ThermoRx PRO

User's Manual

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Thank you for purchasing this software product!

We think you will be delighted with this thermal analysis software package. This software has many more software analysis tools to perform any task. It retains the same intuitive menu structure of ThermoRx +.

This is 32 bit software and that operates in Windows 95, 98, 2000, and NT 4.0. We suggest however; that you take advantage of the speed and utility of this software and convert your computers to Windows 2000.

The software supports PCI frame grabbers such as Integral Technologies 128 Lite, and Integral Technologies MV Lite.

In addition it has the ability to load files directly from image data placed on flash cards. This data is loaded into the PC and made available for viewing and selection in a Image Gallery.

What is new in this software

Gallery

Gallery is designed to load K6800 thermal images from a flash card as thumbnails and then load them into the software with a Double Click of the Mouse. Turn to Chapter 5 and Chapter 21 for more information.

Play Associated Audio File
You can play audio files from the thumbnails created by Gallery, or access them from the Play Associated Audio File. Turn to Chapter 8 and Chapter 21 for more information.

Important Features of this Manual

1. Table of Contents with major headings listed with page numbers.
2. Chapter 22 - color illustrations on major important topics for better understanding.

This manual

About this manual

This manual is organized around menus.

The TITLE PAGE will indicates the VERSION of the MANUAL you have.

A complete TABLE OF CONTENTS is present at the very beginning of this manual.

The manual presents information by describing the functions of the software menus. Each chapter of the manual covers only one menu, or similar menus from different modules, with the same functions.

A manual chapter generally has these items:

1. An introduction.
2. A listing of chapter contents.
3. Related subjects.

4. Tool Bars.
5. Introduction to the Menu function
6. The functions of the menu.
7. Graphics, screen shots, etc., are used to explain topics.

The ThermoRx PRO software

Some important features of this software:

1. The Software is organized into modules that have related functions.
2. View images in real time - requires frame grabbers and connection to IR camera.
3. Temperature tools - POINT, SPOT, LINE, CIRCLE, ELIPSE, RECTANGLE, and SHAPE.
4. Palette selections with the ability to make your own palette with built in palette editor.
5. CAD functions with shapes, color fills. You can even arrange the objects vertically in layers.
6. CLICK AND DRAG editing that is consistent across the software.
7. Emissivity and temperature region correction from a user created table that is saved for later use.
8. Windows CLIPBOARD support.
9. Template/Report Editor features.
10. No limits on the numbers, position, and size of images, and graphs placed in a report.
11. Fields place data on the report generator.
12. Powerful graphing module with many different formats that displays REAL TIME and STATIC IMAGES.
13. Isotherms with SPAN and CENTER point adjustable to less than a degree if camera resolution permits.
14. Compatible with Windows NT 4.0.
15. Level Sense Tool Bar to set the displayed colors.
16. ZOOM on any part of an image.
17. Network support so that the user can access images over a network. The software does not operate on a network.

Learning the software

All functions are direct with at most 2 pull down menus. This manual explains every functions with detailed drawings and explanations. This is productivity software - and the time required to learn the basic software functions is usually very short.

Some of the productivity tools . .

1. Speed Menus, accessed by the Right Mouse Button provide fast access to commonly used work functions.
2. The software installs automatically, creating all the necessary directories, and installing samples. A Program Group is created with ICONS for software program, frame grabber selection, and copy protection.
3. Easy upgrades from a WEBSITE.
4. Printer drivers are supplied by Windows.
5. Fast report mode. See chapter 22 for full details.

Introduction

The purpose of this chapter to provide the software user with an OVERVIEW of the SOFTWARE.

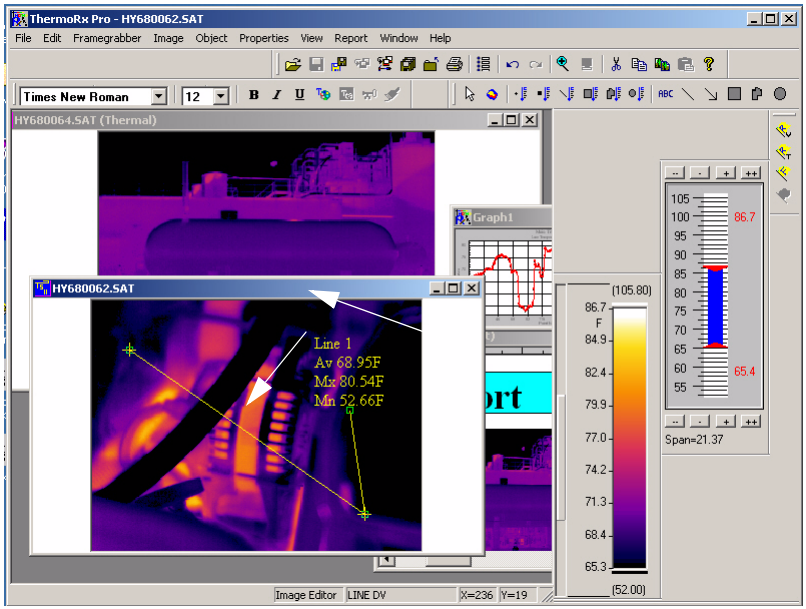
Basic information on using the software are covered in this chapter. We strongly suggest you spend time learning what is provided in this chapter.

Topics covered in this chapter

1. The Main Menu
2. Software Modules
3. Objects
4. Mouse operations
5. The tool bars, and menus
6. The software structure.
7. Preferences

The Main Menu -

It is important that the user understands that this software ALWAYS displays a MainMenu. The MainMenu by itself does no thermal image processing. Its ONLY FUNCTION IS to provide the display capability for all of the modules.



This software is able to display any number of modules, space permitting. The one on which the user is able to perform the software functions must be selected. The exception to this is the Startup Module which the software always displays automatically when it is starts up. The user should also be aware that a number of modules of the same kind can be displayed. For example as many Image Editor Modules can be displayed as desired.

Selection is done by CLICKING the left Mouse Button on the title bar of the Window or the screen itself.

If the software Main Menu has no functions except to display the modules of the software, what is the importance of the Main Menu. What sets this software apart from other thermal imaging software is that everything is displayed in a window which is cable of being resized, minimized, maximized, or dragged to any position on the screen desired.

In the example above, there is a Graph Module, a Template, a Report, and 2 thermal images. Selection is done by placing any mouse cursor inside the window, and LEFT CLICKING the MOUSE. For example the automotive alternator in the selected image example, or on the title bar. Refer to the white arrows. Selection results in that window being placed in the foreground, made visible, and its set of toolbars and menus displayed.

More information on Modules

Refer to the following chapters for more detailed information on the software modules.
Frame Grabber - Chapter 6. Graphs - Chapters 18 and 19. Information for Image Editor, Report and Template Editor are found chapters 5 and 7 through 17. In many cases a menu with the same name, and a fuller or shorter set of function, is used in more than one module. Refer to chapter 20 of this Manual for special applications of the Image Editor, Template Generator, and Report Generator.

The Software Modules

Introduction

The software has the following modules:

1. Start Up Module
2. Frame Grabber
3. Image Editor
4. Report generator
5. Template Generator
6. Graphing.

StartUp Module Window

The Startup Module Window is shown below and IS ALWAYS first window the user sees when starting the software.

The Straiten is setup without toolbars. The user begins using the software by entering the File Menu, the Frame Grabber Menu, or the Report Menu. The user can also CLICK on Help to access the Help topics for the Online Manual.

The Start Up Menu is the only way to exit the software, which is done by Clicking on File and then Clicking on Exit.

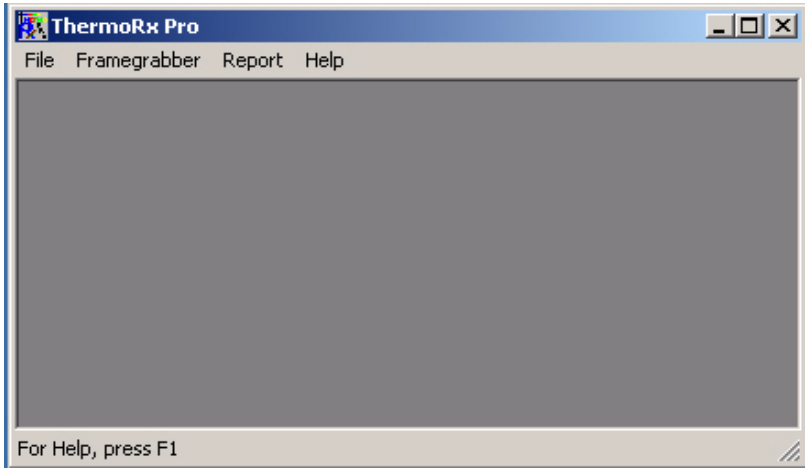


Image Editor Module

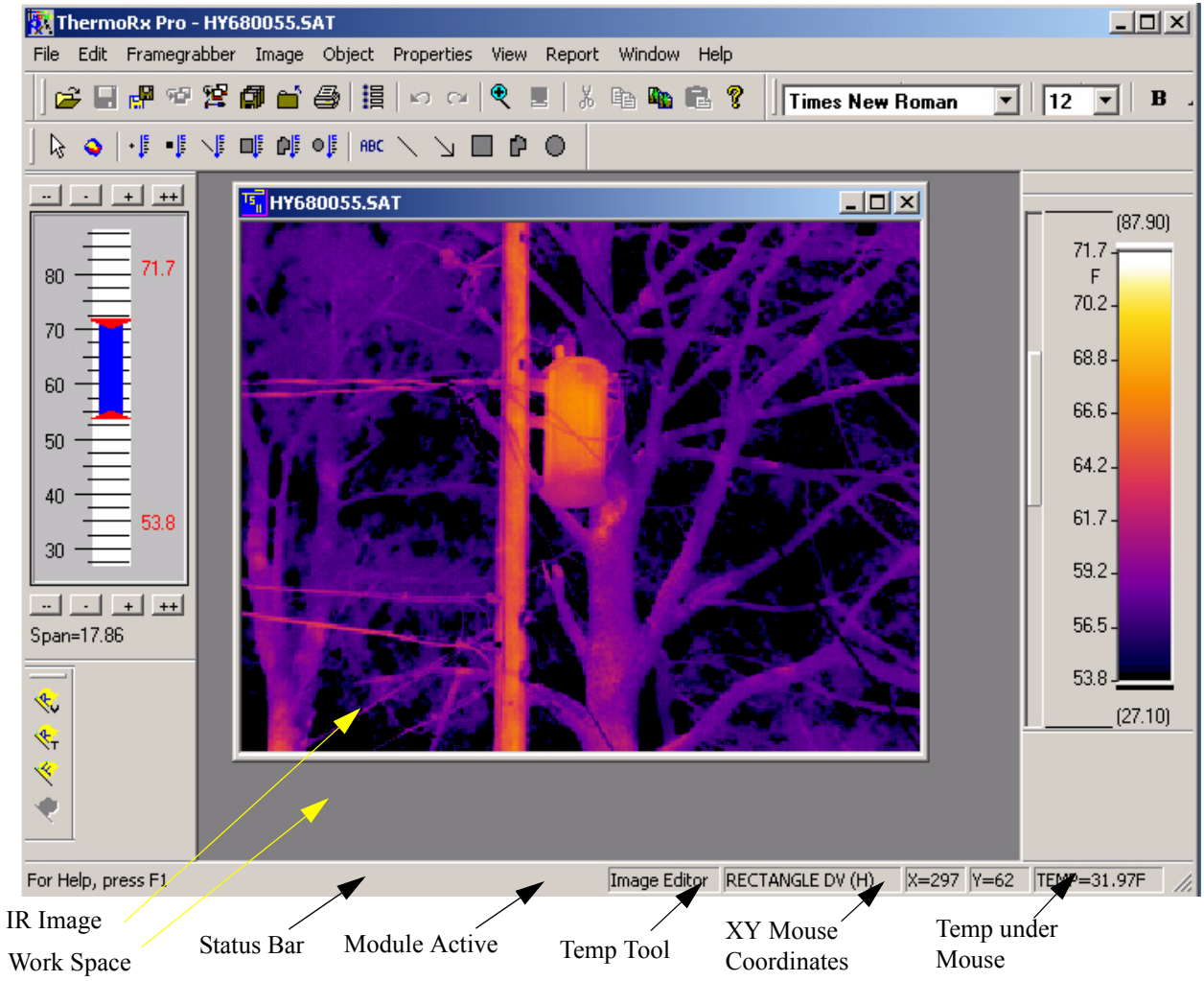


Image Editor Module

The menu items at the top File, edit, etc., and the status bar are associated with the active module. In this case an IR image is active making the Image Editor Module Active. This makes active and visible a Status Bar and Tool Bars and a set of Menus related to the Image Editor. If another window such as a Template Editor is placed in the work space and selected, the menus and tool bars associated with the Template Editor, and the status bar would change accordingly.

Toolbars

The Image Editor comes set up with a set of toolbars. The user can drag and drop the toolbars in any convenient location - sides, bottom, top, etc. The locations shown above would be one way of locating them. The example above show the color bar tool, and the Level Set tool docked on the left side of the screen. The Color Bar is Docked on the right side. To setup your own set of tool bars, open the File Menu and click on toolbars desired.

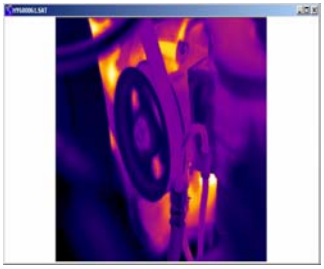
Making the Image Editor Module Active

To make the Image Editor Module active, load a file from the File menu found in the Start-tup Module, or CLICKING on the E flag while in the Frame Grabber Module, or go to Image Gallery and DOUBLE CLICK on an image.

Depending how Preferences is set the user will need to leave the Frame Grabber Module after clicking the E-Flag and then CLICK on the Image. If in Preference Thermal options - Close Frame Grabber on Process is checked, and On Process switch to Image is selected. This process becomes automatic. Go to the chapter on Fast Report Mode in this manual for more information.

Once again, notice the title bar on the image to left has a blue color, which means it is selected. The one to the right is not selected. Selection makes the Image Editor active, with the exception in Fast Report Mode.

Each module has its own set of menus, toolbars, and Quick Menus. Each module becomes visible or is displayed in the work space of the Main Screen. There is no limit except space as to how many modules can exist in the Main Screen. Only one module can become active at a time. To make a module active click on the Title Bar or anywhere inside the module window. The image to the left is active - NOTE the dark blue title bar. The Image on the right is inactive, note the lighter blue title bar.



When a module window is ACTIVE, the menus and toolbars associated with that window become active, and the user can do the work required on that window.

Everything works the same as the user moves from module to module.

What is very important to the user is that each module can be customized with its own set of toolbars. It also operates in its own Window along with any of the other modules the user may choose to run at the same time. If you want to, more than one instances of the same module can be placed in operation. The user could then have as many instances of the Graph Module, or any other module as he wants, given the limitation of computer screen size. The Start Up Module does not allow this of course.

The size of each module can then be adjusted by CLICK and DRAG of the Mouse. A user than could view the results of a Line Temperature in a Graph, while simultaneously viewing a Report from the Report Editor, or any other module. Adjust the size by making the window active, and place the mouse along the borders of the window. Then CLICK and DRAG to assume a new shape or size.

Frame Grabber

This module works with a installed frame grabber to receive live images at the frame grabber rate.

Graphing Module

This module will display data in a variety of graph formats from a Line Temperature Tool application ONLY.

Report Editor

The report editor is the module from which a report can be made from data taken from an image in the Image Editor.

Objects

Introduction

An object is anything placed ON an IR IMAGE. In doing so it becomes an overlay. It is also possible to OVERLAY OBJECTS on a VISIBLE IMAGE. These objects do not alter the IMAGE in ANY MANNER, which is why they can

be removed at any time from the image.

Examples of Objects are:

1. **TEMPERATURE OBJECTS** Point, Line, Rectangle, Circle, Shape, and Spot
2. **CAD OBJECTS** such as rectangles, text, lines, arrows.
3. **FIELDS** such as Point, Spot, Rectangle, Line, Circle, and Shape and the utility fields.
4. **IMAGES, both infrared and visible** - when placed on a report or template.
5. **ISOTHERMS**.
6. **RICH TEXT**.

The properties of objects

Every object that exists in this software is selected and edited in THE SAME MANNER. To the user this means less confusion, more efficiency and/or productivity in the use of the software. Time that you spend in learning editing is well spent, and it applies to every object.

There are exceptions to this. ISOTHERMS which has a control view portion located on the COLOR BAR and the ISOTHERM DISPLAY located on the IMAGE.

The attributes of an object, such as color, font size, border thickness, are PROPERTIES.
Not all objects have the same properties. The best way of determining this is by SELECTING and then RIGHT CLICKING on a mouse button to see what SPEED MENU functions are available. These would be border thickness, color, font size, font color, solid color, etc.

Images

IR Images

IR Images are images produced by an Infrared Camera. They are images of heat (Infrared) emitted by physical object. These can be any bit resolutions though they are commonly 8 bits (256 shades of gray) and 12 bits.

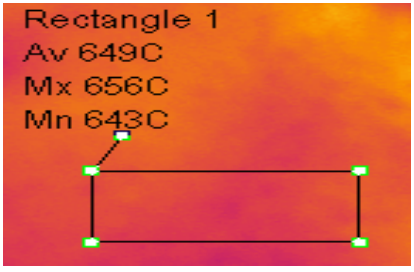
Visible Images

Visible images are produced by a camera that takes pictures that are VISIBLE to the EYE. These can be 8 bits through 24 bits.

Copying Images

To copy an image to a CLIPBOARD select the WINDOW containing the Image. ALSO - if the window is being used make sure that ALL objects have been deselected.

Selecting an Object



Before ANY EDITING can be done, an object MUST BE SELECED. The mouse cursor must become an arrow before it can be used to SELECT. **To do this press the ESC key or CLICK on the ARROW TOOL. The STATUS BAR will then say EDIT.**

How to. . .

Place the tip of the mouse ARROW cursor ANYWHERE on the object and CLICK the LEFT MOUSE BUTTON. As shown in the illustration on the LEFT if an object is selected the rectangles or handles will appear. In this case they are WHITE. For more information on handles see the next section.

Some differences in objects -

Objects differ - so that a filled object can be selected by CLICKING anywhere on that object..
A temperature object can be selected ONLY by CLICKING on the object NOT the text of the label.

Multiple temperature object selection

A special case exists for this type of selection, which is used to select more than one temperature object for graphing. HOLD DOWN THE CTRL KEY and CLICK the LEFT MOUSE BUTTON on a temperature object.This applies to LINE in the Image Editor **ONLY**.

Editing an object

In every one of the editing tasks described below the user has to change the mouse cursor to an ARROW.

RESIZE OBJECTS

To resize an object place the mouse cursor on any of the handles (white rectangles) CLICK the LEFT MOUSE BUTTON and while holding down the mouse button move the mouse to resize and reposition. If an object is SOLID it becomes transparent with a dotted outline so that the user can see underneath the object for easier repositioning. To lock the edit results release the mouse button. If the object is not solid the border becomes a dotted outline. Note: in the TEMPLATE EDITOR the DOTTED OUTLINE is SOLID.

POSITIONING OBJECTS

To place an object in a different position on the image CLICK the LEFT MOUSE button on the border of an object, and when the handles appear showing selection, drag the object anywhere on the image desired. Remember the rules for solid and not filled objects - if an object is filled the user can CLICK anywhere - if an object is not filled CLICK ONLY on the border. To lock the edit results release the mouse button.

DUPLICATION

Any Selected objects can be duplicated by pressing Ctrl D in the REPORT EDITOR.

CUT and PASTE

Any selected objected can similarly be cut and pasted by using Ctrl Insert to COPY, and Ctrl Shift to paste. Or the functions available in the EDIT MENU can be used.

Mouse Operations

The mouse is required to use the software. It performs all the CAD functions of the software such as positioning, resizing of objects, the placing of objects, drawing shapes etc. A two button mouse is required for the software.
LEFT BUTTON CLICK
Used for selecting objects, and menu items.

RIGHT BUTTON CLICK

Used to display a SPEED MENU. A speed menu will display where the MOUSE CURSOR is LOCATED by a RIGHT CLICK of the Mouse Button. There are many different speed menus - the one displayed depends on the object selected or the software MODE.
DRAG
Used to move or resize and object. Select the object first. Then CLICK the LEFT MOUSE BUTTON on Handles, or anywhere on the object and hold down. Then move the mouse to position or resize.

CTRL + LEFT MOUSE BUTTON

Use to select items on a file list. While holding down the CTRL key CLICK the LEFT MOUSE BUTTON on the file items. This is useful if multiple image files for loading in the software are wanted.

SHIFT + LEFT MOUSE BUTTON

Use to select items on a file list. While holding down the CTRL key CLICK the LEFT MOUSE BUTTON on the file items. This is useful if multiple image files for loading in the software are wanted.

DOUBLE LEFT MOUSE BUTTON CLICK

Use to select text edit mode in a TEXT OBJECT used in the Report Editor ONLY. Place the MOUSE CURSOR on the Text Object and DOUBLE CLICK the LEFT BUTTON. A text entry cursor indicated by a RAIL CURSOR is placed at the beginning of the first text line.

Mouse Cursors

The function indicated by the cursor is AVAILABLE when the MOUSE CHANGES into that cursor.

Zoom

Click on View in the Image Editor. The mouse cursor then changes into a magnifying glass with a + inside it. Use this by placing the cursor on the image and dragging a rectangle around the area to ZOOM.

Paint Brush

Used in the Report Editor. CLICK on Format and CLICK on Paint Brush. Use by CLICKING the Paint Brush on an TEXT or FIELD object that is to be copied and then CLICKING on the object that is to be changed, or where the text is to be placed.

Edit Mouse Cursor

Press the computer Esc key, or CLICK on the ARROW in the TEMPERATURE TOOL BAR to display this cursor..
The user will only be able to select an object with this mouse cursor.

Temperature Object

CLICK on a temperature object such as Point, Shape, Spot, etc., and then use the cursor to drag the mouse where the temperature is to be read or where the temperature object is to be placed.

Rail Cursor

Appears when TEXT is selected and operating. Allows entry of text and editing of text.

Tool Bars

A frame grabber tool bar is shown above. You can drag this around the image or DOCK it on the sides of the software window.

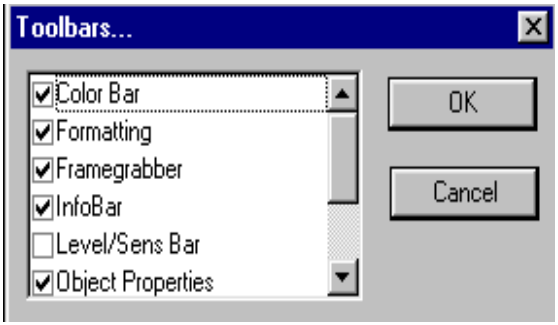
Introduction

A tool bar is a set of one or more tools. They provided a convenient way of accessing software functions by LEFT CLICKING the MOUSE on a TOOL. Note that the middle one is depressed, meaning that it is selected.

TOOL TIPS - if the user RESTS a MOUSE CURSOR on the tool an explanation of the tool is provided in a POP UP RECTANGLE.

The tool bar can be DOCKED or POSITIONED and RESHAPED as the user desires.

SELECTING TOOL BARS



The software has been set up with so that specific tool bars are display. For example - the opening menu has no tool bars.

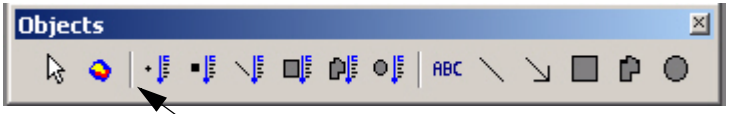
This can be changed by opening the File Menu and CLICKING on Toolbars. The selection menu shown to the right appears. Select the desired tool bars.

A second way of selecting tool bars is by right clicking on the docking areas of the tool bar, or the tool bar, and then make selection from the menu that displays.

NOTE: this is module specific. For each module a set of tool bars must be selected. For example - if you start the software and then look at the tool bar selection, you will note that there are no tool bars selected. If you enter the frame grabber module - only the Frame Grabber Tool Bar is selected. This will be true ONLY if no changes have been made since the software install.

DOCKED TOOL BARS

A DOCKED tool bar is located against one of the sides of the SOFTWARE WINDOW. To move the TOOL BAR CLICK the MOUSE on the vertical bar on the LEFT SIDE of the TOOL and DRAG the TOOL BAR to a new position, or to one of the docked positions. See below.



Vertical Bar - CLICK on This and drag

Docked Tool Bars

Tool bars can be docked or placed on the TOP, LEFT SIDE, or RIGHT SIDE, OR BOTTOM of the Main Screen or Window. On the Image Module Window show in the section of this chapter on the Image Module, a color bar is docked to the LEFT SIDE, a Level Set Bar is docked to the RIGHT, and other tool bars are docked on the top.

UNDOCKED TOOL BARS

Reshape an UNDOCKED TOOL by placing the mouse cursor on a corner so that the mouse cursor becomes an UP/DOWN arrow. While holding down the LEFT MOUSE button drag the TOOL BAR to a new shape. The tools on the tool bar cannot be changed. Sometimes it is convenient to place the Tool Bar on the image itself.

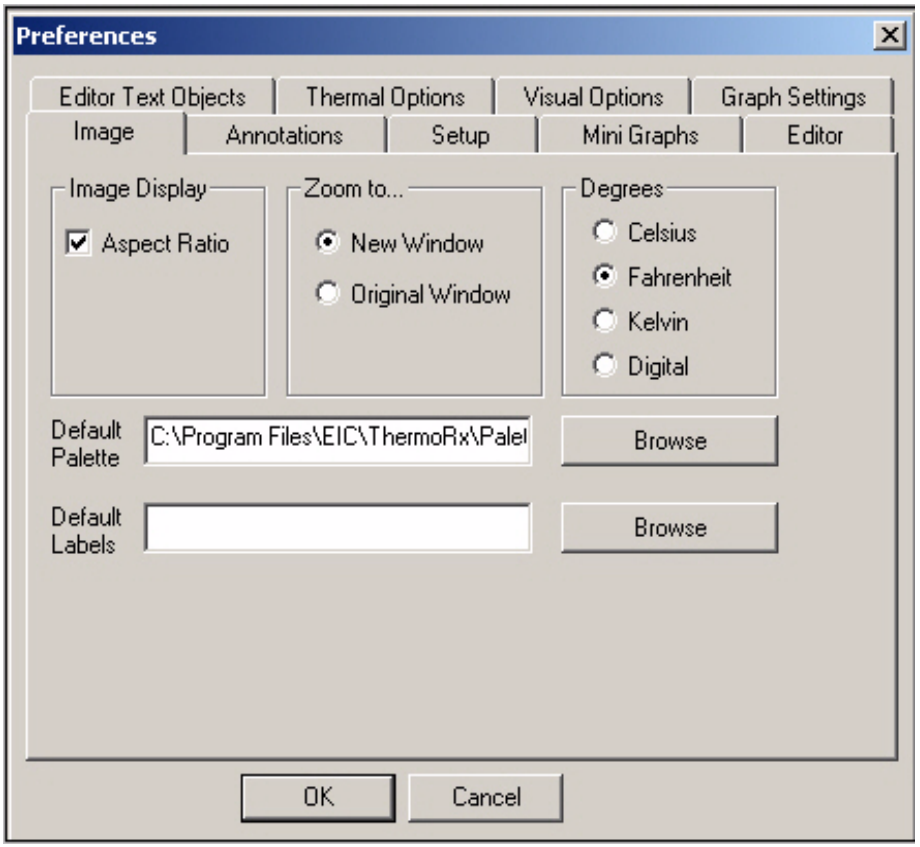
TOOL TIPS

Place the Arrow Mouse cursor on any of the tools on the tool bar. Text will then display with a brief explanation and identification of the tool.

Preferences

Preferences allows the user to change how the software operates to suit individual taste.
There are also a few MODE preferences that make the software operate in fundamentally different ways.

Note - preferences with a few noted exceptions set DEFAULTS. Tools on the Tool Bars and Speed Menu items apply only to the SELECTED OBJECT and NEVER SET DEFAULTS. These will revert back to what is placed in preferences the next time the software is loaded or a new object is selected for editing.



How to access preferences . . .

CLICK on FILE and then CLICK on preferences. The selection screen shown to the right will display. CLICK on the particular TAB as listed in the sections below to make adjustments to the software.

PREFERENCE - Image Tab

Image tab applies to the Frame Grabber and Image Editor Modules.
Refer to the screen shot of the Image tab show to the right and above.

Image Tab options

Zoom to

Image Display ASPECT RATIO

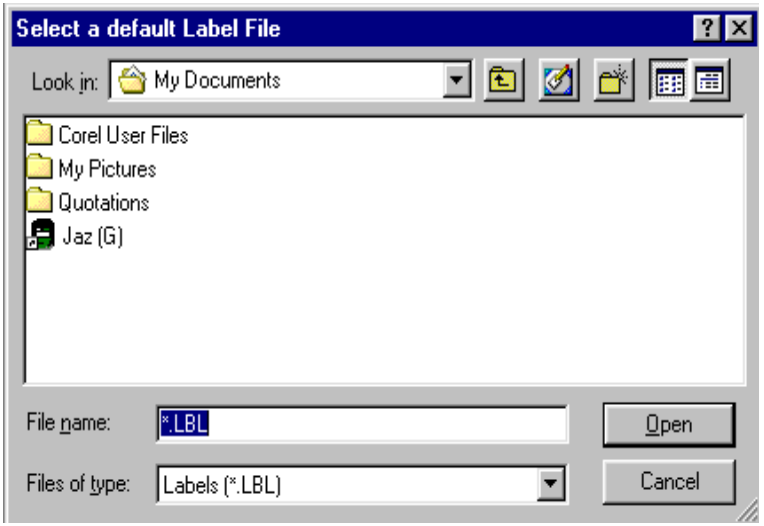
Aspect ratio maintains the correct height to width ratio of image when the user drags and image to a new size in any of the software windows.

New Window - ZOOM creates a new WINDOW
in which to place the zoomed portion of the image.

Original Window - ZOOM uses the original Window to
display the zoom portion of the image, with a new heading. Degrees Set the temperature scale to use with all temperature related objects.

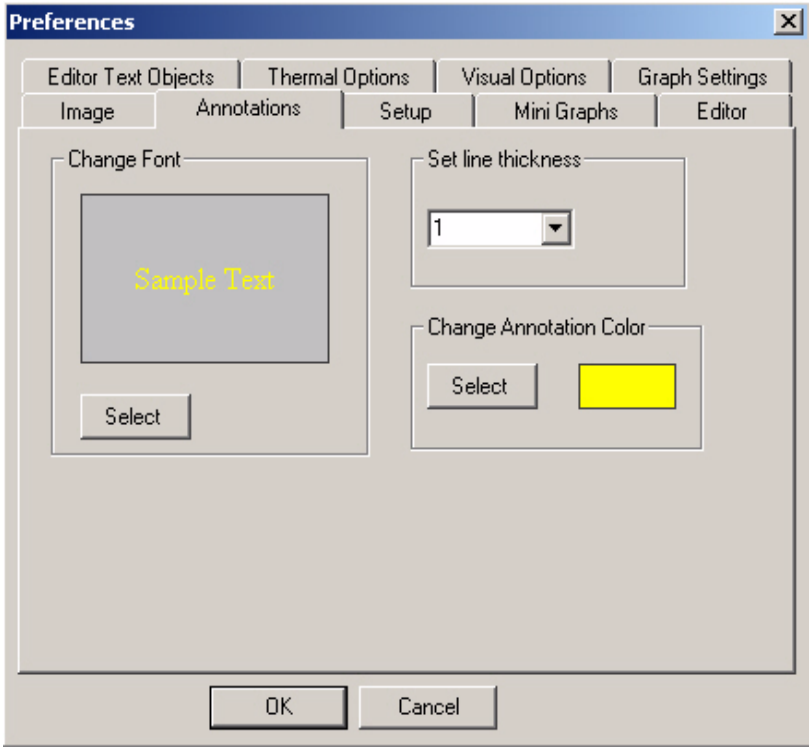
Default Palette

Set a palette that the software will use when displaying an image. Fast Report could have its own palette, and this is for loading something like a single image from a file.



Default Labels

Set a default Label File to use with all TEMPERATURE OBJECTS. For more information on labels refer to the information in this manual on labels. This selection screen is shown to the right. ZOOM, or Windows RESIZE.



PREFERENCE - Annotations Tab

This tab applies to the Frame Grabber, and Image Editor.
Changes to this TAB do not apply to objects in existence. It does apply ONLY to new objects.

Change Font

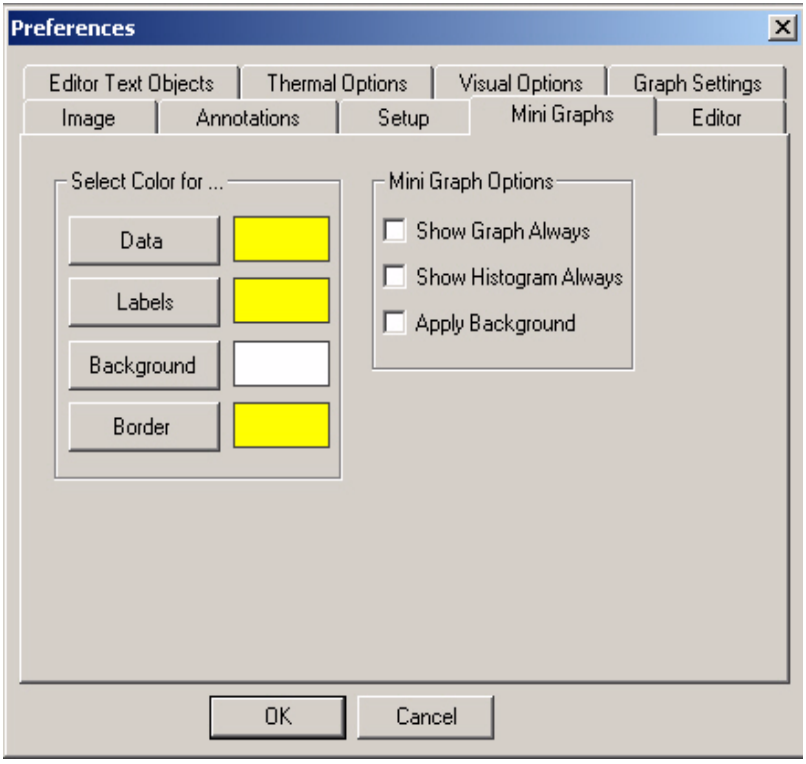
Applies the selected font to ANY NEW text.

Set Line thickness

Set a line thickness for any NEW line, border, temperature annotation, etc.

Change Annotation Color

A color selected with this control applies to any NEW annotations (objects).



PREFERENCE Mini Graph Tab

This tab applies to Frame Grabber and Image Editor.
Changes to this TAB apply to new objects ONLY.

Select Color

The effect of the different options on a MINI GRAPH are shown to the right.

Background - apply selected background color to a temperature MINI-GRAPH. Apply Background needs to be checked for this to apply.

Labels - apply selected color to the text of a temperature object with a MINI-GRAPH.

Border - apply selected color to the border of a temperature object with a MINI-GRAPH.

Data - apply selected color to the graph representation of the mini-graph temperature object.

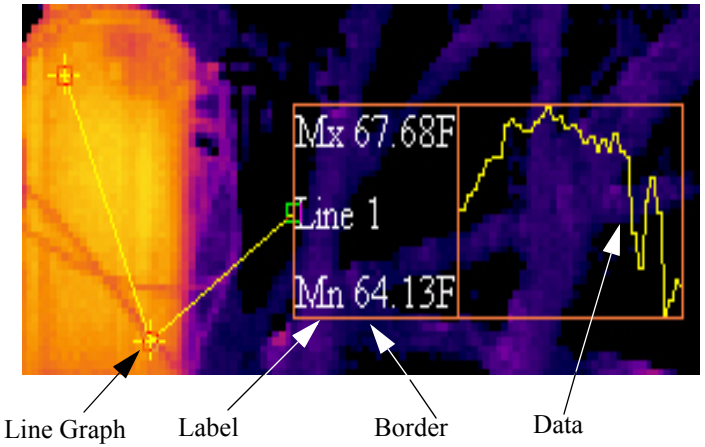
Mini Graph Options

Show Graph Always - display by DEFAULT graphical representation of the temperature.

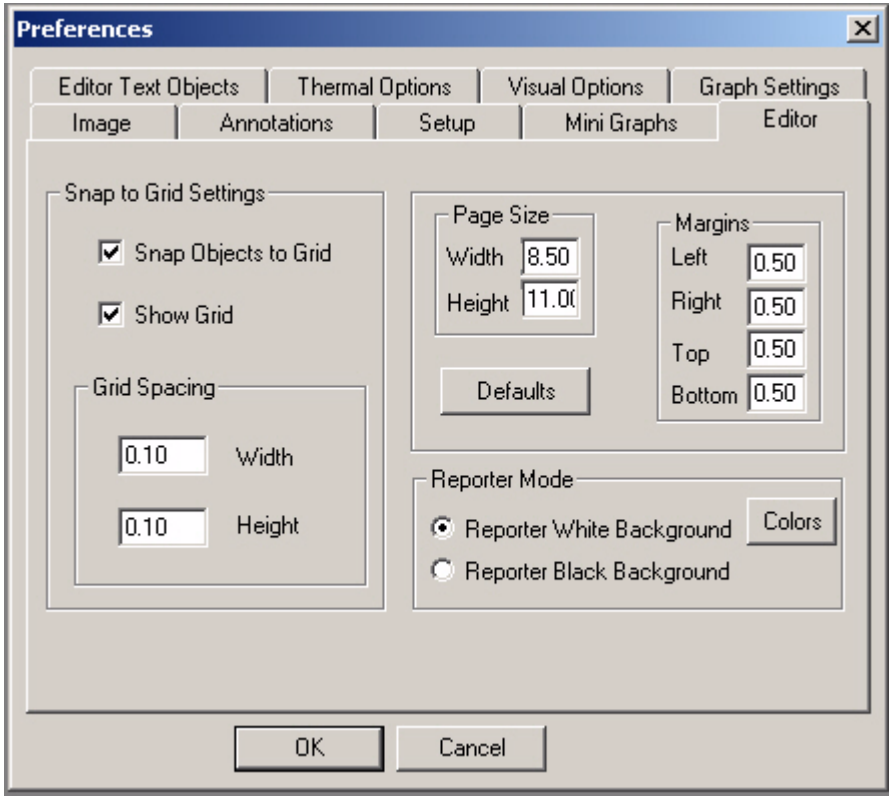
Show Histogram Always - display by DEFAULT a histogram representation.

Apply Background - by DEFAULT always display a background to a MINI-GRAPH.

To illustrates what these items all do refer to the illustration to the right. It shows what these preference settings do when applied to a Line Temperature Tool applications set to use a MINI GRAPH.



NOTE - normally one would not use a resolution.xx as in the example to the left, and this was done as an illustration.



PREFERENCE Editor Tab

This tab applies ONLY to the Report Editor. Changes made using the tools in the Report Editor only change the text being applied.

Page Size -

Change the page size of REPORT.

Margins -

Change the margins of a report.

Defaults -

CLICK on Defaults to RESTORE changes to page size and margins to a default or the values shown in the illustration to the right.

Snap to Grid

Snap Objects to Grid.

Enable a snap (auto place-

ment) of objects, when dragged to GRID.

Show Grid. Display a series of dots on a template. These dots make up a grid for alignment of objects.

Grid Spacing

Set the width and height spacing of the grid. The default setting of.1 inches is a good setting.

Select Color

Reporter Mode

While making a report the software can use a special fill in mode. Text that is changed or filled in can be set to a color to aide placement of text while making reports. IT DOES NOT PRINT THESE FILL IN COLORS.

Set Standard Mode.

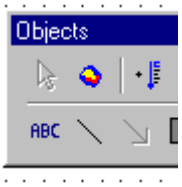
CLICK to not use FILL IN MODE. This mode also enables the report editor to bypass template making as a first step and allow the user to make a report from a BLANK SHEET completely. This trades that flexibility for a more difficult and time consuming report making process.

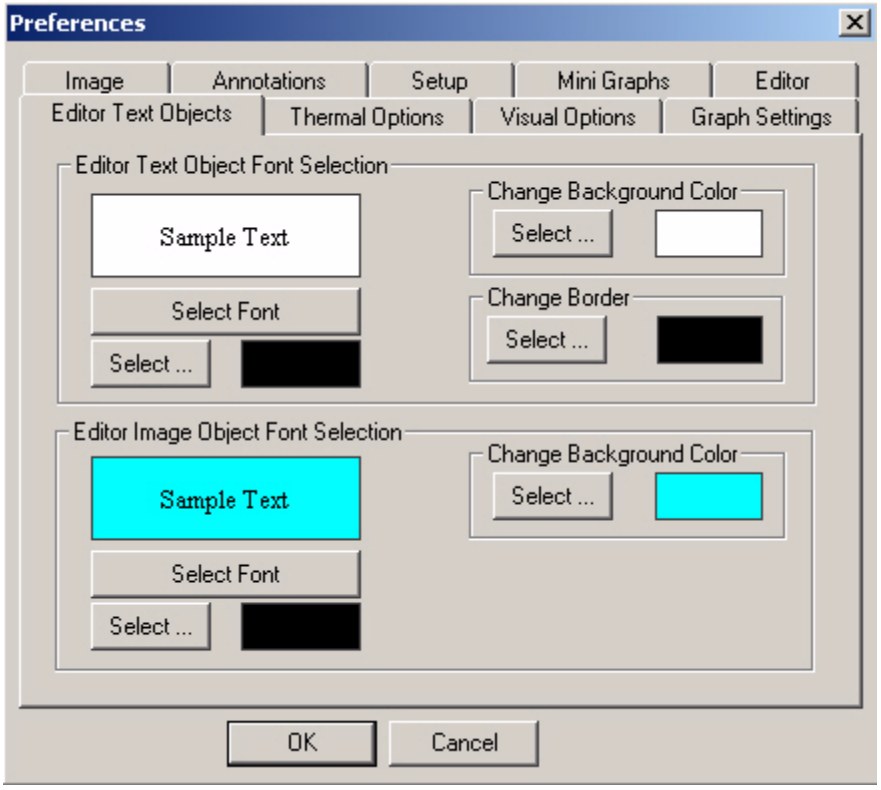
Reporter White Background.

Set the software to use a fill in MODE. Default is white background with CYAN fill in box. Use the COLOR CONTROL shown to the right to set background color. Background color is the color of the text box on which the user places the text. Foreground is the color of the text.

Report Black Background.

Set the software to use a fill in MODE. Default is BLACK background with RED BACKGROUND on FILL IN BOX. Use the COLOR CONTROL shown to the right to set background color. Background color is the color of the text box on which the user places the text. Foreground is the color of the text.





PREFERENCE Editor Text Object

Editor Text Object Font Selection

This applies ONLY to a TEXT OBJECT in the Template Editor. To access this control go to Template by CLICKING on Report and then CLICKING on CREATE A TEMPLATE. Then CLICK on Text Object. Alternatively CLICK on the ABC tool. If an object is up or being used, changes to this dialog will not be applied until a new TEXT OBJECT is placed in a template.

Change Font

CLICK on Font to access the Font Select Dialog and Select a Font, and font attributes.

Change Background Color

Select a background color for a text object.

NOTE: this is a different attribute than those selected under the Editor Tab in the Reporter Modes. These are AIDES, and do not print. The background color selected in this TAB DOES PRINT.
MUCH COMFUSION can result if the Reporter Mode has the same colors as Background Color and the Font Color. Exercise particular care when working with these PREFERENCE OPTIONS.

Change Border Color

Select a border color to be applied to a TEXT OBJECT. If the user makes background and border the same color they do not appear.

Editor Text Object Font Selection

The Font size scales to the size of the image. Drag the image to a larger size and the font increases in size.

This applies ONLY to a TEMPERATURE NUMBERS on the COLOR BAR in the Template Editor.

If an object is up or being used, changes to this dialog will not be applied until a new TEXT OBJECT is placed in a template. THIS MEANS THAT CAREFUL WORK NEEDS TO BE DONE TO GET THIS TO YOUR SATISFACTION. But once it is set - it should not be necessary to change things again.

Change Font

CLICK on Font to access the Font Select Dialog and Select a Font, and font attributes.

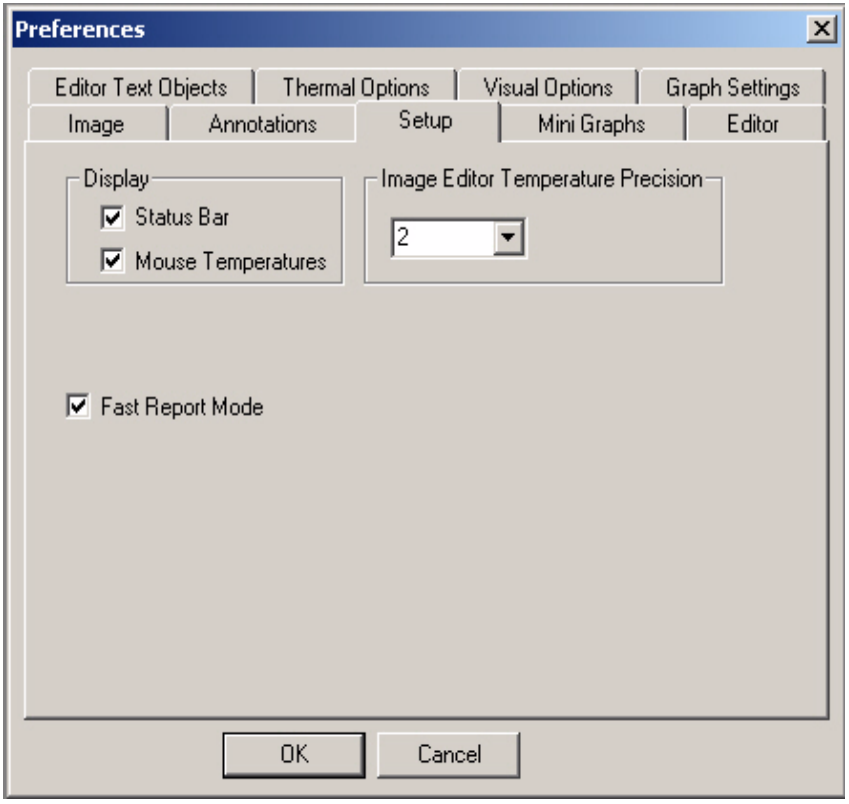
Change Background Color

Select a background color for the TEMPERATURE NUMBERS. A black with yellow text is ideal.

HINTS

There is no means of turning off the temperature information at this time. A work around is to color both the background and Temperature Numbers a non-printing and non-showing color such as white.

Larger fonts means a more visible font in the report.



Preferences Setup

Display

Status Bar - Check to place a Status Bar on the Main Screen. See the section on Image Editor Module.

Mouse Temperature - Place on the status bar a temperature of the IR image that lies under the mouse cursor.

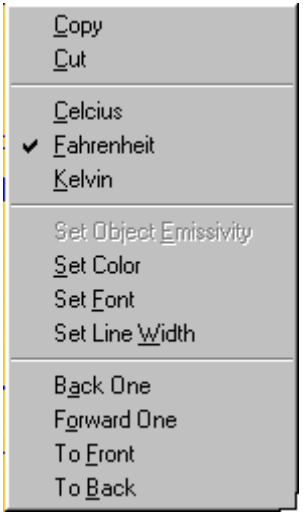
Image Editor Precision - enter a number for the number digits to the right of the decimal point. A 2 would give you a temperature reading to 100th of a degree, or as an example 90.01.

Fast Report Mode - a check mark indicates the software will operate in fast report mode.

Speed Menus

Introduction

Speed menus are POP UP MENUS with defined set of functions. These functions relate to the object selected. Example - if a temperature object is selected the following speed menu pops up.



Most selected object will have associated with it a speed menu.

Since there are a great number of these this manual would become very lengthy if each one is described. There is, therefore, no listing of all these numerous speed menus.

To display these - select the object - handles or blocks show. Then CLICK the right button of the mouse. Make you selection. The menu stays display until a selection is made, or the escape key is pressed.

NOTE: each of the functions on the speed menu is described in a chapter so that the software user needs only to turn to that chapter describing that function.

Many, but NOT all of the functions on the speed menus are duplicated with a TOOL in a tool bar, or certainly with a MENU.

How to use...

CLICK on the object to select. Then CLICK the RIGHT MOUSE BUTTON to have the associated Speed Menu pop up.

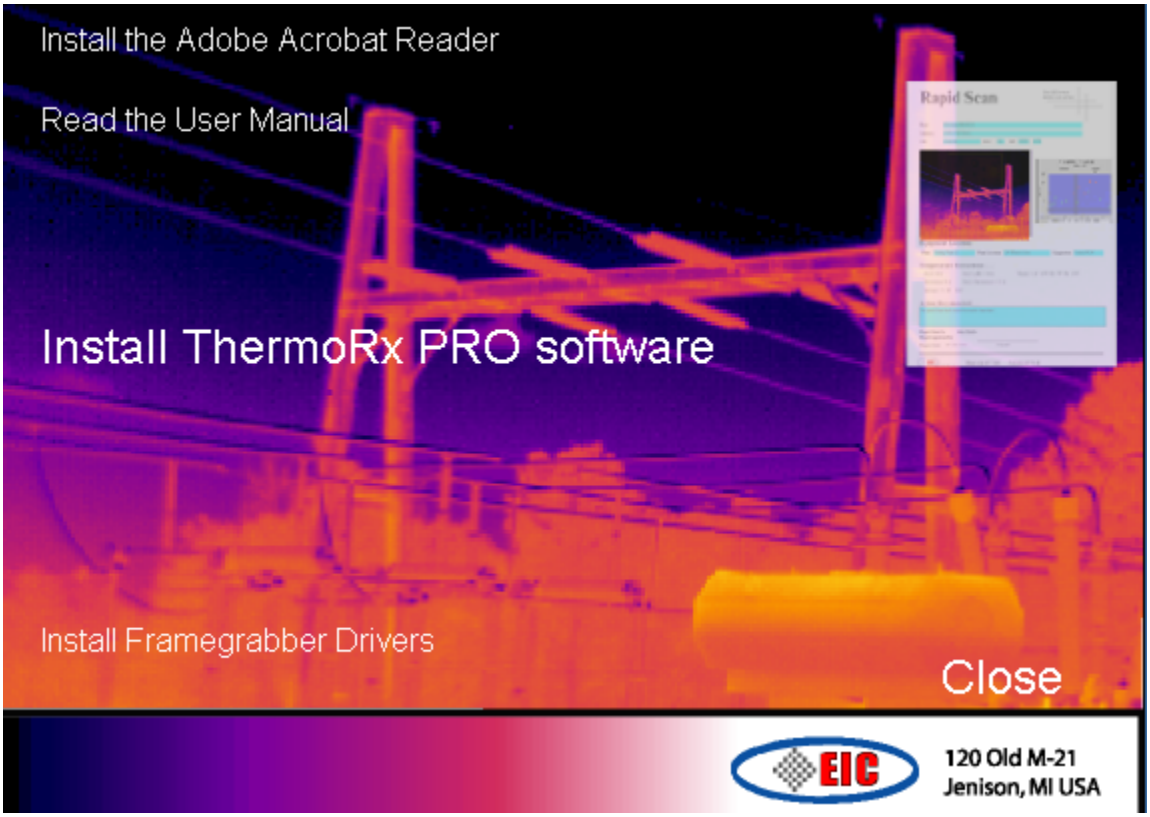
the software

Introduction:

If you are installing a frame grabber, write down the Model, for example MV Flashbulbs light, and the serial number. Then I install this in a any PCI after slot 1, usually the one to the extreme right as you look down on the Main Board.

Always install the Adobe Acrobat Reader an item on the CD install CD.

Open the Install screen on the CD.



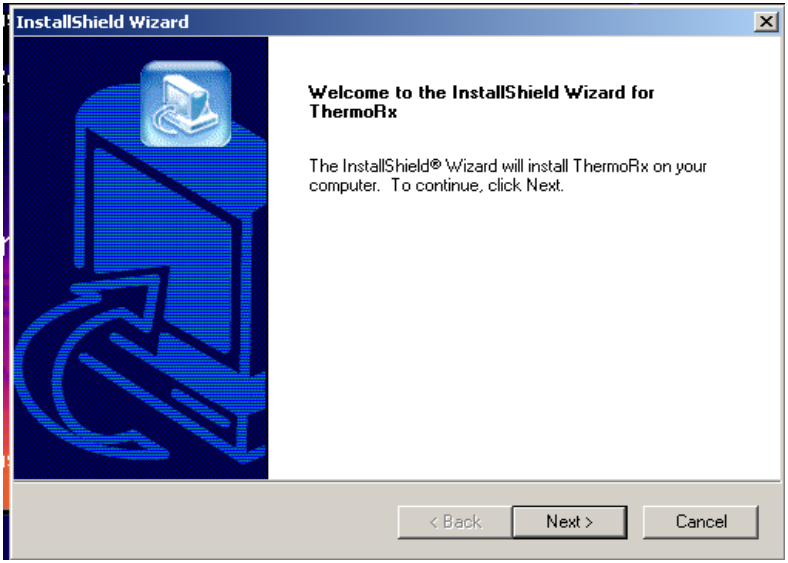
Place the CD in the drive on the computer. This install will automatically open the above screen after a few seconds. A sure indicator of this activity is the CD light turning on, and the Mouse Cursor turns into an Hour Glass.

First Install Adobe Acrobat Reader. This will enable you to read the User Manual. One the reader is installed simply click on Read User Manual.

To Install ThermoRX - CLICK the left mouse button on Install ThermoRX Pro software.

Step 2

The screen shown to the right is displayed.
This is a welcome install screen. Click NEXT with the mouse to go to step 2

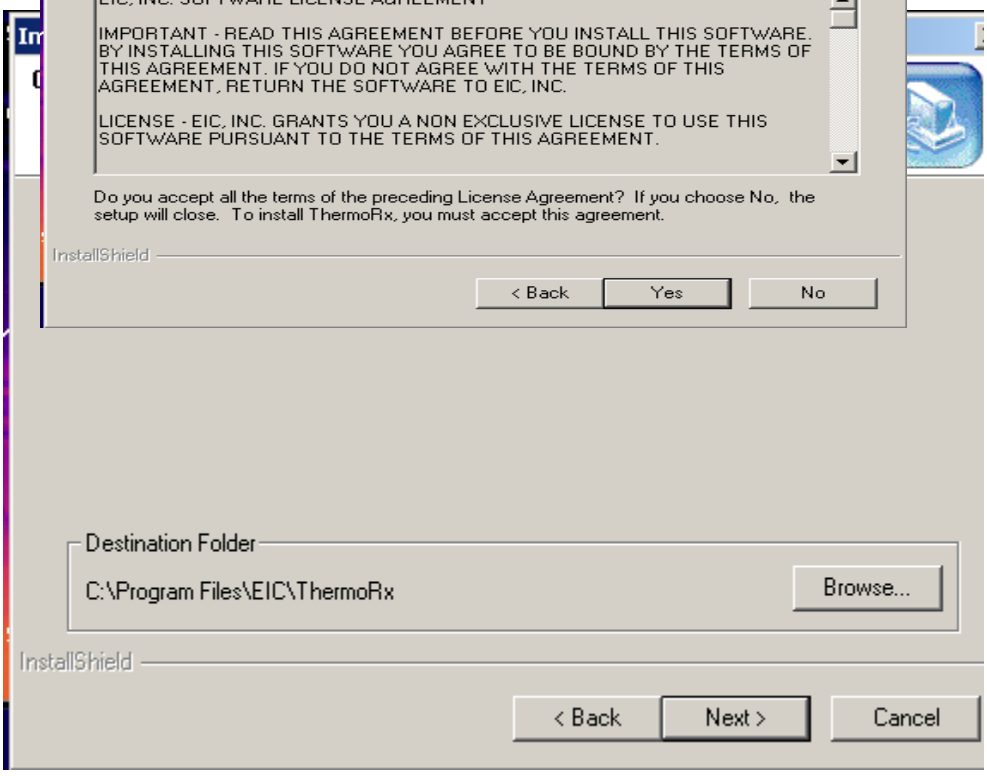


Step 2

Go through the software license agreement.
Using the scroll bars read through the License agreement. This agreement is contractual and list requirements for both the supplier of the software, and the software user. PLEASE DO READ THIS AGREEMENT. You can agree to the license agreement, by clicking on YES. Or you can reject the license, in which case CLICK NO to exit the install, and you will then be required to return the software.

Step 3

Step 3 is only reached by agreement with the Software License.
Normally it is best to accept the software choice of directories. ThermoRx then is placed in Program Filespec folders by default.
Then CLICK NEXT.



Step 4

Select Camera to use.

No Camera

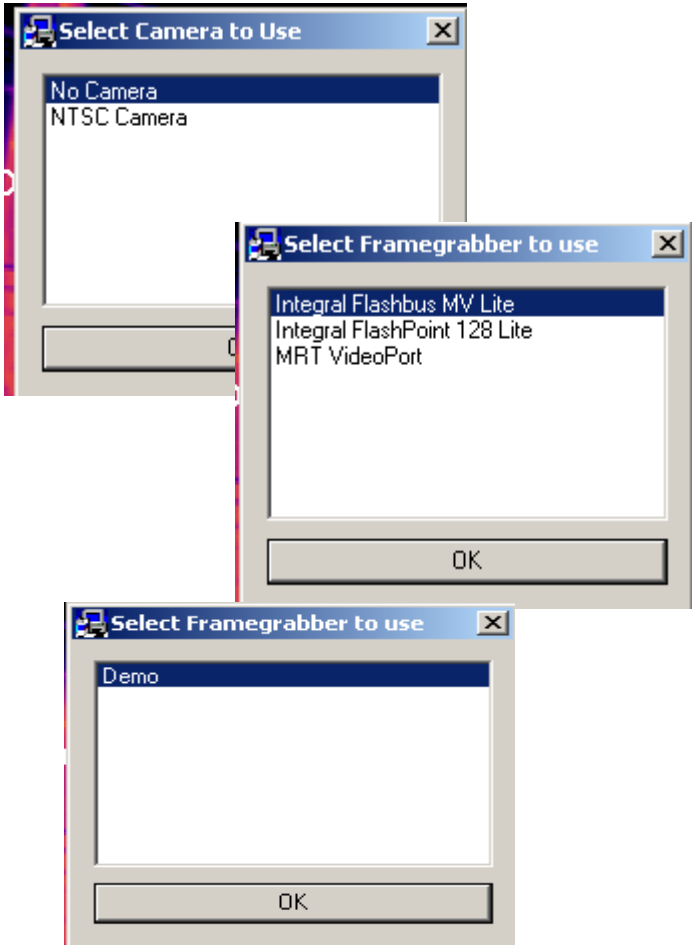
Select No Camera to run software in Demo Mode. A software frame grabber is used with a demonstration IR file on which most of the functions of the software can be performed.

NTSC

Select this to install support frame grabbers for cameras that use a frame grabber.

K6800

Select this to set the software to get images from images placed on a Flash Card by this camera. This makes the Image Gallery available for image selection.



If you selected No camera a Select Frame Grabber Screen displays with one item Demo.
Selection of NTSC displays a Select Frame Grabber with 3 supported frame grabber. Select the one that you have installed in the computer.

If you selected K6800 the Frame Grabber to use will display two options. Use Flash Card only. In this case the user would get images directly from the Flash Card.

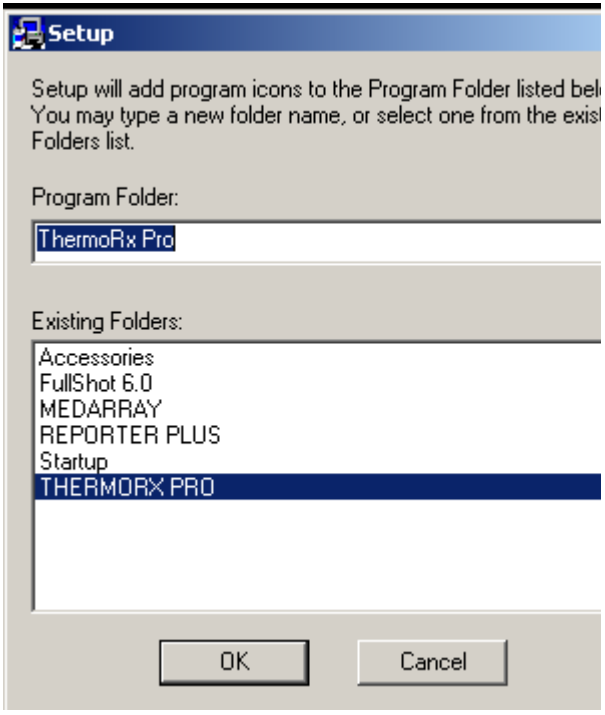
Use the Image Gallery. In this case the images are loaded from the Flash Card into an Image Gallery.

Step 5

The Install program will then ask you to place disk 1 in the floppy drive. Do that and CLICK OK.

Step 6

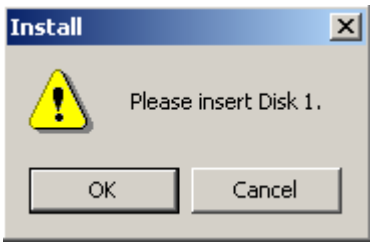
The screen on the right is displayed. The user is ask about adding a program icon to the Desk Top. Normally it is a good idea to have such an ICON, shown to the right, handy, since you need only to CLICK on the ICON to start ThermoRX PRO. Select ThermoRX PRO, and CLICK OK.



CLICK on Install and if Disk 1 is placed in the floppy Authorization Manager will be replaced by the Authorization Information screen shown below and to the right.

There is no need to ALTER ANYTHING on this screen.

CLICK on OK and the software will move COPY PROTECTION from DISK 1 to C Drive.



REGISTER THE SOFTWARE

A software registration screen will then be presented.

If you are connected to a modem the program will find this modem and send the results directly to EIC.

If you do not there is a registration form included in the software package.

You need to register the software in order to receive any support.

Copy protection ISSUES

WARNINGS

Once you install copy protection on a hard disk use ONLY MICROSOFT differentiations to defraud the disk.

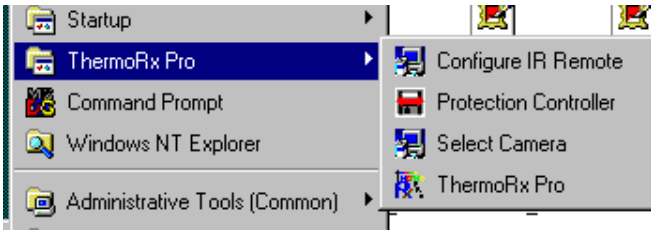
If you use ANY third party product you will destroy the copy protection. Disk copy products will either do the same or fail to copy the copy protection.

To get resets from EIC.

Ordinarily the user will not need to obtain a reset code. When the software is removed from the hard drive the user should always make sure that the AUTHORIZATION CODE is moved from the hard drive to Disk 1 of the software

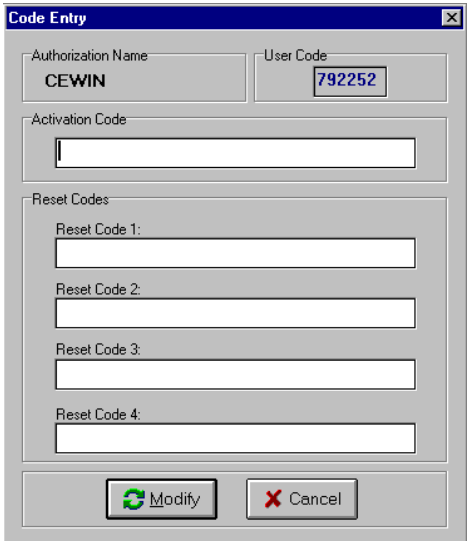
set.

If you should loose the copy protection you will need to follow this procedure. This is also indicated by a message regarding authorization to use the software.'



Go to the program groupThermoRx PRO by CLICKING on START and THEN CLICKING on PROGRAM. When you find ThermoRx select that and CLICK to open it. See the screen shot to the right for an illustration of this. Then CLICK on Protection Controller.

When this open CLICK on MODIFY. The screen shown to the right is shown. You will need to do these things:



Step 1

Obtain the User Code. In the example it is shown as 792252. E-Mail this to Support@eic-inc.com. Or use our phone system and place this number in Phone Voice Mail Box 1. Or FAX this EIC on 616 457 5210.

Step 2

Make certain that you have registered the software and so indicate this in messages to EIC, along with the date of registration. Also supply contact information - e-mail is preferable. EIC will return an authorization code.

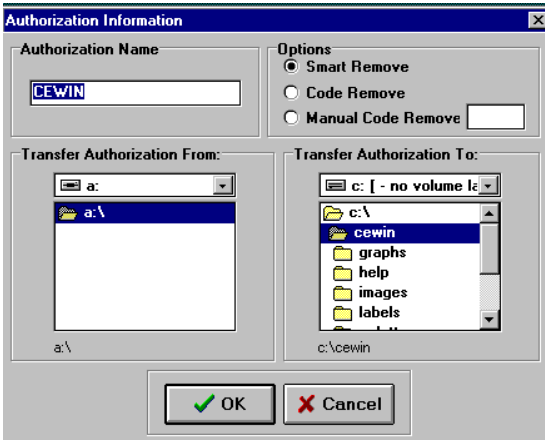
Step 3

Place this authorization code in Reset Code 1 slot number. Check accuracy and then CLICK on Modify.

The software will accept this and indicate so with a validation screen.

You can now run the software.

To move copy protection from the hard drive to the floppy.



To move copy protection. Follow what you did above and open the Authorization Manager Screen.

Then click on REMOVE and you will see the screen shown to the left.

MAKE ABSOLUTELY CERTAIN that you have A drive on the Left. Ordinarily you do not have to change the one on the right.

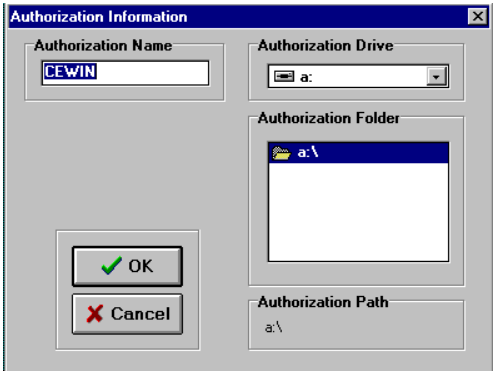
Place Disk 1 of the software in the FLOPPY and CLICK on OK. Authorization validation screen will display shown that a copy was move successful. If not you will need to determine the problem.

CHECKING for copy protection moved to Disk 1.

Place Disk 1 in the floppy drive.

CLICK on Check and then CLICK on OK in Authorization Information.

The Authmanw.exe screen will show how many installations or authorizations remain.



How this manual is organized.

Title Page with revision date
Table of Contents
Chapter Organization by menus
Index of all functions

Basic things to understand about this software

Getting Started - Chapter 3

Installing the software.
Copy Protection Issues

Using the Software - Chapter 2

Editing

Preference

Image Menu - Chapter 8

Calibration Functions
Isotherms
Palettes
Emissivity corrections

Object Menu - Chapter 9

Temperature Extractions
Annotations

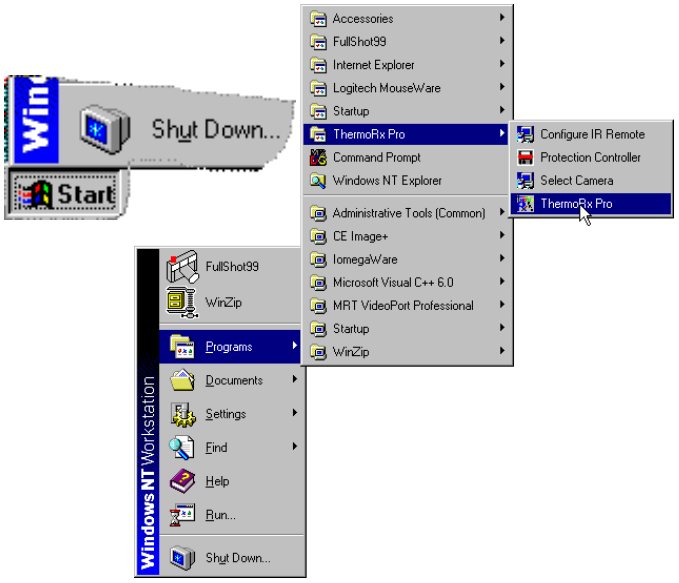
Fast Report Mode - Chapter 20

Running the software

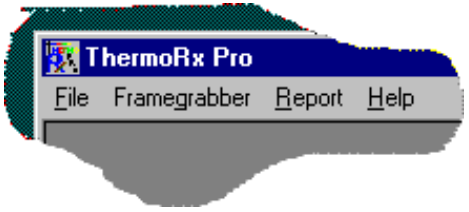
Getting images

CLICK on Start at the bottom of the DESK-TOP.

CLICK on ThermoRx PRO. The path is shown in the illustration to the right.



When the program runs you will be presented with the screen shown to the right, showing the availability of File, Framegrabber or Report.



You can now select File or Framegrabber.

If you select File you will be presented with the File menu. Click on OPEN and you can select Sample1, a Thermal Image, or Sample2 a Visual image files.

If you have the VIDEO SOURCE, a camera or a VCR connected to the computer CLICK on Framegrabber and CLICK on Run Thermal or Run Visual to GET a LIVE IMAGE with the frame grabber.

If you don't get the framegrabber menu, it means you have not selected a framegrabber in select camera. See the first section of this manual.

You should now have either a thermal image to work with, or a live image displayed. Now you can refer to the spe-

cific menus explained in this manual for more information.

See Chapter 5 - File Menu or Chapter 6 - Frame Grabber Menu.

To run a report at once

Click on Report and then CLICK on Template. Select Template and load a template to see how a template is made.

To make a report - CLICK on Report and then CLICK on Create Report from Template.

Refer to Chapters 14, 15, 16 of this manual for menus relating to that task.

To make a graph

Have a Line Temperature Tool placed on an image. If you load Sample1 image as shown above, select that Image by CLICKING on the Line Tool when the cursor is an ARROW. When the Grab Rectangles around the corners of the tools are shown click on Report and CLICK on Graph.

You can select multiple Line Tools and display multiple items on a graph.

Calibrating an Image

Introduction

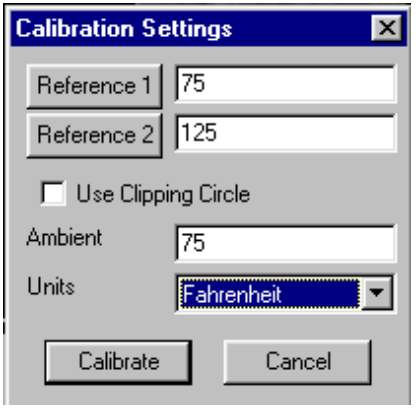
Calibrating with this dialog is a two step calibration process, using a Reference 1 and then Reference 2. Usually Reference 1 is represents a background temperature, or possibly ambient temperature. And reference 2 is the a region of interest with a KNOWN temperature.

This function uses these two points to calibrate each and every pixel in the image to a temperature based upon gray scale level. The reference point temperature will always appear on the image.

RULES

Reference 1 must always be a lower temperature than Reference 2. It can NEVER be the same or higher.

Setting a reference on the image involves **dragging a rectangle around a selected known temperature area.**



It is not necessary to enter information each time the calibration settings are used, since these are saved for repeated uses.

Since the reason for calibration is to read temperature from a thermal image it follows that the user will apply this function VERY CAREFULLY. Then CHECK the results to see if they appear reasonable. An experienced thermographer will have gathered enough experience to know roughly what a temperature should be. Do question unusual results. This is the user responsibility.

The Edit Menu

Introduction

Location

See the information in the illustrations to the RIGHT.

These functions are found in the Edit Menus.

1. Undo
2. Redo
3. Cut
4. Copy
5. Paste
6. Edit Objects
7. Duplicate
8. Delete Objects
9. Remove All Objects

Related Topics

Chapter 2 Using the Software. Review sections on Editing Objects.

The Edit Menu Functions

The Edit Menu contains FUNCTIONS that allow the software user to edit ANY OBJECT placed on the screen.

Undo

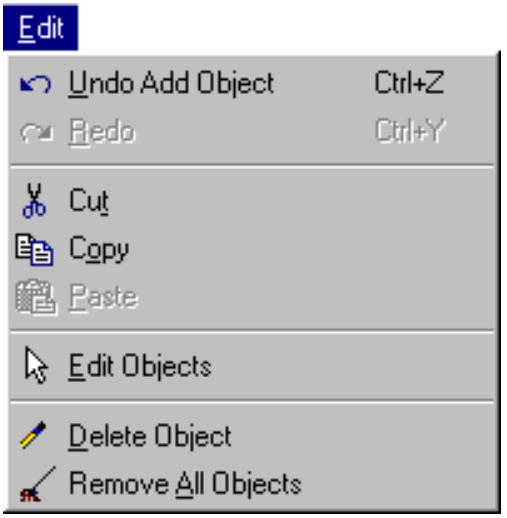
Use this tool to undo a previous edit activity. Example delete and object - use Undo remove Object to restore. There are 25 levels of undo.

The undo function changes its words to indicate what is will take place. Example - place a LINE TEMPERATURE object on the image. If it is selected Undo changes to that shown below.

Use the SHORTCUT KEY Ctrl Z to speed undo.

Located in Template, Report and Graph Modules.

Located in the Image Editor Module



Located in the Frame Grabber Module and the Graph module

Redo

Undo the previous undo. Example last action was to undo an object delete. Redo restores this object to what it was prior to the last action. There are 25 levels of redo.

SHORTCUT KEY Ctrl Y

Cut

Copy an object to the Windows Clipboard and remove from the image. Objects such as temperature, cad shapes, text can only be cut and pasted back into the software module that was active at the time of the cut. Entire images can be cut and pasted to other programs.

SHORTCUT KEY - Ctrl X

Copy

Copy an object to the Windows Clipboard. Objects unique to the software like, temperature, cad shapes, text can only be cut and pasted back into the software module that was active at the time of the cut. Entire images can be COPIE and pasted to other programs.

NOTE: Make sure that all OBJECTS are deselected prior to attempting to COPY an image.

Paste

Move an object from the Windows Clipboard to software. There is no limit on the kinds of objects that can be pasted back into the software.

NOTE: the software places the object over the last object so that IT IS NOT VISIBLE. Paste is grayed until and object is located in CLIPBOARD.

SHORTCUT KEY Ctrl V

Edit Objects

The mouse cursor must be an ARROW CURSOR before any objects can be selected and EDITED. CLICK on EDIT to change the mouse cursor changes into a cursor.

Duplicate Objects

Make exact copies or duplicates of an objects. Any object can be duplicated with this function. This function is very handy for replicating temperature objects. After the required number are duplicated the user can move them to the required location.

How to...

Select the object first. Then CLICK on Edit and CLICK on Duplicate Objects. A copy of the object will be made. NOTE: USE Ctrl D to do the same thing a much easier way of doing this.

Delete Objects

Remove or delete a selected object.

Remove All Objects

Removes every object from the active image screen.

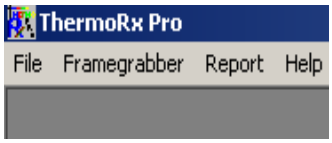
The File Menu Location

A file menu is located in the Frame Grabber Module, Graph Module, Image Editor, and Report Editor. These differ from each other in the functions that are available.

The File Menu

Start Menu

The Menu Bar displayed, when the program boots' is shown below.



File Menu Functions

The functions in the File Menu associated with the Report Editor module, Template Module and Graph Module are identical. They are:

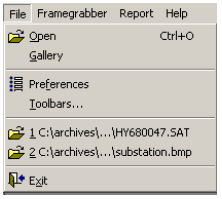
1. Open
2. Import
3. Gallery
4. Save
5. Save As
6. Save All
7. Export
8. Import
9. Close
10. Preferences
11. Toolbars
12. Print
13. Print Preview
14. Print Setup
15. Page Setup

File Menu Introduction

The File Menu contains a group of functions needed to save and load every kind of file generated by the software, the preference control or customized, printing controls, print setup, print preview, page setup, and EXIT.

The FILE MENU is the ONLY place from which the user can exit the software.

Start File Menu



Frame

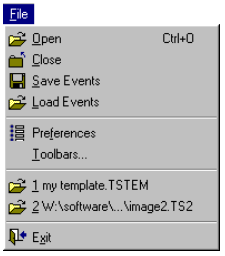
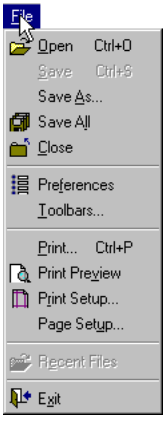
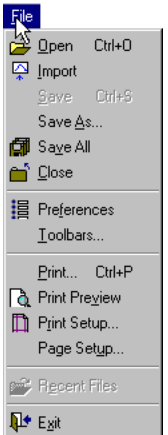


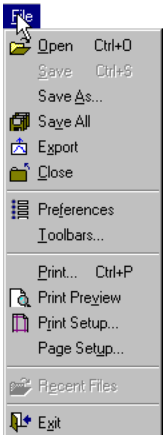
Image Editor File Menu



Template, Report Module



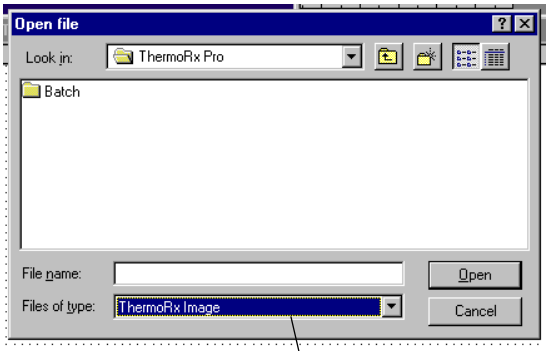
Graph Module



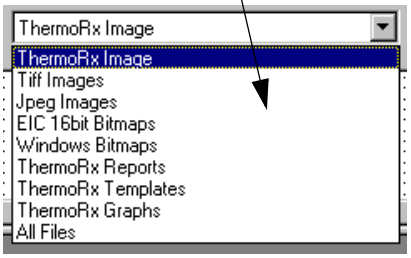
The File Menu Functions

Open

The software can open various file formats. CLICK on File, then CLICK on OPEN. A standard Windows file open control will then display. CLICK on List Box down arrow **shown to the right** and CLICK on any of the file formats to display a directory list of files in the selected formats.



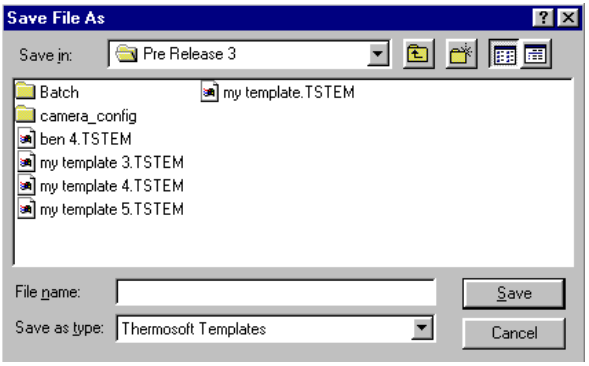
The software saves directory locations so that saved files will automatically load from the correct directory. Note: The software is capable of loading multiple BMP and TIFF and Graph files. HERE IS HOW - depress and hold down the control key and then Left Mouse Click each file to be loaded. Then CLICK OK. The software will then load all the images. Use Windows Menu - Tile or Cascade to view the results.



File Formats

The following kinds of file formats are loaded and saved by ThermoRx PRO.

ThermoRx Images - Files with a TX2 extension. This format stores information with all calibration information, list of objects, palettes, and more. NOTE: this is the only file format that does this.
TIFF Images - Software can save or load files in this format. These can also be loaded into a report.
JPEG Images - The software can save or load files in this format. These can also be loaded into a report.
EIC 16 bit bitmaps - Included for compatibility with older EIC software packages.
Windows Bitmaps - Included as a file format for use by 3rd party programs. Can also be loaded into a report.
ThermoRx Reports - Load save reports made by ThermoRX PRO
ThermoRx Templates - Load save templates made by ThermoRx PRO
ThermoRx Graph- Load save graphs made by ThermoRx PRO



NOTE: Loading the file will in ALL CASES bring the software to the proper module or location and initialize the proper software function to view the files. Example - opening a template will move the software to the Report Editor and make it possible to edit that template. This means that the user can be located in any module, begin some new work in another module by loading a file, and then return without loosing the original work.

Save As

Save a file to a file formats shown to the RIGHT. What formats are displayed, or available, depends on which Module is active. For example in the Report or Template Module ThermoRx PRO Report or ThermoRX PRO Templates are available.

A standard Windows File SAVE AS is used.

Save All

This function is a convenient way to SAVE EVERYTHING.

CLICK on SAVE ALL will cause the software to cycle through all of the WINDOWS EXISTING in the software and save them. Example - if a template, an image, a graph, and a report exist in the software - this function will attempt to save all of them.

It will use a file name that pre-exists for a window - if one does not exist the software will request that a file name be supplied. NOTE - the software selects the CORRECT FILE FORMAT in every case for a proper save.

Export

Export a GRAPH to either a CLIP Board or to a File.

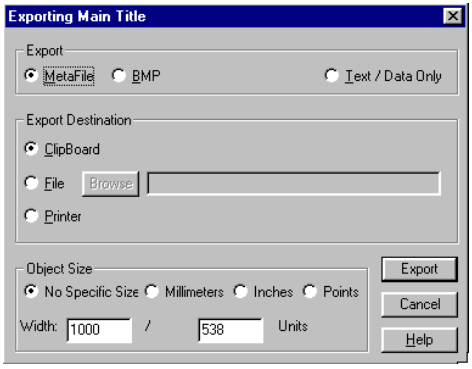
How to...

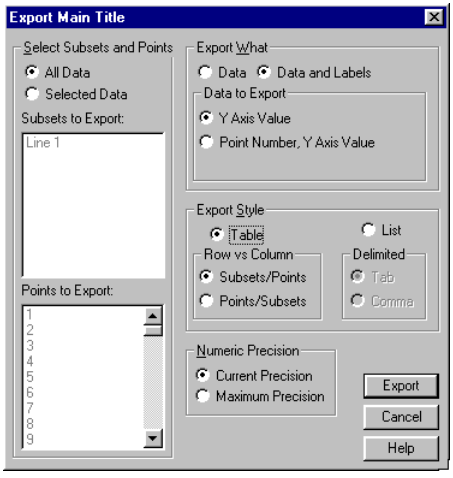
Load and get a graph running. Then CLICK on Export. The CONTROL shown to the RIGHT is displayed.

Exporting -

Export to MetaFile - Use Windows MetaFile format to export the graph.
Export to BMP - construct a bitmap of the graph.
Text - CLICK on Text and the CONTROL shown to the left pops up.
Select ALL the DATA or only a selected PORTION.
Choose to send DATA or DATA and LABELS
Data to Export - Y Axis Values or Point Number
Export Style - Choose to use a table - LEFT TO RIGHT or a simple VERTICLE LIST.

Graph Export Controls





Import

Import uses the same Windows selection dialog box as OPEN with a very important difference.

It is placed in the Report or Template module for the very reason that it allows the user to load all of the file imports into a report. Once it is loaded the user can edit that import so that it can be resized, deleted, or moved by drag and drop.

Refer to the section on Editing in Chapter 2 - Using the Software.

The user can then load logos, pictures, anything that is saved to one of the file formats in the software or in Windows.

Gallery

See Chapter 23 of this manual for a full discussion of this control.

Preferences

See Chapter 4 setting up and initializing the software

Print

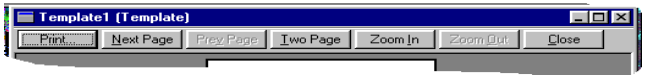
This function performs printing of a selected images with annotations, Graphs, and Reports. A standard Windows Print Control is used, as shown to the right.

Preview

Uses of print preview

Image Editor - displays the selected image as it will be printed.
Graph - displays the selected graph as it will be printed.
Reports - displays the selected Report as it will be printed.
Templates - displays the selected Template as it will be printed.

Print preview functions



Print Preview
CLICK on Print Preview and the Menu shown above pops up.

Print - print exactly what is viewed.
Next or Prove Page - moves the view forwards or backwards through all the available pages.
Two Page - view two pages on the computer screen.
Zoom In or Out - reduce or enlarge apparent size of viewed object.
Close - exit the view function.

Print Settings

Opens the Standard Windows Control supplied by the printer manufacturer. We these all of settings applicable to that printer are available to the user.

Page Setting

Margins

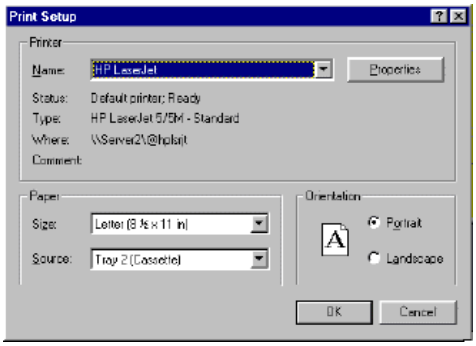
Use these to control the margins used during a print of an image or a report.

Image Size

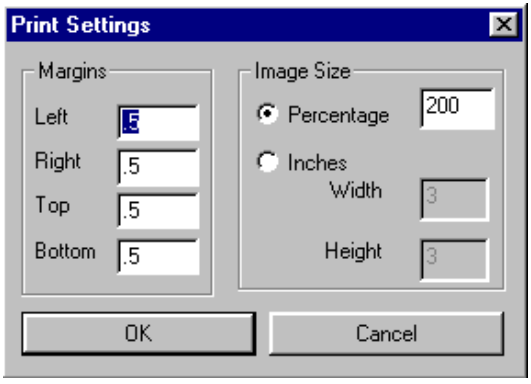
Set the image size as a percentage.

NOTE - if percentage is set to 100 % the largest image permitted by the MARGINS and the REQUIREMENTS of

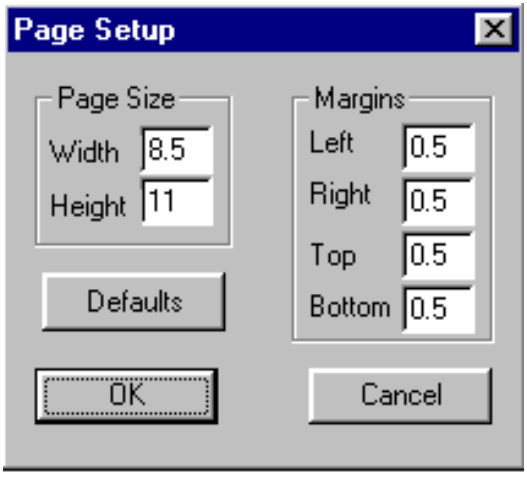
Printer Settings Control



Print Settings in the Image Editor and Graph Module



Page Setup used in the Template and Report Module.



THE CORRECT ASPECT RATIO will be printed.

Set the image size in inches.

Print an image to the size allowed by Margins if size is larger than margins permits, otherwise print the exact size. Aspect ratio is not observed.

Most recent File List

A list of the most recent files loaded into the software is displayed. CLICK on these to load.

Exit

CLICK on this to close the software. A warning about unsaved work may appear depending upon work status.

Toolbars with File Functions

Related Tool Bars

Functions on this tool bar going from left to right.
File Open
Gallery
Save
Save All

The Frame Grabber Menu Location

Introduction

The Frame Grabber menu is a MODULE. As such it has a set of tool bars, separate menus, and Quick Menus.

The Frame Grabber Module is accessed in the START UP Module, or the Image Editor Module.

Startup Menu

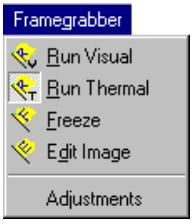
Normal Framegrabber Menu

The Frame Grabber Menu functions

Startup Menu

(Located in the Startup Window, and Image Editor). **The startup window is where the software opens when started.**

1. Run Visual
2. Run Thermal
3. Freeze



Frame Grabber Toolbar

Framegrabber

1. Run Visual
2. Run Thermal
3. Freeze
4. Edit Image
5. Adjustments

Related Toolbars

NOTE - a tool bar, displayed to the right, can access all of these functions except for Adjustments. The Toolbar control calls it Framegrabber.

The Frame Grabber Menu Functions

Run Visual

Click on Run Visual to obtain a visual image.

A visual image is used to obtained a visual image of some object. It can be obtained in color with a Flashpoint 128 frame grabber, or the MV Lite, but not the MRT PCMCIA. That ability has been turned off because image updates would be far too slow.

A visual image is handled in a particular and definable way by Fast Report Mode when that mode is selected. Be sure to read this chapter of the manual for more information. It is important also to refer to Chapter 2 and the section on

preferences.
It is important to note that any adjustments made to Contrast and Brightness will be saved and applied to subsequent Visual Images ONLY. This is a very important item to note.

Run Thermal Image

Click on Run Thermal Image to obtain a LIVE DISPLAY of an infrared image from a IR camera. The image obtained must be in monochrome, which means that camera color mode MUST be turned off. These images, are 256 gray scale, and can be calibrated and used to extract temperature data with the software temperature tools.

A thermal image is handled in a particular and definable way by Fast Report Mode, when that mode is selected. Be sure to read the chapter of this manual on Fast Report Mode for more information. It is important also to refer to Chapter 2 and the section on preferences, as they relate to Thermal Options.

Freeze Mode

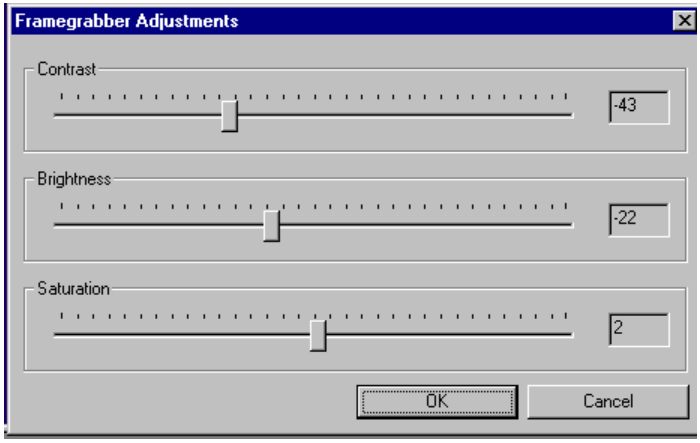
CLICK on this to stop successive display of frames and display one frame ONLY. The software will remain in this mode until RUN MODE is again CLICKED. The software also remains in the Frame Grabber Module and the software status bar will indicate framegrabber.

Edit Mode

CLICK on this function to CAPTURE (process) 1 frame of a visual or thermal image.

How the software responds to this function depends upon Fast Report Mode. Be sure to review the chapter in this manual on Fast Report Mode.

Adjustments



Exercise GREAT CARE in using this control. It has an effect on levels black and white which effects temperature calibration results.

There are times when an image needs contrast and brightness adjustments to be satisfactory. If this is the case CLICK on Adjustments and then use the Slider Bars to adjust the image.

Contrast

Contrast adjust the darkness of an image.

Brightness

Brightness adjust the whiteness of an image.

Saturation

Alter the intensity of colors.

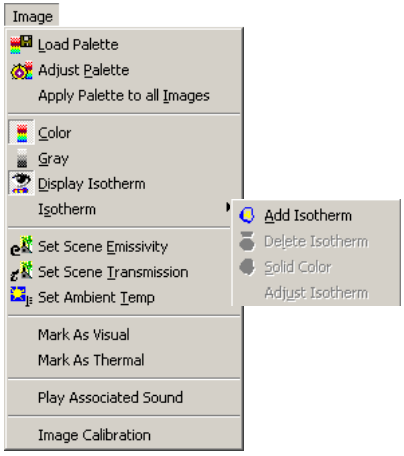
The Image Menu

Location

Frame Grabber, and Image Editor module.

The following functions are found in the Image Menu

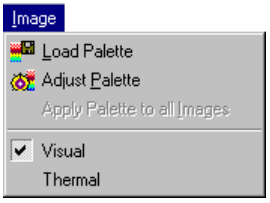
1. Load Palette
2. Adjust Palette
3. Apply Palettes to all Images
4. Color
5. Gray
6. Show All Objects
7. Display Isotherm
8. Isotherm
9. Set Scene Emissivity
10. Set Scene Transmission
11. Set Ambient Temperature
12. Mark as Visual
13. Mark as Thermal
14. Play Associated Sound
15. Image Calibration



Related topics

Introduction to the Image Menu

This menu provides functions that deal with the colors, isotherms, how color is displayed, showing objects.



The Image Menu Functions

Load Palette

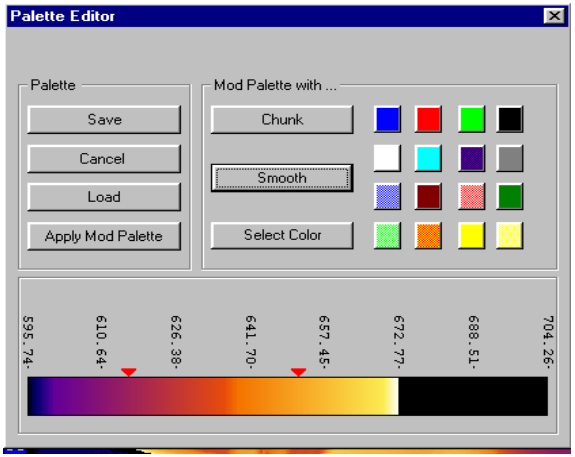
CLICK on Palette to access a standard Windows file load CONTROL. Use this to select and apply palettes to images.

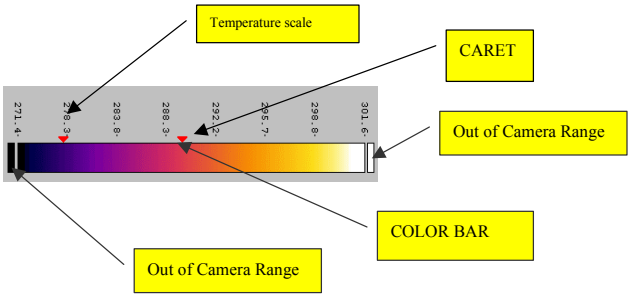
Palettes cannot be applied to Files saved, and subsequently loaded back into the software. These are BMP, TIFF, or JPEG files.

Adjust Palette

Even though sample palettes are provided with the software there may be a need for a custom palettes.

The greatest use of this control lies in the touchup or emphasis of a color to a band of colors. Prior to doing this review the topic of Isotherms in this chapter to see if that is better suited to color emphasis.





Save

Save a modified palette with a new file name or replace an existing palette.

Cancel

Cancel an editing session and return to the selected MODULE.

Load

Load a palette from existing palettes.

Apply Mod Palette

Apply the results of editing a palette to an image - but not save the image.

Color Bar

A color bar is placed at the bottom of the control.

This replicates the color rectangle of the Color Tool Bar. The attached temperature scale makes it easier to locate and adjust colors to a specific temperature.

Carets

The color bar is always active.CARETS can be placed on the edge of the COLOR BAR. Notice the two that are placed on the bar. These are used with SMOOTH, and CHUNK, and any of the COLOR BUTTONS.

Only two CARETS can be created and placed on the color bar.

How to CREATE CARETS.

Place the mouse cursor ANYWHERE INSIDE COLOR BAR and CLICK the Left Mouse Button to CREATE THE FIRST CARET.

To CREATE and place a second CARET, don't release the button, but continue to HOLD it DOWN and DRAG (MOVE) the mouse to the LEFT or RIGHT.

CLICKING the Left Mouse AGAIN in a different location on the bar will SNAP the first caret to a new location. The process of creating a second caret in a new location can be repeated.

Color Buttons

Apply TWO CARETS to the color bar. CLICK one of the COLOR BUTTONS to apply that color to the area of between the two carets.

Chunk

Apply TWO CARETS. CLICKING on CHUNK to create the average of the colors between those two carets.

Smooth

Apply TWO CARETS. CLICK on Smooth to blend the colors between the carets. It creates as many colors for that area as there are Palette Indexes, of which there are 256 for the entire color bar.

Color

CLICK on this function to display a loaded palette. The icon next to Color will be depressed (3D) showing that it is selected and images will display a color palette.

This is a TOGGLE FUNCTION. CLICK Gray to undo this SELECTION. Or load a new image and revert to the default selected in Preferences.

Gray

CLICK on this function to gray an image. This function also exists due for a special Isotherm Mode that displays an isotherm in a applied palette.

Display All Objects

This functions causes an objects placed on the image to not display, or become invisible.

How to.

Select an object (see chapter on selecting objects) and then Right Click the mouse button on the object. Then CLICK on Visible to remove a check mark next to it WHILE THE OBJECT IS SELECTED. If there is no CHECK MARK the object is FLAGED. Note this must be done while the object is selected. In the Speed Menu shown to the left Visible has a check mark next to it.

No check mark means the object can be made invisible with use of Show All Objects.

Then open the Display menu and CLICK on Show All Objects. The object will not be displayed. CLICK on Show All Objects and it will display.

Smooth Image

This alters ONLY the displayed image NOT THE TEMPERATURE DATA.

The software enlarges an image from camera size it interpolates digital values which creates jagged edges. This function interpolates values and smooths the image for a better appearance.

Display Isotherms

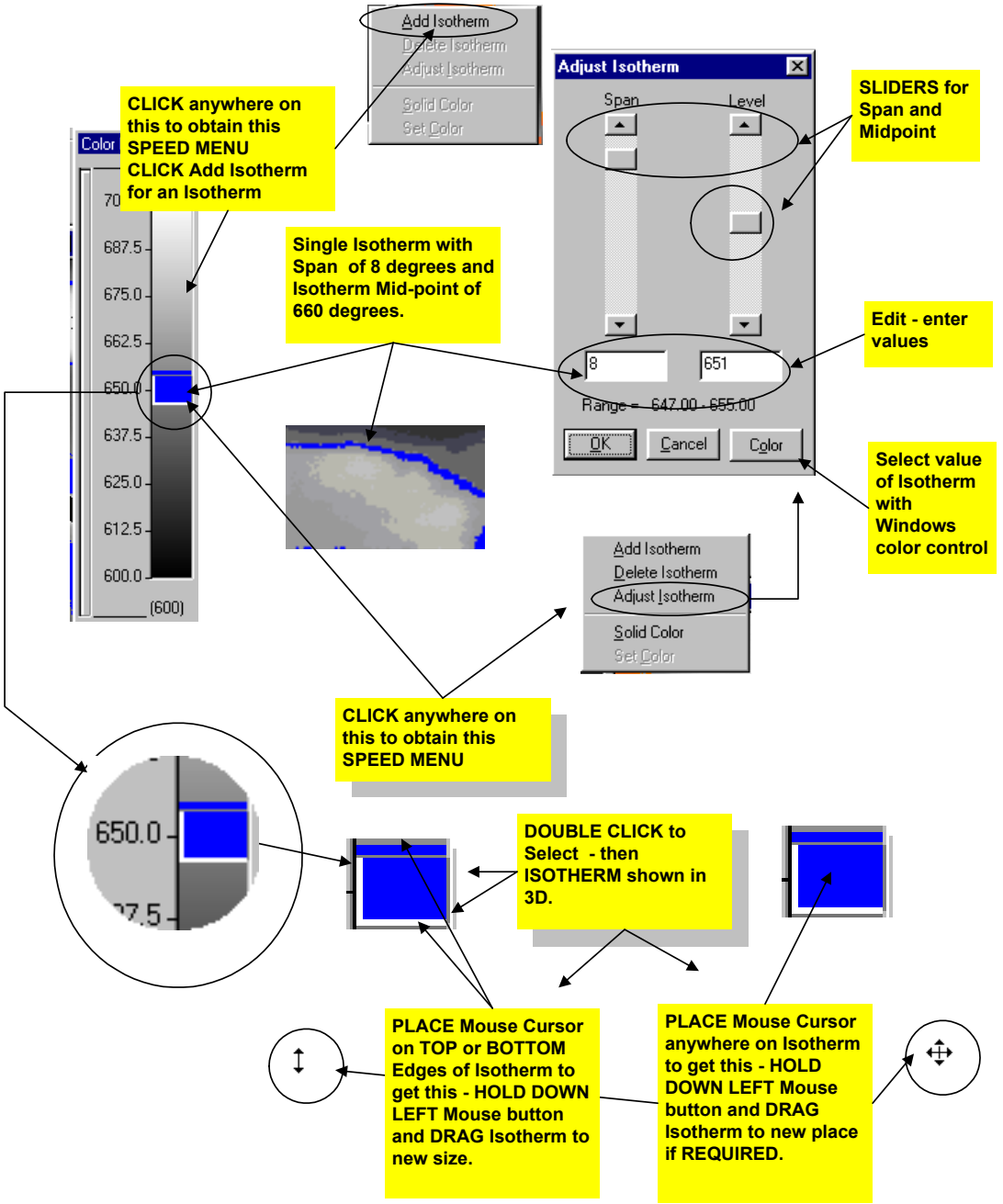
Click on this function to NOT DISPLAY a Isotherm that is CURRENTLY DISPLAYED. This removes the check mark next to that item. CLICK again to display the Isotherm

Isotherms

An Isotherm uses the Color Bar part of the Color Bar Tool to:

1. Display the Isotherm.
2. To create a Isotherm.

3. To adjust a Isotherms.
4. To place multiple Isotherms.



NOTE: Clicking on Isotherm will make visible the COLOR BAR TOOL if it is not displayed.

See the illustration at the end of this chapter which shows the various mouse clicks that can be used to manage isotherms. Isotherms are powerful tools for analysis of thermal data and require some study of the various tools to use properly.

Attributes of the software's Isotherm function -

1. Fully editable with the software editing tools.
2. Set isotherms in all the available Windows colors.
3. No limit on the number of Isotherms.
4. Palette Mode - Isotherms display the loaded palette.

Isotherm Speed Menu

CLICK on Isotherms to display the sub-menu shown to the right. Alternatively place the mouse cursor on the COLOR BAR TOOL and Right Click the Mouse to show the same menu.

This menu provides ALL the functions to manage isotherms.

An isotherm must be selected by CLICKING on it before any of the following functions can be applied to it.

Add Isotherm -

CLICK to place an ISOTHERM on the Color Bar Tool. Alternatively CLICK on the Isotherm Tool on the Tool Bar.

The initial color of the Isotherm is that of annotation color set in Annotation Page of preferences. Default is a solid color ISOTHERM

Please note that successive creation of isotherms places them in the identical place on the color, or replaces one kind of isotherm on top of another - which could make a user think the desired action has not taken place.

Set Color

Displays the Standard Windows Color Control. Use this to select any of the colors displayed.

Solid Color

There are **two** Isotherm color modes.

Solid mode color.

If a solid color is applied to a Isotherm - that color is applied regardless of the Isotherms position. It is always THAT SET COLOR.
Use the set color to change the colors of isotherms.

Palette Mode color

CLICK on Gray Color FIRST in the Display Menu. This turns color. The palette is function in the background, but the image appears to be gray.
CLICK on this function to display Isotherms in the existing color palette. The color of the isotherm then depends on the position it occupies on the color bar - for example if 100 degrees is associated with blue and 200 degrees is yellow, the Isotherm will display yellow if is located at 200 degrees, and blue at 100 degrees.

NOTE: Gray Color must be checked in the Display Menu for this function to work as described.

Adjust Isotherm

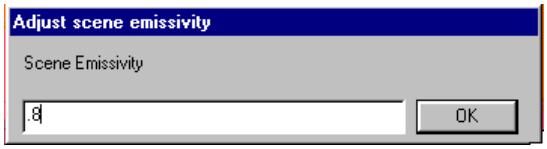
An Isotherm is an object and as such it can be edited by selection, so that its span and Mid Point (position on the color bar) can be changed.
See the illustration on how to do all this several sections back. Note that AGAIN - the speed menu you need to access this function is reached by placing the mouse cursor on the Isotherm and right clicking the mouse button.

Delete Isotherm

CLICK on this to delete the SELECTED ISOTHERM. Alternatively use the Edit menu to Remove the last one, or remove all.

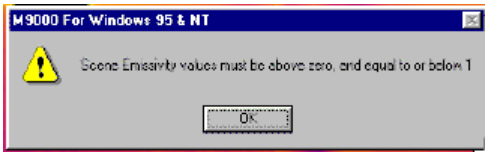
Set Scene Emissivity

Enter emissivity values in the EDIT WINDOW in the control shown below. These entered values must be >0 and <=1.



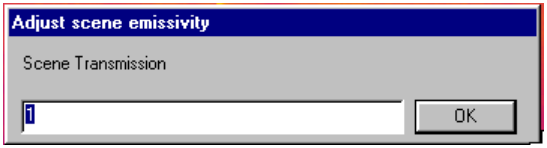
If a value other than the values permitted are entered the software will prompt the user to adjust the entry by display the screen below.

Set Scene Transmission



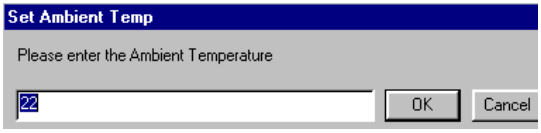
Set a transmission factor that MAKES the software compensate for infrared interference.
Scene transmission can be best explained by the following diagram.

Apply Scene Transmission by entering in the desired value in the pop up dialog box shown below.



These entered values must be >0 and <=1. If they are not the user will be prompted to enter the correct range of values must be entered.

Set Ambient Temperature



CLICK on Set Ambient Temp to display the dialog box shown above. Enter the ambient temperature that surrounds the thermal image being display in the Frame Grabber module in the ENTRY BOX - shown above with a 22. The user needs to be aware of the temperature scale set in preferences and the camera such as K, C, and F.

The value entered is used in the CURRENTLY ACTIVE Module - for example Image Editor, Frame Grabber, etc.

Play Associated Audio File

If the user opens the image menu and CLICKS on **play the file associated with the image** to hear that message.
Associated tool bar

Calibrating an Image

Introduction

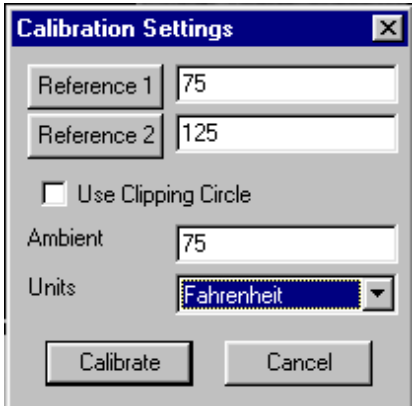
Calibrating with this dialog is a two step calibration process, using a Reference 1 and then Reference 2. Usually Reference 1 is represents a background temperature, or possibly ambient temperature. And reference 2 is the a region of interest with a KNOWN temperature.

This function uses these two points to calibrate each and every pixel in the image to a temperature based upon gray scale level. The reference point temperature will always appear on the image.

RULES

Reference 1 must always be a lower temperature than Reference 2. It can NEVER be the same or higher.

Setting a reference on the image involves **dragging a rectangle around a selected known temperature area.**



It is not necessary to enter information each time the calibration settings are used, since these are saved for repeated uses.

Since the reason for calibration is to read temperature from a thermal image it follows that the user will apply this function VERY CAREFULLY. Then CHECK the results to see if they appear reasonable. An experienced thermographer will have gathered enough experience to know roughly what a temperature should be. Do question unusual results. This is the user responsibility.

Step 1 - Secure an image.

A good place to gain experience with calibration is to open the File Menu CLICK on Open, and load Samples1.tx2.

Normally the user will have Fast Report Mode operating and he would Select Run Thermal and then CLICK on Edit on the Frame Grabber tool bar to place the THERMAL IMAGE in the Image Editor. There the procedure below must be followed.

Step 2 - Calibrate the Image

CLICK on the Image menu and CLICK on Calibrate. The ENTRY DIALOG shown above will display on the software screen.

Enter reference information

REFERENCE 1.

CLICK on Reference 1.Enter a temperature for reference point 1.

CLICK on Reference 1 again. The mouse cursor will change into a +. Take this + and place it on the image where Reference 1 temperature is located. Press down the LEFT MOUSE BUTTON and while holding it down move the mouse to shape a rectangle that marks the area of Reference 1. Release the mouse button. The rectangle will go away,

but the reference point 1 will remain on the image.

REFERENCE 2.

CLICK on Reference 2. Enter a temperature for reference point 2.

CLICK on Reference 2 again. The mouse cursor will change into a +. Take this + and place it on the image where Reference 2 temperature is located. Press down the LEFT MOUSE BUTTON and while holding it down move the mouse to shape a rectangle that marks the area of Reference 2. Release the mouse button. The rectangle will go away, but the reference point 2 will remain on the image.

CLIPPING CIRCLE.

If the images of the camera are rectangular to begin with, make absolutely CLIPPING CIRCLE has no CHECK MARK in it.

Ambient Temperature

FILL in the ambient temperature. Ambient temperature is the AIR TEMPERATURE. It is an optional item and it is not mandatory to enter this item. It has no effect on calibration. It is used by the Ambient Field in the Template editor so that it can be automatically entered into a report.

UNITS

Do note very carefully this fact. Make sure that both the camera and calibration use the same units. If the camera is in C then the software must be in C and Centigrade must be entered into the calibration dialog. This is because that information is not sent to the software and automatically entered. It is the responsibility of the user to make sure this is done correctly.

The user can select C, F, K.

CALIBRATE

CLICK calibrate to begin the image calibration process. It will take only a very few moments to get calibration done.

Play Associated Audio

Introduction

There exists in this software a set of tool bars that have no corresponding menu functions. This means that the functions found in these tool bars can be accessed and used ONLY when the tool bar is visible. In some cases a prefatory menu functions must be accessed and used before that tools bar becomes available for use.

Location

These tool bars could be accessed or displayed in any of the software modules though there is no use for some of them in certain modules. Further, the functions of these toolbars if there is no use for them in a particular module will be fully grayed or partially grayed and be unavailable for use.

The software defaults to a set of tool bars that the designers of this software thought were relevant to each module. The user is free to make changes.

Related Topics

Chapter 23 - Setting up, displaying, and modifying the tool bars.

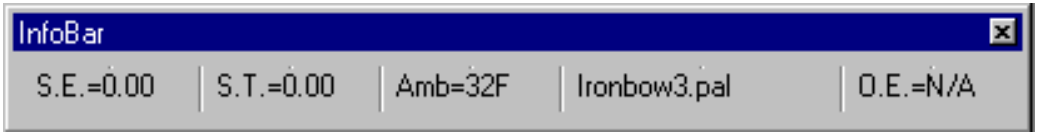
The Special Tool Bars

Note that the tool bars all have a TOOL TIP. Place the mouse cursor (don't click any buttons) and a tool tip will pop up. This will quickly identify the function of the tool under the mouse cursor.

Info Bar

This information tool contains basic information that the user refers to why performing image analysis.

Refer to Chapter 8 Frame Grabber Menu for information on the functions that affect this tool bar.

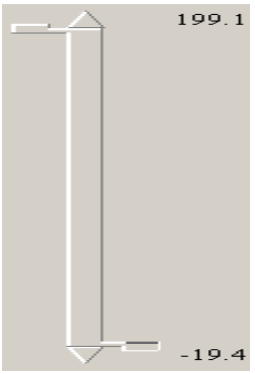


Emiss refers to SCENE EMISSIVITY or S.E. Trans refers to SCENE TRANSMISSION or S.T. Ambient refers to the AMBIENT TEMPERATURE surrounding the thermal image. Palette is the name of the palette used to colorize the image. And O.E. refers to Object Emissivity.

How to use the Level/Set Tool

This tool is used to control the IMAGE temperature displayed. That can be in K, C, F or Digital Values.

The maximum SPAN or the maximum and minimum temperature possible in an image is supplied by the supported IR camera. This is shown as -19.4 bottom, and 199.1 top. Those two numbers show the temperature displayed in the image. These are fully adjustable by using the LEVEL/SET tool. The software user can control how much of the image temperature to display by this tool. All the colors of the palette are used within the top and bottom span numbers.

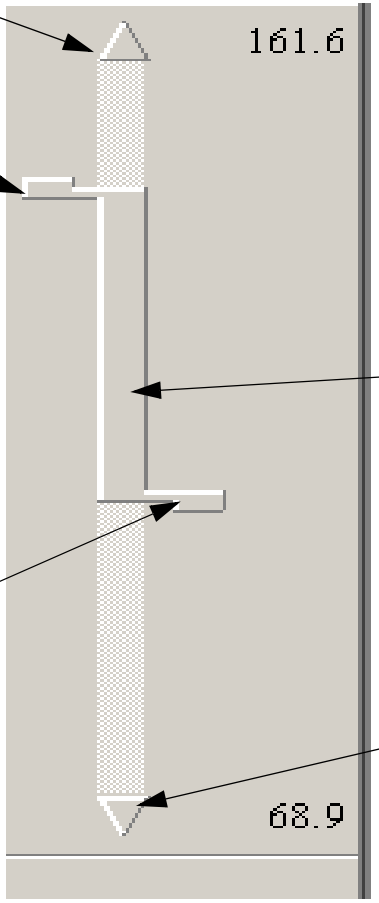


Top Span temperature

Bottom Span temperature

Top Pointer
CLICKING after Drag Control is selected moves Top Span upward

Drag Control that controls the top SPAN value.
1. CLICK and drag to make the control bar longer or shorter
2. CLICK and CLICK on TOP or Bottom pointer to incrementally adjust span.

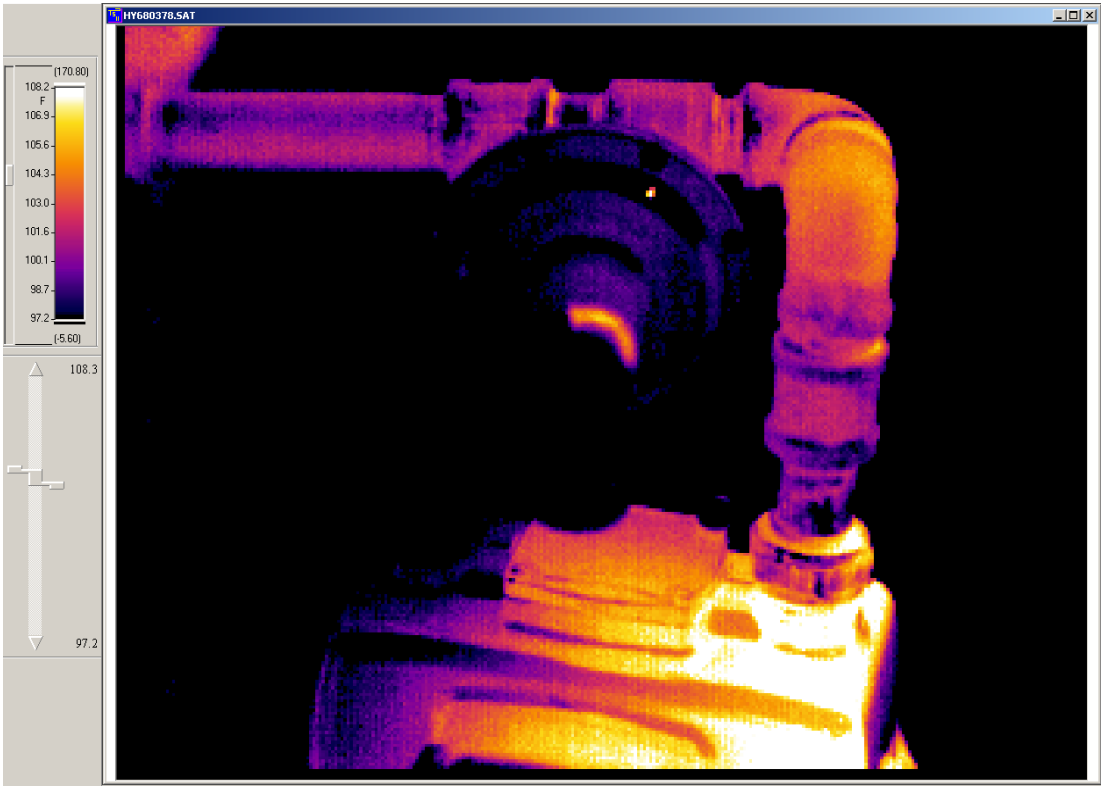


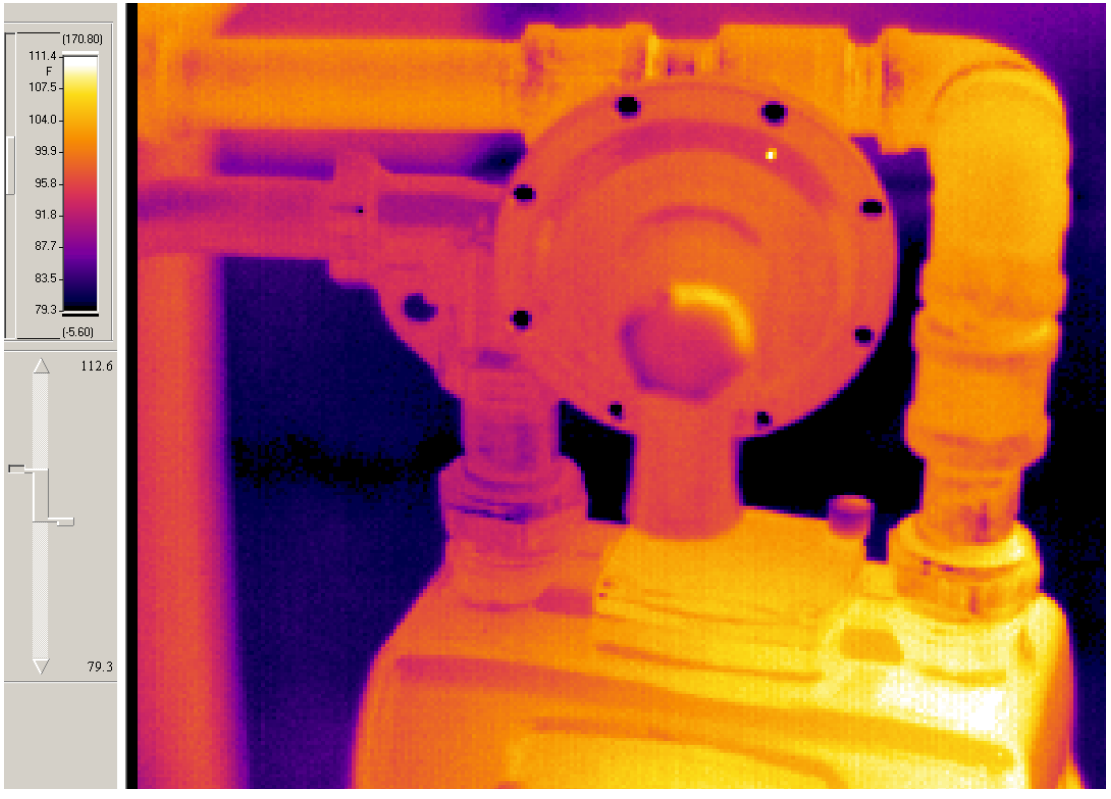
Control BAR that controls the bottom and span values.
1. CLICK and drag to adjust position on control

Drag Control that controls the bottom SPAN value.
1. CLICK and drag to make the control bar longer or shorter
2. CLICK and CLICK on TOP or Bottom pointer to incrementally adjust span.

Top Pointer
CLICKING after Drag Control is selected moves Top Span upward

How level/set changes the image appearance





Color Bar

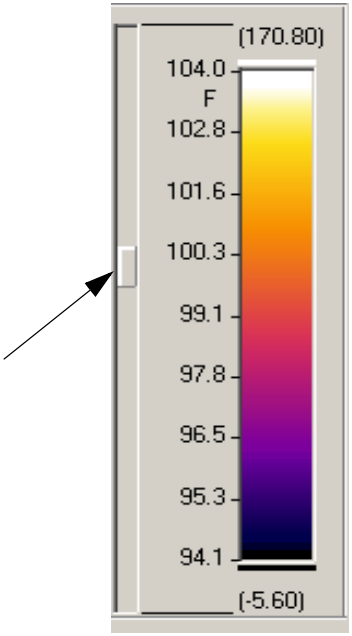
The color bar is not a part of the IMAGE as in previous 16 bit software packages. It is a TOOL BAR and has FUNCTIONS and important functions associated with its capabilities to display the COLOR and TEMPERATURE of the selected THERMAL IMAGE. See Chapter

On a report the color bar is shown on the thermal image.

When a calibrated image is saved and then reloaded. All the information associated with it is displayed on the color bar.

The color bar shows the top and bottom of temperature range of temperature displayed in the image, as set by the Level/set tool. A bar also shows the span of temperature set by the Level/set tool.

There is also a F or C indication of which scale is used.

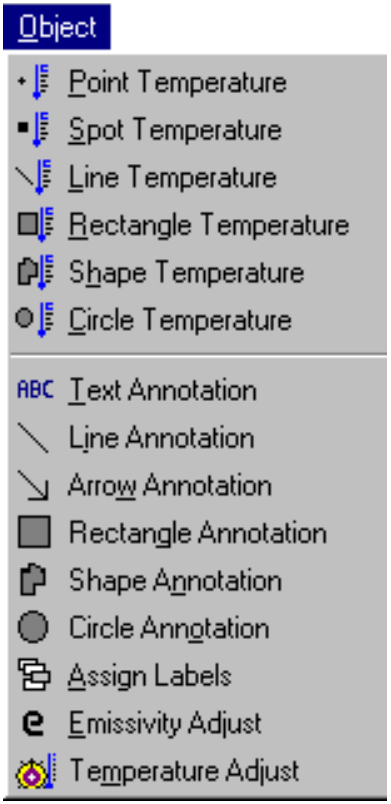


The Object Menu

Location

Frame Grabber Module and Image Editor.

The following functions are found in the Object Menu



1. Point temperature
2. Spot Temperature
3. Line Temperature
4. Rectangle Temperature
5. Shape Temperature
6. Circle Temperature
7. Text Annotation
8. Line Annotation
9. Rectangle Annotation
10. Shape Annotation
11. Circle Annotation
12. Assign Labels
13. Emissivity Adjust
14. Temperature Adjust

Special usability features

NOTE: to help the user in locating the temperature point, mouse temperature should be turned on in preference. This displays the temperature under the mouse cursor.

The following is true of an IRRIS 256 camera

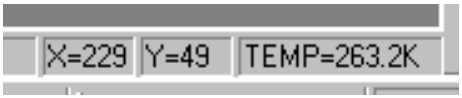
In the illustration shown below the STATUS BAR shows the MOUSE CURSOR location in X and Y pixel locations. For example the upper left hand corner of a LIVE IMAGE would be X=0 and y= 0. The lower right hand corner would be x=254 and y = 254. If the image is expanded full size - to fill the entire screen irrespective of screen resolution - 640 by 480 even 1600 x 1200, this would still be true since we are showing pixel location.

A ZOOMED image will also show this but in a different manner. For example a ZOOM of location at x = 254 and 254 would show the entire image as z = 254 and y = 254 at any cursor location.

True of all cameras

Turning on Mouse Temperature in PREFERENCE SETUP will display the temperature under the mouse cursor as shown below. Images can have WHITE TOP HOT pixels originating with noise, which will give false readings. Spot which has the same function as POINT will average this out.

To turn mouse temperature on, set on by default, CLICK on FILE, CLICK on PREFERENCE, and THEN CLICK on SETUP TAB.



Related Tool Bars

Related topics

These should be reviewed studied prior to applying menu items. Example - editing, selecting, temperature objects, even the concept of an object is very important to a sound application of the functions in this menu.

1. Editing objects chapter 4.
2. Using the mouse chapter 4.
3. Speed menus chapter 4
4. preferences chapter 4
5. Edit menu.

The object menu is shown to the right. Emissivity and Temperature Adjust are GRAYED in the Frame Grabber module, but become available (not grayed) in the image editor.

Introduction to the Object Menu

An object is anything overlaid on an image, which is why this is called an object menu.

The Object Menu has 4 groups of functions.

5. temperature measurement tools
6. text
7. shapes
8. Miscellaneous tools related to temperature - labels, and emissivity and temperature adjustments.

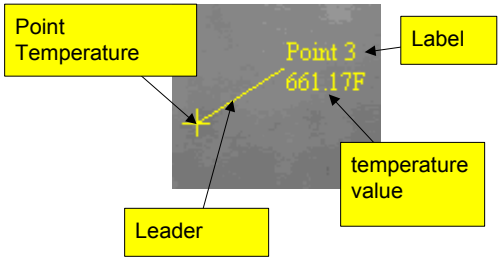
The material on temperature tools and how to use them requires careful study to apply. This is also true if the user wants to use more than just POINTS, and LINES, sincere there are other useful tools such as SPOT, ELIPSE/CIRCLE, and above all SHAPE.

Object Menu Functions

Point Temperature

Point Temperature extracts the temperature value of a single pixel of a temperature calibrated image. There is no limitation on the number these points that can be placed on the screen.

Point temperature illustration.



Point Temperature - marked with a +, and is the exact location of the temperature extraction.
Leader - LINE pointing to the temperature value and label.
Label - text describing the temperature extraction, in this case a POINT and POINT NUMBER 3.
Temperature value - extracted temperature value of the point.

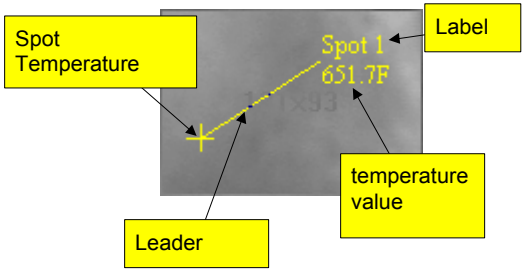
How to use Point Temperature Object -

1. CLICK on the Point Icon or CLICK on the Object Menu and then CLICK on Point Temp.
2. The Mouse Cursor will change to a +. Notice that the STATUS BAR displays Point Temp. Until another software function is selected - the software remains in this function.
3. Move this + to the place on the image where a point temperature object is desired. The temperature under the mouse cursor is placed on the status bar, which should help in located the desired temperature.
4. CLICK AND HOLD DOWN the LEFT MOUSE BUTTON. Then while continuing to HOLD DOWN THE MOUSE BUTTON, move the mouse to place the leader.
5. When in the desired location RELEASE THE LEFT MOUSE BUTTON. A label and temperature value will be placed at the END OF THE LEADER.
6. The point temperature now is in an EDITABLE CONDITION as indicated by the RECTANGLES at both ends of the leader. Every edit function of this software can be applied NOW EXCEPT the ability to MOVE the TEMPERATURE OBJECT. If the right button is NOW CLICKED a SPEED MENU relating to the Point Temperature extraction now displays. Any of the active ICONS, anything in the Ribbon Bar, any of the items in the Speed Menu, and the keyboard functions can be applied. **IT REMAINS EDITABLE until Point Temperature is de-selected, or another temperature extraction is done.**

The software user should review the chapter on Editing in this manual.

Spot Temperature

Spot Temperature extracts the average temperature value of a 3X3 array of pixels (a 9 pixel area). There is no limitation on the number of Spot objects that can be placed on the screen.



Spot Temperature - marked with a +, and is the exact location of the temperature extraction.
Leader - LINE pointing to the temperature value and label.
Label - text describing the temperature extraction, in this case a POINT and POINT NUMBER 3.
Temperature value - extracted temperature value of the point.

How to use Spot Temperature Object -

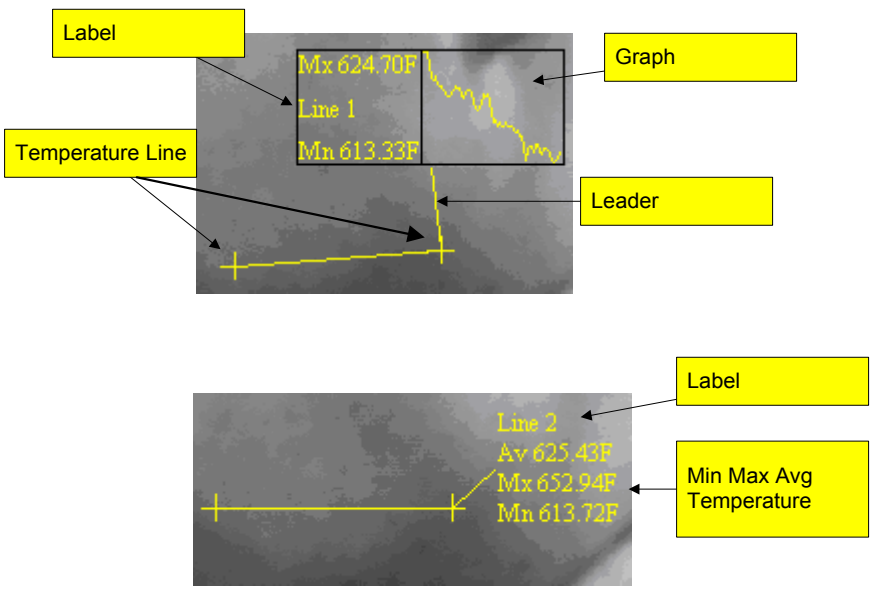
1. CLICK on the Spot Icon or CLICK on the Object Menu and then CLICK on Spot Temp.
2. The Mouse Cursor will change to a +. Notice that the STATUS BAR displays Spot Temp. Until another software function is selected - the software remains in this function.
3. Move this + to the place on the image where a spot temperature object is desired. The temperature under the mouse cursor is placed on the status bar, to locate the desired temperature.
4. CLICK AND HOLD DOWN the LEFT MOUSE BUTTON. Then while continuing to HOLD DOWN THE MOUSE BUTTON, move the mouse to place the leader.
5. When in the desired location RELEASE THE LEFT MOUSE BUTTON. A label and temperature value will be placed at the END OF THE LEADER.
6. The spot temperature is now EDITABLE as indicated by the RECTANGLES at both ends of the leader. Every edit function of this software can be applied NOW EXCEPT the ability to MOVE the TEMPERATURE OBJECT. If the right button is NOW CLICKED a SPEED MENU relating to the Point Temperature extraction now displays. Any of the active ICONS, anything in the Ribbon Bar, any of the items in the Speed Menu, and the keyboard functions can be applied. **IT REMAINS EDITABLE until Point Temperature is de-selected, or another temperature extraction is done.**

The software user should review the chapter on Editing in this manual.

Line Temperature

Line temperature takes the value of each pixel along a line and takes the average, minimum, and maximum of those pixels. There is no limitation on line length or the number of lines that can be annotated.

Lines can be graphed at the end of a leader as shown below, or displayed as a MIN, MAX, and AVG value as shown below. These options can be exercised by RIGHT CLICKING the Mouse when Line is SELECTED, and CLICKING on Graph in the displayed SPEED MENU. This graph has nothing to do with the graph module accessed in the Report Menu.



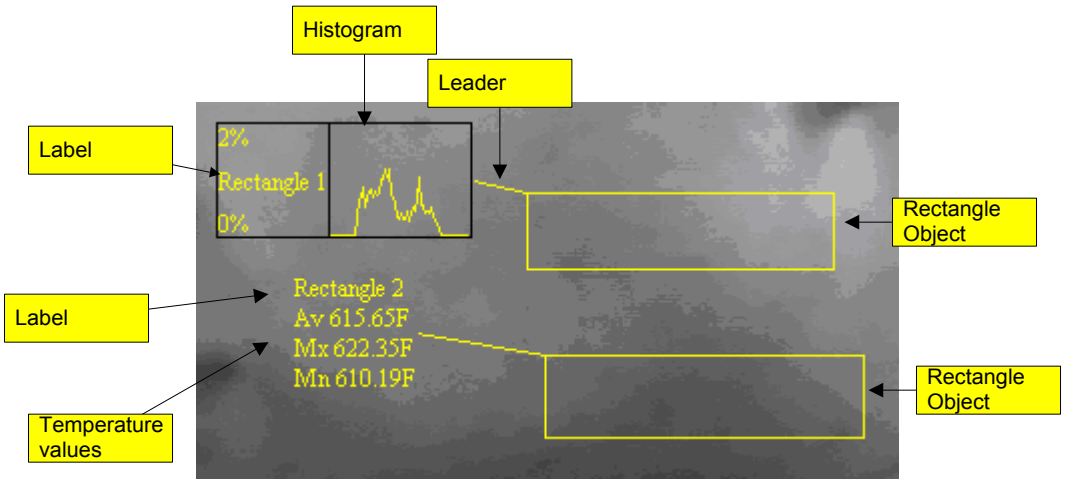
How to use Line Temperature Object -

1. CLICK on the Line Icon or CLICK on the Object Menu and then CLICK on Line Temp.
2. The Mouse Cursor will change to a +. Notice that the STATUS BAR displays Line Temp. Until another software function is selected - the software remains in this function.
3. Move this + to the place on the image where the beginning of the Line temperature object is desired. The beginning can be either the LEFT or RIGHT OF THE LINE. The temperature under the mouse cursor is placed on the status bar, which should help in located the desired temperature.
4. CLICK AND HOLD DOWN the LEFT MOUSE BUTTON. Then while continuing to HOLD DOWN THE MOUSE BUTTON, move the mouse to place the LINE.
5. When in the desired location RELEASE THE LEFT MOUSE BUTTON. And CLICK the LEFT MOUSE BUTTON AGAIN and then while continuing to HOLD DOWN THE MOUSE BUTTON, move the mouse to place a leader. When the leader is placed in the desired position and length RELEASE the MOUSE BUTTON to ANCHOR. label and temperature annotation is then placed at the END OF THE LEADER.
6. The Lead Temperature Object is EDITABLE as indicated by the RECTANGLES at both ends of the object. Every edit function of this software can be applied NOW EXCEPT the ability to MOVE the TEMPERATURE OBJECT. If the right button is NOW CLICKED a SPEED MENU relating to the Point Temperature extraction now displays. Any of the active ICONS, anything in the Ribbon Bar, any of the items in the Speed Menu, and the keyboard functions can be applied. The Line Temperature Object **REMAINS EDITABLE until Line Temperature is de-selected, or another temperature extraction is done.**

Related topics

CLICK on Report, and CLICK on Graph to access the Graph Module to graph a Line Temperature Object. Review Chapter 5 on the Event Manager to see how this temperature object is used in the event manager.

Rectangle Temperature



Rectangle temperature object takes the average, minimum, and maximum values of all the pixels with the boundaries of that rectangle. There is no limitation on the number of these that can be taken on one image.

Rectangle objects can be mini graphed as a histogram placed at the end of a leader as shown below, or displayed as a MIN, MAX, and AVG value as also shown below. These options can be exercised by RIGHT CLICKING the Mouse when Rectangle is SELECTED, and CLICKING on Graph in the displayed SPEED MENU. This graph has nothing to do with the graph module accessed in the Report Menu.

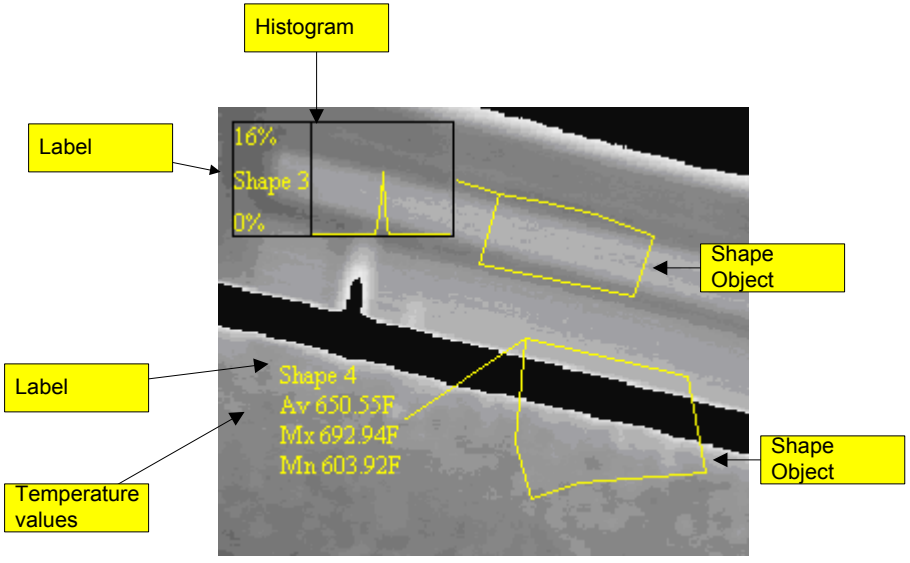
How to use Rectangle Temperature Object -

1. CLICK on the Rectangle Icon or CLICK on the Object Menu and then CLICK on Rectangle Temp.
2. The Mouse Cursor will change to a +. Notice that the STATUS BAR displays Rectangle Temp. Until another software function is selected - the software remains in this function.
3. Move this + to the corner of the planned rectangle object from which the leader will emerge. Refer to the illustrations above, to see how the leader emerges from one of the 4 corners. The temperature under the mouse cursor is placed on the status bar, which should help in locating the desired temperature. X and Y coordinates are also supplied as an aide to the location of successive temperature objects.
4. CLICK AND HOLD DOWN the LEFT MOUSE BUTTON. Then while continuing to HOLD DOWN THE MOUSE BUTTON, move the mouse to the right or left and up or down to form and place the RECTANGLE.
5. When the desired shape is obtained RELEASE THE LEFT MOUSE BUTTON. Move the MOUSE BUTTON AGAIN to locate and form the LEADER. When the leader is placed in the desired position and length RELEASE the MOUSE BUTTON to ANCHOR. label and temperature annotation are then placed at the END OF THE LEADER.
6. The Lead Temperature Object is now EDITABLE as indicated by the RECTANGLES at the corners of the rectangle. Every edit function of this software can be applied NOW EXCEPT the ability to MOVE the TEMPERATURE OBJECT. If the right button is NOW CLICKED a SPEED MENU relating to the Point Temperature extraction now displays. Any of the active ICONS, anything in the Ribbon Bar, any of the items in the Speed Menu, and the keyboard functions can be applied. The Rectangle Temperature Object **REMAINS EDITABLE until Rectangle Temperature is de-selected, or another temperature extraction is done.**

Related topics

CLICK on Report, and CLICK on Graph to access the Graph Module to graph a Rectangle Temperature Object. Review Chapter 5 on the Event Manager to see how this temperature object is used in the event manager.

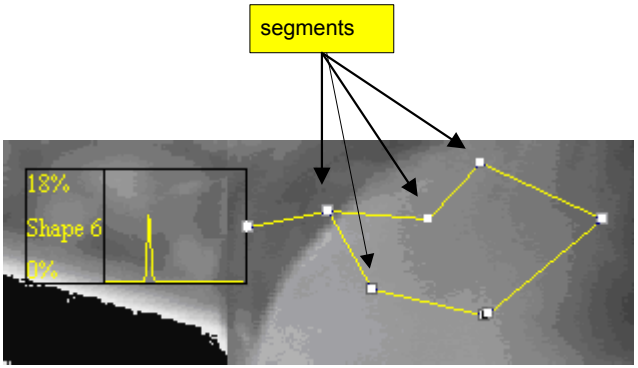
Shape Temperature



Shape Temperature object takes the average, minimum, and maximum values of all the pixels with the boundaries of that shape. Shape is drawn with a series of segments that enclose a geometric area. There is no limitation on the number of segments or on the number of shapes that can be taken on one image.

Shape objects can be mini graphed as a histogram placed at the end of a leader as shown below, or displayed as a MIN, MAX, and AVG value as also shown below. These options can be exercised by RIGHT CLICKING the Mouse

when Shape is SELECTED, and CLICKING on Graph in the displayed SPEED MENU. This graph has nothing to do with the graph module accessed in the Report Menu.



How to use Shape Temperature Object -

1.CLICK on the Shape Icon or CLICK on the Object Menu and then CLICK on Shape Temperature.
2.The Mouse Cursor will change to a +. Notice that the STATUS BAR displays Shape Temperature. Until another software function is selected - the software remains in this function.
3.Move this + to the FIRST SEGMENT of the planned SHAPE OBJECT object from which the leader will emerge. Refer to the illustrations above, to see how the leader emerges from a FIRST SEGMENT The Temperature under the mouse cursor is placed on the status bar, which should help in locating the desired temperature. X and Y coordinates are also supplied as an aide to the location of successive temperature objects.

4. CLICK the LEFT MOUSE BUTTON. Then move the mouse to draw a line to the next segment location and CLICK the Mouse, to place a segment. Continue to due this until the entire shape except for the last line to enclose totally the shape is done. Then DOUBLE CLICK THE LEFT MOUSE BUTTON and the SHAPE will enclosed itself, by finishing the last line.
5. Move the MOUSE BUTTON AGAIN to locate and form the LEADER. When the leader is placed in the desired position and length CLICK the MOUSE BUTTON to ANCHOR. label and temperature annotation are then placed at the END OF THE LEADER.
6. The Lead Temperature Object is now EDITABLE as indicated by the RECTANGLES at the corners of the rectangle. Every edit function of this software can be applied NOW EXCEPT the ability to MOVE the TEMPERATURE OBJECT. If the right button is NOW CLICKED a SPEED MENU relating to the Point Temperature extraction now displays. Any of the active ICONS, anything in the Ribbon Bar, any of the items in the Speed Menu, and the keyboard functions can be applied. The Shape Temperature Object **REMAINS EDITABLE until Shape Temperature is deselected, or another temperature extraction is done.**

Related topics

CLICK on Report, and CLICK on Graph to access the Graph Module to graph a Shape Temperature Object. Review Chapter 5 on the Event Manager to see how this temperature object is used in the event manager.

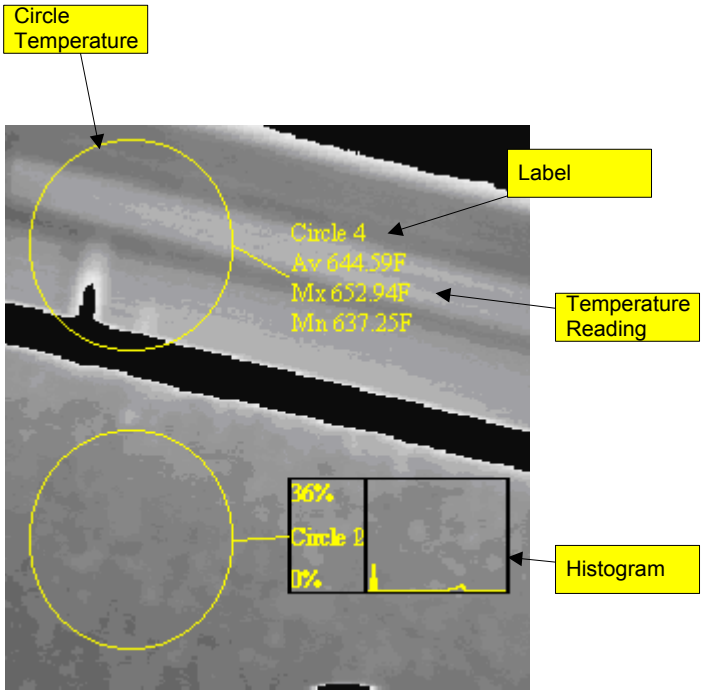
Circle Ellipse Temperature

Circle Temperature object takes the average, minimum, and maximum values of all the pixels with the boundaries of that shape. Shape is drawn with a series of segments that enclose a geometric area. There is no limitation on the number of segments or on the number of shapes that can be taken on one image.

Shape objects can be mini graphed as a histogram placed at the end of a leader as shown below, or displayed as a MIN, MAX, and AVG value as also shown below. These options can be exercised by RIGHT CLICKING the Mouse when Shape is SELECTED, and CLICKING on Graph in the displayed SPEED MENU. This graph has nothing to do with the graph module accessed in the Report Menu.

How to use Circle Temperature Object -

1. CLICK on the Circle Icon or CLICK on the Object Menu and then CLICK on Circle Temperature.
2. The Mouse Cursor will change to a +. Notice that the STATUS BAR displays Circle Temperature. Until another software function is selected - the software remains in this function.
3. Move this + to center of the planned CIRCLE OBJECT object. The Temperature under the mouse cursor is placed on the status bar, which should help in locating the desired temperature. X and Y coordinates are also supplied as an aide to the location of successive temperature objects.
4. CLICK the LEFT MOUSE BUTTON. WHILE HOLDING DOWN THE MOUSE BUTTON move the mouse to draw a CIRCLE OR ELIPSE. CLICK the Mouse to anchor and finish the circle.



5. Move the MOUSE BUTTON AGAIN to locate and place a leader LEADER. A circle allows the user to drag the leader around the circumference of the circle. When the leader is placed in the desired position and length CLICK the MOUSE BUTTON to ANCHOR. label and temperature annotation are then placed at the END OF THE LEADER.
6. The Lead Temperature Object is now EDITABLE as indicated by the RECTANGLES at the corners of the rectangle. Every edit function of this software can be applied NOW EXCEPT the ability to MOVE the TEMPERATURE OBJECT. If the right button is NOW CLICKED a SPEED MENU relating to the Point Temperature extraction now displays. Any of the active ICONS, anything in the Ribbon Bar, any of the items in the Speed Menu, and the keyboard functions can be applied. The Circle Temperature Object **REMAINS EDITABLE until Circle Temperature is de-selected, or another temperature extraction is done.**

Related topics

CLICK on Report, and CLICK on Graph to access the Graph Module to graph a Circle Temperature Object. Review Chapter 5 on the Event Manager to see how this temperature object is used in the event manager.

Text

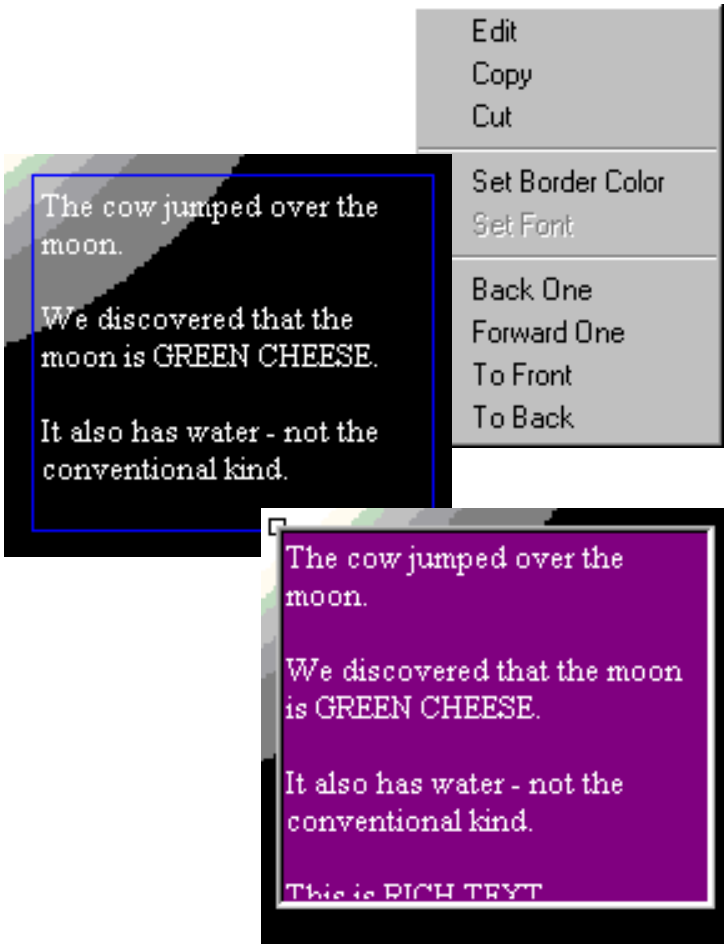
Text uses a method called RICH TEXT to annotate text on LIVE Images, in the Image Editor, or a Template.

This function permits SCROLLING, WRAP, AND APPLICATION OF ALL THE WINDOWS FONT ATTRIBUTE. Rich text permits any of the normal keyboard functions associated with writing text except TABS.

A transparent text box with a border is shown to the left.

A text box is shown below that. Note that its color is different. It also has a border placed around it.

NOTE: before working through the procedure below UNDERSTAND the Properties Menu functions that relate to text. This is especially true of theTRANSPARENT function, since it can appear to cause BACKGROUND to fail.



How to...

Follow these THREE STEPS:

To place new text on the screen. CLICK on the ABC tool. The mouse turns INTO A RAIL. Place this RAIL on the UPPER LEFT HAND corner of the text box that is going to be drawn. DRAG a RECTANGLE to the required size. It can be edited to a new shape or size later. Then place the RAIL CURSOR in the upper left hand corner and begin to type text. NOTE: the user could see the rail cursor and then attempt to begin writing text.

To edit text. Move the mouse cursor OUT OF THE TEXT BOX or into the adjacent area. CLICK the Mouse. The speed menu shown to the left will display. CLICK on Edit. This will restore the RAIL CURSOR. Place the rail cursor in the text box and perform any keyboard edit function normal to windows.

To change the size or shape of the text box. Any time edit text has been clicked or anytime the user moves the mouse cursor off the text box and clicks the border of the text box can be RESHAPED. Text existing in the box will FLOW to the new shape with PERFECT WORD WRAPPING.

Arrow draw

CLICK on Object and then CLICK on Arrow access the arrow draw function. The status bar says Arrow and the software remains in this function until a new function is selected or a new object is selected.

Arrow is a fully editable object.

How to use...
CLICK to place on the arrow tip on the screen, then while holding down the mouse button drag the arrow body to any desired position and length. Note movement of the mouse rotates the arrow around the tip.

The arrow is placed as an editable object when first placed until deselected.

CLICK the Right Mouse Button to access a SPEED MENU with functions that can be used to edit the arrow.

Line Draw

Line draw functions identically to Arrow draw.

Rectangle Draw

CLICK on RECTANGLE TOOL or CLICK on OBJECT and then CLICK on Rectangle to access this function. The status bar says Rectangle Annotation and the software remains in this function until a new function is selected or a new object is selected.

Rectangle is a fully editable object.

How to use...
CLICK the Mouse on the Screen where the upper left hand corner of the rectangle is to be placed. Then while holding down the button drag the rectangle to the size and position desired.

The Rectangle is placed as an editable object when first placed until deselected.

CLICK the Right Mouse Button to access a SPEED MENU with functions that can be used to edit the new rectangle.

Circle/Ellipse Draw

CLICK on CIRCLE TOOL or CLICK on OBJECT and then CLICK on CIRCLE to access this function. The status bar says Circle Annot and the software remains in this function until a new function is selected or a new object is selected.

Circle/Ellipse is a fully editable object.

How to use...
CLICK the Mouse on the Screen where the CENTER OF THE CIRCLE OR ELIPSE WOULD BE PLACED. Then while holding down the button drag the circle/ellipse to the size and position desired.

The CIRCLE is placed as an editable object when first placed until deselected.

CLICK the Right Mouse Button to access a SPEED MENU with functions that can be used to edit the new circle.

Shape Draw

CLICK on SHAPE TOOL or CLICK on OBJECT and then CLICK on SHAPE to access this function. The status bar says Circle Annot and the software remains in this function until a new function is selected or a new object is selected.

Shape is a editable object.

How to use...

CLICK the Mouse on the Screen to place the beginning of the FIRST SEGMENT of the planned SHAPE OBJECT object. Refer to the illustrations on Shape Temperature above, to see how a shape is drawing with SEGMENTS. Move the mouse to draw a line to the next segment location and CLICK the Mouse, to place a segment. Continue to due this until the entire shape except for the last line to enclose totally the shape. Then DOUBLE CLICK THE LEFT MOUSE BUTTON and the SHAPE will enclosed itself, by finishing the last line.

Shape takes some practice to do proficiently - but there is no other way to annotate irregular areas of interest on an image. There is no limit on the number of segments.

Shape is placed as an editable object when first placed until deselected.

CLICK the Right Mouse Button to access a SPEED MENU with functions that can be used to edit the new shape.

Assign Labels

A label is the identification that the software uses to distinguishes each temperature object. Example Point 1, Point 2, or Line 5, or Line 10. Labels are automatically annotated on the image when a temperature object is used. There are two components to a label - INDEX a numerical number, and Text such as Point, Reference, Fault, Phase 3, etc. Refer to the illustrations used in the temperature objects, such as Point, Line, Shape, etc. The software user must understand the topic of Index to effective use Labels.

A default label of Point, Line, etc. is ALWAYS loaded. There is no

The setting of the Image Tab in Preference located in the File Menu loads a default label menu each time the software loads. Check this by CLICKING on File, CLICKING on Preference, and CLICKING on Image.

Use this control to make new labels, edit them, save them, load them, etc.

How to use...

Label - use this to enter a new label by CLICKING on Add and then typing in not more than 45 alphanumeric characters. Or when a label is selected as in the illustration above, CLICK on Modify to edit the label.

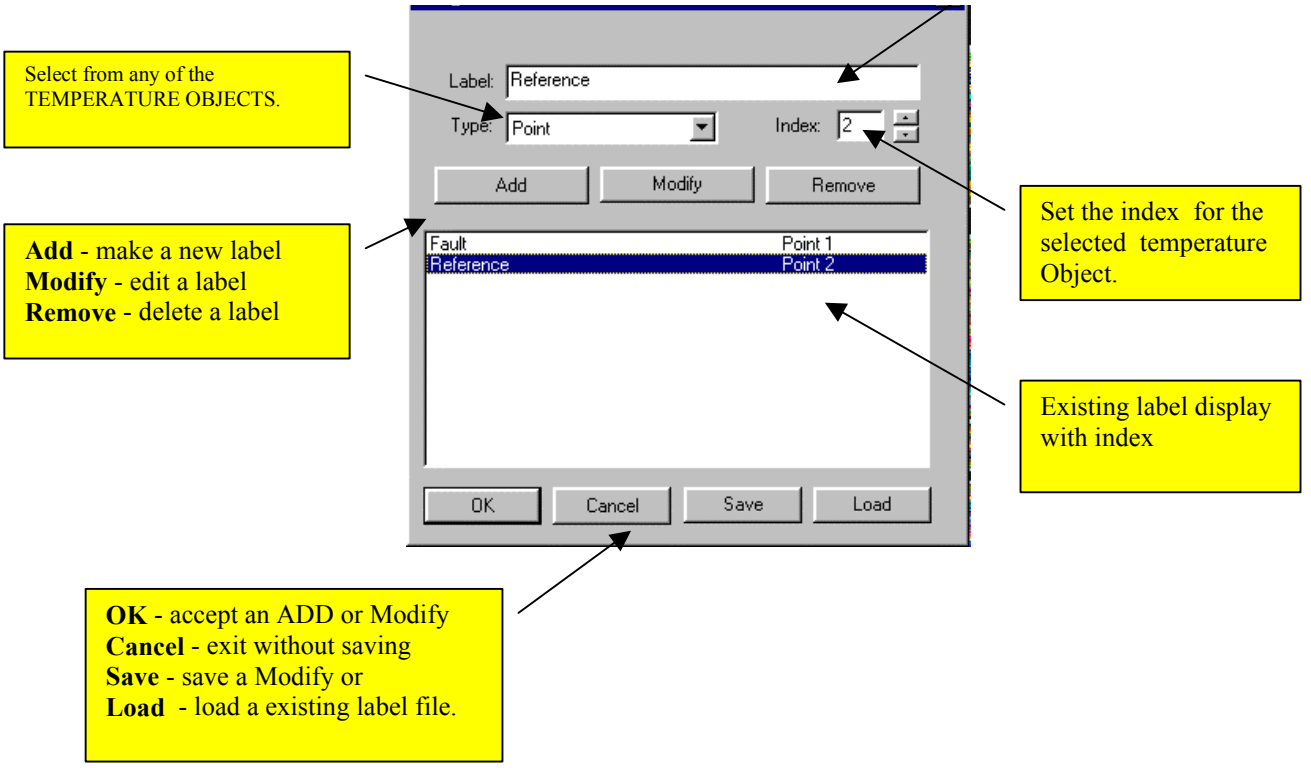
Type - use this List Control to select any of the temperature object such as Point, Line, Rectangle, Circle, Spot, and Shape.

Index - Assign a difference index number for each temperature object of the same kind. For example a series of POINTS would be labeled 1, 2, 3, etc., successively. A line or any other temperature object could have the same series of numbers.

Save - When done CLICK on Save to save any work done.

OK - Click on OK is it is desired to USE a new or changed label but not save it.

Load - CLICK on Load to load a Label file.

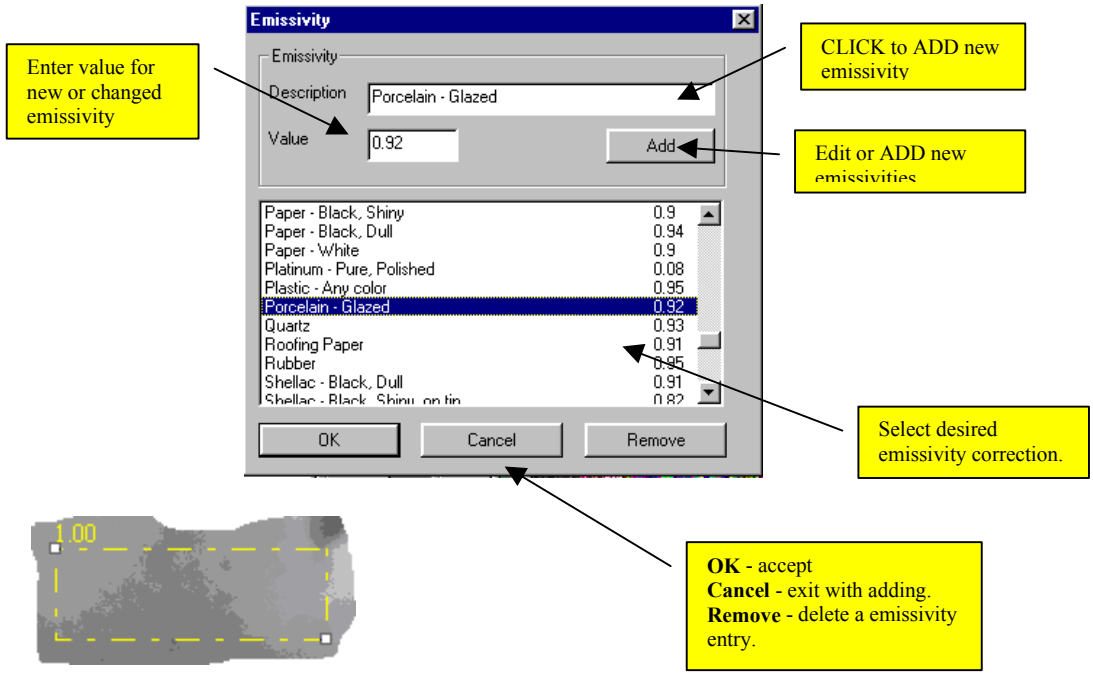


Emissivity Adjust

The emissivity adjust function allows the user to place a ROI in the form of a rectangle on the screen and then select or edit an emissivity correction for that ROI.

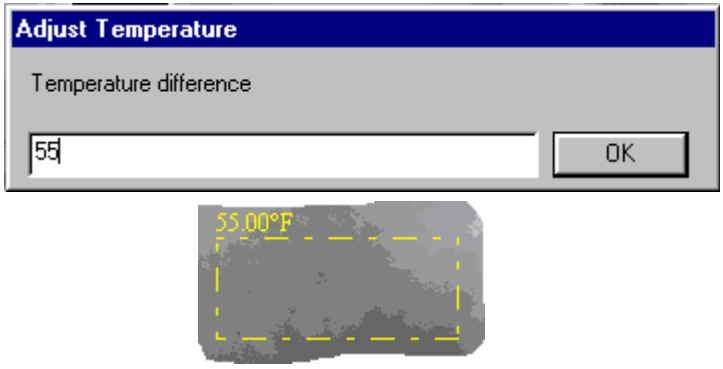
How to...

CLICK on the Object Menu, then CLICK on Emissivity Adjust. The mouse cursor will change into a +. Place this cursor on the upper left corner of the rectangle forming the AREA OF EMISSIVITY ADJUSTMENT or AOEA. Then while holding down the mouse drag the resulting rectangle in the shape and position desired. When done CLICK to anchor. The control shown below will then display. Select the desired emissivity and CLICK OK.



The result is a rectangle with a dashed line with the desired emissivity correction just above that line. This rectangle is a fully editable object.

Temperature Correction



The temperature adjust function allows the user to place a ROI in the form of a rectangle on the screen and then select a temperature correction for that TEMPERATURE CORRECTION REGION or TCR.

How to.

CLICK on the Object Menu, then CLICK on Temperature Correction. The mouse cursor will change into a +. Place this cursor on the upper left corner of the rectangle forming the TCR. Then while holding down the mouse drag the resulting rectangle into the shape and position desired. When done CLICK to anchor the TCR. The control shown below will then display. Type in the desired TCR and CLICK OK.

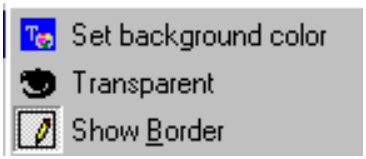
The result is a rectangle with a dashed line with the desired temperature correction just above that line. This rectangle is a fully editable object.

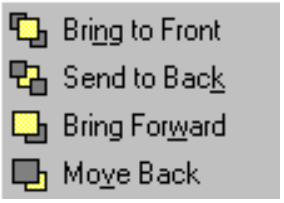
The Properties Menu

Location

Frame Grabber Module and Image Editor.

The following functions are found in the Object Menu





1. Font
2. Set Color
3. Line Width
4. Minigraph Options
5. Text
6. Fill Shape
7. Show Graph
8. Set Object Emissivity
9. Celsius
10. Fahrenheit
11. Kelvin
12. Display Order

*NOTE: Visible applies only to the Frame Grabber Menu.

Related topics

These should be reviewed when studying any of the properties menu items.

6. Editing objects chapter 4.
7. Using the mouse chapter 4.
8. Speed menus chapter 4
9. Preferences chapter 4
10. Edit menu.

Related Tool Bars

Introduction to the Properties Menu

The Properties Menu is used to SET ATTRIBUTES FOR A SELECTED OBJECT, which may alter the defaults set in preference.

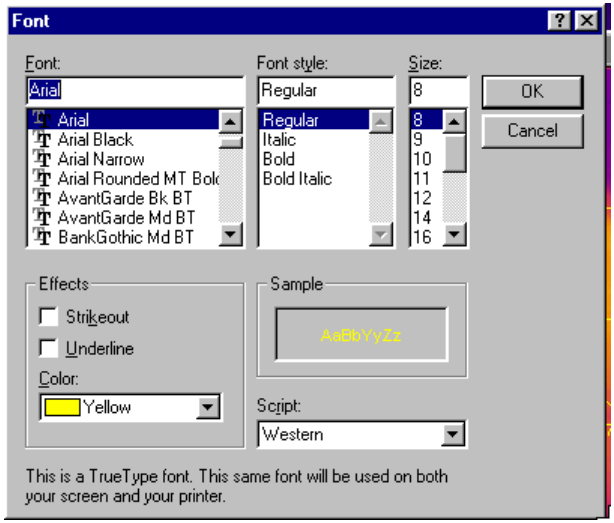
Object attributes can be made distinctive and unique from other objects to call attention to a particular feature of an IR image.

NOTE: some of the menu items are grayed. These remain grayed until an object is selected.

Not all of the objects have the same properties, which means that not all of the functions described in the properties menu can be applied.

The Functions of the Properties Menu

Font



Font uses a standard Windows font control to set the properties of a font.

These font adjustments apply to any objects that uses a font. The exception are the tool bars which includes the COLOR BAR.

These adjustments are made ONLY to the selected OBJECT. Preferences font settings are the default settings. To undo FONT SETTINGS, and revert to the default settings, CLICK on Edit and then CLICK on Undo.

How to use...

CLICK on the Properties Menu and then CLICK on Font. The control shown to the left pops up. From there set the Font and what font attributes that are desired.

NOTE: Some of the attributes such as color, overlap with other functions and tools. Either can be used since they are all fully functional.

Set Color

Use SET COLOR to set a COLOR for a selected object. This could overrides the color annotations settings in Preferences for Fill Object.

These adjustments are made ONLY to the selected OBJECT. Preferences Color Annotation Settings are the default settings.

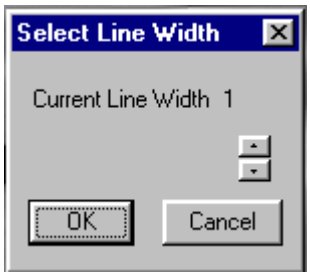
To undo SET COLOR, CLICK on Edit and then CLICK on Undo.

How to use...

CLICK on the Properties Menu and then CLICK on Set Color. Then use the color control to select a color, by double clicking on a color.

NOTE: if a object with a border only is selected SET COLOR will apply to that border. If that OBJECT has been filled with Fill Object Set COLOR will change the color at ONCE.
Text

Line Width



These adjustments are made ONLY to a selected OBJECT. Preferences Color Annotation Settings are the default settings. To undo SET WIDTH, CLICK on Edit and then CLICK on Undo.

How to use...
CLICK on the Properties Menu and then CLICK on Set Width. Then use the control shown to the RIGHT to set a width.

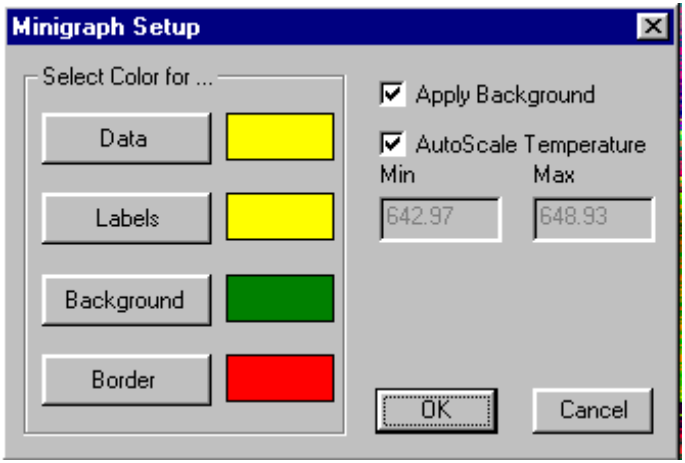
Current Line Width shows the line width for a SELECTED OBJECT. Use the UP/DWN buttons to increase or reduce a line with.

To APPLY this setting, CLICK on OK. Use cancel to exit without changing the line width.

Minigraph Options

These adjustments are made ONLY to the selected temperature OBJECT with a minigraph or histogram RUNNING. Preferences Minigraph Settings are the default settings. To undo changes to Minigraph Setup, CLICK on Edit and then CLICK on Undo.

How to use...



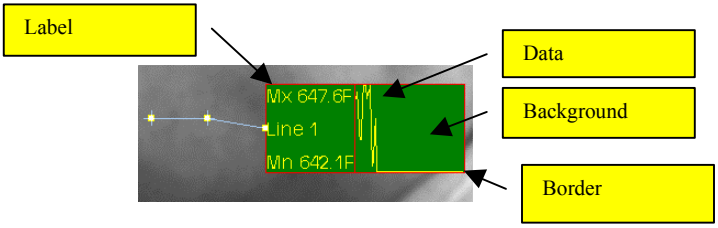
DATA - Set the color of the graph portion of the MINIGRAPH
.
LABELS -Set the color of the Label portion of the MINIGRAPH.

BACKGROUND - Set the color of the Background of the MINIGRAPH.

BORDER - Set the color of the border of the MINIGRAPH.

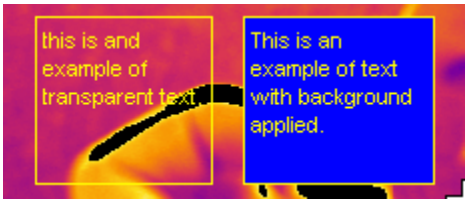
APPLY BACKGROUND - Enable the background

AUTO SCALE TEMPERATURE
CHECK to enable auto set. This means that the software finds the maximum and minimum temperature values for the temperature object and displays those as a graph.
UNCHECK - the user can set values for the graph manually.



Text

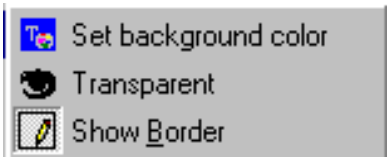
This function sets ATTRIBUTES for TEXT. To place TEXT use the text function in the Object Menu.



The user must understand that text <u>when text is being entered</u> is ALWAYS NOT TRANSPARENT. This is done because it is difficult to place text directly on the image. BLACK is the default color used. At this time SET BACKGROUND COLOR is functional and does not require TRANSPARENT to be SET FIRST.

How to...

CLICK on TEXT and the SUB MENU shown to the left DISPLAYS. The set of three functions apply to a text frame created with the Text in the Object Menu.



SET BACKGROUND COLOR
To apply this function initially to a text frame TRANSPARENT MUST BE SET FIRST.

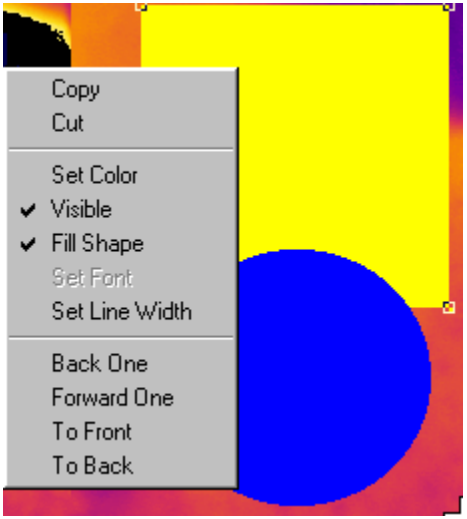
If the text object is ALREADY transparent then function is available and will apply without FIRST making the text object transparent.

Then CLICK on this function to access a WINDOWS COLOR SELECTION DIALOG. From this select the desired color. A custom color can also be specified.

The effect of applying this function is to make the background a SOLID COLOR so that the user cannot see through the text box to the underlying image.

TRANSPARENT
Follow these steps

1. Create a text frame with TEXT.
2. Then select that text frame.
3. CLICK on Transparent - the EYE becomes UNGRAYED indicating that the TEXT FRAME is transparent.



Show Border

By default a border is ALWAYS placed around a TEXT OBJECT. This function removes that border.

How to use...

Select the text object. Then CLICK on Show Border. If a border exists this will remove the border. If a border did not exist this will place a border around a TEXT OBJECT.

Fill Shape

Uses the color applied by SET COLOR or set in Preferences Annotations, to fill an object with a SOLID COLOR. Objects always display initially with an OUTLINE. ALSO - this function fills only objects that HAVE an OUTLINE property.

How to use...

Select the object first. Then CLICK on the Properties Menu and CLICK on Fill Shape.

Alternatively RIGHT CLICK on the selected object to obtain a SPEED MENU such as the one shown ABOVE.

Show Graph

Displays a LINE GRAPH at the end of the leader on Line temperature objects, and a histogram at the end of the leader for Shape, Rectangle, and Circle.

How to use...
Select the temperature object first, then CLICK on the Properties Menu and then CLICK on Show Graph. Use mini-graph setup if the defaults set in preferences need adjustment.

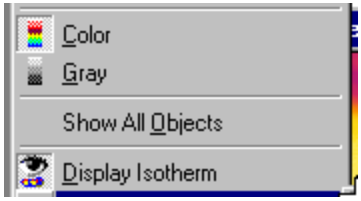
Visible

This function applies ONLY to the Frame Grabber Module.

The function removes a selected object from view. Other properties of the object are not changed - for example a temperature object will continue to send temperature information to the event manager.

How to use...

This function MUST work in CONCERT with the Show All Objects function located in the Image Menu. For this function to work the Show All Objects must have no CHECK MARK. **Only THEN will the VISIBLE function become AVAILABLE.**

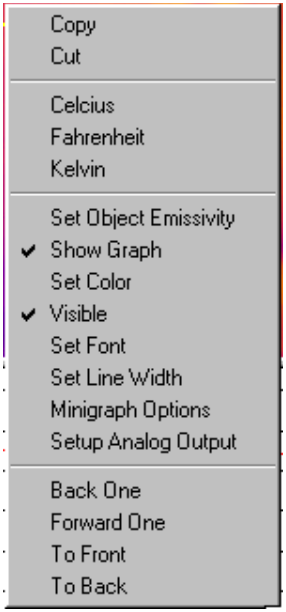


To use this function use the following 5 steps

7. Insure that Show All Objects is NOT checked.
8. Select the object.
9. CLICK on Properties and then CLICK on Visible.
10. NO check mark in front of the control means has invisible property.
11. Then CLICK off the OBJECT onto the rest of the image.

To make the object visible...
Select the object again and then CLICK on Visible to restore the check mark and make the selected object visible.

If it is difficult to find the object made invisible with this function go to the Image Menu and CLICK on Show All Objects to REMOVE THE CHECK MARK. All objects made invisible will display.



Show Graph

This function displays a mini-graph associated with a selected temperature object such as LINE, CIRCLE, SHAPE, and RECTANGLE.

This mini-graph provides MIN, MAX, AVG values along with a line graph for line temperature objects. Circle, rectangle, and shapes display a histogram.

A mini-graph's attributes are set in PREFERENCES. To depart from this use a speed menu as shown below.

How to...

SELECT the temperature object. CLICK on the Properties Menu and then CLICK on Show Graph.

Alternatively SELECT the temperature object and RIGHT CLICK to pop up this SPEED MENU with a set of related functions, shown to the RIGHT.

In this set of functions the user can alter the attributes of a mini-graph from the defaults set in Preferences.

Set Object Emissivity

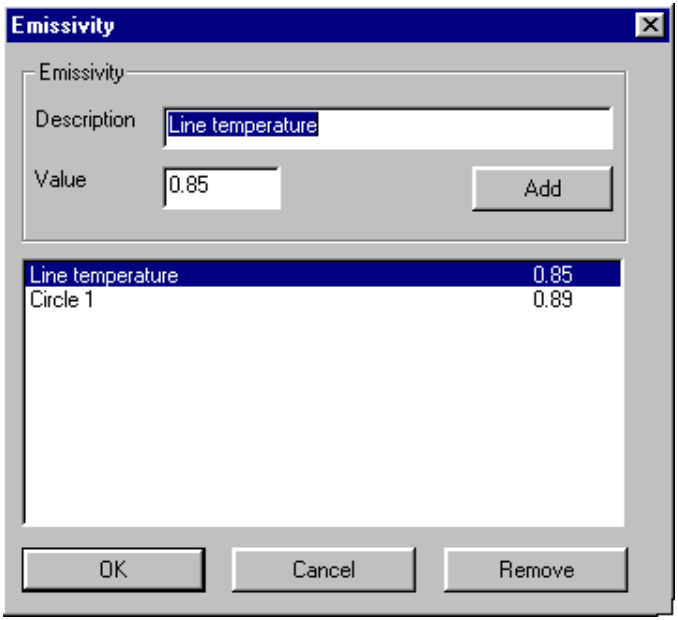
This function sets an emissivity value for a SELECTED TEMPERATURE object.

It does not adjust emissivity for a selected ROI, a function provided by Adjust Emissivity in the Object Menu.

These adjustments are entered, edited, and saved in a pop up control

How to use...

SELECT the temperature object. Then CLICK on Properties Menu and CLICK on Set Object Emissivity.



A dialog box like that shown to the left will pop up. Enter into description the appropriate description of the temperature object to be adjusted. Then enter a value of the adjustment >0 and < or = to 1.

NOTE: that the software will HIGH LIGHT the description if already placed in the dialog for the temperature object selected.

Temperature Units

This functions provides the ability to change units to Celsius, Fahrenheit, or Kelvin on a selected temperature objects.

All OTHER temperature objects CONTINUE to use the default units set in Preferences.

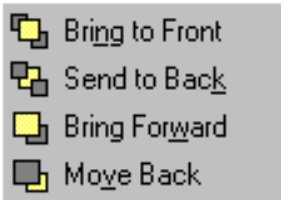
How to use...

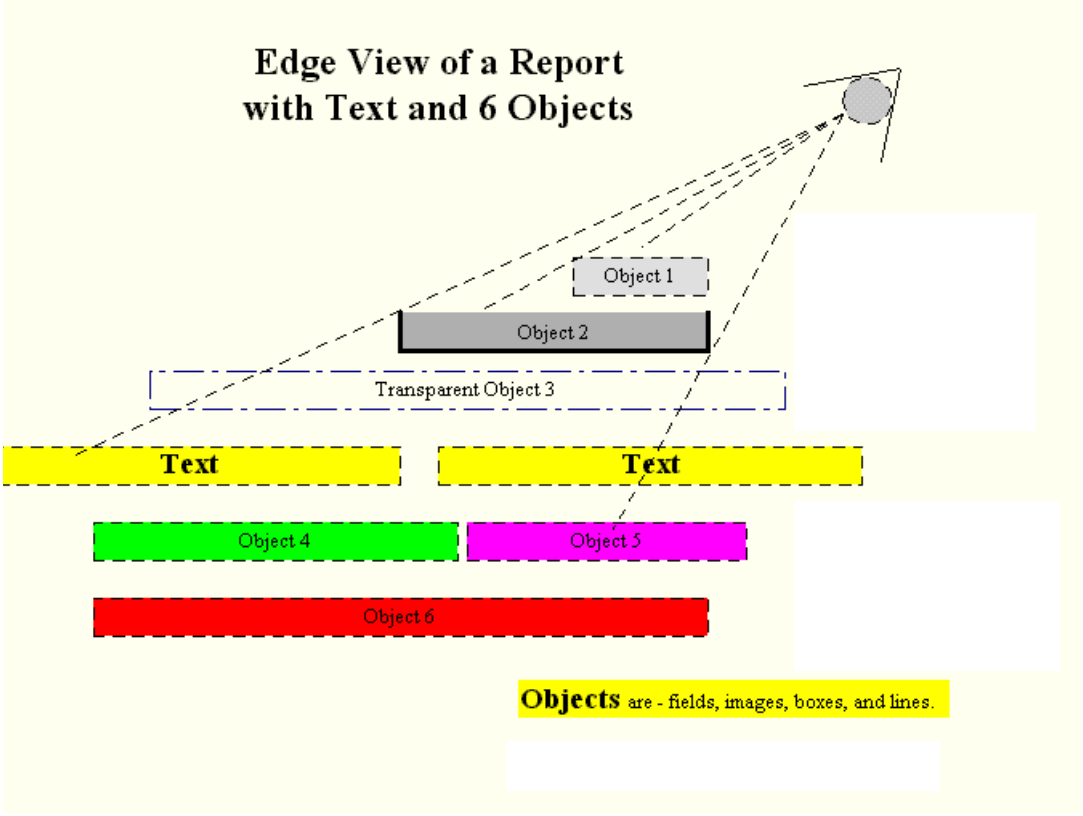
Select the object. Then CLICK on Properties and CLICK on Celsius, Fahrenheit, or Kelvin.

The SELECTED temperature object is recalculated and the temperature displays in the selected temperature.

Display Order

This function provides the ability to change the vertical relationship of SELECTED OBJECTS to another object in the same location.





How to use...

Select the object. CLICK on Properties, and then CLICK on Display Order. The sub menu shown to the right will display next to and attached to the Properties Menu.

Send Back One or Send Forward One - Move the selected object back one LAYER (down when look at a vertical cross section) or forward one layer (up when looking at a vertical cross section).

Send to the Front - Move a selected object in front of ALL other objects.

Send to the Back - Move a selected object back of ALL other objects.

The purpose of this function.

This function has special uses in the software. For example - place an Isotherm correctly in relationship in complex temperature displays.

Introduction to the Window Menu

Location

Frame Grabber Module, Image Editor, Report Editor and Graph Module.

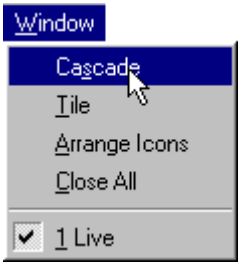
The following functions are found in the Windows Menu

1. Cascade
2. Tile
3. Arrange Icons
4. Close All
5. File List

Related topics

These should be reviewed when studying any of the properties menu items.

1. Editing objects chapter 3.
2. Using the mouse chapter 4.
3. Speed menus chapter 5
4. Preferences chapter 6
5. Edit menu.
6. GLOSSARY.



The Windows Menu

The Window Menu is shown to the right.

This menu contains Windows functions useful in handling images.

Introduction to Windows Menu Functions

The Windows menu has a set of functions that manipulate the software windows such as tile, and cascade. It also has a useful LAST USED FILE.

The Windows Menu Functions

Cascade

Position window or multiple windows (technically CHILD WINDOWS) so that the very first one is located in the upper left hand corner of the main window (technically a PARENT WINDOW).

Windows are arranged such that the title are visible in a cascading manner.

Due to the fact that a LIVE WINDOW in the Frame Grabber module is NOT RESIZEABLE it will assume the same size as all the other cascaded windows.

Tile

Arrange all the window or multiple windows so that they assume a TILED appearance within the main M9000 windows.

Due to the fact that a LIVE WINDOW in the Frame Grabber module is NOT RESIZEABLE or that this Windows functions does not take care of aspect ratios properly some distortion of the images will result.

This is primarily a tool for looking at a group of windows. It is especially useful with graphs, particularly LIVE GRAPHS.

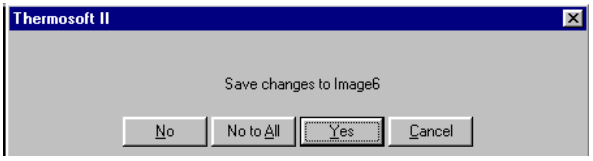
This software also loads multiple images from the Load Images function and tile can be useful in looking at all of them in a mosaic.

Arrange Icons

CLICK on the - sign to ICONIZE (windows 95 calls this an ICON when it is not, the result of this function is a no name windows entity). Use this function to arrange the ICONS in order along the bottom of the main window.

Close All

Click on Close Windows and Click on CLOSE All. The CONTROl shown below is displayed when there are multiple windows.

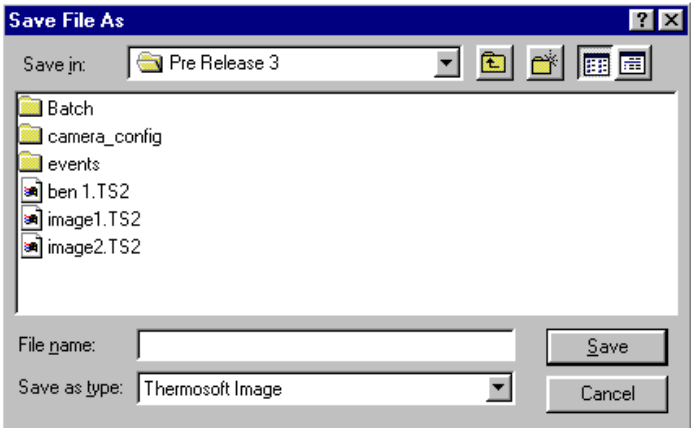


NO - Do not save the selected windows entity.

YES - Click on this to save a selected windows entity.
A standard Windows file save control is displayed. See the example shown below and to the right.

NO TO ALL - Click on this to close all the windows entities that ARE DISPLAYED. Be very careful with this control since it will destroy those windows. ONCE DONE THESE CAN'T BE RETRIEVED.

CANCEL - change of mind - put away the menu without doing anything.



Introduction to The Report Menu

Location

Frame Grabber Module, Image Editor, Report Editor and Graph Module.

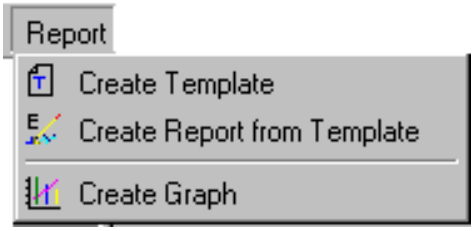
The following functions are found in the Report Menu

1. Create Template
2. Create Report from Template
3. View Graph

Related topics

These should be reviewed when studying any of the Report Menu functions.

1. Chapter 4 - Using the Software
2. Chapter 5 - Events Menu
3. Chapter 6 - Edit Menu
4. Chapter 7 - File Menu
5. Chapter 15 - Batch Menu
6. Chapter 16 - Format Menu
7. Chapter 17 - Field Menu
8. Chapter 18 - Link Menu
9. Chapter 19 - Report Editor Objects Menu
10. Chapter 21 - Graph Mode Menu
11. Chapter 22 - Graph Settings Menu



Introduction to the Report Menu Functions

The Report Menu is shown to the right.

This menu contains the functions that o access the template, reporting and graphing functions of the software. Or that access the Report Editor and Graph Module. These contain menus that have all the functions to create templates, make reports, and graph temperature data.

The menu functions

Create Template

This function will load a blank template for the creation of a NEW TEMPLATE.

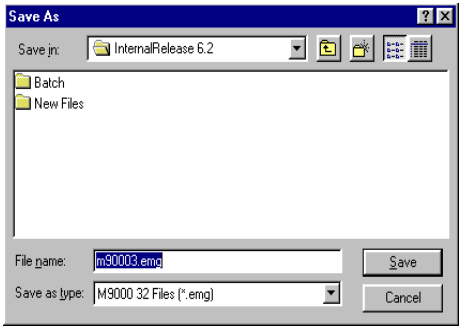
How to...

CLICK on Report and CLICK on Create Template. A blank report form is displayed.

All of the tool bar, and menu functions needed to CREATE a NEW TEMPLATE become available.

See chapter 20 for more information on the process of making templates.

When done with the work save the work by CLICKING on FILE and CLICKING on Save AS. Select the option in the drop down list for templates and save to the template directory created when the software is installed.



Create Report from Template

This function loads a PREVIOUSLY CREATED TEMPLATE.

The intention of this function is to USE a TEMPLATE CREATED PREVIOUSLY FOR MAKING A REPORT.

How to...

CLICK on Report and CLICK on Create Report from Template. Use the standard Windows file load menu to access the directory containing the templates. If templates are present they will show. Double CLICK on anyone of these to load into the software, to make a report.

Create Graph

This function uses the software graph functions to graph temperature data from Line, Rectangle, Shape, and Circle temperature objects.

How to...

A temperature object must be selected to be displayed.

CLICK on Report and CLICK on Create Graph.

Multiple objects

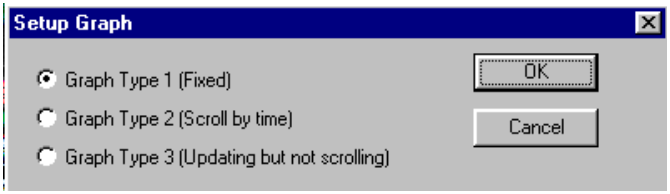
The graph module is capable of displaying data on a single graph from more than one temperature object. These can be of the same kind or different kinds. In other words the user can select a rectangle to display, a line, a circle, etc. The exception is that Line Temperature which does not have a histogram cannot be displayed with Shape, Circle, and Rectangle or histogram temperature data.

Do this by HOLDING DOWN THE SHIFT KEY OR THE CTRL KEY and then Left Mouse Button clicking on each temperature object to be displayed. There is no real limit as to the number of objects selected other than the practical one of space for a meaningful display.

Line Temperature Objects cannot be mixed with histogram types - Rectangle, Circle, and Shape in Graph Type 2, and Graph Type 3

CASE 1 - From LIVE IMAGES -

If this was done from the Frame Grabber module or from a LIVE IMAGE the Control shown to the right will be displayed.



This has three data display options

Graph Type 1 - (Fixed.) This displays a SNAP-SHOT of the temperature data extracted by the temperature object.

NOTE: this is available ONLY with LINE, RECTANGLE, SHAPE, and CIRCLE, because these temperature objects have multiple points.

Graph Type 2 - (Scroll by time). Scroll by time takes the average of the selected object and adds it to the right of a graph while moving the data it replaces to the left (scrolling). The scrolling speed is determined by the settings in the

Events - Set Measurement Rates. Since it takes the average of the data it ignore Histograms if present in Rectangle, Circle, and Shape and takes its average temperature.

Graph Type 3 - (Updating but not scrolling)

Temperature data is updated continuously. The Set Measurement Rates functions in the Events menu located in the Frame Grabber Module determines the update interval.

This type displays Line Temperature Object as the ACTUAL temperature along a line.Rectangle, Shape and Circle display a LIVE HISTOGRAM updated continuously.

CASE 2 - From the Image Editor.

The Setup Graph dialog does not display. Clicking on Create Graph sends the software directly to the Graph Module.

This displays a SNAPSHOT ONLY of the temperature data extracted by the temperature object. All the temperature objects can be graphed in this case.

The View Menu

Location

Image Editor, Report Editor.

The following functions are found in the View Menu

13. Zoom in
14. Zoom to Full Screen
15. Refresh
16. Display Order *

*Note: appears in Report Editor ONLY - found otherwise in the Properties Menu

Related topics

Chapter 4 - Setting Up the Software.
Chapter 11 - Properties Menu

NOTE: A preference setting, in chapter 4, Zoom to a New Window has a direct effect on how Zoom to Full Screen works. See the section in this manual on the function Zoom to Full Screen

The View Menu functions

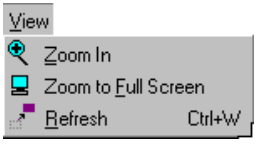
The View Menu is shown to the right.

In this menu the user will find functions that allow Zooming a ROI and returning from a Zoom.

Toolbars

There is no toolbar for the functions in the View Menu

Image Editor



Report Editor

The View Menu Functions

Zoom In

This function zooms a ROI drawn to full screen size. When the upper limit is reached the function prevents use.

How to...

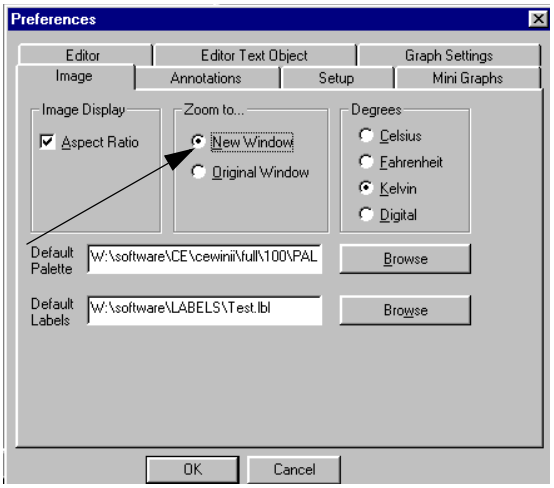
Select an image in the Image Editor by CLICKING anywhere on the image.

Then CLICK on ZOOM In. The mouse cursor changes into a MAGNIFYING GLASS with a + in the center. Use this tool to DRAW A RECTANGLE (ROI) on the Image, by DRAGING THE CURSOR TO DESCRIBE A RECGTANGLE. Release the mouse button and the ROI will ZOOM.

If Image Tab in preference is set to Zoom to Original Window each successive Zoom will use the same window.

If new Window is Set - each Zoom will create a new window in which the ZOOMED IMAGE is displayed.

A section of this preference IMAGE TAB is shown to the right.



Zoom to Full Screen

This function enables a return to the initial image magnification from a ZOOM.

How to...

CLICK on View and CLICK on Zoom to Full Screen, and the image will restore to the original.

NOTE: This function works ONLY when the user has elected to ZOOM on the Original Window. The Only way to return from a ZOOM, when preferences Zoom to a New Window is SET, is to select the STARTING IMAGE from which the first Zoom was taken and SELECT that Image for use. Of course this method has the advantage of being able to save all zooms and selecting the most suitable ZOOM after review.

Refresh

CLICK on this function to remove ARTIFACTS from the image. Infrequently bits and pieces of previous annotations are not removed by the normal UNDO, or REMOVE LAST, in which case this function is useful.

Display Order

Refer Chapter 11 - Properties Menu for an explanation of this function.

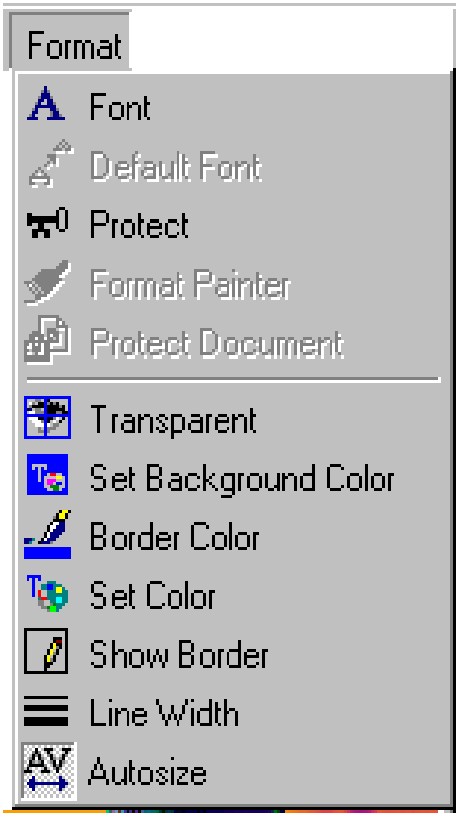
The Format Menu

Location

Report Editor ONLY.

The following functions are found in the Format Menu

1. Font
2. Default Font
3. Protect
4. Format Painter
5. Protect Document
6. Transparent
7. Background Color
8. Border Color
9. Text Color
10. Show Border
11. Show Label
12. Set Line Width
13. Autosize



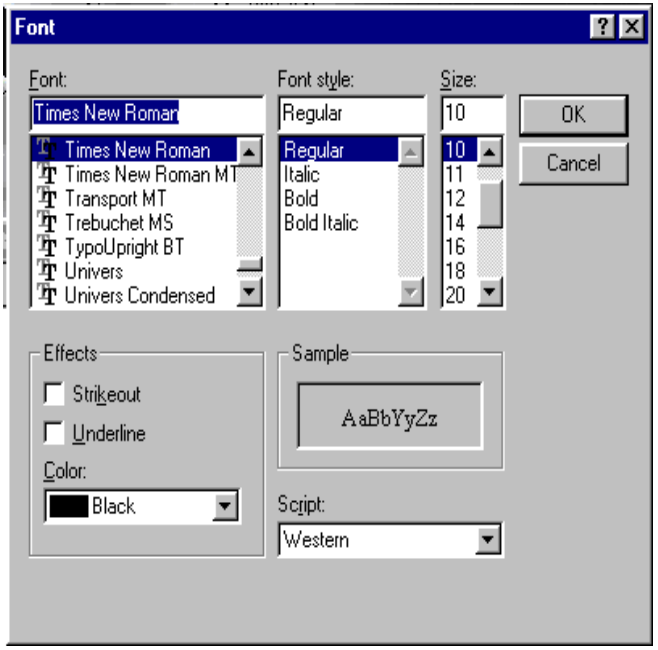
Related Topics

Chapter 3 Setting up the software

Introduction to the Format Menu

Functions

The format menu has functions that enable the software user to set object properties or attributes. Some of these functions such as transparent find specialized uses.



The Format Menu Functions

The menu is shown to the right. This menu has functions that relate to format settings for objects used in the Report Editor. With these functions, objects can have borders, adjustable line width, can be made transparent. The software user should study these functions since these add quality to any report.The menu functions

Font

Font sets the font, and font attributes for text used anywhere in the Report Editor.
For example it sets the font attributes for fields, as well as the text object.

How to...

Click on Format and Click on Font. The dialog control shown to the left displays and makes available controls that can change fonts, font size, and font color. Font color is duplicated by text control.

The FORMATTING TOOL BAR makes it possible to easily and quickly change some of the attributes of text that is being used without using the Font function.

Default Font

This function restores the font displayed on the Font Tool Bar to the settings contained in Preference, which is the default.
How to...
CLICK on the Format Menu and then CLICK on Default Font.

Protect

Protect is used to enable Protect Document for a selected object ONLY. If an object has been selected and PROTECT has been used, the KEY tool will always be depressed and the Format Menu Protect function will have a CHECK MARK next to it.

How to...

Select the object. Then CLICK on Format Menu and CLICK on Protect. A CHECK MARK is placed next to the menu item indicating it is in effect. The KEY tool will also be depressed as shown to the left.

Protect Document

Protect locks all the objects in a template in place and prevents editing, or making changes to the template during its use in a report.

How to...
Protect is ALWAYS used with the KEY tool.

Select the object and then CLICK on the KEY tool. Then CLICK on the Format Menu and CLICK on Protect.

Key applies to an individual object and enables Protect. Notice that a selected object previously KEYED will show this by DEPRESSING THE KEY TOOL.

When making a template

Format Painter

This function copies the format properties from one TEXT OBJECT to another. It is necessary to copy these properties for each time it is used.

Format Painter is useful because it copies more than one property at one time to another object, and saves time. It also results in a more uniform template.

How to...

Select the TEXT OBJECT which has the properties to be copied. Click on Format Menu and then CLICK on Format Painter. The ARROW cursor changes into a cursor with a PAINT BRUSH. Copy properties by selecting the object to which the properties are to be copied.

The same thing can be accomplished by CLICKING on the Paintbrush Tool, found on the RIBBON BAR instead of using the Format Menu, which is much more convenient.

Transparent

This function renders an object transparent, by removing its BODY COLOR so that effect is one of transparency. This has particular use with text that is to be placed over and image or an object.

How to...

Select the object. Click on the Format Menu and then CLICK on Transparent. The object MUST be brought to the front with the appropriate menu commands, or the speed menu.

NOTE: If transparent is checked BACKGROUND COLOR is NOT AVAILABLE. This shows as a GRAYED MENU ITEM.

Background color

This function applies a background color to ALL OBJECTS.

ALL Objects are initially set to WHITE background and NONE TRANSPARENT, unless set differently.

How to...

Select the object. Then CLICK on Format and CLICK on Background. A standard Windows color selection dialog displays. Select a COLOR and then CLICK OK.

Border Color

This function applies a border color to ANY SELECTED OBJECTS.

ALL Objects are initially set to no border.

How to...

Select the object. Then CLICK on Format and CLICK on Border Color. A standard Windows color selection dialog displays. Select a COLOR and then CLICK OK.

Text Color

This function applies a color to ALL SELECTED TEXT OBJECTS.

How to...

Select the object. Then CLICK on Format and CLICK on Text Color. A standard Windows color selection dialog displays.

Show Border

This function applies a border to ALL SELECTED TEXT OBJECTS.

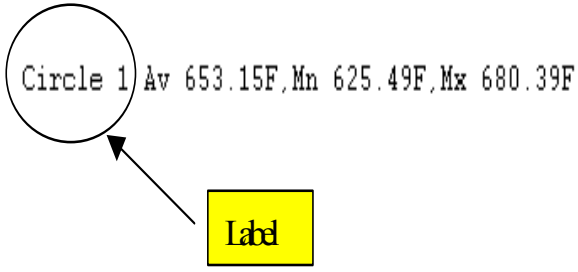
ALL Objects are initially set to no border.

How to...

Select the object. Then CLICK on Format and CLICK on Show Border. A check mark is placed next to the border indicating that a border IS APPLIED to this selected object. A check mark is placed for each object selected that has a border. NOTE - use line width to set the width of the line, Border Color to change the color of a border.

Show Label

This function applies a label to the temperature fields found in the Fields Menu. These are Point, Spot, Circle, etc. By default every temperature field initially displays a label unless changed by this menu. A check mark is then displayed by default in front of the menu item.



How to...

Select the temperature field. Then CLICK on Format and CLICK on Show Label. A check mark is placed next to the temperature field indicating that a LABEL IS APPLIED. A check mark is placed for each temperature.

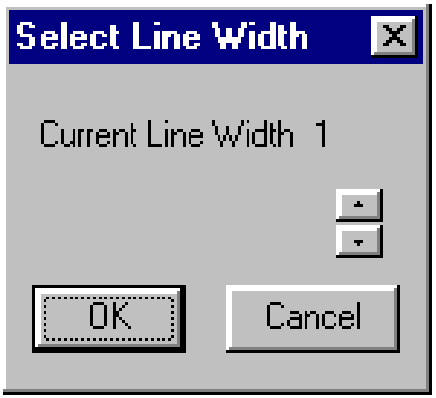
The circle field shown to the left has a visible label.

Set Line Width

This function sets the width of the line for ANY object that displays a border, along with the vertical and horizontal lines in the Object Menu.

How to...

CLICK on the Format Menu and then CLICK on Set Line Width. The dialog box shown to the right appears. CLICK on the UP or DOWN arrows to INCREASE or DECREASE the width of the line. A maximum of 25 is allowed. These numbers are relative and do not signify an actual measurement. When the correct width has been specified CLICK on OK to exit the dialog box to apply to a selected bordered object.



CLICK on Cancel to EXIT without changing anything.

Autosize

This function sizes the width of a temperature field so that all the data appears. For example a Line Temperature Field can be lengthy and normally would be truncated unless autosize is applied.

How to...

Select the temperature field to autosize. CLICK on the Format Menu and then CLICK on Autosize.

The Line 1 temperature field at the top is autosized so that ALL the data is visible.

The Line 1 temperature at the bottom is NOT so that most of the data is truncated.

Alternatively the user can SELECT the field and then resize manually by dragging to the desired shape.

The Field Menu

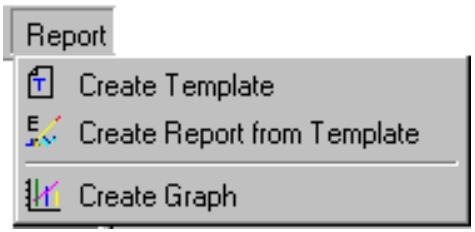
Location

Template Editor

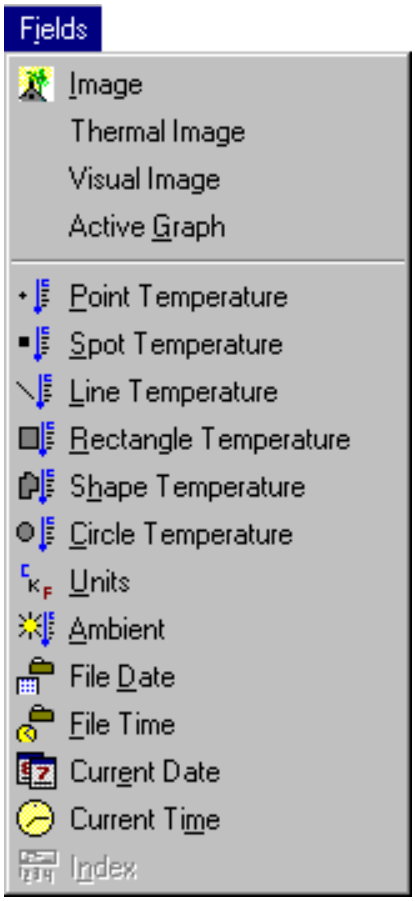
Access this by clicking on Report and clicking on Create Template.

See the Report Menu chapter -

Format Menu Functions



1. Image
2. Point Temperature
3. Spot Temperature
4. Line Temperature
5. Rectangle Temperature
6. Circle Temperature
7. Shape Temperature
8. Units
9. Ambient
10. File Date
11. File Time
12. Current Date
13. Current Time
14. Index



Related Topics

Chapter 3 Setting up the software, Chapter 4 Using the Software, Chapter 10 the Objects Menu, Chapter 18 the Link Menu.

The Field Menu

The menu is shown to the right. This menu has functions that allow the placing of fields in a template for use in making a report.

Fields are available only when a image exists in the Image Editor and is linked by using the Link Menu functions. If no link exists the fields menu is grayed with the functions unavailable.

Fields cause temperature DATA to move automatically from a temperature object placed on an image in the Image Editor to a linked image placed on a template or report in the Report Editor. Edit made to an image in the Image Editor are AUTOMATI-CALLY updated in the Report or Template.

Many of the functions associated with fields are available from

speed menus accessed while selecting an object with a RIGHT MOUSE BUTTON CLICK.

Multiple fields of the same type are identified uniquely by using the Index Function. For example the user could have 5 points located on ONE IMAGE and all placed in a template. Each point is identified with a NUMBER, or a UNIQUE label if it is present. Once identified the correct data associated uniquely with that object is reported.

Field properties

1. Removable or in the case of temperature field editable labels
2. Color satiable borders
3. Sizable borders
4. Color settable background
5. Transparent
6. Dragable position and sizing
7. Font colors and font selection
8. Indexable with the Index function.
9. Linkable to any image located in the Image Editor with Change Link function.

All of the fields have identical properties. Editing, indexing, linking, labels, formatting with background, transparent, border, colors, etc., once learned can be applied to ANY ITEM in this Menu. Editing these is explained Chapter 4 on Using the Software.

Image

This function enables the placing of images located in the Image Editor into a template or report. As many images as desired can be placed.

Applying this function is the SAME for both making a template by accessing the Create a Template function and making a report by accessing the Create a Report from a Template. In the next section a template only is referred to.

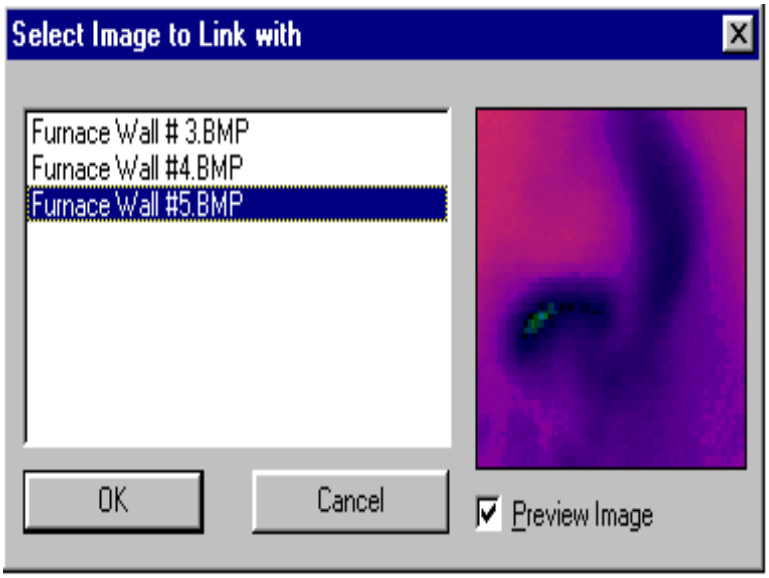
How to.

1. Place an image in the Image Editor, by loading from the File Menu. This function is also in the Frame Grabber Menu in the Frame Grabber Module
2. SELECT that image.
3. CLICK on the Link Menu and CLICK on Set Initial Link. Select the image to which a Link is to be established and CLICK OK.
4. CLICK on Field and CLICK on Image. The image SELECTED in the Image Editor will be placed in the report. Edit that image to change the size or location on the template or report.

How to place additional images...

1. CLICK on Field and CLICK on Image to place more images in the template or report. All of these images will be the same until CHANGE LINK is USED.
2. SELECT an image in the Image Editor.

3. CLICK on the Link Menu and CLICK on Change Link. Select the Image to which a changed link is to apply, and CLICK OK. The control shown to the right shows this being done. Notice that the image changes to the selected image.



How the software identifies the images...

Identifying multiple images or knowing what image is linked to a particular image in the Image Editor is possible in several ways.

12. STATUS BAR - LEFT CLICK on the image in question to select. The status bar will display the name of the image. In this case it is Image7. That image is shown below with its name shown at the top.
13. A second method is to select the image in question and then CLICK on the LINK MENU and CLICK on Go to Linked Image. The software will then select the LINKED IMAGE and bring it to FOCUS (to the front) in the software window.

Temperature Fields

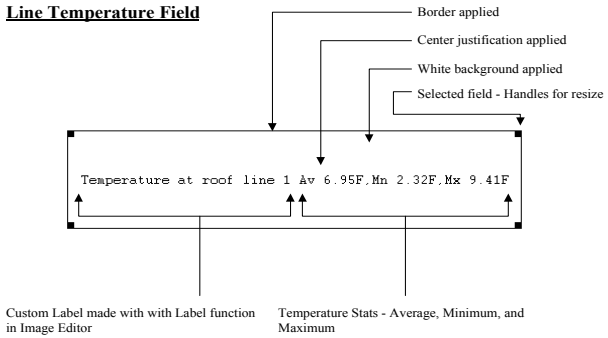
This function places a temperature field on the Template. Temperature fields permit the automatic movement of temperature data from the temperature objects in the Image Editor to a Report. The software is capable of handling multiple fields associated with more than one temperature object of the same type or reporting correctly temperature fields associated with multiple images.

Linking is necessary to make a temperature field active.

The temperature fields are Point, Spot, Line, Rectangle, Circle, and Shape.

The anatomy of a temperature field

This field is shown AS SELECTED and normally would not have the black handles (rectangles) visible. Every field available to the software user has common properties, such as borders, justification, background, etc.



Note the custom label to make very descriptive what temperature the field is reporting

Resize of the field is accomplished by placing the Mouse Cursor on any one of the black rectangles and then while HOLDING DOWN the Left Mouse Button dragging the mouse. Moving a field is done by placing the Mouse Cursor anywhere on the field HOLDING DOWN the Left Mouse Button and moving the mouse.

As many colors as desired can be applied to borders, text, and background. Text size and font is completely selectable.

If for some reason autosize has been turned off CLICK on Format and then CLICK on Autosize to make it the default once again. Otherwise in working through the section below rectangle data would be truncated.

How to...

All the temperature objects are applied in EXACTLY the same way.

Click on any one of the temperature fields. If you placed a point it would look like the illustration to the right. Fault is the Label associated with the first point in the INDEX.

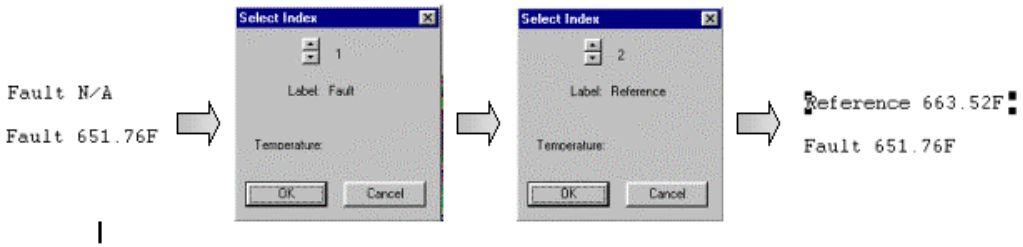
Fault N/A

The software has functions that will report the correct temperature for multiple points with the same label.

There are several conditions that can apply:

CASE 1

MORE THAN ONE TEMPERATURE FIELD OF THE SAME TYPE ON THE IMAGE. Place a temperature field on the template. It will be the same as the first one placed. Select the temperature field and then CLICK on Fields and CLICK on Index. Then Use the UP/DOWN arrow on the control to step through each temperature object of the same type that exist in the image. In this case our example is a POINT and the second one is labeled reference.



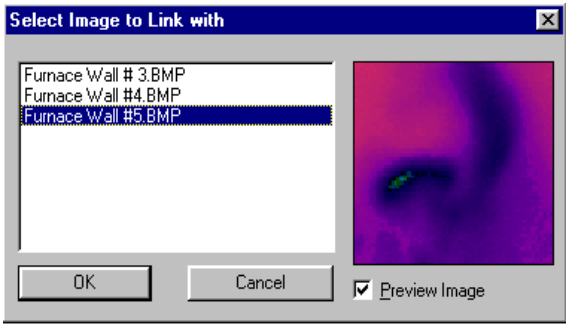
CASE 2

A TEMPERATURE FIELD OF A DIFFERENT TYPE FROM THE ONE ALREADY ON THE TEMPLATE AND ON THE SAME IMAGE.
To illustrate what is meant - place a POINT a second POINT according to the above procedure, and then place a rectangle.

Place the desired temperature field on the template. It will show N/A. Add the temperature object to the image Image Editor that corresponds to the temperature field. N/A will change to temperature.

Multiple temperature fields would be handled like that above.

CASE 3
A TEMPERATURE FIELD OF THE SAME TYPE BUT LOCATED ON A DIFFERENT IMAGE.
To illustrate what is meant - place a RECTANGLE and then a SECOND RECTANGLE on a second IMAGE. Place the desired temperature field on the template. It will show the SAME TEMPERATURE as the FIRST TEMPERATURE FIELD OF THE SAME KIND. Then CLICK on the Link Menu and CLICK on Change Link. Select the Second Image. See the illustration on the RIGHT. The temperature will change to the temperature obtained in the second image.



Active Graph
CLICK on Active Graph to put a GRAPH PLACE HOLDER. This object can be moved and reshaped and otherwise edited by DOUBLE CLICKING anywhere on the object.

CLICK on Active Graph found in the Graph Module to automatically send a graph to the a Report. The Graph Module is entered by CLICKING on Report and CLICKING on Graph.

Three conditions need to be met to use the ACTIVE GRAPHs function:

1. Create a Active Graph placeholder by using the Fields Menu in Report.
2. Have a thermal image selected in the Image Editor with a LINE TEMP annotation selected. NOTE: More than one line can be selected by using the shift key to select these temperature annotations.
3. CLICK on Report and CLICK on Graph. Whatever is graphed will be placed in the Graph Place Holder.

NOTE: only LINE TEMP can be graphed. As many LINE TEMP as desired can be selected and graphed by using the Shift Key to select multiple Line Temp annotations.

Units

Units F

This function places a field on the template or report indicating if Centigrade, Fahrenheit, or Kelvin was used.

How to...

CLICK on the Fields Menu and CLICK on Units. A fields menu like that one shown to the LEFT.

NOTE: The first application of this field always reports on the image selected for the one set in Initial Links, to change to another image located in the Image Editor CLICK on Links, and then CLICK on Change Links. Select the desired image and CLICK OK.

Ambient

Ambient 70

This function places a ambient field on the template that reports the ambient temperature of the image. This is useful for a REFERENCE. This is NOT a true ambient but reports the internal temperature of the camera reported temperature. Each edited image can have its own ambient temperature.

How to...

CLICK on the Fields Menu and CLICK on Units. A fields menu like that one shown to the LEFT.

NOTE: The first application of this field always reports on the image selected for the one set in Initial Links, to change to another image located in the Image Editor CLICK on Links, and then CLICK on Change Links. Select the desired image and CLICK OK.

How to...

CLICK on the Fields Menu and CLICK on ISOTHERM. A field like that one shown to the LEFT is placed on the template.

NOTE: The first application of this field always reports on the image selected for the one set in Initial Links, to change to another image located in the Image Editor CLICK on Links, and then CLICK on Change Links. Select the desired image and CLICK OK.

File Date

File Date 04/02/1998

This function reports the date the Image was saved to a disk file, or if creating an image by using the Edit Image function in the frame grabber. Format is in (label) day/month/year format.

How to...

CLICK on the Fields Menu and CLICK on File Date. A field like that one shown to the LEFT is placed on the template.

NOTE: The first application of this field always reports on the image selected for the one set in Initial Links, to change to another image located in the Image Editor CLICK on Links, and then CLICK on Change Links. Select the desired image and CLICK OK.

File Time

File Time 10:08:38

This function reports the time the Image was saved to a disk file, or if creating an image by using the Edit Image function in the frame grabber. Format is (label) hours/minutes/seconds (24 hour time).

How to...

CLICK on the Fields Menu and CLICK on File Time. A field like that one shown to the LEFT is placed on the template.

NOTE: The first application of this field always reports on the image selected for the one set in Initial Links, to change to another image located in the Image Editor CLICK on Links, and then CLICK on Change Links. Select the desired image and CLICK OK.

Current Date

Current Date 04/03/1998

This function reports the computer date. Format is in (label) day/month/year format.

How to...

CLICK on the Fields Menu and CLICK on File Date. A field like that one shown to the LEFT is placed on the template.

NOTE: The first application of this field always reports on the image selected for the one set in Initial Links, to change to another image located in the Image Editor CLICK on Links, and then CLICK on Change Links. Select the desired image and CLICK OK.

File Time

Current Time 13:24:01

This function reports the time. Format is (label) hours/minutes/seconds (24 hour time).

How to...

CLICK on the Fields Menu and CLICK on File Time. A field like that one shown to the LEFT is placed on the template.

NOTE: The first application of this field always reports on the image selected for the one set in Initial Links, to change to another image located in the Image Editor CLICK on Links, and then CLICK on Change Links. Select the desired image and CLICK OK.

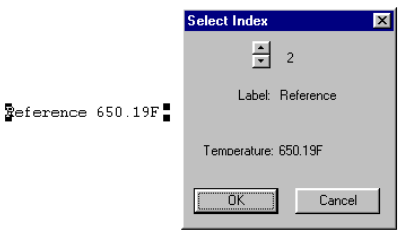
Index

This function changes the INDEX number of a field.

This number is not always visible as in the case of user entered temperature object label, or the none temperature fields.

For example if there are 3 points placed on an image, and there are 3 point fields in a template, Index is used to connect each of those point fields to a corresponding temperature point.

The relationship of Index to the Link function.



1. **Set INITIAL LINK -** sets the default LINK for SELECTED **Image and all fields and images placed in the report.**
2. **Change Link -** establishes a LINK between SECOND, THIRD, and MORE images and a selected FIELD or IMAGE in a template.

The practical effect of item 1 is that all the images and temperature fields will have identical values. Usually only 1 image and 1 set of temperature values retain the initial link and all subsequent images and temperature fields are changed with item 2.

How to...

The steps

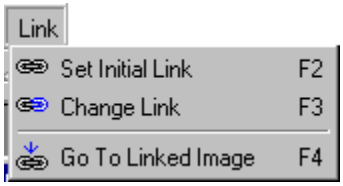
1. Select the field.
2. Then CLICK on Field Menu and CLICK on Index. The Control shown ABOVE and to the RIGHT is displayed.
3. CLICK on the UP arrow until the selected field displays correct index, determined by the correct displayed value or label. Note that the temperature for the field is displayed for reference.
4. CLICK OK

The Link Menu

Location

Template Editor and Report Editor.

The following functions are found in the Link Menu



1. Set Initial Link
2. Change Link
3. Go To Linked Image

Related Topics

Chapter 17 - The Field Menu

Related Tool Bars

There are no related toolbars.

F Keys

15. F2 - Set initial link
16. F3 Change Link
17. F4 Go to Linked Image

The Link Menu

The LINK MENU is a deceptively simple menu. With these functions the user can set up a report so that temperature data and images is entered in a report and temperature data is automatically updated. The software user should make sure that this topic is thoroughly understood.

In this chapter both TEMPLATES and REPORTS are discussed almost interchangeably. The user needs to understand that the Report Editor is used to BOTH creates new templates, edit templates, and to make reports based on templates previously created.

The Link Menu is shown to the right. This menu has functions that enable the management of LINKS to Images, all the Fields located in the Fields Menu, and Text Annotation.

Linking is used to establish automatic communication between the Image Editor and a Report or Template. This means that data is automatically sent from a temperature object in the Image Editor to a corresponding linked field. Any changes made to the IMAGE in the Image Editor is ALSO made to the LINKED IMAGE in the template or report.

Links are SAVED along with the template. This means all the necessary links can be done while making a template and then used in a report made from that template. This process can be done repeatedly without going through the time and work of making a new report each time - ONLY parts that need to are readily changed.

Two must understand LINKING topics

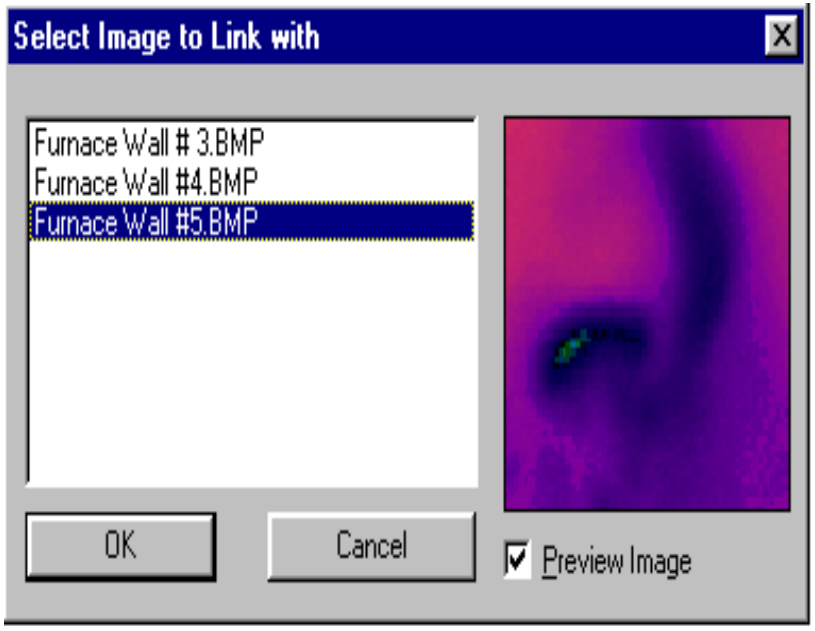
1. If an image is loaded first in the Image Editor and then the Report Editor is opened -- an INITIAL LINK is established with that image. All fields, images, and text will be linked. Multiple fields of the same type will display the same data until changed with CHANGE LINK. A link established this way is a default link is no different from what is accomplished by using Set Initial Link explained below.
2. If no image is loaded first and the Report Editor is LOADED FIRST --- NO INITIAL LINK is established. Fields, and Images will be grayed out, and unavailable. In this case use Set Initial Link explained below.

Set Initial Link

This function sets the INITIAL LINK for every image and field placed on the template or report. This remains true until CHANGE LINK is used on a selected image or field.
Its use is PRIMARILY to set a LINK when an image was not loaded first.

How to...

In the Image Editor load an image. Then go to the Report Editor and CLICK on the LINK Menu and then CLICK on Set Initial Link. Select image desired. In the example to the right there are three images available, and the user would be free to select any one of those.



This control shows for viewing ONLY images that are currently loaded into the Image Editor.

When the selection is made CLICK on OK, and the Initial Link is established. All the fields in the fields menu are then ungrayed and available to the user.

Change Link

This functions changes a link from that established by Initial Link to a link with second images located in the Image Editor. It is also used to Change Link to fields so that the data they report on can be different from the one set in Initial Link.

This function permits MULTIPLE IMAGES to be placed in a report.

How to...

There are two ways to use this function.

1. Select an image in the image editor and then CLICK on Link and CLICK on Change Link and select the image that is to be changed. Then place this image in the Template.
2. Place multiple images, fields, etc. in the Template. These will all have exactly the same data. Select the field or image to be changed and then CLICK on Link and CLICK on CHange Link. Select the image and CLICK OK. The image selected in the Report Editor will change to the image selected in Change Link.

Go to Linked Image

This function selects the Linked Image in the Image Editor. The software user is moved to the Image Editor and the

appropriate image is selected.

How to...

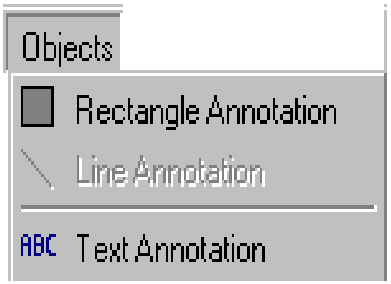
Select the Field or Image and then CLICK on Link and CLICK on Go to Linked Image.

The Object Menu

Location

Report Editor

The following functions are found in the Link Menu



7. Rectangle Annotation
8. Line Annotation
9. Text Annotation

Related Topics

Chapter 17 - The Field Menu, Chapter 15 Format Menu.

The Objects Menu

This menu provides basic objects that can be placed on a report. These function the same way as those in the Image Editor, and are editable exactly the same as any other object.

Rectangle Annotation

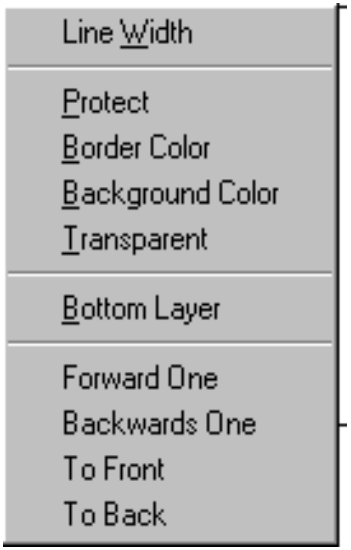
Use this function to place a rectangle OR BOX on the report. It is especially useful for attention getting items on a report such as a title, a fill comments section, or a footer.

How to...

CLICK the mouse anywhere the UPPER LEFT HAND CORNER of the rectangle is to be placed. Then CLICK on Objects and CLICK on Rectangle Annotation. A rectangle is then placed on the report. It is sized to a standard size.

To edit.
Click on the RECTANGLE to SELECT. Selection is indicated by the BLACK rectangles on the corners of the rectangle. Place the mouse cursor on the any one of the rectangles and hold down the left mouse and move the mouse to resize the rectangle into any desire shape.

CLICK the Left Mouse button anywhere on the rectangle and hold down the left button while moving the mouse to DRAG the rectangle to a desired position. Note that the rectangle outline becomes dotted and SEE THROUGH.



Speed Menu
Select the rectangle and then CLICK the RIGHT MOUSE button. The speed menu shown to the right displays. Select various functions EXACTLY the same as if the main menus were accessed.

See Chapter 16 Format Menu for an explanation of these commands.

Line Annotation

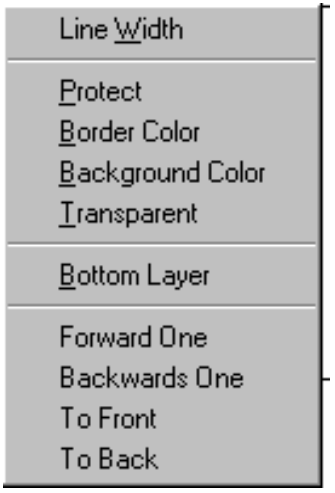
Use this function to place a line on the template or report. It is especially useful for separating section of the report. Placing two lines in close proximity and both vertical and horizontal results in interesting LOGO EFFECTS.

How to...

CLICK the mouse anywhere on the template where the LEFT END of a LINE is to be placed. Then CLICK on Objects and CLICK on Line Annotation. A LINE is then placed on the report. It is sized to a standard size.

To edit.
Click on the LINE to SELECT. Selection is indicated by the BLACK rectangles on the ENDS of the LINE. Place the mouse cursor on the any one of the rectangles and hold down the left mouse and move the mouse to resize the line or position at any angle.

CLICK the Left Mouse button anywhere on the LINE and hold down the left button while moving the mouse to DRAG the LINE to a desired position.



Speed Menu
Select the rectangle and then CLICK the RIGHT MOUSE button. The speed menu shown to the right displays. Select various functions that are EXACTLY the same as if the main menu was accessed.

See Chapter 16 Format Menu for an explanation of these commands.

Text Annotation

Text Annotation function places a text frame into a report with many of the attributes of RICH TEXT.

The properties of TEXT ANNOTATION

16. Font attributes such as font color, font size, underline, fonts are can be applied to selected text.
17. Text frame attributes such as background color, transparent.
18. Text as it is placed in the text frame ALWAYS scrolls down so the entered text line is visible.
19. Text wraps around to the next line.
20. Text fits adjustments to the text frame automatically.

Hot to...

A. Placing a TEXT OBJECT or FRAME on the template or report.

7. CLICK on the TEXT TOOL or CLICK on the Object Menu and then CLICK on Text Annotation. The text frame show to the right is placed on the screen in the upper right hand corner.
8. IF resizing is required CLICK on the template or report outside the borders of the TEXT TOOL and then CLICK on the borders of the TEXT OBJECT. It then will look like the box with rectangles shown to the RIGHT. CLICK on any of the RECTANGLES and DRAG to the desired shape.
9. If repositioning is required LEFT CLICK the MOUSE anywhere on the text object shown to the right and DRAG to a new position. ALSO DO THIS WHEN TEXT IS WRITTEN IN THE FRAME.

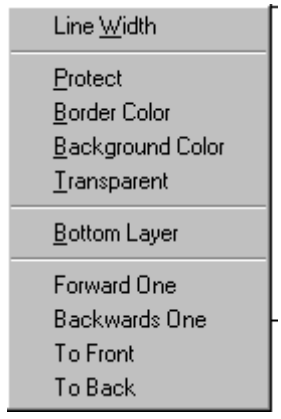
10. To use the text box place the MOUSE CURSOR inside that box and DOUBLE CLICK the LEFT MOUSE BUTTON. The text box then reverts to the one at the top and the user can start to type in text. ALSO DO THIS WHEN TEXT IS WRITTEN IN THE FRAME.

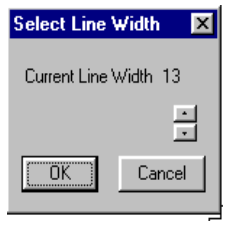
B: Placing text in the text frame.

5. Type as much text as desired. The software will auto word wrap and scroll down to always make the line being written visible.
6. To make all of this text visible do item A.2. on the previous page to resize.
7. Use end, home, up or down arrow to move around the text.
8. To EDIT the text SELECT and HIGH LITE the desired text. THEN APPLY ANY OF THE DESIRED FONT ATTRIBUTES by using the TOOL BAR shown to the left. These are explained in Chapter 15 - The Format Menu.

C: Formatting the text frame

3. Applying a BORDER COLOR A text frame always has a border of the same color as the background of a text frame. To change this color RIGHT CLICK the Mouse anytime the text frame is selected (when it is possible to enter text) and then click on BORDER COLOR. Make a selection from the WINDOWS COLOR SELECTION CONTROL and CLICK OK.
4. To change the border width, select the TEXT FRAME as in item 1 above and CLICK on Loincloth and adjust the SELECT LINE WIDTH control to the desired width.
5. To apply a color other than white to the background of the TEXT FRAME. Select as in C:1. and then RIGHT CLICK the Mouse button and then click on Background Color. Make a selection from the WINDOWS COLOR SELECTION CONTROL and CLICK OK. Make sure that transparent DOES NOT HAVE CHECK MARK.
6.





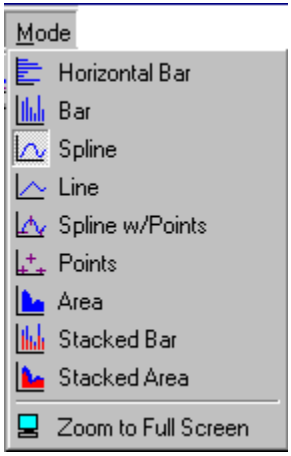
Introduction to the Graph Mode Menu

Introduction

Location

Graph Module ONLY

The Functions Found in the Mode Menu



1. Horizontal Bar
2. Bar
3. Spline
4. Line
5. Spline w/Points
6. Points
7. Area
8. Stacked Bar
9. Stacked Area
10. Zoom to Full Screen

Related Topics

Chapter 13 - The Report Menu

Introduction to the Graph Menu Functions

With these functions the software user can set the kind of display, such as bars, lines, splines, etc. There is also a ZOOM function.

The Graph Mode Menu Functions

This menu provides basic functions for setting the way objects, fields, and images are viewed.Rectangle Annotation.

Create Graph function available only the REPORT MENU is included in this chapter because it is material that needs very careful review.

Using the Graph Module

This function uses the software graph functions to graph temperature data from Line in the Image Editor ONLY.

How to...

A temperature object must be selected to be displayed.

CLICK on Report and CLICK on Create Graph.

Multiple objects

The graph module is capable of displaying data on a single graph from more than one temperature object. These can be of the same kind or different kinds. In otherwords the user can select a rectangle to display, a line, a circle, etc. The exception is that Line Temperature which does not have a histogram cannot be displayed with Shape, Circle, and Rectangle or histogram temperature data.

Do this by HOLDING DOWN THE SHIFT KEY OR THE CTRL KEY and then Left Mouse Button clicking on each temperature object to be displayed. There is no real limit as to the number of objects selected other than the practical one of space for a meaningful display.

The Setup Graph dialog does not display. Clicking on Create Graph sends the software directly to the Graph Module.

This displays a SNAPSHOT ONLY of the temperature data extracted by the temperature object.

The Mode Menu Functions

Horizontal

Plots data in horizontal bars.

Bar

Plots data in vertical bars.

Spline

Plots a interpolated line from point to line for a smoothing effect.

Line

Plots a line from point to point.

Points

Places a MARK at the X and Y coordinates of each data point.

Area

Fills in the area under a LINE PLOT with a color.

Stacked Bar

Plots data in vertical bars with each bar filled in with subsets of data.

Stacked Area

Plots data under a AREA PLOT with subsets of data.

Zoom to Full Screen

The software user can select an area of the graph and zoom this to the graph size. Restore to original is permitted with this function.

How to...

Zoom to Full Screen is grayed until a **ZOOM has taken place as described below**, when it becomes available.

How to ZOOM a graph...

Hold down the LEFT SHIFT key on the computer keyboard. Then WHILE HOLDING DOWN the LEFT MOUSE BUTTON move the mouse to draw a rectangle around the graph data that is to be zoomed. When satisfied with the area release the mouse button. Effect - the selected area zooms to the full graph size.

How to RESTORE a graph from a zoom.

To Restore the graph CLICK on Zoom to Full Screen. Note that when this is done the function ONCE MORE becomes grayed.

The Settings Menu

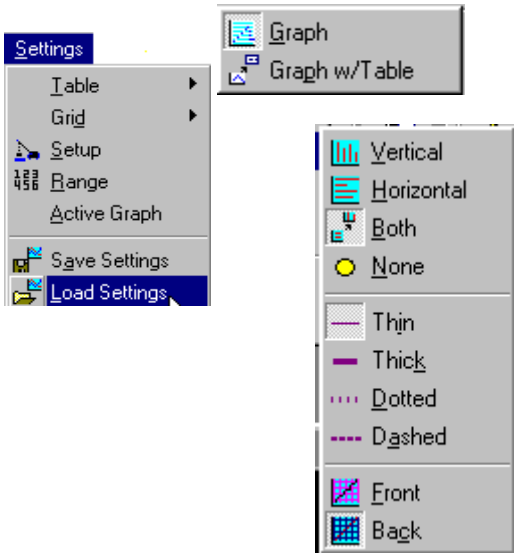
Introduction

Location

Graph Module ONLY

The following functions are found in the Settings Menu

1. Table
2. Grid
3. Setup
4. Range
5. Active Graph
6. Save Settings
7. Load Settings



Related Topics

Chapter 13 - The Report Menu, Chapter 21 Graph Mode Menu

Introductions to the Settings Menu Functions

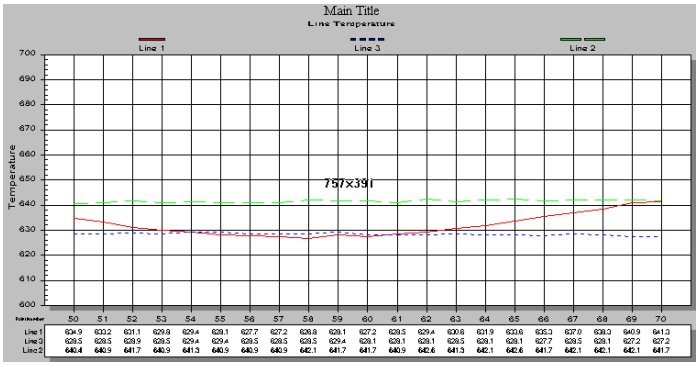
This menu enables the software to customize the graph to the user's individual preference.

The Settings Menu Functions

This menu provides basic functions that determine how the graph displays data. It also has functions that determine the appearance of the graph.

Table

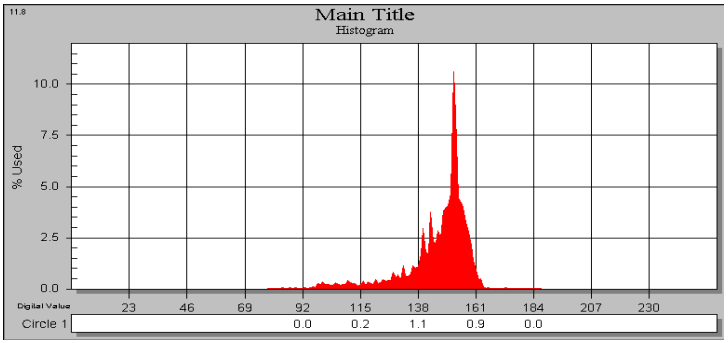
This function displays a table of the temperature data like that shown to the right, for 3 line temperature objects. The table shows the temperature at each vertical grid.



The resolution or number of temperatures display per grid can be increased by selecting a smaller sequentual value for scrolling. See Setup for settings that effect the display of table value.

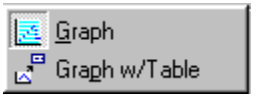
The software can display a table along or a table with a graph.

The data for a histogram shown to the right is slightly different.



How to...

Click on Settings and then CLICK on Table.
The popup menu shown to the right displays. CLICK on Graph w/Table to place a table with a graph. CLICK on Graph to remove a table.



Grid

Grid contains basic functions that change the display of a graph.

How to...

CLICK on Settings, and then CLICK on Grid. A popup menu shown to the right displays.

Vertical, Horizontal, Both, None.

These will place GRIDS on the graph to make it easier to read some graph data.

Thin, Thick, Dotted, Dashed

These adjust the appearance of the GRID LINES to a user preference.

Front, Back

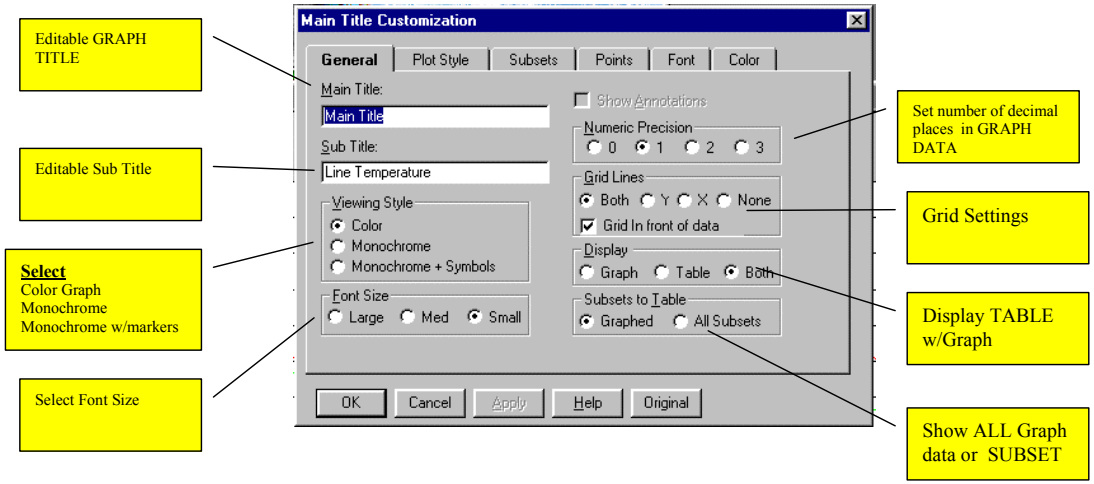
A GRID can be placed in front of or behind the GRAPH DATA.

Setup

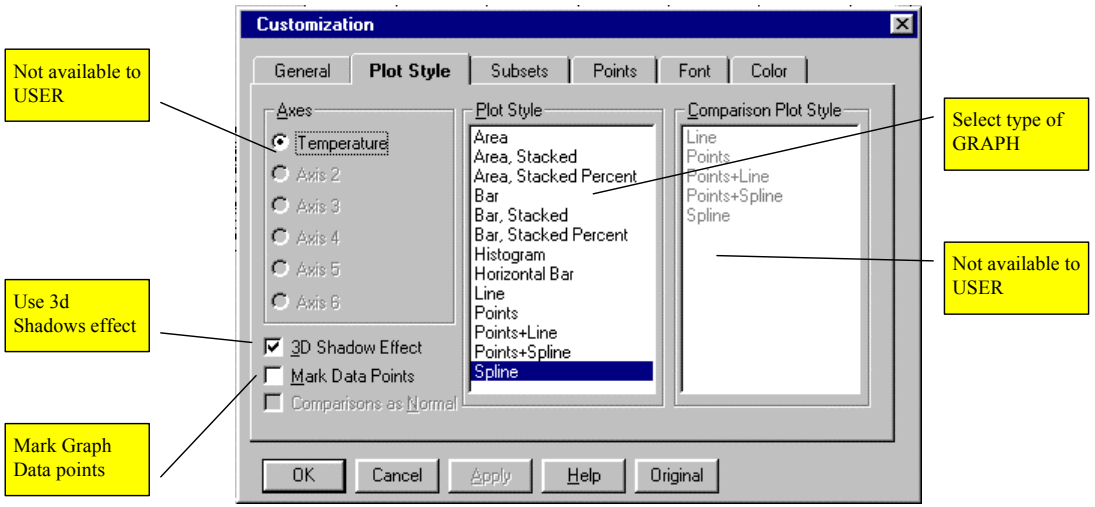
CLICK on Settings and then CLICK Setup to access the taxed controls shown below.

TAB - General

Use these to customize the appearance of the Graph.



Tab - Plot Style



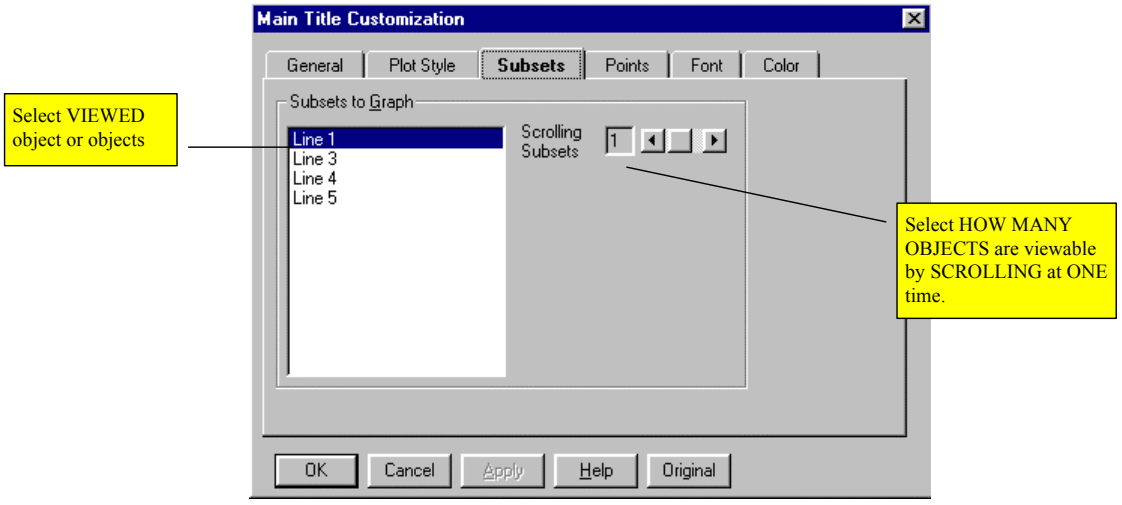
TAB - Subsets

The software has the ability to display a graph of data selectively. In the example shown there are two graphs plots shown at one time. The user can VIEW by USING THE SCROLL BAR plots for LINE 3, 4, 5, with LINE 1 ALWAYS being viewed as a COMPARISON.

This function is useful for viewing crowded complex plots, or as a comparison view.

A subset is a method of separate multiple plots into individual ones for the purpose of VIEWING. There ARE NO data changes.

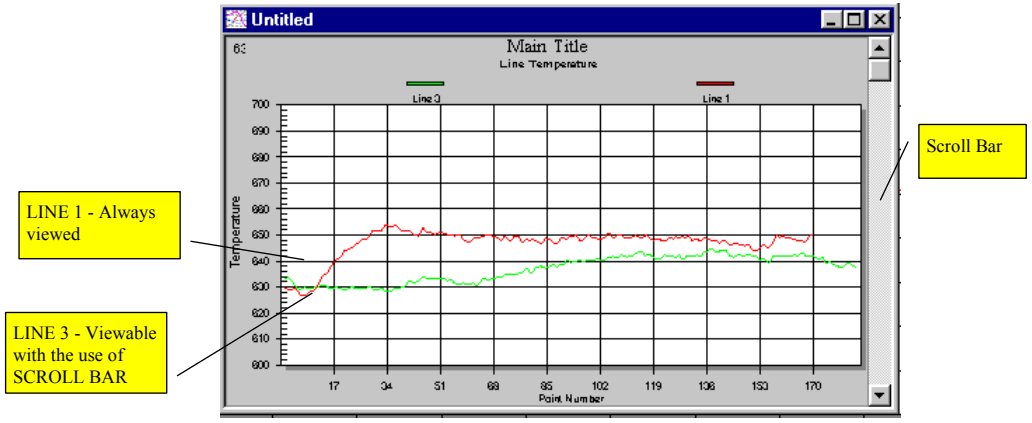
NOTE: Scrolling subsets REQUIRE A MINIMUM of 1 to function.



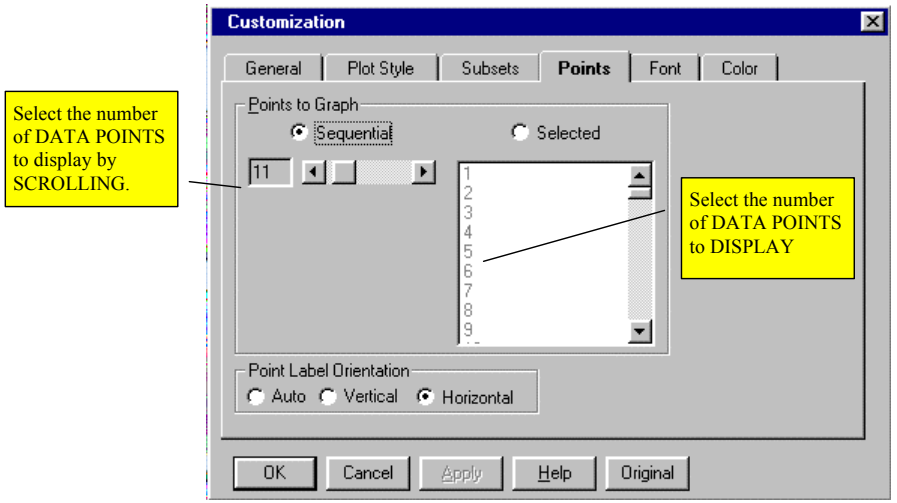
Example of graph with subsets. Note Line 1 is always VIEWED, and Line 3 has been viewed by scrolling. Line 4 and 5 shown visible in SUBSET TAB screen, shown above, are also viewed INDIVIDUALLY with the scroll bar on the right of the graph.

How to...

Select the temperature object to be ALWAYS VIEWED. Line 1 is shown as selected in the above view. Then select how many of the temperature objects are ALSO to be displayed each time the scroll bar is used. In the example ONLY 1 is selected. NOTE use the Ctrl KEY to select with a CONTROL.



TAB - Points



The software has the ability to display a SELECT NUMBER OF DATA POINTS either by scrolling or STATIC SELECTION. A graph displays data point by default, unless it is a HISTOGRAM, every 10 degrees. This is a way of magnifying a graph by selecting a number of data points or a graph SEGMENT based on those data points.

Sequential

Limited to 100 data points displayed at ONE TIME. Settable down to 2 data points by SCROLLING. The example of a graph with the scroll bar active is shown below.

Selected

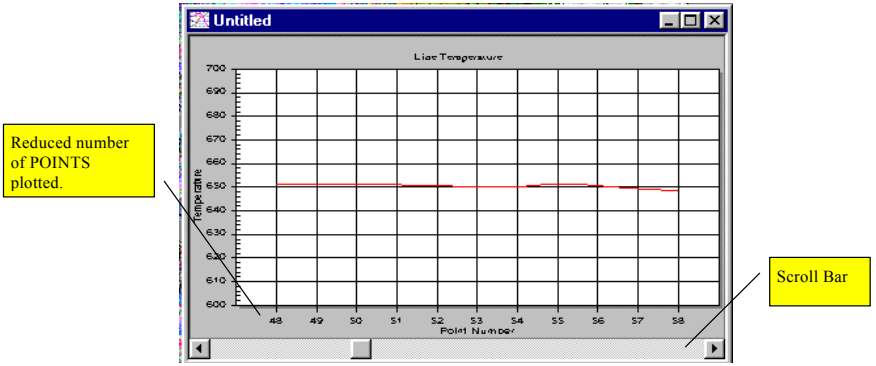
Select a single number or a range of numbers. A number of ranges or sets of ranges can also be selected. Again use Ctrl KEY. For example the use could select 123 23 24 25 150 151 153.

The range of numbers is DETERMINED EXACTLY by the length of the line temperature object which is the number of PIXELS in a LINE, with EACH PIXEL reporting a temperature.

A HISTOGRAM display ALWAYS has 256 points available with NO REFERENCE to temperature.

If the a scroll by time is selected for graphing a Line Temperature object it is possible to select a RANGE of TIME to display.

REAL TIME graphing is by its nature changing and dynamic, so there are limits on what can be done with a time display - a user could never go back in time to view a temperature object by graphing.

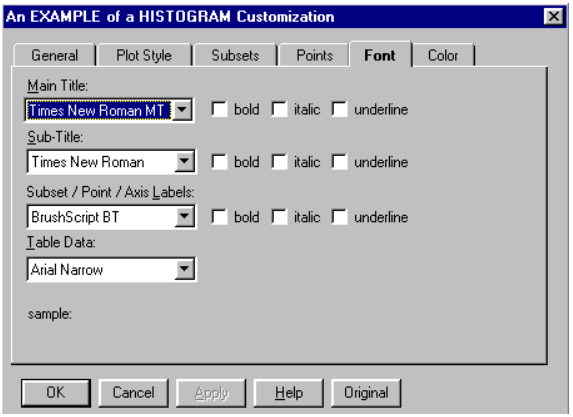


TAB - Font

This Customization page allow the user to set a Font and Font Attributes for a particular section of the graph

Main Title

Select a Font, bold, italic, or underline. It is not possible to set the FONT size.
The title as in the example to the right is Main Title - the software user can change this by selecting the General Tab.



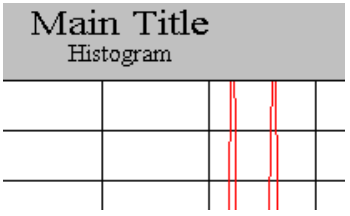
Sub-Title

Select a Font, bold, italic, or underline. It is not possible to set the FONT size.

The sub-title as in the example to the right is Histogram - the software user can change this by selecting the General

Main Title

Select a Font, bold, italic, or underline. It is not possible to set the FONT size.
The title as in the example to the right is Main Title - the software user can change this by selecting the General Tab.



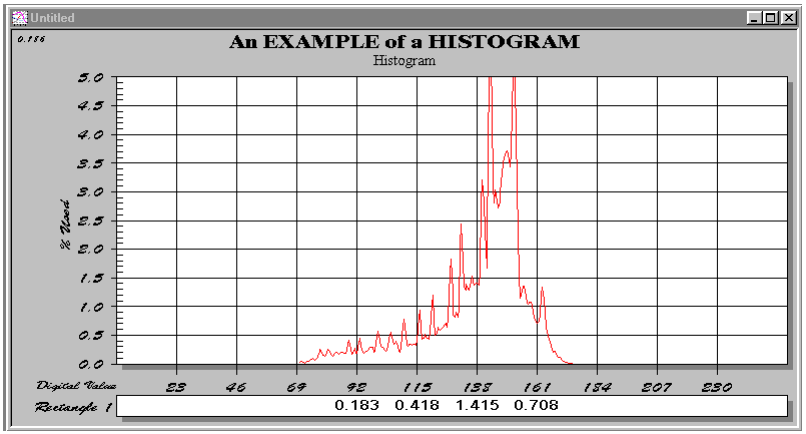
Sub-Title

Select a Font, bold, italic, or underline. It is not possible to set the FONT size.
The sub-title as in the example to the right is Histogram - the software user can change this by selecting the General Tab. That sub-title could be Histogram of Steel Slab, or anything else the user desires.

Subset/Point/Axis LabelsSubset - the LEGEND at the top of the graph indicating which SUBSET is displayed.

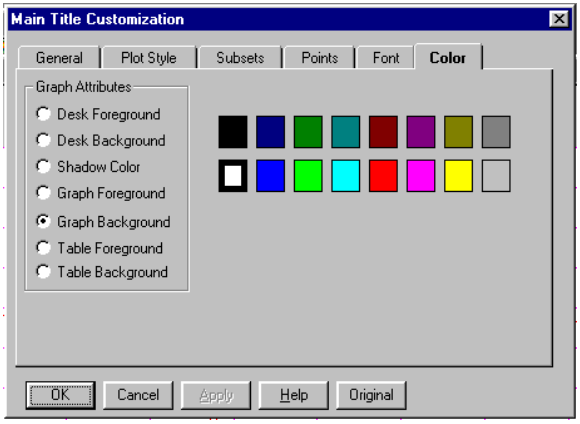
Point - numbers, and legends that are associated with the X (horizontal) and Y (vertical) axis of the graph.
Axis Labels - not available to user

An example is shown below using the settings in the Customization Page below.



TAB - Color

This Page Customization provides the ability to change graph colors to a user preference.



Desk Foreground - Sets the font color for the point information.
Desk Background - Sets the color behind the point information. If foreground and background are the same color they will become POINT information will become hard to see.
Shadow Color - sets the color of the shadow or 3d effect.
Graph Foreground - sets the color of the GRID
Graph Background - sets the background color of the graph.
Table Foreground - sets the text color on the table.
Table Background - sets the background color of the table.

Save Settings

This function saves changes made to Setup in a file. The user can provide the file name, and location. This permits individual customization of graphs, which are different from those setup in Preferences.

How to...

When changes are made CLICK on Settings, and then CLICK on Save Settings. If settings are temporary either save under a new name of elect not to save changes.

Load Settings

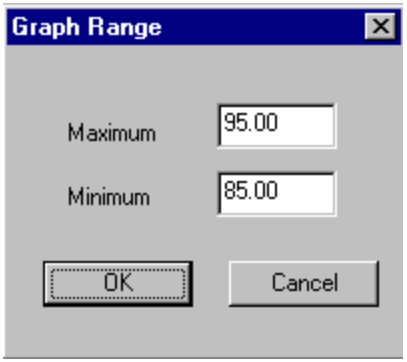
This function loads previous changes made to Setup into the software. This needs to be done each time a graph is used. Normally a graph setup will load from what is done in Preferences.

Range

Use Range to set the number of temperatures that are to be graphed.

How to.

CLICK on Range and the dialog displayed to the right will show.



Enter the maximum and minimum temperature to be graphed. Set the number of decimal places to a maximum of what has been entered in Setup.

Active Graph

CLICK on Active Graph to automatically send a graph to the a Report.

Three conditions need to be met to use this function:

4. Create a Active Graph placeholder by using the Fields Menu in Report.
5. Have a thermal image selected in the Image Editor with a LINE TEMP annotation selected. NOTE: More than one line can be selected by using the shift key to select these temperature annotations.
6. CLICK on Report and CLICK on Graph. Whatever is graphed will be placed in the Graph Place Holder.

Save Setting

When you have a graph setup to your satisfaction, save these by CLICKING on Save Settings. The software will prompt you for a file name and directory location.

Load Setting

CLICK on this function and you will be prompted to select a file name to which you have saved graph settings previously.

Introduction

Fast Report Mode reduces the number of steps required to make a two image report. It does not have the flexibility of multi-image mode but does create basic reports with two images.

The flow chart at the end of chapter has all the information required to understand how fast report mode works.

The Concept of Linking

The user must have a thorough understanding of how linking works. Linking is what causes data to flow from the Image Editor to the Report Editor. It is set up in a certain defined way and has definite rules.

Study this subject thoroughly in the Chapter 7 of this manual on any of the several topics relating to Link Menu. There are also several menu items in the Image Editor, ALSO, which effect how linking is accomplished.

Important Preference Setting

Make Fast Report Mode active in preference. Fast Report Mode will NOT work otherwise.

Features of Fast Report Mode:

1. Set up a palette for thermal images placed on a series of reports.
2. Set up a separate palette for visual images placed on the same series of reports.
3. Contrast and brightness adjustments can be set and saved for a series of thermal images.
4. Contrast and brightness can be set and saved for a series of visual images.
5. Select a thermal or a visual image from the camera menu.
6. Thermal Images can be set up move directly from frame grabber to Image Editor and into the report or directly to the Report Editor.
7. Visual Images can be set up move directly from frame grabber to Image Editor and into the report or directly to the Report Editor.
8. Temperature information such a points remain in the same location for each succeeding thermal image and can then be relocated simply and left in the same position.
9. Temperature data flows to a report automatically with fields if the template is set up for this.
10. Function keys speed this process even more.
11. Batch mode printing of reports from a editable list. The user can optionally elect to use batch or not use batch.

Requirements for Fast Report Mode

1. Installed frame grabber.
2. A prepared template. There is a sample.tem included with the software which is prepared for this mode.
3. Fast Report Mode **set (checked)** in preference.

Explanation of Process

Fast Mode in a nutshell...

The process of selecting and doing post image analysis on thermal images is automated so images are processed and placed automatically in a report. Report generation is limited to a thermal and a visual image.

REFER to the end of this chapter for a flow diagram of Fast Report Mode. This will probably give you the simplest possible explanation of Fast Report Mode.

How to setup the software for fast mode

Step 1 - Setup preferences for Fast Report Mode

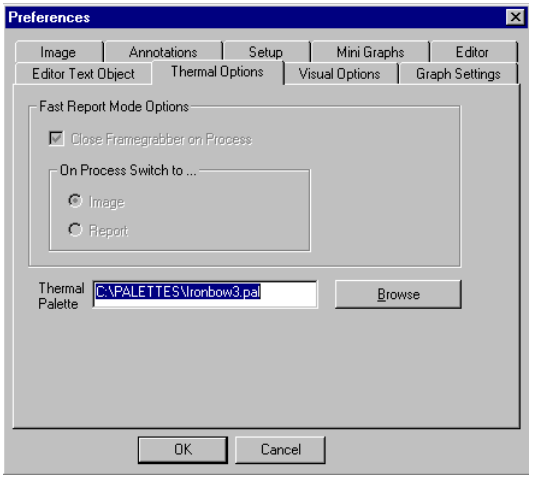
Go to the File Menu and open PREFERENCES. You will see the dialog box as shown to the right.

Making Fast Report Mode active

CLICK on Setup tab. (notice the arrow that points to the setup tab).

The preference page under Setup then displays.

CLICK on Fast Report Mode to place a check mark. Without this check - Fast Report Mode will not work.



Step 2 Set Thermal and Visual Thermal Options

NOTE - if no frame grabber is INSTALLED the dialog box will not display the Visual Options and Thermal Options tabs.

CLICK on Thermal Options and the dialog to the right is displayed.

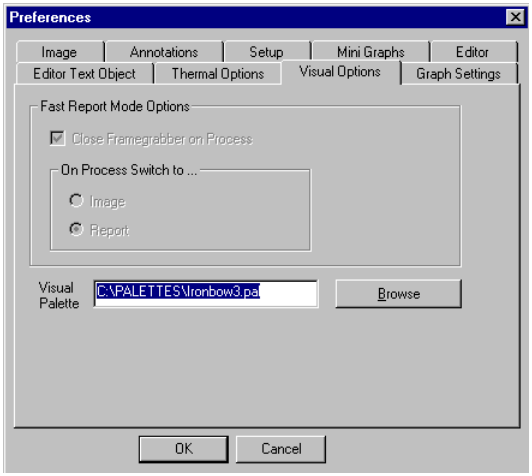
CHECK the following options.

Option 1. **Close Framegrabber on Process**.

If checked closes the frame grabber each time an image is processed.

Option 2. Move to.
Check IMAGE if the thermal image is to move DIRECTLY to the Image (Image Editor) This will place the image in the Image Editor and do allow calibration, temperature extractions, etc.

If you do not wish to process the image in any way then CHECK Report - the image will go directly to the Report Editor.



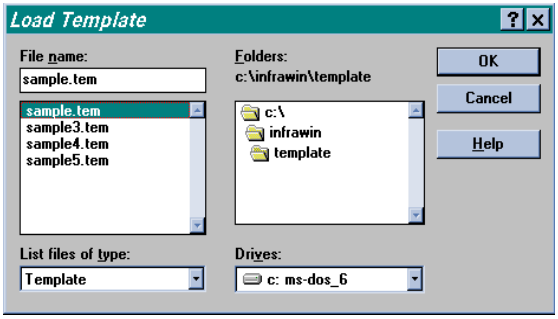
For understanding this chapter CHECK Images.

Option 3. Default Thermal Palette.
Use Browse to select the directory that stores the palettes - normally this is C:\software\palettes. Select one of the palettes. A good starting point would be Ironbow3. From now on, until this item is changed each image will be processed with this selected palette. This is what is printed on the report.

Set Visual Options

CLICK on the Visual Options tab and the dialog box to the right is displayed.

CHECK the following options if desired.
Option 1. **Close Framegrabber on Process**.
If checked closes the frame grabber each time an image is processed.
Option 2. Move to.
Check if image is to move DIRECTLY to the Image (Image Editor) or Report (Report Editor). CHECK Images if no image processing is desired -- place the image in the Image Editor and place text, boxes, lines, etc. If you do not wish to process the image in any way then CHECK Report - the image will go directly to the Report Editor.
Option 3. Default Thermal Palette.
Use Browse to select the directory that stores the palettes - normally this is C:\software\palettes. Select one of the palettes. A good starting point would be Ironbow3. From now on, until this item is changed each image will be processed with this selected palette. This is what is printed on the report. For a visual this is usually a gray palette.



Step 3 - Prepare a Template

A template must be prepared prior to any use of the fast report mode.

This template will need two images - Visual and thermal. Some desired Fields to extract temperature - usually a Reference and Fault Point. And of course boiler plate text, headings, etc. to fill out the report.

To get started use Sample.tem a very simple basic report to get started. This is found in the C:\software\palettes directory.

How to load a template. CLICK on Report and CLICK on Create Report from Template.

Select Sample.tem from the templates found in the template directory. Note - if this is the first time the software is

used you may have to change directories as shown above (available in the file selection). See the dialog box to the right.

When the template is selected the software is in the Report Editor.

How to use fast mode.

Step 1 - Secure a Thermal Image

CLICK on the Camera Menu. It is available from Image Editor, or Report Editor.

CLICK on Acquire Thermal. The software will then move to the Frame Grabber module. For a full explanation of the operation of this module read Chapter 13 of this manual.

You should have a thermal image on the screen. The palette set in preference will be used to 'false color the image'. F6 will set this image to visual and if that visual was set to gray palette will enable to see the image in gray which brings out details - press F5 to set Thermal and return.

You may need to adjust Top and Bottom levels. Refer to Chapter 6 and the section on Adjustments. The very first time this is done it is important to observe carefully the effects on the image. These adjustments have a direct bearing on the quality of image printouts.

Ideally the user will set up the tape with the first images with the CAMERA is set in freeze mode to provide adequate time to use the Top and Bottom Level controls. **THESE ADJUSTMENTS are SAVED and used on every THERMAL IMAGE that follows until a ADJUSTMENT is again made.**

Processing the thermal image

CLICK the right mouse button to process the image. Alternatively you can select Process from the Framegrabber menu.

If preference was set up for Images (see that section in this chapter) the software will open the Image Editor with the selected image.

CALIBRATION
Calibrate that image by selecting F2. **If you do not calibrate the image temperature information will not display.** See Chapter 18 for Calibration information.

TEMPERATURE EXTRACTIONS
Take two POINT temperature extractions - a fault and reference. The reference temperature is placed any place on the image that has a comparison temperature to a fault. A fault is an exception temperature.

Temperature extractions, usually two points, will remain on the image for each subsequent image selected. These can be either erased or edited quickly. IT IS NECESSARY TO PLACE THESE ON THE IMAGE, OF COURSE, THE VERY FIRST TIME.

EVERYTHING done in the Image Editor to the image is AUTOMATICALLY placed on the report. Temperature data flows to a Field, Images are placed in the correct position and size, etc. Final finish of the report should wait until the visual image is acquired which if defaults in preference were brings the software to the Report Editor - this save steps.

Step 2 -Secure a Visual image from the frame grabber.

A visual image of course is used to provide a reference for the thermal image which does not necessarily have the details necessary to see where the fault is in the equipment.

CLICK on Camera and then CLICK on Acquire Visual. The software will then move to the Frame Grabber module. For a full explanation of this read Chapter 13 of this manual.

An image should now display. This will usually be displayed in gray or absence of color.

Top and Bottom Level Adjustment

An adjustment may be required to Top and Bottom Level to bring out details in a Visual image. These adjustments have a direct bearing on the quality of image printouts and is particularly important to visual images taken under low light conditions. Experiment freely to determine the best settings. Numbers are displayed for reference purposes.

Ideally the user will set up the tape with the first images with the CAMERA is set in freeze mode to provide adequate time to use the Contrast and Brightness controls.

THESE ADJUSTMENTS are SAVED and used on every VISUAL IMAGE that follows until a ADJUSTMENT is again made.

Processing the visual image

CLICK the right mouse button to process an image. Alternatively you can select Process from the Framegrabber menu.

If preference was set up for Report (see that section in this chapter) the software will open the Report Editor with the selected image dropped in the place selected by the template. Setting the defaults this way avoided the necessary step of going to the Report Editor when processing the thermal image.

Step 3 - finish the report

At this time the user can make changes to the text of the report. The sample report has sections that describe the nature the fault and the priority which would need to be modified.

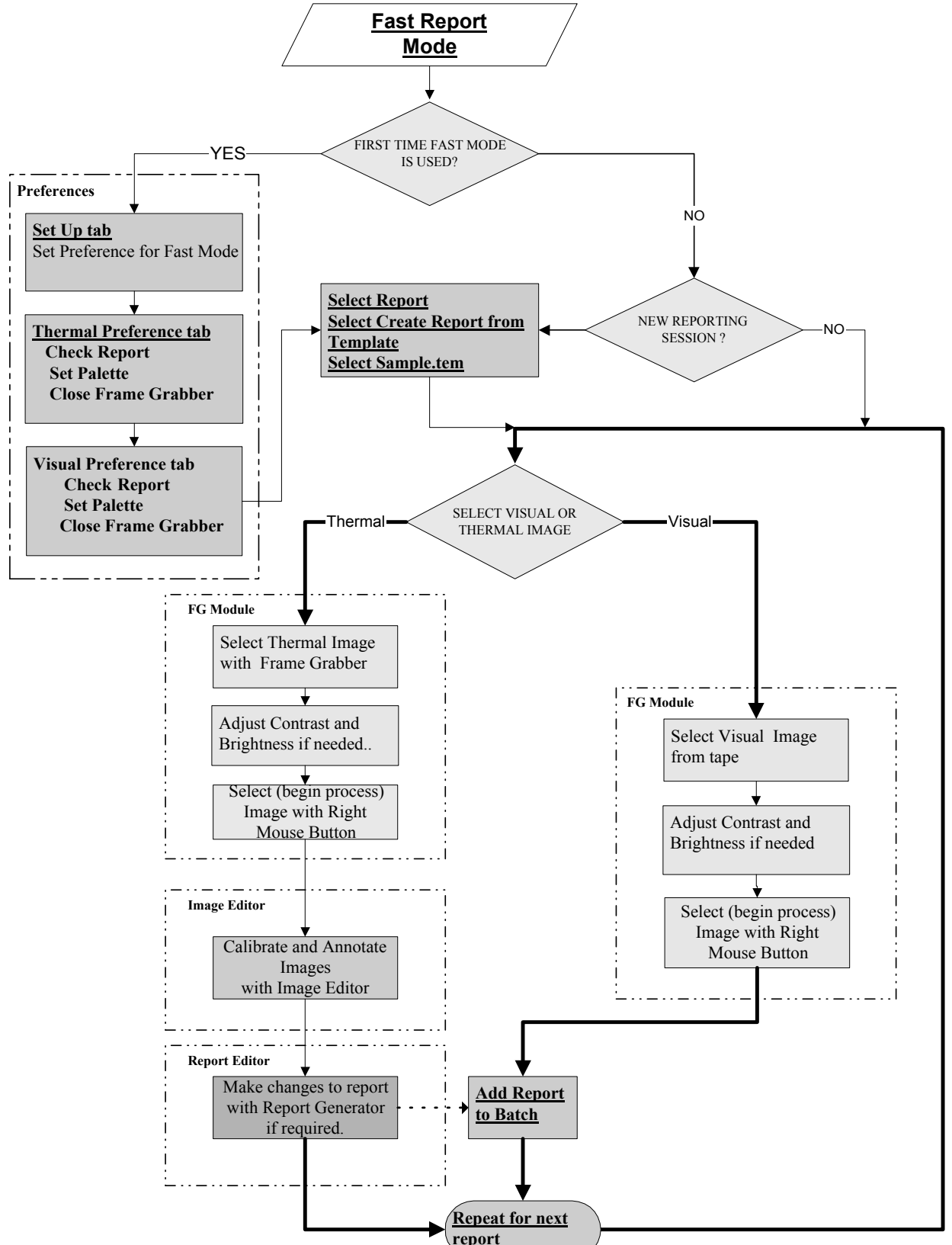
If batch printing is used add the report to the batch file. To do this press F9. See Chapter 20 for details of Batch Printing.

Step 4 - batch print

THIS CYCLE - SELECT THERMAL - PROCESS - REPORT EDITOR AND/OR BATCH - SELECT VISUAL GOES ON UNTIL ALL REPORTING IS DONE. If a simple well defined template is used and the tape data is well laid out with visual prompts, camera information properly displayed, and use of freezes as necessary this process becomes very fast. A skilled person with a fast computer can probably do a report in 1 minute. IT WILL TAKE PRACTICE AND WORK WITH THIS CHAPTER.

The template used contains the frame work of the report. It has the size and placement of images. It has the fields for temperature extractions properly placed. It has text properly laid out. It is the user’s most important tool.

SEE FLOW CHART - NEXT PAGE



Introduction

This software has functionality directly related to the easy viewing and selection of thermal images generated by the K6800.

Images are moved from the flash cards to an explorer like interface with images directly viewed as thumbnails with the Gallery software function Gallery.

All the calibration information required to correctly calibrate the image is taken from the image. When an image is loaded into the software Image Editor, the infrared image is calibrated to the accuracy of the camera. Each and every pixel in the image is temperature calibrated.

Working with Gallery

Introduction

The K6800 stores all of the infrared images, as SAT files on a FLASH CARD. Windows explorer treats the flash card as a removable Hard Drive when user uses a USB card reader. He can delete, copy, and perform all of the file functions available to Windows on this flash card.

We suggest that the user selects all the files on the flash card, and then place them on a directory on the hard drive. Secondly it is suggested that these images be saved on a CD for an archive. Be very careful when doing any file work on the flash card. If you accidentally erase your flash card images they could be gone permanently, and hours of work performing a scan will be lost. This is not to suggest in any way that a Flash Card is not a reliable means of storing image data. On the contrary it is very reliable and easy to use device.

How to use Gallery

CLICK on File, and then CLICK on Gallery. This will open up the gallery screen shown on the next page.

Gallery loads all of the files on the Flash Card into a page of thumbnail or views of the images. The first time you load it will take a few seconds, depending entirely on the speed of the computer, because gallery will create an IDX file along with loading the images. This file contains all the loading information, so the second and all subsequent loads are very fast. On a fast computer this loading is almost instantaneous.

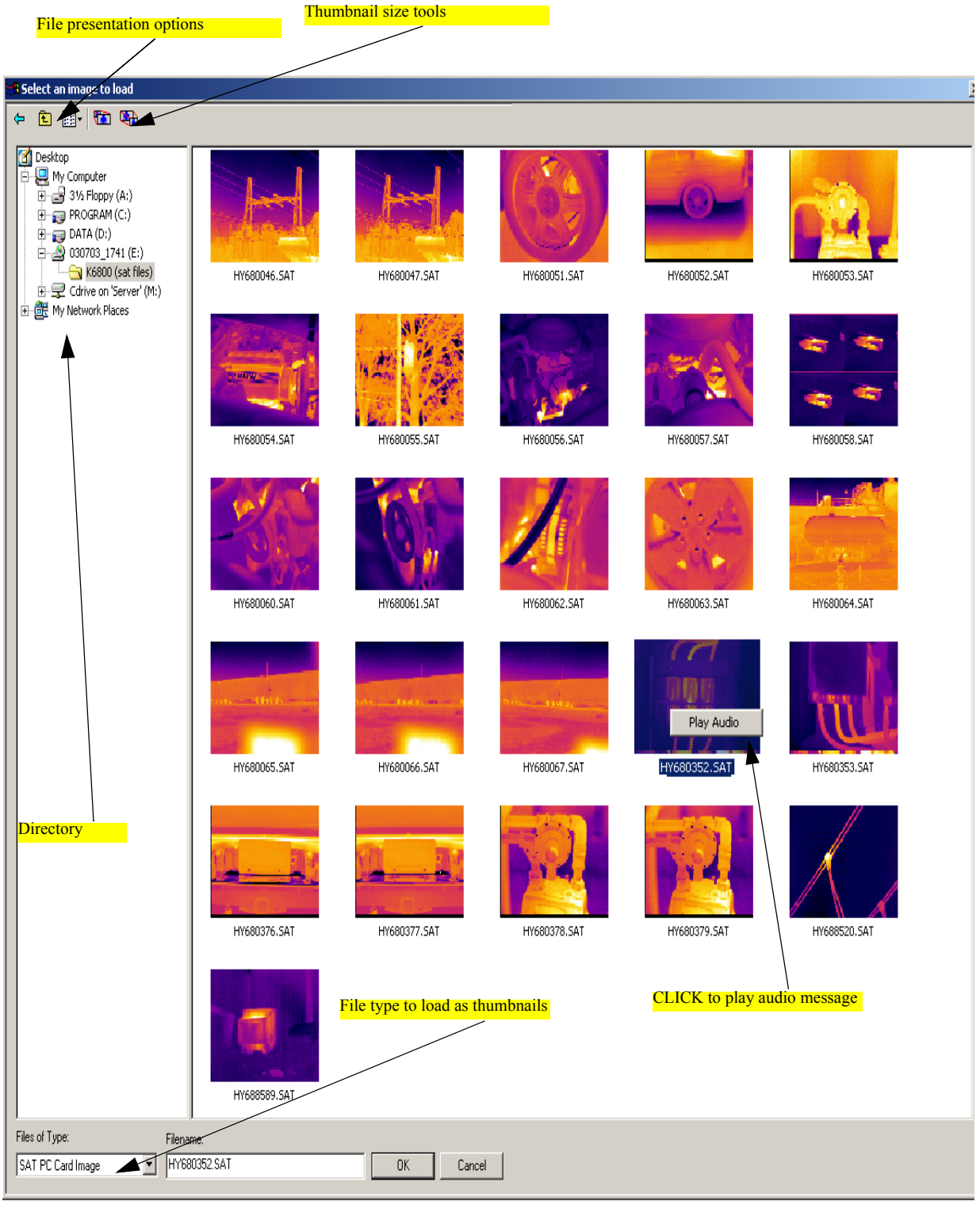
All you need to do to load these images is to select the directory on which the images reside. We suggest that the user give some careful consideration for the construction of directory structure that will allow easy finding, and location of images after time goes by.

Images are gray the first time the files are loaded by Gallery. These files are colorized with Palette applied to the images in the software. The user needs to do nothing to do this.

These images are not marked as Thermal Images by the software, which will necessitate that the user does not use Thermal Image in the Template Editor, unless he elects to marks the image as Thermal First. Gallery is nothing more than a substitute for file open. If you want to use Fast Report, mark the image as Thermal and it will automatically be sent to your report.

The user can select one image or as many as he wants and load them into the computer at one time. You can load a single image either by double clicking the thumbnail. Multiple images are first selected by holding down the SHIFT key and clicking on each desired image with the mouse, and then CLICKING OK at bottom of the screen shown on the next page.

The Image Gallery Screen

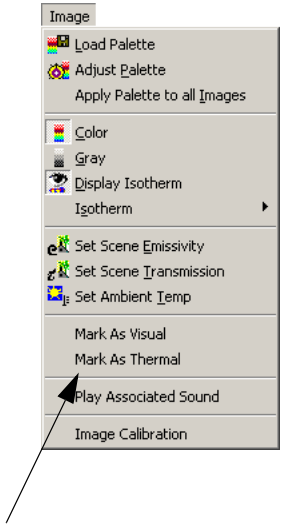


Audio messages

To play an audio message while in the Gallery, RIGHT CLICK on any image. The Control Button Play audio will display. Then CLICK on the Control Button to hear the audio message. If there are no audio messages, this Control Button will not display.

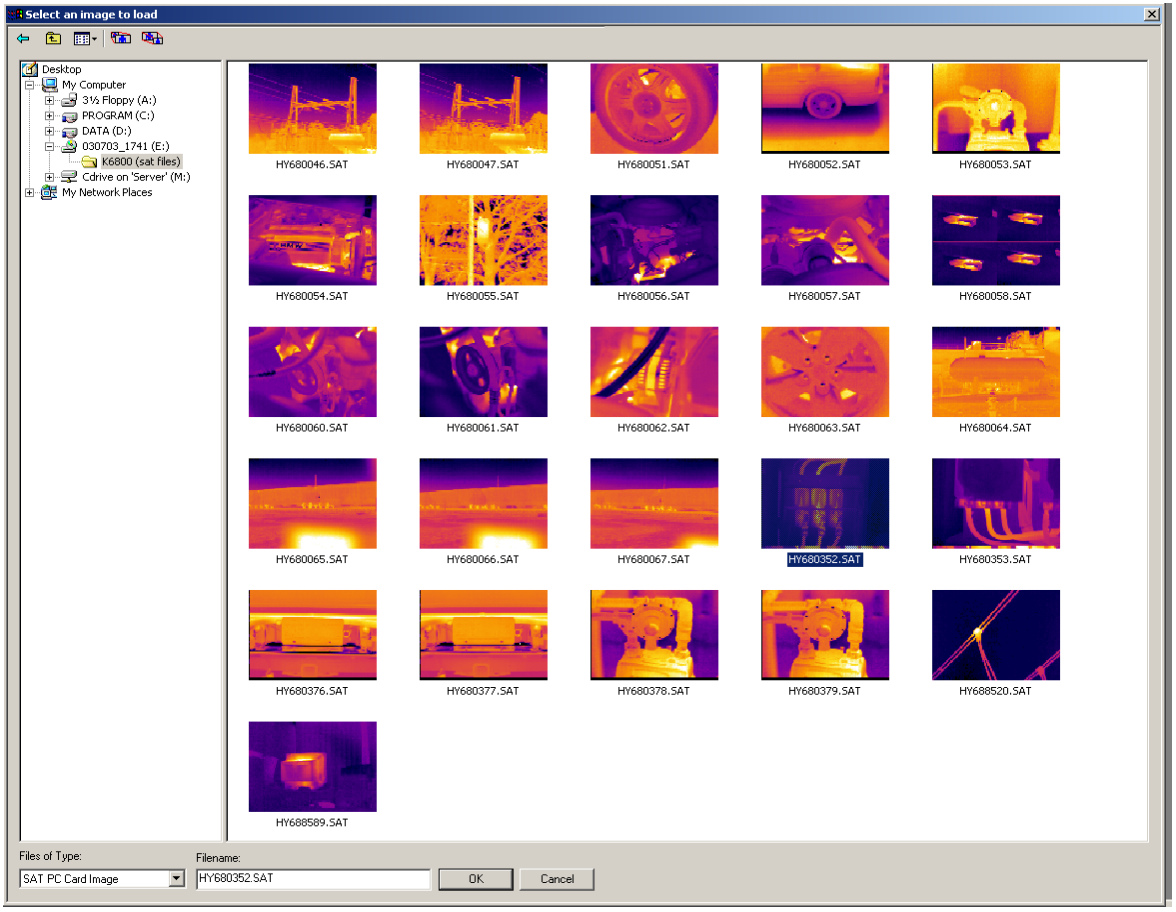
Image Editor

Images are loaded into the Image Editor first. To automatically load these into a report, after a suitable template has been made, the user will need to open the Image Menu and then CLICK on Mark as Thermal.



See chapter 20 Fast Report Mode for more information.

Image Gallery thumbnails



Level/Set tool

Palette Ironbow II. Upper temperature 112.6 F and lower 79.3