SATIR IR Tools

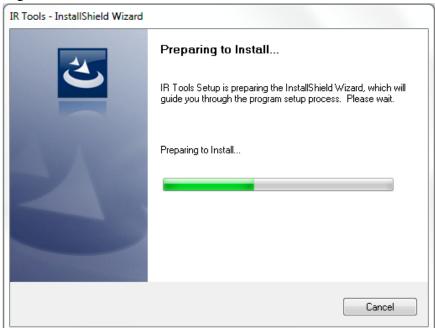
Operation Manual

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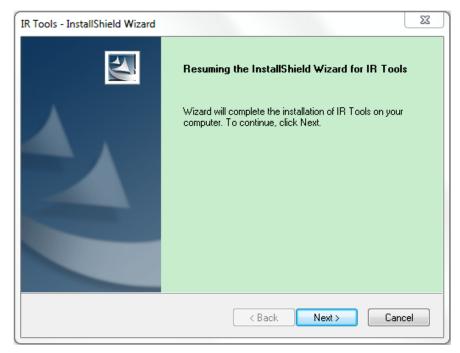
Content

1. Software Installation

- 1.1 Double click on "IR Tools.exe" <a>IR Tools.exe ;
- 1.2 Extracting IR Tools for installation;



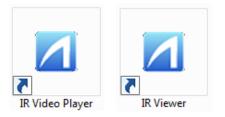
1.3 Click "Next" to continue the installation;



1.4 Click Finish to complete and close installation.

IR Tools - InstallShield Wizard	
	InstallShield Wizard Complete The InstallShield Wizard has successfully installed IR Tools. Click Finish to exit the wizard.
	< Back Finish Cancel

1.5 After installation, shortcut of IR viewer and IR Video Player will automatically generate on Desktop.

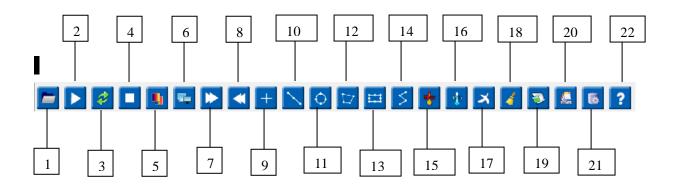


2.IR Video Player Introduction

2.1 Double click on IR Video Player to open IR Video Player;



2.2 .Manu introduction;



1	Open file	12	Add polygon
2	Play/Pause	13	Add rectangle
3	Loop playback	14	Add polyline
4	Stop	15	Max temp
5	Change Palette	16	Min temp
6	Video operation	17	Delete analysis
7	Accelerate	18	Delete all analysis
8	Decelerate	19	Snap image
9	Add point	20	Report generation
10	Add line	21	Parameter setting
11	Add circle	22	Help/Language

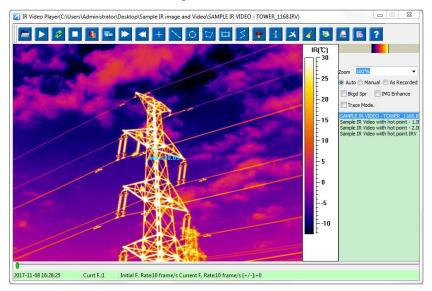
3. IR Video Player Operating Instruction

3.1 Open Video

3.1.1 Click icon "open" to choose thermal file;



3.1.2 After choosing video, software is as follows:



3.2 Video playing



3.3 Add analysis

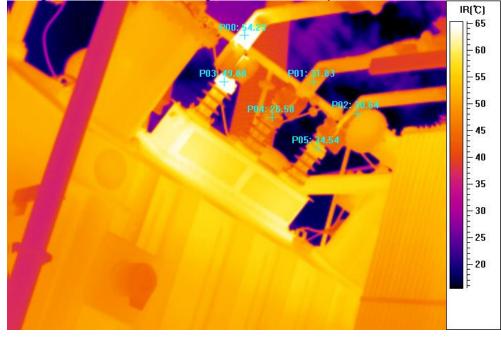
3.3.1 Max temp.: Software will automatically point out the max temp. of chosen video:

3.3.2 Min temp.: Software will automatically point out the min temp. of chosen video:



3.3.3 🛨 Add point

Click $\stackrel{\bullet}{=}$ and then click on target in the image, a new point analysis is added. The number of point is limitless, and the points are named by P00, P01, P02, P03, etc.

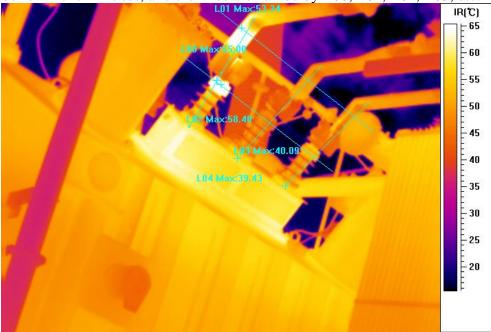


3.3.4 Add line

Click then click on image to draw a line.

User can move the line by holding the line to somewhere else. Line is changeable by pulling the ends of the line.

The number of line is limitless, and the lines are named by L00, L01, L02, L03, etc.

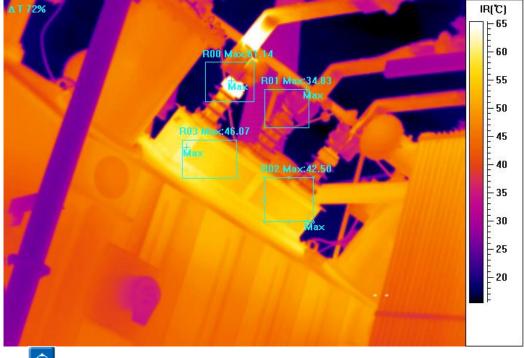


3.3.5 Add rectangle

Click then click on image to draw a rectangle.

User can move the rectangle by holding the rectangle to somewhere else. Rectangle's size is changeable by pulling the borders of the rectangle.

The number of rectangle is limitless, and the rectangles are named by R00, R01, R02, R03, etc.



3.3.6 Add circle

Click Click on image to draw a circle.

User can move the circle by holding the circle to somewhere else. Circle's size is changeable by pulling the border of the circle.

The number of circle is limitless, and the circles are named by E00, E01, E02, E03, etc.



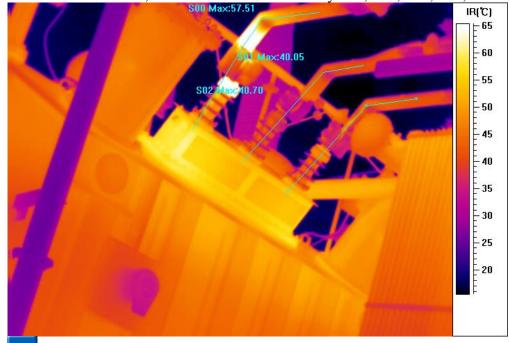
3.3.7 Add polyline

Click the screen to add a polygon. Single-click is to fix the turning point, double-click to finish.

User can move the polyline by holding the polyline to somewhere else.

Polyline's size is changeable by pulling the turning point of the polyline.

The number of circle is limitless, and the circles are named by S00, S01, S02, S03, etc.



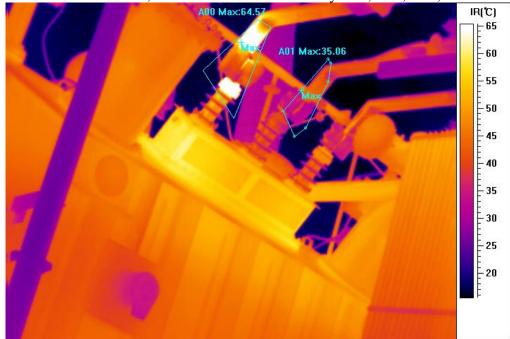
3.3.8 Add polygon

Click icon **W** then click the screen to add a polygon. Single-click is to fix the turning point, double-click to finish.

User can move the polygon by holding the polygon to somewhere else.

Polygon's size is changeable by pulling the turning point of the polygon.

The number of circle is limitless, and the circles are named by A00, A01, A02, etc.



3.4 Change analysis

Before move and resize a measurement tool, please move the mouse pointer to the measurement tool. (If the measurement is selected, there will be 8 panes surrounding it). Remove the mouse to layout and resize the measurement tool. There are different levels for measurement tools. The level sequence range from point, line, circular, box, polygon, polyline. Each meanings of them are as below.

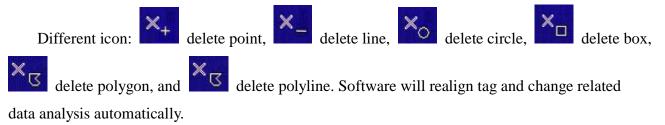
`Ŧ .↑.	Moving point.
₩_	Moving line without resizing.
5	Stretching line basing end-point.
	Moving box without resizing.
5	Resizing box basing on arrow direction.
\$€	Moving circle without resizing.
~ 0	Resizing circle basing on arrow direction.
¢ T	Resizing polygon basing on surrounding block.
7ª	Place a point between two points of polygon.
7	Place a point between two points of polyline.
7	Remove polyline.
	1 2

IR temperature data will be recalculated after moving and resizing the measurement tools.

3.5 Delete analysis

3.5.1 Delete single analysis

Click on ind mouse icon shows as in the click on the analysis that needs to be deleted. Repeat above to continue delete analysis.

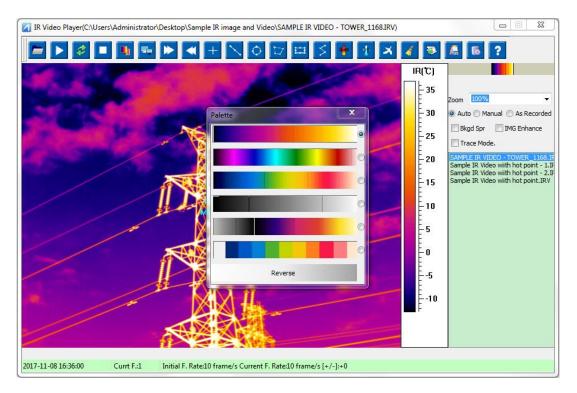


3.5.2 Delete all analysis

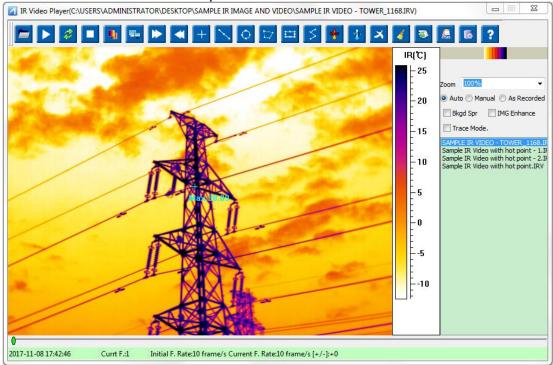
Click to delete all analysis, software will realign tag and change related data analysis automatically. (point/ line/ box/ polygon/ polyline/ isotherm)

3.6 Set Palette

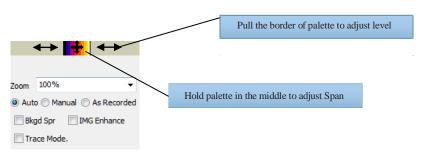
Infrared image distinguish temperature by palette, image can achieve best display effect by changing palette. Click icon to adjust the palette, default palette of IR file is iron red as below:



Click "Reverse" to reverse all the palette as below:

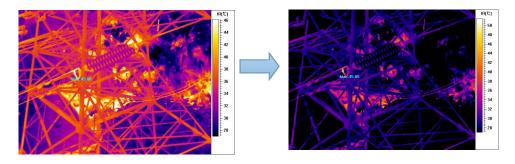


3.7 Adjust Level & Span and playing mode

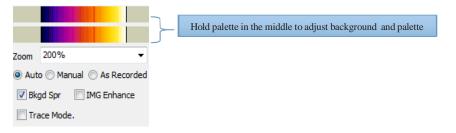


Click on Manual O Auto O Manual to adjust Level & Span manually. Otherwise, please choose Auto or As record.

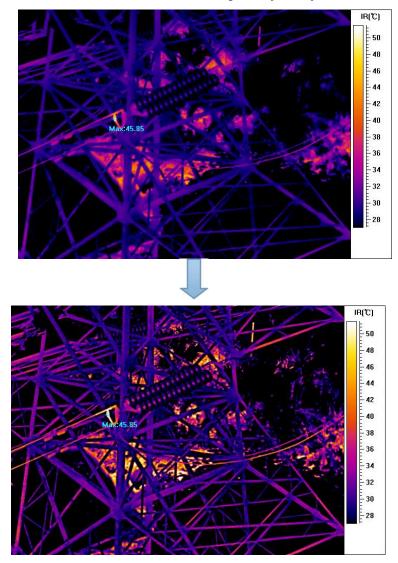
After adjustment, please check the palette effects.



Click icon Bkgd Spr to separate the level & span between background and target.



3.8 Image Enhance

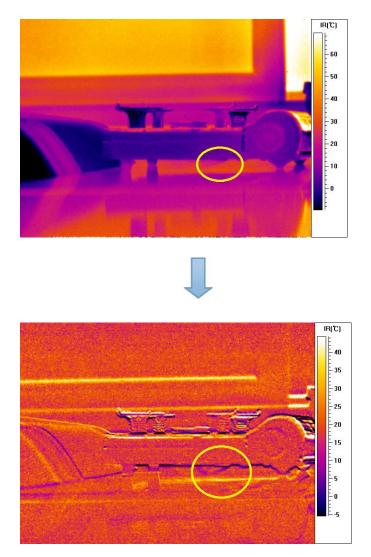


Click icon TMG Enhance to make enhancement to image, after adjustment, please check the enhancement effects.

3.9 Trace Mode

Click icon Trace Mode. to change the playing mode from normal mode to Trace mode, please check the enhancement effects.

(Only available for gas leak detection video)



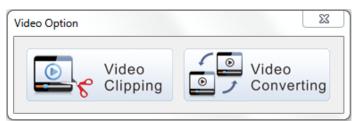
3.10 Image capture

Pause the IR video and click icon to capture IR image. IR image can be saved as JPG or IMA (full radiometric temperature data) format as below:

IR Video Player(C:\U	Jsers\Administrator	Desktop\Sample IR image and Video\SAMPLE IR VIDEO - TOWER_1168.IRV)	
	Save As		j 🖪 ?
100	<u>ک</u> ب	Sample IR image and Video 🔹 🍫 Search Sample IR image and 👂	
	Organize 🔻	New folder 🔠 👻 🔞	n <u>100%</u> ▼
Configuration (1)	⊿ 🔆 Favorites	Name Date modified Type	uto 🔘 Manual 🔘 As Recorded
3 Barriela	🧮 Desktop		Bkgd Spr 📄 IMG Enhance
and the second	📃 Recent Pla	ces 📃 🔟 Sample IR Video wiith hot point - 1_279.I 2017-07-06 11:01 🛛 IMA File	Trace Mode.
	〕 Download 🝊 🦓	5	IPLE IR VIDEO - TOWER_1168.IF ple IR Video with hot point - 1.IF ple IR Video with hot point - 2.IF
	⊿ 浸 Libraries ▷ 📑 Documen	15 • • • III	ple IR Video wiith hot point. IRV
	File nar	Re: SAMPLE IR VIDEO - TOWER_1168_1.IMA	-
/ /	Save as ty	pe: IMA Picture.IMA (*.IMA)	
	Hide Folders	Save Cancel	ж
2017-11-08 16:38:31	Currt F.:1	Initial F. Rate:10 frame/s Current F. Rate:10 frame/s [+/-]:+0	

3.11 Video Editing

Click Video Editing to operate "Video Clipping" or "Video converting" as below:



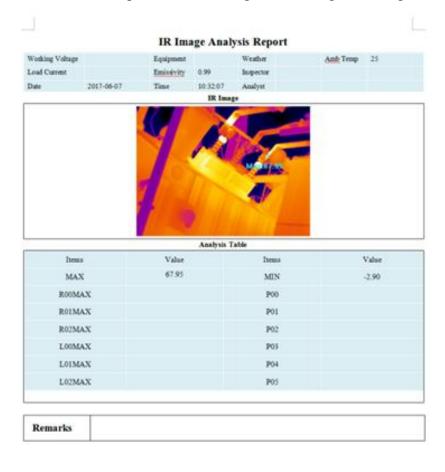
To clip a video or change the video format to AVI

Video Capture		×
Frame start	1	Start Clipping
Frame end	451	Quit
Save Name	SAMPLE IR VIDEO_451.IRV	Save As
Video Format	Change	×
Video Format	SAMPLE IR VIDEO.AVI	×

1. Click to fulfill the details of report before report generation.

Main Information			Temperature	data			
Working Voltage	Analysis Date	2017-11-08	Max. Temp	30.09	Min. Temp	-12.51	
Equipment Name	Analysis Time	16:40:14	R00MAX		P00		
Weather	Analyst		R01MAX		P01		
Amb Temp 25			R02MAX		P02		
Load Current			LOOMAX		P03		
Emissivity 1.00			L01MAX		P04		
Inspector			L02MAX		P05		
Other information							
Remarks							Å

2. Click "Generate Report' after fulfilling details and generate report as below:



3.13 About and help

1. Click **?** to check the info of shortcut key language switch.

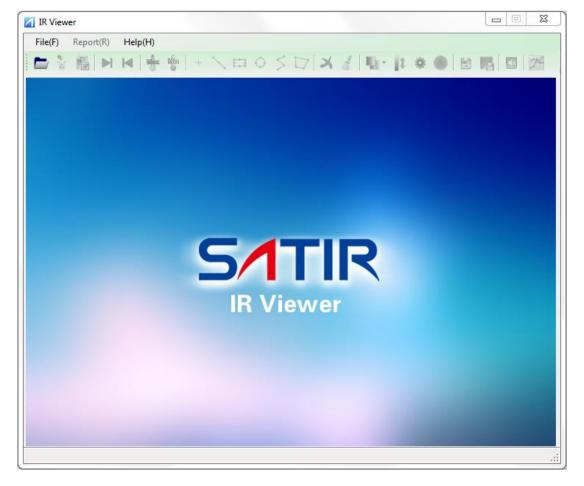
About And H	lotke	ys					23
Abou	t						_
	Compa	any:	SATIR Eur	ope(Ireland) Co	mpany Limited		
	Copyri	ght:	(C) 2017 9	(C) 2017 SATIR Europe All Rights Reserved.			
	Softw	are:	IR Video P	layer			
	Vers	sion:	V1.0.0.1				
Hotke	eys						
	F1:	Iron		← :	Previous Frame		
	F2:	Rever	sed Iron	→ :	Next Frame		
	F3:	Gray		† :	Zoom Out		
	F4:	Rever	sed Gray	↓:	Zoom In		
	Esc:	Initial	Status	Space:	Play or Pause		
				English	•	Quit	

2. Click button Chinese (Traditional) to set language of software as below:

和幫助			
關於			
公司名	3稱 <mark>:</mark>	SATIR Europe(Ireland) Company Limited	
版權則	袹:	(C) 2017 SATIR Europe 保留所有權利	
軟體名	3稱:	IR Video Player	
版本	號:	/1.0.0.1	
幫助			
F1:	鐵紅	←: 前—幀	
F2:	反鐵紅	→: 後—	
F3:	灰色	↑: 縮小	
F4:	反灰色	↓: 放大	
Esc:	初始狀態	送 空白 鍵: 播 放或暫停	
		Chinese (Traditional) 🔹 退出	

1. Click Exit Quit to exit "About and help".

4. IR Viewer Introduction

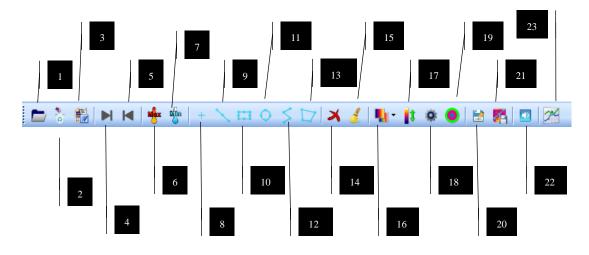


4.1 Double click on IR Video Player to open IR Video Player:

4.2 Menu



1 File	Open IR image
2 Report	Generate report
3 Help	Software info and language switch

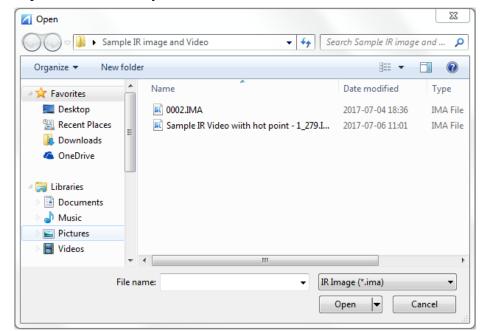


1	Open image	13	Add polygon
2	Delete image	14	Delete
3	Generate report	15	Delete all
4	Next	16	Palette
5	Previous	17	Level &Span
6	Max temp	18	Parameter setting
7	Min temp	19	Isotherm
8	Add point	20	Image save as
9	Add line	21	Image save with analysis
10	Add rectangle	22	Play sound
11	Add circle	23	Trending layout
12	Add polyline		

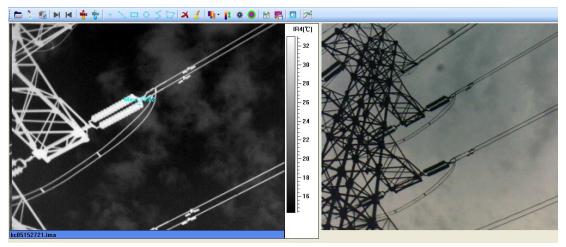
5.IR Viewer Operating Instruction

5.1 Open image

5.1.1 Click to choose IR image, corresponding CCD image will be opened automatically;



5.1.2 Example:



5.2 Add Analysis

5.2.1 Max temp:

Software will automatically point out the max temp of chosen image;



5.2.2 Min temp:

Software will automatically point out the min temp of chosen image;



5.2.3 **+** Add point:

Click and then click on target in the image, a new point analysis is added. The number of point is limitless, and the points are named by P00, P01, P02, P03, etc.



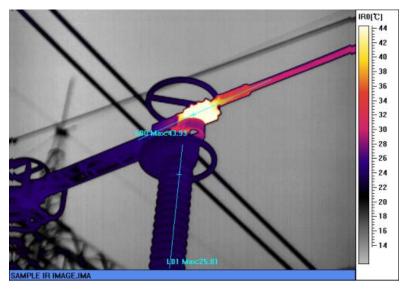
5.2.4 Add line:

Click and then click on image to draw a line.

User can move the line by holding the line to somewhere else.

Line is changeable by pulling the ends of the line.

The number of line is limitless, and the lines are named by L00, L01, L02, L03, etc.



5.2.5 Add rectangle:

Click and then click on image to draw a box.

User can move the box by holding the box to somewhere else.

Box's size is changeable by pulling border of the box.

The number of box is limitless, and the boxes are named by R00, R01, R02, R03, etc.



5.2.6

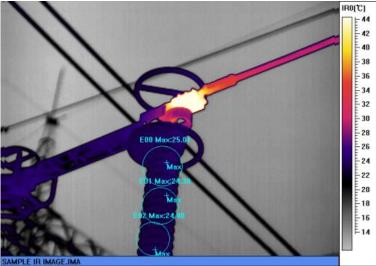
Add circle:

Click and then click on image to draw a circle.

User can move the circle by holding the circle to somewhere else.

Circle's size is changeable by pulling border of the circle.

The number of circle is limitless, and the circles are named by E00, E01, E02, E03, etc.



5.2.7 Add polyline:

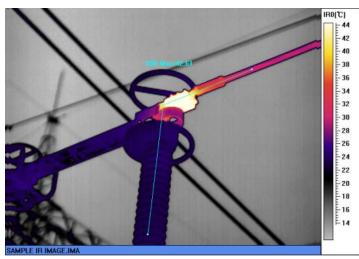
Click icon it then click the screen to add a polygon.

Single-click is to fix the turning point, double-click to finish.

User can move the polyline by holding the polyline to somewhere else.

Polyline's size is changeable by pulling the turning point of the polyline.

The number of circle is limitless, and the circles are named by S00, S01, S02, S03, etc.



5.2.8

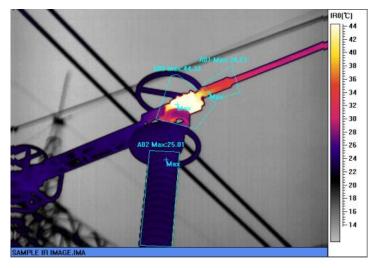
Add polygon:

Click icon it then click the screen to add a polygon. Single-click is to fix the turning point, double-click to finish.

User can move the polyline by holding the polyline to somewhere else.

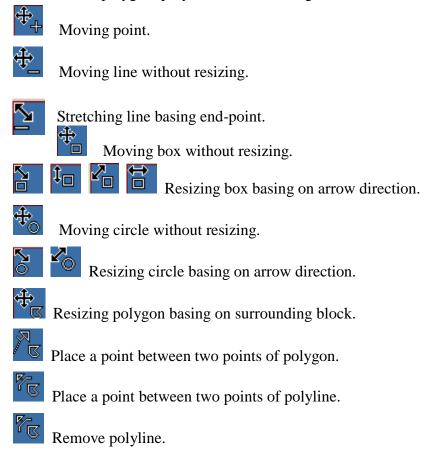
Polyline's size is changeable by pulling the turning point of the polyline.

The number of circle is limitless, and the circles are named by A00, A01, A02, etc.



5.3 Change analysis

Before move and resize a measurement tool, please move the mouse pointer to the measurement tool. (If the measurement is selected, there will be 8 panes surrounding it). Remove the mouse to layout and resize the measurement tool. There are different levels for measurement tools. The level sequence range from point, line, circular, box, polygon, polyline. Each meanings of them are as below.



IR temperature data will be recalculated after moving and resizing the measurement tools.

5.4 Delete analysis

(1) Delete single analysis

Click on \checkmark and mouse icon shows as \checkmark , then click on the analysis that needs to be deleted.

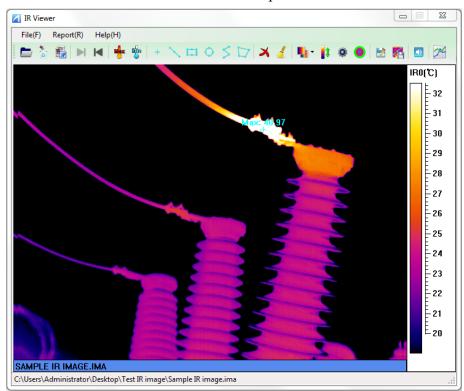
(2) Delete all analysis

Click icon *to* delete all the items, software will realign tag and change related data analysis automatically. (Point/ line/ rectangle / polygon/ polyline/ isotherm)

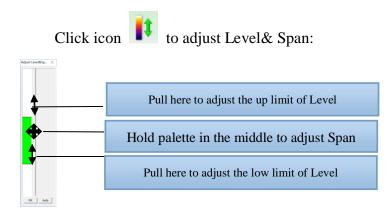
5.5 Set Palette

- IR Viewer File(F) Report(R) Help(H) 🖿 🖔 🏭 🖻 🛤 🌞 🐈 + 🔨 🖽 O 🗲 🗁 🛪 🥑 🖪 🛤 🖪 💷 🎢 Iron Rainbow Feather Grey Hot red Brown red Palette reverse -24 -23 - 22 - 21 E 20 SAMPLE IR IMAGE.IMA C:\Users\Administrator\Desktop\Test IR image\Sample IR image.ima
- 5.5.1 Click icon **I** to adjust the palette.

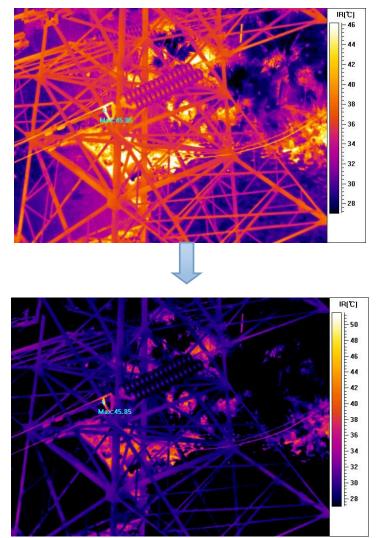
5.5.2 Click "Reverse" to reverse all the palette.



5.6 Adjust Level& Span



Example as below:



5.7 Parameter Setting

Click parameter	setting icon 🔹 to adjust pa	arameter, as below:	
	Temperature Para	X	
1	Object Parameter Emissivity 1 >> (0.01-1)	- IR Draw Type -	2
	Distance 3 (m) Amb Temp 25 (°C) Relative Humidity 50 (%) Temp Correction 0 (°C)	☐ 3D ☐ °F	
3	IR Image Data	C Fix T Limits	4
	Date 2010-04-27 05:31:28 Inspector Machine Info	-T- Max. T 40.96 Min. T 3.21	
		OK Cancel Apply	

5.7.1 Image parameter setting

A. Object parameter

Emissivity, distance between the object and IR camera, ambient temperature and relative humidity can be set. Press \bowtie right beside *Emissivity* and the built-in emissivity table pops up as follows.

Number	Material	Туре	Temperature	Emissivity	Default EMS	
11001	Polished aluminum	Metal	100	0.09	0.09	ſ
11002	Commercial aluminum foil	Metal	100	0.09	0.09	
11003	Electrolytic chromeplate al	Metal		0.55	0.55	1
11004	Mild alumina	Metal	25~600	0.10~0.20	0.15	1
11005	Strong alumina	Metal	25~600	0.30~0.40	0.35	1
11006	Brass mirror (highly polished)	Metal	28	0.03	0.03	
11007	Brass oxide	Metal	200~600	0.59~0.61	0.6	
11008	Polished chrome	Metal	40~1090	0.08~0.36	0.22	
11009	Copper mirror	Metal	100	0.05	0.05	
11010	Strong copper oxide	Metal	25	0.078	0.078	
11011	Cuprous oxide	Metal	800~1100	0.54~0.66	0.60	
11012	Liquid copper	Metal	1080~1280	0.13~0.16	0.14	
11013	Gold mirror	Metal	230~630	0.02	0.02	
11014	Polished cast iron	Metal	200	0.21	0.21	
11015	Processed cast iron	Metal	20	0.44	0.44	
11016	Polished tempered iron	Metal	40~250	0.28	0.28	
11017	polished steel ingot	Metal	770~1040	0.52~0.56	0.54	
11018	Raw welded steel	Metal	945~1100	0.52~0.61	0.56	
11019	Completely rusty surface	Metal	20	0.69	0.69	
11020	Rolled iron plate	Metal	22	0.66	0.66	
•		111			•	

B. Set IR image display

Show analysis	Whether to display the palette as shown			
label	on the left side			
3D	Whether to display 3D image as follows			

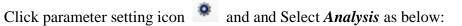
C. Set IR data

Title	Indicate title of the IR image
Date	Indicate date of the IR image
Operator	Indicate operator of the IR image

D. Zoom

Temperature limits of IR image	Display level & span of IR image automatically
Fix temperature limits	Set a fix value to level & span of IR image

Set analysis tools 5.7.2



	IR Picture Analysis	
1	Analysis Own Parameter Spot Circle Polygon Polygon Polyline Analysis Own Parameter Emissivity Distance O Line Distance O Line Distance	
3	Analysis Setting Color Display Max T Display Min T Analysis Label	
	Type Remark Manually Adjust Pal Set Palette OK Cancel	

Before setting, an analysis tools should be selected in advance.

A. Customized parameter (Independent parameter can be set when this option is selected.)

Emissivity	Set emissivity of the object
Distance	Set distance between the object and IR camera

Notice: emissivity value can be inputted manually, or selected from emissivity table. Please check 4.7 to find out emissivity table.

B. Analysis setting

Color	Set color of the analysis tool					
Display Max T	Display maximum temperature (only for circles, boxes and polygons)					
Display Min T	Display minimum temperature (only for circles, boxes and polygons)					

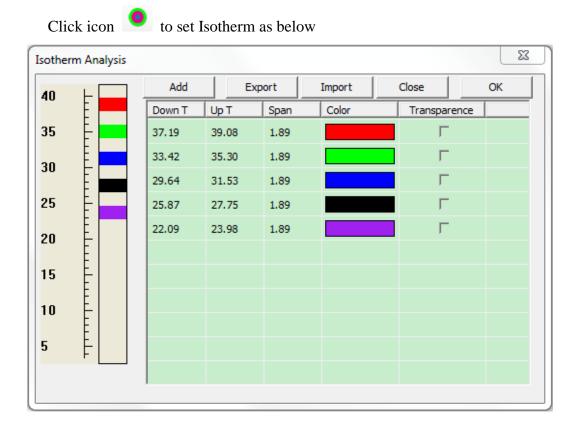
C. Analysis label

Туре	 Indicate analysis tool, displays corresponding temperature data For spots, Blank/Temperature is available. For lines, boxes, circles, polygons and polylines, Blank/Max T/Min T/Ave T is available.
Remark	Users can add any notes.

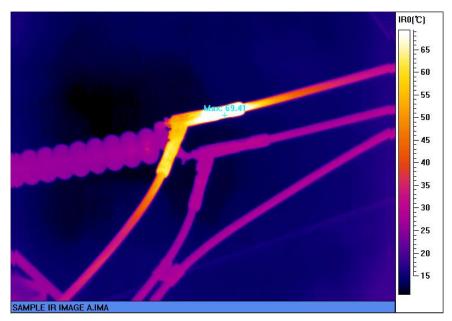
D. Set level & span and palette (only for boxes, circles and polygons)

Level & Span	Set level & span for the area manually
Set Palette	Set palette for the area

5.8 Isotherm analysis



- Click Add to add color analysis to IR image, ten colors are available for isotherm analysis.
- To delete any color, right click the color and select Delete. To delete all colors, right click and select Delete All.
- After select the color for isotherm analysis, click *OK* to save the setting and click Close to exit. In order not to save the setting, click *Close* directly to exit without saving.



Original Image

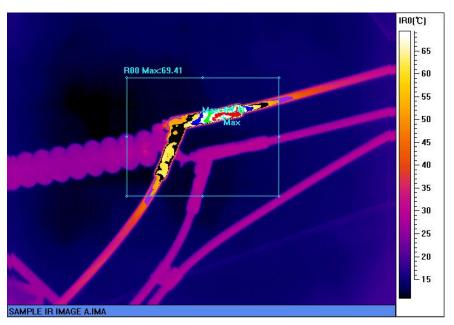
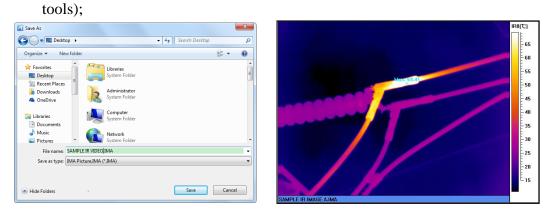


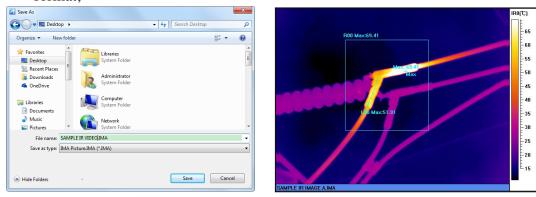
Image with Isotherm analysis

5.9 Save image, play sound and trending

5.9.1 Click icon it to save IR image as BMP or JPEG format (without analysis



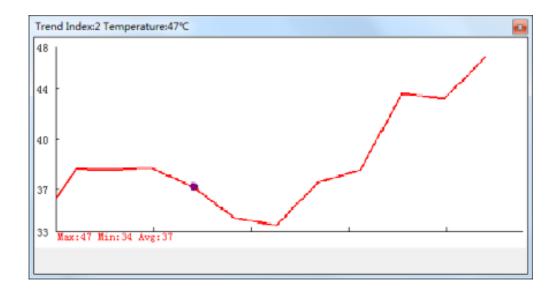
5.9.2 Click icon to save IR image with added analysis as BMP or JPEG format;



5.9.3 Click icon ito play sound; if image doesn't contain sound, tip will show up as below:



5.9.4 Click icon to generate max temp trending of all image within folder.

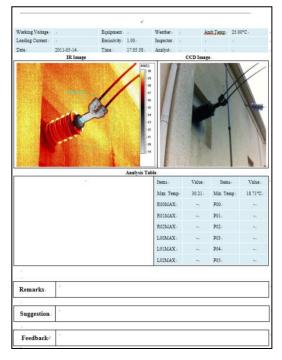


5.10 Generate report

5.10.1 Click icon \blacksquare to fulfill the details of report before report generation.

Re	ReportData								
	Main Information			Temperature data					
	Working Voltage		Snap Date	2015-08-18	Max. Temp	46.97	Min. Temp	32.46°C	
	Equipment Name		Snap Time	16:06:42	ROOMAX	46.97°C	P00	-	
	Weather		Analyst		R01MAX	-	P01	-	
	Amb Temp	25.00°C			R02MAX	-	P02	-	
	Load Current				LOOMAX	-	P03	-	
	Emissivity	1.00			L01MAX	-	P04	-	
	Inspector				L02MAX	-	P05	-	
	Other Information	1							
	Title								
	Remarks								
	Suggestion								
	Feedback								
			L P		و ا	1			
	G	enerate Report	Impo	rt Data	Export Dat	ta	Cancel		

5.10.2 Click "Generate report' after fulfilling details and generate report as below:



6. Declaration

Welcome to use SATIR IR Tools, we appreciate your support and trust!

1. SATIR is not responsible for breakdown of Microsoft Office Word caused by the misoperation.

2. SATIR reserves the right to make changes or updates with the respect to or in the content of software and manual at any time without notice.

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