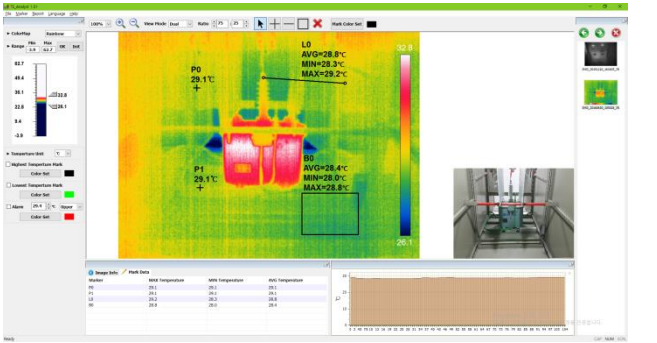
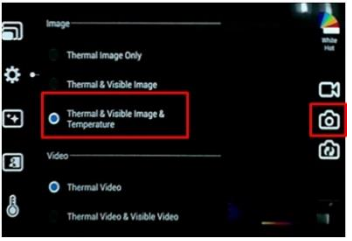
ANLYSIS PROGRAM INSTRUCTION



- **Save Data**

1. Run mobile App
2. Select "Thermal & Visible Image & Temperature" button in setting panel
3. Capture
4. 3 files (thermal image, visible image, temperature data) will be saved, and all 3 files are needed

App Screen



Example of Saved Data

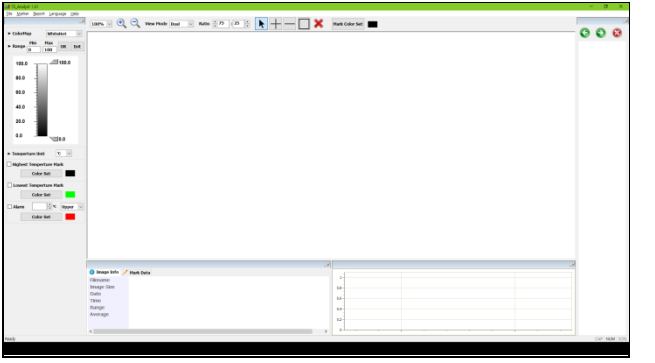

IMG_20150621_185042_IR.jpg


IMG_20150621_185042_TEMP.csv


IMG_20150621_185042_VIS.jpg

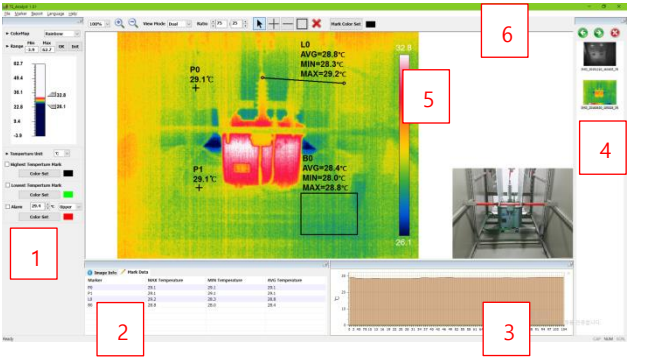
- **Run Program**

  Run the program below (TE_Analyst.exe)



Running Screen

- **Lay-Out**



1. Set colormap, unit, tempertaure of Min, Max, Alarm.
2. Show the information of file and mark.
3. Show the Graph of temperature in selected region.
4. Show the loaded image.
5. Display thermal Image and visible Image
6. Set mark type and color and zoom, view mode, Ratio

- **Menu**

1. File

- open : File open
- save : save thermal image in bmp file
- exit : exit program

2. Marker

- Dot : select this button 
- Line : select this button
- Square : select this button 
- Remove All : remove all marker
- Set Marker Font : Open Marker font set dialog

3. Report

- Set Contents : Set report contents and image type and size
- Generate : Generate report

4. Language

- English : change language to English
- Korean : change language to Korean

5. Image Process

- Open Window : open Image Process window

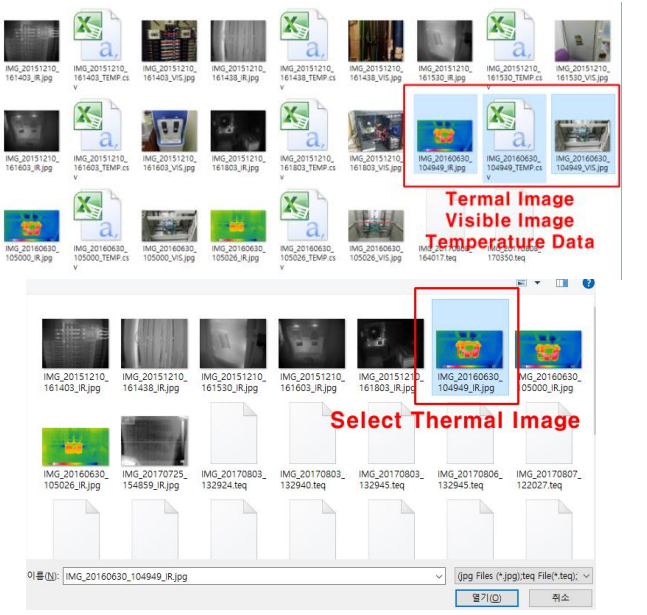
- File Open

TE_Analyst can open 3 type of files.

1. Set of Thermal Image, Visible Image, Temperature Data generated on a smartphone using Thermal Expert App.
2. JPG Type File Set of Thermal Image, Temerature Data generated by using T.E. Software. Visible Image is optional.
3. TEQ Type File generated by using T.E. Software

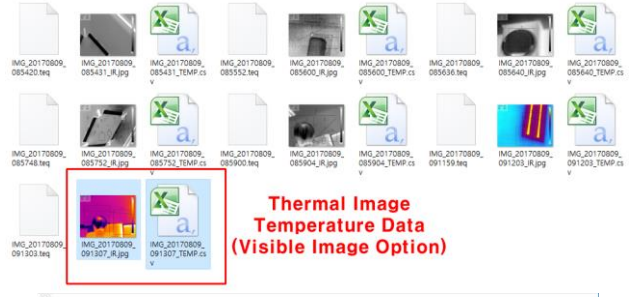
Note: teq is customized format for saving Thermal Expert image information in Thermal Expert Q1 program. It saves current image information which contains temperature data, colormap, visible image (if exist), number and position of markers, and emissivity. When teq file is loaded, those information are loaded and applied automatically. Since this format is customized format, it cannot be used in ordinary image viewer

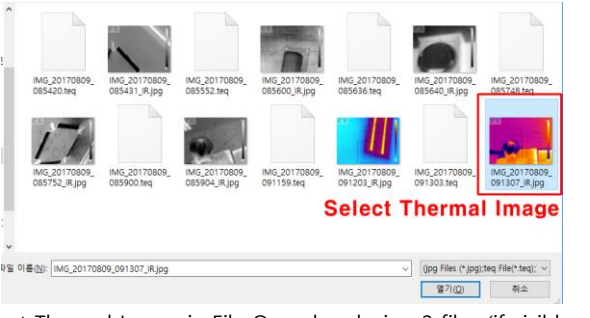
- File Set generated by using Thermal Expert App



Select Thermal Image in File Open by placing 3 files created with Thermal Expert App in one folder.

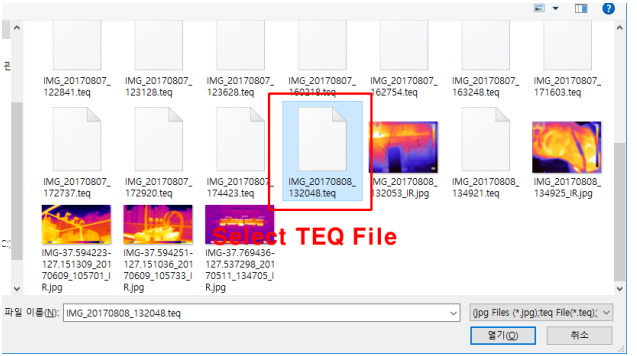
- JPG Type File Set generated by using T.E. Software





Select Thermal Image in File Open by placing 2 files (if visible exist, 3 files) created with T.E. Software in one folder.

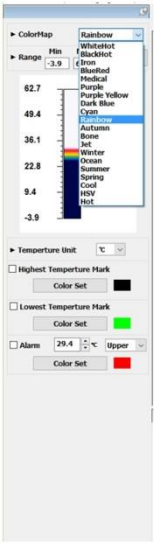
- TEQ Type File generated by using T.E. Software



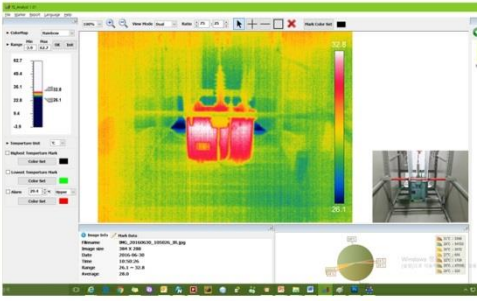
Select TEQ File generated on T.E. Software in File Open

Note : If there is saved Marker in TEQ file, the information of Marker will be loaded.

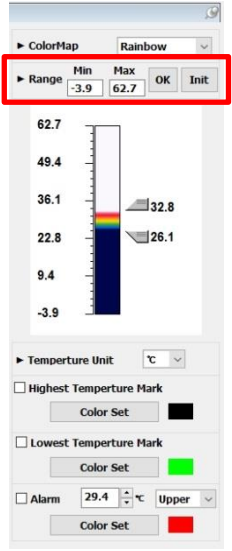
- **Left Dock(Lay-out No. 1) – Change ColorMap**



Select Rainbow



- **Left Dock(Lay-out No. 1) – Change Range**

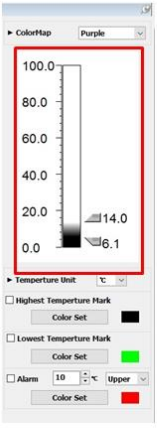


-. It's possible to set the Min, Max value in bar Range.

-. It should not be set temperature range(26.1 ~ 32.8 in left picture).

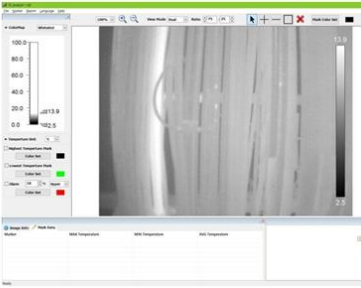
-. If init button is pressed, the value of bar range and temperature range will be back in origin value.

- Left Dock(Lay-out No. 1) – Change Temperature Range

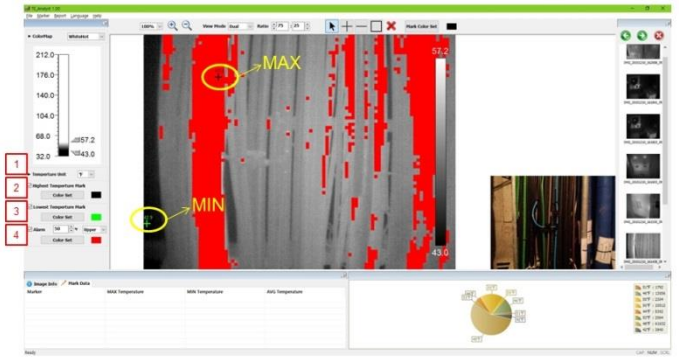


Change max value

Change min value



- Left Dock(Lay-out No. 1) – Change Temperature Unit and check min, max, alarm



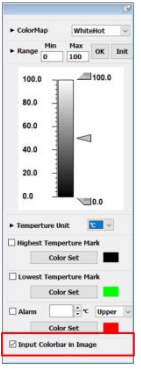
1. Temperature Unit – set Temperture Unit ℃ and ℉

2,3. Highest, Lowest Temperature Mark

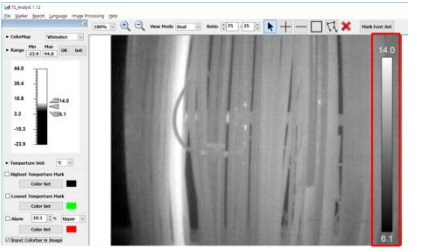
- set the mark color with color set button and show the point of Max, Min temperature in thermal Image

4. Alarm – alarm 50 ℉ uppper with red color in thermal image, color also can be changed by pressing color set button.

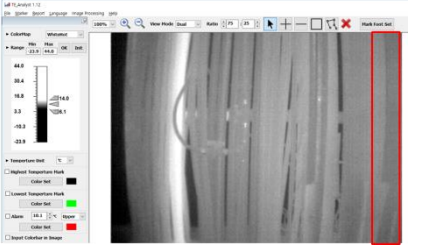
- Left Dock(Lay-out No. 1) – Input Colorbar in Image



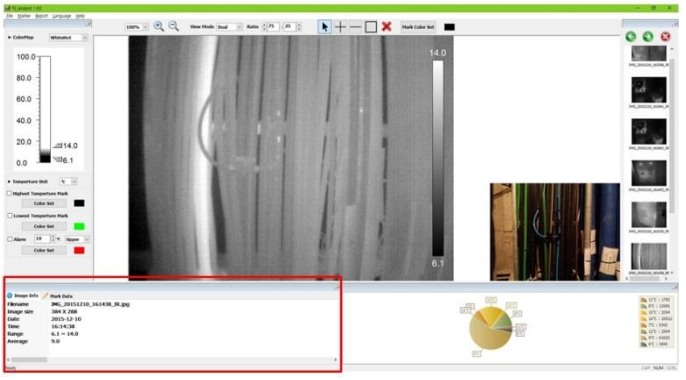
Check



Uncheck

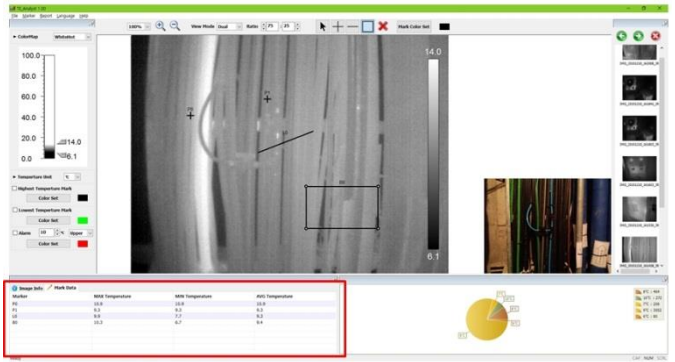


- Bottom Left Dock(Lay-out No. 2) – information of file



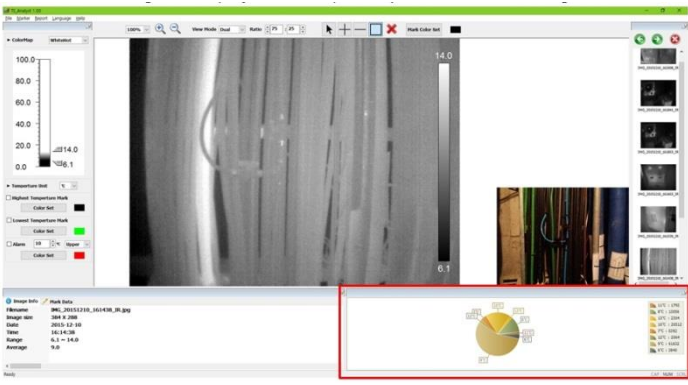
After image is loaded, Image info show the file information

- Bottom Left Dock(Lay-out No. 2) – information of Mark



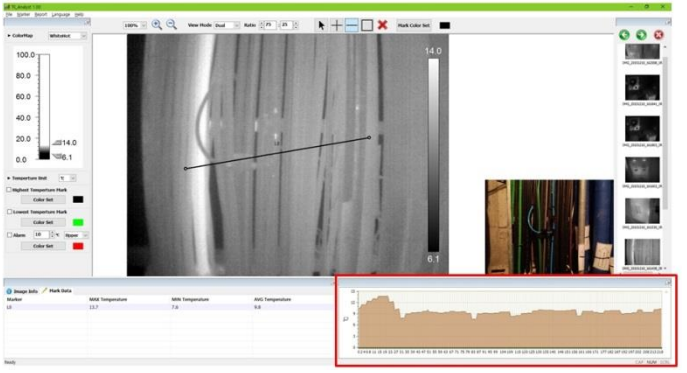
After user make the marker in thermal image, mark data show the information of mark(MAX, MIN, AVG)

- Bottom Right Dock(Lay-out No. 3) – temperature chart of Image



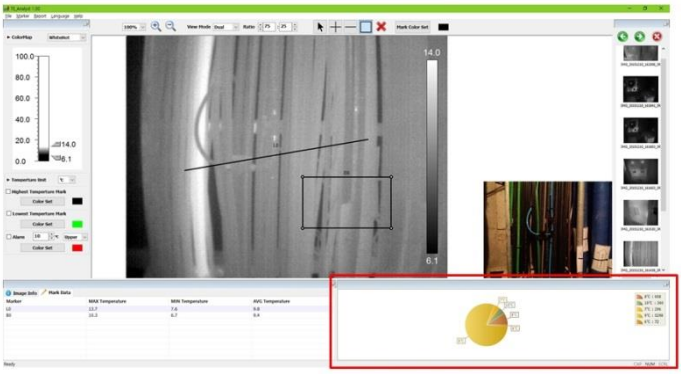
After image is loaded, appear image all temperature chart.

- Bottom Right Dock(Lay-out No. 3) – temperature graph of selected line



After line is selected or is drawed, appear the temperature graph of line

- Bottom Right Dock(Lay-out No. 3) – temperature graph of selected square

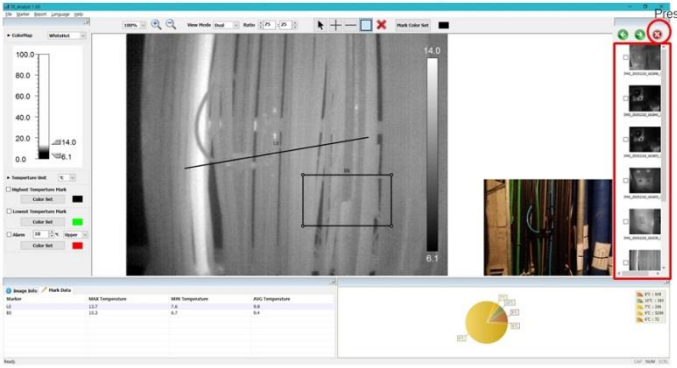


After square is selected or is drawed, appear the temperature chart of selected region

- Right Dock(Lay-out No. 4) – change selected image

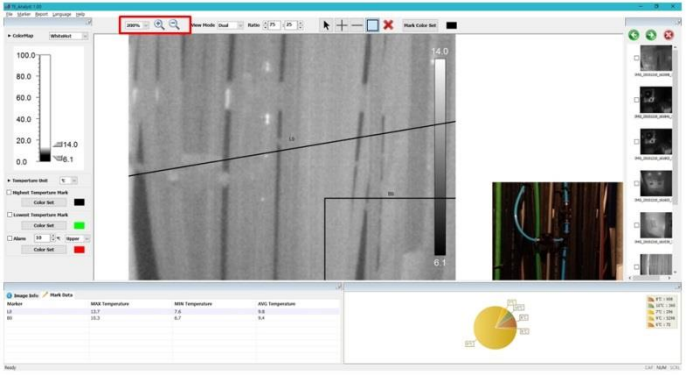
If you want to change the selected image, Press left, right arrow Icon or double click image.

- Right Dock(Lay-out No. 4) – Delete loaded image



Press delete button and then check box is appeared. After that check the image you want to delete, and press delete button.

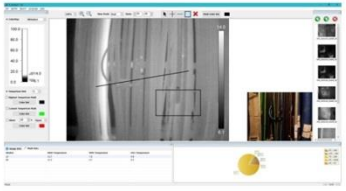
- Top Dock(Lay-out No. 6) – Zoom(200%)



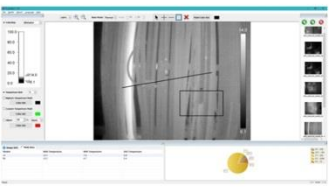
Change the zoom by select combobox(100%,200%300%,400%500%) or press +, - Icon.

- Top Dock(Lay-out No. 6) – view mode(dual, thermal, visible)

Dual.



Thermal

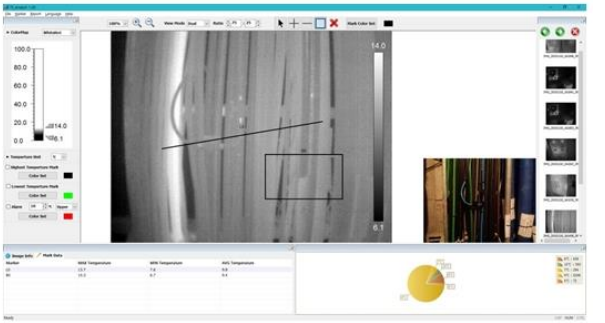


visible

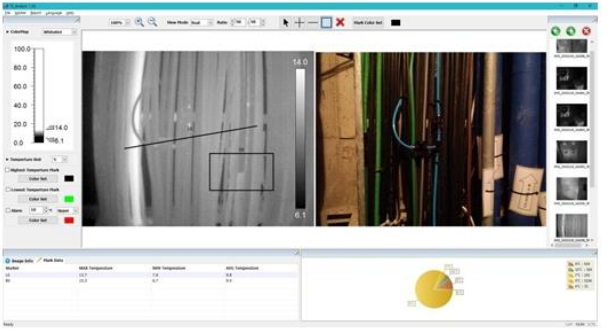
If you want to see thermal image and visible image, you should select dual mode. And if you want to see thermal image or visible image, you should select thermal or visible mode.

- Top Dock(Lay-out No. 6) – Ratio(75:25, 50:50)

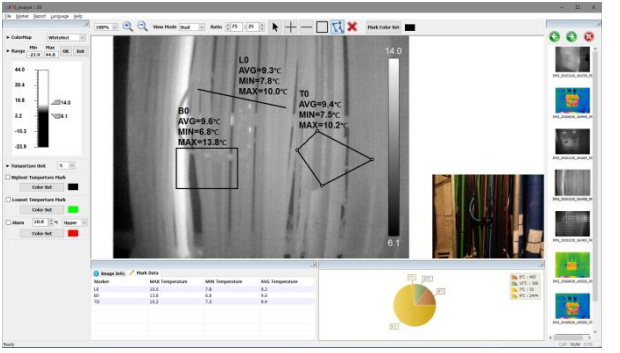
(75:25)



(50:50)



- Top Dock(Lay-out No. 6) – Add Mark



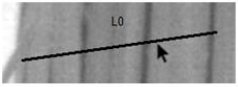
1. Select Mark icon 
2. Change mouse cursor like this 
3. Add Mark

- point : click at the position of adding marker
- line, rectangle : click at start point and drag
- polygon : click at the position of adding marker

And the last line should select this icon 

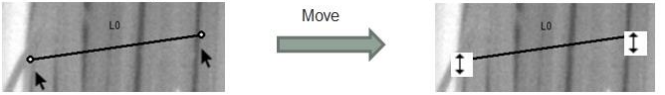
- Top Dock(Lay-out No. 6) – Select Mark, Move Mark, Resize Mark

1. Select Mark icon
2. When click Mark in the image(Select Mark), cursor is changed like

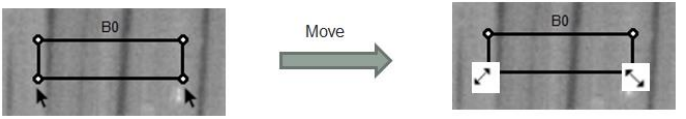


3. Mouse cursor means that it is possible to move anywhere with mouse click and drag.(Move Mark)
4. Mark(Line, Rectangle) can be resized in selected status(Resize Mark)

-. Line : Select Mark icon and when move mouse in end or start of line, cursor is changed like
After that it is possible to resize the line with mouse click and drag

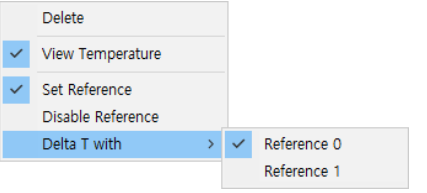


-. Rectangle : Select Mark icon ☐ and when move mouse in vertex of rectangle, cursor is changed like ⤢ ⤡
After that it is possible to resize the rectangle with mouse click and drag



- Delta T Function

The temperature difference between point marker can be known. Right-click point marker, and the following menu appears.



When point marker is set to reference, the name of point marker changes from P to R, and new reference number is assigned. (Example : R0, R1, …)

Point marker that compares the temperature with reference will display reference number after point marker number.

(Example : P0R0, P3R0, …)

Image Info | Mark Data

Marker	MAX Temperature	MIN Temperature	AVG Temperature	ΔT
R0	25.3	25.3	25.3	
R1	25.3	25.3	25.3	
P0R0	24.2	24.2	24.2	1.1
P3R0	24.6	24.6	24.6	0.7

1. Set Reference

When Set Reference is checked, the selected point marker is set to reference. Up to 10 reference can be specified. When Set Reference is unchecked, it return to point marker.

2. Disable Reference

When Disable Reference is checked, the selected point marker does not compare the temperature with any reference.

3. Delta T With

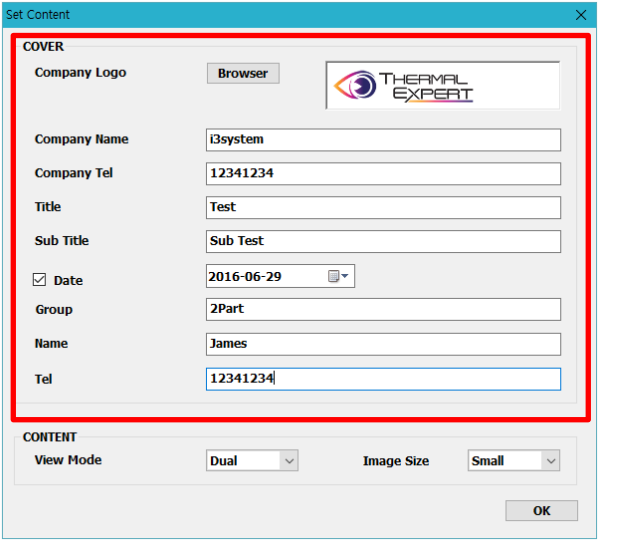
Select which point marker will make a temperature comparison with which reference. It is basically compared with reference 0.

- Mark Font Set

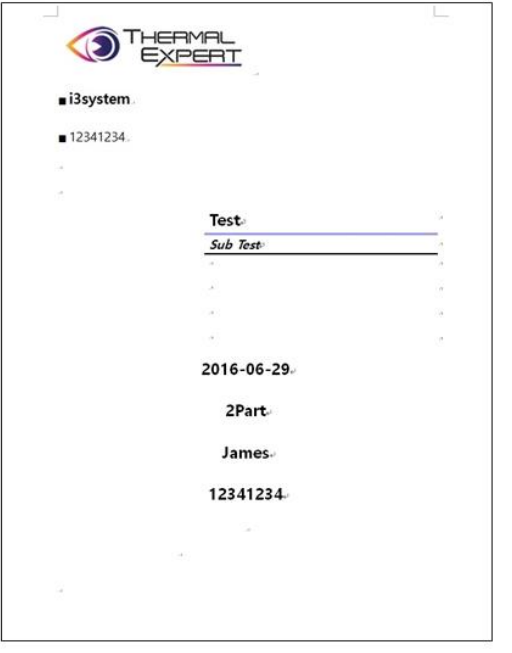
You can change the text font and text color of the characters displayed on the marker.

- Make Report

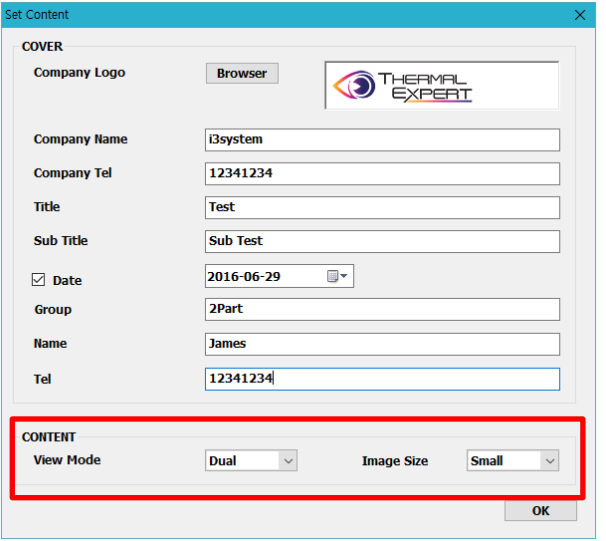
  Click Menu – Report – Set Contents(Cover)

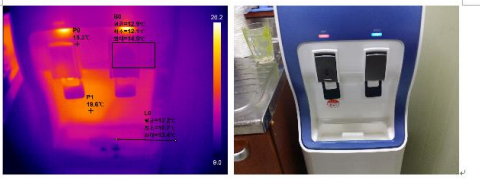


Click Menu – Report – Generate(Cover)



Click Menu – Report – Set Contents(Content)





IMG_20151210_161603_IR

Image Information

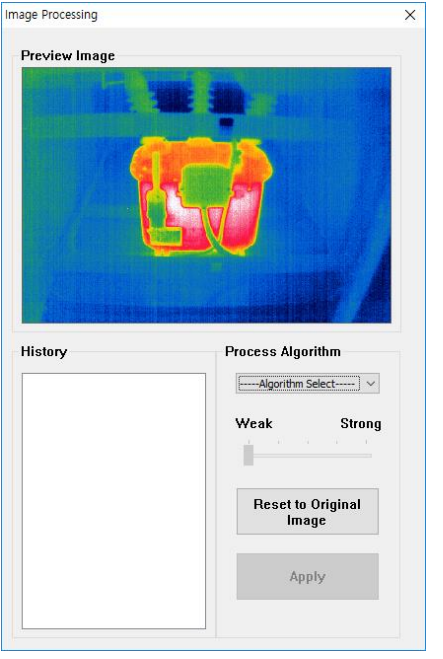
Image Name	IMG_20151210_161603_IR.jpg
Average Temperature	12.0℃
Image Range	9.0℃ - 26.2℃
IR Array Format	384 X 288
Image Date	2015-12-10 16:16:03

Image Marker

Marker	MAX Temperature	MIN Temperature	AVG Temperature
P0	15.3℃	15.3℃	15.3℃
P1	19.6℃	19.6℃	19.6℃
L0	13.4℃	10.7℃	12.2℃
B0	14.5℃	12.1℃	12.9℃

- Image Processing

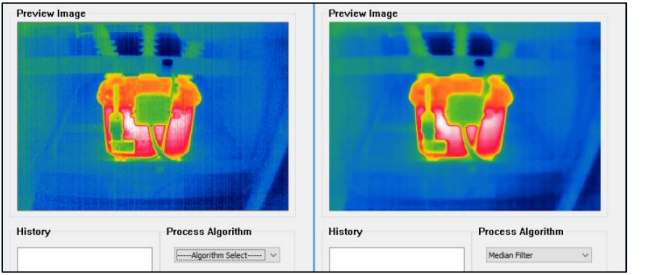
Click Image Processing – Open Window



- Provide Image Processing Function

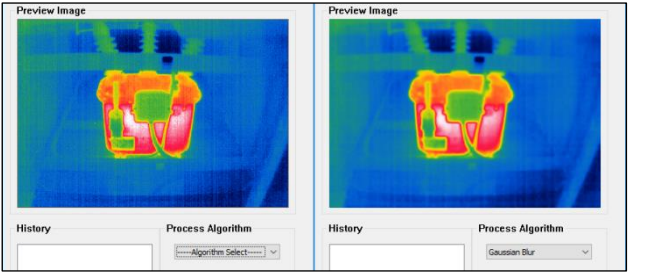
1. Median Filter

- Noise reduction & Image Blurring



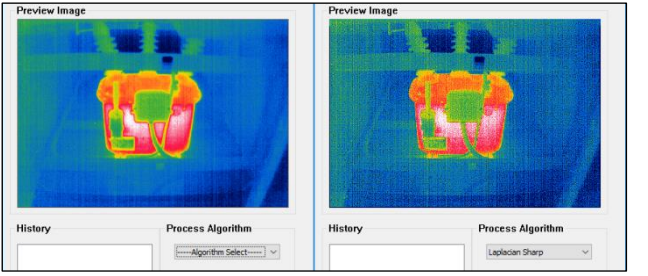
2. Gaussian Blur

- Image Blurring. Median Filter compared to softness



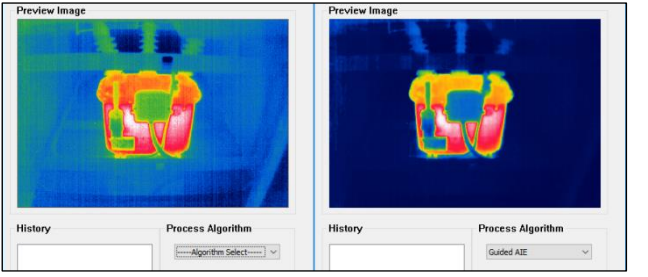
3. Laplacian Sharp

- Make the outline or protruding part look sharper



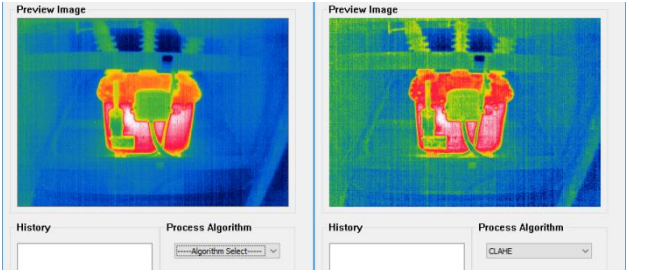
4. Guided AIE

- Make the outline more clearly visible



5. CLAHE

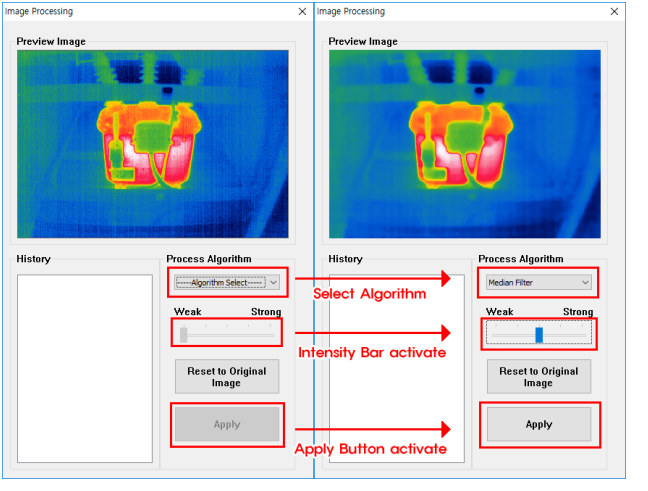
- Make object or backgrounds more distinct



- How To Apply Image Processing

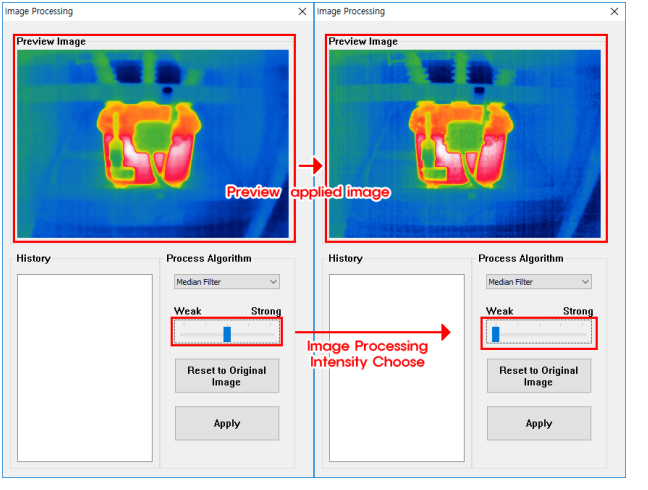
1. Select Algorithm

- Disabled 'Intensity Bar' & 'Apply Button' activate



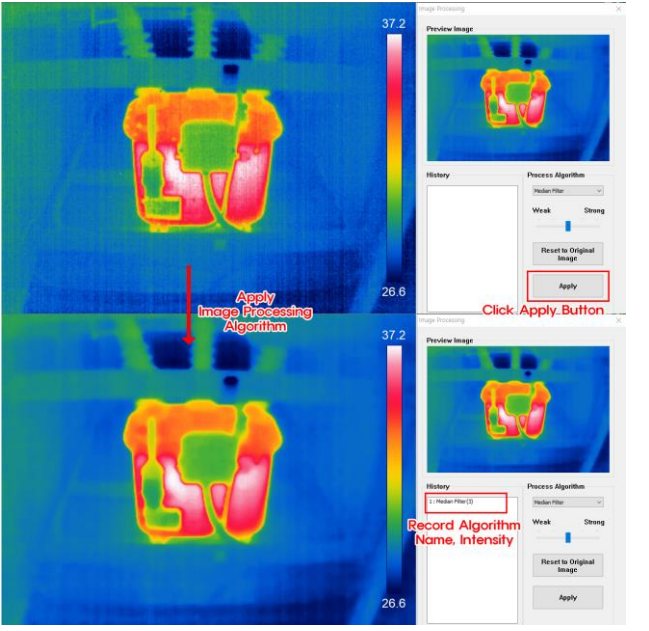
2. Use 'Intensity bar' to adjust to the desired intensity

- Using the 'Preview Window', you can view applied image.
- You can also change color-map, maximum temperature, minimum temperature.



3. Apply by click ‘Apply Button’.

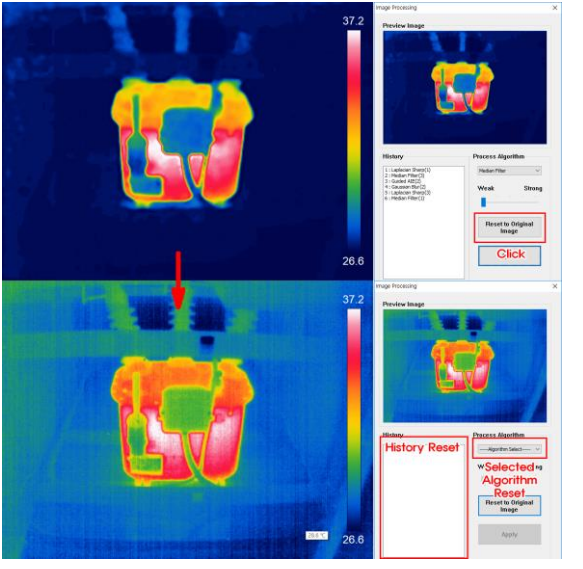
- The picture of main view change to the picture with image processing applied.



- Reset

1. Click 'Reset to Original Image Button'
2. All applied image processing is canceled, and the image restore when the file was first loaded.

- color-map, maximum temperature, minimum temperature are also restored.



- Return to a specific apply point

1. Up to 10 history record can be stored.

- When record is more than 10, delete oldest record.

2. Double-clicking record will return to that point.