

ADP Version 3.00

Software Reference Manual

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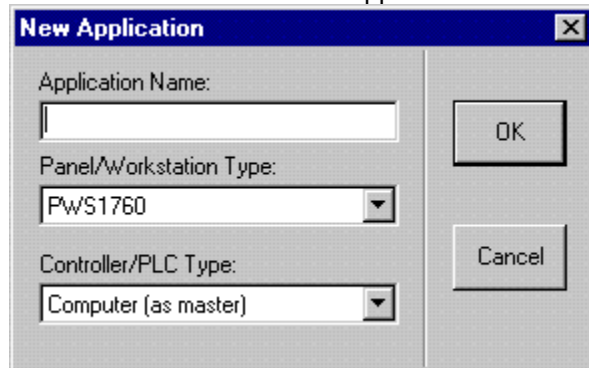
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1. FILE MENU

New: Select to create a new application.



The 'New Application' dialog box has a title bar with a close button. It contains three input fields on the left: 'Application Name' with a text box, 'Panel/Workstation Type' with a dropdown menu showing 'PWS1760', and 'Controller/PLC Type' with a dropdown menu showing 'Computer (as master)'. On the right, there are 'OK' and 'Cancel' buttons.

Application: Enter a name for the application, up to 128 characters.

Panel/Workstation Type: Specifies the model of Workstation.

Controller/PLC Type: Specifies type of PLC the Workstation will communicate with.

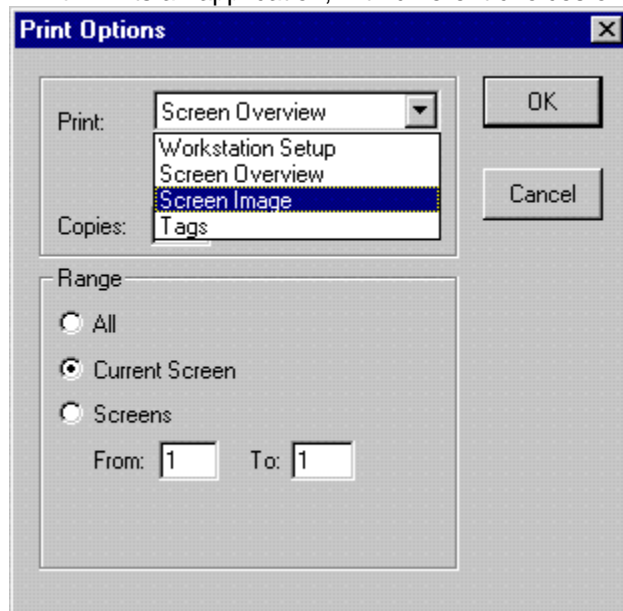
Open: Allows user to open an existing application.

Close: Select to close the application. Adp3 gives the option of saving before closing if changes have been made since last save.

Save: Saves an existing application replacing previous copy with the new copy.

Save As: Choose to save a new or existing application with a new name.

Print: Prints an application, with different choices of what to print.



The 'Print Options' dialog box has a title bar with a close button. It contains a 'Print:' dropdown menu with a list showing 'Screen Overview', 'Workstation Setup', 'Screen Overview', 'Screen Image' (highlighted), and 'Tags'. Below this is a 'Copies:' text box. A 'Range' section contains three radio buttons: 'All', 'Current Screen' (selected), and 'Screens'. Below the radio buttons are 'From:' and 'To:' text boxes, both containing the number '1'. On the right, there are 'OK' and 'Cancel' buttons.

Workstation Setup: Prints the Workstation's setup parameters for application. Items include model of PLC, configuration setup, details of logging buffers, etc.

Screen Overview: Prints a screen's image and marks each dynamic object with addresses of associated PLC locations that it will access.

Screen Image: Prints a screen's image.

Tags: Prints tags associated with an application.

Copies: Specifies number of copies to print.

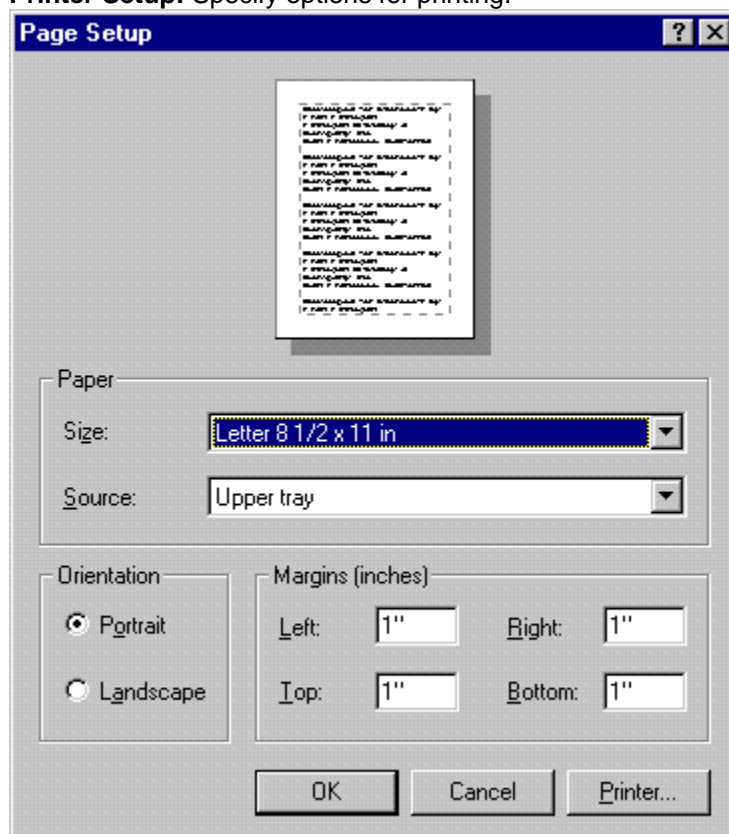
Range: Only available with Screen Overview and Screen Image options.

All: Print overview of all screens of the application.

Current Screen: Print only the currently selected screen.

Screens: Select which screens to print, ranging From:.....To:.....

Printer Setup: Specify options for printing.



Size: Select the paper size.

Source: Select paper feed location.

Orientation: Select how to print application information, either Portrait or Landscape.

Margins (inches): Specify margins for printing.

Upload Application: Select to upload a program from the Workstation to the PC. Adp3 will save the program as *.AP1 where * represents the name to save as.

Download Application From: Select a *.AP1 file to download to the Workstation from the PC.

Upload Recipes: Select to upload recipes from the Workstation to the PC. Adp3 will save program as *.RCP where * represents the name to save as.

Download Recipes: Select to download recipes from the PC to the Workstation.

Download Source: Select to download project file from the PC to the Workstation.

Upload Source: Select to upload project file from the Workstation to the PC.

Exit: Select to close ADP.

2. EDIT MENU

Undo: Undo last command.

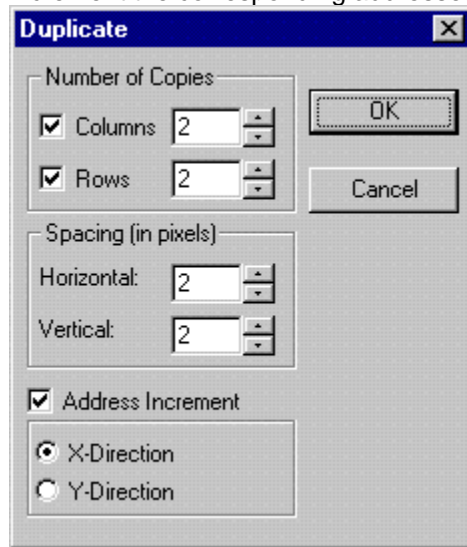
Redo: Redo last undo command.

Cut: Cut selected item(s) and place on the clipboard.

Copy: Copy selected item(s) and place on the clipboard.

Paste: Paste object(s) from clipboard to selected location.

Duplicate: Allows user to make multiple copies of an object and simultaneously increment the corresponding addresses.



Columns: Specifies number of columns to duplicate.

Rows: Specifies number of rows to duplicate.

Horizontal: Specifies how many pixels to space duplicate objects horizontally.

Vertical: Specifies how many pixels to space duplicate objects vertically.

Address Increment: Select this option to have Adp3 increment address of duplicate object(s).

X-Direction: Increment address(es) from left to right. Each row is incremented in this same fashion.

Y-Direction: Increment address(es) from top to bottom. Each column is incremented in this same fashion.

Delete: Delete selected object(s).

Decompose Shape: Allows user to modify a shape by breaking an existing shape back into its components.

Align: Align multiple objects based on same reference point. To determine which object the others will be aligned with, select all objects to be aligned. Then select the object which other selected objects will be aligned with. The 'master' will be the object which has its selection boxes shaded. Objects can vary in size and shape.

Left: Align objects based on their left edge.

Horizontal Center: Align objects based on their horizontal center.

Right: Align objects based on their right edge.

Top: Align objects based on their top edge.

Vertical Center: Align objects based on their horizontal center.

Bottom: Align objects based on their bottom edge.

Make Same Size: Make selected objects the same size.

Width: Make selected objects the same width.

Height: Make selected objects the same height.

Both: Make both the height and width the same.

Nudge: Move selected object(s) by one pixel in desired direction.

Left: Nudge selected object(s) left.

Right: Nudge selected object(s) right.

Down: Nudge selected object(s) down.

Up: Nudge selected object(s) up.

Layer: Allows user to arrange objects on different layers.

Bring to Next: Moves selected object up one layer from current location.

Send to Previous: Moves selected object to previous layer.

Bring to Top: Moves selected object to top layer.

Send to Bottom: Moves selected object to bottom layer.

Group: Group screen objects so they can be moved or edited as a single unit. Grouped objects maintain their positions relative to each other and stay grouped until ungrouped.

Ungroup: Ungroups selected group of objects.

Object Attributes: Select this item to open the object's attributes box. From here the selected object may be modified. For more information see selected objects description.

State and Text Management: Select this item to easily modify text messages especially when an object has multiple states. For more information see selected objects description.

3. VIEW MENU

Whole Screen: View the whole screen. Click the left mouse button to return to previous view.

Whole Screen with I/O Labels: View the whole screen with read/write addresses of the dynamic objects displayed.

Language 1: If multi-lingual support option selected from Workstation Setup screen, depending on how many and what languages are selected the user can change between languages by selecting the appropriate Language #, numbered 1 to 5.

Language 2: (See Language 1 description)

Language 3: (See Language 1 description)

Language 4: (See Language 1 description)

Language 5: (See Language 1 description)

Zoom In: Zoom in screen so objects appear larger than actual size.

Normal Screen: Screen will adjust to the actual size.

Zoom Out: Zoom out screen so objects appear smaller than actual size.

Touch Grid: Select this option to display the snap grid when designing a screen. NOTE: This feature is only available with the 700T and 700T-Macro due to its matrix style touchscreen.

Standard Toolbar: Select this option to display toolbar for Standard functions.

Edit Toolbar: Select this option to display toolbar for Edit functions.

Draw Toolbar: Select this option to display toolbar for Draw functions.

Basic Object Toolbar: Select this option to display toolbar for Basic Objects.

Text Toolbar: Select this option to display toolbar for Text functions.

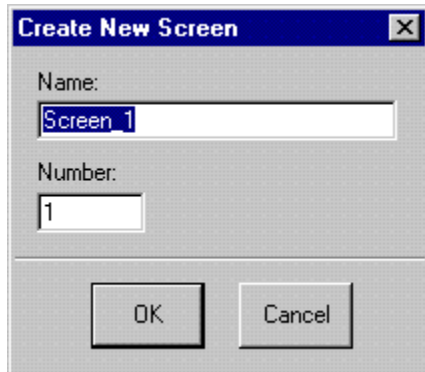
Bitmap Toolbar: Select this option to display toolbar for bitmap functions.

Monitor Toolbar: Select this option to display toolbar for Monitor functions.

Ladder Toolbar: Select this option to display toolbar for Ladder functions.

4. SCREEN MENU

New Screen: Select to create a new screen.

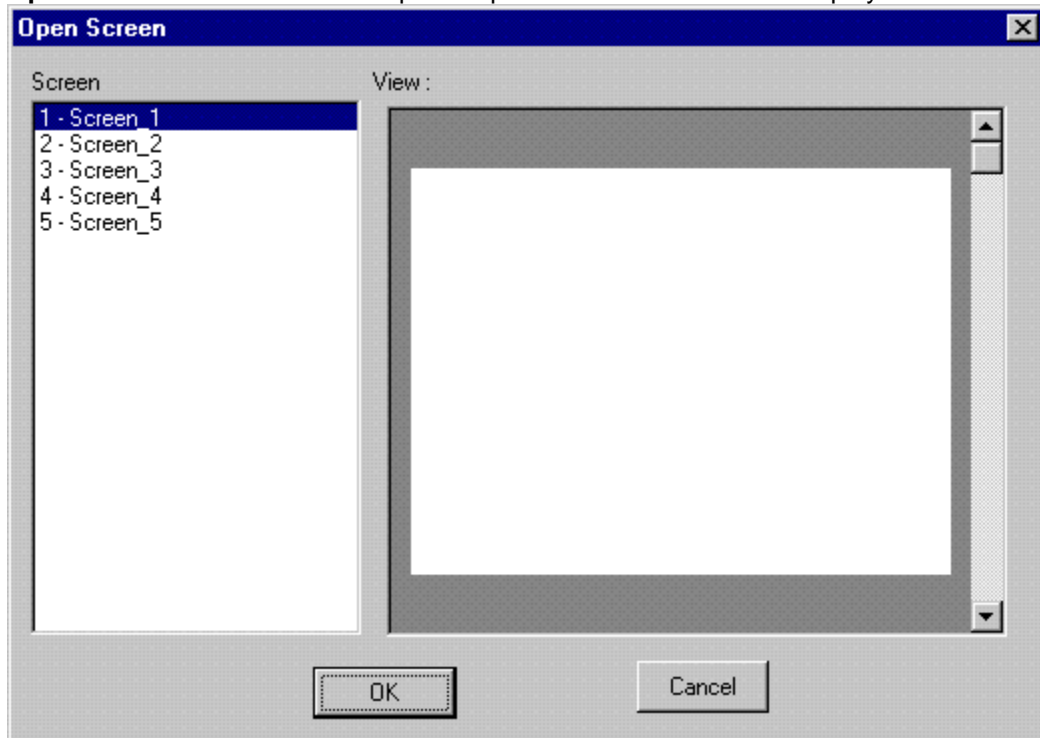


A dialog box titled "Create New Screen" with a close button (X) in the top right corner. It contains two input fields: "Name:" with the text "Screen 1" and "Number:" with the text "1". At the bottom are "OK" and "Cancel" buttons.

Name: Enter name for new screen

Number: Enter screen number.

Open Screen: Select screen to open. A preview of each screen is displayed.



A dialog box titled "Open Screen" with a close button (X) in the top right corner. It features a list box on the left labeled "Screen" containing five items: "1 - Screen_1", "2 - Screen_2", "3 - Screen_3", "4 - Screen_4", and "5 - Screen_5". To the right of the list box is a preview area labeled "View:" which shows a blank white rectangle. At the bottom are "OK" and "Cancel" buttons.

Close Screen: Select to close current screen.

Cut Screen: Select to cut current screen and place on clipboard.

Copy Screen: Copy current screen to clipboard.

Paste Screen: Select to paste screen on clipboard to a new screen.

Delete Screen: Select to delete current screen.

OPEN Macro: Select to create an Open Macro. A screen can have one Open Macro, which is executed when its screen is selected to open. A screen won't display until its Open Macro is completely executed.

CLOSE Macro: Select to create a Close Macro. A screen can have one Close Macro, which is executed when its screen is selected to close. A screen won't be erased until its Close Macro is completely executed.

CYCLIC Macro: Select to create a Cyclic Macro. A screen can have one Cyclic Macro, which is executed when its screen is displayed. The Workstation executes a Cyclic Macro cyclically and processed at most N commands in T milliseconds. The Workstation stops executing the macro when it reaches the end of macro or encounters an END instruction and will execute the macro from the first command in the next T milliseconds.

Properties: Select to display current screen's properties.

SCREEN PROPERTIES GENERAL TAB properties

The screenshot shows the 'Screen Properties' dialog box with the 'General' tab selected. The dialog has a title bar with a question mark and a close button. Inside, there are three tabs: 'General', 'Screen Background Style', and 'Read Blocks'. The 'General' tab contains the following fields and options:

- Screen Number:** A text box containing the value '1'.
- Screen Name:** A label above a text box containing 'Screen_1'.
- Language 1:** A text box containing 'Screen_1'.
- Language 2:** An empty text box.
- Language 3:** An empty text box.
- Language 4:** An empty text box.
- Language 5:** An empty text box.
- Refresh and Touch Keys Options:** Three radio buttons:
 - ☒ Only refresh the screen and enable its touch keys when it is the top most screen
 - ☐ Always refresh the screen but only enable its touch keys when it is the top most screen
 - ☐ Always refresh the screen and enable its touch keys
- Need a base screen:** A checkbox that is unchecked, with a dropdown menu below it.
- Sub-screen:** An unchecked checkbox labeled 'This screen is a sub-screen'.
- Width/Height:** Two text boxes, both containing '0'.
- Positioning:** Two radio buttons:
 - ☐ Shown on the display center
 - ☐ Shown at X: [0] Y: [0]
- Buttons:** Two checked checkboxes: 'Min/Max Button' and 'Close Button'.
- Printed Area:** A section with two labels and four text boxes:
 - Upper-left Position:** X1: [0] Y1: [0]
 - Lower-right Position:** X2: [319] Y2: [239]

At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

Screen Number: Specifies current screen number. This number can be changed.

Screen Name: Displays the name of the screen. If multi-language support option is being used it will display the name of the screen for each corresponding language.

Screen Refresh: Specifies how screen is to be refreshed. There are three options available:

Only refresh the screen and enable its touch keys when it is the top most screen

Always refresh the screen but only enable its touch keys when it is the top most screen

Always refresh the screen and enable its touch keys

Need a base screen: Select this option when a base screen is needed. A base screen is a screen which may be used as a template for many different screens.

This screen is a sub-screen: Select this option when the screen is to be used as a subscreen. A sub-screen is a screen that is smaller than the usual screen. The Workstation displays a sub-screen in the center of the screen without destroying the existing display and adds a raised frame to it automatically.

Width: Specifies the width of the sub-screen.

Height: Specifies the height of a the sub-screen.

Shown on the display center: Specifies sub-screen will be centered on screen.

Shown at X: Specifies start point along the X axis.

Shown at Y: Specifies start point along the Y axis.

Min/Max Button: The Minimize icon will be displayed on the sub-screen.

Close Button: The Close icon will be displayed on the sub-screen.

Upper-left Position

X1: Specifies X-axis starting location for printable area of sub-screen.

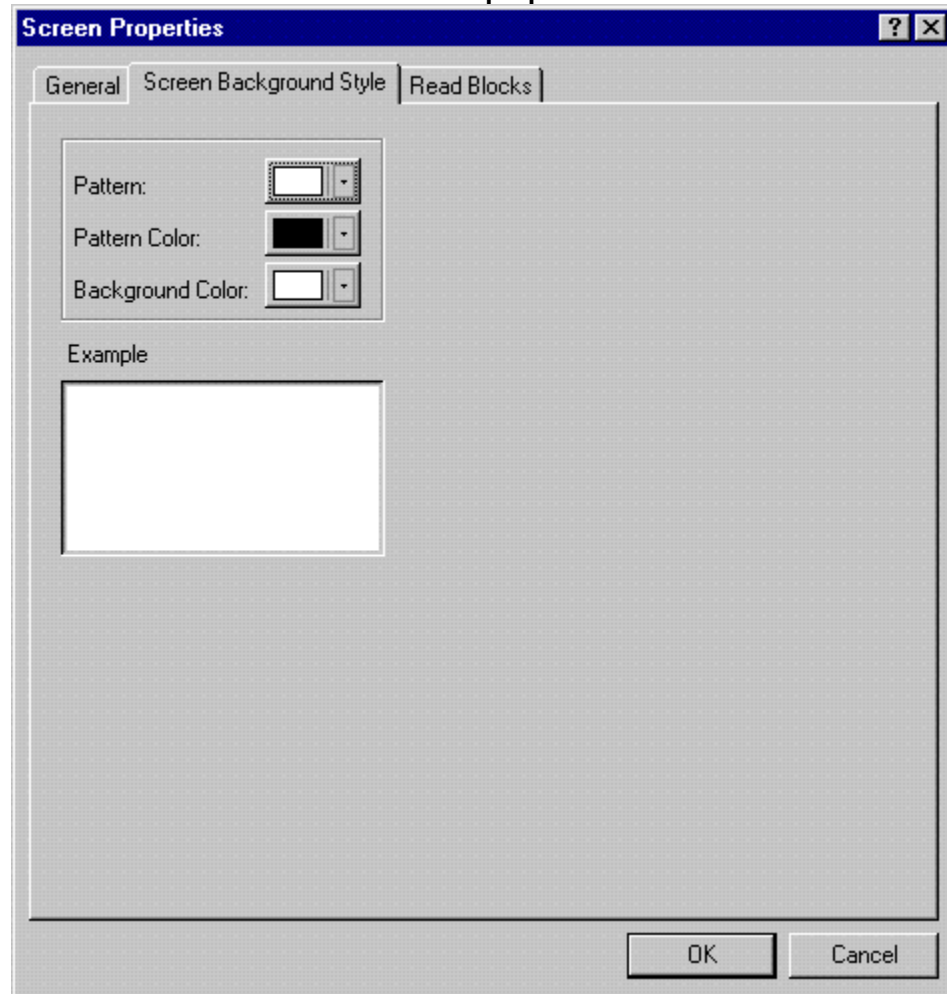
Y1: Specifies Y-axis starting location for printable area of sub-screen.

Lower-right Position

X2: Specifies X-axis ending location for printable area of sub-screen.

Y2: Specifies Y-axis ending location for printable area of sub-screen.

SCREEN BACKGROUND STYLE TAB properties



Pattern: Specifies current background pattern.

Pattern Color: Specifies the black part color of the pattern.

Background Color: Specifies the white part color of the pattern.

READ BLOCKS TAB properties

Specifying Register and On/Off Blocks make Screen updates more efficient and speeds up screen operation.

Screen Properties [?] [X]

General | Screen Background Style | **Read Blocks**

Register Block Address	Size
#1: <input type="text"/> ...	<input type="text" value="0"/>
#2: <input type="text"/> ...	<input type="text" value="0"/>
#3: <input type="text"/> ...	<input type="text" value="0"/>
#4: <input type="text"/> ...	<input type="text" value="0"/>
#5: <input type="text"/> ...	<input type="text" value="0"/>

On/Off Block Address	Size
#1: <input type="text"/> ...	<input type="text" value="0"/>
#2: <input type="text"/> ...	<input type="text" value="0"/>
#3: <input type="text"/> ...	<input type="text" value="0"/>
#4: <input type="text"/> ...	<input type="text" value="0"/>
#5: <input type="text"/> ...	<input type="text" value="0"/>

Number of individual reads per read cycle: ▼

OK Cancel

Register Block Address: To specify a Register Block, enter its address. The address must be a register address from the current PLC. A screen can have a total of five Register Blocks.

Size: The unit of size is a word.

On/Off Block Address: To specify an On/Off Block, enter its address. The address must be an on/off location. A screen can have a total of five On/Off Blocks.

Size: The unit of size is 16 bits.

Number of individual reads per read cycle: Specifies the number of additional devices read after the block read is complete.

5. DRAW MENU

Dot: Select to draw a dot.

Line: Select to draw a line.

Horizontal Line: Select to draw a horizontal line.

Vertical Line: Select to draw a vertical line.

Rectangle: Select to draw a rectangle.

Solid Rectangle: Select to draw a solid rectangle.

Circle: Select to draw a circle.

Solid Circle: Select to draw a solid circle.

Ellipse: Select to draw an ellipse.

Solid Ellipse: Select to draw a solid ellipse.

Arc: Select to draw an arc.

Pie: Select to draw a pie.

Solid Pie: Select to draw a solid pie.

Free Form: Select to draw free form. If user holds down left mouse button while scrolling mouse the cursor follows mouse movement. If user presses left mouse button once then moves cursor elsewhere on screen, a straight line will be drawn between the two points. This will continue until user double clicks mouse.

Polygon: Select to draw a polygon.

Solid Polygon: Select to draw a solid polygon.

Text: Select to draw text on screen.

True Type Text: Allows user to use any installed true type font. (Only available when using SoftPanel)

Static Graphic: Select to add a static graphic to the screen.

Frame/Edge: Select to draw a frame/edge.

Scale: Select to create a scale.

Table: Select to create a table.

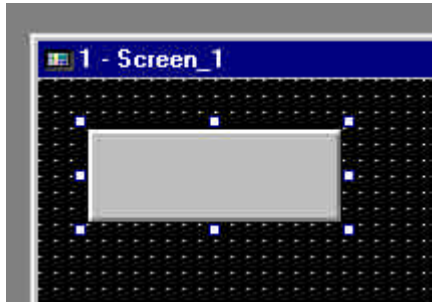
Shape: Select to create a shape.

6. OBJECT MENU

A screen object is an item placed on the screen to perform a particular function. Each object has unique user configurable properties which allow it to be set to perform in exactly the method desired.

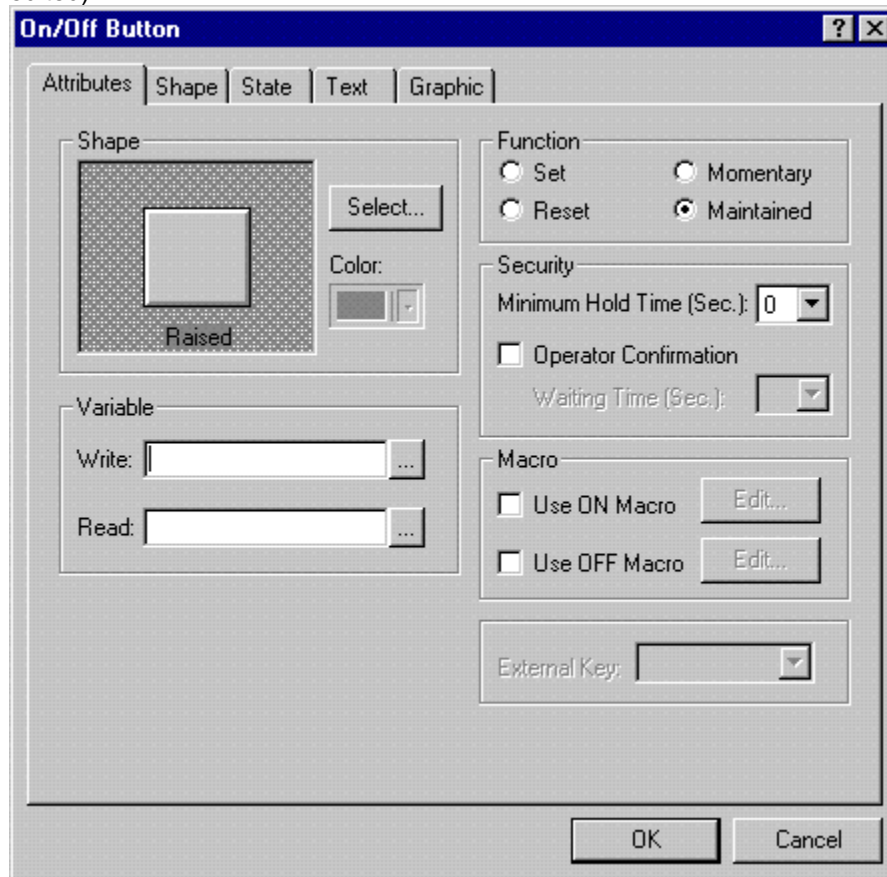
CREATING AN OBJECT

Click to establish starting corner of object, click again to establish final corner. Once created, the object can be resized by clicking on one of the objects handlebars and dragging to resize it. To move the object click and drag from the center of the object. If the objects handlebars are not visible, clicking anywhere on the object will bring up the handlebars.



SPECIFYING OBJECT PROPERTIES

To specify the properties of an object, double click the object, select *Object Attributes* from the *Edit* menu, or right click the object and select *Object Attributes* from the pop up menu. A window similar to the following will be displayed (depending on object being edited).



6.1 PUSHBUTTONS

6.1.1 SET, RESET, MAINTAINED, and MOMENTARY BUTTON

SET BUTTON

Function: Sets a bit when pressed

Creating from the menu: *Object, Push Button, Set*

Creating from the toolbar:



RESET BUTTON

Function: Clears a bit when pressed

Creating from the menu: *Object, Push Button, Reset*

Creating from the toolbar:

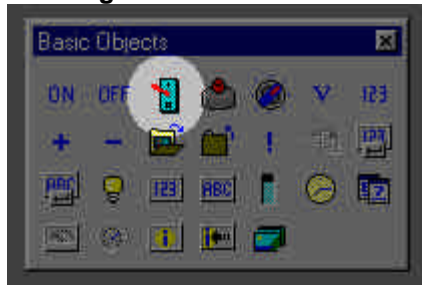


MAINTAINED BUTTON

Function: Changes the state of a bit and maintains the state when released

Creating from the menu: *select Object, Push Button, Maintained*

Creating from the toolbar:



MOMENTARY BUTTON

Function: Changes the state of a bit

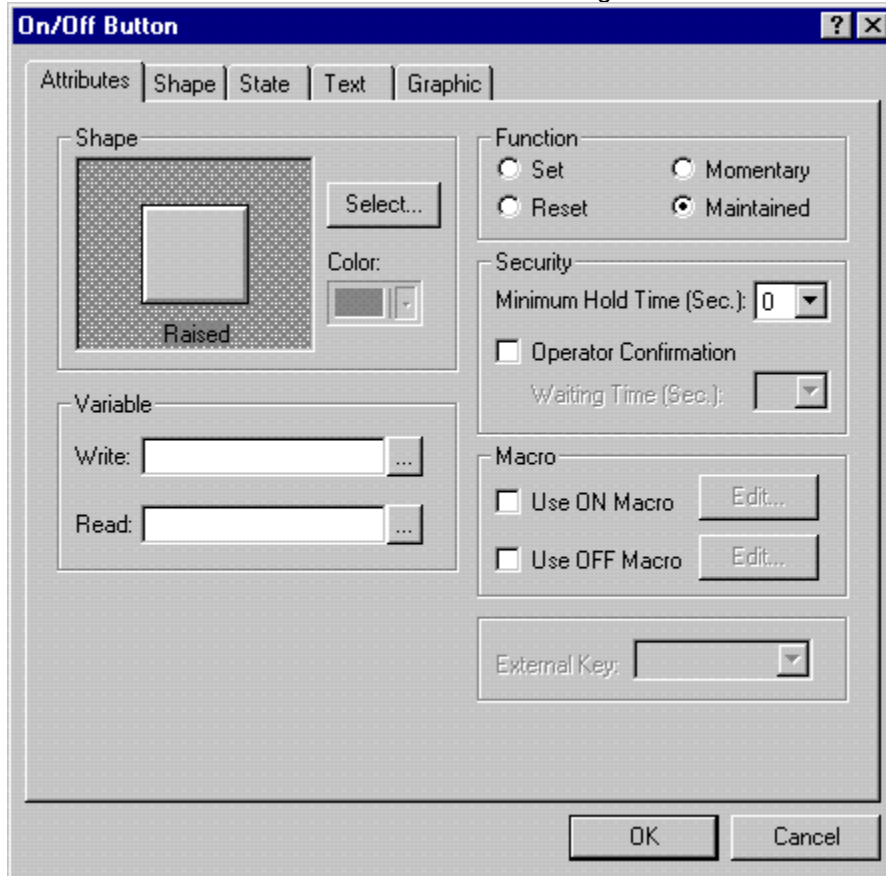
Creating from the menu: *Object, Push Button, Momentary*

Creating from the toolbar:



SET, RESET, MAINTAINED, and MOMENTARY BUTTON properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Write: Specifies an on/off location that is changed when button pressed and released.

Read: Specifies an on/off location that controls the display of the button label. If this location isn't specified the Workstation displays the label according to the state of the Write location initially and displays the label corresponding to the state written to the Write location when the button pressed or released.

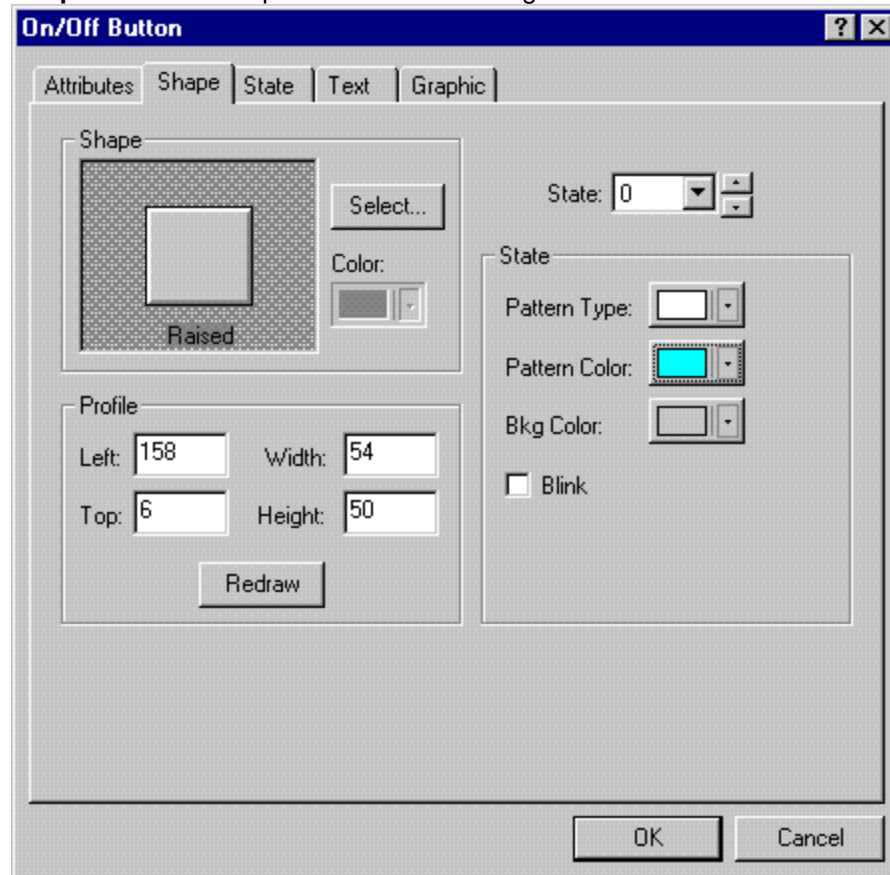
Minimum Hold Time: Specifies the number of seconds required to hold the button before it responds. The default is 0 seconds.

Operator Confirmation: Selecting this option will require the operator to confirm the action before it takes place. If this option is selected, whenever the button is pressed, a dialog box will open asking for a "yes" or "no" response. Additionally, a **Waiting Time** is specified that will determine how long the confirmation dialog box will be displayed before it assumes a "no" response. Note that the Operator Confirmation option is not available for the Momentary button.

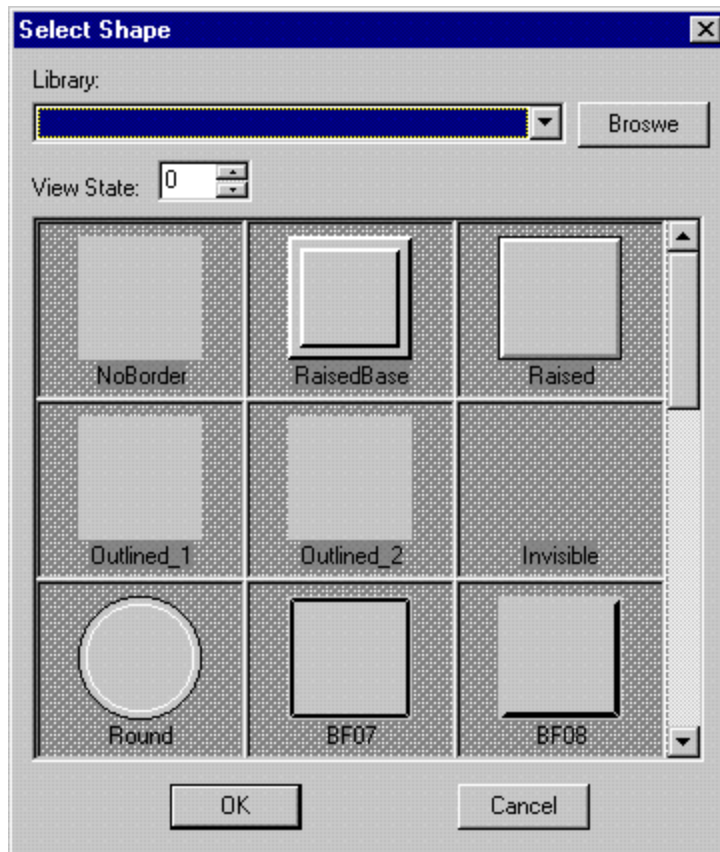
Macro Function: Depending on the type of button being configured, you can specify either an On Macro, Off Macro or both On and Off Macros. This Macro function allows you to specify when the Macro instruction will be performed. To create and edit the Macros, click on the Edit button to the right of the selected option.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

Shape Tab: The Shape tab is used to change the look of the button.



Select Shape: This option lets you select the shape of the button



Library: Select an available library. (See Chapter on creating libraries)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

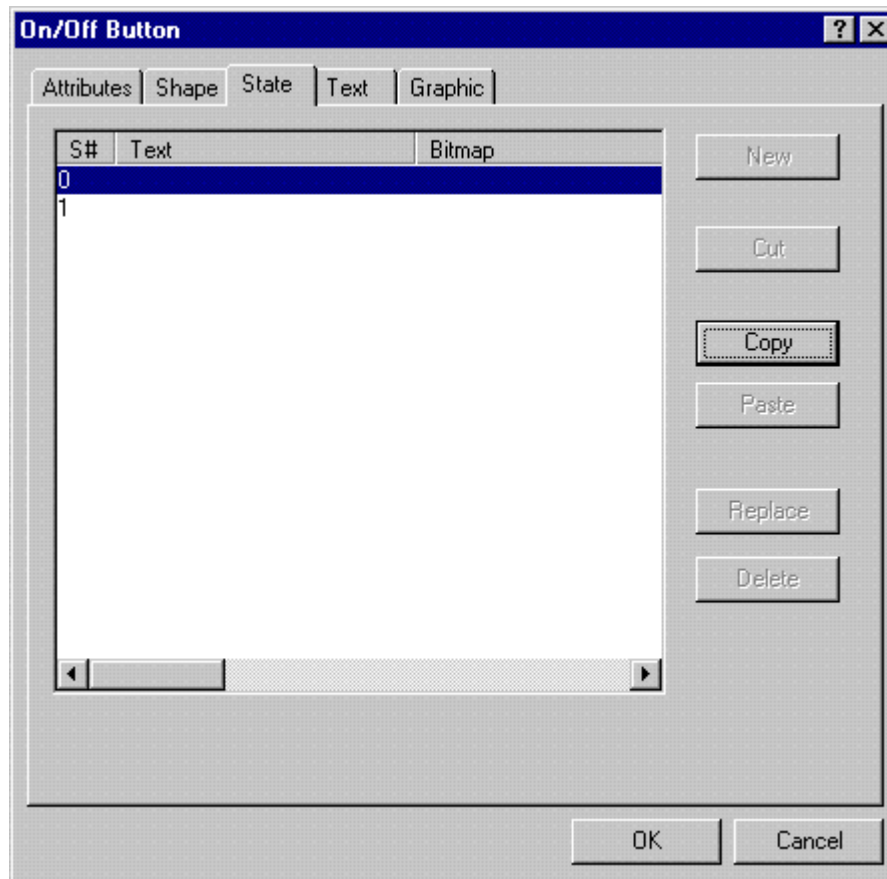
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

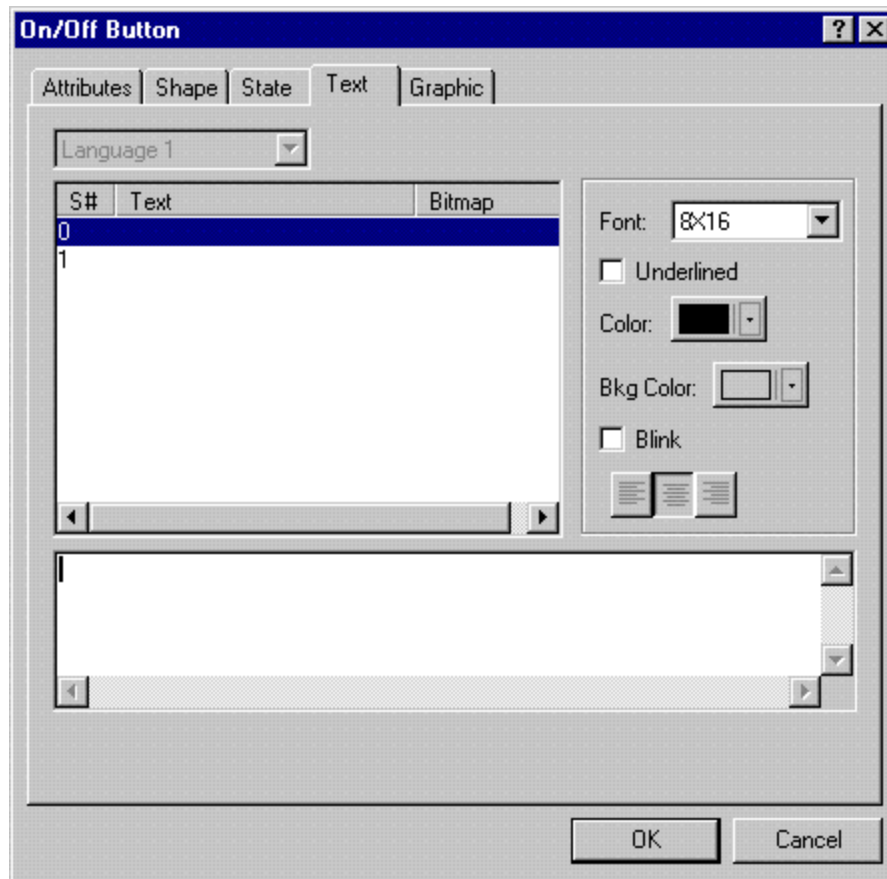
State Tab: Allows user to copy and replace states.



Copy: Copy text and bitmap of selected state

Replace: Replace text and bitmap with copied state information

Text Tab: The Text tab is used to modify the text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

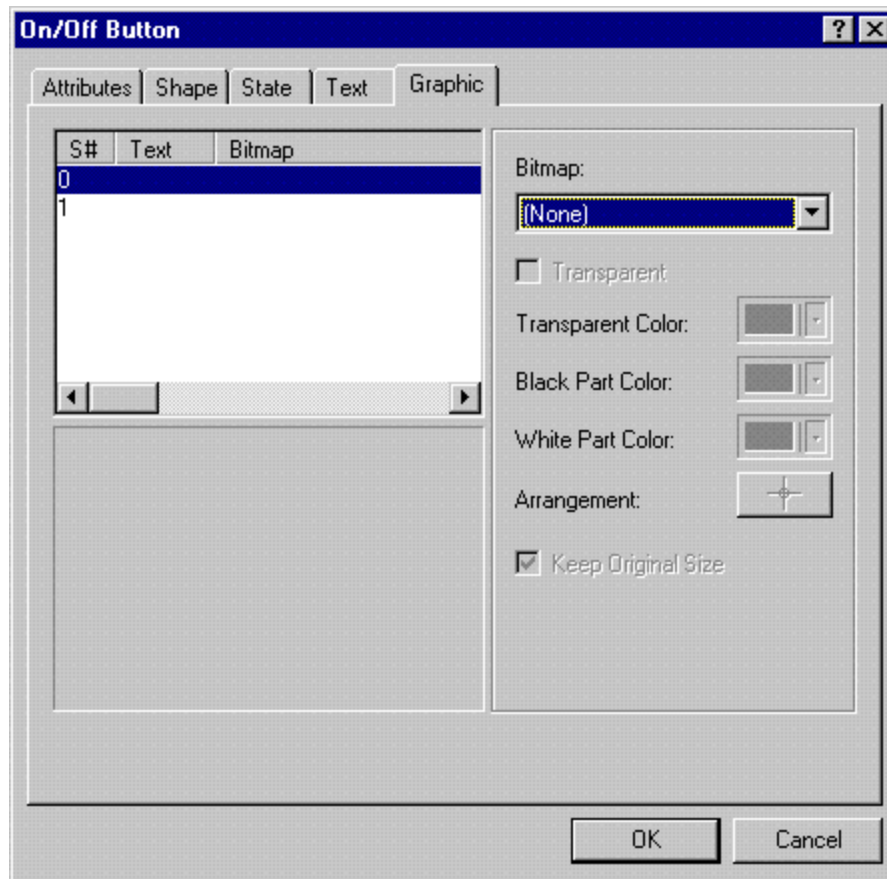
Bkg Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where user can assign a bitmap to a certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select the color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.1.2 MULTISTATE BUTTON

Function: Changes the state of a bit or value

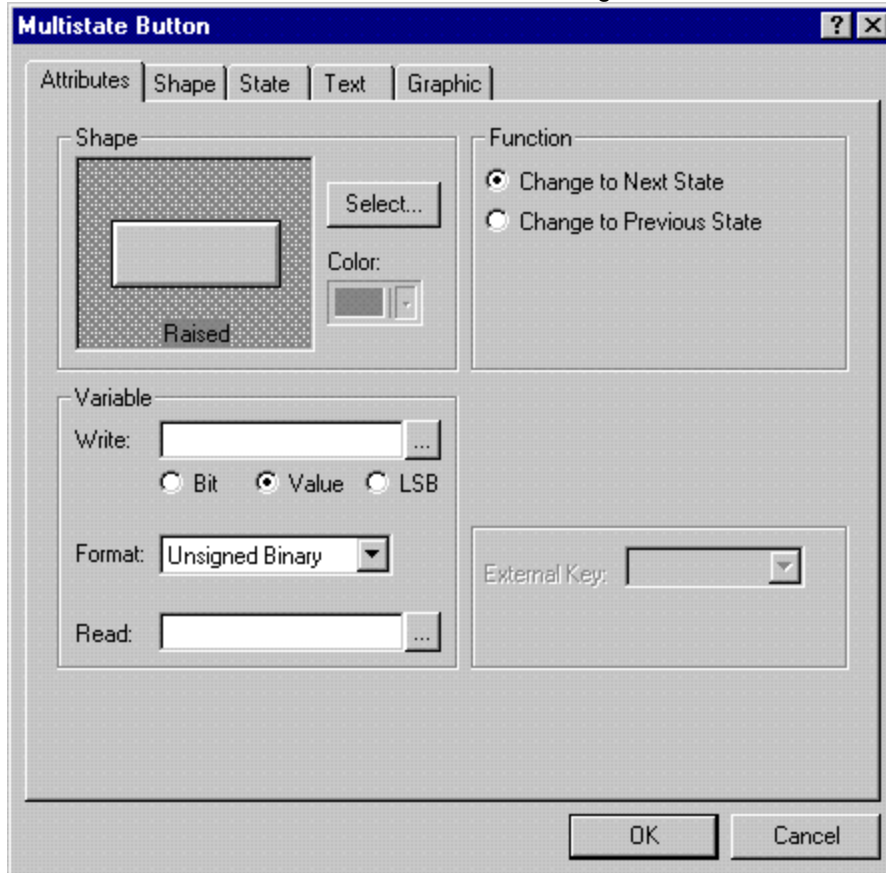
Creating from the menu: select *Object, Push Button, Multistate*

Creating from the toolbar:



MULTISTATE BUTTON properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Write: Specifies the register to be changed. If the Read register isn't specified or is the same register, the Write register is set to the next/previous state. When the current state is the last/first, the Write register is set to the first/last state.

Bit: If the user selects this option, the button can have only two states.

Value: If the user selects this option, the Workstation takes the register value as the state number. Ex. Value 0 represents state 0, value 255 represents state 255. There are a total of 256 states available with this configuration.

LSB: If the user selects this option, the Workstation takes the bit number of the least bit that is on as the state number. Ex. The binary number 0000000000000001 represents state 0 and the binary number 1100001100000000 represents state 8. There are a total of 16 states available with this configuration. Note that the state of binary number 0 is undefined.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

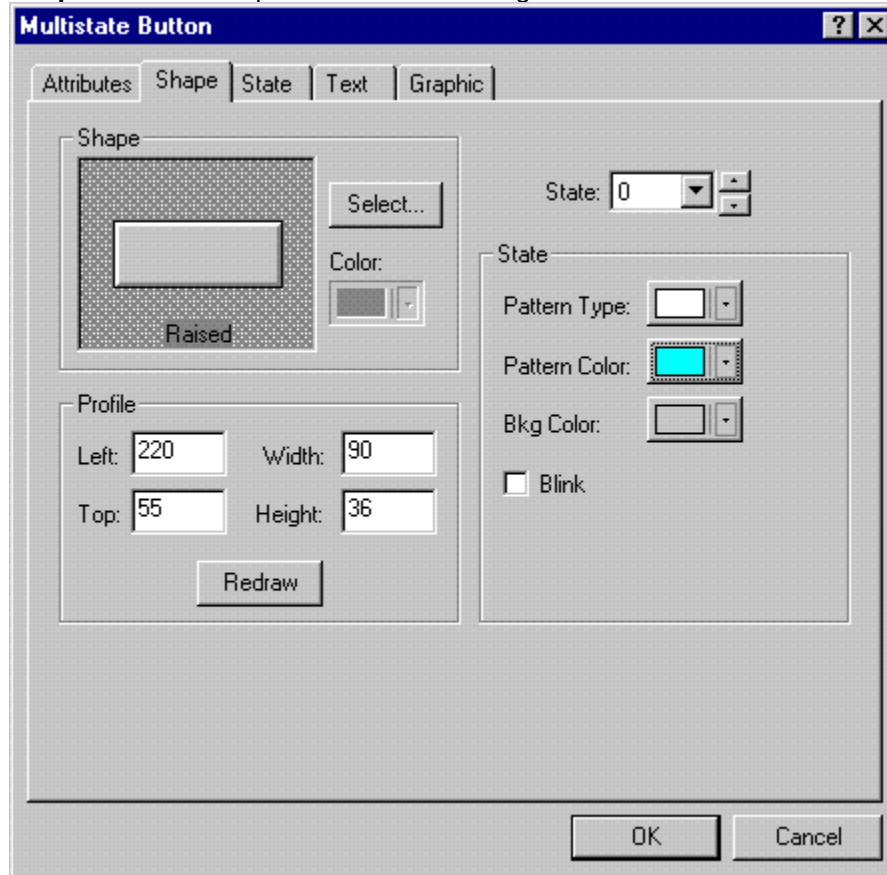
Read: Specifies the register as the reference register that also controls the display of the button label. If this register isn't specified the Workstation displays the label according to the state of the Write register initially and displays the label corresponding to the state written to the Write register when the button pressed.

Change to Next State Function: Changes the Write location to the next state.

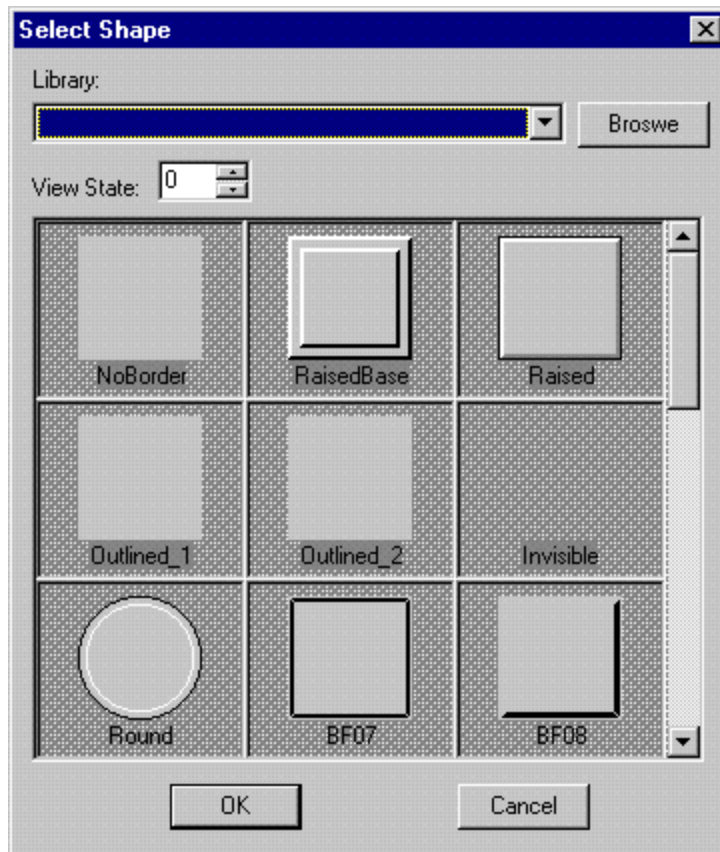
Change to Previous State Function: Changes the Write location to the previous state.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

Shape Tab: The shape tab is used to change the look of a button.



Select Shape: This option lets you select the shape of the button.



Library: Select an available library. (See Chapter on creating libraries)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of the button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

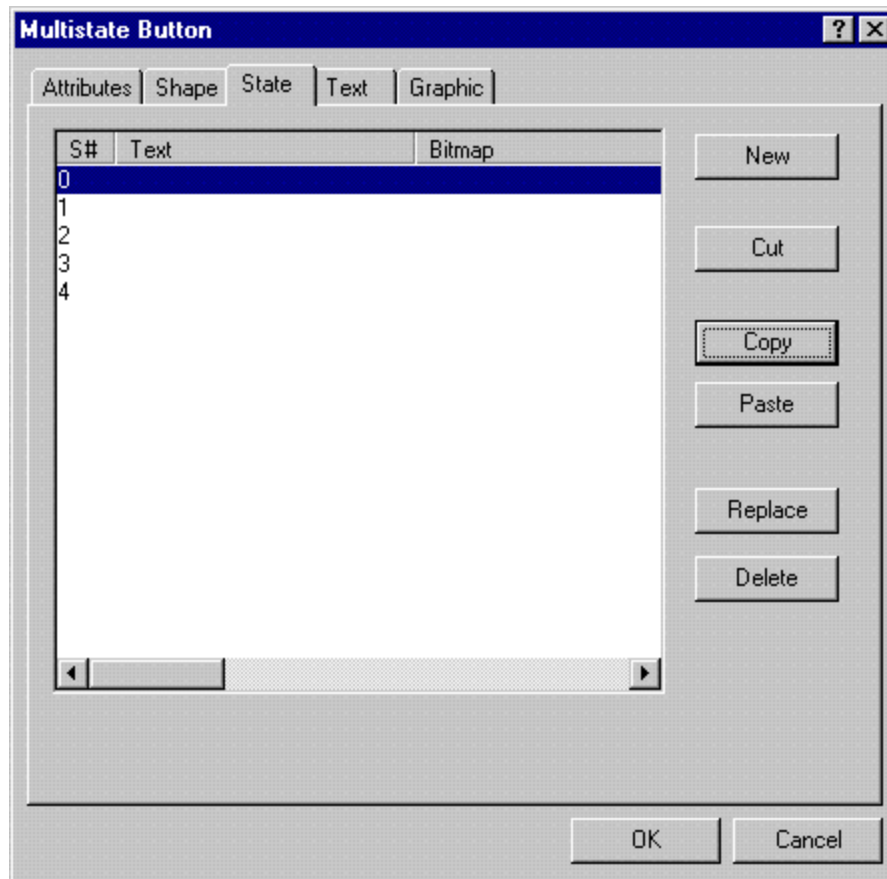
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

State Tab: Allows user to create and delete states.



New: Create a new state.

Cut: Cut selected state.

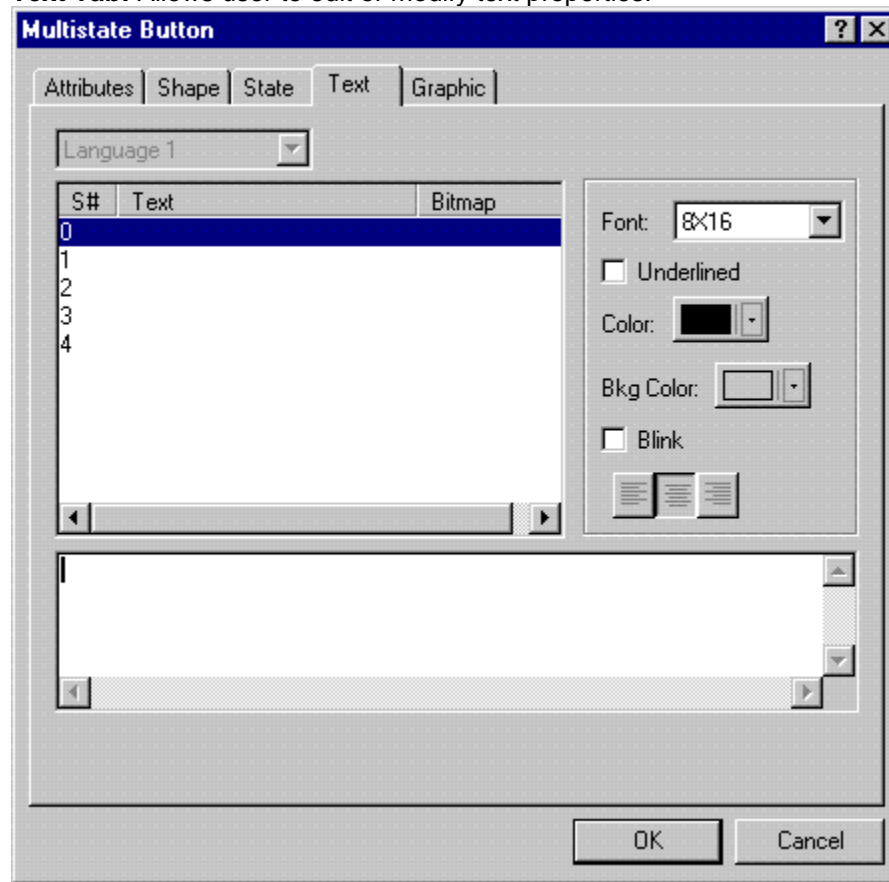
Copy: Copy selected state.

Paste: Paste cut/copy state to selected state

Replace: Replace selected state with cut/copy state.

Delete: Delete selected state.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

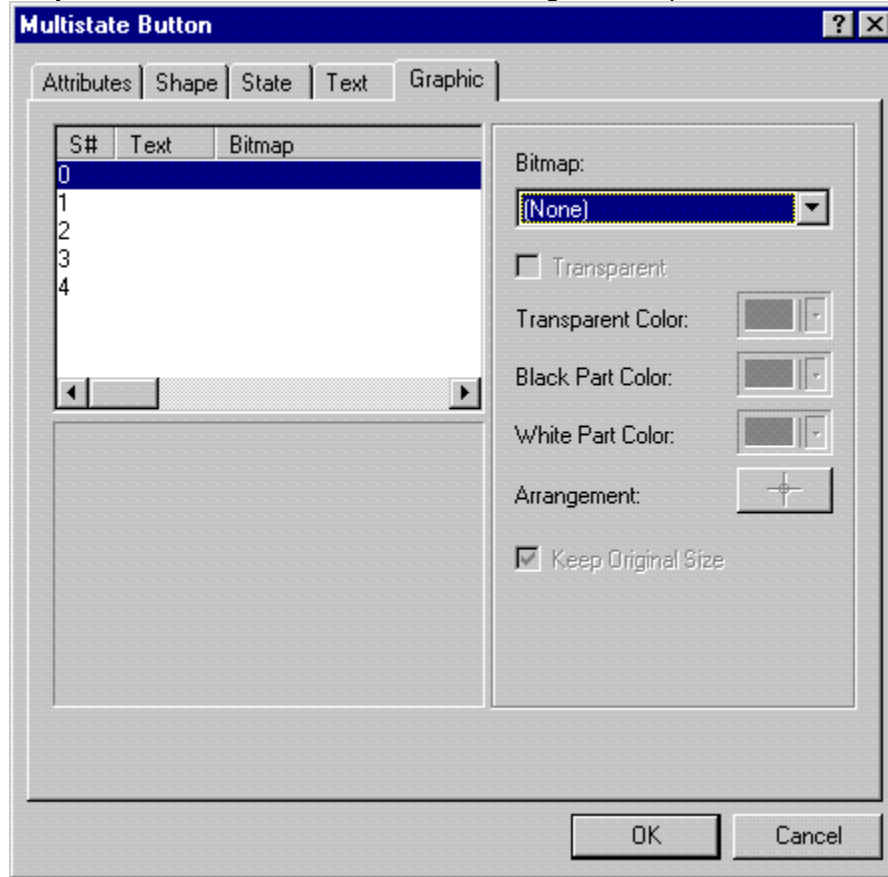
Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where the user can assign a bitmap to a certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.1.3 SET VALUE BUTTON

Function: Opens a numeric entry window for the entering of a number into a variable

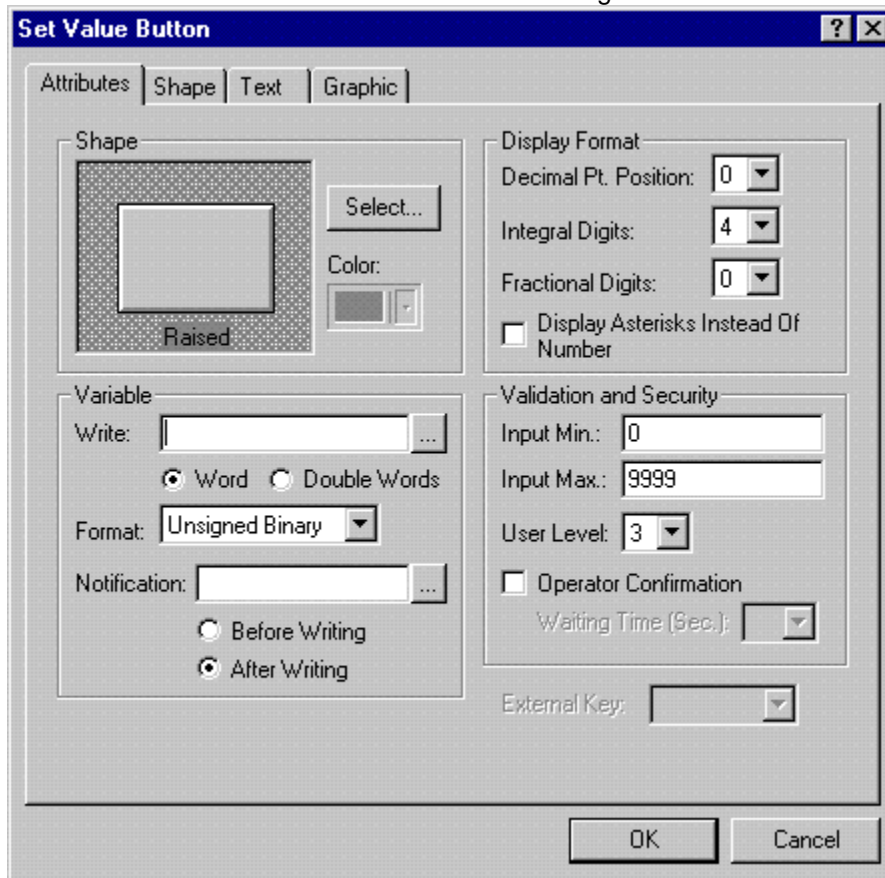
Creating from the menu: select *Object, Push Button, Set Value*

Creating from the toolbar::



SET VALUE BUTTON properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Write: Specifies the register to which the entered value is written

Word: The entered value is 16 bits.

Double Word: The entered value is 32 bits. If the Write location is a 16 bit register, the Workstation writes the low word of the entered value to the Write location and writes the high word of the entered value to the next Write location.

Format: Specifies the data format of the Write registers. The available formats are: BCD, Hexadecimal, Signed Binary and Unsigned Binary.

Notification: Specifies an On/Off location that the Workstation sets to on when the numeric keypad appears or after writing the entered value to the Write location. This option can be left blank.

Before Writing: The Workstation sets the Notification location to on when the numeric keypad appears and sets the location to off when the numeric pad disappears.

After Writing: The Workstation sets the Notification location to on after writing the entered value to the Write location.

Decimal Pt. Position: Specifies the number of digits to the right of the decimal point.

Integral Digits: Specifies the number of digits to the left of decimal point allowed to be displayed or entered. The number must be consistent with users selection for Data Format, Data Size, and Decimal Point Position.

Fractional Digits: Specifies the number of digits to the right of decimal point allowed to be displayed or entered. This can't exceed Decimal Point Position number.

Display Asterisks Instead of Number: Workstation displays an asterisk if a number is entered in keypad.

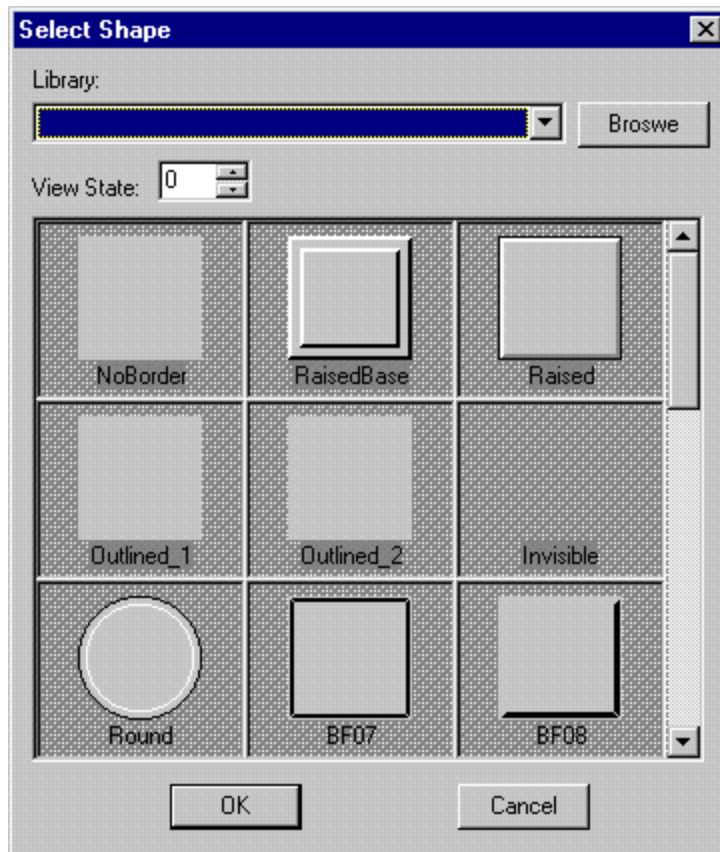
Input Min: Specifies minimum the operator is allowed to enter. User must enter actual register value without regard to settings for display format.

Input Max: Specifies maximum the operator is allowed to enter. User must enter actual register value without regard to settings for display format.

Operator Confirmation: Selecting this option will require the operator to confirm the action before it takes place. If this option is selected, whenever the button is pressed, a dialog box will open asking for a "yes" or "no" response. Additionally, a **Waiting Time** is specified that will determine how long the confirmation dialog box will be displayed before it assumes a "no" response. Note that the Operator Confirmation option is not available for the Momentary button.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

Shape Tab: The shape tab is used to change the look of a button.



Library: Select an available library. (See Chapter on creating libraries)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

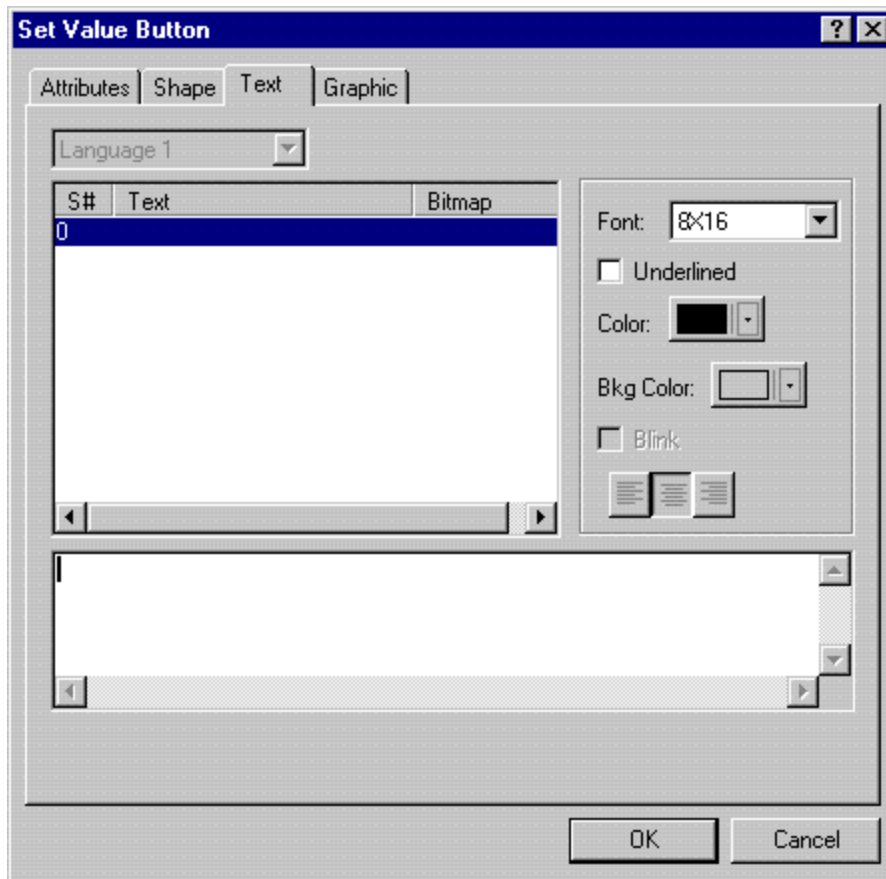
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

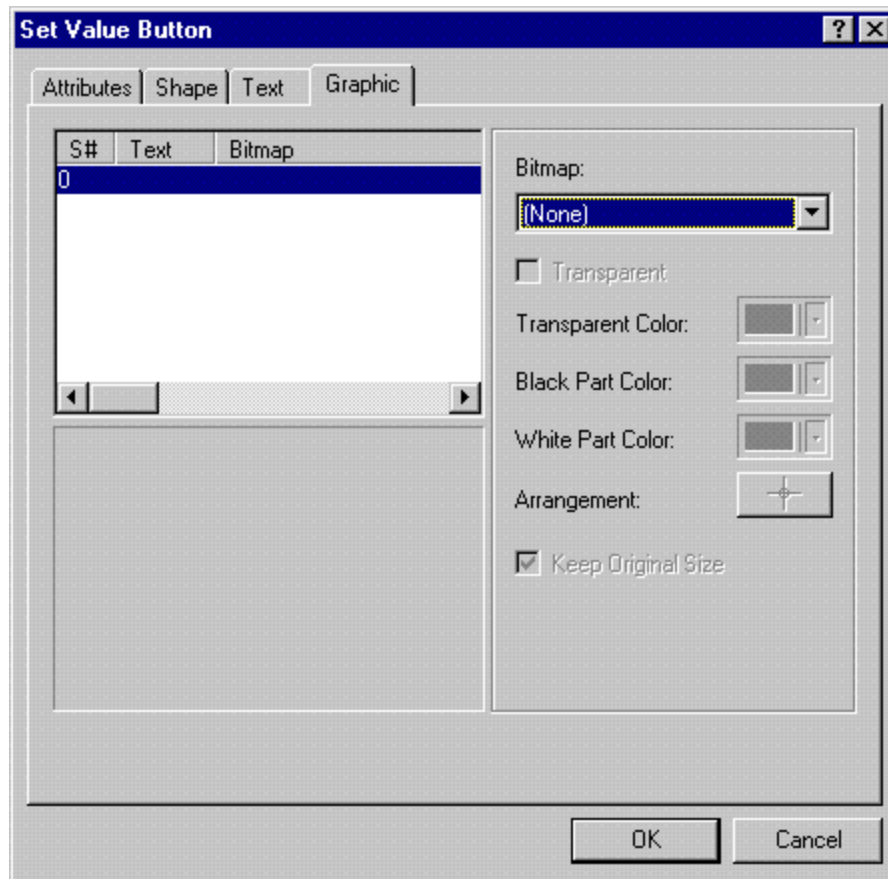
Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.1.4 SET CONSTANT BUTTON

Function: Sets a variable to a predefined value

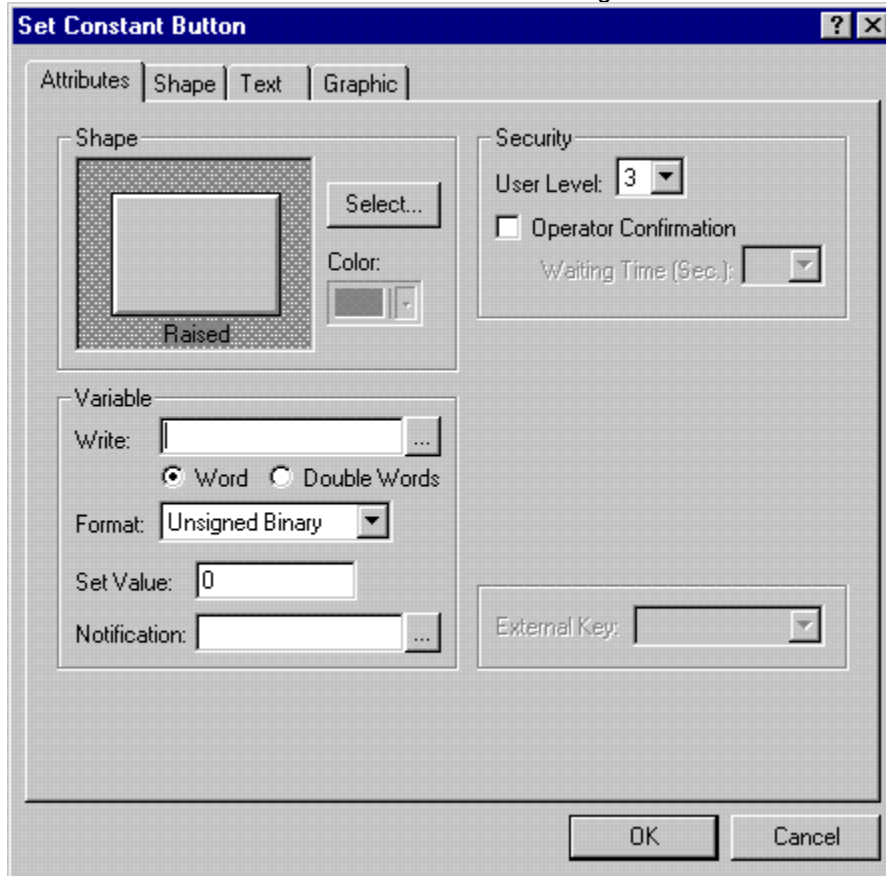
Creating from the menu: select *Object, Push Button, Set Constant*

Creating from the toolbar:



SET CONSTANT BUTTON properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Write: Specifies the register to which the constant is written.

Word: The entered value is 16 bits.

Double Word: The entered value is 32 bits. If the Write location is a 16 bit register, the Workstation writes the low word of the entered value to the Write location and writes the high word of the entered value to the next Write location.

Format: Specifies the data format of the Write registers. There available formats are: BCD, Hexadecimal, Signed Binary and Unsigned Binary.

Set Value: Value to write when button pressed.

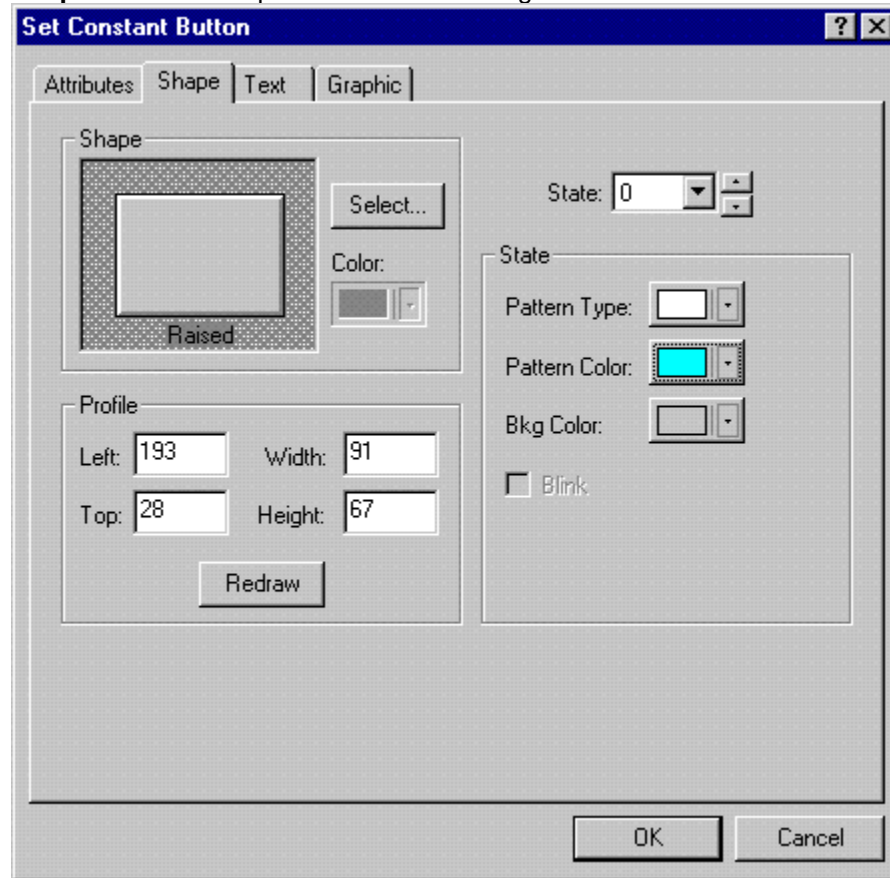
Notification: Specifies an On/Off location that the Workstation sets to on after writing the entered value to the Write location. This option can be left blank.

Operator Confirmation: Selecting this option will require the operator to confirm the action before it takes place. If this option is selected, whenever the button is

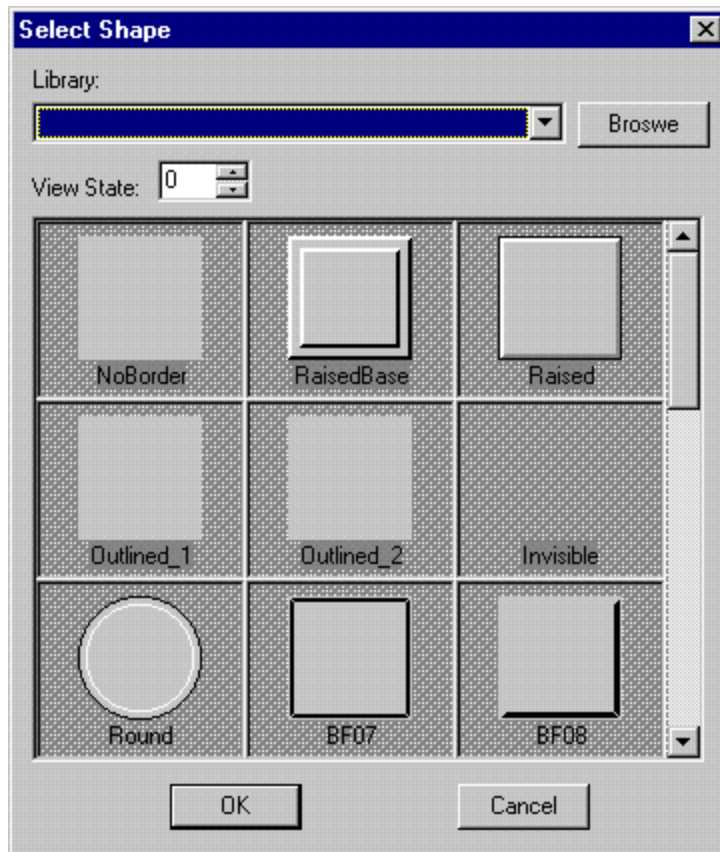
pressed, a dialog box will open asking for a “yes” or “no” response. Additionally, a **Waiting Time** is specified that will determine how long the confirmation dialog box will be displayed before it assumes a “no” response. Note that the Operator Confirmation option is not available for the Momentary button.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

Shape Tab: The shape tab is used to change the look of a button.



Select Shape: This option lets you select the shape of the button



Library: Select an available library. (See Chapter on creating libraries.)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

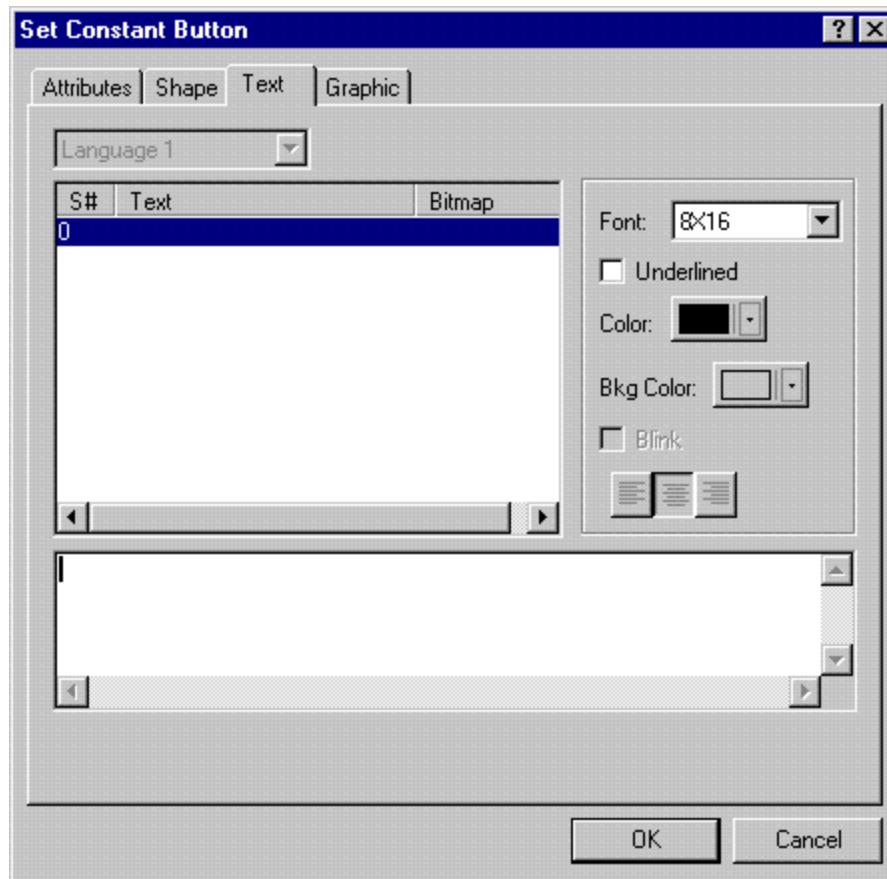
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

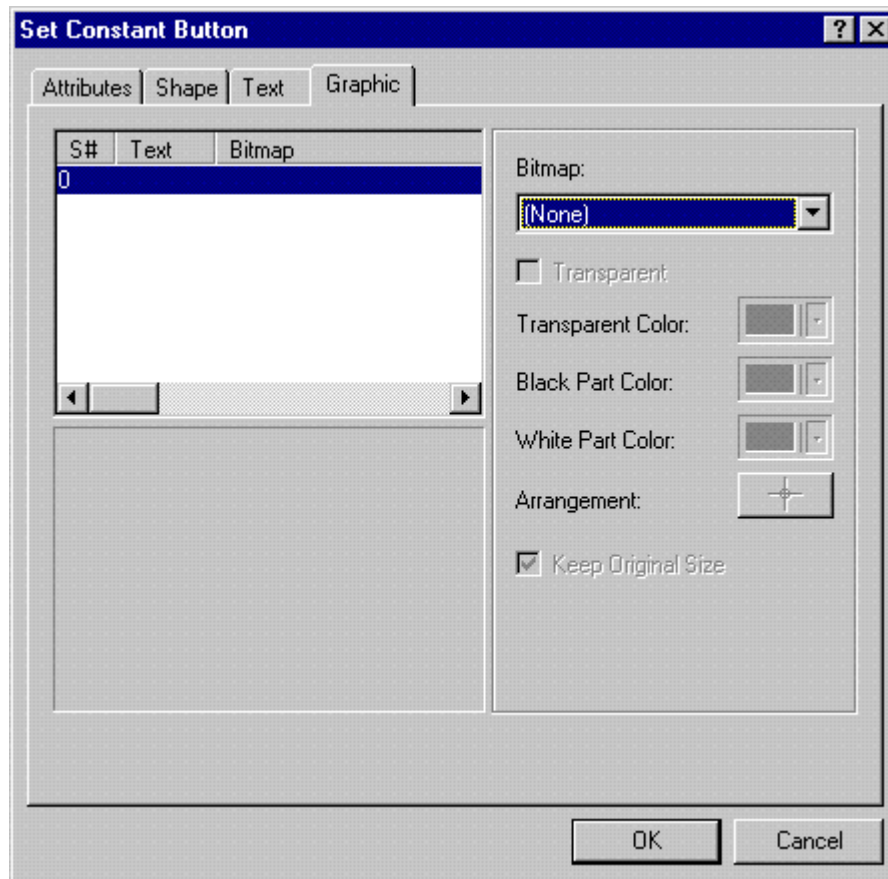
Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.1.5 INCREMENT and DECREMENT BUTTON

INCREMENT BUTTON

Function: Increments a variable

Creating from the menu: select *Object, Push Button, Increment*

Creating from the toolbar:



DECREMENT BUTTON

Function: Decrements a variable

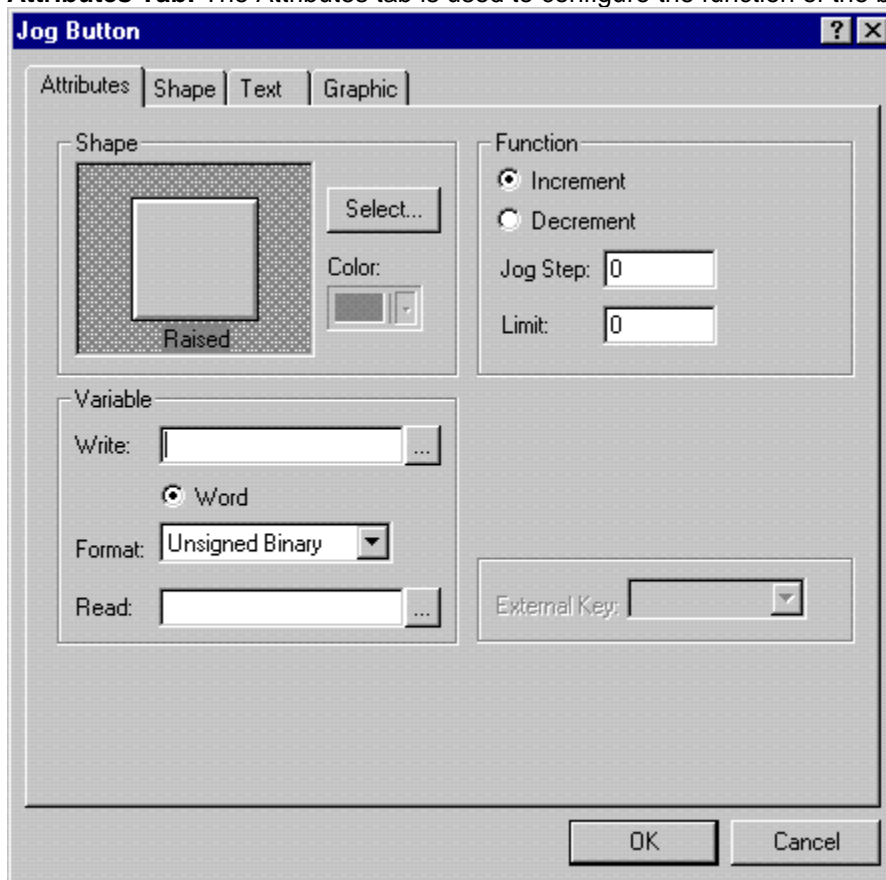
Creating from the menu: select *Object, Push Button, Decrement*

Creating from the toolbar:



INCREMENT and DECREMENT BUTTON properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Write: Specifies the register location to which the result of the addition or subtraction operation is written.

Word: The entered value is 16 bits.

Double Word: The entered value is 32 bits. If the Write location is a 16 bit register, the Workstation writes the low word of the entered value to the Write location and writes the high word of the entered value to the next Write location.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Read: Specifies the referenced register location. If the location isn't specified the Write location is used as the referenced location. In this case the Increment/Decrement button performs like a jog +/- jog - button.

Increment: Select this option to increase value.

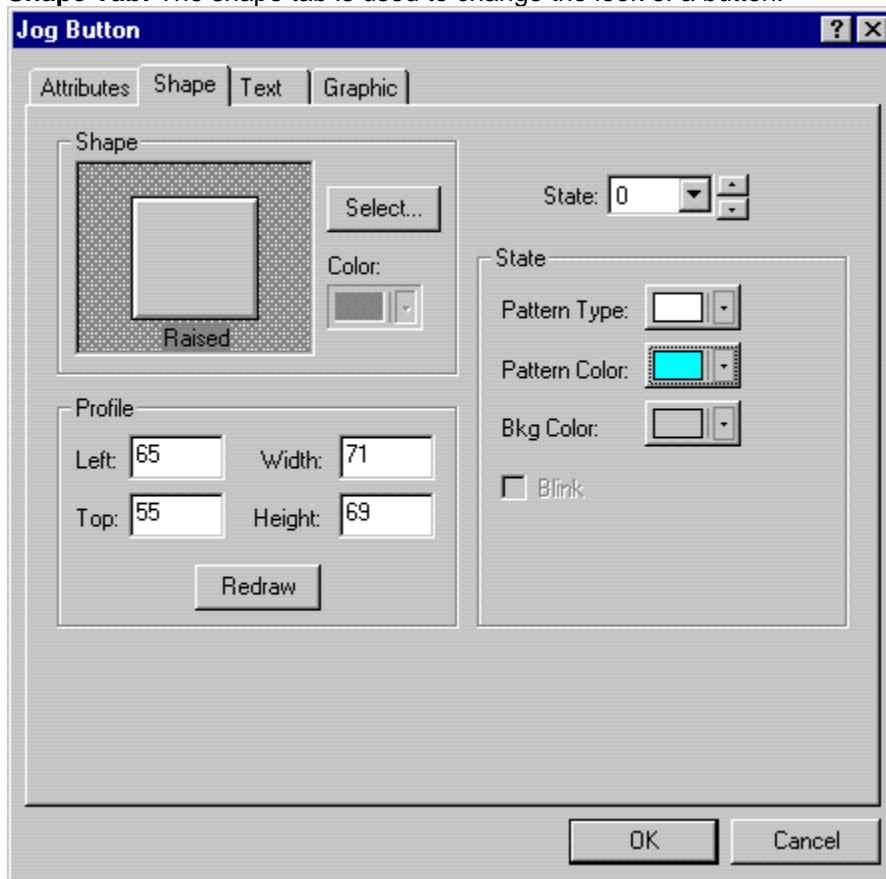
Decrement: Select this option to decrease value.

Jog Step: Constant value to increase or decrease by.

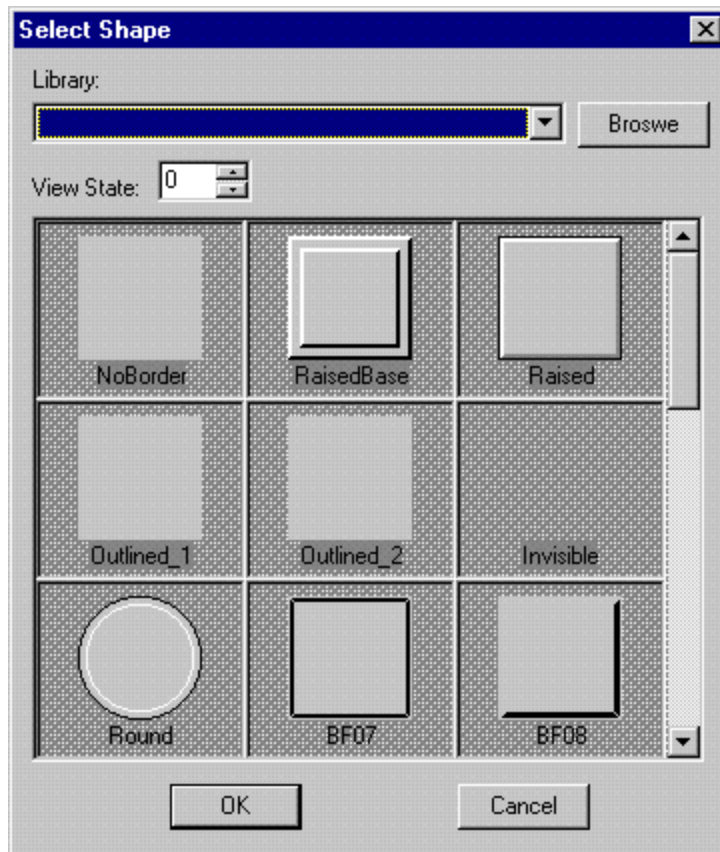
Limit: Specifies the minimum or maximum value to increment or decrement to.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

Shape Tab: The shape tab is used to change the look of a button.



Select Shape: This option lets you select the shape of the button



Library: Select an available library. (See Chapter on creating libraries.)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

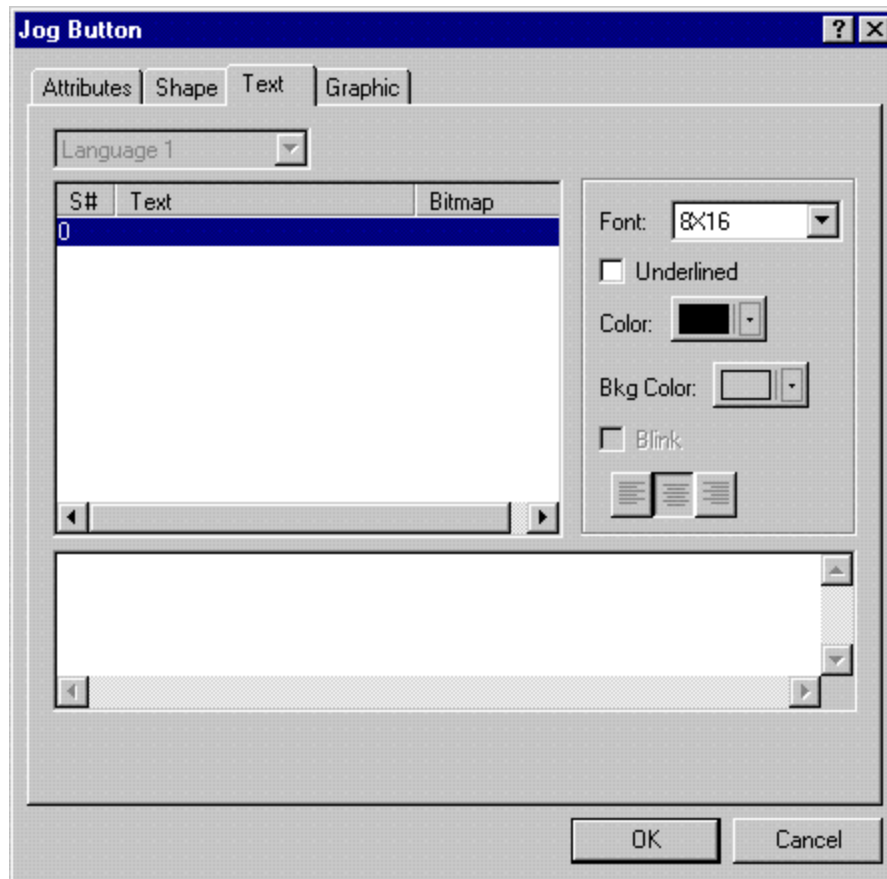
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

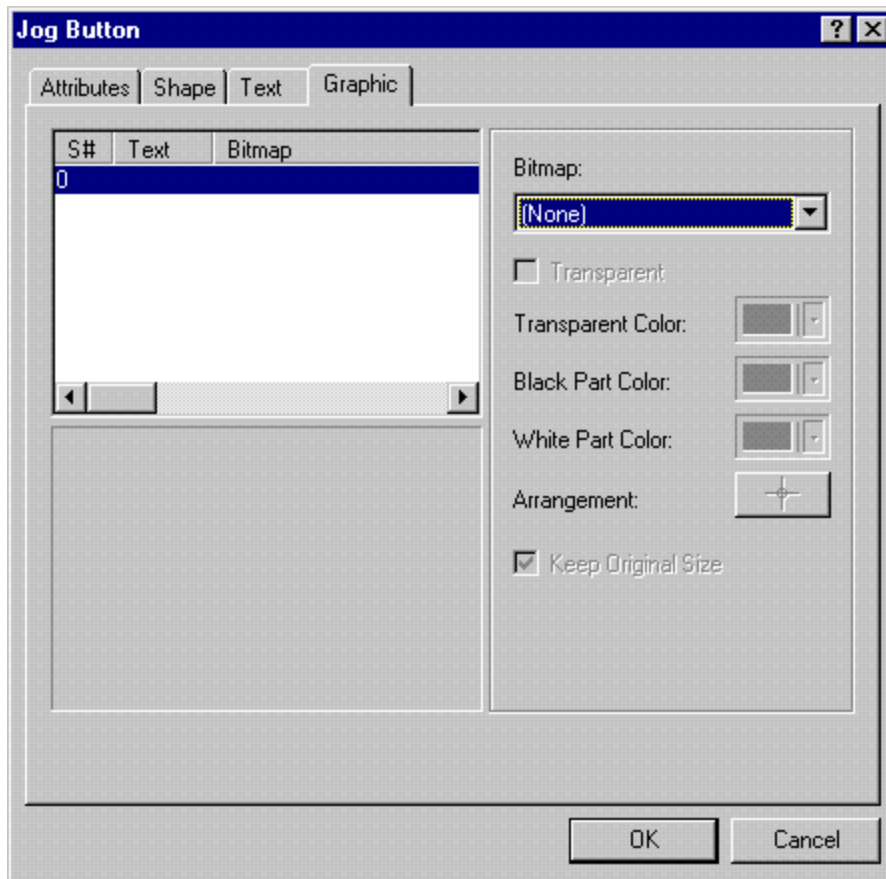
Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.1.6 GOTO and PREVIOUS SCREEN BUTTON

GOTO SCREEN BUTTON

Function: Opens a predefined Screen

Creating from the menu: select *Object, Push Button, Goto Screen*

Creating from the toolbar:



PREVIOUS SCREEN BUTTON

Function: Opens the previous Screen

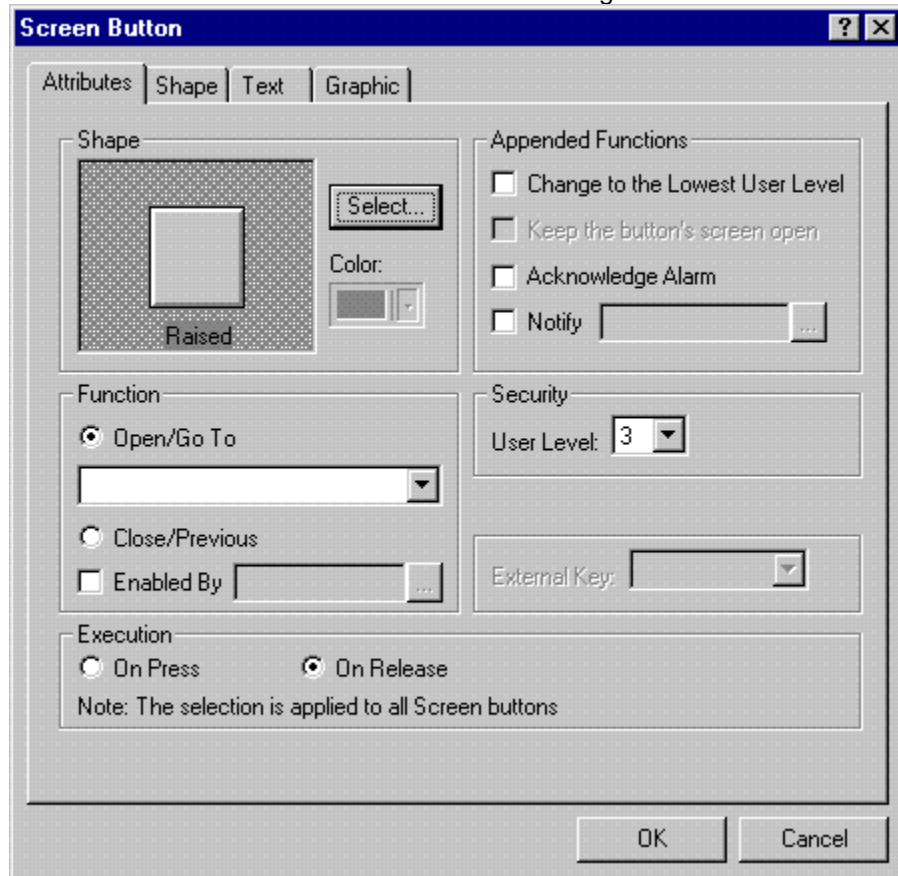
Creating from the menu: select *Object, Push Button, Previous Screen*

Creating from the toolbar:



GOTO and PREVIOUS SCREEN BUTTON properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Open/Goto: Displays a designated screen when pressed. The designated screen is selected from the drop down menu.

Close/Previous: Displays the previous screen when pressed.

Enable By: Select this option to make button accessible only when address written to is on.

Execution on Press: The action is executed as soon as the button is pressed.

Execution on Release: The action is executed as soon as the button is released.

Change to the lowest user level: When selected, the button changes the current user level to the lowest level when it displays another screen.

Keep the button's screen open: N/A

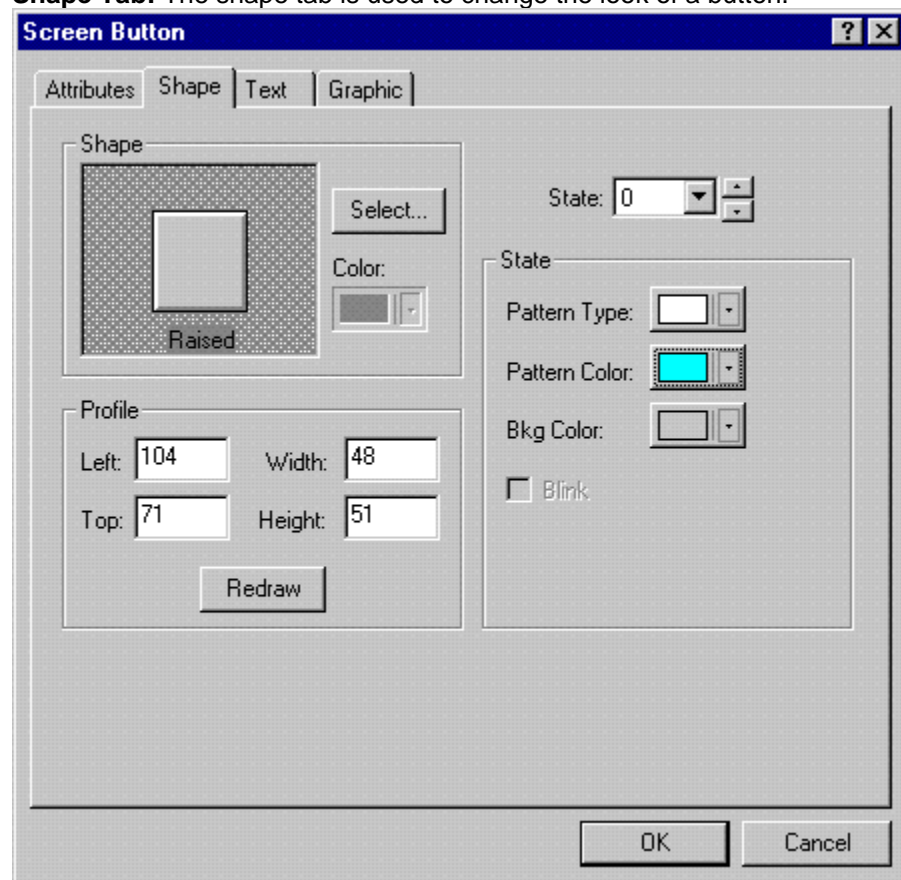
Acknowledge Alarm: If selected, user must acknowledge alarm before continuing.

Notify: If selected, writes to specified address after performing function.

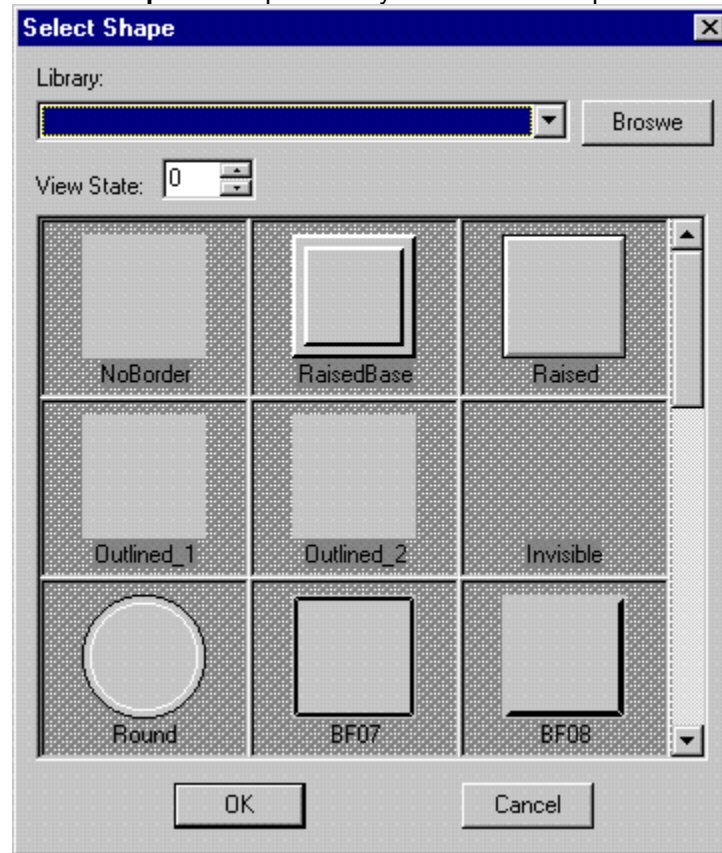
User Level: Specifies minimum user level for button operation.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

Shape Tab: The shape tab is used to change the look of a button.



Select Shape: This option lets you select the shape of the button



Library: Select an available library. (See Chapter on creating libraries)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

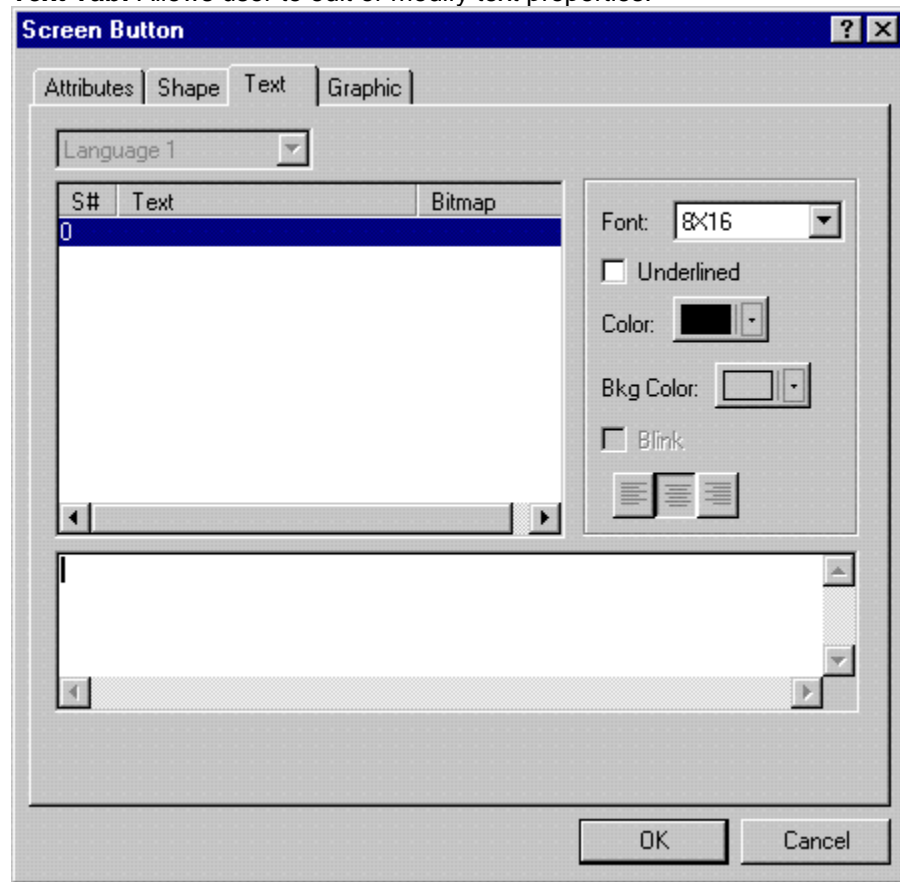
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

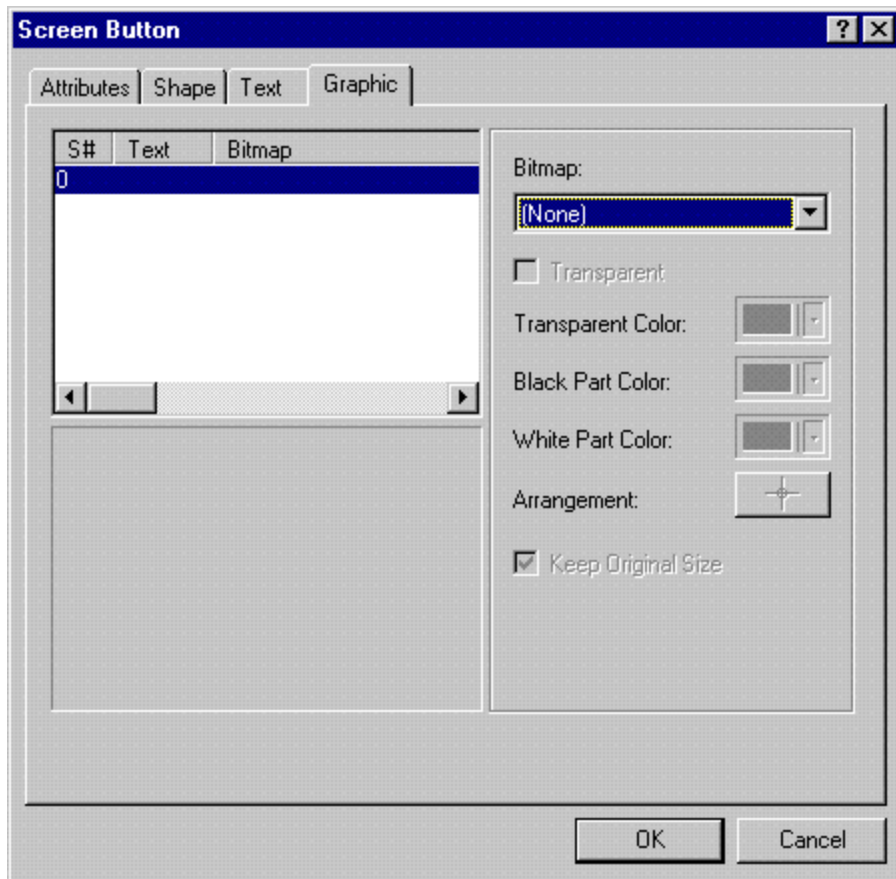
Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.1.7 ACTION BUTTON

Function: Performs a predefined system function such as Contrast Adjustment, Password Setting, Print Screen, Goto System Menu, Backlight Control, Alarm Acknowledge, and Setting of the Time/Date.

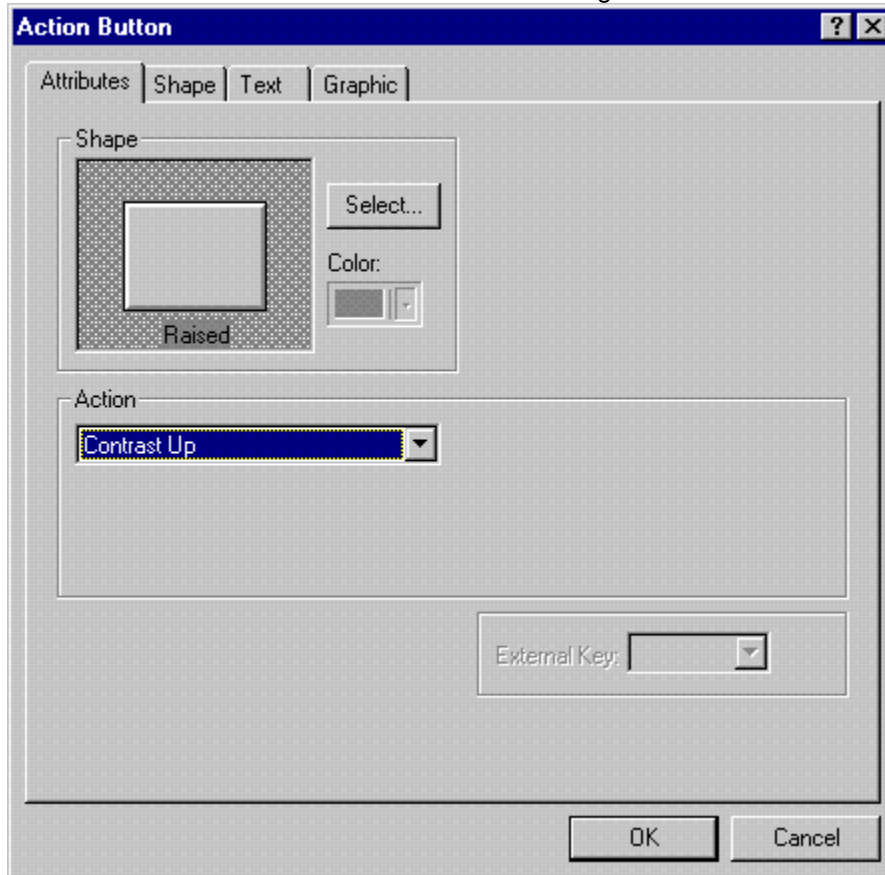
Creating from the menu: select *Object, Push Button, Action*

Creating from the toolbar:



ACTION BUTTON properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Action: Selects the type of action to be performed when button pressed.

Contrast Up: Increase display contrast.

Contrast Down: Decrease display contrast.

Save Contrast: Save current contrast setting.

Password Table: Displays the password table when pressed. User can then setup passwords and assign user levels with each password.

Reenter Password: Displays the password keypad when pressed. User can enter a password to change current user level.

Set Lowest User Level: Sets the current user level to 3, the lowest level.

Print Screen: Print a rectangular region of the current screen. To specify the region, choose Attributes from the Screen Menu, specify the

coordinates of the upper left and lower right position in the Printed Area box.

Goto System Menu: Displays the system menu when pressed.

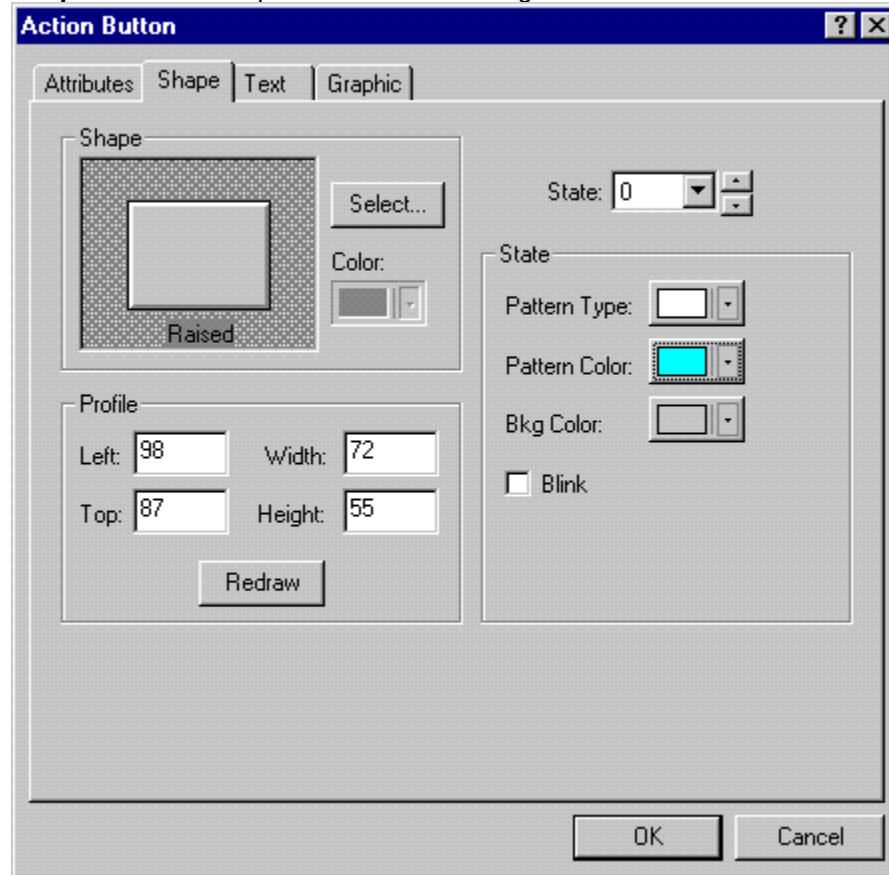
Turn Off Backlight: Shuts off the backlight when pressed.

Alarm Ack: Acknowledges the current active alarm.

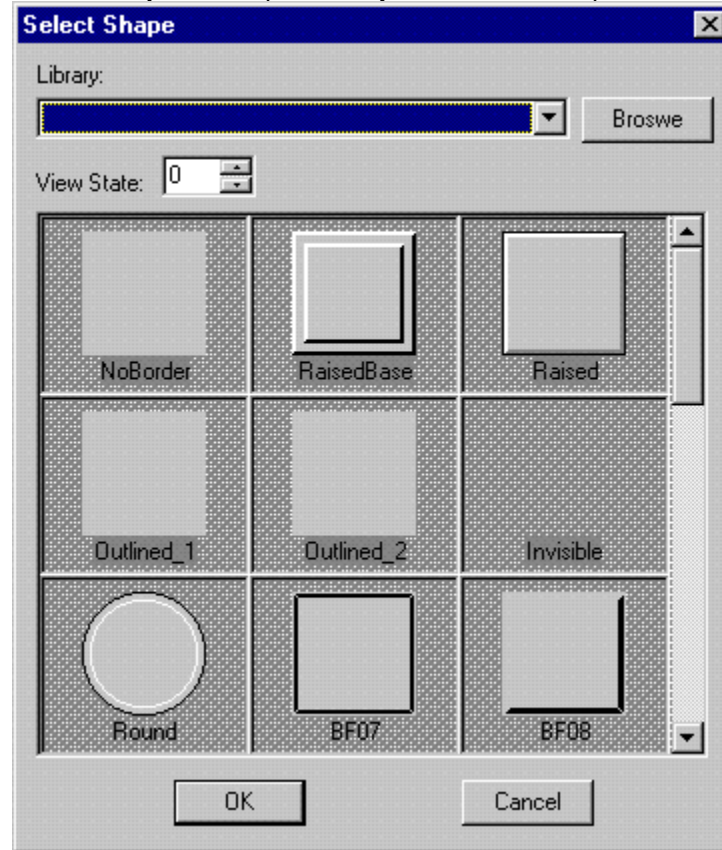
Set Time & Date: Enables setting of time and date.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

Shape Tab: The shape tab is used to change the look of a button.



Select Shape: This option lets you select the shape of the button



Library: Select an available library. (See Chapter on creating libraries)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

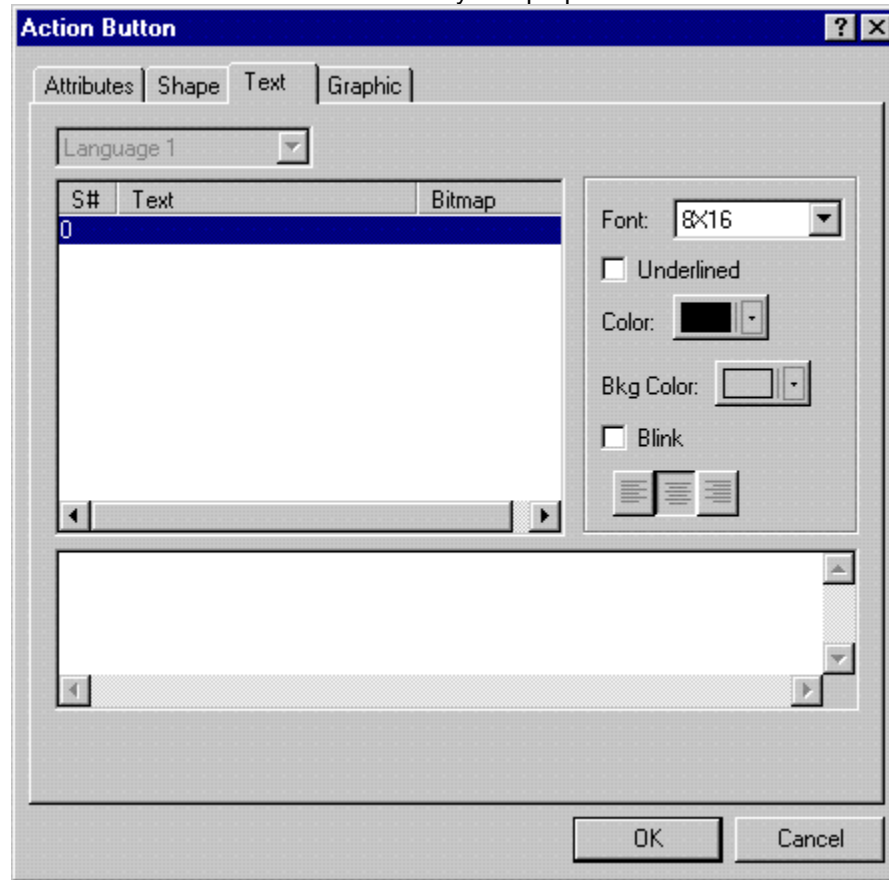
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

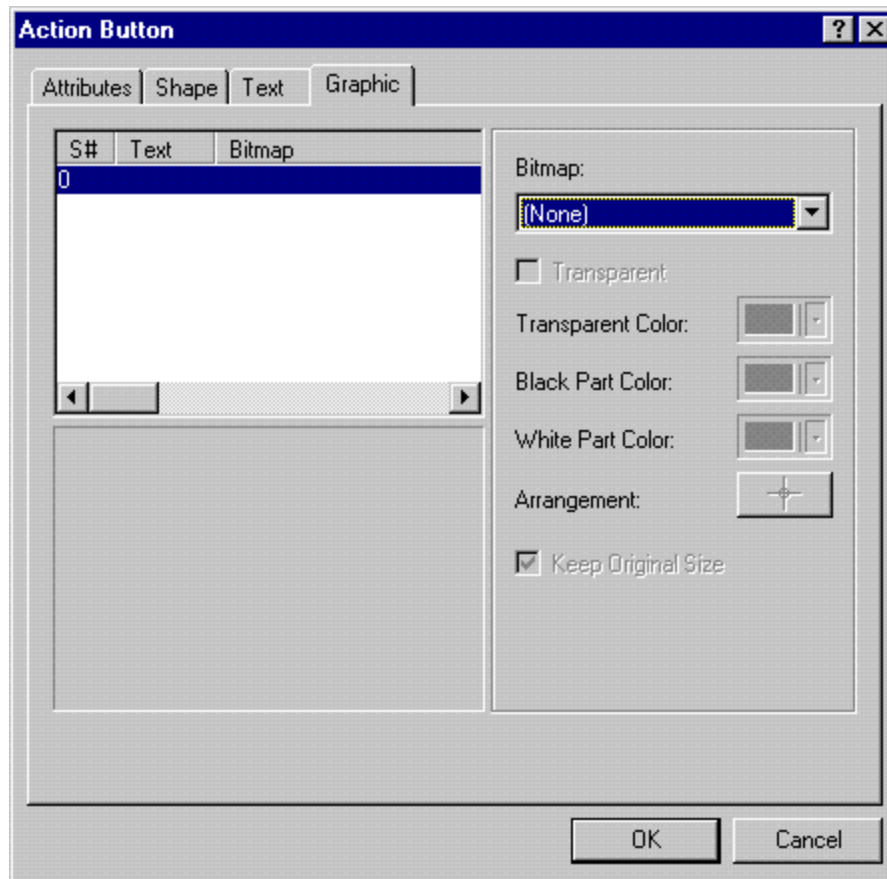
Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.2 DATA TO TEXT CONVERSION BUTTON

Function: N/A

Creating from the menu: N/A

Creating from the toolbar:



DATA TO TEXT CONVERSION BUTTON properties

N/A

6.3 NUMERIC ENTRY

Function: Provides a numeric entry and display for a variable.

Creating from the menu: select *Object, Numeric Entry*

Creating from the toolbar:



NUMERIC ENTRY properties

Select: Choose the frame type for the numeric entry.

Color: Choose the color of the frame

Bkg. Color: Choose the color of the background

Write: The write variable specifies a location to which the entered value is written.

Word: The entered value is 16 bits.

Double Word: The entered value is 32 bits. If the Write location is a 16 bit register, the Workstation writes the low word of the entered value to the Write location and writes the high word of the entered value to the next Write location.

Format: Specifies the data format of the Read register. The available formats are: BCD, Hexadecimal, Signed Binary and Unsigned Binary.

Read: Specifies a register address which the Numeric Entry will display its value. If this variable is not specified, the text control is based on the Write location.

Notification: Specifies an On/Off location that the Workstation sets to on when the numeric keypad appears or after writing the entered value to the Write location. This option can be left blank.

Before Writing: The Workstation sets the Notification location to on when the numeric keypad appears and sets the location to off when the numeric pad disappears.

After Writing: The Workstation sets the Notification location to on after writing the entered value to the Write location.

Font: Change the size of the font. The font size can change from state to state.

Character Color: Specifies the character color.

Left, Center or Right: Left, center or right justifies the text.

Fill Leading Zeros: Select this option to display leading zero(s)

Decimal Pt. Position: Number of digits to the right of the decimal point.

Scaling: The Workstation can scale a register value to display a number that makes sense to an operator. Two parameters are required for the scaling: Gain and Offset. The scaling formula that converts a register value to a display value is: $\text{Display_Value} = \text{Register_Value} \times \text{Gain} \times \text{Offset}$.

Gain: User can specify a number between -32,768 and 32,767 regardless of decimal point. When considering decimal point, Gain can't exceed 32,768. Also, number of digits to right of decimal point can't exceed 8.

Offset: User can specify a number between -32,768 and 32,767 regardless of decimal point. When considering decimal point, Offset must conform to the display format of the object.

Integral Digits: Specifies the number of digits to the left of decimal point allowed to be displayed or entered. The number must be consistent with users selection for Data Format, Data Size, and Decimal Point Position.

Fractional Digits: Specifies the number of digits to the right of decimal point allowed to be displayed or entered. This can't exceed the number of Decimal Point Position.

Variable Input Limits: Select this option to allow input limit to vary.

Min: Specifies minimum the operator allowed to enter. User must enter actual register value without regard to settings for display format.

Max: Specifies maximum the operator allowed to enter. User must enter actual register value without regard to settings for display format.

User Level: Specifies minimum user level for button operation.

Operator Confirmation: Selecting this option will require the operator to confirm the action before it takes place. If this option is selected, whenever the button is pressed, a dialog box will open asking for a "yes" or "no" response. Additionally, a **Waiting Time** is specified that will determine how long the confirmation dialog box will be displayed before it assumes a "no" response. Note that the Operator Confirmation option is not available for the Momentary button.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

6.4 CHARACTER ENTRY

Function: Provides an alphanumeric entry and display for a variable.

Creating from the menu: select *Object, Character Entry*

Creating from the toolbar:



CHARACTER ENTRY BUTTON properties

Character Entry

Frame

Select...

Color: [Color Picker]

Bkg. Color: [Color Picker]

DEF01

Display Format

Font: 8x16

Character Color: [Color Picker]

☐ Left ☒ Center ☐ Right

Variable

Write: [Text Box]

Read: [Text Box]

Number of Characters: 1

Notification: [Text Box]

☐ Before Writing ☒ After Writing

Security

User Level: 3

☐ Operator Confirmation

Waiting Time (Sec.): [Text Box]

External Key: [Text Box]

OK Cancel

Select: Choose the frame type for the numeric entry.

Color: Choose the color of the frame

Bkg. Color: Choose the color of the background

Write: Specifies the starting address of a block of contiguous registers to which the entered character string is written. The size of the Write block is determined by Number of Characters described below. For 16-bit registers, if Number of Characters is even the size is half of Number of Characters. If Number of Characters is odd the size is half of Number of Characters + 1 and 0 is written to higher byte of last register in Character Entry.

Read: Specifies the starting address of a block of contiguous registers that the Character Entry reads to display the character string stored. If this address isn't specified the Character Entry displays the string stored in the Write block.

Number of Characters: Specifies the number of characters to be entered and displayed. The maximum number is 28.

Notification: Specifies an On/Off location that the Workstation sets to on when the character keypad appears or after writing the entered value to the Write location. This option can be left blank.

Before Writing: The Workstation sets the Notification location to on when the character keypad appears and sets the location to off when the numeric pad disappears.

After Writing: The Workstation sets the Notification location to on after writing the entered value to the Write location.

Font: Change the size of the font. The font size can change from state to state.

Character Color: Specifies the character color.

Left, Center or Right: Left, center or right

User Level: Specifies minimum user level for button operation.

Operator Confirmation: Selecting this option will require the operator to confirm the action before it takes place. If this option is selected, whenever the button is pressed, a dialog box will open asking for a “yes” or “no” response. Additionally, a **Waiting Time** is specified that will determine how long the confirmation dialog box will be displayed before it assumes a “no” response. Note that the Operator Confirmation option is not available for the Momentary button.

External Key: Used to assign a buttons operation to a Function key. This is only available on select models.

6.5 INDICATORS

6.5.1 MULTISTATE INDICATOR

Function: Provides a way to display one of several states.

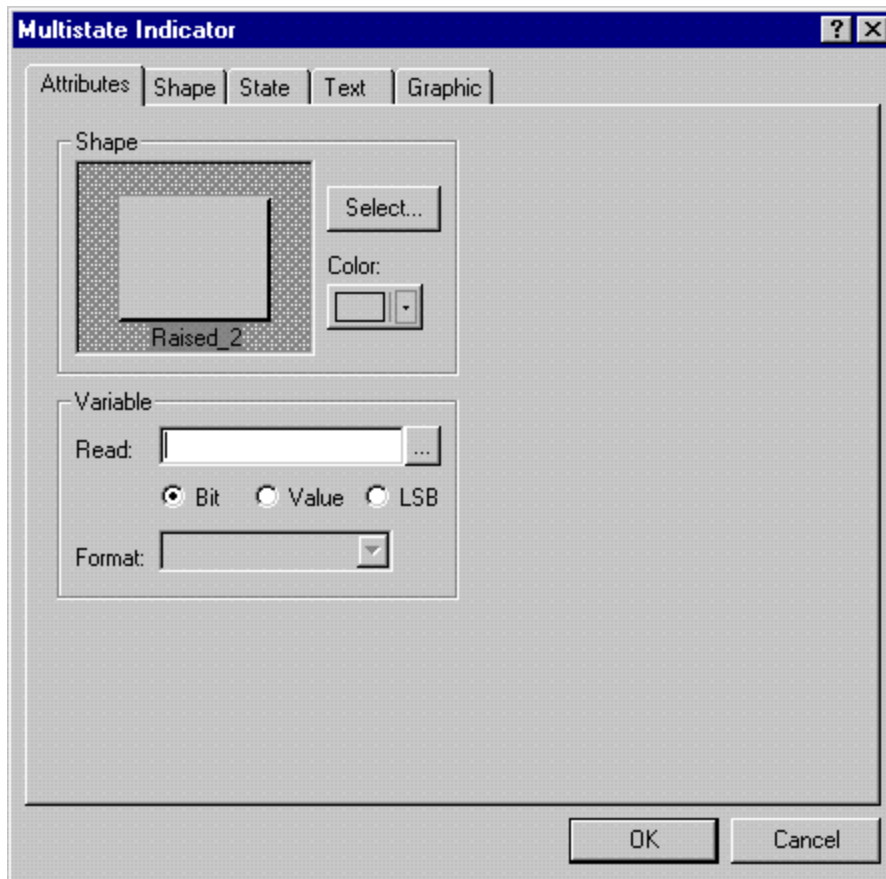
Creating from the menu: select *Object, Indicator, MULTISTATE Indicator*

Creating from the toolbar:



MULTISTATE INDICATOR properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Read: Specifies a register that the indicator displays its range.

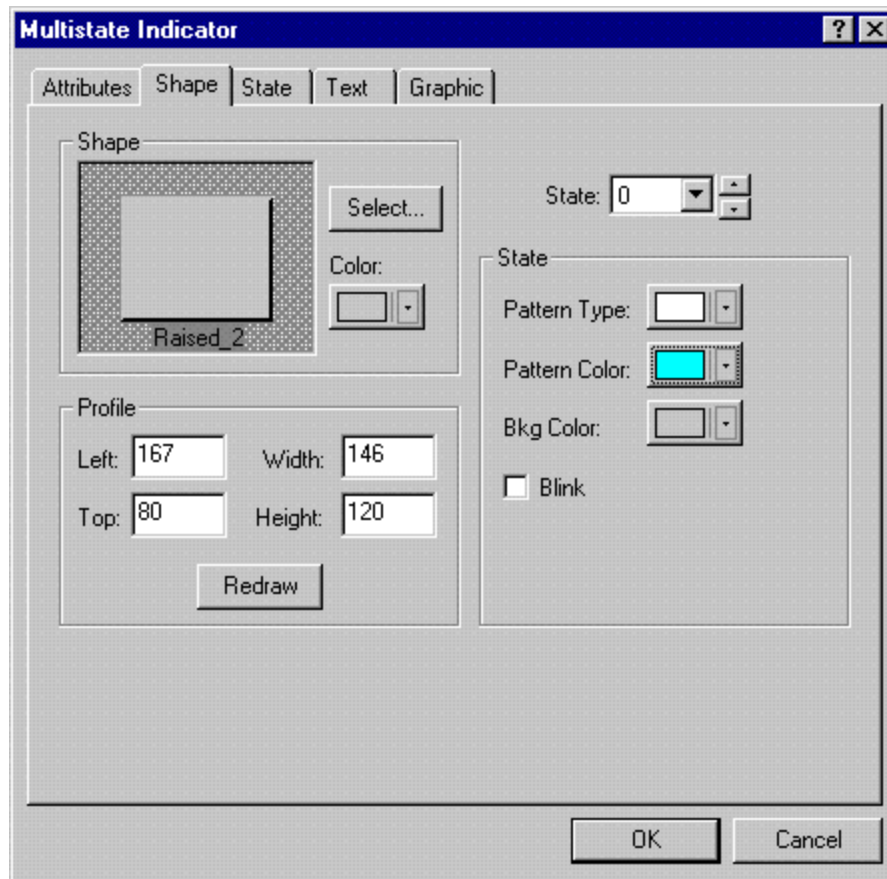
Bit: If the user selects this option, the display has only 2 states and the Read location is an On/Off location.

Value: If the user selects this option, the Workstation takes the register value as the state number. Ex. Value 0 represents state 0, value 255 represents state 255. There are a total of 256 states available with this configuration.

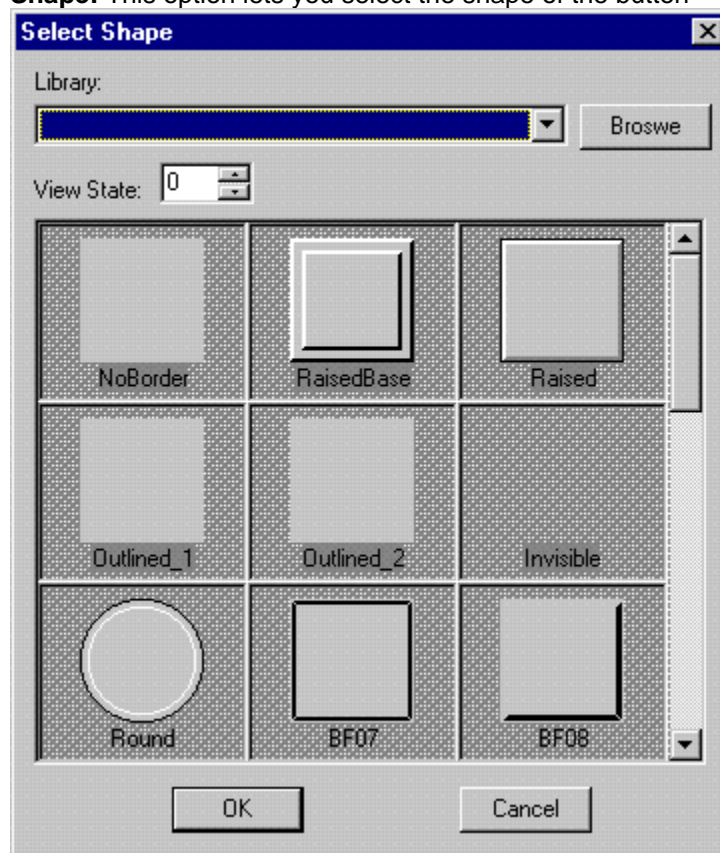
LSB: If the user selects this option, the Workstation takes the bit number of the least bit that is on as the state number. Ex. The binary number 0000000000000001 represents state 0 and the binary number 1100001100000000 represents state 8. There are a total of 16 states available with this configuration. Note that the state of binary number 0 is undefined.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Shape Tab: The shape tab is used to change the look of a button.



Shape: This option lets you select the shape of the button



Library: Select an available library. (See Chapter on creating libraries.)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

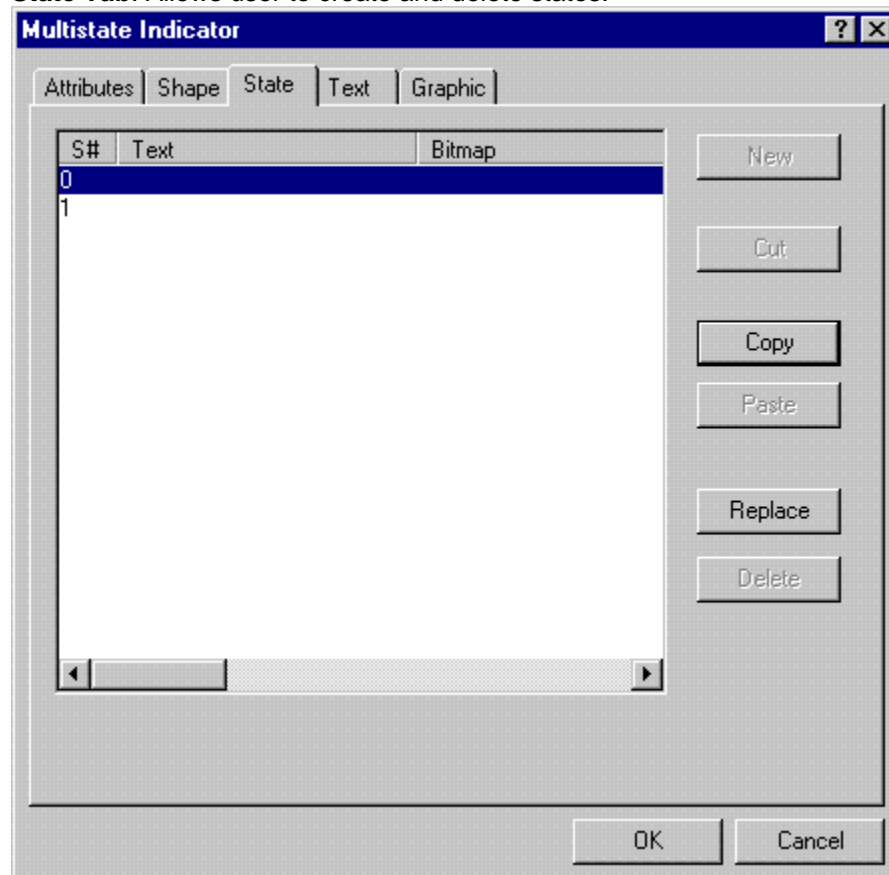
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

State Tab: Allows user to create and delete states.



New: Create a new state.

Cut: Cut selected state.

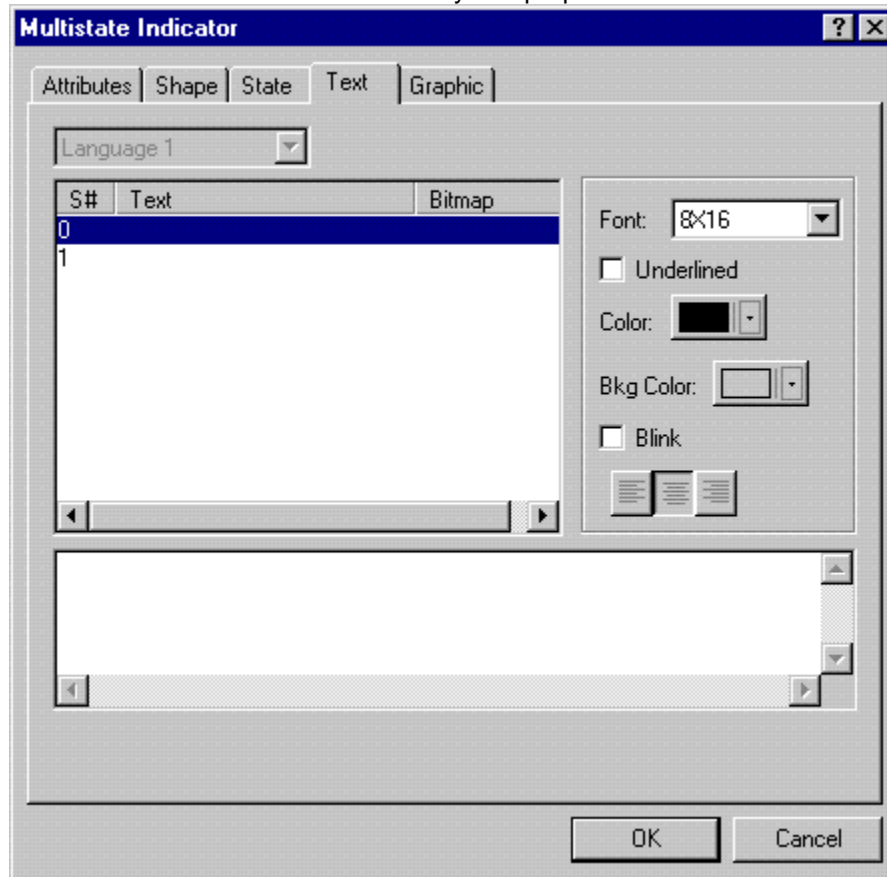
Copy: Copy selected state.

Paste: Paste cut/copy state to selected state

Replace: Replace selected state with cut/copy state.

Delete: Delete selected state.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the font size, which can vary from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

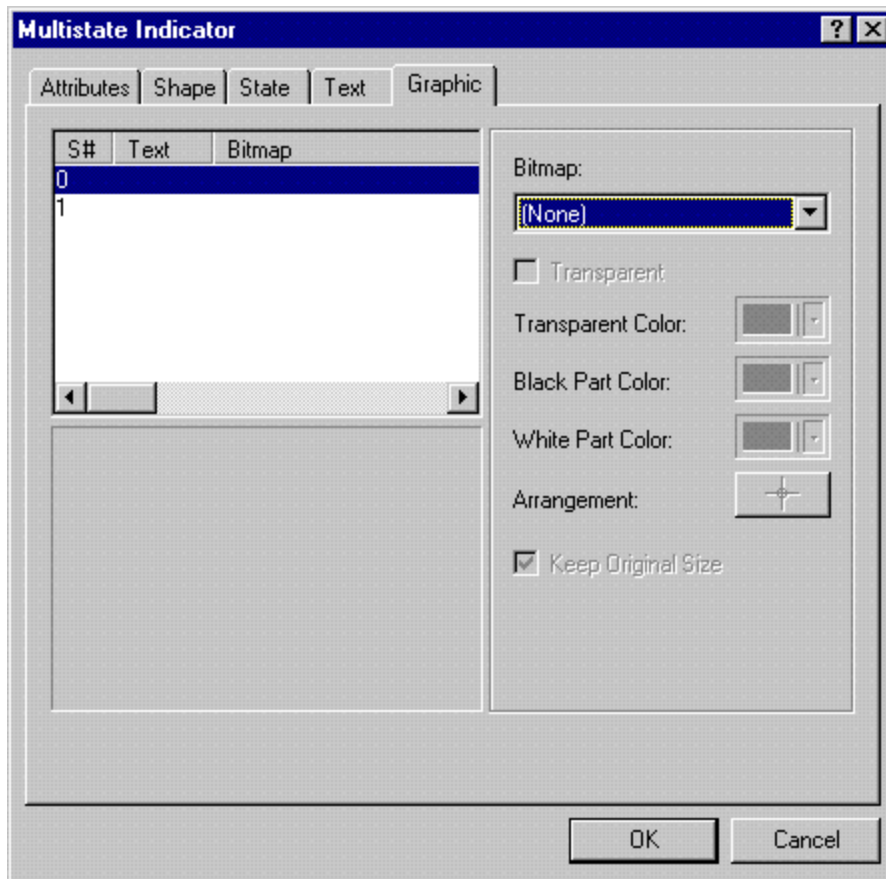
Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.5.2 RANGE INDICATOR

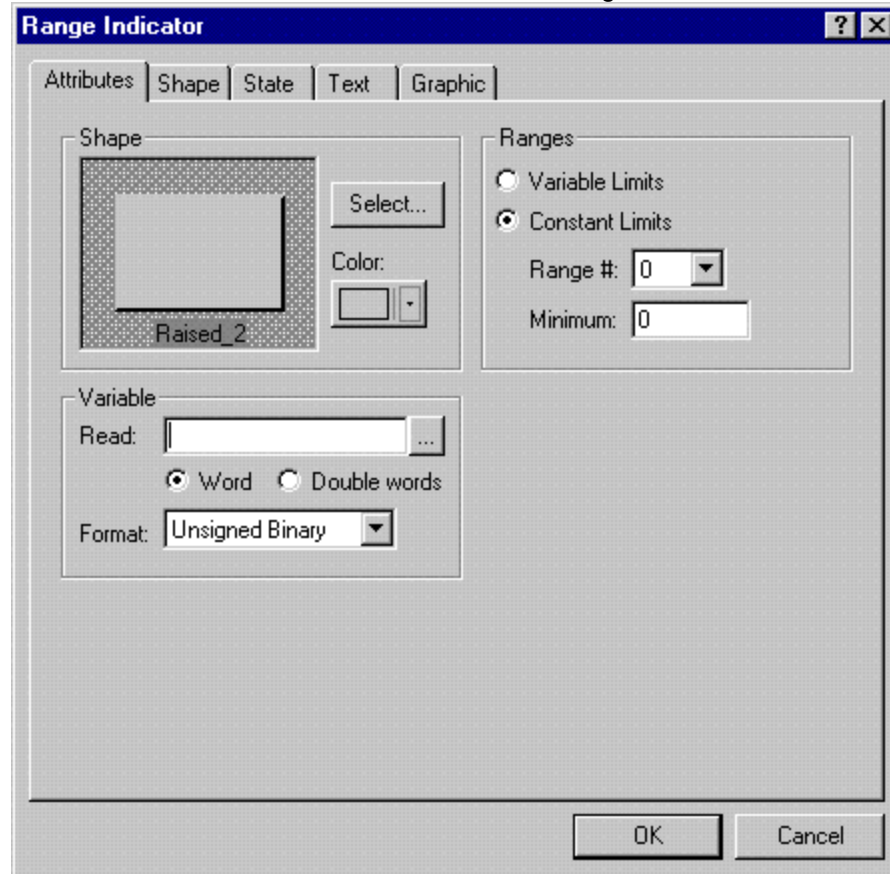
Function: A Range Indicator displays one of several indicator labels depending on the value of a register. State 0 label is displayed if the register value is within range #0, state 1 label is displayed if the register value is within range #1, etc. A Range indicator can have up to 16 labels, or in other words display up to 16 ranges. Range #0 is always the highest range and its minimum is greater than the maximum of range #1 by one, range #1

is the second highest range and its minimum is greater than the maximum of range #2 by one, etc. There is no need to specify the minimum of the last range.

Creating from the menu: select *Object, Indicator, Range Indicator*

RANGE INDICATOR properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Read: Specifies a register that the indicator displays its range.

Word: The entered value is 16 bits.

Double Word: The entered value is 32 bits. If the Write location is a 16 bit register, the Workstation writes the low word of the entered value to the Write location and writes the high word of the entered value to the next Write location.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

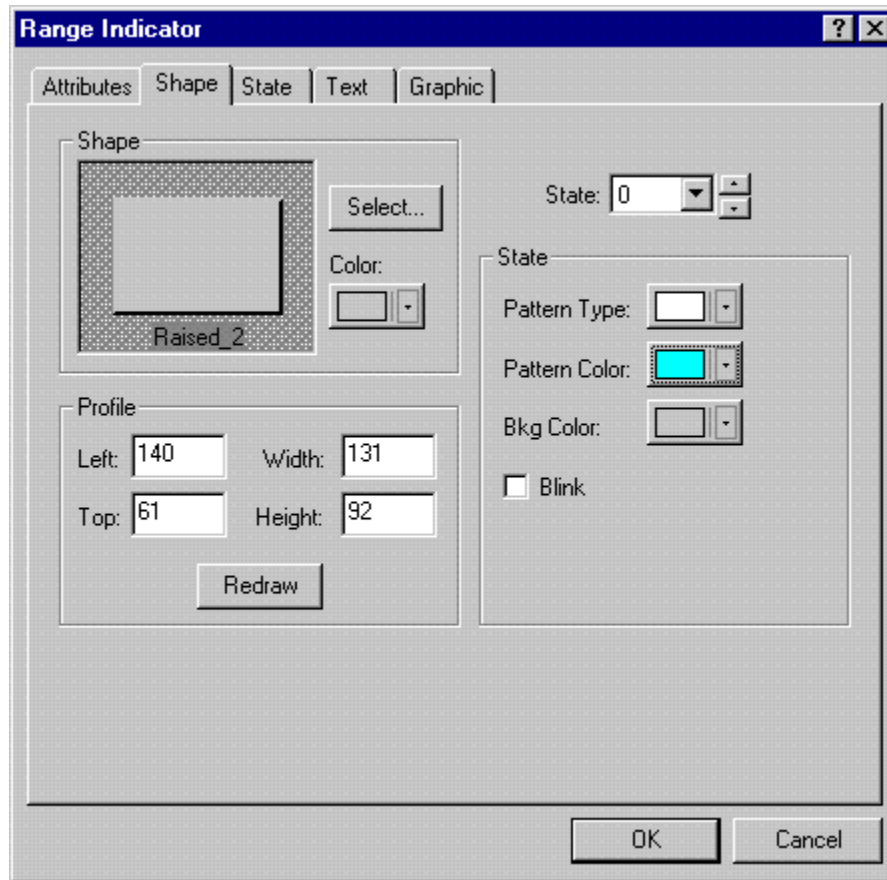
Variable Limits: Select this option to specify the minimum values of ranges are to be read from registers following the Read location. The minimum of range #0 is got from the location following the Read location. The minimum of range #1 follows the minimum of range #0, the minimum of range #2 follows the minimum of range #1, and so on.

Constant Limits: Select this option to specify the minimum value of the range is constant.

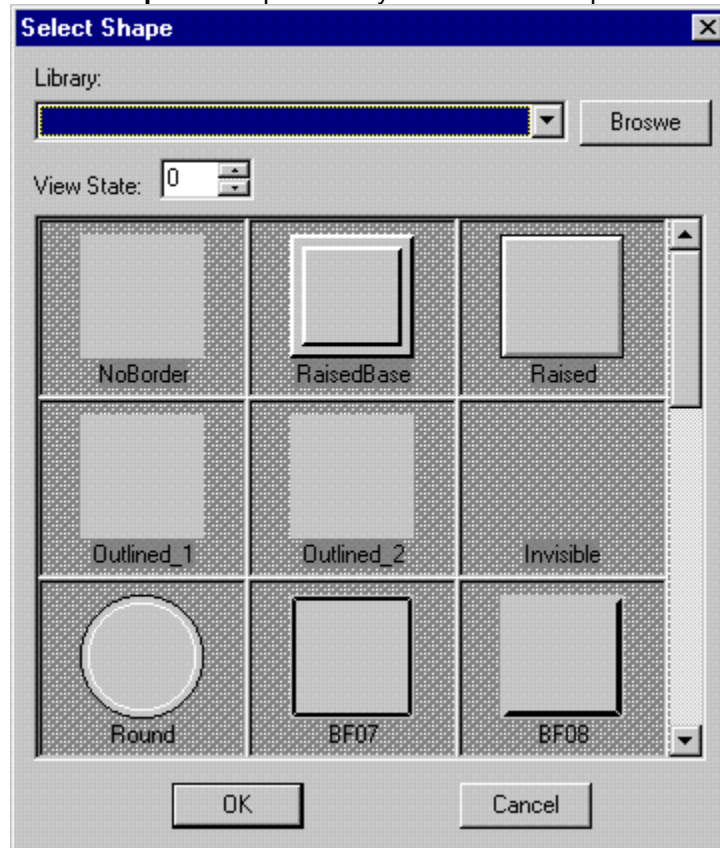
Range Number: Select the range to specify the minimum.

Minimum: Specify the minimum of the selected range.

Shape Tab: The shape tab is used to change the look of a button.



Select Shape: This option lets you select the shape of the button



Library: Select an available library. (See Chapter on creating libraries.)

State: Allows user to view each state of a shape if shape has multiple states.

Color: Allows user to select the color of the border of button.

Profile: The profile gives various information about the button.

Left: Distance from left side of screen to left edge of button

Top: Distance from top of screen to top edge of button

Width: Width of button

Height: Height of button

Redraw button: Pressing this button will update any changes made to the above entries

State: Allows user to cycle through states and configure each state with a different pattern if desired.

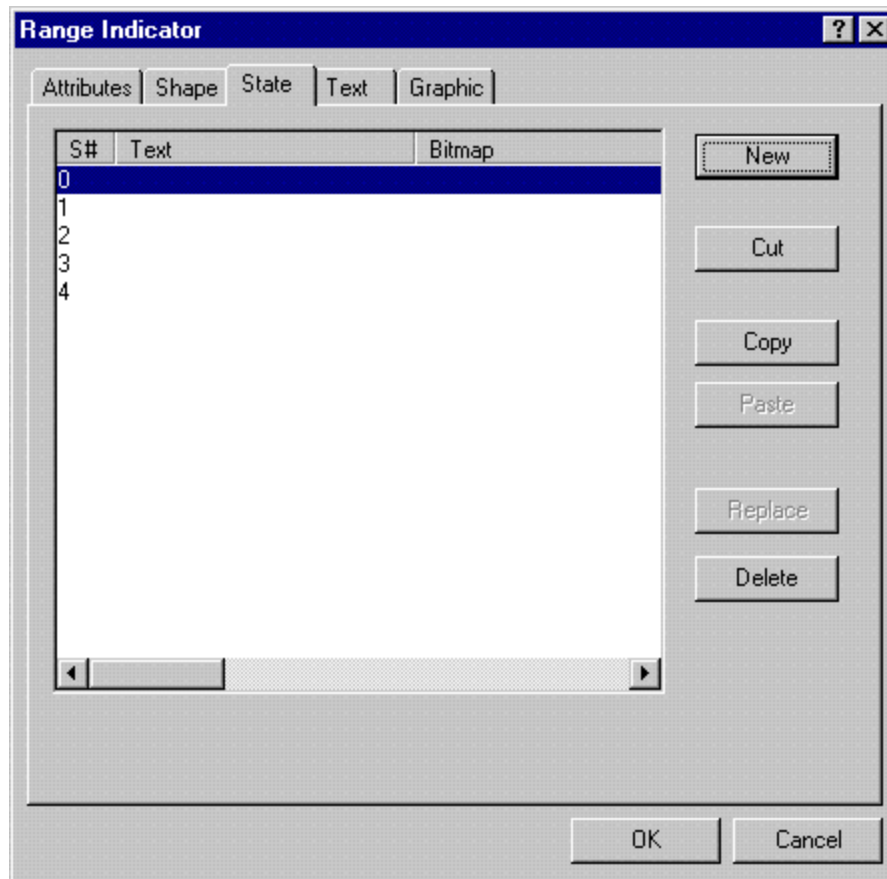
Pattern Type: Specifies the type of pattern.

Pattern Color: Specifies the color of the pattern.

Bkg. Color: Specifies the color of the background.

Blink: Causes the background to blink.

State Tab: Allows user to create and delete states.



New: Create a new state.

Cut: Cut selected state.

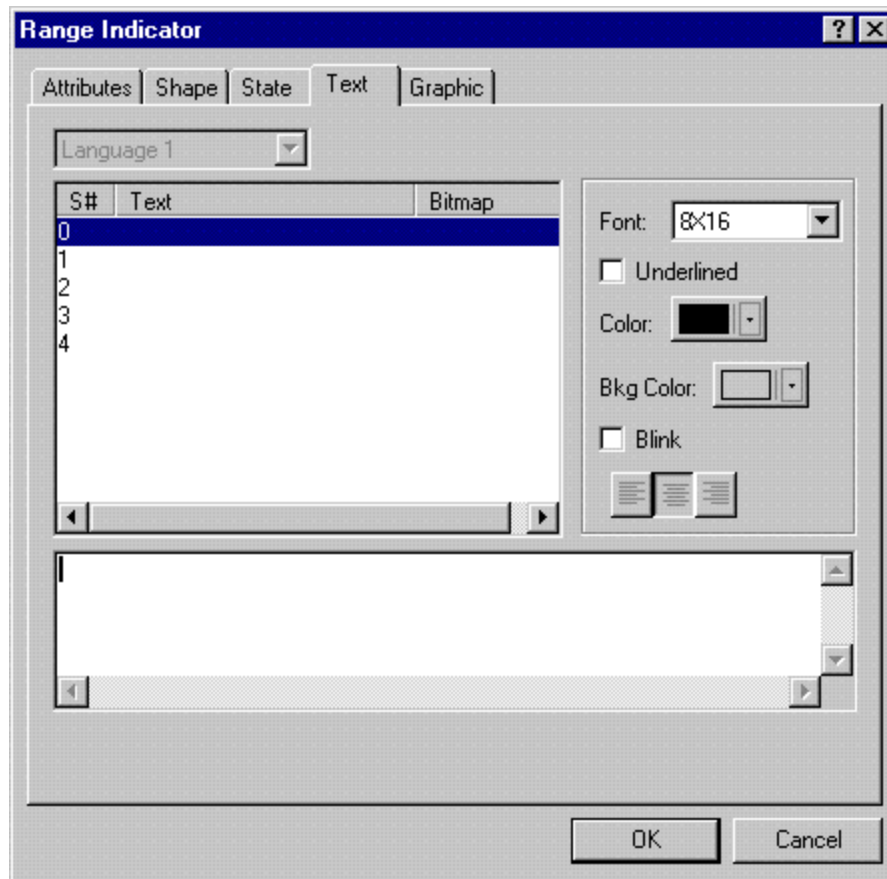
Copy: Copy selected state.

Paste: Paste cut/copy state to selected state

Replace: Replace selected state with cut/copy state.

Delete: Delete selected state.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

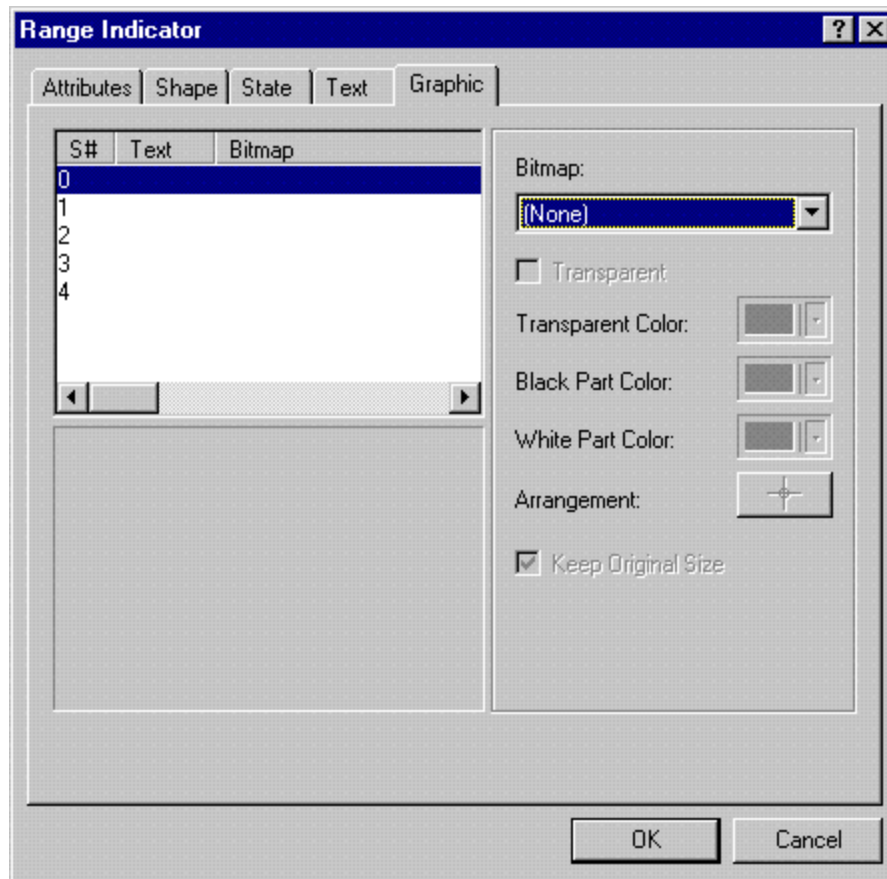
Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.6 NUMERIC DISPLAY

Function: Provides a numeric display for a variable.

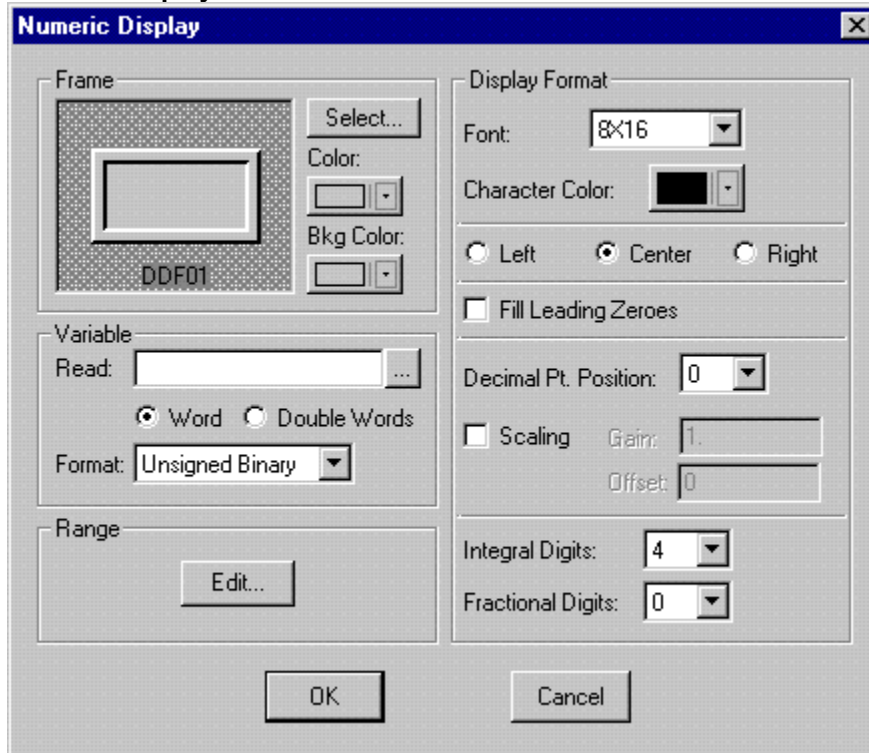
Creating from the menu: select *Object, Numeric Display*

Creating from the toolbar:



NUMERIC DISPLAY properties

Numeric Display:



Select: Choose the frame type for the numeric entry.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Read: Specifies the register to be displayed.

Word: The entered value is 16 bits.

Double Word: The entered value is 32 bits.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary, Unsigned Binary and Hexadecimal.

Range: Specifies the high and low range limits.

None: Specifies no limits.

Constant: You can specify the high limit and low limit

High Limit: Specifies point above which the value is invalid.

Low Limit: Specifies point below which the value is invalid.

Register: Specifies the high and low range limits are variables. The high range limit obtained from the location following the Read location. The low range limit is obtained from location following high range limit.

High Range

Blinking: Select to blink display when value is in the high range.

Bkg Color: Specify background color of high range.

Char Color: Specify text color of high range.

Low Range

Blinking: Select to blink display when value is in the low range.

Bkg Color: Specify background color of low range.

Char Color: Specify text color of low range.

Font: Change the size of the font.

Character Color: Specifies the character color.

Left, Center or Right: Left, center or right justifies the text.

Fill Leading Zeros: Select this option to display leading zero(s)

Decimal Pt. Position: Number of digits to the right of the decimal point.

Scaling: The Workstation can scale a register value to display a number that makes sense to an operator.

Gain: User can specify a number between -32,768 and 32,767 regardless of decimal point. When considering decimal point, Gain can't exceed 32,768. Also, number of digits to right of decimal point can't exceed 8.

Offset: User can specify a number between -32,768 and 32,767 regardless of decimal point. When considering decimal point, Offset must conform to the display format of the object.

Integral Digits: Specifies the number of digits to the left of decimal point allowed to be displayed or entered. The number must be consistent with users selection for Data Format, Data Size, and Decimal Point Position.

Fractional Digits: Specifies the number of digits to the right of decimal point allowed to be displayed or entered. This can't exceed the number of Decimal Point Position.

6.7 MESSAGE DISPLAY

6.7.1 CHARACTER DISPLAY

Function: Provides an alphanumeric display for a variable.

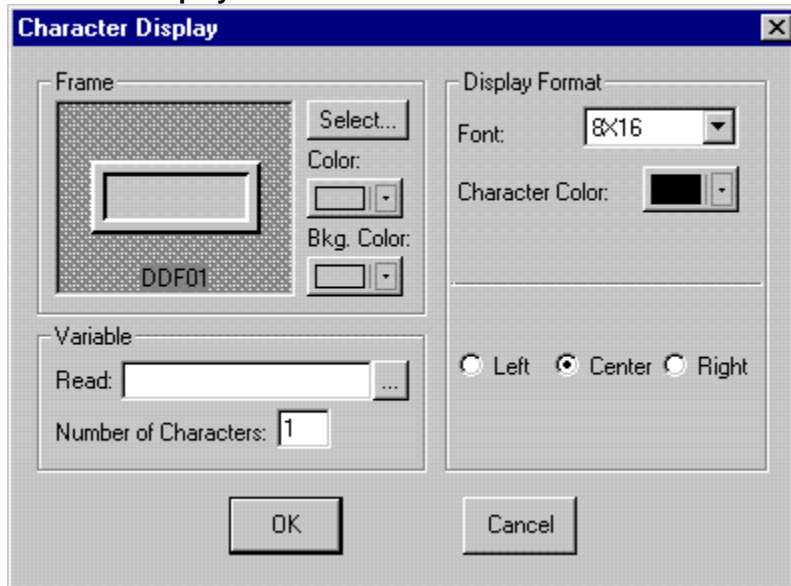
Creating from the menu: select *Object, Character Display*

Creating from the toolbar:



CHARACTER DISPLAY properties

Character Display:



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background

Read: Specifies the starting address of a contiguous block of registers that store a character string to be displayed.

Number of Characters: Specifies the number of characters to be displayed. The maximum is 99 but the real limit is the width of the display.

Font: Change the size of the font.

Character Color: Specifies the character color.

Left, Center or Right: Left, center or right justifies the text.

6.7.2 PRESTORED MESSAGE DISPLAY

Function: Provides ability to display one of several system messages depending on state of an on/off location or register.

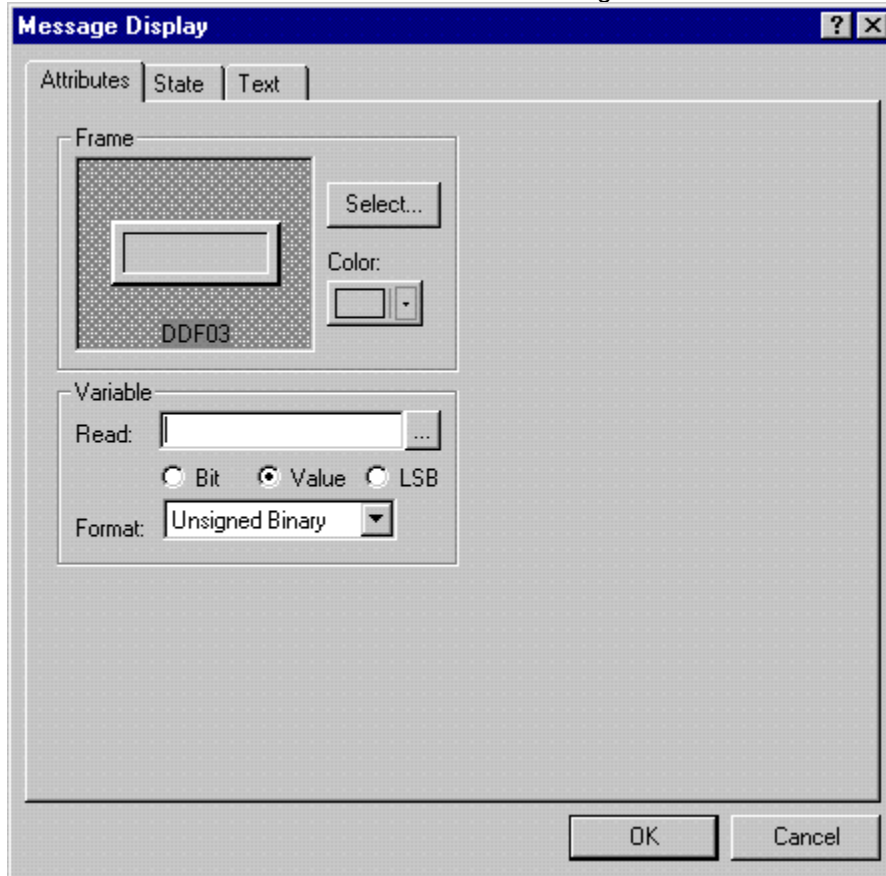
Creating from the menu: select *Object, Message Display, Prestored Message*

Creating from the toolbar:



PRESTORED MESSAGE DISPLAY properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Select: Choose the frame type for the prestored message display.

Color: Choose the color of the frame.

Read: Specifies the PLC location that controls the display of a pre-stored message. An on/off location must be specified if Bit is selected. A register address must be specified if Value or LSB is selected.

Bit: If the user selects this option, the display has only 2 states and the Read location is an On/Off location.

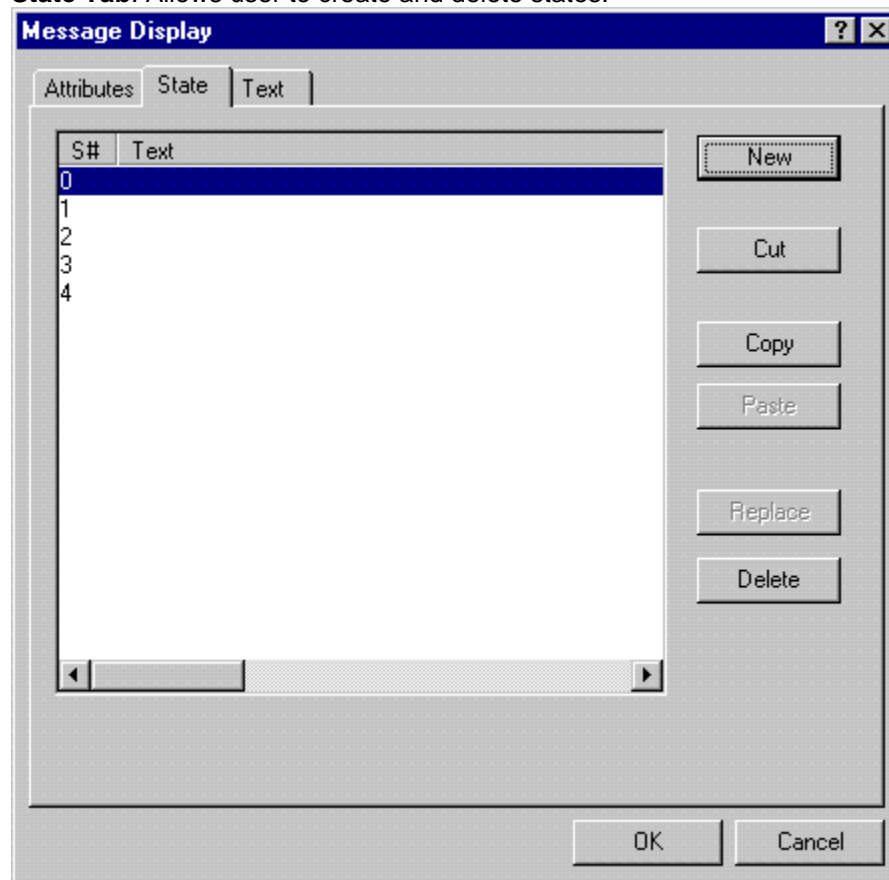
Value: If the user selects this option, the Workstation takes the register value as the state number. Ex. Value 0 represents state 0, value 255 represents state 255. There are a total of 256 states available with this configuration.

LSB: If the user selects this option, the Workstation takes the bit number of the least bit that is on as the state number. Ex. The binary number 0000000000000001 represents state 0 and the binary number

1100001100000000 represents state 8. There are a total of 16 states available with this configuration. Note that the state of binary number 0 is undefined.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

State Tab: Allows user to create and delete states.



New: Create a new state.

Cut: Cut selected state.

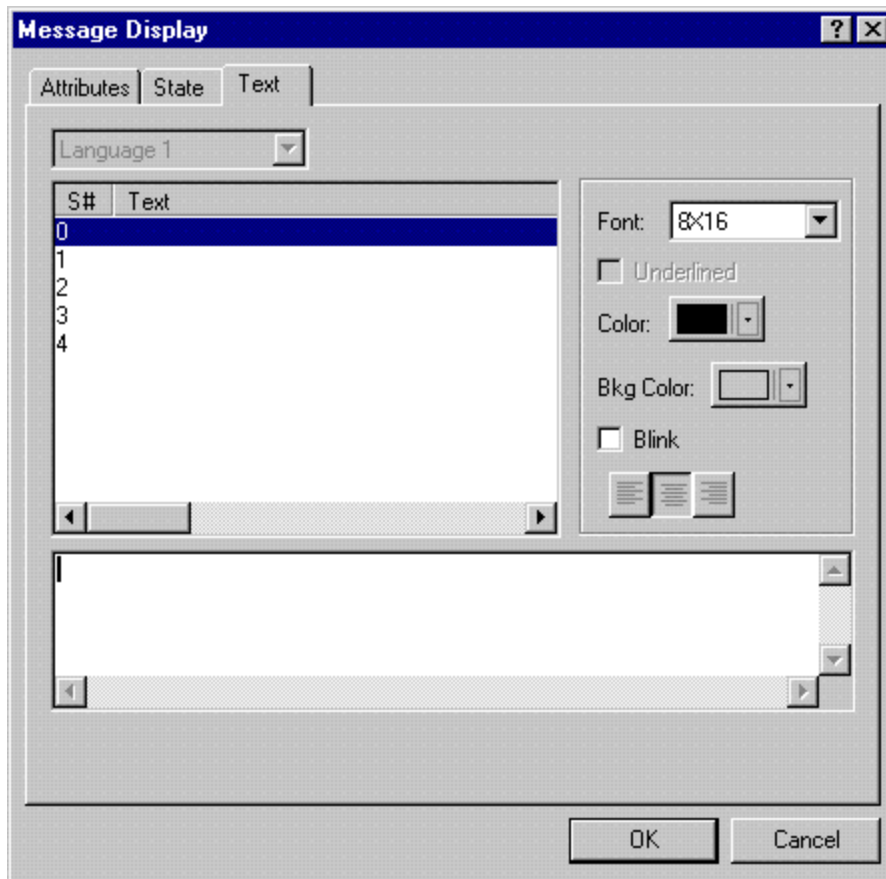
Copy: Copy selected state.

Paste: Paste cut/copy state to selected state

Replace: Replace selected state with cut/copy state.

Delete: Delete selected state.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

6.7.3 MOVING SIGN DISPLAY

Function: A Moving Sign displays one of several pre-stored messages depending on the state of an on/off location or register by shifting that message from left to right at a rate of 2 characters per second. A register can have as many as 256 states if Value selected, 16 states if LSB selected and 2 states if Bit selected.

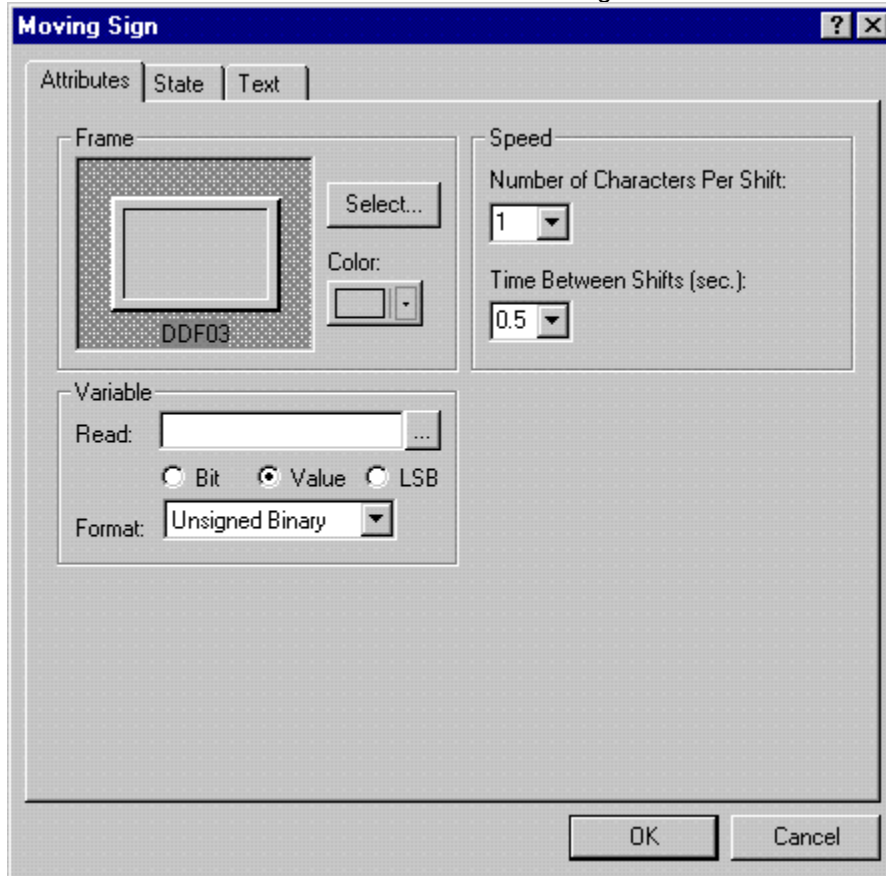
Creating from the menu: select *Object, Message Display, Moving Sign*

Creating from the toolbar:



MOVING SIGN DISPLAY properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Select: Choose the frame type for the prestored message display.

Color: Choose the color of the frame.

Read: Specifies the register that controls the display of one of several pre-stored messages depending on the state of an on/off location or register by shifting out from left to right at the rate of 2 characters per second. A register can have up to 256 states, Value up to 16 states, and Bit can have 2 states.

Bit: If the user selects this option, the display has only 2 states and the Read location is an On/Off location.

Value: If the user selects this option, the Workstation takes the register value as the state number. Ex. Value 0 represents state 0, value 255 represents state 255. There are a total of 256 states available with this configuration.

LSB: If the user selects this option, the Workstation takes the bit number of the least bit that is on as the state number. Ex. The binary number 0000000000000001 represents state 0 and the binary number

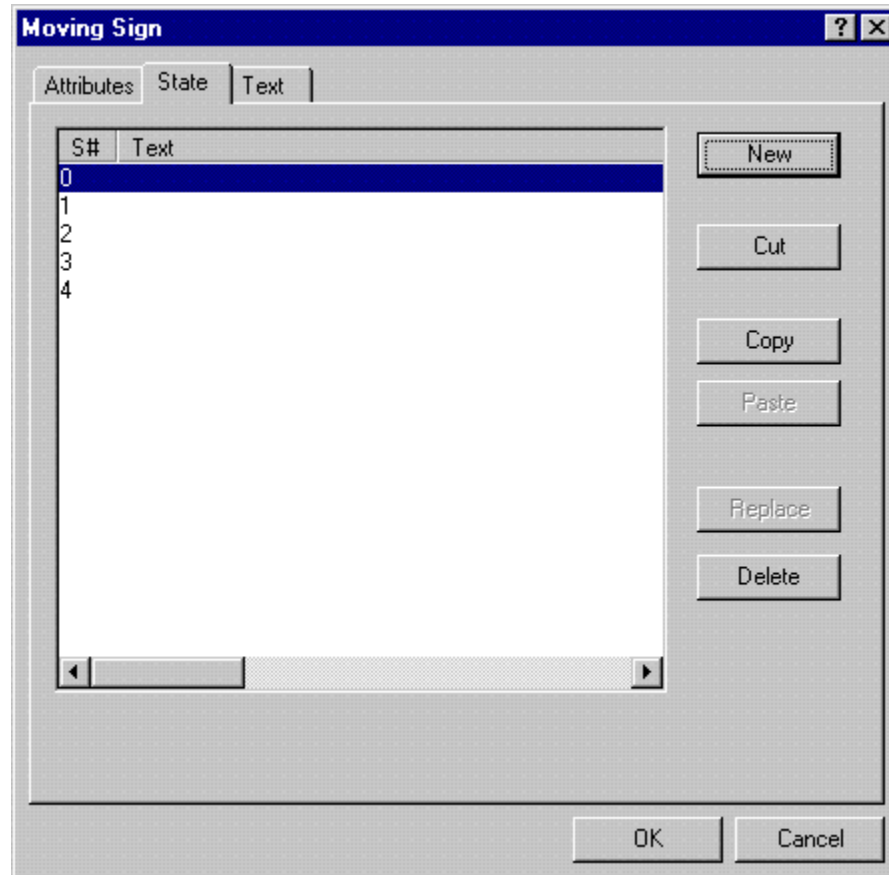
1100001100000000 represents state 8. There are a total of 16 states available with this configuration. Note that the state of binary number 0 is undefined.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Number of Characters Per Shift: Specifies the number of characters per shift.

Time Between Shifts (sec): Time delay between shifts.

State Tab: Allows user to create and delete states.



New: Create a new state.

Cut: Cut selected state.

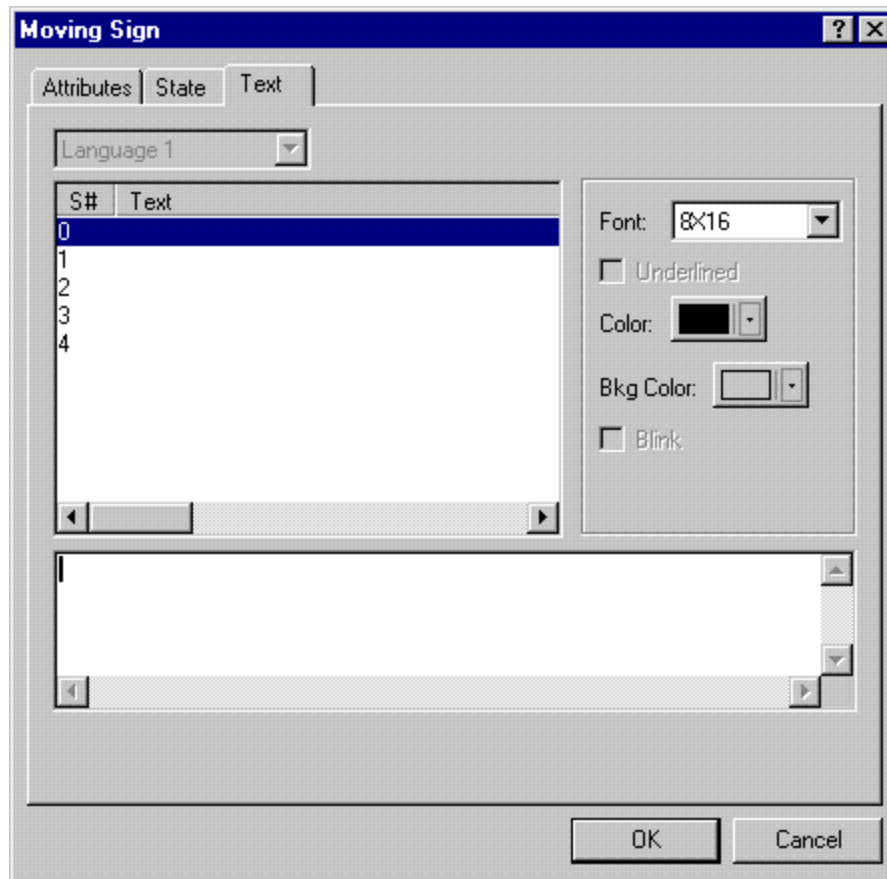
Copy: Copy selected state.

Paste: Paste cut/copy state to selected state

Replace: Replace selected state with cut/copy state.

Delete: Delete selected state.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

6.7.4 TIME DISPLAY

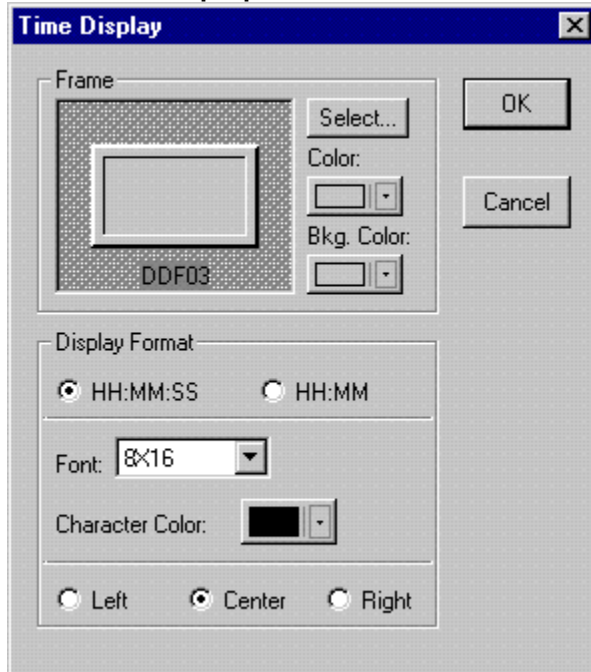
Function: Displays time in Workstations real time clock chip.

Creating from the menu: select *Object, Message Display, Time Display*

Creating from the toolbar:



TIME DISPLAY properties



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background

HH:MM:SS: Displays hour, minute, second in format selected.

HH:MM: Displays hour, minute in format selected.

Font: Change the size of the font.

Character Color: Specifies the character color.

Left, Center or Right: Left, center or right justifies the text in display.

6.7.5 DATE DISPLAY

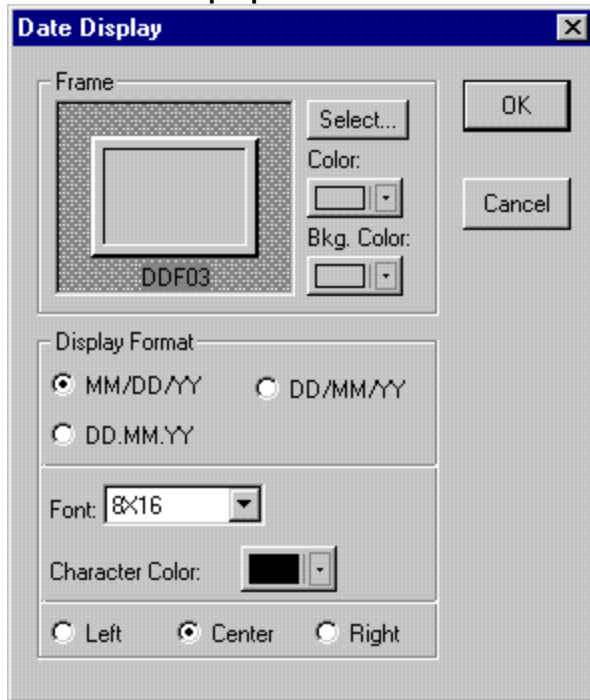
Function: Displays date in Workstations real time clock chip.

Creating from the menu: select *Object, Message Display, Date Display*

Creating from the toolbar:



DATE DISPLAY properties



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background

MM/DD/YY: Displays month, day, year in selected format.

DD/MM/YY: Displays day, month, year in selected format.

DD.MM.YY: Displays day, month, year in selected format.

Font: Change the size of the font.

Character Color: Specifies the character color.

Left, Center or Right: Left, center or right justifies the text in display.

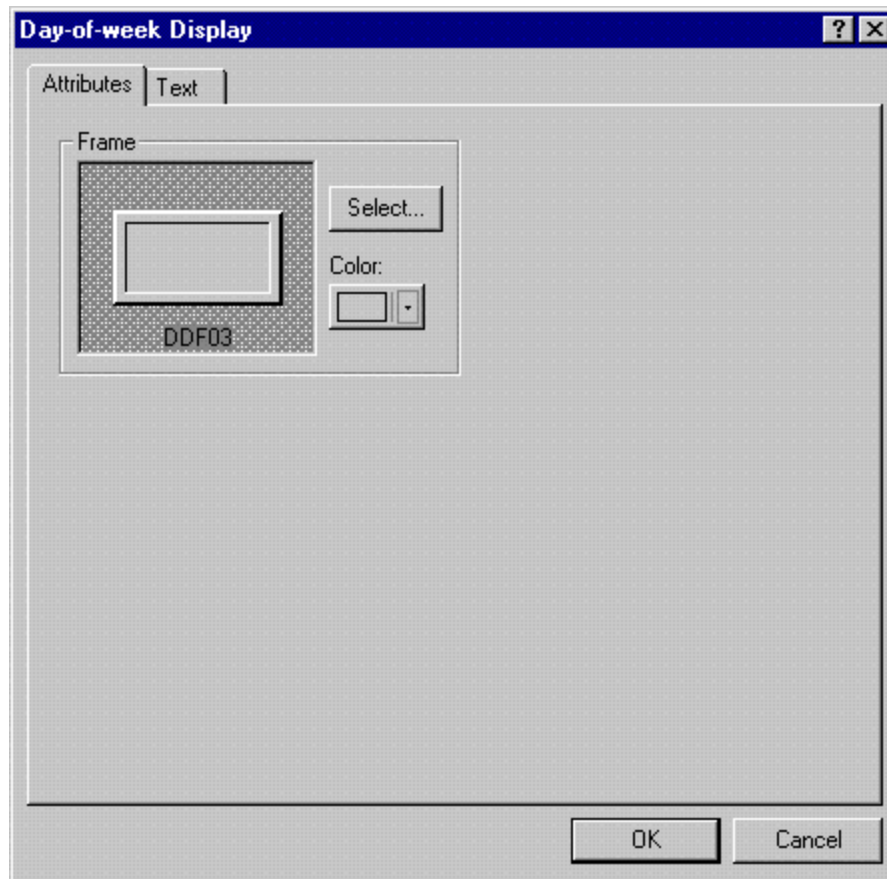
6.7.6 DAY-OF-WEEK DISPLAY

Function: Displays Day-of-week in Workstations real time clock chip.

Creating from the menu: select *Object, Message Display, Day-of-Week Display*

DAY-OF-WEEK DISPLAY properties

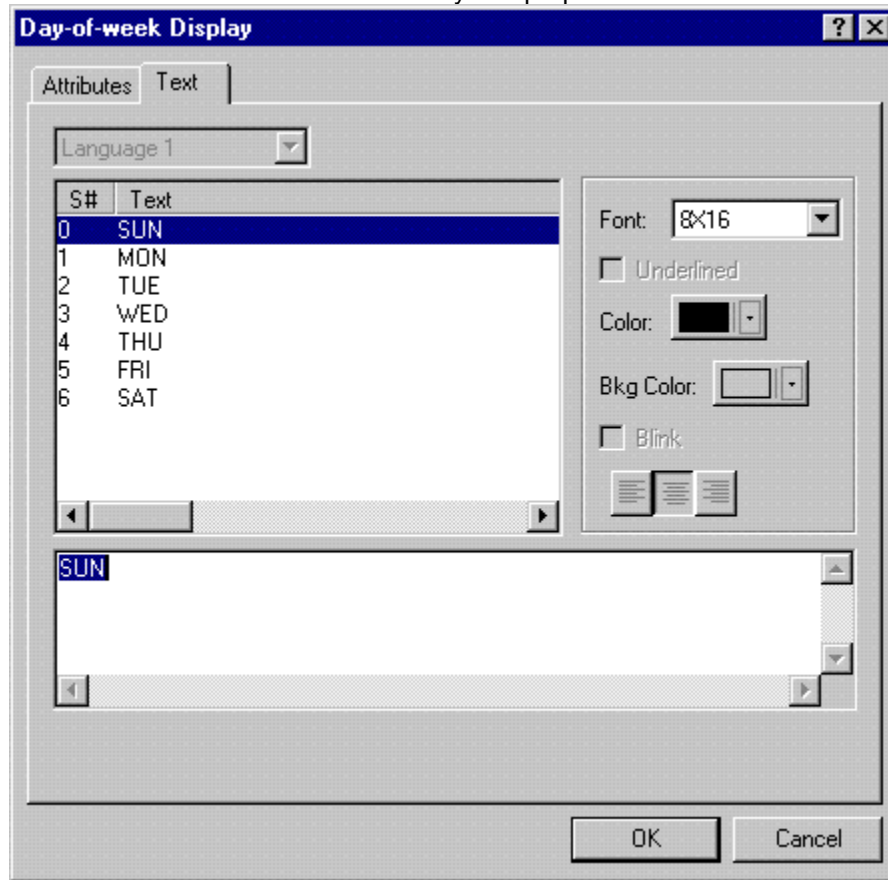
Attributes Tab: The Attributes tab is used to configure the function of the button.



Select: Choose the frame type for the prestored message display.

Color: Choose the color of the frame.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

S#: Specifies the value assigned to each text label.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The three buttons under **Blink** are for text justification, either left, middle or right.

The box at the bottom of the screen is where the user enters text.

6.8 BAR GRAPH

6.8.1 NORMAL BAR GRAPH

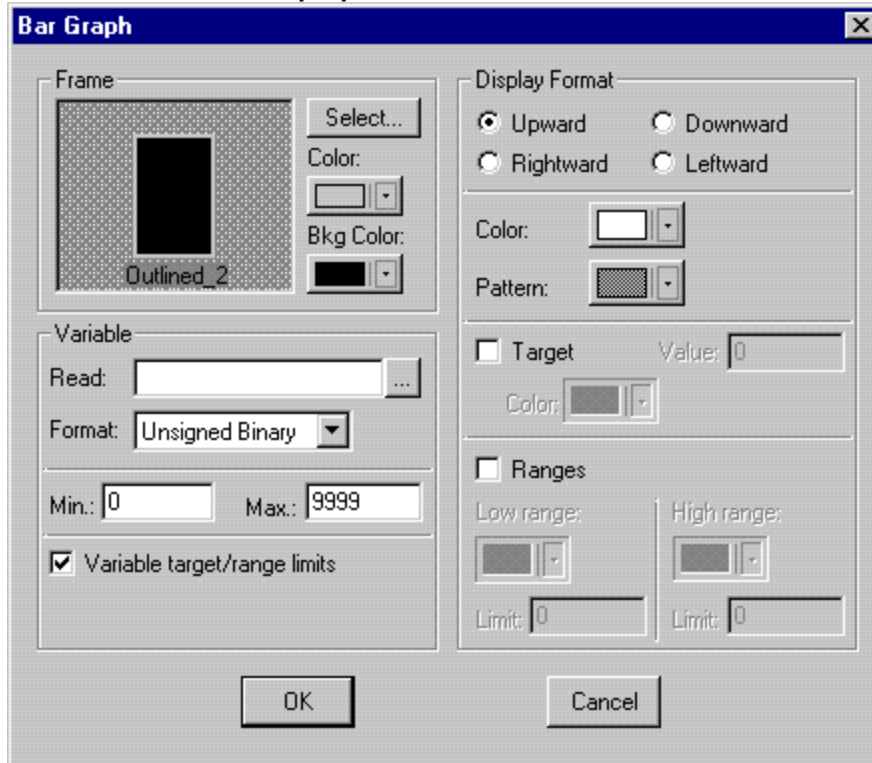
Function: To display a bar graph according to values of reference registers in PLC.

Creating from the menu: select *Object, Bar Graph, Normal*

Creating from the toolbar:



NORMAL BAR GRAPH properties



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Read: Specifies the register to be displayed. The Workstation can display a 16-bit register only.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Min.: Specifies the minimum the bar graph can display.

Max.: Specifies the maximum the bar graph can display.

Variable target/range limits: Select this option if the target value and range limits are read from the PLC.

Upward: Direction for filling graph is from bottom to top.

Downward: Direction for filling graph is from top to bottom.

Rightward: Direction for filling graph is from left to right.

Leftward: Direction for filling graph is from right to left.

Color: Specifies the color for filling the bar graph.

Pattern: Specifies the pattern for filling the bar graph.

Target: Select this option to display a target line on bar graph, which is determined by the target value.

Value: Specifies the constant target value if Target selected and Variable target/range limit isn't selected.

Ranges: Select this option to fill the graph with a different color when the register value is beyond a normal range.

Low range color: Specifies the color to fill graph with if the register value is equal to or less than the low range limit.

Low range limit: Specifies a constant for the low range limit.

High range color: Specifies the color to fill graph with if the register value is greater than or equal to the high range limit.

High range limit: Specifies a constant for the high range limit.

6.8.2 DEVIATION BAR GRAPH

Function: To display area bounded by standard value and current register value with specified color and pattern.

Creating from the menu: select *Object, Bar Graph, Deviation*

DEVIATION BAR GRAPH properties

The screenshot shows a dialog box titled "Deviation Bar Graph" with a close button (X) in the top right corner. The dialog is divided into several sections:

- Frame:** Contains a preview window showing a black square on a gray background, labeled "Outlined_2". To the right of the preview are three controls: a "Select..." button, a "Color:" label with a color selection box, and a "Bkg. Color:" label with a color selection box.
- Variable:** Contains a "Read:" label with a text input field and a browse button (...). Below it is a "Format:" label with a dropdown menu currently set to "Unsigned Binary".
- Min./Max.:** Two text input fields labeled "Min.:" and "Max.:" with values "0" and "9999" respectively.
- Variable Std Value/Deviation Limit:** A checkbox labeled "Variable Std Value/Deviation Limit" which is currently unchecked.
- Display Format:** Contains two radio buttons: "Vertical" (selected) and "Horizontal".
- Color/Pattern:** Two labels, "Color:" and "Pattern:", each followed by a selection box. The "Color:" box shows a white color, and the "Pattern:" box shows a gray pattern.
- Standard Value:** A text input field labeled "Standard Value:" with the value "0".
- Display Deviation Limit:** A checkbox labeled "Display Deviation Limit" which is currently unchecked.
- Limit/Color:** Two labels, "Limit:" and "Color:", each followed by a selection box. The "Limit:" box shows the value "0", and the "Color:" box shows a gray color.

At the bottom of the dialog are two buttons: "OK" and "Cancel".

Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Read: Specifies the register to be displayed. The Workstation can display a 16-bit register only.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Min.: Specifies the minimum the bar graph can display.

Max.: Specifies the maximum the bar graph can display.

Variable Std Value/Deviation limits: Select this option if the standard value and deviation limit are read from the PLC.

Vertical: Direction for filling graph is vertical.

Horizontal: Direction for filling graph is horizontal.

Color: Specifies the color for filling the bar graph.

Pattern: Specifies the pattern for filling the bar graph.

Standard Value: Specifies the constant standard value.

Display Deviation Limit: Select this option to fill the bar graph with selected color when the difference of current register value and the standard value is beyond limit.

Limit: Specifies the constant limit.

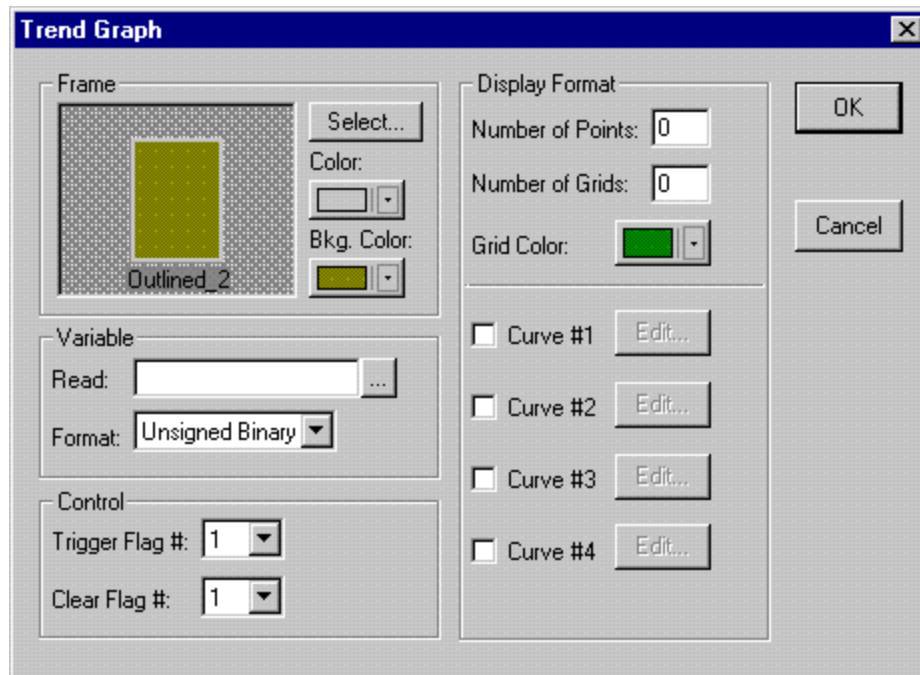
Color: Specifies the color with which the bar graph fills when the Workstation detects the deviation alarm.

6.9 TREND GRAPH

Function: To display up to four different trends based on values in a series of reference registers.

Creating from the menu: select *Object, Trend Graph*

TREND GRAPH properties



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Read: Specifies the starting address of a block of registers. The size of the register block is calculated by the following formula:

$\text{Size (words)} = 1 + (\# \text{ of points}) \times (\# \text{ of trending curves})$

The first register of the register block specifies how many points every trending curve has. If there are N trending curves, then the first N registers starting from the second register of the block contain the data of the first points of all curves, the second N registers contain the data of the second points of all curves, etc.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Trigger Flag #: Specifies the Trigger Flag the Workstation watches. The Workstation reads data from the PLC and displays the trend graph when specified Trigger Flag turns on.

Clear Flag #: Specifies the Clear Flag that the Workstation watches. The Workstation clears the trend graph when that Clear Flag turns on.

Number of Points: Specifies the maximum number of points all trending curves have. The number of points actually displayed can't exceed this number.

Number of Grids: Specifies how many evenly spaced horizontal grids should be displayed. If the number is less than 2, no grids are displayed.

Grid Color: Specifies color of the horizontal grids.

Curve #1, #2, #3, #4: Select the appropriate curve depending on how many curves are desired.

Edit: Click to specify how to display a trending curve.

Minimum: Specifies the value corresponding to the lowest point on the trend graph. When the data is equal to or less than the Minimum, the Workstation places the dot at the bottom pixel of the drawing area of the trend graph.

Maximum: Specifies the value corresponding to the highest point on the trend graph. When the register is equal to or greater than the Maximum, the Workstation places the dot at the top pixel of the drawing area of the trend graph.

Pen Color: Specifies the color of the trending curve.

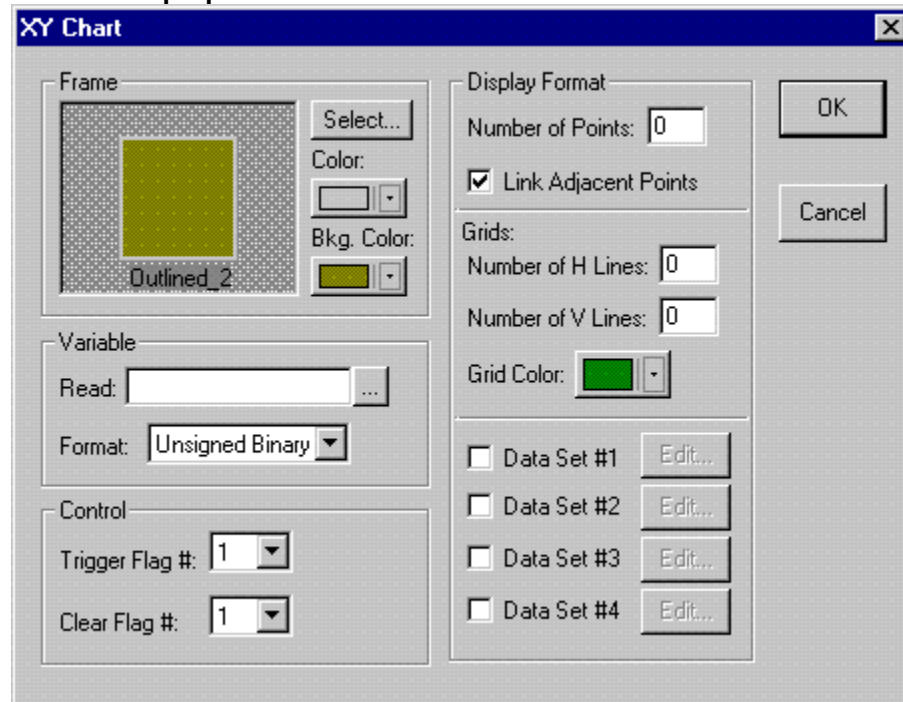
Line Style: Specifies the line style of the trending curve.

6.10 X-Y CHART

Function: To display up to 4 data sets based on values read from a series of reference registers.

Creating from the menu: select *Object, X-Y Chart*

X-Y CHART properties



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Read: Specifies the starting address of a block of registers. The size of the Read block is calculated by the following formula:

$\text{Size (words)} = 1 + (\# \text{ of points}) \times (\# \text{ of data set } \#)$

The first register of the Read block specifies the number of points every data set actually has. If there are N data sets, then the first 2xN registers starting from the second register of Read block contain the data of the first points of all data set, the second 2xN registers contain the data of the second points of all data sets, etc.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Trigger Flag #: Specifies the Trigger Flag that is used for triggering the X-Y Chart. When your PLC sets the Trigger Flag to on, the Workstation reads data from PLC and redraws the X-Y Chart.

Clear Flag #: Specifies the Clear Flag that the Workstation watches. The Workstation clears the X-Y Chart when that Clear Flag turns on.

Number of Points: Specifies the maximum number of points that every set of data can have. The number of points actually displayed must not exceed this number.

Link Adjacent Points: If selected, every pair of adjacent points is linked by a line segment with the same color as the data points.

Number of H Lines: Specifies the number of horizontal lines drawn for the grids.

Number of V Lines: Specifies the number of vertical lines drawn for the grids.

Grid Color: Specifies the grid color.

Data Set #1, #2, #3, #4: Select the appropriate data set depending on how many are desired.

Edit: Specify how to display a data set.

Vertical Min: Specifies the value corresponding to the lowest point on the X-Y Chart. When the X coordinate of a data point is equal to or less than the Vertical Minimum, the Workstation places the data point at the bottom of the drawing area.

Vertical Max: Specifies the value corresponding to the highest point on the X-Y Chart. When the X coordinate of a data point is equal to or greater than the Vertical Maximum, the Workstation places the data point at the top of the drawing area.

Horizontal Min: Specifies the value corresponding to the most left point on the X-Y Chart. When the Y coordinate of a data point is equal to or less than the Horizontal Minimum, the Workstation places the data point at the left of the drawing area.

Horizontal Max: Specifies the value corresponding to the most right point on the X-Y Chart. When the y coordinate of a data point is equal to or greater than the Horizontal Maximum, the Workstation places the data point at the right of the drawing area.

Pen Color: Specifies the color used to draw the data points and linking lines.

Line Style: Specifies the style of the line linking adjacent data points.

Point Size: Specifies the width of the data points. Data points are small squares.

6.11 PANEL METER

6.11.1 ROUND PANEL METER

Function: To display a register value which may consist of a target value and/or range limits in a circular format.

Creating from the menu: select *Object, Panel Meter, Round*

Creating from the toolbar:



ROUND PANEL METER properties

A screenshot of the 'Round Panel Meter' properties dialog box. The dialog is divided into several sections: 'Frame' with a preview and color selection; 'Variable' with fields for 'Read', 'Format' (set to 'Unsigned Binary'), 'Min.' (0), and 'Max.' (9999); 'Needle' with a color selection and 'Sweep Angles (deg.)' set to 300; 'Scale' with 'Color', 'Number of major ticks' (3), 'Number of minor ticks' (2), and checkboxes for 'Display axis' and 'Display mark'; and 'Target/Range' with an 'Edit...' button. Font settings are set to 8x16 and 'Number of digits' is 3. 'Decimal point position' is 0. 'Min.' is 0 and 'Max.' is 100. 'OK' and 'Cancel' buttons are on the right.

Select: Choose the frame type for the character display.

Color: Not available.

Bkg. Color: Choose the color of the background.

Read: Specifies the register to be displayed. The Workstation can display a 16-bit register only.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Min: Specifies the minimum the panel meter can display. When the register value is equal to or less than the minimum, the indicator points to the minimal location.

Max: Specifies the maximum the panel meter can display. When the register value is equal to or greater than the maximum, the indicator points to the maximal position.

Needle Color: Specifies the needle color.

Sweep Angle (deg): Determines if the sweep angle is 300 or 360 degrees.

Scale Color: Specifies the color to display the scale.

Number of major ticks: Specifies the number of major ticks on the scale. If the number is less than 2, no major or minor ticks are displayed.

Number of minor ticks: Specifies the number of minor ticks between 2 major ticks.

Display axis: Select this option to display an arc as the axis of the scale.

Display mark: Select this option to display marks on the scale. Marks are decimal numbers with or without the decimal point and are displayed by major ticks.

Font: Specifies whether a display mark has 8X8 or 8X16 character size.

Number of digits: Specifies the number of digits the marks have.

Decimal point position: Specifies the position of the marks . digit after which a decimal point is displayed. If the number is 0 no decimal point is displayed.

Min: Specifies the minimum of the marks.

Max: Specifies the maximum of the marks.

Target/Range: Used to configure the meter to display the target indicator and /or the range scale.

Variable target/range limits: The target value and the range limits are read from the PLC if this option is selected.

Display target indicator: If selected, the meter has a target indicator.

Target value: Specifies the constant target value.

Target needle color: Specifies the color of target indicator.

Display range scale: If selected, the meter has a range scale.

Lo Color: Specifies the low range color of the scale.

Hi Color: Specifies the hi range color of the scale.

Lo Limit: Specifies the limit of the lo range.

Hi Limit: Specifies the limit of the hi range.

6.11.2 RECTANGULAR PANEL METER

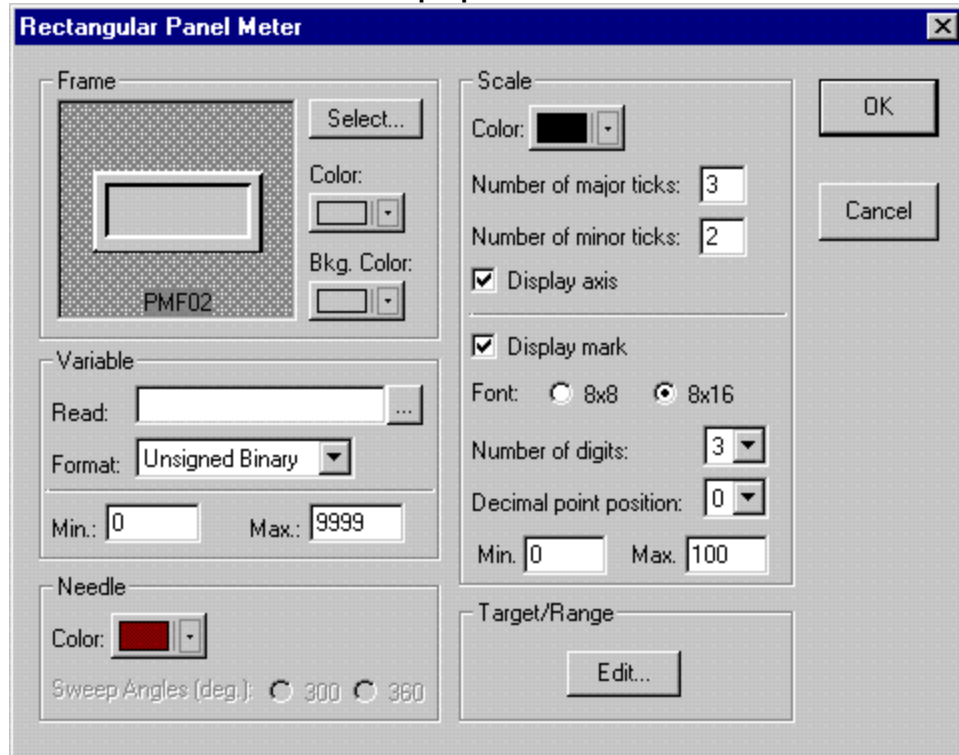
Function: To display a register value which may consist of a target value and/or range limits in a rectangular format.

Creating from the menu: select *Object, Panel Meter, Rectangle*

Creating from the toolbar:



RECTANGULAR PANEL METER properties



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Read: Specifies the register to be displayed. The Workstation can display a 16-bit register only.

Format: Specifies the data format of the Read registers. The available formats are: BCD, Signed Binary and Unsigned Binary.

Min: Specifies the minimum the panel meter can display. When the register value is equal to or less than the minimum, the indicator points to the minimal location.

Max: Specifies the maximum the panel meter can display. When the register value is equal to or greater than the maximum, the indicator points to the maximal position.

Needle Color: Specifies the needle color.

Sweep Angle (deg): Not Available

Scale Color: Specifies the color to display the scale.

Number of major ticks: Specifies the number of major ticks on the scale. If the number is less than 2, no major or minor ticks are displayed.

Number of minor ticks: Specifies the number of minor ticks between 2 major ticks.

Display axis: Select this option to display an arc as the axis of the scale.

Display mark: Select this option to display marks on the scale. Marks are decimal numbers with or without the decimal point and are displayed by major ticks.

Font: Specifies whether a display mark has 8X8 or 8X16 character size.

Number of digits: Specifies the number of digits the marks have.

Decimal point position: Specifies the position of the marks . digit after which a decimal point is displayed. If the number is 0 no decimal point is displayed.

Min: Specifies the minimum of the marks.

Max: Specifies the maximum of the marks.

Target/Range: Used to configure the meter to display the target indicator and /or the range scale.

Variable target/range limits: The target value and the range limits are read from the PLC if this option is selected.

Display target indicator: If selected, the meter has a target indicator.

Target value: Specifies the constant target value.

Target needle color: Specifies the color of target indicator.

Display range scale: If selected, the meter has a range scale.

Lo Color: Specifies the low range color of the scale.

Hi Color: Specifies the hi range color of the scale.

Lo Limit: Specifies the limit of the lo range.

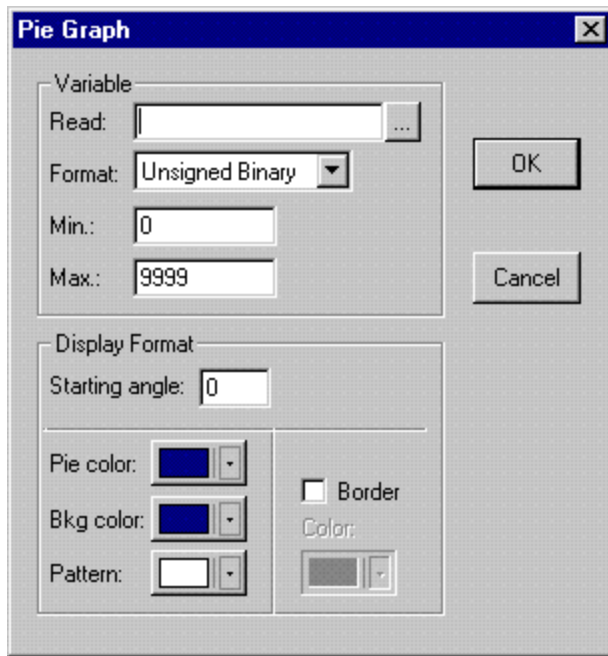
Hi Limit: Specifies the limit of the hi range.

6.12 PIE GRAPH

Function: To display data read from a register in a pie representation.

Creating from the menu: select *Object, Pie Graph*

PIE GRAPH properties



Read: Specifies the register to be displayed. The Workstation can display a 16-bit register only.

Format: Specifies the data format of the Read register. The available formats are: BCD, Signed Binary and Unsigned Binary.

Min: Specifies the minimum the pie graph can display.

Max: Specifies the maximum the pie graph can display.

Starting Angle: Specifies the original angle of the pie graph.

Pie color: Specifies the color for filling the pie graph.

Bkg color: Specifies the color of the unfilled part of pie graph.

Pattern: Specifies the pattern for filling the pie graph.

Border: Specifies the pie graph has a border.

Color: Specifies the color of the border.

6.13 DYNAMIC GRAPHICS

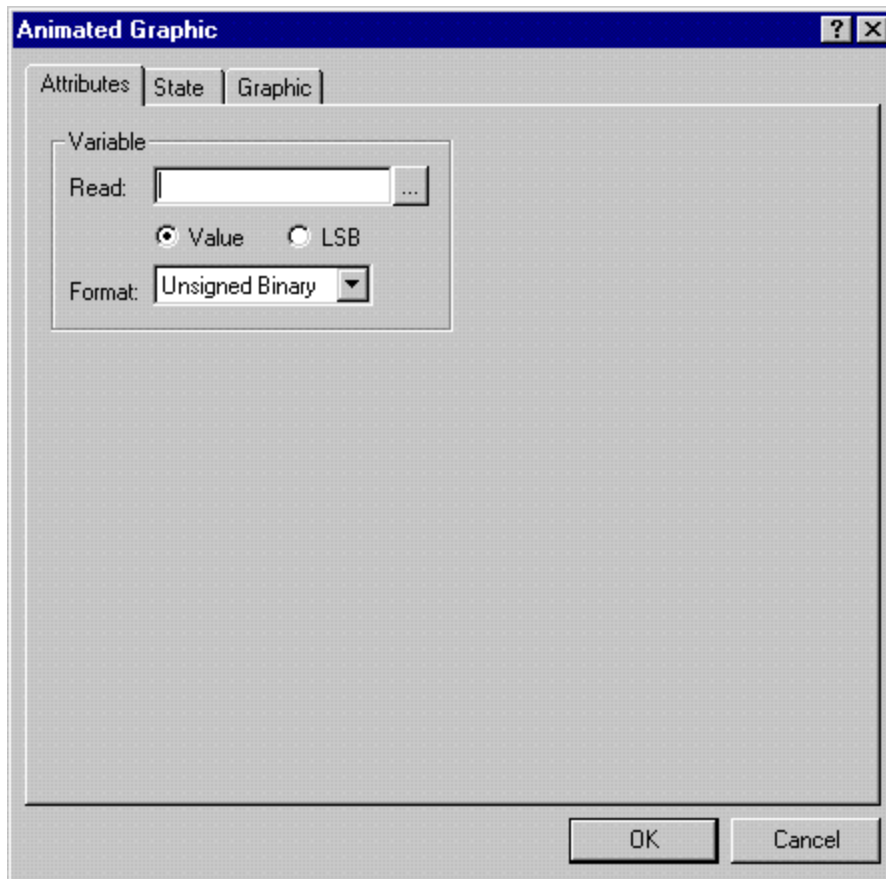
6.13.1 ANIMATED GRAPHIC

Function: To display one of several bitmaps to simulate state and motion information.

Creating from the menu: select *Object, Dynamic Graphic, Animated Graphic*

ANIMATED GRAPHIC properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



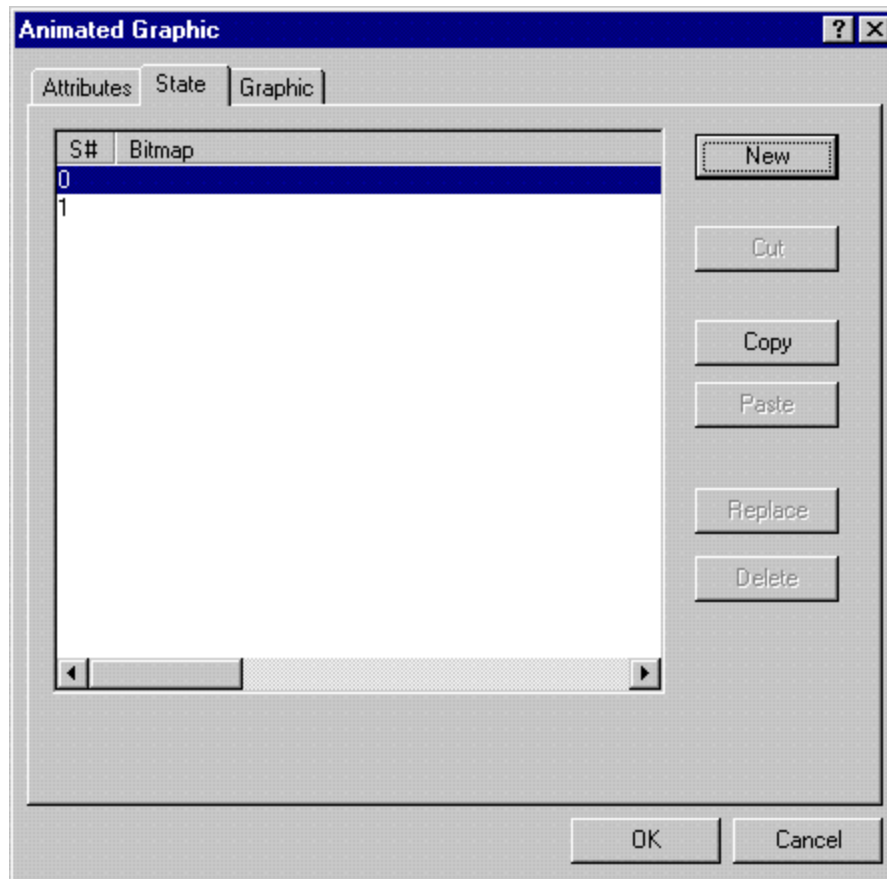
Read: Specifies the starting address of a three-word block which controls the display of the Animated Graphic. The first word specifies the state, the second and third word specify the horizontal and vertical positions respectively at which the graphic is displayed.

Value: If the user selects this option, the Workstation takes the register value as the state number. Ex. Value 0 represents state 0, value 255 represents state 255. There are a total of 256 states available with this configuration.

LSB: If the user selects this option, the Workstation takes the bit number of the least bit that is on as the state number. Ex. The binary number 0000000000000001 represents state 0 and the binary number 1100001100000000 represents state 8. There are a total of 16 states available with this configuration. Note that the state of binary number 0 is undefined.

Format: Specifies the data format of the Read register. The available formats are: BCD, Signed Binary and Unsigned Binary.

State Tab: Allows user to create and delete states.



New: Create a new state.

Cut: Cut selected state.

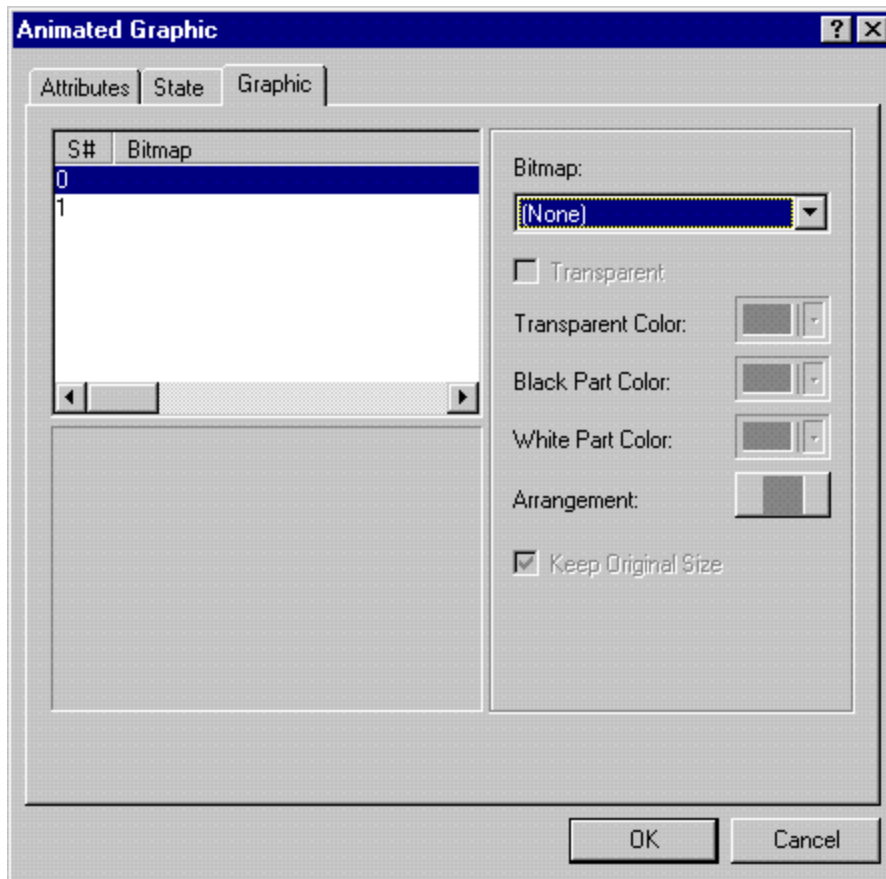
Copy: Copy selected state.

Paste: Paste cut/copy state to selected state

Replace: Replace selected state with cut/copy state.

Delete: Delete selected state.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it.

6.13.2 STATE GRAPHIC

Function: To display one of several bitmaps depending on the state of a register.

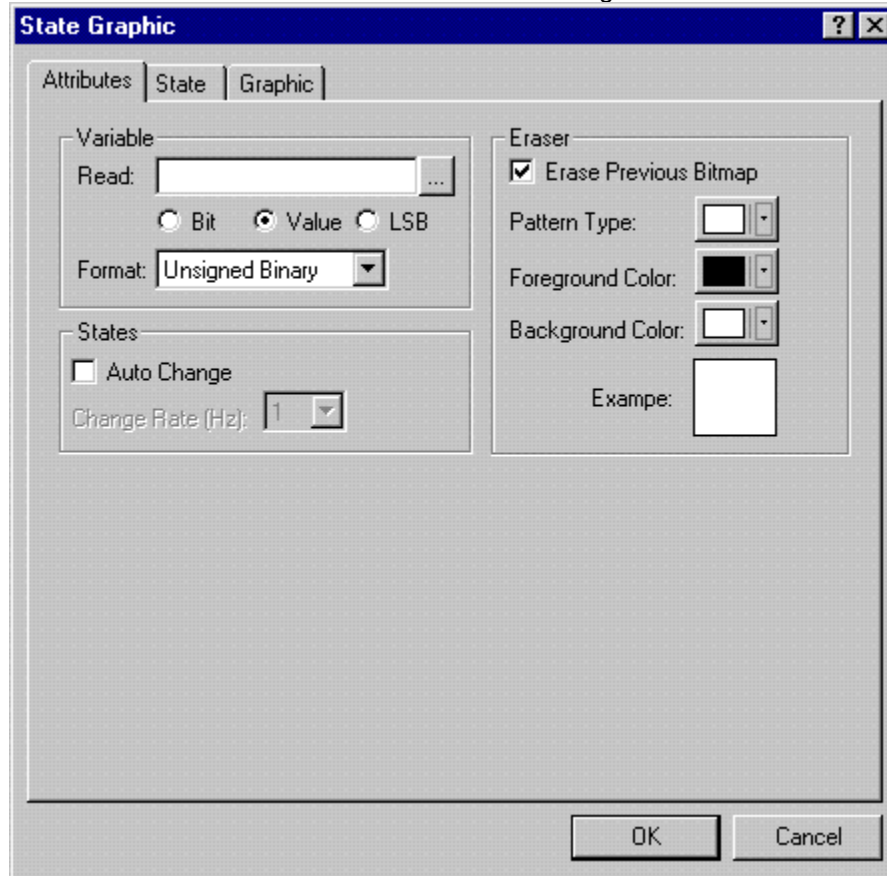
Creating from the menu: select *Object, Dynamic Graphic, State Graphic*

Creating from the toolbar:



STATE GRAPHIC properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Read: Specifies a register or on/off location to save the state for the graphic.

Bit: If the user selects this option, the display has only 2 states and the Read location is an On/Off location.

Value: If the user selects this option, the Workstation takes the register value as the state number. Ex. Value 0 represents state 0, value 255 represents state 255. There are a total of 256 states available with this configuration.

LSB: If the user selects this option, the Workstation takes the bit number of the least bit that is on as the state number. Ex. The binary number 0000000000000001 represents state 0 and the binary number 1100001100000000 represents state 8. There are a total of 16 states available with this configuration. Note that the state of binary number 0 is undefined.

Format: Specifies the data format of the Read register. The available formats are: BCD, Signed Binary and Unsigned Binary.

Auto Change: Select this option to enable a state graphic to change bitmaps automatically.

Change Rate (Hz): Frequency at which the state graphic changes bitmaps.

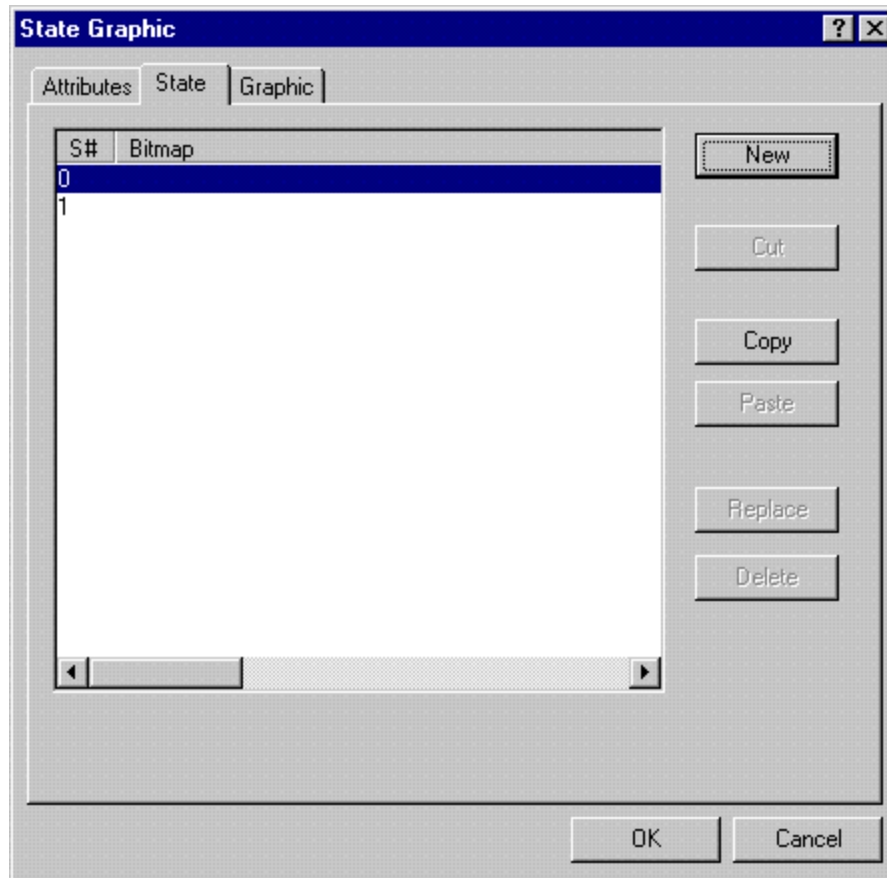
Erase Previous Bitmap: If selected the Workstation erases the previous bitmap by filling that bitmaps area with the pattern and colors defined in the following three options before displaying the bitmap of the current state.

Pattern Type: Specifies the fill pattern for erasing previous bitmap.

Foreground Color: Specifies color used to paint black portion of the fill pattern when erasing previous bitmap.

Background Color: Specifies color used to paint white portion of the fill pattern when erasing the previous bitmap.

State Tab: Allows user to create and delete states.



New: Create a new state.

Cut: Cut selected state.

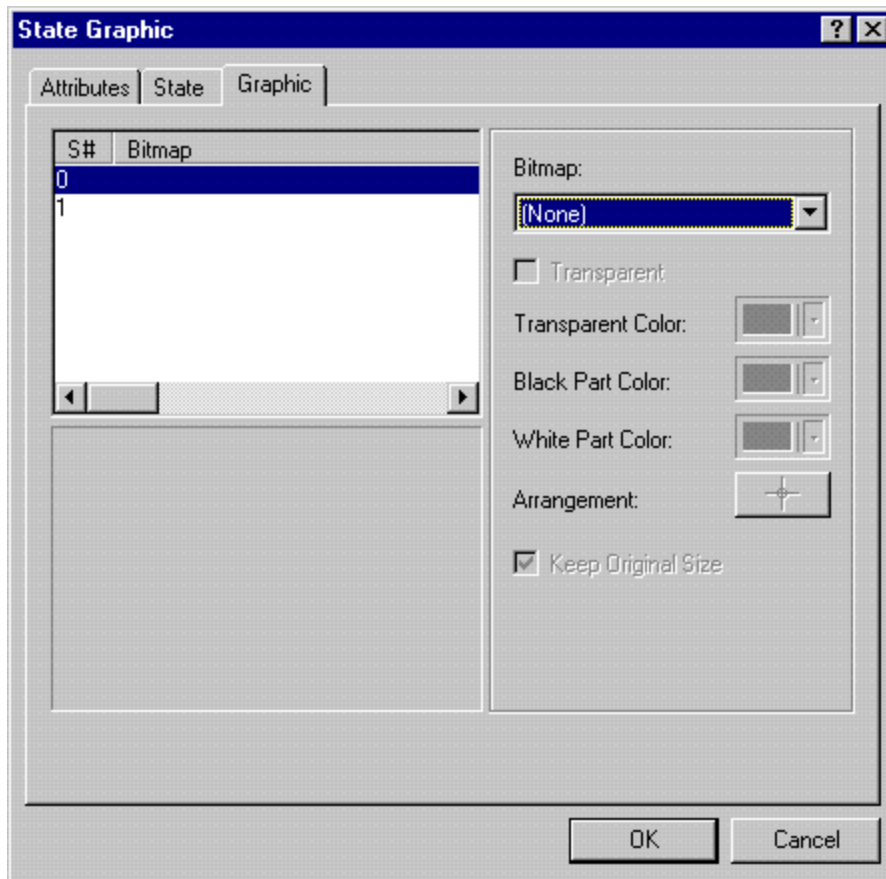
Copy: Copy selected state.

Paste: Paste cut/copy state to selected state

Replace: Replace selected state with cut/copy state.

Delete: Delete selected state.

Graphic Tab: This is where the user can associate a bitmap with certain state.



Bitmap: Available bitmaps. Additional bitmaps may be added to the Bitmap Library, as is discussed in a different section.

Transparent: Check this box to enable transparency. This option is only available when using a bitmap.

Transparent Color: Allows user to select color to be transparent. This option is only available when using imported bitmaps.

Black Part Color: Changes the color of selected bitmap. This feature only applies to the default bitmaps.

White Part Color: Changes the color around the selected bitmap. This option is only available when transparency isn't selected and is a default bitmap.

Arrangement: If a bitmap is assigned to a button and the bitmap is moved, pressing this button will result in the bitmap being centered, as indicated by the crosshair. Pressing the button again, now represented by an undo arrow, will cause the bitmap to return to its previous location.

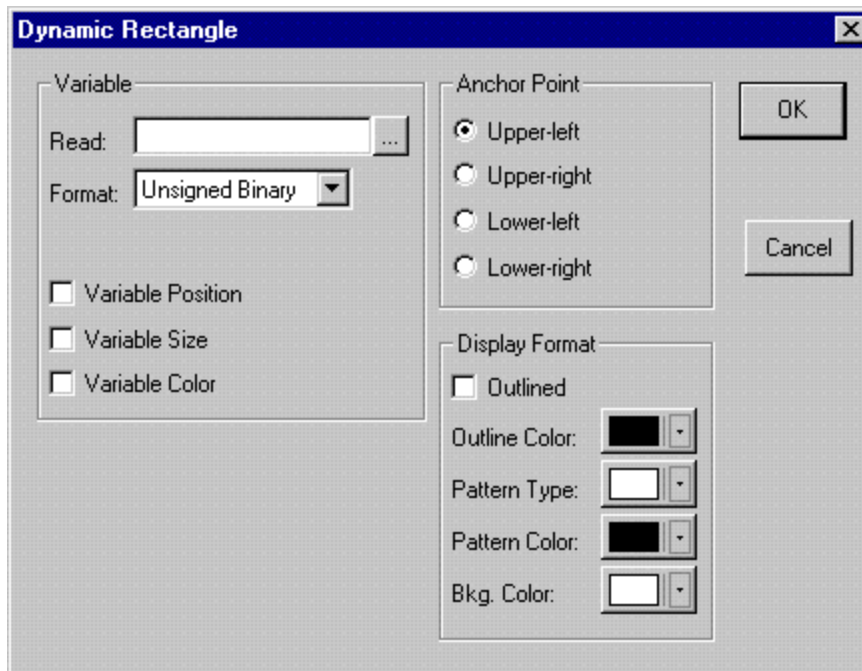
Keep Original Size: Check this box to maintain the original bitmap size. If this box is not checked, the bitmap image can be resized. Click the bitmap image to resize it..

6.13.3 DYNAMIC RECTANGLE

Function: Provides ability to change position, size, and/or color according to controlling registers.

Creating from the menu: select *Object, Dynamic Graphic, Dynamic Rectangle*

DYNAMIC RECTANGLE properties



Read: Specifies the register or starting address of a block of registers that control the display of the Dynamic Rectangle.

Format: Specifies the data format of the Read register. The available formats are: BCD, Signed Binary and Unsigned Binary.

Variable Position: If selected, the position of the Dynamic Rectangle is changeable. The upper left corner's horizontal and vertical coordinates of the Dynamic Rectangle are determined by the first and second register following the two registers for the width and height parameters. The unit of coordinates is one pixel. Registers need not be allocated if this option isn't selected.

Variable Size: If selected, the size of the Dynamic Rectangle is changeable. The width and height are determined by the first and second registers of the register block specified in the Read box. The unit size is one pixel. Registers need not be allocated if this option isn't selected.

Variable Color: If selected, the foreground pattern color of the Dynamic Rectangle is changeable. The color is determined by the register following the register for vertical coordinate. Registers need not be allocated if this option isn't selected.

Use the following value to specify a color:

- | | |
|-------------|--------------------|
| 0 - Black | 8 - Dark gray |
| 1 - Blue | 9 - Light blue |
| 2 - Green | 10 - Light green |
| 3 - Cyan | 11 - Light cyan |
| 4 - Red | 12 - Light red |
| 5 - Magenta | 13 - Light magenta |
| 6 - Brown | 14 - Yellow |
| 7 - Gray | 15 - White |

Eraser Pattern Type: Specifies pattern used to erase the Dynamic Rectangle.

Pattern Color: Specifies color used to paint black portion of the fill pattern when erasing the Dynamic Rectangle.

Background Color: Specifies color used to paint white portion of the fill pattern when erasing the Dynamic Rectangle.

Anchor Point: When Variable Position isn't selected, you must choose one of the following corner points as the anchor point: Upper left, Upper right, Lower left, or Lower right. The Dynamic Rectangle keeps the anchor point fixed when changing size.

Outlined: If selected, the Dynamic Rectangle is outlined with the specified color.

Outline Color: Specifies the outline color.

Pattern Type: Specifies the pattern used to fill the Dynamic Rectangle.

Pattern Color: Specifies color used to paint black portion of the fill pattern when drawing the Dynamic Rectangle.

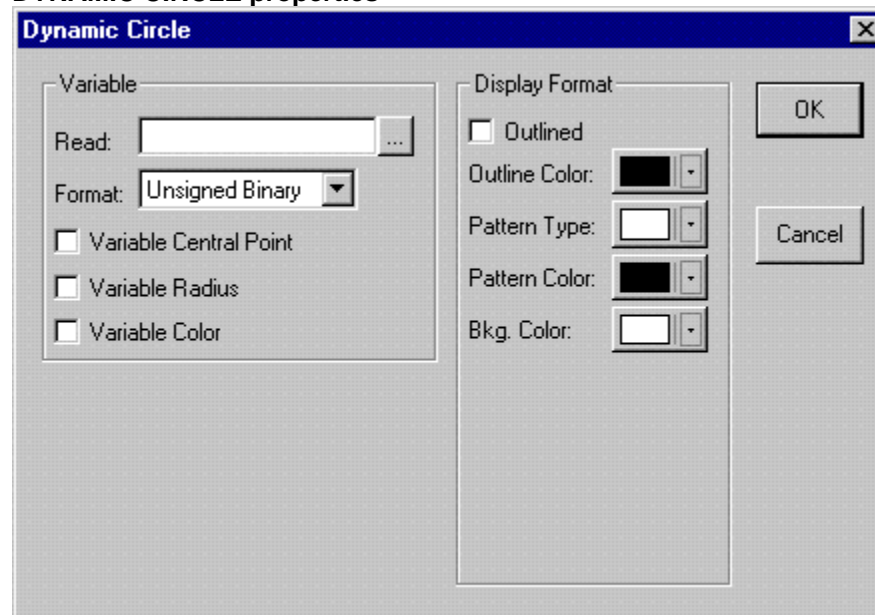
Bkg. Color: Specifies color used to paint white portion of the fill pattern when drawing the Dynamic Rectangle.

6.13.4 DYNAMIC CIRCLE

Function: Provides ability to change position, radius, and/or color according to controlling registers.

Creating from the menu: select *Object, Dynamic Graphic, Dynamic Circle*

DYNAMIC CIRCLE properties



Read: Specifies the register or starting address of a block of registers that control the display of the Dynamic Circle.

Format: Specifies the data format of the Read register. The available formats are: BCD, Signed Binary and Unsigned Binary.

Variable Central Point: If selected, the central point of the Dynamic Circle is changeable. The horizontal and vertical coordinates of the central point are determined by the first and second register following the register for the radius. The unit of coordinate is on pixel. Registers need not be allocated if this option isn't selected.

Variable Radius: If selected, the radius of the Dynamic Circle is changeable. The radius of the Dynamic Circle is determined by the first register of the register block specified in the Read box. The unit of size is one pixel. Registers need not be allocated if this option isn't selected.

Variable Color: If selected, the foreground pattern color of the Dynamic Rectangle is changeable. The color is determined by the register following the register for vertical coordinate of the central point. Registers need not be allocated if this option isn't selected.

Use the following value to specify a color:

0 - Black	8 - Dark gray
1 - Blue	9 - Light blue
2 - Green	10 - Light green
3 - Cyan	11 - Light cyan
4 - Red	12 - Light red
5 - Magenta	13 - Light magenta
6 - Brown	14 - Yellow
7 - Gray	15 - White

Eraser Pattern Type: Specifies pattern used to erase the Dynamic Circle.

Pattern Color: Specifies color used to paint black portion of the fill pattern when erasing the Dynamic Circle.

Background Color: Specifies color used to paint white portion of the fill pattern when erasing the Dynamic Circle.

Outlined: If selected, the Dynamic Circle is outlined with the specified color.

Outline Color: Specifies the outline color.

Pattern Type: Specifies the pattern used to fill the Dynamic Circle.

Pattern Color: Specifies color used to paint black portion of the fill pattern when drawing the Dynamic Circle.

Bkg. Color: Specifies color used to paint white portion of the fill pattern when drawing the Dynamic Circle

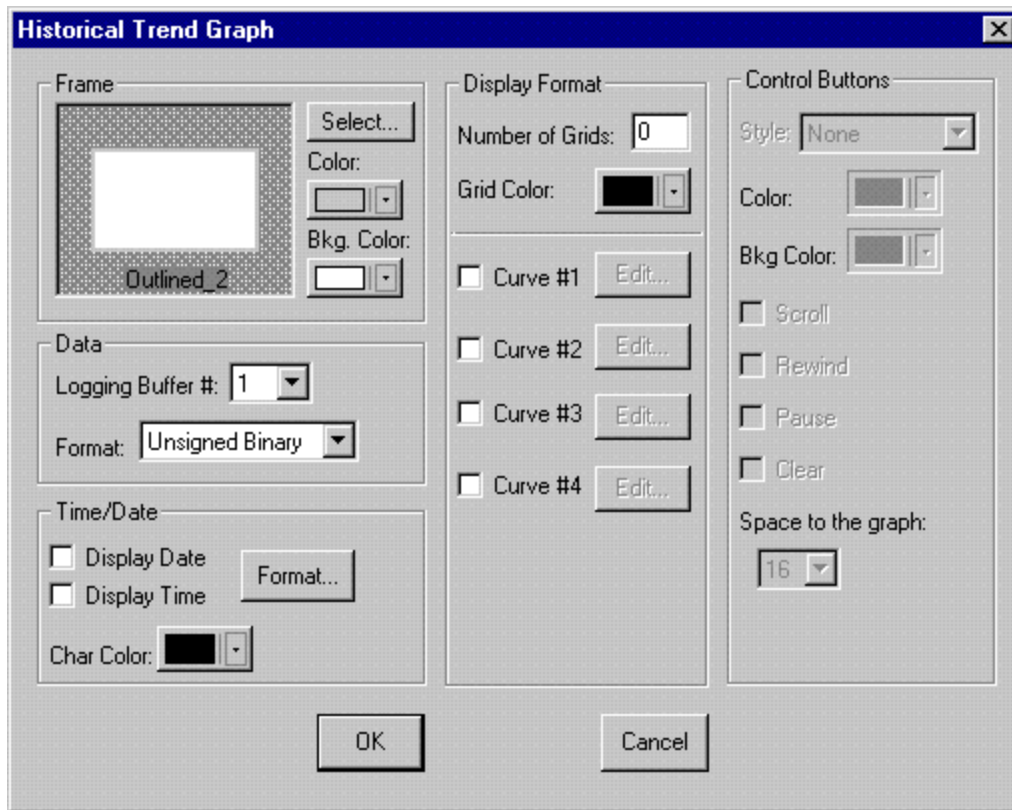
6.14 HISTORICAL DISPLAY

6.14.1 HISTORICAL TREND GRAPH

Function: To display up to four different trends based on values in a series of reference registers over time in a graph representation.

Creating from the menu: select *Object, Historical Display, Historical Trend Graph*

HISTORICAL TREND GRAPH properties



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Logging Buffer #: Specifies the number of the logging buffer where the historical data is stored, numbered 1 to 12.

Format: Specifies the data format of the Write and Read registers. This option is only available when Value is selected. There available formats are: BCD, Signed Binary and Unsigned Binary.

Display Date: Select to display the date of the leftmost and rightmost point(s) of the currently shown trending curve(s).

Display Time: Select to display the time of the leftmost and rightmost point(s) of the currently shown trending curve(s).

Char Color: Specifies the character color.

Format: Choose the time and date format to use from the following:

HH:MM:SS	MM/DD/YY
HH:MM	DD/MM/YY
	DD.MM.YY

Number of Grids: Specifies how many evenly spaced horizontal lines shall be displayed. If the number is less than 2, no lines are displayed.

Grid Color: Specifies the color of the horizontal grids.

Curve #1, #2, #3, #4: If selected, specify how to display a trend graph by pressing the corresponding Edit button.

Edit button

Word No: Specifies the number of the word in the data record that will be displayed by this trending curve. The number of the first word is 0, the second word is 1, etc.

Minimum: Specifies the value corresponding to the lowest point on the trend graph. When the data is equal to or less than the Minimum, the Workstation places the dot at the bottom pixel of the drawing area of the trend graph.

Maximum: Specifies the value corresponding to the highest point on the trend graph. When the register is equal to or greater than the Maximum, the Workstation places the dot at the top pixel of the drawing area of the trend graph.

Pen Color: Specifies the color to draw the trending curve.

Line Style: Specifies the line style of the trending curve.

Style: Specifies the control buttons frame style.

Color: Specifies the control buttons frame color.

Bkg Color: Specifies the background color of the control button labels.

Scroll: Select this option to display four push buttons:

Left button: Moves the view of trending curves toward the earliest point by one point.

Fast left button: Moves the view of trending curves toward the earliest point by approximately one-half page worth of points.

Right button: Moves the view of trending curves toward latest point by one point.

Fast right button: Moves the view of trending curves toward the latest point by approximately one-half page worth of points.

Rewind: Select this option to display a Begin and an End button.

Begin button: Displays the earliest data in the logging buffer when pressed.

End button: Displays the latest data in the logging buffer when pressed.

Pause: Select this option to display a Pause button.

Pause button: Disables Historical Trend Graph from updating when pressed. Press again to enable updating.

Clear: Select this option to display a Clear button.

Clear button: Clears the logging buffer when pressed.

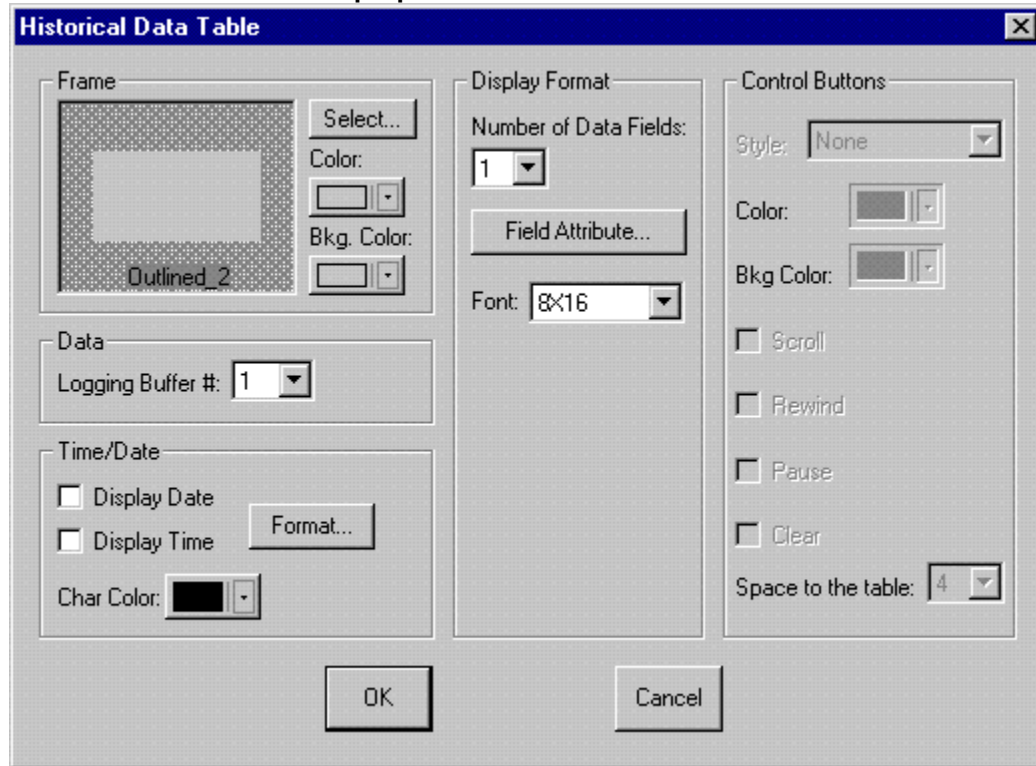
Space to the graph: Specifies the distance between control buttons and graph.

6.14.2 HISTORICAL DATA TABLE

Function: To display numeric data recorded in a logging buffer.

Creating from the menu: select *Object, Historical Display, Historical Data Table*

HISTORICAL DATA TABLE properties



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Logging Buffer #: Specifies the number of the logging buffer where the historical data is stored, numbered 1 to 12.

Display Date: Select to display the date when a record was recorded. The Logging Buffer must be configured to have a date stamp.

Display Time: Select to display the time when a record was recorded. The Logging Buffer must be configured to have a time stamp.

Char Color: Specifies the character color.

Format: Choose the time and date format to use from the following:

HH:MM:SS
HH:MM

MM/DD/YY
DD/MM/YY
DD.MM.YY

Number of Data Fields: Specifies how many data fields you want to display numeric data. There can be up to ten data fields.

Field Attribute: Press this button to configure attributes for the data fields.

Field No: Corresponds to which data field you are working with.

Starting Position: Specifies the position of a data field in the table. If you specify a number N for a data field, that data field starts at N+1 characters away from the time/date display if any. If there isn't a time/date display, the data field is N characters away from the left border of the table. It is usual to specify 0 for the first data field.

Data Size: Specifies data size, either 1 for a single word or 2 for a double word.

Data Format: Specifies the data format. The choices are: BCD, Signed Binary, Unsigned Binary and Hexadecimal.

Display Color: Specifies the character color of the data field.

Leading Zero: Select this option to display leading zero(s).

Decimal Pt. Position: Number of digits to the right of the decimal point.

Integral Digits: Specifies the number of digits to the left of decimal point allowed to be displayed or entered. The number must be consistent with users selection for Data Format, Data Size, and Decimal Point Position.

Fractional Digits: Specifies the number of digits to the right of decimal point allowed to be displayed or entered. This can't exceed the number of Decimal Point Position.

Font: Specifies the font size. Choices are: 8X8, 8X16, 16X16.

Style: Specifies the control buttons frame style.

Color: Specifies the control buttons frame color.

Bkg Color: Specifies the background color of the control button labels.

Scroll: Select this option to display four push buttons:

Up button: Moves the view of data records toward the earliest record by one record.

Fast up button: Displays the previous page of data records.

Down button: Moves the view of data records toward latest record by one record.

Fast down button: Displays the next page of data records.

Rewind: Select this option to display a Begin and an End button.

Begin button: Displays the earliest data in the logging buffer when pressed.

End button: Displays the latest data in the logging buffer when pressed.

Pause: Select this option to display a Pause button.

Pause button: Disables Historical Trend Graph from updating when pressed. Press again to enable updating.

Clear: Select this option to display a Clear button.

Clear button: Clears the logging buffer when pressed.

Space to the Table: : Specifies the distance between control buttons and table.

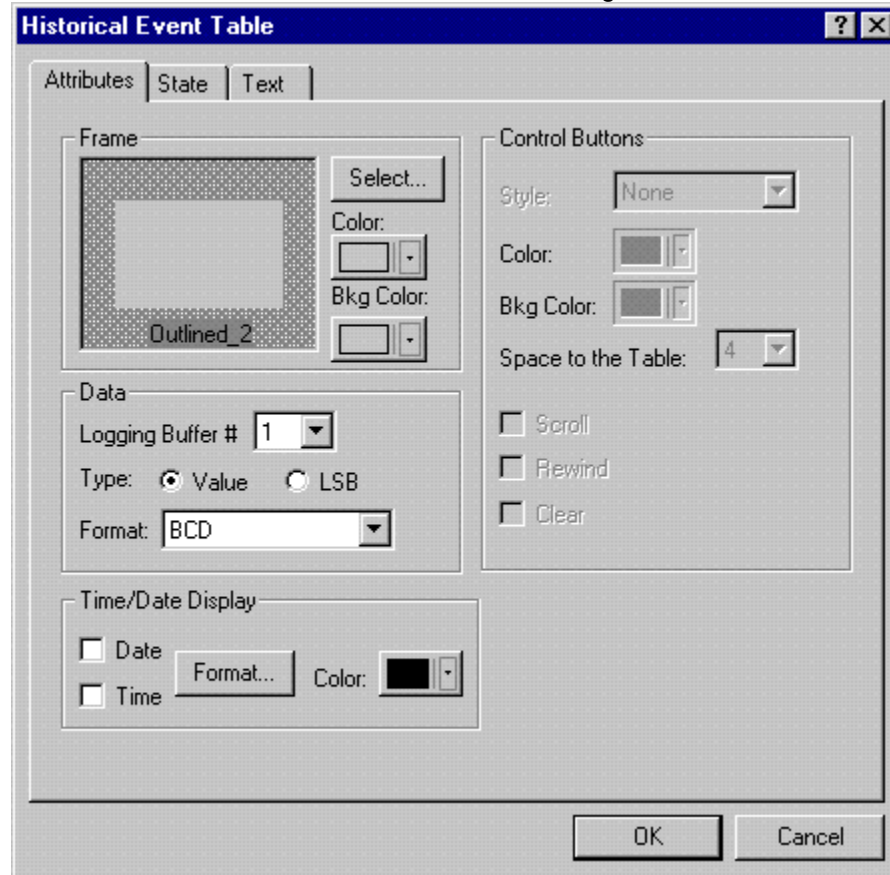
6.14.3 HISTORICAL EVENT TABLE

Function: To list events recorded in a logging buffer by displaying corresponding event message.

Creating from the menu: select *Object, Historical Display, Historical Event Table*

HISTORICAL EVENT TABLE properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Bkg. Color: Choose the color of the background.

Logging Buffer #: Specifies the number of the logging buffer where the historical data is stored, numbered 1 to 12.

Value: If the user selects this option, the Workstation takes the register value as the state number. Ex. Value 0 represents state 0, value 255 represents state 255. There are a total of 256 states available with this configuration.

LSB: If the user selects this option, the Workstation takes the bit number of the least bit that is on as the state number. Ex. The binary number 0000000000000001 represents state 0 and the binary number

1100001100000000 represents state 8. There are a total of 16 states available with this configuration. Note that the state of binary number 0 is undefined.

Format: Specifies the data format. This is only meaningful when the Value option is selected. The available formats are: BCD, Signed Binary and Unsigned Binary.

Date: Select to display the date when an event was recorded. The Logging Buffer must be configured to have a date stamp.

Time: Select to display the time when an event was recorded. The Logging Buffer must be configured to have a time stamp

Color: Specifies the character color.

Format: Choose the time and date format to use from the following:

HH:MM:SS	MM/DD/YY
HH:MM	DD/MM/YY
	DD.MM.YY

Style: Specifies the control buttons frame style.

Color: Specifies the control buttons frame color.

Bkg Color: Specifies the background color of the control button labels.

Scroll: Select this option to display four push buttons:

Up button: Moves the view of event messages toward the earliest event by one event.

Fast up button: Displays the previous page of event messages.

Down button: Moves the view of event messages toward latest event by one event.

Fast down button: Displays next page of event messages.

Rewind: Select this option to display a Begin and an End button.

Begin button: Displays the earliest events in the logging buffer when pressed.

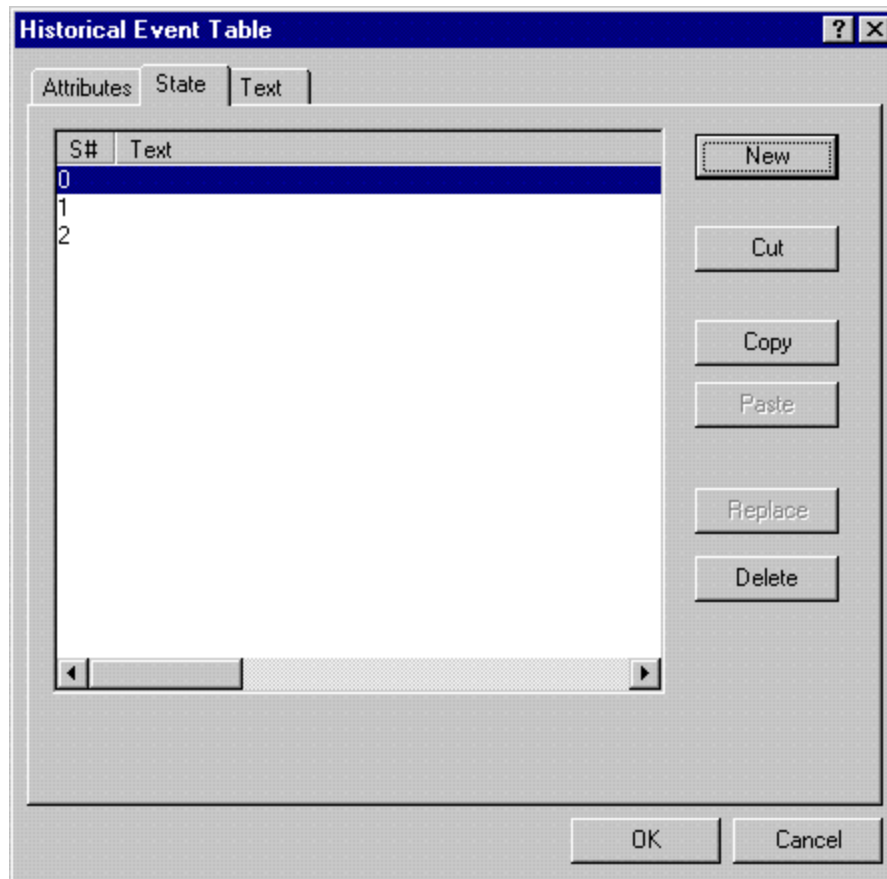
End button: Displays the latest events in the logging buffer when pressed.

Clear: Select this option to display a Clear button.

Clear button: Clears the logging buffer when pressed.

Space to the Table: : Specifies the distance between control buttons and table.

State Tab: Allows user to create and delete states.



New: Create a new state.

Cut: Cut selected state.

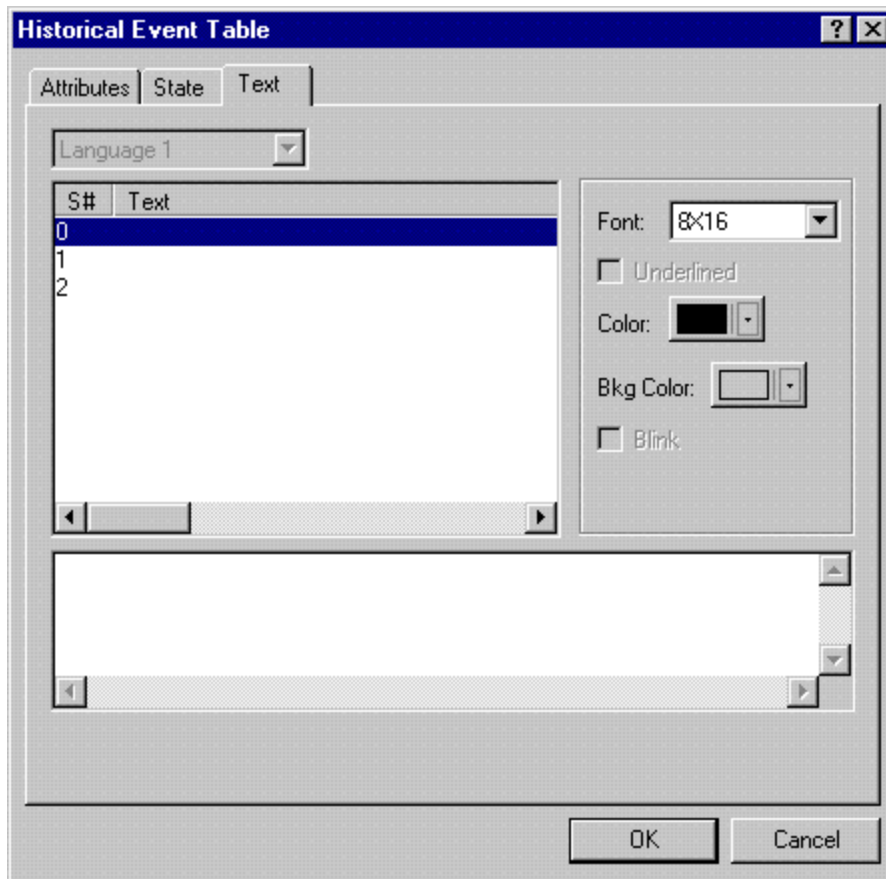
Copy: Copy selected state.

Paste: Paste cut/copy state to selected state

Replace: Replace selected state with cut/copy state.

Delete: Delete selected state.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

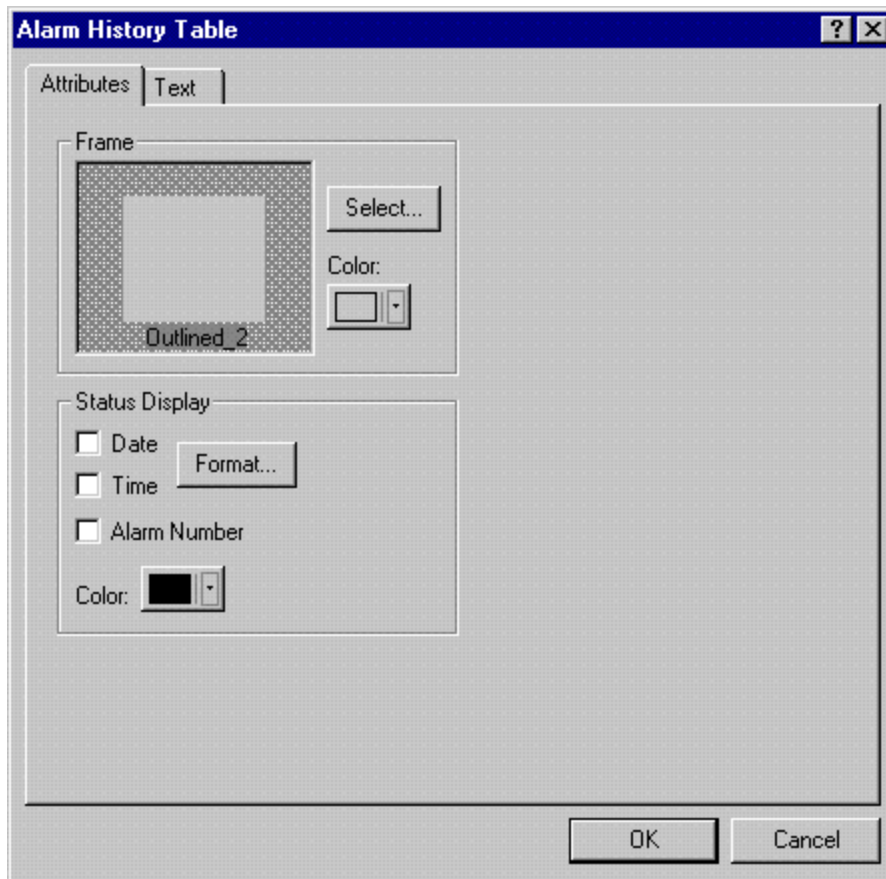
The box at the bottom of the screen is where the user enters text.

6.15 ALARM DISPLAY

6.15.1 ALARM HISTORY TABLE

Function: List alarm messages that have occurred in sequence.

Creating from the menu: select *Object, Alarm Display, Alarm History Table*



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Display Date: Select to display the date when an alarm was recorded. The Logging Buffer must be configured to have a date stamp.

Display Time: Select to display the time when a record was recorded.

Format: Choose the time and date format to use from the following:

HH:MM:SS	MM/DD/YY
HH:MM	DD/MM/YY
	DD.MM.YY

Alarm Number: Assigns a number to an alarm that can be compared with the Alarm Setup table.

Color: Specifies the character color.

Style: Specifies the control buttons frame style.

Color: Specifies the control buttons frame color.

Bkg Color: Specifies the background color of the control button labels.

Scroll: Select this option to display four push buttons:

Up button: Moves the view of the Alarm Block toward the earliest alarm by one alarm.

Fast up button: Displays the previous page of the Alarm Block.

Down button: Moves the view of the Alarm Block toward latest alarm by one alarm.

Fast down button: Displays next page of the Alarm Block.

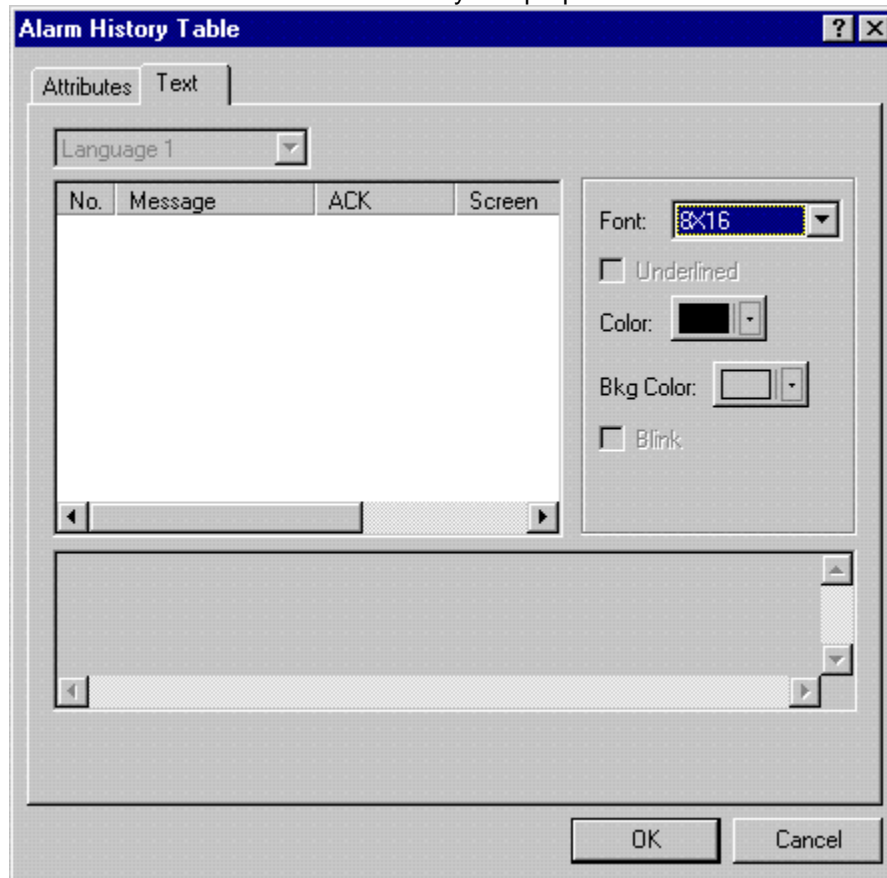
Rewind: Select this option to display a Begin and an End button.

Begin button: Displays the earliest alarms in the Alarm Block when pressed.

End button: Displays the latest events in the Alarm Block when pressed.

Space to the Table: : Specifies the distance between control buttons and table.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The box at the bottom of the screen is where the user enters text.

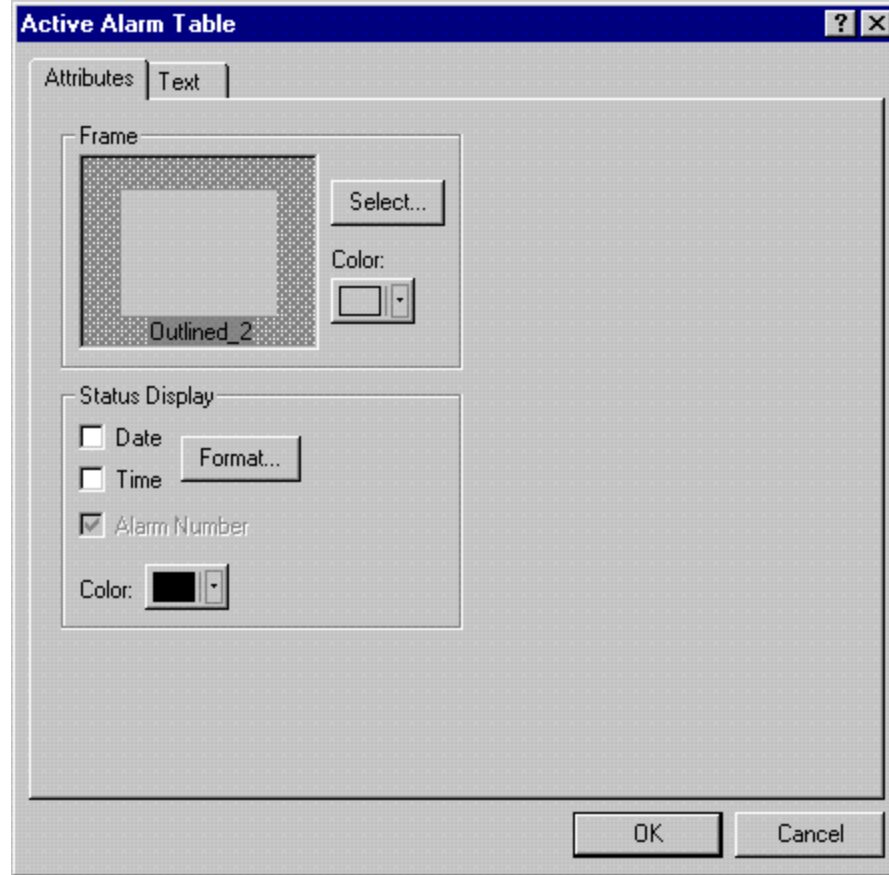
6.15.2 ACTIVE ALARM LIST

Function: To display only active alarms Workstation has seen since power up.

Creating from the menu: select *Object, Alarm Display, Active Alarm List*

ACTIVE ALARM LIST properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Display Date: Select to display the date when an alarm was recorded. The Logging Buffer must be configured to have a date stamp.

Display Time: Select to display the time when a record was recorded.

Format: Choose the time and date format to use from the following:

HH:MM:SS	MM/DD/YY
HH:MM	DD/MM/YY
	DD.MM.YY

Alarm Number: Not Available.

Color: Specifies the character color.

Style: Specifies the control buttons frame style.

Color: Specifies the control buttons frame color.

Bkg Color: Specifies the background color of the control button labels.

Scroll: Select this option to display four push buttons:

Up button: Moves the view of the Alarm Block toward the earliest alarm by one alarm.

Fast up button: Displays the previous page of the Alarm Block.

Down button: Moves the view of the Alarm Block toward latest alarm by one alarm.

Fast down button: Displays next page of the Alarm Block.

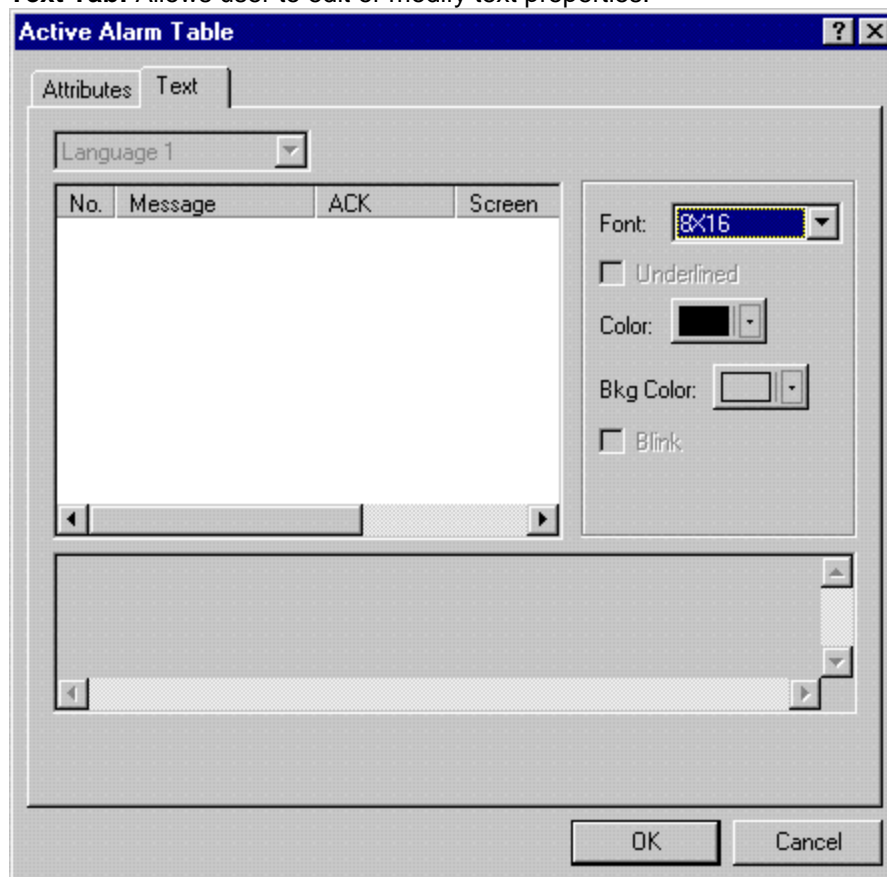
Rewind: Select this option to display a Begin and an End button.

Begin button: Displays the earliest alarms in the Alarm Block when pressed.

End button: Displays the latest events in the Alarm Block when pressed.

Space to the Table: : Specifies the distance between control buttons and table.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

The box at the bottom of the screen is where the user enters text.

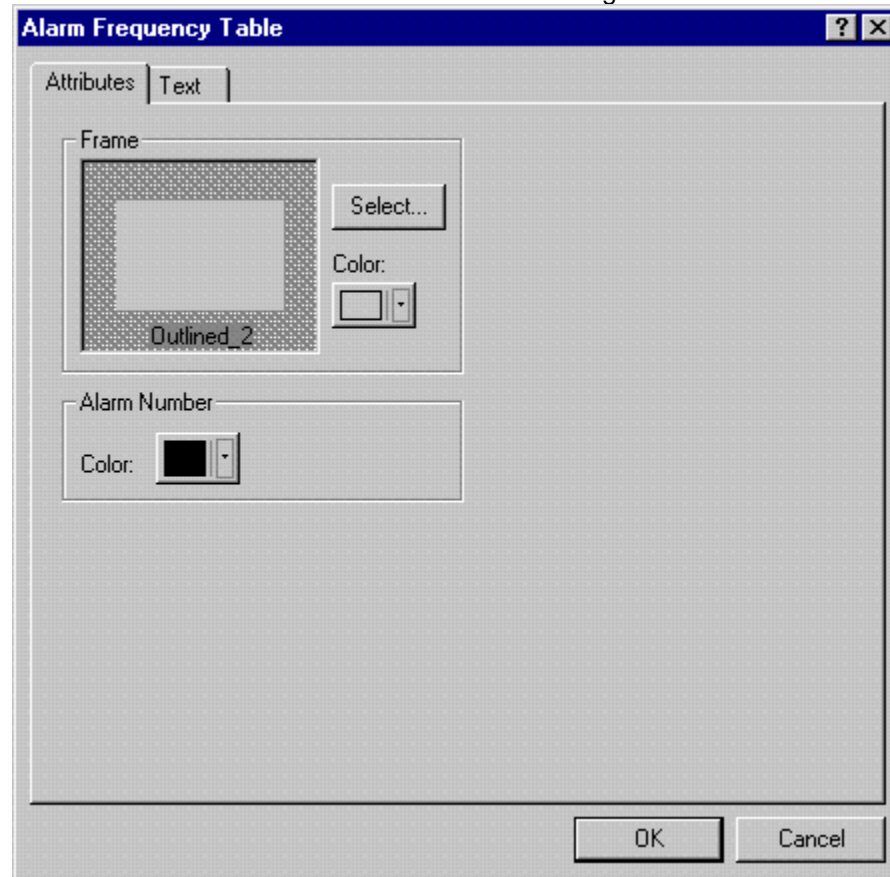
6.15.3 ALARM FREQUENCY TABLE

Function: To display the occurrence of each alarm.

Creating from the menu: select *Object, Alarm Display, Alarm Frequency Table*

ALARM FREQUENCY TABLE properties

Attributes Tab: The Attributes tab is used to configure the function of the button.



Select: Choose the frame type for the character display.

Color: Choose the color of the frame.

Alarm Number Color: Specifies the character color.

Style: Specifies the control buttons frame style.

Color: Specifies the control buttons frame color.

Bkg Color: Specifies the background color of the control button labels.

Scroll: Select this option to display four push buttons:

Up button: Moves the view of the Alarm Block toward the earliest alarm by one alarm.

Fast up button: Displays the previous page of the Alarm Block.

Down button: Moves the view of the Alarm Block toward latest alarm by one alarm.

Fast down button: Displays next page of the Alarm Block.

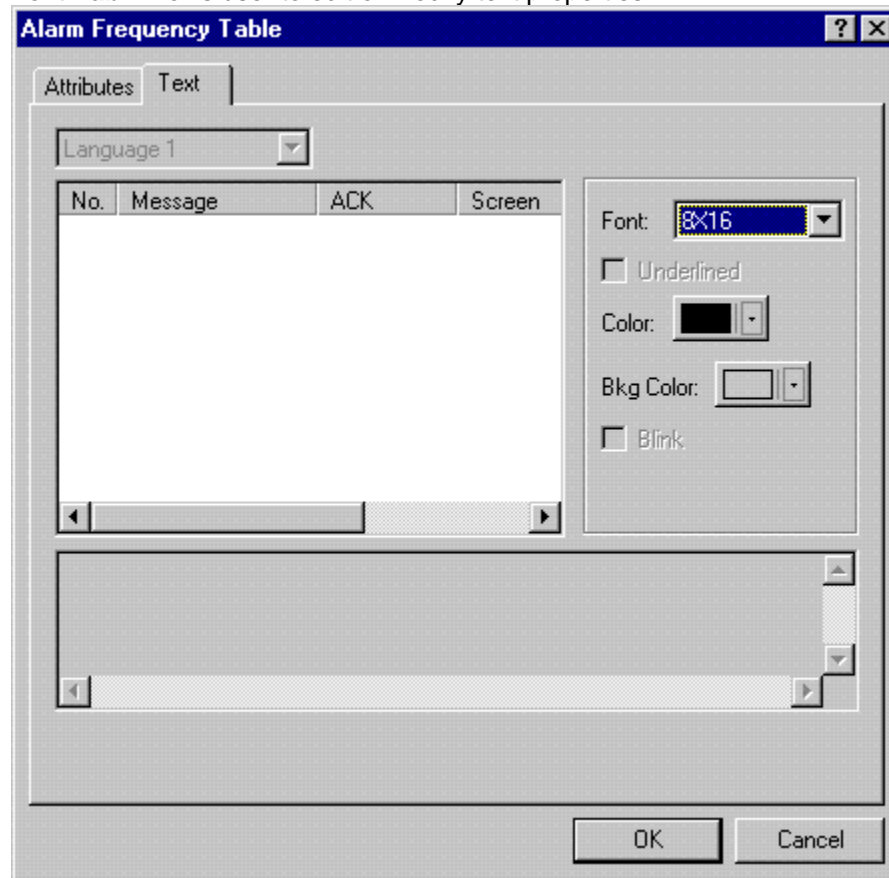
Rewind: Select this option to display a Begin and an End button.

Begin button: Displays the earliest alarms in the Alarm Block when pressed.

End button: Displays the latest events in the Alarm Block when pressed.

Space to the Table: : Specifies the distance between control buttons and table.

Text Tab: Allows user to edit or modify text properties.



Language: Specifies which language to be used for display. This option is available when Multi-lingual Support option selected from Workstation Setup.

Font: Change the size of the font. The font size can change from state to state.

Underlined: Checking this box will cause the text being modified to be underlined.

Color: Allows user to select the color of the text.

Bkg. Color: Allows user to select the background color.

Blink: Checking this box will cause the button to blink.

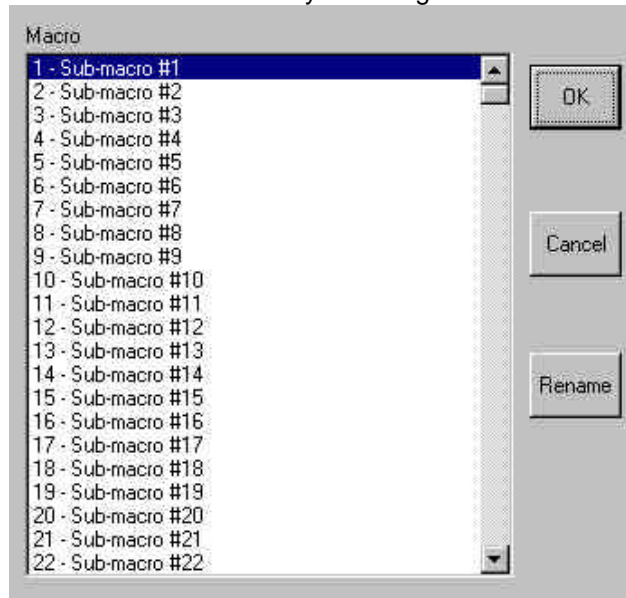
The box at the bottom of the screen is where the user enters text.

6.16 SUB-MACRO

Function: A Sub-Macro is a macro that other macros can execute by using the CALL command. The last command of a Sub-Macro must be the RET command. The RET command may also be used to stop execution of the Sub-Macro at any point desired. The Workstation will process the macro command following the CALL command when the invoked Sub-Macro stops.

Creating from the menu: select *Object, Sub-macro*

At this point user can select desired sub-macro to create. After making selection user can rename sub-macro by selecting rename. When finished press OK to continue.



The following screen appears after pressing OK:

The image shows a software window titled "SM #1 (Sub-macro #1)". Inside the window is a vertical list of 20 rows, each numbered from 1 to 20. Each row has a dashed line to its right, indicating a space for text input. The window has a standard Windows-style title bar with minimize, maximize, and close buttons. At the bottom of the list, there are navigation arrows (left and right) and a scroll bar on the right side.

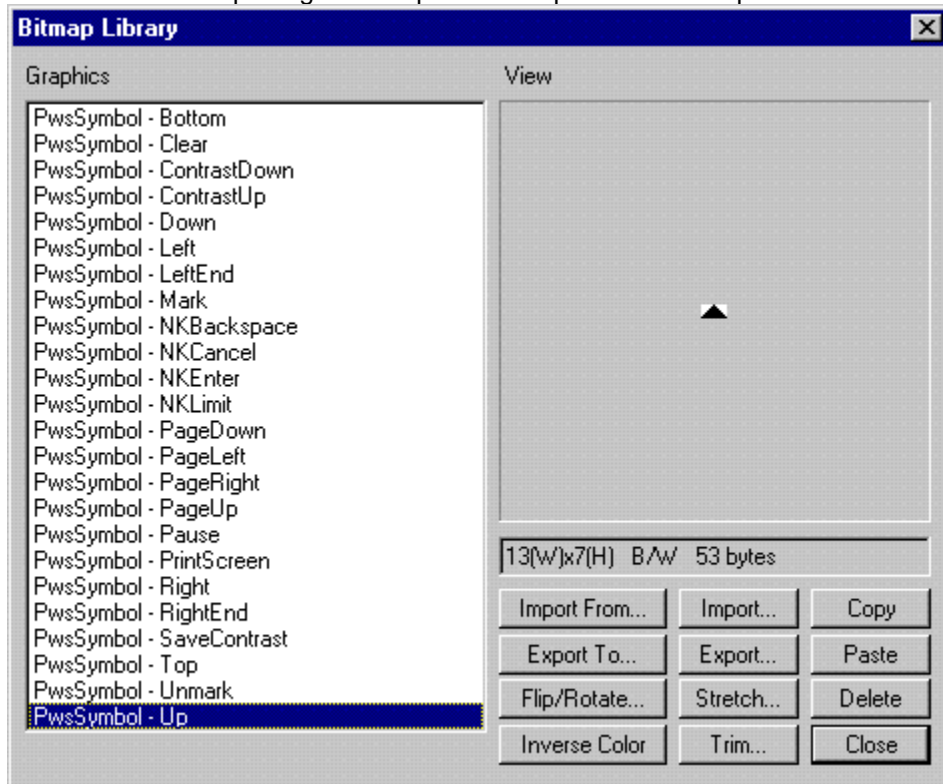
User now creates macro as desired.

7. LIBRARY MENU

In this section one can manage the various libraries available to the user. These include the following: Bitmap Library, Save as Shape, Shape Library Manager and Text Pool.

7.1 BITMAP LIBRARY

Bitmaps are graphics that are saved in Windows BMP format. ADP3 provides a basic bitmap library with some common graphics. When you specify a bitmap for a screen object that bitmap must be in the Bitmap Library. You can't create a bitmap with ADP3 but it does allow importing of bitmaps as a .bmp or from the clipboard.



Import From: Allows user to import bitmap(s) from a selected library.

Export To: Allows user to export bitmap(s) to a selected library.

Flip / Rotate: Allows user to change a bitmap's orientation. Available choices are: Flip horizontally, Flip vertically, Rotate 90 degree, Rotate 180 degree, Rotate 270 degree.

Inverse Color: Invert a bitmap's colors.

Import: Allows user to import a bitmap as a BMP file.

Export: Allows user to export a bitmap to a file.

Stretch: Allows user to change a bitmap's size.

Keep Aspect Ratio: Select this option to keep bitmap proportional when changing either the width or height.

Trim: Allows user to decrease unused area around a bitmap.

Copy: Select to export selected bitmap to the clipboard.

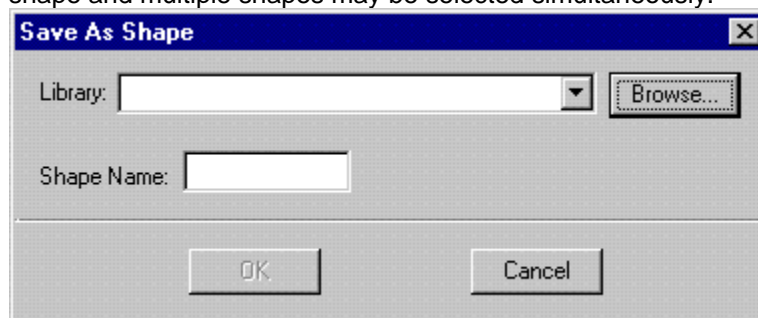
Paste: Select to import a bitmap from the clipboard.

Delete: Select to delete selected bitmap.

Close: Select to close the Bitmap Library.

7.2 SAVE AS SHAPE

Lets the user save shape(s) to a file. A shape must be selected before user can save the shape and multiple shapes may be selected simultaneously.

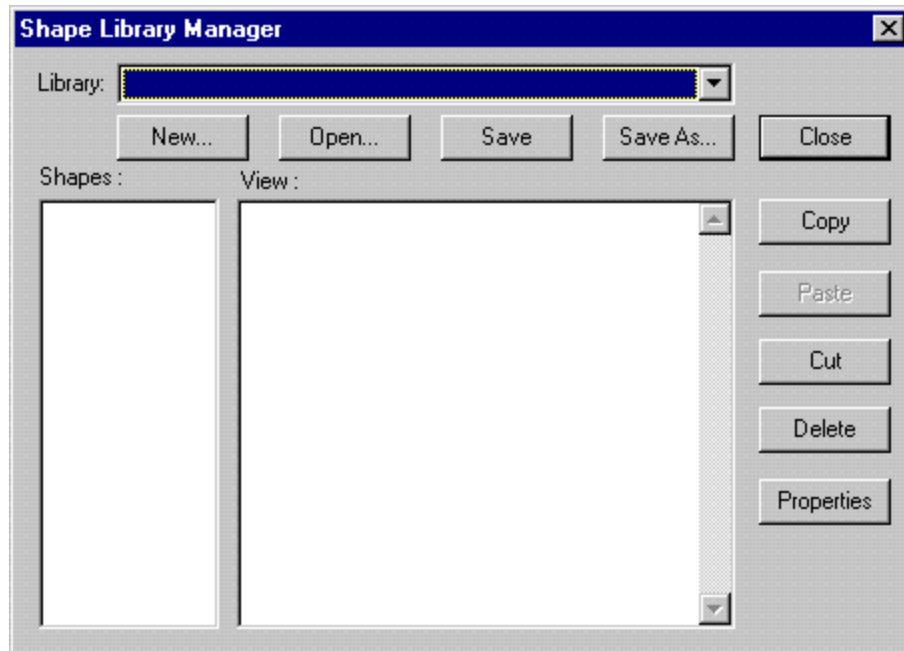


Library: Location to save shape(s) to.

Shape Name: Name the user wants shape associated with.

7.3 SHAPE LIBRARY MANAGER

The Shape Library Manager allows the user to create and manage shapes throughout the screen creation process. (Available on select models only)



Library: Displays name of the Shape Library currently working with.

New: Create a New shape library.

Open: Open an existing shape library.

Save: Saves the active shape library to a file.

Save As: Allows user to choose which file to save to.

Close: Select to close Shape Library Manager.

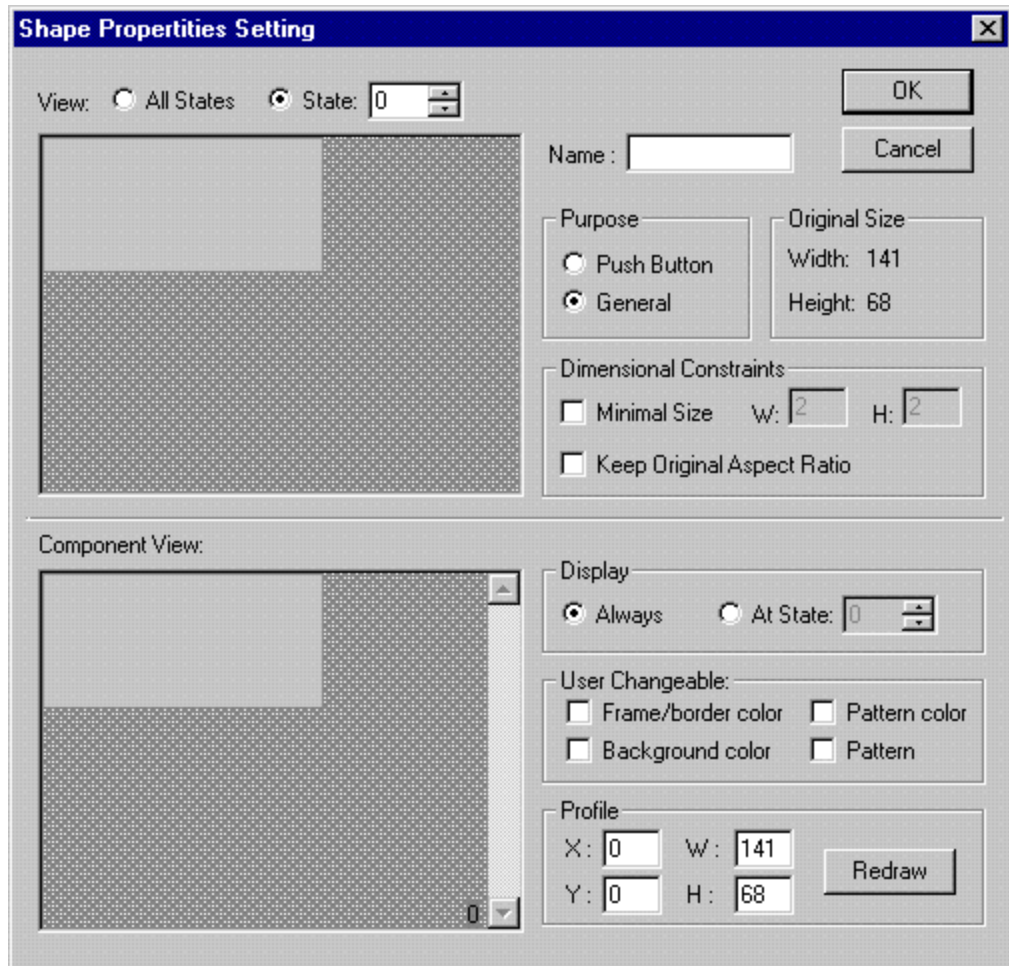
Copy: Copy selected shape to clipboard.

Paste: Import the shape from the clipboard.

Cut: Moves selected shape to clipboard.

Delete: Deletes selected shape.

Properties: Displays properties of the selected shape.



All States: Select to view all states of selected shape.

State: Select to view individual states of selected shape.

Name: Specifies the name of selected shape.

Push Button: Select this option for ability to assign selected shape to a push-button.

General: By selecting this option, specified shape can't be assigned to a push-button. It can be used for a more general purpose.

Original Width: Specifies shapes original size.

Height: Specifies shapes original height.

Minimal Size: If selected, the shape is assigned with the following:

W: Minimum allowed for shape width.

H: Minimum allowed for shape height.

Keep Original Aspects Ratio: If selected shape will be resized proportionately.

Always: Specifies if component should always be displayed.

At State: Specifies if component should be displayed only at a certain state.

Frame/border color: Select this option to allow user to change frame/border color.

Background color: Select this option to allow user to change background color.

Pattern color: Select this option to allow user to change pattern color.

Pattern: Select this option to allow user to change pattern.

X: Specifies X-coordinate anchor point for selected component.

Y: Specifies Y-coordinate anchor point for selected component.

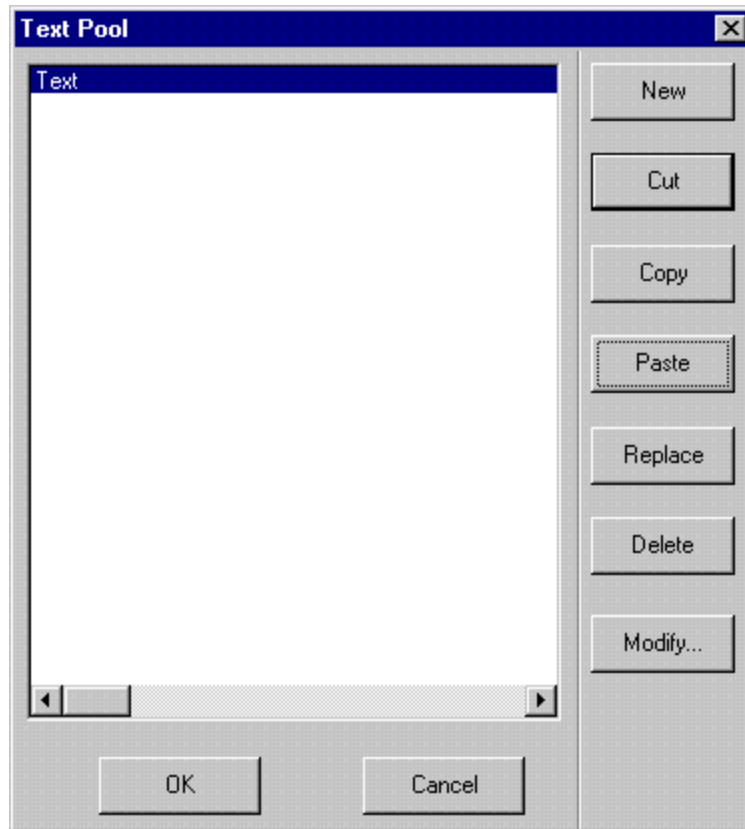
W: Specifies width of selected component.

H: Specifies height of selected component.

Redraw: If alterations made to X, Y, W or H it will redraw component using new values.

7.4 TEXT POOL

Create and manage text entries to be used in screen development.



New: Create new text entry.

Cut: Cut selected text entry.

Copy: Copy selected text entry.

Paste: Paste cut/copy text entry to selected location.

Replace: Replace selected text entry with cut/copy text entry.

Delete: Delete selected text entry.

Modify: Modify selected text entry.

8. APPLICATION MENU

The Application menu is a general management area for the Workstation and the ADP3 software. This menu enables basic setting information to be configured for the workstation such as PLC type, workstation type, logging buffers and alarm setup. Also included in this menu is the compile and download function.

8.1 WORKSTATION SETUP

WORKSTATION SETUP properties

General Tab: The General tab is used to set up general functions used by the workstation.

The screenshot shows the 'Application Properties' dialog box with the 'General' tab selected. The dialog has a title bar with a question mark and a close button. Below the title bar are five tabs: 'General', 'Communications', 'Miscellaneous', 'Logging Buffers', and 'Password'. The 'General' tab contains several input fields and checkboxes. On the left side, there is a group box containing 'Application Name:' (a text field), 'Panel/Workstation Type:' (a dropdown menu showing 'PWS1760'), 'Controller/PLC Type:' (a dropdown menu showing 'Computer (as master)'), and 'Printer Type:' (a dropdown menu showing 'None'). Below this group box is a checkbox for 'Multi-lingual Support', a 'Number of languages:' spinner, a 'Select Language...' button, and a 'Startup Language:' dropdown menu showing 'Language 1'. On the right side, there is a 'Control Block' section with 'Address:' (a text field showing 'W0') and 'Size:' (a spinner showing '2'). Below that is a 'Status Block' section with 'Address:' (a text field showing 'W10'). Underneath is a 'Default' section with 'Data Format:' (a dropdown menu showing 'Unsigned Binary') and 'Start-up Screen:' (a dropdown menu). At the bottom right, there are 'Extended Control Block:' and 'Extended Status Block:' sections, each with a text field. At the very bottom of the dialog are 'OK' and 'Cancel' buttons.

Application Name: Enter the name of the application.

Panel/Workstation Type: Specifies the model of Workstation being used.

Controller/PLC Type: Specifies the type of PLC the Workstation will communicate with.

Printer Type: Specifies the type of Printer the Workstation will print to.

Multi-lingual Support: With this option enabled you can maintain only one application file for a machine that can support up to 5 languages.

Number of languages: Select how many languages to support, up to five.

Select Language: Select languages to support, which include - Chinese Simplified, Chinese Traditional, English, Japanese, Korean and Western European.

Control Block Address: Specifies the starting address of the Control Block. The control block enables the PLC to control actions on the Workstation through the PLC program.

Control Block Size: Specifies the size of the Control Block, with each unit being a word. The minimum size is two words with the maximum size being 32 words. The size of the control block varies depending on the functionality required. When using the Recipe function the minimum size is 6.

Status Block Address: Specifies the starting address of the Status Block. The Status Block provides communication between the Workstation and PLC. It is a continuous block of data with a total length of 6 words.

Data Format: Specifies the data format of the numbers in Screen Number Register, Screen Status Register and Recipe Number Register. Also specifies the default for data format attributes in screen objects.

Start-up Screen: Specifies which screen will display after power up in no screen specified by the PLC.

Extended Control Block: N/A

Extended Status Block: N/A

Communications Tab: Specifies parameters for communication between the Workstation and PLC.

Application Properties [?] [X]

General Communications Miscellaneous Logging Buffers Password

Default Station Address/Number

Controller/PLC:

Panel/Workstation:

Baud Rate

☐ 115200 ☐ 57600 ☐ 38400

☐ 19200 ☒ 9600 ☐ 4800

Data Bits

☐ 7 bits ☒ 8 bits

Parity

☐ Even ☐ Odd ☒ None

Stop Bits

☐ 1 bit ☐ 2 bits

Workstation's COM Port

☐ COM1 ☒ COM2

PLC Specific Settings

Password:

Connection

☒ Normal ☐ Multidrop Master ☐ Multidrop Slave

Common Register Block CRB Size

Common On/Off Block COB Size

OK Cancel

Controller/PLC: Specifies the station number, unit number, or address of the PLC. Some PLC's don't need an address.

Panel/Workstation: Specifies the station number, unit number, or address of the Workstation. Some PLC's require the Workstation to have an address while others don't.

Baud Rate: Specifies communication rate between Workstation and PLC.

Data Bits: Specifies number of data bits, either 7 or 8 bits.

Parity: Specifies parity bit as Even, Odd, or None.

Stop Bits: Specifies number of stop bits, either 1 bit or 2 bits.

Workstations COM Port: Specifies which com port the Workstation and PLC will use to communicate, either COM1 or COM2.

Password: Specifies password the Workstation uses to communicate with PLC, up to 8 characters.

Connection: Specifies the connection method of the Workstation.

Normal: Select this option if the application is created for a normal application.

Multidrop Master: Select this option if the application is created for master Workstation in a multidrop application.

Multidrop Slave: Select this option if the application is created for a slave Workstation in a multidrop application.

Common Register Block: Specifies the starting location of the Common Register Block. This location must be a register location.

CRB Size: Specifies Common Register Block size. The unit of size is 16-bit word and the maximal size is 128 words.

Common On/Off Block: Specifies the starting location of the On/Off Block. This location must be an on/off location.

COB Size: Specifies Common On/Off Block size. The unit of size is 16-bit and the maximal size is 16 (x 16 bits).

Miscellaneous Tab: There are two settings which are relevant to interaction with the PLC. The time and date from the real time clock in the Workstation may be written to the PLC. There is also a 32K - 16 bit recipe data area in the Workstation.

The screenshot shows the 'Application Properties' dialog box with the 'Miscellaneous' tab selected. The dialog has a title bar with a question mark and close button. Below the title bar are five tabs: 'General', 'Communications', 'Miscellaneous', 'Logging Buffers', and 'Password'. The 'Miscellaneous' tab is active, showing several settings:

- ☐ Read/write recipes from/to PLC
Address: [text box] ...
Recipe size: [0]
Number of recipes: [0]
[Edit Field Definition...]
- ☐ Write time and date to PLC
Address: [text box] ...
- ☐ Synchronize time and date with PLC
Address: [text box] ...
- Touch Screen/External Keys**
 - Buzzer Acting Time (Sec.): [0.10] (dropdown)
 - Auto Repeat Delay (Sec.): [0.4] (dropdown)
 - Auto Repeat Rate (Hz): [1] (dropdown)
 - Start Up Delay (Sec.) [0] (spin box)
 - ☐ Display Countdown

At the bottom right are 'OK' and 'Cancel' buttons.

Read/write recipes from/to PLC: Select to enable the recipe function.

Address: Specifies starting address of Recipe Block, which must be a register address. Recipe Block is a block registers in the PLC. The PLC can request the Workstation to write data from a specified recipe location to the Recipe Block of the PLC or read the data in the Recipe Block to update a specified recipe in the Workstation.

Recipe Size: Specifies how many words of data a recipe contains. This also specifies the size of the Recipe Block. The maximum you can specify is 1023.

Number of recipes: Specifies number of recipes your application can have. The RAM size available for recipes is 32638 words.

Edit Field Destination: Not Available

Write time and date to PLC: Select this option to enable the Workstation to write time and date to Time Block within your PLC.

Address: Specifies the starting address of the Time Block, which must be a register address.

Buzzer Action Time (Sec): Specifies length of buzzer when touch key is pressed.

Auto Repeat Delay (Sec): Specifies how long the Workstation waits after a touch key is held down before it repeats that key.

Auto Repeat Rate (Hz): Specifies how fast a touch key repeats when it is pressed and held down.

Start Up Delay (Sec): Specifies length of time before PLC communication begins.

Display Countdown: Select this option for Workstation to display countdown.

Synchronize time and date with PLC: Workstation will read time and date from PLC to synchronize with. (On select models only)

Address: Specifies location to write time/date.

Logging Buffers Tab: The purpose of Logging Buffers is to collect data from fixed and contiguous locations in the PLC when triggered. A Logging Buffer can be triggered by a timer on the Workstation or by the PLC.

Application Properties [?] [X]

General | Communications | Miscellaneous | **Logging Buffers** | Password

Use	LB#	Source Address	Record Size	Total	Stamp Time	Date	Auto Stop	Triggered By	Time Interval	Non-volatile	Field Def.
<input type="checkbox"/>	1	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	2	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	3	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	4	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	5	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	6	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	7	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	8	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	9	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	10	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	11	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...
<input type="checkbox"/>	12	<input type="text"/> ...	<input type="text"/> 0	<input type="text"/> 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC		<input type="checkbox"/>	Edit...

OK Cancel

Use: Select which logging buffer to use, numbered 1 to 12.

Source Address: Specifies the starting address of a block of registers in the PLC from which the Logging Buffer reads data.

Size: Specifies the size of a record in the Logging Buffer, with each unit being a word. The maximum number of records is 32 words. A Logging Buffer reads one record of data from the PLC at a time.

Total: Specifies the maximum number of records a Logging Buffer can have, with the maximum 9999.

Stamp

Time: Select this option so that the Logging Buffer saves the time when it gets data for each record of data.

Date: Select this option so that the Logging Buffer saves the date when it gets data for each record of data.

Auto Stop: Select this option to cause the Logging Buffer to stop collection data when its buffer is full. By not selecting this option the oldest record will be discarded in order to save the newest record.

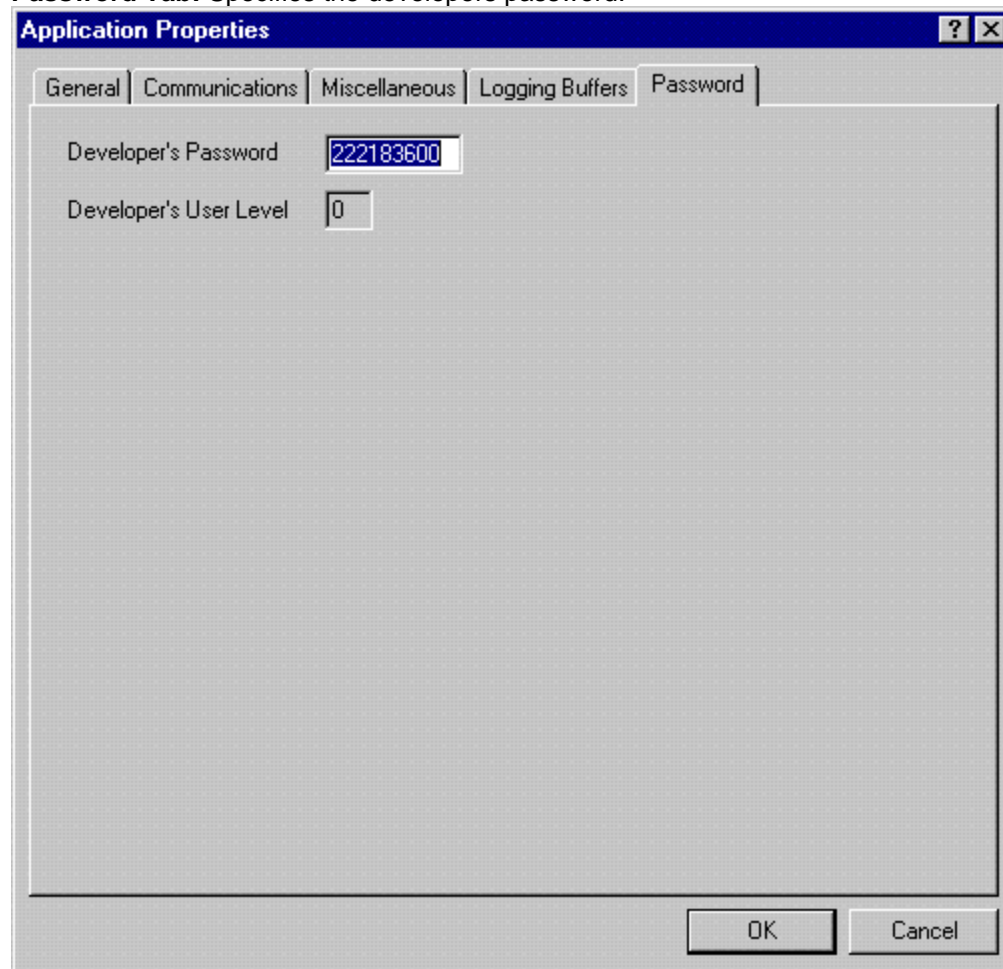
Triggered by: Select Timer if user wants Logging Buffer to collect data on a time base. Select PLC if PLC triggers Logging Buffer to start collection data.

Time Interval: This option is only available when Triggered by is set as Timer. Specifies how often the Logging Buffer gets one record of data from the PLC. Each unit of time is 1 second with a maximum of 3600 seconds.

Non-volatile: Select this option to keep the data in the Logging Buffer in non-volatile memory when power is off. The Workstation clears the Logging Buffers that are volatile memory when power is off. NOTE: Only certain PWS models support this option as other models do not have a battery.

Field Def. N/A

Password Tab: Specifies the developers password.



The screenshot shows a Windows-style dialog box titled "Application Properties". It has five tabs: "General", "Communications", "Miscellaneous", "Logging Buffers", and "Password". The "Password" tab is currently selected. Inside the dialog, there are two fields: "Developer's Password" with the value "222183600" and "Developer's User Level" with the value "0". At the bottom right, there are "OK" and "Cancel" buttons. The dialog box has a standard Windows title bar with a question mark icon and a close button (X).

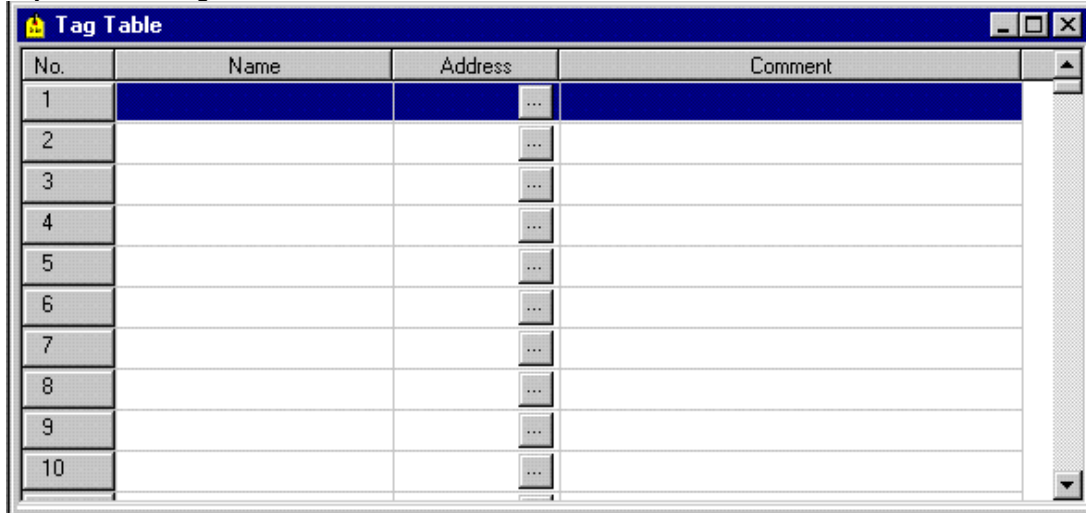
Developer's Password: Specifies the master password that can be used to unlock any password feature should the user forget password.

Developer's User Level: The default is 0 and cannot be changed.

8.2 TAG TABLE

TAG TABLE properties

The Tag Table is a way for the user to assign a name to an address location to be used in their program. The user then selects the Tag name when assigning an address to an object as the Tag name makes more sense than that of a number.



No.	Name	Address	Comment
1		...	
2		...	
3		...	
4		...	
5		...	
6		...	
7		...	
8		...	
9		...	
10		...	

No: Specifies the Tag number, up to 1024.

Name: Specifies name user assigns to that address location.

Address: Specifies location for Tag to reference.

Comment: User can add comments to describe tag.

8.3 ALARM SETUP

ALARM SETUP properties

No.	Message	Language 1	ACK	Screen
0			No	[None]
1			No	[None]
2			No	[None]
3			No	[None]
4			No	[None]
5			No	[None]
6			No	[None]
7			No	[None]
8			No	[None]
9			No	[None]

Address of Alarm Block: Specifies the starting address of a block of PLC registers for the Workstation to monitor as the status of alarms, known as the Alarm Block.

Number of Alarms: Each bit in the Alarm Block represents an alarm. The maximum number of alarms is 512. If the Number of Alarms is n , the size of the Alarm Block is $(n+15)/16$ word(s).

The state of a bit in the Alarm Block indicates the status of its corresponding alarm. A bit with high(on) state indicates the corresponding alarm is active. A bit with low(off) state indicates the corresponding alarm is clear. When an alarm becomes active the PLC should set that alarm's corresponding bit in the Alarm Block as high. When an alarm is reset, the PLC should set that alarm's corresponding bit in the Alarm Block as low. It's the PLC's responsibility to know when an alarm becomes active and then becomes physically clear. The Alarm Block is a way for the PLC to send the status of alarms to the Workstation.

Scan Time(second): Scan time is a sampling cycle which is monitored by the Workstation. The Workstation reads the Alarm Block and checks the state of every bit in the block periodically. The Scan Time specifies the period. The shorter the scan time the faster the refresh rate of alarm related objects and alarm messages will be displayed. However, this results in slower refresh rates of other objects.

Number of Records in Alarm History Buffer: Specifies the size of Alarm History Buffer. Whatever number is entered is how many records will be stored. The Workstation saves the time and date when an alarm becomes active and again when the alarm clears. When the buffer is full, the oldest record is replaced by the second oldest and so on.

Language: Select the language.

No.: Specifies the number of the alarm.

Message: Allows user to enter a message when that specific alarm is triggered. It can be a maximum of 64 characters. The message is displayed by alarm related objects such as Alarm History Table, Active Alarm List, and Alarm Frequency Tables.

ACK: Specifies whether the user must acknowledge an alarm occurrence.

Screen: Specifies which screen to go to when alarm triggered.

Cut: Moves selected No. to clipboard.

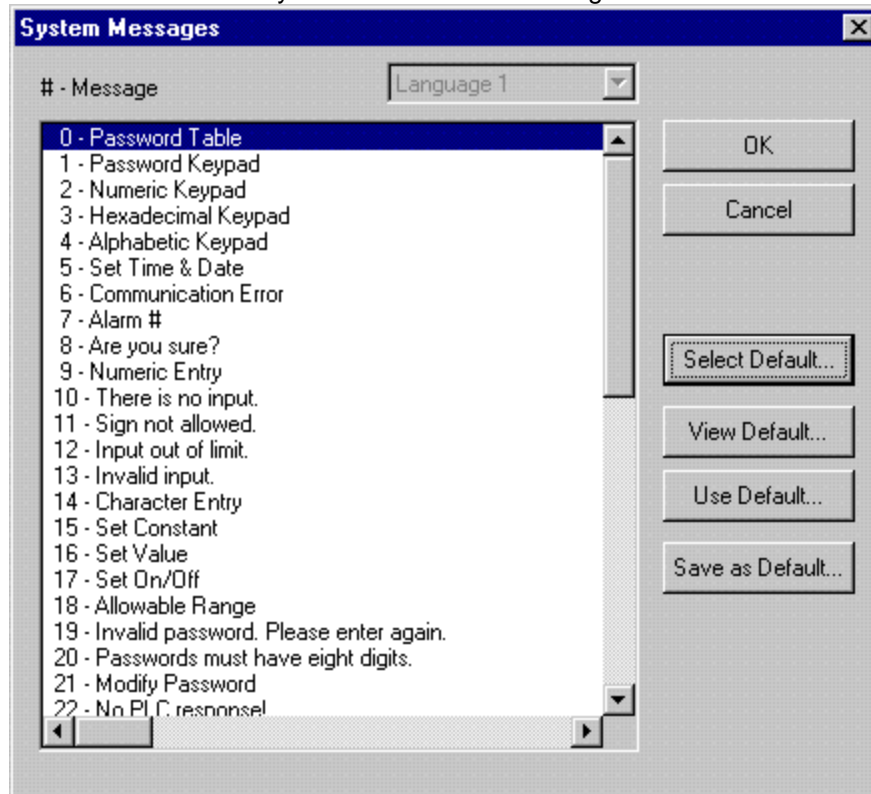
Copy: Copies selected No. to clipboard.

Paste: Paste current contents of clipboard to desired location.

8.4 SYSTEM MESSAGES

SYSTEM MESSAGES Properties

Provides user the ability to create and edit messages to be used in screen development.



8.5 COMMON KEYS - Not Available

8.6 REPORT FORMAT - Not Available

8.7 INITIAL MACRO

The Initial Macro's purpose is to initialize data and communications settings. It is executed only once and an application can have one Initial Macro. The startup screen will not display until the macro is executed.

8.8 BACKGROUND MACRO

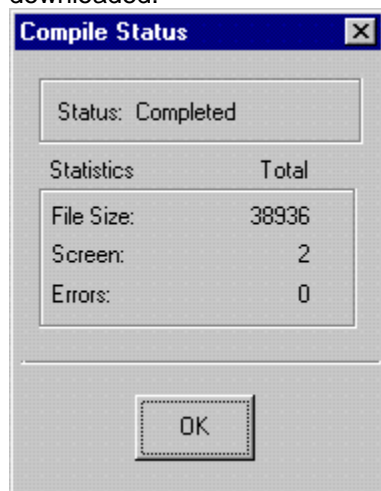
The Workstation executes the Background Macro cyclically and can process at most N commands every T ms where $N = 30$, $T = 100$. The Workstation stops executing the macro when it reaches the end of the macro or when it encounters an END command and will restart from the first command in the next T ms. An application can have one Background Macro.

8.9 CLOCK MACRO

A Clock Macro is executed every T ms after the application has started, $T = 100$. Unlike the Background Macro, the Workstation won't do anything else until the Clock Macro has finished executing. With that in mind its best to keep the Clock Macro as short as possible so that it doesn't degrade system performance. An application can have one Clock Macro.

8.10 COMPILE

When the Compile option selected, a compile dialog box appears. If there are any errors while compiling, the number will appear on the message display on the screen. Clicking OK will bring up a detailed error list. Each error must be corrected then the application must be re-compiled. NOTE: An application must be compiled before it can be downloaded.



8.11 DOWNLOAD APPLICATION

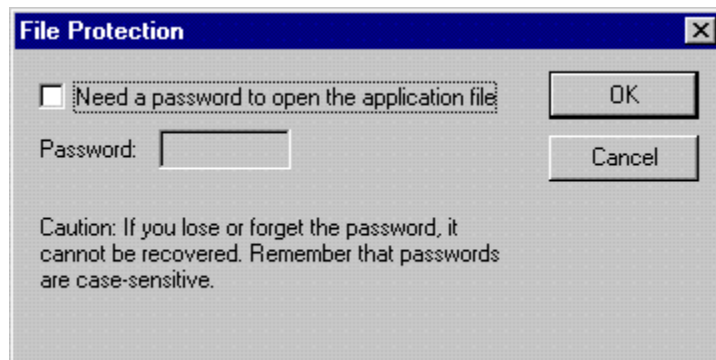
Select this button when ready to download application to the Workstation. Before downloading, the application must be compiled. Follow the steps listed for downloading.

- 1.) Connect the download cable between the Workstation and the PC. To specify which port to use for downloading on the Workstation, press Configure button on System menu to access the Configuration Table and select desired port as the Download/Upload/Copy port.
- 2.) Apply power to Workstation and then press Download Application button. The Workstation displays Waiting for downloading.... and is ready for download.
- 3.) Under the Application menu, select Download Application. The download begins and the progress can be seen on both the Workstation and the monitor.

8.12 DOWNLOAD FIRMWARE and APPLICATION

Select this button when ready to download firmware and application to the Workstation. Follow the same steps as listed above. (On some models this is the only option available for downloading)

8.13 FILE PROTECTION



Need a password to open the application file: Select this option to enable password protection. Every time the user wishes to access the application file a password must be entered. NOTE: The password cannot be recovered if the user loses or forgets the password.

Password: Enter a password from 1 to 11 characters. Remember that passwords are case sensitive.

9. TOOL MENU

The Tool menu allows the user to view and edit recipes and perform either on-line or off line simulation.

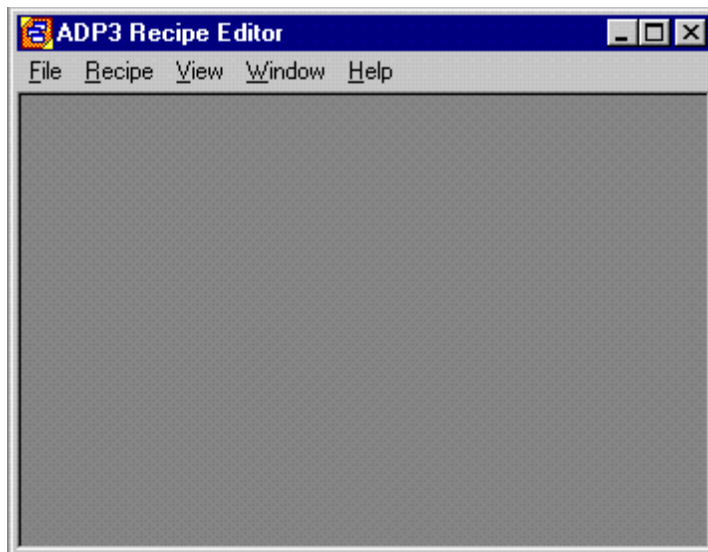
Off-line Simulation: Allows user to run applications they created on the PC without a PLC. This offers many benefits such as learning the capability of a PWS Workstation before buying, examine the design of the application without spending time to download it to the workstation, and demonstration to a client before completing the PLC program.

On-line Simulation: Allows user to run application on the PC with a PLC connected via RS-232 serial port. The PC can only communicate with the PLC for 30 minutes. To continue communications the user must close PS and restart. To avoid this restriction an installation version of PS and a PIC adapter, which supports RS-232/422/485 and can endure high frequency noise up to 4000 volts, must be obtained.

*****Both on- and off-line simulation is performed by PWS Simulator, abbreviated PS.
*****The actual file is PS.exe.

View/Edit Recipes:

Select to start the Recipe Editor. The user will be able to modify or print the saved recipes in the PC. Be sure to upload the recipes and save before modifying.



10. OPTIONS MENU

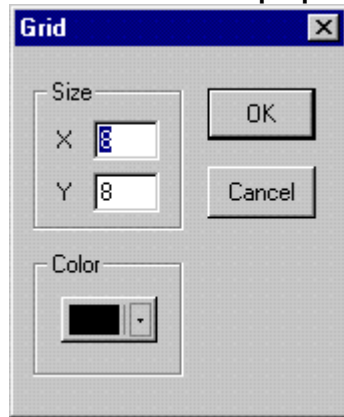
SNAP TO GRID

Select this option to enable the snap to grid. The size of the snap points can be configured from Grid Attributes.

DISPLAY GRID

Select this option to display the grid. The color of the grid can be configured from Grid Attributes.

GRID ATTRIBUTES properties

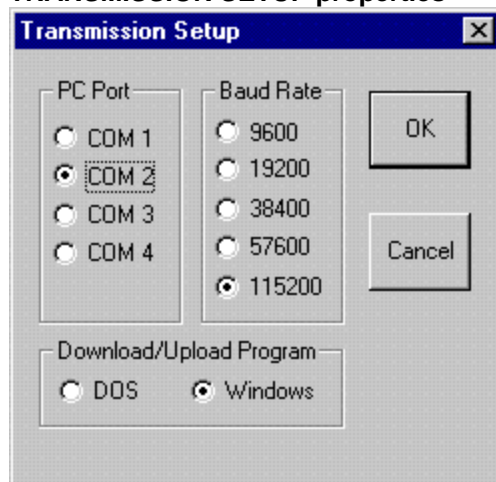


Size X: Specifies the snap spacing for the X coordinate.

Size Y: Specifies the snap spacing for the Y coordinate.

Color: Specifies the grid color.

TRANSMISSION SETUP properties



PC Port: Specifies which COM port the PC will use to download applications to the Workstation. The choices are: COM 1, COM 2, COM 3, COM 4.

Baud Rate: Specifies the speed with which the PC will download the application to the Workstation. The choices are: 9600, 19200, 38400, 57600, 115200.

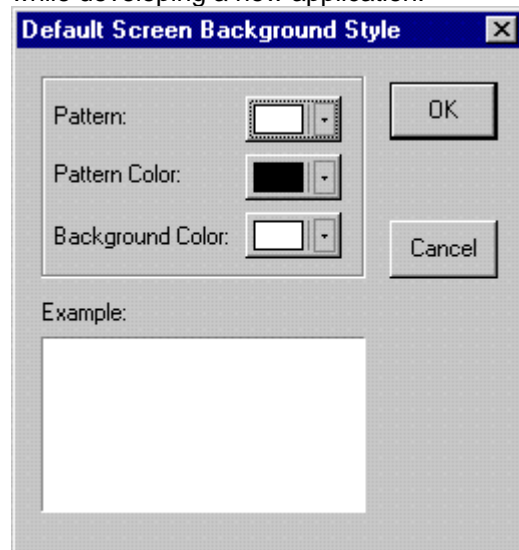
Download/Upload Program: Select format to display application download progress, either a dos based window or typical windows window.

LANGUAGE SELECTION

Select which language will be displayed while working with Adp3. The choices are: English, Simplified Chinese, Traditional Chinese.

DEFAULT SCREEN BACKGROUND STYLE properties

Allows user to specify the default pattern, pattern color and background color to be used while developing a new application.



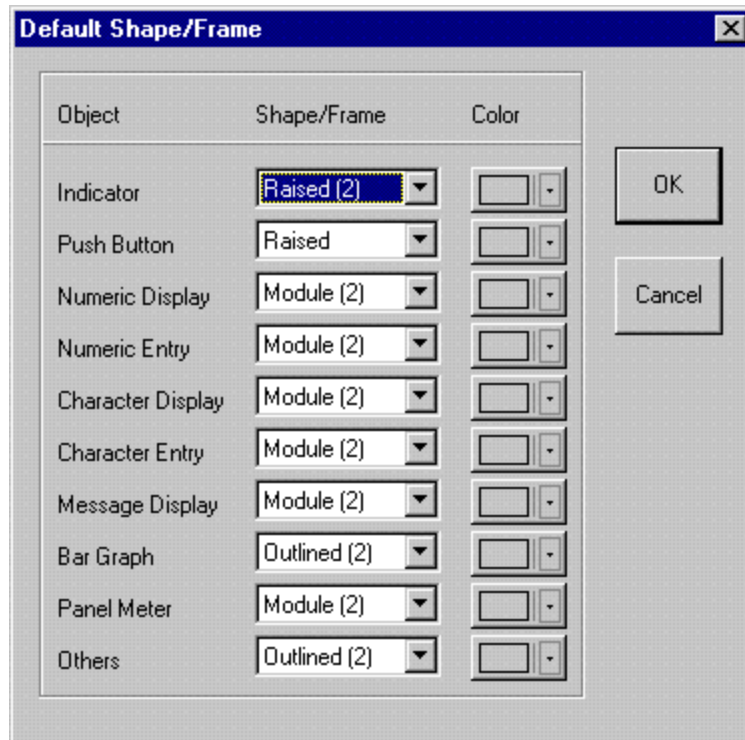
Pattern: Specifies background pattern.

Pattern Color: Specifies color to paint the black part of background pattern.

Background Color: Specifies color to paint the white part of background pattern.

DEFAULT FRAME STYLES properties

Allows user to specify a frame style with a desired color as a default for each type of screen object. New screen objects are created with their default frame style initially.



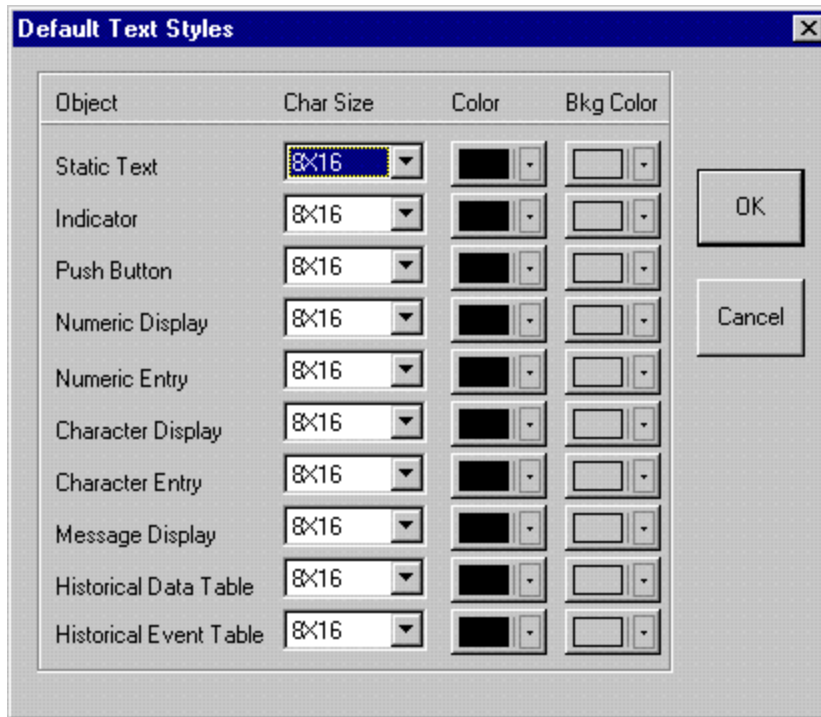
Object: Describes type of object to set defaults for.

Shape/Frame: Specifies the shape/frame type associated with selected object.

Color: Specifies the frame color.

DEFAULT TEXT STYLES properties

Allows user to specify character size, character color, and background color as a default for the text of each type of screen object.



Object: Specifies type of object to be used as default for selected object.

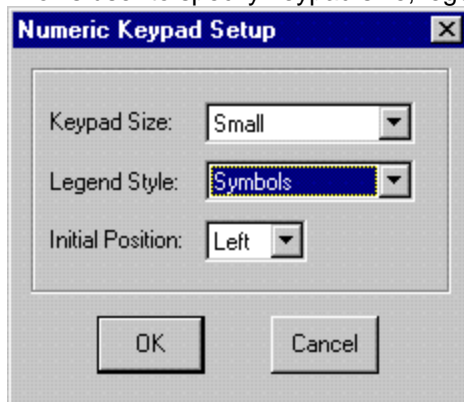
Char Size: Specifies character size to be used as the default for selected object.

Color: Specifies text color.

Bkg Color: Specifies the background color of the object.

NUMERIC KEYPAD SETUP properties

Allows user to specify keypad size, legend style, and initial position.



Keypad Size: Specifies the size of keypad, Small or Large.

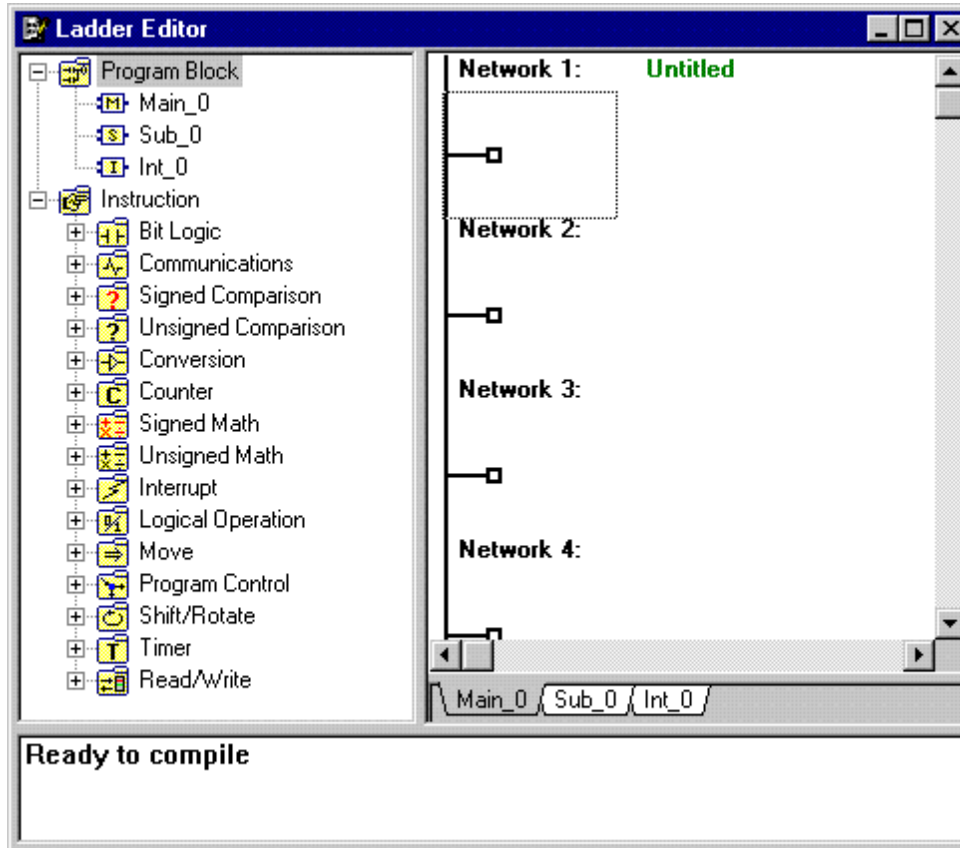
Legend Style: Specifies the legend style, Symbols or Chinese characters.

Initial Position: Specifies initial position, Left or Right.

11. LADDERPLUS MENU

Using Ladder Programming

Start by selecting LadderPlus -> Ladder from the menu or select the Ladder icon from the toolbar. The Ladder Editor window will then open.



Ladder Editor: Ladder Editor is used to develop the ladder logic program to be incorporated into the users application. The screen is split into two sections, with the left side containing the Ladder Instructions and the right side is the actual programming layout section.

Creating a Rung

Assigning the Network a Name: Determine which network to begin working with. The user can name the Network by either right clicking on desired Network then selecting Edit Title or simply double click the corresponding Network. A description of the Network may be entered at this point under Comments.

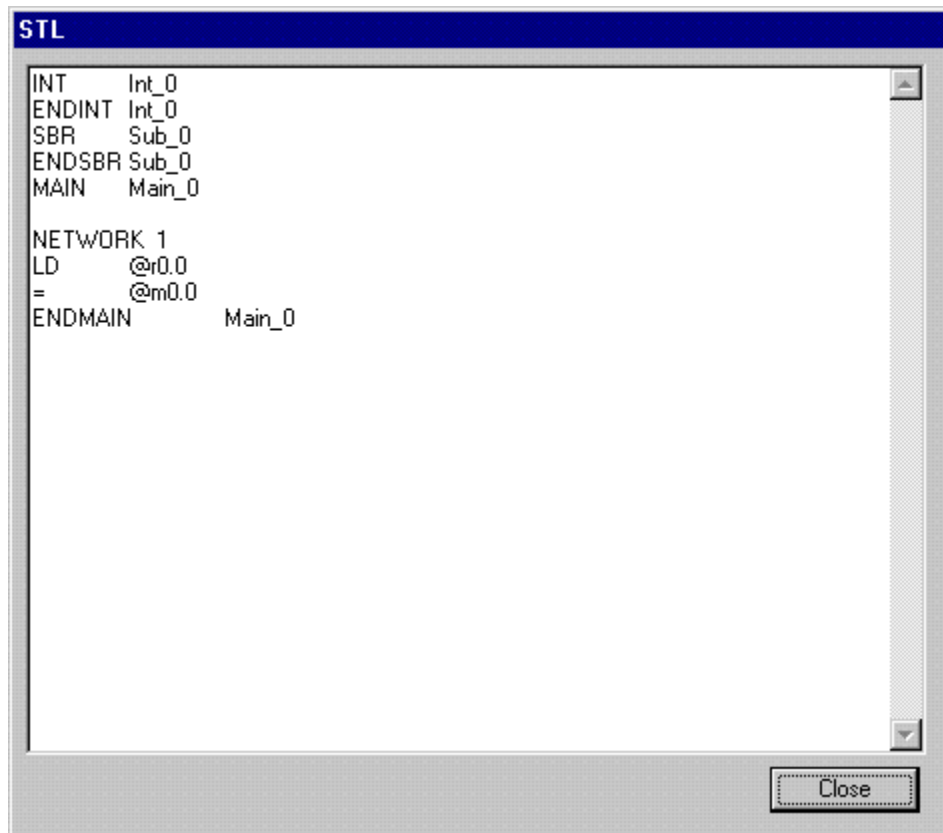
Placing Instructions:

- 1) Select location to place instruction on ladder layout section.

- 2) Double click the instruction to be placed. The instruction should now appear in layout section.
- 3) Assign a value to the instruction by selecting the red variable. The variable will stay red until a valid value is entered, at which point it will turn black.
- 4) Continue placing instructions in the same manner.
- 5) Use the Ladder Toolbar to connect the instructions with lines. The line choices are: Downward Line, Upward Line, Leftward Line and Rightward Line.
- 6) After placing all objects verify Ladder compiles correctly. This can be done by either: 1) select LadderPlus -> Statements List from the file menu or 2) select the Statements List icon. If the ladder program compiles correctly a summary window will appear. If not, a Warning window will appear stating Error-unable to complete STL translation. At this point verify that all variables are black and that all instructions are connected.

Statements List

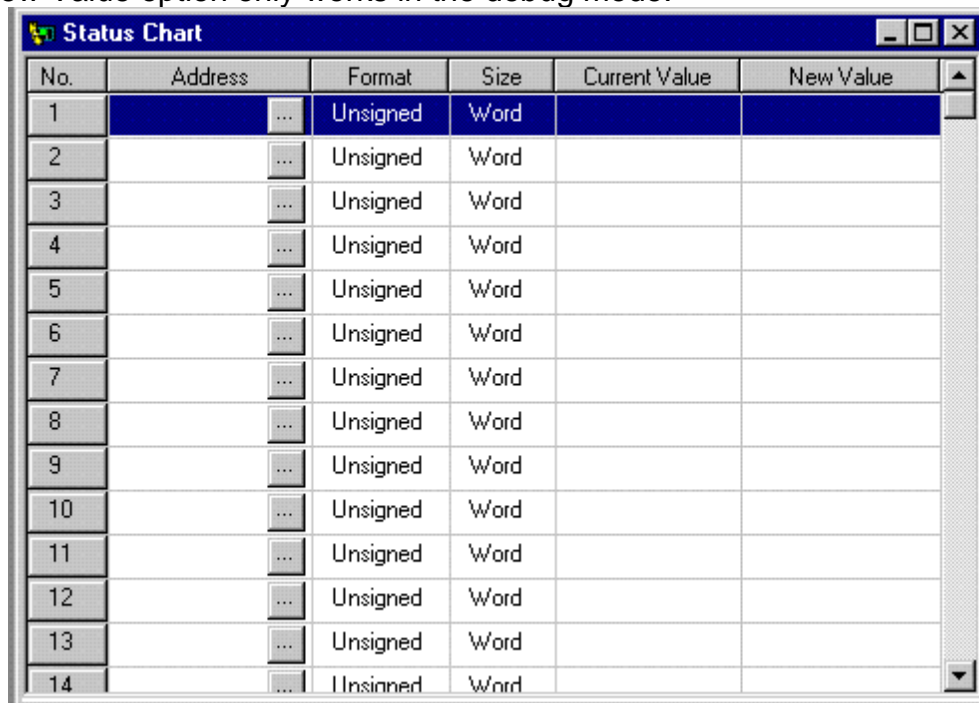
The Statements List is a summary of the Ladder program. It is also verification the Ladder program compiled correctly. To obtain the Statements List either select the icon from the Ladder toolbar or select Statements List from the LadderPlus menu.



Initial Values

Status Chart

The Status Chart is used to monitor the status of user specified locations by allowing user to specify address to be monitored. The format and size of the address are displayed as well as the Current Value and New Value. The New Value option only works in the debug mode.



No.	Address	Format	Size	Current Value	New Value
1	...	Unsigned	Word		
2	...	Unsigned	Word		
3	...	Unsigned	Word		
4	...	Unsigned	Word		
5	...	Unsigned	Word		
6	...	Unsigned	Word		
7	...	Unsigned	Word		
8	...	Unsigned	Word		
9	...	Unsigned	Word		
10	...	Unsigned	Word		
11	...	Unsigned	Word		
12	...	Unsigned	Word		
13	...	Unsigned	Word		
14	...	Unsigned	Word		

Address: Allows user to enter the address to be monitored.

Format: Specifies the format of address being monitored.

Size: Specifies the data as either a bit or a word.

Current Value: Specifies the current value of the address.

New Value: Allows user to enter a new value to write to address location.

(NOTE: Assigning a New Value is only available in the DEBUG mode)

12. WINDOW MENU

The Window menu allows user to choose how to display multiple windows. It also lists currently open windows.

Cascade: Specifies screens to be displayed in a cascading fashion.

Tile: Specifies screens to be displayed in a tiled fashion.

Close All: Closes all screens.

13. HELP MENU

Macro: Provides information regarding the macro function.

LadderPlus: Provides information regarding the ladder function.

About: Provides information about the ADP program.