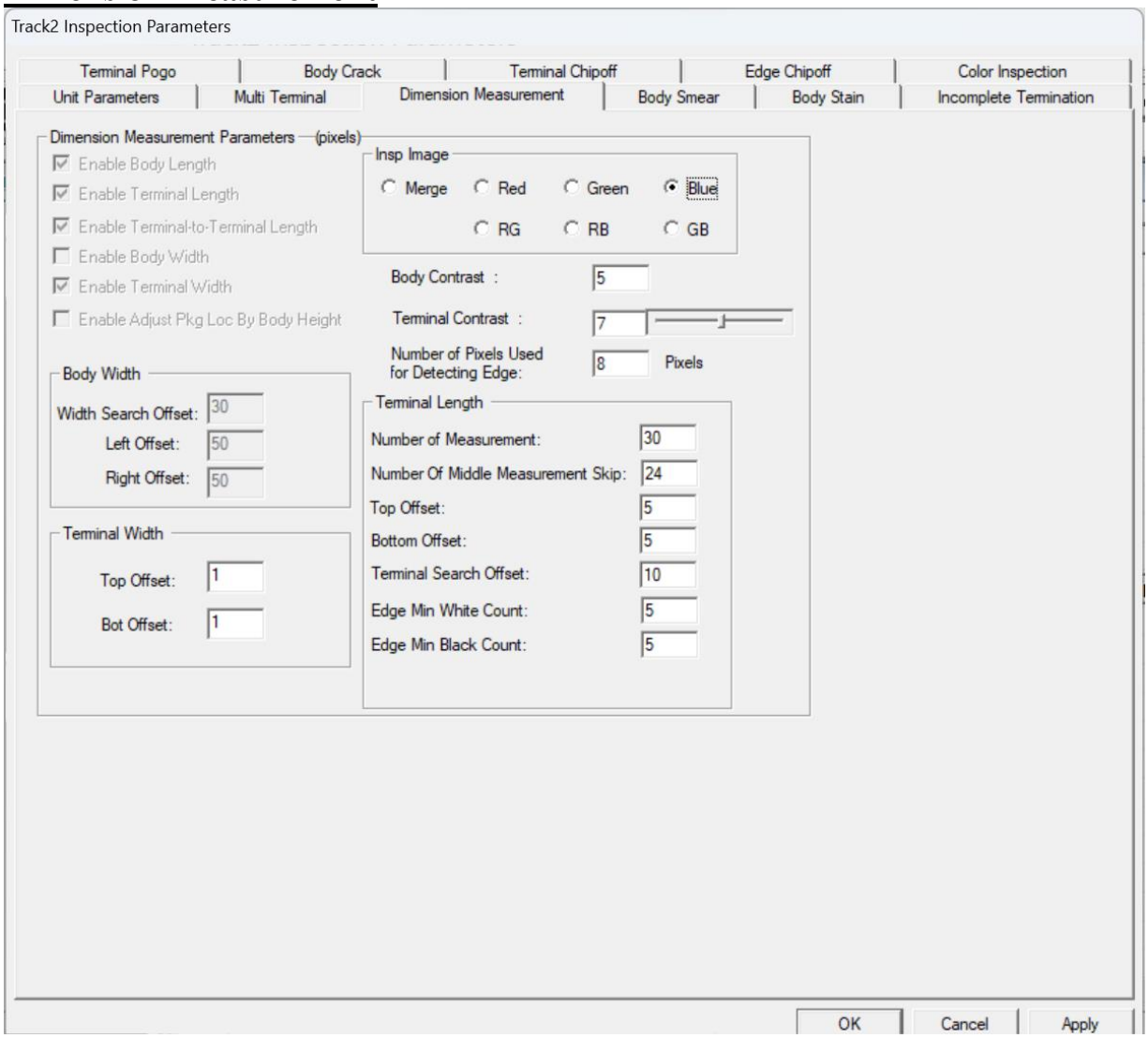
Min Square Size	Determines the maximum acceptable width or height value of pogo defect area in pixels value. If the found defect area are greater than set value will be Fail.
	
Incomplete Termination Check **Excess Terminal Check** It will do the incomplete termination defects check and excess terminal check on the terminal surfaces. Excess terminal or no terminal consider fail as excess terminal check if user enable it.	
Contrast	Determines the minimum gray level between the package body and the terminals for defects check. This parameter will help you to distinguish between incomplete termination check defects and the device surface. The parameter is in gray levels.
Min Area	Determines the minimum area in pixels that would be classified as the incomplete termination check defects during the inspection. After the PVI process has been completed the found incomplete termination check defects are compared with this parameter which will decide whether to fail the device or not.
Min Square Size	Determines the minimum area in pixels that would be classified as the incomplete termination check defects during the inspection. After the PVI process has been completed the found incomplete termination check defects are compared with this parameter which will decide whether to fail the device or not

Mid Terminal Body Smear Detection white defect in the package surfaces.	
Contrast	Determines the minimum gray level between the average Body contrast as compared to defect contrast in gray scale level. The higher the value the lower the detection level.
Min.Area	Determines the maximum acceptable smear defect area in pixels value. If the found defect area are greater than set value will be Fail.
Min. Square Size	Determines the maximum acceptable width or height value of smear defect area in pixels value. If the found defect area is greater than set value will Fail.
Smear 1 Offset 	 T=Top, B=Bottom, L=Left, R=Right This determines the Top, Bottom, Left, Right offset in pixels. This parameter determines the area in pixels where the inspection will be ignored for the smear inspection from the package location reference line on the Top, Bottom, Left, Right side.

Mid Terminal Body Stain Detection Black defect in the package surfaces.	
Contrast	Determines the minimum gray level between the average Body contrast as compared to defect contrast in gray scale level. The higher the value the lower the detection level.
Min Area	Determines the maximum acceptable stain defect area in pixels value. If the found defect area is greater than set value will Fail.
Min Square Size	Determines the maximum acceptable width or height value of stain defect area in pixels value. If the found defect area is greater than set value will Fail.
Offset 1  When do a setup of the package, Teach system the mid terminal area. The coverage area of the body is auto generated shape.	 T=Top, B=Bottom, L=Left, R=Right This determines the Top, Bottom, Left, Right offset in pixels. This parameter determines the area in pixels where the inspection will be ignored for the Body Stain inspection from the package location reference line on the Top, Bottom, Left, Right side.

Mid Terminal Edge Chipoff Detection of broken defects in the edge of body surfaces.	
Contrast 	Determine the gray level between the body and the edge defects. This parameter will distinguish between white defect and the body edge surface. The parameter is in gray levels.
Min Area	Determines the minimum area in pixels that would be classified as the body edge chipoff defects during the inspection. After the PVI process has been completed the found body edge chipoff defects are compared with this parameter which will decide whether to fail the device or not.
Min Square Size	Determines the minimum area in pixels that would be classified as the body edge chipoff defects during the inspection. After the PVI process has been completed the found body edge chipoff defects are compared with this parameter which will decide whether to fail the device or not.
Edge width (pixels)  When do a setup of the package, Teach system the mid terminal area. The coverage area of the body is auto generated shape. Example:  If in-correct setting value, it will cause incorrect results of detection.	The width of the detecting area.  

Dimension Measurement

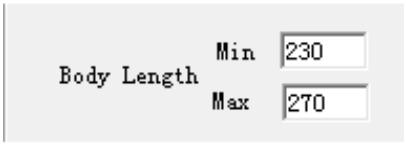
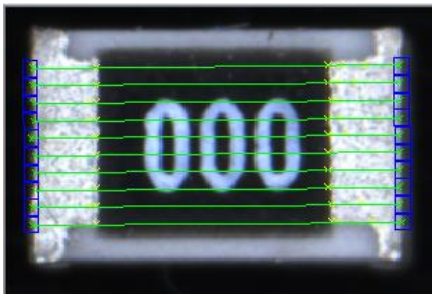
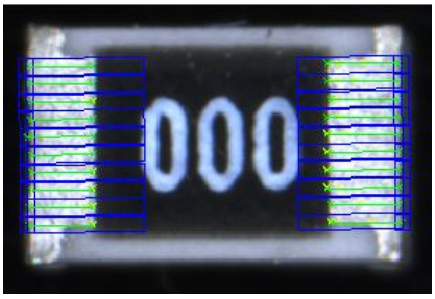
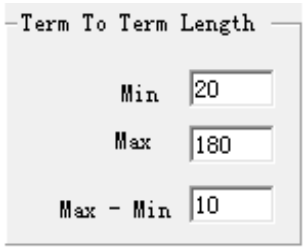
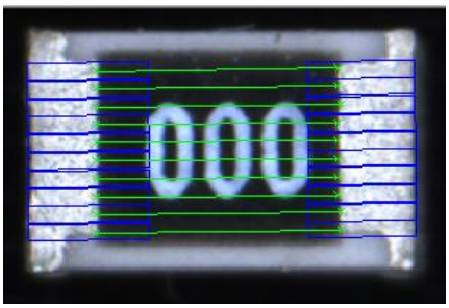


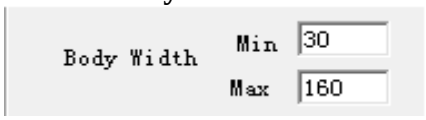
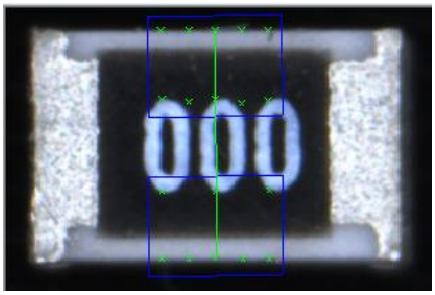
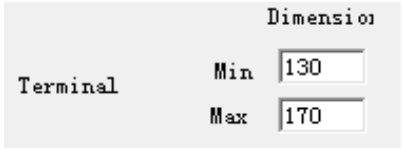
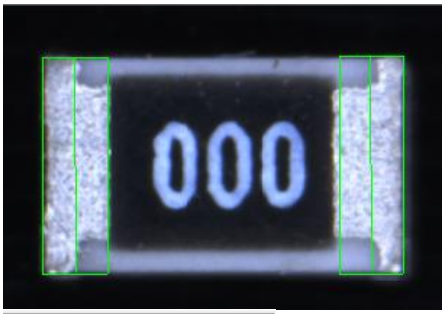
Dimension Measurement Parameters：(Pixels)

- Enable Body Length
- Enable Terminal Length
- Enable Terminal to Terminal Length
- Enable Body Width
- Enable Terminal Width
- Enable Adjust Pkg Loc by Body Height

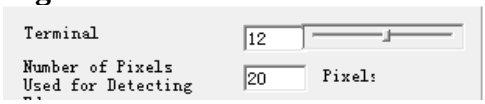
Width Search offset	Search the product width of the extra border.
Left/Right offset	Search the product offset from a border of left/right side.
Top/Bottom offset	Search the product offset from a border of top/bottom side.
Body/Terminal contrast	Set the parameter contrast to determine the strength of black and white in the body or terminal.

Parameter including as below：

Enable Body Length  User set the minimum and maximum value of required Body Length. In-correct setting of Body length value will result in “Location” Fail.	 Example, measured value min. =247， max. =251. The value will be calculated with the standard set value (Min: 230, Max: 270) by comparison of the measured value of body length to decide Pass or fail.
Enable Terminal Length  User set the minimum and maximum value of required terminal/electrode length.	 Example, measured value min. =41， max. =49。The value will be calculated with the standard set value (Min: 10, Max: 80) by comparison of the measured value of terminal length to decide Pass or fail.
Enable Terminal to Terminal length.  User set the minimum and maximum value of required Terminal to Terminal length value. Use also required to set the value in “Max-Min”.	 Example, measured value min. =158， max. =160. The value will be calculated with the standard set value (Min: 20, Max: 180) by comparison of the measured value of Terminal-to-Terminal length to decide Pass or fail. And the calculated Max value minus Min value (160-158) = 2 as such it will be pass as compared to set value of 10.

Enable Body Width  User set the minimum and maximum value of required Body width/height.	  Example, measured value min. =155, The value will be calculated with the standard set value (Min: 30, Max: 160) by comparison of the measured value of Body Width to decide Pass or fail.
Enable Terminal Width  User set the minimum and maximum value of required terminal/electrode width/height. In-correct setting of Terminal width value will result in "Location" Fail	  Example, measured value min. =156， max. =156. The value will be calculated with the standard set value (Min: 130, Max: 170) by comparison of the measured value of terminal width to decide Pass or fail.
Enable Adjust Pkg Location by Body Height	If enabled this, the system will auto adjust search and adjust the package location base on body height during testing.

Terminal Contrast &
Number of pixels used for detecting edge.



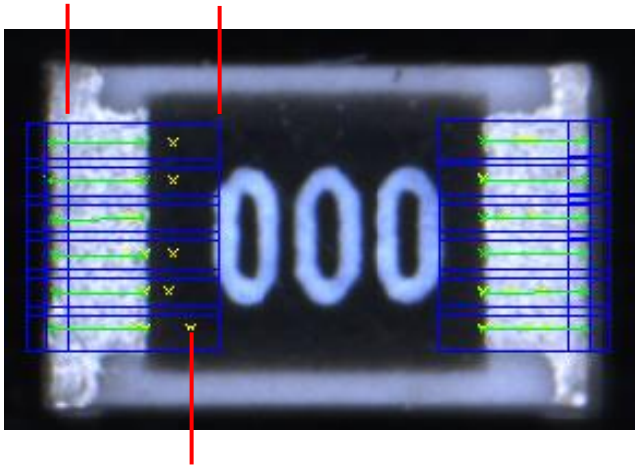
Terminal contrast value is used to determine the blob area of terminal or electrode. It uses body average contrast + set value to determine the edge of terminal. Example: if average body contrast = 140 + set value of 10. All pixels above 150 contrasts will possibly be considered as terminal edge. If Terminal contrast set value too low as = 2, the possible terminal edge value will be 142, it will cause wrong stopping length of edge.

On the other hand, correct setting of value will be able to locate the terminal length correctly thus reduce overkill.

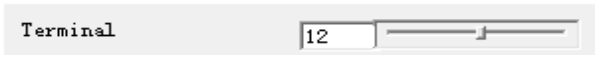
Number of pixels used for detecting edge.

IA part form terminal contrast, number of pixels used for detecting edge also important value to correctly locating the terminal length. Upon locating the edge by terminal contrast, the system will use number of left and right to double confirm the accuracy. The higher the value the lower the accuracy.

Searching Length: Value +20

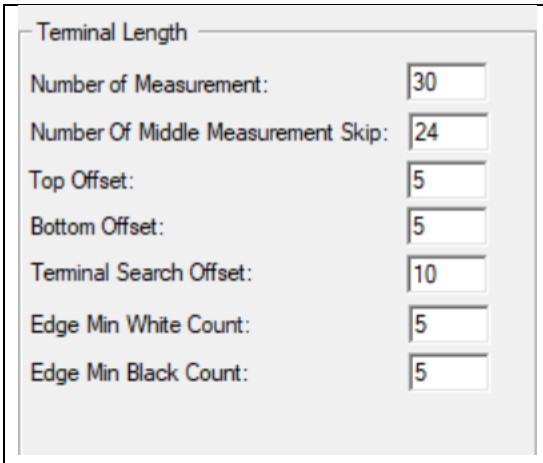


Wrong Stopping Length Detect



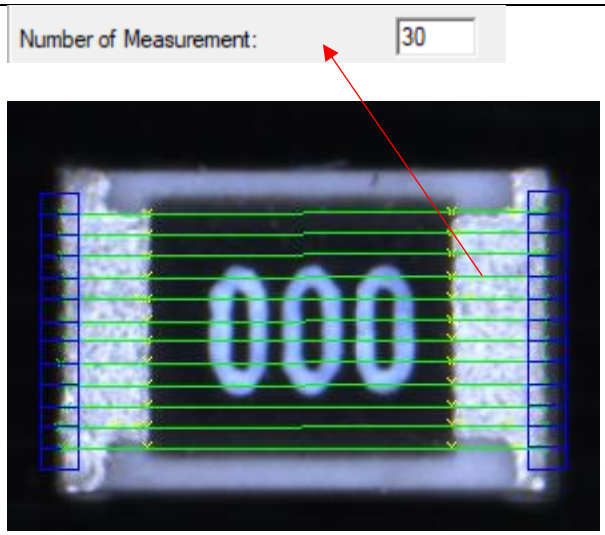
Correct Stopping Length Position

Searching Width of White Pixels

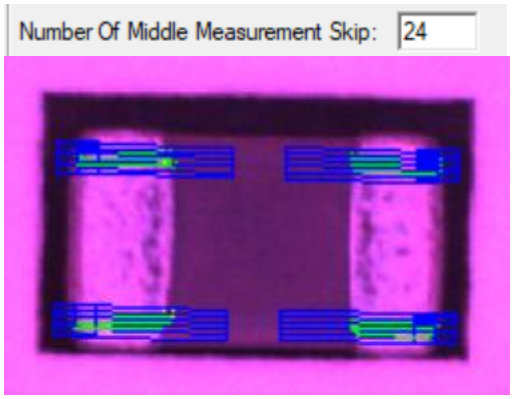


Number of Measurement
To set several measurement lines. Define the number of measurement lines for all dimension measurements. The higher the number of measurement lines, the higher the accuracy of measurement.

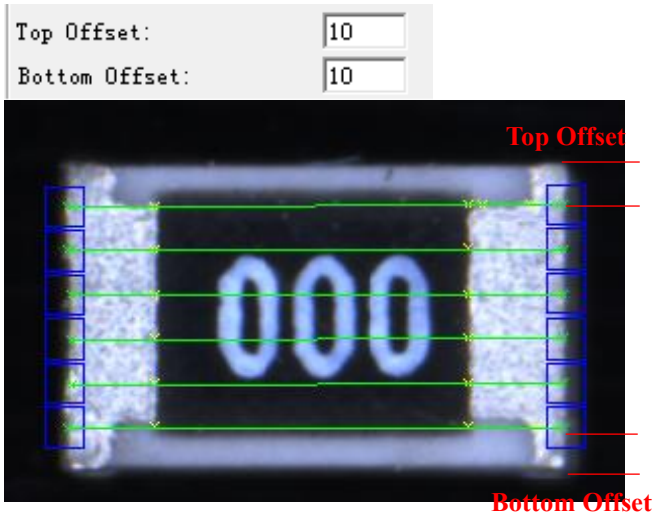
Measurements line distribute equally for dimension measurement within package/device.



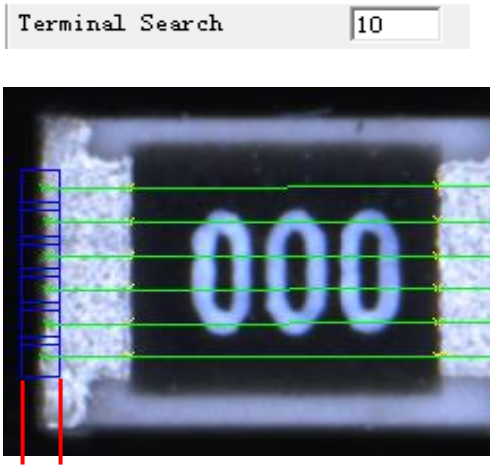
Number Of Middle Measurement Skip
To skip measure middle of the line for inspection. It uses Number of Measurement deduct the Number of Middle Measurement skip input value. Only inspect the top and bottom of the terminal after skipping.



Top & Bottom Offset
To define the measurement starting line away from edge. As some product has bad corners dimension structure, to avoid overkill on dimension measure top and bottom offset applied.

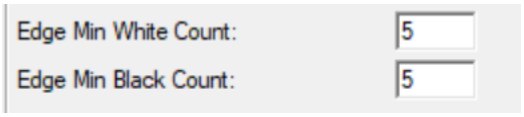


Terminal Search Offset
To define the area of searching width to find possible start point of measurement.
To avoid the wrong starting point, this value should not be greater than 20.



Start Point Search Width

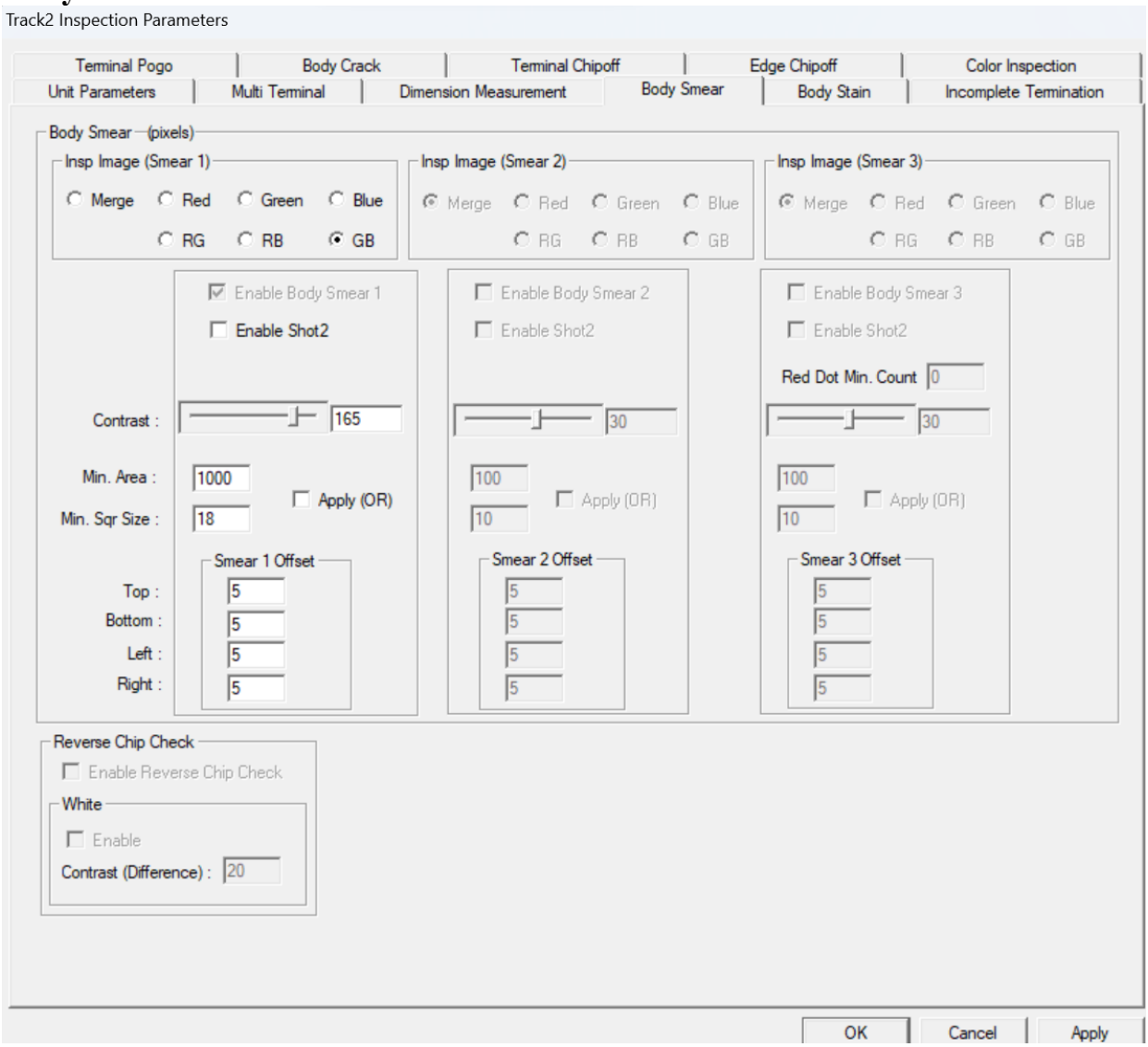
Edge Min White Court /
Edge Min Black Court
This is for special device use. Normal device will default to use 5.

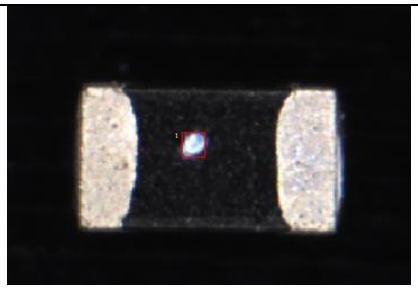


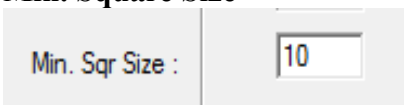
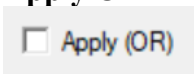
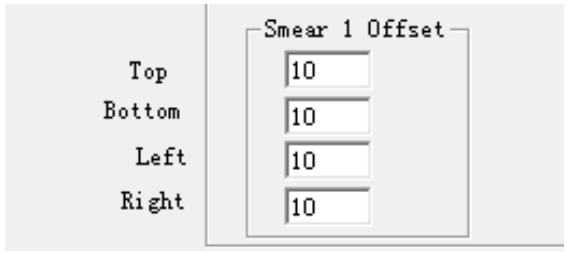
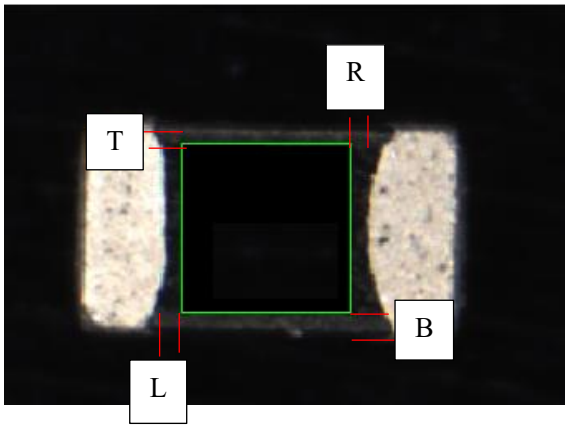
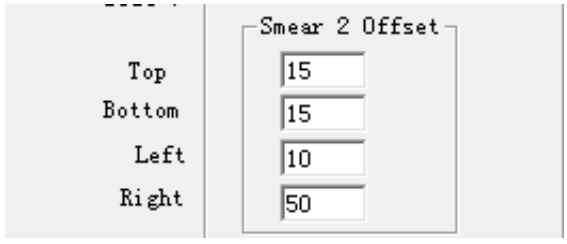
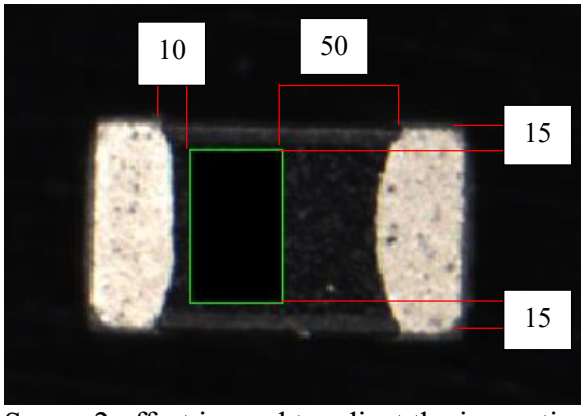
Insp Image
System to generate 7 image colors. Select the best result from the 7-image color, it will help detect the defect more clearly.

Example:
Merge: Red, Green + Blue
Red: only saved red pixels
Green: only saved green pixels
Blue: only saved blue pixels
RG: Saved Red + Green pixels
RB: Saved Red + Blue pixels
GB: Saved Green + Blue pixels

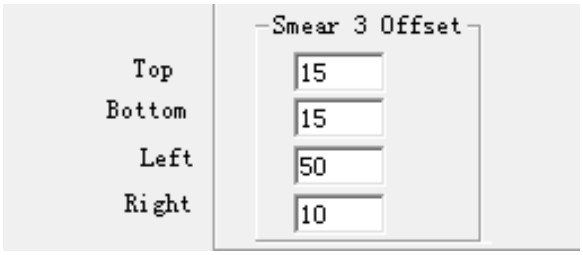
Body Smear



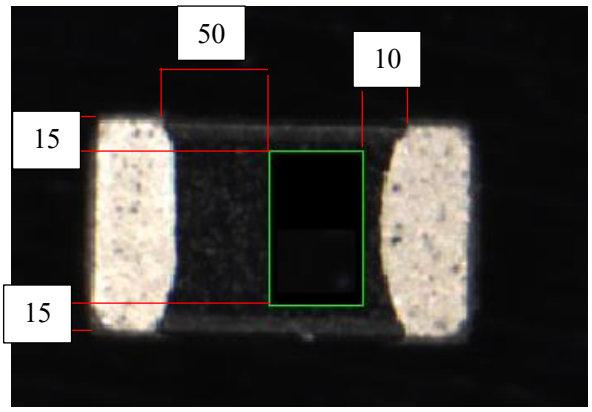
Body Smear Detection white defect in the package surfaces.	
Contrast 	Determines the minimum gray level between the average Body contrast as compared to defect contrast in gray scale level. The higher the value the lower the detection level.
Min.Area 	Determines the maximum acceptable smear defect area in pixels value. If the found defect area are greater than set value will be Fail.

Min. Square Size 	Determines the maximum acceptable width or height value of smear defect area in pixels value. If the found defect area is greater than set value will Fail.
Apply OR 	Tick Apply (OR), need to fulfill both Min. Area and Min.Sqr Size setting value. Any one of the areas exceeding the setting value will be considered as Fail.
Smear 1 Offset 	 T=Top, B=Bottom, L=Left, R=Right This determines the Top, Bottom, Left, Right offset in pixels. This parameter determines the area in pixels where the inspection will be ignored for the smear inspection from the package location reference line on the Top, Bottom, Left, Right side.
Smear 2 Offset  Example for setting Offset.	 Smear 2 offset is used to adjust the inspection area, each smear can have its own setting value to determine the loose of tight control within the inspection area.

Smear 3 Offset

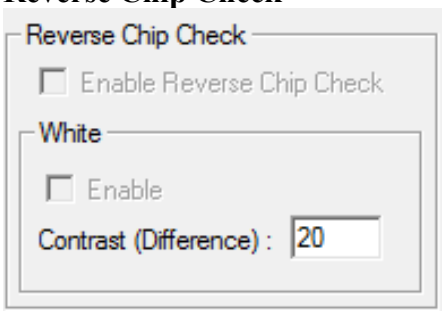


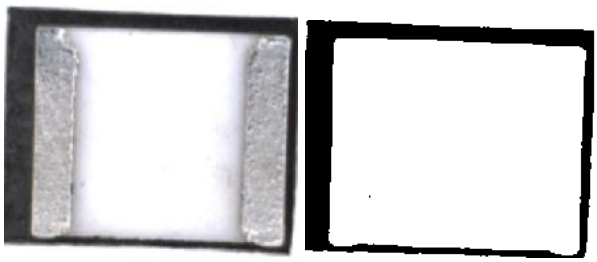
Example for setting Offset.



Smear 3 offset is used to adjust the inspection area, each smear can have its own setting value to determine the loose of tight control within the inspection area.

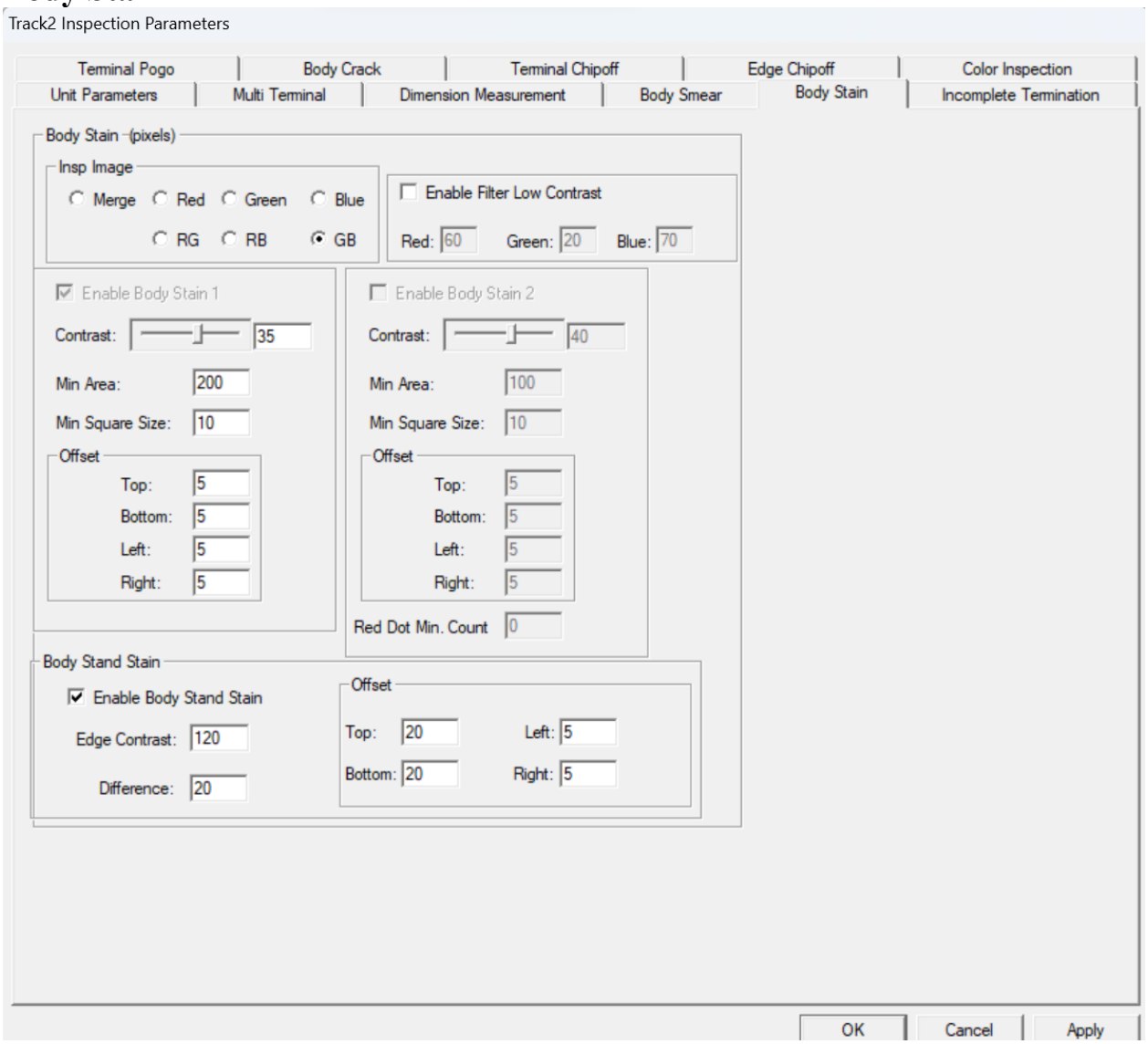
Reverse Chip Check

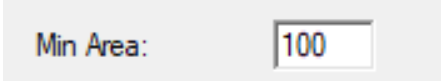


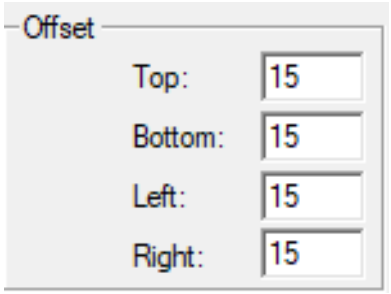
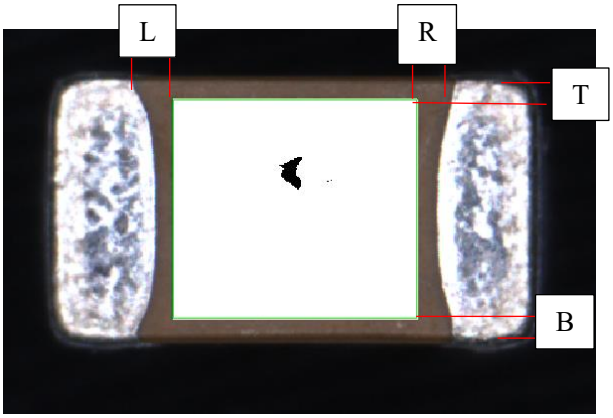
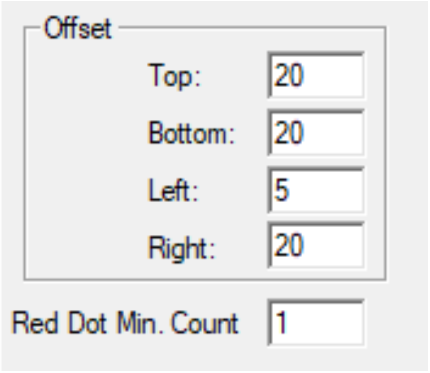
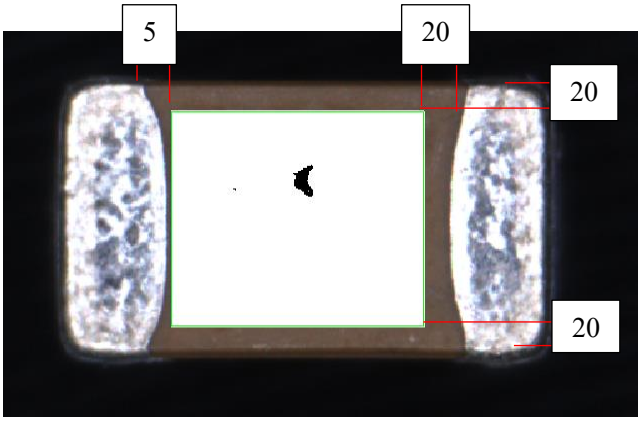
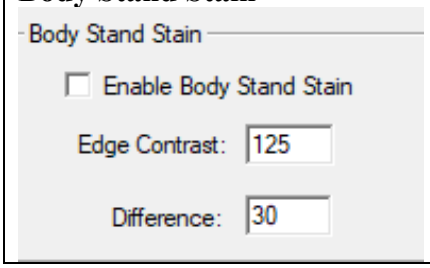


When chip accidently reversed. If enabled, it can check the chip as fail unit. Binaries mode will show all in White. Adjust with contrast with set the intensity difference value acceptable.

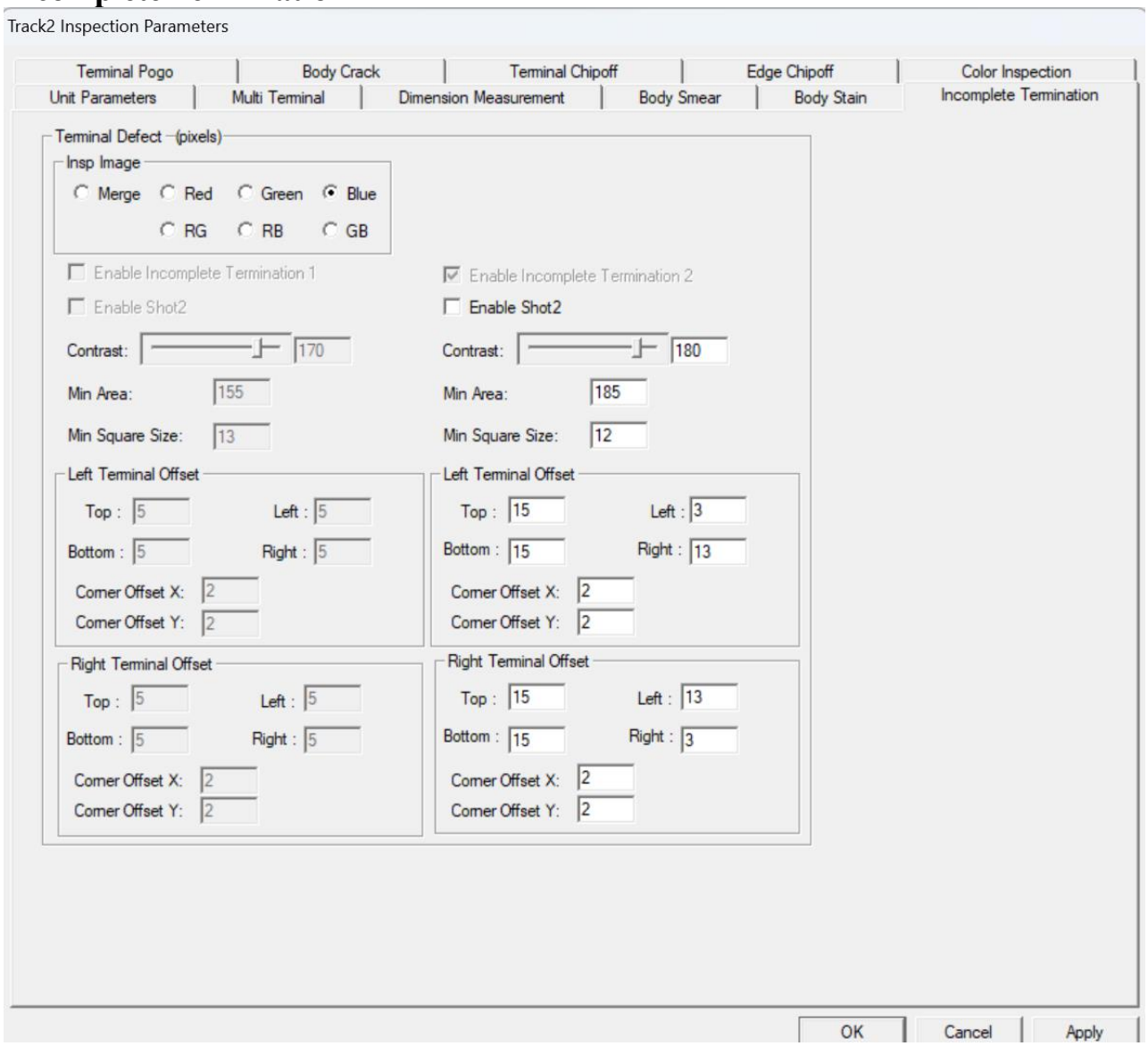
Body Stain

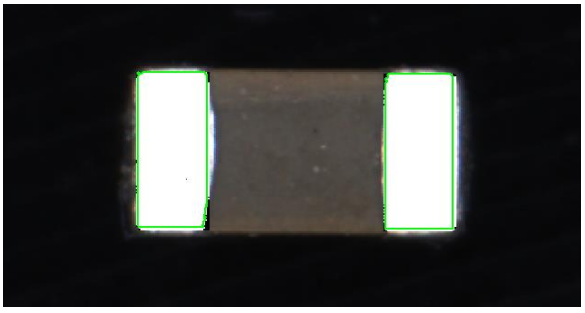


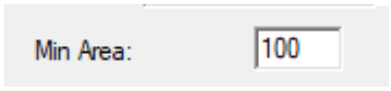
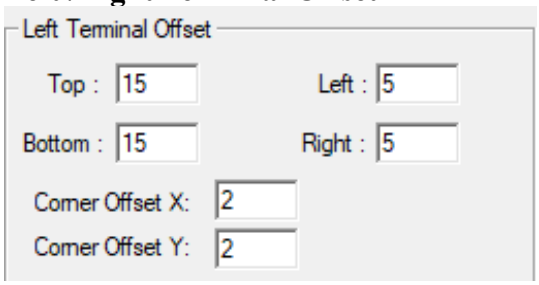
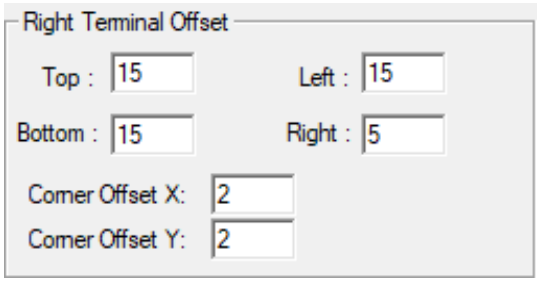
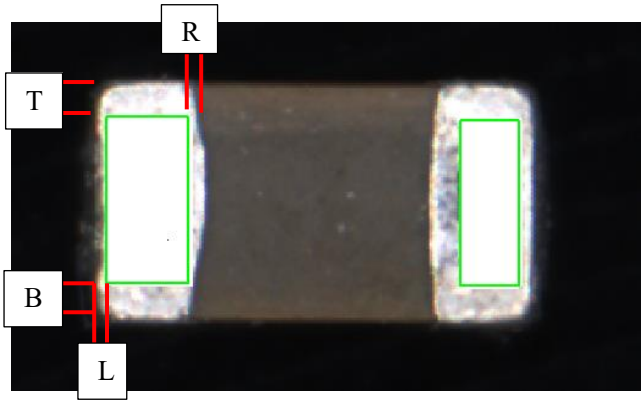
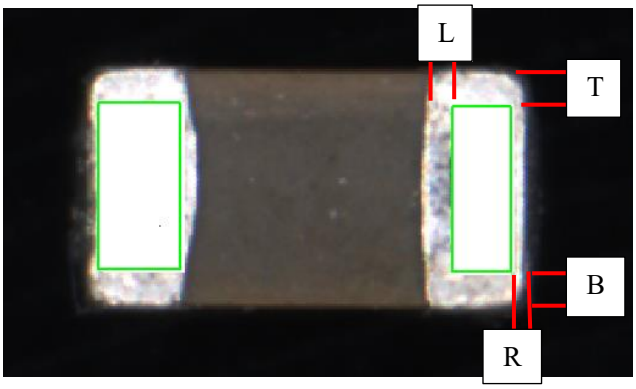
Body Stain Detection Black defect in the package surfaces.	
Contrast 	Determines the minimum gray level between the average Body contrast as compared to defect contrast in gray scale level. The higher the value the lower the detection level.
Min Area 	Determines the maximum acceptable stain defect area in pixels value. If the found defect area is greater than set value will Fail.

Min Square Size 	Determines the maximum acceptable width or height value of stain defect area in pixels value. If the found defect area is greater than set value will Fail.
Offset 1  In this example the Top, Bottom, Left & right offset are set to 15 pixels.	 T=Top, B=Bottom, L=Left, R=Right This determines the Top, Bottom, Left, Right offset in pixels. This parameter determines the area in pixels where the inspection will be ignored for the Body Stain inspection from the package location reference line on the Top, Bottom, Left, Right side.
Offset 2 	 Stain offset 2 use to adjust the inspection area, each stain is capable to has own setting value to determine the loose of tight control within the inspection area. Red Dot Min. Count: to set the value to count the min. defect. Any defect stain more than the set value considers as fail unit.
Body Stand Stain 	This inspection is for finding a thin stain line at package of body area. After finding thin line compare the intensity difference between top and bottom.

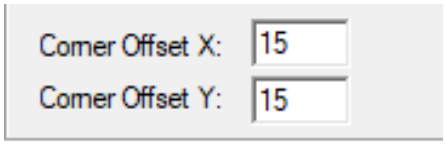
Incomplete Termination



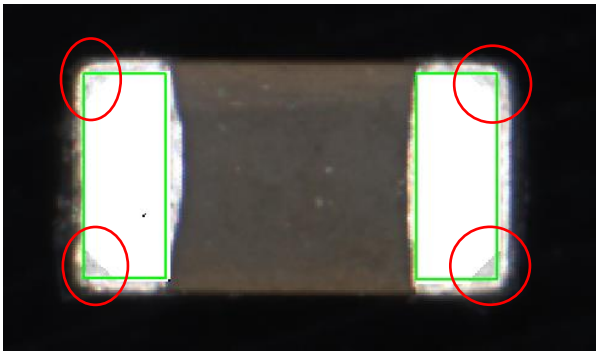
Incomplete Termination 1 To detect the black defect or poor electrode plating. The inspection area defined by maximum electrode width is square box. The deference as compared to Terminal pogo; it is inspection by fixed square box.	
Contrast 	Determines the minimum gray level between the average terminal contrast as compared to defect contrast in gray scale level.

Min. Area 	Determines the maximum acceptable pogo defect area in pixels value. If the found defect area is greater than set value will Fail.
Min. Square Size 	Determines the maximum acceptable width or height value of pogo defect area in pixels value. If the found defect area is greater than set value will Fail.
Left /Right Terminal Offset  Example: Left Terminal Offset Top: 15 pixels, Bottom: 15 Pixels Left: 5 pixels, right: 5 Pixels  Example: Right Terminal Offset Top: 15 pixels, Bottom: 15 Pixels Left: 15 pixels, right: 5 Pixels	Top = 15, Bottom = 15, Left = 5, Right = 5  Terminal offsets define the number of pixels to be ignored during inspection to avoid overkill. The greater the value the less the inspection area covered. Top = 15, Bottom = 15, Left = 15, Right = 5 

Corners Offset X & Y



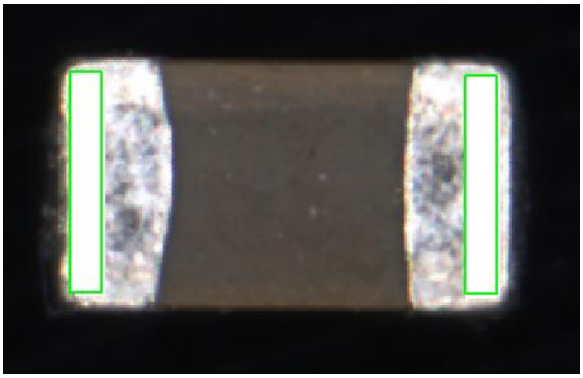
Example: Corners Offset
Corners Offset X: 15 pixels,
Corners Offset Y: 15 pixels.



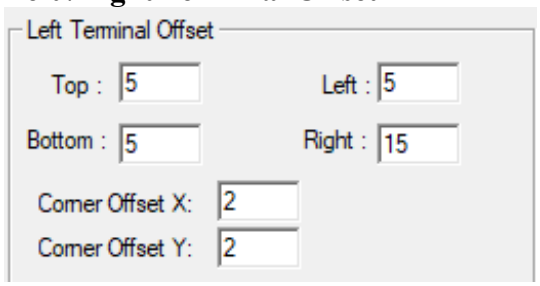
Corners offset define the number of pixels to be chamfered and ignored during inspection to avoid overkill. The greater the value the less the inspection area covered.

Incomplete Termination 2

The usage of incomplete termination 2 is same as incomplete termination 1. The only difference is the inspection area/ square box are determined by user by way of setting the left offset and right offset.



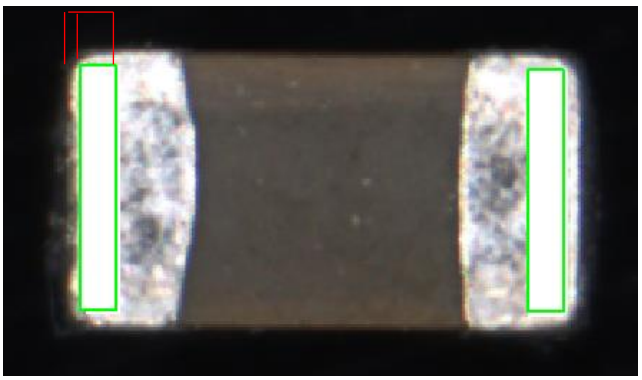
Left /Right Terminal Offset



Function of top and bottom offset will be same as Incomplete termination 1.

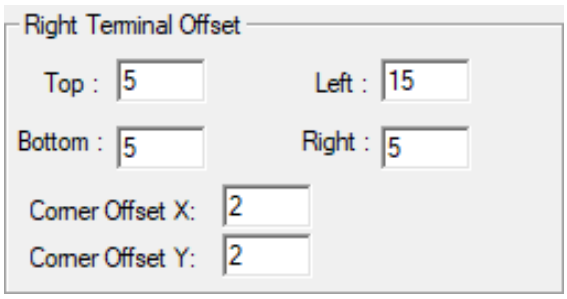
The function of Corner offset X & Y will be same as Incomplete Termination 1.

A **B**



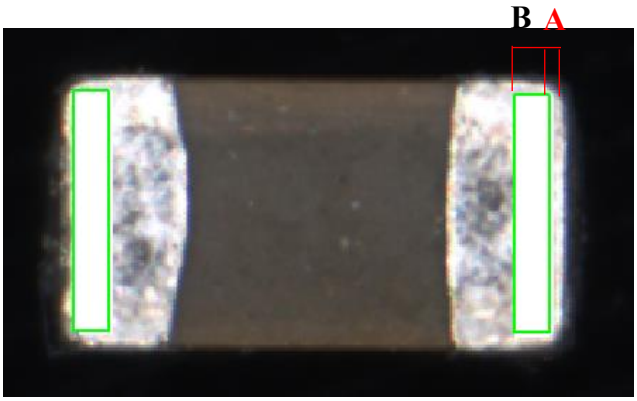
A= Refer to starting of inspection area distance away from package vertical edge. The value is set by Left terminal Offset Left value as in this example will be 5.

B = Refer to inspection distance required or set by user. The distance is set by Left Terminal offset right value, in this example will be 15. The higher the value the more the inspection coverage.



Function of top and bottom offset will be same as Incomplete termination 1.

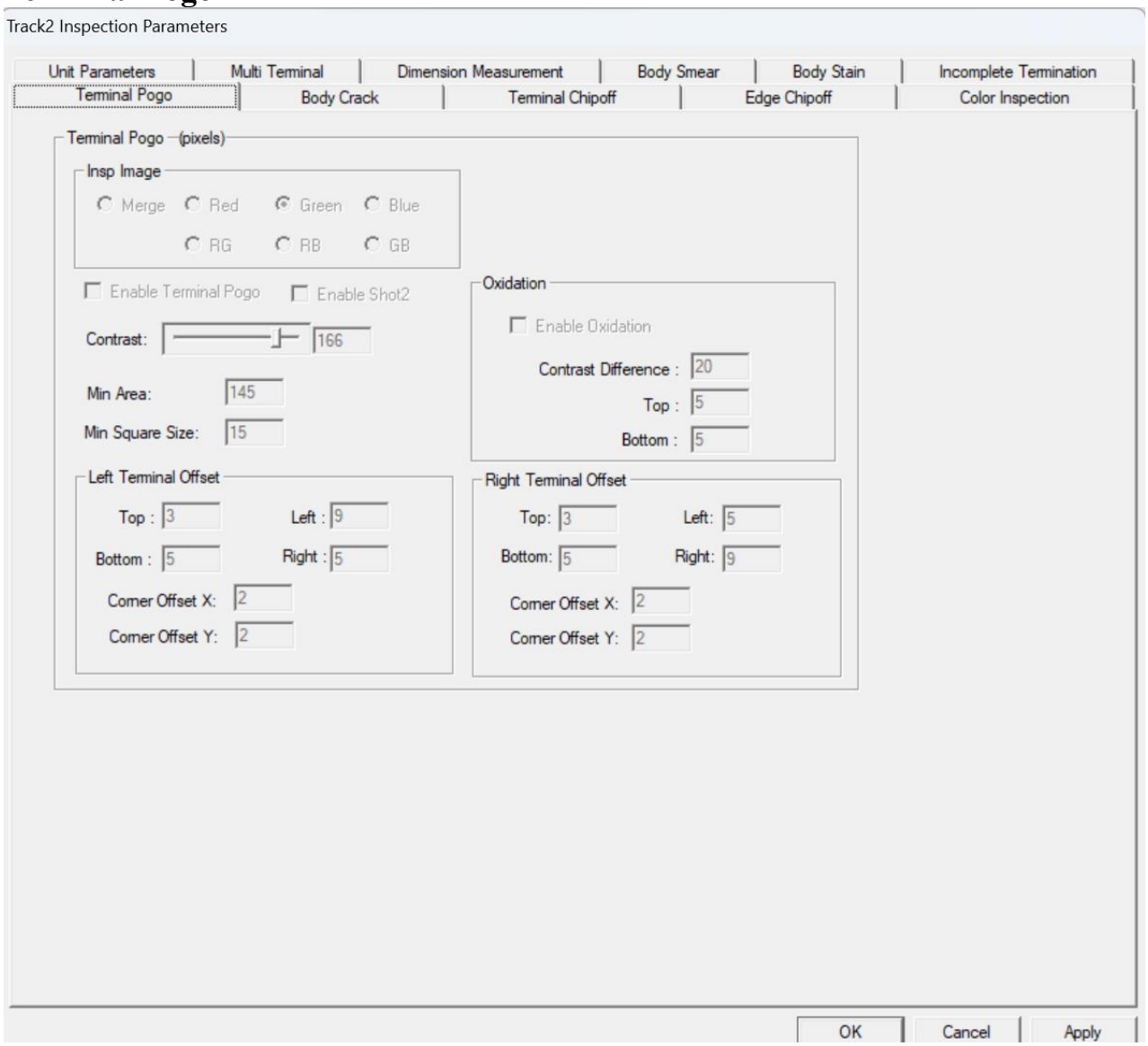
The function of Corner offset X & Y will be same as Incomplete Termination 1.



A= Refer to starting of inspection area distance away from package vertical edge. The value is set by Right terminal Offset Right value as in this example will be 5.

B = Refer to inspection distance required or set by user. The distance is set by Right Terminal offset left value, in this example will be 15. The higher the value the more the inspection coverage

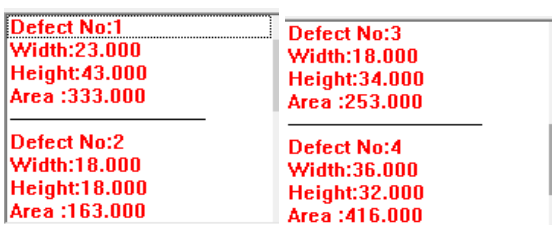
Terminal Pogo

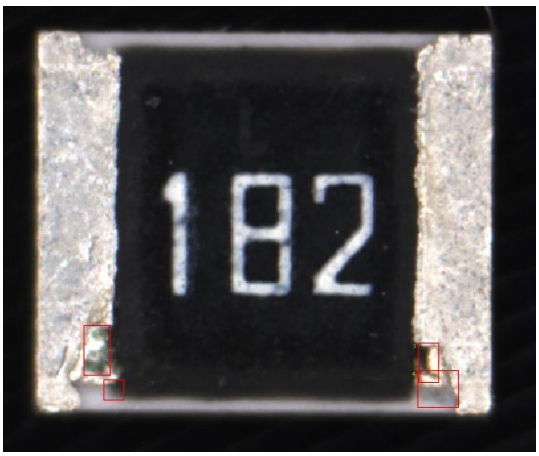


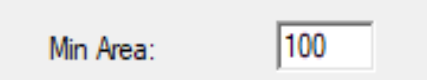
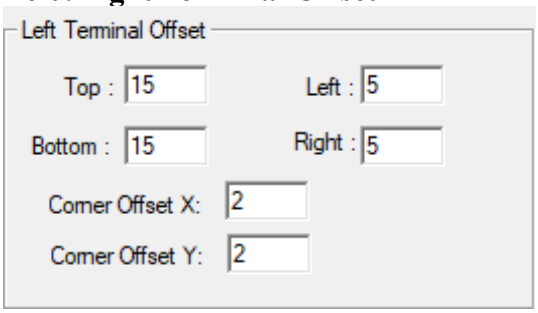
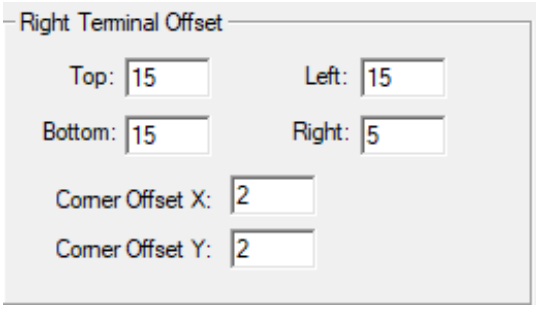
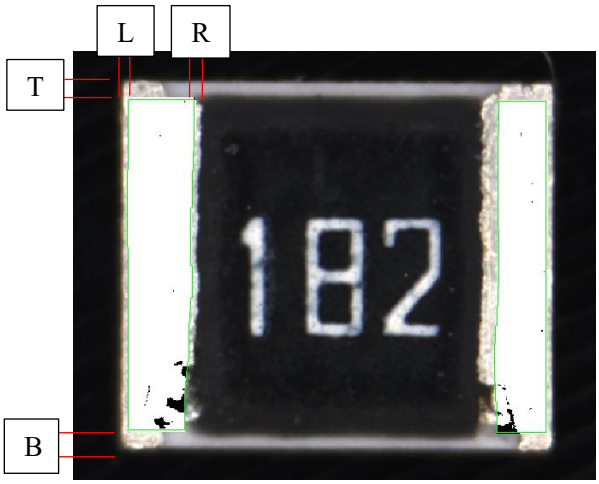
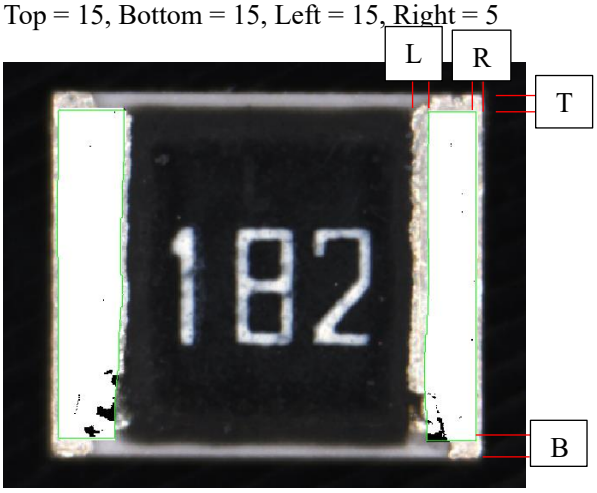
Terminal Pogo

Detection black defect in the terminal surfaces.

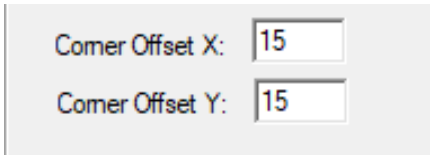
Inspection area according to shape of the terminal



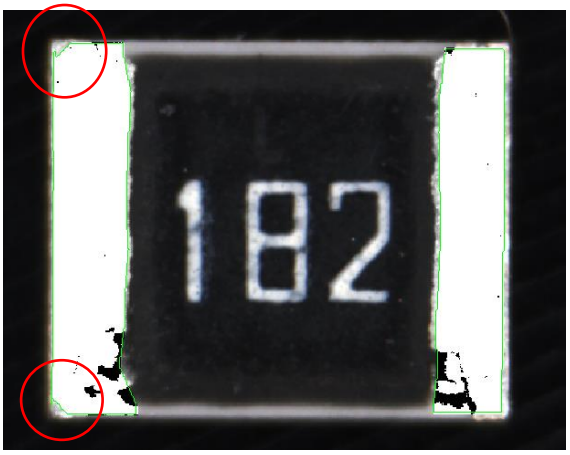


Contrast 	Determines the minimum gray level between the average terminal contrast and the terminal pogo defects。Smaller Parameter=Loose for inspection -ve value possible.
Min Area 	Determines the maximum acceptable pogo defect area in pixels value. If the found defect area is greater than set value will Fail.
Min Square Size 	Determines the maximum acceptable width or height value of pogo defect area in pixels value. If the found defect area is greater than set value will Fail.
Left /Right Terminal Offset  Example: Left Terminal Offset Top: 15 pixels, Bottom: 15 Pixels Left: 5 pixels, right: 5 Pixels  Example: Right Terminal Offset Top: 15 pixels, Bottom: 15 Pixels Left: 15 pixels, right: 5 Pixels	Top = 15, Bottom = 15, Left = 5, Right = 5  Terminal offsets define the number of pixels to be ignored during inspection to avoid overkill. The greater the value the less the inspection area covered. Top = 15, Bottom = 15, Left = 15, Right = 5 

Corners Offset X & Y

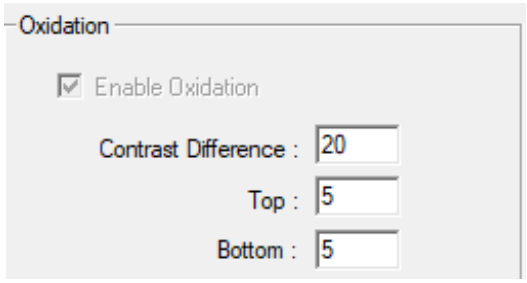


Example: Corners Offset
Corners Offset X: 15 pixels,
Corners Offset Y: 15 pixels.



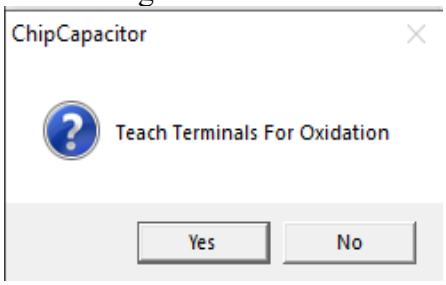
Corners offset define the number of pixels to be chamfered and ignored during inspection to avoid overkill. The greater the value the less the inspection area covered.

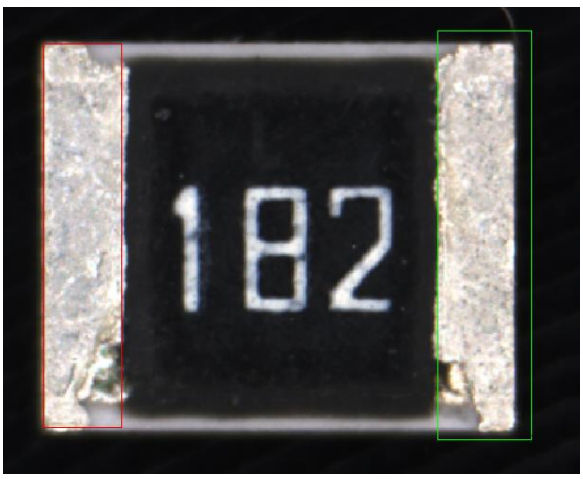
Oxidation

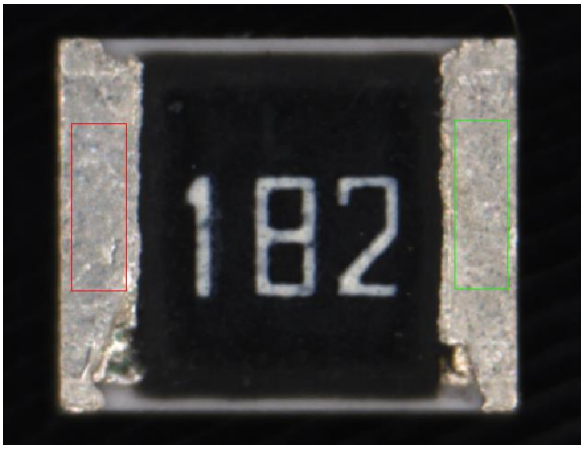
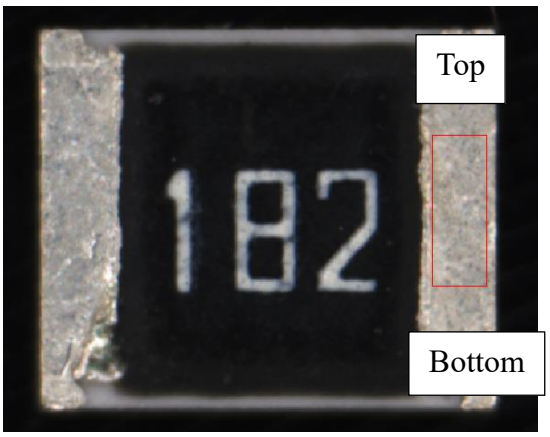


In Mono camera, Oxidation is used to detect change of terminal color such as oxidation. The method of detection is used by comparing the teach contrast with measure contrast. As such there will be additional steps during teaching when this function is enabled.

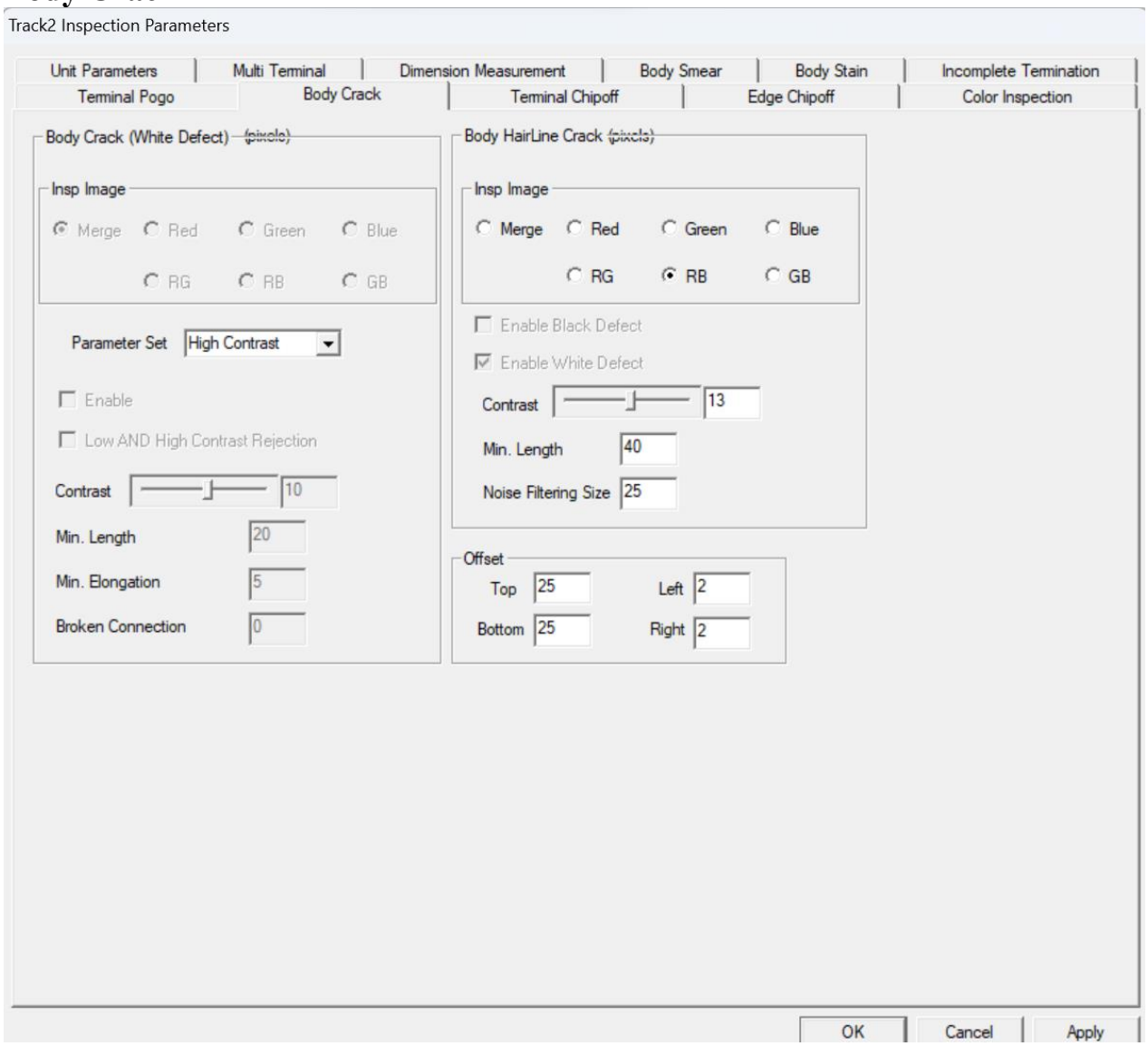
When teaching the oxidation, there will be two rectangular boxes.

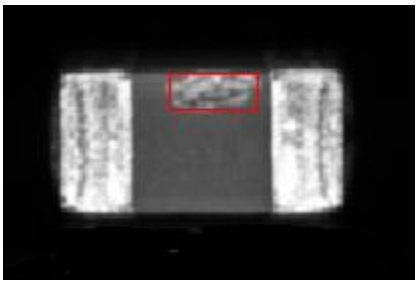


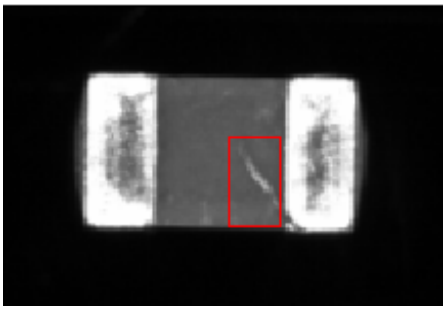
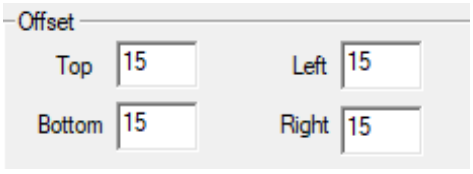
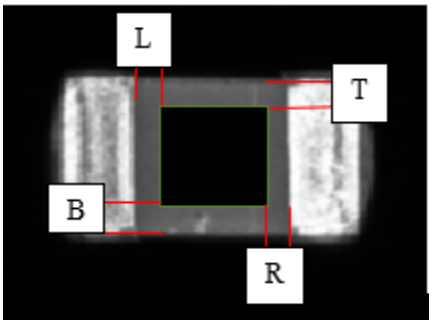


Draw two rectangular boxes within the terminal to find the acceptable average terminal contrast.	
Contrast Difference Refer to maximum acceptable contrast. Average contrast + set value. Top and Bottom Inspection area for a height of top and bottom.	

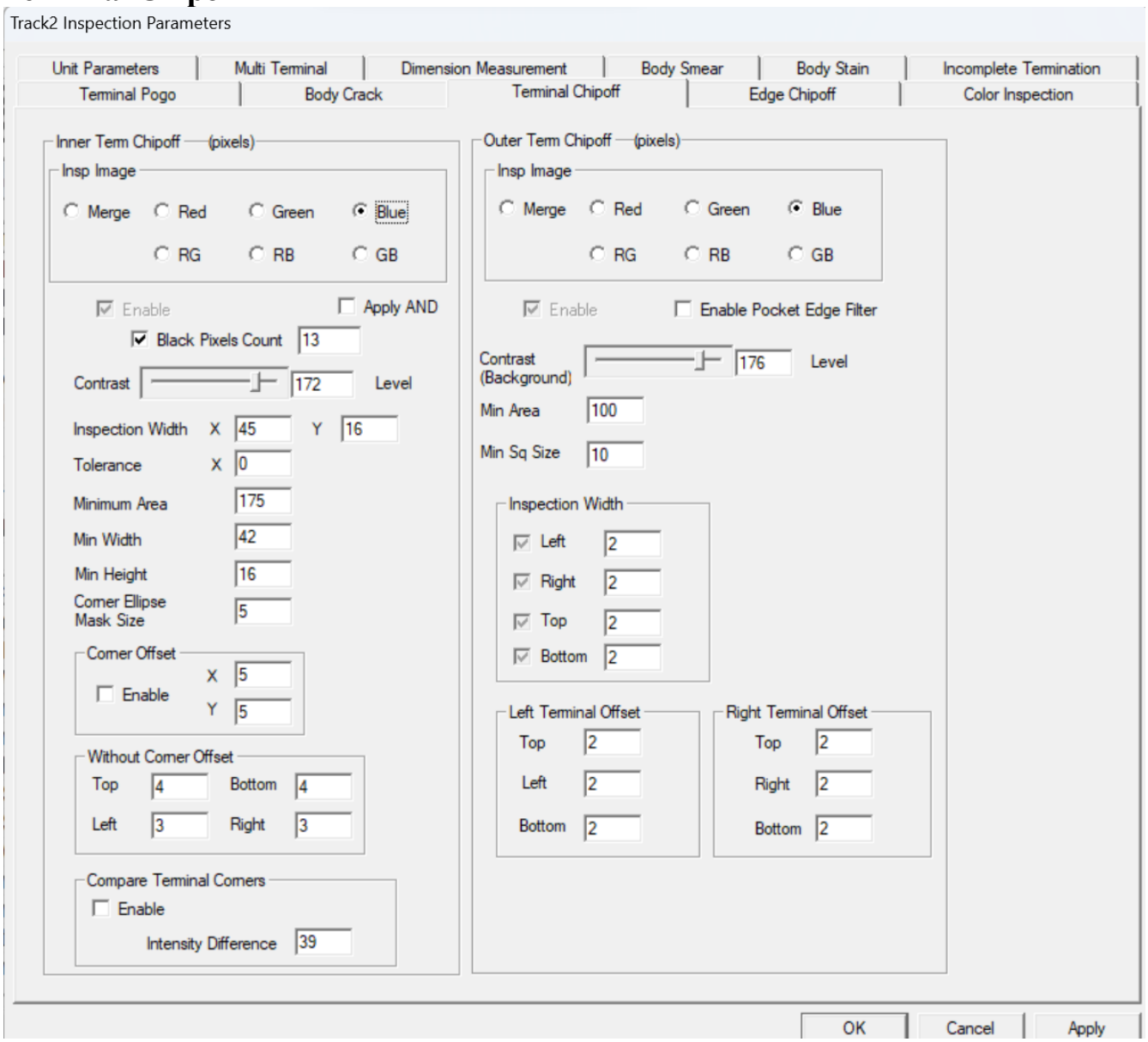
Body Crack

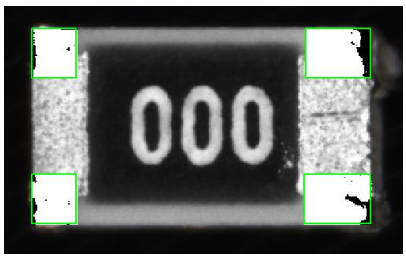


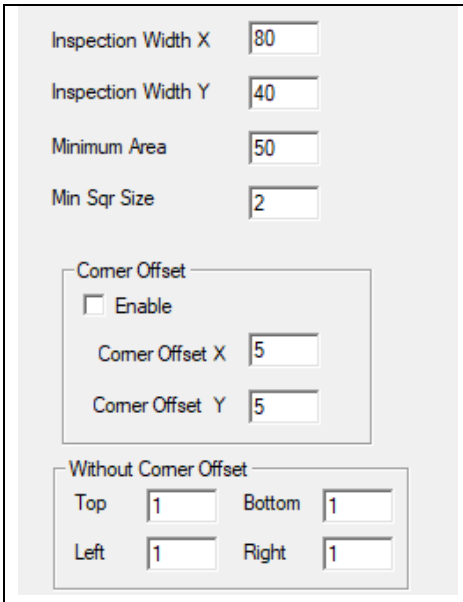
Body Crack Detection crack defect in the package surfaces.	
Low & High Contrast Rejection	If enabled, the system will find both low and high contrast crack defects.
Contrast	Determines the minimum gray level between the average body crack contrast as compared to defect contrast in gray scale level.

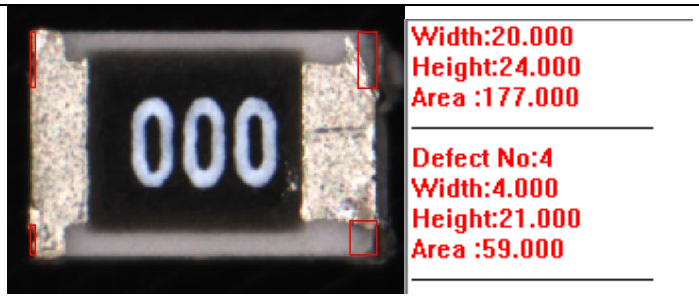
Min. Length	Min crack length for the defect, if move than the setting value consider failure criteria.
Min Elongation	It used to set the min defect of length / width average, if exceed the minimum setting value consider as failure criteria. Width average = Blob area / defect length
Broken Connection	It is used to connect near small broken defects.
Body Hairline Crack Detection hairline crack defect in the package surfaces.	
Contrast	Determines the minimum gray level between the average body hairline crack contrast as compared to defect contrast in gray scale level.
Min. Length	Min length of the hairline crack for the defect, if move than the setting value consider failure criteria.
Noise Filtering Size	It is used to filter some noise defects.
Offset 	 T=Top, B=Bottom, L=Left, R=Right This determines the Top, Bottom, Left, Right offset in pixels. This parameter determines the area in pixels where the inspection will be ignored for the crack inspection from the package location reference line on the Top, Bottom, Left, Right side.

Terminal Chipoff



Inner Terminal Chipoff	Inspecting 4 terminal corners of the device. Terminal defects. 

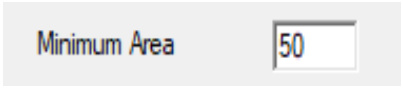




Contrast

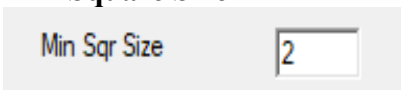
Determines the minimum gray level between the average Terminal contrast as compared to defect contrast in gray scale level. The higher the value the tighter the detection level.

Min Area



Determines the maximum acceptable chipoff defect area in pixels value. If the found defect area is greater than set value will Fail.

Min Square Size

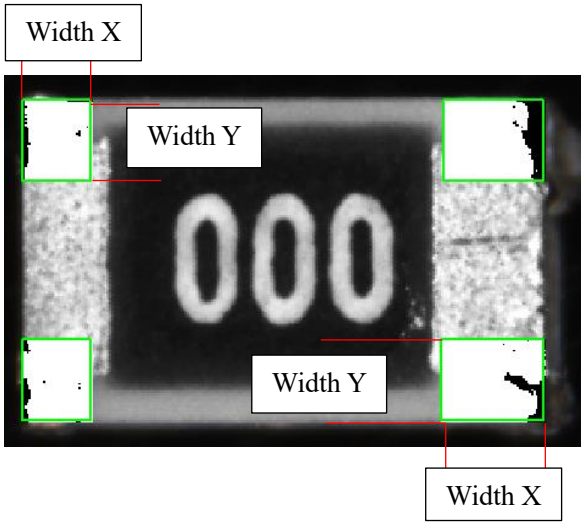


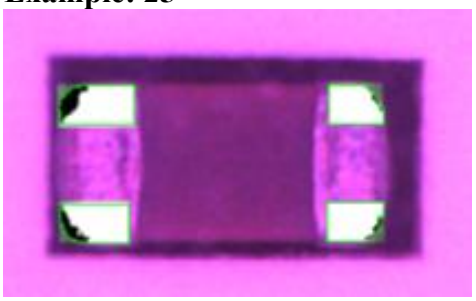
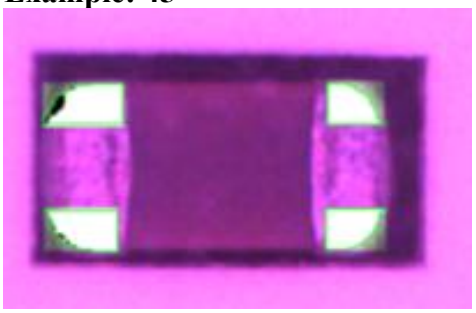
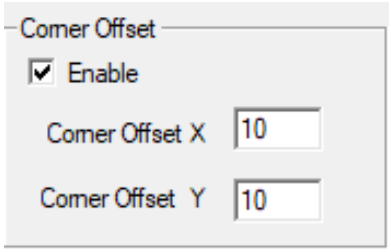
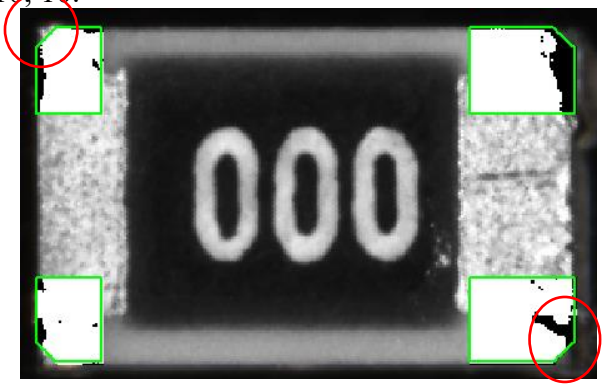
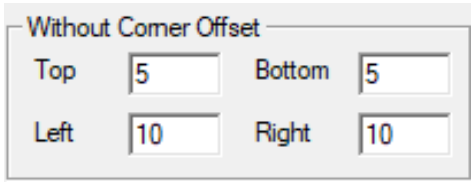
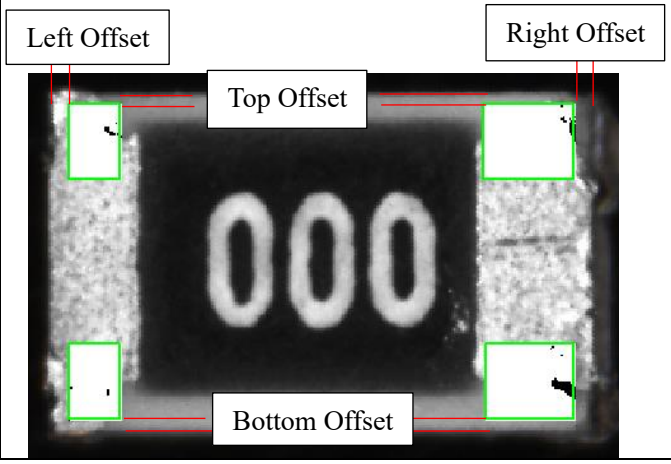
Determines the maximum acceptable width or height value of chipoff defect area in pixels value. If the found defect area is greater than set value will Fail.

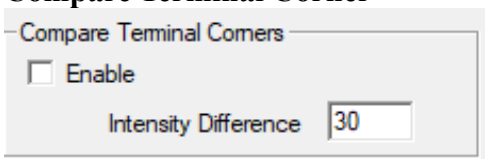
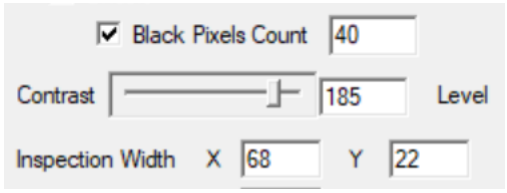
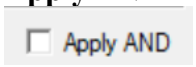
Inspection Width X & Y

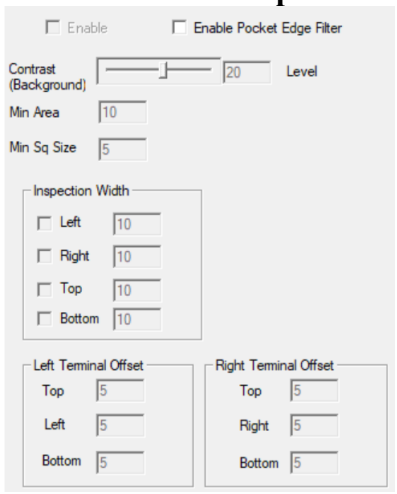
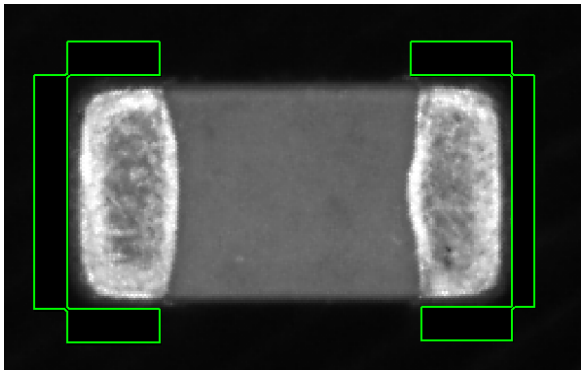
Determines the size or area that user needed to inspect; Inspection Width X will be automatically adjusted to the maximum value of terminal length if the set value is greater than actual terminal length value.

In this example Inspection Width X & Y are set as 80 and 40 respectively.

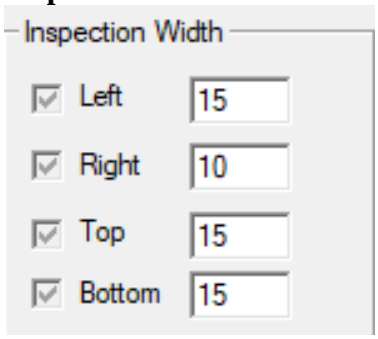


Corner Ellipse Mask Size The corner of the terminal can curve according to the user setting. Only inspect within the size.	**Example: 25**  **Example: 45** 
Corner Offset  Corners offset define the number of pixels to be chamfered and ignored during inspection to avoid overkill. The greater the value the less the inspection area covered. For better accuracy of inspect this should not Enable	Example of corner offset enable with X & Y set Value of 10, 10. 
Without Corner Offset  Without Corners offset define the number of pixels to be ignored from the body edge during inspection to avoid overkill. The greater the value the less the inspection area covered. For better accuracy of inspection this should be use and Corner offset should be Disable.	Example of Without corner offset enable with Top =5, Bottom =5, Left =10 & Right=10. 

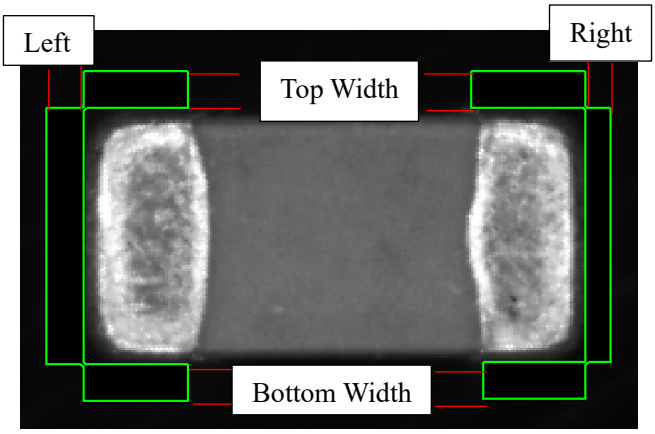
Compare Terminal Corner 	This is to compare left and right-side terminal corner intensity. Setting value propose 30 difference tolerance.
Black Pixels Count 	Enabled Black Pixels Count to inspect 4 sides of the terminal according to the user's inspection width X and Y setting. If the black pixels count exceeds the setting value, it will auto adjust the Contrast. This is for some terminal black devices.
Apply AND 	Tick for either one of the areas fulfill the input setting, it will consider PASS.

Outer Terminal Chipoff 	 Inspecting Area outside the terminal area for possible defects such as whisker and white terminal leakage.
Contrast 	Determines the minimum gray level between the average Terminal contrast as compared to defect contrast in gray scale level. The higher the value the tighter the detection level.
Min Area 	Determines the maximum acceptable outer chipoff defect area in pixels value. If the found defect area is greater than set value will Fail.
Min Square Size 	Determines the maximum acceptable width or height value of outer chipoff defect area in pixels value. If the found defect area is greater than set value will Fail.

Inspection Width

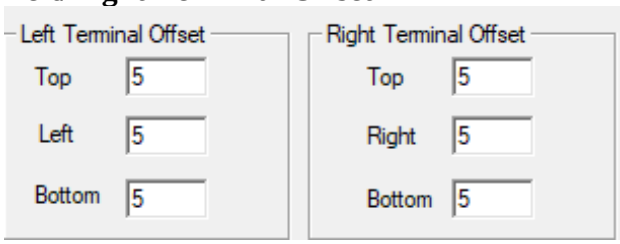


Example of Inspection Width setting Top =15, Bottom =15, Left =15 & Right=10.

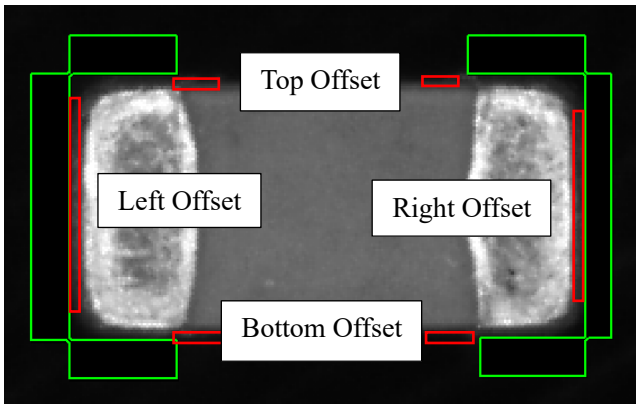


Determines the size or area that user needed to inspect, Inspection Width Left, Right, Top & Bottom. The length of inspection will be automatically adjusted to the maximum value of terminal length.

Left/Right Terminal Offset

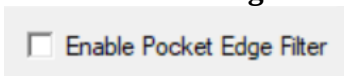


Example of terminal offset setting Top =5, Bottom =5, Left =5 & Right=5

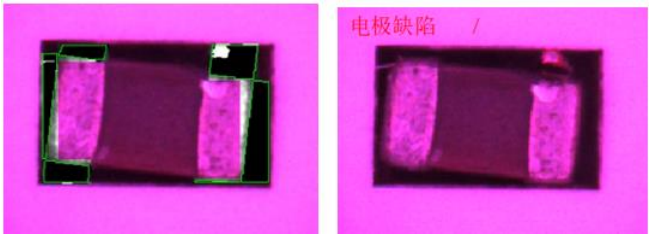


Determines the starting distance of inspection away from the edge of body. The larger value means the gap between the body edge to start of inspection will be larger.

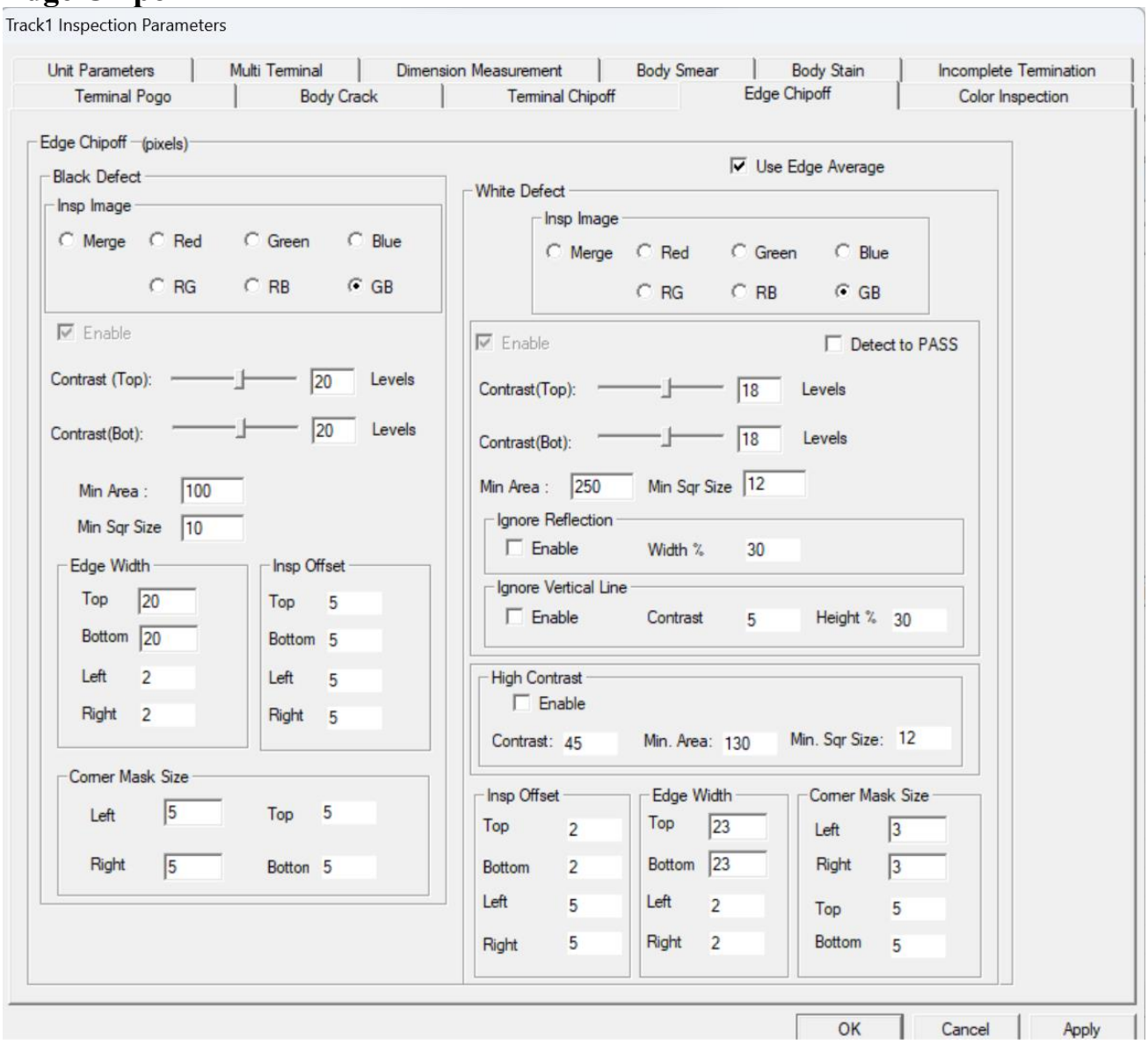
Enable Pocket Edge Filter

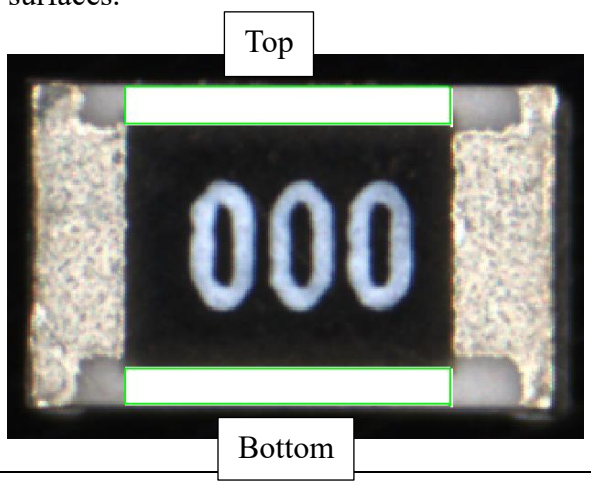


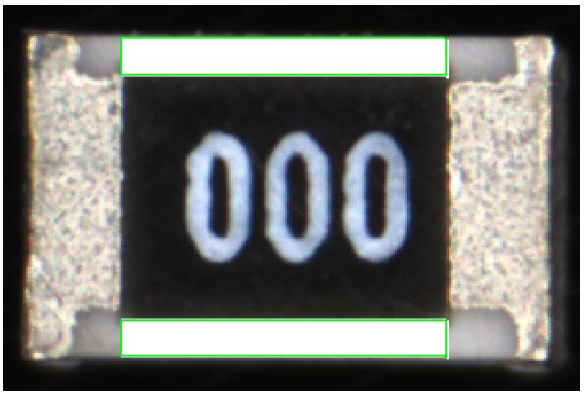
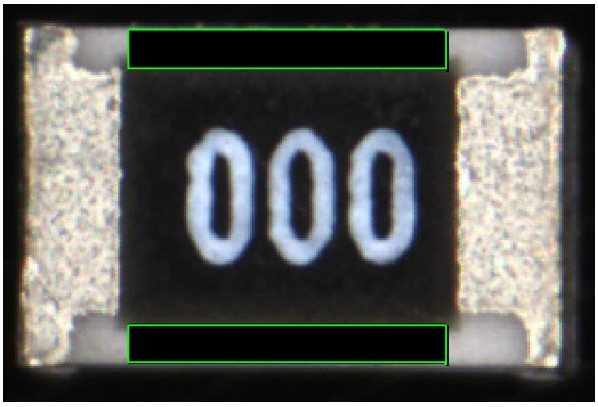
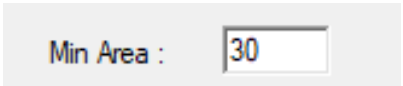
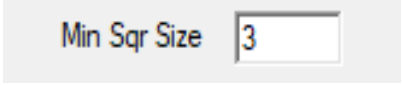
Enabled this if user choose to filter any of the dust or defect touch Pocket Edge, so that it will filter out. Advice do not Enable.

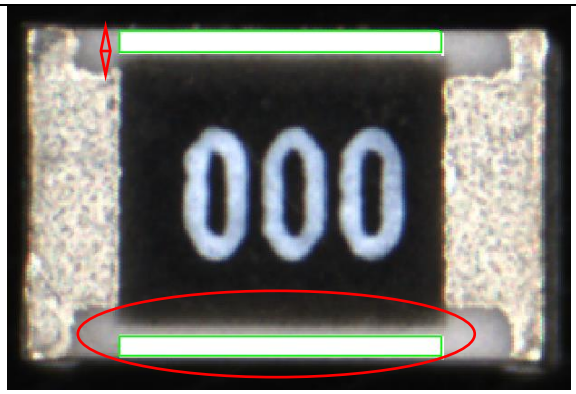
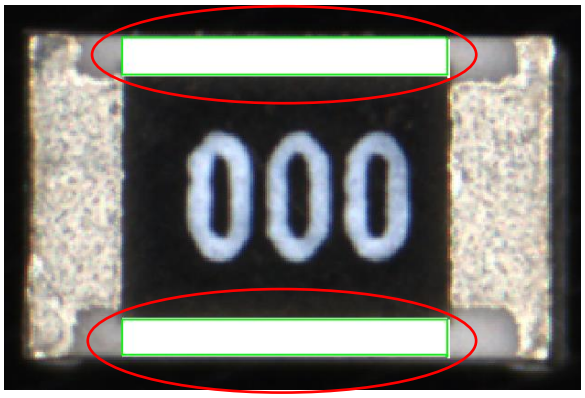
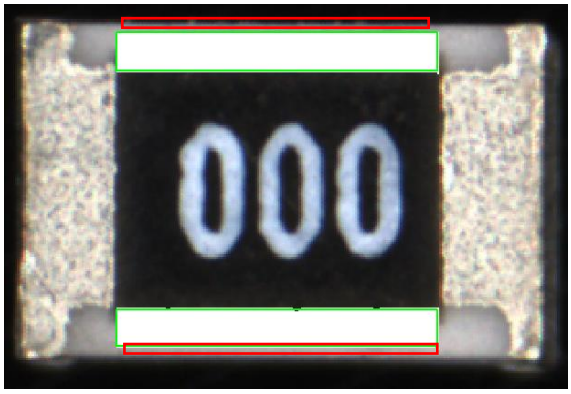
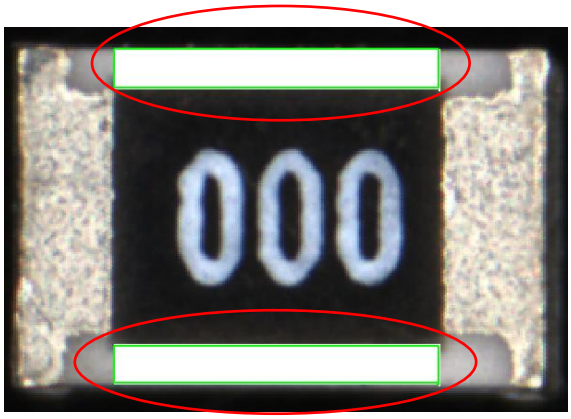


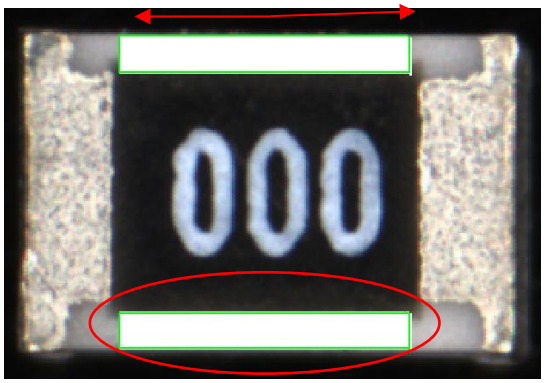
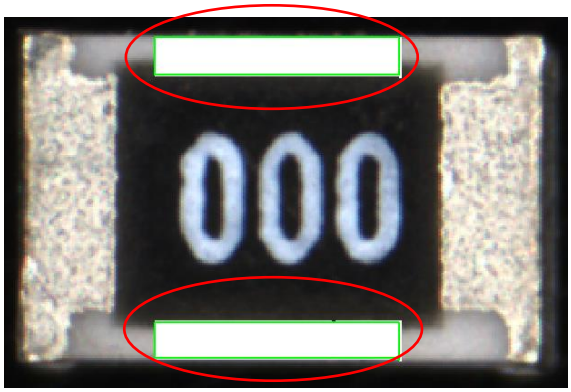
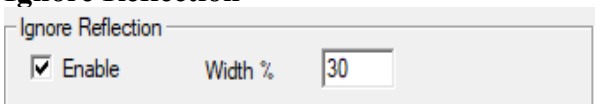
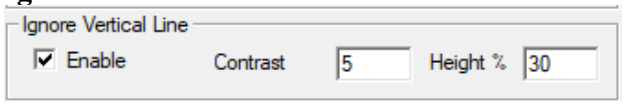
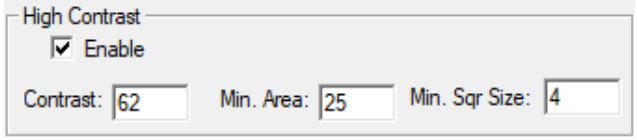
Edge Chipoff



Edge Chipoff Inspection at an edge of the device. To detect at the edge for the body defects.	Detection of broken defects in the edge of body surfaces. 

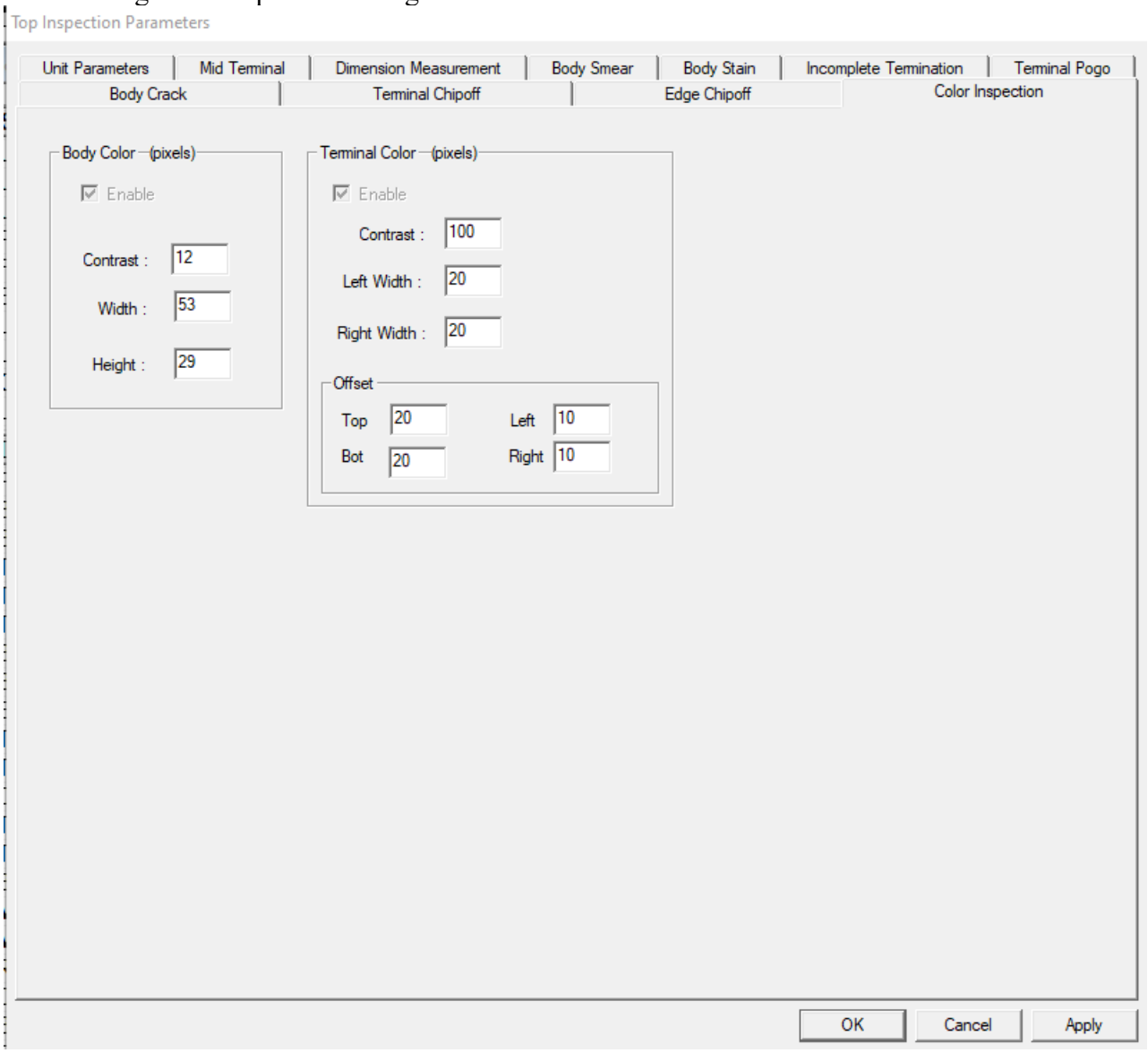
Contrast Black Defect 	 Determine the gray level between the body and the edge defects. This parameter will distinguish between dark defect and the body edge surface. The parameter is in gray levels.
Contrast White Defect 	 Determine the gray level between the body and the edge defects. This parameter will distinguish between white defect and the body edge surface. The parameter is in gray levels.
Min Area 	Determines the minimum area in pixels that would be classified as the body edge chipoff defects during the inspection. After the PVI process has been completed the found body edge chipoff defects are compared with this parameter which will decide whether to fail the device or not.
Min Square Size 	Determines the minimum area in pixels that would be classified as the body edge chipoff defects during the inspection. After the PVI process has been completed the found body edge chipoff defects are compared with this parameter which will decide whether to fail the device or not. The width of the detecting area.

Edge width (pixels) Example of Width setting Top =10, Bottom =10	
Example of Width setting Top =18, Bottom =18	
Insp. Offset Determines the starting distance of inspection away from the edge of body. The larger value means the gap between the body edge to start of inspection will be larger. Example of Insp. Offset setting Top =5, Bottom =5	
Example of Insp. Offset setting Top =1, Bottom =1 Min. setting value: 1	

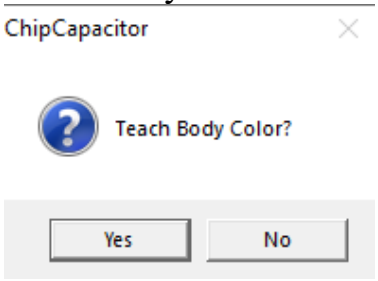
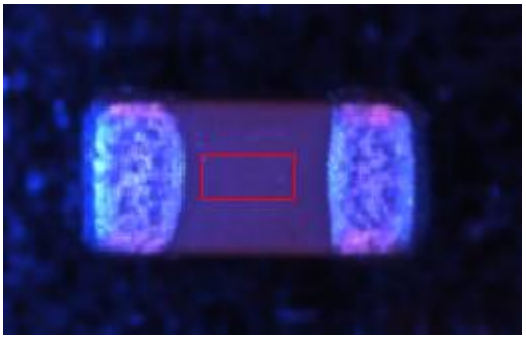
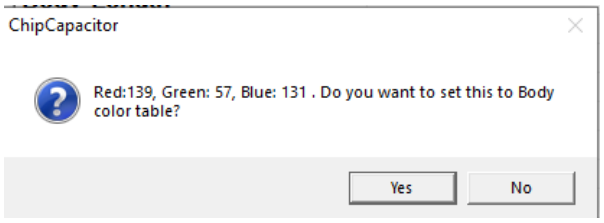
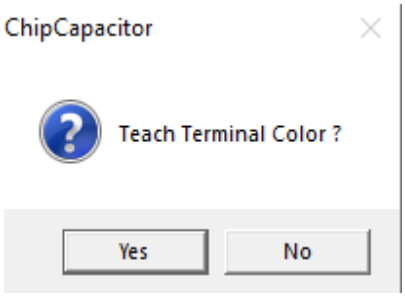
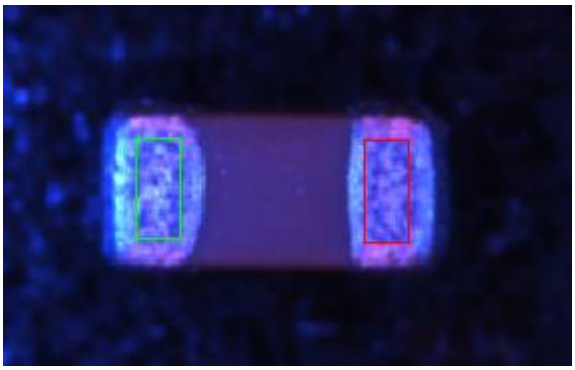
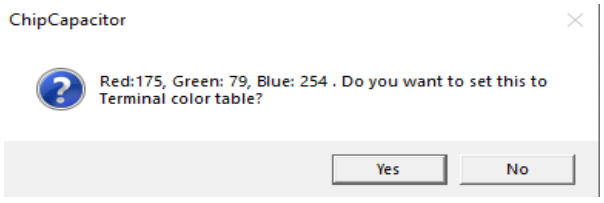
Corner Mask Size Example of corner mask size setting left =5, right =5 Example of corner mask size setting left =20, right =20	The length of the detecting area.  
Ignore Reflection  	This option is used to ignore some reflection at the edge of package body. Only some package has this reflection at PCVI machine.
Ignore Vertical Line  	This option is used to ignore the vertical line at the body of package. Only some package has this vertical line at PCVI machine.
High Contrast  	Edge chip off additional inspection for high contrast defect.

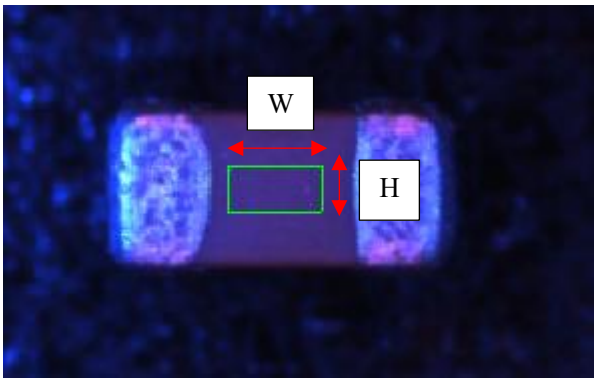
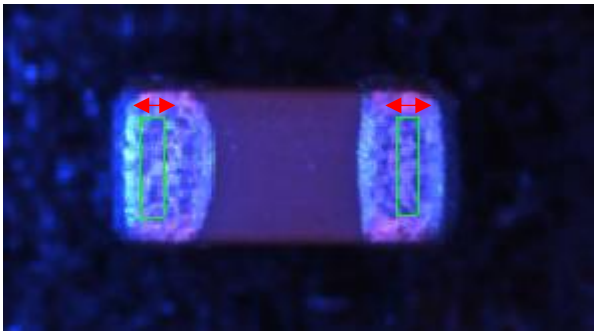
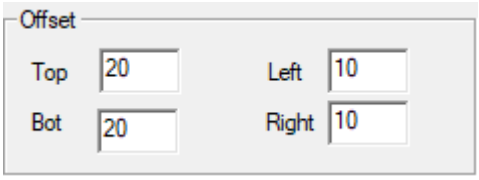
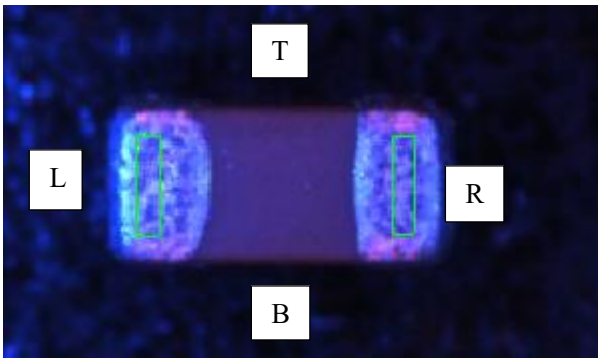
Color Inspection

For enabling color inspection dialog

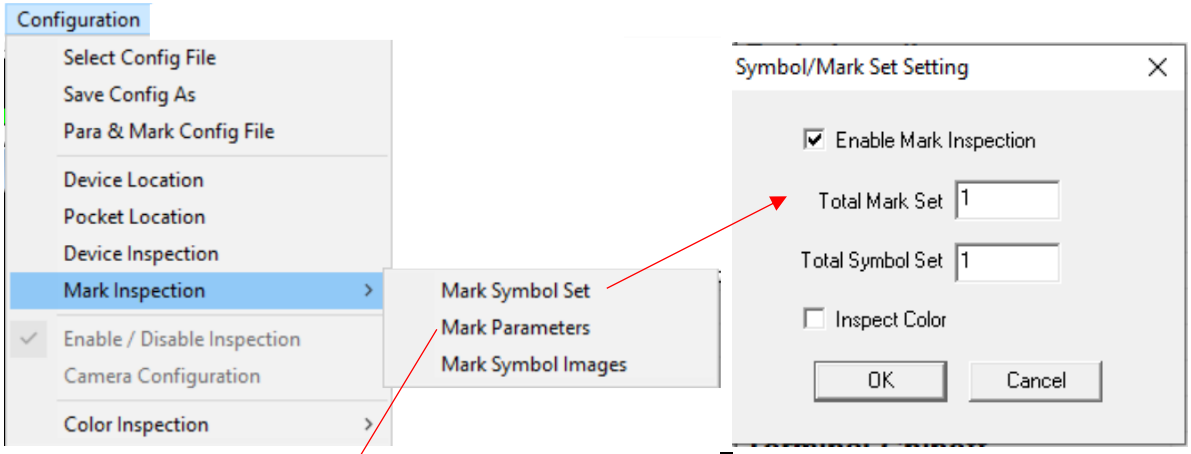


Color Inspection	Body color: teach the body color area during teaching process. This is to compare the intensity after teaching. Terminal color: teach the terminal color area during the teaching process. Terminal color inspection used to compare the terminal area average intensity of package left and right.

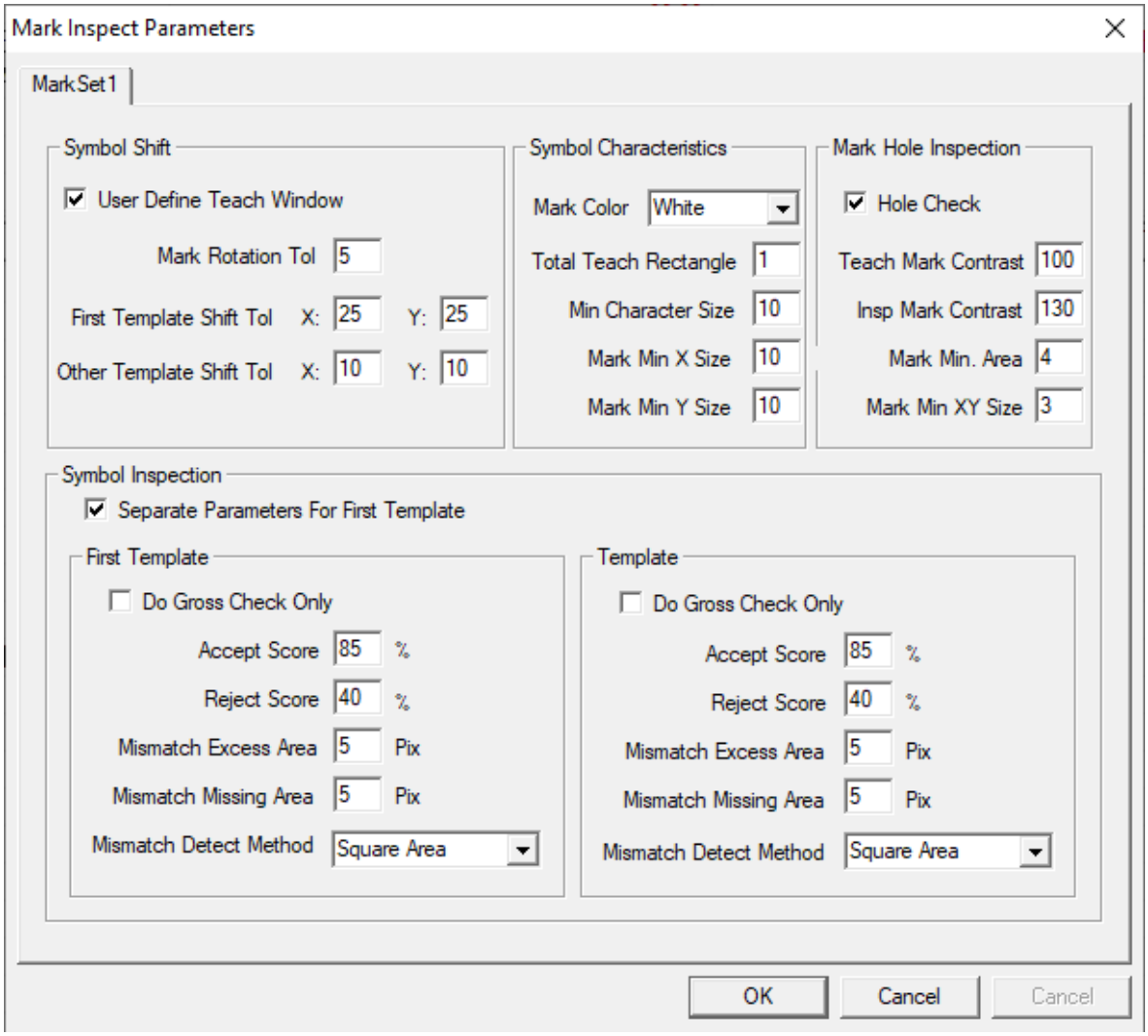
Teaching process	
Teach Body Color 	Adjust Red Box to set the body color, then NEXT 
	The system will generate the body color parameter based on your setting during teach. Yes = the parameter will save into color table No = the parameter will not save into color table
Teach Terminal Color 	Adjust the Red Box to the left and right terminal to set the terminal color. 
	The system will generate the terminal color parameter based on your setting during teach. Yes = the parameter will save into color table No = the parameter will not save into color table
Contrast	Determines the minimum gray level between the average Body contrast and Terminal contrast as compared. to intensity contrast in gray scale level. The higher the value the lower the detection level.

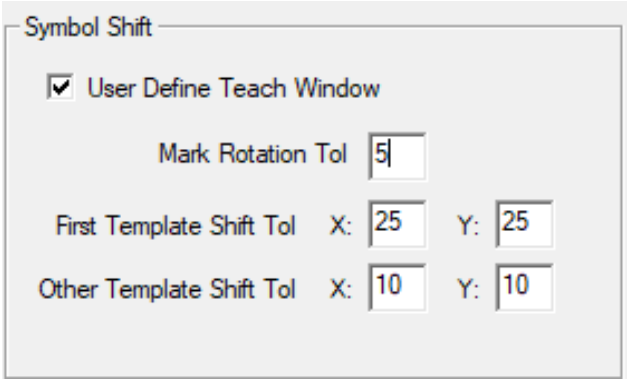
Body Width & Height	To set width and height of search area from package Centre to find the average intensity. Compare where set the area during teaching process. W = Width, H = Height 
Terminal Left & Right Width	To set left and right terminal width of search area from terminal Centre to find the average intensity. Compare where set the area during teaching process. 
Offset 	 T=Top, B=Bottom, L=Left, R=Right This determines the Top, Bottom, Left, Right offset in pixels. This parameter determines the area in pixels where the inspection will be ignored for the color inspection from the package location reference line on the Top, Bottom, Left, Right side.

Mark Inspection

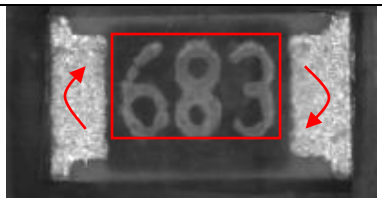


Mark Parameters

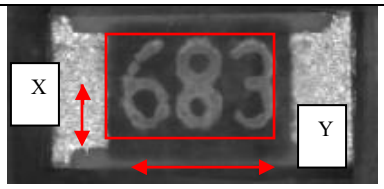




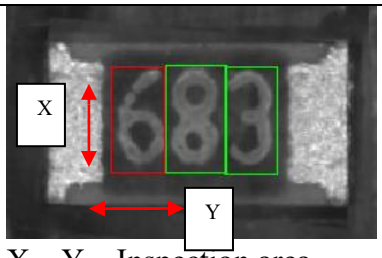
Mark Rotation Tol
Set up the rotation of the mark.



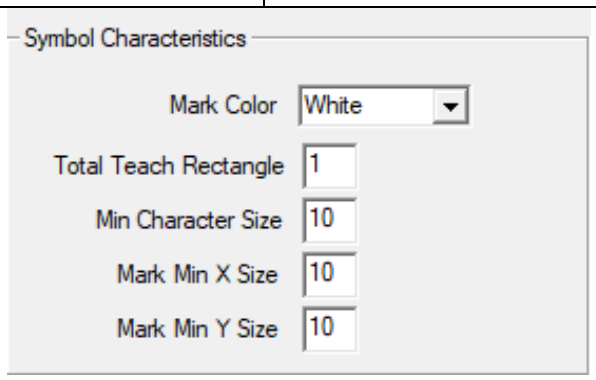
First Template Shift Tol
X，Y，Inspection area。



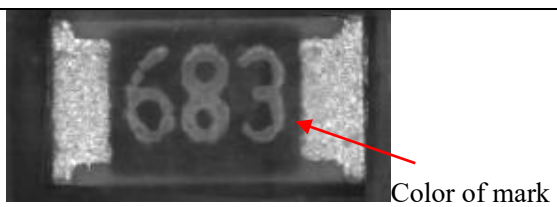
Other Template Shift Tol
X，Y，Inspection area。

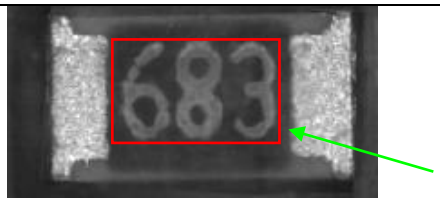
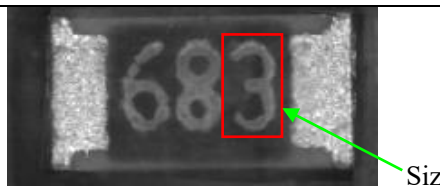
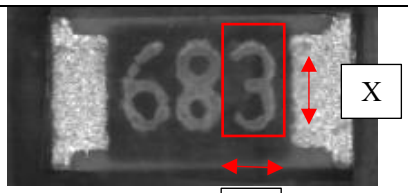


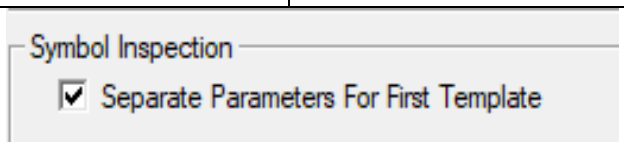
X，Y，Inspection area。



Mark Color
Color of mark.

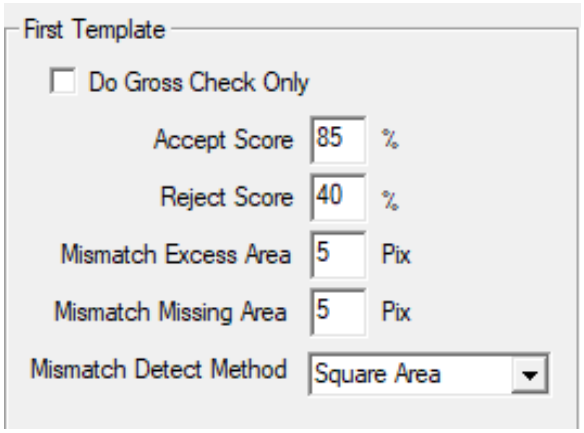


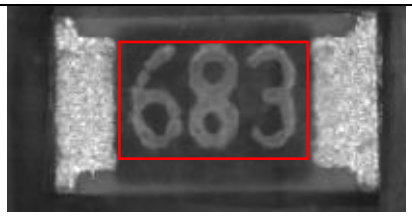
Total Teach Rectangle Set the teach quantity for the mark.	 Teach Rectangle for mark.
Min character size Minimum size of the character.	 Sizes
Mark Min X Y Size Minimum size of mark X & Y	 X Y



Separate Parameter for First Template	If never enable, first template will not work.

First Template

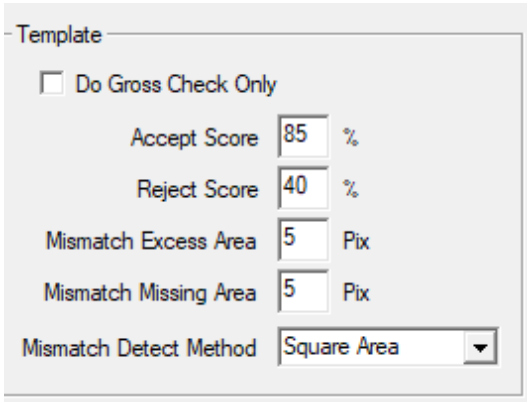


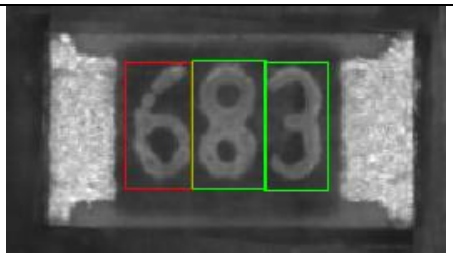


Accept Score	Determine the parameter for the mark, system will find the mark defects are compared with this parameter which will decide whether to fail the device or not.

Reject Score	Determine the parameter for the mark, system will find the mark defects are compared with this parameter which will decide whether to pass the device or not.
Mismatch Excess Area	Determine the gray level between the body and the mark defects.
Mismatch Missing Area	An acceptable mark by the loss of the area.

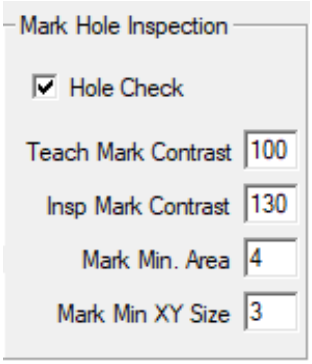
Template





Accept Score	Determine the parameter for the mark, system will find the mark defects are compared with this parameter which will decide whether to fail the device or not.
Reject Score	Determine the parameter for the mark, system will find the mark defects are compared with this parameter which will decide whether to pass the device or not.
Mismatch Excess Area	Determine the gray level between the body and the mark defects.
Mismatch Missing Area	An acceptable mark by the loss of the area.

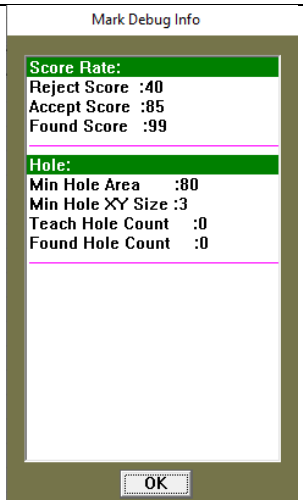
Mark Hole Inspection



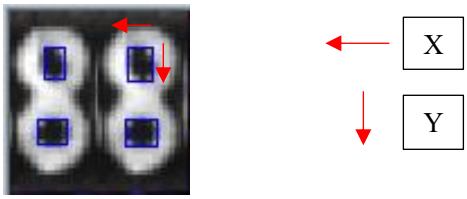
Teach Mark Contrast	Used during teach image. Setting value can be any value but not more than Inspection Mark Contrast value.
Inspection Mark Contrast	Used for inspection image. Setting value not more than 130. If the wrong contrast value being set, the mark hole broken will consider as fail hole inspection. Correct value 120 – 130.

Mark Min. Area
Set min hole area. The system will generate the mark area parameter; the system does not recognize as hole if it does not meet min requirement. Setting value should not be set more.

Example of setting value high: 80



No meet the min requirement of setting value, cannot found hole count area.

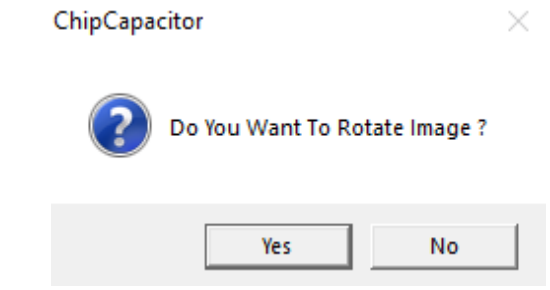
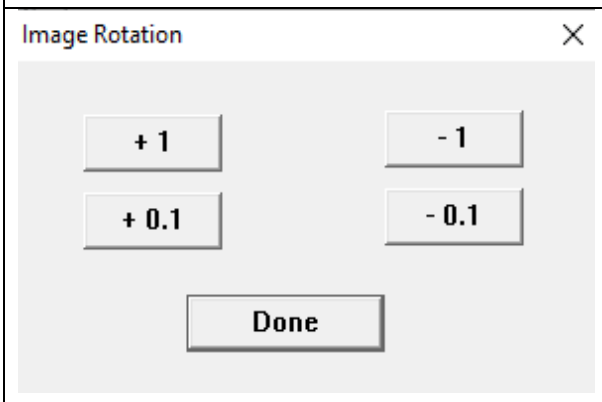
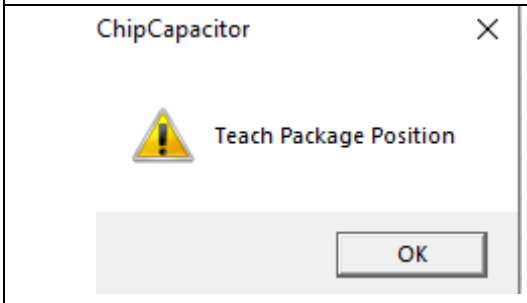
Mark Min XY Size	Set min hole XY size. 

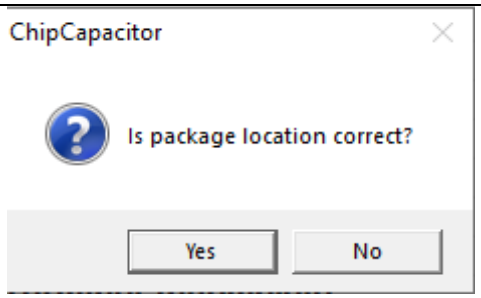
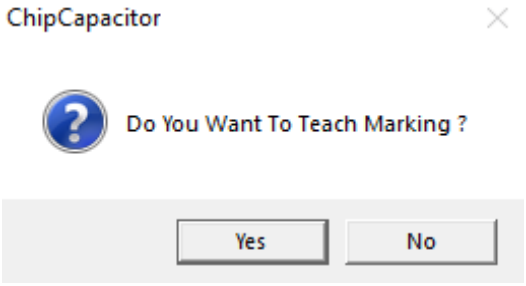
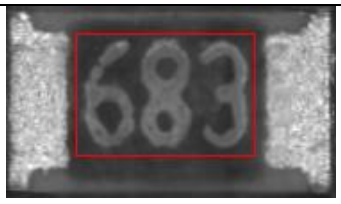
Teaching Procedures

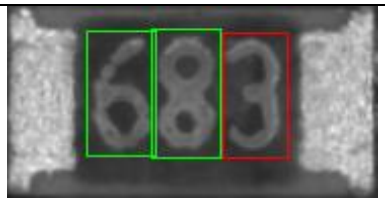
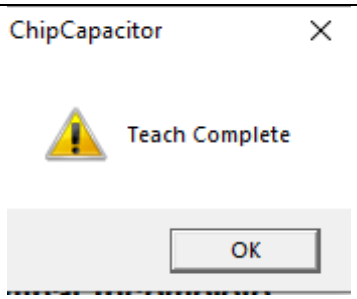
Training the system is required to allow it to know where the typical position of the device is located.

1. Place a device to be inspected under the camera.
2. Choose the 

button.
3. The ChipCapacitor dialog box will appear. Teaching step by step.

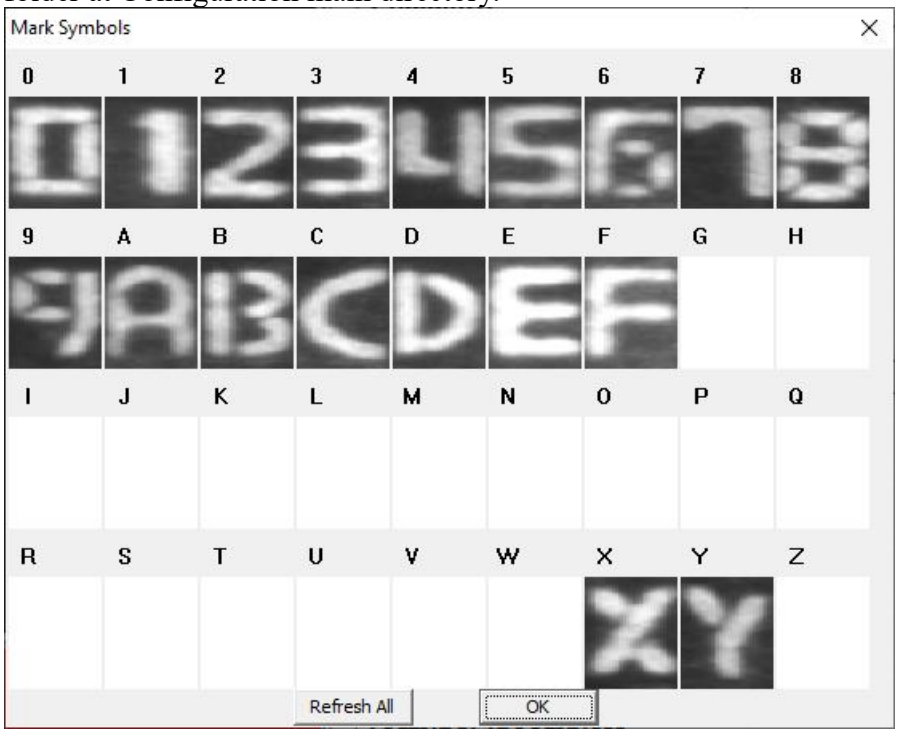
	Teach device position. Adjust rectangle to teach area to rotate.
	If yes will come out red box for adjust rectangle teach area. If No will go to next step
	Rotate image until device is right up by using image rotation dialog box. Then click Done / 
	Adjust rectangle to teach Package size. Click OK to go to next step.

	Will come out rectangle RED box for adjust the device size, then click  for next step.
	Click Yes if the package location is correct.
	
	After package location is correct, click yes to teach the Marking
	Teach mark position. Adjust rectangle to teach the mark area. After teaching, click  to next step.
	When click next, will be binary mode, adjust until can see the mark clearly.
After teaching, click  to next step.	

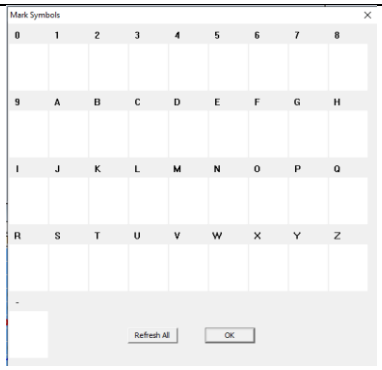
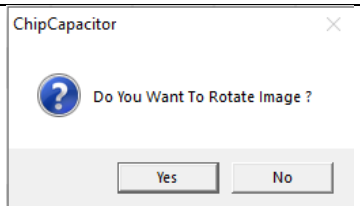
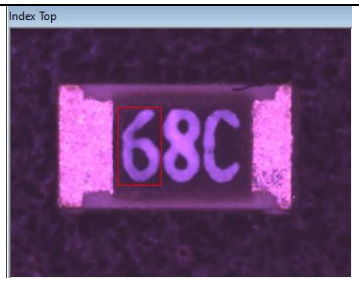
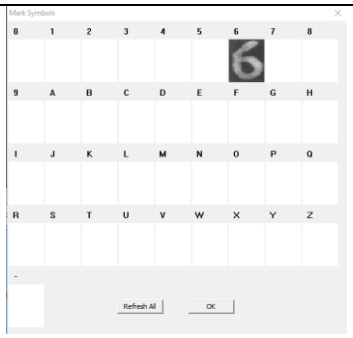
	The three rectangles will be placed on each mark. After teaching, click  to next step.
	Click OK then teach complete. Will go to next step

Mark Symbol Images

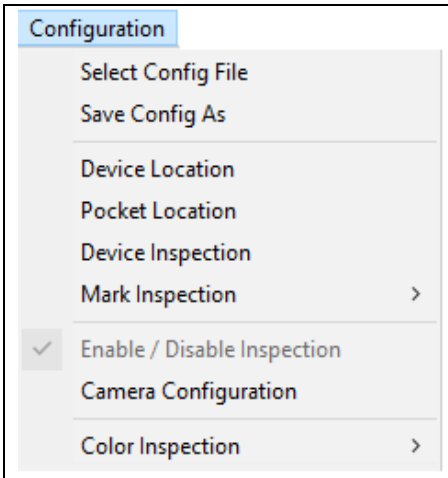
Using the Dialog interface user can create multiple mark symbols and stored in MarkSymbols folder at Configuration main directory.



Step to store the mark symbols.

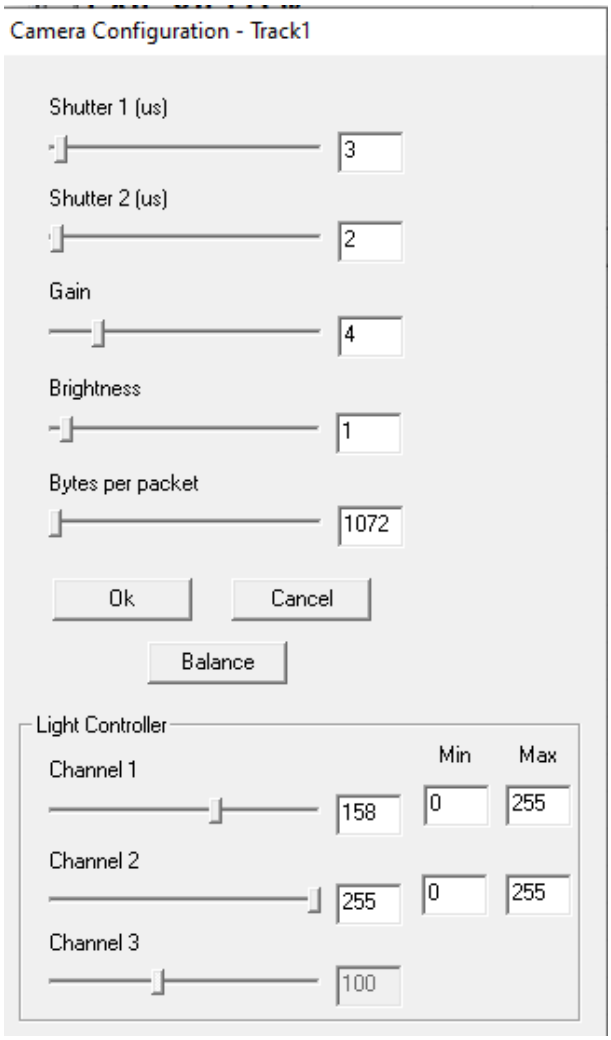
i	Open the Mark Symbols then click the number template.	
ii	Do you want to Rotate Image? Yes = To Rotate the number No = No Rotate the number	
iii	Focus the Red Box on the number the press "Next"	
iv	The Number of "6" symbols stored in Mark Symbols. Then add the next number follow Step 1 again.	

Enable/Disable Inspection

	Cameras in connection (Online) or disconnect will be automatically activated, if want to do the manual inspection, disable the inspection。

Camera Configuration

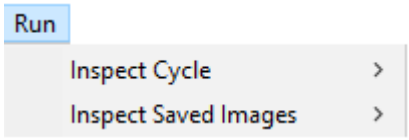
For configuring the lighting of camera parameters.



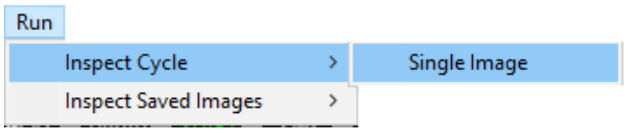
Adjust camera parameters.

Adjust lighting.
Mono Lighting – Channel 1
Blur & Red lighting – Channel 1 & 2

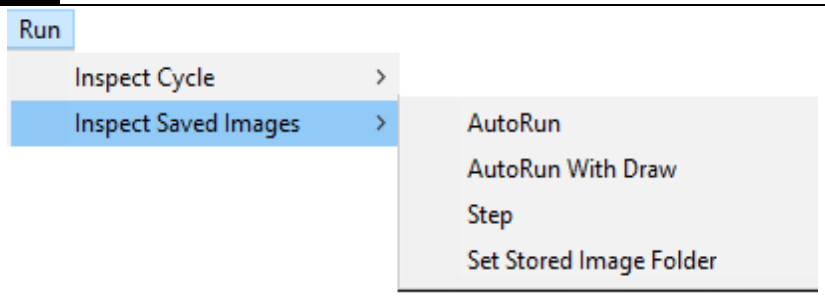
Run

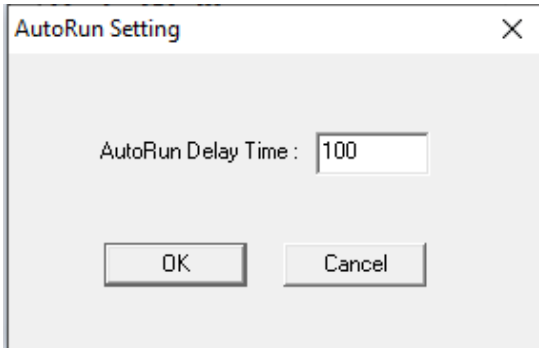


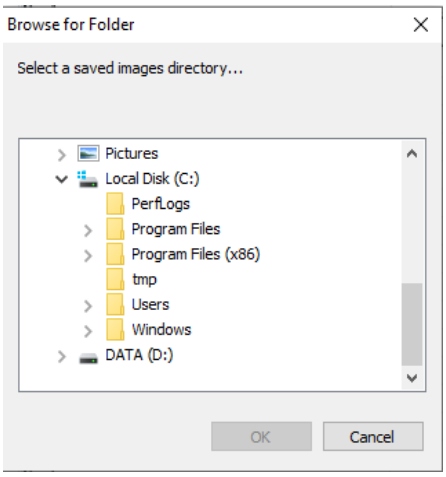
Inspect Cycle

	**Inspect Cycle** This is dropping down main menu. Single Image menu is the operation. **Single Image** It is used to continuously inspect the offline loaded images or grab images.

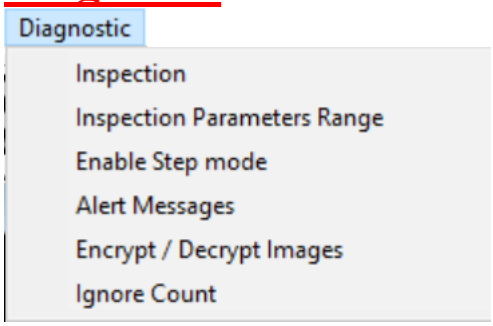
Inspect Saved Images

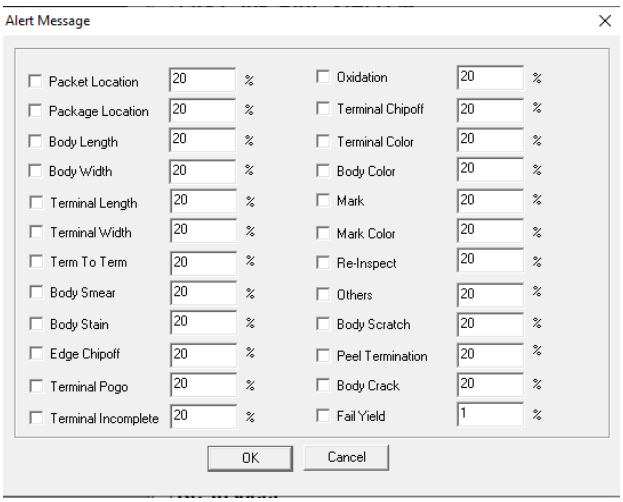


AutoRun	Performs an inspection on the device automatically. 
AutoRun With Draw	Auto inspects the selected folder images with some delay and shows the fail location with drawing.
Step	Moves on to the following steps in a debugging or Teach process.

Set Stored Image Folder	Select the folder to save or test the images of device. 

Diagnostic



Inspection	Reference Figure 1
Inspection Parameters Range	Reference Figure 2
Enable Step Mode	Enable/Disable to view the inspection step by step of all the Debugging Information.
Alert Messages	Click to select inspection part be more alert if exceed your set value percentage. 

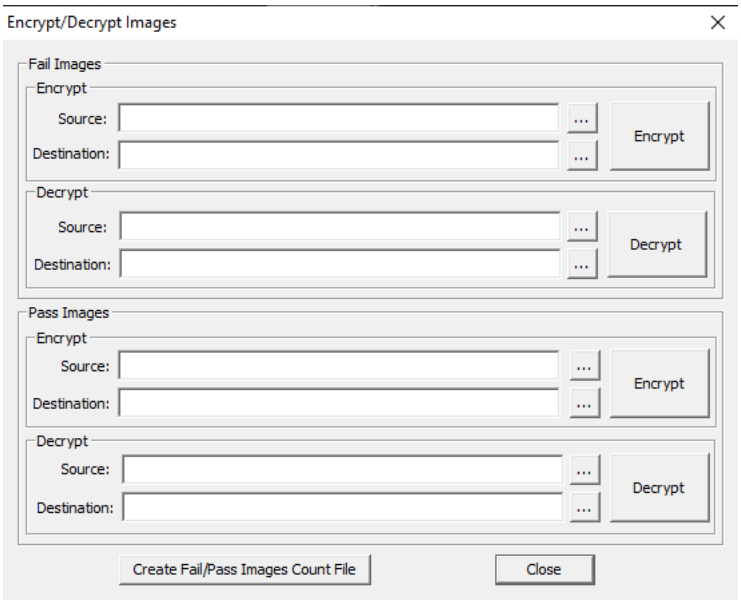
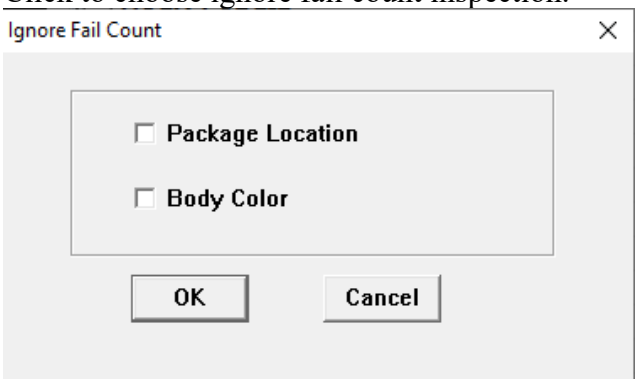
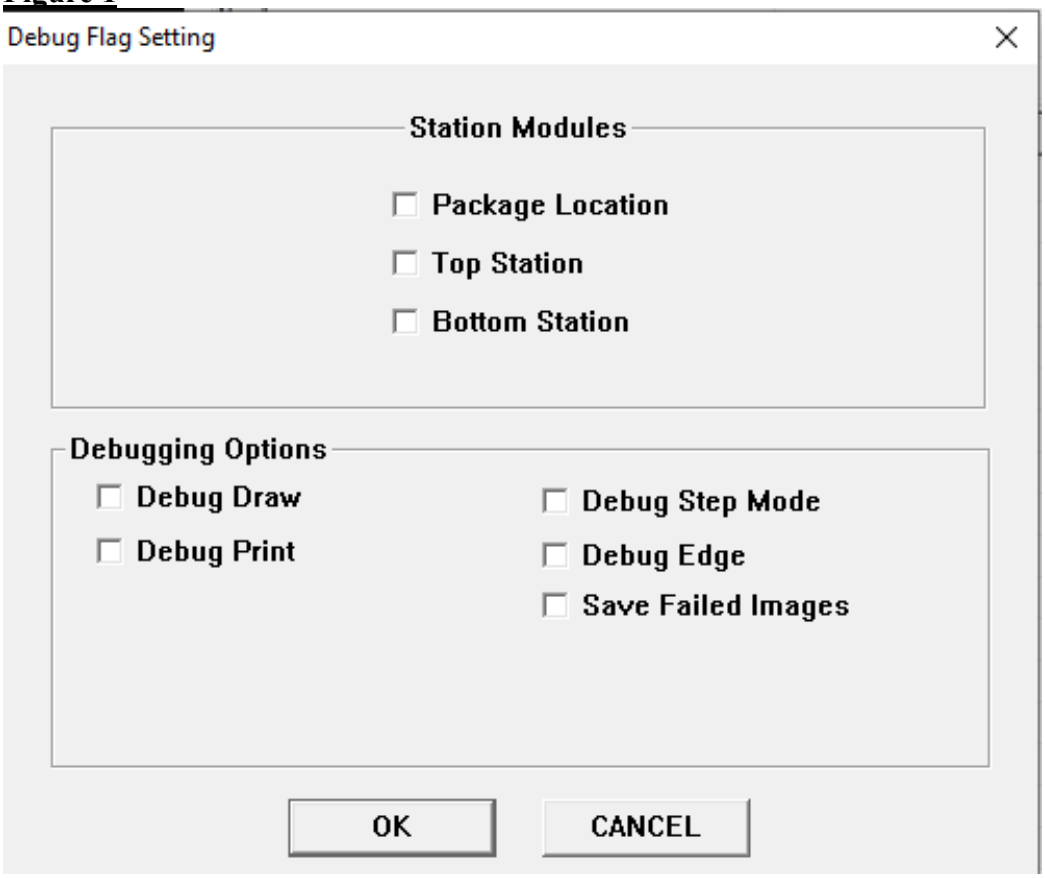
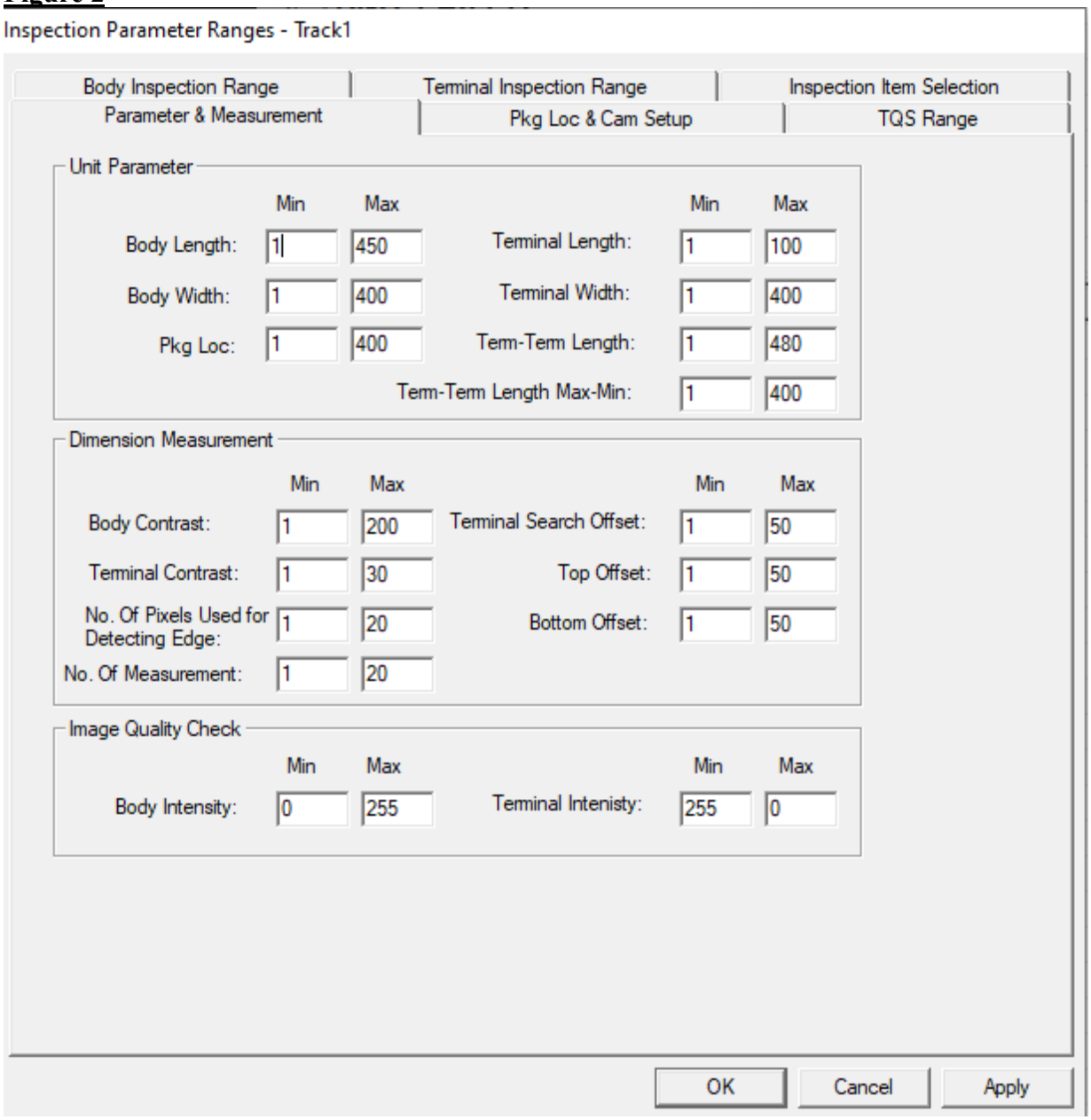
Encrypt / Decrypt Images	Encrypt/Decrypt Images" is for user to create the encrypt/decrypt images and Pass/Fail Images counts file.  **Encrypt:** "Source" is where is Image taken from, "Destination" is the location of the Image saved. **Decrypt:** "Source" is selected to load encrypted images direction, "Destination" is selected to save the original image direction. **Create Fail/Pass Images Count File:** This is for user to create a "fpc" format file from the current config FailImages and PassImages folder.
Ignore Count	Click to choose ignore fail count inspection. 

Figure 1



Package Location	Enable/Disable the package location of the debugging.
Top Station	Enable/Disable the Top station inspection for debugging.
Bottom Station	Enable/Disable the Bottom station inspection for debugging.
Debug Draw	Enable/Disable to draw the debugging information on the screen.
Debug Print	Enable/Disable to print the debugging information on to the Debug Log (It is a simple Application tool for Printing useful information.
Debug Step Mode	Enable/Disable to give a step-by-step information of all the Debugging Information.
Debug Edge	Enable/Disable the Edge detection Debug information.
Save Fail Image	Enable/Disable to save failed images.

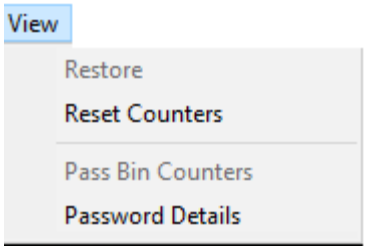
Figure 2



Set or change of tolerance range in percentage with respect to the device during teaching.

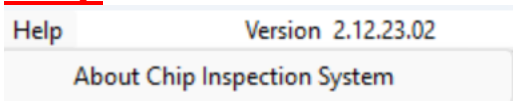
- **Parameter & Measurement**
- **Pkg Loc & Cam Setup**
- **TQS Range**
- **Body Inspection Range**
- **Terminal Inspection Range**
- **Inspection Item Selection**

View



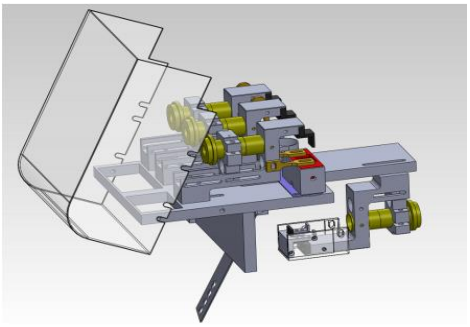
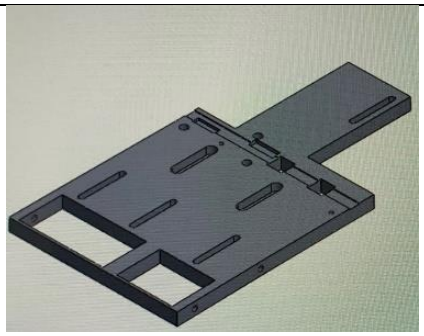
Reset Counters	Reset all the counter to 0.
Password Details	Details of password set earlier

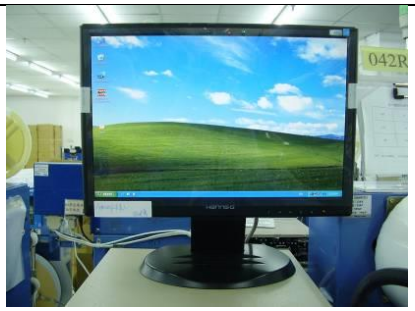
Help



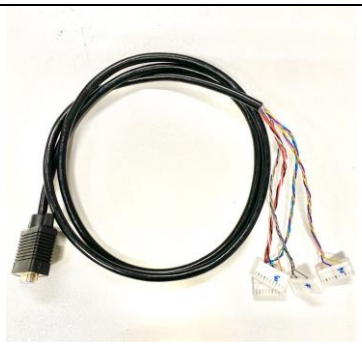
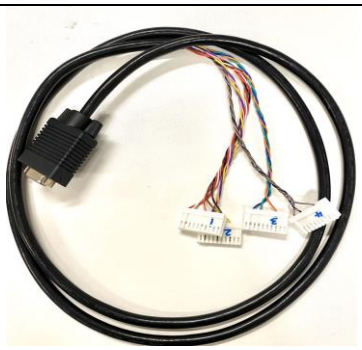
About Chip Inspection System	

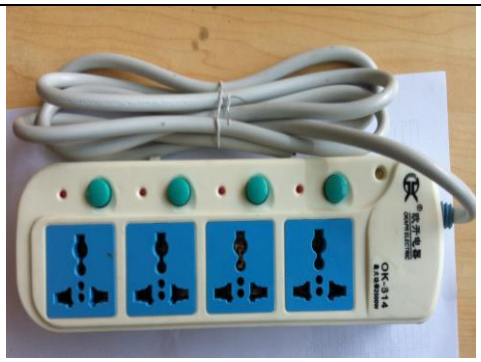
The iTrue-5000 Inspection system consists of following hardware:

Description from iTrue	Picture
1. Camera for Top and Bottom. For Station 1, 2 & 3	
2. Camera & fabrication for Station 4,5,6 & 7	
3. Fold Seal Plate	
4. Fold seal plate cover	
5. Keyboard and mouse	

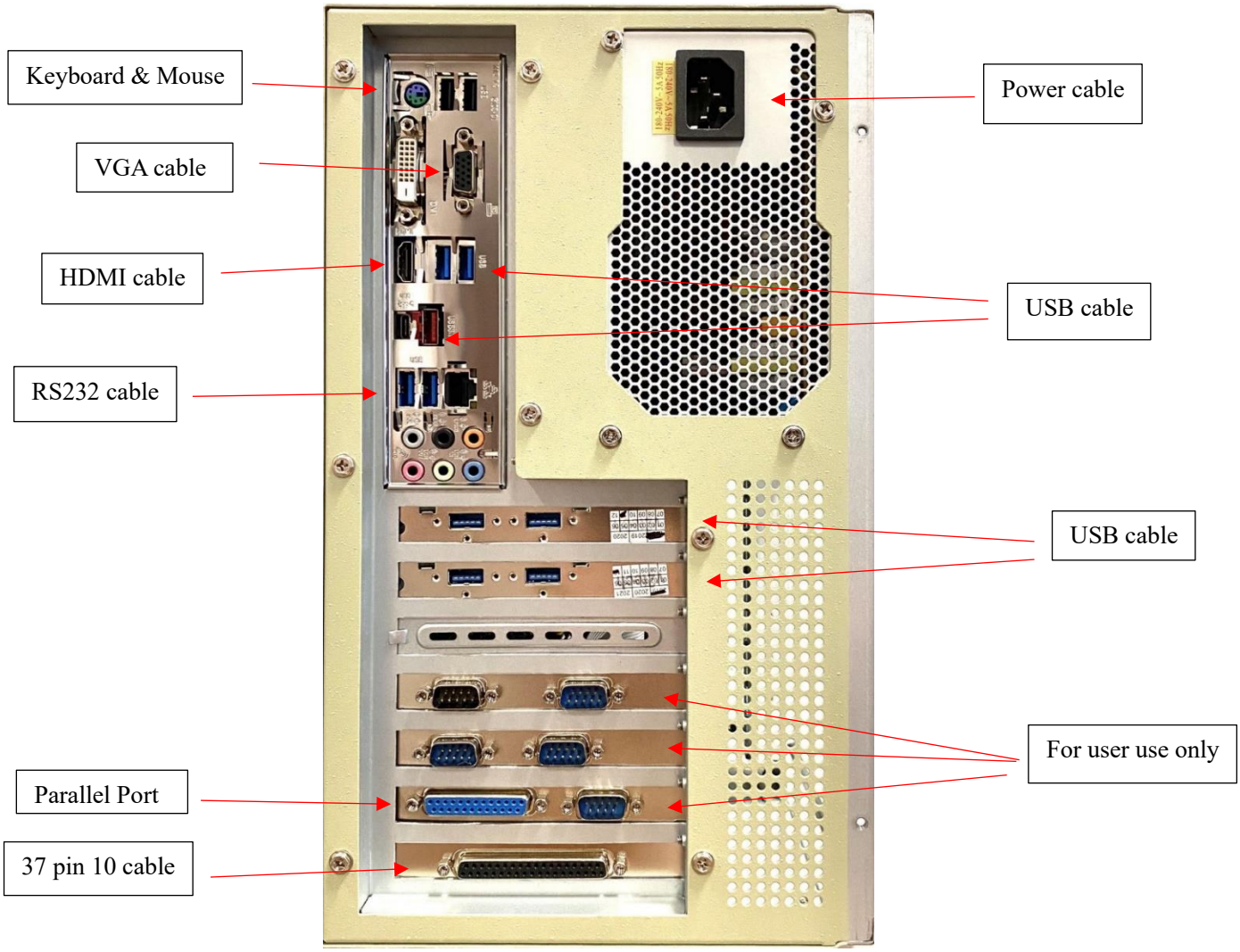
6. Monitor.	
7. Itrue PC	
8. Controller x 2 (for total 7 station)	
9. 37 pin IO board	
10. 37 pin IO cable	

11. Trigger cables x 7	
12. USB3.0 cables x 4 (for station 1 top / 2 feed / 3 bottom station / station 6 bottom sealing)	
13. USB 3.0 (L type) x 3 (for station 4 & 5 pick up / station 7 Top sealing)	
14. Parallel Port Cable	
15. RS 232 cable x 2	

16. IO cable (When only for station 1 top, station 2 bottom, station 3 feed and 3rd camera) • Without use station 4, 5, 6 & 7	
17. Communication IO cable (controller 1) (for station 1 top, station 2 bottom, station 3 feed and station 4 pick-up 1)	
18. Communication IO cable (controller 2) (for station 5 pick-up 2, station 6 bottom sealing & station 7 top sealing)	
19. Communication IO cable (controller 1 & 2) to 37 pin IO board x 2	
20. HDMI cable for i7	

21. VGA cable for i5	
22. Power cable	
23. 4-way extension	

High Speed ITrue PC Structure



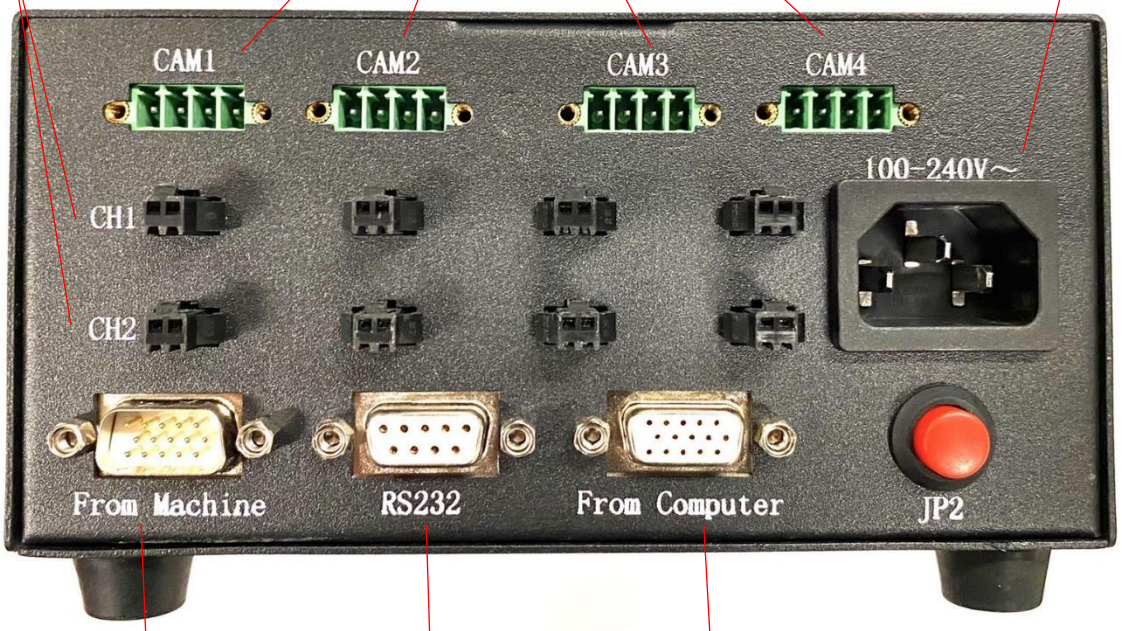
- HDMI / VGA cable connects to monitor.
- RS232 cable connect to controller.
- 37 pin 10 cable connect to 37 pin IO board.
- USB cable connects to camera.

Controller connection structure

Light head cable connects to light head.

Trigger cable connect to camera.

Power cable



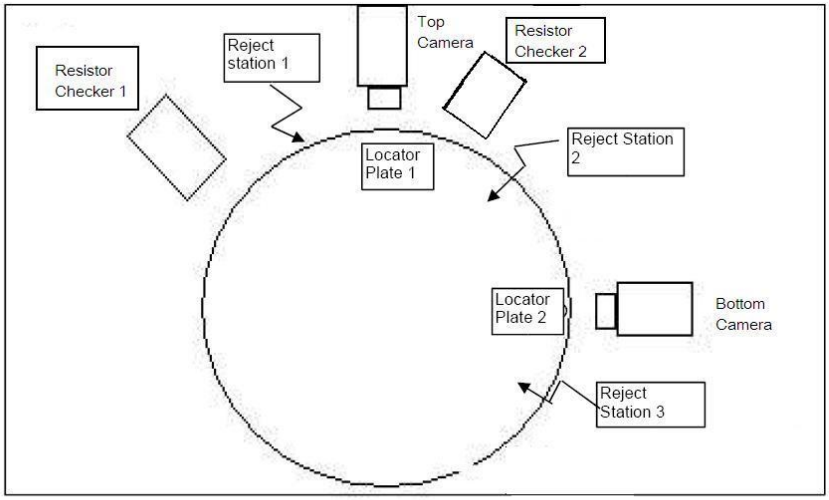
Communication IO cable connects to 37 pin IO board then to machine.

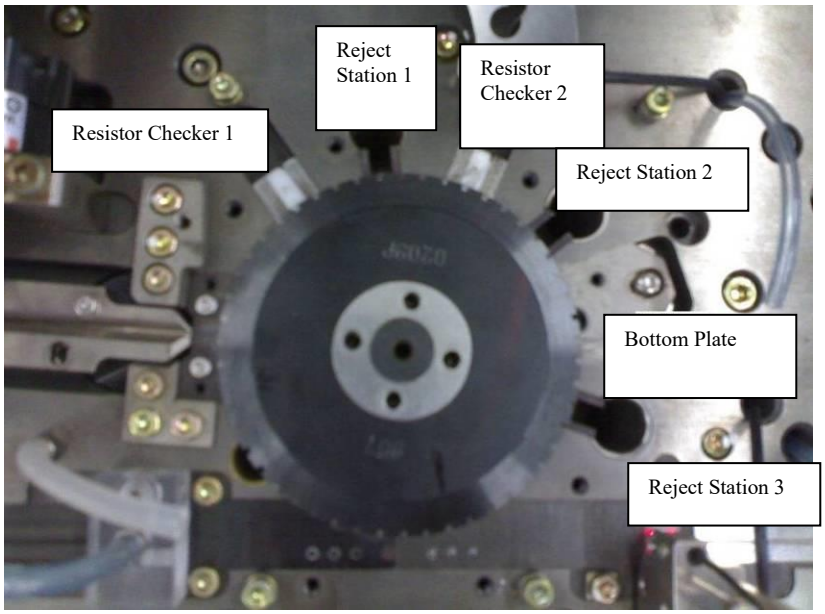
Parallel Port cable connect to iTrue pc.

RS232 cable connect to iTrue pc.

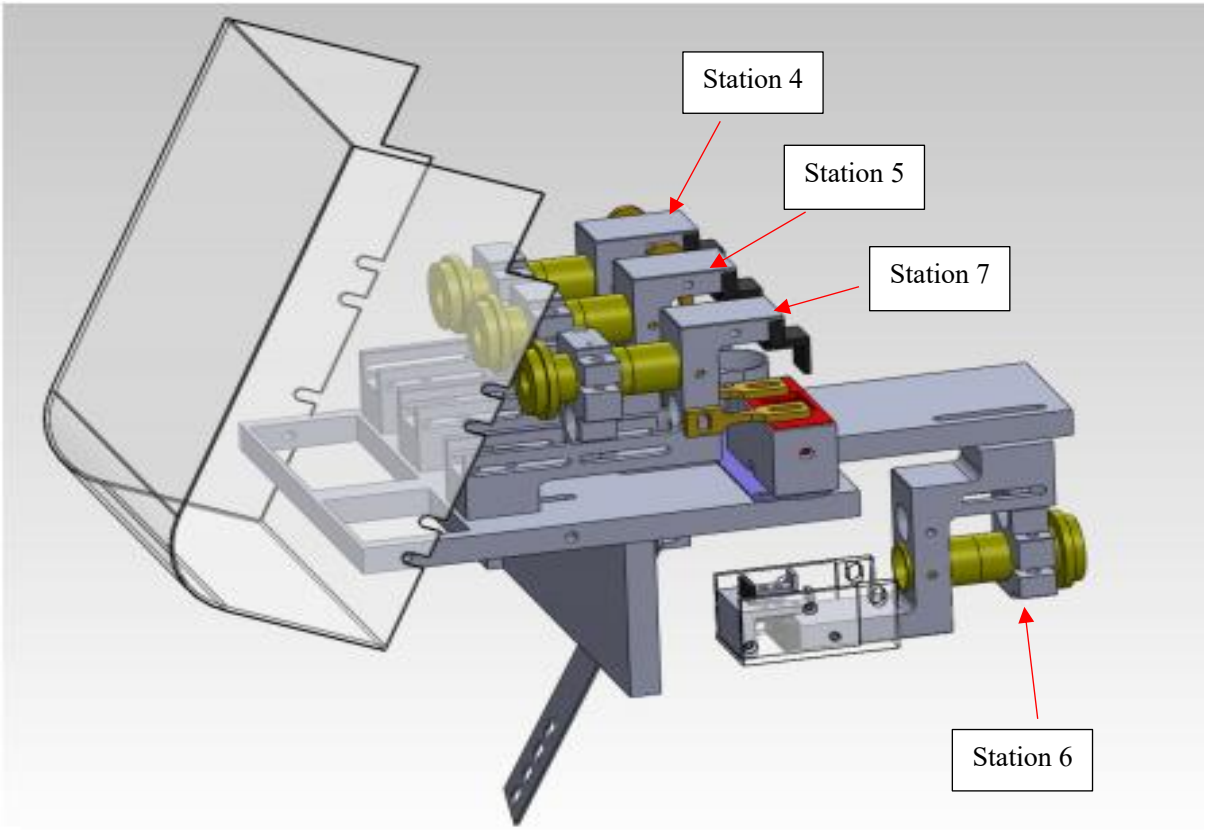
- Full set of TQS need total 7 cameras and need use 2 controllers with 7 trigger cables connect to 7 cameras.

Mechanical structure for station 1 to 3

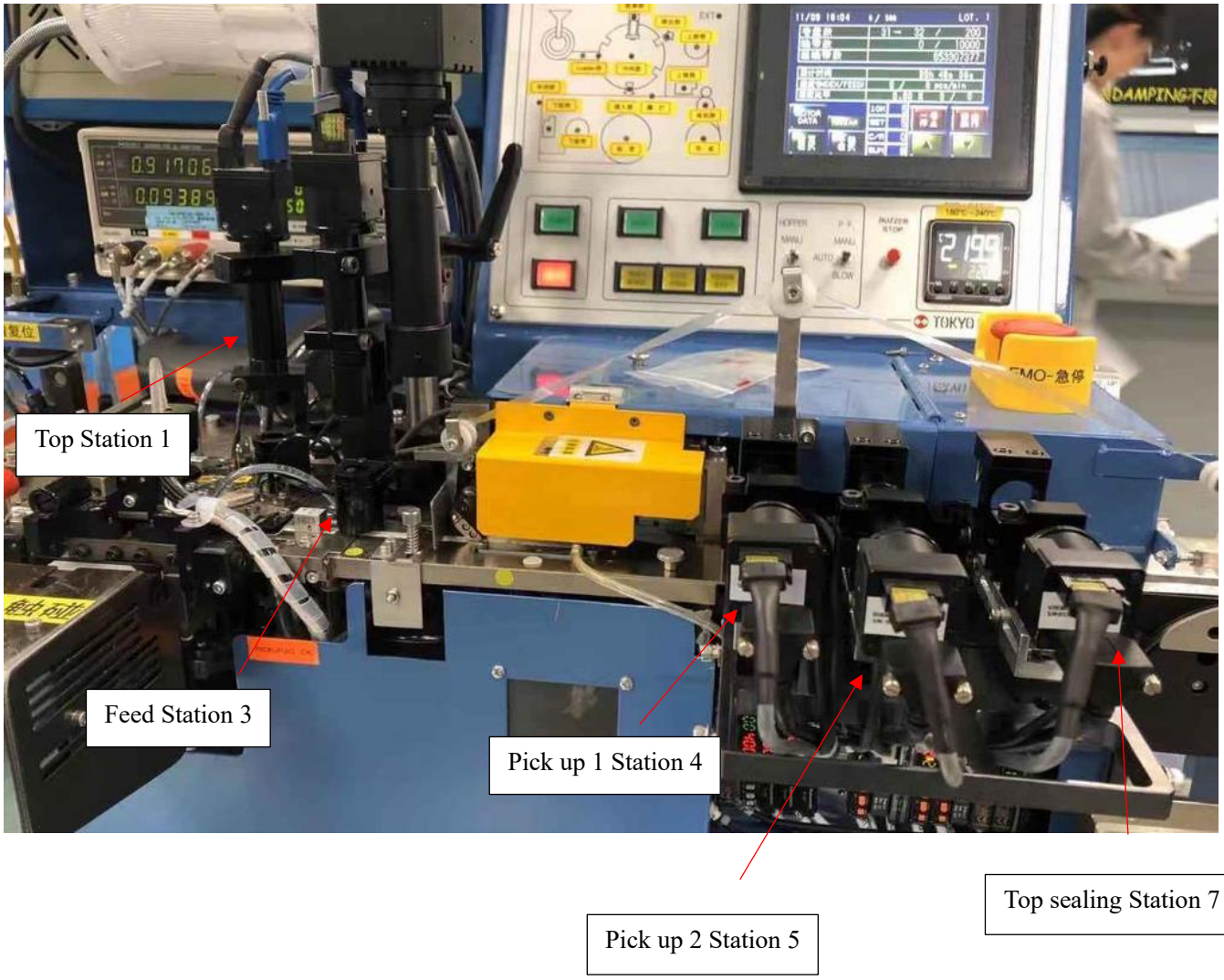




Mechanical structure for station 4 to 7



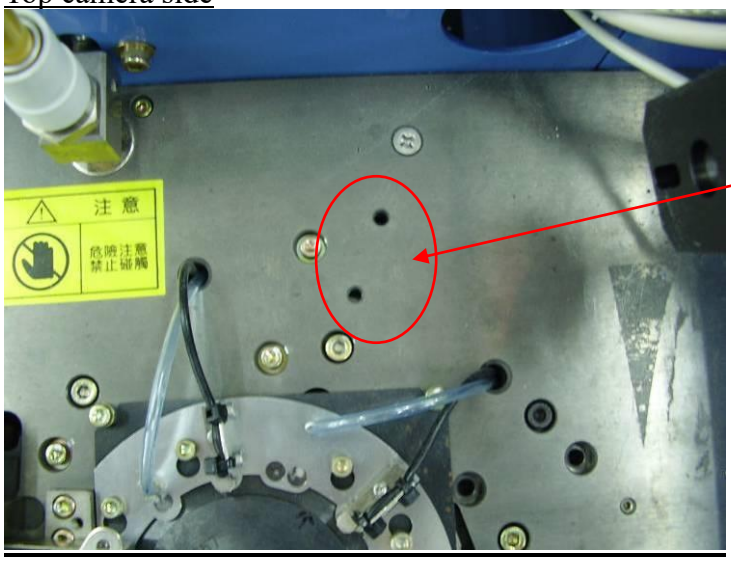
Inspection area



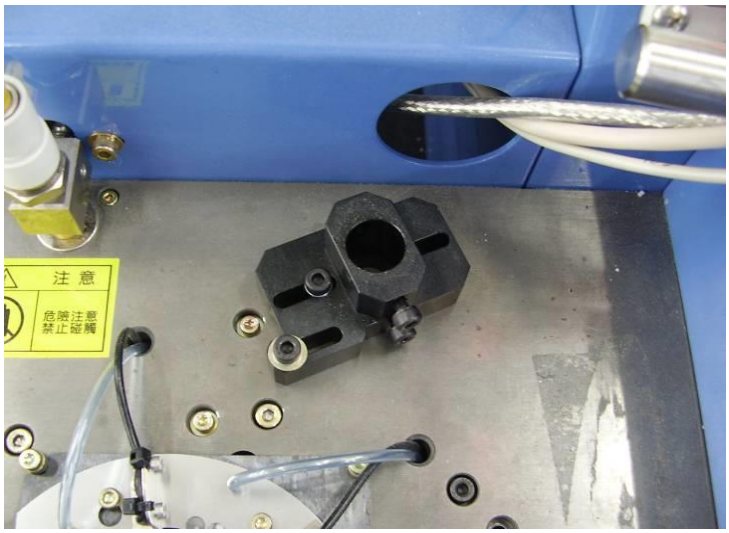
- **Station 2 & Station 6 are Bottom station.**

Procedure to setup Top & Bottom camera Station 1-3

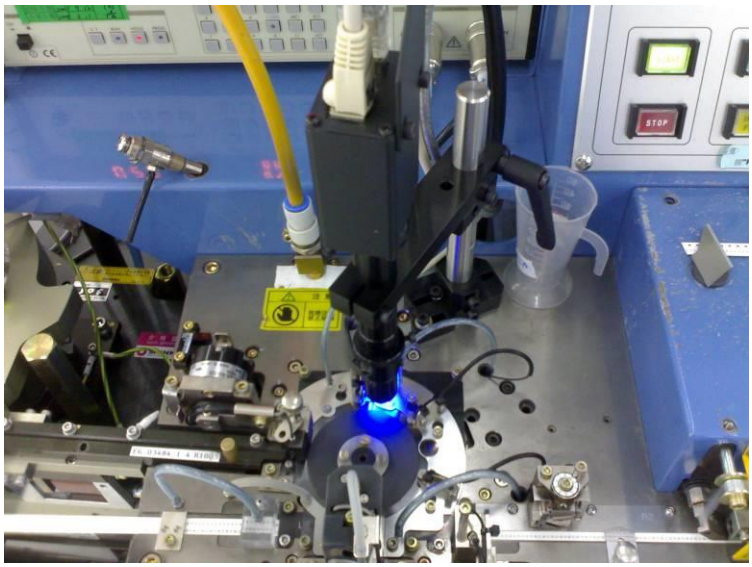
Top camera side

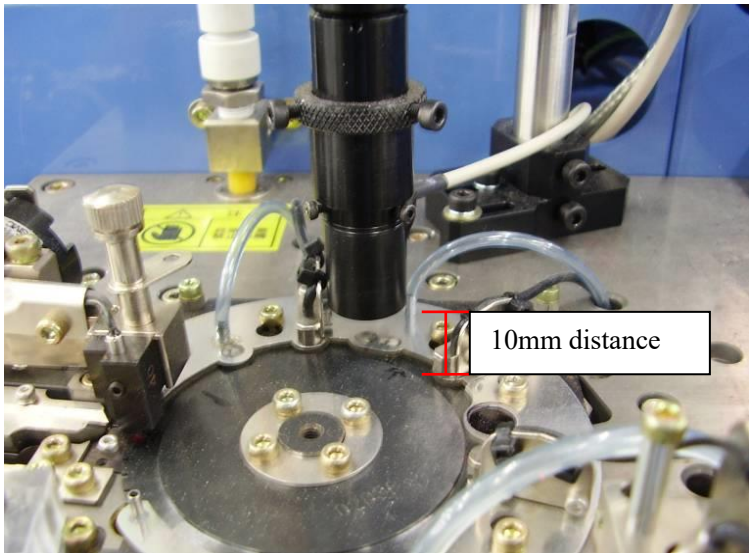


These 2 holes is for position of Top camera.

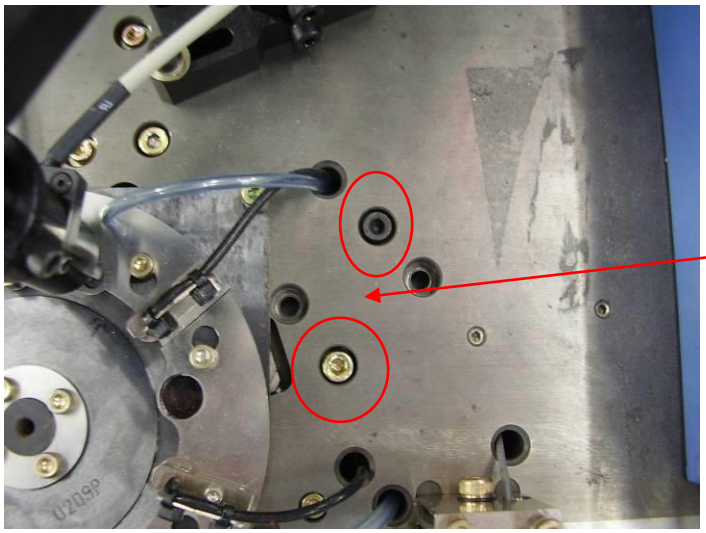


Top Camera Position

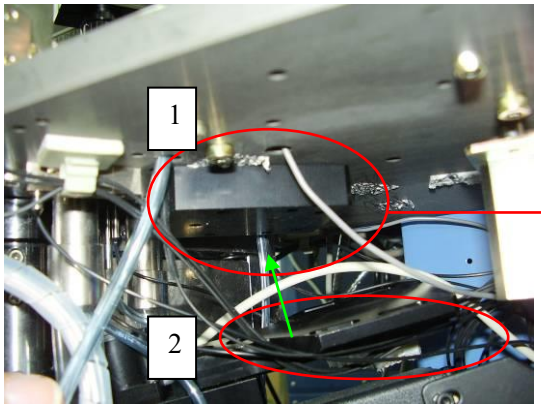


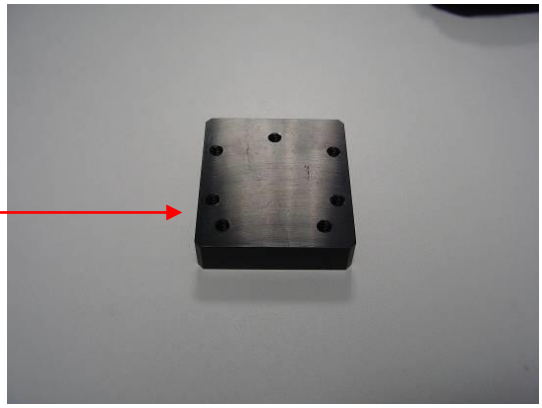


Bottom camera side



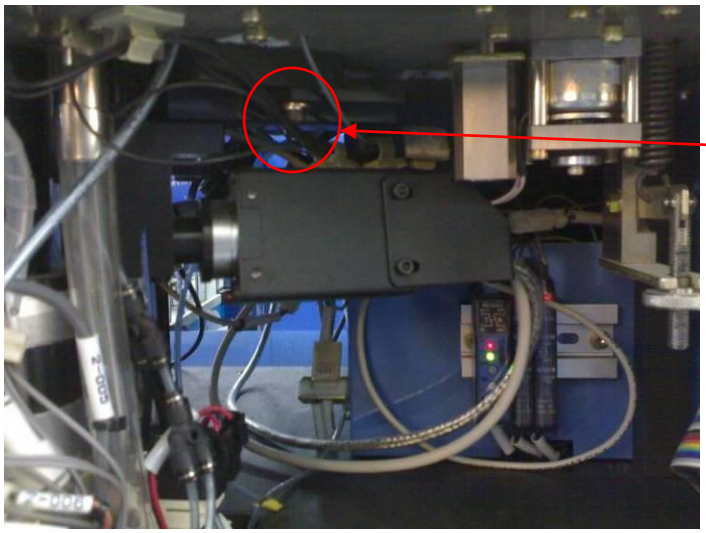
This 2 hole is for position of Bottom camera.





No.2 screw up to No.1

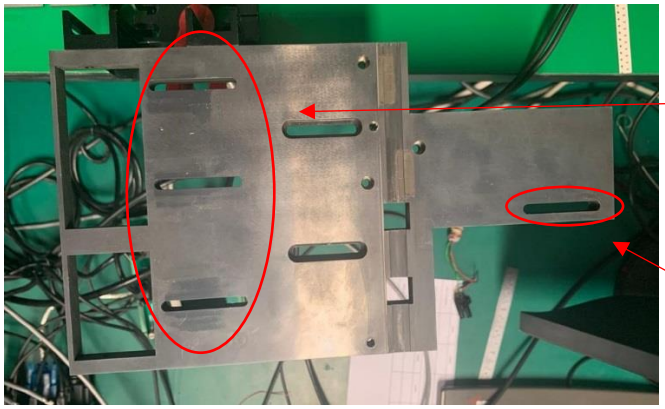
Bottom Camera Position



1 screw only (M4 x 8)

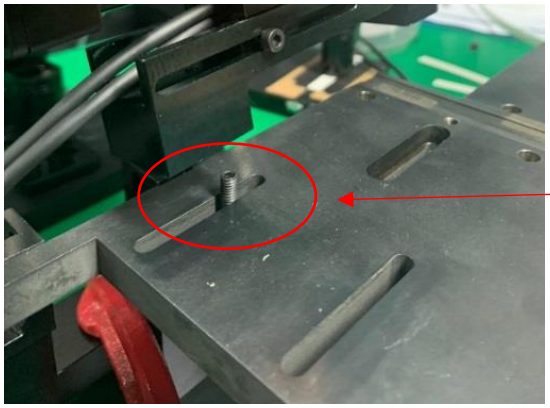
Procedure to setup Top & Bottom camera for station 4-7

Fold seal plate

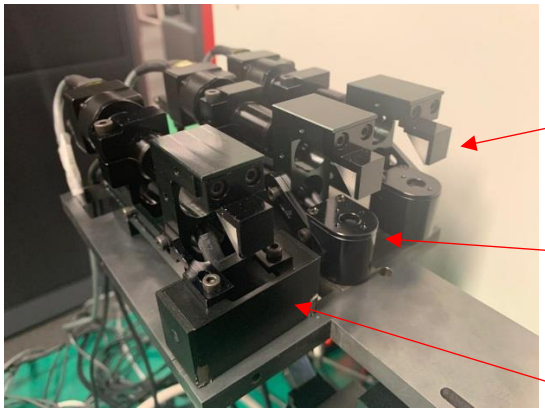


These 3 holes are for position of Station 4, 5 Pick Up station & 7 Top sealing station.

This hole is for position of Station 6 Bottom sealing



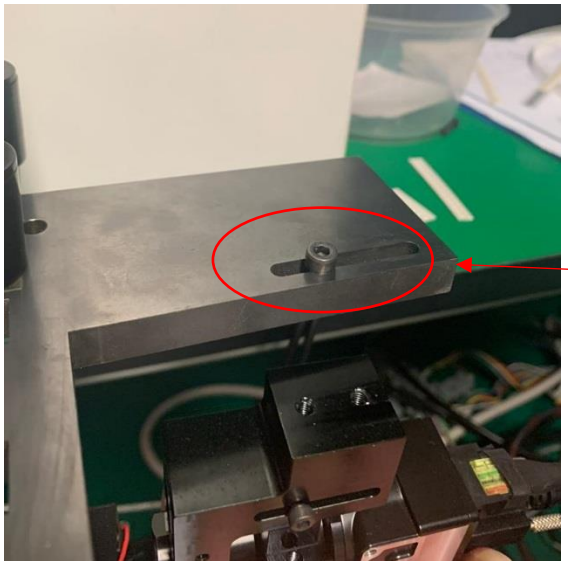
screw up.



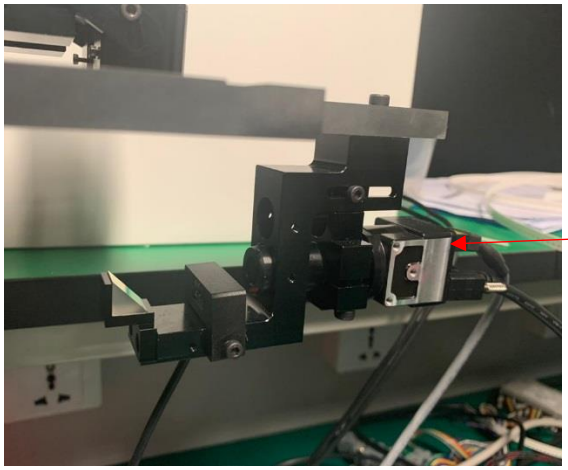
Station 4 – Pick up 1

Station 5 – Pick up 2.

Station 7 – Top Sealing

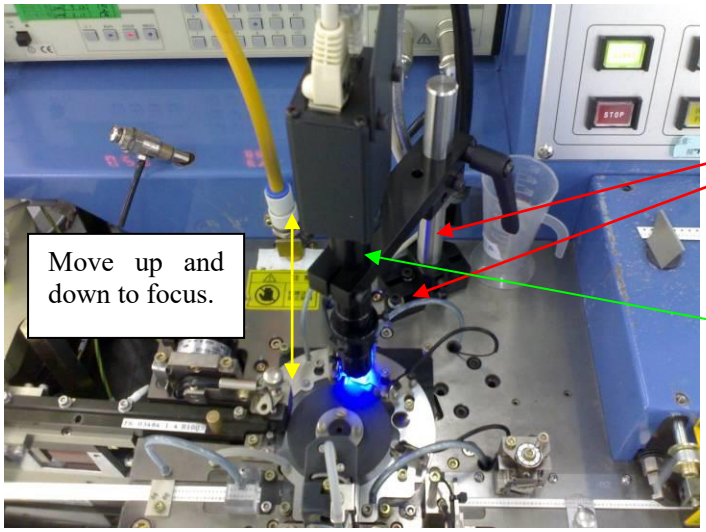


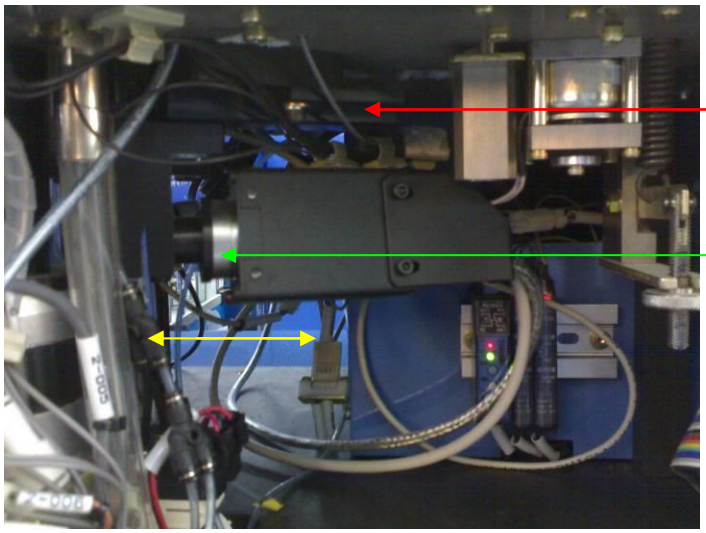
Screw down



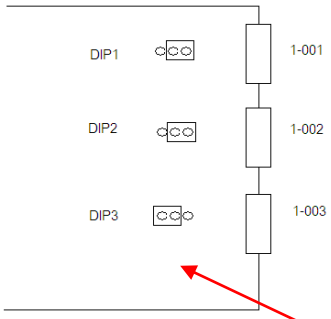
Station 6 – Bottom Sealing

How to adjust and focus chip position

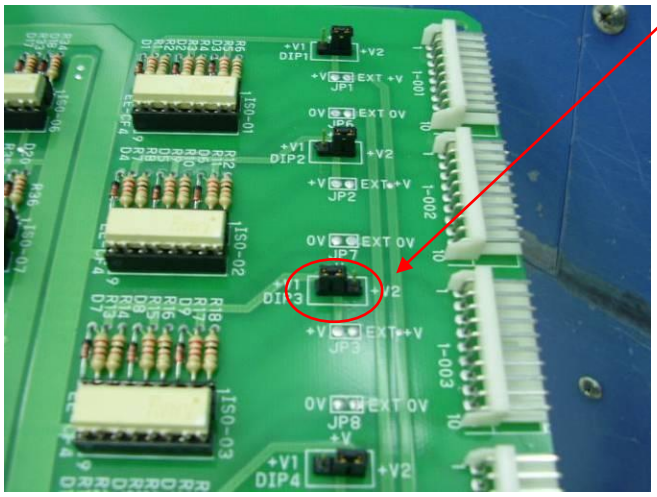


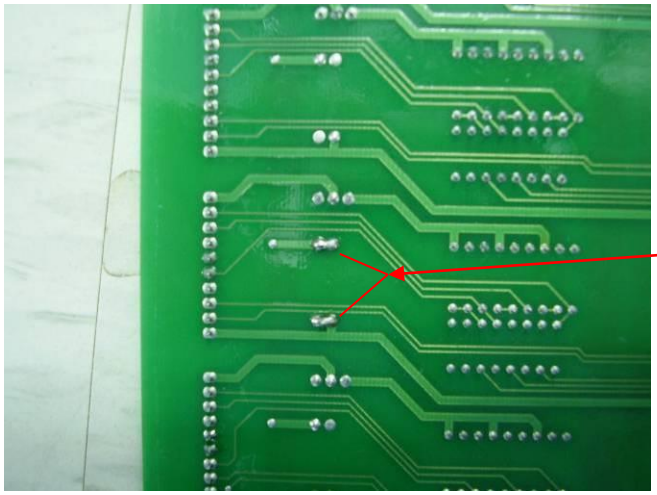


Machine I/O card structure

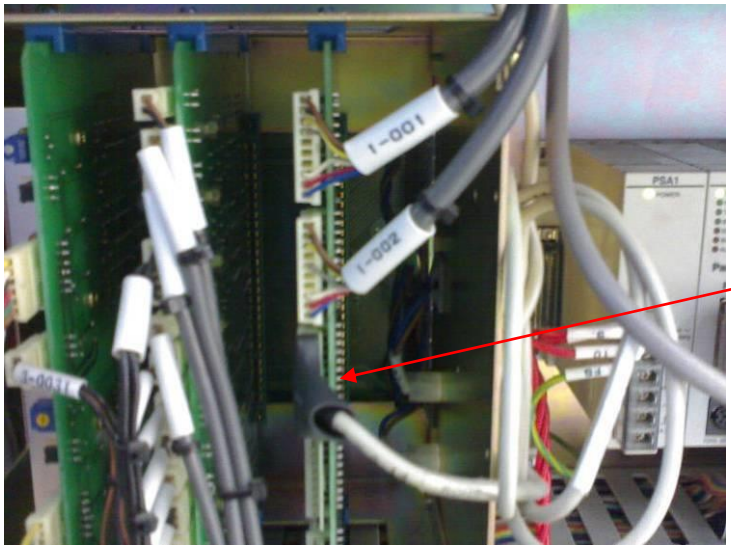


Change to left side.

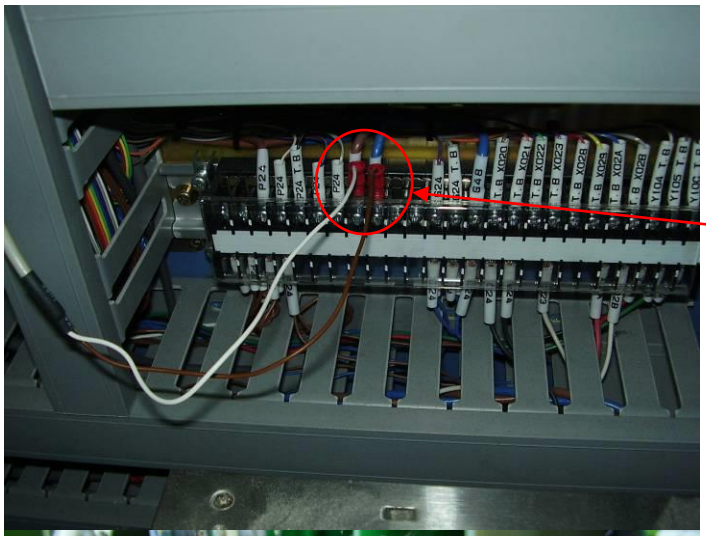




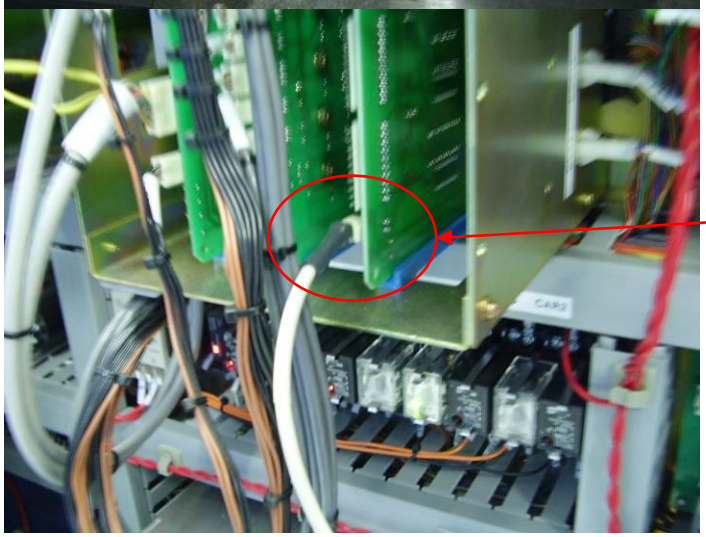
Solder together JP3 & JP8



Cable from opto-coupler to machine I/O board



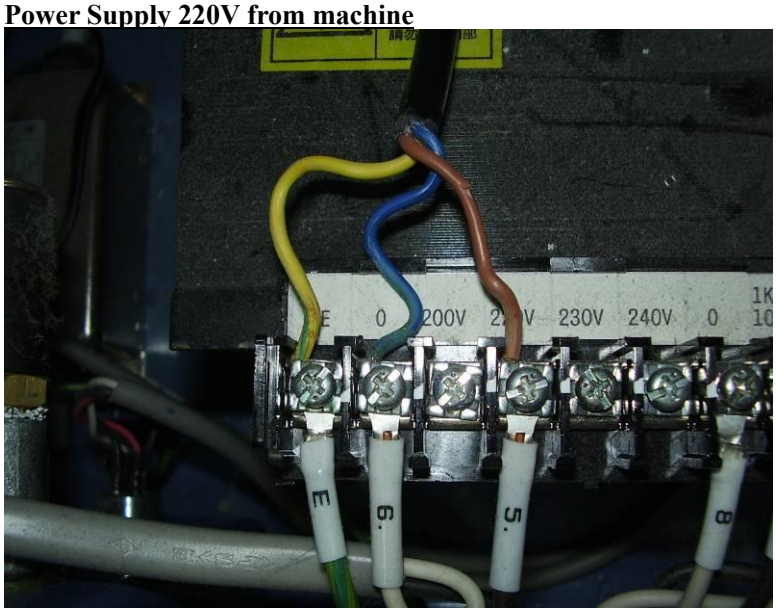
White = +
Brown = —
White join to P24 (Brown color)
Brown joins to G24 (Blue colour)



Plug in to M/C IO board.

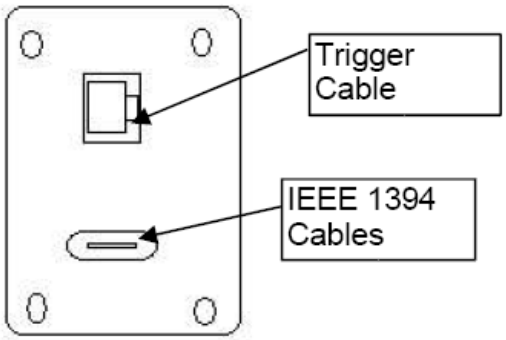
Join jumper to PN6-123

Power Supply 220V from machine



Yellow: Ground
Blue: 0V
Brown: 220V

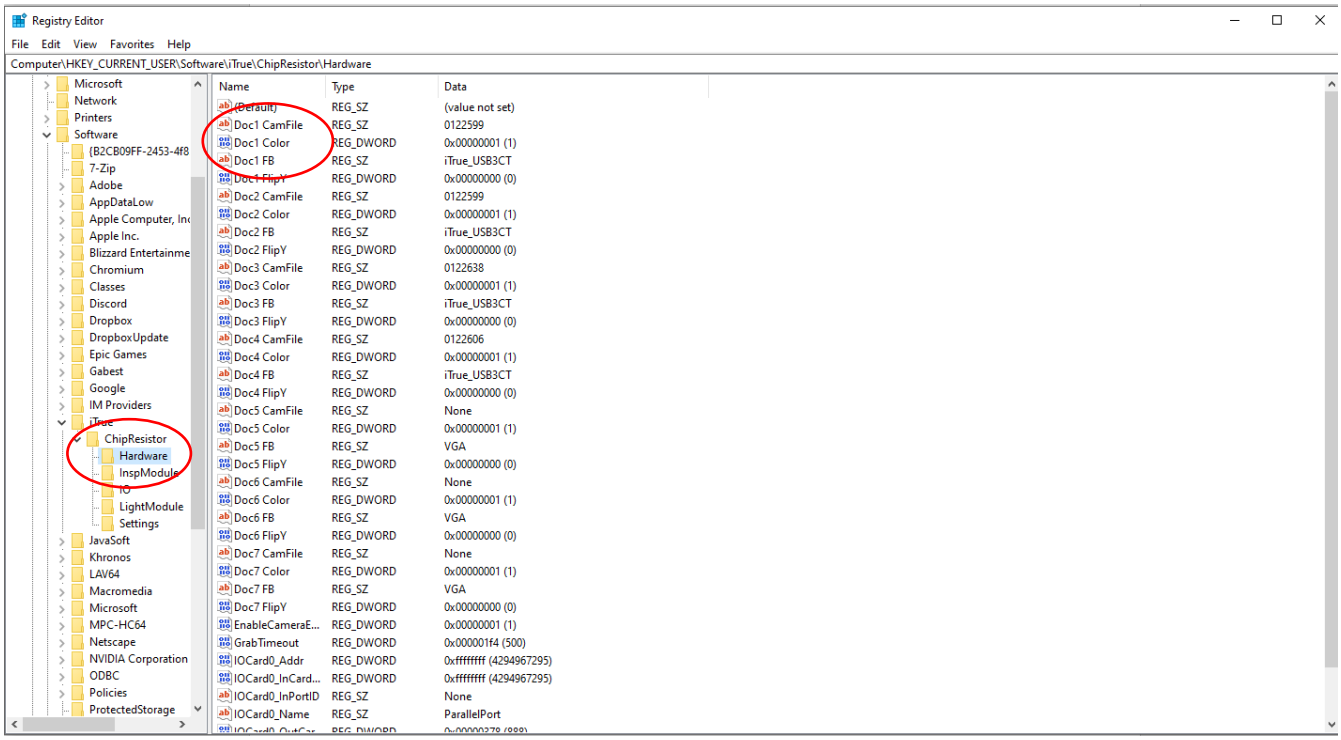
Back view of camera for Top & Bottom



Software setting

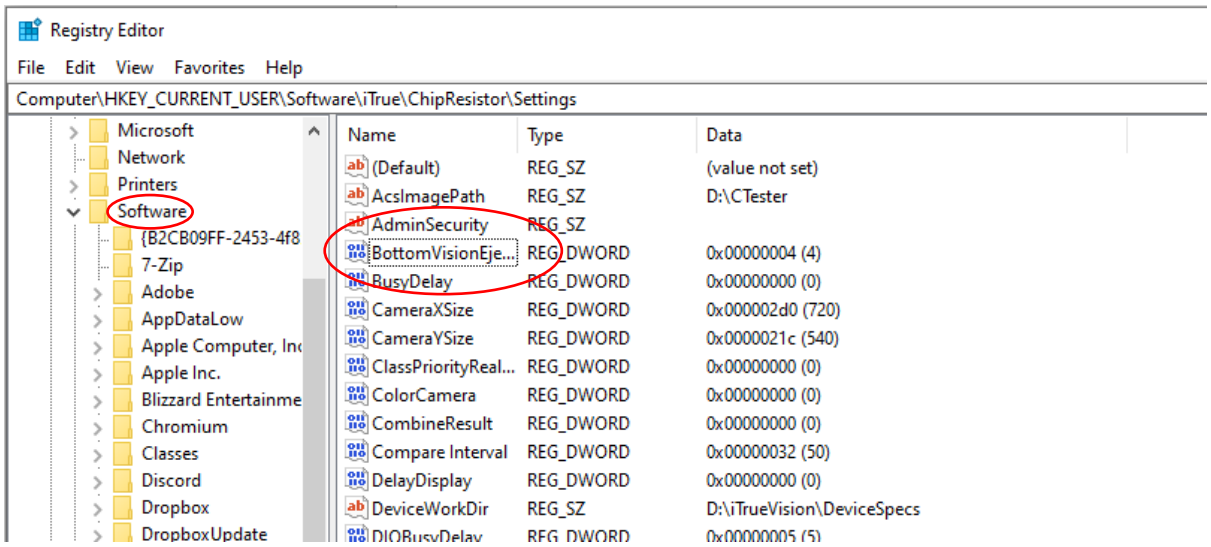
Setting camera

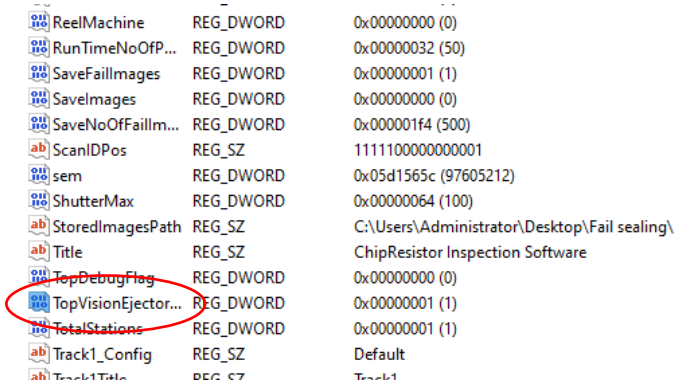
1. Run
2. Regedit
3. HKEY_CURRENT_USER
4. Software
5. iTrue→hardware
6. Setting camera series number for Doc1 camfile to Doc7 camfile
7. Setting color camera for Doc1 Color: mono camera: 0, Color camera: 1
8. Setting camera model number for Doc1 FB: BU030 = USB3CT, BU040 = USB4CT

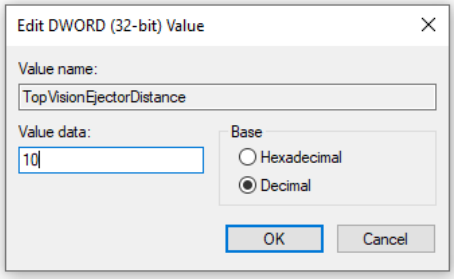


Setting vision ejector distance

1. Run
2. Regedit
3. HKEY_CURRENT_USER
4. Software
5. iTrue→setting.
6. BottomVisionEjectorDistance = 4
7. TopVisionEjectorDistance = 10, the base change to **Decimal**

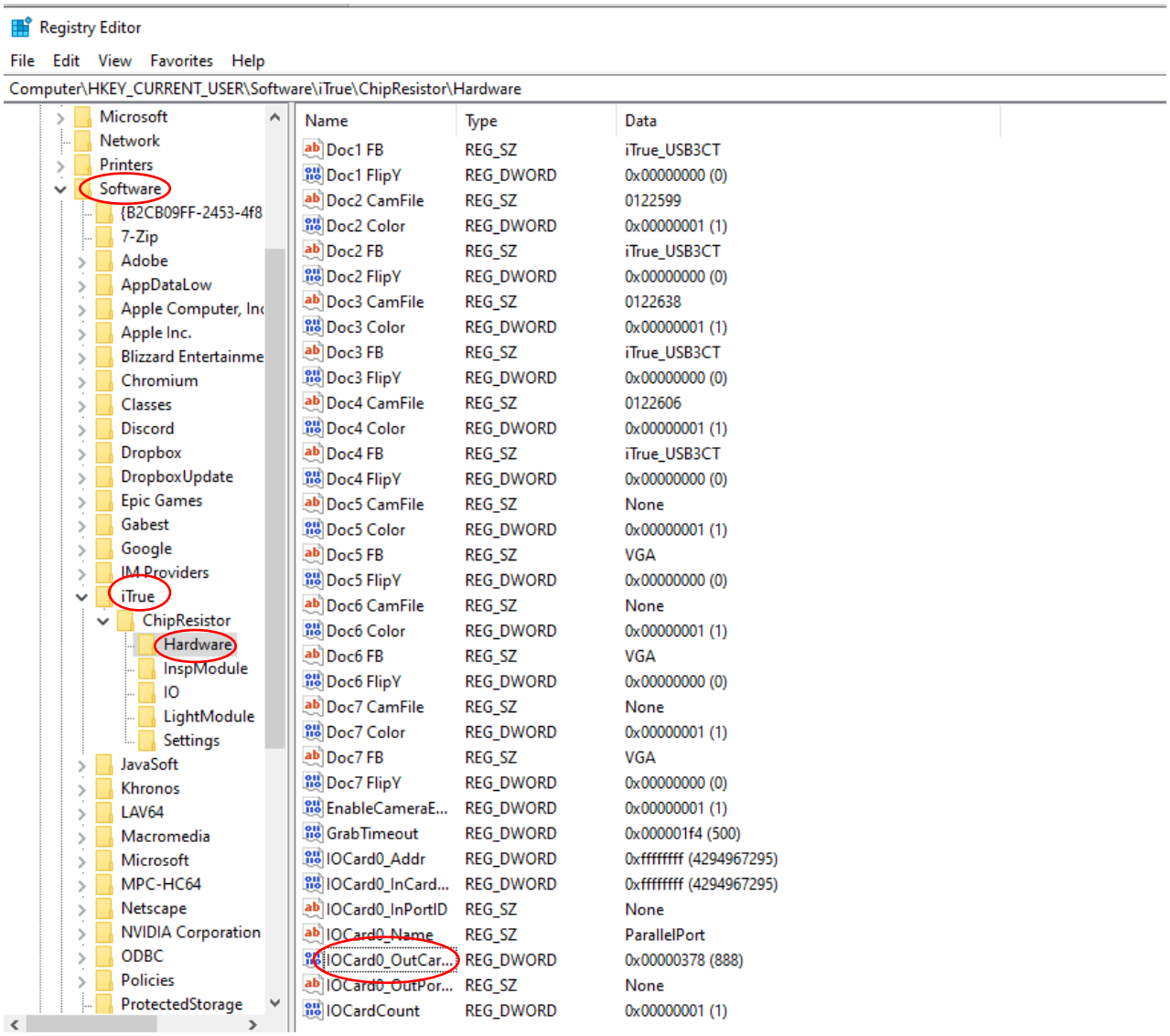




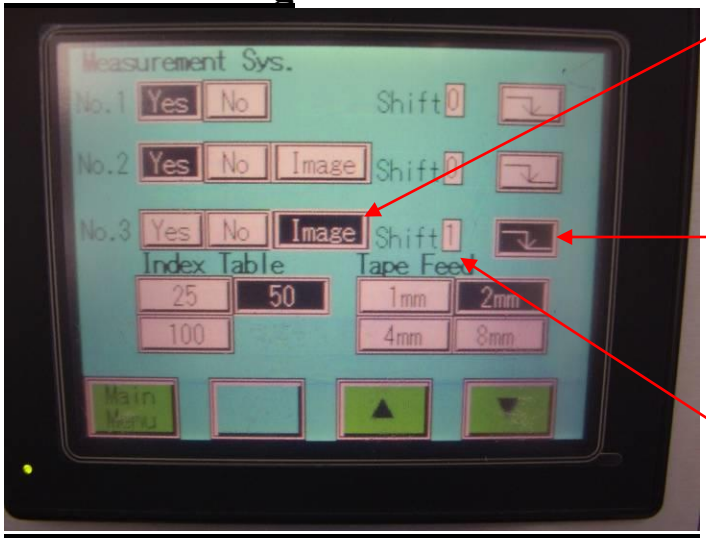


Setting parallel port number

1. Control panel
2. System>Hardware>Device Manager
3. Ports>Netmos Parallel Port>Resources
4. Run
5. Regedit
6. HKEY_CURRENT_USER
7. Software
8. iTrue→hardware
9. IO OutCardNo



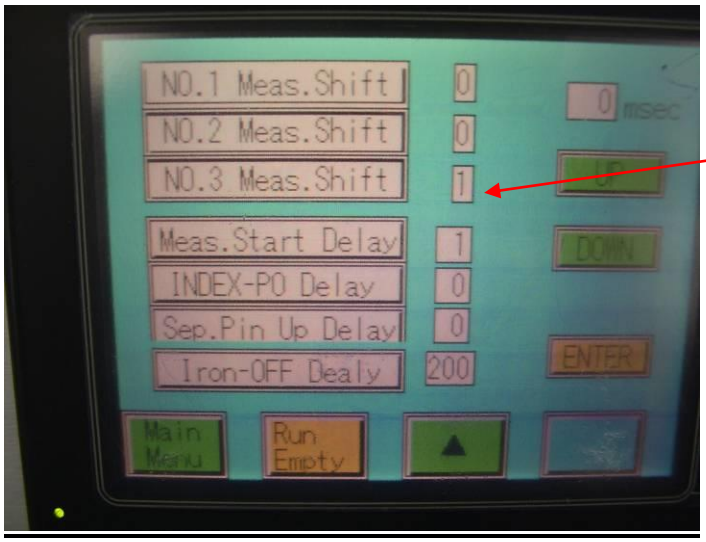
Machine setting



Change to image.

Click this.

Change to 1



Change to 1 like above picture.