ThermoSoft II

User's Manual

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Table of Contents

Chapter 1 Introduction to the software

Chapter 2 Software Basics

Table of Contents

Chapter 3 The Events Menu

Table of Contents

Chapter 5 File Menu

Table of Contents

Table of Contents

Chapter 11 Windows Menu

Chapter 12 Report Menu

Chapter 15 Field Menu

Chapter 16 Link Menu

Chapter 19 Customizing a Graph

Thank you for purchasing this software product!

We think you will be delighted with this Windows REAL TIME thermal analysis software package. We have succeeded in this 32 BIT product in getting 33 frame per second capture rate - camera to frame grabber - to processing an image.

This software is designed to provide all the needed tools in a easy to use, user friendly software in a familiar Windows environment.

The Manual

About this manual

We have striven for information presented in a consistent manner from chapter to chapter, knowing that a manual is read when it is easy to read.

The TITLE PAGE will indicate the VERSION of the MANUAL to alert the user to dated manuals.

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 with all of its functions.

An index is located at the back of this manual. Every function in this software can be looked up and located easily and quickly.

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 liberally to explain topics.

The software

Some important features of this software:

1. Software organized into modules that have related functions.
2. Real time software thermal image analyst.
3. Temperature tools - POINT, SPOT, LINE, CIRCLE, ELIPSE, RECTANGLE, and SHAPE.
4. Trending with IMAGE SUBTRACTION.
5. Event manager to move data to different kinds of outputs.
6. Palette selections with a palette editor.
7. CAD functions with shapes, color fills. You can even arrange the objects vertically in layers.
8. CLICK AND DRAG editing that is consistent across the software.
9. Emissivity and temperature region correction from a user created table that is saved for later use.

10. Windows CLIPBOARD support.
11. Template/Report Editor features.
12. No limits on the numbers, position, and size of images, and graphs placed in a report.
13. Fields place data on the report generator.
14. Powerful graphing module with many different formats that displays REAL TIME and STATIC IMAGES.
15. Isotherms with SPAN and CENTER point adjustable to less than a degree if camera resolution permits.
16. Compatible with Windows NT 4.0.
17. Network support.
18. An much more . . .

Learning the software

Is this software hard to learn and use since has so many features. All menus, functions are direct with at most 2 pull down menus. Extensive help files explain every functions with detailed drawings and explanations. This is productivity software - and the time required to learn the basic software functions is not long.

To get the user started a special booklet - getting started is included with the software. This contains a BRIEF introduction to all the BASIC FEATURES of the software, installing hardware, and installing the software.

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 supplied by Windows. Print manager.

This is processing software primarily

The purpose for which this software is written is INDUSTRIAL PROCESSING:

1. Display live thermal images at 33 frames per second NTSC.
2. Permit thermal analysis of live thermal images in real time.
3. Provide very flexible ways of reporting data in a comprehensive EVENT MANAGER to computer hardware such as disk, floppy, Replay Editor, and event management over time.
4. Powerful graphing tools.
5. A standard Image Editor for post image analysis with ZOOM.
6. An enhanced Template and Report generation capability.

Introduction

The purpose of this chapter to provide the software user with a OVERVIEW of SOFTWARE BASICS. To begin using this software to its full potentional the user needs to understand th topics in this chapter.

Software Basics

Topics covered in this chapter

1. Objects
2. Mouse operations
3. The tool bars, and menus
4. The software structure.
5. Preferences
6. Speed Menus
7. The software modules.

Related subjects

Chapter 6 - The Edit Menu

Definition of a Software Objects

An object is anything placed OVER and IR IMAGE. **It is also possible to OVERLAY OBJECTS on a VISIBLE IMAGE**. An OBJECT is an overlay on the thermal image. It does not alter the IMAGE in ANY MANNER. 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. IR IMAGES - 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. The exception is an ISOTHERM which has a control view portion located on the COLOR BAR and the ISOTHERM DISPLAY located on the IMAGE.

Not all objects have the same VIEW 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.

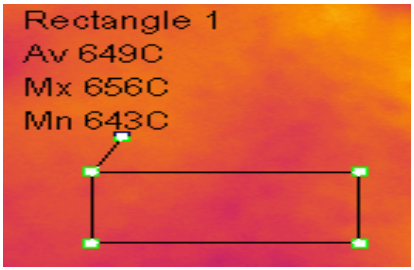
Visible Images

Visible images are produced by a camera that takes pictures that are VISIBLE to the EYE. These can 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 on an object is MUST BE SELECED.
The mouse cursor must be 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 or LINE, SPOT, and POINT in the Frame Grabber Module

Editing an object

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 anywhere on the object, and while holding down the mouse button move the mouse. 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.

Edit Mouse Cursor

Press the computer Esc key, or CLICK on the ARROW in the TEMPERATURE TOOL BAR to display this cursor..

Temperature Object

CLICK on a temperature object such as Point, Shape, Spot, etc., and then use the cursor to place the mouse exactly 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

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.

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. The example above is a DOCKED TOOL BAR.

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 can also be customized.

CUSTOMIZING TOOL BARS

The software is provided with tool bars that can be customized by adding or removing tools. Do this by RIGHT CLICKING anywhere on a TOOL BAR.

Each module of the software - Frame grabber, Image Editor, Graph, and Report Editor can have its own customized set of tool bars. This provides the user with exactly the TOOLS needed.

Customizing the software with 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 and Speed Menu items apply only to the SELECTED OBJECT and NEVER SET DEFAULTS.

How to access preferences . . .

CLICK on FILE and then CLICK on preferences. CLICK on the particular TAB as listed in this section to make the required changes.

PREFERENCE Image Tab

Image tab applies to the Frame Grabber and Image Editor Modules.

Image Tab settings

Image Display ASPECT RATIO

Aspect ratio maintains the correct height to width of an image when its size is altered with ZOOM, or Windows RESIZE.

Zoom to

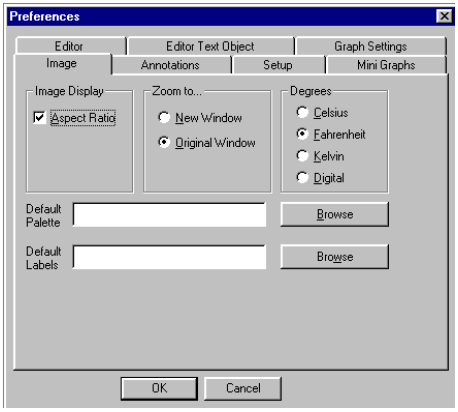
New Window - ZOOM creates a new WINDOW in which to place the zoomed portion of the image.
Original Window - ZOOM uses the original Window to display the zoom portion of the image, with a new heading. Degrees Set the temperature scale to use with all temperature related objects.

Default Palette

Set a palette that the software will use when displaying an image

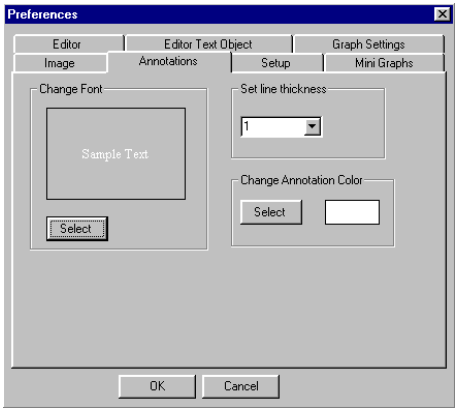
Default Labels

Set a label to use with all TEMPERATURE OBJECTS.



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

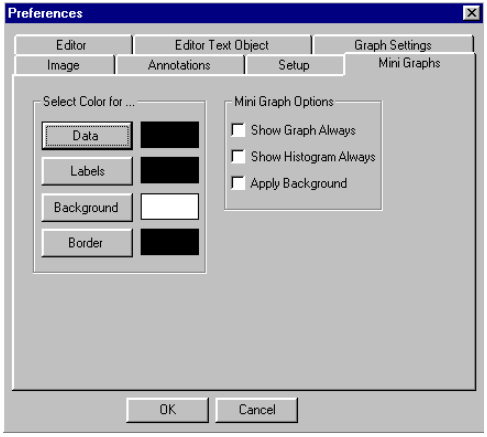
Set a line thickness for any NEW line, border, temperature annotation, etc.

Change Annotation Color

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

PREFERENCE Mini Graph Tab

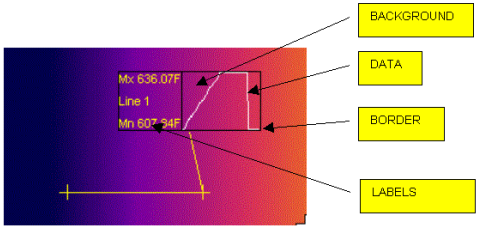
This tab applies to Frame Grabber and Image Editor. Changes to this TAB apply to objects in existence. It does NOT apply ONLY to new objects.



See the illustration immediately below to understand the terminology and to what it applies on a mini-graph.

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.

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

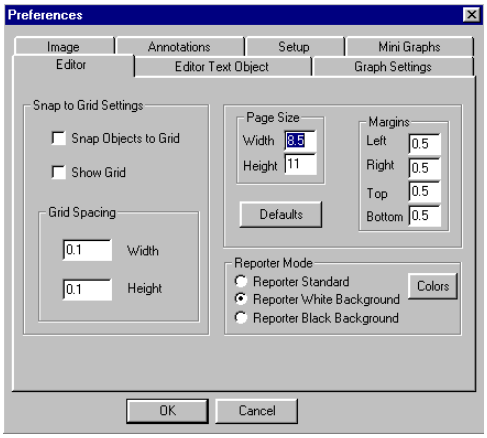
Snap Objects to Grid. Enable a snap (auto placement) of objects, when dragged to GRID.
Show Grid. Display a series of dots on a template. These dots make up a grid for alignment of objects.

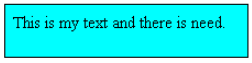
Grid Spacing

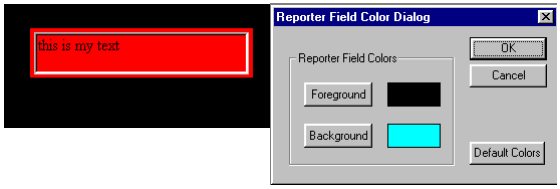
Set the width and height spacing of the grid. The default setting of .1 inches is a good setting.

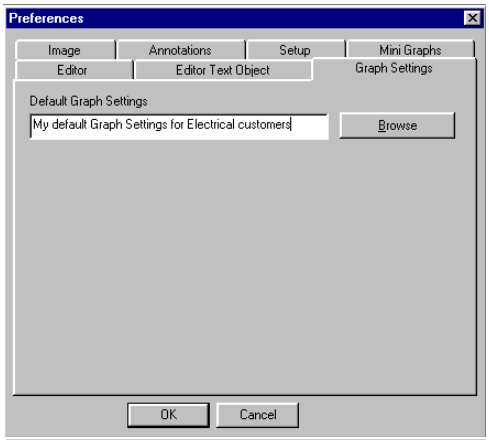
Reporter Mode

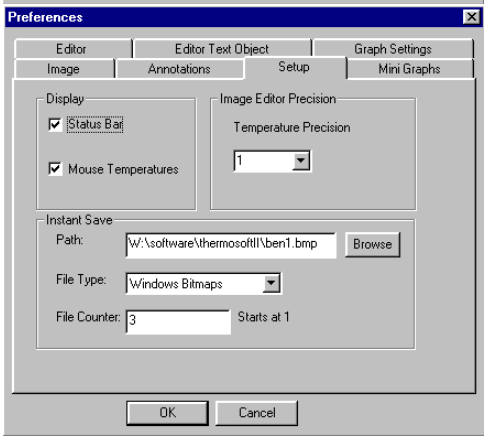
While making a report the software can use a special fill in mode. Text that is changed or filled in can be set to a color to aide placement of text while making reports. IT DOES NOT PRINT THESE FILL IN COLORS.
Set Standard Mode.
CLICK to not use FILL IN MODE. This mode also enables the report editor 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 Blackground.
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 Graph Settings Tab

Enter the default graph settings to applied to any graph accessed in the provided text box.

PREFERENCE Setup Tab

This tab applies to Frame Grabber, Image Editor, and Report Editor. Exception is Mouse Temperatures.

Status Bar

Check this item to place a status bar on the software windows. The status line has information useful to operation of the software.

Mouse Temperature

Check this item to place temperature under the mouse. This temperature is read on the right hand side of the status bar.

Image Editor Precision

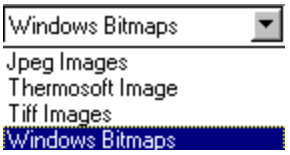
This applies ONLY to the Image Editor. Set the number of decimal places for temperature resolution from 0 to 2. This effects every temperature object used in the Image Editor.

Instant Save

Instant save is a way of saving a series of WORK IMAGES from the Image Editor. These files ALL have the same name but are auto incremented with a number. This is a way of not over writing previous versions of the software.

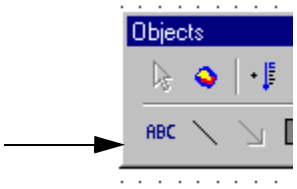
A path must be setup for the tool in the Standard Toolbar to become active.

Path. Set up a path for or location where files are saved. LONG FILE NAMES can be used.
File Type. Click on the down arrow in File Type to select from the types of images as shown to the right.
File Counter. Enter the auto increment number. For example set the number to 100. And the file name to 'my image. bmp'. Then each image would be 'my image 100.bmp, my image 101.bmp, etc.



PREFERENCE Editor Text Object

This applies ONLY to 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.

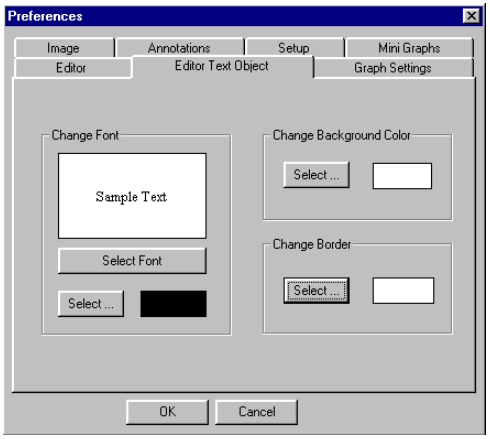
Change Font

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

Change Background Color

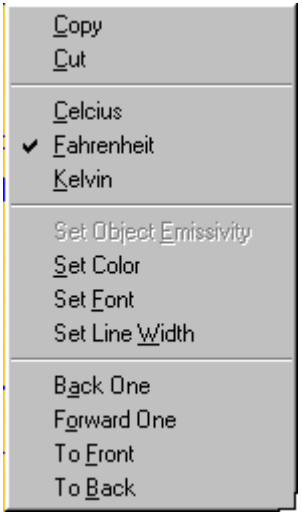
Select a background color for a text object.

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.



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.

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.

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

To use any of the functions listed on the menu - CLICK with the LEFT MOUSE BUTTON . After the function is used the Speed Menu will be removed automatically.

The navigating around in the software

Introduction

This section of the manual will provide the user with a overview of the software, necessary to effectively use the software.

A listing of the modules in the software

1. Image Editor
2. Frame Grabber Module
3. Graphing Module
4. Report Editor

Image Editor

This software module contains the tools for post-image analysis of infrared images. These images can either be loaded from a file, or from the frame grabber module.

From this module the user can save images, print images, colorize images, apply isotherms, or do everything required to turn a RAW INFRARED IMAGE into a annotated image.

Frame Grabber

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

A full set of analysis tools can be applied to a LIVE IMAGE, such a points, spots, line, shape, and rectangle. Images can be isothermed and colorized.

This module contains the EVENT MANAGER which enables the analysis of temperature information over time and

at preset intervals send this data to files, or recorders.

It also has a snap shot capability so that a series of live images can be recorded and then played back like a VCR at a later date.

Graphing Module

This module will display data in a variety of graph formats in real time, or from an image in the Image Editor.

It is a powerful tool for graphically presenting complex temperature information.

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.

It also contains a template editor that software user can use to make reports with a fixed format.

Using the software with TVS 2000

The install program takes care of the entire selection process for the proper frame grabber and the selection of the camera. Exercise particular care during install. that you select Flash Bus MV PRO.

WARNING while using the TVS 2000

There are things you cannot do with the TVS 2000 computer (the part of the camera that has the keyboard, screens, etc.).

1. The External Interface must be set at 232C, 9600, 8, None, 1, None, None.
2. The image must be in B/W color mode.
3. Autoscaling must be turned off. It is acceptable to turn it on for a brief period of time to get the correct adjustments, but then turn it right off. But it can NOT remain on.
4. Any part of the image that is excluded using the Selective Graduation Display function can not be calibrated.
5. The framegrabber adjustments must be setup such that there is no saturation of either high or low end.
6. Only the range currently displayed on the camera can be measured, everything above or below the range will display as the max or min temperatures of that range.
7. Using the Level button, to change the Display Gradations setting will cause the calibration to become much less accurate. This should be left at 256 gradients.

Introduction to the Events Menu

Events in this software means the ability to cause temperature related data from the temperature tools to be sent to a variety of devices - spread sheets, DA convertors, the hard disk. All of this occurs in REAL TIME or as the event occurs.

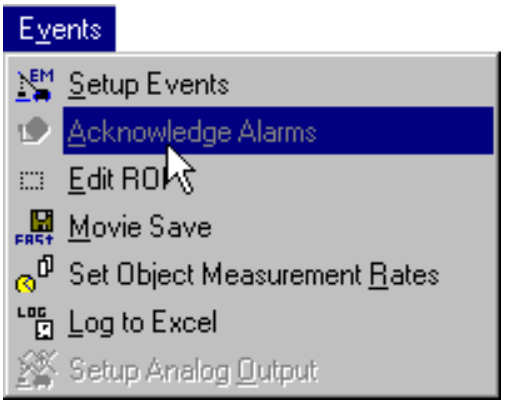
This chapter is crucial to effective use of the software and will require lots of study and hand on application.

The Events Menu

Software Location

LIVE WINDOW ONLY.

The following functions are found in the EVENTS MENU



1. Setup Events
2. Acknowledge Alarms
3. Edit ROI
4. Movie Save
5. Set Object Measurement Rates
6. Log to Excel
7. Setup Analog Output

Related topics

These should be reviewed when studying any of the EVENT MENU CONTROLS.

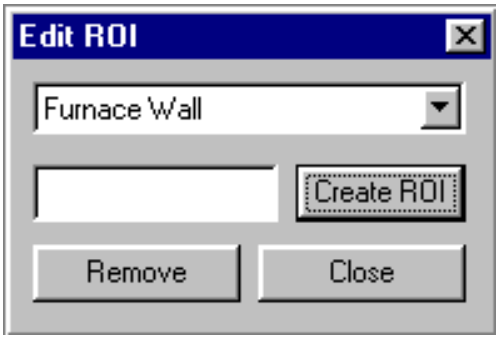
1. Editing objects chapter 4.
2. Using the mouse chapter 4.
3. Speed menus chapter 4
4. Preferences chapter 4
5. Edit menu chapter 4
6. GLOSSARY.

Toolbars

The Events Menu Functions

The Events Menu contains a group of functions that setup, time, and controle the management of temperature data. The following discussion of these functions are not arranged in the same order as the image.

Edit ROI



ROI stands for REGION OF INTEREST. It is a saved rectangle annotated on an image. If it is selected the software will perform a selected function on that rectangle. A ROI also saves computer resources since an entire image often is not required for analysis or other operations. The smaller the given ROI, and still able to perform the intented function, always results in a conservation of computer resources which makes the software run faster.

A ROI has a spacial relationship to the IMAGE WINDOW ONLY. It is NOT fixed or attached to the image. In this way an image can change in real time but the ROI is fixed in the windows position.

The user can give a descriptive name to a ROI, such as size, location on the image, temperature, etc., to aide later recall. It does not save an image associated with the ROI to aide this recall process.

Many of the Event functions will then use a ROI and the user can scroll through a list of names to select the one desired.

How to use . . .

ACCESSING ROI. CLICK on Events Menu and CLICK on Edit ROI. The control shown to the right is displayed. Type in a long file name for the ROI in the EDIT BOX to the LEFT of Create Roi, and then CLICK on Create ROI.

DRAWING A ROI. The name will be added to any ROI list and saved. The mouse cursor will CHANGE TO A PLUS. Place this + where the upper LEFT CORNER of the ROI is to be located and CLICK the LEFT MOUSE AND HOLD DOWN.

CHANGING THE SHAPE OR POSITION OF A ROI. To resize DRAG the rectangle to the desired size and shape, as with any editable rectangle. Release the mouse button and the ROI remains editable. Reposition or resize as desired. CLICK Close and the ROI is saved, the Edit ROI control is put away and the ROI BECOMES INVISIBLE.

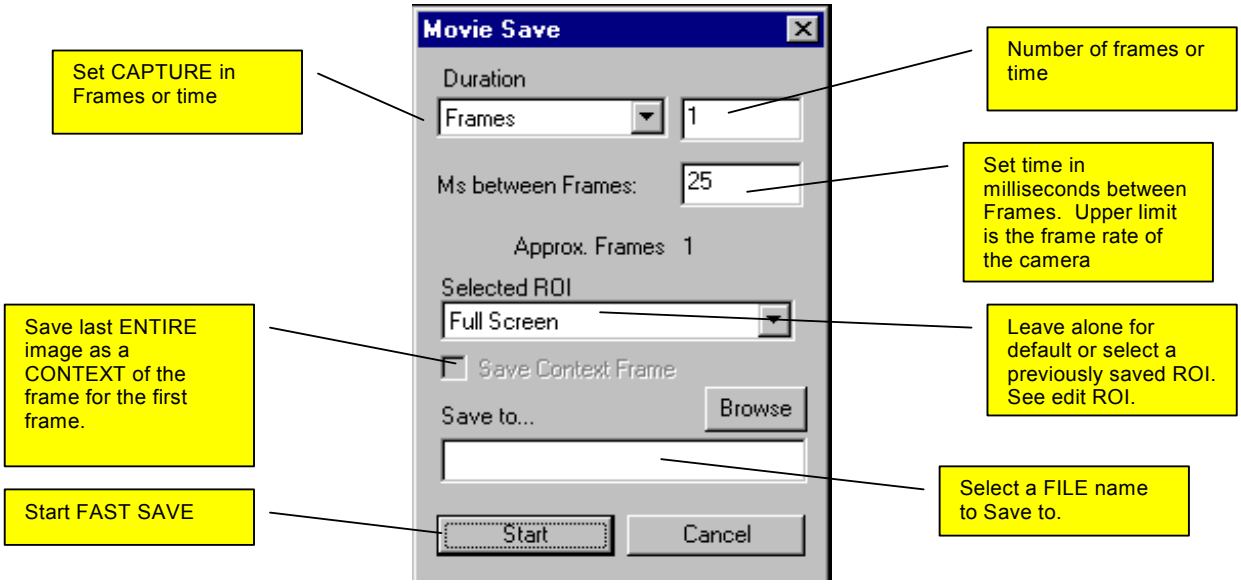
Editing a ROI -

Click on the drop down list to display a list of ROIs. CLICK on a name and the corresponding ROI is displayed in on the screen. It is now an editable object. All the rules of editing now apply. Select it and resize or drag to a new position. The example to right show a SELECTED ROI. The color of the editable ROI outline is dotted and white, or black depending on the background color.

Remove -

CLICK on the drop down list to display a list of ROIs and CLICK on a name to select a ROI. The ROI is displayed. CLICK on Remove.

Movie Save



This function saves a series of frames from a LIVE IMAGE. These are saved to the computer memory and the hard drive to be viewed by the Fast Save Replay Tool Bar. See chapter 8 of this manual for the Replay Toolbar.

How to use . . .

CLICK on Events and then CLICK on Movie Save. Or CLICK on the Movie Save in the Events toolbar shown to the left. The control shown above pops up for use. .

Duration - Select time units Frames, Milliseconds (1/1000 of a second) and seconds, and then enter amount of time.

Then ENTER the NUMBER of FRAMES you want to save. This is the DURATION of the MOVIE SAVE.

Ms between Frames - Set the time between frames. This is limited by the upper frame rate of the camera. The lower limit is 99999 ms.

Select ROI a previously saved ROI.

The software defaults to full screen, which if this is desired, the user needs do nothing to this control.

See the preceding section in this manual on Edit Roi.

The ROI will show on the image to be movie saved as a dotted line in this case.

Check Context Frame - Check this box to cause the software to save the entire image in the LAST FRAME as BACKGROUND or CONTEXT for the REPLAY series of frames to provide a CONTEXT. This control is active ONLY when a ROI is selected.

Start - begin a Movie Save.

Cancel - Exit if no fast save is desired.

After the amount of time required to save the frames a SPECIAL REPLAY WINDOW will POP UP. You identify this by the the TITLE BAR which says Replay Viewer as shown above. This window may be behind the LIVE WIN-DOW. This window behaves like a Window and can be selected, mimized, saved, etc.

Use the Replay Toolbar to view the series of FRAMES saved by using the FAST SAVE. See Chapter 8 of this manual

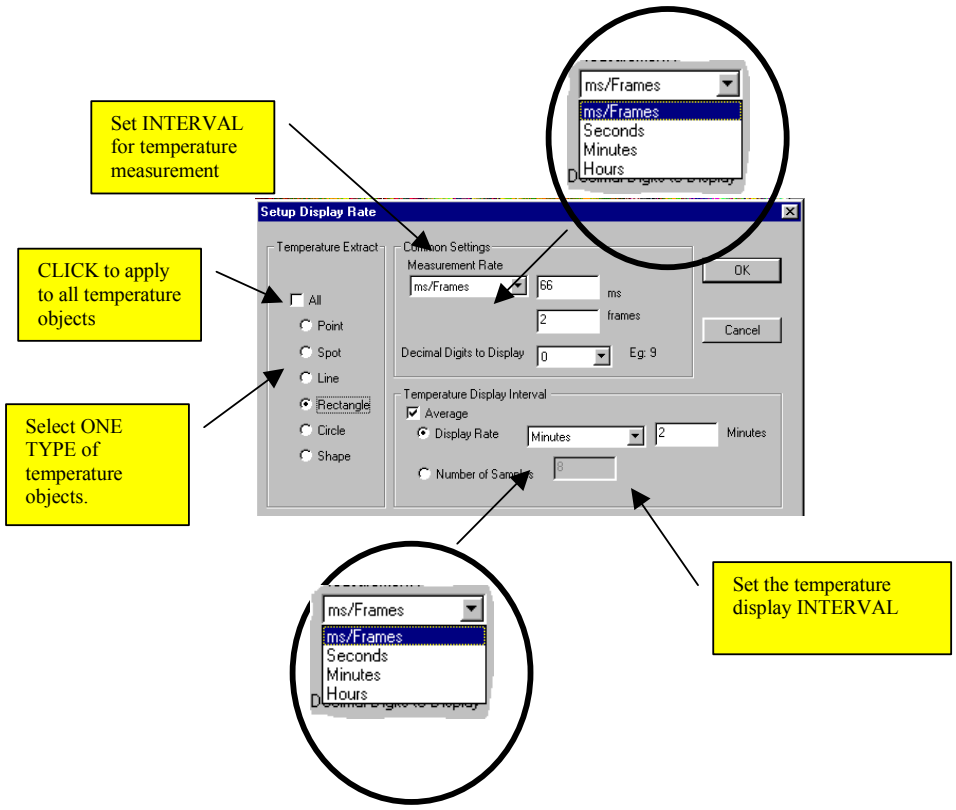
for a full discussion of this Toolbar.

What is active

NOTE: Selecting the ReplayViewer window will cause the Replay Toolbar to become active (ungrayed). Selecting the Live Window will cause Fast Save to become active. Much confusion can result unless this is understood.

Set Measure-ment Rate

This function provides enables the selection of ALL temperature objects or a selected TYPE of temperaature object, such as all Line Temperature, and set the measurement inter-val, or HOW OFTEN that temperature object TYPE is accessed. It is also possible to set the amount of delay before displaying the temperature or to AVERAGE the tem-perature for display.



The settings for a tem-perature object type are stored for reference when the control is accessed. See the sec-tion below in “How to use . . .’.

How to use . . .

CLICK on Events and then CLICK on Set Measure Rate The control shown below is then made available to the soft-ware user.

Temperature Extract

If the software user wishes to apply the settings in this control to every type of temperature object used in the soft-ware then CLICK on **ALL**

All by default is checked. If it is desired to affect only a selected CLASS of temperature objects then CLICK on **ALL** to remove the CHECKMARK and then CLICK a Radial Button that relates to the temperature CLASS desired.

Common Settings

Measurement Rate --

See the illustration below which explains the relationship of Measurement Rate to Temperature display INTERVAL

Set the rate to ms/Frames, Seconds, Minutes, or Hours. Maximum time allowed for each is 99,999.

This will determine how often the temperature object class will TAKE A MEASUREMENT for display.

Decimal Digits to Display --

Set the number of digits displayed from 0 to 2.

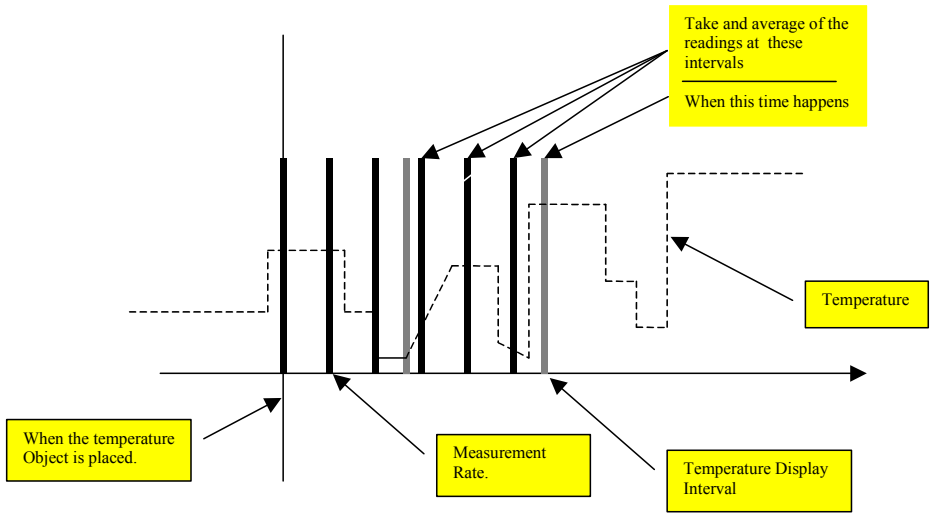
Temperature Display Interval --

THIS CONTROL BECOMES ACTIVE ONLY WHEN AVERAGE is CHECKED.

Display Rate -

If AVG is is NOT CHECKED the temperature is displayed at the time set in the previous section with Measurement Interval.

In the illustration to the right, each time Temperature Display interval TIMES OUT, the AVERAGE of the 3 preceeding Measurement Rates.



This control provides ONLY an AVERAGE of the Temperature Display Intervals. The number of these is determined by the amount of time set in this control. In the example below it was set to permit the AVERAGE of THREE INTERVALS. The readings are taken at the time each Measurement Rate took place and averaged for display at the time **set by this control.** In other words the display is ONLY updated at the times indicated by the GRAY BARS with the AVERAGE of the temperature values at the time of the BLACK BARS.

As can be seen the temperature is varying from one value to another.

How to use -

CLICK on the AVG Check Box, and then CLICK on the DISPLAY RATE radio button - the input boxes to set time become available.

Set the rate to ms/Frames, Seconds, Minutes, or Hours. Maximum time allowed for each is 66. Take care that the set time is such that a the number of Rate Intervals (those shown in BLACK in the illustration) is correct. For example if it is desired to average three Rate Intervals then Rate Interval is set to 33 ms and Temperature Display Interval is set to 3 x 33 or 99 ms.

Number of Samples

How to --

An alternative method is to enter the number of samples by CLICKING on Number of Samples radio button and then typing in the number of frames desired. In the above example to sample three rate Intervals type in the number of 3.

Event Setup

Introduction

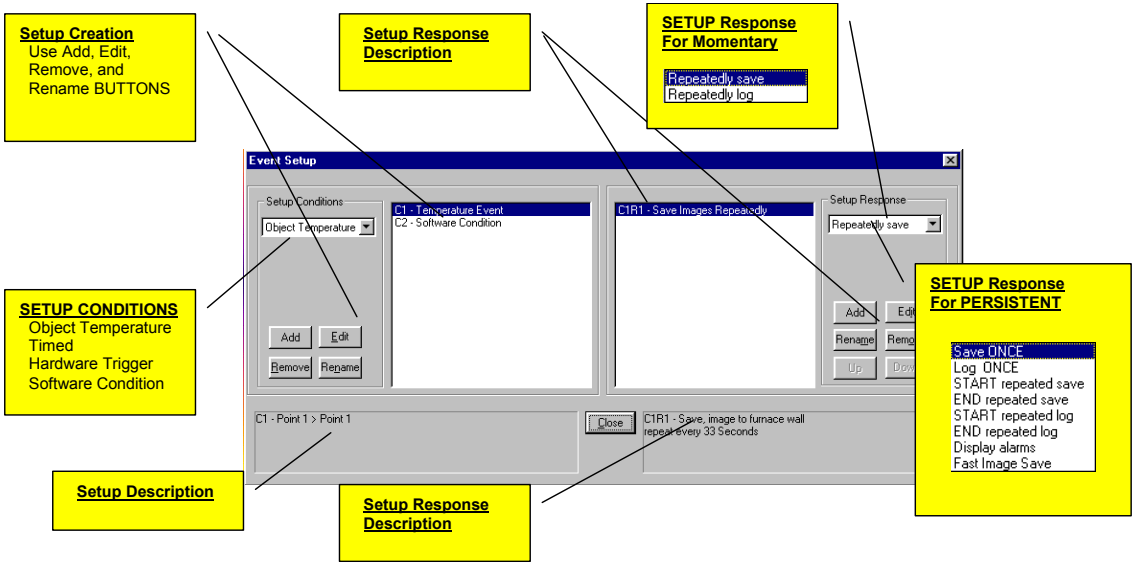
The Event Setup control is able to manage the entire process of getting temperature data from a live image to hard disk, spread sheets, graphs, and AD or DA outputs. Initiating the collection of data is very flexible with a variety of response conditions. The Control Dialog that controls this is shown below. It is called the Event Setup.

THIS IS A VERY COMPLEX CONTROL that needs careful study to apply to its full potential..

Contents of the Event Setup section

1. The Event Setup dialog
2. Explanation of momentary conditions
3. Explanation of persistent conditions
4. The 4 kinds of conditions, Object Temperature, Software, Timed, and Hardware Trigure
5. Schematic of Event Setup with related dialog boxes.
6. Flowchart of Event Setup actions

Described below is the control that is available when Events Setup is CLICKED in the Events Menu. On the LEFT SIDE are the controls to setup conditions and to display the results. On the RIGHT SIDE are the software responses to those conditions. In the next section the user should refer to an overal schematic of this control to understand the various controls available to response selections.



The Event Setup controls

Selecting Conditions

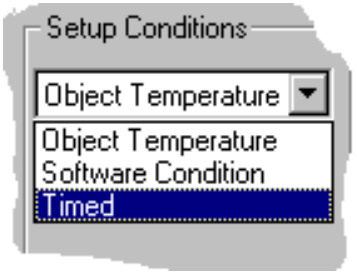
A condition is a source for data originating in a LIVE IMAGE. The software use these conditions to set up the proper reporting as a source for data in the Event Setup Controls. Note that a condition can be a cluster of related conditions. These are grouped togather initially for convenience in selecting.

There are 4 possible conditions:

1. Object Temperature
2. Software Contion
3. Timed.
4. Hardware trigger (appears only when an I/0 board is installed in the computer.

How to select a condition . . .

Click on Setup Event in the Events menu to open the Setup Events Dialog. CLICK on the Down Arrows of the DROP LIST CONTROL, to open a list of three CONDITIONS shown to the right. . Then double click on any one of these items to select.



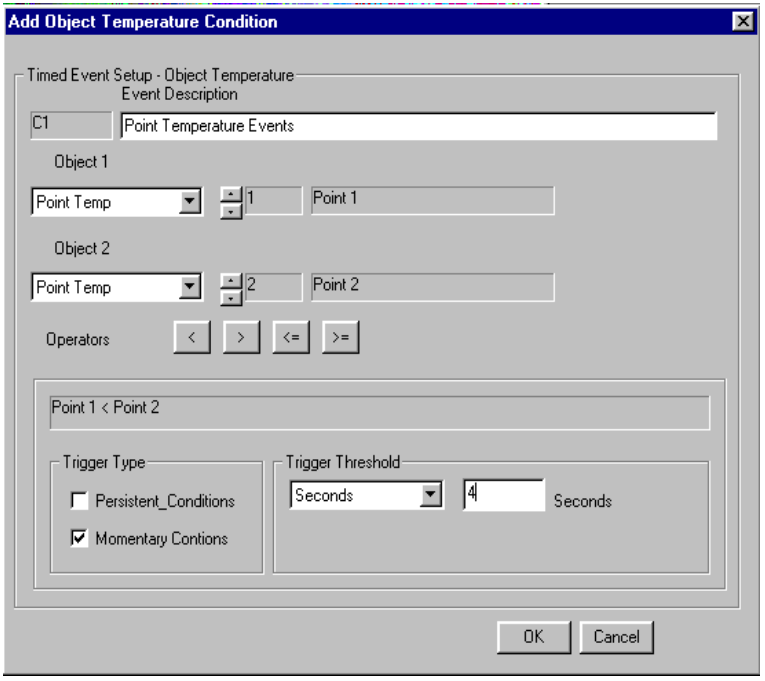
These conditions are described in the following section.

CONDITIONS 1 - Object Temperature

Introduction

These are a group of conditions that use the temperature tools - Point, Spot, Line, Shape, Circle, Rectangle. The dialog box shown below displays when this CONDITION IS SELECTED.

With these conditions the user can extract temperature data from live images and output that temperature data to a set of responses.

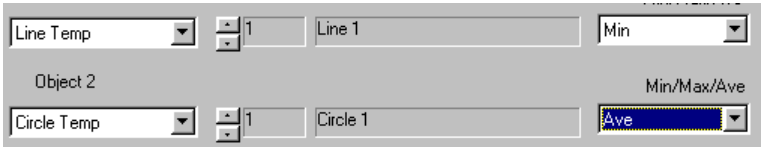


Object Temperature Event Description

Events are labled automatically with a designations such as C1, C2, etc. These cannot be edited. Point Temperature Events - is automatically entered by the software. The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes.

Object 1

CLICK on the DOWN ARROW associated with the Object 1 DROP LIST, to display the list of Temperature tools available, Point, Spot, Line, Circle, Shape, and Rectangle. Select any one of these temperature tools or OBJECTS by DOUBLE CLICKING on it. This is illustrated to the right, where LINE and CIRCLE have selected. NOTE - POINT OR SPOT is selected and does not display the Min/AV/Max ENTRY BOX , since these TOOLS do not have a Minimum, Average, and Maximum temperature capability. In the example above LINE TEMP and CIRCLE TEMP allow the user to select a Minimum, Average, are Maximum temperature for data.



Indexing. Use the UP Down Arrow to select a different index if needed. In this case Index 1 for Point is being used. This is illustrated to the RIGHT.

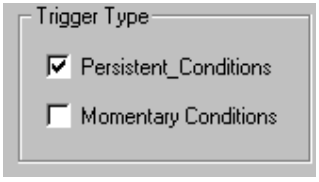
CONSTANTS - of special note is the fact that a constant can be selected in place of a temperature. This allows a factor to to be used with the operators shown below. Note also that it is possible to set a constant with a temperature value of C, F, or K. F is are shown in the example to the left

Object 2

CLICK on the DOWN ARROW associated with the Object 2 DROP LIST, to display the list of Temperature tools available, Point, Spot, Line, Circle, Shape, and Rectangle. Select any one of these temperature tools or OBJECTS by DOUBLE CLICKING on it.

NOTE - POINT OR SPOT is selected and does not display the Min/AV/Max ENTRY BOX , since these TOOLS do not have a Minimum, Average, and Maximum temperature capability.

Use the UP Down Arrow to select a different index if needed. In this case Index 2 for Point is being used.



Operators

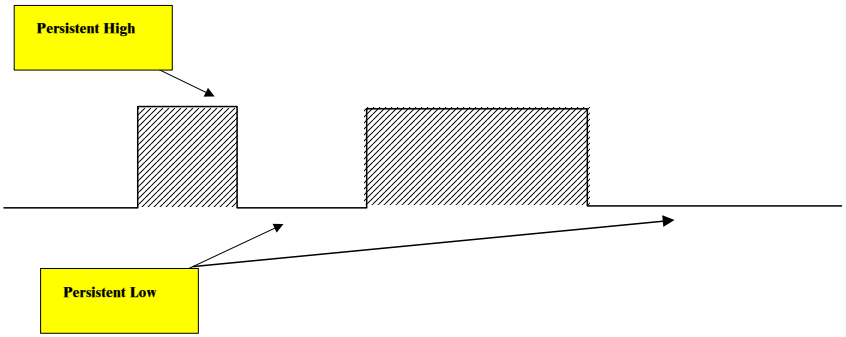
The relationship between object 1 and object 2 is further defined by these Math Operands: Less Than < , Greater Than > , Less Than or Equal < =, and Greater Than or Equal > =. CLICK on the desired OPERAND to select - the selected relationship is shown in the VIEW BOX immediate below. In this case the Condition is Point 1 > Point 2.

Trigger Types

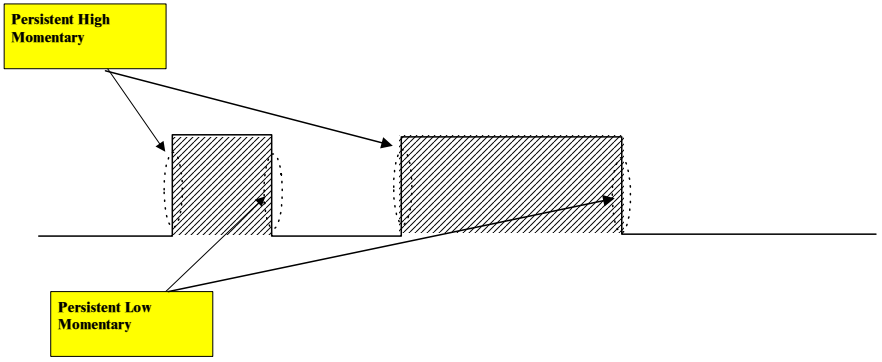
The software REQUIRES a momentary or persistent trigger selection by the user.

Persistent Trigger. A persistent trigger explained as a diagram below.. The diagram shows that the nature of such a

trigger is to remain high or low with a TIME DURATION or TIMED PARAMETER.



Momentary Trigger. A momentary trigger is explained as a diagram below. Note that this ALWAYS has no timed parameter.



SELECT the kind of trigger very carefully. Once this is done and OK is CLICKED the software GRAYS OUT this item so that it can't be modified. The only actions that can be taken is to edit all the other items of the control or if it is desired to change the trigger it will be necessary to delete the CONDITION and begin again.

Trigger Threshold

NOTE: A trigger threshold time sets the AMOUNT OF ELAPSED TIME before a RESPONSE occurs.

Trigger threshold provides ms/Frames, seconds, minutes and none for time intervals. The following maximum values can be entered:

ms 99999

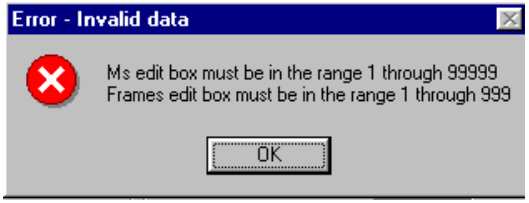
frames 999

Seconds 999

minutes 99

none

Enter the numbers required in the desired time base of delay. Select none if no delay is desired.In the illustration 33 ms was set. The letters ms, sec, min are placed next to the numbers to help editing.



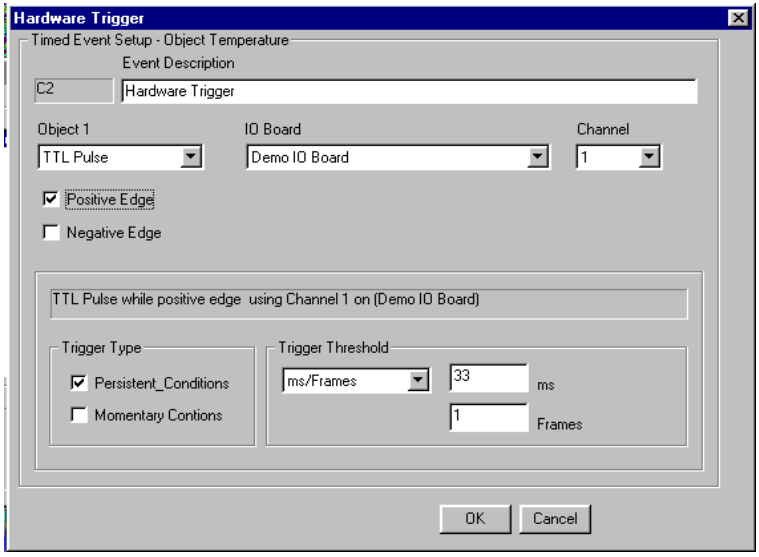
Note that time can be in either ms (1000 of a second) or in frames which corresponds to 33 ms or 33/1000 of a second. This corresponds to a rate of aproximate 33 per second. Any

number less than or equal to 99999 ms can be entered - the software will then place the correct number of frames that occur in that time frame.

ERROR Messages -

If greater than the above numbers are entered or no numbers are entered the software will placed an error control requesting that a quantity of time be entered, when the OK button is pressed. This is shown to the right.

When everything is done review the settings again to ensure that the desired choices are made correctly and CLICK on the OK button. This is located at the button of the CONTROL.



CONDITIONS 2 - Hardware Trigger Selected

The CONTROL that results from this selection is shown below. NOTE: in this condition, the CONDITIONS originate outside the SOFTWARE in the I/O Board installed in the computer. Every condition has a consecutive label applied - for example all are C1, C2, C3, etc. In this case it is C2. Which means that it is the second Condition pro

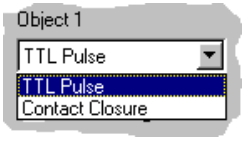
Every condition has a consecutive label applied - for example all are C1, C2, C3, etc. In this case it is C2. Which means that it is the second Condition processed or setup.

This contains a label, in this case C1, and the condition description - in this case 'Hardware Trigger'

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING

Object 1

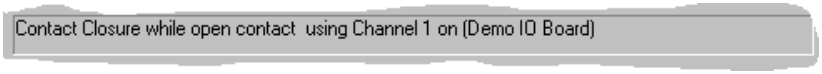
Use the UP/Down ARROW to select TTL Pulse, or Contact Closure. The list shown to the left is displayed.



I/O Board - a specified number and type of I/O boards or devices having I/O can be installed. These are displayed in the associated DROP DOWN LIST, for selection.

Channel. From the DROP DOWN LIST select from 1 through the number of channels that the SELECTED I/O board can support. NOTE - what is displayed depends on the

Text box The control will now display in a text box all the pertinent hardware information of this selected condition.



Trigger Type

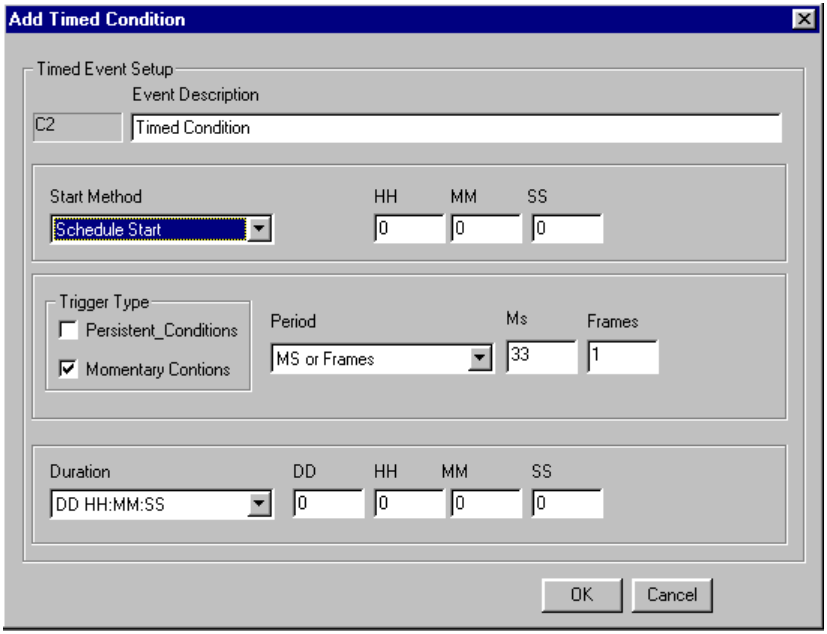
The software REQUIRES a momentary or persistent trigger selection.

SELECT this carefully. Once this is done and OK is CLICKED the software GRAYS OUT this item so that it can't be modified. The only actions that can be taken is to edit all the other items of the control or if it is desired to change the trigger it will be necessary to delete the CONDITION and begin again. This is done to prevent selecting wrong responses. Make sure that the effects of a choices is understood.

A momentary or persistent trigger have a unique set of responces. See the material in other sections of this manual.

Trigger Threshold

See the section on **Condition 1 Trigger Threshold** for information on these settings.



Condition 3 - Timed

The CONTROL that results from this selection is shown to the right. NOTE: in this condition, the CONDITIONS originate from the COMPUTER CLOCK and outside the SOFTWARE

Every condition has a consecutive label applied - for example all are C1, C2, C3, etc. In this case it is C2. Which means that it is the second Condition processed or setup.

Event Description

This contains a label, in this case C1, and the condition description - in this case 'Timed Condition'

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.

The CONTROLS of the TIMED Event Setup

A timed event is best understood by understanding that there are three interlocking components in this CONTROL.

A. The **Start Method**, which controls when the Reponses set up in the Event managers begin to take place.

IMMEDATE START - the responses begin when the Event Manager is CLOSED.

A set time - in 24 hours format

Hardware trigger - from the installed I/O board.

B. The **Envelope** which controls how many responses occur.

Persistent - responses run continuously

Momentary - either timed or hardware control by contact closure, controls when the responses occur. A repeat every setting can only be set when momentary is checked.

C. The **Duration/END** which controls when an envelope is terminated. Duration set in DAYS, HOURS, MINUTES, SECONDS. At the end of this time the envelope is terminated.

Envelope is terminated when time set in 24 hour format is reached.

Set a number of responses, by number, when the envelope is terminated.

Hardware trigger, by CONTACT CLOSURE in the installed I/O board.

Study carefully the timming chart, which describes all the possible effects on a SET OF RESPONSES, by using the timed condition, located at the end of the chapter.

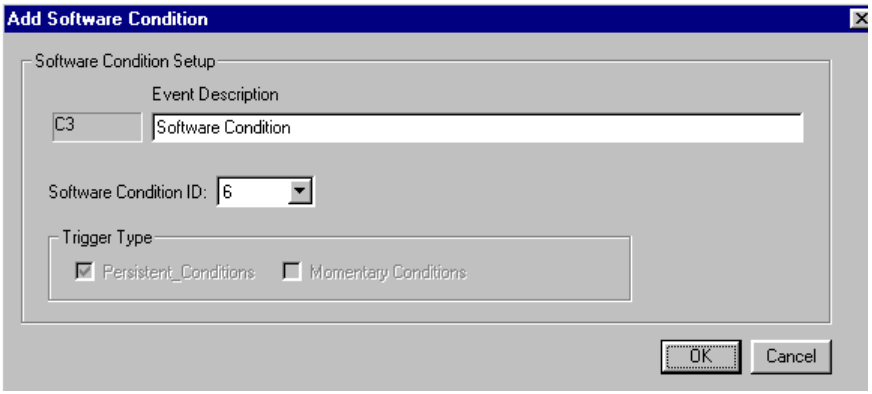
Condition 4 - Software

Introduction

This condition works with either the remote or with a mouse and the special toolbar shown below. To use from a the REMOTE depress any of the number buttons 0 through 9. This is the REASON why it is CALLED SOFTWARE.

Software Condition Setup

Events are labled automatically with a designations such as C1, C2, etc. These cannot be edited. Point Temperature Events - is automatically entered by the software. The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes.



Software Condition ID

Select a number from 0 through 9 that will identify the Condition to the software. Use the drop down LIST BOX. A selected number is initially gray but becomes black or active when Set Event dialog box is closed. That number is activated by pressing the same number on the remote or clicking on it with the mouse.

All of the numbers on the Software Conditions can be made ACTIVE and can be used to accomplish different tasks.

Trigger Type

Select Persistent or Momentary.

Special Note

Persistent has the has a LATCHING EFFECT so that depressing the button will cause it to remain ON, until it is CLICKED again.

Momentary will respond to a DEPRESSING the REMOTE NUMBERS, or a Mouse CLICK. As long as the button is held down the SOFTWARE CONDITION is active. Releasing the button turns it OFF.

Selecting Conditions

The available conditions

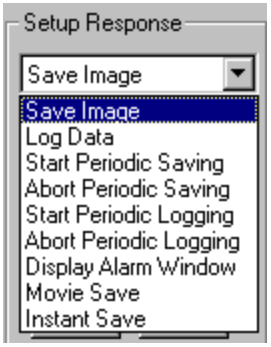
Move the Mouse Cursor to the section of the Event Setup called ‘Setup Conditions’ and CLICK on the Down Arrows of the DROP LIST CONTROL, to obtain a list containing the three items described next.

Selecting Responses

Keep in mind that the software can have multiple responses and will sequentially run each. Because there are several responses that overide a Contion, the setting up a CONTION/RESPONSE series of events can become complex. The brief descriptions below should help this process.

The available Responses

Move the Mouse Cursor to the section of the Event Setup called 'Setup Conditions' and CLICK on the Down Arrows of the DROP LIST CONTROL, to obtain a list containing the three items described next.



Responses to Momemtary Conditions

1. **Save Once** - Save an image from a selected ROI into a user selected file.
2. **Log Data** - Log data from a temperature object into a user selected file
3. **Start Periodic Saves** - Begin repeated save with a duration that OVERIDES a set condition.
4. **Abort Repeated Saves** - End repeated saves and reset the Condition that initiated the repeated saves.
5. **Start Periodic Logging** - Begin repeated logs with a duration that OVERIDES a set condition.
6. **Abort Periodic Logging -** End repeated logs and reset the Condition that initiated the Start repeated log.
7. **Display Alarm Windows** - Initiate ALARM message on the computer - either LATCHING or NON LATCHING.
8. **Movie Save** - Begin saving settable number of images, becomming the ONLY task, and then ending.
9. **Instant Save**
10. **Analog Output** - Requires an AD board - allows analog output from MIN, MAX, AV temperature objects.

Responses to Persistent Conditions

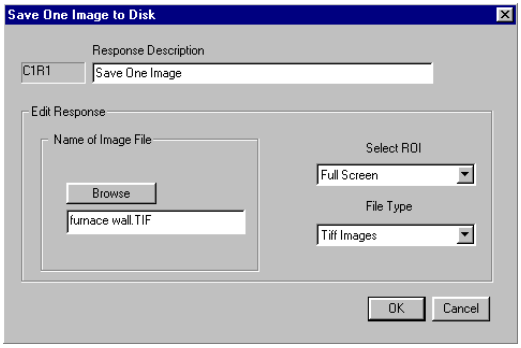
1. **TTL output** - change the state of a I/O TTL channel when intiated by a Condition.
2. **Analog Output** - OUTPUT a 0 to 20 MA output to I/O channel from a selected temperature object when initiated by a Condition.
3. **Reapeatedly Save** - Overide a normally constant output and periodically save data from a ROI.
4. **Repeatedly log** - Overide a condition and output and log data from a selected temperature object.

Responses to Momemtary Conditions

RESPONCE 1 - Save Once

Introduction

This function will save an image from the LIVE WINDOW with the ATTRIBUTES inherent in the file type selected in File Type.



How to use . . .

CLICK on Save Once in the drop down menu described in the previous section. That will display the dialog box shown to the right.

Event Description

This contains a label, in this case C1, and the condition description - in this case 'Save One Image.'

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied

description as was down in the menu to the left or leave them as it.

Name of Image File

Use the Browse button to find the directory or to set the directory in which the Image is saved. Long file names are permitted. Some of the file types such has my file %m%d%y

```
case '%':
                    Result+= "%";
                    break;
                case '#':
                    ParamCount++;
                    bIncSeqNumber = TRUE;
                    Result+= Str(SeqNumber);
                    break;
                case 'd':       //Day of month as decimal number (01 - 31)
                case 'H':       //Hour in 24-hour format (00 - 23)
                case 'I'://Hour in 12-hour format (01 - 12)
                case 'j'://Day of year as decimal number (001 - 366)
                case 'm':       //Month as decimal number (01 - 12)
                case 'M':       //Minute as decimal number (00 - 59)
                case 'p':       //Current locale's A.M./P.M. indicator for 12-hour
clock
                case 'S':       //Second as decimal number (00 - 59)
                case 'x':       //Date representation for current locale
                case 'X':       //Time representation for current locale
                case 'y':       //Year without century, as decimal number (00 - 99)
                case 'Y':       //Year with century, as decimal number
```

Select ROI

Using the down arrow in the Drop List Box select a previously setup ROI. It is from this region that an image file will be save.

File Type

The following file types are available.

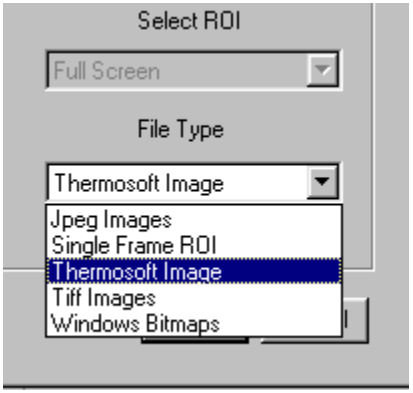
Jpeg Images - Save images in a JPEG compatable format.

Single Frame ROI - Save a ROI, which can be a entire image or a selected ROI.

Thermosoft Image - Special file format that saves everything annotated on a live image.

Tiff Images - Save images in a TIFF compatable format.

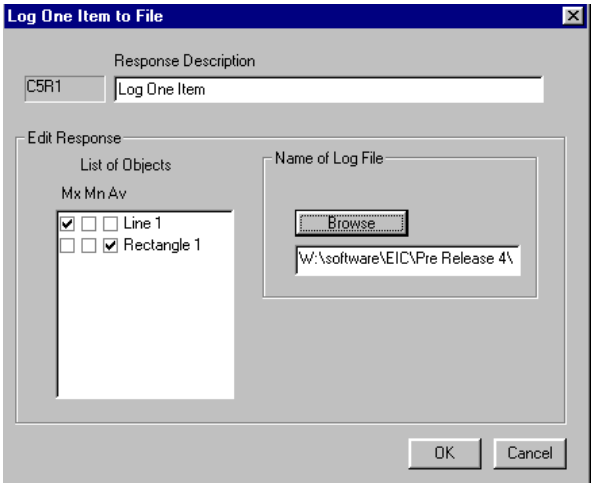
Windows Bitmaps - Save images in a BMP compatable format.



RESPONCE 2 - Log Once

Event Description

This contains a label, in this case C1, and the condition description - in this case 'Log One Item'



Edit type of Responses

A list of temperature objects previously placed on the LIVE IMAGE will be displayed. Select any one or ANY NUMBER OF THEM for loging. Temperature objects having a MAX, MIN, AVG will need to have any one or ALL OF THESE selected.

Select Log File Name

CLICK on Browse to set up a directory and select a file name.

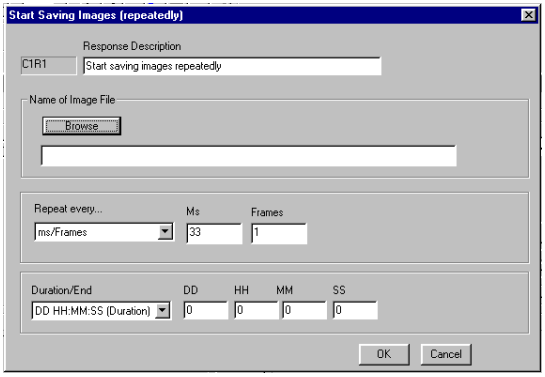
List of Objects

It is necessary to place the temperature objects to fill in this section. In this case a Line and Rectangle were placed on the LIVE IMAGE. The user than checks the items that are to be logged. In this example it would be Max for Line, and Average of Rectangle.

RESPONSE 3 - Start Repeated Saves

This function saves the entire LIVE IMAGE repeatedly.

Event Description



This contains a label, in this case C1, and the condition description - in this case 'Save Repeatedly.'

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.

Name of Image File

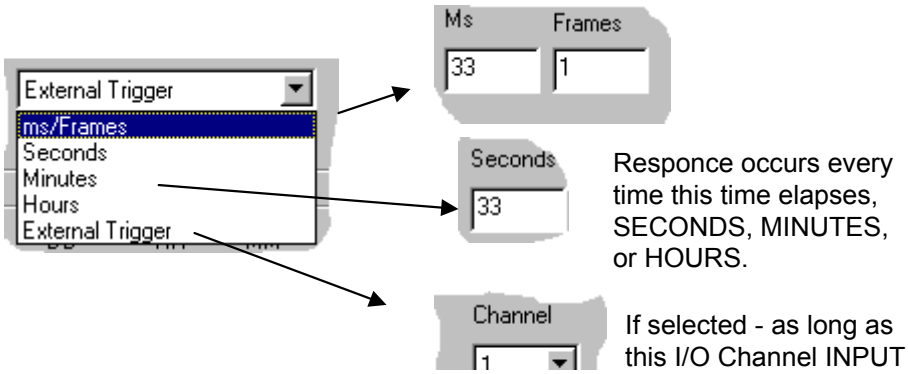
Select a file, directory or create a file for the Repeated Saves. An extension can be provided by the user.

Timed Functions

It is very important that the software user understands that the timed functions in this control - PERIOD and DURATION will **OVERIDE those set in TIMED Conditions**. The user can then set these times without regard to the

timed setup in Conditions.

Period



A Condition/Responses with TIMED CONDITION

Select any of the above time bases or an external trigger .

This function sets HOW OFTEN Repeated Save OCCURS.

Duration

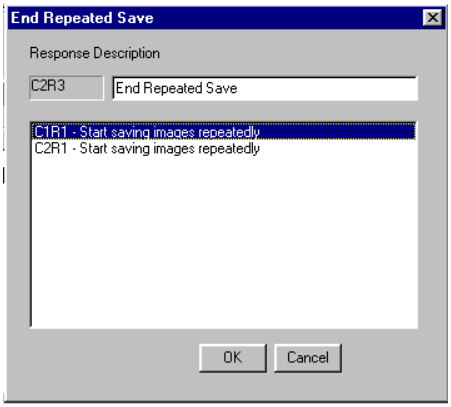
Set the time in DAYS, HOURS, MINUTES, SECONDS, when the Repeated Save responce ends.

RESPONSE 4 - End Repeated Saves

This function ENDS - Repeated Save. The control below shows that there are two conditions with a Save Repeatedly. This control will CLEAR the selected Repeated Save when End Repeated Save is PROCESSED by the software.

NOTE: be very aware that this control CLEARS OR ABORTS a Repeated Save.

Event Description



This contains a label, in this case C1, and the condition description - in this case 'Save One Image.'

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.

Condition Selection

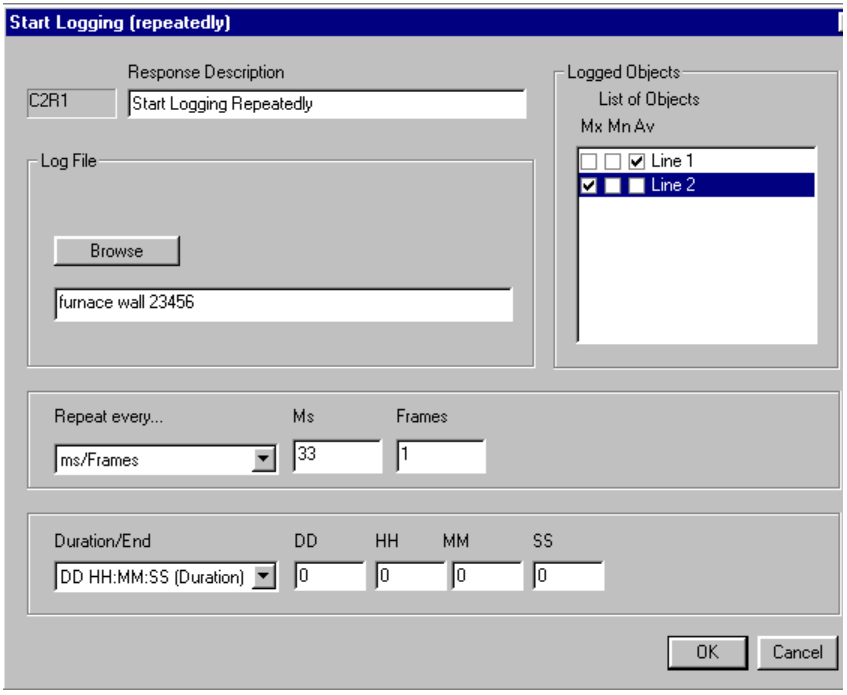
CIR1, and C2R2 are both listed. This control will list all the Conditions with a Repeated File Save Responce. Select any one or all of these and CLICK OK to save this Responce.

RESPONSE 5 - Start Repeated Log

This function saves the entire LIVE IMAGE repeatedly.

This contains a label, in this case C1, and the condition description - in this case 'End Repeated Save'

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as shown in the menu to the left or leave them as it.



Log File

Select a file, directory or create a file for the Repeated LOGS.

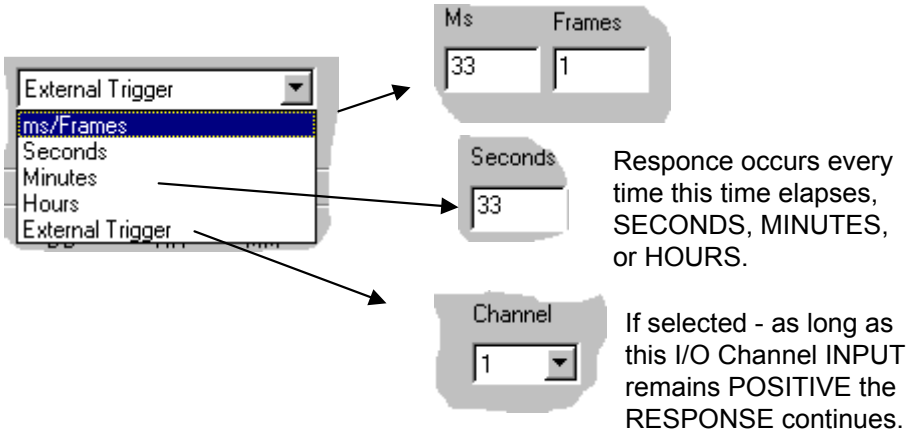
An extension can be provided by the user.

List of Objects

The list box displays ALL the temperature objects placed on the live screen. Select as many of these as desired for logging. Also select a MIN, MAX, AVG for the object if it applies. The user will be unable to apply these to objects that do not have this capability.

Repeat Every

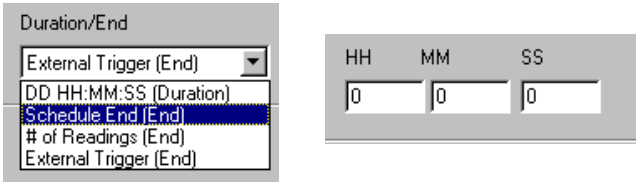
It is very important that the software user understands that the timed functions in this control - PERIOD and DURATION will **OVERIDE those set in TIMED Conditions**. The user can then set these times without regard to the timed setup in Conditions.



Select any of the above time bases or an external trigger .This function sets HOW OFTEN Repeated Save OCCURS.
Duration Set the time in DAYS, HOURS, MINUTES, SECONDS, when the Repeated Save responce ends.
CLICK OK to save this control and return to the previous CONTROL.

Duration/End

Select from any of the methods of Duration/End by entering HOURS, MINUTES, or SECONDS. An external trigger originating from a TTL board does not have a time associated with it.

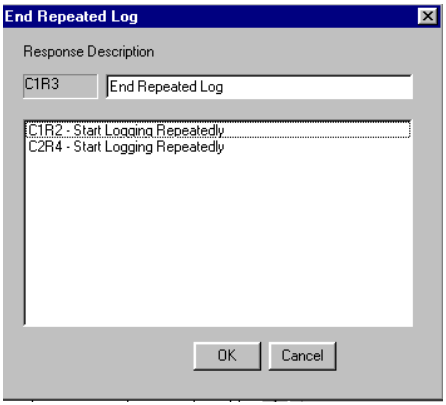


RESPONSE 6 - End Repeated Log

This function ENDS - Start Loging Repeatedly. The control below shows that there are two conditions with a Start Loging Repeatedly. This control will CLEAR the selected Start Loging Repeatedly when End Repeated Log is PROCESSED by the software.

Event Description

This contains a label, in this case C1, and the condition description - in this case 'End repeated log.'
The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.



Condition Selection

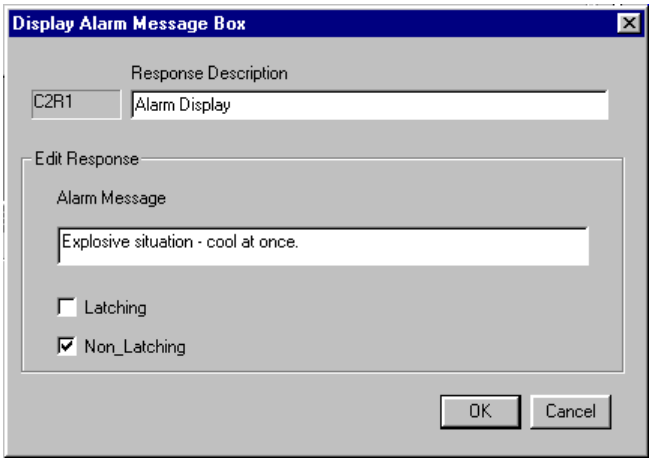
This control will list all the conditions with a repeated log response. Select any or all of these and CLICK OK.

RESPONSE 7 - Display Alarm Message

Multiple alarms use the same popup alarm display - the only difference is that the specific ALARM TEXT is listed, for identification.
A simple means of displaying an ALARM message on the computer screen ONLY.

Event Description

This contains a label, in this case C1, and the condition description - in this case 'Display Alarm Message.'
The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.



Alarm Message

Enter a 60 character message making up the alarm message. Only 13 characters can be seen without scrolling. Decide on making this a LATCHING alarm message, in which case the user can RESPOND to the Alarm and remove it, by CLICKING on a Menu Button

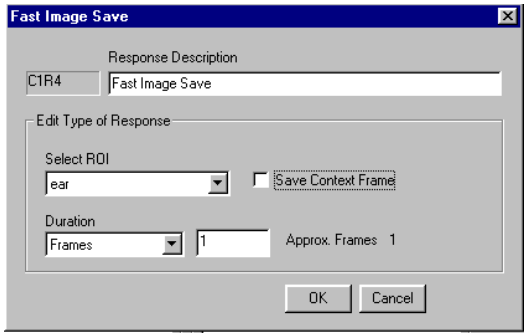
on the Alarm Message Box. Or make it a non-latching alarm message.

RESPONSE 8 - Fast Image Save

Saves a series of repeated images to a file. VCR like Control ICONS allow viewing of these images.

Event Description.

This control when operating requires a large percentage of computer time.



This contains a label, in this case C1 and a condition description.

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.

Select ROI

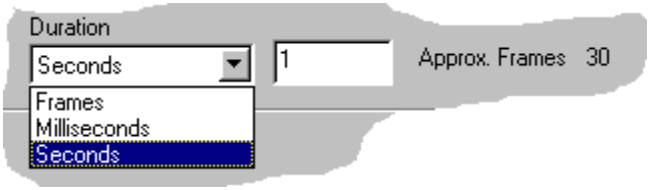
The software has a ROI editing tool that allows placement, editing, and filing for retrieval, of multiple ROI's. See Chapter 6 of this User's Guide. These will be listed in the Select Roi Drop Down List.

Save Context Frame

Enable the saving of one STATIONARY ENTIRE IMAGE, which is the context of the ROI at the end of a frame.

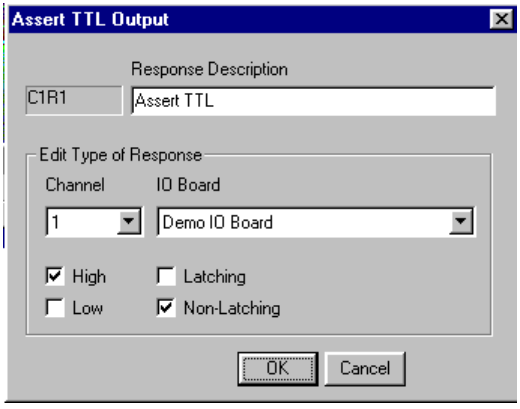
Duration

Set the time in number of Frames, milliseconds, or seconds, that this response will take. This overides the settings in the associated Condition.



Responce to Persistent Conditions

RESPONSE 1 TTL Output



Response Description.

This contains a label, in this case C1, and the condition description.

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.

Edit Type of Response

Channel

The AD board selected for use with this software has 4 input and 4 output channels for TTL output. Select 1 among those available.

IO Board

AT AO -10 is normally displayed and supplied from a driver.

High/LOW

Select if the TTL output is HIGH or LOW

Latching or Non-Latching

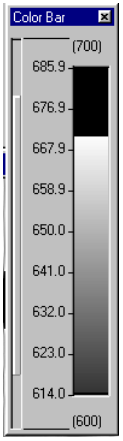
Select if the TTLE output is to Latch

RESPONSE 2 - Analog Output

To display as a response requires that a AD board be installed in the computer. This information is included to conver the case where the user needs additional information and wants a AD board.

Output a 4 to 20 ma signal, from a temperature object.

The output is proportional to a temperature. Example if a point reads 600 degrees, and the temperature span is 400 to 800 degrees, the output would be 12 ma. Obtain the span information from the numbers in parentheses (600 and 700) on the Color Bar Tool, shown to the right.

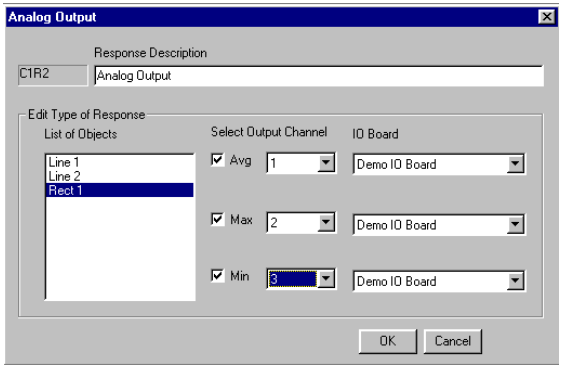


Event Description.

This contains a label, in this case C1, and the condition description.

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.

Edit Type of Response



List of Objects. Temperature objects placed on the screen are displayed in a List Box. Select 1 of these for an output.

Since POINT or SPOT object due not have min, max, avg values the this control will not display an Avg, Min, or Max check boxes.

Select and Avg, Max, or Min, or only one, and select an output channel for that selection. An I/O board can be selected for any one of these.

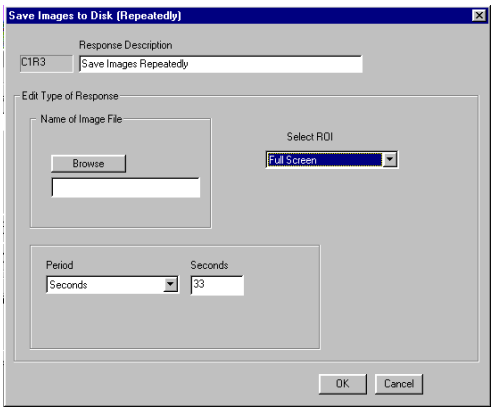
RESPONSE 3 - Save Images to Disk Repeatedly

Save images from a ROI to a file for a set amount of time.

Event Description.

This contains a label, in this case C1, and the condition description - in this case ‘Save to a Disk Repeatedly.’

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as was down in the menu to the left or leave them as it.



Edit Response

Browse

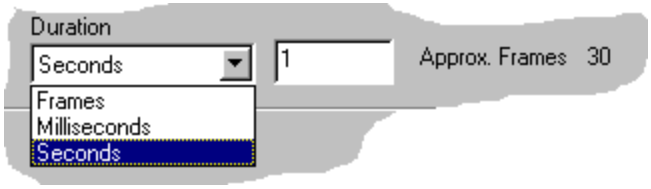
Select a file in which to save images.

Select ROI

The software has a ROI editing tool that allows placement, editing, and filing for retrieval, of multiple ROI's. See Chapter 6 of this User's Guide. These will be listed in the Select Roi Drop Down List.

Duration

Set the time in number of Frames, milliseconds, or seconds, that this response will take. This overides the settings in the associated Condition

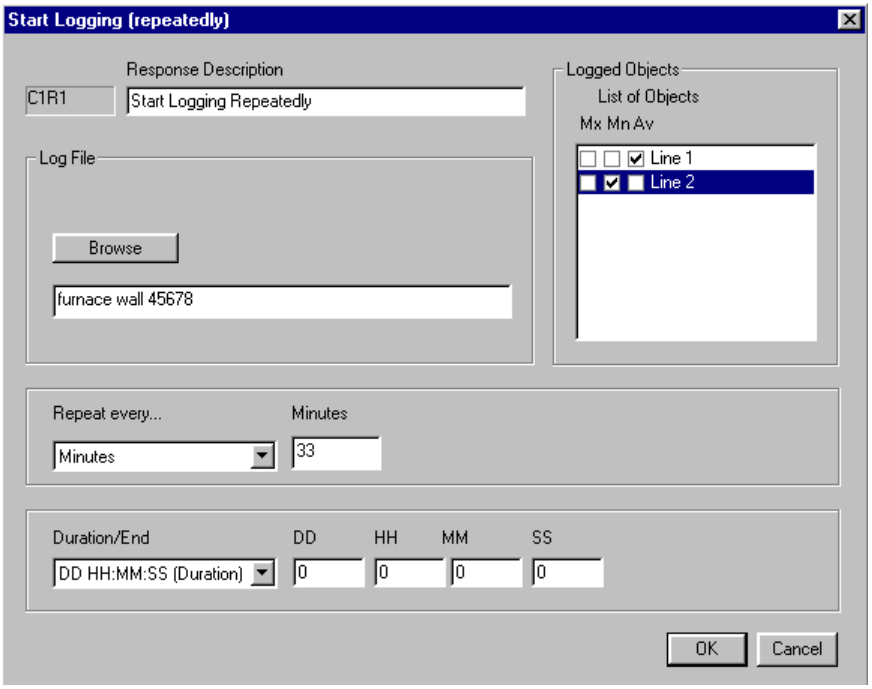


RESPONSE 4 - Repeated Log

This function saves the entire LIVE IMAGE repeatedly.

This contains a label, in this case C1, and the condition description - in this case 'Log to a file repeatedly'

The text of the description is fully editable by placing the mouse cursor anywhere on the white area and CLICKING. A rail cursor is presented and the keyboard then is fully accessible for changes. The user can edit the supplied description as shown in the menu to the left or leave them as it.



Condition Selection

CIR1, and C2R2 are both listed. This control will list all the Conditions with a Repeated File Save Responce. CLICK OK to save this Responce.

Edit Type of Response

List of Objects

The list box displays ALL the temperature objects placed on the live screen. Select as many of these as desired for logging. Also select a MIN, MAX, AVG for the object if it applies - POINT and SPOT temperature objects do not have a Min, Max, and Avg.

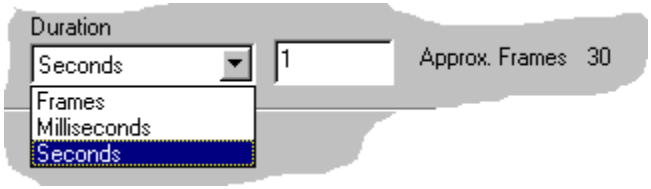
Name of Log File

Select a file, directory or create a file for the Repeated Saves.

An extension can be provided by the user.

Duration

Set the time in number of Frames, milliseconds, or seconds, that this response will take. This overides the settings in the associated Condition



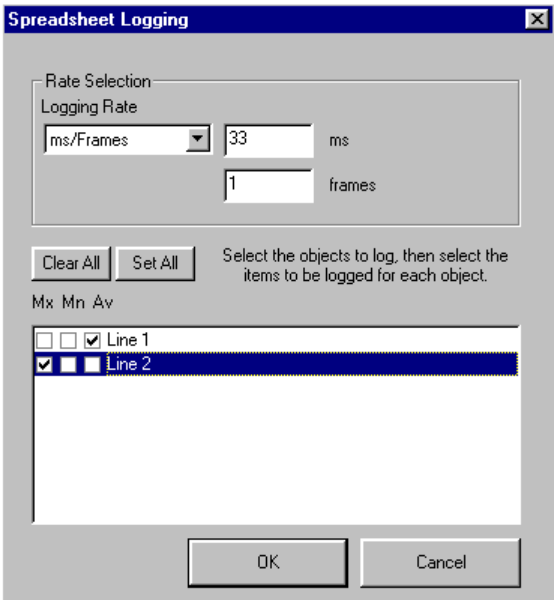
Log on to Spreadsheet

This function sends data from a any temperature object to a spreadsheet such as Excel. Temperature objects are selectable and Max, Min, or AVG can be set.

This control only SUPPORTS Excel shipped with Office 97 or 97

How to --

Have a LIVE IMAGE displayed on the screen.
Have the Excel spreadsheet running.
Place temperature objects on the LIVE IMAGE , such as Points, Line, Shape.



Then CLICK on the Events Menu and CLICK on Log to a Spreadsheet. The control shown to the left displays.

Select the time INTERVAL for sending data to the spreadsheet. For example - select 1 hour - then each hour data would be sent.

Select the the temperature object. In the illustration shown on the left Line 2 is selected. Select from Max, MIN, AVG readings. All of these can be selected.

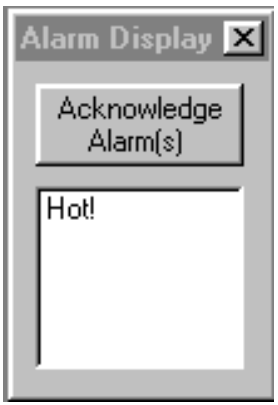
CLICK OK and information is sent to Excel.

Acknowledge Alarm

The alarm message or TTL Alarm output are the ONLY alarms that are acknowledged.

When these alarms take place a dialog like that shown below is display on the screen.

CLICK on the Acknowledge Alarm(s) button to silence the alarm.



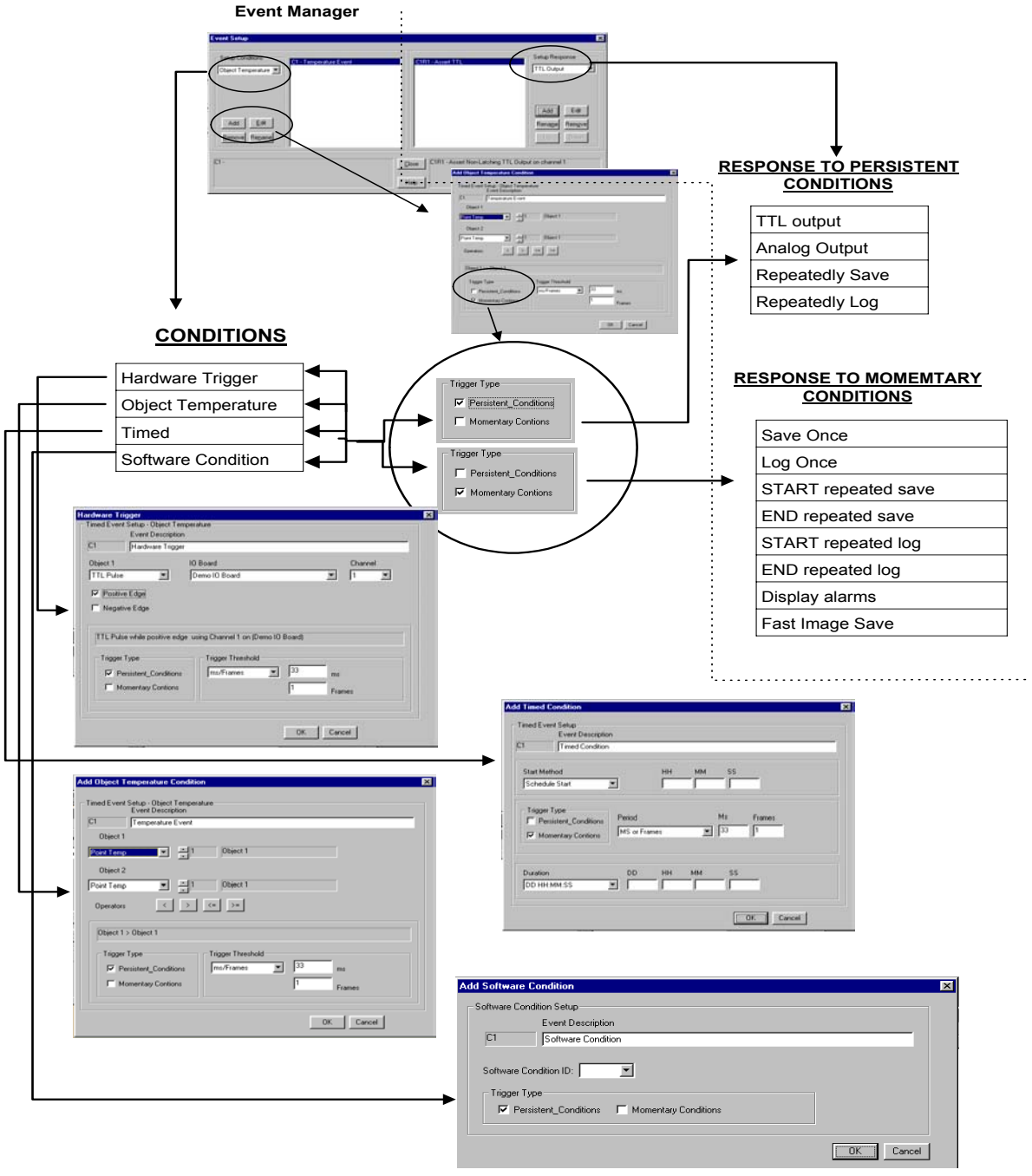
The alarm conditions continue and when another alarm takes place it is placed on the screen and the software user will ONCE AGAIN need to acknowledge the alarm.

The Menu item in Events does exactly the same thing. It is probably more convenient to use the popup dialog shown to the right.

Schematic of Events

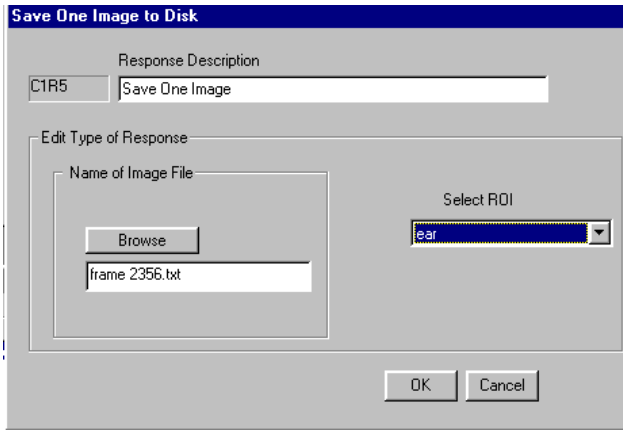
Note - Response to Momemtary Conditions follows through for several pages. In each page the Response to Momemtary conditions is repeated on each page, with the exception that a line is drawn from the dialog box to the Condition.

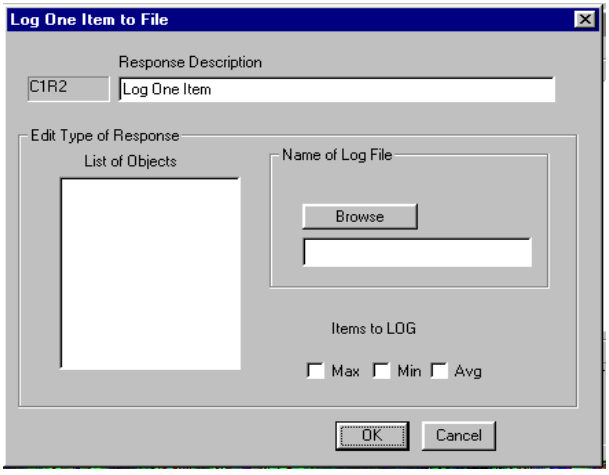
The purpose of this schematic representation of this very complex control to provide the user with some sense of the many possibilities for managing and reporting data.

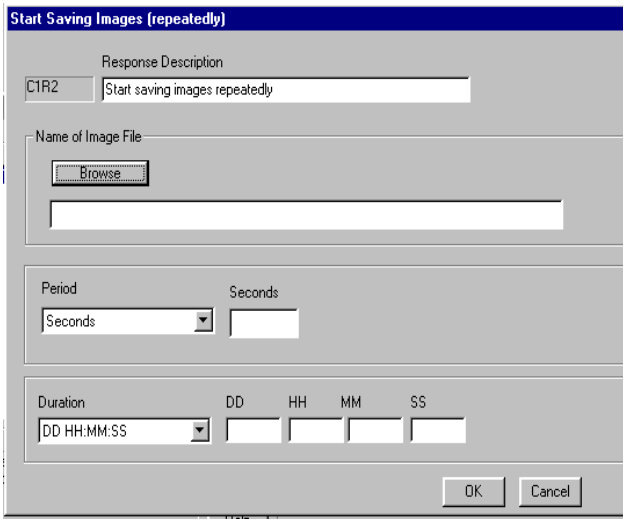

Event Manager
RESPONSE TO PERSISTENT CONDITIONS
TTL output
Analog Output
Repeatedly Save
Repeatedly Log
CONDITIONS
Hardware Trigger
Object Temperature
Timed
Software Condition
RESPONSE TO MOMEMTARY CONDITIONS
Save Once
Log Once
START repeated save
END repeated save
START repeated log
END repeated log
Display alarms
Fast Image Save
Trigger Type
Persistent_Conditions
Momentary Contions
Add Software Condition
Software Condition Setup
Event Description
Software Condition
Software Condition ID:
Trigger Type
Persistent_Conditions
Momentary Conditions
OK
Cancel

RESPONSE TO MOMENTARY CONDITIONS

Save Once
Log Once
START repeated save
END repeated save
START repeated log
END repeated log
Display alarms
Fast Image Save

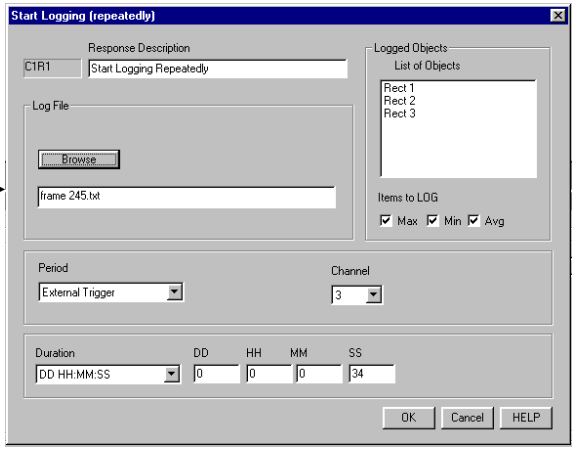


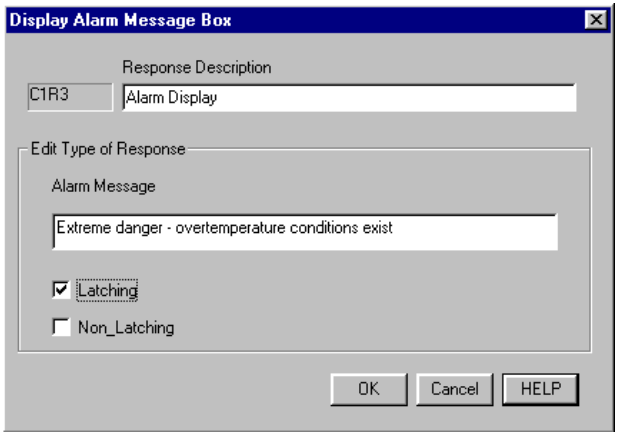


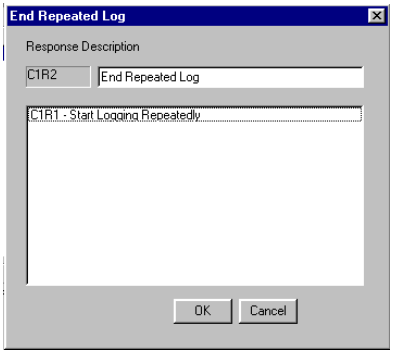


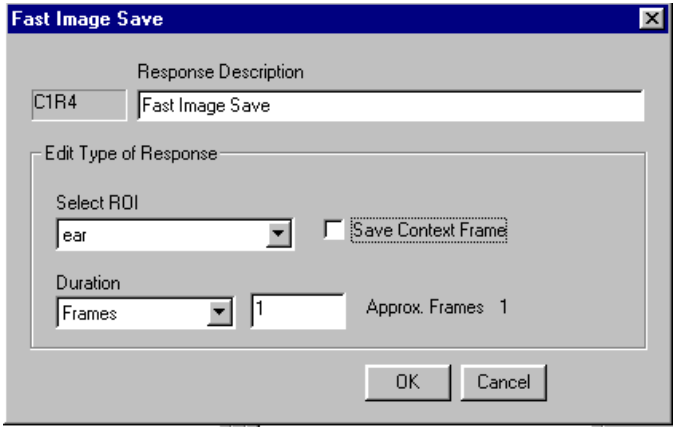
RESPONSE TO MOMEMTARY CONDITIONS

Save Once
Log Once
START repeated save
END repeated save
START repeated log
END repeated log
Display alarms
Fast Image Save



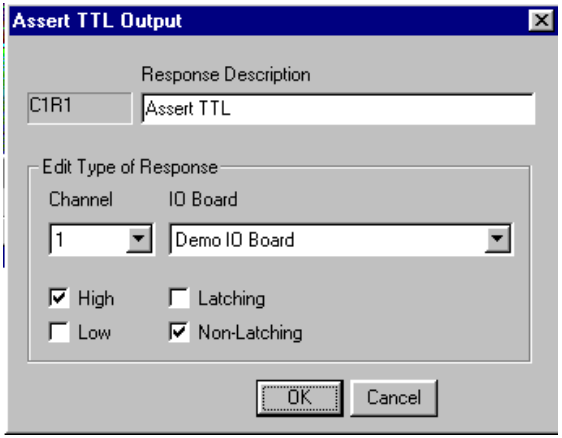


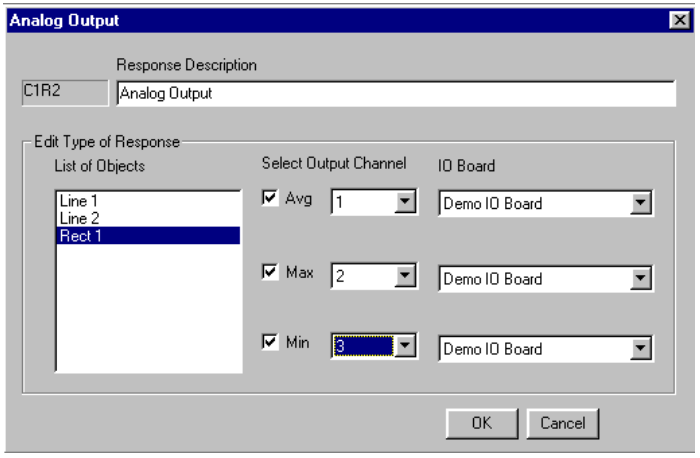


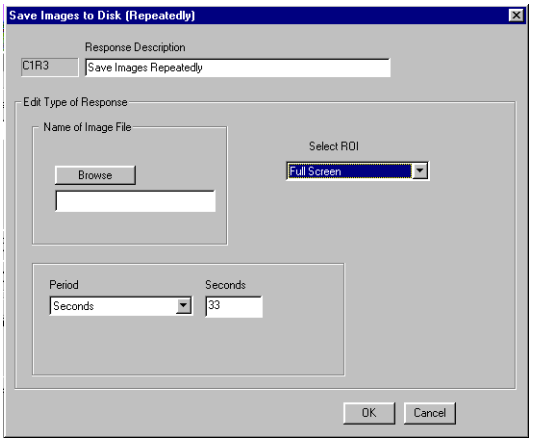


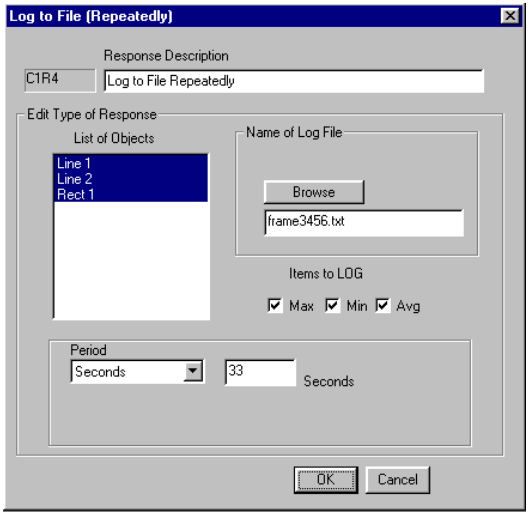
RESPONSE TO PERSISTENT CONDITIONS

- TTL output
- Analog Output
- Repeatedly Save
- Repeatedly Log

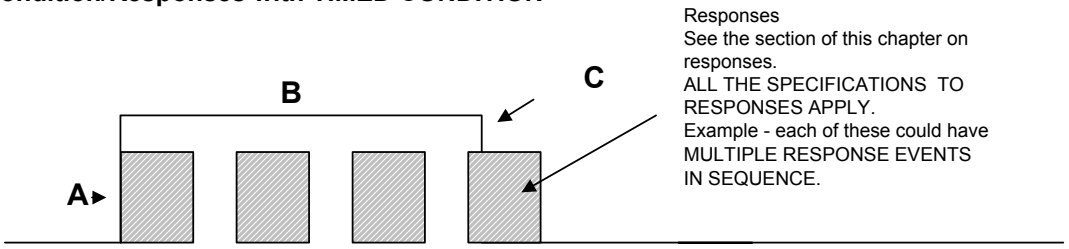








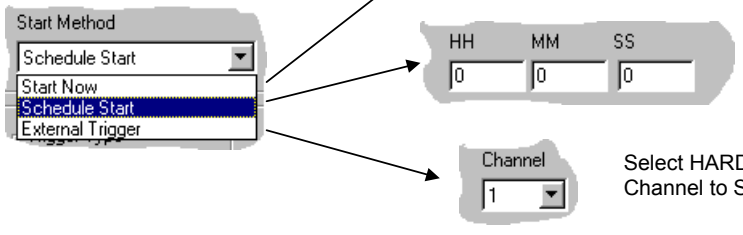
A Condition/Responses with TIMED CONDITION



Responses
See the section of this chapter on responses.
ALL THE SPECIFICATIONS TO RESPONSES APPLY.
Example - each of these could have MULTIPLE RESPONSE EVENTS IN SEQUENCE.

A START Method- determine how the RESPONCE BEGINS

Start Responces IMMEDIATELY

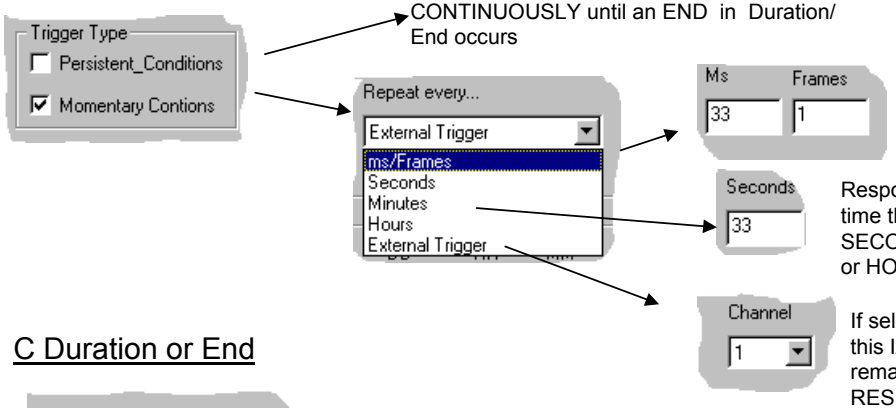


ACTUAL COMPUTER TIME 24 HOUR FORMAT - Sets time when response BEGINS. Example 16:35:20

Select HARDWARE I/O Channel to START response

B Envelope

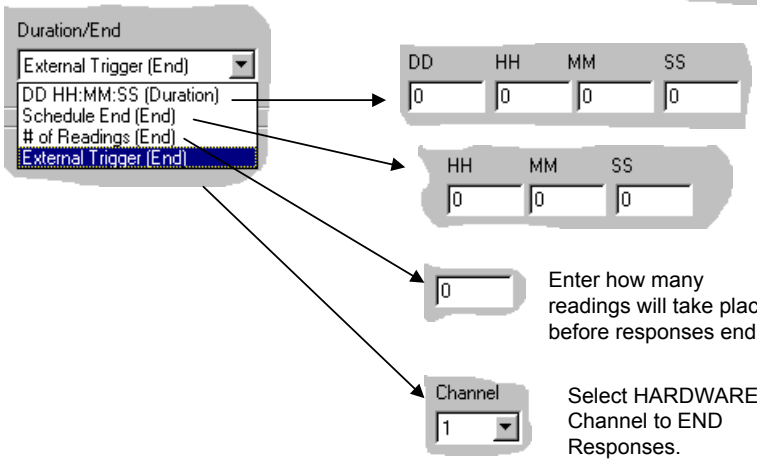
Once a repsponse begins it runs CONTINUOUSLY until an END in Duration/ End occurs



Responce occurs every time this time elapses, SECONDS, MINUTES, or HOURS.

If selected - as long as this I/O Channel INPUT remains POSITIVE the RESPONSE continues.

C Duration or End



Sets how long the responses take place in DAYS, HOURS, MINUTES, SECONDS when responses END.

ACTUAL COMPUTER TIME 24 HOUR FORMAT - Sets time when response ends.

Enter how many readings will take place before responses end.

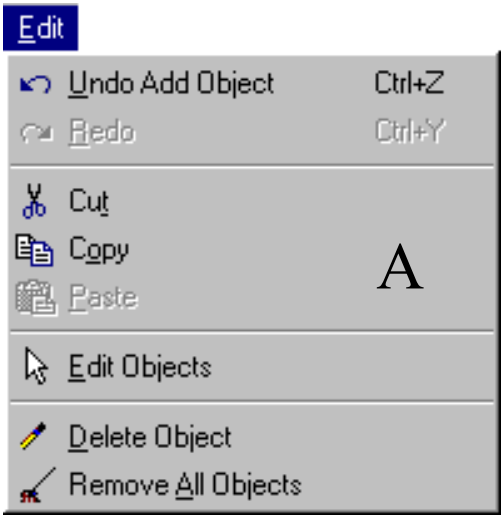
Select HARDWARE I/O Channel to END Responses.

The Edit Menu

Introduction

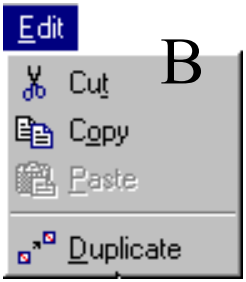
Location

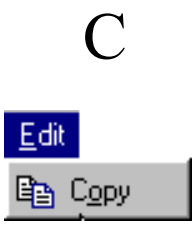
A is located in Frame Grabber Module and Image Editor. B is located in Template and Report Editor, and C is located in Graph Module.



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 4 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.

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 Z

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.

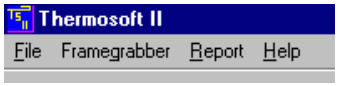
The File Menu Location

A file menu or a variation of the file menu is located in the Frame Grabber Module, Graph Module, Image Editor, and Report Editor.

The File Menu

Start Menu

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



CLICK on File to show the MENU displayed to the right.The functions in the FILE menu associated with the Start Menu are

1. Open
2. Preferences
3. Toolbars
4. Recent File List
5. Exit

Frame Grabber Module

The Frame Grabber Menu Displays when RUN is Selected in the Framegrabber Menu.The functions associated with the Frame Grabber-Menu are:

1. Open
2. Close
3. Save Events
4. Load Events
5. Preferences
6. ToolBars
7. Recent File List
8. Exit

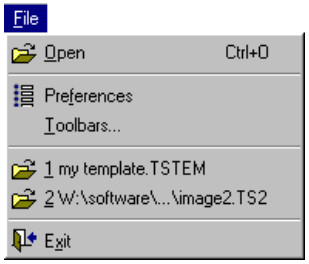
Image Editor Module

The Image Editor Module is reached by either loading an Image file by using the File Menu and Load, or by running the Framegrabber and THEN CLICKING on Edit Image.

The functions in the File Menu associated with the Image Editor module are:

1. Open
2. Save
3. Save All

Start File Menu



Frame Grabber File Menu

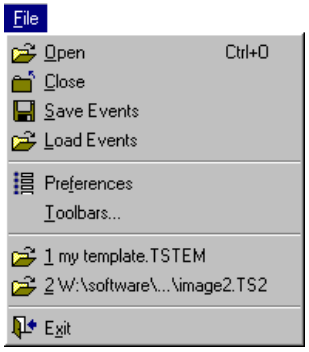
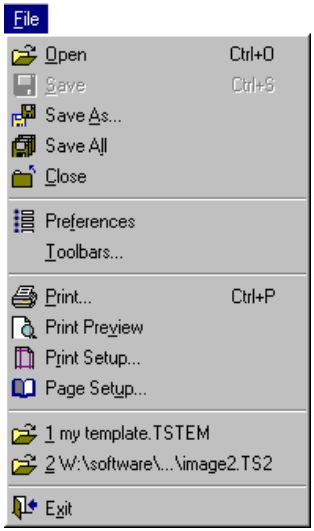
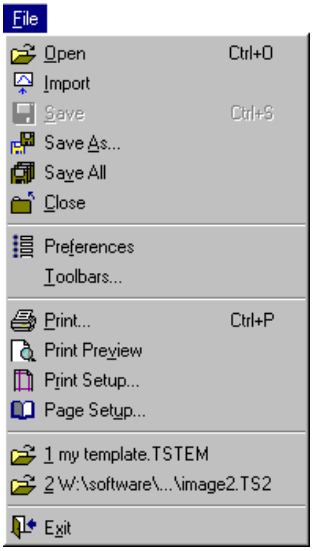


Image Editor File Menu



4. Preferences
5. Toolbars
6. Print
7. Print Preview
8. Print Setup
9. Page Setup
10. Recent File List
11. Exit

Template, Report Editor, Graph Modules



Template, Report Editor and Graph Modules

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. Save
4. Save As
5. Save All
6. Close
7. Preferences
8. Toolbars
9. Print
10. Print Preview
11. Print Setup
12. 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 customizer, 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.

The File Menu Functions

Open

The software can open the following 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.

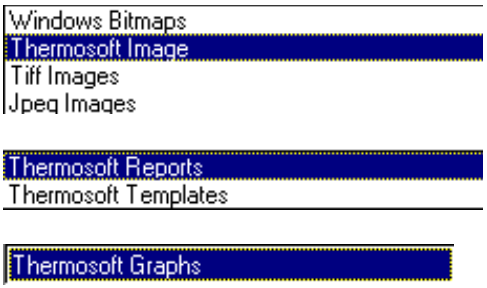
The software saves directory locations so that saved files will automatically load from the correct directory. Note: The software is capable of loading multiple BMP and TIFF and Graph files. HERE IS HOW - depress and hold down the control key and then Left Mouse Click each file to be loaded. Then CLICK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

File Formats

The kinds of file formats loaded by the software is as follows.

1. Thermosoft Images - 32 bit Images.
2. Tiff Images
3. Jpeg Images
4. Single Frame ROI - files obtained with a Condition Response.
5. Avio 100 Images
6. EIC 16 bit bitmaps.
7. Avio 2000 and 2000 MK2
8. Avio 8000 images.
9. Irris/IRC 160 Images
10. Irris/IRC 256 Images
11. Thermosoft Reports
12. Thermosoft Templates
13. Replay Files
14. Thermosoft Graph

File Save As Formats



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 Thermosoft Report or Thermosoft Templates are available.

A standard Windows File SAVE AS is used.

Export

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

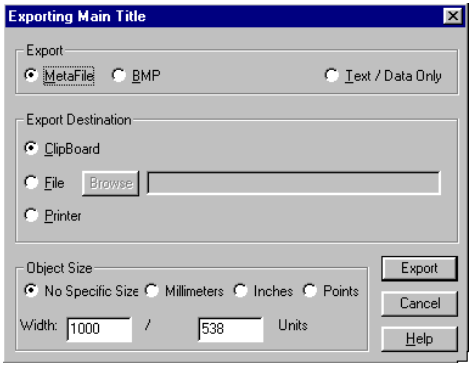
How to . . .

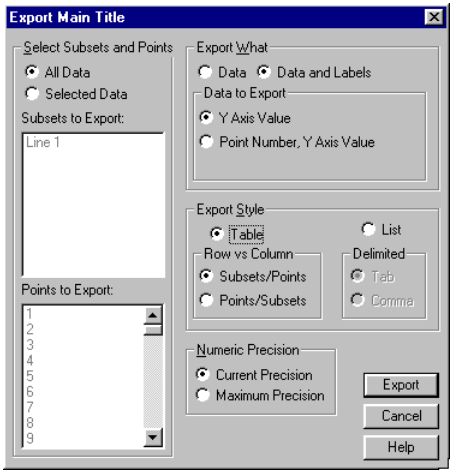
Load and get a graph running. Then CLICK on Export. The CONTROL shown to the RIGHT is displayed.

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



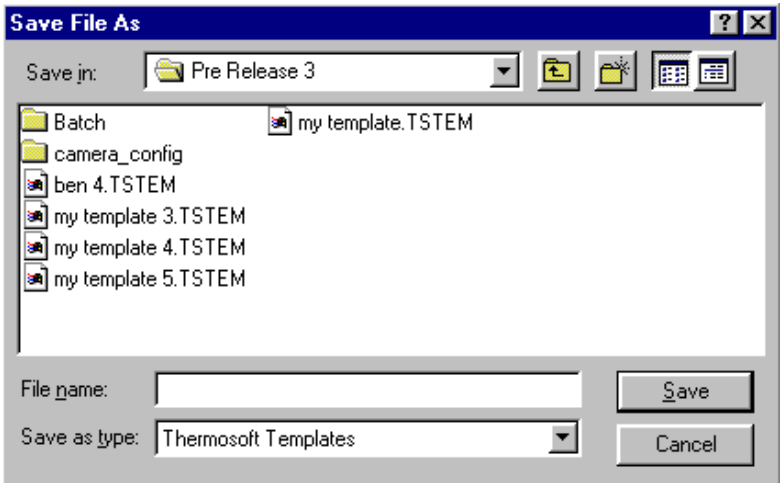


Row vs ColumnNumeric Precision - use that set in the graph or use the maximum precision of 3 decimal places.

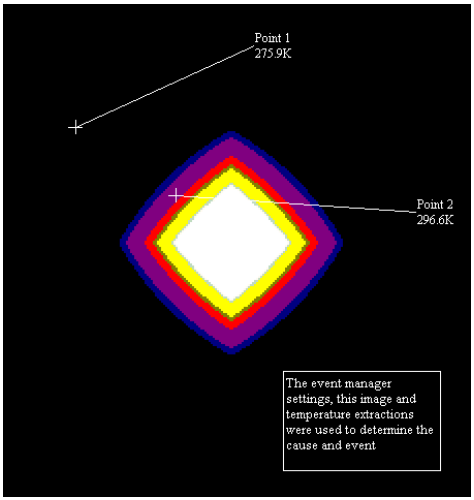
Save All

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. In the WINDOWS CONTROL shown above - **Thermosoft template format** is selected.



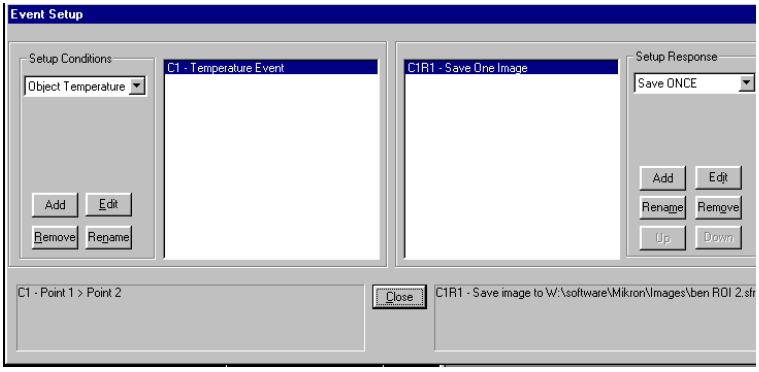
Save Events

Introduction

This function makes the software easier to use. The Event Manager to which it applies exclusively can have difficult to setup, and even more difficult to remember settings. This functions performs all those tasks for the user.

It will also reload the IR image and the OBJECTS associated with that image. and a Event Manager USE.

In the example shown to the right two temperature objects Point 1and Point 2 along with TEXT were saved with the Event Manager Settings are shown below the image.



How to use . . .

1. Set up everything - the Event Manager, Live Images, Temperature Extractions, Files, etc.Run the EVENT to make certain that everything functions correctly.

2. Then CLICK on File, and CLICK on Save Event. Provide a LONG FILE NAME that is descriptive. The user is free in the file control to setup new FOLDERS which are also LONG FILE NAMES and can be descriptive.

Load Events

Load Events reverses the above process. To use CLICK on Frame Grabber and CLICK on Run. Or use the TOOLBAR that does the same. Then CLICK on FILE and CLICK on LOAD EVENTS. Select the proper file and reload.

Preferences

See Chapter 4 setting up and initializing the software

Print

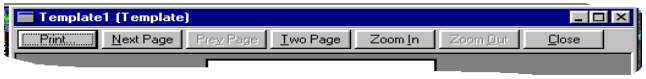
This function performs printing of a selected images with annotations, Graphs, and Reports. A standard Windows Print Control is used, as shown to the right.

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



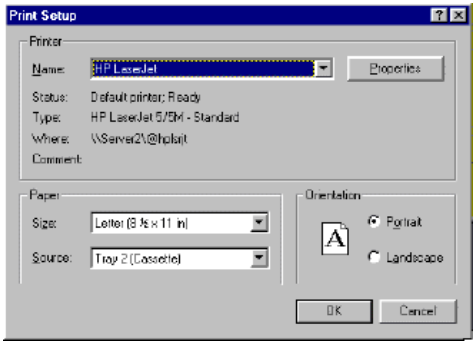
Print Preview
CLICK on Print Preview and the Menu shown above pops up.

Print - print exactly what is viewed.
Next or Prev 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.

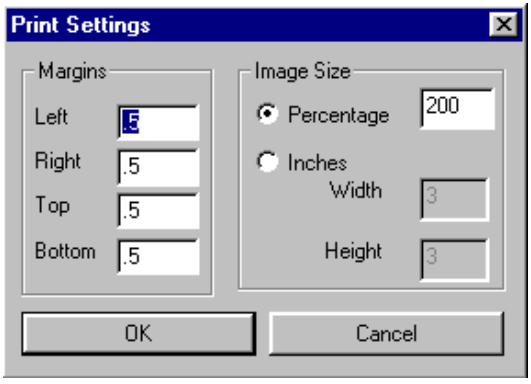
Print Settings

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

Printer Settings Control



Print Settings in the Image Editor and Graph Module



Page Setup used in the Template and Report Module.

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 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 permitt, 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.

Menu

The Frame Grabber MenuLocation

The Frame Grabber Menu is found in the START UP Module , the Image Editor Module, and the Frame Grabber Module.

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
2. Freeze

Image Menu

1. Run
2. Freeze
3. Edit Image
4. Camera Controls
5. Adjustments

Related Toolbars

NOTE - a tool bar called framegrabber can access all the functions RUN, FREEZE, and EDIT or PROCESS.

Related Topics

There are no directly related topics.

Be sure to note the fact that RIGHT MOUSE CLICK brings up a special speed menu as in all other modules of this software.

Introduction to the Framegrabber Menu

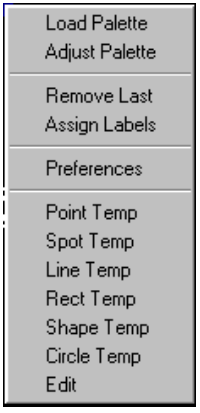
The Framegrabber Menu contains functions that will **control the display of images** from the camera so that it:

1. is can be shown as a LIVE IMAGE, frozen (not live) but the software remains in the frame grabber module,
2. or Edit Image which is PROCESS
3. and where the image is frozen and moved to the

Startup Menu

Image Menu

Speed Menu example



Frame Grabber Toolbar

Image Editor. This also bring the user to the Image Editor.

Camera Controls - settings that affect a camera in specific ways. These functions make changes to the way in which the camera operates.

A set of temperature related functions control scene emissivity, scene transmission and a setting for ambient temperature. Ambient temperature finds a use for image annotations and in reports sincere there are fields that report these.

The Frame Grabber Menu Functions

Run Mode

Display a live image on the computer screen. Live means to display successive video frames at frame grabber rate. The title bar of the LIVE IMAGE WINDOW will display the following to tell the user which window is displaying what.
This function is hardware dependent. The user must have a connected VIDEO SIGNAL to the frame grabber.

NOTE - the status bar as shown above will say Framegrabber to indicate in which module the software is running.

Run mode is also accessed by CLICKING on the RUN FLAG as shown in the tool bar above.

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.

The title bar of the image will display frozen as shown to the left.

Edit Mode

CLICK on this function to CAPTURE (process) 1 frame and move THAT RESULTING FRAME to the Image Editor for processing or editing.

NOTE: the software continues to display a LIVE IMAGE with a FROZEN IMAGE behind it. CLICK on the title bar of the window - the part that says Image3, illustrated to the right, to access the Image Editor and begin processing the Image. The Status Bar will display

This makes the Image Editor available. NOTE - the status bar then says Image Editor as shown to the right.

Return from Edit mode by LEFT CLICKING anywhere on the Frame Grabber Window (assumes a monitor was large enough or the LIVE IMAGE, or was not removed by CLICKING on the x in the upper right hand corner of the window. Or return by using the Frame Grabber Menu and selecting RUN or FREEZE. Or by using the toolbar.

Camera Controls

These duplicate the controls found on a IRRIS type of camera.

Bri Up (Brightness) - Increase the camera image brightness.
Bri Down (Brightness) - Decrease the camera image brightness.
Gain Up (Contrast) - camera image contrast adjustment.
Gain Up (Contrast) - camera image contrast adjustment.
Range - Change the RANGE OF TEMPERATURE the camera RESOLVES.
Freeze - cause camera to stop updating - hold an image for adjustment. The software continues to update with LIVE IMAGES.
Auto Bri - turn on auto-brightness.
Invert - switch black to white and white to black.
C/F Toggle (Units) - Celsius, DV, Kelvin, or Farenheidt.
Overlay - have camera supply overlay information, this is DISPLAYED ONLY THROUGH VGA OR NTSC.
FOV - Field of view - if AUTO FOV is present.
VGA/NTSC - switch camera to VGA display or NTSC or RS-170 output.
Focus in - camera focus if AUTO FOCUS OPTION is present.
Focus out - camera focus if AUTO FOCUS OPTION is present

The items in parentheses are used on the REMOTE.

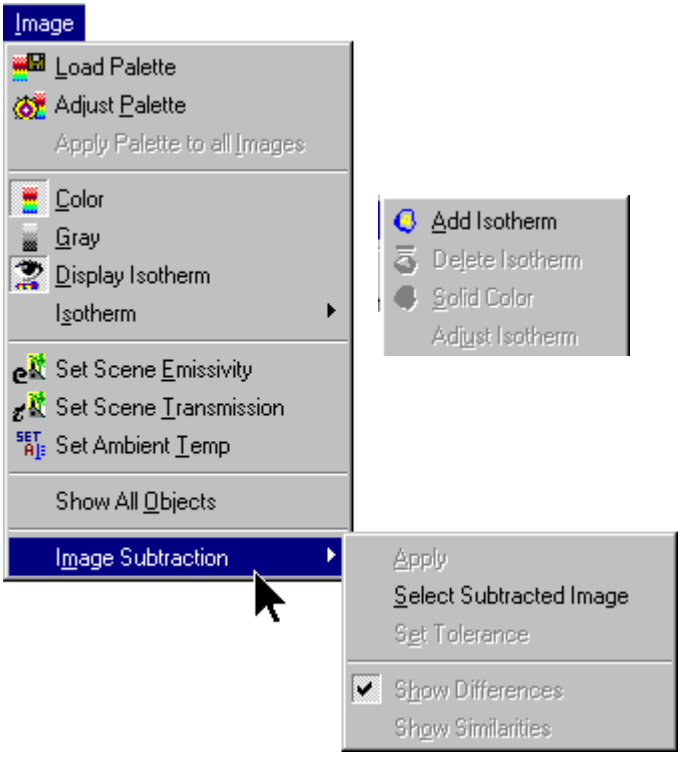
Adjustments

Clicking this displays a dialog box with Contrast and Brightness adjustments. This dialog is grayed out when a digital capture card is installed. What appears in this dialog box will depend upon the frame grabber installed.

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. Display Isotherm
7. Isotherm
8. Set Scene Emissivity
9. Set Scene Transmission
10. Set Isotherm
11. Show All Objects
12. Image Subtraction

Related topics

These should be reviewed when studying any of the EVENT MENU CONTROLS.

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

The Events Menu

This menu data in a variety of different ways. It will require a lot of detailed study to apply effectively.

NOTE the BLACK (white if highlighted) arrow next to Display Isotherm and Image Subtration. This means a pop OUT sub menu exists for those items.

Introduction to Image Menu

This menu provides functions that deal with the colors, isotherms, how color is displayed, showing objects. It also has a filter function. Image subtraction controls the display of image in relation to another image.

Display Menu Functions

Load Palette

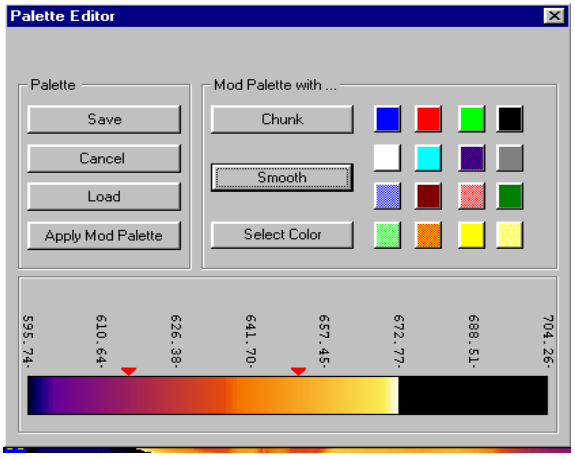
CLICK on Palette to access a standard Windows file load CONTROL. Use this to select and apply palettes to images.

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

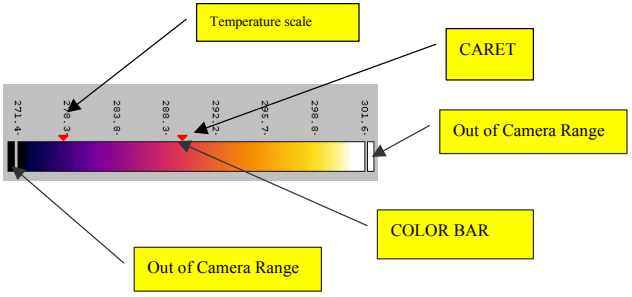
Cancel an editing session and return to the selected MODULE.

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 tol 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.

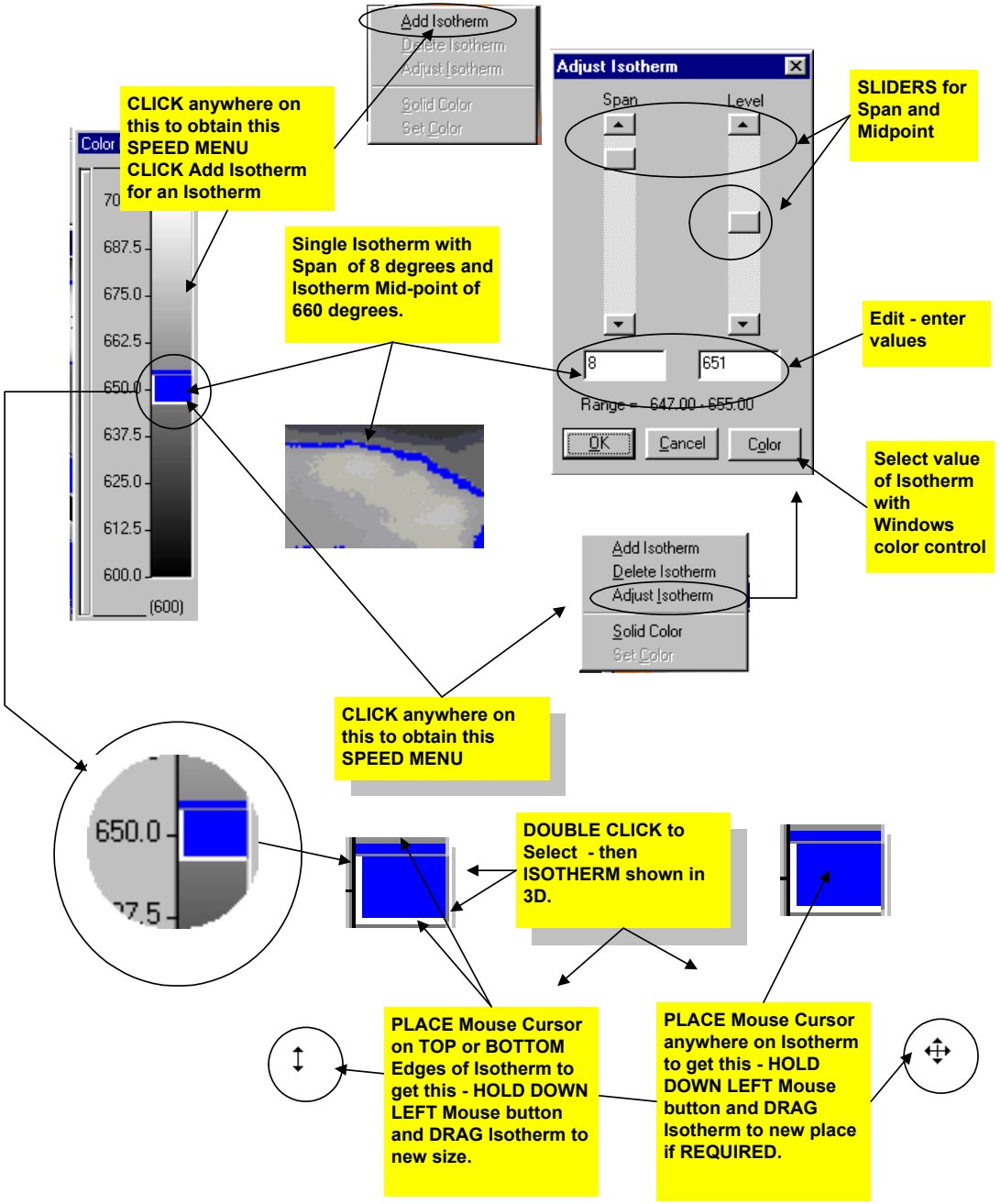
Then open the Display menu and CLICK on Show All Objects. The object will not be displayed. CLICK on Show All Objects and it will display.

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 Colar 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. f

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 ot it.

Add Isotherm -

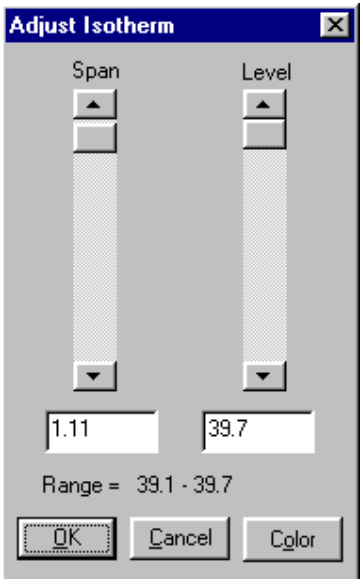
CLICK to place an ISOTHERM on the Color Bar Tool. Alternatively CLICK on the Isotherm Tool on the Tool Bar.

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

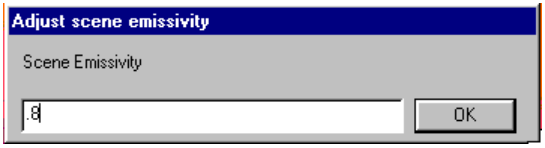
An Isotherm is an object and as such it can be edited by selection, so that its span and Mid Point (position on the color bar) can be changed.
See the illustration on how to do all this several sections back. Note that AGAIN - the speed menu you need to access this function is reached by placing the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

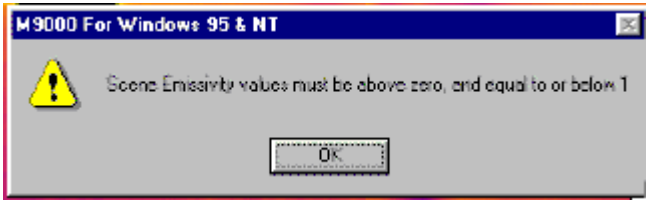
Set Scene Emissivity

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

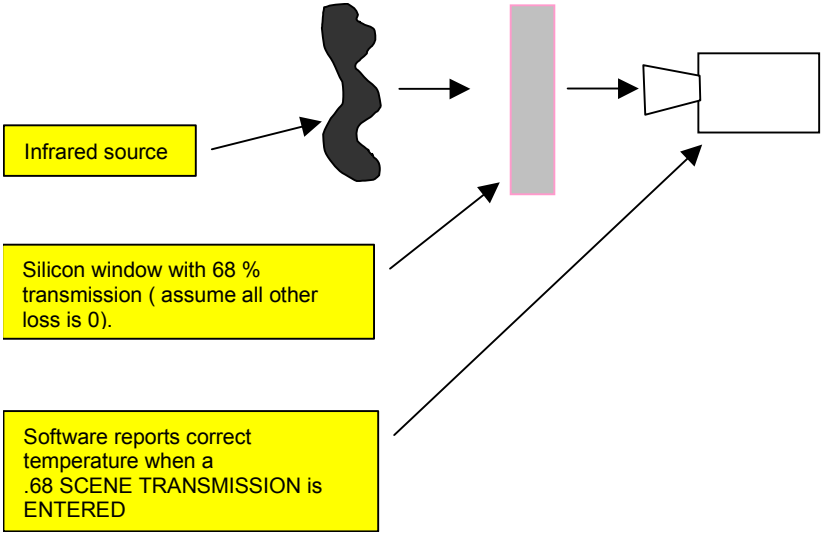


The values entered and applied affects the entire image.

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

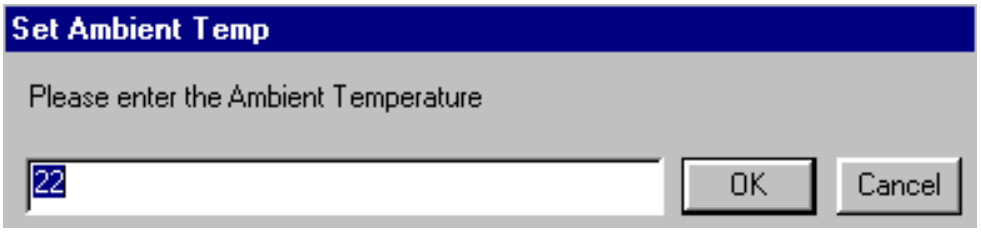


Set a transmission factor that MAKES the software compensate for infrared interference.
Scene transmission can be best explained by the following diagram.

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.

Show All Objects

This OVER-RIDES ALL the setting of the Visible Function that applies to ONE OBJECT. found in the Properties Menu.

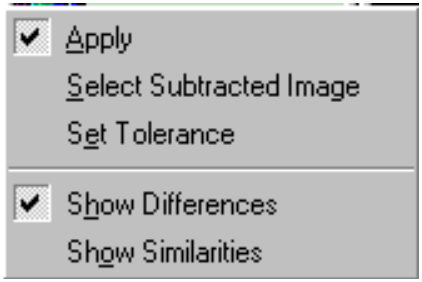
This is a quick way of making all objects such as temperature annotations visible so that they can be edited.

Image Subtraction

Image Subtraction displays the results of an Image Subtraction. The subtracted image is LOCATED ONLY in the Image Editor.

How to . . .

CLICK on Image Subtraction to display the POP OUT menu shown to the right.



Apply

A check mark next to Apply indicates that the results of a subtraction is displayed. CLICK to remove the CHECK to see the image befor subtraction was applied.

Set Tolerance

Set tolerance is in actuality a threshold level.

There are two ways in which tolerance is applied:

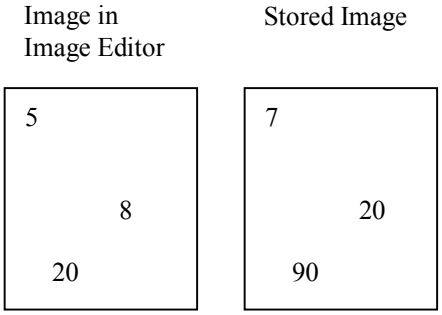
3. Show similarities between sub-tracted images.Tolerance is the pixel digital value between the two images that will NOT cause an Image Subtraction.
4. Show differences between sub-tracted images. Tolerance is the pixel digital value between two images that WILL CAUSE an Image Subtraction.

Show Difference

Display the difference between two images.

Show Similarity

Display the similarities between two images.



Case 5 subtracted from 7 - with a tolerance of 5 subtraction does or does not take place because the differences are not large enough.
Case of 8 subtracted from 20 - with a tolerance of 30 subtraction does or does not take place since the differences are not
Large enough.
Case 20 subtracted from 90 - with a tolerance of 30 subtraction does or does not take place since the differences are large enough.

Image Subtraction

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 relevent 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.

The Replay Tool

Introduction

The REPLAY TOOL allows the user to PERFORM all the functions of a VCR on a series of images that were saved in FAST SAVE. Those images can be compared to what is stored on a VCR tape.

How to use the Replay Tool Bar

We use the word frames interchangeably with an image in these cases. Frames are individual images the camera sends to the software for saving in a movie.

This tool only works when the REAL TIME MODULE is LIVE on the SCREEN. It is NOT necessary to have a connection to a VIDEO SOURCE and have a series of LIVE IMAGES displaying on the screen. A series of images must of course be saved prior to using this tool with the Fast Save Function.

To use load the file which is saved with a MOV extension. This will display a replay window, showing the previously saved frames. The Replay Tool Bar controls the images or frames displayed on that screen.

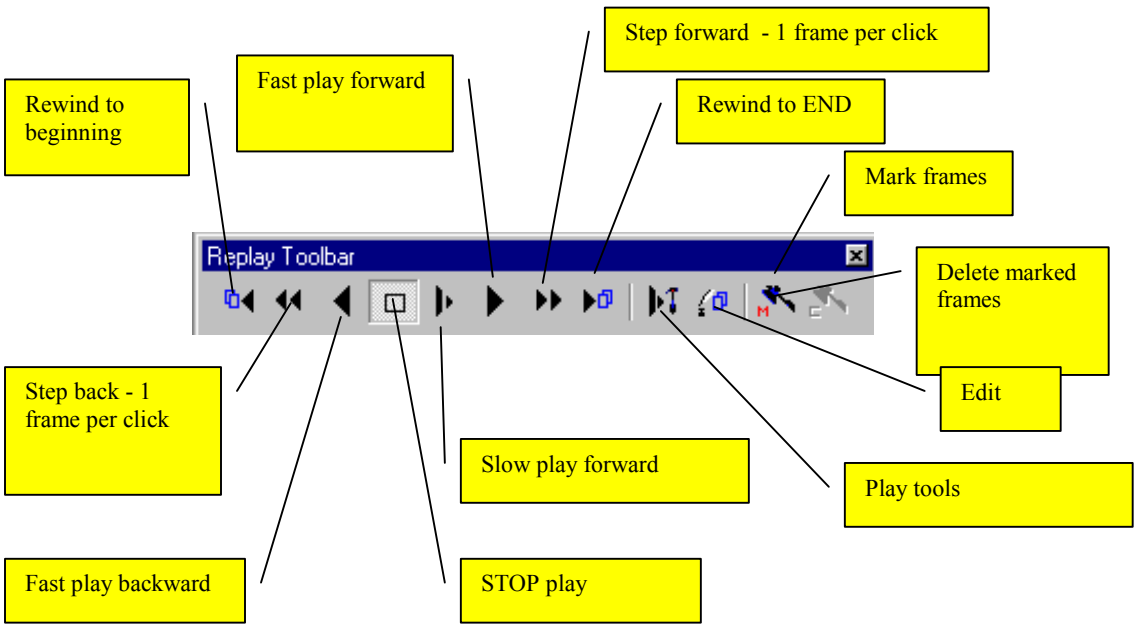
Movie Save

Refer to the information in Chapter 5 The Events Menu for information on using the Fast Save Function. There is also information on creating a special ROI (region of interest) if the entire image is not wanted.

Once a series of frames are captured. The buttons on the Fast Save tool becomes ungrayed and available for use.

To use - CLICK the LEFT MOUSE BUTTON on each function in the tool.

The functions of the tool bar



Rewind

Move backward through the image frames to the FIRST IMAGE and display this IMAGE. The button then become gray.

Step Back - 1 frame

CLICK on this BUTTON to view the PREVIOUS IMAGE (1 frame back). Each CLICK of the MOUSE moves back 1 frame through the entire series of frames in the movie.

Fast playbackward

Step through the series of images as fast as frame of the camera and computer permits - BACKWARD.

Stop

Halt action initiated by PLAY forward or backward. This is a freeze frame.

Slow playforward

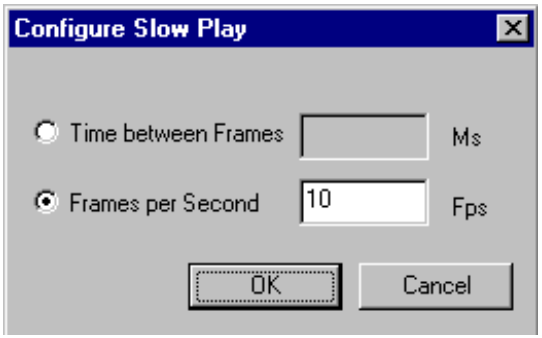
View the images at 2 frames per second rate. This enables you to see fast action in slow motion.

Step Forward - 1 Frame

Step forward 1 frame with each CLICK of the mouse button.

Play tools

This tool will display a dialog box shown to the right that lets you control how fast frames are displayed in slow play forward or backward.



This tool is a configure slow play control.

You can adjust the time between frames in milliseconds, or the number of frames per second.

This tool makes it possible to view events occuring at very high speeds in very slow motion.

Edit

This tool displays a window containing one frame. This makes it possible to treat a frame that is normally displayed as a series of images as a single image so that it can be saved in any of the supported file formats.

Mark

This tools lets you mark a number of frames for deletion. It is not necessary that they be contiguous frames. Marked

areas are shown in the RED bar at the bottom of the replay window shown above. This provides a visual representation to the viewer of where the marked sections are with relation to the ends of the frames series.

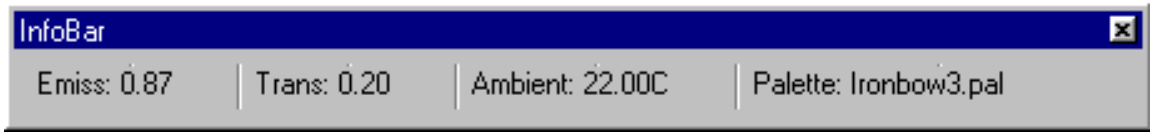
Cut

Remove from the series of frames ALL MARKED FRAMES.

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. Trans refers to SCENE TRANSMISSION. Ambient refers to the AMBIENT TEMPERATURE surrounding the thermal image. Palette is the name of the palette used to colorize the image.

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.

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

Level/Sens Tool

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

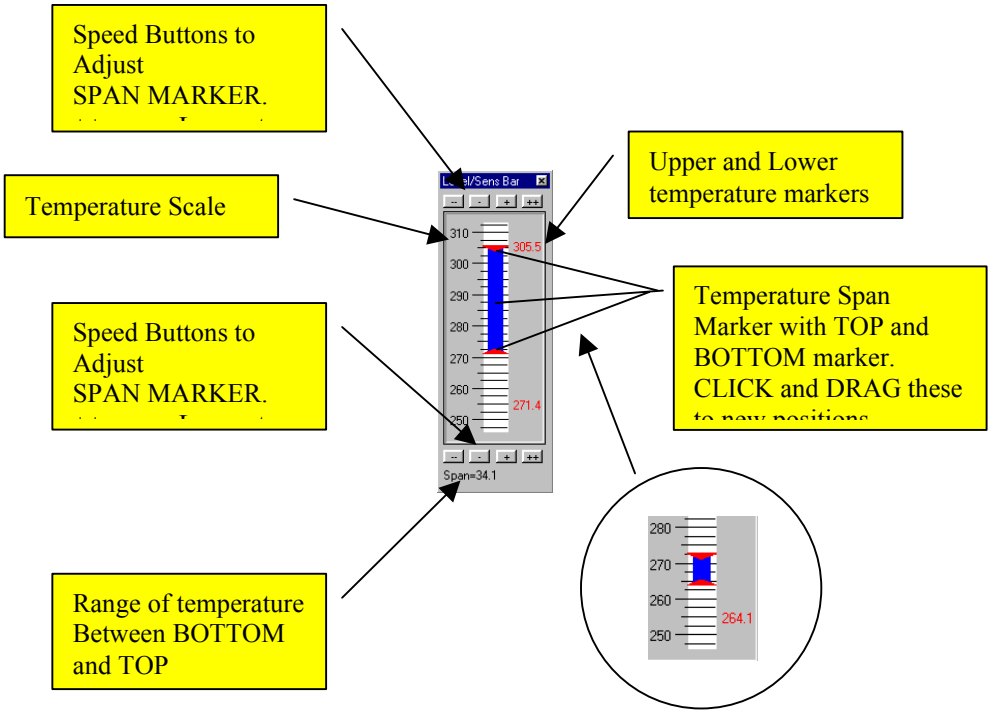
The SPAN or the top and bottom is supplied by the support camera.

NOTE: Dragging or moving the SPAN MARKER to the extreme top (in the example below - above 100) will display in RED 103. The same is true of the extreme bottom. This is NORMAL.

How to use...

To move the entire SPAN MARKER up or down place the mouse on the marker and CLICK the mouse and drag to a new position.

Change the size of the SPAN MARKER by using either the buttons on the top and bottom of the control (- -, -, +, ++) until the desired size is achieved.



Software Conditions

The software is supplied with a REMOTE with NUMBERS 0 through 9. CLICKING on the NUMBERS below has the same effect as PUSHING on the CORRESPONDING BUTTONS on the REMOTE.

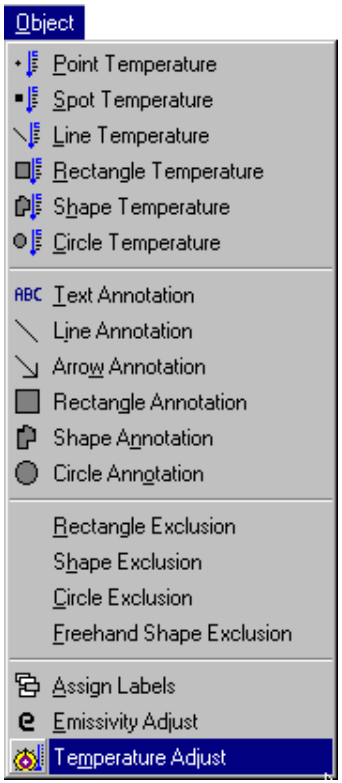
This TOOL is largely for the user's convenience.

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. Rectangle Exclusion
13. Shape Exclusion
14. Circle Exclusion
15. Freehand Shape Exclusion
16. Assign Labels
17. Emissivity Adjust
18. Temperature Adjust

Special useability features

NOTE: to help the user in locating the temperature point, mouse temperature should be turned on in preference. What this does is to display the temperature under the mouse cursor.

The following is true of an IRRIS 256 camera

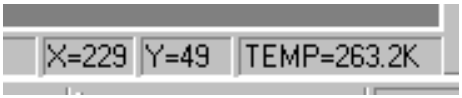
In the illustration shown below the STATUS BAR shows the MOUSE CURSOR location in X and Y pixel locations. For example the upper left hand corner of a LIVE IMAGE would be X=0 and y= 0. The lower right hand corner would be x=254 and y = 254. If the image is expanded full size - to fill the entire screen 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 pizels 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 overlayed on an image, which is why this is called an object menu.

The Object Menu has 4 groups of functions.

1. temperature measurement tools
2. text
3. shapes
4. an assorment related to temperature - labels, and emissivity and temperature adjustments.

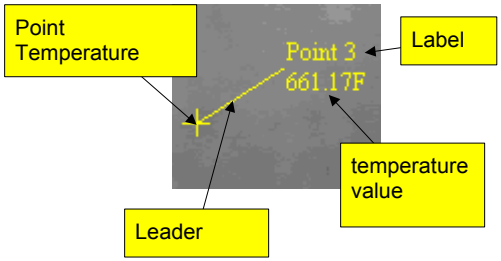
The material on temperature tools and how to use them requires careful study to apply. This is also true if the user wants to use more than than just POINTS, and LINES, sincere there are other useful tools such as SPOT, ELIPSE/ CIRCLE, and above all SHAPE.

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.

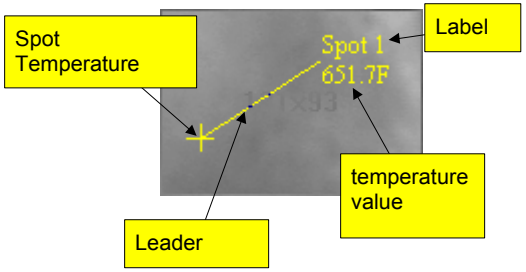
How to use Point Temperature Object -

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 tempeature 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 -

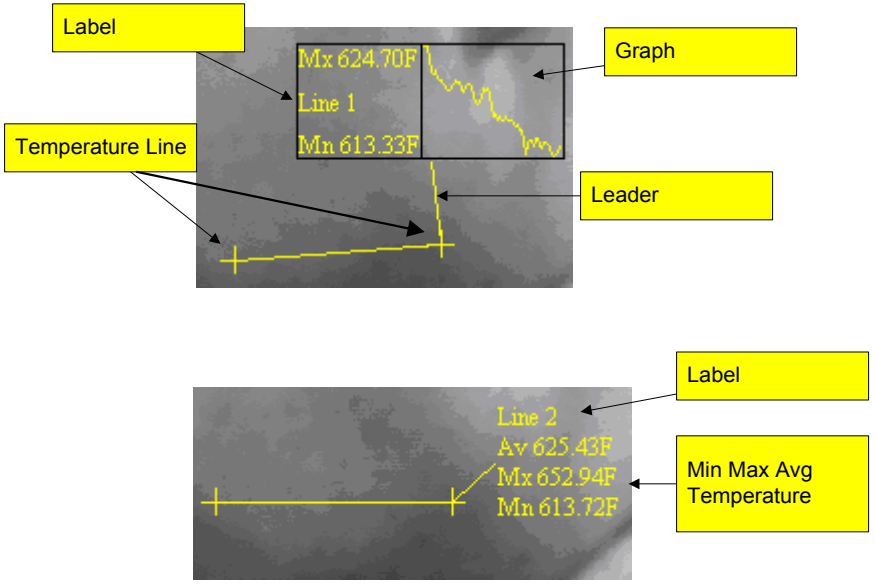
1. CLICK on the Spot Icon or CLICK on the Object Menu and then CLICK on Spot Temp.
2. The Mouse Cursor will change to a +. Notice that the STATUS BAR displays Spot Temp. Until another software function is selected - the software remains in this function.
3. Move this + to the place on the image where 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 tempeature 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.



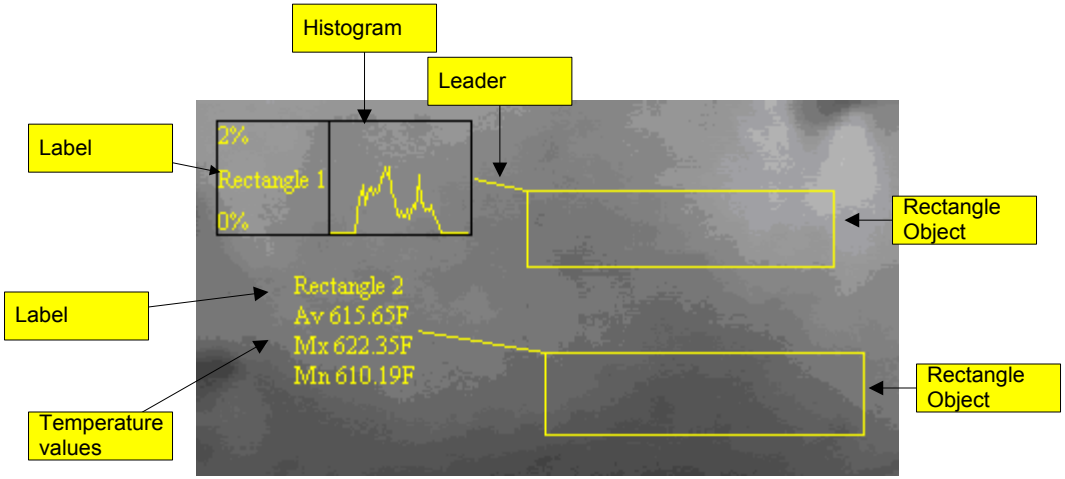
How to use Line Temperature Object -

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 tempeature 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 boundries 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 -

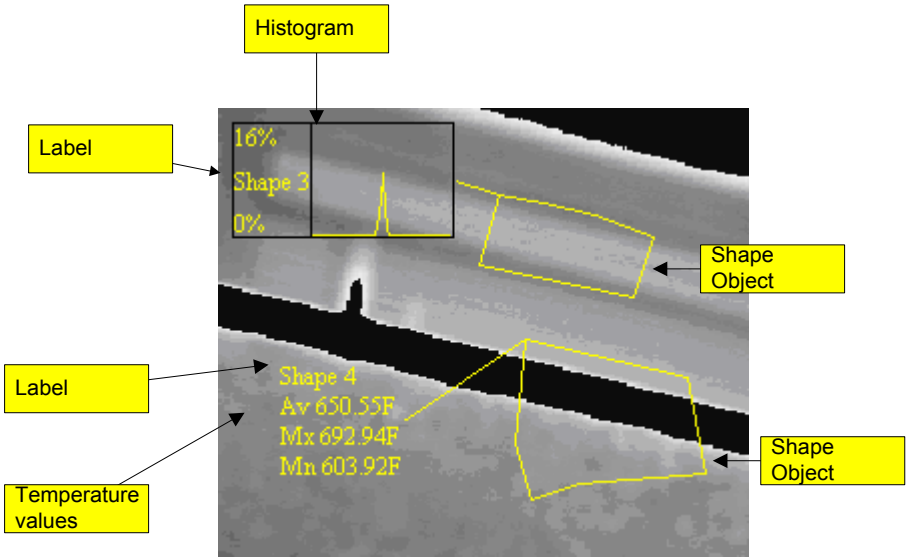
1. CLICK on the Rectangle Icon or CLICK on the Object Menu and then CLICK on Rectangle Temp.
2. The Mouse Cursor will change to a +. Notice that the STATUS BAR displays Rectangle Temp. Until another software function is selected - the software remains in this function.
3. Move this + to the corner of 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 tempeature extraction is done.**

Related topics

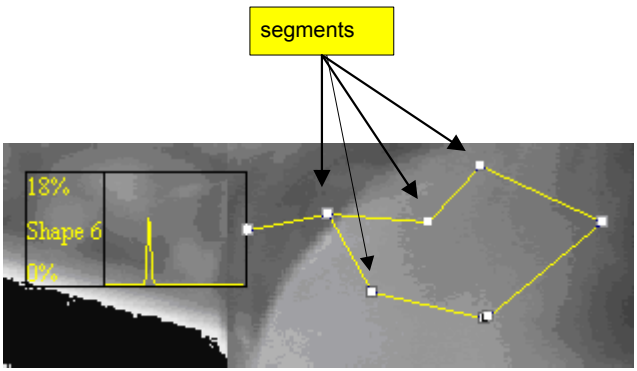
CLICK on Report, and CLICK on Graph to access the Graph Module to graph a Rectangle Temperature Object. Review Chapter 5 on the Event Manager to see how this temperature object is used in the event manager.

Shape Temperature



Shape Temperature object takes the average, minimum, and maximum values of all the pixels with the boundries 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 tempeature 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.

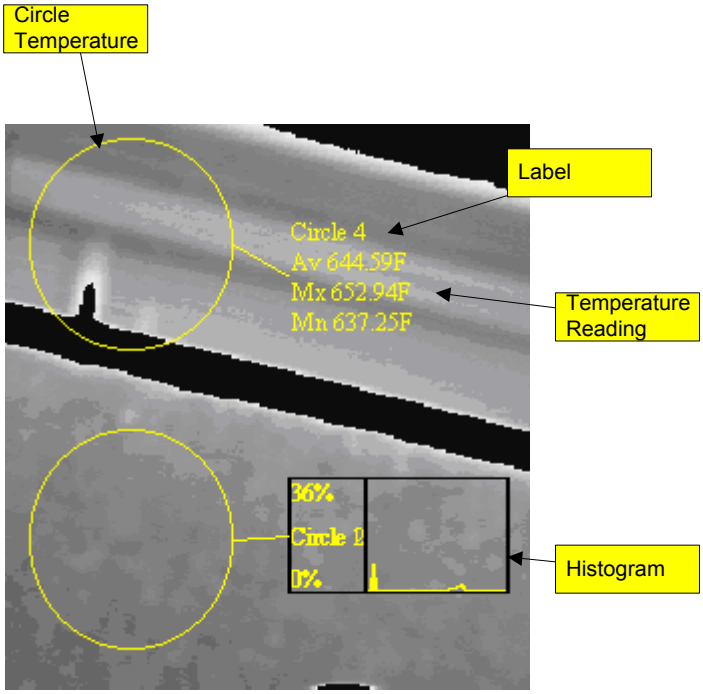
Circle Elipse Temperature

Circle Temperature object takes the average, minimum, and maximum values of all the pixels with the boundries 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 circumferance 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 tempeature 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.

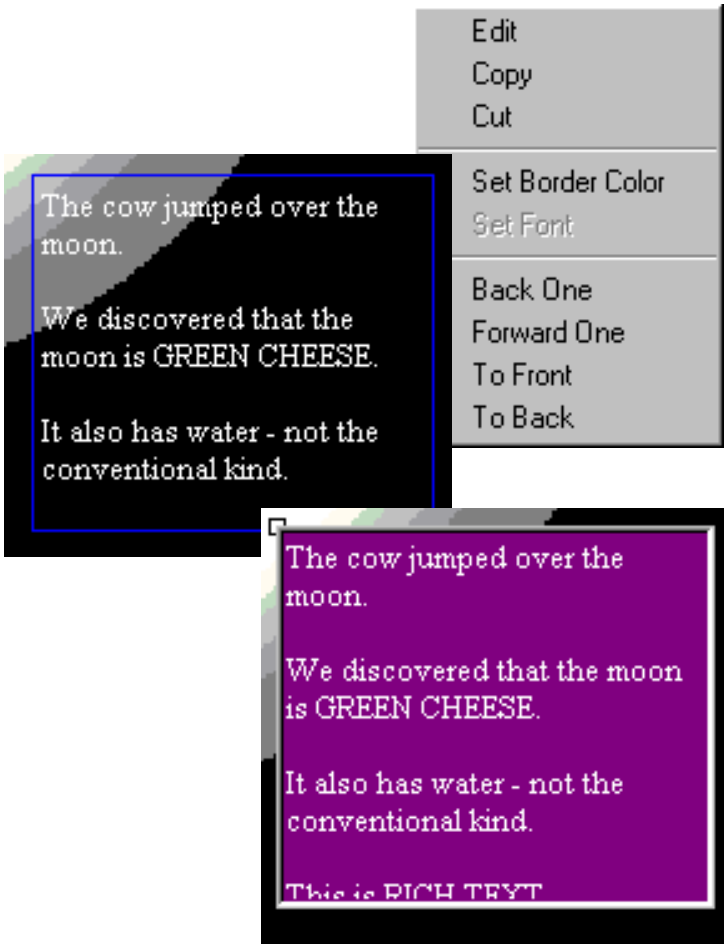
Please exuse the text subject. It is intended only to illustrate the text functions available to the software user.

This function permits SCROLLING, WRAP 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 have a perfectly natural inclicnation to note 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 Annot 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 Annot 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/Elipse 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/Elipse 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/elipse 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.

Rectangle Exclusion

The uses of Rectangle Exclusion

Frequently there is a need to exclude an area inside of a temperature object from being read by the temperature object. And example would be a area of text generated by the camera that would read WHITE TOP OF THE TEMPERATURE scale and render the readings of the temperature object useless.

How to

Draw a rectangle as in the methods showen in previous sections to this one. The area of the rectangle object will show as a CROSS HATCHED area. That area is EXCLUDED from temperature extraction or measurement.

An exclusion object ONLY TAKES effect inside a RECTANGLE, SHAPE, CIRCLE temperature object. It will not work when placed over a POINT, SPOT, or LINE.

Shape Exclusion

The uses of Shape Exclusion

Frequently there is a need to exclude an area inside of a temperature object from being read by the temperature object. And example would be a area of text generated by the camera that would read WHITE TOP OF THE TEMPERATURE scale and render the readings of the temperature object useless. Shape Exclusion allows the user to enclose an area by SEGMENTED LINES.

How to

Draw a shape as in the methods showen above. The area of the shape object will show as a CROSS HATCHED area. That area is EXCLUDED from temperature extraction or measurement.

An exclusion object ONLY TAKES effect inside a RECTANGLE, SHAPE, CIRCLE temperature object. It will not work when placed over a POINT, SPOT, or LINE.

Circle Exclusion

The uses of Circle Exclusion

Frequently there is a need to exclude an area inside of a temperature object from being read by the temperature object. And example would be a area of text generated by the camera that would read WHITE TOP OF THE TEMPERATURE scale and render the readings of the temperature object useless. Circle Exclusion allows the user to enclose an area with a circle or elipse.

How to

Draw a circle as in the methods showen above. That area of the circle or elipse is excluded from temperature extraction or measurement.

An exclusion object ONLY TAKES effect inside a RECTANGLE, SHAPE, CIRCLE temperature object. It will not work when placed over a POINT, SPOT, or LINE.

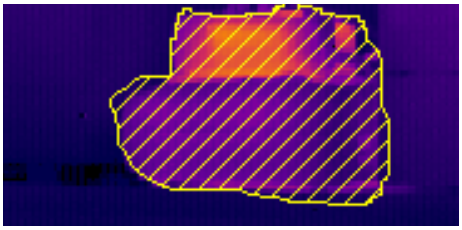
Freehand Shape Exclusion

The uses of Freehand Shape Exclusion

Frequently there is a need to exclude an area inside of a temperature object from being read by the temperature object. And example would be a area of text generated by the camera that would read WHITE TOP OF THE TEMPERATURE scale and render the readings of the temperature object useless. Freehand shape allows the user to enclose objects that would not be convenient with other shape exclusion objects.

How to

Freehand Shape is unique and has no similarity to other annotations. To use - CLICK on the function. The mouse cursor will then change into a +. Place that + where it is desired to begin the Freehand Shape. While holding down the LEFT MOUSE BUTTON move or DRAG the mouse to describe the shape. Draw a circle as in the methods showen above. That area of the shape is excluded from a temperature extraction or measurement.



An exclusion object ONLY TAKES effect inside a RECTANGLE, SHAPE, CIRCLE temperature object. It will not work when placed over a POINT, SPOT, or LINE.

What you can't do with Freehand Shape Exclusion

The user is ONLY able to select the object and move it by draging and droping with the mouse. It is not possible to change the shape of object. To change the object - the user will have to SELECT and then DELETE the object, and then draw a new object.

Assign Labels

A label is the identification that the software uses to distinquish 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 alphnumeric characters. Or when a label is selected as in the illustration above, CLICK on Modify to edit the label.

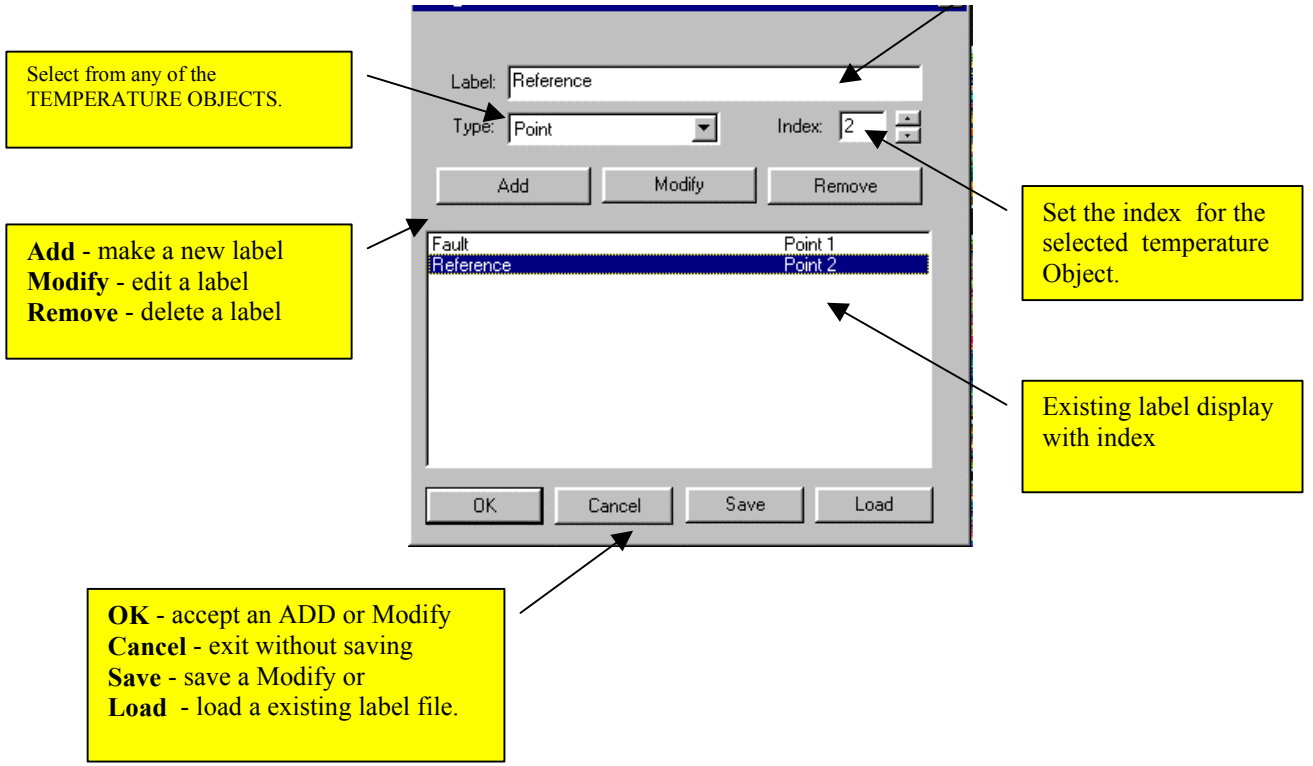
Type - use this List Control to select any of the temperature object such as Point, Line, Rectangle, Circle, Spot, and Shape.

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 . . .

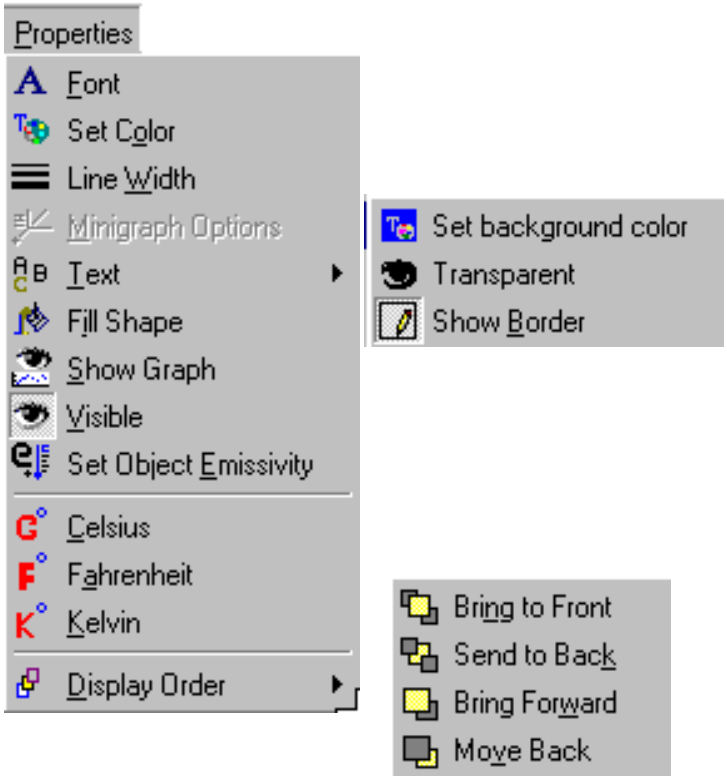
CLICK on the Object Menu, then CLICK on Emissivity Adjust. The mouse cursor will change into a +. Place this

The Properties Menu

Location

Frame Grabber Module and Image Editor.

The following functions are found in the Object Menu



7. Font
8. Set Color
9. Line Width
10. Minigraph Options
11. Text
12. Fill Shape
13. Show Graph
14. Visible *
15. Set Object Emissivity
16. Celsius
17. Fahrenheit
18. Kelvin
19. 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.

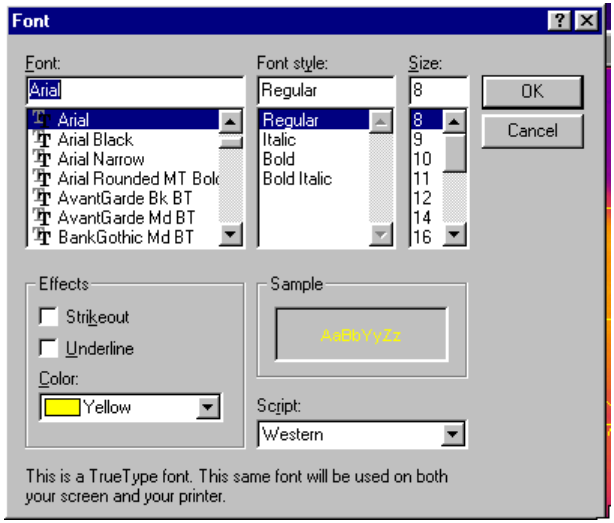
Object attributes can be made distinctive and unique from other objects to call attention to a particular feature of an IR image.

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. For example the user is unable to place a border on

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 overides the color annotations settings in Preferences for Fill Object.

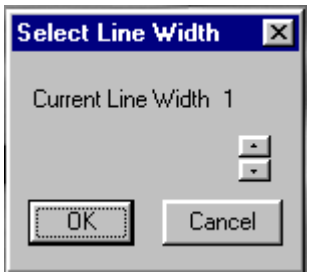
These adjustments are made ONLY to the selected OBJECT. Preferences Color Annotation Settings are the default settings.

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 histograph 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 . . .

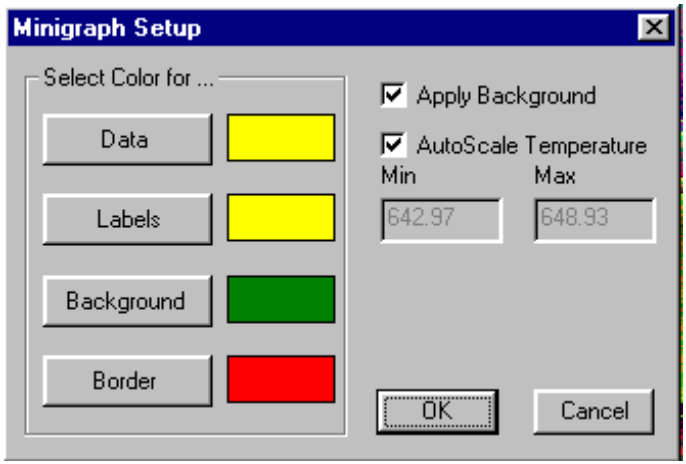
DATA - Set the color of the graph portion of the MINIGRAPH
.
LABELS -Set the color of the Label portion of the MINIGRAPH.

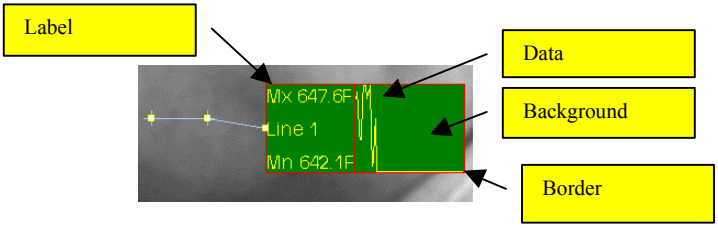
BACKGROUND - Set the color of the Background of the MINIGRAPH.

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

APPLY BACKGROUND - Enable the background

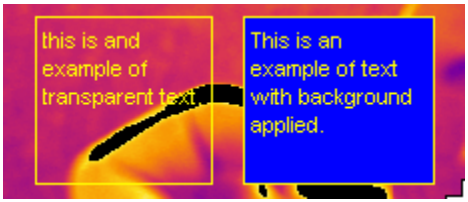
AUTO SCALE TEMPERATURE
CHECK to enable auto set. This means that the software finds the maximum and minimum temperature values for the temperature object and displays those as a graph.
UNCHECK - the user can set values for the graph manually.





Text

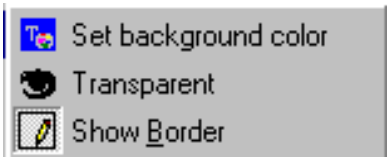
This function sets ATTRIBUTES for TEXT. To place TEXT use the text function in the Object Menu.



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.

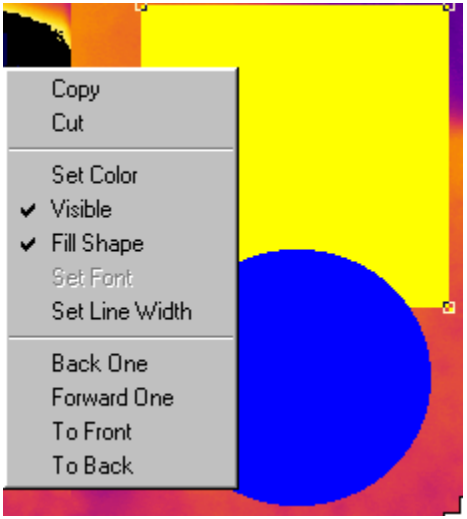
Then CLICK on this function to access a WINDOWS COLOR SELECTION DIALOG. From this select the desired color. A custom color can also be specified.

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

5. Create a text frame with TEXT.
6. Then select that text frame.
7. 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 . . .

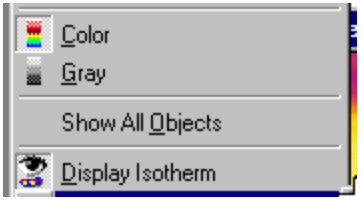
Select the temperature object first, then CLICK on the Properties Menu and then CLICK on Show Graph. Use mini-graph setup if the defaults set in preferences need adjustment.

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 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.**

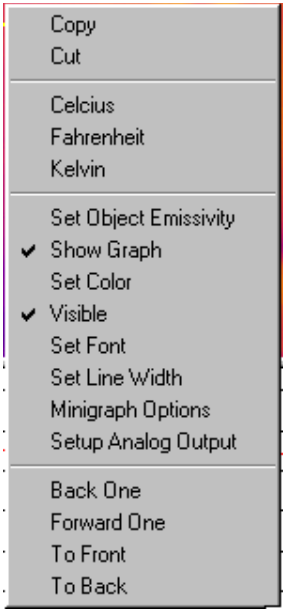
To use this function use the following 5 steps

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

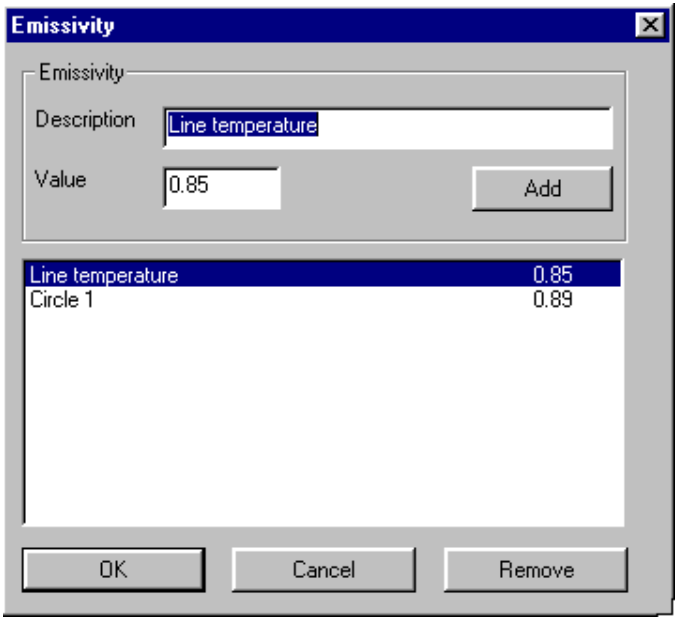
This function sets an emissivity value for a SELECTED TEMPERATURE object.

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.

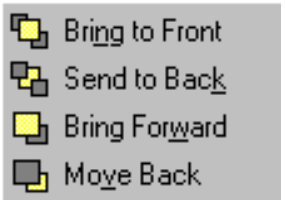
How to use . . .

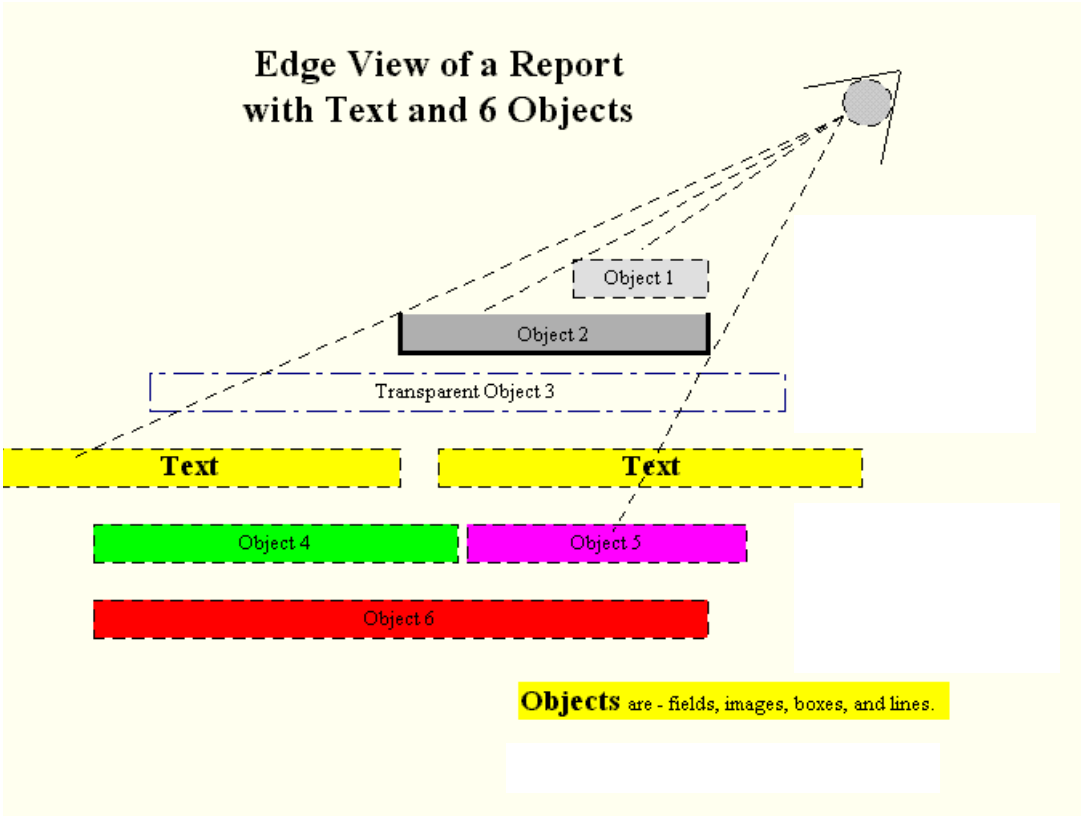
Select the object. Then CLICK on Properties and CLICK on Celsius, Fahrenheidt, or Kelvin.

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.

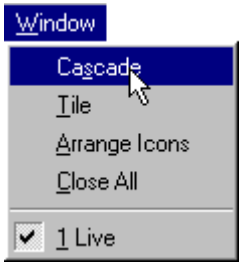
The following functions are found in the Windows Menu

8. Cascade
9. Tile
10. Arrange Icons
11. Close All
12. 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 distoration of the iimages will result.

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

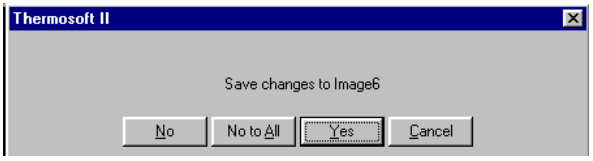
This software also loads multiple images from the Load Images function and tile can be useful in looking at all of them in a mosaic.

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.

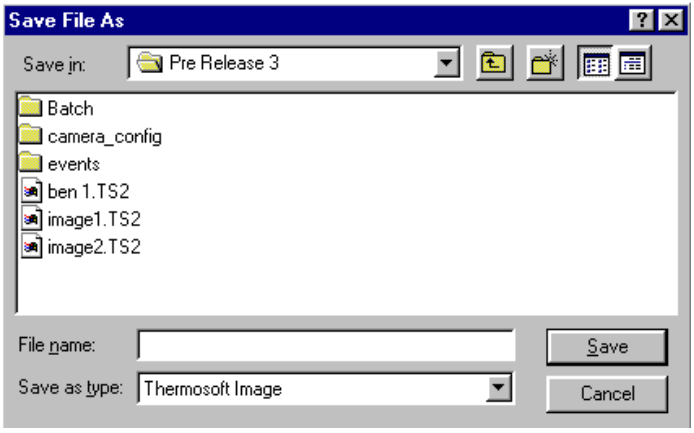


NO - Do not save the selected windows entity.

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.

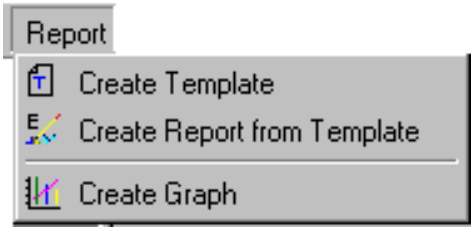
The following functions are found in the Report Menu

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.

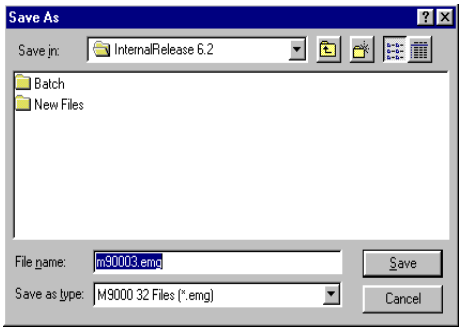
How to . . .

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 CreagteGraph.

Multiple objects

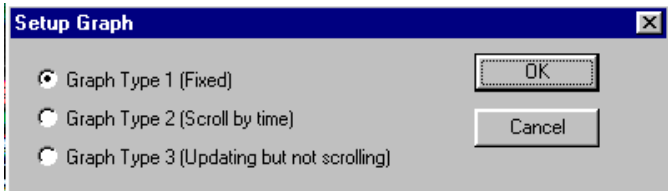
The graph module is capable of displaying data on a single graph from more than one temperature object. These can be of the same kind or different kinds. In otherwords the user can select a rectangle to display, a line, a circle, etc. The exception is that Line Temperature which does not have a histogram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

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 ignors 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

6. Zoom in
7. Zoom to Full Screen
8. Refresh
9. 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

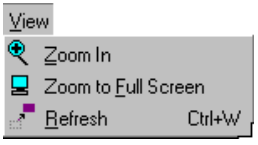
The View Menu is shown to the right.

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 . . .

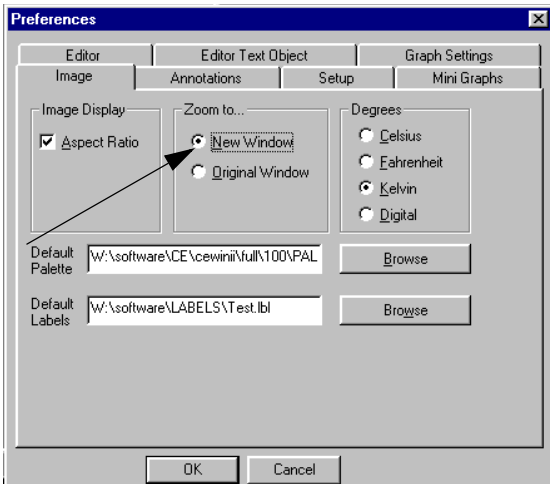
Select an image in the Image Editor by CLICKING anywhere on the image.

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.

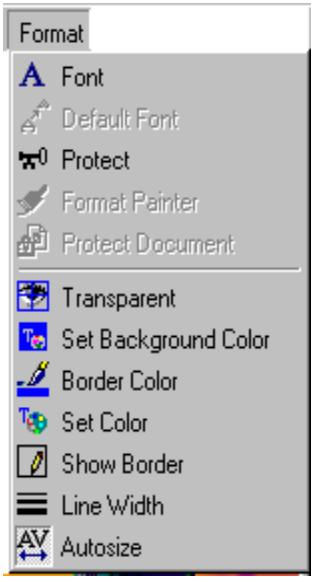
The Format Menu

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

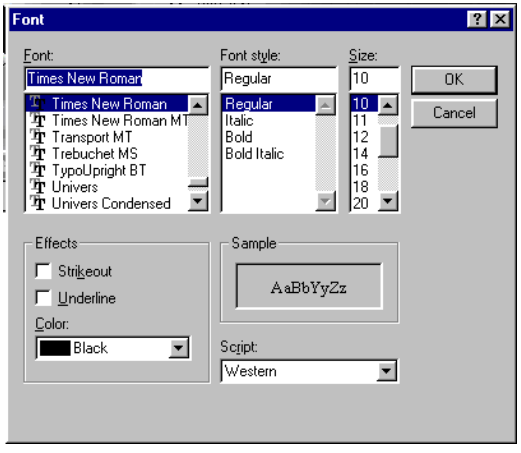


Related Topics

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 formate 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.

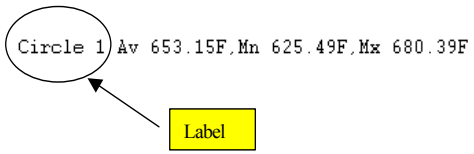
ALL Objects are initially set to no border.

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.

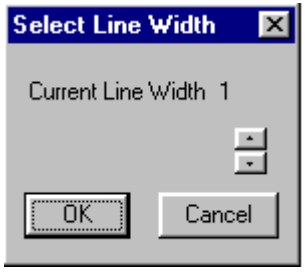
The circle field shown to the left has a visible label.

Set Line Width

This function sets the width of the line for ANY object that displays a border, along with the the vertical and horitzonal 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.

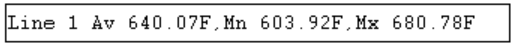
Autosize

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

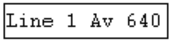
How to . . .

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 buttom is NOT so that most of the data is truncated.



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

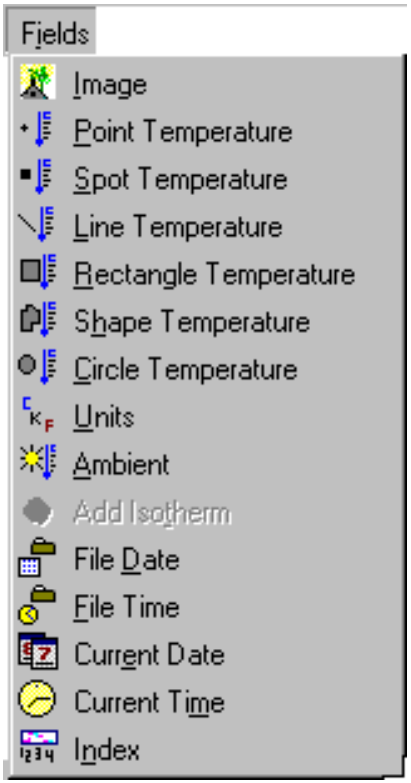
The Field Menu

Location

Template Editor or Report Editor.

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 AUTOMATICALLY 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 settable 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 .

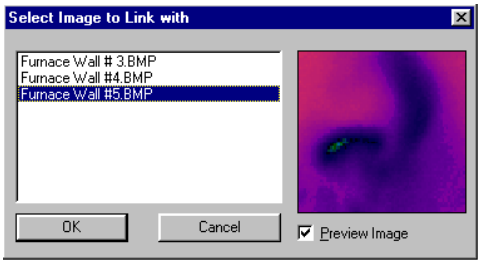
Applying this function is the SAME for both making a template by accessing the Create a Template function and making a report by accessing the Create a Report from a Template. In the next section a template only is referred to.

How to . .

5. Place an image in the Image Editor, by loading from the File Menu, or CLICK on the TOOL shown to the right. This function is also in the Frame Grabber Menu in the Frame Grabber Module
6. SELECT that image.
7. 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. This CONTROL is shown to the right.
8. 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 util 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

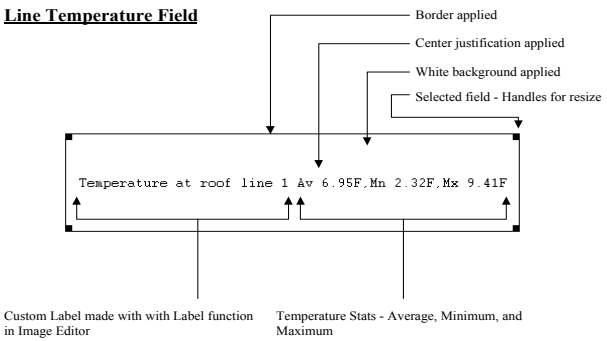
This function places a temperature field on the Template. Temperature fields permitt the automatic movement of temperature data from the temperature objects in the Image Editor to a Report. The software is capable of handling multiple fields associated with more than one temperature object of the same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

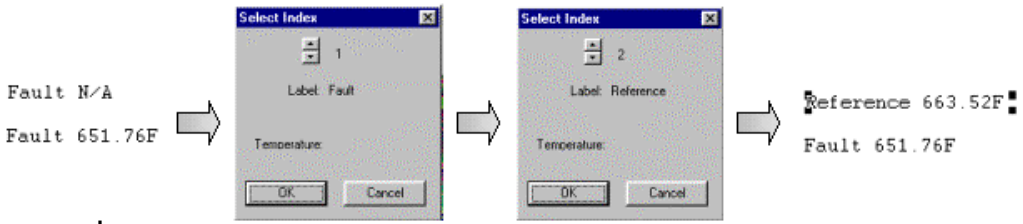
Click on any one of the temperature fields. If you placed a point it would look like the illustration to the right. Fault is the Label associated with the first point in the INDEX.

Fault N/A

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

There are several conditions that can apply:

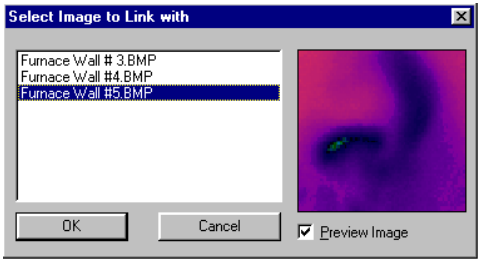
CASE 1
MORE THAN ONE TEMPERATURE FIELD OF THE SAME TYPE ON THE IMAGE. Place a temperature field on the template. It will be the same as the first one placed. Select the temperature field and then CLICK on Fields and CLICK on Index. Then Use the UP/DOWN arrow on the control to step through each temperature 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 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.

Units

Units F

This function places a field on the template or report indicating if if Centigrade, Farenheidt, 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).

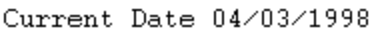
How to . . .

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

plate.

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



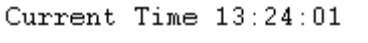
This function reports the computer date. Format is in (label) day/ month/year format.

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



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.

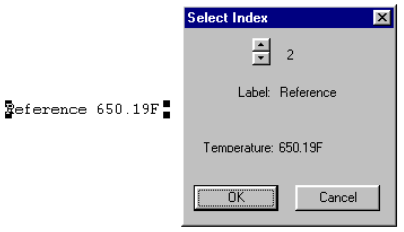
Index

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.



14. **Set INITIAL LINK** - sets the default LINK for SELECTED **Image and all fields and images placed in the report.**
15. **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

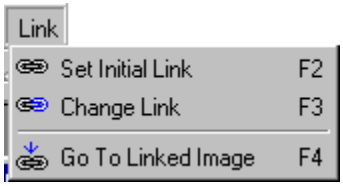
16. Select the field.
17. Then CLICK on Field Menu and CLICK on Index. The Control shown ABOVE and to the RIGHT is displayed.
18. CLICK on the UP arrow until the selected field displays correct index, determined by the correct displayed value or label. Note that the temperature for the field is displayed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

The Link Menu

Location

Template Editor or Report Editor.

The following functions are found in the Link Menu



5. Set Initial Link
6. Change Link
7. Go To Linked Image

Related Topics

Chapter 17 - The Field Menu

Related Tool Bars

There are no related toolbars.

F Keys

1. F2 - Set initial link
2. F3 Change Link
3. 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

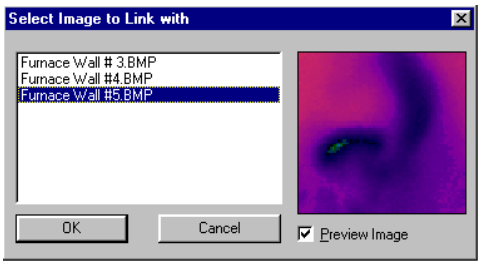
1. If an image is loaded first in the Image Editor and then the Report Editor is opened -- an INITIAL LINK is established with that image. All fields, images, and text will be linked. Multiple fields of the same type will display the same data until changed with CHANGE LINK. A link established this way 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...

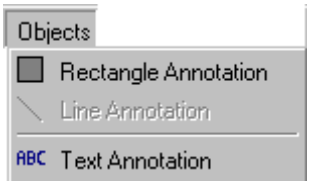
Select the Field or Image and then CLICK on Link and CLICK on Go to Linked Image.

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 usefull for attention getting items on a report such as a title, a fill comments section, or a footer.

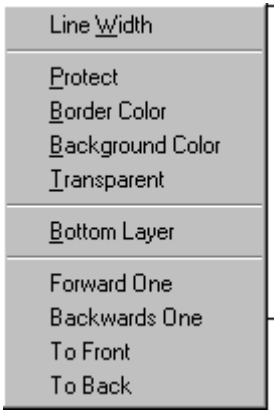
How to...

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 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

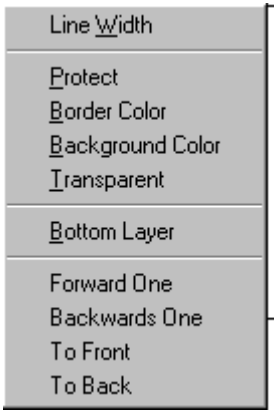
Use this function to place a line on the template or report. It is especially useful for separating section of the report. Placing two lines in close proximity and both vertical and horizontal results in interesting LOGO EFFECTS.

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 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

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

Hot to . . .

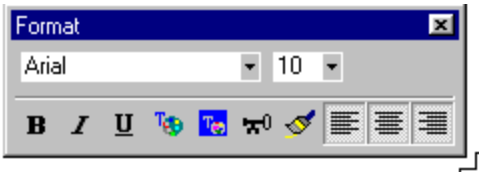
A. Placing a TEXT OBJECT or FRAME on the template or report.

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.

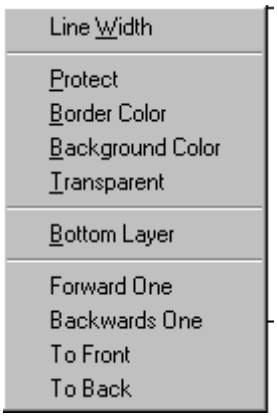
B: Placing text in the text frame.

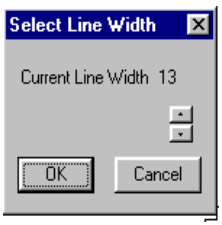
1. Type as much text as desired. The software will auto word wrap and scroll down to always make the line being written visible.
2. To make all of this text visible do item A.2. on the previous page to resize.
3. Use end, home, up or down arrow to move around the text.
4. To EDIT the text SELECT and 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: Formating the text frame

1. 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.
2. To change the border width, select the TEXT FRAME as in item 1 above and CLICK on LineWidth and adjust the SELECT LINE WIDTH control to the desired width.
3. 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.
4.





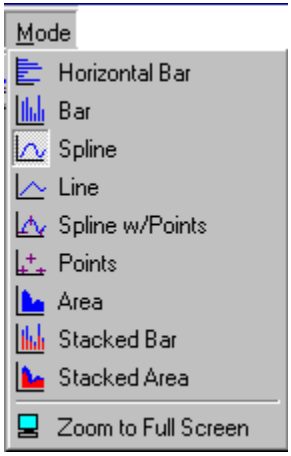
Introduction to the Graph Mode Menu

Introduction

Location

Graph Module ONLY

The Functions Found in the Mode Menu



5. Horizontal Bar
6. Bar
7. Spline
8. Line
9. Spline w/Points
10. Points
11. Area
12. Stacked Bar
13. Stacked Area
14. 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. Spot, and Point are also available in the Framegrabber Module, from live images.

How to . . .
A temperature object must be selected to be displayed.

CLICK on Report and CLICK on CreateGraph.

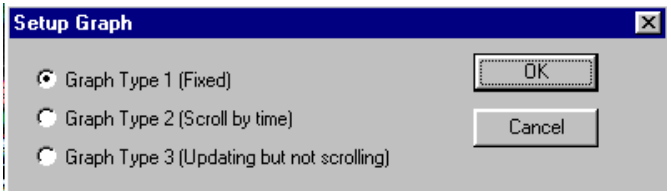
Multiple objects

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.

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 SNAPSHOT of the temperature data extracted by the temperature object.

NOTE: this is available ONLY with LINE.

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.

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.

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.

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.

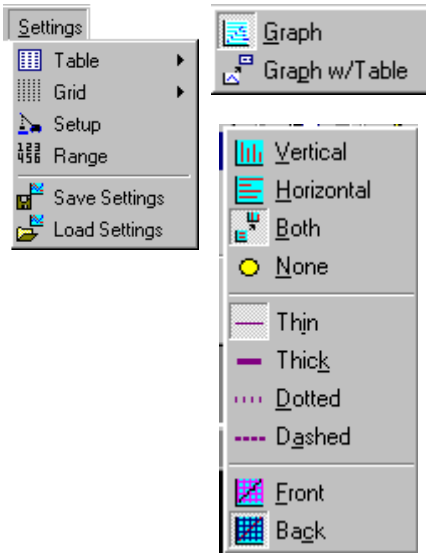
The Settings Menu

Location

Graph Module ONLY

The following functions are found in the Settings Menu

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



Related Topics

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

Introductions to the Settings Menu Functions

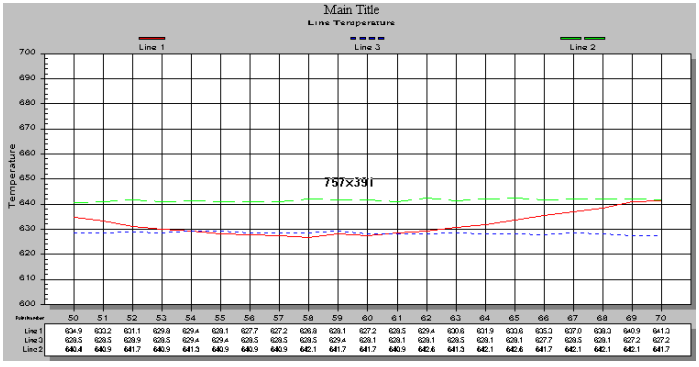
This menu enables the software to customize the graph to the user's individual preference.

The Settings Menu Functions

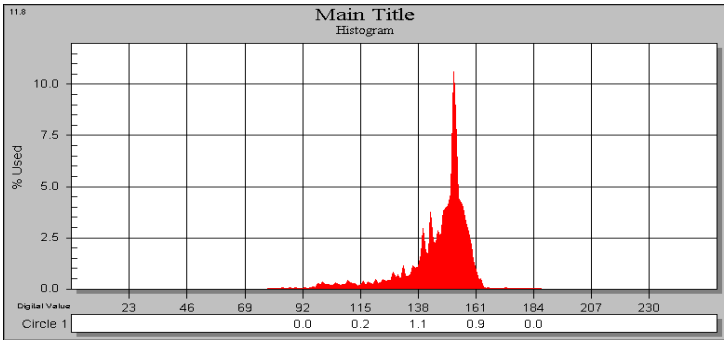
This menu provides basic functions that determine how the graph displays data. It also has functions that determine the apppearance of the graph.

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.



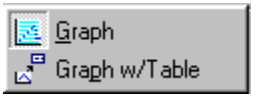
The software can display a table along or a table with a graph.

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.

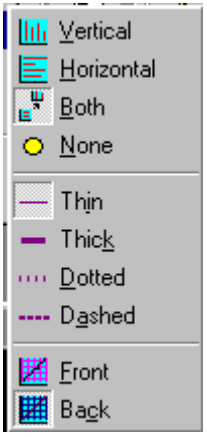


Grid

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

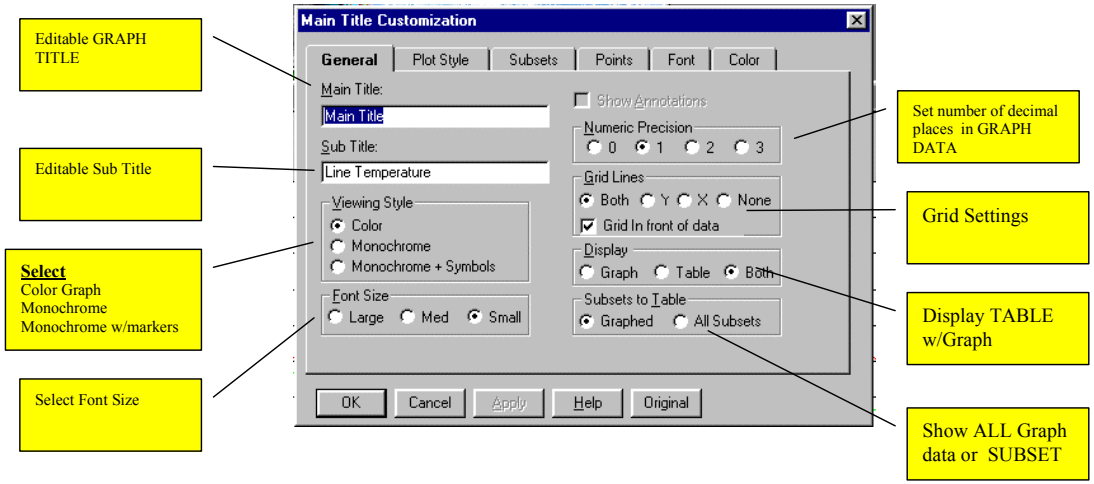
A GRID can be placed in front of or behind the GRAPH DATA.

Setup

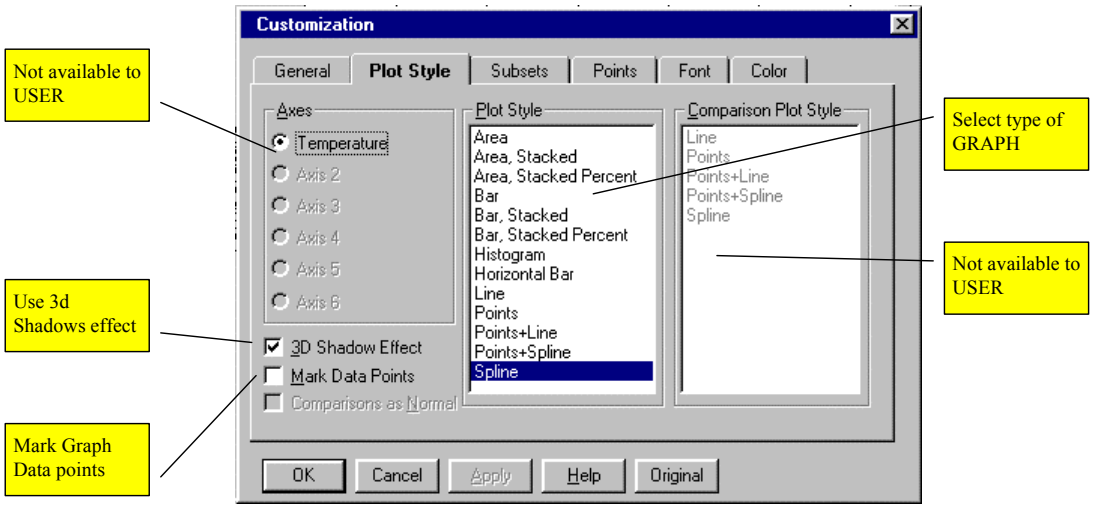
CLICK on Settings and then CLICK Setup to access the tabed controls shown below.

TAB - General

Use these to customize the appearance of the Graph.



Tab - Plot Style



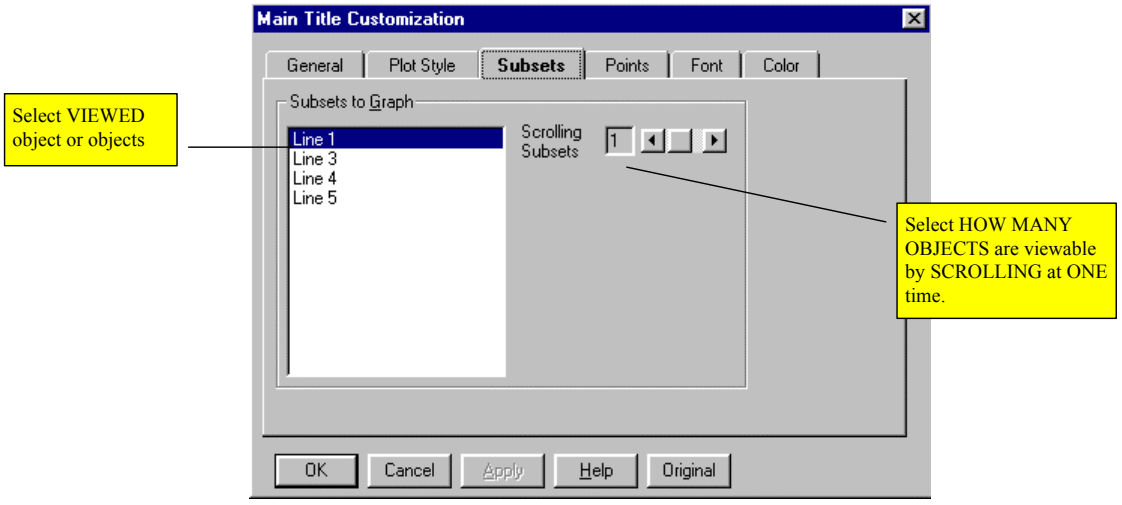
TAB - Subsets

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.

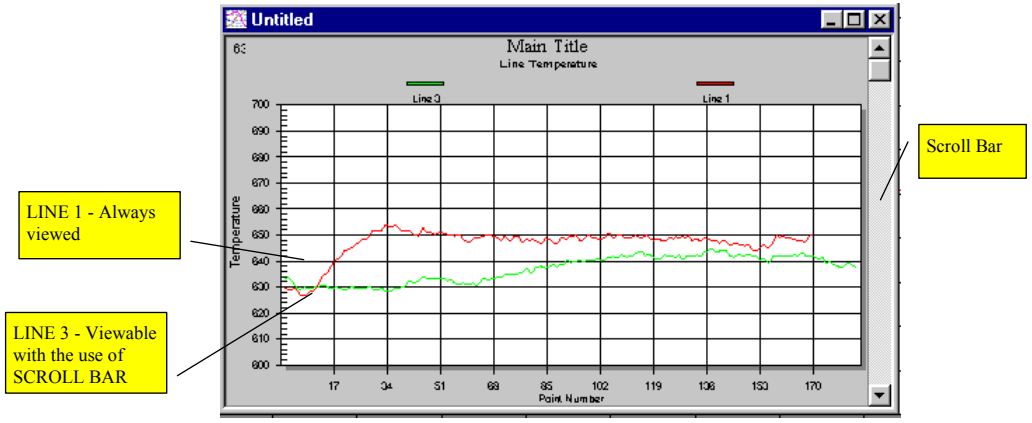
NOTE: Scrolling subsets REQUIRE A MINIMUM of 1 to function.



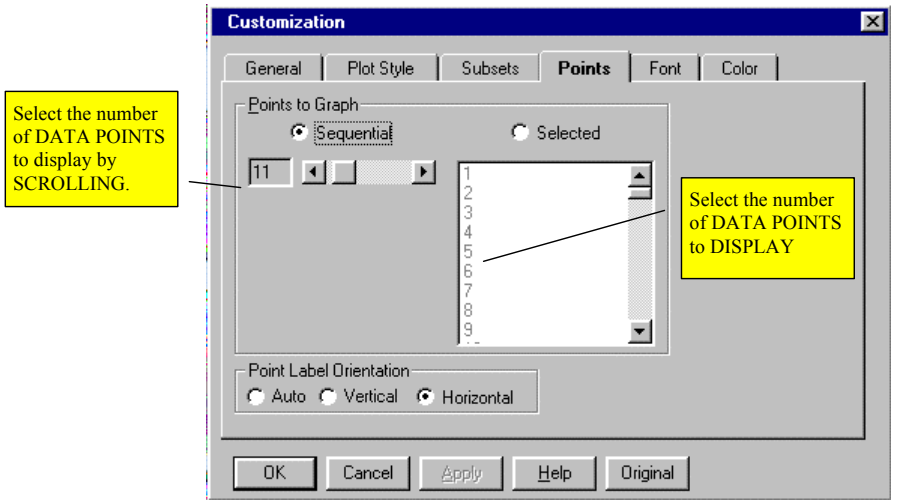
Example of graph with subsets. Note Line 1 is always VIEWED, and Line 3 has been viewed by scrolling. Line 4 and 5 shown visible in SUBSET TAB screen, shown above, are also viewed INDIVIDUALLY with the scroll bar on the right of the graph.

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

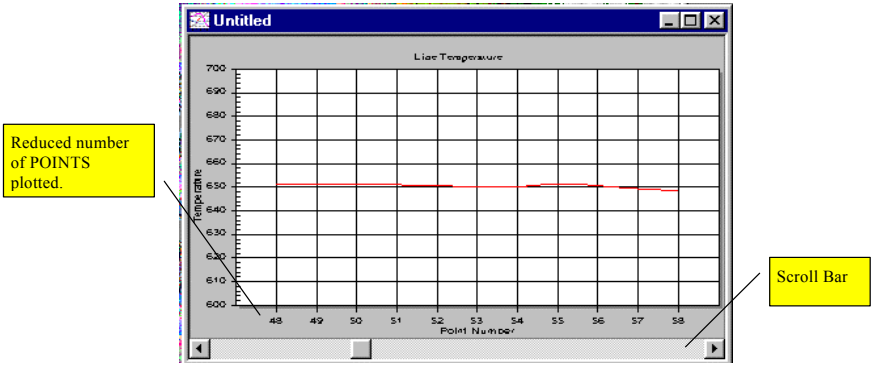
Select a single number or a range of numbers. A number of ranges or sets of ranges can also be selected. Again use Ctrl KEY. For example the use could select 123 23 24 25 150 151 153.

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.

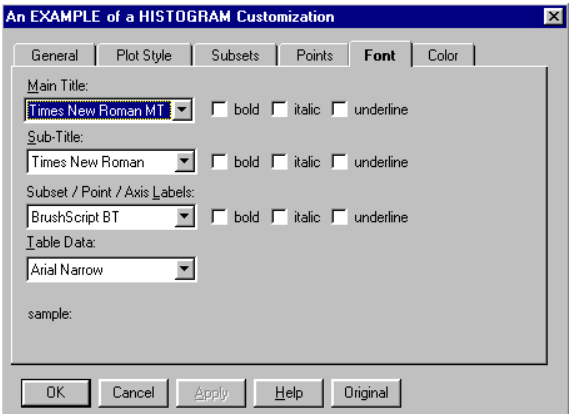


TAB - Font

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.



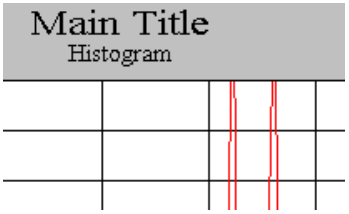
Sub-Title

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.



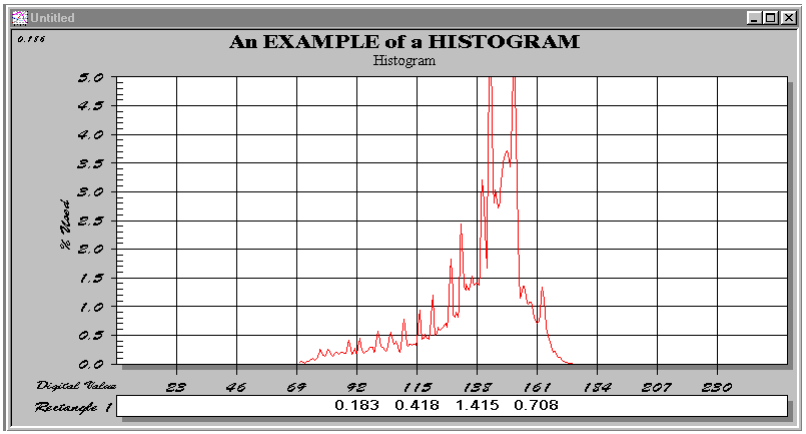
Sub-Title

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.

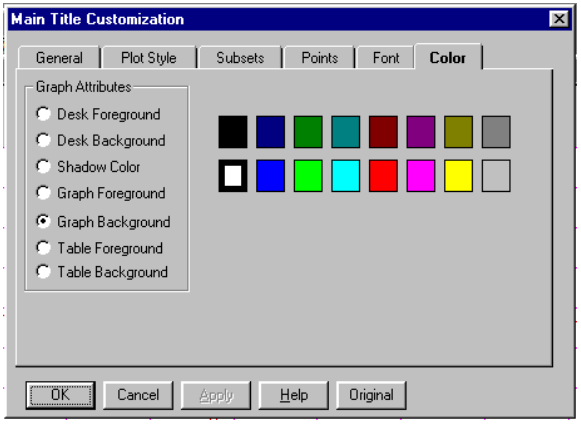
Point - numbers, and legends that are associated with the X (horizontal) and Y (vertical) axis of the graph.
Axis Labels - not available to user

An example is shown below using the settings in the Custimization 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 permitts 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..

Functions

Function	Menu Location	Manual Location	Software Location
A			
Acknowledge Alarms	Events	Chapter 3 The Events Menu	FG
Add Isotherm	Image	Chapter 7 Image Menu	FG and Image Editor
Arrange Icons	Windows	Chapter 11 Windows	ALL
Adjust Palette	Image	Chapter 7 Image Menu	Image Editor & FG
Ambient	Field	Chapter 16 Field Menu	Report Editor
Apply Palettes to all Images	Image	Chapter 9 Image Menu	Image Editor & FG
Area	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
Arrange Icons	Windows	Chapter 12 Windows . . .	All
Assign Labels	Object	Chapter 9 Object Menu	Image Editor & FG
Autosize	Format	Chapter 14 Format Menu	Report Editor
B			
Back 1 Frame	Replay Tool	Chapter 8 Special Tool Bars	Replay viewer
Background Color	Format	Chapter 14 Format Menu	Report Editor
Bar	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
Border Color	Properties	Chapter 14 Format Menu	Report Editor, Image Editor and Frame Grabber Module
Bring to Front	Properties	Chapter 10 Properties Menu	Image Editor, FG
Bring Forward	Properties	Chapter 10 Properties Menu	Image Editor, FG
C			
Camera Controls	Frame Grabber	Chapter 6 Frame Grabber	Frame Grabber

Function	Menu Location	Manual Location	Software Location
Cascade	Windows	Chapter 11 Windows . . .	All
Celsius	Properties	Chapter 9 Properties . . .	Frame Grabber & Image Editor
Change Link	Link	Chapter 16 Link Menu	Report Editor
Circle Annotation	Object	Chapter 9 Object Menu	Image Editor & FG
Circle Exclusion	Object	Chapter 9 Object Menu	Image Editor & Frame Grabber
Circle Temperature	Object	Chapter 9 Object Menu	Image Editor & FG
Circle Temperature (field)	Field	Chapter 16 Field Menu	Report Editor
Close	File	Chapter 5 File Menu	All
Close All	Windows	Chapter 11 Windows . . .	All
Color	Image	Chapter 9 Image Menu	Image Editor and FG
Copy	Edit	Chapter 4 Edit Menu	Image Editor, Frame Grabber, and Graph
Create Report from Template	Report	Chapter 12 Report Menu	All
Create Template	Report	Chapter 12 Report Menu	All
Create Graph	Report	Chapter 12 Report Menu	All
Current Date	Field	Chapter 15 Field Menu	Report Editor
Current Time	Field	Chapter 15 Field Menu	Report Editor
Cut	Edit	Chapter 4 Edit Menu	Image Editor and Framegrab-ber

D

Default Font	Format	Chapter 14 Format Menu	Report Editor
Delete Objects	Edit	Chapter 4 Edit Menu	All Image Editor and Frame Grabber Module
Delete Isotherm	Image	Chapter 7 Image Menu	Image Editor & FG
Display Isotherms	Image	Chapter 8 Image Menu	Image Editor & FG
Display Order	Properties	Chapter 11 Properties . . .	Image Editor & FG
Duplicate	Edit	Chapter 6 Edit Menu	Report Editor

Function	Menu Location	Manual Location	Software Location
E			
Edit Image	Frame Grabber	Chapter 6 Frame Grabber	Frame Grabber Module and Replay Viewer
Edit Objects	Edit	Chapter 4 Edit Menu	Image Editor and Frame Grabber Module
Edit ROI	Events	Chapter 3 The Events Menu	Frame Grabber
Emissivity Adjust	Object	Chapter 9 Object Menu	Image Editor & Frame Grabber
Export	File	Chapter 5 File Menu	Graph Module
Exit	File	Chapter 5 File Menu	All
F			
Fahrenheit	Properties	Chapter 11 Properties . . .	Frame Grabber & Image Editor
Fast Save	Events	Chapter 3 The Events Menu	Frame Grabber
Fast Forward	Replay Tool Bar	Chapter 8 Special Tool Bars	FG & Image Editor, Replay Viewer
File Date	Field	Chapter 15 Field Menu	Report Editor
File List	Windows	Chapter 12 Windows . . .	All
File Time	Field	Chapter 15 Field Menu	Report Editor
Fill Shape	Properties	Chapter 11 Properties . . .	Frame Grabber & Image Editor
Forward 1 Frame	Replay Tool Bar	Chapter 8 Special Tool Bars	FG & Image Editor
Font	Properties	Chapter 11 Properties . . .	Frame Grabber & Image Editor
Font	Format	Chapter 14 Format Menu	Report Editor
Format Painter	Format	Chapter 14 Format Menu	Report Editor
Freehand Shape Exclusion	Object	Chapter 9 Object Menu	Frame Grabber & Image Editor
Freeze	Frame Grabber	Chapter 8 Frame Grabber	All
G			
Go to Linked Image	Link	Chapter 16 Link Menu	Report Editor

Function	Menu Location	Manual Location	Software Location
Gray	Image	Chapter 8 Image Menu	Image Editor & Frame Grabber
Grid	Settings	Chapter 21 Customizing Graph	Graph Module
H			
Horizontal Bar	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
I			
Image Subtraction	Image	Chapter 8 Image Menu	Frame Grabber and Image Editor
Image	Field	Chapter 16 Field Menu	Report Editor
Import	File	Chapter 5 File Menu	All
Index	Field	Chapter 15 Field Menu	Report Editor
Isotherm	Image	Chapter 8 Image Menu	Image Editor & Frame Grabber
Instant Save	Toolbar - Standard	Chapter 2 Using the Software	Standard Toolbar
K			
Kelvin	Properties	Chapter 10 Properties . . .	Image Editor & Frame Grabber
L			
Line	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
Line Annotation	Object	Chapter 9 Object Menu	Image Editor & Frame Grabber
Line Annotation	Object	Chapter 17 Report Editor Object Menu.	Report Editor
Line Temperature	Object	Chapter 9 Object Menu	Image Editor & Frame Grabber
Line Temperature (field)	Field	Chapter 16 Field Menu	Report Editor
Line Width	Properties	Chapter 10 Properties . . .	Image Editor, Frame Grabber and Report Editor

Function	Menu Location	Manual Location	Software Location
Load Events	File	Chapter 5 File Menu	Frame Grabber
Load Palette	Image	Chapter 9 Image Menu	Image Editor & Frame Grabber
Load Settings	Settings	Chapter 21 Customizing the Graph . . .	Graph Module
Log to Excel	Events	Chapter 3 The Events Menu	Frame Grabber Module
Move Back	Properties	Chapter 10 Properties	
Minigraph Options	Properties	Chapter 10 Properties . . .	Image Editor & Frame Grabber
Open	File	Chapter 7 File Menu	All
Page Setup	File	Chapter 7 File Menu	Graph Module, Report Editor, and Image Editor
Paste	Edit	Chapter 4 Edit Menu	All - Except Graph
Point Temperature	Object	Chapter 9 Object Menu	Image Editor & Frame Grabber
Point Temperature (field)	Field	Chapter 16 Field Menu	Report Editor
Points	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
Preferences	File	Chapter 7 File Menu	All
Print	File	Chapter 5 File Menu	All
Print Preview	File	Chapter 5 File Menu	Image Editor & Graph Module
Print Setup	File	Chapter 5 File Menu	All - except Frame Grabber
Protect	Format	Chapter 14 Format Menu	Report Editor
Protect Document	Format	Chapter 14 Format Menu	Report Editor

Function	Menu Location	Manual Location	Software Location
Range	Settings	Chapter 21 Customizing the Graph . . .	Graph Module
Recent File List	File	Chapter 5 File Menu	All
Rectangle Annotation	Object	Chapter 9 Object Menu	Image Editor & Frame Grabber
Rectangle Annotation	Object	Chapter 17 Report Editor Object Menu. .	Report Editor
Rectangle Exclusion	Object	Chapter 9 Object Menu	Image Editor & Frame Grabber
Rectangle Temperature	Object	Chapter 9 Object Menu	Image Editor & Frame Grabber
Rectangle Temperature (field)	Field	Chapter 16 Field Menu	Report Editor
Redo	Edit	Chapter 4 Edit Menu	All
Refresh	View	Chapter 13 View Menu	Image Editor & Report Editor
Remove All Objects	Edit	Chapter 4 Edit Menu	All
Rewind	Replay Tool Bar	Chapter 8 Special Tool Bars	FG & Image Editor
Run	Frame Grabber	Chapter 6 Frame Grabber	All
Run	Replay Tool Bar	Chapter 8 Special Tool Bars	Replay Viewer

S

Save	File	Chapter 5 File Menu	All
Save All	File	Chapter 5 File Menu	All
Save As	File	Chapter 5 File Menu	All
Save Events	File	Chapter 5 File Menu	Frame Grabber
Save Settings	Settings	Chapter 21 Customizing the Graph . . .	Graph Module
Send Backward	Properties	Chapter 10 Properties	Frame Grabber & Image Editor
Set Ambient	Frame Grabber and Image	Chapter 6 Frame Grabber	Image Editor & Frame Grabber
Set Color	Properties	Chapter 10 Properties . . .	Frame Grabber & Image Editor
Set Initial Link	Link	Chapter 17 Link Menu	Report Editor
Set Line Width	Format	Chapter 14 Format Menu	Report Editor
Set Measurement Rates	Events	Chapter 3 The Events Menu	Frame Grabber

Function	Menu Location	Manual Location	Software Location
Set Object Emissivity	Properties	Chapter 11 Properties . . .	Frame Grabber & Image Editor
Set Scene Emissivity	Frame Grabber	Chapter 6 Frame Grabber	Frame Grabber Module
Set Scene Transmission	Frame Grabber	Chapter 6 Frame Grabber	Frame Grabber Module
Setup	Settings	Chapter 21 Customizing the Graph . . .	Graph Module
Setup Analog Output	Events	Chapter 3 The Events Menu	Frame Grabber Module
Setup Events	Events	Chapter 3 The Events Menu	Frame Grabber Module
Shape Annotation	Object	Chapter 10 Object Menu	Frame Grabber & Image Editor
Shape Exclusion	Object	Chapter 10 Object Men	Frame Grabber & Image Editor
Shape Temperature	Object	Chapter 10 Object Menu	Frame Grabber & Image Editor
Shape Temperature (field)	Field	Chapter 14 Field Menu	Report Editor
Show All Objects	Image	Chapter 7 Image Menu	Image Editor & Frame Grabber
Show Border	Format	Chapter 15 Format Menu	Report Editor
Show Graph	Properties	Chapter 10 Properties . . .	Frame Grabber & Image Editor
Show Label	Format	Chapter 14 Format Menu	Report Editor
Smooth Image	Image	Chapter 7 Image Menu	FG, Image Editor
Slow Forward	Replay Tool Bar	Chapter 8 Special Tool Bars	Replay viewer
Solid Color	Image	Chapter 7 Image Menu	FG, Image Editor
Spline	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
Spline w/Points	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
Spot Temperature	Object	Chapter 10 Object Menu	Frame Grabber & Image Editor
Spot Temperature (field)	Field	Chapter 14 Field Menu	Report Editor
Stacked Area	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
Stacked Bar	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module
Stop	Replay Tool Bar	Chapter 8 Special Tool Bars	Replay Viewer

T

Table	Settings	Chapter 21 Customizing the Graph . . .	Graph Module

Function	Menu Location	Manual Location	Software Location
Temperature Adjust	Object	Chapter 9 Object Menu	Frame Grabber & Image Editor
Text	Properties	Chapter 19 Properties . . .	Frame Grabber & Image Editor
Text Annotation	Object	Chapter 9 Object Menu	Frame Grabber & Image Editor
Text Annotation	Object	Chapter 18 Report Editor Object . .	Report Editor
Text Color	Format	Chapter 15 Format Menu	Report Editor
Tile	Windows	Chapter 11 Windows . . .	All
Toolbars	File	Chapter 5 File	Template, Report and Graph Modules
Transparent	Format	Chapter 14 Format Menu	Report Editor
Transparent	Properties	Chapter 10 Properties Menu	FG, Image Editor
U			
Undo	Edit	Chapter 4 Edit Menu	All
Units	Field	Chapter 15 Field Menu	Report Editor
V			
View Graph	Report	Chapter 13 Report Menu	All
Visible	Properties	Chapter 13 Properties . . .	Frame Grabber & Image Editor
Z			
Zoom in	View	Chapter 13 View Menu	Frame Grabber & Image Editor
Zoom to Full Screen	View	Chapter 13 View Menu	Frame Grabber & Image Editor
Zoom to Full Screen	Graph Mode	Chapter 18 Graph Mode Menu	Graph Module